Section 11

IntelliBar SAP Device Types

This section describes IntelliBar Device Types developed for SAP R/3 v.3.X and later. SAP R/3 uses a proprietary printer spool and print system that provides a uniform user printing interface that supports a multiplicity of printers. A specific SAP printer Device Type provides the interface between the SAP Spooler and a particular printer. IntelliTech has developed SAP Device Types for IntelliBar printers that provide bar code label printing capability for a wide range of media.

SAP R/3 PRINTING WITH INTELLIBAR PCL COMMAND EXTENSIONS

Standard Series IntelliBar printers use the Hewlett Packard Printer Control Language level 5, HP PCL 5, for raster image processing tasks. Hewlett Packard LaserJet III (LJIII) printers use HP PCL5. Thus, IntelliBar printers appear as an LJIII to a host system. LJIII printers operate in the SAP environment by using the standard SAP HPLJIIID Device Type.

IntelliBar printers operate in the SAP environment by using custom "Z type" Device Types that are derived from the HPLJIIID Device Type. IntelliBar Device Types use HPLJIIID ABAP List Format Types. The IntelliBar Device Types and their ABAP List Format Types are described below.

INTELLIBAR SAP R/3 DEVICE TYPES

There are three custom device types for the IntelliBar Standard printer series:

SAP Device Type	IntelliBar Standard Printer Series
■ ZITC_48	M48
■ ZITC_412	M412
■ ZITC_88	M88

INSTALLATION OF INTELLIBAR SAP R/3 DEVICE TYPES

To install IntelliBar Device Types, download the required Device Type from the IntelliTech International web site at http://www.intellitech-intl.com/portasp/drivers.asp. Copy the Device Type onto the target SAP R/3 host system by using the SAP RSTXSCRP report. Assign the Device Type to the IntelliBar printer using the SAP R/3 administrative dialog.

INTELLIBAR ABAP LIST AND SAPSCRIPT FORMAT TYPES

Eight ABAP List Format Types for the IntelliBar Device Types are directly inherited from the HPLJIIID Device Type.

All SAPScript Format Types for IntelliBar Device Types are customized.

The printer initialization (Default) Format Types are described in Table 11-1 below:

Table 11-1 IntelliBar Initialization Format Types

Format Type	Value
Variable Form Length	See Table 11-2 below for Type and Value.
Print Speed	See Table 11-3 below for Value
Print Density	Value = 0
Print and Tear Frequency	Value = 1
Print and Cut Frequency	Value = 1

Table 11-2 IntelliBar Device Type Variable Form Length Command Values

SAPScript Format Type	Value in scan lines (@300 lines/inch)
DINA4	3508 (= 11.69 inches/297 mm)
DINA5	2480 (= 8.27 inches/210 mm)
EXECUTIV	3140 (= 10.47 inches/267 mm)
INCH11	3300 (= 11 inches/279 mm)
INCH12	3600 (= 12 inches/305 mm)
INCH4	1200 (= 4 inches/102 mm)
INCH4C	1200 (= 4 inches/102 mm)
INCH6	1800 (= 6 inches/152 mm)
INCH7	2100 (= 7 inches/178 mm)
INCH8	2400 (= 8 inches/203 mm)

LEGAL	4200 (= 14 inches/356 mm)
LETTER	3300 (= 11 inches/279 mm)
LINE_21	1050 (= 3.5 inches/89 mm)
LINE_22	1100 (= 3.67 inches/93 mm)

Table 11-3 IntelliBar Device Type Default Print Speed Command Values

IntelliBar Device Type	Default Print Speed Command Value (mm/second)
ZITC_412	300 (= 300 mm or 12 inches/second)
ZITC_48	200 (= 200 mm or 8 inches/second)
ZITC_88	200 (= 200 mm or 8 inches/second)

SAP R/3 STANDARD BAR CODE PRINT CONTROLS

The HPLJIIID Device Type supports twelve standard SAP bar codes used with ABAP lists. These codes are also supported by the IntelliBar ZITC_XXX Device Types. The standard SAP HPLJIIID bar codes are implemented through the Print Control commands listed in Table 11-4 below:

Table 11-4 Standard SAP Bar Code Commands

Command Code	Description
ARTNR	Article number, Technical bar code type: Code 128
AUFNR	Request number, Technical bar code type: Code 128
BARCLVS	Test bar code in LVS, Technical bar code type: Code 39, no check digit
BC_CD39	Technical bar code type: Code 39, no check digit, no text, height 13 mm
BC_ESC	ESC character (hex 1B)
KUNAUNR	Customer request number, Technical bar code type: Code 128
KUNAUPS	Customer request item, Technical bar code type: Code 128
MBBARC	Test bar code for inventory management, Technical bar code type: Code 128
MBBARC1	Test Bar code 1 for inventory management, Technical bar code type: EAN-8
RSNUM	Reservation number, Technical bar code type: Code 128
RSPOS	Reservation item, Technical bar code type: Code 128

RUECKNR	Completion confirmation number, Technical bar code type: Code 128

NOTE: SAP specifies the maximal data lengths for the twelve HPJLIIID bar codes. For example, for the ARTNR Command SAP specifies the length parameters as a minimum of 1 symbol and maximum of 10 symbols. To print ARTNR with a length less than 10 symbols (ex., 8 symbols), the appropriate parameter in the PCL escape sequence must be changed to the appropriate value. In the PCL escape sequence, "\e!b8C\e!b142J\e!b2N\e!10W", change the segment that specifies ten symbols, "\e!10W", to "\e!##W", where ## equals the number of symbols needed. In this example the change to "8" would be "\e!b8C\e!b142J\e!b2N\e!8W". For additional information about SAP standard bar codes go to: http://help.sap.com/saphelp_webas610/helpdata/en/d9/4a94e251ea11d189570000e829fbbd/content.htm

INTELLIBAR SAP R/3 DEVICE TYPE PRINT CONTROL COMMANDS

In addition to the standard HP PCL5 commands supported by the IntelliBar ZITC_XXX Device Types, IntelliBar printers use custom PCL Command extensions that enable thermal label printing functions and provide access to internal printer resident bar code fonts. In the SAP environment these Command extensions are accessed through custom SAP "Z" print commands. Table 11-5 below lists the IntelliBar custom SAPScript Format Types, a description of the Command and the corresponding PCL5 command extension in escape code sequence.

> **NOTE:** For greater detail about IntelliBar PCL command extensions, as well as standard HP PCL commands, refer to the relevant portion of Section 2 of the IntelliBar Programmer's Reference Manual.

Table 11-5 IntelliBar PCL Command Extensions Cross Reference to SAP Z Print Control Command Codes

Sap "Z" Print Command Code	Function	PCL Escape Command Code
Setting/Disabling Variable Form Length NOTE: The Variable Form Length command allowable range = 300 to 29,700 scan lines (= 1" to 99"/ 2.5 cm to 252 cm) in increments of 300 scan lines (= 1"/ 2.5 cm). Use the next longer full inch form length for form lengths that have fractional inches. For example, if form length = 8.5" then use the 9" form length command, "ZSF09".		
ZSFVL	Set Variable Form Length = the last selected value	ESC!f1Z
ZSF01	Set Variable Form Length = 1"	ESC!f300Z
through		through
ZSF99	Set Variable Form Length = 99"	ESC!f29700Z
ZDFVL	Disable Variable Form Length	ESC!f0Z
Setting Print Speed NOTE: The default Set Print Speed command is printer model dependent.		
ZPS01	Set Print Speed = 0.6" (15 mm)/sec	ESC!p15S
ZPS02	Set Print Speed = 0.8" (20 mm)/sec	ESC!p20S
ZPS03	Set Print Speed = 1.2" (30 mm)/sec	ESC!p30S
ZPS04	Set Print Speed = 1.6" (40 mm)/sec	ESC!p40S
ZPS05	Set Print Speed = 2.4" (60 mm)/sec	ESC!p60S
ZPS06	Set Print Speed = 3.2" (80 mm)/sec	ESC!p80S
ZPS07	Set Print Speed = 4" (100 mm)/sec	ESC!p100S

ZPS08	Set Print Speed = 5" (120 mm)/sec	ESC!p120S
ZPS09	Set Print Speed = 6" (150 mm)/sec	ESC!p150S
ZPS10	Set Print Speed = 8" (200 mm)/sec	ESC!p200S
ZPS11	Set Print Speed = 10" (250 mm)/sec	ESC!p250S
ZPS12	Set Print Speed = 12" (300 mm)/sec	ESC!p300S
Setting Print Density		
ZPD00	Set Print Density to 0, Default	ESC&d0A
ZPD01	Set Print Density to 1	ESC&d1A
ZPD02	Set Print Density to 2	ESC&d2A
ZPD03	Set Print Density to 3	ESC&d3A
ZPD04	Set Print Density to 4	ESC&d4A
ZPD05	Set Print Density to 5	ESC&d5A
ZPD06	Set Print Density to 6	ESC&d6A
ZPD07	Set Print Density to 7	ESC&d7A
ZPD08	Set Print Density to 8	ESC&d8A
ZPD09	Set Print Density to 9	ESC&d9A
ZPD10	Set Print Density to 10	ESC&d10A
ZPD11	Set Print Density to 11	ESC&d11A
ZPD12	Set Print Density to 12	ESC&d12A
ZPD13	Set Print Density to 13	ESC&d13A
ZPD14	Set Print Density to 14	ESC&d14A
ZPD15	Set Print Density to 15	ESC&d15A
ZPD16	Set Print Density to -15	ESC&d-15A
ZPD17	Set Print Density to -14	ESC&d-14A
ZPD18	Set Print Density to -13	ESC&d-13A
ZPD19	Set Print Density to -12	ESC&d-12A
ZPD20	Set Print Density to -11	ESC&d-11A
ZPD21	Set Print Density to -10	ESC&d-10A
ZPD22	Set Print Density to -9	ESC&d-9A
ZPD23	Set Print Density to -8	ESC&d-8A
ZPD24	Set Print Density to -7	ESC&d-7A
ZPD25	Set Print Density to -6	ESC&d-6A
ZPD26	Set Print Density to -5	ESC&d-5A
ZPD27	Set Print Density to -4	ESC&d-4A
ZPD28	Set Print Density to -3	ESC&d-3A
ZPD29	Set Print Density to -2	ESC&d-2A
ZPD30	Set Print Density to -1	ESC&d-1A

Setting Print and Tear Frequency

NOTE: The Set Print and Tear Frequency command allowable range = 1 to 99.

ZPT01	Print and Tear Frequency = 1, Default	ESC!n1T
ZPT02	Print and Tear Frequency = 2	ESC!n2T
through		through
ZPT99	Print and Tear Frequency = 99	ESC!n99T

Setting Print and Cut Frequency

NOTE: The Set Print and Cut command allowable range = 1 to 99.

ZPC01	Print and Cut frequency = 1	ESC!n1C
ZPC02	Print and Cut frequency = 2	ESC!n2C
through		through
ZPC99	Print and Cut frequency = 99	ESC!n99C

Setting Bar Code Type

ZBT00	Set Bar Code Type = 0, only print text, Default	ESC!b0C
ZBT01	Set Bar Code Type = 1, UPC-A	ESC!b1C
ZBT02	Set Bar Code Type = 2, UPC-E	ESC!b2C
ZBT03	Set Bar Code Type = 3, EAN/JAN-13 (with or without 2 or 5 digit supplements)	ESC!b3C
ZBT04	Set Bar Code Type = 4, EAN/JAN-8 (with or without 2 or 5 digit supplements)	ESC!b4C
ZBT05	Set Bar Code Type = 5, 3 of 9 (Code 39)	ESC!b5C
ZBT06	Set Bar Code Type = 6, Extended 3 of 9	ESC!b6C
ZBT07	Set Bar Code Type = 7, Interleaved 2 of 5	ESC!b7C
ZBT08	Set Bar Code Type = 8, Code 128	ESC!b8C
ZBT09	Set Bar Code Type = 9, Codabar	ESC!b9C
ZBT10	Set Bar Code Type = 10, Zip + 4 Postnet	ESC!b10C
ZBT11	Set Bar Code Type = 11, MSI Plessey	ESC!b11C
ZBT12	Set Bar Code Type = 12, Code 93	ESC!b12C
ZBT14	Set Bar Code Type = 14, UCC-128	ESC!b14C
ZBT15	Set Bar Code Type = 15, HIBC	ESC!b15C
ZBT16	Set Bar Code Type = 16, UPC/EAN extension (2 or 5 digit supplemental)	ESC!b16C
ZBT17	Set Bar Code Type = 17, PDF 417	ESC!b17C

Setting Bar Code Height in Decipoints

NOTE: The Set Bar Code Height in Decipoints command allowable range = 0.1" to 6.0" in increments of 0.1" (in multiples of 72 decipoints, 1 decipoint = 1/720 inch).

ZHC01	Set Bar Code Height (Decipoints) = 0.1" (72 Decipoints)	ESC!b72H
ZHC02	Set Bar Code Height (Decipoints) = 0.2" (144 Decipoints)	ESC!b144H
through		
ZHC60	Set Bar Code Height (Decipoints) = 6.0" (4320 Decipoints)	ESC!b4320H

Setting Bar Code Height in Dots

NOTE: 1 Dot = 1/300 inch. The Set Bar Code Height in Dots command allowable range = 0.1" to 6.0" (2.54 mm to 152.4 mm/30 dots to 1800 dots) in increments of 0.1" (2.54 mm/ 30 Dots).

ZHD01	Set Bar Code Height (Dots) = 0.1" (30 Dots)	ESC!b30J
ZHD02	Set Bar Code Height (Dots) = 0.2" (60 Dots)	ESC!b60J
through		
ZHD60	Set Bar Code Height (Dots) = 6.0" (1800 Dots)	ESC!b1800J

Setting Bar Code Width in Dots

NOTE: 1 Dot = 1/300 inch. The Set Bar Code Width command allowable range = 1 to 6 Dots.

ZBCW1	Set Bar Code Width (Dots) = 1	ESC!b1N
ZBCW2	Set Bar Code Width (Dots) = 2 Default	ESC!b2N
ZBCW3	Set Bar Code Width (Dots) = 3	ESC!b3N
ZBCW4	Set Bar Code Width (Dots) = 4	ESC!b4N
ZBCW5	Set Bar Code Width (Dots) = 5	ESC!b5N
ZBCW6	Set Bar Code Width (Dots) = 6	ESC!b6N
Setting Bar Code Ratios (Code 39, Extended 3 of 9, and Interleaved 2 of 5)		
ZBCR1	Set Bar Code Ratio, Ratio of 2 to 1	ESC!b1R
ZBCR2	Set Bar Code Ratio, Ratio of 5 to 2	ESC!b2R
ZBCR3	Set Bar Code Ratio, Ratio of 3 to 1, Default	ESC!b3R
Setting Bar Code 128 Subset Mode		
ZBSM0	Set Bar Code 128 Subset Mode 0, Automatic subset switching, Default	ESC!b0S
ZBSM1	Set Bar Code 128 Subset Mode 1, Subset A (upper case/control characters)	ESC!b1S
ZBSM2	Set Bar Code 128 Subset Mode 2, Subset A (upper and lower case characters)	ESC!b2S
ZBSM3	Set Bar Code 128 Subset Mode 3, Subset A (double density numbers)	ESC!b3S
Setting UPC-E Bar Code Method		
ZBCM0	Set UPC-E Bar Code Method 0, Requires 11 digits to print 6 digit bar code, Default	ESC!b0E
ZBCM1	Set UPC-E Bar Code Method 1, System 0, 6 digit input string	ESC!b1E
ZBCM2	Set UPC-E Bar Code Method 2, System 1, 6 digit input string	ESC!b2E
Setting Print Position for Human-Readable Text		
ZTXT0	Print Human-Readable Text = 0 Disable, Default	ESC!b0T
ZTXT1	Print Human-Readable Text, Position = 1, below barcode with check digit	ESC!b1T
ZTXT2	Print Human-Readable Text, Position = 2, below bar code without check digit	ESC!b2T
ZTXT3	Print Human-Readable Text, Position = 3, above bar code with check digit	ESC!b3T
ZTXT4	Print Human-Readable Text, Position = 4, above bar code without check digit	ESC!b4T
ZTXT5	Print Human-Readable Text, Position = 5, in notched bar code with check digit	ESC!b5T
ZTXT6	Print Human-Readable Text, Position = 6, in notched bar code without check digit	ESC!b6T

Setting Optional Check Digit Calculation		
ZCOC0	Calculate Optional Check Digit, 0 Disable, Default	ESC!b0K
ZCOC1	Calculate Optional Check Digit, 1 Enable	ESC!b1K
ZCOC2	Calculate Optional Check Digit, 2 Enable optional second check digit	ESC!b2K
Setting Print Text String Characters as Bar Code		
NOTE: Allowable Range = 4 to 99 characters.		
ZPR04	Print Bar Code, Length=4 characters	ESC!b4W
ZPR05	Print Bar Code, Length=5 characters	ESC!b5W
through		
ZPR99	Print Bar Code, Length=99 characters	ESC!b99W
Setting PDF417 Enable/Disable Binary Only Mode		
Z17B0	PDF417: Disable Binary Only Mode, Default	ESC!b0B
Z17B1	PDF417: Enable Binary Only mode (determinant symbol size)	ESC!b1B
Setting PDF417 Resolution for Encoding Data to Printer		
Z17D0	PDF417: Set Resolution 75	ESC!b75D
Z17D1	PDF417: Set Resolution 100, Default	ESC!b100D
Z17D2	PDF417: Set Resolution 150	ESC!b150D
Z17D3	PDF417: Set Resolution 300	ESC!b300D
Setting PDF417 Enable/Disable Truncated PDF Symbol Mode		
Z17F0	PDF417: Disable Truncated Mode, Default	ESC!b0F
Z17F1	PDF417: Enable Truncated Mode	ESC!b1F
Setting PDF417 Error Correction Code Level		
Z17L0	PDF417: ECC Level = 0, Default (=Use Percentage Command)	ESC!b0L
Z17L1	PDF417: ECC Level = 1	ESC!b1L
Z17L2	PDF417: ECC Level = 2	ESC!b2L
Z17L3	PDF417: ECC Level = 3	ESC!b3L
Z17L4	PDF417: ECC Level = 4	ESC!b4L
Z17L5	PDF417: ECC Level = 5	ESC!b5L
Z17L6	PDF417: ECC Level = 6	ESC!b6L
Z17L7	PDF417: ECC Level = 7	ESC!b7L
Z17L8	PDF417: ECC Level = 8	ESC!b8L

Setting PDF417 Error Correction Code as a Percentage of Data Words

NOTE: The Set PDF417 Error Correction Code as a Percentage of Data Words command allowable range = 0 through 400.

Z7000	PDF417: ECC Level as a Percentage = 0	ESC!b10P
Z7001	PDF417: ECC Level as a Percentage = 1	ESC!b11P
Z7002	PDF417: ECC Level as a Percentage = 2	ESC!b12P
through		
Z7400	PDF417: ECC Level as a Percentage = 400	ESC!b400P

Setting PDF417 Mode for Stripping Bits to Compensate for Bleeding

Z17Q0	PDF417: no reduction, Default	ESC!b0Q
Z17Q1	PDF417: reduce Bar Height	ESC!b1Q
Z17Q2	PDF417: reduce Bar Width	ESC!b2Q
Z17Q3	PDF417: reduce both Bar Height and Bar Width	ESC!b3Q

Setting PDF417 Row Count for Sizing a PDF Symbol

NOTE: The Set PDF417 Row Count for Sizing a PDF Symbol command allowable Range = 0, 3 through 90.

Z7U00	PDF417: Set Row count = 0 (Default)	ESC!b0U
Z7U03	PDF417: Set Row count = 3	ESC!b3U
Z7U04	PDF417: Set Row count = 4	ESC!b4U
through		
Z7U90	PDF417: Set Row count = 90	ESC!b90U

Setting PDF417 Column Count for Symbol Sizing the PDF

NOTE: The Set PDF417 Column Count for Symbol Sizing the PDF command allowable range = 0 through 30.

Z7V00	PDF417: Set Column count = 0 (Default)	ESC!b0V
Z7V01	PDF417: Set Column count = 1	ESC!b1V
Z7V02	PDF417: Set Column count = 2	ESC!b2V
through		
Z7V30	PDF417: Set Column count = 30	ESC!b30V

Setting PDF417 X Scale

NOTE: The Set PDF417 X Scale command allowable range = 1 through 20.

Z7X01	PDF417: Set X Scale = 1	ESC!b1X
Z7X02	PDF417: Set X Scale = 2	ESC!b2X
through		
Z7X20	PDF417: Set X Scale = 20	ESC!b20X

Setting PDF417 Y Scale

NOTE: The Set PDF417 Y Scale command allowable range = 1 through 10.

Z17Y1	PDF417: Set Y Scale, 1	ESC!b1Y
Z17Y2	PDF417: Set Y Scale, 2	ESC!b2Y
Z17Y3	PDF417: Set Y Scale, 3, Default	ESC!b3Y
Z17Y4	PDF417: Set Y Scale, 4	ESC!b4Y
Z17Y5	PDF417: Set Y Scale, 5	ESC!b5Y
Z17Y6	PDF417: Set Y Scale, 6	ESC!b6Y
Z17Y7	PDF417: Set Y Scale, 7	ESC!b7Y
Z17Y8	PDF417: Set Y Scale, 8	ESC!b8Y
Z17Y9	PDF417: Set Y Scale, 9	ESC!b9Y
Z17Y0	PDF417: Set Y Scale, 10	ESC!b10Y

Setting Auto Incrementing Fields

NOTE: The Set Auto Incrementing Fields command allowable range = 0 to 999.

ZI000	Disables incrementing fields = 0, Default	ESC!b0I
ZI001	Enables incrementing fields = 1	ESC!b1I
ZI002	Enables incrementing fields = 2	ESC!b2I
through		
ZI999	Enables incrementing fields = 999	ESC!b999I

Setting Auto Decrementing Fields

NOTE: The Set Auto Decrementing Fields command allowable range = 0 to –999.

ZD000	Disables decrementing fields = 0, Default	ESC!b0I
ZD001	Enables decrementing fields = -1	ESC!b-1I
ZD002	Enables decrementing fields = -2	ESC!b-2I
through		
ZD999	Enables decrementing fields = - 999	ESC!b-999I

Setting Auto Increment/Decrement Enable/Disable Print Leading Zeros

ZPLZ0	Auto Inc/Dec: Enable/Disable printing lead zeroes = 0, Disable, Default	ESC!b0Z
ZPLZ1	Auto Inc/Dec: Enable/Disable printing lead zeroes = 1, Enable	ESC!b1Z

*** End of Section 11***