

Modifying your DM500

The Cause:

The DM500 is equipped with a 10/100MBit ethernet interface. This interface consists of 1 chip on the mainboard and a couple of surrounding components. (on the bottom left hand of the board). This chip handles the network connection, and (low level) traffic management. Mostly this is an ASIX AX88796. This chip needs the surrounding components to function correctly. Recently a discovery was made that 3 surrounding capacitors did not quite meet the specifications given by the manufacturer of the network chip. First of all there is a capacitor of 33uF/16V just above the chip (on the right side). This capacitor serves as a current buffer for the ASIX and makes sure that sudden short high current demands can be handled properly, without the voltage dropping too low for this chip to operate. You have to understand that network cabling can be very long, so it takes a lot of energy to send a signal over these wires. If this energy cannot be delivered in a very short time, network problems can arise. The discoverer of this mod found a value of 220uF/16v (Low Impedance/ESR!) better then the standard 33uF. With a bigger buffer, the chance of power problems are minimized. I totally agree with him.

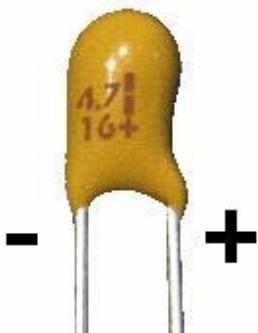
Then there are 2 VERY SMALL SMD capacitors just above the network chip. The function of these capacitors is not totally clear to me, but also have to do with delivering sufficient energy to the network. Luckily these SMD capacitors can stay in place, and only need a 'backpack' of 2 parallel capacitors.

The Solution:

- Replace capacitor C65 (33uF/16V) (the 'big' one) by a 220uF/16V Low Impedance/ESR type.
- Solder a 4,7 uF/16V TENTAL! capacitor **in parallel** with C17. Watch the polarisation!
- Solder a 4,7 uF/16V TENTAL! capacitor **in parallel** with C23. Watch the polarisation!

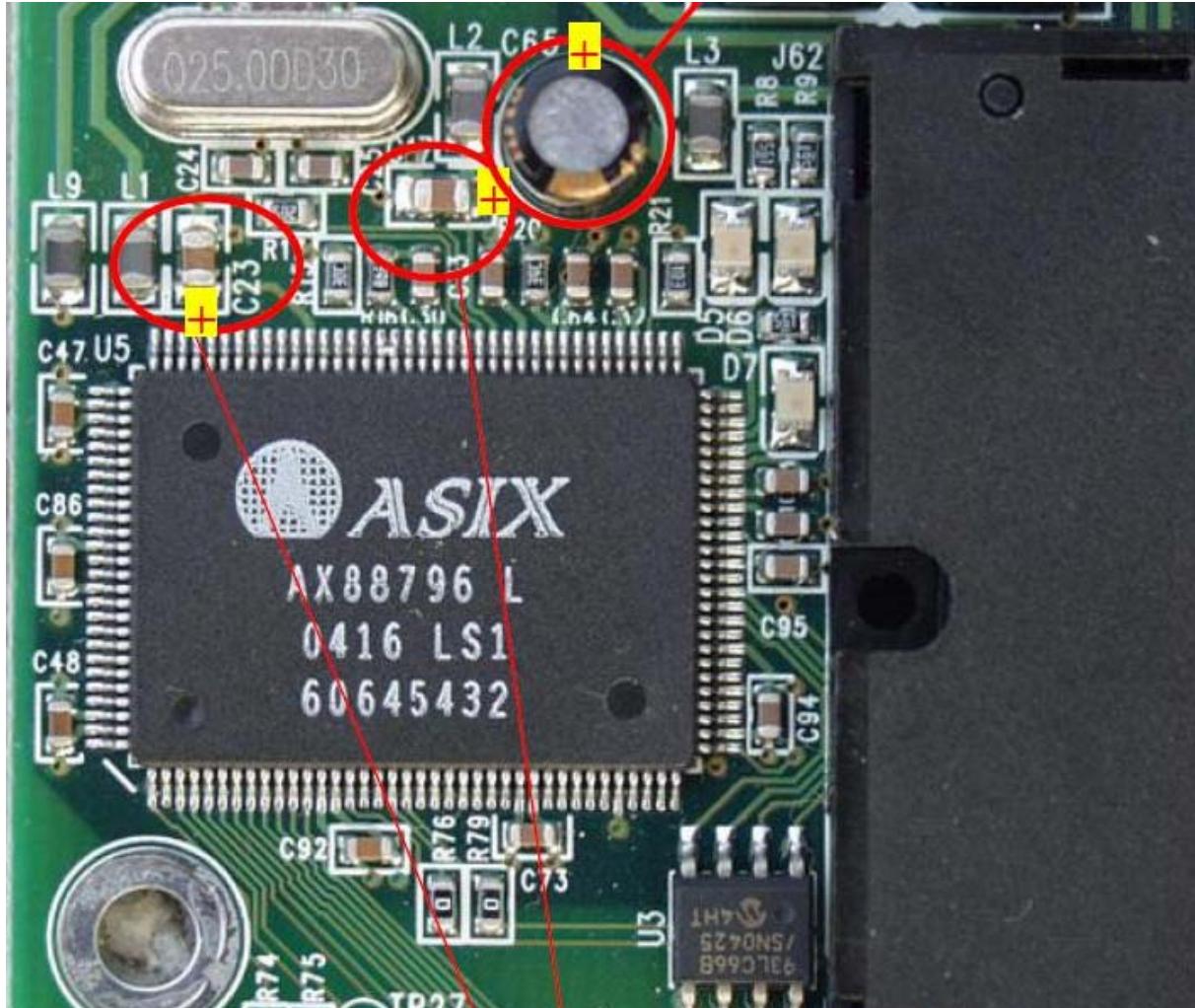
Use a temperature of about 350 degrees celcius, and a very small tip! Especially C17 an C23 are very small!!

Below a picture with polarisation of a 4,7 uF Tental capacitor.



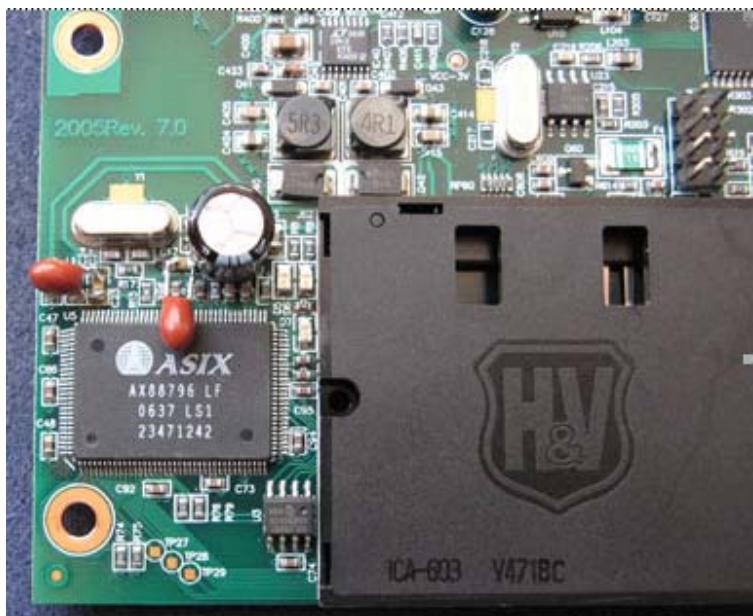
Low Impadance/ESR

Replace by a 220uF/16V



**Parallel solder the 4,7uF/16V tental
capacitors on top of these two.**

When you have done this correctly, the mod will look something like this:



References:

<http://www.sat4all.com>
<http://www.pli-images.org>
<http://www.siennacountach.net/gallery/dreambox>
<http://www.dreamboxonline.com/forums/showthread.php?t=1983>
http://www.siennacountach.net/media/LAN_DM500.pdf

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