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Technical bulletin

Renderstation Selection Guidelines

Overview

The following provides some guidelines for selecting the appropriate Renderstation computer for a given output device. This discussion assumes that the Renderstation is directly connected to a Kodak/Creo platesetter.

Note that these recommendations do not apply to TIFF downloader (non-RIP) systems.

Considerations

There are three computers that are currently available for Prinergy Renderstations:

- Workstation (e.g. Optiplex GX280, Optiplex GX620)
- Performance Server (e.g. PE800, PE830)
- Premium Server (e.g. PE2800).

The Workstation and Performance server have similar hardware platforms; both have single hyper-thread CPUs (two logical CPUs) and SATA disk drives. The Premium server has dual hyper-thread CPUs (four logical CPUs), SCSI disk drives with internal RAID controller, and redundant features for higher reliability.

There are several considerations when selecting an appropriate Renderstation platform:

- does the Renderstation support EPM or EPM+ ?
- size and speed of the output device
- complexity, efficiency of job data.

Emergency Platemaking (EPM) and EPM+ cannot be hosted on the Optiplex Workstation. Only the Performance and Premium servers support this feature.

Tests show that for the Thermal 2 based output devices (which includes everything up to and including V-head speeds), the Renderstation uses approximately 2 software threads during output. Testing shows that a single hyper-thread CPU is sufficient for this process, assuming that the processing is CPU bound. A second CPU does not significantly improve performance.

Thermal 3 heads (X-speed) have the highest data rates and use approximately 3 threads during output. A 2 CPU server (the Premium server) is often required to satisfy the demanding data rates and higher CPU requirements.

The fastest output devices as measured by the required date rate (MB/sec) to drive them at full speed are the VLF machines: the VLF Trendsetters and the Magnus VLF.

NEWS output devices are generally 1200 dpi resolution devices. These are relatively easy to drive as the data rate is typically much less than 2400 dpi devices.

The most unpredictable part of output is the complexity of the files being rendered. There is a large range of complexities; from good vector PDF files, typical of the types of files we usually use for Prinergy benchmarking to inefficient file formats. Some examples of inefficient file formats are many of the raster file formats generated by workflow solutions, un-optimized copydot formats, and other file formats generated by various workflows and workflow options. Also, some packaging workflows are notorious for creating inefficient pages. The problem for many of these inefficient file formats is that they create a large display list that the RIP must write to its local disk during the interpretation of the job. This might create a disk bottleneck, in which case the superior disk performance of the Premium server (SCSI drives with internal RAID controller) provides the best performance.

Recommendations

Generally, all NEWS, 4-up and 8-up output devices can be driven at full speed by the Workstation or Performance Server.

Consider the Premium Server for Thermal 3 devices, particularly for the largest and fastest speed Magnus VLF machines.

When dealing with inefficient file formats, consider the Premium server. This is mostly an issue for VLF with V-heads or faster, but it might also be a consideration for the fastest 8-up platesetters if the files are inefficient.

The following table provides recommendations for the Renderstation platform:

System	Workstation	Performance	Premium
EPM, EPM+	✗	✓	✓
NEWS (1200 dpi)	✓	✓	✓
4-up, 8-up	✓	✓	✓
VLF S-speed, F-speed	✓	✓	✓
VLF V-speed, efficient data	✓	✓	✓
VLF V-speed, slow data	✗	✗	✓
VLF X-speed (Thermal 3)	✗	✗	✓

About Kodak Graphic Communications Group (GCG)

The leading provider of graphic communications solutions worldwide, Kodak's Graphic Communications Group (GCG) offers image capture systems; professional color, copydot, and high-speed document scanning systems; inkjet printing and proofing systems; workflow and color management software; thermal imaging devices for film, plates, and proofs; high-quality proofing media, printing plates, and recording film; on-demand color and black-and-white printing systems; data storage products; and professional services. Creo joined the GCG in June 2005, when it became a wholly owned subsidiary of Kodak. With corporate headquarters located in Rochester, N.Y., Kodak (NYSE: EK) had sales of $13.5 billion in 2004 and is committed to a digitally oriented growth strategy.

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