

# Joining up the Dots

Alan Wrigley reviews the A4-1200, a high-resolution direct laser from Calligraph

8 page-per-minute laser printer which comes in single or dual-bin variants, and produces a true 1200x600 dpi output, with higher vertical resolution available via software enhancement. This should be compared with other hi-res laser printers whose claimed maximum output is not necessarily a true resolution - for example, a 600x600 dpi printer may use only a

also temperamental with 100gsm paper. As well as the paper trays (which are button-operated and click firmly into place), there is a single-sheet feed mechanism for card, envelopes etc., and this is now very accessible on the front of the printer instead of being tucked away at the back as on the Qume. In physical terms, the new printer looks neater,

Back in 1990, I reviewed the first generation of direct laser printers for the Archimedes based on the Qume LCD engine - CC's LaserDirect (RISC User 3:8) and Calligraph's ArcLaser (4:1). The concept was an exciting one - direct lasers work by controlling the laser engine directly from the computer, giving faster speed (the ARM does all the work) and lower cost (no expensive electronics needed in the printer). You can also print any font in your computer without worrying whether the printer has a copy of it, as with PostScript. In fact I liked the ArcLaser so much that I kept the review machine (yes, I did pay Calligraph for it!), and I have had several years of trouble-free use, and much increased productivity as a result of the almost instantaneous output.

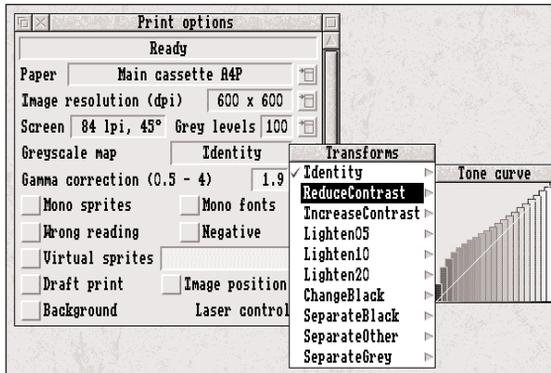
When I heard that Calligraph were producing a range of 1200 dpi direct lasers, I just had to get my hands on one. I've been using the A4-1200 for a couple of months now in the RISC User office as my main printer, so this review is based on a good workout in a real-life business environment.

The A4-1200 system consists of a standard size expansion card and an

300 dpi engine, which means that the dots themselves are no smaller but are merely placed closer together. Lower resolutions are available on the A4-1200, from 300x300 upwards, for those jobs that don't need the higher output.

## Good Looks

The physical differences between the new printer and the old Qume are striking - the A4-1200 uses an attractive Dataproducts model with a Sharp engine, and even the dual-bin version I reviewed is much lighter in weight than the single-bin Qume. It is marginally taller because of the two bins, but the footprint is about the same. The paper path is less tortuous, and as a result I have not had a single paper jam, whereas the Qume jammed occasionally and was



PrinterDP's options window, showing the contrast control

and is very much easier to handle and use.

So what does it do, and how well does it do it? The A4-1200 comes with its own printer driver, PrinterDP. This is used in preference to the Printer Manager and is claimed to give better performance. It does mean, though, that you can't have more than one printer driver installed as you can with the Printer Manager.

## Surprises in Store

If you're used to conventional printers, you will be in for a few little surprises when you start using PrinterDP. Clicking on its icon brings up a Print options window. From here you can not only control the resolution, as you would expect, but a whole host of other parameters such as the halftone screen, number

of grey levels, contrast control and gamma correction. You can also print the image as a negative, or as a mirror image (i.e. for producing film). All this gives you far greater control over the printed output than with most other printers.

The next little surprise is that the print size is A4. Yes, I mean a full A4 sheet, right to the edges. How many times have you tried to print something like a sheet of labels, only to find that you can't use the top and bottom rows of the sheet, or half an inch or so at either side, because of the print margins imposed by the printer itself? Well not any more! In fact, the A4-1200 will actually print slightly larger than A4 if you use the single feed mechanism, and this is very useful for one particular job, as I will describe in a moment.

#### Performance

I compared the print quality with a Star LaserPrinter 4 and an Epson EPL 7500 as well as my old Qume. At 300x300 the A4-1200 produced crisper text, as you might expect since the dots are much smaller. It was with graphics, however, that the Calligraph really came into its own. Using a 106 lpi halftone screen (16 grey levels), sprites which contained solid areas of tone, for example screenshots, came out looking as smooth as if the tones had been sprayed onto the paper, in stark contrast to the coarse stippled appearance of halftones on most 300 dpi lasers. Graduated fills were distinctly banded, though, as you would expect with only 16 greys. However, moving up to 48 greys virtually eliminated this at the expense of a degree of coarseness, yet the overall result was still far superior to any of the other three printers. And this is still only 300x300!

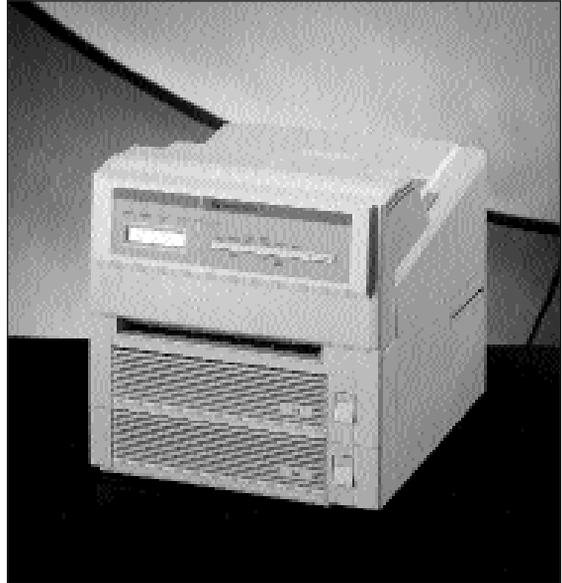
With increased resolution things just get better. At the maximum true resolution of 1200x600 you can achieve 255 grey levels with a

screen of 53 lpi, or conversely a very fine screen of 212 lpi if you are satisfied with 32 greys. It may take a little time juggling the settings to produce the best result for a particular job, but the quality is excellent once you have found the right balance.

Of course, there is a price to be paid for the higher resolutions, and in this case the price is speed and memory. To use anything higher than 300x300 will require at least 4Mb, and even then you may find yourself juggling memory in order to print anything. For the highest resolutions an 8Mb machine will be needed.

Speed at 300x300 is comparable with the Qume - both spat out a page of DTP containing text, sprite and Draw file in 25 seconds (timed from the moment OK was clicked in the print box until the whole of the sheet was clear of the printer). At 600x600 the same page appeared in 55 seconds - still fast compared with most PostScript or LaserJet printers, while at 1200x600 it took a perfectly acceptable 85 seconds. For even greater speed on draft printing, you can switch off halftones on sprites and fonts.

Multiple pages were produced at 8 per minute, exactly as claimed in the specification. The A4-1200 has a power-save mode which switches in when the printer has been unused for a minute or two, and it needs another half-minute to warm up



The A4-1200 dual-bin version

again before printing, though you can alter the time delay before the printer switches to power-save, or even turn the feature off altogether if you find it too annoying - at the expense of power consumption of course.

#### Plates

I mentioned earlier that the printer could print over an area slightly larger than A4. This is quite significant because it opens up the possibility of using it to produce your own printing plates. These must be larger than the paper size being printed to allow for crop marks, and for colour separations, registration marks (which are absolutely essential for the latter task and obviously must be printed outside the normal area). Paper and polyester plates can be handled via the single feed mechanism, or alternatively translucent film can be printed, which is then used to produce metal plates. The negative and mirror image options enable you to produce the correct output for the job in hand. This means that, probably for the first time,

**PRODUCT: A4-1200**  
**Direct Drive Laser**

Supplier Calligraph  
 53 Panton Street  
 Cambridge CB2 1HL  
 Tel. 0223 566642  
 Fax 0223 566643  
 Price £999 ex. VAT (single bin)

small businesses and home users can supply plates directly to a printer without any need to use an imagesetting bureau. I hope to cover this more fully in a future issue of RISC User.

**Epson Emulation**

As with previous ArcLaser incarnations, an Epson emulator is provided for situations where you or your application want to print in text

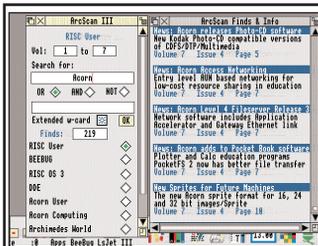
mode. This means that the printer appears to the application just as if it were an Epson-compatible, and can handle text styles such as italics and bold. The emulator can add page and line numbers, print in portrait or landscape format, in condensed text or multiple columns, and use any font in your computer. It will even wordwrap unformatted text for you. There is a slight problem with DeskEdit at the moment in that PrinterDP prints the text but leaves a scrap file open, causing strange things to happen next time you print. Calligraph are working on this.

**Networking**

All Calligraph printers can be networked, making them ideal for use in schools where their speed compares very favourably with other types of printer running on a network. To do this you need the printer spooler software which can be supplied with the printer. There

are various configurations possible depending on the machines available - for example, you can connect the printer to the file server machine, or you can use any machine on the network as a printer server.

I tested the A4-1200 using Acorn's Spooler on an A540 (not the file server) connected to an Ethernet network, and printing from a remote station. The same document I used in my earlier tests appeared in 40 seconds. This represented an almost threefold increase in speed over the 110 seconds taken over the same network by the Star LP4 in LaserJet mode - itself no slouch. It doesn't seem all that long ago that network users had to resign themselves to half an hour of waiting to print anything more complex than a page of text, which illustrates how far networking has come in the last few years, but also how much of an improvement can still be



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## REVIEW

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made by direct lasers.

### Conclusion

My final verdict? I don't think Calligraph will be seeing this particular machine again - anyone want a second-hand Qume ArcLaser?