Subject: SATA vs. PCI-X for SSD, PowerMac G5 dual CPU, OS X 10.4
Posted by GLT on Thu, 30 Apr 2020 19:32:47 GMT
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Is there such a thing as a PCI-X card with onboard SSD?
Would that be preferable or not vs. SATA in my G5 dual cpu?
Any reason to avoid SSD for my configuration?

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Subject: Re: SATA vs. PCI-X for SSD, PowerMac G5 dual CPU, OS X 10.4
Posted by Mac User #330250 on Thu, 30 Apr 2020 20:30:15 GMT
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On April 30 2020, 21:32, GLT wrote:
> Is there such a thing as a PCI-X card with onboard SSD? Would that be
> preferable or not vs. SATA in my G5 dual cpu? Any reason to avoid SSD
> for my configuration?
I doubt that there are drivers available for NVMe. And if the PCI-X card is a SATA controller card, you'll need drivers too. I once used a SIL-3132 based eSATA card for the PCIe bus of the Late-2005 Power Mac G5, I believe it was a Sonnet Tempo SATA E2P, for which additional drivers were required, but there may be SATA cards (PCI, PCI-X and PCIe) for which Mac OS X has drivers on-board. I highly doubt there are and ever will be any drivers for NVMe based expansion cards for Tiger, be it through SATA or PCIe. (NVMe, which is specifically for SSDs, can either be in SATA mode or in PCIe mode, determined by the NVMe card/socket/connector/controller itself – not all NVMe connectors support both, so they have to be compatible!). And then, PCI-X is not PCIe, so I also doubt that there are any NVMe-PCI or -PCI-X cards out

there anyways, as they will most likely be exclusive to PCIe ("PCI Express").

For a regular SATA connector, a PCI-X controller card could provide SATA-II (3GBit/s equals 300 MB/s) or even SATA-III (6GBit/s equals 600 MB/s), whereas most Power Macs only had either ATA (UltraATA, up to 133 MB/s) or SATA-I (1.5 GBit/s equals 150 MB/s), provided you also find drivers for Mac OS X.

If the card is not specifically for the Power Mac, it will not have an Open Firmware compliant FORTH-based firmware on it, and thus it will not be possible to boot from a connected drive, although a driver in Mac OS X can later-on make connected drives usable. If you want to have it as a boot option, you need the Mac sticker on it, and such a card is harder to find and more expensive. On the other hand, there may not be a way around the Mac tax, because drivers on Mac OS X may not work with a PCI card for PCs (aka with BIOS or UEFI firmware on it). (It depends, because USB 2.0 controller cards with a compatible NEC USB chip on it, for the PC, do work in a Mac OS X out-of-the-box, but I am not sure if the Open Firmware provides a boot option from it, so who knows really?)

Your best option is always to use the on-board connectors, maybe an adapter (like a SATA-to-IDE connector to connect a SATA drive or SSD to the UltraATA controller) or, the most expensive option, a Mac-SATA-expansion card with firmware, drivers and all.I now only use SSD in all of my Macs, be it SATA or ATA (I use an adapter). Other than one weird issue they work fine. The weird issue is a rather new SSD in a Power Mac G5. It wouldn't boot. I than added three extension cables in a row (!), like this one [https://www.amazon.com/dp/B00L9R3AKA] (or search for "SATA extension cable"), and it suddenly boots. This makes me think it is a timing issue, latency of signals or similar technical stuff, and the longer cable makes the answer signals from the (quite fast for this generation of Mac) SSD return just a bit later, which is what the old firmware in the computer needs in order to detect it. Otherwise it wasn't detected at all, as if no drive was connected to it. Though, fun fact, it was detected from a booted Mac OS X, which didn't have this issue, but then I couldn't use the SSD as my boot drive, which was my original intention. So the extension cables saved my plans to have the Macs boot and operate solely from internal SSDs.

Cheers,
Mac User #330250

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