

The Academy of Plumbing 26

Pimp My Laptop!

Speed up location shooting

You live and learn. At least, you learn: after nearly three days of tethered shooting and timing file copies, TIFF exporting, etc. etc. I nearly lost the will to live. I lost a load of preconceptions, too: things have changed markedly with Apple's switch to Intel and the steady increases in speed and capacity of hard disks. My thesis was thus: a current MacBook Pro has a very fast and capable processor, hobbled by a relatively slow internal hard disk; add a fast external disk, shoot to it and you should see a worthwhile overall speed increase. Sadly, it proves not to be that simple. A MacBook Pro can be sped up to a worthwhile extent, but this depends largely on the camera and software combination you are using and at which stage of the production process you are.

CAMERAS AND SOFTWARE

I tested tethered shooting and 16-bit TIFF export with the following:

- Hasselblad H3D-39 and H3D-14 with Phocus 17
- Leaf Afi7 (roughly equivalent to an Aptus 75) with Leaf Capture 11.1
- Phase One P45+ and P30 with Capture One Pro 3.7.8 (Capture One Pro 4 was unavailable at testing time)
- Canon 1Ds Mk III and 5D with EOS Utility 2.2
- Nikon D3 and D300 with Nikon Capture Control Pro 2.1.

I also tested copying to disk from a FireWire 800 CF card reader. That was the easy bit: speed is limited by the read speed of your CF card. With a fast card, FireWire 800 or an ExpressCard/34 card reader (tinyurl.com/5d9bs6) is worth it.

I used Adobe Lightroom 1.4.1 to export the Nikon and Canon TIFFs as it's much more widely used than Nikon and Canon's own software. I also tested exporting Leaf and Phase One files from Lightroom, with surprising results. I did on this on my averagely-bunged-up 2.4GHz/4Gb RAM/160GB-5400RPM OS X 10.5.2 MacBook Pro. I did no clever optimization to it as I wanted the results to reflect the kind of real-world performance you might expect to get.

KIT

I wanted all of this gear to work without mains power being available. To this end I chose three different external disks:

- A G-Tech G-DRIVE mini 200GB/5400RPM FireWire 800, 400 and USB2 mobile drive reading and writing at around 48MB/sec. (tinyurl.com/97n93)



- A G-Tech G-RAID mini 200GB/7200RPM RAID 0 FireWire 800 high-speed mobile drive, writing at 58MB/sec and reading at around 84MB/sec. (tinyurl.com/yg59f6)



The Digital Plumber

By Paul Ellis

- A Sonnet Fusion F2 eSATA 640GB/5400RPM very high speed mobile drive for performance beyond FireWire 800's limit, reading and writing at up to 132MB/sec. (tinyurl.com/66bv5d).



When mains power is available high performance can be had more cheaply, so I also looked at

- the G-Tech G-RAID2 500 (tinyurl.com/25brgn)



- and the clever, tray-free Wiebetech RTX200H-QJ (tinyurl.com/5h6lwn) fitted with a pair of Samsung SpinPoint F1 1TB disks (tinyurl.com/5s3cg8).



I used Sonnet eSATA, FireWire 800 and FireWire 400/USB2 ExpressCard/34 cards for camera and eSATA connections (tinyurl.com/6a9dv3).

WAFFLE

FireWire 400 does around 40MB/sec. and FireWire 800 up to 100MB/sec. SATA II can go to 300MB/sec. All current Macintoshes have only one internal FireWire bus, shared between all connectors. This isn't usually a problem except when connecting a FireWire 800 device to a 400 port, in which case that device will be limited to 400 speed. Also, when a 400 device is being accessed it will bring the overall bus speed down to 400 from 800, so adding a second FireWire bus with an ExpressCard/34 card can be a good idea. Unlike the internal FireWire ports these cards don't supply power from the Mac so you can't use a port-powered device unless you connect an external power supply to it or the card.

All of the FireWire cameras worked perfectly with these cards except for the Leaf, which when tethered draws its power from the FireWire port. You could connect a power supply to the Sonnet FireWire 800 card to power the Leaf, but there goes your mains-free location shoot. On the other hand, this would be a good way to isolate the Leaf from the Mac's occasionally-fragile and expensive-to-repair internal FireWire ports.

RESULTS

A surprise. I found no significant transfer speed increase in tethered shooting, no matter how I connected things. None of the cameras tested appeared able to transmit images faster than any of the disks could write them. However, the FireWire 800 cameras (Hasselblad and Leaf) appeared faster over FireWire 800 than 400. Phocus has a screen preview available well before the full file has transferred and Leaf

Capture appears to do something similar. In comparison, the Phase One backs looked constrained by their FireWire 400 connection and lack of similar preview trick in Capture One 3. The Nikons and Canons, with their USB2 connections, are relatively slower than all of the big backs.

Exporting TIFFs was a different story. Although processing the file takes most of the time, opening from and saving to a really fast drive can reduce export time by nearly 30% depending on which camera, software and drive you use. Screen previews also resolve quicker from faster drives.

Lightroom is extraordinarily quick at both importing and exporting Leaf and Phase One data (it doesn't do Hasselblad 3F files). It took Leaf Capture around eleven minutes to export ten 16-MB TIFFs; Lightroom did the same job in under two. Lightroom was also twice as fast as Capture One Pro 3 at exporting, and benefits from having fast disks for its catalogue and to export to. This was when the really fast Sonnet Fusion F2 came into its own.

RECOMMENDATIONS

- Use the fastest laptop you can afford. Ditch your PowerBook and get a MacBook Pro.
- Add memory to it. A current MacBook Pro can take 4GB, which can be had for less than £60 from Crucial (tinyurl.com/6rw7ww).
- Unclog your hard disk as much as is practicable. A drive's performance reduces as it fills up. A decent FireWire 800 disk is cheaper than upgrading your laptop's internal hard disk.
- Shoot to an external disk and assign

Photoshop's scratch file to it.

- In terms of pure speed when capturing there's little benefit in going for an exotic external disk. Disk performance really makes a difference on slower computers and when editing a large shoot, retouching, exporting, copying, and of course backing up.
- Use the highest-capacity *single-mechanism* hard disks you can find. They have a greater data density than smaller disks, which leads to higher performance. A 320GB/5400 RPM laptop disk can be 10-15% faster than a 200GB/7200RPM equivalent and uses less power.
- This holds true for desktop disks: the Samsung Spinpoint F1 1Tb disk can manage transfer speeds of over 116MB/sec by itself and is available for less than £80. Extraordinary. In your Mac Pro or an eSATA-connected enclosure such as the Wiebetech RTX series or Sonnet Fusion D400Q/D500P this disk provides fantastic performance for the money. Use your other disks as backups or sell them to clients.
- If you like its look and workflow, consider using Adobe Lightroom for processing your files.

Specific recommended setups and the full performance tables are in or linked from the PDF version of this article at tinyurl.com/2xj4zj.

CREDITS

I carried out the tethered tests in Ben Rice's spacious and welcoming studio, ably and efficiently assisted by Martin Melcher. Fraser Downie of Peartree Rental contributed the Leaf Afi7; Nicky West of The Pro Centre brought H3D-39, H3D-14 and Nikon D3 cameras; Liam Bailey sent his P30 and Nikon D300; Garry Simpson contributed his P45+ and Adam Woolfitt lent me his Canon 5D. Grateful thanks to all.

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