Product Brief

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The IPS XLC interpreter from Zoran is a modular architecture for optimized handling of graphic data, with improved printer throughput and memory usage in color and monochrome printers and multifunction peripherals. The IPS XLC interpreter handles all PCL XL components of Hewlett-Packards PCL 6 page description language (PDL). When used in combination with Zoran's IPS FIVE interpreter, IPS XLC is fully compatible with the HP PCL 6 standard. Considering that today's documents are increasingly complex, are lavish in graphics, and contain scanned images, clip art, multiple fonts and multiple formats, the challenge for peripheral manufacturers is to produce devices that will print those multifaceted documents without losing time, quality or data. The PCL 6 page description language has emerged as an efficient and reliable method for printing such documents. With Zoran's IPS XLC interpreter, OEMs can be assured that the high fidelity and rich content of those documents are supported during printing.

Benefits

• Single interpreter provides high quality monochrome and color printing solution with full compatibility to the major features of the PCL XL components of Hewlett-Packard's PCL 6

• Optimized to process complex graphics, tune performance and maintain flexibility

• Source code availability provides design flexibility and facilitates value-added customization

• Integrated with Zoran's OneImage™ common display list technology to support multi-bit and contone output devices

Key Features

• Full support of major features described in PCL XL Feature Reference Protocol Class 3.0

• Supports Monotype Imaging UFST 4.2 (TrueType, CFF, MicroType and Asian Compression for TrueType) fonts and UTF-8 encoding

• Supports variable print resolutions up to 1800 dpi

• Can be combined with the other languages in IPS—IPS FIVE, IPS PS3, IPS PDFt and IPS XPS—for complete print functionality

Description

Total System Solution

IPS XLC was designed for the rich graphic applications common today. The IPS XLC interpreter emulates the PCL XL component of Hewlett-Packard's PCL 6 language for both monochrome and color devices. IPS XLC implements the following key benefits of PCL XL 3.0:

• Commands closely match Microsoft Windows graphic display interface (GDI), resulting in fast printer driver translations, quicker return to application and exceptional WYSIWYG performance

• Object oriented structure produces smaller, more efficient datastream

• Interoperability with PCL 5 streams and fonts

IPS XLC features innovative Smart Black technology that offers superior control of image quality for single-bit CMYK output devices while maintaining complete compatibility with the PCL XL language.

Zoran provides complete source code for the IPS XLC interpreter and a full set of engineering documentation to allow OEMs to customize the interpreters for specific market requirements.

The interpreter is integrated with Zoran's rich featured foundation technology—IPS—to offer a total solution for high performance print and multifunction peripheral controllers. With its layered architecture and application programming interface (API), IPS reduces time-to-market and development costs.

IPS XLC combined with IPS FIVE provides a complete printing solution compatible with Hewlett-Packard's PCL 6 as implemented in the hp LaserJet 4250 series and the hp Color LaserJet 5500 series.

Optimized Image Quality at Low Cost, Low Memory

Patented Super MultiGray technology provides continuous tone image quality in single-bit devices through halftoning algorithms that create the illusion of more grays than the printer can output. Color halftone screens are tuned for different marking engine technologies. IPS also provides facilities for OEMs to incorporate their own screens. The software also utilizes a bitmap smoothing method that improves even low-resolution images.

Product Brief

Description (continued)

Zoran Engineering Support Services

Zoran offers Source Code Maintenance and Engineering Support Programs that can shorten development cycles and ensure that the latest PCL XL language features are available as new controllers are developed. The IPS XLC source code license includes technical support, software integration training and source code maintenance. The Source Code Maintenance Program provides extended source code maintenance and technical consulting, including informative technical bulletins and software patches and updates.

Zoran's Engineering Support Program provides direct software integration assistance and design recommendations to optimize the interface between the PCL XL compatible interpreter and the controller. OEMs can also work with a Zoran-authorized development partner. These companies have experience in Zoran's IPS XLC software integration and can offer fixed-cost, turnkey controller development for a range of controller configurations and print engines.

Specifications

Compatibility

- Monochrome PCL XL commands as implemented in HP's LaserJet 4250 series
- Color PCL XL commands as implemented in HP's Color LaserJet 5500 series
- PJL as implemented in HP's LaserJet 5Si

Print Resolutions

- Up to 1800 dpi

Output Color Models

- 1,2,4 and 8-bit pixel depths
- Monochrome, RGB, CMY and CMYK by plane
- Monochrome CMY and CMYK by band
- RGB by pixel (8-bit only)

Fonts

Resident Fonts

- MicroType

Downloaded Fonts

- TrueType

Minimum Memory Requirements

- Monochrome: 4 MB (600 dpi, 1-bit)
- Color: 8 MB (600 dpi, 1-bit)

Paper Size

- Executive, letter, legal, ledger, A3, A4, B4, B5, envelope, others

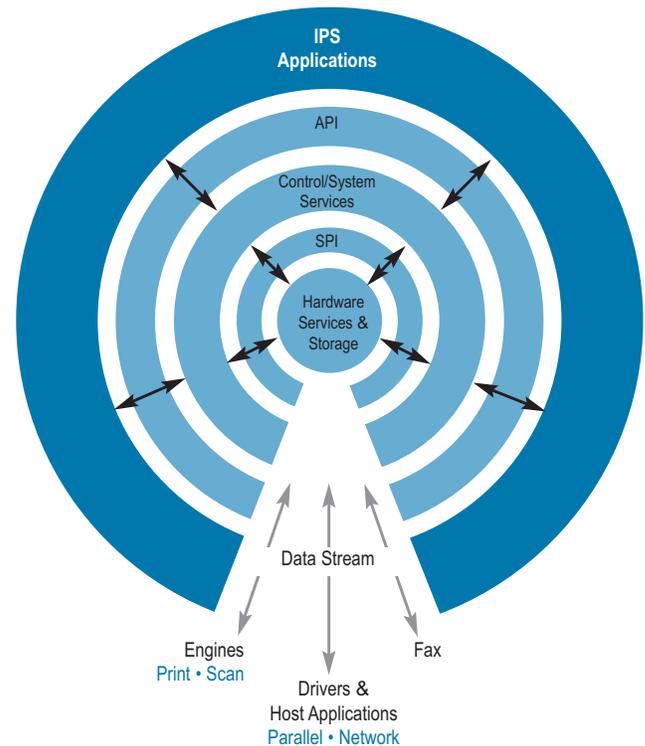### Duplex Printing Support

N-up Printing Support

Quality Assurance

- QualityLogic ATS, FTS and CET

IPS Architecture

This diagram illustrates the layered components of Zoran's embedded foundation software technology—IPS.

IPS Applications

API

Control/System Services

SPI

Hardware Services & Storage

Data Stream

Engines
Print • Scan

Drivers & Host Applications
Parallel • Network

Fax

Zoran's IPS Applications

- IPS PS3   • IPS PDFt   • IPS FIVE   • IPS XLC   • IPS XPS

(API) Application Programming Interface

Control Services

Control Program Interface • State Manager • Custom Control
Fax Channel • Net Administration • PJL • Remote Control Panel

System Services

Queue Manager • Memory Manager • File System • Time
Color Management • Image Processing • Image Nodes • Image Flow
Image Store • Input/Output • Output Drivers • Connectivity • Compression

(SPI) System Programming Interface

Hardware Services

Basic • Tasker messaging • RTOS Kernel Interface
Front Panel • Compress • Image Processing • Custom

Storage

RAM • ROM • NVRam • Flash • Disk

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