

Stay Cool with the Antec Vcool

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Provided by: Antec
Est. Price: \$19.99



Introduction

Everyone needs to consider cooling requirements of their computers these days, and one component that is often considered a low priority is the videocard graphics processing unit (GPU). Did you know that some GPUs have more transistors in them than your CPU? Did you know that when a GPU runs too hot, visual artifacts and other non-desirable image anomalies may be displayed during a heated gaming session? Well, now you know. Fortunately, there are several ways to keep the GPU cool enough for the hottest fragging session. You can install a water block, a more massive heatsink, or direct additional cooling air towards your videocard. We are going to take a look at the Antec Vcool device, which takes that third approach and directs additional cooling air onto the GPU.



Figure 1: Click image for a larger view

Packaging and Contents

As you can see in figure 1, you get a compact clear package, organized to prevent damage between components of the Vcool as long as you don't sit on it. I wanted to try throwing the package around my work area a few times, but I was afraid I might injure myself – so I didn't do that. Figure 2 shows you what you get for your \$20 investment – a fan section, an extension section, and a PCI slot mounting section. There is also an instruction sheet and something about a customer survey. The extension section is meant to lengthen the reach of the fan, so you can customize where the air is directed based on how long your videocard is. Please note that you'll need two PCI slots open next to your videocard to install this device.

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Figure 2: Click image for a larger view

Assembly

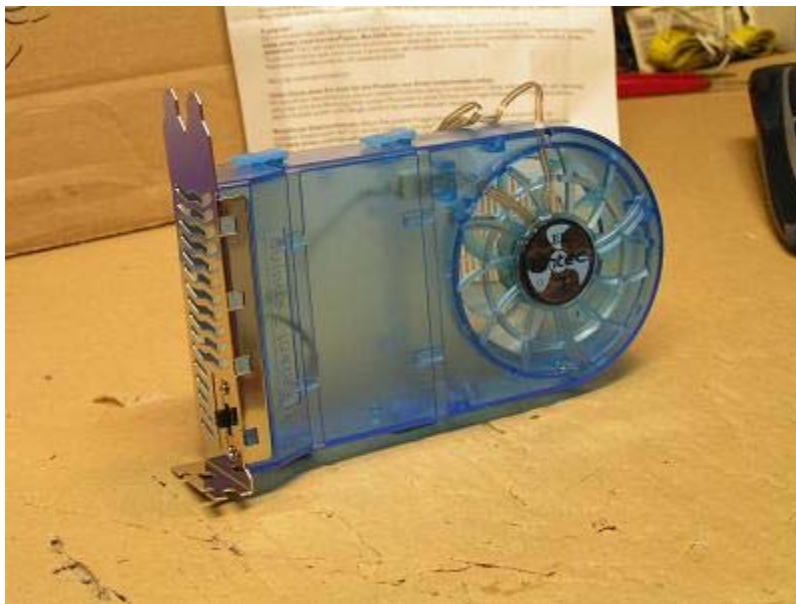


Figure 3: Click image for a larger view

If you follow the included instructions, you will see that there is a wire extension section that connects the fan to the switch through the center section. It's a good idea to connect this wire before assembling the sections. The completed assembly in figure 3 is the most likely way you will use this device. Without the center extension section in there, the fan is very close to the PCI bracket, and what videocard has it's GPU / heatsink that close to the PCI bracket? Anyway, you can see that this design is flexible. Maybe it could be used to blow air on a CPU from the side, assuming you have two open PCI slots (for mounting support) on the other side of your videocard. You could just drill two mounting holes there, so don't tell me it's impossible!!

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Pre-installation Testing

Before we just slap the VCool into my test computer, perhaps we should take some fan noise measurements. As you can see in figures 4-6, I am testing the VCool and two other case fans (generic UV 80mm and a CoolerMaster LED 80mm fan), using a Radioshack sound level meter about one inch from the fan hub area. My readings (see figure 7) are good for comparison purposes between these fans only, since I am not using a calibrated test instrument. Being an engineer by trade, I'm the first to admit the unofficial nature of these measurements. There are three settings on the VCool device, and at the low speed setting, the noise level is close to the other two fans. As we increase the fan speed on the VCool device to medium and then high, the noise level increases significantly. Remember that sound level doubles for every 3 dB increase, and so we have something here that you will probably hear (at high speed), even with the side of your case installed. Overall though, my installed case fans, CPU fan, and chipset fan are louder, so maybe this won't be so noticeable in the long run. Oh yeah. Notice those blue LEDs? Sweet.



Figures 4-6: Click images for a larger view

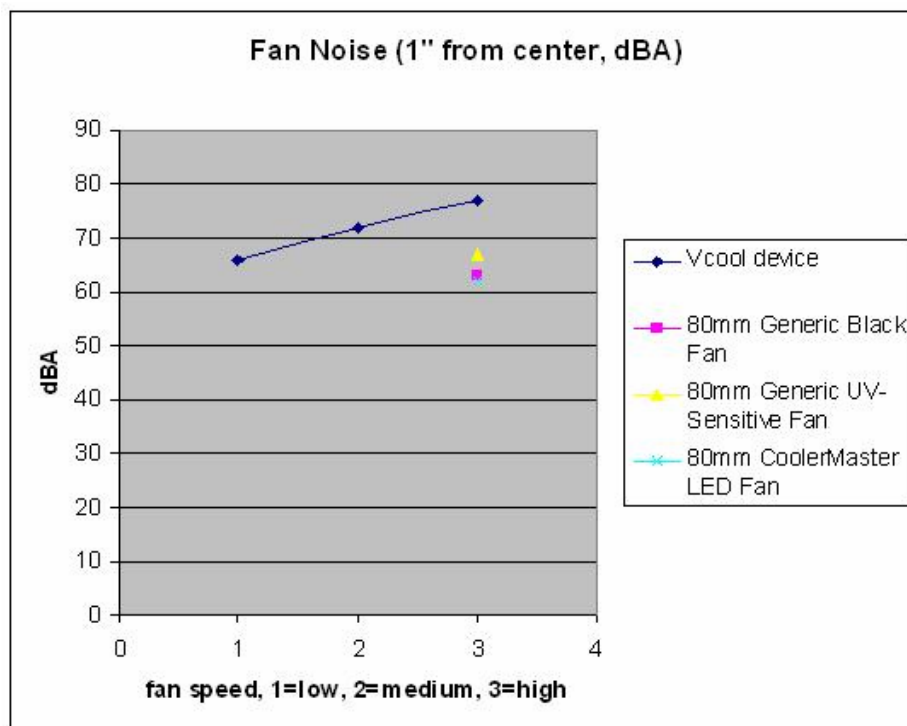


Figure 7: Click image for a larger view

[Next – Let's install this thing...](#)

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Installation

Let's get this puppy installed in our test machine, shall we? In figure 8 you can see that I've installed the VCool next to my videocard, which is an ATI 9600 Pro. It's an old card, but I think it has had some overheating issues in the past, so let's see if we can help this tired old dog out.

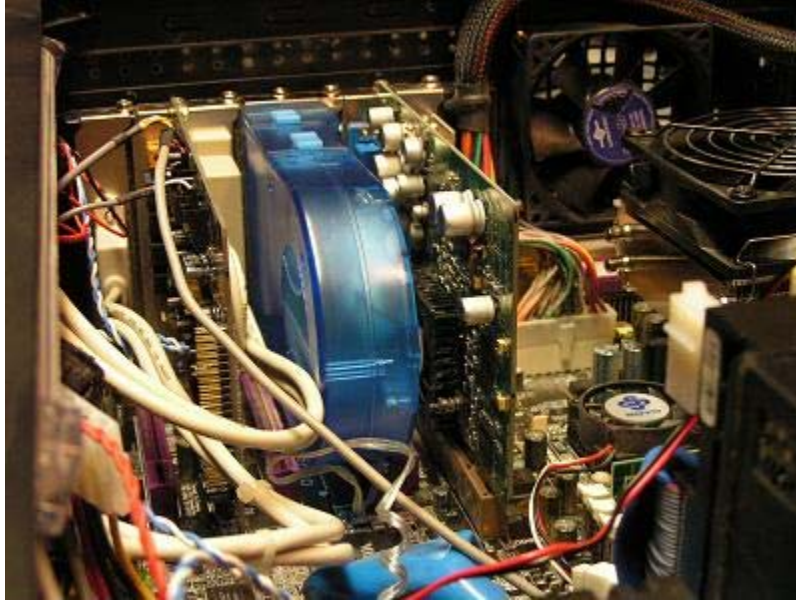


Figure 8: Click image for a larger view

But first, I want to upgrade the fan/heatsink assembly (VGA cooler) on this videocard. So I'm going to install a Thermaltake Chipset Blue Orb 4600 RPM VGA cooler (controlled via fan bus on the front panel of my test computer), replacing the OED VGA cooler that was barely adequate for the job. Figure 9 shows the bottom of the cooler, where I've already smeared some Artic Silver III thermal compound in the center. In the background, you can see the 9600 Pro GPU, all exposed except for it's helping of the same thermal compound. In figure 10, I've re-installed the videocard with the new VGA cooler on it. Ok, lets start testing the thermal benefit of having an Antec V-Cool in our machine.

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Figure 9: Click image for a larger view



Figure 10: Click image for a larger view

Does it Work?

The whole idea of installing the VCool is to reduce the GPU temperature as much as possible. That allows you to play harder, or over-clock further, because heat is your number one enemy in the world of silicon. Ok, maybe the lack of electricity is the number one enemy. In any case, we need some way to measure temperature changes that result from using the VCool. Unfortunately, I don't have a precision thermal measuring test instrument. But I do have a Cooler Master Musketeer I bay device, and it has a temperature meter (and thermal probe). See that right-hand

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analog meter in figure 11? This is the best I could do without spending more money. It does mean that my measurements won't be all that accurate, as you can see in figure 12 - a close up of the meter scale. I will have to estimate the different readings and determine the result manually.



Figure 11: [Click image for a larger view](#)



Figure 12: [Click image for a larger view](#)

Next, let's take some measurements....

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So I installed the thermal probe underneath the VGA cooler, plugged everything in, and fired up the test machine. I did my best to determine accurate temperature readings for three load types: GPU idle, GPU under load with a screensaver running, and the GPU under load, with the screensaver running along with a low speed setting on the VGA cooler. I also took measurements with the side panel on and off, and I switched the VCool between low, medium, and high fan speeds. The results are shown in figure 13. You can see that the increasing load had it's affect on the temperature, especially when I had the VGA cooler set to it's low fan speed. The difference in temperature between a low, medium and high VCool fan speed is about 5 degrees F, but again, these are only estimates. You can see that when the VCool is turned off, the all alone VGA cooler runs about 5 degrees F hotter, so it is beneficial to have a VCool installed. You can expect about a 10 degree drop in temperature if you install one and leave it on the high fan speed setting. Please note that keeping your side panel on actually is a benefit – good for a few degrees F.

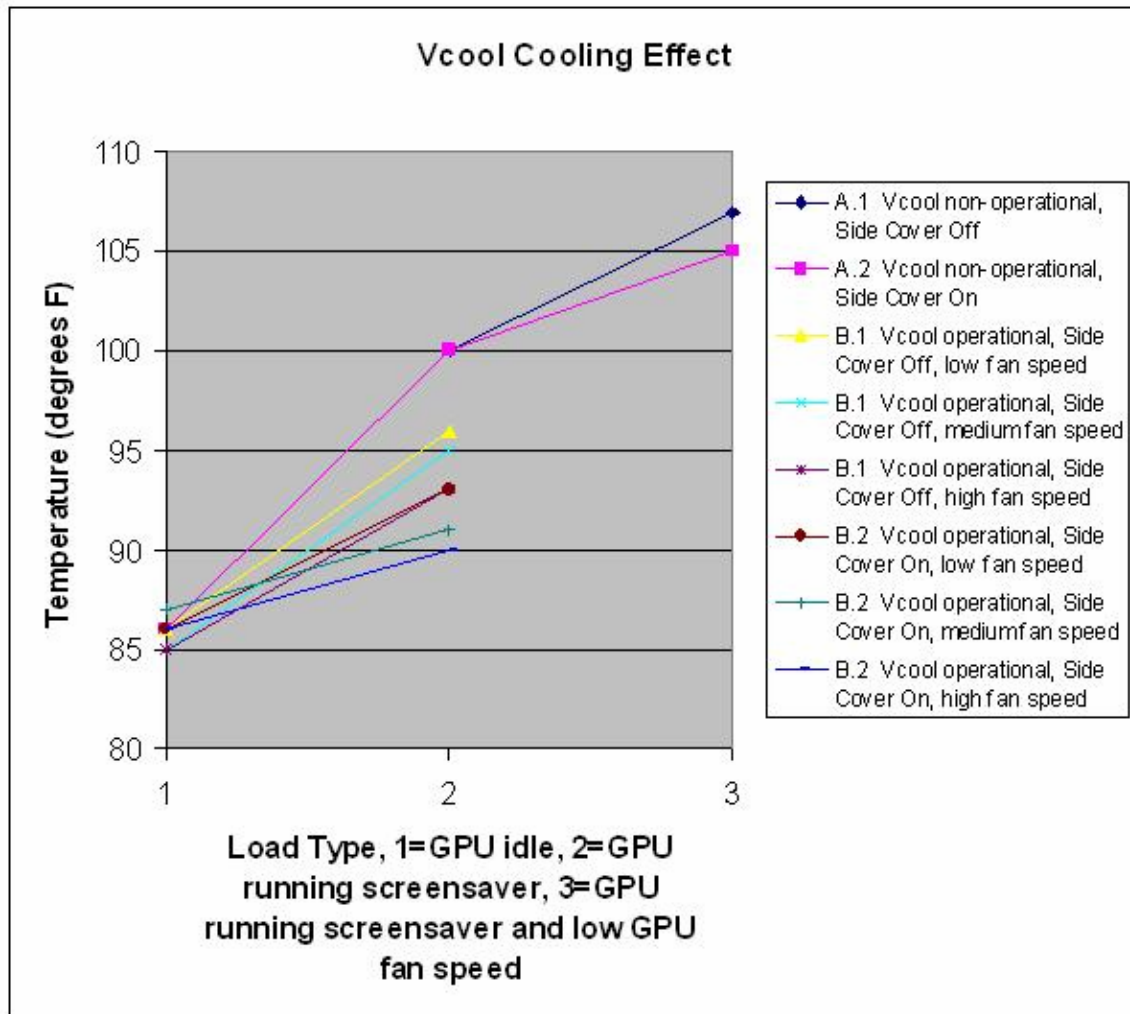


Figure 13: Click image for a larger view

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Conclusion

I liked the Antec VCool. It does the job nicely, doesn't cost too much, and looks pretty nice with those three blue LEDs. It was rather difficult to assemble the middle section to the other two sections – and it would be easy to break some tabs if you were not careful. This device does take up two PCI slots, and you can see how crowded it was in my test computer to accommodate it. But I got the thing installed, it works as advertised, and I don't find the fan noise excessive.



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