

## Product Brief

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The IPS FIVE interpreter from Zoran provides a complete PCL 5 printing solution for color and monochrome printers and multifunction peripherals. The interpreter is integrated with Zoran's rich featured embedded foundation technology—IPS—enabling OEMs to develop high quality printers and MFPs that support the PCL 5 printing standard. IPS FIVE supports the

PCL 5e language as implemented in the hp LaserJet 4250 series of printers and PCL 5C as implemented in the hp Color LaserJet 5500 series. IPS FIVE implements all PCL 5C commands specified in the Hewlett-Packard PCL 5C Color Technical Reference Manual and the HP PCL 5 Specification.

### Benefits

- Single interpreter provides high quality monochrome and color printing solution with full compatibility to Hewlett-Packard's PCL 5e and PCL 5C
- 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

### Description

#### Supports Widest Variety Of Applications

IPS FIVE is compatible with the widest range of applications, office printers and MFPs. Zoran's implementations offer full compatibility to the Hewlett-Packard standard. A single interpreter can be used to build either monochrome or color devices—both types of devices accept color PCL 5 commands for compatibility with newer Hewlett-Packard printers.

IPS FIVE features sophisticated image processing, memory management and compression techniques for high quality. IPS FIVE also 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 5 language.

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

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

### Key Features

- Supports print resolutions up to 1200 dpi
- Supports color commands on monochrome devices
- Provides complete HP-GL/2 support
- Supports Monotype Imaging UFST 4.2 (TrueType, CFF, MicroType and Asian Compression for TrueType) fonts and UTF-8 encoding
- Can be combined with the other languages in IPS—IPS XLC, IPS PS3, IPS PDFt and IPS XPS—for complete print functionality

#### Zoran Engineering Support Services

Zoran offers Source Code Maintenance and Engineering Support Programs that can shorten development cycles and ensure that the latest PCL language features are available as new controllers are developed. The IPS FIVE 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 5-compatible interpreter and the controller. OEMs can also work with a Zoran-authorized development partner. These companies have experience in Zoran's IPS FIVE software integration and can offer fixed-cost, turnkey controller development for a range of controller configurations and print engines.

## PCL 5 Interpreter

### Product Brief

#### Descriptions (continued)

##### Specifications

###### Compatibility

- PCL 5e as implemented in HP's LaserJet 4250 series
- PCL 5C as implemented in HP's Color LaserJet 5500 series
- PjL as implemented in HP's LaserJet 5Si

###### Print Resolutions

- 300, 400, 600, 1200 and 1200x600 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

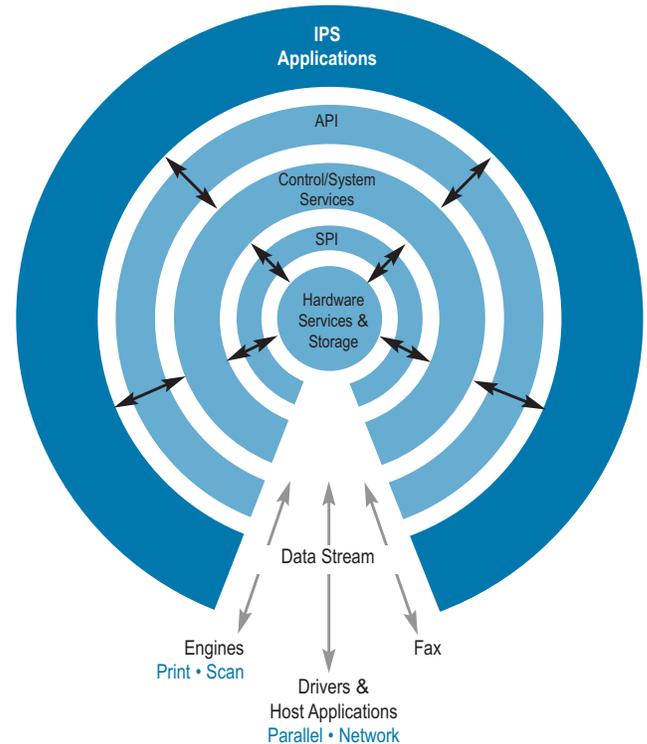
##### N-up Printing Support

##### Quality Assurance

- QualityLogic ATS, FTS and CET

#### IPS Architecture

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



##### 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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