PRINTRONIX®

IPDS™ Emulation Programmer's Reference Manual

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1 *Introduction*

About This Guide

This manual contains the IPDS* configuration menu, lists the command sets and provides error messages.

This manual assumes you are familiar with IPDS and programming in IPDS. This book is not a tutorial, it does not explain how to program nor does it describe which applications support which commands. For detailed information, refer to the list below.

Sources of Useful IBM Information

- *IBM* Intelligent Printer Data Stream* Reference*
- *IBM System/36 Concepts and Programmer's Guide*
- *IBM System/38 Guide to Program Product Installation and Device Configuration*
- *Forms Design Reference Guide for Printers*
- *IBM 9370 Information System: Customizing the Work Station Subsystem*
- *IBM 9370 Information System: Work Station Subsystem and Reference*
- *IBM AS/400* Programming: Data Management Guide*
- *4234 Printer Models 007, 008, 011, and 012 Product and Programming Description*
- *Guide to Programming for Printing, Version 2*

Warnings and Special Information

For your safety and to protect valuable equipment, it is very important that you read and comply with all information highlighted under special headings:

WARNING **Conditions that could harm you as well as damage the equipment.**

CAUTION **Conditions that could damage the printer or related equipment.**

IMPORTANT **Information vital to proper operation of the printer.**

NOTE: Information and helpful tips about printer operation.

Compatible System Attachments

With a twinax interface, you can attach your IPDS-compatible printer to the following systems:

- System/36 (SSP 5.1 plus IPDS PRPQ P84094)
- System/38 (with Rel. 8 System/38 Control Program Facility)
- AS/400 processor
- 5294/5394/5494 control units

NOTE: The coax IPDS emulation is currently not available.

IPDS characteristics available on each of the above attachments are not completely uniform, but the emulation printers are fully functional on these attachments as provided by the host vendor.

IPDS can also be supported with a network interface which is protocol compatible to the twinax IPDS.

Defining IPDS

IPDS is both a protocol and a printer mode. The two terms do *not* mean the same thing.

The Protocol

A protocol is a set of rules governing the exchange of information between the printer and the host computer. The rules are codes that manipulate and print data and allow for machine-to-machine communication. A printer and the host computer must use the same protocol.

IPDS is the protocol for your printer. Refer to your IBM documentation for details about commands, etc.

The printer uses EBCDIC character codes to print text, numbers, and punctuation. Some EBCDIC characters, singly and in groups, are used as control codes. Control codes instruct the printer to perform specific functions.

The Printer Environment

The printer operates under “IPDS” (text and graphics) mode. In the IPDS mode, the data stream has special sequences to denote IPDS commands.

Emulations and Data Streams

For Thermal printers, the IPDS printer emulates only IBM 3816 or 4028 and scalable AGFA fonts. For Line Matrix printers, your IPDS printer emulates only IBM 4234 twinax models 008 and 012.

Twinax printers always use IPDS data streams for sending commands. Even a simple job, such as a screen print, is IPDS data in a twinax attachment. Because the printer definition on a twinax host is either set automatically (by auto configuration) or manually, the printer type is already known.

NOTE: To print a non-IPDS data stream, make sure to terminate any outstanding IPDS print job and end the IPDS write before sending the non-IPDS print job.

2 *Configuring with IPDS Commands*

Overview

This chapter summarizes IPDS, lists control codes, and lists error messages. For detailed information, refer to “Sources of Useful IBM Information” on page 9.

The IPDS Emulation

IPDS consists of the following command sets, which are defined in more detail beginning on page 17.

The Command Sets

Text	This set contains the commands used to present text information on a page, on a page segment, or on an overlay.
IM Image	The commands for this functional area output raster image data on a page, a page segment, or on an overlay.
IO Image	Not available.
Graphics	To present vector graphics on a page, a page segment or on an overlay, use the commands in this set.
Barcode	This set contains the commands and data controls needed to produce barcodes.
Page Segment	The commands used to store and present page segments that contain text, graphics, image, and barcode information.
Overlay	The commands used to store and present overlays that contain text, graphics, image, and barcode information.
Device Control	This set contains commands that let you set up a page and manage printer-host communication.

The Data Towers

Most of the IPDS commands contain data fields. The type of data is categorized into the following data towers:

Text	The Presentation Text Object Content Architecture (PTOCA) commands are a part of the text data tower. This information is necessary to print text in a page, a page segment, or an overlay.
IM Image	The image data enables the printer to print images in a page, a page segment, or an overlay.
IO Image	This is not supported.
Graphics	The Graphic Object Content Architecture (GOCA) commands are a part of the graphics data tower. This information is necessary to print images in a page, a page segment, or an overlay.
Barcode	The Barcode Object Content Architecture* (BCOCA*) commands are a part of the barcode data tower. This information is necessary to print barcodes in a page, a page segment, or an overlay.

Some of the data towers contain only one level of commands; some contain two.

PTOCA, GOCA, and BCOCA are described in more detail in the IBM documentation.

The States

IPDS-capable printers are known as “state machines.” As the printer recognizes a specific command, it operates in the state identified with that command. Figure 1 shows the transition of the different states.

Home State	The initial operating state. The printer returns to this state after a page, an overlay, or a page segment has been sent.
Block States	The printer establishes the processing conditions for a data block to be accepted. There are three block states: IM image, graphics, and barcode.
Page State	While printing a logical page, the printer is in the Page State.
Overlay State	This state permits overlay data blocks to be stored. An overlay is a block of data that is frequently accessed. It can be a block of text, images, graphics, or barcodes. An overlay can be a predefined page or part of a page and is often used for forms.

Page Segment State

Page segment data is stored when the printer is in this state. A page segment is a frequently accessed resource; it can be a block of text, images, graphics, or barcodes. Page segments can be a part of an overlay.

Any state — Some commands can be received in any state.

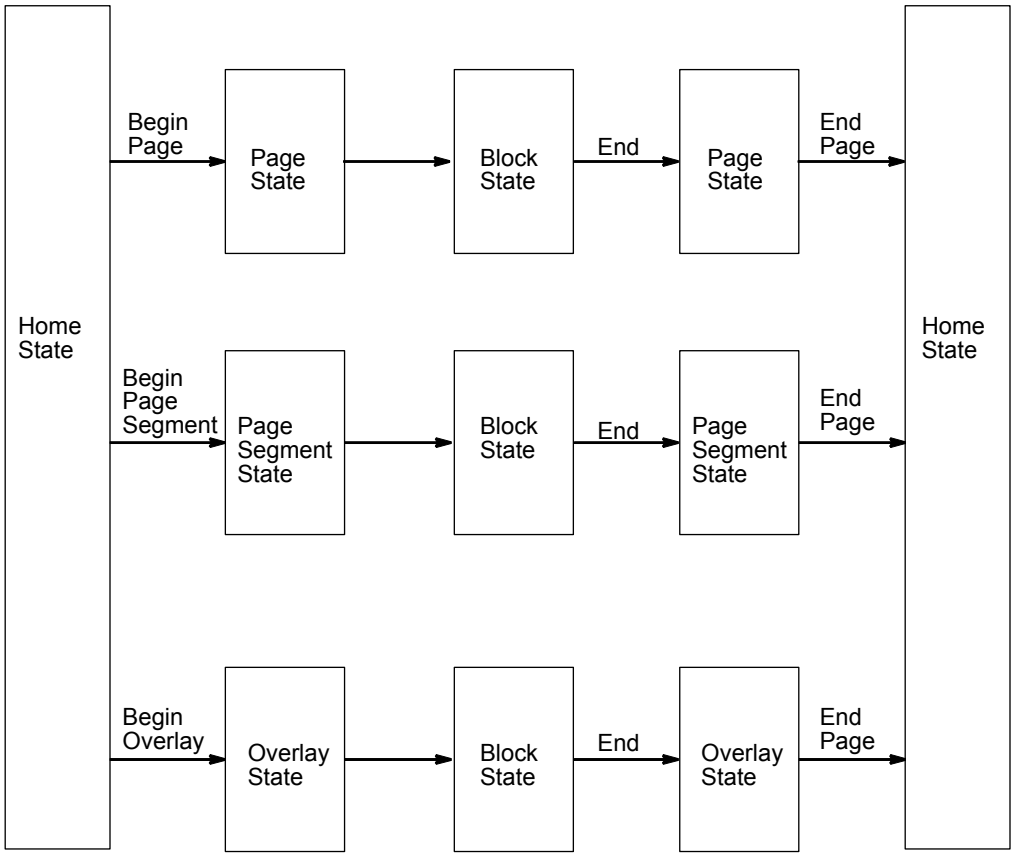

Figure 1. State Transition

Processing a Page

Your printer can print page by page or it can behave as a line printer. This section describes how the printer prints page by page. (The *User's Manual* explains the two printing methods in more detail.)

Your IPDS-capable printer builds a page by gathering all the page descriptor commands and data blocks that are specified in the data stream.

Page descriptor commands instruct the printer to create and position a logical page, which rests within the perimeter of the physical page.

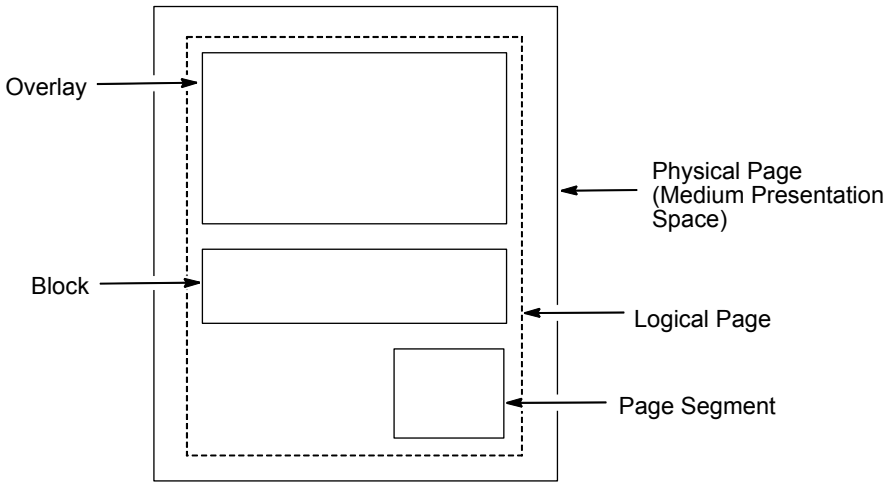

Figure 2. Processing a Page

Blocks contain images, graphics, barcodes, coded fonts, and text. Each block is recognized by specific, functional commands. To print a barcode, for example, Barcode commands must be in the data stream.

As each type of data block is stored in memory, the printer moves from state to state. For example, when the printer is reading the Barcode commands, it is in the barcode state.

Once all the data has been stored, the page can be closed with an End Page command and the printer, which is now in the Home State, is ready to print the page.

The Command Syntax

The commands on the following pages use this syntax:

Byte Count	D6XX	Flag	CID	Data

Byte Count	A two-byte field. Specifies the length of the command.
D6XX	A two-byte field. “D6” denotes an IPDS command; “XX” is the hex code for the IPDS command.
Flag	A one-byte field containing the IPDS command stream flags. You can request an Acknowledgement Required response from the printer in this field.
CID	Correlation ID. A two-byte field that identifies the command. If an exception (error) occurs, the printer will respond with a Negative Acknowledge Reply and the CID associated with the command.
Data	0-32760 bytes if CID is present; 0-32762 bytes if CID is not present. This field contains parameters, orders, and data necessary for implementing the command.

The Text Commands

The following commands are used to present text blocks in a page, a page segment, or an overlay.

Load Equivalence (LE)

Byte Count	D61D	Flag	CID	Data

This command allows the printer to use a single suppression ID for more than one suppression pair.

Write Text (WT)

Byte Count	D62D	Flag	CID	Presentation Text Object; Content Architecture control codes and character data

Use this command to send character data and controls to the printer. The data and controls can begin in one Write Text command chain and end in another Write Text command chain.

Controls are listed on the following pages. The first control is preceded by the escape sequence 2B D3. Subsequent controls will follow as long as the preceding code is a chained code.

Table 1. Control Codes

Control Sequence	Unchained Hex Code	Chained Hex Code
Absolute Move Baseline (AMB)	D2	D3
Absolute Move Inline (AMI)	C6	C7
Begin Line (BLN)	D8	D9
Begin Suppression (BSU)	F2	F3
Draw B-Axis Rule (DBR)	E6	E7
Draw I-Axis Rule (DIR)	E4	E5
End Suppression (ESU)	F4	F5
No Operation (NOP)	F8	F9
Overstrike (OVS)	72	73
Relative Move Baseline (RMB)	D4	D5
Relative Move Inline (RMI)	C8	C9
Repeat String (RPS)	EE	EF
Set Baseline Increment (SBI)	D0	D1
Set Coded Font Local (SCFL)	F0	F1
Set Inline Margin (SIM)	C0	C1
Set Intercharacter Adjustment (SIA)	C2	C3
Set Text Color (STC)	74	75
Set Text Orientation (STO)	F6	F7
Set Variable Space Character Increment (SVI)	C4	C5
Temporary Baseline Move (TBM)	78	79
Transport Data (TRN)	DA	DB
Underscore (USC)	76	77
Absolute Move Inline (AMI)	C6	C7
Begin Line (BLN)	D8	D9
Begin Suppression (BSU)	F2	F3
Draw B-Axis Rule (DBR)	E6	E7
Draw I-Axis Rule (DIR)	E4	E5
End Suppression (ESU)	F4	F5

Scalable Fonts (Thermal Only)

In addition to the IBM 4028 and 3816 bitmap fonts, the IPDS functionality also uses Scalable AGFA fonts.

The following table lists available fonts and their mappings from IBM Font Global Identifiers to AGFA numbers.

Table 2. Scalable Fonts

IPDS FGID	AGFA #	Description	Availability
404	93779	Letter Gothic Bold	Standard
416	93950	Courier	Optional
420	93952	Courier Bold	Standard
424	93951	Courier Italic	Optional
428	93953	Courier Italic Bold	Optional

The fonts listed in Table 2 as **standard** is available by default for Thermal products that offer IPDS. The **optional** fonts are available if needed.

NOTE: Download optional fonts to the printer's flash memory separately to make them available for IPDS.

Additional fonts other than the fonts listed in Table 2 may be available in the future.

XOA – Request Resource List (RRL) Reply

All of the IPDS scalable fonts in the printer will be added to the XOA-RRL replies to report their availability to the host PSF. The IPDS scalable fonts will be reported in the RRL Resource Type *X'07': Font character sets*, and will specify a Font Width (FW) of X'0000' to indicate that it is a scalable font.

Font Selection

The scalable fonts can be selected from the host similar to the resident bitmap fonts in the Global Resource ID (GRID) portion of the Load Font Equivalence command. The width of the font is specified in 1440ths of an inch in the Font Width bytes of the GRID. A Font Width of X'FFFF' indicates that the width of the printer default font is used. The scalable fonts can be used within text, graphics, or barcode HRI data.

Images

The physical page is the actual medium used, such as a continuous form or an 8 1/2 x 11 inch sheet of paper.

The logical page is mapped onto the physical page; you can set its size and position inside the physical page. The logical page contains the image blocks, text blocks, segment and overlay blocks. A block is an area where the image is mapped to.

The image presentation space contains the image that will be mapped to the block. The image presentation space contains the entire image.

An image block can be the same size, larger or smaller than the image presentation space.

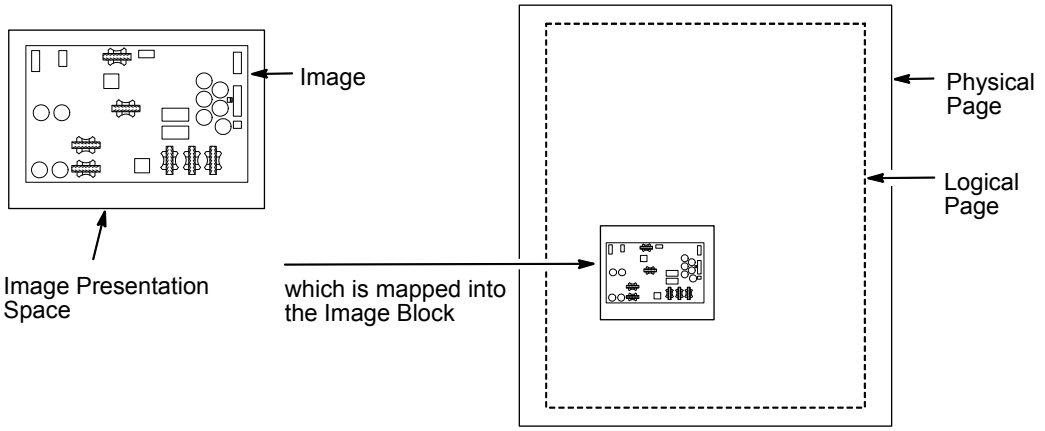

Figure 3. Generating Images

The IM Image Command Set

The following commands are used to present image data (raster format) in a page, a page segment, or an overlay.

Write Image Control (WIC)

Byte Count	D63D	Flag	CID	Data

This command defines the following: the image presentation space size and resolution, the image block size, position and orientation on the logical page, and the mapping of the image presentation space into the image block. You can specify that the image presentation space fits into the image block or you can crop a portion of the presentation space and map that to the image block.

Write Image (WI)

Byte Count	D64D	Flag	CID	Data

This command is used to denote image data to be printed.

Graphics

Graphics contain line drawings, such as arcs and lines.

The area containing the entire drawing is called the graphics presentation space. Usually, only a part of the drawing will be printed. This part is referred to as the graphics presentation space window.

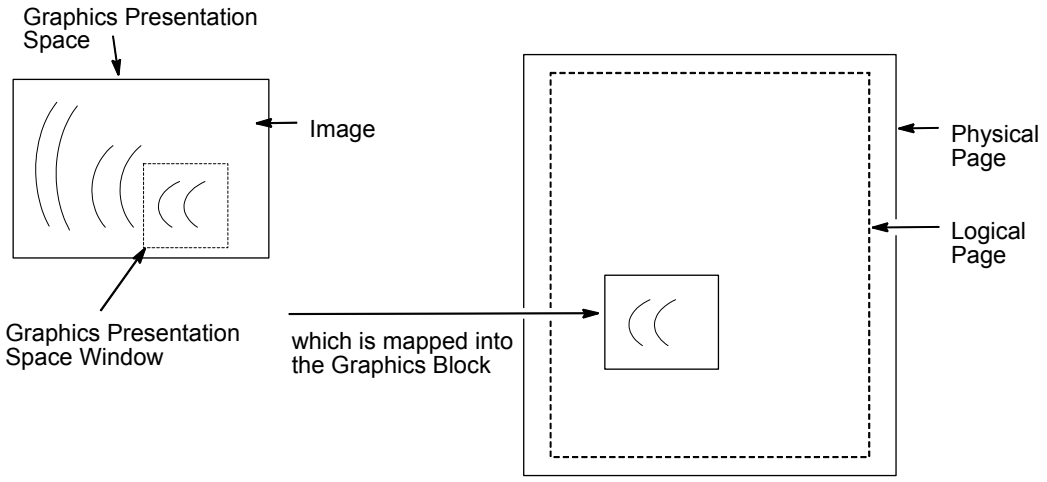

Figure 4. Generating Graphics

To place the graphics presentation space window onto a logical page, it must be mapped to a graphics block on the logical page. This block can be the same size, larger, or smaller than the graphics presentation space.

When you map the window to the graphics block, you have three methods to choose from:

- Scale to fit mapping - The window will be the same size as the graphics block.
- Center and trim mapping - The window is centered inside the graphics block.
- Position and trim mapping - The window's top left corner is mapped to the graphics block and is affected by the graphics block's offset parameters.

The Graphics Command Set

The following commands are used to present graphics in a page, a page segment, or an overlay.

Write Graphics Control (WGC)

Byte Count	**D684**	**Flag**	**CID**	**Graphics Area Position; Graphics Output Control; Graphics Data Descriptor**

WGC specifies the graphics block position, size and orientation; it specifies the graphics presentation space window size and location inside the graphics presentation space; and it defines how the window will map into the graphics block.

Write Graphics (WG)

Byte Count	**D685**	**Flag**	**CID**	**Begin Segment Introducer and drawing orders**

The WG command follows the Write Graphics Control command and contains information about the graphics presentation space. This data is referred to as drawing orders.

Barcodes

Barcodes contain information that can be read by optical scanners and are widely used.

A barcode resides in a barcode presentation space, which is mapped to a barcode block that exists on the logical page. This block can be the same size, larger, or smaller than the barcode presentation space.

The entire barcode presentation space must be mapped to the barcode block; you cannot trim and cut any of the barcode presentation space.

The Barcode Command Set

The following commands are used to present barcodes in a page, a page segment, or an overlay.

Write Barcode Control (WBCC)

Byte Count	D680	Flag	CID	Barcode Area Position; Barcode Output Control; Barcode Data Descriptor

Use this command to set the barcode block position, size, and orientation; to set the barcode presentation size; the barcode to be used; and to set how the barcode presentation space will map into the barcode block.

Write Barcode (WBC)

Byte Count	D681	Flag	CID	Data

This command sends Barcode Object Content Architecture data to the printer and applies to only one barcode symbol. To print another barcode symbol, you must send another WBC command.

The following table displays the code and barcode type for Line Matrix and Thermal printers. Line Matrix printers does not support all 2D barcode types.

Code	Barcode Type	Line Matrix	Thermal
X’ 01’	Code 39 (3-of-9 Code), AIM USS-39	✓	✓
X’ 02’	MSI (modified Plessey code)	✓	✓
X’ 03’	UPC/CGPC--Version A	✓	✓
X’ 05’	UPC/CGPC--Version B	✓	✓
X’ 06’	UPC--Two-digit Supplemental (Periodicals)	✓	✓
X’ 07’	UPC--Five-digit Supplemental (Paperbacks)	✓	✓
X’ 08’	EAN-8 (includes JAN-short)	✓	✓
X’ 09’	EAN-13 (includes Jan-standard)	✓	✓
X’ 0A’	Industrial 2-of-5	✓	✓
X’ 0B’	Matrix 2-of-5	✓	✓
X’ 0C’	Interleaved 2-of-5, AIM USS-I 2/5	✓	✓

Code	Barcode Type	Line Matrix	Thermal
X’ 0D’	Codabar, 2-of-7, AIM USS-Codabar	✓	✓
X’ 11’	Code 128, AIM USS-128	✓	✓
X’ 16’	EAN Two-digit Supplemental	✓	✓
X’ 17’	EAN Five-digit Supplemental	✓	✓
X’ 1A’	RM4SCC (including KIX variation)		✓
X’ 1B’	Japan Postal Barcode		✓
X’ 1C’	Data Matrix (2D barcode)		✓
X’ 1D’	MaxiCode (2D barcode)		✓
X’ 1E’	PDF417 (2D barcode)	✓	✓
X’ 1F’	Australia Post Barcode		✓
X’ 22’	USPS Intelligent Mail Barcode	✓	✓

The Page Segment Command Set

The following commands are used to access printer data by name and merge on the logical page.

Begin Page Segment (BPS)

Byte Count	D65F	Flag	CID	Data

This command identifies the data following as data for a page segment.

Delete Page Segment (DPS)

Byte Count	D66F	Flag	CID	Data

DPS instructs the printer to delete one or all of the stored page segments.

Include Page Segment (IPS)

Byte Count	D67F	Flag	CID	Data

When you issue an IPS command, a stored page segment can be processed as if the printer had just received it.

The Overlay Command Set

Overlays contain data that is frequently accessed and can be stored by name for future use. You can create an overlay so that it fills the entire page or fills part of a page. The following overlay commands are used to access printer data by name and merge on the logical page.

Begin Overlay (BO)

Byte Count	D6DF	Flag	CID	Data

This command tells the printer to store the following parameters (including Logical Page Descriptor, Load Font Equivalence, and Load Equivalence) for an overlay and not to print immediately.

Delete Overlay (DO)

Byte Count	D6EF	Flag	CID	Data

The Delete Overlay command instructs the host to delete one or all of the stored overlays. The host can reuse the deleted overlay identification numbers for new overlays.

Include Overlay (IO)

Byte Count	D67D	Flag	CID	Data

Issue an Include Overlay command to place an overlay on a logical page.

The Device Control Commands

The following commands are used to set up the page format, to communicate control commands, and to oversee the acknowledge reply. These commands are for Thermal printers only.

Apply Finishing Operations (AFO)

Byte Count	D602	Flag	CID	Data

The Apply Finishing Operations (AFO) command is valid only in home state. It directs the printer to apply zero or more finishing operations to the current sheet and each copy of that sheet. The current sheet is the sheet in which the first copy of the next received page is printed. The operations are not applied to sheets after copies of the current sheet.

An AFO command completely replaces any previously sent AFO command for the current sheet.

Specific finishing operations are specified in Finishing Operation (X'85') triplets. If no triplets are specified, this command completely replaces any previously sent AFO command for the current sheet and is then treated as if it were a No Operation (NOP) command; this provides a reset function.

Begin Page (BP)

Byte Count	D6AF	Flag	CID	Data

This command indicates the beginning of a page and causes the printer to enter the page state.

End

Byte Count	D65D	Flag	CID	Binary Data

This command notes the end of a block containing: an image, graphics, or barcodes.

End Page (EP)

Byte Count	D6BF	Flag	CID	Binary Data

This command notes the end of a page, a page segment, or an overlay and returns the printer to the home state.

Load Copy Control (LCC)

Byte Count	D69F	Flag	CID	Data

This command is effective only in the home state and controls the number of Times New Roman you want to print the current logical page.

Load Font Equivalence (LFE)

Byte Count	D63F	Flag	CID	Data

This command is used to re-identify local font data IDs to host specified font resource IDs.

Load Page Descriptor (LPD)

Byte Count	D6CF	Flag	CID	Data

The LPD command sets the logical page's characteristics, such as the units for positioning text, the margins, and line spacing, etc.

Load Page Position (LPP)

Byte Count	D66D	Flag	CID	Data

The LPP command sets the position of the logical page on the physical page, which allows for any required offsetting.

No Operation (NOP)

Byte Count	D603	Flag	CID	Data

This command tells the printer to perform no operation.

Sense Type and Model (STM)

Byte Count	D6E4	Flag	CID

This command asks the printer to identify its capabilities. The printer responds with one or more Acknowledge Replies, which contain general information and command set vectors that identify supported IPDS function sets and subsets.

Sense Type and Model Acknowledge Reply

The following table shows the STM reply format contained in the special data area of the Acknowledge Reply. Note that differences between 4028 and 3816 emulation are indicated with (4028) and (3816).

Table 3. Sense Type and Model Acknowledge Reply

Offset	Value	Description
0	X'FF'	System/370 convention
1-2	X'4028' X'3812'	Product Code 4028 Emulation 3816 Emulation
3	X'01'	Model
4-5	X'0000'	Reserved
Command-set vectors in the following format. Refer to individual command-set vectors in the following table.		
6-7	Length	Length of the command-set vector, including this field.
8-9	Subset ID or Command-Set ID	For data command sets, the subset ID of a command set. For other command sets, the command set ID.
10-11	Level or Subset ID	For data command sets, the level ID of a data tower. For other command sets, the subset ID of a command set.
12-end	Property Pairs	Zero or more command-set property ID and data pairs.

Table 4. Command Set Vectors

Name	Value	Description
Device-Control Command Set		
Length	X'002A' (4028) X'002C' (3816)	Vector Length
Command Set ID	X'C4C3'	Device control Command-Set ID
Subset ID	X'FF10'	DC1 subset ID
LCC Property Pair	X'6001'	MULTIPLE COPY and COPY-SUBGROUP support in LCC
Optional Command Property Pair	X'7002'	APPLY FINISHING OPERATIONS (AFO) Command Support
	X'702E'	ACTIVATE RESOURCE Command support
XOA Property Pairs	X'8008'	MARK FORM
	X'800A' (3816)	ALTERNATE OFFSET STACKER
	X'80F2'	DISCARD BUFFERED DATA
	X'80F4'	REQUEST RESOURCE LIST
	X'80F6'	EXCEPTION HANDLING CONTROL

Table 4. Command Set Vectors

Name	Value	Description
XOH Property Pairs	X'9001'	PRINT BUFFERED DATA
	X'9003' (4028)	SPECIFY GROUP OPERATION
	X'9004' (4028)	DEFINE GROUP BOUNDARY
	X'9005'	ERASE RESIDUAL PRINT DATA
	X'9007'	ERASE RESIDUAL FONT DATA (Thermal printers only)
	X'900E'	SELECT MEDIUM MODIFICATIONS
	X'9013'	EJECT to FONT FACING
	X'9015'	SELECT INPUT MEDIA SOURCE (Thermal printers only)
	X'9016'	SET MEDIA ORIGIN (Thermal printers only) **NOTE:** Some IPDS hosts will not send an IPDS XOH-SMS to a printer that reports as a Continuous Forms printer and supports XOH-SMO. Reporting of XOH-SET MEDIA ORIGIN Support can be disabled through the IPDS XOH-SMO Support menu setting.
	X'9017'	SET MEDIA SIZE
	X'90F3'	OBTAIN PRINTER CHARACTERISTICS
	X'90F5'	PAGE COUNTERS CONTROL
Misc. Property Pairs	X'F001' (3816)	END PERSISTENT NACK Without Leaving IPDS
	X'F601' (3816)	Position check highlighting support in XOA EHC
Presentation Text Command Set		
Length	X'000A' (4028) X'000C' (3816)	Vector Length
Subset ID	X'D7E3'	PRESENTATION TEXT Command Set
Level ID	X'FF20'	PTOCA PT2 data
Property Pairs	X'1001'	UNORDERED TEXT
	X'4002' (3816)	COLOR of MEDIUM SUPPORTED LIMITED SIMULATED COLOR SUPPORTED
	X'50FF'	Multiple TEXT ORIENTATIONS supported

Table 4. Command Set Vectors

Name	Value	Description
IM Image Command Set		
Length	X'000A' (4028) X'000C' (3816)	Vector Length
Subset ID	X'C9D4'	IM Image Command Set
Level ID	X'FF10'	IMDI data
Property Pairs	X'1001'	UNORDERED IMAGE BLOCKS
	X'4022' (3816)	COLOR of MEDIUM SUPPORTED LIMITED SIMULATED COLOR SUPPORTED
	X'A004'	ALL 4 ORIENTATIONS Supported
IO Image Command Set		
Length	X'0014' (4028) X'0012' (3816)	Vector Length
Subset ID	X'C9D6'	IO Image Command Set
Level ID	X'FF10'	IOCA FS10 data
Property Pairs	X'1001'	Unordered Image Blocks
	X'4020' (3816)	LIMITED SIMULATED COLOR SUPPORTED
	X'5001'	MMR Compressed algorithm supported
	X'5003'	Uncompressed Image supported
	X'5006' (3816)	RL4 Compressed supported
	X'5081' (4028)	G3 Facsimile Coding Scheme (CCITT G3MR)
	X'5082' (4028)	G4 Facsimile Coding Scheme (CCITT G4MMR)
	X'5101' (4028)	Bit ordering supported
	X'A004'	All four orientations supported
Graphics Command Set		
Length	X'000C'	Vector Length
Subset ID	X'E5C7'	GRAPHICS Command Set
Level ID	X'FF20'	GOCA DR/2V0 data

Table 4. Command Set Vectors

Name	Value	Description
Property Pairs	X'1001'	UNORDERED GRAPHICS BLOCKS
	X'4042'	COLOR of MEDIUM SUPPORTED LIMITED SIMULATED COLOR SUPPORTED
	X'A004'	All four orientations supported
Barcode Command Set		
Length	X'000C'	Vector Length
Subset ID	X'C2C3'	BARCODE Command Set
Level ID	X'FF10'	BCOCA BCD1 data
Property Pairs	X'1001'	UNORDERED BARCODE BLOCKS
	X'4022'	COLOR of MEDIUM SUPPORTED LIMITED SIMULATED COLOR SUPPORTED
	X'A004'	All four orientations supported
Overlay Command Set		
Length	X'0008'	Vector Length
Command Set ID	X'D6D3'	OVERLAY Command Set
Subset ID	X'FF10'	OL1 subset ID
Property Pair	X'1505'	OVERLAY NESTING = 5 Levels
Page Segment Command Set		
Length	X'0006'	Vector Length
Command Set ID	X'D7E2'	PAGE SEGMENT Command Set
Subset ID	X'FF10'	PS1 subset ID
Loaded Font Command Set		
Length	X'000C'	Vector Length
Command Set ID	X'C3C6'	LOADED FONT Command Set
Subset ID	X'FF10'	LF1 subset ID; fully described font plus font index
Property Pairs	X'A004'	4 CHARACTER ROTATIONS (LFI command)
	X'B001' (3816)	DOUBLE-BYTE CODED FONTS SUPPORTED
	X'C005'	BOUNDED BOX RASTER FONT TECHNOLOGY
	X'C101' (4028)	RELATIVE METRICS

Set Home State (SHS)

Byte Count	D697	Flag	CID	Data

SHS instructs the printer to return to the home state. If the printer is in the process of printing (in page state), the current page ends and prints the data up to the time of the SHS command. Depending when the SHS command was sent, either a complete or partially completed page prints.

If the printer is processing a page segment, an overlay, or a font, the printer deletes the block of data and returns to the home state.

If you send an SHS command while the printer is in the home state, the printer treats it as an NOP command.

Execute Order Anystate (XOA)

Byte Count	D633	Flag	CID	Data (Code and Parameters)

The XOA command is used to identify an order that is effective immediately, no matter what state the printer is in. You can specify only one order for each XOA command.

Valid orders are listed in Table 5.

Table 5. Execute Order Anystate Commands

Order	Function	Hex Code
Discard buffered data	Deletes all data in the buffer, including the current job.	F200
Exception Handling Control	Exception Handling Control, which enables the host to control how the printer reports and processes exceptions.	F600
Print Quality Control	Specifies the print quality: AB - FE = NLQ 56 - AA = DP 01 - 55 = Draft FF = Printer Default	F800
Request Resource List	The host inquires about the printer's current resources (page segments, overlays, fonts).	F400

Execute Order Home State (XOH)

Byte Count	D68F	Flag	CID	Data (Code and Parameters)

The following orders are valid only when the printer receives them in the home state. The XOH command identifies these orders.

Table 6. Execute Order Home State Commands

Order	Function	Hex Code
Erase Residual Print Data	Prevents access to resident print data.	0500
Obtain Printer Characteristics	Used for Acknowledge Replies.	F300
Print Buffered Data	All data in the buffer prints.	0100
Set Media Size	Specifies the page size.	1700

XOH Obtain Printer Characteristics

This order causes a set of device self-defined fields describing printer characteristics to be placed in the Special Data Area of the Acknowledgement Reply and is identified with an acknowledgement type of X'46'.

See Table 7 for a detailed description of each Self-Defining field reported in the Acknowledge Reply.

Table 7. XOH Obtain Printer Characteristics Reply

Offset	Value	Description
PRINTABLE AREA		
0-1	X'0018'	LENGTH of this Self-Defining Field
2-3	X'0001'	PRINTABLE AREA Self-Defining Field ID
4	X'00'	INPUT MEDIA SOURCE
5	X'00'	Reserved
6	X'00'	UNIT BASE 10 inches
7	X'00'	Reserved
8-9	X'3840'	L-units per UNIT BASE
10-11	X'0090' - X'xxxx'	WIDTH of the Medium Presentation Space in L-units (determined by configuration setting)

Table 7. XOH Obtain Printer Characteristics Reply

Offset	Value	Description
12-13	X'7F80'	Maximum LENGTH of the Medium Presentation Space in L-units (22.67 Inches)
14-15	X'0000'	Xm OFFSET of the Printable Area in L-Units
16-17	X'0000'	Ym OFFSET of the Printable Area in L-units
18-19	X'0090' - X'xxxx'	Xm EXTENT of the Printable Area in L-units (Equal to form width)
20-21	X'7F80'	Ym EXTENT of the Printable Area in L-units (Equal to form length)
22-23	X'3003'	INPUT MEDIA SOURCE CHARACTERISTICS: Continuous forms (Thermal printers only)
IMAGE and CODED FONT RESOLUTION		
0-1	X'000A'	LENGTH of this Self-Defining Field
2-3	X'0003'	IMAGE and CODED FONT RESOLUTION Self-Defining Field
4	X'00'	UNIT BASE 10 inches
5	X'00'	Only the LF1 raster-pattern resolutions specified in bytes 6-9 are supported
6-7	X'0BB8' X'0960'	X PELS per Unit Base 3000 pels/10 inches, available when the active IPDS emulation is 4028. 2400 pels/10 inches, available when the active IPDS emulation is 3816.
8-9	X'0BB8' X'0960'	Y PELS per Unit Base 3000 pels/10 inches, available when the active IPDS emulation is 4028. 2400 pels/10 inches, available when the active IPDS emulation is 3816.
STORAGE POOLS		
0-1	X'002D'	LENGTH of this Self-Defining Field
2-3	X'0004'	STORAGE POOLS Self-Defining Field
4	X'29'	LENGTH of each Storage Pool Self-Defining Field
5	X'01'	Triplet ID
6	X'00'	STORAGE POOL ID
7-10	X'000E836A'	Size of the Storage Pool in bytes

Table 7. XOH Obtain Printer Characteristics Reply

Offset	Value	Description
11-14	X'00000000'	Reserved
Objects Stored in this Storage Pool:		
15-16	X'0011'	PAGE GRAPHICS Data
17-18	X'0012'	PAGE IMAGE Data
19-20	X'0013'	PAGE TEXT Data
21-22	X'0014'	PAGE BARCODE Data
23-24	X'0021'	OVERLAY GRAPHICS Data
25-26	X'0022'	OVERLAY IMAGE Data
27-28	X'0023'	OVERLAY TEXT Data
29-30	X'0024'	OVERLAY BARCODE Data
31-32	X'0031'	PAGE SEGMENT GRAPHICS Data
33-34	X'0032'	PAGE SEGMENT IMAGE Data
35-36	X'0033'	PAGE SEGMENT TEXT Data
37-38	X'0034'	PAGE SEGMENT BARCODE Data
39-40	X'0040'	Single-Byte CODED FONT Index Tables
41-42	X'0041'	Single-Byte CODED FONT Description
43-44	X'0042'	Single-Byte CODED FONT Patterns
INSTALLED FEATURES		
0-1	X'0008'	LENGTH of this Self-Defining Field
2-3	X'0006'	INSTALLED FEATURES Self-Defining Field
4-5	X'0B00'	Continuous-Forms Output
6-7	X'0C00'	Continuous-Forms Separation Capability
AVAILABLE FEATURES		
0-1	X'0008'	LENGTH of this Self-Defining Field
2-3	X'0007'	AVAILABLE FEATURES Self-Defining Field
4-5	X'0B00'	Continuous-Forms Output
6-7	X'0C00'	Continuous-Forms Separation Capability
XOA RRL RESOURCE TYPE AND ID FORMAT		
0-1	X'000C'	LENGTH of this Self-Defining Field

Table 7. XOH Obtain Printer Characteristics Reply

Offset	Value	Description
2-3	X’000B’	ACTIVATE RESOURCE RT & RIDF SUPPORT Self-Defining Field
4-5	X’0103’	Single-Byte LF1 Coded Fonts with IBM Global Resource IDs
6-7	X’0106’	Single-Byte LF1 Coded Fonts with MVS Host Unalterable Remote Font Environment
8-9	X’0803’	Single-Byte LF1 Coded Font Index with IBM Global Resource IDs
10-11	X’0806’	Single-Byte LF1 Coded Fonts Index with MVS Host Unalterable Remote Font Environment
ACTIVATE RESOURCE RT & RIDF SUPPORT		
0-1	X’000C’	LENGTH of this Self-Defining Field
2-3	X’000B’	ACTIVATE RESOURCE RT & RIDF SUPPORT Self-Defining Field
4-5	X’0103’	Single-Byte LF1 Coded Fonts with IBM Global Resource IDs
6-7	X’0106’	Single-Byte LF1 Coded Fonts with MVS Host Unalterable Remote Font Environment
8-9	X’0803’	Single-Byte LF1 Coded Font Index with IBM Global Resource IDs
10-11	X’0806’	Single-Byte LF1 Coded Fonts Index with MVS Host Unalterable Remote Font Environment
MEDIUM MODIFICATIONS ID SUPPORT		
0-1	X’0006’	LENGTH of this Self-Defining Field
2-3	X’000D’	MEDIUM MODIFCATIONS ID SUPPORT Self-Defining Field ID
4-5	X’A200’	Fixed separation cut
COMMON BARCODE TYPE/MODIFIER		
0-1	X’0009’	LENGTH of this Self-Defining Field
2-3	X’000E’	COMMON BARCODE TYPE/MODIFIER Self-Draining Field
4	X’0D’	CODABAR Modifier Byte Options X’01’ and X’02’
5	X’11’	CODE 128 Modifier Byte Options X’02’
6	X’18’	POSTNET Modifier Byte Options X’00’ - X’03’

Table 7. XOH Obtain Printer Characteristics Reply

Offset	Value	Description
7	X'1A'	RM4SCC Modifier Byte Option X'00'
8	X'22'	USPS Intelligent Mail: modifier-byte options X'00' through X'03'
SUPPORTED GROUP OPTERATIONS		
0-1	X'0006'	LENGTH of this Self-Defining Field
2-3	X'0012'	SUPPORTED GROUP OPERATIONS Self-Defining Field
4	X'01'	Keep group together as a print unit
5	X'04'	Finish
PRODUCT IDENTIFIER		
0-1	X'003C'	LENGTH of this Self-Defining Field
2-3	X'0013'	PRODUCT IDENTIFIER Self-Defining Field ID
4	X'38'	LENGTH of Self-Defining Product ID Parameter
5-6	X'0001'	Unique PRODUCT IDENTIFIER Parameter ID
7-12	X'F0F0F6F7F0F0'	DEVICE TYPE 6700
13-15	X'F0F0F4' X'F0F0F6' X'F0F0F8'	MODEL NUMBER 004 006 008
16-18	X'D7E3E7'	MANUFACTURER
19-20	X'C2E5'	PLANT
21-32	X'F0F0F0F0F0F0F0F0F0F0F0F0'	SEQUENCE NUMBER
33-34	X'0000'	TAG
35-43	X'F0F0F0F0F0F0F0F0F0'	EC LEVEL
44-59	X'00000000000000000000000000000000'	All Binary Zeros
FINISHING OPERATIONS		
0-1	X'0005'	LENGTH of this Self-Defining Field
2-3	X'0018'	FINISHING OPERATIONS self-defining field
4	X'05'	Separation cut

A Thermal Fonts and Code Pages

Table 8: Language, Code Page, and Quality Combinations

Language	CPGID	GCSGID	Version (1)	Fonts Supported (2)
English/USA/Canada	037	101, 697	0, 1	All
English/US/International	038	103, 697		All
International Set 1	256	337, 697		All
Symbols, Set 7	259	340		11, 86
Canadian, French	260	341, 697		All
Austrian, German	273	265, 697	0, 1	All
Belgian	274	269, 697	0, 1	All
Brazilian	275	273, 697	0, 1	All
Canadian, French (Alt)	276	277		All
Danish, Norwegian	277	281, 697	0, 1	All
Finnish, Swedish	278	285, 697	0, 1	All
Italian	280	293, 697	0, 1	All
Japanese English	281	297, 697	0, 1	All
Portuguese	282	301, 697	0, 1	All
Spanish Speaking	284	309, 697	0, 1	All
English (UK)	285	313, 697	0, 1	All
Austrian, German (Alt)	286	317, 697		All
Danish, Norwegian (Alt)	287	321, 697		All
Finnish, Swedish (Alt)	288	325, 697		All
Spanish (Alt)	289	329, 697		All
Japanese Katakana	290	332		400, 404, 416, 420, 424, 428
French, Azerty	297	288, 697	0, 1	All
Graphic Escape	310	963, 697		76

Table 8: Language, Code Page, and Quality Combinations

Language	CPGID	GCSGID	Version (1)	Fonts Supported (2)
Int. Typographic	361	697		5687, 5707, 5815, 5835
Arabic	420	235, 697		11, 223, 400, 404, 416, 420
Greek	423	218		400, 404, 416, 420
Hebrew	424	941, 697		400, 404, 416, 420
PC ASCII	437	697		11, 18, 85, 86, 92, 223, 254
International Set 5	500	697	0, 1	All
Hebrew (Alt)	803	1147		400, 404, 416, 420
PC Multilingual	850	980		All except 5687, 5707, 5815, and 5835
Latin 2/ROECE	870	959, 697		12, 112, 164, 281, 400, 404, 416, 420
Icelandic	871	697	0, 1	All
Cyrillic Old	880	960, 697		400, 404, 416, 420
OCR-A	892	968		19
OCR-B	893	969		3
DCF	1002	1132		All except 400, 404, 416, 420, 424, 428, 5687, 5707, 5815, and 5835
US Text Subset	1003	1133		11, 85, 86, 5687, 5707, 5815, 5835
Turkish, Latin 5	1026	1152		11, 86, 400, 404, 416, 420
Euro USA/Canada	1140	695		All
Euro Austrian, German	1141	695		All
Euro Danish, Norwegian	1142	695		All
Euro Finnish, Swedish	1143	695		All
Euro Italian	1144	695		All
Euro Spanish Speaking	1145	695		All
Euro UK/Ireland	1146	695		All
Euro French	1147	695		All
Euro International	1148	695		All
Euro Icelandic	1149	695		All

(1) If there is no value listed for Version, it means there is only one value.

(2) Fonts that are fully supported are listed in this column. Other fonts support a subset of the code page. When ‘All’ is specified, it refers to all resident fonts except the OCR fonts (3 and 19).

Table 9: Resident Font and Code Page

Resident Font	FGID	Font Width	Code Pages [2]
OCR-B	3	144	893
Courier 10	11	144	A, 259, 420, 437, 850, 1002, 1003, 1026
Prestige 10	12	144	A, 850, 870, 1002
Courier Italic 10	18	144	A, 437, 850, 1002
OCR-A	19	144	892
APL 12	76	120	310
Courier 12	85	120	A, 437, 850, 1002, 1003
Prestige 12	86	120	A, 259, 437, 850, 1002, 1003, 1026
Courier Italic 12	92	120	A, 437, 850, 1002
Prestige Italic 12	112	120	A, 850, 870, 1002
Boldface PSM	164	120	A, 850, 870, 1002
Courier 15	223	96	A, 420, 437, 850, 1002
Courier 17.1	254	84	A, 437, 850, 1002
Gothic 20	281	72	A, 850, 870, 1002
Letter Gothic [1]	400	Scalable	A, B, 850
Letter Gothic Bold	404	Scalable	A, B, 850
Courier [1]	416	Scalable	A, B, 850
Courier Bold	420	Scalable	A, B, 850
Courier Italic [1]	424	Scalable	A, 290, 850
Courier Italic Bold [1]	428	Scalable	A, 290, 850
Times New Roman 6	5687	40	A, 361, 1003
Times New Roman 8	5687	53	A, 361, 1003
Times New Roman 10	5687	67	A, 361, 1003
Times New Roman 12	5687	80	A, 361, 1003
Times New Roman B 10	5707	67	A, 361, 1003
Times New Roman B 12	5707	80	A, 361, 1003
Times New Roman B 14	5707	93	A, 361, 1003
Times New Roman B 18	5707	120	A, 361, 1003

Table 9: Resident Font and Code Page

Resident Font	FGID	Font Width	Code Pages (2)
Times New Roman B 24	5707	160	A, 361, 1003
Times New Roman I 10	5815	67	A, 361, 1003
Times New Roman I 12	5815	80	A, 361, 1003
Times New Roman BI 10	5835	67	A, 361, 1003
Times New Roman BI 12	5835	80	A, 361, 1003

(1) These fonts are optional, and are available as part of the Printronix Additional Font Diskettes.

(2) When an A or B is specified in the code page column, it indicates that the font supports are of the following groups of code pages:

Group A: 037, 038, 256, 260, 273, 274, 275, 276, 277, 278, 280, 281, 282, 284, 285, 286, 287, 288, 289, 297, 500, 871, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149

Group B: 290, 420, 423, 424, 803, 870, 880, 1026

B Line Matrix Fonts and Code Pages

Table 10: Language, Code Page, and Quality Combinations

Language	CPGID	GCSGID	Version (1)	Fonts Supported (2)
English/USA/Canada	037	101, 697	0, 1	All
International Set 1	256	337, 697		All
Canadian, French	260	341, 697		All
Austrian, German	273	265, 697	0, 1	All
Belgian	274	269, 697	0, 1	All
Brazilian	275	273, 697	0, 1	All
Danish, Norwegian	277	281, 697	0, 1	All
Finnish, Swedish	278	285, 697	0, 1	All
Italian	280	293, 697	0, 1	All
Japanese English	281	297, 697	0, 1	All
Portuguese	282	301, 697	0, 1	All
Spanish Speaking	284	309, 697	0, 1	All
English (UK)	285	313, 697	0, 1	All
Danish, Norwegian (Alt)	287	321, 697		All
Finnish, Swedish (Alt)	288	325, 697		All
Spanish (Alt)	289	329, 697		All
Japanese Katakana	290	332		All
French, Azerty	297	288, 697	0, 1	All
Arabic	420	235, 697		All
Greek	423	218		All
Hebrew	424	941, 697		All
International Set 5	500	697	0, 1	All

Table 10: Language, Code Page, and Quality Combinations

Language	CPGID	GCSGID	Version (1)	Fonts Supported (2)
Hebrew (Old)	803	1147		All
Thai	838			All
Latin 2/ROECE	870	959, 697		All
Icelandic	871	697	0, 1	All
Cyrillic Old	880	960, 697		All
Yugoslav Old	890			All
OCR-A	892	968		19
OCR-B	893	969		3
Turkish (Old)	905			All
Euro Latin 9	924			All
Cyrillic Multilingual	1025			All
Turkish, Latin 5	1026	1152		All
Farsi	1097			All
Baltic Multilingual	1112			All
Estonian	1122			All
Euro USA/Canada	1140	695		All
Euro Austrian, German	1141	695		All
Euro Danish, Norwegian	1142	695		All
Euro Finnish, Swedish	1143	695		All
Euro Italian	1144	695		All
Euro Spanish Speaking	1145	695		All
Euro UK/Ireland	1146	695		All
Euro French	1147	695		All
Euro International	1148	695		All
Euro Icelandic	1149	695		All
Euro Latin 2	1153			All
OCR-B Katakana	3	332		3

(1) If there is no value listed for Version, it means there is only one value.

(2) Fonts that are fully supported are listed in this column. Other fonts support a subset of the code page. When ‘All’ is specified, it refers to all resident fonts except the OCR fonts (3 and 19).

Table 11: Resident Font and Code Page

Resident Font	FGID	Pitch (CPI)	Code Pages (1)	Print Quality Available
OCR-B	3	10	893, Katakana	OCR
OCR-A	19	10	892	OCR
Gothic 10	26	10	All	Draft, DP
Gothic 10 (Bold)	28	10	All	Draft, DP
Gothic 10 (Italic)	314	10	All	Draft, DP
Gothic 12	87	12	All	Draft, DP
Gothic 12 (Bold)	110	12	All	Draft, DP
Gothic 12 (Italic)	109	12	All	Draft, DP
Gothic 13.3	204	13.3	All	Draft, DP, NLQ
Gothic 13.3 (Bold)	206	13.3	All	Draft, DP, NLQ
Gothic 13.3 (Italic)	314	10	All	Draft, DP, NQL
Gothic 15	222	15	All	Draft, DP
Gothic 15 (Bold)	220	15	All	Draft, DP
Gothic 15 (Italic)	217	15	All	Draft, DP
Gothic 16.7	400	16.7	All	Draft, DP, NLQ
Gothic 16.7 (Bold)	404	16.7	All	Draft, DP, NLQ
Gothic 16.7 (Italic)	408	16.7	All	Draft, DP, NLQ
Gothic 18	258	18	All	Draft, DP, NLQ
Gothic 18 (Bold)	295	18	All	Draft, DP, NLQ
Gothic 18 (Italic)	296	18	All	Draft, DP, NLQ
Courier 10	11	10	All	NLQ
Courier 10 (Bold)	46	10	All	NLQ
Courier 10 (Italic)	18	10	All	NLQ
Courier 12	85	12	All	NLQ
Courier 12 (Bold)	108	12	All	NLQ
Courier 12 (Italic)	92	12	All	NLQ
Courier 15	223	15	All	NLQ
Courier 15 (Bold)	214	15	All	NLQ
Courier 15 (Italic)	215	15	All	NLQ

Table 11: Resident Font and Code Page

Resident Font	FGID	Pitch (CPI)	Code Pages [1]	Print Quality Available
Essay	160	PSM	All	NLQ
Essay (Bold)	163	PSM	All	NLQ
Essay (Italic)	162	PSM	All	NLQ
Gothic 10 (Compressed)	51	10	All	Draft, DP
Gothic 12 (Compressed)	74	12	All	Draft, DP
Gothic 13.3 (Compressed)	205	13.3	All	Draft, DP, NLQ
Gothic 15 (Compressed)	232	15	All	Draft, DP
Gothic 16.7 (Compressed)	300	16.7	All	Draft, DP, NLQ
Gothic 18 (Compressed)	259	18	All	Draft, DP, NLQ
Courier 10 (Compressed)	52	10	All	NLQ
Courier 12 (Compressed)	75	12	All	NLQ
Courier 15 (Compressed)	233	15	All	NLQ
Essay (Compressed)	154	PSM	All	NLQ

[1] When ‘All’ is specified, all character sets are supported with exception to those specifically designated for OCRA or OCRB.

C IPDS Exception Reporting

Unlike other protocols, IPDS allows the host to control exception (error) processing, which can free up the printer CPU.

The host can request one of two methods:

- the printer must print the pages as requested
- the printer does not allow any page that has a data stream error to print.

The first method applies for situations such as printing checks; the second method applies for printing drafts or when troubleshooting data streams.

The following tables list the exception IDs and the error conditions. The exception ID consists of three parts.
For example:

8001..00

80 = sense byte 0, which indicates a command reject

00 = sense byte 1

00 = sense byte 2

The following tables contain the exception reporting codes, which the printer sends to the host in the NACK reply. These codes are in a three-byte format. The first byte, byte 0, is the error group. The remaining two bytes, bytes 1 and 2, are the individual error identifiers. The following table shows the error group meanings.

Byte 0	Error Type	Page
80	Command Reject	48
40	Intervention Required	48
10	Equipment Check	N/A
08	Data Check	49
04	Specification Check - Bar Codes	50
03	Specification Check - Graphics	55
02	Specification Check - General	61
01	Condition Requiring Host Notification	81

Command Reject: Indicates that the printer cannot recognize a received command.

Intervention Required: Indicates that the printer requires operator intervention.

Equipment Check: Indicates that a hardware error has occurred.

Data Check: Indicates that the printer detects a data error when receiving a logical unit from the application program or that the printer detects a data error while printing the page.

Specification Check: Indicates that the data parameters or values in a received command are invalid.

Condition Requiring Host Notification: Indicates that the printer has detected an error or condition that should be reported to the host computer.

Command Reject — X'80'

The following exception codes are the valid codes for a command reject condition:

X'800100' Invalid IPDS Command Code

Explanation:

1. The command code is not recognized. An error length on a previous command may have caused the current data to be processed as a command.
2. The command is not supported.

Alternate Exception Action: None

X'800200' Invalid IPDS Command Sequence

Explanation: The printer state is invalid for the received command.

Alternate Exception Action: None

X'800E00' Invalid IPDS Command Length

Explanation: The command has an invalid length. This command is only from the Line Matrix printer.

Alternate Exception Action: None

Data Check — X'08'

The following exception codes are the valid codes for a data check condition:

X'082100' Undefined Character

Explanation:

1. An undefined character code has been detected in Write Text data.
2. An undefined overstrike character code has been detected.
3. A character has been detected in Write Text Command data which is undefined at the quality level specified by the XOA-PQC command.
4. An undefined character code has been detected in Write Bar Code data.

Alternate Exception Action:

For reasons 1-3, print the default character. For reason 4, there is no alternate exception action.

X'086000' Numeric Representation Precision Check

Explanation:

1. The print position cannot be represented within the printer.
2. The result of the calculation cannot be represented in the printer. This may result from the WGC GDD window limits being very close together.
3. There was a coordinate overflow while scaling.

Alternate Exception Action: None

X'08C100' Position Check

Explanation:

An attempt was made to print outside the valid printable area.

Alternate Exception Action:

All physical printing outside the valid printable area is suppressed. All data and controls continue processing. The printer continues to print within the valid printable area to the greatest possible extent. For text, this may mean truncating text lines at the character boundary closest to the edge of the intersection. For graphics, this may mean truncating graphics pictures at the pel closest to the boundary. For image, this may mean truncating scan lines at the pel closest to the boundary, or alternatively, not printing any of the image if any part of the image falls outside the valid printable area.

Specification Check-Bar Code — X'04'

The following exception codes are the valid codes for a barcode specification check condition:

X'040200' Attempt to print Barcode or HRI character out of presentation space

Explanation:

The exception code is when the model type is not 6400 and barcode or HRI is outside of presentation space.

Alternate Exception Action: None

X'040300' Bar Code Type Requested Is Not Supported

Explanation:

The barcode type requested in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action: None

X'040400' LCID Requested Is Not Supported

Explanation:

The type style/font requested in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action: Use printer default.

X'040500' Bar Code Color Requested Is Not Supported

Explanation:

The color requested in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action: Use printer default color.

X'040600' Unit/Module Width Specified Is Not Supported

Explanation: The unit/module width specified in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action:

Use closest smaller width supported or the device default for those devices with only one fixed default value.

X'040700' Element Height Specified Is Not Supported

Explanation:

The element height specified in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action: Use closest height supported.

X'040800' Height Multiplier Specified Is Not Supported

Explanation:

The height multiplier specified in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action: Use closest multiplier supported.

X'040900' Wide/Narrow Ratio Is Not Supported

Explanation:

The wide/narrow ratio specified in the Write Bar Code Data Descriptor field is not supported.

Alternate Exception Action:

Use the printer default wide element width. The default wide element width and the specified or default unit/module width should be such that a wide/narrow ratio of 2.50 or 3.00 results.

X'040A00' Invalid Symbol Reference Point

Explanation:

The symbol reference point given in the Write Bar Code command is not a valid or supported value.

Alternate Exception Action: None

X'040B00' Invalid Bar Code Modifier

Explanation:

The barcode modifier, byte 17 of the Bar Code Data Descriptor structured field, is not a valid or supported value for the barcode type specified by byte 16 of the same structured field.

Alternate Exception Action: None

X'040C00' Invalid Bar Code Data Length

Explanation:

The length of the variable data (as given in bytes 5-n of the Write Bar Code command) to be bar-encoded/printed, plus any printer-generated check digits to be coded/printed, is not a valid or supported value.

Alternate Exception Action: None

X'040E00' Check Digit Calculation Error

Explanation: A first check digit calculation resulting in a value of 10 is defined as an error in various of the modifier options (byte 17 of the Bar Code Data Descriptor structured field) for the MSI barcode.

Alternate Exception Action: None

X'041000' HRI Location Not Supported

Explanation: HRI location specified in the FLAGS byte of the WBC command is not a supported location.

Alternate Exception Action: None

X'041100' Attempt to Print Portion of Symbol Outside Object or VPA

Explanation:

1. A portion of the barcode presentation space, as mapped into the object, extends outside the barcode object boundaries, or a portion of the barcode object extends outside of the logical page (or current overlay).
2. An attempt is made to print a barcode symbol or HRI outside the physical page.
3. The symbol reference point lies outside the barcode object, presentation space, or logical page (or current overlay).

Alternate Exception Action: None

X'040F00'

Explanation:

Matrix row size value or number of rows value is not supported.

Alternate Exception Action: Use X'0000' for the unsupported value.

X'040F01'

Explanation:

Invalid structured append sequence indicator.

Alternate Exception Action: Present the barcode symbol without structured append information.

X'040F02'

Explanation:

Structured append sequence indicator too large.

Alternate Exception Action: Present the barcode symbol without structured append information.

X'040F03'

Explanation:

Structured append information mismatch.

Alternate Exception Action:

Present the barcode symbol without structured append information.

X'040F04'

Explanation:

Invalid number of structured append symbols.

Alternate Exception Action: Present the barcode symbol without structured append information.

X'040F05'

Explanation:

Invalid symbol mode value for a MaxiCode symbol.

Alternate Exception Action: Terminate barcode object processing.

X040F06'

Explanation:

Invalid number of data symbol characters per row for a PDF417 symbol.

Alternate Exception Action:

Terminate barcode object processing.

X'040F07'

Explanation:
Invalid desired number of rows value for a PDF417 symbol.
Alternate Exception Action: Proceed as if X'FF' was specified.

X'040F08'

Explanation:
Too much data for a PDF417 symbol.
Alternate Exception Action: Termindate barcode object processing.

X'040F09'

Explanation:
Invalid security level value for a PDF417 symbol.
Alternate Exception Action: Proceed as if security level 8 was specified.

X'040F0A'

Explanation:

Incompatible combination of Data Matrix parameters.

Alternate Exception Action: Terminate barcode object processing.

X'040F0B'

Explanation:

Invalid structured append file identification value.

Alternate Exception Action: Present the barcode symbol without structured append information.

X'040F0C'

Explanation:

Invalid Macro PDF417 Control Block length value.

Alternate Exception Action: Terminate barcode object processing.

X'040F0D'

Explanation:

Invalid data within a Macro PDF417 Control Block.

Alternate Exception Action: Present the barcode symbol without a Macro PDF417 Control Block.

Specification Check-Graphics — X'03'

The following exception codes are the valid codes for a graphics specification check condition:

X'030001' Unallocated Graphic Order or Command Code

Explanation:

1. An attempt was made to execute an unallocated order code that is reserved for future use.
2. An attempt was made to execute an unallocated command code that is reserved for future use.

Alternate Exception Action: None

X'030002' Reserved Byte Error or Invalid Default

Explanation:

1. A reserved byte in the graphic order is not set to zero.
2. The Set Current Defaults instruction attempts, in byte 2, to set an invalid or unsupported attribute.
3. An invalid default byte value was received in the GDD.

Alternate Exception Action: None

X'030003' Incorrect Drawing Order Length

Explanation: A drawing order length is invalid.

Alternate Exception Action: None

X'030004' Invalid Attribute Value

Explanation: An attribute value for a graphic order or for a WGC Set Current Default instruction is invalid.

Alternate Exception Action: Use the standard default value for that attribute.

X'030008' Truncated Order Error

Explanation: An order has been requested that is not a complete order. This order is one of the following:

1. A fixed 2-byte order and the second byte is not in the segment.
2. A long order and the length byte is not in the segment.
3. A long order and the number of bytes following the byte containing the length count to the end of the segment is less than the value of the length count.

Alternate Exception Action: None

X'03000C' Segment Prologue Error

Explanation: A supported order that is not valid within a prologue was found in a prologue. The end of a segment was reached without an End Prologue order.

Alternate Exception Action: None

X'03000E' Unsupported Attribute Value

Explanation: An attribute value for a graphic order or for a WGC Set Current Default instruction is not supported.

Alternate Exception Action: Use the standard default value for that attribute.

X'030021' Invalid Default

Explanation: The Set Current Defaults instruction sets an invalid or unsupported default for an attribute.

Alternate Exception Action: None

X'033400' Character Angle Value Not Supported

Explanation: The specific character angle requested is not supported.

Alternate Exception Action: Use the closest angle supported by the printer.

X'033E00' Invalid End Prologue

Explanation: An End Prologue was found outside the prologue section of a segment.

Alternate Exception Action: None

X'036000' Area Bracket Error

Explanation: An End Area order has been executed without a Begin Area order having previously been executed.

Alternate Exception Action: None

X'036800' Begin Area Received Incorrectly

Explanation: Begin Area order received while Begin Area is already in progress.

Alternate Exception Action: None

X'036801' Area Truncation Error

Explanation: A Begin Area order has been executed in a segment, and the end of the segment is reached without an End Area order being executed. Area fill implementation results are printer dependent.

Alternate Exception Action: None

X'036802' Supported Order Invalid in Area

Explanation: A supported order is detected that is not valid within an area.

Alternate Exception Action: None

X'036803' Pattern Symbol Set Not Available

Explanation: The symbol set identified by the current Pattern Set is not available.

Alternate Exception Action: Use the standard default pattern symbol set.

X'036804' Undefined Pattern Symbol

Explanation: The current pattern symbol is undefined in the pattern symbol set.

Alternate Exception Action: Use the standard default pattern symbol.

X'037001' Invalid Repeat/Append Bit

Explanation: The Begin Segment Repeat/Append bit has a value of B'10' in chained immediate mode.

Alternate Exception Action: None

X'037082' Invalid Repeat/Append Bit

Explanation: The Begin Segment Repeat/Append bit has a value of B'01'.

Alternate Exception Action: None

X'0370C1' Invalid Begin Segment length

Explanation: The Begin Segment parameter length is invalid.

Alternate Exception Action: None

X'0370C5' Insufficient Segment data

Explanation: Received End Segment when expecting more data.

Alternate Exception Action: None

X'039200' Graphic Image Order Sequence Error

Explanation: An Begin Image order was not executed before the Image Data order in this segment.

Alternate Exception Action: None

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X'039201' Image Data Discrepancy

Explanation: There are insufficient or too many bytes of data in the Image Data order.

Alternate Exception Action: None

X'039300' Graphic Image Bracket Error

Explanation: An End Image order is executed without a Begin Image order having been previously executed.

Alternate Exception Action: None

X'039301' Incorrect Number of Image Data Orders

Explanation: The number of Image Data orders between the Begin Image and End Image orders is not equal to the number of rows in the image (as given by the value of height in the Begin Image order).

Alternate Exception Action: None

X'03C200' Marker Symbol Set Not Available

Explanation: The symbol set identified by the current Marker Set attribute is not available.

Alternate Exception Action: Use the standard default marker symbol set.

X'03C201' Undefined Marker Code

Explanation: A marker code point is undefined in the current marker symbol set.

Alternate Exception Action: Use the standard default marker symbol.

X'03C202' Mismatched Marker Set

Explanation: This exception is from the Line Matrix printer only. An unsupported marker precision was received.

Alternate Exception Action: Use the standard default marker symbol.

X'03C300' Character Symbol Set Not Available

Explanation:

1. The symbol set identified by the current Character Set is not available.
2. The current character set specified in the Set Character Set order does not have the proper attributes to be printed in graphics mode.

Alternate Exception Action: Use the standard default character symbol set.

X'03C301' Undefined Graphics Character Code

Explanation: A code in a character string is undefined in the current character symbol set.

Alternate Exception Action: Use the standard default character symbol.

X'03C302' Mismatched Character Set

Explanation: This exception is from the Line Matrix printer only. Character precision is invalid.

Alternate Exception Action: Use the standard default character symbol.

X'03C601' Arc Drawing Check

Explanation: The drawing processor has detected an exceptional condition which may prevent the drawing of the arc within the normal limits of pel accuracy.

Alternate Exception Action: The arc is drawn in an implementation-defined manner which may reduce to drawing straight lines.

X'03D100' Truncated Graphic Image Error

Explanation: A Begin Image order has been executed in a segment, and the end of the segment is reached without an End Image order having been executed.

Alternate Exception Action: None

X'03D101' Invalid Order in Graphic Image

Explanation: A Begin Image order has been executed in a segment, and an order other than a Comment, Image Data, or End Image order is executed.

Alternate Exception Action: None

X'03D102' Graphic Image Format Not Supported

Explanation: The value specified for the graphic image format parameter is not supported.

Alternate Exception Action: None

X'03D103' Image Width Greater Than Maximum Supported

Explanation: The Width value specified in the Begin Image order exceeds the maximum image width supported by the product.

Alternate Exception Action: The image width is truncated at the maximum width supported.

X'03D104' Image Height Greater Than Maximum Supported

Explanation: The Height value specified in the Begin Image order exceeds the maximum image height supported by the product.

Alternate Exception Action: The image height is truncated at the maximum height supported.

X'03E100' Relative Line Outside Coordinate Space

Explanation: The relative line starts inside the drawing order coordinate space but goes outside.

Alternate Exception Action: None

Specification Check-General — X'02'

The following exception codes are the valid codes for a general specification check condition:

X'020003' Character Exceeds Presentation Text Object Space

Explanation: Invalid length of arc command, text string, or text control.

Alternate Exception Action: Ignore the control sequence.

X'020001' Embedded Text Control Code Error

Explanation: Undefined text control code.

Alternate Exception Action: Ignore the control sequence.

X'020201' End Suppression Text Control Error

Explanation: The active Begin Suppression ID within the current page, overlay, or page segment is not the same as that specified in the ES control. There is no active suppression ID.

Alternate Exception Action: None

X'020202' Invalid IPDS Command Length

Explanation: The length for a command is not within the allowed range.

The length of a Request Resource List entry is not a valid or supported value.

The length specified for a Request Resource List entry does not match the number of bytes received.

Alternate Exception Action: None.

X'020205' Invalid Data Structured Field Length

Explanation: A data structured field has been received in a WGC or WBCC command that is less than the minimum allowable length.

Alternate Exception Action: None

X'020302' IPDS Command Header Length Too Small

Explanation: The length of the IPDS command header is too small.

Alternate Exception Action: None

X'020305' Invalid or Unsupported Block Orientation

Explanation: Invalid font-inline sequence or invalid orientation of image block.

Alternate Exception Action: None

X'020401' End Page Encountered During Active Suppression

Explanation: The End Page control was encountered before a text suppression ended.

Alternate Exception Action: Process the object as if the corresponding End Suppression control sequence appeared at the end of the object. That is, all of the data following the Begin Suppression control sequence in the object is processed and suppressed.

X'020402' Acknowledge Reply Response Continuation Request is Invalid

Explanation: The printer received a command whose response continuation bit is on but there is no response to continue.

Alternate Exception Action: None

X'020405' Area Position Reference System is Not Supported

Explanation: The reference system specified in the Area Position structured field of the WGC or WBCC command is not a valid or supported value.

Alternate Exception Action: None

X'020501' Invalid Spanning Sequence

Explanation: A Write Text or Write Graphics command is required to complete a partial order, control, or double-byte character code and another command was received other than an XOA command.

Alternate Exception Action: None

X'020502' Unsupported Baseline Move

Explanation: Unsupported advancement of the baseline coordinate toward the I-axis.

Alternate Exception Action: None

X'020505' Structured Field Unit-Base Invalid

Explanation: The unit-base (measurement units) specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.

Alternate Exception Action: None

X'020601' Begin Suppression Error

Explanation: Begin Suppression encountered in the same unit (page, segment or overlay) before previous suppression in that unit ended.

Alternate Exception Action: None

X'020605' Structured Field Units Invalid

Explanation:

1. The units specified in the Output Control or the Data Descriptor structured field of the WGC or WBCC command is not a valid or supported value.
2. The result of the calculation cannot be represented in the printer. This may result from the WGC GDD window limits being very close together.
3. Coordinate overflow while scaling graphics. Possible if scaling coordinates require multiplication by a value greater than 1.

Alternate Exception Action: None

X'020705' Structured Field Extents Not Supported

Explanation: The extents specified in the Output Control or Data Descriptor structured field of the WGC or WBCC command are not a valid or supported value.

The window values of the WGC GDD structured field are not consistent; therefore, the value of XL is larger than the value of XR or the value of YB is larger than the value of YT.

Alternate Exception Action: None

X'020805' Invalid Mapping Option

Explanation: A mapping option specified in the Output Control structured field of the WGC or WBCC command is not a valid or supported value.

Alternate Exception Action: None

X'020A05' Data within a Block might be Outside the VP

Explanation: Image out of VPA or image out of logical page.

Alternate Exception Action: None

X'020905' Invalid Axis Offsets

Explanation: The axis offsets specified in the Output Control structured field of the WGC or WBCC command are not valid or supported values.

Alternate Exception Action: None

X'020B05' Invalid Structured Field Identifier

Explanation: A two-byte structured field identifier in a WGC or WBCC command is invalid or out of sequence.

Alternate Exception Action: None

X'020F01' Invalid Text Orientation

Explanation: Baseline or Inline orientation specified in Set Text Orientation is not a valid or supported value.

Alternate Exception Action: Use an inline orientation of 0 degrees and a baseline orientation of 90 degrees.

X'021001' Invalid Margin

Explanation: The margin position is not a valid or supported value.

Alternate Exception Action: None

X'021101' Invalid Baseline Increment

Explanation: The value of the baseline increment is not a valid or supported value.

Alternate Exception Action: None

X'021201' Invalid Intercharacter Adjustment

Explanation:

1. The value of the intercharacter adjustment is not a valid or supported value.
2. The intercharacter adjustment direction is not a valid or supported value.

Alternate Exception Action:

1. Ignore the control sequence and continue presentation with the parameter values according to the hierarchy (the hierarchy is the last valid value received or if none received then use the LPD value).
2. Use direction = zero.

NOTE: In an LPD command, no Alternate Exception Action occurs.

X'021301' Invalid Absolute Move Baseline Value

Explanation: The Absolute Move Baseline parameter value is not a valid or supported value.
Alternate Exception Action: None

X'021401' Invalid Absolute Move Inline Value

Explanation: The Absolute Move Inline parameter value is not a valid or supported value.
Alternate Exception Action: None

X'021402' Font to be Deleted Not Found

Explanation: The single byte font specified by the Delete Font command is not in the machine.

Alternate Exception Action: None

X'021501' Invalid Relative Move Inline

Explanation: Invalid Relative Move Inline value.

Alternate Exception Action: None

X'021502' Invalid DF Font

Explanation: The Loaded Font Identifier field is required in the Delete Font command; however, it is not present or its value is not a valid or supported value.

Alternate Exception Action: None

X'021601' Invalid Relative Move Baseline Value

Explanation: Invalid Relative Move Baseline value.

Alternate Exception Action: None

X'021701' Invalid Variable Space Increment

Explanation: The value of the variable space increment as specified in a text control is not a valid or supported value.

Alternate Exception Action: None

X'021702' Invalid DF Deletion Type

Explanation: The Deletion Type on a Delete Font command is not a valid or supported value.

Alternate Exception Action: None

X'021802' Invalid Font ID

Explanation:

1. The two-byte Font Identifier on a Load Symbol Set or Load Font Equivalence command is not a valid or supported value.
2. The one-byte Font Identifier value on the Load Font Equivalence command is not a valid or supported value.
3. A font is referenced on a Set Font control, a Load Page Description, a Load Symbol Set, a Write Graphics, or Write Bar Code command, but the font has not been previously identified by the Load Font Equivalence command.
4. The font or symbol set referenced in a Load Page Description, Write Text, or Write Graphics command is defined within the current Load Font Equivalence but is not loaded in the printer.

Alternate Exception Action:

1. None.
2. None.
3. Substitute the active font for the specified local font and continue processing.
4. Substitute the active coded font for the specified local font and continue processing.

X'021901' Repeat String Length Error

Explanation: The Repeat String target string length is not a valid or supported value.

Alternate Exception Action: None

X'021902' Multiple Occurrences of the Same LFE Local ID

Explanation: The one-byte Local Identifier value in the Load Font Equivalence command has been used more than once, making the Two-Byte Font Identifier reference ambiguous.

Alternate Exception Action: None

X'021C01' Invalid Embedded Text Control Sequence

Explanation: A text control sequence contains a code other than X'D3' following X'2B'.

Alternate Exception Action: None

X'021D02' Invalid LFE Identifier

Explanation: One or more of the following font parameters listed in the LFE or their combination is not valid or supported: Character Set ID, Code Page ID, Uniform Character Increment, and Proportional Increment Coefficient Table.

Alternate Exception Action: None

X'021E01' Invalid Text Control Length

Explanation: The length of a text control is not valid.

Alternate Exception Action: None

X'021E02' Mismatch Between Font and XOA Print Quality Control

Explanation:

1. The combination of parameters specified in LFE are not supported together with the quality indicated by XOA Print Quality Control.
2. The Font (Style) ID specified in the LFE is invalid or unsupported or is not valid with the other font parameters.

Alternate Exception Action: Choose “Best Fit” font.

NOTE: This error will be flagged when an attempt to present the font is processed.

X'022E02' Insufficient Font Data Received

Explanation: Insufficient font data received or the printer received an invalid command in Spanning mode.

Alternate Exception Action: None

X'023001' Insufficient Storage for LCC Copy-control Record

Explanation: Too many copy groups or insufficient storage for LCC record.

Alternate Exception Action: None

X'021F01' Repeat String Length Error

Explanation: Repeat String control on a Write Text command has non-zero fill count but zero string length.

Alternate Exception Action: None

X'021F02' Mismatch of LFE Two-Byte Loaded Font ID Parameters

Explanation: Two fonts have been assigned the same two-byte Loaded Font ID by the LFE command, but one or more of the following attributes differ: Character Set ID, Code Page ID, Font (Style) ID, Uniform Character Increment, Proportional Increment Coefficient Table.

Alternate Exception Action: None

X'023101' Invalid LCC Number of Copies

Explanation: The Number of Copies value specified on the Load Copy Control command is not a valid or supported value.

Alternate Exception Action: Proceed as though the number of copies field stated 1.

X'023201' Invalid LCC Keyword in Group Entry

Explanation: There is an invalid or unsupported Load Copy Control keyword in the group entry.

Alternate Exception Action: None

X'023401' Invalid LCC Copy Group Byte Count

Explanation:

1. The number of bytes in Load Copy Control group is not a multiple of two byte pairs.
2. The number of bytes in Load Copy Control group is not a valid or supported value.

Alternate Exception Action: None

X'023601' Invalid or Unsupported Load Copy Control Simplex/Duplex Parameter

Explanation: The LCC command simplex/duplex parameter is invalid or unsupported.

Alternate Exception Action: If invalid, none. If unsupported, the printer prints simplex.

X'023801' Maximum Supported Number of Overlays per LCC Copy Group Exceeded

Explanation: Exceeded maximum number of overlays.

Alternate Exception Action: None

X'023901' Maximum Supported Number of Suppression per LCC Copy Group Exceeded

Explanation: Exceeded maximum number of suppression.

Alternate Exception Action: None

X'023F02' Font Index Not Loaded

Explanation:

1. The font inline sequence in Load Font Equivalence command is not supported or not supported with the current Text Orientation.
2. The Font Index specified in a Load Font Equivalence command called out by a Set Coded Font Local text control is not loaded.

Alternate Exception Action: None

X'024201' WIC Pel Count < Minimum Required

Explanation: The Target or Source Pel Count value on the Write Image Control command is less than 1.

Alternate Exception Action: None

X'024301' WIC Pel Count > Maximum Allowed

Explanation: The Target or Source Pel Count value on the Write Image Control command is greater than the valid or supported maximum.

Alternate Exception Action: None

X'024401' WIC Scan Count < Minimum Required

Explanation: The Target or Source Scan Count value on the Write Image Control command is less than 1.

Alternate Exception Action: None

X'024501' WIC Scan Count > Maximum Allowed

Explanation: The Target or Source Scan Count value on the Write Image Control command is greater than the valid or supported maximum.

Alternate Exception Action: None

X'024601' Invalid WIC Source Image Format

Explanation:

1. The Compression Algorithm value (Byte 8) is not a valid or supported value.
2. The (Pel) Data Format value (Byte 9) in the Write Image Control command is not X'00'.

Alternate Exception Action: None

X'024701' Invalid WIC Scale Factor Value

Explanation:

1. The Pel Count Scale Factor value on the Write Image Control command is not a valid or supported value.
2. The Scan Count Scale Factor value on the Write Image Control command does not equal the Pel Count Scale Factor.

Alternate Exception Action: None

X'024702' Invalid LFE Font Inline Sequence

Explanation: The Font Inline Sequence parameter in a Load Font Equivalence command is not a valid or supported value.

Alternate Exception Action: None

X'024801' Invalid WIC Scan Line Direction

Explanation: The Scan Line Direction parameter value on the Write Image Control command is not a valid or supported value

Alternate Exception Action: None

X'024901' Invalid WIC Scan Sequence Direction

Explanation: The Scan Line Sequence Direction value specified on the Write Image Control command is not plus ninety degrees from the Scan Line Direction value.

Alternate Exception Action: None.

NOTE: Plus ninety from 270, (X'8700') must be X'0000'.

X'024A01' Invalid WIC Coordinate Specification

Explanation:

1. The Coordinate Definition value on the Write Image Control command is not a valid or supported value.
2. The First Pel Location (X or I Direction) value on the Write Image Control command is not a valid or supported value.
3. The First Pel Location (Y or B Direction) value on the Write Image Control command is not a valid or supported value.

Alternate Exception Action: None

X'025301' Invalid WIC Color Value

Explanation: The Color value of the WIC command is not a valid or supported value.

Alternate Exception Action: Use printer default value.

X'025803' Unsupported Color or Color Attribute

Explanation:

1. The text color is not a valid or supported value.
2. The text color precision is not a valid or supported value.

Alternate Exception Action: If the attribute value is not valid, ignore the control and continue presentation with the value that was in effect prior to this control sequence. If the attribute value is valid but unsupported for this printer, use the printer default color.

X'025C02' Invalid or Unsupported Parameter in an LFI Command

Explanation: Invalid parameter in Load Font Index command.

Alternate Exception Action: None

X'026002' Invalid LPD X Units/Unit-Base

Explanation: On the Load Page Description command, the X units per unit-base value is not a valid or supported value.

Alternate Exception Action: None

X'026102' Invalid LPD Y Units/Unit-Base

Explanation:

1. On the Load Page Description command, the Y units per unit-base value is not a valid or supported value.
2. On the Set Media Size command, the units per unit-base value is not a valid or supported value.

Alternate Exception Action: None

X'026202' Invalid LPD X-Extent

Explanation: On the Load Page Description command, the X-Extent is not a valid or supported value.

Alternate Exception Action: None

X'026302' LPD Invalid Y-Extent

Explanation: On the Load Page Description command, the Y-Extent is not a valid or supported value.

Alternate Exception Action: None

X'026401' Insufficient Control Storage

Explanation: Insufficient memory for saving data.

Alternate Exception Action: None

X'026402' Invalid LPD Unit-Base

Explanation: On the Load Page Description command, the unit-base is not a valid or supported value.

Alternate Exception Action: None

X'026802' Invalid LPD Inline Direction

Explanation: On a Load Page Description command the Inline Sequence Direction value is not a valid or supported value.

Alternate Exception Action: Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

X'026902' Invalid LPD Baseline Direction

Explanation: On a Load Page Description command the Baseline Sequence Direction value is not a valid or supported value.

Alternate Exception Action: Use an inline sequence direction of 0 degrees and a baseline sequence direction of 90 degrees.

X'026A01' Insufficient Source Image Data

Explanation: The number of source image bytes received < the number implied in the Write Image Control command.

Alternate Exception Action: None.

X'026A02' Invalid LPD Initial Inline Coordinate

Explanation: On a Load Page Description command, the initial inline coordinate value is not a valid or supported value.

Alternate Exception Action: None

X'026B01' Excess Source Image Data

Explanation: The number of source image bytes received > the number implied in the Write Image Control command.

Alternate Exception Action: None

X'026B02' Invalid LPD Initial Baseline Coordinate

Explanation: On a Load Page Description command, the initial baseline coordinate value is not a valid or supported value.

Alternate Exception Action: None

X'027002' Invalid Units Value in an XOH SMS Command

Explanation: The units value in an XOH SMS command is invalid or unsupported.

Alternate Exception Action: None

X'027202' Invalid SMS X-Extent

Explanation: On the Set Media Size command, the X-extent is not a valid or supported value.

Alternate Exception Action: None

X'027302' Invalid SMS Y-Extent

Explanation: On the Set Media Size command, the Y-extent is not a valid or supported value.

Alternate Exception Action: None

X'027402' Invalid SMS Unit Base

Explanation: On the Set Media Size command, the unit-base is not a valid or supported value.

Alternate Exception Action: None

X'027A01' Invalid triplet length value

Explanation: The length specified in a triplet is invalid.

Alternate Exception Action: None

X'027B01' Incorrect number of triplet data bytes

Explanation: The number of data bytes specified in a triplet length field is greater than the number of bytes remaining in the command.

Alternate Exception Action: None

X'028101' Insufficient Storage for Overlay or Page Segment

Explanation: There is insufficient storage to process an overlay or page segment.

Alternate Exception Action: None

X'028501' Invalid DO Parameter Value

Explanation: The Overlay Identifier on the Delete Overlay command is not a valid or supported value.

Alternate Exception Action: None

X'028A01' Invalid DPS Parameter Value

Explanation: The Page Segment Identifier on the Delete Page Segment command is not a valid or supported value.

Alternate Exception Action: None

X'029001' Overlay Number Outside Valid Range

Explanation:

1. The Overlay Identifier on the Begin Overlay command is not a valid or supported value.
2. The Overlay Identifier on the Include Overlay command is not a valid or supported value.
3. The Overlay Identifier on a Load Copy Control command is not a valid or supported value.

Alternate Exception Action: None

X'029101' BO Overlay Number Already Loaded

Explanation: The host attempted to download an overlay from the Begin Overlay command that already exists in the printer.

Alternate Exception Action: None

X'029102' Invalid Request Resource List Parameter

Explanation:

1. The Requested Ordering parameter of a Request Resource List order is not a valid or supported value.
2. The Entry Index parameter of a Request Resource List order is not a valid or supported value.
3. The Resource Qualifier parameter of a Request Resource List order is not a valid or supported value.
4. The Resource Type parameter on the Request Resource List order is not a valid or supported value.

Alternate Exception Action: None

X'029201' Overlay Number Not Loaded

Explanation: The overlay identified by the Overlay Identifier on the Include Overlay, Delete Overlay or LCC command was not loaded or was already deleted prior to its attempted use.

Alternate Exception Action: None

X'029202' Invalid Print Quality Control Parameter:

Explanation: The Print Quality Control parameter is X'00', which is a reserved value.

Alternate Exception Action: None

X'029301' Recursive Overlay Invocation:

Explanation: An infinite nesting loop has occurred with the Include Overlay command (for example, an overlay has included itself)

Alternate Exception Action: None

X'029401' Page Segment Number Outside Valid Range

Explanation:

1. The Page Segment Identifier on the Include Page Segment command is not a valid or supported value.
2. The Page Segment Identifier on the Begin Page Segment command is not a valid or supported value.

Alternate Exception Action: None

X'029501' Page Segment Number Already Loaded

Explanation: The host attempted to download a page segment that already exists in the printer.

Alternate Exception Action: None

X'029601' Page Segment Number Not Loaded

Explanation: The page segment identified by the Page Segment Identifier on the Include Page Segment or Delete Page Segment command was not loaded or was already deleted prior to its attempted use.

Alternate Exception Action: None

X'029701' Overlay Nesting Limit Exceeded

Explanation: Depth of overlay nesting is greater than the maximum depth.

Alternate Exception Action: None

X'029801' Suppression Number Outside Valid Range

Explanation:

1. On a Write Text command, the Begin Suppression number value is not a valid or supported value.
2. In a LCC command, the suppression number value is not a valid or supported value.

Alternate Exception Action:

1. Ignore the control sequence.
2. None

X'029803' Temporary Baseline Move Error

Explanation:

1. The temporary baseline increment is not a valid or supported value.
2. The temporary baseline move direction is not a valid or supported value.
3. The temporary baseline move precision is not a valid or supported value.
4. Unsupported multiple offset temporary baseline move.
5. Unable to support temporary baseline move by printing full size characters.

Alternate Exception Action:

1. None for reasons 1 through 4.
2. For reason 5, present according to the substitution method.

X'02AC01' Insufficient Storage to Print the Sheet

Explanation: Page is too large for main storage.

Alternate Exception Action: None

X'02A401' Page Boundary in the X-direction cannot be Represented in the Printer

Explanation: Page boundary in the X-direction cannot be represented in the printer.

Alternate Exception Action: None

X'02A501' Page Boundary in the Y-direction cannot be Represented in the Printer

Explanation: Page boundary in the Y-direction cannot be represented in the printer.

Alternate Exception Action: None

X'02AD01' Invalid Load Page Position Parameter

Explanation: The X Coordinate value on the Load Page Position command is not a valid or supported value.

The Y Coordinate value on the Load Page Position command is not a valid or supported value.

Alternate Exception Action: None

X'02AE01' Invalid Include Overlay Position Parameter

Explanation:

1. The X-Coordinate value on the Include Overlay command is not a valid or supported value.
2. The Y-Coordinate value on the Include Overlay command is not a valid or supported value.

Alternate Exception Action: None

X'02AF01' Insufficient storage to continue processing

Explanation: There is insufficient storage to continue processing. Make sure any fonts, overlays, and page segments that are not being used are deactivated. You could also attempt to increase your host storage space.

Alternate Exception Action: None

X'02C101' Maximum Number of Simplex Keywords in an LCC Command

Explanation: More than one simplex operation keyword has been specified in an LCC command copy group.

Alternate Exception Action: None

X'02C102' Load Equivalence Internal Value Not Unique

Explanation: The first two bytes of two or more list entries on the Load Equivalence command are not unique. Setting both external values to the same value will not prevent the error.

Alternate Exception Action: None

X'02C602' Invalid Load Equivalence Mapping Type

Explanation: The Mapping Type on the Load Equivalence command is not X'0100'.

Alternate Exception Action: None

X'02C801' An unsupported Input Media Source ID was Specified

Explanation: An unsupported Input Media Source ID was specified in an XOH-SIMS command.

Alternate Exception Action: Select an installed and available media source.

X'02C802' Invalid Internal/External Value on LE

Explanation: The Internal or External value on a Load Equivalence command is not a valid or supported value.

Alternate Exception Action: None

Conditions Requiring Host Notification — X'01'

X'010100' Media Size or Input Media Source ID Changed

Explanation:

1. The size of the media in one or more of the installed input media sources was changed.
2. The input media source ID of one or more of the installed input media sources was changed.

Alternate Exception Action: None.

NOTE: Not reported in 4234 Emulation Mode.

D Contact Information

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

  Thermal Printer
  See “Printing A Configuration” in the *User’s Setup Guide*.

  Line Matrix Printer
  Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 311
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	33 (0) 1 46 25 19 07
Asia Pacific	(65) 6548 4116 or (65) 6548 4182
China	(86) 400-886-5598
India	(800) 102-7869

http://www.printronix.com/supplies-parts.aspx

Corporate Offices

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Phone: (86) 400 886 5598
Fax: (86-21) 5138 0564

Visit the Printronix web site at www.printronix.com

E *Glossary*

Acknowledge Reply
: A message about printer information or exceptions that the printer sends to the host. It can be a positive or negative reply. ([N]ACK can contain status resource or counter information.)

barcode
: A printed code consisting of parallel bars of varied width and spacing and designed to be read by a one-dimensional scanning device.

barcode block
: It is a rectangular space that has a specified size, position, and orientation on a logical page. It is the area into which the barcode presentation space is mapped.

barcode presentation space
: It is a rectangular, conceptual space where a barcode is generated. The entire barcode presentation space must be mapped to the barcode block.

bold
: A print attribute specifying text of a heavy line thickness. *See also* character weight.

buffer
: A reserved area in memory that data is written to and read from during data transfers.

character set
: A protocol instructing the printer how to construct a set of printable characters, including symbols, punctuation, numbers, diacritical markings, and alphabet characters. Each character is assigned a unique address in memory.

character weight
: The degree of lightness and thickness of printed text. For example: **“Bold” refers to a heavy or thick character weight.** “Medium,” “normal,” or “book weight” refer to the character weight used in this sentence.

control sequence
: A series of bytes that instruct the printer to perform a specific function.

correlation ID (CID)
: Identifies a specific command/data transmission from the host. This two-byte value is used to match any exceptions (errors or conditions specified in an Acknowledge Reply) with the IPDS command.

cpi
: *Abbrev. for* characters per inch. A measurement of monospaced fonts indicating the horizontal character density. For example, 10 cpi means 10 characters can be printed in one horizontal inch.

default	A value, parameter, attribute, or option assigned by a program or system if another is not specified by the user.
deferred printing	The printer prints page by page: It gathers all of the page descriptor commands and data blocks for each page and then prints the page.
diagnostic	Pertains to the detection and isolation of printer malfunctions or mistakes.
emulation	Refers to the ability of a printer to execute the commands of another printer language (protocol).
environment	The parameters that affect how data will display on a page, such as the dimensions, orientation, and location of the logical page on the physical page. An overlay has its own environment; a page segment is affected by the environment that is placed into.
expanded	A font enhancement referring to larger-than-normal character width with no change in character height.
exception	A condition in which the printer notifies the host and will someTimes New Roman require the host to resend data. An exception can also be in response to an invalid data stream.
family (or type)	A set of all variations and sizes of a type style.
fixed-pitch fonts	*See* font.
FOCA	*Abbrev for* Font Object Content Architecture. A collection of methods and rules for describing fonts.
font	Referred to as a resource that is stored in memory. The complete set of a given size of type, including characters, symbols, figures, punctuation marks, ligatures, signs, and accents. To fully describe a font, you must specify seven characteristics: 1) typeface 2) spacing (proportional or monospaced) 3) type size (12 point, 14 point, etc.) 4) scale factor (character height/width ratio) 5) type style 6) character weight 7) character proportion (normal, condensed, expanded).
GOCA	*Abbrev for* Graphic Object Content Architecture. A collection of methods and rules for describing graphic data.
graphics	Lines, arcs, etc. used to draw a picture. Differs from an image.
graphics block	Rectangular space that has a specified size, position, and orientation on a logical page. It is the area where the graphics presentation space (or the graphics presentation space window) is mapped to.

graphics presentation space
: Rectangular, conceptual space where graphics are generated.

graphics presentation space window
: You can specify a part of the presentation space to be mapped to the graphics block. This portion is called the graphics presentation space window. Specifying a window is synonymous to cropping or trimming.

home state
: The initial state of the printer before it begins downloading overlays, page segments, and/or fonts. After the printer prints the page, the printer returns to the home state.

host assigned ID
: The host assigns an ID to every resource (page segment, overlay, or font). These IDs are used for loading and calling.

host computer
: The computer that stores, processes, and sends data to be printed, and which communicates directly with the printer. The term “host” indicates the controlling computer, since modern printers are themselves microprocessor-controlled computer systems.

image
: An illustration or picture. Differs from graphics.

image block
: Rectangular space that has a specified size, position, and orientation on a logical page. The image block contains the image. It is the area where the image presentation space is mapped to.

image presentation space
: Rectangular, conceptual space where an image is generated. It is mapped to the image block. Once mapped, the image is ready to be printed.

initialization
: A series of processes and self-tests to set power-up default conditions and parameters.

interface
: The hardware components used to link two devices by common physical interconnection, signal, and functional characteristics.

invoke
: To put into effect or operation.

IPDS
: Intelligent Printer Data Stream. Allows sophisticated printing, such as merging text and graphics.

lpi
: *Abbrev. for* lines per inch. A measurement indicating the vertical spacing between successive lines of text. For example, 8 lpi means 8 lines of text for every vertical inch.

logical page
: A rectangular area on a physical page. The logical page has a specified size, orientation, location, and offset. The logical page is the area where barcode blocks, image blocks, graphics blocks, and text is printed. Printing occurs in the area common to the physical page and the logical page.

logical link	The parameters that specify data transfer, control, or communication operations.
no operation	This command causes the printer not to process anything, but instead, to proceed to the next command sequence.
object	Another term for a font, graphics, image, text, or a combination of these.
offset	An offset is a measurement indicating displacement. For example, you can specify the logical page to rest in the lower left hand corner of the physical page.
ordered printing	The printer behaves like a line printer: It begins printing as soon as you send the data.
orientation	The degrees of rotation of a presentation space or a data block.
overlay	This is usually a form. It can contain text, graphics, an image, and barcode data. You can also merge a page segment into an overlay. The overlay can encompass the entire logical page or a portion of it. The overlay has its own environment, unlike a page segment.
overlay ID	The host assigns an ID to every overlay so that it can be identified for particular commands, such as Begin Overlay, Delete Overlay, Include Overlay, etc.
overlay state	This state permits overlay data to be downloaded and produced.
page	*See* logical page *and* physical page.
page segment	Contains a font, image, text, or graphics and is merged onto a logical page. A page segment has an ID and can be stored for future use. It does not have its own environment; instead, it uses the environment that it is merged into. You can load a page segment into an overlay.
page segment state	This state allows page data to be loaded and produced.
parity (check)	Parity checking is the addition of non-data bits to data, resulting in the number of 1 bits being either always even or always odd. Parity is used to detect transmission errors. Parity represents the value in the check digit of the received or transmitted data.
physical page	The medium that the printer prints data on.
pixel	Derived from picture element. The smallest displayable picture element on a video monitor or printable unit. In printing, a pixel is a dot.
point	A unit of length in printing and typography, used to specify type sizes, heights of font characters, etc. There are 72 points in a vertical inch; thus, one point equals 1/72 inch, or approximately 0.0138 inch. Some examples

	of point sizes are: This is 8 point type. This manual is printed in 10 point type. This is 14 point type.
port	A channel used for receiving data from or transmitting data to one or more external devices.
presentation space	A space where data can be generated before it is mapped onto the logical page. The presentation space uses an X-axis and Y-axis to specify addresses.
protocol	A set of rules or conventions governing the exchange of information between computer systems. For computer printers, a protocol is the coding convention used to convey and print data. A printer protocol includes character codes, printer function codes, and machine-to-machine communication codes.
RAM	*Acronym for* random-access memory. Also called “main memory” or “working memory.” RAM is the active memory of a printer, into which programs are loaded. This memory can be read from or written to at any time-hence the term “random-access.” RAM is also termed “volatile” because whatever is in RAM is lost when power is turned off or interrupted.
read	To retrieve data from memory (RAM, NVRAM) or mass storage (hard disk, floppy diskette, etc.).
reset	To turn off, deactivate, disable, or return to a previously determined state.
resolution	A measure expressing the number of units in a given range used to create an image. In printing, this is expressed as the number of dots per inch (dpi) horizontally and vertically.
ROM	*Acronym for* read-only memory. Programs, instructions, and routines permanently stored in the printer. ROM is not lost when power is turned off and cannot be written to, hence the term “read-only.” ROM-resident fonts are fonts permanently stored in a printer and available at any time.
set	To turn on, activate, invoke, or enable.
string	Two or more bytes of data or code treated as a unit.
twinax	Twinaxial. A type of cable with two wires surrounded by insulation and a braided shield.
type style	Refers to either the upright or italic character style in a specific font family. Roman is upright, *italic is slanted.*
typeface	A descriptive name or brand name that identifies a particular design of type. Also called type family.
weight	*See* character weight.
write	To place data in memory (RAM, NVRAM).

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