XEROX

Xerox 4635 Laser Printing System Product Reference

January 1996
721P83071

Xerox Corporation
701 S. Aviation Boulevard
El Segundo, CA 90245

Printed in the United States of America

Publication number: 721P83071

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes are periodically made to this document. Changes, technical inaccuracies, and typographic errors will be corrected in subsequent editions.

This document was created on the Xerox 6085 Professional Computer System using VP software. The typeface is Optima.

Related publications

The *Xerox 4635 Laser Printing System Product Reference* is part of the ten-manual reference set for your laser printing system. The entire reference set is listed in the table below. Several other related documents are also listed for your convenience. For a complete list and description of available Xerox documentation, refer to the *Xerox Documentation Catalog* (Publication number 610P17417) or call the Xerox Documentation and Software Services (XDSS) at 1-800-445-5554.

Publication	Number
Xerox Dynamic Document Interface Operator Guide	720P13670
Xerox Dynamic Document Interface Command Summary	720P13680
Xerox 4635 Laser Printing System Operator Guide	721P83011
Xerox 4635 Laser Printing System Operations Reference	721P83021
Xerox 4635 Laser Printing System Sysgen Guide	721P83030
Xerox 4635 Laser Printing System Message Guide	721P83040
Xerox 4635 Laser Printing System PDL/DJDE Reference	721P83050
Xerox 4635 Laser Printing System Forms Creation Guide	721P83060
Xerox 4635 Laser Printing System Product Reference	721P83071
Xerox 4635 Laser Printing System Installation Planning Guide	721P83081
Xerox 4635 Laser Printing System Operator Command Summary Card	721P83090
Xerox 4635 Laser Printing System PC UI Reference	721P83101
Xerox Laser Printing Systems Tape Formats Manual	600P86175
Xerox Laser Printing Systems Standard Font Library Font User Guide	600P86174
Helpful Facts About Paper	721P82490

Notice

This publication may contain descriptions of concepts and features not currently available for your Xerox Laser Printing System. Consult your Xerox sales representative or your operating system software program description for additional information.

Table of contents

Introduction

4635 LPS Product Reference

The purpose of the *4635 LPS Product Reference* is to:

- Introduce the Xerox 4635 Laser Printing System (LPS) hardware and software
- Introduce basic concepts associated with LPS printing
- Compare the 4635 LPS to other LPS products
- Describe some of the user considerations associated with 4635 LPS performance.

Since the 4635 LPS Product Reference is a composite of information aimed at satisfying a variety of reader requirements, certain chapters or chapter sections may be skipped by the experienced LPS user. For example, the basic concepts in chapter 2 would be desirable reading for someone with little or no LPS experience, while an experienced LPS user need not read it. The contents of each chapter are described below.

Chapter 1: *Overview.* Presents 4635 LPS features, options, and specifications.

Chapter 2: *Basic concepts.* Introduces basic concepts associated with LPS printing, as well as an overview of the LPS production process.

Chapter 3: *Hardware.* Introduces major standard and optional hardware components.

Chapter 4: *Software.* Introduces LPS software, describes the functional operation of the software, and provides an overview of software features.

Chapter 5: *Product differences.* Provides a comparison of LPS products, addresses compatibility issues, and explains inherent user considerations.

Chapter 6: *Xerox customer resources.* Provides descriptions and telephone numbers for service, customer support, upgrades, and supplies for Xerox customers in the United States.

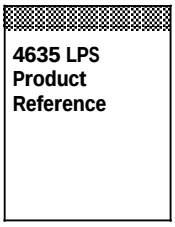
A glossary and an index are provided at the back of this guide.

About the reference set

This document is part of a reference set designed to help you receive maximum benefit from your 4635 laser printing system.

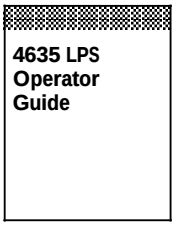
To help you select the appropriate document for your needs, the following section identifies the documents in the set and describes the information contained in each.

4635 Laser Printing System document set



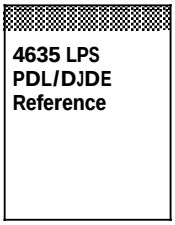
4635 LPS Product Reference

- Product overview
- Hardware and software
- LPS connections
- User considerations
- LPS comparisons



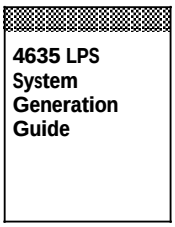
4635 LPS Operator Guide

- System overview
- PC UI procedures
- Paper facts and procedures
- Operating procedures
- Maintenance
- Problem solving
- Supplies
- Meter reading and reporting



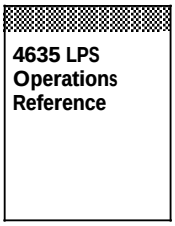
4635 LPS PDL/DJDE Reference

- Print Description Language components and processes
- Input processing functions
- Output processing functions
- PDL/DJDE command summary
- Page formatting guidelines
- Character code assignment tables
- PDL/DJDE programming information with step-by-step instructions



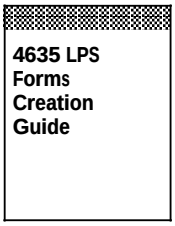
4635 LPS System Generation Guide

- Configuration options
- Commands
- OSS software installation, upgrade, and modification procedures



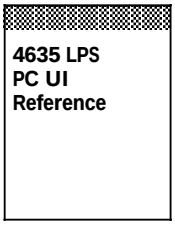
4635 LPS Operations Reference

- Command syntax for operator and system administrator procedures
- LPS defaults
- LPS resources
- Command summaries
- Communication and graphics on the LPS
- Command files



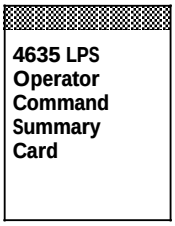
4635 LPS Forms Creation Guide

- Basic concepts for creating forms
- Coding and compiling for LPS Forms Description Language
- Sample form setup command sets
- Tips for successful forms creation



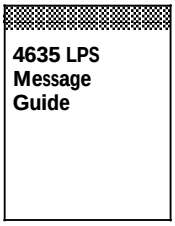
4635 LPS PC UI Reference

- PC UI procedures
- Hierarchy of PC UI windows



4635 LPS Operator Command Summary Card

- Provides a quick reference of commonly-used operator commands.

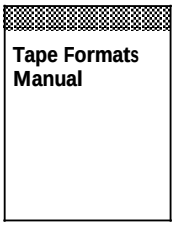


4635 LPS Message Guide

- OSS and other messages
- Meaning and recovery procedures

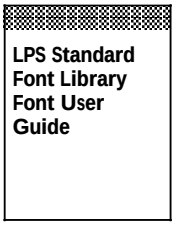
4635 LPS Installation Planning Guide

- LPS basic components and options
- Tasks that must be accomplished before installation
- Preinstallation requirements
- Installation process
- Postinstallation activities



Tape Formats Manual

- Characteristics of different formats
- File organization
- Data formats
- Carriage control conventions



LPS Standard Font Library Font User Guide

- Font naming conventions
- Listing of standard fonts
- Data sheets
- Glossary of typography terminology

Helpful Facts About Paper

- Selection and guidelines
- Storage and handling
- Specifications for different printers

Document conventions

This guide uses the following conventions:

< >	Angle brackets are used for keys on the system controller keyboard.
{ }	Curly brackets are used for required characters.
...	Ellipses indicate that you can repeat a parameter or list a series of parameters.
[ ]	Square brackets are used for optional command characters.
|	Vertical bars are used to separate parameters in a series. The vertical bar stands for "or."
bold	Bold is used for characters you enter at the command line.
italics	Italics is used for variable information.
`terminal font`	Terminal or monospace font is used to display system responses.
underline	System default parameters are underlined.
UPPERCASE	Uppercase letters are used for command names.

Note: You may key in entire words for each command, or the first three characters of each word. In this manual the entire word of each command is spelled out.

CAUTION: Cautions alert you to an action that could damage hardware or software.

WARNING: Warnings alert you to conditions that may affect the safety of people.

1. 4635 LPS overview

The Xerox 4635 Laser Printing System (LPS) is a versatile, high-performance printing system that processes and prints data from a variety of sources. It enables host mainframe computers and network-connected devices (such as workstations and graphic scanners) to produce publications and other documents, incorporating graphics, forms, logos, signatures, and a variety of fonts.

With the 4635 LPS, management information systems (MIS) and data processing (DP) environments have a high-performance printer in which built-in intelligence eliminates the need for the host computer to store and manage forms, fonts, and other document resources.

Data is printed at a rate of up to 135 pages per minute (154 with the optional Paper Feeding Enhancement Kit installed). A variety of fonts ranging in size from 3 points to 36 points, in all four orientations (portrait, inverse portrait, landscape, inverse landscape), and many publishing typefaces are available to meet your printing requirements. In addition to the standard set of fonts that is delivered with the LPS, special or customized fonts can be developed by the Xerox Font Center. Your sales representative will provide you with further information.

The Xerox 4635MX Laser Printing System (LPS) is the same system as the 4635 LPS with the addition of Magnetic Ink Character Recognition (MICR) functionality. Except where explicitly stated, all references in this document to the 4635 LPS apply to both the 4635 LPS and the 4635MX LPS.

The following material is presented in this chapter:

- Hardware and software components
- Options
- Specifications
- Features list

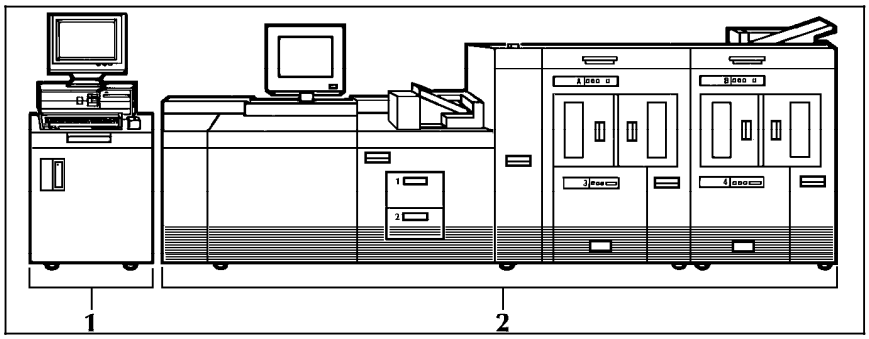
4635 LPS

The standard 4635 LPS consists of two main components:

1. System controller
2. Printer.

Figure 1-1 shows the 4635 LPS with the optional bar code device.

Figure 1-1. **4635 Laser Printing System**



The system controller is a minicomputer which manages the processing of input data; processes operator commands; provides for the entry and compiling of form, print, and job description files; executes job processing commands; and manages low-level control of the printer.

Your 4635 LPS has a PC user interface (PC UI) that enables you to start and monitor print jobs. In figure 1-1, the PC UI is shown on top of the system controller.

The printer contains the mechanics and electronics involved in the imaging and paper handling processes. Touch screen control on the printer control console allows you to easily monitor and control printer functions. Jam clearance areas and instructions are clearly displayed with color graphics.

For more detailed descriptions of the 4635 LPS hardware components, refer to the “4635 LPS hardware components” chapter.

Software

LPS software functionally consists of several components to manage printing system resources. Refer to the “System software functional description” section of the “4635 LPS software components” chapter for additional information. Among these components are two LPS-resident languages: FDL and PDL.

Forms description language (FDL) (standard)

FDL is a laser printing system resident language for designing electronic forms which can include logos, signatures, and shading. Form libraries (source and object) are stored on the system disks. Refer to the *Xerox 4635 LPS Forms Creation Guide* for more information.

Print description language (PDL) (standard)

PDL is a laser printing system resident language used to describe the input, logical processing, and output requirements of a print job. Refer to the *Xerox 4635 LPS PDL/DJDE Reference* for more information.

Options

The following options are available to further enhance the capabilities of your 4635 LPS.

Note: For detailed information regarding these options, please contact your sales representative.

9-track magnetic tape drive

The 9-track (1600/6250) magnetic tape drive is an alternative or additional offline capability to the 18-track cartridge tape drive for inputting print and nonprint data to the 4635 LPS. (Refer to figure 3-5.)

Refer to the *Xerox 4635 LPS Operator Guide* and to the *LPS Tape Formats Manual* for additional information.

18-track cartridge tape drive

The 18-track cartridge tape drive is an alternative or additional offline capability to the 9-track magnetic tape drive for inputting print and nonprint data to the 4635 LPS. It reads and writes IBM- and ANSI-compatible half-inch tape in the 18-track IBM 3480 data format. There is also an option available which allows it to read and print from the IBM 3490 format.

Refer to the *Xerox 4635 LPS Operator Guide* and to the *LPS Tape Formats Manual* for additional information.

Bypass transport

The bypass transport increases your production capabilities by providing you with a means of using finishing devices with your 4635 LPS. Conforming to Xerox Document Feeding and Finishing Architecture (DFA) Level 1 specifications, it allows you to choose from a variety of finishers.

Input enablement device

The input enablement device provides the means to directly connect bulk feeders to your 4635 LPS.

5.25-inch floppy disk drive

The 5.25-inch floppy disk drive is another means of downloading or backing up files, such as fonts, to the 4635 system disk.

Expanded disk memory

The 4635 has as a standard feature one 651 MB unformatted system disk, and can support up to three additional 651 MB unformatted system disks.

Expanded bitmap memory

The 4635 has as a standard feature 32 Mbits of bitmap memory that supports font and graphics. The bitmap memory can be expanded to 256 Mbits.

Bar code reader

The bar code reader adds a set of features that allow processing of bar code data streams. A cross-checking mechanism allows the 4635 to ensure that any bar code sheets printed have been accounted for by each component of the software.

Raster image processor

Raster image processor (RIP) performs vector to raster conversion in support of the Interpress 3.0 Publication Set. It provides multiple forms capability for any given page and permits printing of text and image files which would otherwise be unprintable or incomplete because of complexity. RIP allows you to use two forms per page and more than 16 graphics on a page for Interpress applications.

LPS connection

The 4635 may be ordered with the following optional connections:

Online interface

The online channel interface receives input directly from the host system. All IBM systems which support the channel-attached 3811/3211 or 4245 interface are supported. Non-IBM systems are supported through a variety of connections such as DDI. (Refer to the DDI description below.)

Offline interface

The offline interface is an excellent alternative or addition to an online operation. It supports 9-track (1600/6250 bpi) and 18-track (3480 format) tapes conforming to one of the following formats:

- American National Standards Institute (ANSI)
- IBM (OS/VS/370, OS/360, DOS/VS/370. DOS/360/370)
- Burroughs (MCP 2500-4700, 6700)
- Honeywell (OS 200/2000, OS 200/6000 series)
- Sperry/Univac Series 70 (1100-OS standard files
- DEC (RSX-11)

- CDC (external format)
- NCR (Century-B1)
- Tape input codes: EBCDIC, ASCII, BCD
- Interpress on tape
- Univac (SDF-formatted tapes)
- ICL (2900 VME/B)

Refer to the *Xerox 4635 LPS Operator Guide* and to the *LPS Tape Formats Manual* for additional information.

DDI interface

The Dynamic Document Interface (DDI) enables communication between a 4635 LPS and other products via a shared disk mechanism. The interface allows the other products (such as DEC, PC, MAC, and UNIX local area network (LAN) workstations) to save print files to an external hard disk. The 4635 LPS then directly accesses the external hard disk to retrieve files for printing. The DDI passes data over a high performance SCSI bus.

Ethernet interface

Ethernet is the Xerox local area network (LAN) that allows data to be transmitted by cable from one device to another. As an Ethernet member, your LPS can receive and print from other network "citizens" such as Ethernet workstations and graphic scanners.

Ethernet workstations

With the Ethernet option, an LPS can receive and print input data from workstations, such as the Xerox 8010, 6085, and the XPS 700 series. Workstations can transfer Interpress files using Ethernet to the LPS and invoke LPS-stored forms and graphics for printing.

Interpress is a page description language capable of describing any two-dimensional image intended for a raster device, such as a Xerox LPS. Its function is to describe previously created data on a page; it is not a page composition language. This functionality includes vector graphics (sometimes referred to as line art), contour fonts, and pixel arrays. Interpress also includes job management features such as paper tray selection, output offsetting, stock selection, copy count, and page selection on a copy basis.

An Interpress master can be created at a host or at a workstation for transporting (offline or Ethernet modes) to the LPS.

Refer to the *Xerox 4635 LPS Operations Reference* and to the workstation's documentation for more information.

Ethernet graphic scanners

With the Ethernet option, an LPS can receive and print scanned graphic data (both line art and continuous tone images) from the 7650 Pro Imager (using the Xerox Publishing Illustrator's Workstation).

Refer to the *Xerox 4635 LPS Operations Reference* and the *Xerox 7650 Pro Imager Reference Manual* for more information.

4635 LPS specifications

Listed below are specifications for the 4635. For more information on 4635 installation planning and specifications, refer to the *Xerox 4635 LPS Installation Planning Guide*.

Equipment dimensions

Hardware	Width	Depth	Height	Weight
System controller	24 in./610 mm	28 in./712 mm	38.2 in./970 mm	300 lbs./136 kg
—with optional peripheral cabinet (fully loaded)	48 in./1219 mm	28 in./712 mm	38.2 in./970 mm	616 lbs./280 kg
Printer				
—with monitor and two feeder/stacker modules	151.2 in./3842 mm	35.9 in./711 mm	59.6 in./1513 mm	2588 lbs./1174.9 kg
—with monitor, two feeder/stacker modules, and optional bypass transport	170.2 in./4324 mm	35.9 in./711 mm	59.75 in./1518 mm	2768 lbs./1255.6 kg
—with monitor and three feeder/ stacker modules (one optional)	183.5 in./4661 mm	35.9 in./711 mm	59.6 in./1513 mm	3109 lbs./1411.9 kg
—with monitor and four feeder/ stacker modules (two optional)	215.8 in./5480 mm	35.9 in./711 mm	59.6 in./1513 mm	3630 lbs./1648.9 kg

Clearance requirements

Printer Requires 36 inch/914 mm clearance on each side. 50 inches/1270 mm required at front of printer.

System controller Requires 36 inch/914 mm clearance on each side.

Finishers and bulk feeders Finishers and bulk feeders attached to your bypass transport require 36 inch/914 mm clearance on each side.

Environmental requirements

Operating temperature 74° F ± 4° F/24° C ± 4° C (recommended)
54° - 85° F/14° - 29° C (min-max)

Humidity 45% ± 10% (recommended)
15-85% (min-max)

Heat dissipation, printer	Operating: 28,140 Btu per hour Standby: 4,454 Btu per hour
Heat dissipation, system controller	3,754 Btu per hour
Heat dissipation, optional peripheral cabinet (fully configured)	3,195 Btu per hour

Electrical requirements

For more information on 4635 LPS electrical requirements, including power cord and outlet specifications, refer to the *Xerox 4635 LPS Installation Planning Guide*.

System controller	U.S./Canada, 60 Hz:	208/240 (1 phase) or 208/220 VAC (line 1 to line 2) 15 amp service NEMA 6-15R or ANSI C73, 20R KVA 1.1 (operating)
	International, 50 Hz:	200/230 VAC (1 phase) 15 amp service Power connector per local codes
Printer	U.S./Canada, 60 Hz:	120/240 VAC or 120/208 VAC 50 amp service NEMA 14-50R KVA 7.3 (operating)
	International, 50 Hz: (WYE):	380, 400, 415 VAC (3 phase, 5 wire) 20 amp service (WYE)
	International, 50 Hz: (DELTA):	220, 230, 240 VAC (3 phase, 4 wire) 30 amp service (DELTA)
Optional bypass transport	The bypass transport uses the Printer module as its power source, therefore all power requirements for the bypass transport are satisfied by the 4635 LPS.	
Optional peripheral cabinet	U.S./Canada, 60 Hz:	208/240 VAC (1 phase) or 208/220 (line 1 to line 2) 15 amp service NEMA 6 to 15R or ANSI C73, 20R KVA .9 in both standby and operating
	International, 50 Hz:	200/230 VAC (1 phase) 15 amp service Power connector per local codes
Agency certification	UL, CSA, IEC, VDE	

4635 LPS features

Listed below are features of the 4635 LPS.

LPS connection

- Online interface for all IBM systems which support the channel-attached 3811/3211 or 4245 interface
- Offline interface for any 9-track (1600/6250 bpi) or 18-track cartridge tape conforming to one of the following formats:
  - American National Standards Institute (ANSI)
  - IBM (OS/VS/370, OS/360, DOS/VS/370. DOS/360/370)
  - Burroughs (MCP 2500-4700, 6700)
  - Honeywell (OS 200/2000, OS 200/6000 series)
  - Sperry/Univac Series 70 (1100-OS standard files
  - DEC (RSX-11)
  - CDC (external format)
  - NCR (Century-B1)
  - Tape input codes: EBCDIC, ASCII, BCD
  - Interpress on tape
  - Univac (SDF-formatted tapes)
  - ICL (2900 VME/B)
- Dynamic Document Interface (DDI) for network connected devices sending Page Description Language (PDL), LCDS print data, or Interpress data to the shared disk subsystem.
- Ethernet interface for network-connected devices sending the XNS protocol.

Refer to the "Options" section of this chapter for more information.

System controller

- PC UI (refer below) or multinational terminal (non-U.S. market option)
- One 651 MB unformatted system disk standard; up to three additional optional disks (651 MB unformatted) available
- 1024K words of control memory
- 32 Mbits of font memory; expandable to 128 Mbits
- 5.25-inch floppy disk drive (optional Media Conversion Kit)
- Quarter-inch cartridge tape drive (QIC); up to 320 MB capacity in streaming mode; quarter-inch ANSI (standard)
- Front loading 9-track (1600/6250 bpi) magnetic tape drive (requires optional peripheral cabinet)
- Xerox 18-track cartridge tape drive; read/write capability for IBM- and ANSI-compatible half-inch tapes in the 18-track IBM 3480 data format (requires optional peripheral cabinet).

PC UI

- IBM-compatible 486 PC hardware; includes mouse pointing device, 4 MB memory, 80-MB hard disk, 3.5-inch floppy disk drive, 14-inch color monitor, multinational keyboard
- Color graphic windows and icons
- Full text editor allows you to perform complete textual editing tasks (such as moving, searching and replacing,

adding and deleting text, and so on) on the entire file, within a window environment

- File transfer provides a two-way file transfer between the PC UI floppy or hard disk drive and the system controller hard disk
- Start command library stores often-used start commands for easy selection with mouse; no need to key in start commands repeatedly
- Command line mode accessible from PC UI windows
- Console logging allows you to print, display, or save LPS activity record for tracking or service purposes
- Multinational language and feature support.

Printer

- Xerographic engine
- Laser raster scanning
- Optional bar code reader
- Rated speed of up to 135 pages per minute (up to 13,800 lines per minute) simplex; up to 68 pages per minute duplex (with the optional Paper Feeding Enhancement Kit installed, the rated speed for simplex is 154 pages per minute)
- Multiple-pitch feature allows the printer to change between five pitch modes (from 3 pitch to 8 pitch), depending on the paper size
- 300 spi input data interpolated to produce 600 spi output print resolution
- Prints on front and back side (duplex) of paper under software control
- Page inversion printing that allows the system to invert the image on a physical page by 180 degrees
- Printer control console with color touch screen graphically displays printer jam clearance information and allows control of paper loading/unloading
- Stop, continue, and print sample buttons on printer control console
- 100-sheet sample print tray using 20-pound/75-gsm bond
- Feeder trays:

Main tray 1 (Main)	=	1100-sheet, 20-pound/75-gsm paper
Auxiliary tray (tray 2)	=	600-sheet, 20-pound/75-gsm paper

- Feeder/stacker modules:

Each high-capacity feeder (HCF) tray (two standard and two optional)	=	2600 sheets of 20-pound/75-gsm paper
Each high-capacity stacker (HCS) bin (two standard and two optional)	=	2500 sheets of 20-pound/75-gsm paper

- Attention light, located on top of the inverter-feeder/stacker module, alerts operator when printer needs attention
- Attention alarm, located within the printer, alerts the operator when the printer needs attention
- Screen saver on the printer monitor

Paper handling

- 16-pound bond to 110-pound index/60-gsm to 200-gsm, cut-sheet paper, colored, preprinted, predrilled, or preperforated paper
- Variable paper sizes such as A3 (11.69 by 16.54 inches/297 by 420 mm, 11 by 17 inches/297 by 432 mm), B4 (10.12 by 14.3 inches/257 by 363 mm), and B5 (7.17 by 10.12 inches/182 by 257 mm)
- Transparencies, high-speed label stock, oversized covers, tab stock, and other specialized application materials
- Software-controlled paper stock management with four feeder trays
- Waste management and audit logging that allow more control of sensitive paper stocks by increasing the amount of information available with regard to how many sheets were fed from which tray as well as the final destination of the sheets.

Forms

- Electronically created and stored at LPS or host
- Changeable on a page-to-page basis
- Functionally compatible with Xerox 9790/8790/4090/4050 LPS forms, logos, and signatures
- Electronic form and variable data printed at the same time for accurate registration
- Multiple forms per page with Interpress and RIP options
- Preprinted forms.

Fonts

- Proportional or fixed character spacing
- Variable character size of 3 to 36 points
- Spacing of 4 to 30 characters per inch (cpi)
- Up to 128 fonts per page from extensive library of standard and optional fonts
- 300 dots per inch (dpi) font data interpolated to produce 600 spi print resolution
- Logo and signature fonts
- Multinational character set
- Loadable from host, magnetic tape, or cartridge tape
- 32 Mbits font memory; expandable to 128 Mbits
- Selectable on a character-to-character basis.

Printed format

- Variable spacing of 3 to 18 lines per inch (lpi)
- Spacing of 4 to 30 characters per inch (cpi)

- Landscape or portrait orientation
- Up to 38K alphanumeric characters per 8.5 by 14-inch/216 by 356 mm page total variable density
- 252 maximum lines per 8.5 by 14 inch/216 by 356 mm portrait page; 198 (5 points, 18 lpi) maximum lines per 8.5 by 11-inch/216 by 279 mm landscape page
- Up to 150 lines with 132 characters per line on 8.5 by 11-inch/216 by 279 mm landscape page
- Up to 16 images per page; over 16 images per page and vector graphics capability with Interpress and RIP
- Multiple logical pages on a physical page
- Simplex or duplex printing.

Types of output

- Interspersed reports
- Stacked reports
- Multiple sets
- Offsetting
- Report and job accounting
- Collated or uncollated.

2. Basic concepts

This chapter introduces basic concepts associated with a Xerox Laser Printing System (LPS). Major sections in this chapter cover the following topics:

- LPS overview
- LPS production process overview
- Fonts.

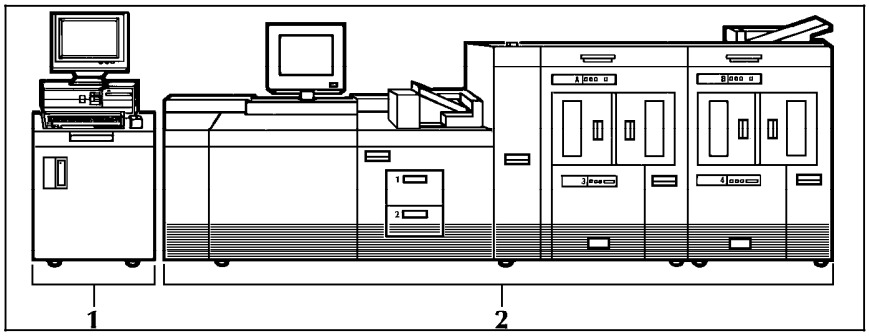
LPS overview

The 4635 LPS provides innovative solutions for a variety of business requirements. It consists of two separate units:

- System controller
- Printer.

Figure 2-1 shows the 4635 LPS with the optional bar code device. Refer to the "4635 LPS hardware components" chapter for further information on available options.

Figure 2-1. **4635 Laser Printing System**



1. System controller
2. Printer

System controller

The system controller contains the input subsystem and the control subsystem electronics.

The input subsystem provides interfacing capability (online, offline, Ethernet, and Dynamic Document Interface (for DEC, PC, MAC, and UNIX LAN connectivity) for a variety of input sources (host, magnetic tape, workstations, and graphic scanners).

Note: Your quarter-inch cartridge tape and floppy disk drives are not input sources for print jobs (refer to the "4635 LPS hardware components" chapter).

The control subsystem performs all data handling, formatting, buffering, and operational control of the system. It also provides operator control through the LPS terminal or PC User Interface (UI). Refer to the "4635 LPS hardware components" chapter for more information on system controller components and these subsystems.

LPS interfaces

The following LPS interfaces are available to connect a variety of input sources to the LPS:

Offline interface The offline interface permits input from a computer-prepared magnetic tape which is loaded onto the magnetic tape drive. The 9-track and 18-track magnetic tape drives are the optional offline interfaces available for the 4635 LPS. Refer to the "4635 LPS hardware components" chapter for more information.

Online interface The online interface permits input from a channel-attached host computer.

Ethernet interface The Ethernet interface, using the host interface processor (HIP) task, permits input from workstations or graphic scanners on a shared or an unshared, but accessible, network.

DDI interface The Dynamic Document Interface (DDI) enables communication between a 4635 LPS and network via a shared disk mechanism over a SCSI bus. Refer to the *Xerox Dynamic Document Interface Operator Guide* for information regarding the DDI.

LPS system disk storage and memory

The system disks store the operating system software (OSS) as well as the system resources (fonts, forms, and graphics) that are to be loaded into memory for use during input processing. Refer to the "LPS software components" chapter for more information on OSS.

Printer

The printer contains the imaging, xerographic, and output subsystems.

Imaging subsystem

The imaging subsystem accepts a formatted page of data from the system controller (forms and graphics have already been merged) for the xerographic process:

Xerographic subsystem

One of the important keys to LPS print quality lies in the xerographic process itself. The print image produced by the dry ink is very dark to create more contrast between the printing and the page, making images easier to read.

The following steps describe the xerographic process:

1. A band full of video data (1s and 0s) is transferred from the band buffer to the laser scanner.
2. The laser beam moves across the surface of the photoreceptor belt based on the value of the incoming bit (1 or 0), producing a latent image.

   In this step, a charge is applied to the surface of the photoreceptor belt. The surface is discharged when it is exposed to the laser beam, thus creating a pattern of dots corresponding to the page that is to be printed.
3. The photoreceptor belt is then exposed to dry ink. The dry ink clings to the pattern of dots corresponding to the page that is to be printed.
4. A sheet of paper traveling along the paper path is brought into contact with the surface of the photoreceptor belt. The dry ink is then transferred from the photoreceptor belt onto the paper.
5. The paper carrying the pattern of dots passes through a fusing mechanism that permanently affixes the dry ink to the paper.
6. The finished page is deposited in the output tray or bin. The data from that page is erased from memory. The photoreceptor belt is then cleaned and prepared for the next page.

Resolution

An LPS imaging system converts a character from digitized form into a printed image composed of tiny dots. These dots are so small and close together that they appear to form solid black areas. Image clarity is determined largely by the resolution or the number of dots per inch printed. Within the 4635 LPS Reference Set, the terms spots, dots, and pixels are used interchangeably.

The 4635 accepts 300 dots per inch (dpi) print data and images and electronically modifies them to produce 600 dpi print resolution. 600 dpi input print data is not accepted by the 4635 for printing. References to 300 dpi or 600 dpi apply to both coordinate axes (300 by 300 dpi or 600 by 600 dpi).

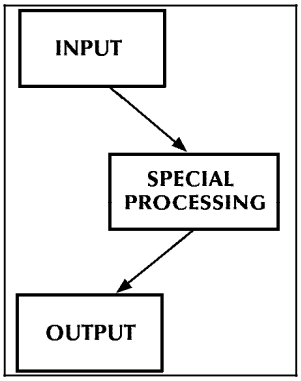
Output subsystem

The output subsystem provides paper stacking, report collating, and sample print capabilities.

LPS production process overview

As illustrated in figure 2-2 below, the process of producing a job on an LPS can be broken down into three distinct phases: input, special processing, and output.

Figure 2-2. **Basic processing flow**



Each phase is described in the text that follows.

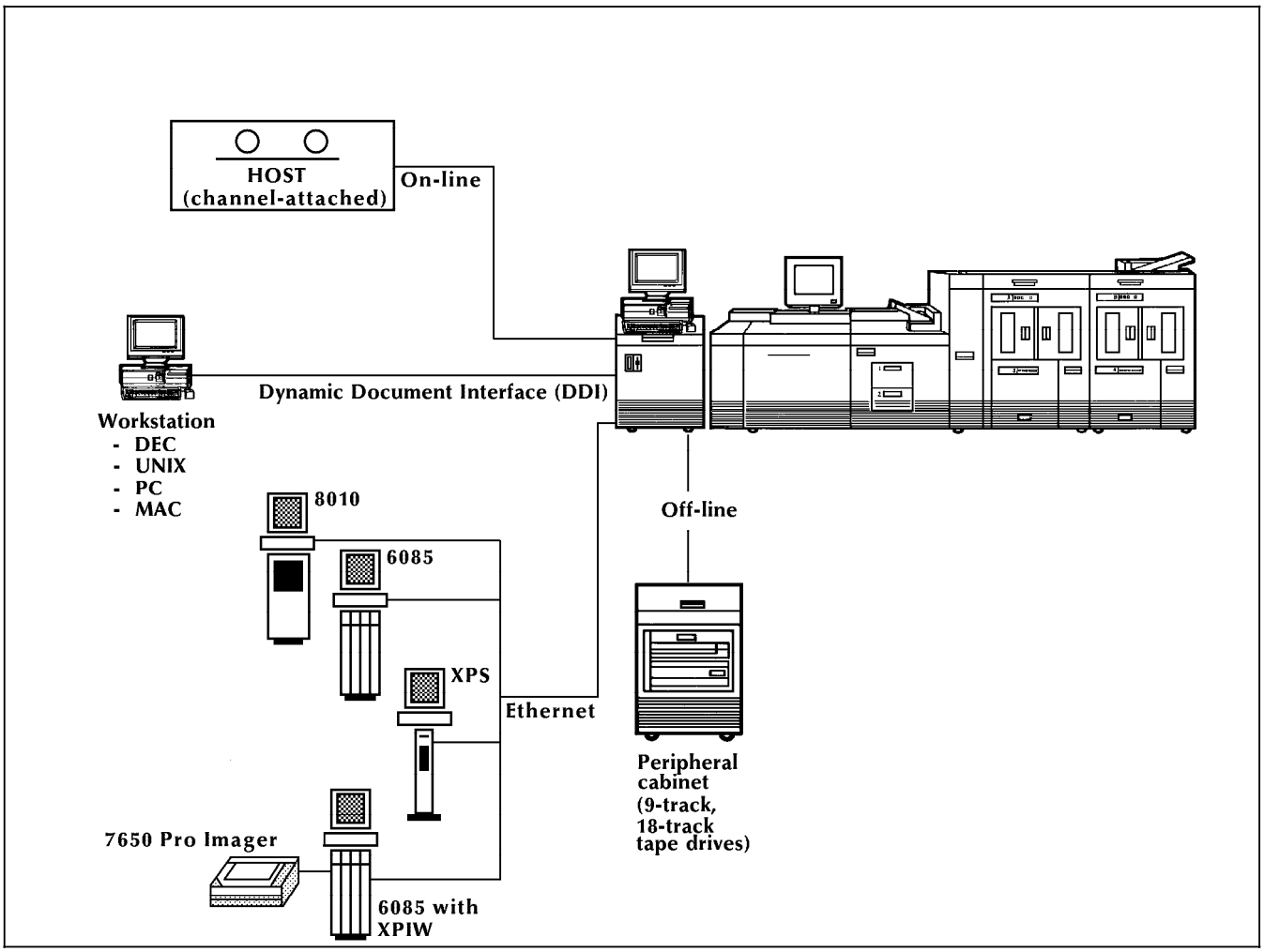
Input

The input phase of job production begins with the collecting and inputting of data using one of the following sources.

Sources of input for the LPS

Several data input methods are available, as shown in figure 2-3.

Figure 2-3. **4635 input options**



Online The channel-attached host computer input is received by the LPS online interface. In an online environment, the system controller is physically wired to the host computer. The host computer "thinks" it is communicating with an IBM 3211 line printer and an IBM 3811 printing system controller, or an IBM 4245 line printer.

DDI interface The Dynamic Document Interface (DDI) enables communication between a 4635 LPS and network via a shared disk mechanism over a SCSI bus. Refer to the *Xerox Dynamic Document Interface Operator Guide* for information regarding the DDI.

Offline Magnetic tape input (9- or 18-track) is received by the offline interface. The *LPS Tape Formats Manual* describes the tape format and encryption schemes which a Xerox LPS recognizes.

Ethernet Input from workstations, such as the Xerox 6085, and graphic scanners, such as the 7650 Pro Imager (using XPIW), is received by the Ethernet interface using the HIP task.

Ethernet is the Xerox local area network (LAN) which allows data to be transmitted by cable from one device to another on a shared or an unshared, but accessible, network.

Types of data

Data is created at one of the above sources and transmitted to the LPS. As mentioned previously (refer to the "LPS overview" section in this chapter), the system controller receives the incoming data using one of the interfaces for processing. If the input is print data, a stream of data is sent to the printer for imaging. If the input is nonprint data, it is stored on the system disks.

The following types of data can be printed by an LPS:

- Variable data
- Fixed (forms) data
- Graphic data (usually merged with variable data or form data).

Variable data

Variable data changes from page to page; for example, the text in this document or the numbers in a financial report.

Fixed data

Fixed (forms) data (FRM file) remains constant from page to page (for example, letterheads and column headings). Forms data usually refers to information found on preprinted forms or overlays.

Note: A host-resident forms design software package, such as HFDL, is required for form generation at a host.

Any form suitable for computer printout can be described and entered into system storage. Once stored on the system, a form can be activated by referencing the form's name in the job source library (JSL) file or job descriptor entry (JDE).

All Xerox laser printing systems have as a standard feature a line editor utility for the creation and modification of program source files (FSL and JSL extension files). Refer to the *Xerox 4635 LPS Operations Reference* for more information on the LPS Editor.

Forms are entered into the system as data using the LPS Editor. They are described using forms description language (FDL) commands to design the form for variable data. These commands create what is referred to as a forms source library (FSL) file which, when compiled, becomes an FRM file. Refer to the *Xerox LPS Forms Creation Guide* for more information on creating electronic forms.

Graphic data

Graphic data (IMG file) refers to digitized images (both line art and continuous tone images) that are to be merged with variable or forms data. Sources of graphic data include (but are not limited to): (1) graphic data generated by XPPI/XDGI host-resident software, and (2) scanned images from the Xerox 7650 Pro Imager (using XPIW).

Special processing

Special processing features distinguish the Xerox LPS from an impact printer. By using commands such as RFEED, ROFFSET, and RPAGE you can specify that certain logical functions

including: switching paper trays, offsetting certain pages or logically repositioning a page, be performed during the printing process. Refer to the *Xerox 4635 LPS PDL/DJDE Reference* for more information on these command functions.

DJDE A Dynamic Job Descriptor Entry (DJDE) command enables you to modify the printing environment dynamically. These commands are inserted into the input data stream to modify command characteristics of the existing JDE. DJDEs can take effect on a report-to-report, page-to-page, and record-to-record basis. Refer to the *Xerox 4635 LPS PDL/DJDE Reference* for more information.

CME A Copy Modification Entry (CME) command enables you to replace certain parts of a report with predefined static data on selected copies or to specify font changes within the variable data. Refer to the *Xerox 4635 LPS PDL/DJDE Reference* for more information.

Output

The final production phase is output. The Xerox LPS provides powerful finishing and disbursement features. You can have a true cover-to-cover printing process on any job. This means that an inventory stock report job could have:

- Blue card stock front cover, with the title in a 24-point bold font
- Forty-nine pages of equipment inventory, with the last page designed to summarize totals
- Thirty-seven pages of equipment description, with pricing information removed and a shaded grid filling all page columns
- A matching blue card stock back cover printed on the reverse side with "END OF REPORT" in a 14-point bold font.

Each copy of the inventory report can be offset in a stacker bin (no offsetting in the sample tray) for easy identification, with a routing sheet on top of each offset stack which contains such information as "Jones and Smith Supplies, Inc." This particular feature is useful when individual copies must be separated for binding or distribution to different groups. By adding the optional bypass transport and a third-party finisher to your 4635 LPS, you expand your finishing choices for your report to include options such as making it into a booklet and shrink wrapping it.

Job source library (JSL) files

Print description language (PDL) commands are used to describe the data layout and provide instructions for data placement on a page with or without an FDL-created form. The JSL file contains PDL statements defining the format of the input, processing requirements, and the format of printed output. When the JSL file is compiled, it is referred to as a job descriptor library (JDL) file and is referenced for printing a job.

Within a JDL file, there may be one or more unique definitions for different processing features, output formats, and tape

formats. Each set of unique definitions represents a job and is called a JDE or a job.

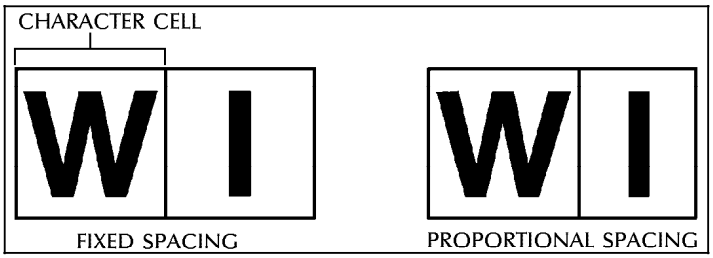
A JDL (compiled JSL) file containing printing instructions for the LPS is required to print any job on any configuration. Many specialized functions can be accomplished with PDL statement commands. Refer to the *Xerox 4635 LPS PDL/DJDE Reference* for specifics.

Several basic JSL files are provided with the OSS; for example, ENET.JSL is provided for printing Ethernet jobs, ONLINE.JSL is provided for printing online jobs, a XEROX.JSL is provided for printing magnetic tape jobs, and so on. To meet specific application needs, any OSS-supplied JSL can be copied and modified. All Xerox LPSs have as a standard feature the LPS Editor utility for the creation and modification of program source files (FSL and JSL extension files).

Fonts

A font is a character set which has a unique typestyle, type size, and orientation. Both fixed and proportionally spaced fonts are available for use on an LPS. Each font character occupies an area called a character cell. All character cells in a fixed font are the same width, while character cells in a proportional font vary in width, as shown in figure 2-4.

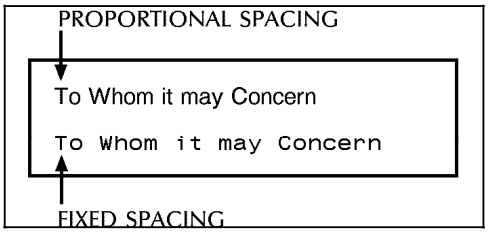
Figure 2-4. **Character spacing**



Because the length of a line printed with a proportional font is relatively unpredictable, fixed fonts are used for variable data on a report to avoid overprinting of forms by variable data.

Proportional fonts are normally used for forms data, such as, titles, headings, and so on. A business letter is an example of the use of proportional fonts for variable data. The difference in line length is illustrated in figure 2-5.

Figure 2-5. **Character spacing examples**



Fonts are available in various typefaces (such as, OCR and Titan), sizes, styles (such as, serif and sans serif), and weights (such as, medium and bold). The *LPS Standard Font Library Font User Guide* lists the standard fixed and proportional fonts.

In addition to typeface, style, and size, a font can be defined by its orientation:

- Landscape
- Portrait
- Inverse landscape
- Inverse portrait.

Refer to the *Xerox 4850 HighLight Color and 4135 Laser Printing Systems Font User Guide* for specific font information, the *Xerox LPS Forms Creation Guide* for using fonts in a form, and the *Xerox 4635 LPS Operations Reference* for information on Font Editor keyword commands (used to create source font files from existing licensed and non-licensed font files).

3. 4635 LPS hardware components

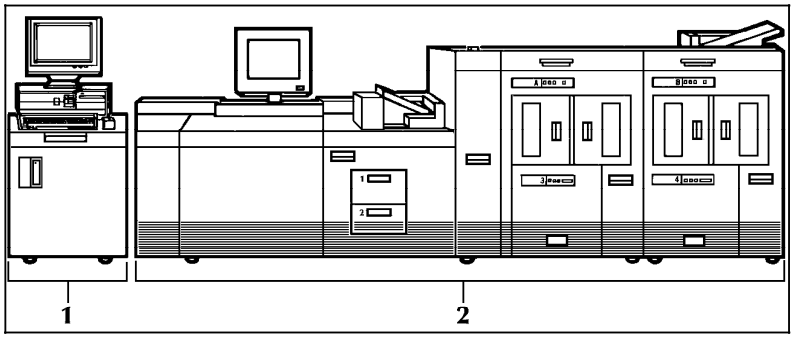
Major components

The 4635 Laser Printing System (LPS) consists of two separate units:

- System controller
- Printer.

Figure 3-1 shows the 4635 LPS with the optional bar code device.

Figure 3-1. **4635 Laser Printing System**



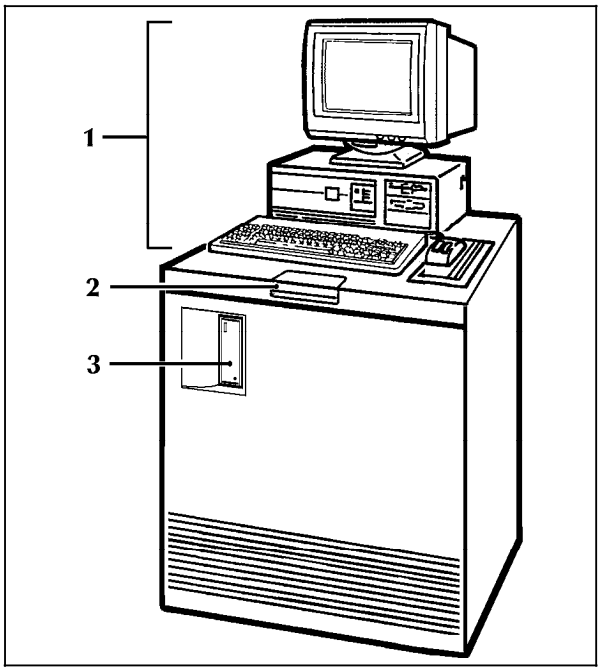
1. System controller
2. Printer

System controller hardware components

The system controller components are the system disks, the system controller panel, the PC user interface (PC UI), the quarter-inch cartridge (QIC) tape drive and optional floppy disk drive. A 9-track magnetic tape drive and an 18-track cartridge tape drive are available as options and are housed in the peripheral cabinet.

Figure 3-2 shows the 4635 LPS system controller with the cartridge tape drive.

Figure 3-2. **4635 system controller**



1. System user interface (PC UI)
2. Operator control panel
3. QIC tape drive

Quarter-inch cartridge tape drive

The standard QIC tape drive (up to 320 MB in streaming mode; quarter-inch ANSI) provides an alternative source for the loading and backing up of user files (extension files such as .FRM) and fonts to and from the system disk. Disk save and restore (DSR) and system generation (sysgen) functions can be performed from the quarter-inch tape drive. It is not an input source for print jobs.

Floppy disk drive

The optional floppy disk drive is located in the front panel of the system controller. It provides an alternative way of backing up and restoring system controller rigid disk files.

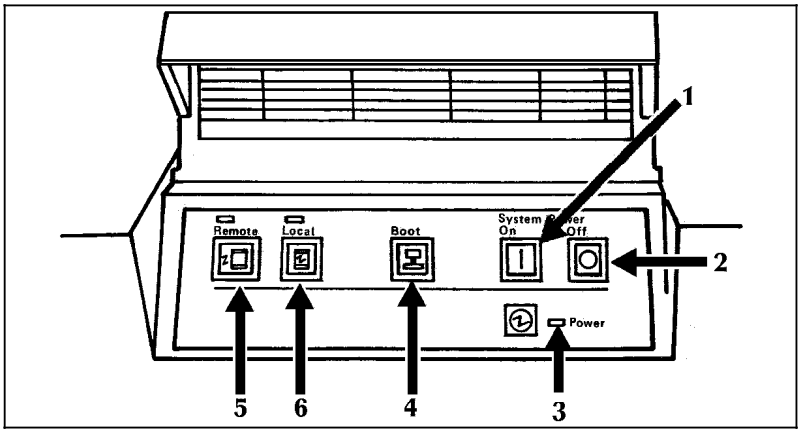
System disks

One 651 MB (unformatted) fixed system disk is provided as a standard feature. It resides inside the system controller and stores the operating system, fonts, forms, and general user files for the 4635. Optionally, up to three additional system disks (each 651 MB unformatted) can be installed, depending on storage needs.

System controller panel

As shown in figure 3-3, the system controller is powered on or off, booted, and switched between local and remote using the buttons on this panel.

Figure 3-3. **System controller panel**



1. Power On switch
2. Power Off switch
3. Power On indicator
4. Boot switch
5. Remote switch and indicator
6. Local switch and indicator

PC UI

Your 4635 LPS has a PC UI connected to the system controller.

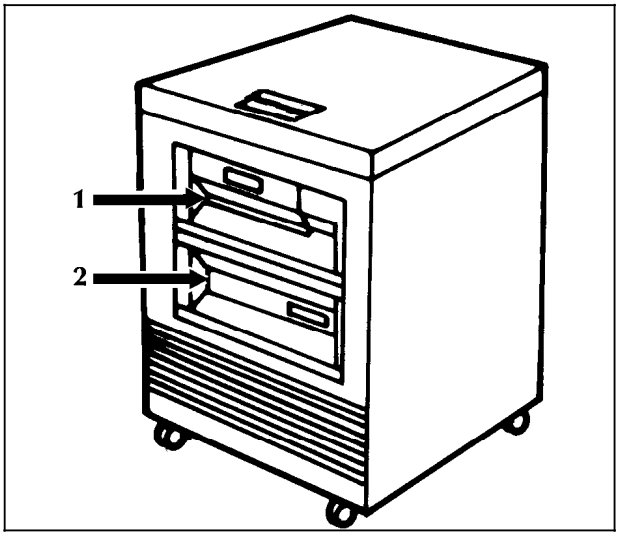
The PC UI is an IBM-compatible Pentinum-based personal computer (PC) with a 100 MB or larger hard disk, 3.5-inch floppy disk drive, keyboard, color monitor, mouse, and a mouse pad. The PC UI allows you to communicate with the 4635 LPS, to start and monitor print jobs. Tasks are performed through a dynamic set of windows and graphic objects displayed on the PC UI screen. Windows and options are selected with the mouse pointing device or by pressing certain keys on the keyboard. You can also key in commands through a command line window on the PC UI display screen.

Figure 3-4 shows the 4635 LPS PC UI.

Figure 3-4. **PC UI**

As shown in figure 3-5, the optional peripheral cabinet houses the 9-track magnetic tape drive and 18-track cartridge tape drive.

Figure 3-5. **Optional peripheral cabinet with 9-track and 18-track tape drives**



1. 9-track magnetic tape drive
2. 18-track cartridge tape drive

9-track magnetic tape drive

The 9-track magnetic tape drive is optional. It provides an offline capability for inputting data to the 4635. The 9-track can also be used for DSR or sysgen. Refer to the *Xerox 4635 LPS Operator Guide* for more information. The "Options" section of the "4635 LPS overview" chapter describes supported tape formats.

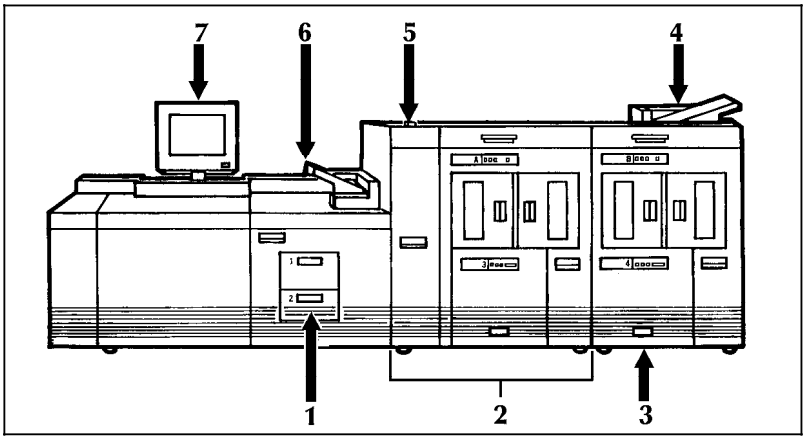
18-track cartridge tape drive

The 18-track cartridge tape drive is an alternative to the 9-track magnetic tape drive or an additional offline capability for the system. It reads and writes IBM- and ANSI-compatible half-inch tape in the 18-track IBM 3480 data format, and has an option allowing it to read and print from the IBM 3490 format. Like the 9-track magnetic tape drive, the 18-track can be used as a source for the loading and backing up of user files (extension files such as .FRM) and fonts to and from the system disks as well as providing an input source for print jobs. The 18-track tape drive can also be used for DSR or sysgen. The "Options" section of the "4635 LPS overview" chapter describes supported tape formats.

Printer hardware components

Figure 3-6 shows the components of the 4635 printer module.

Figure 3-6. **4635 printer**



Note: Configuration shown in Figure 3-6 does not depict the optional Bypass Transport, Input Enablement feature or Bar Code Reader devices.

1. Processor feeder trays
2. Inverter-feeder/stacker module (containing inverter, high-capacity feeder, and high-capacity stacker)
3. Feeder/stacker module (containing high-capacity feeder and high-capacity stacker)
4. Purge tray
5. Attention light
6. Sample tray
7. Printer control console

Processor feeder tray 1

Located in the main part of the printer, the capacity of feeder tray 1 is 1,100 sheets of 20-pound/75-gsm paper.

Processor feeder tray 2

The capacity of feeder tray 2 is 600 sheets of 20-pound/75-gsm paper.

Trays 1 and 2 can handle paper sized from 8 by 10 inches to 9 by 14 inches/203 by 254 mm to 229 by 356 mm.

High-capacity feeders (HCF)—trays 3, 4, 5, and 6 (5 and 6 optional)

Each HCF can hold up to 2,600 sheets of 20-pound/75-gsm paper as small as 7 by 10 inches and including large paper sizes such as 11.69 by 16.54 inches (A3), 11 by 17 inches (297 by 432 mm), and 10.12 by 14.33 inches (B4).

High-capacity stackers (HCS)—bins A, B, C, and D (C and D optional)

Each HCS can hold up to 2,500 sheets of 20-pound/75-gsm paper, if a stacking container is not used. Printed sets can be offset in the HCS for easier separation of reports.

Sample tray

The capacity of the sample tray is 100 sheets of 20-pound/75-gsm paper.

Purge tray

The purge tray located at the top of the last feeder/stacker module is where waste sheets are sent when cleared from the printer. The purge tray can hold 100 sheets of paper.

Printer control console

The printer control console located on top of the printer contains the continue, stop, and sample buttons. The console has a color monitor with a touch-sensitive screen which displays detailed graphics showing jam clearance instructions and feeder/stacker status. Printer tasks, such as lowering feeder trays and stacker bins, can be performed by touching areas of the console screen.

Optional bypass transport

The ability to increase your production capability by adding finishing devices to your 4635 is made possible by the Bypass Transport option. Finishers give you the ability to choose a wide range of finishing options, such as shrink wrapping and stitching. The bypass transport processes simplex and duplex jobs and accepts any type of paper that your 4635 LPS is capable of handling (refer to the “4635 LPS overview” chapter).

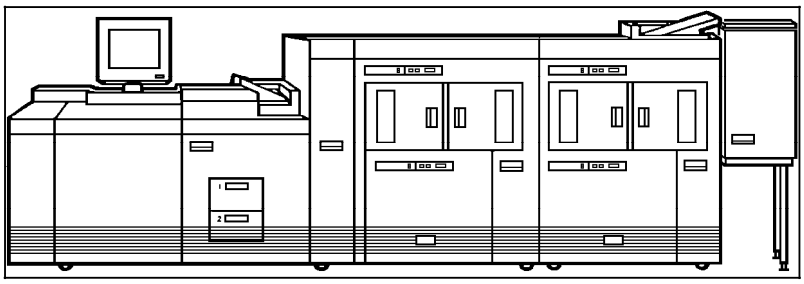
Connected to the feeder/stacker, the bypass transport allows finishing devices to interface directly with your 4635 LPS. It is fully integrated into your 4635 LPS hardware and software utilities, allowing you to select it at the UI or within your job setup. The bypass transport meets the Xerox Document Feeding and Finishing Architecture (DFA) Level 1 specifications.

Optional input enablement device

The input enablement device is connected to the right side of the feeder/stacker module and provides the means to add bulk feeders to your 4635 LPS. Fully integrated into your 4635 LPS hardware and software utilities, your input enablement device is selectable at the UI or within your job setup.

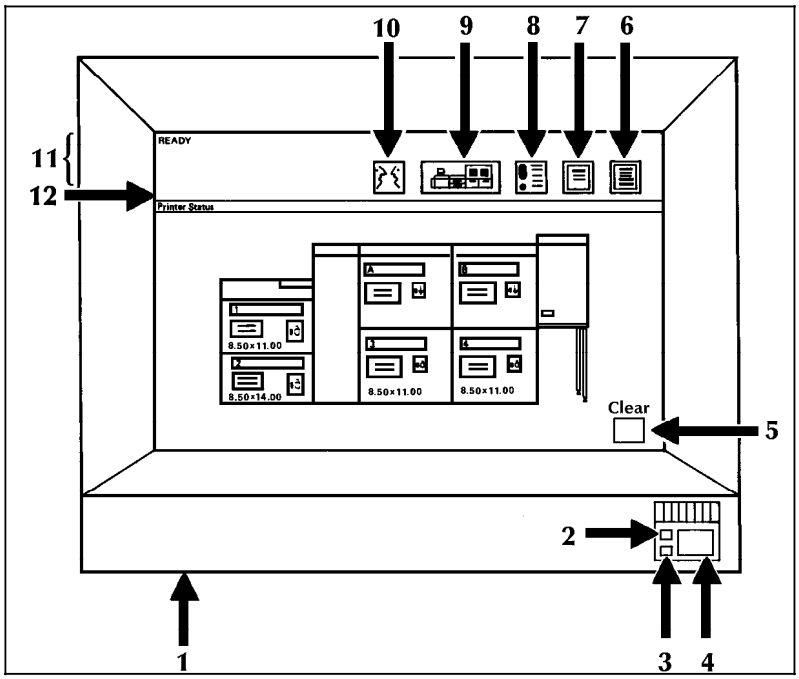
Figure 3-7 shows the 4635 LPS with the optional bypass transport.

Figure 3-7. **4635 LPS with optional bypass transport**



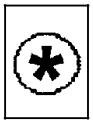
As shown in figure 3-8, the printer control console is where you perform many printer adjustments and select printer functions.

Figure 3-8. **Printer control console**



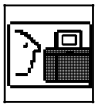
1. Brightness control thumbwheel. Use this thumbwheel to adjust the brightness of the printer control console display.
2. Sample button. Press this button to cause a sample sheet of the current print job to be sent to the sample tray.
3. Stop button. Press this button to stop printing.
4. Continue button. Press this button to resume printing.
5. Clear button. Select this button to clear fault messages.
6. Guarded Tools icon. This icon is reserved for the Xerox service representative and operators who have completed Advanced Customer Training (ACT).
7. Tools icon. Select this icon to display call for service information and to adjust display features of the printer control console (for example, alarm loudness).
8. Fault icon. Select this icon to display the Fault List screen.

9. Printer icon. Select this icon to display the printer mimic. (This is the default display on the printer control console.)
10. Language icon. Select this icon to choose the language for the printer control console messages.
11. Message area, used as follows:
    - Lines 1 and 2. These lines display the current status of the printer, for example, READY.
    - Line 3. This line displays messages concerning masked conditions, such as low dry ink. These messages are preceded by an asterisk.
    - Line 4. This line displays messages that originate at the system controller.
12. Area where the following icons appear:



Hint icon. This icon appears when a masked fault or condition exists in the printer. (Refer to the *Xerox 4635 LPS Operator Guide*, "Fault masking and the printer control console" section.) The icon also appears on the PC UI.

Fault icon. This icon appears only when a fault exists in the system that stops the printer or prevents it from printing. The icon also appears on the PC UI.



ACT icon. This icon appears when a maintenance task requiring an ACT trained operator must be performed. If you have successfully completed ACT, either check the PC UI for messages concerning the maintenance task or touch the Guarded Tools icon to display the Guarded Tools screen. If you are not an ACT trained operator, notify your lead operator or an ACT trained operator at your site.

Note: The bypass transport is optional and appears on the printer control console of those systems that are configured as such.

Attention light

An attention light is mounted on top of the inverter module. (Refer to figure 3-6.) The attention light can be enabled or disabled. (Refer to the *Xerox 4635 LPS Operator Guide* for instructions.) When enabled, the light has three states:

- **Off**. No printer problems exist that require your attention.
- **Steady light**. A situation exists that needs your attention (such as a low dry ink condition).
- **Flashing**. The printer has stopped and your attention is required immediately.

Attention alarm

An attention alarm is located within the printer. Like the attention light, the attention alarm is enabled and disabled by the operator (refer to the *Xerox 4635 LPS Operator Guide*). When enabled, the alarm has two states:

- **Off**. No printer problems exist that require your attention.
- **Beeping**. The printer has stopped and your attention is required immediately.

4. 4635 LPS software components

This chapter describes the software components associated with the 4635 Laser Printing System (LPS). The major topics are as follows:

- LPS operating system
- Operating System Software (OSS) functional description
- Optional host-resident software packages.

LPS operating system

The 4635 System Software consists of the Xerox OSS, System User Interface (UI) Software, User Interface Dialog, and the Printer Software. The OSS is the primary software; however, each software type working in conjunction controls and monitors the operation of your 4635 LPS.

The LPS OSS, like any other operating system, is a set of programs which allow the printing system to manage its own resources. Xerox distributes new versions of the 4635 OSS on 9-track, 18-track cartridge, or quarter-inch cartridge tape. The OSS tape contains:

- New system files
- A system generation processor program that is used to load the new system files onto the system disks and configure them for a particular system
- A concatenated version of the system files and system generation processor which is used for performing an online system generation (wherein the processor and files are downloaded to the printing system from a host computer)
- Patch files which are used to modify the new system files for optimal performance.

Refer to the “System software functional description” section of this chapter for more details on OSS contents.

The process by which the OSS is installed, upgraded, or modified is called system generation or sysgen. There are three types of sysgens that can be performed: mini, update, or full.

- In a mini sysgen, an existing operating system is modified in a way that does not require new system file input or patching. For example, an existing feature is deactivated or reactivated, or a specification is changed that is independent of the operating system files.
- In an update sysgen, an existing operating system is upgraded to include new features or is replaced with a new version of the system.

During this process, some or all of the existing system files on the system disks are replaced with new files; user files are not affected.

- In a full sysgen, a new operating system is built on empty system disks; that is, new or used disks that have been cleared and formatted prior to sysgen.

Complete instructions for each of these sysgens are contained in the *Xerox 4635 LPS System Generation Guide*.

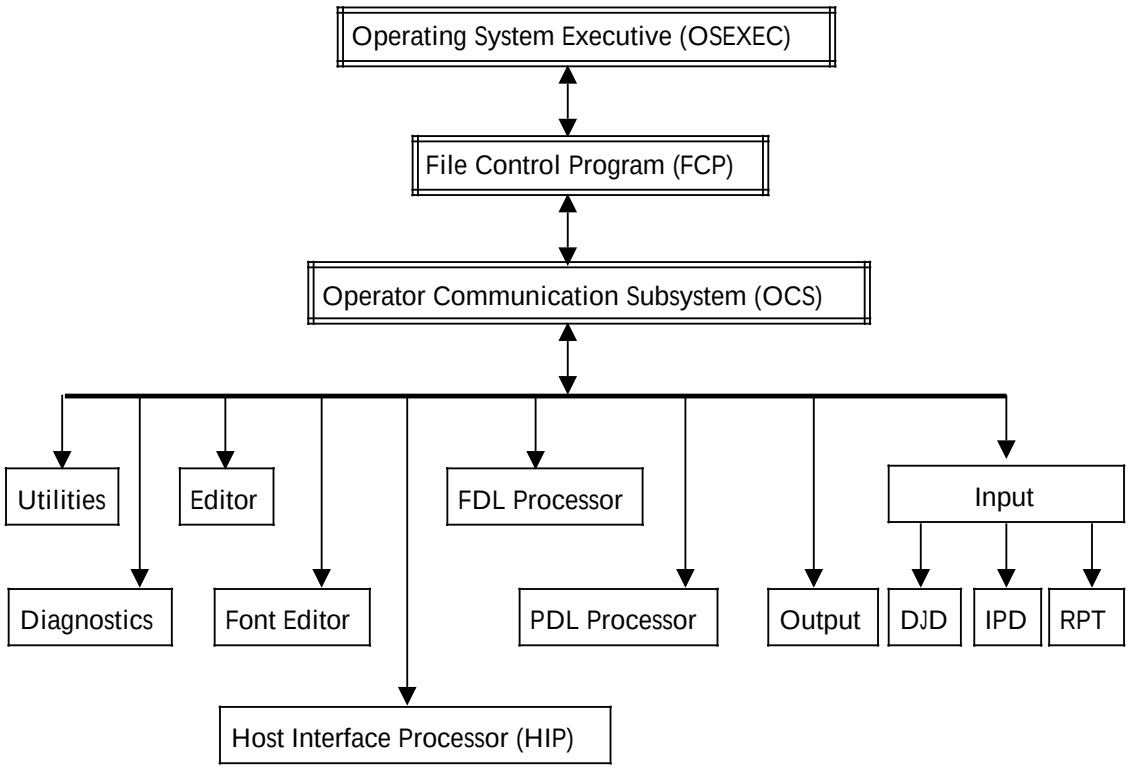
The UI Software consists of two 3.5-inch floppy diskettes (one supports the system UI Software, and one supports the UI Dialog). The Printer Software also consists of several 3.5-inch floppy diskettes. Refer to the "System software functional description" section for further information on the System UI Software, UI Dialog, and Printer Software.

Operating System Software functional description

The LPS OSS, or system controller, runs both background and foreground processing. All Xerox LPS systems are run by basically the same software. The OSS is delivered for installation and sysgen on 9-track magnetic tapes, and 18-track or quarter-inch cartridge tapes. The major utilities or "tasks" run by the system controller are shown in their hierarchical relationships in the chart below.

Figure 4-1 illustrates the hierarchy of the major LPS processing tasks. Following the figure is an overview of each task.

Figure 4-1. **Major LPS processing tasks**



Operating system executive task

The OSEXEC task is always running. It interfaces with the LPS hardware and logs hardware errors. In addition, it queues devices, manages resources, establishes priority for software tasks, and schedules processing.

File control program

The FCP or FMS task manages disk resources. It manages and allocates all disk space, creates all disk files, and accesses disk files.

Operator communication subsystem

The OCS task acts as an interface between the operator and software tasks by receiving input from and displaying messages to the operator. OCS also interfaces between system tasks.

Diagnostic tasks

The OSDS runs either under the OSEXEC task or from offline sources. It controls the processing for the PROBLEM command. Diagnostic support is also provided to your service technician by the stand-alone field engineering software (SAFES) task.

System utilities

The LPS has many utility programs which run under the OSEXEC task that provide maintenance services such as: backing up the system (DSR); tracking the unusable sectors on disks (FCHECK); assigning a maximum size to the working print file (REALLOCATE); eliminating wasted space on the disks (COMPRESS); and making used space available again (PURGE).

Editor task

The Editor task creates and modifies disk files. When you save a work file, it stores the contents permanently on the disk. It sends files to print; sends FSL and JSL files to be compiled; directs CMD files to execute; and manipulates temporary (TMP), miscellaneous (MSC), patch (PCH), and data (DAT) files.

Font Editor task

The Font Editor task creates and modifies font files. The font files are stored permanently on the disk when you save them.

Input task

The input task reads in print job data, creates a job control block file, and delivers job messages to the operator. Then the input task unpacks and converts the data; selects and deletes blocks or records; records any special processing instructions (for page offsets, DJDE records, CMEs); and records the disk addresses of the font, form, and image files used for the job. The result is a page buffer, consisting of the variable data and print instructions for the page, and the page log, consisting of tracking information used to process the page.

Dynamic job descriptor task

The DJD task compiles the Dynamic Job Descriptor Entries (DJDEs) in the job stream. (The DJDEs give the printer instructions for printing based on the result of true/false tests of the data in the job stream.

Interpress decomposer task

The IPD task translates input data sent in Interpress format into ASCII raster format.

Output task The output task uses the page logs written by the input task to load fonts in the font memory and variable data in the CD. It causes paper to feed from the indicated tray and manages report integrity with multiple checks. It sends the page buffer information to the CD and coordinates the activity of the CD/IG and RIP with the printer. In addition, Output manages delivery of the printed pages to the correct bins and performs page recovery if necessary.

Print description language compiler The PDL task loads the PDL compiler and looks in the JSL library for the file to be compiled. Then it analyzes the JSL statements and creates the object module (the JDL file).

Forms description language compiler The FDL task loads the FDL compiler and looks in the FSL library for the file to be compiled. Then it analyzes the FSL statements and creates the object module (the FRM file).

Host interface processor task The HIP task controls LPS communications with an online host. It transfers SNA/SDLC or BSC files from the host to the LPS, storing or printing them as directed. HIP also transfers files from the host for storage and transfers Interpress files from a Xerox Ethernet to the LPS for printing.

Report (RPT) task Works in connection with the Input task.

Printer Software

The Printer Software works in conjunction with the OSS (system controller) to print your job. The system controller interprets the user instructions contained in JDLs, DJDEs, and operator input, as well as the data being printed on each page. The system controller, driven by the OSS, sends this information to the printer. Once the information reaches the printer, it is the Printer Software that identifies the best way to carry out the task.

User Interface Software and User Dialog Software

As with the OSS and Printer Software, the System UI Software and the User Interface Dialog interact together to control your PC UI. Along with establishing and managing the communication between the PC UI and the printer, the User Interface Software displays the objects on the UI screen and performs the actions input by the operator, as specified within the UI Dialog.

Software

4635 LPS software features include:

- Interpress 3.0 Publication Set. Refer to the *Xerox 4635 LPS Operations Reference* for additional information.
- Xerox Network Services (XNS) printing, filing subset for printing, and clearinghouse services. Refer to the *Xerox 4635 LPS Operations Reference* for additional information.

- Continuous printing even when excessive character and IG local density stress conditions occur (Interpress only). Refer to the *Xerox 4635 LPS Operations Reference* for additional information.
- Cluster printing (user-defined logical grouping of trays). Refer to the *Xerox 4635 LPS Operations Reference* and to the *Xerox 4635 LPS Operator Guide* for additional information.
- Printing of over 16 images on a page with Interpress and raster image processor (RIP). Refer to the *Xerox 4635 LPS Operations Reference* for additional information.
- Variable paper sizes up to the physical capacity of the feeder trays: 7 by 10 inches to 14.33 by 17 inches (178 by 254 mm to 279 by 432 mm, including A3, A4, B4, and B5). 7 by 10 inch thruput is enabled when the optional Paper Feeding Enhancement Kit is installed. Refer to the "4635 LPS edgemarking" section of this chapter for additional information.
- A two-way file transfer between the PC UI and the system controller hard disk.
- Full text editing in a window environment which supports scrolling and text editing using the mouse and keyboard, and allows you to print and edit concurrently.
- Controlled finished sets of documents using segment management software, and the optional bypass transport with a finisher attached.

Optional host-resident software packages

This section describes a few of the many host-resident software packages available for use with your 4635 LPS. For information on a specific program, please contact your site representative.

Xerox Pen Plotter Interface (XPPI)/DCF and GDDM Interface (XDGI)

XPPI/XDGI is a host-resident software package (on IBM MVS or VM/CMS) that translates computer-generated text and graphics into high-quality images that can be printed on a Xerox LPS. A host-independent version of XPPI/XDGI is also available for non-IBM users. Refer to XPPI/XDGI documentation for more information.

Host Forms Description Language (HFDL)

HFDL is a host-resident forms design software package (on IBM MVS or VM) that allows forms to be created, changed, and merged with data at the host for printing.

Xerox Printer Access Facility (XPAF)

XPAF enhances the capabilities and use of your LPS in an IBM MVS/XA environment. For example, it allows you to change printer destinations without restructuring the data stream. XPAF accepts numerous types of data streams, transforms or conditions them, and then sends them to the selected printer. To users of IBM Advanced Function Printing (AFP), XPAF appears to be an extension of the IBM product.

Xerox Print Services Manager (XPSM)

XPSM is the IBM RS/6000 based software product that acts as a server to provide communications access to clients, catalog printer-resident resources, and spool print jobs for Xerox laser printers. XPSM also provides context-sensitive help files that are accessible through the graphical user interface.

Note: Consult with your sales representative about the appropriate options for your laser printing system.

5. Product differences/user considerations

Your Xerox 4635 Laser Printing System (LPS) has many unique standard and optional features which distinguish it from other Xerox LPS. Your 4635 LPS is capable of running most jobs created on other Xerox LPS, and can create jobs to print on other LPS. The "LPS compatibility and comparison" section of this chapter points out the unique qualities of your 4635 LPS, and helps you evaluate whether your 4635 LPS running software version 3A is a suitable backup printer for another Xerox LPS.

In order to ensure your jobs are created and produced with the highest quality, there are many things you need to consider. The "4635 user considerations" section of this chapter addresses such items.

This chapter contains the following major sections:

- LPS compatibility and comparison
- 4635 user considerations.

LPS compatibility and comparison

The tables in the sections that follow identify what you need to consider when using your 4635 LPS for printing jobs created on other Xerox LPS with different software versions. They also point out those features which are unique to your 4635 LPS. The tables are not designed to address compatibility issues in an all-inclusive manner. Use them to make a high-level check when you want to know if your 4635 will process and print a particular job.

Each table addresses a different area of consideration from PDL commands to paper sizes and stocks. Often there is no need for any further checking because the tables provide the answer. Other times they show you where further investigation is needed, or suggest specifically what you should check, either on your 4635 LPS or in the print job. You may need to refer to another manual in your 4635 LPS reference set for detailed guidance on running a particular type of job or altering a job to make it compatible with your 4635 LPS.

In order to evaluate whether your 4635 running software version 3A can be used as a suitable backup printer for a print job created on another Xerox LPS running a different software version, you must consider many factors. The following is a basic job compatibility checklist to help you begin the task of determining if a job will run on your 4635 LPS.

- Are font character sets required by the job loaded on the 4635 LPS?
- Are forms required by the job loaded on the 4635 LPS?

- Is the allocated size of the print file on the 4635 LPS appropriate for the print job?
- Is the current forms default on the 4635 LPS appropriate for the print job?
- Is the current graphics default on the 4635 LPS appropriate for the print job?
- Is the current font default on the 4635 LPS appropriate for the print job?
- Does the 4635 LPS have sufficient memory for the print job?
- Does the Interpress set (Commercial or Publishing) supported by your 4635 LPS support the printing requirements of the print job?
- Does the print job require a finishing device?
- Does the print job require a configured XPAF, HIP, or SDI connection?

Using your 4635 as a backup LPS

Tables 5-1 through 5-5 identify particular job features to consider when printing a job on your 4635 LPS which was created on another Xerox LPS running a different software version. Each table contains specific job features which may be encountered, the projected results when printed on your 4635 LPS, and where to find further information.

Table 5-1. **Will this 4050/4090 (V3.5) job print on my 4635 (V3A)?**

Job features from 4050/4090 (V3.5)	**Results when run on 4635 (V3A)**
Programmable bypass transport	Job prints if 4635 LPS has a bypass transport and the finishing device is required by the job. Otherwise, it does not run.
Clusters	Job prints. Operator needs to redefine clusters if trays differ.
Edgemarking	Job prints.
Fonts	Job prints if the fonts and character sets used are loaded on the LPS or if substitutions for these fonts are defined.
Graphics	Job prints if sufficient graphic memory is available.
Labels	Job prints using only paper labels. Refer to the *Xerox 4635 LPS Operator Guide* for loading instructions.
Page density	Job prints.
Paper sizes	Job prints
Paper stock	Job prints if it does not use edge reinforced 3-hole stock.
Stitch commands	No stitcher available on 4635 LPS, therefore stitch commands are ignored and job prints unstitched.
Transparencies	Job prints.

Table 5-2. **Will this 4650 (V3.5) job print on my 4635 (V3A)?**

Job features from 4650 (V3.5)	**Results when run on 4635 (V3A)**
Clusters	Job prints. Operator needs to redefine clusters if trays differ.
Edgemarking	Job prints.
Fonts	Job prints if the fonts and character sets used are loaded on the LPS or if substitutions for these fonts are defined.
Graphics	Job prints if sufficient graphic memory is available and input source is 300 dpi resolution.
Labels	Job prints using only paper-faced labels. Refer to the *Xerox 4635 LPS Operator Guide* for loading instructions.
Page density	Job prints.
Paper sizes	Job prints.
Paper stock	Job prints if it does not use edge reinforced 3-hole stock.
Stitch commands	No stitcher available on 4635 LPS, therefore stitch commands are ignored and job prints unstitched.
600 dpi input	Job prints in 300 dpi. The 4650 LPS is the only Xerox LPS that accepts 600 dpi input.
300 dpi with interpolated 600 dpi output	Job prints.

Table 5-3. **Will this 4850 (V3.7) job print on my 4635 (V3A)?**

Job features from 4850 (V3.7)	**Results when run on 4635 (V3A)**
Clusters	Job prints. Operator needs to redefine clusters on LPS if trays differ.
Color	Jobs will compile, process and print in black ink and shades of gray. The system will alert the operator if a job will not print correctly, but the system will not roll over. Precompiled color forms will print in black and shades of gray, however, the 4635 LPS does not compile color forms.
Edgemarking	Job prints.
Fonts	Job prints if the fonts and character sets used are loaded on the LPS or if substitutions for these fonts are defined.
Graphics	Job prints if sufficient graphic memory is available.
Labels	Job prints using only paper-faced labels. Refer to the *Xerox 4635 LPS Operator Guide* for loading instructions.
Page density	Job prints.
Paper sizes	Job prints.
Paper stock	Job prints.
Stitch commands	No stitcher available on 4635 LPS, therefore, stitch commands are ignored and job prints unstitched.

Table 5-4. **Will this 9790 (V2) print on my 4635 (V3A)?**

Job features from 9790 (V2.1)	**Results when run on 4635 (V3A)**
Edgemarking	Job prints.
Fonts	Job prints if the fonts and character sets used are loaded on the LPS or if substitutions for these fonts are defined.
Graphics	Job prints if graphic memory is available.
Labels	Job prints using only paper labels. Refer to the *Xerox 4635 LPS Operator Guide* for loading instructions.
Page density	Job prints.
Paper sizes	Job prints with the exception of 7 by 12 inch paper.
Paper stock	Job prints with the exceptions of edge reinforced 3-hole paper and envelopes.

Table 5-5. **Will this 8790 (V2) print on my 4635 (V3A)?**

Job features from 8790 (V2.1)	**Results when run on 4635 (V3A)**
Edgemarking	Job prints.
Fonts	Job prints if the fonts and character sets used are loaded on the LPS or if substitutions for these fonts are defined.
Graphics	Job prints if graphic memory is available.
Labels	Job prints using only paper-faced labels. Refer to the *Xerox 4635 LPS Operator Guide* for loading instructions.
Page density	Job prints.
Paper sizes	Job prints
Paper stock	Job prints with the exception of edge reinforced 3-hole paper.

Checking paper sizes and special stocks

If your job requires a particular paper size, you need to make sure your 4635 LPS can handle it. Table 5-6 identifies the paper sizes that will run in your 4635 LPS, as well as the other Xerox LPS.

Table 5-6. **Paper sizes for the LPS**

Paper size (inches)	4635	4050/ 4650/ 4090	4850/ 4890	9790	8790
8.5 by 11	•	•	•	•	•
8.27 by 10.63			•		
8.27 by 11.69 (A4)	•	•	•	**	**
8.27 by 13			•		
8.37 by 10.78			•		
5.83 by 8.27 (A5)	•				
7.17 by 10.12 (B5)***	•				
7 by 12***				*	
8 by 13	•		•		
8.5 by 5.5	•				
8.5 by 10.75			•		
8.5 by 12.4	•				
8.5 by 13	•		•		
8.5 by 14	•	•	•	*	
8 by 10			•		
8 by 10.5	•		•		
10.12 by 14.33 (B4)	•				
11 by 17	•				
11.69 by 16.54 (A3)	•				

* With variable paper size option
** Available as standard on international version
*** Only if optional Paper Feeding Enhancement Kit is installed

Note: Any paper size smaller than 8 inches must have the 7x10 inch Paper Feeding Enhancement kit installed.

If your job requires specialty paper, you need to check whether your 4635 LPS can handle it. Table 5-7 identifies which type of speciality paper and stock will run in your 4635 LPS, as well as the other Xerox LPS.

Table 5-7. **Specialty paper and stock for the LPS**

Specialty paper/stock	4635	4050/ 4650/ 4090	4850	9790	8790
Cardstock (up to 110- pound)	*	*	*	*	*
Divider stock (65-pound)	*	*	*	*	*
Index stock (90-pound)	*	*	*	*	*
Image Series Elite (20-pound)	*	*	*	*	*
Edge reinforced 3-hole	*	*		*	*
Carbonless paper	*			*	*
Antique parchment (24-pound)	*	*	*	*	*
Envelopes				#	
Labels (self adhesive)		*	*	*	*
Labels (high-speed)	*	*	*	*	*
Perforated	*	$	*	*	*
Predrilled	*	*	*	*	*
Preprinted	*	$	*	*	*
Tinted	*	*	*	*	*
Transparencies	*	*	*	**	*
Zero solvent vellum (20-pound)	*	*	*	*	*
Never-tear paper	*	*	*	*	*

Note: On the 4635 LPS, transparencies must be loaded as a special stock in tray 1 or 2, and delivered to the sample tray. Refer to the Xerox *4635 LPS Operator Guide* for loading instructions.

With special materials feeder.
** High-speed paper-backed transparencies only.
$ **CAUTION:** Please read all special instructions for 4050/4650, and 4090 in Operator Guide before using this stock.

Comparing LPS print job resolution

Since Xerox laser printing systems have different print resolution capabilities, it is important to compare the print resolution functionality of your 4635 LPS and of the LPS the job was created on. Table 5-8 illustrates the print resolution functionalities of the Xerox LPS.

Table 5-8. **Print resolution of print jobs created or printed on LPS**

Paper resolution functionality	4635	4050	4650	4090	4850	9790	8790
Creates and prints 300 dpi jobs	*	*		*	*	*	*
Creates 300 dpi jobs but prints in 600 spi	*		*				
Creates and prints 600 dpi jobs			*				
Creates but does not print 600 dpi		*		*	*	*	*

Note: 600 dpi jobs can be created and compiled on an LPS only if 600 dpi fonts are loaded. Likewise, 300 dpi jobs can be created and compiled on an LPS only if 300 dpi fonts are loaded.

Checking JDL compatibility

Job descriptor libraries (JDLs) are collections of compiled job descriptions which are set up by the user. Many jobs may be compiled on one LPS and run on another. Table 5-9 shows how your 4635 LPS handles JDLs from other LPS.

Table 5-9. **How the 4635 LPS handles JDLs from other LPS**

JDLs from the following LPS	Printed results if run on the 4635 LPS
4850 LPS (300 dpi, color) (V3.7)	Prints in black ink and shades of gray only. If job includes two-color graphics, job aborts.
4050, 4090 LPS (300 dpi) (V3.5)	Prints the same as source LPS.
4650 LPS (300 dpi) (V3.5)	Prints on 4635. (Does not print on 4650.)
4650 LPS (600 dpi) (V3.5)	Does not print.
9790/8790 (300 dpi) (V2.1)	Prints the same as source LPS.

Checking PDL compatibility

Print description language (PDL) commands define the format of the input media, processing requirements, and the format of the printed output. Each command has a set of parameters that can be used to define a print job's characteristics. Table 5-10 shows the PDL command parameters that your 4635 LPS does not process. Your 4635, however, processes other parameters associated with the command.

PDL commands which the 4635 does not process are indicated by an asterisk.

Table 5-10. **PDL parameters and commands not accepted by the 4635 LPS**

Command	Parameter
ABNORMAL	IMISMATCH
	ISUBSTITUTE
ac:CME	INKS
*IDR	ICATALOG
	ILIST
	PALETTE
LINE	INKINDEX
OUTPUT	IDFAULT
	IDR
	IRESULT
	XMP

Table 5-11 shows the PDL command parameters that are unique to your 4635, and will not run on any other LPS.

Table 5-11. **PDL command parameters unique to the 4635 LPS**

Command	Parameter
BARCODE	BSEQ
	BSIDE
	BSKIP
EXPORT	SEPARATORS
	SNUMBER
	SPLIT
	SRECOVER
	STIMING
MESSAGE	*BTEXT
OUTPUT	DESTINATION (EXPORT option)
	INVERT
	OSTK
	PAPERSIZE (A3 and B4 options)
	SEFFNT
	SEFMAP
	SF1FUNCTION
	SF2FUNCTION
	SYSPPR
	TMODE
	TRANS
	XSHIFT
RBAR	
RFEED	
SEFFNT	MAP
	SEFMAP

Your 4635 LPS is capable of processing DJDEs that other LPS cannot handle. The following DJDEs are unique to your 4635:

DJDEs
BSEQ
BSIDE
BSKIP
BTEXT
INVERT
MAP
SEFFNT
SEFMAP
SF1FUNCTION
SF2FUNCTION
TMODE
TRANS
XSHIFT

LPS comparison

Tables 5-12 and 5-13 compare hardware and software features, optional connections, and specific abilities of your 4635 LPS and other Xerox LPS.

Table 5-12. **LPS product comparison table**

Feature	4635	4050	4090	4650	4850	8790	9790
LPS optional connections							
Online (3811/3211 interface)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Online (4245 interface)	Yes	No	No	No	Yes	Yes	Yes
Offline (9- and/or 18-track tape)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
871-CM: SNA/SDLC and BSC (OEM interface)	No	Yes	Yes	Yes	Yes	Yes	Yes
XNS (Ethernet interface)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DMR (DEC interface)	No	Yes	Yes	Yes	Yes	No	No
850/860 Communication option	No	No	No	No	No	Yes	Yes
Dynamic Document Interface	Yes	No	No	No	Yes	No	No
System controller							
System disk capacity (MB):							
Standard	1-651	2-50	2-170	2-170	2-182	2-50	2-50
Optional	3-651	2-50	2-170 or 2-380	2-170 or 2-380	2-182 or 2-380	2-50	2-50
Multinational terminal	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PC UI graphic interface	Yes	No	No	No	No	No	No
Control memory	1024K	512K	512K	512K	512K	512K	512K
Font memory (Mbits)	64	8	64	64	32	8	8
Expandable to (Mbits)	256	16	128	128	128	16	16
5.25 inch floppy drive	Yes (opt)	Yes	Yes	Yes	Yes	Yes	Yes
Advanced Imaging System (AIS)	Yes	No	No	No	No	No	No
GVG memory (Mbits)	No	No	32	32	32	No	No
Expandable to (Mbits)	-	-	256	256	256	-	-
GHO memory (Mbits)	No	8	8	No	No	8	8
32-track cartridge tape drive	No	Yes	Yes	Yes	No	No	No
Quarter-inch cartridge (QIC) tape drive	Yes	No	No	No	Yes	No	No
Printer							
Rated speed (PPM)	135	50	92	50	50	72	120
Output resolution (dpi)	300 input interpo-lated to 600 output	300	300	600	300	300	300

Table 5-12. **LPS product comparison table (continued)**

Feature	4635	4050	4090	4650	4850	8790	9790
Printer (continued)							
Image area (inches)	Up to 17 by 14.33/ 43 by 356 mm	8.6 by 13.65	8.6 by 14	8.6 by 14	8.62 by 14	8.66 by 12	8.66 by 12
Duplex printing	Stan-dard	Stan-dard	Stan-dard	Stan-dard	Stan-dard	Stan-dard	Stan-dard
Sample tray capacity (sheets)	100	100	100	100	100	25	25
Stacker options:							
Dual stacker (capacity per tray)	No	750	750	750	750	500	1500
Stitcher/stacker (unstitched sheets)	No	2000	2000	2000	2000	No	No
High-capacity stacker (HCS)							
Bin A	2500	No	No	No	No	No	No
Bin B	2500	No	No	No	No	No	No
Bin C	2500	No	No	No	No	No	No
Bin D	2500	No	No	No	No	No	No
Feeder options:							
Dual feeder trays							
Tray 1 (Main) capacity (sheets)	1100	1000	1000	1000	1000	2500	2500
Tray 2 (Aux) capacity (sheets)	600	500	500	500	500	500	500
Expanded aux tray	No	No	No	No	No	2500	2500
High-capacity feeder (HCF)							
Tray 3 capacity (sheets)	2600	1000	1000	1000	1000	No	No
Tray 4 capacity (sheets)	2600	1000	1000	1000	1000	No	No
Tray 5 capacity (sheets)	2600	No	No	No	No	No	No
Tray 6 capacity (sheets)	2600	No	No	No	No	No	No
Forms							
Electronically created/stored	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Page-to-page changeability	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preprinted forms	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fonts							
Proportional or fixed space	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Multinational character set	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard character sizes (pt)	3-36	4-24	4-24	6-36	4-36	4-24	4-24
Max. no. of fonts per page	128	128	128	128	128	95	95

Table 5-12. **LPS product comparison table (continued)**

Feature	4635	4050	4090	4650	4850	8790	9790
Fonts (continued)							
Downloadable from host	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Floppy disk loadable	Yes (opt)	Yes	Yes	Yes	Yes	Yes	Yes
Magnetic tape loadable	Yes (opt)	Yes	Yes	Yes	Yes	Yes	Yes
Resolution (dpi)	300 input interpo-lated to 600 output	300	300	600 300	300	300	300
Logo and signature fonts	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Character-to-character selectable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paper							
Variable paper sizes**	7 by 10 in. to 11 by 17 in. (178 by 254 mm to 279 by 432 mm, incl. A4, A3, B4, B5)	8 by 10 in. to 8.5 by 14 in (incl. A4)	8 by 10 in. to 8.5 by 14 in (incl. A4)	8 by 10 in. to 8.5 by 14 in (incl. A4)	8 by 10 in. to 8.5 by 14 in (incl. A4)	8.5 by 11 in. or 8.5 by 14 in. or A4	8.5 by 11 in. or 8.5 by 14 in. or A4
Weight: Index, cut-sheet, colored, preprinted, predrilled or perforated paper	16-110 lb. (60-200 gsm)	20-110 lb. (80-200 gsm)	20-110 lb. (80-200 gsm)	20-110 lb. (80-200 gsm)	20-110 lb. (80-200 gsm)	16-110 lb. (60-200 gsm)	16-110 lb. (60-200 gsm)
Transparencies	*Yes	Yes	Yes	No	Yes	No	No

Notes:

1. Within the LPS Reference Set, spots, dots, and pixels are used interchangeably.
2. Resolution (300 spi or 600 spi) applies to both coordinate axes.

* You should use high-speed transparencies only in your 4635 LPS, and they must be output to the sample tray.

** 7 by 10 inch thruput on the 4635 is enabled when the optional Paper Feeding Enhancement Kit is installed.

4635 LPS user considerations

This section describes inherent 4635 LPS user considerations.

4635 LPS edgemarking

To ensure consistency across all Xerox LPS printers, the coordinate system used by all printers is identical. However, the area upon which an actual image may appear is limited. Because of this, data which starts near the edge of or off of the physical page may be lost.

Edgemarking is the placement of marks at or near the edge of the physical page. To accommodate edgemarking, the system page must be larger than the physical page.

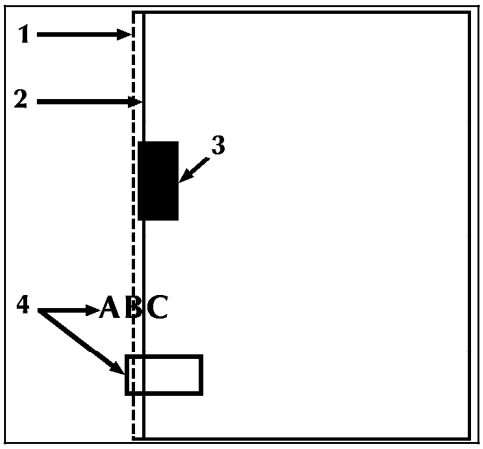
The 4635 LPS edgemarking capability could be limited if the system page boundaries correspond to the sides of the physical page of paper.

If any part of a form element or variable data line is positioned off the leading edge of the system page (that is, the top edge of a landscape-oriented page or the left edge of a portrait-oriented page), the entire data element is not imaged. Refer to figure 5-1.

- If a line of variable text begins off the leading edge of the system page, the entire line of text is not printed.
- If a ruled line begins off the leading edge of the system page, the entire ruled line is not printed.
- A line running parallel to the leading edge needs to be positioned at least half the line thickness inside the leading edge of the system page in order to be printed. For example, a bold line is 8 dots thick and it must, therefore, be positioned at least 4 dots inside the leading edge of the system page.
- If any part of a signature or logo begins off the leading edge of the system page, the entire signature or logo is not printed.
- One common cause of print elements accidentally beginning off the system page is the improper use of the OUTPUT SHIFT command. This command is used to shift the entire contents of a page relative to the boundaries of the system page. When a negative shift value is entered (as is often the case for the back side of duplex pages), and that value exceeds the left margin, no text elements will print. When using a negative value for the OUTPUT SHIFT command, be sure that it is less than the value of the left margin.

Figure 5-1 illustrates the edgemarking considerations for a portrait page.

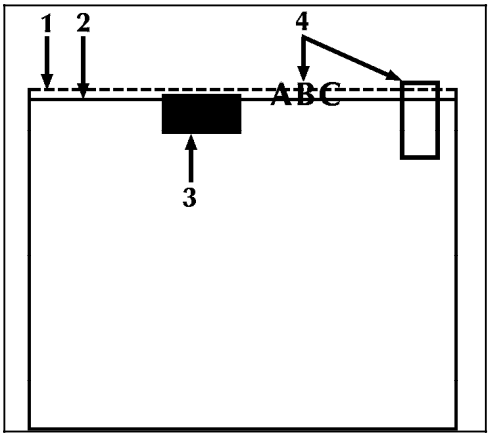
Figure 5-1. **Edgemarking a portrait page**



1. System page leading edge
2. Physical page leading edge
3. Within system page, data will edgemark
4. Off system page, data will not print.

Figure 5-2 illustrates the edgemarking considerations for a landscape page.

Figure 5-2. **Edgemarking a landscape page**



1. System page leading edge
2. Physical page leading edge
3. Within system page, data will edgemark
4. Off system page, data will not print.

To determine whether or not an item has fallen off the system page, the following formulas may be used in determining the number of dots (1/300 of an inch) which make up the area between the leading edge of the system page and the leading edge of the physical page. For 8.5 by 11 or 8.5 by 14-inch paper, the formula is:

Printer alignment in scan direction -1

For A4 paper, the formula is:

Printer alignment in scan direction +69

If any part of an item begins more than this number of dots before the leading edge of the physical page, the item falls off the system page and does not print.

Registration shift and skew

The registration of a printed image can appear shifted or skewed on a page if the sheet of paper is misaligned as it enters the printer. Because of the design of the LPS feeder, the image registration on each page can vary slightly both horizontally and vertically by up to 0.65 mm. The image can also be slanted or skewed slightly by 3.97 milliradians. (Refer to figures 5-3 and 5-4, Landscape and portrait shift and skew.) Note that the following figures are the same specifications merely rotated to show portrait and landscape orientations. The shift and skew variances described here are within allowable specifications, but as this can affect the registration of variable data in preprinted forms and the placement of images close to the edge of the page, it is important to make allowance for this condition.

Figure 5-3 illustrates the landscape orientation shift and skew.

Figure 5-3. **Landscape orientation shift and skew (8.5 by 11 inches)**

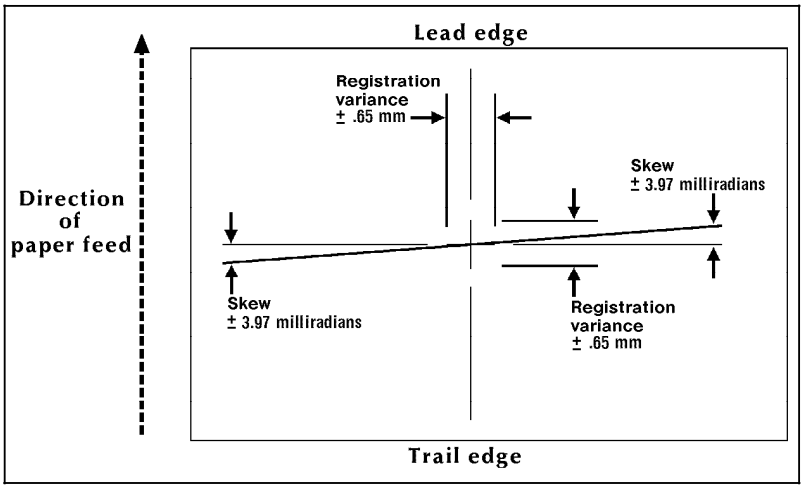
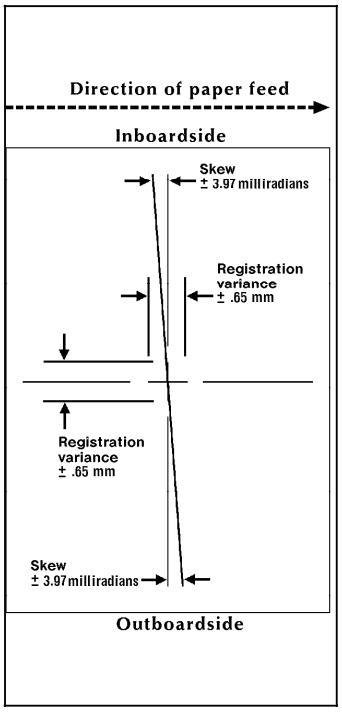


Figure 5-4 illustrates the portrait orientation shift and skew.

Figure 5-4. **Portrait orientation shift and skew (8.5 by 11 inches)**



Paper size

Variable paper size

Page dimensions up to the physical capacity of the feeder trays may be selected. (The largest feeder tray physical capacity is 14.33 by 17.0 inches; the smallest is 7.0 by 10.0 inches with the optional Paper Feeding Enhancement Kit installed). At system generation (sysgen), you can select USLETTER, USLEGAL, or A4; or you can select "other" and specify any paper size between the smallest and largest allowed (x by y) in millimeters. 11 by 17 inch/297 by 432 mm Interpress jobs are not supported, however, your 4635 LPS handles 11 by 17/inch/297 by 432 mm IMG jobs.

The use of the PAPERSIZE command in PDL and the PAPER command in FDL permits form compilation and job printing on a size of paper other than the sysgened paper size and allows the specification of nonstandard paper sizes for those jobs requiring nonstandard paper.

It is recommended that you sysgen to the largest size paper that you commonly use. Smaller and less-used paper sizes should be specified using PDL and FDL commands.

Refer to the *Xerox 4635 LPS PDL/DJDE Reference* and *4635 LPS Forms Creation Guide* for more information on commands.

System page size

The 4635 maximum imaging area (that is, the system page) measures 14.33 by 17 inches.

Virtual page size

The default virtual page size is identical to the physical page size. If a virtual page size is user-defined, the virtual page is centered relative to the physical page. A user-defined virtual page may not be larger than the paper size value; larger dimensions are truncated.

Error messages

If any part of a print line originates off the system page, the following message is displayed:

```
OS6905 DATA ORIGIN OFF PAGE -- CHECK OUTPUT
```

This message appears only once during a print job. It indicates a print line origin problem within the form description or an excessive SHIFT value. Refer to the *Xerox LPS Forms Creation Guide* and the *Xerox 4635 LPS Message Guide* for more information.

Deletions

The 4635 printer utilizes the newest xerographic advancements, providing good solid black print quality and spot control. However, in certain circumstances, there is a possibility that toner from the photoreceptor may not completely transfer to a sheet of paper before it is fused and sent to the output bin. This occurrence is known as a deletion. Generally, deletions will result in a small area of the printed page appearing lighter than the rest of the page. For example, a few letters of a word may appear lighter than the rest of the word.

To help reduce the occurrence of deletion, the 4635 printer has been fitted with a four-segment transfer blade which presses the paper onto the photoreceptor during toner transfer. This blade is automatically activated based on the paper size setting in the job descriptor and does not involve any operator interaction or loss of productivity.

There are two different transfer blades: one for 60Hz systems and one for 50Hz systems. Each blade can adjust to four paper size lengths as follows:

60 Hz blade: 11, 11.69, 13, and 14 inches (279, 297, 330, 356 mm)

50 Hz blade: 10, 11, 11.69, and 13 inches (254, 279, 297, 330 mm)

Thus, if you switch from 8.5 by 11 inches/216 by 279 mm to U.S. legal (8.5 by 14 inches/216 by 356 mm), the 11 inches/279 mm segment is utilized first, then the additional blade extension to 14 inches/356 mm is activated automatically when the legal size paper is encountered.

Two points to note:

- For page lengths in between the preset blade lengths, there may be some deletion on paper that extends past the blade. The rate of occurrence of deletions varies widely, depending on paper stock, and should be tested. Also, note that no

deletion will be noticed if no data is printed on the portion of paper that extends past the blade.

If you frequently use non-standard size paper, a custom transfer blade kit is available for installation on your printer. For more information on the custom transfer assist blade, refer to the *Xerox 4635 LPS Operator Guide*.

- The activation of the blade is timed to place it on the lead edge of the sheet of paper as it moves through the system. The placement of the activation can vary with the actual speed of paper. Therefore, performance may demonstrate some deletions on the lead 0.25 inches/6mm of the page. In particular, solid black lines on the lead edge of the page should be avoided if this is a major concern to you.

A consideration resulting from the very solid black characters that the 4635 LPS can print is that toner on the lead edge of the paper may cause the sheet to stick to the fuser, due to the consistency and solidness of the toner. In order to eliminate fuser jams caused by this condition, the system uses a digital screen to lighten automatically any solid areas printed in the first 0.25 inches/6mm of the lead edge. If the solid areas are small, the amount of screen is barely noticeable, if at all. However, with very large solid black areas, the effect may not be acceptable. The system does provide an override using the Lead Edge Screen window at the PC UI, or the EDGE command entered at the command line. This window or command allows you to enable or disable the lead edge screen; however, overriding the screen in this manner is likely to increase fuser jams.

For particular applications, it is recommended that you run test prints both with and without the screen to ascertain which mode is most appropriate for you.

For more information on the Lead Edge Screen window, refer to the *Xerox 4635 LPS Operator Guide* or the *Xerox 4635 LPS PC User Interface Reference*. For more information on entering the EDGE command at the command line, refer to the *Xerox 4635 LPS Operator Guide* or the *Xerox 4635 LPS Operations Reference*.

Print Darkness

The 4635 LPS provides you with capabilities for tuning your output print quality to meet the particular needs of your application. The Print Darkness window at the PC UI is a feature which allows you to adjust darkness of printed characters and images. Print darkness is a scale from 1 to 9, which either darkens or lightens the image, as well as broadening or thinning the look of various characters. The nominal setting is 5, which provides the optimal mix of darkness and line thickness.

It is recommended that you test the Print Darkness feature to determine the best setting for your site or application. For more information on the Print Darkness window, refer to the *Xerox 4635 LPS Operator Guide* or to the *Xerox 4635 LPS PC User Interface Reference*. For more information on entering the DARKNESS command at the command line, refer to the *Xerox 4635 LPS Operator Guide* or the *Xerox 4635 LPS Operations Reference*.

Note: On 4635MX systems, Print Darkness is restricted to only level 5 when printing in the MICR mode.

Interpolation and scanned images

The 4635 LPS accepts 300 spi data and prints it using a 600 spi dual beam raster output scanner (ROS). To convert 300 spi input data to 600 spi print output, the system uses an interpolation algorithm to smooth lines and improve the quality of 300 spi fonts and line art.

Note that the interpolator does not always improve scanned half-tone images. The Xerox 7650 Pro Imager Scanner has several screens which attempt to maximize the effect of interpolation on the quality of half-tones. However, in order to utilize these new screens you must re-scan previously scanned images. The relative level of improvement needs to be evaluated by you on your own half-tone images.

Switching paper size and feed modes

The 4635 LPS system operates in a multiple-pitch print mode: 7 pitch to 3 pitch.

The multi-pitch feature allows your 4635 LPS to adjust the pitch mode according to the width of the paper you are using. Table 5-2 shows the relation between the pitch mode, the maximum width of the paper being fed in a long edge feed mode, and the page per minute (PPM) rate. Long edge feed mode means the sheet is fed into the paper path with its long edge first.

Table 5-13. **Pitch modes**

Pitch mode	Maximum paper width	PPM rate
3-pitch	17 inches/431 mm	58 PPM
4-pitch	15.3 inches/389 mm	78 PPM
5-pitch	12.1 inches/308 mm	98 PPM
6-pitch	10.2 inches/259 mm	117 PPM
7-pitch	9 inches/229 mm	135 PPM
8-pitch*	7.4 inches/188 mm	154 PPM

* 8 pitch is enabled only with the optional Paper Feeding Enhancement Kit installed

For papers whose widths range from 8.66 to 9 inches, the 4635 prints with slightly reduced productivity at 135 pages per minute, with seven-page images per photoreceptor revolution. Productivity is slightly reduced because in order to maintain print speed for papers of this size, the system must temporarily suspend xerographic print quality checks. The 4635 maintains the highest print quality by periodically reducing printer output to perform xerographic print quality checks. After a print quality check, the system automatically resumes printing at full productivity.

Cleaning time between pitch mode changes

Because the xerographic process places toner images on the photoreceptor belt, it is necessary for the printer to clean the system completely when switching to different modes. This cleaning process ensures that unprinted toner from one pitch mode is not deposited on sheets running in the other mode. This cleaning process requires approximately 25-30 seconds, during which time the system "dead cycles" before printing again. During this time, areas of the printer are running, but paper is not fed through the system.

Specialized papers

The 4635 printer handles paper differently from the 9790 and other Xerox LPS. Paper sensors and the paper path are not the same from one printing product to another. An application running special papers on a 9790, for example, may yield slightly different results when printed on the 4635 LPS. Therefore, it is recommended that you test applications that use specialized papers to ensure that output is satisfactory.

Pay special attention to the following materials:

- Die cut paper (paper with windows or areas cut out) must be tested to ensure that the sheet registers properly with paper sensors.
- Multiple-thickness materials may cause stacking problems. Such problems may be alleviated by using the Bin Limits window or command to limit the number of sheets that can be stacked in a bin.

  For information on the Bin Limits window and command, refer to the *Xerox 4635 LPS Operator Guide* or the *4635 LPS PC User Interface Reference*

Refer to *Helpful Facts About Paper* for more information on the selection, storage, and handling of papers for your 4635 LPS.

LAN support

The 4635 now supports the installation of a LAN PWB in the PCUI to upload audit logs to a remote system for processing. With this feature installed, any time an audit log is completed it will automatically be transmitted over the LAN to a remote system. Xerox will provide the software for the 4635 to support the feature. It is the customer's responsibility to provide the circuit board and any related software and cables.

Note: The PCUI must be logged on to the LAN for an audit log to be uploaded to a remote system. If the log on has not been accomplished, an error message will be displayed at the completion of each audited report.

6. Xerox customer resources

This chapter references the many resources available to Xerox customers in the U.S. If the resource you need is not listed in this chapter, contact your site representative.

Xerox support services

Xerox provides many services in support of your laser printing system (LPS). These services include the following:

- Xerox Customer Support Center
- Customer Service Support Center
- Xerox Font Center
- Xerox Customer Documentation Catalog
- Xerox Documentation and Software Services (XDSS)
- Xerox Supplies Order Service.

Detailed information about these services follows.

Prior to installation, your Xerox site representative is available to answer your questions about the products, services, or billing. However, if you need assistance in resolving application-related problems or questions, contact your local Xerox systems analyst or call the Xerox Customer Support Center (XCSC).

Xerox Customer Support Center

The XCSC is available to address your software and applications problems or to direct you to the appropriate documentation.

The key to effective use of the XCSC is correct identification of the problem. Before calling the center, it is helpful to have the following information available:

- A list of any error messages
- An explanation of how output is different from what was expected
- Whether the symptoms follow a consistent pattern or occur randomly
- A list of special conditions that may have an effect on the system, such as:
  - — New applications
  - — Changes made to the host system (that is, system software)
  - — Recent service performed on the LPS
  - — Whether the application printed properly on the LPS prior to the problem.

The XCSC telephone number is:

1-310-333-2151 (nationwide), 5 a.m. to 5 p.m. Pacific time.

Customer Service Support Center

If you encounter software- or hardware-related problems, such as system failures, continuous paper jams, or poor print quality, first try the corrective actions described in your LPS operator guide. If the problem persists, call the Customer Service Support Center. Contact your site representative for the telephone number of the Customer Support Service Center in your area.

Before contacting Xerox service, please make note of the following:

- Status code numbers and messages which appear on the PC User Interface (UI) or terminal, including the 6-digit code number that resulted from running the PROBLEM command
- Status messages which appear on the printer control console
- Indicator lights which may be lit
- Status codes which appear in the display window of the operator control panel if there is a tape drive problem. (Remember, you must perform Diagnostic Test 01 prior to placing a service call for a 9-track magnetic tape problem.)

Your call will be answered by a Xerox representative who will ask you for the following information:

- Your LPS model number: 4635
- Your LPS serial number
- Your name
- Your company name
- Your work address
- Your company's work hours
- A contact's name and telephone number within your company
- The condition or status of your system.

This information is given to a Xerox representative who will call you back to discuss the information and give you an estimated time of arrival of a service representative, or assist you over the phone to resolve the problem.

Xerox Connection

For information on interfaces and connections available for online and offline operation with the 4635 LPS, contact Xerox Connection at:

1-800-451-9312 (continental U.S.)
7:00 a.m. to 4:00 p.m. Pacific time.

Xerox Font Center

The Xerox Font Center can send you samples and catalogs of the fonts available for your LPS.

To receive font samples, obtain price information, or to order licensed or custom fonts, call the font support center for your area. Their business hours are 8:00 a.m. to 5:00 p.m. Pacific time.

Call the Xerox Font Center for information or to place an order at:

1-800-445-FONT

If you prefer, you may write to the following address to request font information:

Xerox Corporation
Xerox Font Center ESCP-126
701 South Aviation Boulevard
El Segundo, CA 90245

For locations outside the United States, please contact your Xerox site representative or local Xerox office.

For technical support regarding fonts (such as, installing fonts or solving problems encountered using fonts), call the Xerox Font Center at:

1-800-521-8324

Xerox Customer Documentation Catalog

Detailed information on documentation for your LPS is contained in the Xerox Customer Documentation Catalog. The catalog includes a brief description of each item, its cost, and the instructions and forms needed for ordering.

Included at the back of this guide is a request card for ordering the Xerox Customer Documentation Catalog. Simply fill out the request card and mail it. Once you are on our mailing list, updated catalogs are sent to you automatically. You may also call XDSS to request a catalog. (Refer to the following section.)

Xerox Documentation and Software Services

XDSS offers a variety of services that can be customized to meet your documentation needs.

XDSS distributes the documents you need to facilitate the installation and use of Xerox printers, workstations, and host-software packages. Site subscription is a free service that will keep these documents up to date by automatically sending you updates and revisions as they become available.

XDSS will also send you a Customer Documentation Catalog free of charge upon request. Forms for ordering documents, requesting a Customer Documentation Catalog, and registering for the site subscription service are provided at the back of this manual. Complete the forms or call:

1-800-445-5554, 6:00 a.m. to 5:00 p.m. Pacific time.

XDSS representatives will explain the services available, answer your questions, and take orders for documentation.

Xerox Supplies Order Service

To avoid downtime, be sure always to have an adequate amount of the necessary supplies available. To do this, you need to establish a procedure for checking and ordering supplies. A supplies checklist is provided in the *Xerox 4635 LPS Installation Planning Guide* to help you with this task.

It is important that you check your supplies regularly and order before you run out. Please plan on approximately five working days for delivery after the order has been placed. (Arrangements can be made to provide them sooner in emergency situations.)

Your Xerox site representative can help you submit the initial order of supplies needed for installation. These items include paper, dry ink, fuser agent, and developer.

Once your printer's volume is established, planning ahead and buying Xerox supplies in quantity can save you money. Your Xerox supply specialists can help you.

There are two centers available to assist you:

- To order Xerox paper, transparencies, labels, dry ink, fuser agent, and magnetic tape, call the following toll-free number weekdays between 7:30 a.m. and 6:00 p.m. Pacific time, at:

  1-800-822-2200 (U.S. only).

If you prefer, you may mail orders to:

Xerox Corporation
P.O. Box 25075
Santa Ana, CA 92799-5075

- To order cleaning supplies, call the Xerox Parts Marketing Center weekdays between 5:00 a.m. and 5:00 p.m. Pacific time, at:

  1-800-828-5881 (U.S. only).

You may also mail cleaning supply orders to:

Xerox Corporation
Parts Marketing Center
Building 214-07S
P.O. Box 1020
Webster, NY 14580

Please provide the following information when placing orders:

- Your customer number (provided by your Xerox site representative)
- Your LPS model: 4635
- Your supply order, including:
  - — Item name
  - — Part number
  - — Quantity desired
  - — If your company requires a purchase order for payment of an invoice, you need to provide the purchase order number to Xerox at the time you place the order.

A. 4635/4635MX Audit log record

Overview

This document contains the public record format definitions for the Xerox 4635 / 4635MX audit logs. There are two types of audit log files. The first is the Master Audit Directory file (.ALM). The second is the Audit Log Data file (.ALG).

The Master Audit Directory file provides a mapping from report names (as specified by the BTEXT RNA parameter) to the Audit Log Data file's DOS filename. It also contains selected summary information.

The second file type is the Audit Log Data file. Using the DOS file name returned from the Master Audit Directory file, you can select the following record types from the Audit Log Data file: Log Header, Page Detail, Waste Management and Operations Log.

The following record formats used in conjunction with the BTRIEVE record management software documentation will enable the customer to programatically access Audit Log data.

Master audit directory

This file contains an entry for each report that is audited. It maps report names that are displayed to the operator to DOS file names and contains copies of certain data fields from each audit log file.

This redundant data is included to enhance performance when querying a number of logs. For example, a list of logs with their start dates, stale dates and error status could be prepared without referencing the Audit Log Data file for these reports.

The scope of the Master Directory includes the in-process log file as well as completed reports. Logs that have been deleted from the PC UI with the "Audit Log Administration" window will not appear in this file.

Table A-1. **Master audit directory record**

	Description	Type	Length	Comments
Key fields	Start date/time	double word	4	see notes
	Job number	word	2	generated by ESS
	Report number	word	2	generated by ESS
	Entry number	word	2	entry number in master directory
	Report name	character array	20	user report name
	DOS file name	character array	13	
Data	Monetary value	double float	8	expected value of this report
	Monetary total	double float	8	actual value of this report
	Rerun date and time	double word	4	see notes
	Log flags	word	2	bits set indicate report options (see notes)
	End date/time	double word	4	see notes
	Stale date	double word	4	stale date/(midnight) (see notes)
	Completion	double word	4	primary/secondary (see notes)
	Sheets fed	double word	4	total number of sheets fed
	Sheets purged	double word	4	total number of sheets purged
	Sheets delivered	double word	4	total number of sheets delivered
	Sheets planned	double word	4	number of good sheets expected for this report
	Record count	double word	4	number of records in this log
	File size	word	2	prorated size (kb) of the log file
	Count of reruns	word	2	
	Error flags	word	2	error summary (see notes)
	Bar code status	character	1	-1 = not enabled 0 = off or not installed 1 = on 2 = align 3 = not available
	MICR status	character	1	-1 = not enabled 0 = off or not installed 1 = on
	User job number	character	7	

Audit log data

Copying an Audit Log with the Log Save function will create a uniquely named *.ALG file that contains only the log data for that report. This is the file name that will be associated with the user report name in the Master Audit Directory file.

This file contains several types of records, which share a common set of keys. One of these keys is a Record Type field which specifies the structure of the remaining data in the record. When accessing these records, ensure that your buffer is at least as large as the longest possible record, the Log Header, which is 361 bytes long. Once the record is read you can use the common key structure (section "a" of each record type) to access the Record Type field. The value of this field indicates which record structure to use in accessing the data in the remainder of the record.

Log header record

Contains report summary and status information for a single report.

Table A-2. **Log header record**

	Description	Type	Length	Comments
Key fields	Delivery time	double word	4	see notes
	Sequence number	word	2	sequence number of page
	Report number	word	2	generated by ESS
	Entry number	word	2	entry number in master directory
	Record type	word	2	value is 1
	Error flags	word	2	see notes
	Tie break	word	2	same second chronological order
	Null key	word	2	null key segment for Btrieve
Data	Job number	word	2	assigned by ESS
	Report name	character	20	
	User job number	character	7	
	User department #	character	32	
	Reserved	character	12	not used
	Sheets fed	word array	2x8	number of sheets fed by source
	Reserved	word array	2x8	
	Sheets purged	word array	2x8	number of sheets purged by source
	Reserved	word array	2x8	
	Sheets delivered	word array	2x8	number of sheets delivered by source
	Reserved	word array	2x8	

Table A-2. **Log header record** (Continued)

	Description	Type	Length	Comments
	Start date/time	double word	4	see notes
	End date/time	double word	4	see notes
	Stale date/time	double word	4	time = midnight (see notes)
	Process date	double word	4	user process date (see notes)
	Operator removed	word	2	# of sheets removed by operator
	Completion status P	word	2	primary completion status
	Completion status S	word	2	secondary completion status
	Reserved	double word	4	not used
	Log flags	short	2	see notes
	Sheets expected	double word	4	# of good sheets expected in report
	Monetary value	double float	8	expected money value of this report
Mode status	System ID	character	31	assigned by ESS
	Bar code reader	character	1	-1 = not enabled 0 = off or not installed 1 = on 2 = align 3 = not available
	MICR mode	character	1	-1 = not enabled 0 = off or not installed 1 = on
	Print quality	character	1	value of print quality when report run
	Lead edge	character	1	value of lead edge when report run
Log dates	Created	double word	4	date/time report created (see notes)
	Completed	double word	4	date/time report finished (see notes)
	Reserved	character	4	not used
	Rerun	double word	4	rerun date and time (see notes)
	Reserved	character	28	not used
	Record count	double word	4	number of records in this log
	Audit flags	word	2	phase status summary
	DOS file name	character array	13	verifies sync w/master audit directory
Report totals	Actual dollar value	double float	8	
	Sheets delivered	double word	4	# of good sheets delivered
	Images delivered	double word	4	# of good images (sides) delivered
	Sheets scrap	double word	4	# of scrap sheets delivered
	Waste mgmt fed	double word	4	# of waste mgmt sheets fed
	Waste mgmt delivered	double word	4	# of waste mgmt sheets delivered
	Waste mgmt purged	double word	4	# of waste mgmt sheets purged
	Waste mgmt removed	double word	4	# of waste mgmt sheets removed by operator

Page detail record

Contains detail data for each delivered sheet in an audited report.

Note: Includes purged sheets but does not include sheets removed by the operator.

Table A-3. **Page detail record**

	Description	Type	Length	Comments
Key fields	Delivery time	double word	4	see notes
	Sequence number	word	2	sequence number of page
	Report number	word	2	generated by ESS
	Entry number	word	2	entry number in master directory
	Record type	word	2	value is 3
	Error flag	word	2	see notes
	Tie break	word	2	same second chronological order
	Null key	word	2	null key segment for Btrieve
Data	Money value	double float	8	monetary value of this page
	Sheets delivered	word	2	# of good sheets delivered for page
	Delivery status	word	2	delivery status of sheet
	Source code	character	1	source of delivered sheet
	Destination code	character	1	destination of delivered sheet
	Identifying text	character array	<=65	up to 64 characters of descriptive text from the BText + 1 null terminator

Waste management detail record

Waste Management detail records contain a summary of jam recovery sheet handling. Purged sheets are summarized by destination. Sheets removed by the operator are totals and are not summarized by source.

Table A-4. **Waste management detail record**

	Description	Type	Length	Comments
Key fields	Delivery time	double word	4	see notes
	Sequence number	word	2	sequence number of page
	Report number	word	2	generated by ESS
	Entry number	word	2	entry number in master directory
	Record type	word	2	value is 4
	Error flag	word	2	see notes
	Tie break	word	2	same second chronological order
	Null key	word	2	null key segment for Btrieve
Data	Reserved	word	2	
	Message type	word	2	source (ie operator, UI, ESS)
	Translate	character	1	1=message has been translated to plain text
	Message text	character array	<=257	up to 256 characters of plain message text+ 1 null terminator

Operations log data record

Table A-5. **Operations log data record**

	Description	Type	Length	Comments
Key fields	Delivery time	double word	4	see notes
	Sequence number	word	2	sequence number of page
	Report number	word	2	generated by ESS
	Entry number	word	2	entry number in master directory
	Record type	word	2	value is 5
	Error flag	word	2	see notes
	Tie break	word	2	same second chronological order
	Null key	word	2	null key segment for Btrieve
Data	Reserved	word	2	
	Message type	word	2	source (ie operator, UI, ESS)
	Translate	character	1	1=message has been translated to plain text
	Message text	character array	<=257	up to 256 characters of plain message text+ 1 null terminator

Notes

This section includes all notes referenced in the preceeding tables.

Strings

All fields of type "character" with a length greater than 1 are NULL (binary zero) terminated strings. This reduces the user portion of the string by one character.

Dates

All dates and times are expressed as the number of elapsed seconds since 01-01-1970, 12:00 AM. The double word value will provide for values up to the year 2216.

Record type codes

1 = Log header record

3 = Page detail record

4 = Waste management detail record

5 = Operations log data record

Error flags

Flag bits are set to the hex values shown to indicate what error(s) occurred

0x0001 = duplicate page

0x0002 = out of sequence

0x0004 = missing sequence number

0x0008 = reconciliation error

Log flags

Flag bits are set to the hex values shown to indicate what detail(s) to report

0x0001 = sequence errors

0x0002 = dupe errors

0x0004 = detail vs. summary

0x0008 = operations logged

0x0010 = waste management

0x8000 = report is incomplete

Audit flags

Flag bits are set to the hex values shown to map the state of the audit logger.

0x0001 = input in process
0x0002 = output in process
0x0004 = pre-completion in process
0x0008 = input complete
0x0010 = output complete
0x0020 = log is complete
0x0040 = log is deleted
0x0080 = log completion is pending
0x0100 = BTEXT RPT signal data received
0x0200 = audit logging initialized for a report
0x0400 = BTEXT PAG signal data received
0x1000 = Btrieve in-process files open
0x2000 = Btrieve report audit file open
0x4000 = master directory up to date

Completion status codes

Completion status codes are bit flags. They are classed as primary and secondary, so multiple flags can be set at any one time resulting in a value that is the sum of several flags.

The audit log report will display a description of the most significant status code when multiple flags are set.

Primary codes

0	=	normal completion
1	=	operator issued SPACE PAGES command
2	=	End-of-report encountered during SPACE PAGES command
4	=	data on page exceeded page size
8	=	graphic memory size exceeded
16	=	font memory size exceeded
32	=	report too big for available memory
64	=	too much data on a page or duplex set-up error
128	=	irrecoverable graphics imaging error
256	=	irrecoverable disk or imaging hardware error
512	=	account page not printed because of aborted job
1024	=	unable to recover to page boundry following a system crash
2048	=	successive page recovery used
4096	=	secondary report completion code used
8192	=	operator issued ABORT O command
16384	=	operator issued ABORT JOB # command
24576	=	operator issued RESET command

Secondary codes

1 = data stream stock call out was overridden by operator
2 = SIZING option caused report to abort
4 = RASTER
8 = more than 16 TL/DL blocks were used on one page
16 = CODE = NONE error was detected during printing
32 = set integrity problem
64 = graphic off leading edge of page

Key audit report calculations

This section provides additional information on how some of the key fields shown are calculated.

Good sheets fed by source

The number of good sheets fed from each tray is stored in order in the good sheets fed array of the log header record. Trays 1-7 correspond in order to words 1-7 of the array.

Total good sheets fed

The total number of good sheets fed is the sum of all of the values in the good sheets fed array in the log header record.

Good sheets delivered by destination

The number of good sheets delivered to a particular destination correspond to the values in words 1-6 in the good sheets delivered array of the log header record as follows: S = sample tray, A = bin A, B = bin B, C = bin C, D = bin D, E = bypass transport.

Waste sheets fed by source

The number of sheets fed from each tray is stored in order in the waste sheets fed array in the log header record. Trays 1-7 correspond in order to words 1-7 of the array.

Total waste sheets fed

The total number of waste sheets fed is the sum of all of the values in the waste sheets fed array of the log header record.

Waste sheets delivered by destination

The number of waste sheets delivered corresponds to the values in words 1 and 7 (sample tray and purge tray) in the waste sheets delivered array of the of the log header record. The sheets removed value is obtained by subtracting the sum of words 1 and 7 from the total waste sheets fed value.

Glossary

A3 Paper size measuring 297 by 420 mm.

A4 Paper size measuring 210 by 297 mm.

abort To terminate the printing of a job or execution of a program before it completes.

alignment Positioning of an image on a page for printing.

alphanumeric Set of characters including the letters A through Z, numerals 0 through 9, and all printable special symbols.

AIS Advanced Imaging Subsystem (AIS), made up of three PWBs, used for character dispatch and image generation functions.

ASCII American Standard Code for Information Interchange. Standard 7-bit code that represents alphanumeric information. Each alphanumeric character and several nonprinting characters are assigned a binary number, covering 128 possible characters. It is used for information interchange among data processing systems, data communication systems, and associated equipment.

applications software Host- or LPS-resident software that directs the computer to perform specific tasks or functions as opposed to the software used to operate the computer. Common business applications include payroll, accounting, and inventory.

ascender Portion of alphabetic character that rises above the body of the character (its x-height portion). See also descender; x height.

Assured Printing Confirmation that a print job has been completed as intended: all pages were printed in the correct order, no duplicate or missing pages, and the correct image to sheet transfers have occurred.

audit log Captures the sheet delivery information for every page in an audited report, certain details about each sheet, the planned and actual report control totals, and waste management information.

B4 Paper size measuring 250 by 353 mm.

B5 Paper size measuring 178 by 254 mm.

backup file File copied to a storage medium for safekeeping in case the original is damaged or lost.

Bar Code Reader A device that optically reads a code representing characters by sets of parallel bars of varying thicknesses and separation by tranverse scanning utilizing a laser.

bit map Visual representation of graphic images in which a bit defines a picture element (pixel); for example, if a bit is 1, the corresponding pixel is printed.

bit mapped Display image generated bit by bit for each point or dot. A software-driven scanner is used to create characters or graphics.

blocking Process of combining two or more records into a single block of data which can then be moved, operated upon, or stored, as a single unit by the computer.

block length Number of characters or bytes contained in a block of data (the block is treated as a unit within the computer). Block length is usually invariable within a system and may be specified in units such as records, words, computer words, or characters.

bypass transport Finisher for postprocessing activities such as booklet making, shrink wrapping, etc.

character Single printable letter (A-Z), numeral (0-9), symbol (& % #), or punctuation mark (, . ! ?) used to represent data. Characters can also be nonprinting, such as space, tab, or carriage return.

character cell Digitized space containing a single character within a font set.

character set Number of different characters used by a particular device, including alphabetic, numeric, and special characters such as symbols.

cluster Group of paper feeder trays, usually containing the same size and type of paper (stock). Each cluster has a name, consisting of one to six alphanumeric characters. See also *stock; stockset*.

CME copy modification entry. Entry modifying the output printing characteristics of a report on a copy-to-copy basis.

collate To arrange or assemble into ordered sets.

comment Explanations written with program instructions. They are ignored by the computer.

compiler Software that translates instructions written in high-level language into machine language for execution by a system.

concatenate To connect or link in a series, as when files are grouped together for faster processing. See also job concatenation mode.

console Functional unit containing devices used by an operator to communicate with an operating system. It may consist of a display, keyboard, and certain switches or other controls.

consumable supplies Supplies such as paper and dry ink that are depleted (used up) during the course of normal printer operation.

continuous printing Refers to Interpress job integrity under any of the following conditions: excessive graphics, forms, or font use problems.

coordinate Point on the x and y axis that determines a grid position.

copy To duplicate data in a new location or on an additional storage medium, for example, to copy files from disk to tape.

copy-sensitive Term used to indicate jobs in which multiple copies of a report will contain different data, as with paychecks and banking statements.

cpi characters per inch. Designates the number of characters per inch for a particular typeface. See also pitch.

debug To detect and correct errors in a program.

default Value assigned to a field by the system. Default fields may be used for such items as document formats, menu selections, input fields, font selection, and paper or image size. The default value of a field may be changed.

descender Portion of alphabetic character that extends below the baseline. See also *ascender, x height.*

display Viewing device (monitor) that visually communicates system warnings, status, and error messages and reflects operator interaction with the system on a display.

DJDE Dynamic Job Descriptor Entry. Command within an input data stream used to modify the printing environment dynamically.

dot Unit of measurement representing a fraction of an inch, for example, 300 dots per inch (dpi). It may also be referred to as a picture element (pixel) or spot.

download To copy files using communication lines from the host onto LPS system disks.

duplex printing Printing on both sides (front and back) of a page. See also *simplex printing*.

easy values Font point sizes, orientations, and names explicitly defined in Font Interchange Standard (FIS).

EBCDIC Extended Binary Coded Decimal Interchange Code. Coded character set consisting of 8-bit coded characters. It can accommodate 256 characters.

edgemarking Use of graphic objects, usually lines or boxes, that bleed off the edge of the physical page. See also physical page.

electronic publishing Integrated production of documents on demand, using digitally stored documents, computerized composition, and electronic printing systems.

elite Smallest size standard typewriter type: 12 characters per horizontal inch.

embedded blanks Blank spaces within a command line.

Ethernet Xerox local area network (LAN) that allows data to be transmitted by cable from one device to another, enabling it to share the network.

FCB forms control buffer. Buffer for controlling the vertical format of printed output.

FDL forms description language. LPS-resident source language used for designing electronic forms. See also *FSL; form*.

FIS Font Interchange Standard. Standard that defines the digital representation of fonts and character metrics for the generation of an entire series of Interpress fonts.

Feeder/Stacker Input paper tray/output paper stacker.

fixed font Font containing characters with fixed spacing. See also *proportional font*.

fixed pitch Font set in which every character cell has the same width. In reference to character sets, this term describes typefaces in which all character cells are of equal width. Monospaced as opposed to proportional spaced.

fixed spacing Arrangement of characters on a line so that all characters occupy the same amount of horizontal space.

font Set of images, usually characters and symbols, having common characteristics such as style, width, height, and weight.

form 1. Compiled forms source library (.FSL) file. 2. Printed or typed document with blank spaces for inserting information. Specific arrangement of lines, text, and graphics stored in a computer under an identifying name. Page of data that, when preceded by proper commands, is stored on the system disk as a permanent file. It may be merged with variable data by a form start command. See also FDL; FSL.

format 1. Layout of a document, including margins, page length, line spacing, typeface, and so on. 2. In data storage, the way the surface of a disk is organized to store data. 3. To prepare the surface of a disk for acceptance of data.

FSL Forms source library. Uncompiled collection of user-created files containing FDL commands. Refer to *FDL; form*.

graphics Use of lines and figures to display data, as opposed to using text.

grid Imaginary pattern of evenly spaced horizontal and vertical lines on a page.

grid unit Smallest rectangle enclosed by horizontal and vertical lines on a grid. The size of a grid unit is expressed as the length of one side of a rectangle.

hardcopy Machine output in permanent form, such as printed reports, listings, and so on. Output in a permanent form (usually on paper or paper tape) rather than in temporary form, as on a display. Contains readable printed copy of machine (for example, computer) output.

hard values Nonoptimal adjustment of particular FIS fonts in terms of point size and orientation.

hardware Physical components, such as mechanical, magnetic, and electronic elements of a system, as opposed to programs, procedures, rules, and associated documentation. Hardware is operated by software and firmware.

HCF High-Capacity Feeder. An LPS option that increases the number of input paper trays.

HCS High-Capacity Stacker. An LPS option that increases the number of feeder stackers.

hexadecimal Numbering system with a base of 16. In this system, 10 through 15 are represented by A through F, respectively.

hierarchy Relative priority assigned to arithmetic or logical operations that must be performed.

host Computer accessed by users which serves as a source of high-speed data processing for workstations with less computer power. See also *mainframe*.

host interface Connection between network and host computer.

id identifier. Character used to identify or name data and possibly to indicate certain properties of that data.

image area Area on a physical page that may contain text or graphics.

input Data or text introduced into a computer-based system.

input/output General term encompassing the flow of data into and out of a system.

interpolation Series of logical rules implemented in the printer to convert a 300 spi input video stream to a 600 spi output video stream. Interpolation is functionally analogous to bit doubling (2x scaling), except the logical rules result in superior output.

Interpress Xerox standard that defines digital representation of lines for printing. Interpress documents can be printed on any sufficiently powerful printer equipped with Interpress print software.

Interpress font utility (IFU) program Program used to convert FIS fonts to LPS fonts.

Interpress master File written according to the Interpress standard.

JDE job descriptor entry. Collection of job descriptions. See also job; *JSL*.

JDL job descriptor library. Collection of compiled job descriptions. See also *JSL*.

job 1. Set of instructions (JDEs) defining a unit of work for the system. 2. In setting a separation boundary through the Bin Full Criteria task, job refers to everything printed as the result of a single start command. See also *JDE*.

job concatenation mode In HIP, a mode in which multiple print jobs are processed as reports in one print job. See also concatenate.

job control Program called into storage to prepare each job or job step to be run.

JSL job source library. Collection of uncompiled job descriptions. See also job; *JDE*; and *JDL*.

keyword Required part of a command. See also operator command.

label 1. In data storage, a reference to a file saved on tape or disk, a record indicating the file name or date created, or other control information. 2. In programming, a name assigned to a particular instruction or portion of a program as a locational reference (the computer translates the label into an address).

landscape page orientation Orientation of print lines or top of an illustration parallel to the long edge of the paper if the sheet is within the standard size range. (Sheets larger than standard have the reverse print orientation.)

language Defined set of characters and symbols combined together by specific rules. See also high-level language; low-level language.

laser printing Technology that uses a laser to transfer character forms to a page by direct or indirect means.

leading 1. Vertical distance between lines (also called line space), measured from a baseline of one line to the baseline of the next. 2. Extra spacing between lines of type. 3. In typography, spacing between lines and paragraphs.

LED Light emitting diode. Solid substance that glows when a current is passed through it. Often used for indicator lights on disk drives or modems, as well as for displays on other electronic equipment.

LEF long-edge feed. The movement of paper through the printer in the direction of the paper length (the longer side of a sheet of paper).

legal size Sheet the standard size of legal briefs, 8.5 by 14 inches.

letter size Paper sized 8.5 by 11 inches/216 by 279 mm.

library In data storage, a collection of related files or programs.

line One horizontal flow of characters.

line feed Control character that, unless set to be interpreted as a line end, causes the printing system to begin printing in the current character position of the next line.

line printer High-speed printer that prints an entire line of characters at one time.

line tables Internal data structures providing a record in memory of lines to be drawn on a page.

location Place in which data can be stored.

logical page In the Xerox printing systems environment, a formatted page that is smaller than the physical page. A logical page is defined by an origin, thus allowing more than one logical page to be placed on a physical page.

logo Small illustration or design, usually simple, typically used to identify a company.

log off Procedure by which a user ends a session.

log on Procedure by which a user begins a session between an application program and a logical unit.

magnetic media Term for all storage devices, such as disks, diskettes, and tape, on which data is stored in the form of magnetized spots on surface of the media.

magnetic tape Flexible plastic tape, with one side offering a magnetic surface suitable for storing computer data in the form of magnetized spots. Magnetic tape is often used for long-term storage since it can accommodate large volumes of information.

mainframe Central processing unit (CPU) and memory of a large computer. More often used to denote any large computer of the type that might be used to control a group of smaller computers, terminals, or other devices. See also *host*.

margins White space on each side of printed text.

mask 1. Selection of bits from a storage unit by using an instruction that eliminates the other bits in the unit. 2. In accessing files, a file name mask is used to reference one or more files with similar file-id (identifier) syntax. 3. In Interpress, a mask serves as a template, indicating the shape and position of an object on a page.

menu List of available functions, commands, and options.

message Unit of information transmitted by one facility to another in a form that the receiving facility can understand and act upon. The standard message format consists of a header (containing identifying and control information), followed by the actual message content, followed by a trailer (indicating that the message is completed).

MICR Magnetic Ink Character Recognition. Allows a computer to read characters printed in special metallic ink by scanning the shapes of their magnetic fields. MICR fields are often imprinted on bank checks before processing.

nesting Subroutine or set of data, such as a comment, contained sequentially within another.

object file Source file converted into machine language (binary code).

octal Numbering system which uses base 8.

offline Devices not under the active control of a central processing unit. For example, a computer makes output to a magnetic tape. The tape is then used by an offline printing system to produce printed data. Offline operations are much slower than online operations. See also *online*.

offset To place pages currently being printed in slightly different positions from previous pages.

online Devices under the direct control of a central processing unit, for example a printing system in interactive communication with a mainframe. See also *offline*.

operating system Basic host- or LPS-resident controlling program that governs the operations of a computer, such as job entry, input/output, and data management. The operating system is always running when the computer is active. Unlike other types of programs, it does not run to an end point and stop. The operating system of a Xerox LPS is referred to as the operating system software (OSS).

operator area The 24-inch exclusive clearance that must be available directly in front of each component of an LPS for operator activities.

operator command Statement to control a program, issued via a console device or terminal, causing a control program to provide requested information, alter normal operations, initiate new operations, or terminate existing operations.

orientation 1. In reference to image area, orientation describes whether the printed lines are parallel to the long edge of the paper or the short edge of the paper. 2. Choice of printing portrait (vertically) or landscape (horizontally).

origin In reference to image area, this is the upper left corner of a sheet.

overprinting Printing more than one character at the same position.

overprint lines Print lines whose carriage control specifies printing with no line spacing after the last printed line.

page inversion Allows control of image orientation. A page can be rotated 180º—head-to-head and head-to-toe.

page orientation Direction in which data is printed on a report. See also landscape page orientation; portrait page orientation.

parameter Part of a command, other than the keyword. See also keyword; *operator command*.

pass through job On systems with XPAF, a job that is sent directly from a host to a Xerox printer via XPAF, without undergoing XPAF processing.

password Unique word or set of characters that an operator or user must supply to log on to a system.

patch In programming, to modify a portion of the program at the machine language level (as opposed to modifying at the source program level).

PDL print description language. Language used to describe printing jobs to an LPS. PDL describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options).

physical page Sheet of paper on which printing is done. See also *edgemarking*.

point Unit of measurement equal to 0.0139 inch. Points are always used to express type size and leading. There are 12 points to a pica and about 72 points to every inch. See also *pica*.

point size Height of character set from the top of its ascenders to the bottom of its descenders in units (points). Point size does not always include leading.

portrait page orientation Orientation of print lines or the top of an illustration parallel to the short edge of the paper if the sheet is within the standard size range. Sheets larger than standard have the reverse print orientation.

printer Output device that produces hardcopy printouts. Also referred to as the *IOT*.

prompt Message or symbol displayed on a system console requiring the operator to take action.

proportional font Font containing characters that vary in width. See also *fixed font*.

proportional spacing Text in which each alphanumeric character is given a weighted amount of space. Such output has print-like appearance. Proportional spacing allows more space for wide characters and less space for narrow characters

proportional type Characters that vary in width.

purge To delete data from a system.

queue List of documents waiting to be processed.

raster data Binary data, usually consisting of dots arranged in scan lines, according to the print order.

rasterization Creation of a page's bit map image for printing.

record Collection of data or words treated as a unit.

report In setting a separation boundary through the Bin Full Criteria task, report refers to a subset of a job (a job may consist of one or more reports).

resolution Number of dots per unit. The LPS imaging system converts a character from digitized data into a printed image composed of these tiny dots. The greater the number of dots per inch, that is, the resolution, the clearer the image that is produced.

response time Time elapsed between an inquiry transmitted from a terminal to a central processor and the receipt of a response at the same terminal.

RIP raster image processor. LPS option that supports the Interpress V3.0 Publications Set.

ROM Read-only memory. Solid-state memory for programs. It cannot be rewritten.

save To store programs, data, or text for retrieval at a later time.

scale To adjust font or image size according to given proportions.

scsi Small computer system interface. Common standard for connecting devices to computers.

scroll Manipulation of a display to bring upper or lower portions of a document page into view when no space is available for the entire document at once.

SEF short-edge feed. The movement of paper through the printer in the direction of the paper width (the shorter side of a sheet of paper). For the 4135 LPS, short-edge feed allows larger sizes of paper (up to 11 by 17 inches/279 by 432 mm) to be printed.

segment management A feature that allows a report being printed to be delivered, by the printing system, in sets ready for a third party finishing process.

set In setting a separation boundary through the Bin Full Criteria task, set refers to multiple copies of the same report.

simplex printing Printing on one side of the page. See also *duplex printing*.

source file File containing source language statements or commands.

special processing Commands allowing the user to process special reports, such as printing certain records, or printing on special paper.

spot Unit of measurement representing a fraction of an inch, for example, 300 spots per inch (spi). May also be referred to as a picture element (pixel) or dot.

statement Detailed written instructions in a program step. A statement is written according to specific rules called syntax.

static data Information usually found on preprinted forms or overlays.

stock User-defined name in the JSL that specifies a certain type of paper for printing a job. See also *cluster*.

stockset Collection of stocks to be used on a print job. See also *stock; cluster*.

storage Retention of information. Primary storage refers to internal storage where data and program instructions pertinent to current operations/jobs are held. Auxiliary storage refers to external media, such as disks or tapes, for use at a later time.

string Connected sequence of alphanumeric characters treated as one unit of data by a program.

symbol Character used in a computer language to specify a particular function.

synchronous Efficient encoding of data suitable for high-speed, block-oriented data transmission by using equal time elements.

syntax Rules governing the structure of expressions in a programming language.

syntax error System response to a mistake in a command entry.

system 1. In data processing, a collection of parts and procedures organized to accomplish a set of specific functions. 2. Assembly of components united by some form of regulated interaction to form an organized whole. 3. Operations or procedures through which a business activity is accomplished.

system controller Part of the LPS that provides interfacing capability, data handling, formatting, buffering, and operator control for the system. Also referred to as the "ESS."

system disk Magnetic disk storage medium, usually of large capacity, that is not removable as opposed to floppy disk or disk packs.

system file Master software program that keeps all components working together.

system generation Process whereby the system is made ready to operate. Typically involves selecting the operative parameters and activating the relevant software.

system page Maximum area in which text and graphics can be imaged on a printing system.

system software Software programs that support and/or control system functions by governing hardware operation and input/output processes, interpreting source programs and breaking them down into machine language, distributing tasks among various processors, and so on.

systems specialist The person(s) at a customer site responsible for software, applications, and programming issues.

tab To move the cursor on a display or printer to a prespecified column on the display or paper.

tape Recording media for data or computer programs. Tape can be in permanent form, such as perforated paper tape. Generally, tape is used as a mass storage medium in magnetic form and has a far higher storage capacity than disk storage, but it takes longer to write or recover data from tape than from disk.

tape density The number of characters that can be stored on magnetic media, such as how close together data can be recorded. The Xerox LPS may use either 1600 bpi or 6250 bpi density magnetic media.

tape drive Input/output device that controls the movement of magnetic storage tape past the read/write head while data is accessed or stored.

task 1. Any major job performed by a computer. 2. One of several programs being executed by a system.

templates 1. Preset document formats, usually furnished along with application software, such as electronic spreadsheets or database programs. 2. Also applies to keyboard overlays showing function keys for particular software packages.

temporary storage Main memory locations reserved for intermediate results of processing, control values, or other information which need to be kept on hand as a program proceeds.

terminal Device equipped with a keyboard and connected to a computer or a network.

testing 1. Process of running a program for the express purpose of discovering any errors it may contain. 2. For computer-oriented systems, the process of verifying a system's ability to meet performance objectives in a simulated environment or validating its actual performance in a live environment.

text In communications, the content portion of a transmitted message.

text string Consecutive series of characters to be printed exactly as specified in a command.

throughput In data processing systems, the amount of data that can be processed, transmitted, printed, and so on, per a specified unit of time.

toggle To switch (alternate) from one tray to another. The system will switch from an active feeder or stacker tray to an inactive one to allow continuous printing when the proper commands are invoked.

token Coded character representing a word used in programs, for example, STOP is a word and the one-byte token for it in a BASIC dialect is 250.

track Unit of storage space on a data storage medium, such as a disk. All information stored in a track can be retrieved or recorded in one positioning of a read/write head.

trailer In data communications, the last portion of a message that signals the end.

transaction processing Method of data processing in which files are updated and results are generated immediately after data entry.

translation 1. In data communications, the conversion of one code to another on a character-by-character basis. 2. In programming, the function of a language processor which converts a source program from one programming language to another.

transmission speed In data communications, the rate at which data is passed through communication lines, usually measured in bits per inch (bpi).

transmit To send data from one place to another.

truncated Cut off before completion, as when data transfer from a host to a printer is cut off before all data has been transmitted.

turnaround time 1. In data processing, the time elapsed between submission of a job for processing and the turnaround for results. 2. In communications, the time required to convert a device from receiving mode to its sending mode or vice versa.

two-up Application that prints two logical pages on one side of a physical page.

typeface 1. All type of a single design. 2. Set of characters with design features that make them similar to one another.

type size Height of a typeface, measured from the bottom of its descenders to the top of its ascenders, expressed in points.

type style Italic, condensed, bold, and other variations of typeface that form a type family.

UCS Universal Character Set. Printer feature that permits the use of a variety of character arrays.

upload To copy files from a remote peripheral device to a host. LPS files are not copied to the host because one of the LPS functions is to store files for the host.

utility program General-purpose program that performs activities, such as initializing a disk or sorting, which are not specific to any application.

validation Process of testing a system's ability to meet performance objectives by measuring and monitoring its performance in a live environment.

variable Information of a changeable nature which is merged with a standard or a repetitive document to create specialized or personalized versions of that document.

variable data Variable data is not a part of a form design. It varies from page to page.

variable text Text of changing nature, such as various names and addresses combined with a form letter to make a complete document.

virtual page Page area selected by a forms designer for printing.

warning message System-issued message indicating that an error has been encountered even though the program has not failed.

waste management Provides more control of sensitive paper stocks by increasing the amount of information available with regard to how many sheets were fed from which tray, and the final destination of these sheets.

weight Characteristic of type determined by how light or dark it appears.

wildcard Part of a command (* symbol, / symbol, ? symbol) that represents a category for which the possible options are requested.

wildcarding In a command, calling out a general category rather than a specific item within that category. The purpose of wildcarding is to generate the options within the given category.

write To record data in memory or an external storage medium.

write protection Data protection feature implemented on magnetic media (for example floppy disk, 9-track tape) to prevent stored data from being modified, written over, or erased.

x axis Horizontal axis on a forms grid.

xdot Unit of measurement representing a fraction of an inch. It may also be referred to as a picture element (pixel) or spot, for example, 1/600 spots per inch (spi).

xerographic engine Component of a printer that develops an image, transfers it to paper, and fuses it for output as hardcopy.

x height Height of lowercase letters without their ascenders or descenders (height of letter “x”). See also ascender; descender.

x shift XSHIFT feature allows short-edge binding to shift in the x-direction to support the INVERT option.

y axis Vertical axis on a forms grid.

Acronyms

AIS	Advanced Imaging Subsystem
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange
BCD	binary coded decimal
BOF	bottom of form
BOT	beginning of tape
bpi	bits per inch
bps	bits per second
BSC	binary synchronous communications
CCID	character code identifier
CD	character dispatcher
CDC	control data communications
CD/IG	character dispatcher/image generator
CM	control module
CME	copy modification entry
CMT	character mapping table
cpi	characters per inch
CPU	central processing unit
CR	carriage return

CSI command status interface

CSR customer service representative

DC data center

DDCMP Digital Data Communication Message Protocol

DEC Digital Equipment Corporation

DJDE dynamic job descriptor entry

DMA direct memory access

DOS disk operating system

dpi dots per inch

DSDD double sided double density

DSR disk save and restore

DSSD double sided single density

EAIPX enhanced advanced image processor

EBCDIC Extended Binary Coded Decimal Interchange Code

ECMA European Computer Manufacturers Association

EGIFM enhanced graphics ink and font memory

EMT emulator trap

ENET ethernet network

EOT end of tape

EPBIX enhanced page buffer interface

ESS electronic subsystem, also referred to as the system controller

FCB forms control buffer

FCP file control parameter

FDL forms description language

FDR file directory

FFM font file management

FIS Font Interchange Standard

FMS file management subsystem

FPS formatting print service

FSL forms source library

FST font specification table

GCR group code recording

gsm grams per square meter

HCF high capacity feeder

HCS high capacity stacker

HFDL host forms description language

HIP Host Interface Processor

hpos horizontal positioning

IBM International Business Machines Corporation

IFU Interpress font utility

IGM image generator module

I/O input/output

IOM image output module

IOT input output terminal, also referred to as “printer”

IPD Interpress decomposer

IPFONTS Interpress fonts

IPL initial program load

IPM Interpress mapping

ips inches per second

JCB job control block

JCL job control language

JDE job descriptor entry

JDL job descriptor library

JID job identifier

JSL job source library

LAN local area network

laser light amplification by stimulated emission of radiation

LED light-emitting diode

LEF long-edge feed

LF line feed character

lpi lines per inch

LPS Laser Printing System

LUN logical unit number

MICR magnetic ink character recognition

MIS management information systems

MPU microprocessor unit

MTU magnetic tape unit (refers to the 9-track magnetic tape drive; also referred to as “magnetic tape drive”)

OCR optical character recognition

OCS operator communications subsystem

OLI online interface

OS operating system

OSDS operating system diagnostic software

OSEXEC operating system executive

OSS operating system software

PC personal computer

PCC printer carriage control

PC UI personal computer user interface

PDL print description language

PE phase encoded

ppm pages per minute

PQA print quality adjustment

prom programmable read-only memory

PSC printer subsystem controller

pt point

PWBA printed wiring board assembly

QIC quarter-inch cartridge

RAM random access memory

RIP raster image processor

ROS raster output scanner

RTC real-time clock

SAFES stand-alone field engineering software

SAN software analysis number

sci START command index

SCSI small computer system inteface

SEF short-edge feed

SFS status file services

SIF sequence insert file

SNA system network architecture

spi spots per inch

SST system software tape

sysgen system generation

TL/DL text line/display list

TOF top of form

tpi tracks per inch

UCS Universal Character Set

UCSB Universal Character Set Buffer

vpos vertical positioning

WAN wide area network

XDGI Xerox DCF and GDDM Interface

XDSS Xerox Documentation and Software Services

XICS Xerox Integrated Composition System

XJCF Xerox Job Control Facility

XMP xerographic mode persistence

XMS xerographic mode switching

XNS Xerox Network Systems

XPAF, XPF Xerox Printer Access Facility

XPMF-VMS Xerox Print Management Facility - VMS Version

XPPI Xerox Pen Plotter Interface

XPS Xerox Publishing System

XPSM Xerox Print Services Manager

Index