

## PJI EXT-HD (Batch 1) Upgrade Document

1. Remove Edge Enhance problem
2. Heat-sink installation to protect HDMI chip
3. MCU software upgrade, remove IR hang and color (green) problem

**The fixed outlined below only affect the first batch of PJI EXT-HD units which were shipped to customers in late 2007. Later batches are not affected.**

If your EXT-HD is from the first batch and you would like to have it fixed, please refer to the instructions found in 'OFFICIAL' EXT-HD edge enhancement thread in the Moome support forum here:

<http://www.curtpalme.com/forum/viewtopic.php?t=7770>

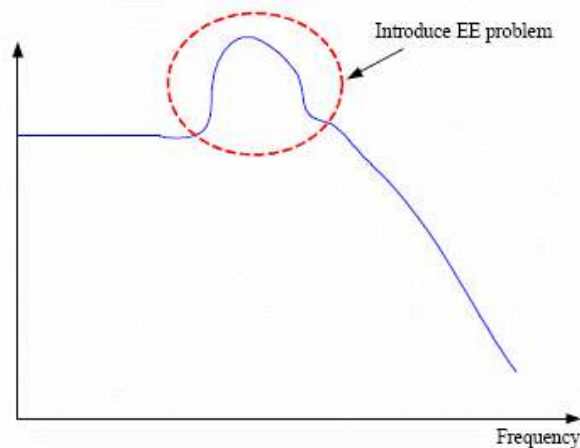
**Product:**

EXT-HD VGA and BNC version (include DVI output version)

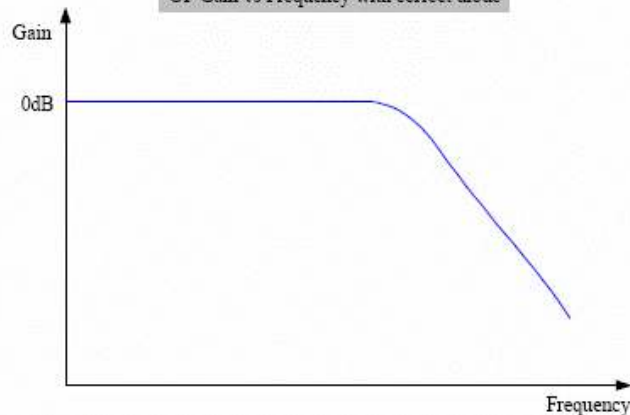
**1. EE problem solution:**

The Video OP on EXT-HD has very high bandwidth and high speed. And there are some diodes used for gamma boost. The diode vendor sent the wrong type of diode to PJI Inc. The Wrong type of diode (have S4 marking) have 15 times larger capacitance than correct diode (marking is S1 or S2 or S3), the capacitance introduce a gain boost at high frequency (about 10MHz~100MHz). So the high frequency component in video signal and anti-aliasing noise from DAC will amply cause ring (edge too sharp), **change to correct diode and add a post filter between DAC and Video OP will solve this problem**

OP Gain vs Frequency with incorrect diode



OP Gain vs Frequency with correct diode



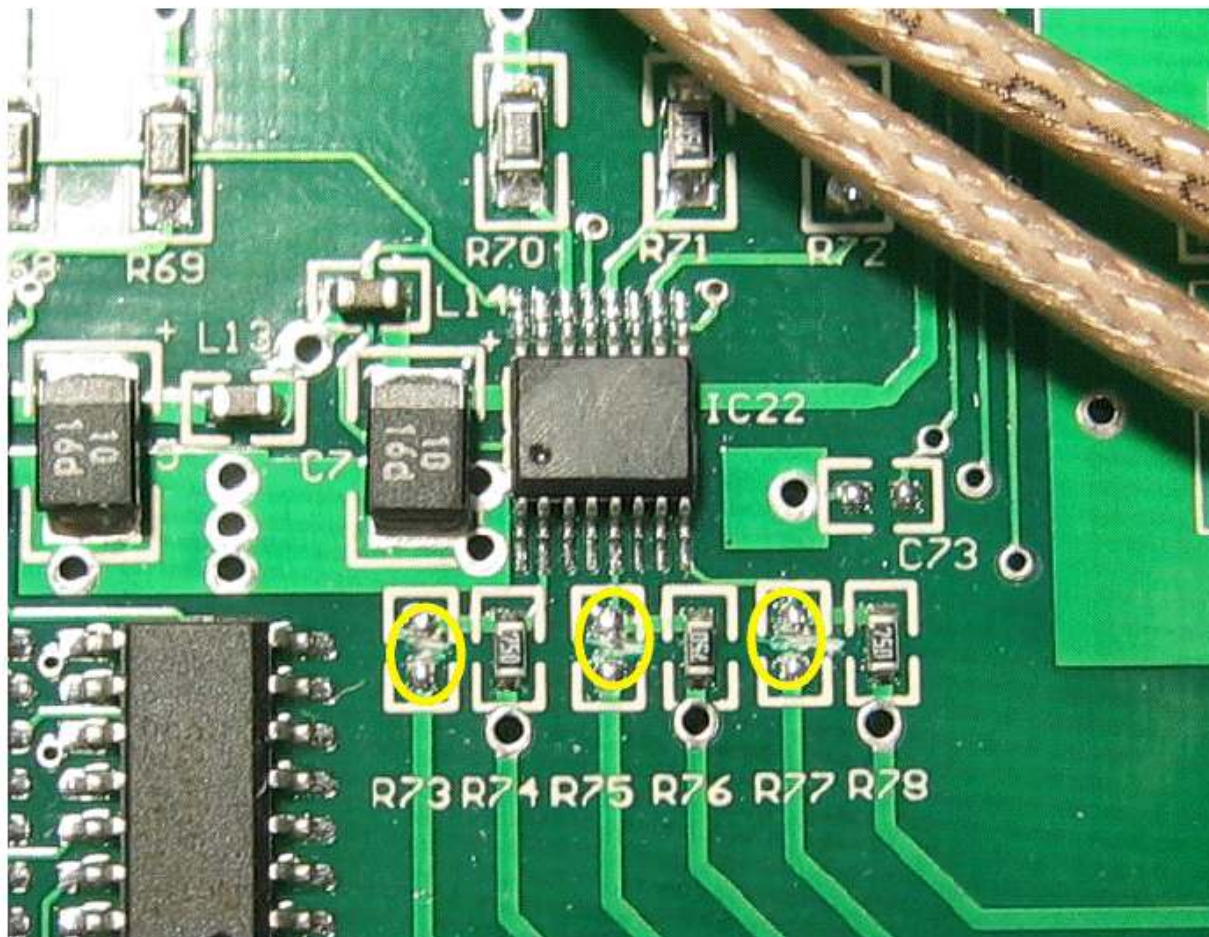
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### Parts need:

- 6 of diodes, model name is SD101A/B/C, with Marking S1 or S2 or S3
- 3 of Beads, spec: 220ohm@100MHz, with 0603 size
- 3 of caps, spec: 22pF 0603 size

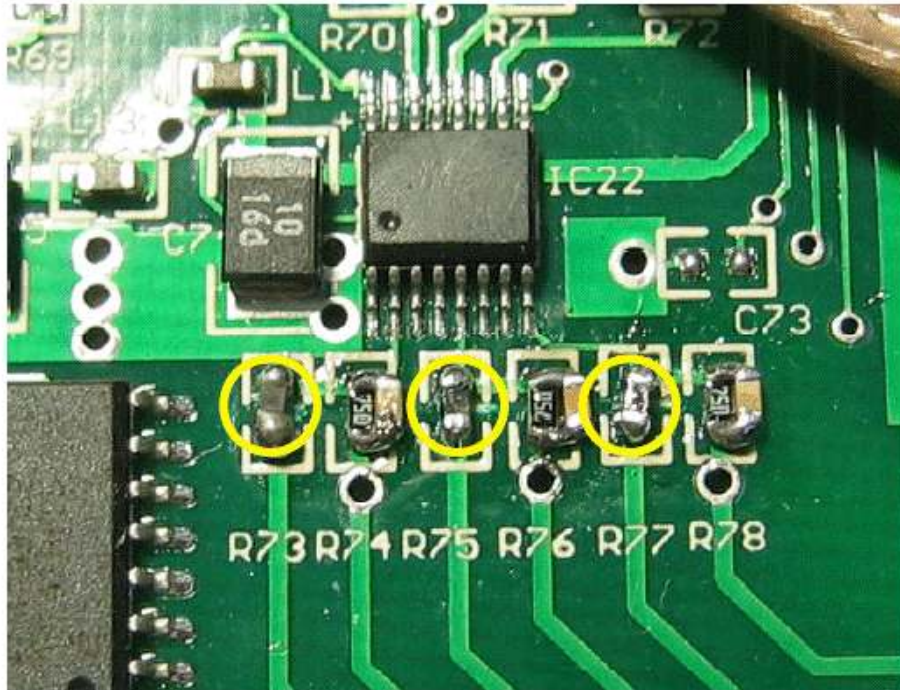
### Step to add post filter for removing noise from DAC:

1. cut off the trace on the R73 R75 R77

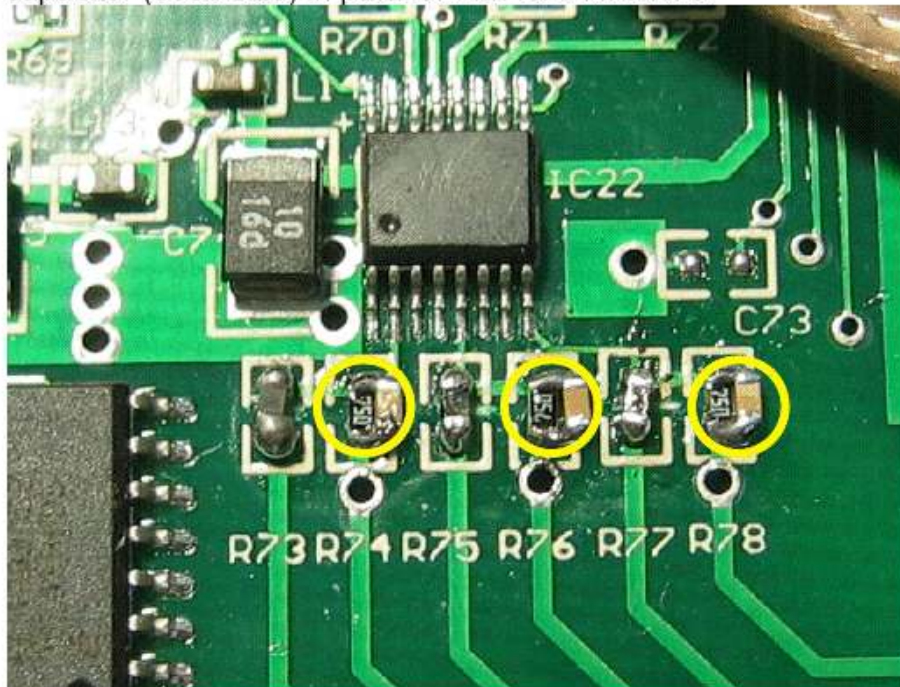


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2. Place beads on R73 R75 R77 , bead spec is 220ohm @100MHZ 0603 size



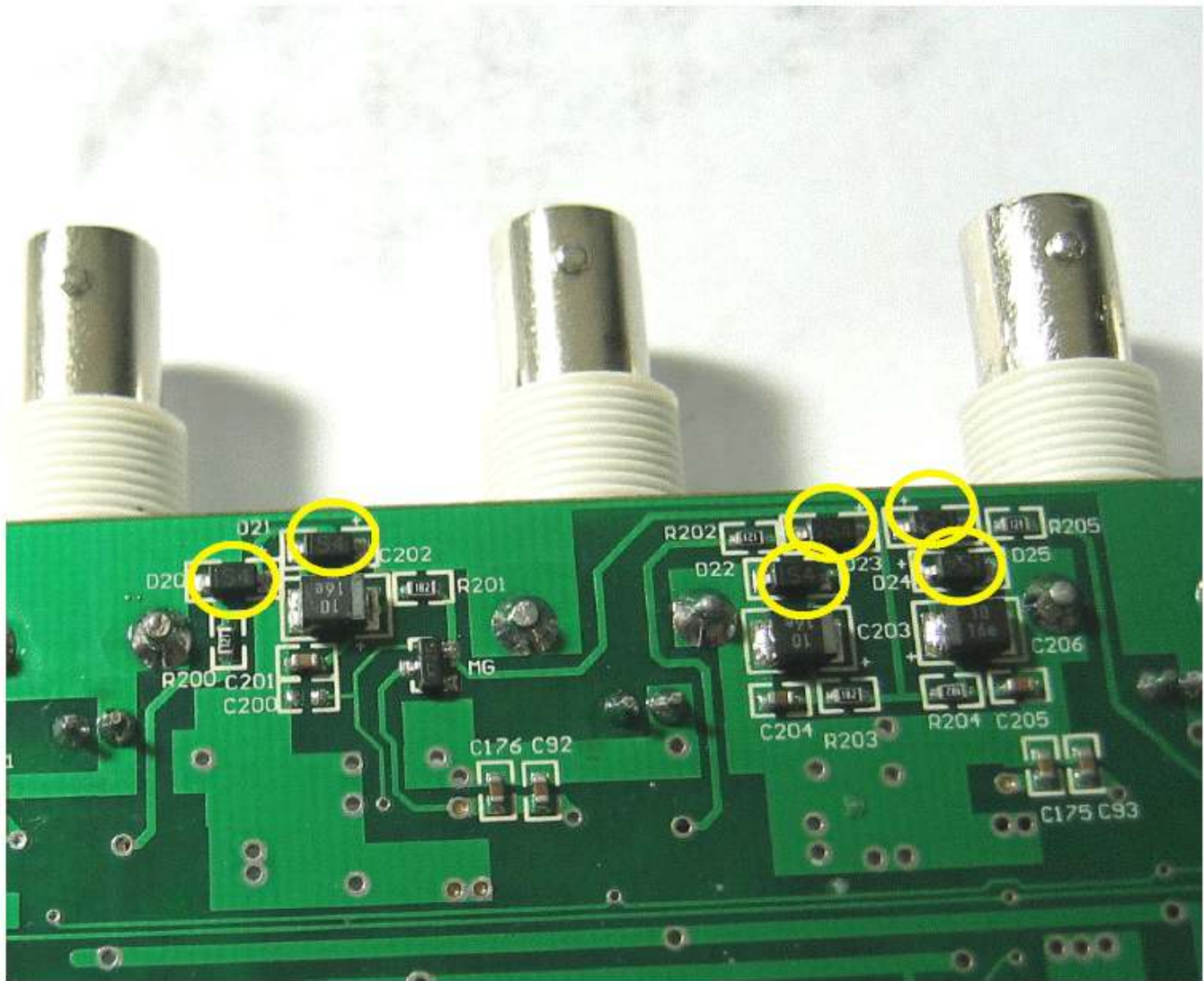
3. Place 22pF capacitor (0603 size) in parallel with R74 R76 R78



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### Change diode on EXT-HD BNC version:

Remove the diodes (marking with S4) D20, D21, D22, D23, D24, D25 off, then solder the correct type of diode back.

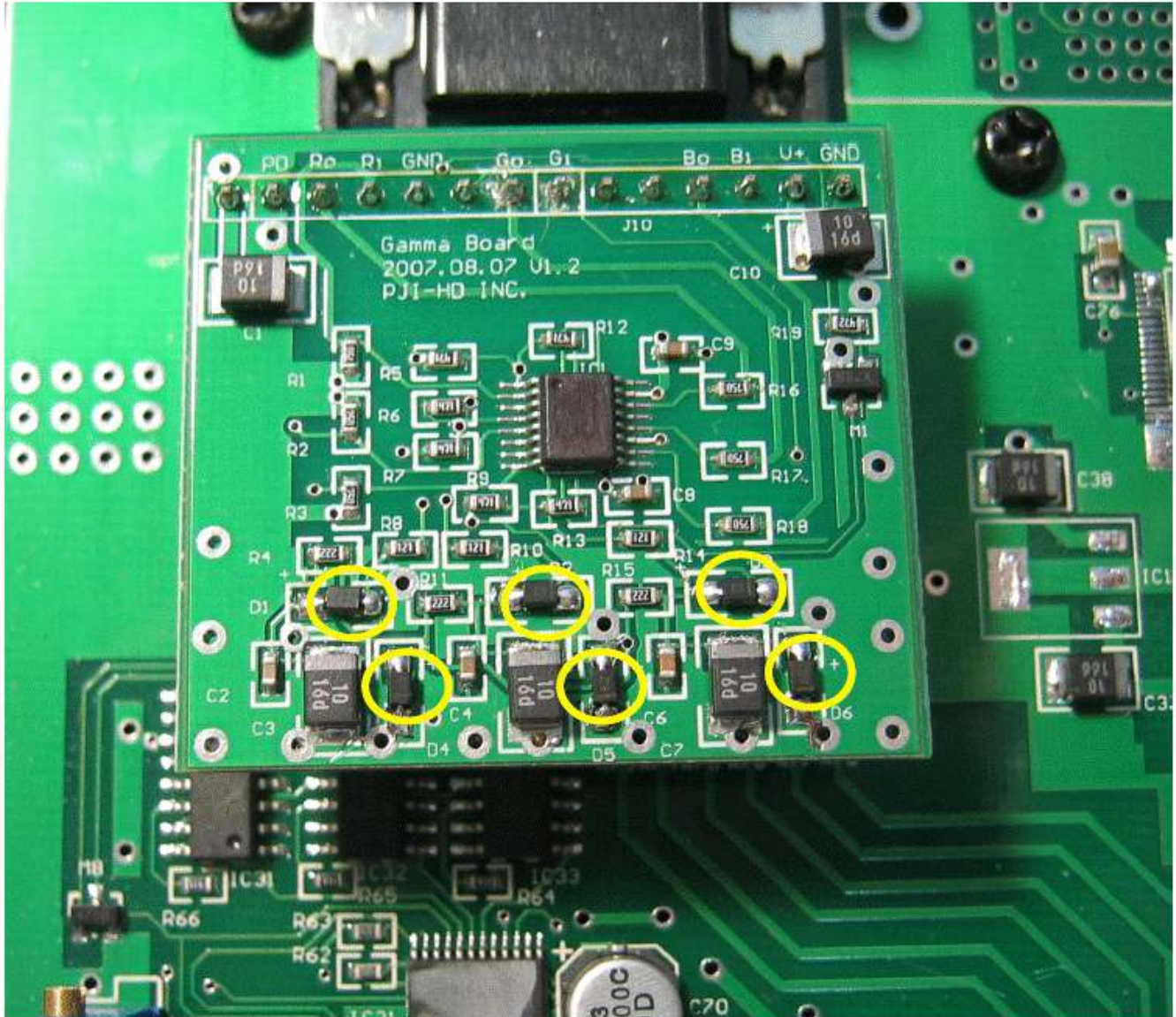


Please be careful of the polarity! Note the “+” signs. The two right-most diodes are upside-down as compared to the other 4.

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### Change diode on EXT-HD VGA version:

Remove the diodes (marking of S4) D1, D2, D23, D4, D5, D6 off, then solder the correct type of diode back.

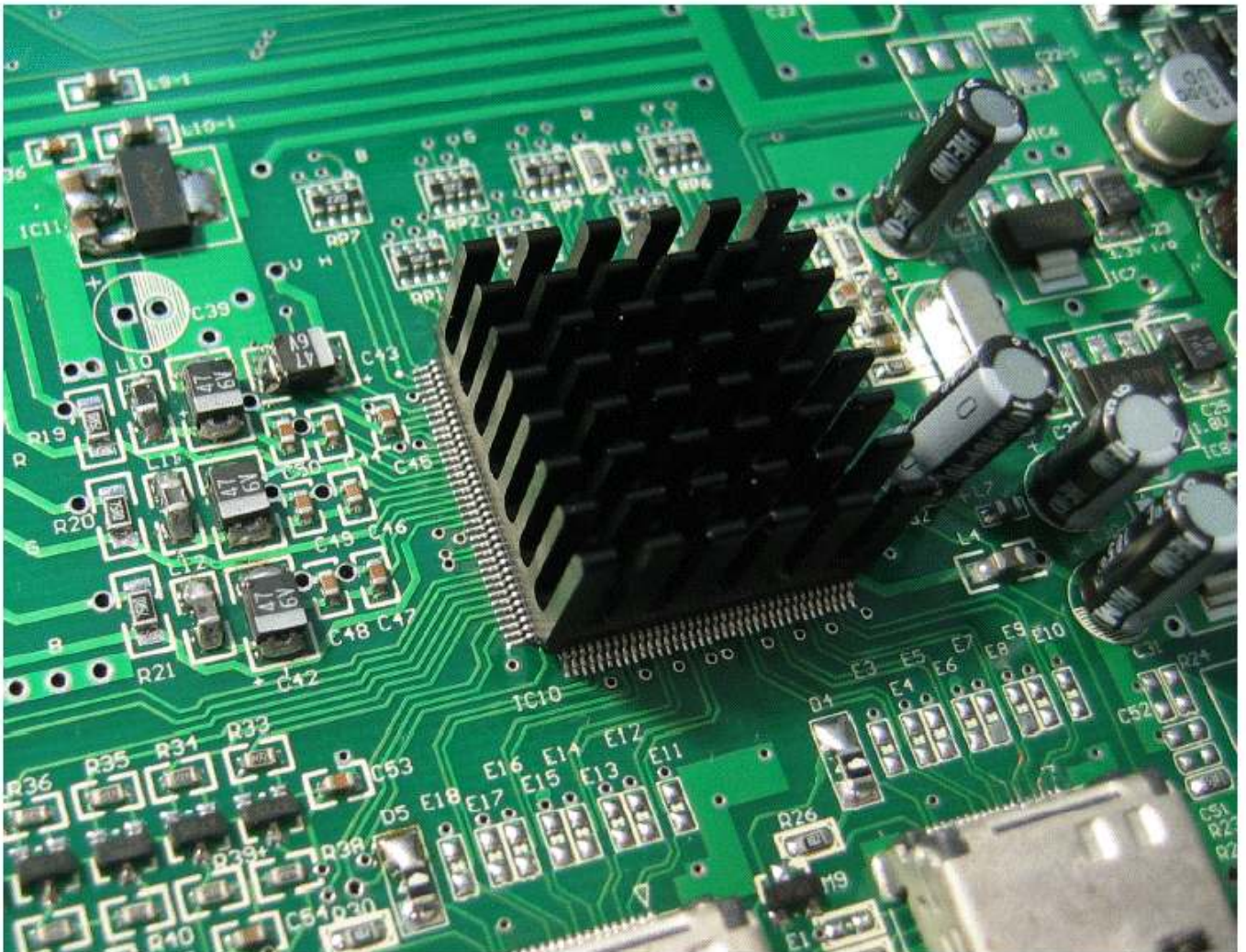


Again, be careful of the diode polarity! Note the “+” signs.

## 2. Add the Heat-sink for HDMI chip:

When running 1080p HD signal the chip may be too heat, add a heat-sink can longer the chip life.

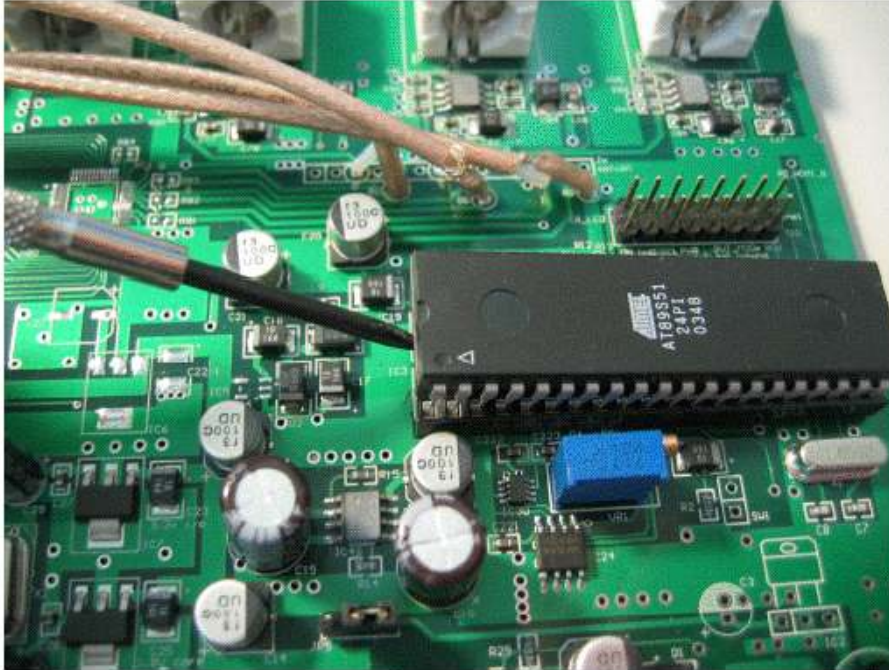
1. remove the paper on the heat sink
2. Attaches the heat sink on the HDMI chip



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### 3. Upgrade Software for EXT-HD:

Remove MCU using "-" shape screw driver, then put the new one back.



Although we update the code, but the MCU have many thing to do in background, so

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sometimes will slower response for remote, just press IR remote 2~3 time to toggle the MCU back.

### Parts for upgrade:

PJI Inc will supply needed parts below:

1. MCU with new software
2. Heat-sink
3. 6 pieces of diode
4. 3 pieces of bead
5. 3 pieces of 22pF capacitor

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