

UNLOCKING POTENTIAL

When planning to install a digital press, the PC specification you choose to run your software workflow will play an important part in the data rates you will be able to achieve, explains Ian Bolton



Ian Bolton is Product Manager at Global Graphics Software

Bringing any digital printer to market has many technical barriers. By far the largest new technology barrier is the role that software plays in unlocking all of a digital printer's potential, especially when looking ahead to the new generation of faster, wider, higher-resolution presses.

Consider these scenarios:

- Replacing a traditional press with a digital press allows short runs of 'print to order', reducing waste and storage, but the challenge is in retaining output quality.
- Running print jobs that have mostly static data with defined zones of variable data (e.g. labels with text and barcodes) requires a focus on image (raster) data speed. Intelligent raster caching techniques for the static page areas can result in huge reductions in the amount of data.
- To produce printed items in a production run that are completely unique and personalised, ultra-high data rates are required. Breaking through this barrier requires an integrated graphics pipeline, with massively parallelised RIPs and screeners, that can drive printhead electronics across multiple PCs.

Each of these software barriers represents a quantum leap in speed and PC hardware cost.

ANALYSIS TOOL

When planning the implementation of your first or next digital press, the PC specification you choose to run your software workflow will play an important part in the data rates you will be able to achieve. Assuming you are not bottlenecked by disk drive performance due to requiring intermediate disk accesses, you can generally expect data rates to rise with the

computational power of your PC.

It might therefore make sense to review the PassMark (www.passmark.com) scores for a range of CPUs [central processing units] within your budget and make your choice based on that, but this alone won't be enough to tell you whether you'll be able to drive your printer at full rated speed. Similarly, you may already have an existing PC system in mind but need to know if it will be powerful enough for your new requirements.

Ideally, you could set up an evaluation system to run some typical print jobs to get a definitive answer, but this could be costly and labour-intensive, especially if this is your first digital press.

It's for this reason that Global Graphics created Direct Benchmark: an analysis tool

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that exercises Harlequin Direct, an ultra-high data rate RIPping and screening solution, with your choice of press configuration and print jobs, stepping through a tuning cycle to obtain a series of data rates and line speeds that can be achieved.

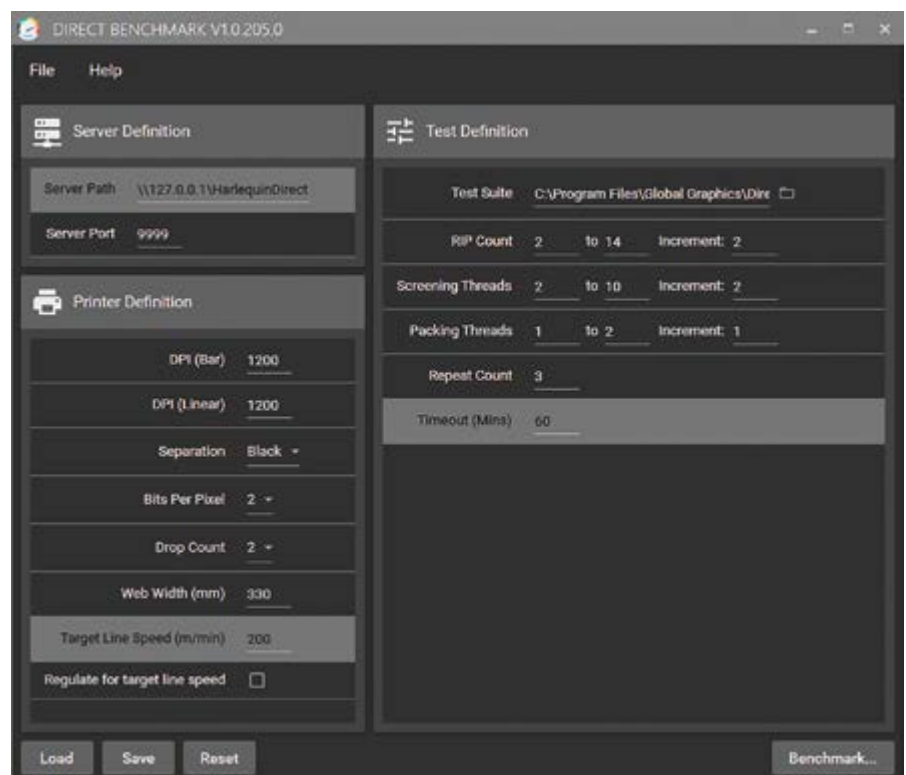
I'll be sharing our method and results across several representative print jobs in my presentation at the Inkjet Conference in October where I am aiming to provide delegates with a copy of our benchmarking tool for their own use – if you have an existing PC system to run on, you can install Direct Benchmark and gather your own results. Alternatively, you could base your decision on a database of results I am gathering from running a variety of jobs on a range of PC specifications.

CREATING YOUR OWN BENCHMARKS

Whilst a real system would be connected to printhead electronics and driving your press directly, the Harlequin Direct invoked by Direct Benchmark doesn't require this connection.

This makes it very quick and easy to install and start gathering performance numbers. The screenshot shows the settings you can use to reflect your printer configuration and define the print jobs to benchmark.

During benchmarking, you will be



This screenshot shows the settings you can use to reflect your printer configuration and define the print jobs to benchmark

presented with a screen showing statistics for each run, including data rates, line speed and CPU usage, along with a real-time graph at the bottom. Results can then be exported and settings adjusted for additional runs as required.

USING THE DIRECT BENCHMARK DATABASE

If you aren't in a position to run Direct Benchmark yourself, Global Graphics is in the process of gathering results for a range of press configurations and print jobs, running on a variety of PC hardware specifications. This is being conducted in conjunction with Proactive Technologies who are providing access to some of the machines we're using. Whilst it is too early to draw any conclusions or share our results at this stage, if you have some typical print jobs and a press configuration in mind, please get in touch with me, because we may be able to generate the results for you.

A QUICK WORD ABOUT DATA RATES

It's worth taking a brief diversion to talk about data rates by taking the example of a fully variable data job. Each minor inefficiency in a job of this type will often only add between a few milliseconds and a second or two to the processing of each page, but those times need to be multiplied by the number of pages in the job. An individual delay of half a second on every page of a 10,000-page job adds up to around an hour and a half for the whole job. For a job of a million pages it only takes an extra tenth of a second per page to add 24 hours to the total processing time.

If you're printing at 120ppm, or equivalent, the digital front end must process each page in an average of half a second or less to keep up with the press. The fastest continuous feed inkjet presses at the time of writing are capable of printing an area equivalent to over 13,000 pages per minute, which means each page must be processed in just over 4ms. It doesn't take much of a slow-down to start impacting throughput. If you're involved in this kind of calculation you may find the digital press data rate calculator available on Global Graphics' blog useful: <https://blog.globalgraphics.com/tag/data-rate/> ■

Ian Bolton is Direct Product Manager at Global Graphics Software

Further information:

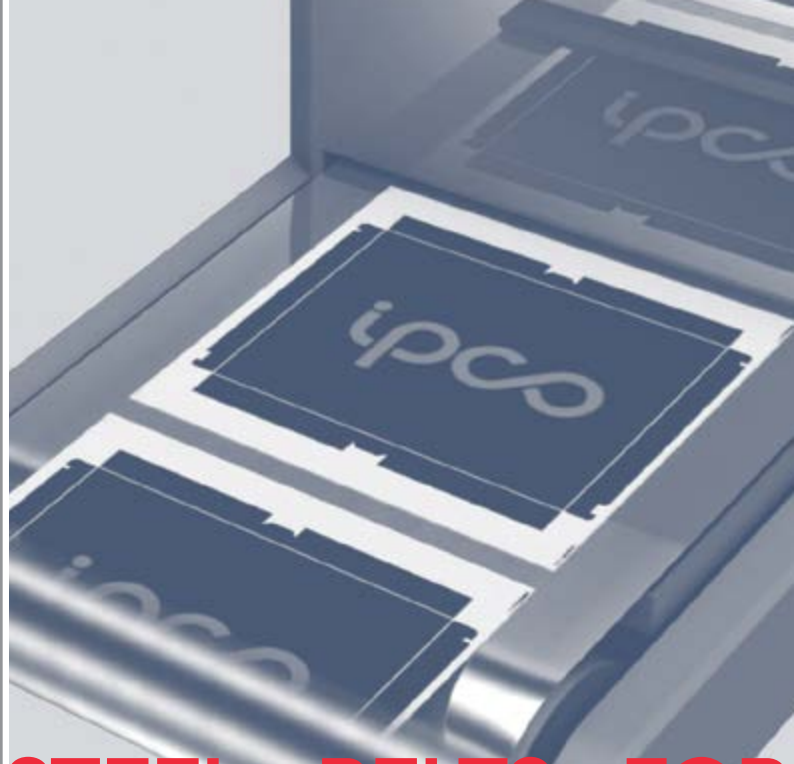
Global Graphics Software, Cambridge, UK
tel: +44 1954 283100
email: ian.bolton@globalgraphics.com
web: www.globalgraphics.com



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