

# Re: Differential Pair Input Noise Issue

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- *From:* [bigcaboy@xxxxxxxxxx](mailto:bigcaboy@xxxxxxxxxx)
  - *Date:* Sun, 17 Aug 2008 19:31:52 -0700 (PDT)
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thanks, your explanation is the best even though I read your post for a couple of times.

2k ohm is a big value based on my understanding of thermal noise that's why I posted this question here. Right now I understand the author's words—he thinks 2k ohm is small enough to minimize thermal noise. In stead I think the author should pick a op-amp running under lower supply voltages then pick a smaller resistor.

On Aug 17, 6:20 pm, bill.slo...@xxxxxxxxxx wrote:

On Aug 18, 9:06 am, bigca...@xxxxxxxxxx wrote:

Here is picture:

<http://www.flickr.com/photos/26914086@N05/2772737582/sizes/o/>

I didn't figure out why "run a lot of current ot reduce the voltage noise".

Noise current is proportional to the square root of the total current, and resistor (Johnson) noise is proportional to the square root of the resistance value; by going for a higher current and lower resistors at that point, the designer has minimised the noise contribution atthat particular point.

And how to pick the circled resistor?

Small enough the op amp doesn't swing to the rails (and saturate its

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internal gain paths) under normal operating conditions.

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Bill Sloman, Nijmegen