

review by Daria Aikens

.5 Stars - 1 Star Poor, 5 Stars Excellent

Product: Vpower PF

Version: G3/240

Manufacturer: Vimage Corporation

Price: \$499

Contact Info: <http://www.vimagestore.com/>

Genre: CPU Upgrade

Requirements: Performa and Power Macintosh 6360, 54xx, 55xx, 64xx, 65xx, SuperMac c500 (contact Vimage), UMAX Apus (contact Vimage), Akia MicroBookPower (contact Vimage).

n Answer To Our Prayers?

When I bought my Performa 6400/180 way back in 1997, I never gave

the term "non-upgradeable CPU" much thought, but as time went by

and newer, faster, better machines came on the market, I began to long for the day when my machine would be able to catch up to its speedier siblings. Knowing that the 6400 and 6500 series machines were a consumer success, I figured that sooner or later some company would see the financial benefit in coming up with a way to upgrade these computers. Well folks, my vision has come to pass, and Vimage Corporation has stormed onto the market with a bonafide CPU upgrade for our well-loved Performas and low-end Power Macs. I've had the lucky chance to evaluate the VPower

PF G3/240 upgrade card for the past three months, and now I'm here to tell you about my adventures in Happy Happy Speed Land.

The Specifications

First, let me give you a little background — technical information about the card and the machine that I tested it on. The VPower PF G3/240 is comprised of a PowerPC 240 MHz G3 CPU with 512K of backside cache running at 120 MHz. Pretty impressive. The 117.1mm x 38mm card doesn't actually replace your original 603e based CPU — rather, it bypasses it. The PF G3/240 fits into the computer's L2 cache slot. You will have to remove any L2 cache that presently resides in your machine, but you won't miss it. This card works in a variety ofAlchemy-based motherboards including the Performa and Power Macintosh 6360, 54xx, 55xx, 64xx, 65xx and selected SuperMac c500 machines. It's important to note, however, that the card only runs at 225 MHz in the PowerMac 55xx and 65xx series. Finally, in order for the PF G3/240 to operate, you must have the Vimage extension in your system folder.

Given that the performance and stability of this and any upgrade card is related to the setup and hardware configuration on the computer in question, it is relevant that I disclose the specifications of the machine with which I tested the card. The fact that this card ran flawlessly on my computer, which has a variety of hardware installed, makes me feel confident that Vimage has succeeded in creating a product with a lot of bang for the buck.

Test Machine:
Performa 6400/180
No Geoport modem*
88 MB RAM
ATI Xclaim VR, RAGE PRO
Kingston PCI Fast Ethernet 10/100
Peripherals include: HP Scanner, Apple Stylewriter, Calcomp graphics tablet, Kensington Orbit, Zip Drive

* This is extremely relevant to performance given the CPU-sucking tendencies of the Geoport modem. See <http://gdn.net/~daria/geoport.html> for more info on this subject.

Install It and Fire It Up

Installation is so simple that you could let your six-year-old do it. First, install the Vimage software from the included floppy disk and then shut down the computer. Here comes the fun part! Just open up your computer's case (instructions are in your computer manual), find the L2 cache slot, remove any cache that may be in the slot, and pop in the Vimage card. The Vimage card is only slightly bigger than a regular cache card — it's impressively small. Vimage included a removable heat sink in the package, but only use this if you are installing the PF G3/240 into a clone, such as the UMAX or SuperMac.

When you start up your newly upgraded PowerPC, you'll notice an interesting, somewhat annoying, yet necessary phenomena. The computer starts up and when it gets to the Vimage extension (which should load first) it restarts itself. On this restart the computer will boot fully into the Mac OS. What's happening here? Well, first the computer boots out of ROM off of the original 603e processor. When it gets to the Vimage extension, the computer realizes that you want to use the PF G3/240, so it reboots using the upgrade card. This process isn't very efficient and it means that start-up time is increased when using this card, but it's a small price to pay for the performance boost that you are about to see.

Benchmarks, Benchmarks, Benchmarks

This is what you are all here to see. You want to see the numbers. You want to see the Pentium-toasting speeds. You're tired of my verbose diatribe already. Alright, enough with the paragraphs! Here come the facts.

MacBench 5.0 Statistics

I compared the performance of my 6400's CPU and Floating Point Unit against a stock G3/300 and my iMac 233. In the graphic below you can see that I tested the following configurations:

PowerMac G3/300

iMac/96MB/Virtual Memory On (VM)/6MB VRAM

6400/88MB/VM off/Vimage G3/all extensions on

6400/88MB/VM on/Vimage G3/all extensions on

6400/88MB/VM on/original processor

In my tests, the iMac out paced the 6400/Vimage G3 in terms of raw CPU power, but not by much. When it comes to Floating Point Unit scores, the upgraded 6400 creamed the iMac and approached G3/300 speeds. Vimage claims that the G3/240 should be able to outpace the iMac on the CPU score, which it doesn't. One thing you have to remember, however, is that the iMac has a 66 MHz bus on the motherboard, whereas the 6400 is held back by a 40 MHz bus. This could be why MacBench reported that the iMac's CPU was superior. The un-upgraded 6400 looks pretty pathetic next to all those G3s, don't you think?

Application Benchmarks

In the following tests, you can see that I tested the time it took the 6400 to launch applications twice. The first time tests the processor, while the second launch tests the speed of the CPU in combination with the backside cache. I also tested boot times and Photoshop 5.0 filters. It is important to note that this card was tested using Mac OS 8.5.1.

Operation /Application	6400/180/256K L2	6400/Vimage Upgrade
6400 cold boot	3:00	3:35

6400 restart	2:55	3:33
Open AppleWorks	0:14	0:08
Open AppleWorks again	0:10	0:04
Open Navigator 4.08	0:20	0:14
Open Navigator 4.08 again	0:10	0:06
Open Photoshop 5.0	0:30	0:20
Open Photoshop 5.0 again	0:19	0:13
Twirl Filter, 3 MB file	0:08	0:02
Swirl Filter, 3 MB file	0:20	0:07

f It Feels Good, Play It!

We've determined that the benchmarks are mind-blowing, but what about real-world stuff? How does it feel? Is it responsive? The overwhelming answer is yes! Say goodbye to all of those annoying lags. Remember typing text into a field in Netscape and then having to wait for the CPU to catch up to the speed of your fingers? You can kiss those days goodbye as well. Switching between applications is greatly improved. Is the PF G3/240 faster than my iMac? Heck no! The faster bus speed, hard drive, CD-ROM drive, and other components in the iMac really make a difference. Don't get me wrong, the Vimage card is fast, but the iMac is so fast that it should get a speeding ticket. I can't imagine what a G3/450 would feel like.

I didn't have any serious compatibility problems with the VPower PF G3/240. When I first installed the card, I froze on start-up a few times, but the culprit turned out to be that Speed Doubler was loading before the Vimage extension. Who needs Speed Doubler with a G3 anyway? About a month later (after I got on this kick of actually shutting down my computer from time to time), I noticed that the Vimage card kept crashing on cold boot about 30% of the time. Through the help of the great people at Vimage, I realized that there was a slight conflict with my ethernet card drivers. Simply getting the latest drivers from Kingston cleared up that problem, and since then, the Vimage card has run like a charm.

If you are a gamer, then you'll really love the enhancements that

the Vimage card adds to your system. In combination with my Xclaim VR video accelerator, the PF G3/240 card has made my 6400 the ultimate Quake machine. Framerates achieved an unbelievable 30 fps! This card is almost too good to be true.

y Terrible Dilemma

As I finish up writing this review, my heart fills with sadness as I question the future of the Performa 6400. Do I keep this phenomenal card so that my Mac may have the joy of competing in a G3 world? Or do I do the logical thing and return the card to Vimage with the intention of saving my pennies to purchase a shiny new G3 next winter when OS X comes out? After all, Apple claims that OS X will not be supported on machines that do not have original G3 processors. Does keeping the PF G3/240 just prolong the inevitable obsolescence of this beloved machine? After all, the slow 40 MHz bus speed of the 6400 series creates a serious bottleneck despite the Vimage upgrade. In order to come to the best conclusion as to whether or not to buy this card, one must do a cost analysis and answer a few simple questions. If you are not one to ride on the bleeding edge of technology (ie: you didn't buy a Rev. A iMac) and you don't plan on immediately upgrading to OS X, then I say "run, don't walk to Vimage's website and order this card!" In reality, not everyone will need OS X and if you are in a business setting, it is much smarter to stick with the tried and true OS 8.x until Apple works out all of the bugs with OS X. For \$499 you get a nice, well-deserved speed bump. Case closed.

If you are like me, and you anticipate OS X with the same fervor that survivalists are anticipating the fall of society due to the Y2K problem, the dilemma becomes more complicated. (For the record, if you believe that Y2K will paralyze society, don't buy this card because when the power grid fails, you will not have the electricity to enjoy surfing the web with the PF G3/240 anyway.) In order to make your decision, you must perform that cost analysis I spoke of earlier. You must compare the costs of buying a new G3 system with the costs of upgrading your current PowerPC, taking into consideration that you must buy a new G3 at the end of the year so that you can run OS X. Remember that the new G3s do not have serial ports or onboard SCSI , so your aging 603-based computer does have utility as a peripherals slave. Those serial adapters and SCSI PCI cards that you'll have to buy for your new G3 can get expensive. You start with a \$1199 iMac, add a USB printer, USB scanner, serial and ADB adapters, USB Zip or SuperDisk and you can very quickly spend \$2000 just to get started with a useful G3 system. If you're hoping to get some money back on your 603 investment, the resale value on your computer is not going to be much more than \$500.

In the end of course, whether or not to buy this card is your own decision. I'm still not sure what to do. Going back to the original speed of the 6400 will be hell for me considering the amount of professional web work and

graphics manipulation that I am involved in. If I did not already have an iMac, I can say with 100% assurance that I would keep this card. Realistically, OS X is still quite a ways down the road. Despite the dilemma, at least Vimage has given us a choice. Without Vimage, we would be forced into abandoning these machines before they really need to be junked. If the card was just a wee bit cheaper, the answer to these questions would be a no-brainer.

o Sum It all Up

Vimage has performed a miracle. They rescued us from the low-end performance that Apple thrust upon us. If you have already invested heavily in the performance of your 603e Performa or PowerMac, then the VPower PF G3/240 is a vital, final piece of your puzzle. The 4.5 star rating reflects a perfect card that delivers on every single one of its promises. Vimage's decision to price the card at \$499 (half the price of a Rev. B iMac) is the reason I cannot give the card 5 stars. Nevertheless, if you buy this upgrade, I guarantee you will not be disappointed!

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