

Comprehensive
RIP solutions for
digital production
presses and other
host-based systems

HARLEQUIN[®] **host renderer** **SDK**_{v3}

HARLEQUIN® host renderer SDK v3



The Harlequin Host Renderer forms part of a new generation of world-class production printing technology from Global Graphics®. It provides high performance components with which to build Digital Front Ends (DFEs) for digital production presses and other host-based Page Description Language (PDL) rendering solutions, shortening development cycles and accelerating time to market.

The highly customizable Harlequin Host Renderer is based on Global Graphics' highly regarded Raster Image Processor (RIP), and can be utilized in building a variety of solutions, including:

- As a renderer that can be linked or loaded into a Digital Front End (DFE) or controller for printing on premium output devices, such as wide- and grand-format printers and digital presses from light production to ultra-high volume
- For creation of thumbnails and previews for web-to-print and production print workflow solutions
- As a part of an ink usage estimation system to support inkjet press solutions
- For pre-production job pre-flight to ensure that jobs will run through a production system correctly

Implementation options range from a simple rasterization service, providing full frame contone raster, to more sophisticated operation where the RIP performs imposition, watermarking, color management and halftoning and delivers tagged raster for subsequent processing.

THE RIP CORE

The Harlequin Host Renderer is built on version 3 of the Harlequin core RIP, and features:

- Native interpreting paths for PostScript®, PDF and XPS. An OEM may choose to take all three Page Description Languages, or any one or two. Native support for all formats within a single RIP greatly simplifies integration of color management, screening etc, reducing engineering cost and time to market. It also ensures efficient and consistent rendering regardless of which PDL is used
- Infrastructure for an OEM to build a PDF/VT compliant solution around the Harlequin Host Renderer. Harlequin OEMs have been shipping DFEs supporting PDF/VT since lpx 2010
- Encapsulated PostScript (EPS) and image file formats such as JPEG and TIFF™ are also supported, enabling implementation of a PPML/GA solution with consistent rendering of all required data elements
- A highly optimized multi-threaded architecture, to make maximum use of compute horsepower available, and therefore minimize the cost of hardware required to reliably achieve engine speed

WHAT'S NEW IN 3

Harlequin Parallel Pages™ - greatly extending multi-threading support, allowing maximum use to be made of both workstation and server-grade multi-core CPUs

Harlequin VariData™ - improved use of PDF retained raster to accelerate even more types of variable data print jobs saved as PDF, including those using live transparency

64-bit builds, allowing access to more RAM for each RIP instance

Support for both threshold-based and programmatic multi-bit screening

- A flexible memory model makes maximum use of RAM supplied, but allows performance to degrade gracefully if insufficient memory is available to process a job optimally, ensuring that correct output is still produced
- Configurable raster output formats, offering a wide variety of color spaces, channel interleaving and bit-depth and including multi-bit screening
- Extremely flexible control and configuration interfaces, including boilerplate system code that can be amended or replaced by the OEM as required
- Built-in font rendering, color management and screening that can be replaced with an OEM's own IP or third-party libraries.
- Cross-platform support enabling porting to any suitable hardware and operating system.

AN OPEN AND FLEXIBLE MULTI-PDL SYSTEM...

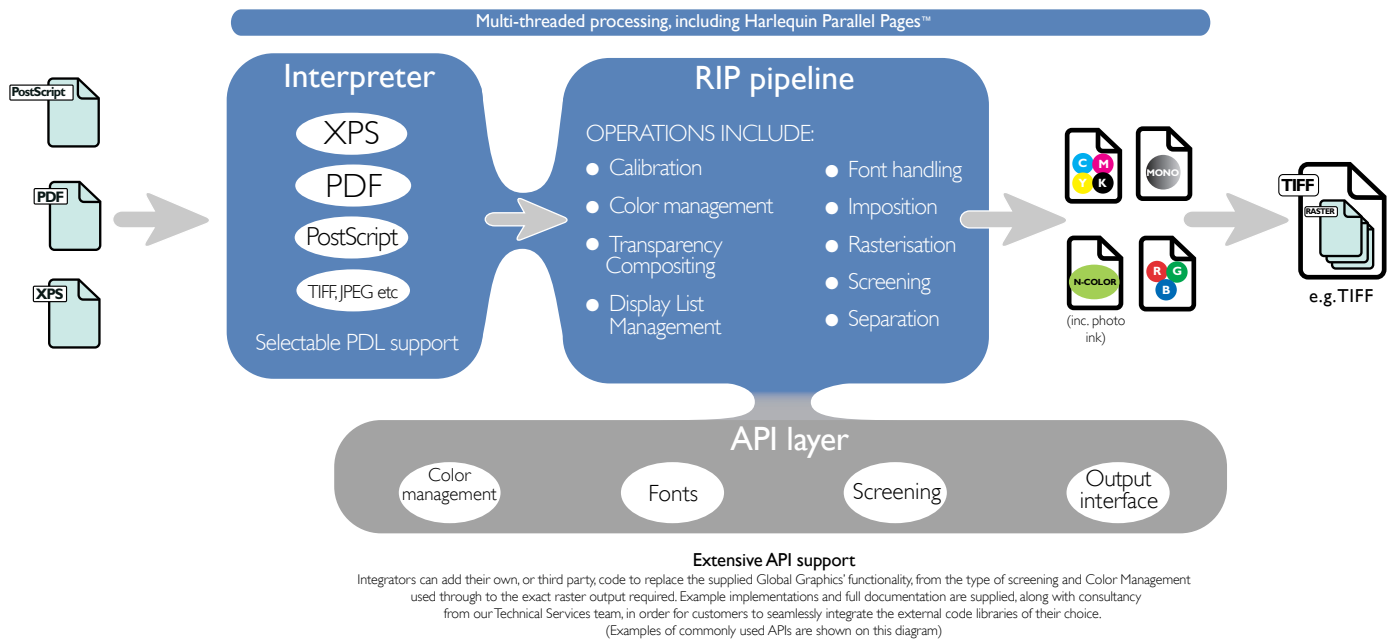
Job submission
Mixed submission of major PDL formats with no pre-RIP conversion required.

Multiple PDL interpretation
Native interpretation of all or any of PostScript, PDF and XPS.

RIP pipeline processing
Sequential customisable processing for a range of flexible raster operations. Using either Global Graphics supplied code, or a developers own (or third party) IP through the API layer

Output raster
Configurable output formats, color models, interleaving and resolutions.

Post raster formatting
Optional wrapping of raster output



BENEFITS

Highly configurable RIP core

The RIP supports a rich, high-level configuration language for all of a client system's per-job, per-page, per-process and persistent configuration requirements. This includes job control, color management, screening, font handling, imposition, etc. Harlequin Host Renderer will integrate seamlessly into a very wide variety of workflows.

A complete solution for production print

As part of the Harlequin RIP family, the Harlequin Host Renderer brings with it a variety of in-RIP features designed for production print. These include:

- **Harlequin ColorPro™**, for accurate color management of all your jobs, in combination with built-in application of calibration tables
- **Screening**: a wide range of powerful and tunable halftone technology can be supplied, including multi-bit screens for inkjet presses. An OEM may also install their own screening as encrypted font caches or using an API for programmatic halftone technology
- **Harlequin TrapPro™**, a full-featured trapping solution
- **Font emulation**, patent-pending technology for when that job just has to be out now, even if required fonts were omitted when the PDF was made
- **Simple imposition**, enabling fast and efficient fully automated creation of simple imposition layouts, supplied with individual jobs.

A complete solution for variable data print

- **Harlequin VariData™**, to accelerate printing of variable data jobs that were saved as regular PDF. This is configurable to hold retained rasters within the RIP or to deliver them to OEM technology for reconstruction of final pages, offering the choice of an easy route into high-performance VDP, or maximum throughput for those OEMs who already have aggregation technology. Harlequin VariData is an expanded and improved replacement for the PDF Retained Raster functionality provided in earlier Harlequin RIPs
- Infrastructure for an OEM to build a PDF/VT compliant solution around the Harlequin Host Renderer. Harlequin OEMs have been shipping DFEs supporting PDF/VT since lpx 2010
- Ability to render all four graphical formats required for PPML/GA (EPS, PDF, TIFF & JPEG), enabling an OEM to build a complete PPML solution around the Harlequin Host Renderer.

Cross-platform

Global Graphics has a long history of providing cross-platform technology and in the Harlequin Host Renderer cross-platform support is provided through an OS abstraction framework, allowing deployment in host-based solutions on a wide variety of operating systems and hardware. It is available on Windows, enabling easy integration into many existing solutions, and on Linux, avoiding the requirement for costly Windows licenses. Other platforms available on request.

BENEFITS CONTINUED

Time to market

The Harlequin Host Renderer will assist you to deliver your project on time and on budget.

- Support for multiple page description languages within a single SDK minimizes integration work required to achieve consistent results
- Inclusion of a boilerplate framework and configuration code allows developers to make rapid progress from day one
- A wide variety of raster delivery formats mean that the Harlequin Host Renderer can be easily configured to deliver the data you require.

Performance

Global Graphics' technology is renowned for its high performance and reliability. The Harlequin Host Renderer is built on mature technology: it uses a new iteration of the RIP kernel found at the heart of the Harlequin RIP, with significant expansion and optimization. Version 3 of the Harlequin Host Renderer includes:

- extensive multi-threading of transparency compositing and rendering
- Harlequin Parallel Pages™, which allows a page to be interpreted while the previous pages are still being rendered. This ensures that processor cores are kept busy, ensuring the highest possible throughput.

The Harlequin Host Renderer provides the tools that allow a printer manufacturer or software vendor to engineer competitive differentiation into their solution and achieve superior performance, quality and PDL fidelity.

The exceptional speed and efficiency of Harlequin Host Renderer offer benefits for all classes of press. It means that a single RIP can drive devices faster than ever before, avoiding the need for implementing a RIP farm for light and medium production, reducing development costs and time to market. And high volume devices can be driven with fewer RIPs on fewer computers, reducing the bill of materials for hardware and operating systems for your DFE. It also avoids any need for custom hardware.

Complementary technology

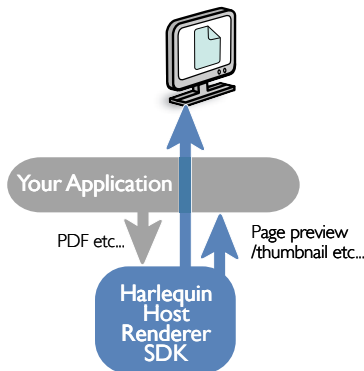
Harlequin Host Renderer addresses your needs for rendering PostScript, PDF and XPS within a larger, server-based system. The same core is available in other forms for other users: the Harlequin Server RIP provides a server-based RIP with a pre-built graphical user interface, and the Harlequin Embedded SDK is designed for use on controller boards within printers.

Standards-based

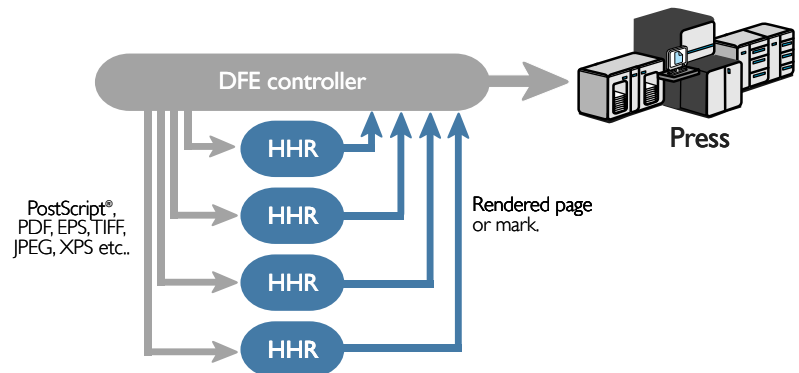
The Harlequin Host Renderer ensures compliance to a broad array of color- and print-related standards, including PDF/X, PDF/VT, ICC, OpenType etc.

At the same time, Global Graphics recognizes that some creation applications make non-compliant files, and the Harlequin Host Renderer is also written to be compatible with the output from a wide variety of such tools. The emphasis on both compliance and compatibility results in outstanding output quality across all jobs.

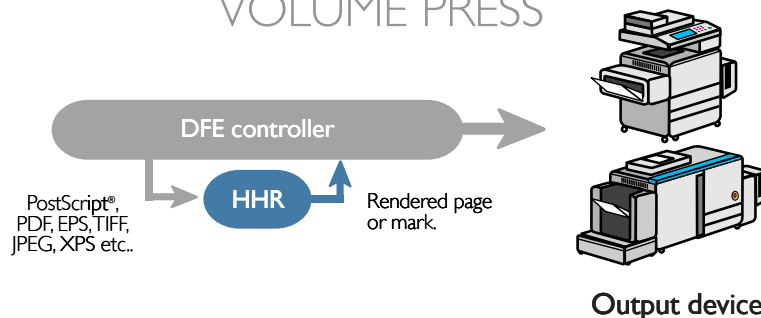
PREVIEW GENERATION



HIGH-VOLUME PRESS



LIGHT AND MEDIUM VOLUME PRESS



TECHNICAL SPECIFICATIONS

Native interpretation of:

- PostScript (including EPS)
- PDF (including ISO 32000-1)
- XPS
- TIFF
- JPEG
- Processing & validation of PDF/X-1a:2001 & 2003; PDF/X-3:2002 & 2003; PDF/X-4 & 4p 2008 & 2010; PDF/5g & 5pg 2008 & 2010
- OEM partners can build PDF/VT compliant digital front ends (DFEs) around the Harlequin Host Renderer.

Extensive configuration capabilities, accessible from all PDLs

- Effectively unlimited resolution, including unequal fast and slow scan
- Supercell, stochastic (FM) and hybrid screens available, including multi-bit. OEM screening IP installable as screen caches or through an API
- In-RIP imposition
- Extensive font substitution and emulation capabilities
- Internal and external modes to PDF Retained Raster for optimal VDP performance
- Thread count usage control
- C API for interfacing between layers and core.

Color

- Mono, CMYK & spot, RGB, RGBK, sRGB, CMY, K & spot output, support for N-color (inc. HiFi, photoink and custom) or rendered content description
- Raster depths output: 1, 2, 4, 8 or 16 bits
- Planar, band interleaved, or pixel interleaved output
- Internal Color Management support, (ICC 4.0) or user defined via CMM API
- Output of object map data to inform downstream color management or screening processes, etc
- Multiple calibration curve options
- Output of mask data to enable post-RIP aggregation of rasters for variable data print.

Cross-platform support through an OS abstraction framework

- Currently supported on 32- and 64-bit Microsoft Windows and 64-bit Linux; ask if you have requirements for other operating systems.

Market leading performance

PDL SOLUTIONS FROM GLOBAL GRAPHICS

At the heart of some of the world's best-known brands of printing devices and electronic document applications lies technology from Global Graphics Software.

10 REASONS TO WORK WITH US

PROVEN SUCCESS

Global Graphics is a strategic development partner to HP. The Harlequin RIP drives the HP Indigo Digital Press range and IHPS (high-speed web press) devices via either the HP Production Pro Print Server or the HP Ultra Print Server digital front ends. We have worked closely with HP for over 7 years to continuously enhance performance.

MORE THAN A RIP

In addition to RIP technology Global Graphics provides in-RIP color management and a wide variety of output color spaces, interleaving and bit-depths, including multi-bit screening. Global Graphics is also a specialist in imposition and trapping.

A TECHNOLOGY INNOVATOR

The Harlequin RIP has:

- processed PostScript natively since 1988
- processed PDF natively since 1997 (9 years before Adobe) and rendered live PDF transparency since 2002 (4 years before Adobe)
- supported XPS since 2005— In 2003 Microsoft chose Global Graphics to provide consultancy and proof of concept development services for XPS and Global Graphics built the XPS print reference RIP
- been PDF/VT ready since 2009 (1 year before Adobe), and in compliant OEM DFEs since IpeX 2010.

POSTSCRIPT AND PDF IN ONE RIP

The Harlequin RIP natively supports PDF, PostScript and XPS in one RIP engine. Some competitive solutions require multiple RIPs or conversion technology to handle different file formats which requires more integration effort and risks inconsistent results. By supporting EPS, JPEG and TIFF as well it's a one-stop solution for rendering PPML/GA.

PERFORMANCE

The Harlequin RIP's high performance results from more than 25 years of investment in its development. Independent tests shows that it is nearly 5 times faster than APPE over variable data print jobs and 2 ½ times faster on general commercial jobs. It's been continuously proven in the field so it won't let you down.

YOUR CONTROLLER WILL COST YOU LESS

The Harlequin RIP is exceptionally fast and efficient so you can achieve rated engine speed with less processing power, with a concomitant reduction in the costs for hardware, operating systems and other associated software.

FLEXIBLE AND OPEN COMMERCIAL MODEL

We work with you to support your business goals. We are open to discuss innovative pricing models.

RIP DEVELOPMENT IS OUR CORE BUSINESS

Global Graphics is focused on RIP development for production/commercial printing. This business is strategically important and represents over 70% of Global Graphics' revenue.

DEFINING STANDARDS

Global Graphics is active in committee defining industry standards notably the ISO committees defining PDF and PDF/VT.

EVERY CUSTOMER IS UNIQUE

Global Graphics is not just a RIP supplier. A close development partnership is critical to achieving your goals. We engage early with you in the pre-planning process and work with you to optimize performance within your environment. We closely integrate our support teams with yours to fine-tune the RIP to particular use cases.

Sign up to
evaluate

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