z/OS
Version 2.5

Font Collection

IBM

Note

Before using this information and the product it supports, read the information in "Notices" on page 135.

This edition applies to Version 2 Release 5 of z/OS® (5650-ZOS) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

This publication is an overview of the z/OS Font Collection, which is a base element of z/OS Version 2 Release 1 and later. The z/OS Font Collection includes information about basic concepts for fonts, and describes Advanced Function Presentation (AFP) outline fonts and raster fonts, WorldType fonts, and code pages. The z/OS Font Collection contains a comprehensive set of fonts that replaces the fonts from these IBM® products:

- AFP outline fonts from Infoprint Fonts for z/OS, Version 1 Release 1 (5648-E76)
- AFP raster fonts from:
  - AFP Font Collection, Version 2 Release 1 (5648-B33)
  - APL2® Fonts, Version 1 Release 1 (5771-ADB)
  - Data1 Fonts, Version 1 Release 1 (5771-ADA)
  - Sonoran Sans Serif Font, Version 1 Release 1 (5771-ABB)
  - Sonoran Sans Serif Condensed Font, Version 1 Release 1 (5771-AFL)
  - Sonoran Sans Serif Expanded Font, Version 1 Release 1 (5771-AFN)
  - Sonoran Sans Serif Headliner Font, Version 1 Release 1 (5771-ADX)
  - Sonoran Serif Font, Version 1 Release 1 (5771-ABA)
  - Sonoran Serif Headliner Font, Version 1 Release 1 (5771-ADW)
- WorldType fonts (TrueType and OpenType fonts) from Infoprint Fonts for Multiplatforms, Version 1 Release 1 (5648-E77)

The z/OS Font Collection also includes:

- A complete set of IBM expanded core fonts
- A set of legacy Math, PI, and Sonoran 240-pel raster fonts
- Compatibility fonts, which are also a feature of Print Services Facility (PSF) for z/OS (5655-M32) in Version 4 Release 5 and earlier

Who needs to read this publication

This publication is intended for users of z/OS who need to understand font concepts and the different types of fonts in the z/OS Font Collection.

How this publication is organized

These chapters help you obtain the information that you need about the z/OS Font Collection:

- Chapter 1, "Introduction," on page 1 summarizes the contents of the collection and lists highlights about it.
- Chapter 2, "Font concepts," on page 3 introduces and illustrates the basic concepts used with fonts.
- Chapter 3, "AFP Fonts," on page 9 describes AFP font structure, naming conventions, and character set format.
- Chapter 4, "AFP outline fonts," on page 17 describes the outline fonts: General Library fonts and Chinese, Japanese, and Korean (CJK) fonts.
- Chapter 5, "AFP raster fonts," on page 45 describes the raster fonts: single-byte character set (SBCS) fonts; double-byte character set (DBCS) fonts; Math, PI, and Sonoran fonts; and Compatibility fonts.
- Chapter 6, "Code pages and extended code pages," on page 103 describes the code pages and extended code pages.
- Chapter 7, "WorldType fonts," on page 117 describes the WorldType fonts.

This publication also includes an accessibility appendix, notices, and index.

Related information

For more information about character sets, code pages, coded fonts, and TrueType and OpenType fonts, see these publications:

- *IBM AFP Fonts: Technical Reference for Code Pages*, which provides in-depth expanded core font information that includes character set attributes, tables that show all AFP characters, and the language complements that contain them.
- *IBM Infoprint Fonts: Japanese Font Library Technical Reference*, S544-5849, which provides technical details for the Japanese character sets and code pages.
- *IBM Infoprint Fonts: Korean Font Library Technical Reference*, S544-5850, which provides technical details for the Korean character sets and code pages.
- *IBM Infoprint Fonts: Simplified Chinese Font Library Technical Reference*, S544-5851, which provides technical details for the Simplified Chinese character sets and code pages.
- *IBM Infoprint Fonts: Traditional Chinese Font Library Technical Reference*, S544-5852, which provides technical details for the Traditional Chinese character sets and code pages.
- *Using OpenType Fonts in an AFP System*, G544-5876, which explains how to install and reference TrueType and OpenType fonts in Microsoft Unicode format on systems that use AFP architecture to print or display data.
- *Font Object Content Architecture Reference*, which contains the architecture definition and describes the functions and elements that make up the Font Object Content Architecture (FOCA). See AFP Consortium Publications (afpcinc.org/publications) for this reference.

For information about all z/OS product publications, see *z/OS Information Roadmap*. For more information about z/OS, see the z/OS home page (www.ibm.com/systems/z/os/zos).

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>
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Summary of changes

This information includes terminology, maintenance, and editorial changes.

z/OS Version 2 Release 5 (V2R5)

Changed

- "Highlights for AFP fonts" on page 9 has been updated with the section number and character name for the Japanese Reiwa Imperial character in DBCS code page T10300E8 and some DBCS character sets.
- "Formats of AFP character sets" on page 14 is updated to specify that z/OS Font Collection includes 240-pel raster fonts in both bounded-box and unbounded-box format.

Deleted

- References to PSF Version 4 Release 5 are removed because this release is no longer in service.
- An obsolete link for downloading extended code pages is removed from:
  - "Where to find fonts" on page 1
  - Chapter 6, "Code pages and extended code pages," on page 103

z/OS Version 2 Release 4 (V2R4)

The following content is new, changed, or no longer included in z/OS Version 2 Release 4.

New

- Names of older font libraries are added to "Where to find fonts" on page 1 so that users can find the corresponding current libraries.
- "Highlights for AFP fonts" on page 9 is new.
- Information about 300-pel Sonoran fonts is added to "APL2, DATA1, Math, PI, and Sonoran fonts" on page 73.
- "Highlights for WorldType fonts" on page 118 is updated for Versions 8.22 and 8.30 of the WorldType fonts.
- The Japanese Reiwa Imperial Era character (U+32FF) is new. For more information, see "Highlights for AFP fonts" on page 9 and "Updates from Version 8.22 to Version 8.30" on page 120 in "Highlights for WorldType fonts" on page 118.
- These extended xB fonts are added to the z/OS Font Collection to enhance the range of graphic capabilities for Chinese fonts:
  - WT Serif SC xB
  - WT SerifDuo SC xB
  - WT Sans TW xB
  - WT SansDuo TW xB
  - WT Serif TW xB
  - WT SerifDuo TW xB

  For more information, see "Summary tables for WorldType fonts" on page 121.

z/OS Version 2 Release 3 (V2R3)

The following content is new, changed, or no longer included in z/OS Version 2 Release 3.

New

- "APL2, DATA1, Math, PI, and Sonoran fonts" on page 73 is updated with these fonts:
  - APL2
  - DATA1
  - Sonoran Sans Serif
  - Sonoran Sans Serif Condensed
  - Sonoran Sans Serif Expanded
  - Sonoran Sans Serif Headliner
  - Sonoran Serif
  - Sonoran Serif Headliner
- "Highlights for WorldType fonts" on page 118 is updated for Version 8.2 of the WorldType fonts.

Changed

- "About this publication" on page ix is updated.
- Compatibility fonts are only a feature of Print Services Facility (PSF) for z/OS (5655-M32) in Version 4 Release 5 and earlier. See Chapter 5, "AFP raster fonts," on page 45.

Chapter 1. Introduction

The z/OS Font Collection is a base element of z/OS that consists of character sets, coded fonts, and Advanced Function Presentation (AFP) code pages. You can use the z/OS Font Collection to print standard documents by using familiar typefaces such as Helvetica, Times New Roman, and Courier. You can use the code pages to print in more than 50 languages.

The z/OS Font Collection provides WorldType fonts, which are TrueType and OpenType fonts that deliver the greatest flexibility for designing documents with exactly the appearance you want. It also supplies AFP outline fonts for high resolution printers. To support documents formatted for older devices, it also includes AFP raster fonts

Highlights

The z/OS Font Collection includes fonts that:

- Control the appearance of business communications.
- Enhance the readability of business documents to increase impact and accessibility.
- Draw attention to specific items, create emphasis, and improve readers' responsiveness to business communications.
- Apply industry-standard TrueType and OpenType font technology to support Unicode data for globalization of applications with a single font.
- Improve print quality on high-resolution printers by using AFP outline fonts or TrueType and OpenType fonts instead of raster fonts.

Fonts included in the collection

The z/OS Font Collection includes:

- AFP outline fonts (see Chapter 4, "AFP outline fonts," on page 17)
- AFP raster fonts, including a complete set of IBM expanded core fonts, a set of Math, PI, and Sonoran 240-pel raster fonts, and compatibility fonts (see Chapter 5, "AFP raster fonts," on page 45)
- TrueType and OpenType fonts (see Chapter 7, "WorldType fonts," on page 117), including a prebuilt resource access table (RAT) that can be used for AFP printing

Where to find fonts

Table 1 on page 1 shows the current location of the AFP outline and raster fonts and the corresponding older font libraries:

Table 1. Current and previous font libraries		
Fonts	**Current library**	**Previous library**
AFP outline fonts	SYS1.SFNTILIB	SYS1.FONTOLN
240-pel bounded box AFP raster fonts	SYS1.FONTLIBB	SYS1.FONT3820
240-pel unbounded box AFP raster fonts	SYS1.FONTLIB	SYS1.FONT38PP
240-pel Chinese, Japanese, and Korean (CJK) double-byte character set (DBCS) raster fonts	SYS1.SFONDLIB	Depends on font type, with an additional qualifier of CJK, SCHINESE, SFNTSMPL (Simplified Chinese), or TCHINESE
300-pel AFP raster fonts	SYS1.FONT300	SYS1.FONT4028

The latest version of WorldType fonts and symbolic links are found as UNIX files (Hierarchical File System (HFS) or z/OS File System (zFS) files) in this location: `/usr/lpp/fonts/worldtype`

IBM provides extended code pages as .zip files.

Chapter 2. Font concepts

A font is a collection of graphic characters that share the same type family, style, and weight. You can use a font for an entire data set or file, for an entire page, or for selected lines or fields of data on a page. Page printers can print fonts with various point sizes, styles, weights, and widths on a single line or on various lines on a page. Multiple fonts can be printed on a page. Before each page is printed, the fonts that are required for the page are downloaded to the printer if the printer does not already have them in its storage. The printer storage that is required for a font depends on the point size (for raster fonts), number of characters in the font, and whether the font is double-byte or single-byte.

To understand fonts, you need to be familiar with basic font concepts, including font terminology, how font characters are represented, the characteristics of font spacing, and point and pitch sizes.

Font terminology

Fonts are defined with this font terminology:

Type family
A *type family* is a group of typefaces that share basic design characteristics and encompass many size and style variations. Examples of type families include:

- Courier
- Helvetica
- Times New Roman

Typeface
A *typeface* is a collection of characters that have the same style, weight, and width. Examples of these attributes are shown in Figure 1 on page 3.

- *Style* is the inclination of a letter around a vertical axis; for example, roman (upright) or *italic* (slanted).
- *Weight* is the degree of boldness of a typeface; for example, medium or **bold**.
- *Width* is the horizontal variation in a character design; for example, normal or condensed.

Type font, type size, and complement
A *type font,* or font, is a collection of characters that share the same type family, typeface, and type size. Collections of characters for expanded core fonts are referred to as *complements*.

Note: In Type Transformer, complements are called *character lists*.

Figure 1 on page 3 shows the basic components of the Helvetica type family, including typeface (style, weight, width), complement, type font, and type size.
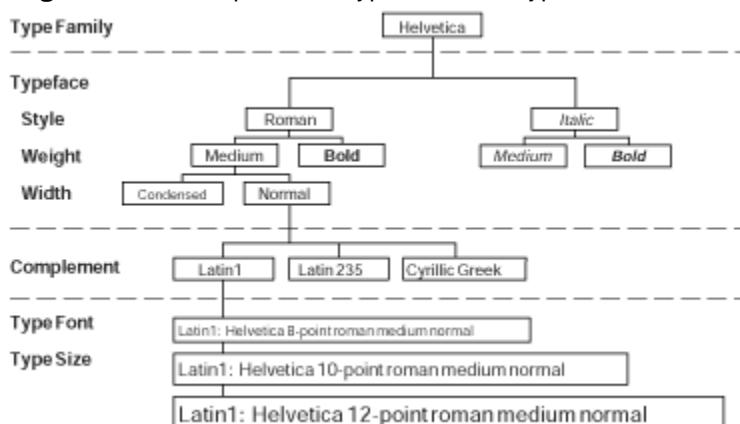
Figure 1. Helvetica type family

Representation of characters

An important concept to understand is how fonts are represented. Outline fonts are described by mathematical formulas. Raster fonts are described by patterns of dots. AFP Licensed programs can print with both.

Raster fonts

A raster font is created by a sequence of dots, called *picture elements* (pels), that form a character that is called a *raster pattern*. The number of dots per inch that a printer generates is called the *print resolution*, or density. A resolution of 240 pels means that a printer prints 240 pels per inch both vertically and horizontally, or 57,600 pels per square inch (240 × 240).

Figure 2 on page 4 shows two images of different print resolutions. The image with many small dots has more pels per inch and greater print resolution than the image with fewer large dots.

Figure 2. Print resolution examples

The ability to print at a specific pel density is determined by the type of printer. Because raster fonts can have 240-pel or 300-pel formats, different fonts are available for printers with different resolutions (for example, 240-pel and 300-pel printers).

Outline fonts

Characters in outline fonts are described by mathematical formulas rather than by pels. These formulas are used by rasterizing software to create bitmap characters that are based on two variables: resolution and point size. This means that a single outline font can offer many print resolutions and point sizes. "Hints" are also contained in the outline fonts to make sure that typographic characteristics of the typeface are maintained in a consistent manner throughout all printed characters. Some of these characteristics include horizontal and vertical stroke widths, serifs, and curve radii.

TrueType and OpenType fonts are outline fonts that consist of tables for identifying the formatting information that is used to support Unicode encoding.

Rotation of characters

The ability to print in different directions and with different character rotations is also determined by the type of printer. *Print direction* shows the direction in which characters are added to a line of text. *Character rotation* is the clockwise rotation of a character in regards to the character baseline. The *character baseline* is a reference on which characters are aligned as they are added to the page in the print direction. The character baseline is always parallel to the print direction.

Figure 3 on page 5 shows a table of how print direction and character rotation can be combined to print in many orientations.

Print Direction	Character Rotation (in degrees)			
	0	90	180	270
Across (0)	ABCD	(rotated)	DCBA	(rotated)
Down (90)	(rotated)	(rotated)	(rotated)	A B C D
Back (180)	(rotated)	(rotated)	DCBA	(rotated)
Up (270)	(rotated)	D C B A	(rotated)	(rotated)

Figure 3. Print direction and character rotation combinations for print orientations

Font spacing characteristics

Fonts can be classified according to their spacing characteristics and by their format.

Uniformly spaced fonts
Uniformly spaced fonts, or monospaced fonts, are similar to typewriter fonts, for which each character increment [1] is the same width. Thus, the lowercase *i* and the . occupy as much space as the uppercase *M*. Examples of uniformly spaced fonts include Courier and Letter Gothic:

```
i.M.i.M.i.M.i.M.i.M.i.M.i.M.
```

Duospace fonts
Duospace fonts are similar to uniformly spaced fonts. Duospace fonts can be two character widths instead of a single character width. Ideographic characters are designed on full-width increments while other characters can be designed for half-width increments. This concept allows the half-width and full-width characters in the box size examples in Figure 8 on page 7 to be implemented in a single font.

Note: As more language support is implemented in duospace fonts, more character widths can be used. However, the characters widths are always a multiple of the half-width character increment. This function allows a monospaced appearance of the data by using this font spacing.

Typographic fonts
Typographic fonts are proportionally spaced fonts. The character increment is part of the design and varies on a character-by-character basis. Thus, the lowercase *i* and the . occupy narrow spaces. The uppercase *M* occupies a wide space. Examples of typographic fonts include Helvetica and Times New Roman:

i.M.i.M.i.M.i.M.i.M.i.M.i.M.

Pitch
Uniformly spaced fonts are often described or referred to in *pitch*, or the number of characters that are printed in one horizontal inch (Figure 4 on page 5). Pitch is also referred to as characters per inch (cpi).

```
10-Pitch Type Width
```
```
|— 10-pitch —|
   1.0 inch
```
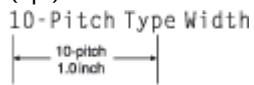
Figure 4. Type size in pitch

Points
All fonts are measured in *points*, the vertical size of the font. One inch is equal to approximately 72 points. Point size is a baseline-to-baseline measurement, which includes minimal white space. The

---

[1] A character increment is the distance that the current print position is increased for the particular character printed.

baseline is the line upon which the characters rest. Thus, the actual height of the characters in an 18-point font is less than 18 points (Figure 5 on page 6). The line spacing usually includes one or more points of white space between lines of type.

Type Height
18 point | **Type Height**
0.25 inch |

Figure 5. Type size in points

Box size

Double byte character set (DBCS) raster fonts were formerly measured in *box size*, the number of pels in the character box. Box size can be either a horizontal or a vertical measurement. Usually both dimensions are given, with the box width first. If only one dimension is given, it is the box height. In full-width fonts, the box width is usually equal to the box height. In half-width fonts, the box width is one-half the box height.

Point and pitch sizes

Uniformly spaced single-byte character set (SBCS) fonts are measured horizontally in pitch and specified as points in the coded font or character set name. Proportionally spaced and mixed-pitch fonts are measured vertically in points. Although the DBCS fonts are uniformly spaced, they are measured vertically in points.

This information shows examples of various point and pitch sizes.

Point examples

Point size is a vertical measurement.

This is 6 points.
This is 7 points.
This is 8 points.
This is 9 points.
This is 10 points.
This is 11 points.
This is 12 points.
This is 14 points.
This is 16 points.
This is 18 points.
This is 20 points.
This is 24 points.
This is 30 points.
This is 36 points.

6 7 8 9 10 11 12 14 16 18 20 24 30 36

Figure 6. Point size examples

Pitch examples

Pitch size is a horizontal measurement.

```
1234567890
This is 10 pitch or 10 characters per inch.

123456789012
This is 12 pitch or 12 characters per inch.

1234567890123
This is 13.3 pitch or 13.3 characters per inch.

123456789012345
This is 15 pitch or 15 characters per inch.

123456789012345678
This is 18 pitch or 18 characters per inch.

12345678901234567890
This is 20 pitch or 20 characters per inch.

123456789012345678901234567
This is 27 pitch or 27 characters per inch.
```

Figure 7. Pitch size examples

Box size examples

Box size is a 240-pel measurement.

Full-Width　ａｂｃｄｅアィウォッ１２３４５ＡＢＣＤＥＺアイウオツ
Half-Width　abcdeアィウォッ12345ABCDEZアイウオシ
```
Box height of 48 or Point size of 14.4
```

Full-Width　ａｂｃｄｅアィウォッ１２３４５ＡＢＣＤＥＺアイウオツ
Half-Width　abcdeアィウォッ12345ABCDEZアイウオシ
```
Box height of 40 or Point size of 12.0
```

Full-Width　ａｂｃｄｅアィウォッ１２３４５ＡＢＣＤＥＺアイウオツ
Half-Width　abcdeアィウォッ12345ABCDEZアイウオシ
```
Box height of 32 or Point size of 9.6
```

Full-Width　　ａｂｃｄｅアィウォッ１２３４５ＡＢＣＤＥＺアイウオツ
Half-Width　abcdeアィウォッ12345ABCDEZアイウオシ
```
Box height of 24 or Point size of 7.2
```

Figure 8. Box size examples

Chapter 3. AFP Fonts

To understand fonts in the z/OS Font Collection, you must be familiar with AFP fonts. AFP fonts are Font Object Content Architecture (FOCA) raster and outline fonts, which are single-byte or double-byte, or WorldType fonts, which are TrueType and OpenType outline fonts. For more information about FOCA structures, see *Font Object Content Architecture Reference*, S544-3285. For more information about TrueType and OpenType fonts, see *Using OpenType Fonts in an AFP System*, G544-5876.

This information describes AFP font structures, AFP font naming conventions, and formats of AFP character sets.

Highlights for AFP fonts

This information describes the highlights for the latest version of the AFP fonts that are contained in the z/OS Font Collection.

- The Japanese Reiwa Imperial Era character (U+32FF) has been added based on an update to Japanese Imperial Standard (JIS) X0213.
- The Japanese Reiwa Imperial Era character has been added to these AFP fonts:
  - Japanese Heisei Kaku Gothic
  - Japanese Heisei Maru Gothic
  - Japanese Heisei Mincho

  The outline fonts now use GCSGID 2098. The raster fonts continue to use GCSGID 2057.
- The Japanese Reiwa Imperial Era character has been added at code point X'E860' for these DBCS code pages and character sets:
  - T1I300
  - T1J300
  - T1K300
  - T10300
  - CZJHKG
  - CZJHMG
  - CZJHMN
- The Japanese Reiwa Imperial Era character has been added to Section E8 at code point X'E860' for DBCS code page T10300E8 and these DBCS character sets:
  - C0EF*pbss*
  - C0KF*pbss*
  - C0PF*pbss*

  The new character name is IXA0E860.
- GCSGID 2098 (Extended Japanese DBCS-Host for JIS X0213) is new. It includes the Japanese Reiwa Imperial Era character.

AFP font structure

The font structure of FOCA outline and raster fonts is made up of these font components (see Figure 9 on page 10):

Coded font
 A coded font consists of a character set and a code page.

Character set
    A character set specifies characters, character properties, and printing attributes.

Code page
    A code page defines character IDs and code points.
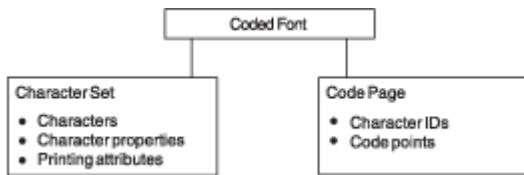
Figure 9. Font components

WorldType outline fonts are organized by subsets and grouped by character blocks as defined by Microsoft Unicode format. Instead of using a character set, WorldType fonts map a code page to a Unicode point or use an extended code page that contains the Unicode point.

Coded font

In FOCA font structure, a *coded font* pairs a specific code page with a specific character set and translates your request for type (for example, text you previously entered at a computer terminal) into characters for printing. A character must be included in the specified character set and listed on the specified code page before it can be printed.

Character set

In FOCA font structure, a *character set* corresponds to the definition of a font; it contains the characters of a single type family, typeface, and type size. In addition, a character set specifies character properties and printing attributes.

Note: WorldType outline fonts are not defined with character sets.

The character set components are:

Characters
    Characters are letters, numerals, punctuation marks, or other symbols of a font.

Character properties

    Character properties detail how a character is positioned relative to the characters around it. Some character properties include:

- The baseline of a character that shows its general alignment
- The dimensions of space in which the character is printed
- The position of the character in that space
- The identifier of the character

Printing attributes
    The printing attributes define how the character set is printed. Some printing attributes include rotation of characters, maximum ascender, and point size.

One of the character properties is the *character ID* (or graphic character ID). Each character is assigned a character ID; for example, the character "A" is assigned the character ID LA020000. The purpose of a character ID is to distinguish the character from similar characters. For example, these characters look similar, but are assigned different character IDs:

Minus sign (-)
    Character ID SA000000

Hyphen (-)
    Character ID SP100000

Em dash (—)
    Character ID SM900000

For a list of character IDs, the character the ID represents, and the code pages where the characters are found, see the *IBM AFP Fonts: Technical Reference for Code Pages*, S544-5802.

Code page

A *code page* maps each character of text to the characters in a character set for FOCA fonts or the characters that are associated to a Unicode point for WorldType fonts. Two types of code pages exist:

- A *traditional code page* contains the mapping information between a code point and a character ID; it can be used with FOCA character sets and TrueType and OpenType fonts.
- An *extended code page* contains the mapping information for a code point, a character ID, and a Unicode point; it can be used with TrueType and OpenType fonts.

A *character ID* is an 8-byte character data string. A *code point* is an 8-bit binary number that represents a character. Code points are usually shown as hexadecimal representations of their binary values.

Table 2. Code point representations	
Numeral system	**Value**
Binary	11000001
Decimal	193
Hexadecimal	C1

When a code page is used with a FOCA character set, as you enter your text at a computer terminal, each keyboard character is translated into a code point. When the text is printed, each code point is matched to a character ID on the code page you specified. The character ID is then matched to the image (*raster pattern* or *outline pattern*) of the character in the character set you specified. The image in the character set is the image that is printed in your text. To be a valid code page for a particular character set, all character IDs in the code page must be included in that character set (Figure 10 on page 11).
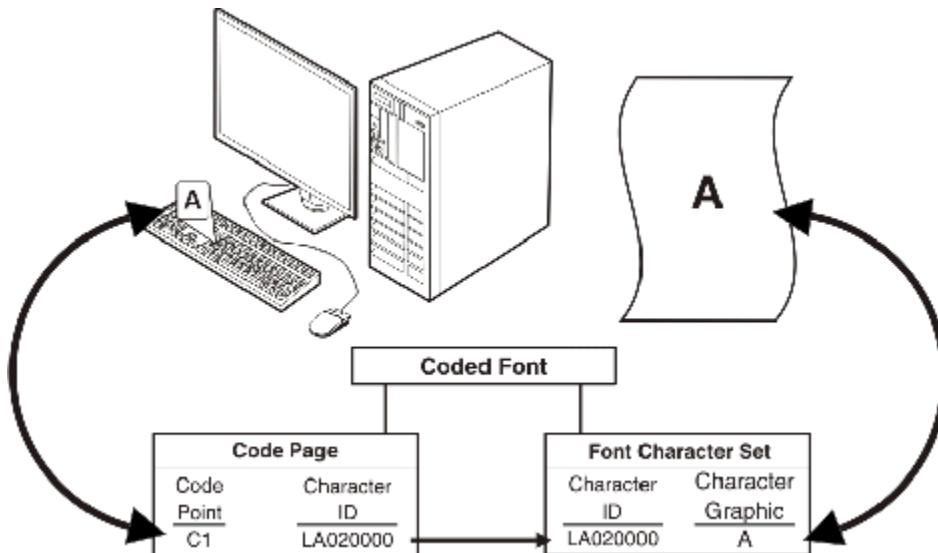
Figure 10. Translation of a keyboard character into a printed character with a code page and FOCA character set

When a code page is used with a TrueType and OpenType font, each code point is matched to the character ID on the code page you specified. The character ID is matched to a Unicode point on the graphic character global identifier to Unicode mapping (GUM) table on your printer. The Unicode point is then matched to the image of the TrueType and OpenType font you specified (Figure 11 on page 12).
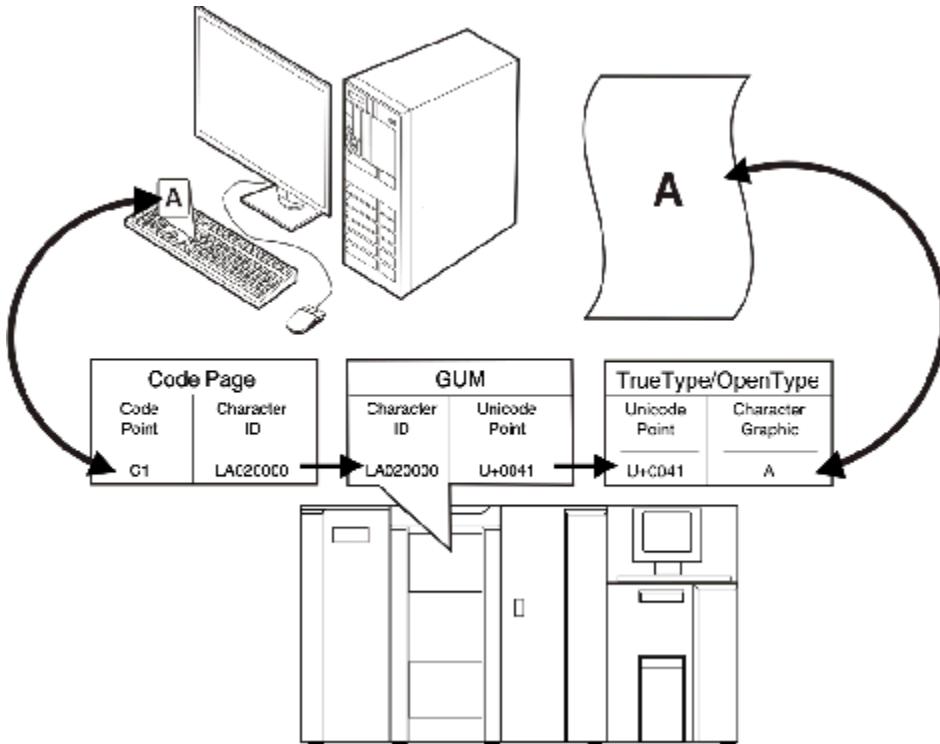
Figure 11. Translation of a keyboard character into a printed character by using a code page and a TrueType and OpenType font

When an extended code page is used with a TrueType and Open Type font, each code point is matched to a Unicode point on the extended code page you specified without referring to the GUM on your printer. The Unicode point is then matched to the image of the TrueType and OpenType font you specified (see Figure 12 on page 12).
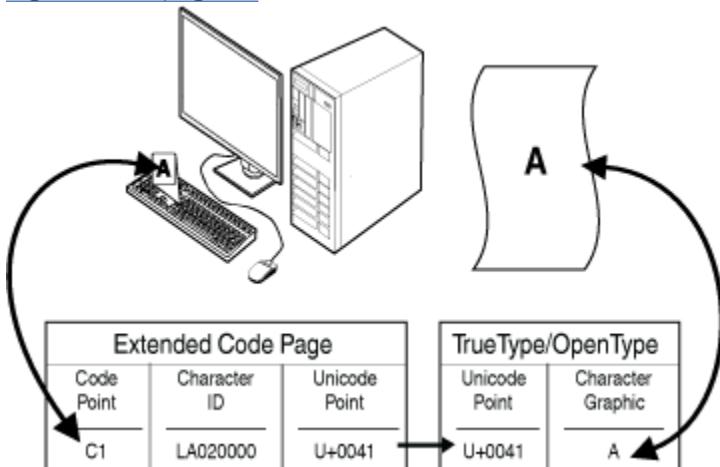
Figure 12. Translation of a keyboard character into a printed character by using an extended code page and a TrueType and OpenType font

Figure 13 on page 13 shows an example of a code page. In the example, when the printer receives hexadecimal code point C1 for code page T1V10037, it prints an uppercase A (character ID LA020000).

Figure 13. Code page T1V10037

Code pages for different languages

Code pages accommodate various national languages by using characters and special symbols appropriate to the language. Different code pages can have identical character IDs assigned to different code points. For example, the character é (lowercase e accent acute, character ID LE110000) has these code point assignments in two different code pages:

- Hexadecimal code point 51 in code page T1V10037 (Country Extended: United States, Canada)
- Hexadecimal code point 5A in code page T1V10280 (Country Extended: Italy)

Single-byte and double-byte code pages

A *single-byte code page* contains 256 or fewer 1-byte code points. Single-byte code pages are large enough for languages with alphabetic writing systems, such as English, Greek, and Arabic. A single-byte character set (SBCS) is used with a single-byte code page.

A *double-byte code page* can contain as many as 65,536 two-byte code points. Languages with non-alphabetic writing systems, such as Chinese, Japanese, and Korean, require double-byte code pages. A double-byte character set (DBCS) is used with a double-byte code page.

DBCSs contain some single-byte characters, usually romaji (Western characters) and katakana. Single-byte code pages are used with these characters. Because the characters are either half width (see "Font spacing characteristics" on page 5) or proportionally spaced, these code pages are sometimes called *half-width* code pages.

Code page sections

If you think of a double-byte code page as a collection of single-byte code pages, a double-byte character code has two parts: the first byte indicating a section of the code page and the second byte a code point in the section.

Raster coded fonts treat double-byte code pages this way: the coded font is divided into sections, each with its own single-byte code page. Each character in the section has a single-byte code point.

Outline coded fonts treat double-byte code pages as single, large code pages. Each character has a double-byte code point.

AFP font naming conventions

Font naming conventions identify a specific font and its characteristics. Each type of font has its own naming convention:

- WorldType fonts follow the naming convention in "Naming conventions for WorldType fonts" on page 118.
- FOCA outline and raster fonts follow this convention for the names of each font component:

  The first character in the name defines the font component:

  C
  > Character set

  T
  > Code page

  X
  > Coded font

  After the first character, the remainder of the name depends on the type of component:

  - If the component is a code page, see "Naming conventions for code pages" on page 103.
  - If the component is a character set or coded font, the remainder of the name is based on the conventions for these font libraries:

    - General Library fonts (see "Naming convention for General Library fonts" on page 17)
    - Chinese, Japanese, and Korean (CJK) fonts (see "Naming conventions for CJK fonts" on page 26.)
    - CJK simulation fonts (see "Naming conventions for CJK simulation fonts" on page 36)
    - AFP raster fonts (see Chapter 5, "AFP raster fonts," on page 45)

Character set and coded font names are usually distinctive and can be used to determine whether a font is a General Library font, a CJK font, or a raster font. For example, character sets and coded fonts are only six characters for outline fonts rather than eight characters for raster fonts. Code page names are usually not distinctive enough to determine for which font group the code page is supplied.

Formats of AFP character sets

The z/OS Font Collection supplies character sets in these formats:

240-pel raster
> 240-pel raster fonts are used on 240-pel printers. The resolution of these fonts is 240 dots per inch. All character positioning metrics in these fonts are expressed in whole-pel (fixed-metric) values.
>
> 240-pel raster fonts can be in either *bounded-box* or *unbounded-box* format. Bounded box 240 pel fonts are in FONTLIBB. The older unbounded box fonts are in FONTLIB. For the unbounded box fonts, there is a separate library member for each orientation of the typeface.

300-pel raster
> 300-pel raster fonts are used on printers where the resolution is 300 dots per inch. The character positioning values are expressed in *relative metrics* and the exact pel count is determined at print time.

Type 1 outline
> Type 1 outline is the format that is used with Type Transformer for General Library fonts. This format includes outlines of the various type families, which can be transformed for use by AFP printers in sizes of 1–999 points (AFP outline fonts) or 1–72 points (raster fonts).

CID-Keyed outline

CID-Keyed outline is the format that is used with Type Transformer for CJK fonts. This format includes outlines of the various type families, which can be transformed for use by AFP printers in sizes of 1–999.9 points (AFP outline fonts) or 1–72 points (raster fonts).

AFP outline

AFP outline is the format by which Print Services Facility (PSF) and other AFP applications can identify Type 1 outline fonts. The Type 1 outlines are encapsulated in FOCA wrappers that allow them to be accessed as AFP resources. AFP outline uses *relative metrics* in the same way as 300-pel fonts.

Fixed metrics

Fixed-metric fonts have all character positioning metrics that are expressed in whole-pel values. All 240-pel fonts are fixed-metric fonts. For example, the character increment of the *A* in 240-pel Helvetica Latin1 roman medium 10-point is 22 pels. When 240-pel fonts are created, any fractional pels that are found are eliminated by rounding up or down to whole-pel values.

Relative metrics

Relative metrics were developed for scalable outline fonts where a single metric value can be used to determine a pel value with a desired resolution and point size. Relative metrics are based on 1000 units per "em space," which means the fonts are designed for a hypothetical 1000 dpi, 72-point font where each side of the bounding box is 1000 pels. All AFP outlines and 300-pel fonts contain relative metrics. The exact pel values are determined when the font is used, such as during document formatting or printing. For example, the character increment for *A* in 300-pel Helvetica Latin1 roman medium is 667 relative units. In the hypothetical 1000 dpi, 72-point font, the *A* would have a character increment of 667 pels, but at 10 points and 300-dpi resolution, the character increment of the *A* is 27.8 pels. The fractional pel (.8 in this case) is accumulated by the printer and a whole white pel is inserted when the accumulator = 1. Constantly adjusting the character increments in this way makes sure that the output text is as close to the original outline specification as possible.

Chapter 4. AFP outline fonts

The AFP outline fonts that are included with the z/OS Font Collection are:

- General Library fonts
- Chinese, Japanese, and Korean (CJK) fonts
- CJK simulation fonts

General Library fonts

General Library fonts contain various typefaces and font sizes (including typographic and uniformly spaced typeface families) suitable for printing various documents. General Library fonts combine the IBM Core Interchange Fonts, IBM Coordinated Fonts, and IBM BookMaster® Fonts. All General Library fonts are derived from Adobe Type 1 font technology and are provided in the AFP outline format that is supported by AFP software for SBCS fonts.

shows the formats for General Library fonts that are provided in the z/OS Font Collection.

Table 3. Format and operating systems for General Library fonts	
Format	**Operating systems**
AFP outline fonts	z/OS, IBM i, Linux®, AIX®, Windows
Type 1	AIX, Windows

lists General Library fonts by font type and language group.

Naming convention for General Library fonts

The naming convention format for General Library fonts is *aZrstc*, where:

a
    Component:

    C
        Character set

    X
        Coded font

Z
    AFP outline

r
    Type family:

    4
        Courier

    5
        Letter Gothic

    6
        Gothic Text

    7
        Prestige

    8
        Boldface

9

OCR

B

BookMaster

H

Helvetica

I

IBM Logo

N

Times New Roman

s

Typeface:

2

Roman medium

3

Italic medium

4

Roman bold

5

Italic bold

6

Roman medium reverse

B

IBM Logo

t

Code page category:

0

Character set

1

Latin1 country extended code pages

2

Latin1 and Latin9 publishing code pages

3

Latin1 and Latin9 ASCII code pages

4

Latin1 DCF code pages

5

Latin2345 EBCDIC and ASCII code pages

6

International non-Latin code pages

7

Special purpose EBCDIC and ASCII code pages

8

International non-Latin ASCII code pages

M

IBM Logo

c

Complement:

0
    Latin1

1
    Symbols

2
    Latin235

3
    Cyrillic Greek

4
    Arabic

5
    Hebrew

6
    Thai

7
    Latin4

8
    Katakana

9
    Lao

A
    OCR A

B
    OCR B

C
    BookMaster Special

D
    Baltic

L
    Latin

P
    APL2

Summary table for the General Library fonts

This information lists General Library fonts by font type and language group. These language groups identify supported languages for General Library fonts:

- The Arabic language group (International Organization for Standardization (ISO) 8859-6) includes Latin and Arabic scripts.
- The Cyrillic language group (ISO 8859-5) includes Bulgarian, Byelorussian, English, Macedonian, Russian, Serbo-Croatian, and Ukrainian.
- The Greek language group (ISO 8859-7) includes Latin and Greek scripts.
- The Hebrew language group (ISO 8859-8) includes Latin and Hebrew scripts.
- Katakana contains phonetic syllabic characters that are used for writing non-Japanese words, such as foreign names, borrowed words, or company names.
- The Lao language group provides support for the Lao language.
- The Latin language group includes Latin1 through Latin5 and Vietnamese.
- The Latin1 language group (ISO 8859-1) includes Danish, Dutch, English, Faroese, Finnish, French, German, Icelandic, Irish, Italian, Norwegian, Portuguese, Spanish, and Swedish. The Latin1 language group also provides the euro currency symbol and all Latin9 (ISO 8859-15) characters.

- The Latin2 language group (ISO 8859-2) includes Albanian, Czech, English, German, Hungarian, Polish, Romanian, Serbo-Croatian, Slovak, and Slovenian.
- The Latin3 language group (ISO 8859-3) includes Afrikaans, Catalan, Dutch, English, Esperanto, French, German, Italian, Maltese, Spanish, and Turkish.
- The Latin4 language group (ISO 8859-4) includes Danish, English, Finnish, French, German, Greenlandic, Lap, Latvian, Lithuanian, Estonian, and Norwegian.
- The Latin5 language group (ISO 8859-9) includes Danish, Dutch, English, Finnish, French, Irish, Italian, Norwegian, Portuguese, Spanish, Swedish, and Turkish.
- The Thai language group provides support for the Thai language.

provides this information for General Library fonts:

AFP typeface name
> The IBM name for the typeface. Courier, Helvetica, and Times New Roman fonts contain characters for the ISO language groups.

Type 1 typeface name
> The Type 1 outline font name for the typeface.

Style and weight
> The style and weight of the font. Possible values are:

> **IB**
>> Italic Bold

> **IM**
>> Italic Medium

> **RB**
>> Roman Bold

> **RM**
>> Roman Medium

Character set identifier
> A six-character name, with "CZ" as the prefix, that identifies an AFP outline character set.

Type 1 file name
> The name of a Type 1 font that is used to create the AFP outline font. The file extensions are AFM, INF, and PFB.

GCSGID
> The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID
> The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

Table 4. Summary of General Library fonts

AFP typeface name	Type 1 typeface name	Style and weight	Character set identifier	Type 1 file name	GCSGID	FGID
APL						
Courier APL2	Courier APL2	RM	CZ420P	APL	1364	307
	Courier APL2 Bold	RB	CZ440P	APLB		322
Arabic						

AFP typeface name	Type 1 typeface name	Style and weight	Character set identifier	Type 1 file name	GCSGID	FGID
Table 4. Summary of General Library fonts (continued)						
Boutros Typing Arabic	Typing	RM	CZ4204	COU_A	1506	416
	Typing Bold	RB	CZ4404	COU_AB		420
	Typing Italic	IM	CZ4304	COU_AI		424
	Typing Bold Italic	IB	CZ4504	COU_ABI		428
ITC Boutros Modern Rokaa Arabic	Rokaa	RM	CZH204	HEL_A	1506	2304
	Rokaa Bold	RB	CZH404	HEL_AB		2305
	Rokaa Italic	IM	CZH304	HEL_AI		2306
	Rokaa Bold Italic	IB	CZH504	HEL_ABI		2307
ITC Boutros Setting Arabic	Setting	RM	CZN204	TNR_A	1506	2308
	Setting Bold	RB	CZN404	TNR_AB		2309
	Setting Italic	IM	CZN304	TNR_AI		2310
	Setting Bold Italic	IB	CZN504	TNR_ABI		2311
BookMaster Specials						
BookMaster Specials	BookMaster Specials	RM	CZB20C	EDFBS	1241	335
	BookMaster Specials Bold	RB	CZB40C	EDFBSB		336
	BookMaster Specials Italic	IM	CZB30C	EDFBSI		337
	BookMaster Specials Bold Italic	IB	CZB50C	EDFBSBI		338
BookMaster Specials Reverse	BookMaster Specials Reverse	RM	CZB60C	EDFBSR	1241	339
Cyrillic						
Courier Cyrillic Greek	Courier Cyr Grk	RM	CZ4203	COU_CG	1504	416
	Courier Cyr Grk Bold	RB	CZ4403	COU_CGB		420
	Courier Cyr Grk Italic	IM	CZ4303	COU_CGI		424
	Courier Cyr Grk Bold Italic	IB	CZ4503	COU_CGBI		428
Helvetica Cyrillic Greek	Helvetica Cyr Grk	RM	CZH203	HEL_CG	1504	2304
	Helvetica Cyr Grk Bold	RB	CZH403	HEL_CGB		2305
	Helvetica Cyr Grk Italic	IM	CZH303	HEL_CGI		2306
	Helvetica Cyr Grk Bold Italic	IB	CZH503	HEL_CGBI		2307

Table 4. Summary of General Library fonts (continued)						
AFP typeface name	**Type 1 typeface name**	**Style and weight**	**Character set identifier**	**Type 1 file name**	**GCSGID**	**FGID**
Times New Roman Cyrillic Greek	Times New Roman Cyr Grk	RM	CZN203	TNR_CG	1504	2308
	Times New Roman Cyr Grk Bold	RB	CZN403	TNR_CGB		2309
	Times New Roman Cyr Grk Italic	IM	CZN303	TNR_CGI		2310
	Times New Roman Cyr Grk Bold Italic	IB	CZN503	TNR_CGBI		2311
Greek						
Courier Cyrillic Greek	Courier Cyr Grk	RM	CZ4203	COU_CG	1504	416
	Courier Cyr Grk Bold	RB	CZ4403	COU_CGB		420
	Courier Cyr Grk Italic	IM	CZ4303	COU_CGI		424
	Courier Cyr Grk Bold Italic	IB	CZ4503	COU_CGBI		428
Helvetica Cyrillic Greek	Helvetica Cyr Grk	RM	CZH203	HEL_CG	1504	2304
	Helvetica Cyr Grk Bold	RB	CZH403	HEL_CGB		2305
	Helvetica Cyr Grk Italic	IM	CZH303	HEL_CGI		2306
	Helvetica Cyr Grk Bold Italic	IB	CZH503	HEL_CGBI		2307
Times New Roman Cyrillic Greek	Times New Roman Cyr Grk	RM	CZN203	TNR_CG	1504	2308
	Times New Roman Cyr Grk Bold	RB	CZN403	TNR_CGB		2309
	Times New Roman Cyr Grk Italic	IM	CZN303	TNR_CGI		2310
	Times New Roman Cyr Grk Bold Italic	IB	CZN503	TNR_CGBI		2311
Hebrew						
Shalom Hebrew	Shalom Hebrew	RM	CZ4205	COU_H	1362	416
	Shalom Hebrew Bold	RB	CZ4405	COU_HB		420
	Shalom Hebrew Italic	IM	CZ4305	COU_HI		424
	Shalom Hebrew Bold Italic	IB	CZ4505	COU_HBI		428
Narkiss Tam Hebrew	Narkiss Tam Hebrew	RM	CZH205	HEL_H	1362	2304
	Narkiss Tam Hebrew Bold	RB	CZH405	HEL_HB		2305
	Narkiss Tam Hebrew Italic	IM	CZH305	HEL_HI		2306
	Narkiss Tam Hebrew Bold Italic	IB	CZH505	HEL_HBI		2307

Table 4. Summary of General Library fonts (continued)						
AFP typeface name	**Type 1 typeface name**	**Style and weight**	**Character set identifier**	**Type 1 file name**	**GCSGID**	**FGID**
Narkissim Hebrew	Narkissim Hebrew	RM	CZN205	TNR_H	1362	2308
	Narkissim Hebrew Bold	RB	CZN405	TNR_HB		2309
	Narkissim Hebrew Italic	IM	CZN305	TNR_HI		2310
	Narkissim Hebrew Bold Italic	IB	CZN505	TNR_HBI		2311
IBM Logo						
IBM Logo	IBM Logo	RM	CZIBM0	LOGOIBM	2040	51767
Katakana						
Gothic Katakana	Gothic Katakana	RM	CZ6208	GOT_K	1306	304
Lao						
Courier Lao	Courier Lao	RM	CZ4209	COU_L	1341	416
	Courier Lao Bold	RB	CZ4409	COU_LB		420
	Courier Lao Italic	IM	CZ4309	COU_LI		424
	Courier Lao Bold Italic	IB	CZ4509	COU_LBI		428
Pusuwan	Pusuwan	RM	CZH209	HEL_L	1341	2304
	Pusuwan Bold	RB	CZH409	HEL_LB		2305
	Pusuwan Italic	IM	CZH309	HEL_LI		2306
	Pusuwan Bold Italic	IB	CZH509	HEL_LBI		2307
Kaewfah	Kaewfah	RM	CZN209	TNR_L	1341	2308
	Kaewfah Bold	RB	CZN409	TNR_LB		2309
	Kaewfah Italic	IM	CZN309	TNR_LI		2310
	Kaewfah Bold Italic	IB	CZN509	TNR_LBI		2311
Latin						
Courier Latin	Courier	RM	CZ420L	COU	1503	416
	Courier Bold	RB	CZ440L	COUB		420
	Courier Italic	IM	CZ430L	COUI		424
	Courier Bold Italic	IB	CZ450L	COUBI		428
Helvetica Latin	Helvetica	RM	CZH20L	HEL	1503	2304
	Helvetica Bold	RB	CZH40L	HELB		2305
	Helvetica Italic	IM	CZH30L	HELI		2306
	Helvetica Bold Italic	IB	CZH50L	HELBI		2307

Table 4. Summary of General Library fonts (continued)						
AFP typeface name	Type 1 typeface name	Style and weight	Character set identifier	Type 1 file name	GCSGID	FGID
Times New Roman Latin	Times New Roman	RM	CZN20L	TNR	1503	2308
	Times New Roman Bold	RB	CZN40L	TNRB		2309
	Times New Roman Italic	IM	CZN30L	TNRI		2310
	Times New Roman Bold Italic	IB	CZN50L	TNRBI		2311
Latin1						
Boldface Latin1	Boldface	RB	CZ8400	BFC	2041	20224
BookMaster Latin1	BookMaster	RM	CZB200	EDFBL	2041	335
	BookMaster Bold	RB	CZB400	EDFBLB		336
	BookMaster Italic	IM	CZB300	EDFBLI		337
	BookMaster Bold Italic	IB	CZB500	EDFBLBI		338
BookMaster Latin1 Reverse	BookMaster Reverse	RM	CZB600	EDFBLR	2041	339
Courier Latin1	Courier	RM	CZ4200	COU	2041	416
	Courier Bold	RB	CZ4400	COUB		420
	Courier Italic	IM	CZ4300	COUI		424
	Courier Bold Italic	IB	CZ4500	COUBI		428
Gothic Text Latin1	Gothic Text	RM	CZ6200	GOT	2041	304
Helvetica Latin1	Helvetica	RM	CZH200	HEL	2041	2304
	Helvetica Bold	RB	CZH400	HELB		2305
	Helvetica Italic	IM	CZH300	HELI		2306
	Helvetica Bold Italic	IB	CZH500	HELBI		2307
Letter Gothic Latin1	Letter Gothic	RM	CZ5200	LGO	2041	400
	Letter Gothic Bold	RB	CZ5400	LGOB		404
Prestige Latin1	Prestige	RM	CZ7200	PRS	2041	432
	Prestige Bold	RB	CZ7400	PRSB		318
	Prestige Italic	IM	CZ7300	PRSI		319
Times New Roman Latin1	Times New Roman	RM	CZN200	TNR	2041	2308
	Times New Roman Bold	RB	CZN400	TNRB		2309
	Times New Roman Italic	IM	CZN300	TNRI		2310
	Times New Roman Bold Italic	IB	CZN500	TNRBI		2311
Latin2, Latin3, Latin5						

Table 4. Summary of General Library fonts (continued)						
AFP typeface name	**Type 1 typeface name**	**Style and weight**	**Character set identifier**	**Type 1 file name**	**GCSGID**	**FGID**
Courier Latin235	Courier	RM	CZ4202	COU	1261	416
	Courier Bold	RB	CZ4402	COUB		420
	Courier Italic	IM	CZ4302	COUI		424
	Courier Bold Italic	IB	CZ4502	COUBI		428
Helvetica Latin235	Helvetica	RM	CZH202	HEL	1261	2304
	Helvetica Bold	RB	CZH402	HELB		2305
	Helvetica Italic	IM	CZH302	HELI		2306
	Helvetica Bold Italic	IB	CZH502	HELBI		2307
Times New Roman Latin235	Times New Roman	RM	CZN202	TNR	1261	2308
	Times New Roman Bold	RB	CZN402	TNRB		2309
	Times New Roman Italic	IM	CZN302	TNRI		2310
	Times New Roman Bold Italic	IB	CZN502	TNRBI		2311
Latin4						
Courier Latin4	Courier	RM	CZ4207	COU	1268	416
	Courier Bold	RB	CZ4407	COUB		420
	Courier Italic	IM	CZ4307	COUI		424
	Courier Bold Italic	IB	CZ4507	COUBI		428
Helvetica Latin4	Helvetica	RM	CZH207	HEL	1268	2304
	Helvetica Bold	RB	CZH407	HELB		2305
	Helvetica Italic	IM	CZH307	HELI		2306
	Helvetica Bold Italic	IB	CZH507	HELBI		2307
Times New Roman Latin4	Times New Roman	RM	CZN207	TNR	1268	2308
	Times New Roman Bold	RB	CZN407	TNRB		2309
	Times New Roman Italic	IM	CZN307	TNRI		2310
	Times New Roman Bold Italic	IB	CZN507	TNRBI		2311
Optical Character Recognition (OCR)						
OCRA	OCR A	RM	CZ920A	OCR_A	968	305
OCRB	OCRBMT	RM	CZ920B	OCR_B	1502	306
Symbols–scientific, mathematical, and special-purpose characters						
Courier Symbols	Courier Symbols	RM	CZ4201	COU_S	1275	416
	Courier Symbols Bold	RB	CZ4401	COU_SB		420

Table 4. Summary of General Library fonts (continued)						
AFP typeface name	Type 1 typeface name	Style and weight	Character set identifier	Type 1 file name	GCSGID	FGID
Helvetica Symbols	Helvetica Symbols	RM	CZH201	HEL_S	1275	2304
	Helvetica Symbols Bold	RB	CZH401	HEL_SB		2305
Times New Roman Symbols	Times New Roman Symbols	RM	CZN201	TNR_S	1275	2308
	Times New Roman Symbols Bold	RB	CZN401	TNR_SB		2309
Thai						
Courier Thai	Courier Thai	RM	CZ4206	COU_T	1505	416
	Courier Thai Bold	RB	CZ4406	COU_TB		420
	Courier Thai Italic	IM	CZ4306	COU_TI		424
	Courier Thai Bold Italic	IB	CZ4506	COU_TBI		428
Thonburi	Thonburi	RM	CZH206	HEL_T	1505	2304
	Thonburi Bold	RB	CZH406	HEL_TB		2305
	Thonburi Italic	IM	CZH306	HEL_TI		2306
	Thonburi Bold Italic	IB	CZH506	HEL_TBI		2307
Burirum	Burirum	RM	CZN206	TNR_T	1505	2308
	Burirum Bold	RB	CZN406	TNR_TB		2309
	Burirum Italic	IM	CZN306	TNR_TI		2310
	Burirum Bold Italic	IB	CZN506	TNR_TBI		2311

CJK fonts

Chinese, Japanese, and Korean (CJK) fonts are derived from the Adobe CID-Keyed font technology and are available in AFP outline format. CJK fonts contain different typefaces that are suitable for printing various Chinese, Japanese, and Korean documents.

Naming conventions for CJK fonts

This information shows the naming conventions for CJK outline font character sets, CJK full-width fonts, and CJK half-width fonts.

CJK outline font character sets

The naming convention format for CJK outline font character sets is CZ*xxxx*, where:

CZ
  AFP outline character set prefix

xxxx
  Language and typeface:

  JHKG
    Japanese Heisei Kaku Gothic

JHMG
Japanese Heisei Maru Gothic

JHMN
Japanese Heisei Mincho

HKG2
Korean Gothic

HSM2
Korean Myengjo

SFSG
Simplified Chinese Fang Song (GB)

SHEI
Simplified Chinese Hei (GB18030)

SKAI
Simplified Chinese Kai (GB)

SSNG
Simplified Chinese Song (GB18030)

TKAI
Traditional Chinese Kai

TSNG
Traditional Chinese Sung

CJK full-width fonts

The naming convention format for CJK full-width fonts is *aZtcpb*, where:

a
  Component:

  C
    Character set

  X
    Coded font

Z
  AFP outline

tc
  Typestyle, country:

  EF
    Heisei Kaku Gothic, Japanese

  KF
    Heisei Mincho, Japanese

  PF
    Heisei Maru Gothic, Japanese

  IF
    Heisei Kaku Gothic, JIS X 0213:2004, Japanese

  OF
    Heisei Mincho, JIS X 0213:2004, Japanese

  WF
    Heisei Maru Gothic, JIS X 0213:2004, Japanese

  GH
    Gothic, Korean (Full Hangul: Korean Industrial Standard Code for information interchange (Hangul and Hanja) KSC 5700-199)

GK

Gothic, Korean (KS: Korean Industrial Standard Code for information interchange (Hangul and Hanja) KSC 5601-1989)

MH

Myengjo, Korean (Full Hangul)

MK

Myengjo, Korean (KS)

FP

Fang Song, Simplified Chinese (GB: Code of Chinese Graphic Character Set for Information Interchange GB 2312-80)

HP

Hei, Simplified Chinese (GB)

HS

Hei, Simplified Chinese (GB18030: Code of Chinese Graphic Character Set for Information Interchange GB 18030-2000)

JP

Kai, Simplified Chinese (GB)

SP

Song, Simplified Chinese (GB)

SS

Song, Simplified Chinese (GB18030)

LT

Kai, Traditional Chinese

TT

Sung, Traditional Chinese

pb

Point size or box height:

48

4.8 point size or 16 box height

60

6.0 point size or 20 box height

72

7.2 point size or 24 box height

84

8.4 point size or 28 box height

96

9.6 point size or 32 box height

08

10.8 point size or 36 box height

B0

12.0 point size or 40 box height

C8

13.8 point size or 46 box height

E6

15.6 point size or 52 box height

H0

18.0 point size or 60 box height

J4

20.4 point size or 68 box height

N0
24.0 point size or 80 box height

T0
30.0 point size or 100 box height

Z0
36.0 point size or 120 box height

CJK half-width fonts

The naming convention format for CJK half-width fonts is *a*ZH0*tepb*, where:

a
Component:

C
Character set

X
Coded font

Z
AFP outline

H0
Half-width character sets; not used for coded fonts

te
Typestyle, encoding:

Japanese

ED
Heisei Kaku Gothic, DCF

KD
Heisei Mincho, DCF

PD
Heisei Maru Gothic, DCF

EJ
Heisei Kaku Gothic, PC extended

KJ
Heisei Mincho, PC extended

PJ
Heisei Maru Gothic, PC extended

EO
Heisei Kaku Gothic, Katakana extended

KO
Heisei Mincho, Katakana extended

PO
Heisei Maru Gothic, Katakana extended

EV
Heisei Kaku Gothic, Latin extended

KV
Heisei Mincho, Latin extended

PV
Heisei Maru Gothic, Latin extended

EW
Heisei Kaku Gothic, Latin extended with box

KW
  Heisei Mincho, Latin extended with box

PW
  Heisei Maru Gothic, Latin extended with box

EY
  Heisei Kaku Gothic, Katakana extended with box

KY
  Heisei Mincho, Katakana extended with box

PY
  Heisei Maru Gothic, Katakana extended with box

Korean

GE
  Gothic, EBCDIC

ME
  Myengjo, EBCDIC

GJ
  Gothic, PC

MJ
  Myengjo, PC

GW
  Gothic, EBCDIC extended with box

MW
  Myengjo, EBCDIC extended with box

Simplified Chinese

FE
  Fang Song, EBCDIC

HE
  Hei, EBCDIC

HQ
  Hei, PC (GB18030)

JE
  Kai, EBCDIC

SE
  Song, EBCDIC

FJ
  Fang Song, PC

HJ
  Hei, PC

JJ
  Kai, PC

SJ
  Song, PC

SQ
  Song, PC (GB18030)

FW
  Fang Song, EBCDIC extended with box

HW
  Hei, EBCDIC extended with box

JW
  Kai, EBCDIC extended with box

SW
  Song, EBCDIC extended with box

Traditional Chinese

LE
  Kai, EBCDIC

TE
  Sung, EBCDIC

LJ
  Kai, PC

TJ
  Sung, PC

LQ
  Kai, PC IBM Big 5

TQ
  Sung, PC IBM Big 5

LW
  Kai, EBCDIC extended with box

TW
  Sung, EBCDIC extended with box

pb
  Point size or box height:

48
  4.8 point size or 16 box height

60
  6.0 point size or 20 box height

72
  7.2 point size or 24 box height

84
  8.4 point size or 28 box height

96
  9.6 point size or 32 box height

08
  10.8 point size or 36 box height

B0
  12.0 point size or 40 box height

C8
  13.8 point size or 46 box height

E6
  15.6 point size or 52 box height

H0
  18.0 point size or 60 box height

J4
  20.4 point size or 68 box height

N0
  24.0 point size or 80 box height

T0
  30.0 point size or 100 box height

Z0
    36.0 point size or 120 box height

Summary tables for the CJK fonts

This information lists CJK fonts for these typefaces:

- Chinese:
    - Simplified Chinese (see Table 5 on page 33):
        - Fang Song (GB)
        - Hei (GB18030)
        - Kai (GB)
        - Song (GB18030)
    - Traditional Chinese (see Table 6 on page 33):
        - Kai
        - Sung
- Japanese (see Table 7 on page 34):
    - Japanese Heisei Kaku Gothic
    - Japanese Heisei Maru Gothic
    - Japanese Heisei Mincho
- Korean (see Table 8 on page 35):
    - Korean Gothic
    - Korean Myengjo

The summary tables for CJK fonts provide this information:

AFP/CID typeface name
    The IBM name for the typeface.

CID file name
    The name of the CID-Keyed font file that is used to create the AFP outline font. The file extensions are CID and CMP.

Weight
    Possible values are: Light, Medium, Semi-Bold, and Semi-Light.

Width
    The width of the font. Possible values are:

    Full
        Full-width
    Half
        Half-width

Coded font
    A six-character name of the outline coded font, with "XZ" as the prefix, that identifies the combination of code page and character set.

Character set
    A six-character name, with "CZ" as the prefix, that identifies an AFP outline character set.

Code page
    A six-character name, with "T1" as the prefix, that identifies the code page.

GCSGID
    The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID

The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

AFP/CID typeface name	CID file name	Weight	Width	Coded font	Character set	Code page	GCSCID	FGID
Table 5. Summary of CJK fonts for Chinese (Simplified)								
Simplified Chinese - GB Fang Song								
Fang Song	IBSFSGW4	Semi-Light	Full	XZFPpb	CZSFSG	T10837	1020	54566
			Half	XZFEpb	CZSFSG	T1H00836	1174	
			Half	XZFJpb	CZSFSG	T1H01115	1240	
			Half	XZFWpb	CZSFSG	T1H01151	1366	
Simplified Chinese - GB18030 Hei								
Hei	ILSHEIW6	Semi-Bold	Full	XZHPpb	CZSHEI	T10837	1020	54565
			Full	XZHSpb	CZSHEI	T1K837	2103	
			Half	XZHEpb	CZSHEI	T1H00836	1174	
			Half	XZHJpb	CZSHEI	T1H01115	1240	
			Half	XZHQpb	CZSHEI	T1H01252	0103	
			Half	XZHWpb	CZSHEI	T1H01151	1366	
Simplified Chinese - GB Kai								
Kai	IBSKAIW5	Medium	Full	XZJPpb	CZSKAI	T10837	1020	54568
			Half	XZJEpb	CZSKAI	T1H00836	1174	
			Half	XZJJpb	CZSKAI	T1H01115	1240	
			Half	XZJWpb	CZSKAI	T1H01151	1366	
Simplified Chinese - GB18030 Song								
Song	ILSSNGW5	Medium	Full	XZSPpb	CZSSNG	T10837	1020	54567
			Full	XZSSpb	CZSSNG	T1K837	2103	
			Half	XZSEpb	CZSSNG	T1H00836	1174	
			Half	XZSJpb	CZSSNG	T1H01115	1240	
			Half	XZSQpb	CZSSNG	T1H01252	0103	
			Half	XZSWpb	CZSSNG	T1H01151	1366	

AFP/CID typeface name	CID file name	Weight	Width	Coded font	Character set	Code page	GCSCID	FGID
Table 6. Summary of CJK fonts for Chinese (Traditional)								
Traditional Chinese Kai								

Table 6. Summary of CJK fonts for Chinese (Traditional) (continued)								
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSCID**	**FGID**
Kai	IBTKAIW5	Medium	Full	XZLTpb	CZTKAI	T10835	2074	54568
			Half	XZLEpb	CZTKAI	T1H00037	1175	
			Half	XZLJpb	CZTKAI	T1H01043	1189	
			Half	XZLQpb	CZTKAI	T1H01114	1500	
			Half	XZLVpb	CZTKAI	T1H01159	1399	
			Half	XZLWpb	CZTKAI	T1H01152	1367	
Traditional Chinese Sung								
Sung	IBTSNGW3	Light	Full	XZTTpb	CZTSNG	T10835	2074	54563
			Half	XZTEpb	CZTSNG	T1H00037	1175	
			Half	XZTJpb	CZTSNG	T1H01043	1189	
			Half	XZTQpb	CZTSNG	T1H01114	1500	
			Half	XZTVpb	CZTSNG	T1H01159	1399	
			Half	XZTWpb	CZTSNG	T1H01152	1367	

Table 7. Summary of CJK fonts for Japanese								
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSCID**	**FGID**
Japanese Heisei Kaku Gothic								
Heisei Kaku Gothic	IBJHKGW5	Medium	Full	XZEFpb	CZJHKG	T10300	2098	53249
			Half	XZEDpb	CZJHKG	T1H01002	1132	
			Half	XZEJpb	CZJHKG	T1H01041	1187	
			Half	XZEOpb	CZJHKG	T1H00290	1398	
			Half	XZEVpb	CZJHKG	T1H01027	1398	
			Half	XZEWpb	CZJHKG	T1H01031	1363	
			Half	XZEYpb	CZJHKG	T1H01030	1363	
Japanese Heisei Kaku Gothic JIS X 0213:2004								
Heisei Kaku Gothic	IBJHKGW5	Medium	Full	XZIFpb	CZJHKG	T1K300	2098	53249
Japanese Heisei Maru Gothic								

Table 7. Summary of CJK fonts for Japanese (continued)								
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSCID**	**FGID**
Heisei Maru Gothic	IBJHMGW4	Semi-Light	Full	XZPFpb	CZJHMG	T10300	2098	53250
			Half	XZPDpb	CZJHMG	T1H01002	1132	
			Half	XZPJpb	CZJHMG	T1H01041	1187	
			Half	XZPOpb	CZJHMG	T1H00290	1398	
			Half	XZPVpb	CZJHMG	T1H01027	1398	
			Half	XZPWpb	CZJHMG	T1H01031	1363	
			Half	XZPYpb	CZJHMG	T1H01030	1363	
Japanese Heisei Maru Gothic JIS X 0213:2004								
Heisei Maru Gothic	IBJHMGW4	Semi-Light	Full	XZWFpb	CZJHMG	T1K300	2098	53250
Japanese Heisei Mincho								
Heisei Mincho	IBJHMNW3	Light	Full	XZKFpb	CZJHMN	T10300	2098	53248
			Half	XZKDpb	CZJHMN	T1H01002	1132	
			Half	XZKJpb	CZJHMN	T1H01041	1187	
			Half	XZKOpb	CZJHMN	T1H00290	1398	
			Half	XZKVpb	CZJHMN	T1H01027	1398	
			Half	XZKWpb	CZJHMN	T1H01031	1363	
			Half	XZKYpb	CZJHMN	T1H01030	1363	
Japanese Heisei Mincho JIS X 0213:2004								
Heisei Mincho	IBJHMNW3	Light	Full	XZOFpb	CZJHMN	T1K300	2098	53248

Table 8. Summary of CJK fonts for Korean								
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSCID**	**FGID**
Korean Gothic								
Gothic	IBHKG2W5	Medium	Full	XZGKpb	CZHKG2	T10834	1010	53816
			Full	XZGHpb	CZHKG2	T1K834	1098	
			Half	XZGEpb	CZHKG2	T1H00833	1173	
			Half	XZGJpb	CZHKG2	T1H01126	1267	
			Half	XZGWpb	CZHKG2	T1H01150	1365	
Korean Myengjo								

Table 8. Summary of CJK fonts for Korean (continued)								
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSCID**	**FGID**
Myengjo	IBHSM2W5	Medium	Full	XZMKpb	CZHSM2	T10834	1010	53560
			Full	XZMHpb	CZHSM2	T1K834	1098	
			Half	XZMEpb	CZHSM2	T1H00833	1173	
			Half	XZMJpb	CZHSM2	T1H01126	1267	
			Half	XZMWpb	CZHSM2	T1H01150	1365	

CJK simulation fonts

Chinese, Japanese, and Korean (CJK) simulation fonts are available in AFP outline format that simulates raster font products.

Naming conventions for CJK simulation fonts

This information shows the naming conventions for CJK simulated outline font character sets and coded fonts.

CJK simulation outline font character sets

The naming convention format for CJK simulation outline font character sets is CZ*xxxx*, where:

CZ
AFP outline character set prefix

xxxx
Language and typeface:

JHKG
Japanese Heisei Kaku Gothic

JHMG
Japanese Heisei Maru Gothic

JHMN
Japanese Heisei Mincho

HKG2
Korean Gothic

HSM2
Korean Myengjo

SHEI
Simplified Chinese Hei

SSNG
Simplified Chinese Song

TSNG
Traditional Chinese Sung

CJK simulation outline coded fonts

The naming convention format for CJK simulation outline coded fonts is XZ*tbxe*, where:

XZ
AFP outline coded font

t

Typestyle:

Japanese

E

Heisei Kaku Gothic

F

Heisei Kaku Gothic Half-Width

G

Gothic

H

Gothic Half-Width

K

Heisei Mincho

L

Heisei Mincho Half-Width

M

Mincho

N

Mincho Half-Width

R

Round Gothic

S

Round Gothic Half-Width

Y

Mincho Half-Width

Z

Mincho

Korean

G

Gothic

H

Gothic Half-Width

M

Mincho

N

Mincho Half-Width

Simplified Chinese

G

Gothic

S

Song

Traditional Chinese

G

Gothic

M

Ming

bx

Box size (see Table 9 on page 39)

e
> Encoding:

Japanese

> **B**
>> Base Set (Section 41-55)
>
> **D**
>> DCF Set (Half-Width) / JIS90 (Full-Width)
>
> **F**
>> Full Set
>
> **J**
>> PC Set
>
> **N**
>> Katakana Set
>
> **O**
>> Extended Katakana Set
>
> **U**
>> US English Set
>
> **V**
>> Extended Latin Set
>
> **X**
>> Extension Set (Section 56-68)

Korean

> **K**
>> Full Set
>
> **K**
>> EBCDIC Set (Half-Width)
>
> **L**
>> Special and Hangul Set (Section 41-4B, 84-D3)

Simplified Chinese

> **P**
>> PRC Host (GB)

Traditional Chinese

> **T**
>> Taiwan Host

Table 9 on page 39 shows the box sizes (HxV) for the Chinese, Japanese, and Korean (CJK) simulation font typefaces.

Table 9. Box size (bx) values for CJK simulation outline coded fonts

Language	bx	Gothic	Heisei Kaku Gothic	Round Gothic	Mincho	Heisei Mincho	Song	Ming
Japanese Full-Width	16	16x16			16x16	16x16		
	20	20x24						
	24	24x30	24x24		24x24	24x24		
	26		26x26		26x26	26x26		
	32	32x32	32x32		32x32	32x32		
	36	36x36	36x36	36x36	36x36	36x36		
	40	40x40	40x40	40x40	40x40	40x40		
	44		44x44		44x44	44x44		
	48	48x48	48x48	48x48	48x48	48x48		
	52		52x52		52x52	52x52		
	64	64x64	64x64	64x64	64x64	64x64		
Japanese Half-Width	12	12x30	12x24		12x24	12x24		
	13		13x26		13x26	13x26		
	16	16x32	16x32		16x32	16x32		
	18	18x36	18x36	18x36	18x36	18x36		
	20	20x40	20x40	20x40	20x40	20x40		
	22		22x44			22x44		
	24	24x48	24x48	24x48	24x48	24x48		
	26		26x52		26x52	26x52		
	32	32x64	32x64	32x64	32x64	32x64		
Korean Full-Width	16	16x16						
	24	24x30			24x24			
	36				36x36			
	40				40x40			
	48				48x48			
	64				64x64			
Korean Half-Width	08	8x16						
	12	12x30			12x24			
	18				18x36			
	20				20x40			
	24				24x48			
	32				32x64			

Language	bx	Gothic	Heisei Kaku Gothic	Round Gothic	Mincho	Heisei Mincho	Song	Ming
Table 9. Box size (bx) values for CJK simulation outline coded fonts (continued)								
		Typefaces						
Simplified Chinese Full-Width	16	16x16						
	26						26x26	
	32						32x32	
	40						40x40	
Traditional Chinese Full-Width	16	16x16						
	24							24x24
	32							32x32
	40							40x40

Summary table for the CJK simulation fonts

This information lists CJK simulation fonts for these typefaces:

- Chinese:
  - Simplified Chinese:
    - Gothic simulated by Hei
    - Song simulated by Song
  - Traditional Chinese:
    - Gothic simulated by Sung
    - Ming simulated by Sung
- Japanese:
  - Gothic and Heisei Kaku Gothic simulated by Heisei Kaku Gothic
  - Round Gothic simulated by Heisei Maru Gothic
  - Mincho and Heisei Mincho simulated by Heisei Mincho
- Korean:
  - Gothic simulated by Gothic
  - Mincho simulated by Myengjo

The summary of the CJK simulation fonts in provides this information:

CID file name
The name of the CID-Keyed font file that is used to create the AFP outline font. The file extensions are CID and CMP.

Wt
The font weight. Possible values are:

L
Light

M
Medium

SB
Semi-bold

SL
>Semi-light

Width
>The font width. Possible values are:

>**Full**
>>Full-Width

>**Half**
>>Half-Width

Coded font
>A six-character name of the outline coded font, with "XZ" as the prefix, that identifies the combination of code page and character set.

Character set
>A six-character name, with "CZ" as the prefix, that identifies an AFP outline character set.

Code page
>A six-character name, with "T1" as the prefix, that identifies the code page.

GCSGID
>The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID
>The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

Box size
>The box size of the 240-pel fonts that are shown numerically as height by vertical (HxV) size.

CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Box size
Table 10. Summary of CJK simulation fonts								
Simplified Chinese Gothic simulated by Hei								
ILSHEIW6	SB	Full	XZGbxP	CZSHEI	T10837	1020	54565	16x16
Simplified Chinese Song simulated by Song								
ILSSNGW5	M	Full	XZSbxP	CZSSNG	T10837	1020	54567	26x26 32x32 40x40
Traditional Chinese Gothic simulated by Sung								
IBTSNGW3	L	Full	XZGbxT	CZTSNG	T10835	2074	54563	16x16
Traditional Chinese Ming simulated by Sung								
IBTSNGW3	L	Full	XZMbxT	CZTSNG	T10835	2074	54563	24x24 32x32 40x40
Japanese Gothic simulated by Heisei Kaku Gothic								
IBJHKGW5	M	Full	XZGbxB	CZJHKG	T1I300	2098	53249	16x16 20x24 24x30 32x32 36x36 40x40 48x48 64x64
		Full	XZGbxF		T1I300	2098		16x16 20x24 24x30 32x32 36x36 40x40 48x48 64x64
		Full	XZGbxX		T1I300	2098		48x48 64x64
		Half	XZHbxD		T1H01002	1132		12x30 16x32 18x36 20x40 24x48 32x64
		Half	XZHbxJ		T1H01041	1187		12x30 16x32 18x36 20x40 24x48 32x64
		Half	XZHbxN		T1HK0290	332		12x30 16x32 18x36 20x40 24x48 32x64
		Half	XZHbxO		T1H00290	1398		12x30 16x32 18x36 20x40 24x48 32x64
		Half	XZHbxU		T1HK0037	101		12x30 16x32 18x36 20x40 24x48 32x64
		Half	XZHbxV		T1H10027	1398		12x30 16x32 18x36 20x40 24x48 32x64

Table 10. Summary of CJK simulation fonts (continued)								
CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Box size
Japanese Gothic (JIS90) simulated by Heisei Kaku Gothic								
IBJHKGW5	M	Full	XZGbxD	CZJHKG	T1J300	2098	53249	16x16 20x24 24x30 32x32 36x36 40x40 48x48 64x64
Japanese Heisei Kaku Gothic simulated by Heisei Kaku Gothic								
IBJHKGW5	M	Full	XZEbxB	CZJHKG	T10300	2098	53249	24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Full	XZEbxF		T10300	2098		24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Half	XZFbxD		T1H01002	1132		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZFbxJ		T1H01041	1187		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZFbxN		T1HK0290	332		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZFbxO		T1H00290	1398		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZFbxU		T1HK0037	101		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZFbxV		T1H01027	1398		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
Japanese Round Gothic simulated by Heisei Maru Gothic								
IBJHMGW4	SL	Full	XZRbxB	CZJHMG	T1I300	2098	53250	36x36 40x40 48x48 64x64
		Full	XZRbxF		T1I300	2098		36x36 40x40 48x48 64x64
		Full	XZRbxX		T1I300	2098		48x48 64x64
		Half	XZSbxD		T1H01002	1132		18x36 20x40 24x48 32x64
		Half	XZSbxJ		T1H01041	1187		18x36 20x40 24x48 32x64
		Half	XZSbxN		T1HK0290	332		18x36 20x40 24x48 32x64
		Half	XZSbxO		T1H00290	1398		18x36 20x40 24x48 32x64
		Half	XZSbxU		T1HK0037	101		18x36 20x40 24x48 32x64
		Half	XZSbxV		T1H01027	1398		18x36 20x40 24x48 32x64
Japanese Round Gothic (JIS90) simulated by Heisei Maru Gothic								
IBJHMGW4	SL	Full	XZRbxD	CZJHMG	T1J300	2098	53250	36x36 40x40 48x48 64x64
Japanese Mincho simulated by Heisei Mincho								

CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Box size
Table 10. Summary of CJK simulation fonts (continued)								
IBJHMNW3	L	Full	XZMbxB	CZJHMN	T1I300	2098	53248	16x16 24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Full	XZMbxF		T1I300	2098		16x16 24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Full	XZMbxX		T1I300	2098		48x48 64x64
		Full	XZZbxB		T1I300	2098		24x24
		Full	XZZbxF		T1I300	2098		24x24
		Half	XZNbxD		T1H01002	1132		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZNbxJ		T1H01041	1187		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZNbxN		T1HK0290	332		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZNbxO		T1H00290	1398		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZNbxU		T1HK0037	101		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZNbxV		T1H01027	1398		12x24 13x26 16x32 18x36 20x40 24x48 26x52 32x64
		Half	XZYbxD		T1H01002	1132		12x24
		Half	XZYbxJ		T1H01041	1187		12x24
		Half	XZYbxN		T1HK0290	332		12x24
		Half	XZYbxO		T1H00290	1398		12x24
		Half	XZYbxU		T1HK0037	101		12x24
		Half	XZYbxV		T1H01027	1398		12x24
Japanese Mincho (JIS90) simulated by Heisei Mincho								
IBJHMNW3	L	Full	XZMbxD	CZJHMN	T1J300	2098	53248	16x16 24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Full	XZZbxD		T1J300	2098		24x24
Japanese Heisei Mincho simulated by Heisei Mincho								
IBJHMNW3	L	Full	XZKbxB	CZJHMN	T10300	2098	53248	16x16 24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Full	XZKbxF		T10300	2098		16x16 24x24 26x26 32x32 36x36 40x40 44x44 48x48 52x52 64x64
		Half	XZLbxD		T1H01002	1132		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZLbxJ		T1H01041	1187		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZLbxN		T1HK0290	332		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZLbxO		T1H00290	1398		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZLbxU		T1HK0037	101		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64
		Half	XZLbxV		T1H01027	1398		12x24 13x26 16x32 18x36 20x40 22x44 24x48 26x52 32x64

Table 10. Summary of CJK simulation fonts (continued)								
CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Box size
Korean Gothic simulated by Gothic								
IBHKG2W5	M	Full	XZGbxK	CZHKG2	T10834	1010	53816	16x16 24x30
		Full	XZGbxL		T10834	1010		16x16 24x30
		Half	XZHbxK		T1H00833	1173		8x16 12x30
Korean Mincho simulated by Myengjo								
IBHSM2W5	M	Full	XZMbxK	CZHSM2	T10834	1010	53560	24x24 32x32 36x36 40x40 48x48 64x64
		Full	XZMbxL		T10834	1010		24x24 32x32 36x36 40x40 48x48 64x64
		Half	XZNbxK		T1H00833	1173		12x30 16x32 18x36 20x40 24x48 32x64

Chapter 5. AFP raster fonts

Most AFP raster fonts are distinguished from AFP outline fonts because they have character set and coded font names that are 8 characters rather than 6 characters. The AFP raster fonts that are included with the z/OS Font Collection are:

- Single-byte character set (SBCS) expanded core fonts
- Double byte character set (DBCS) core fonts
- APL2, DATA1, Math, PI, and Sonoran fonts
- Compatibility fonts

SBCS fonts

SBCS expanded core fonts are part of the AFP raster fonts that are included with the z/OS Font Collection. The fonts contain various typefaces and font sizes (including typographic and uniformly spaced typeface families) and combine IBM Core Interchange Fonts, IBM Coordinated Fonts, and IBM BookMaster Fonts.

Table 11 on page 45 shows the formats for SBCS fonts that are provided in the z/OS Font Collection.

Table 11. Format and operating systems for SBCS fonts	
Format	**Operating systems**
240-pel bounded-box fonts	z/OS, IBM i, Linux, AIX, Windows
300-pel fonts	z/OS, IBM i, Linux, AIX, Windows

"Summary table for SBCS fonts" on page 55 lists SBCS fonts by font type and language group.

Naming conventions for SBCS fonts

The naming convention format for SBCS expanded core fonts is *afrstcpx*, where:

a

Component:

C

Character set

X

Coded font

f

Format or orientation:

0

240 bounded-box and 300-pel

1, 2, 4

240 unbounded-box

r

Type family:

4

Courier

5

Letter Gothic

6

Gothic Text

7

Prestige

8

Boldface

9

OCR

B

BookMaster

H

Helvetica

I

IBM Logo

N

Times New Roman

s

Typeface:

2

Roman medium

3

Italic medium

4

Roman bold

5

Italic bold

6

Roman medium reverse

B

IBM Logo

t

Code page category (see also Table 12 on page 50):

0

Character set

1

Latin1 country extended code pages

2

Latin1 and Latin9 publishing code pages

3

Latin1 and Latin9 ASCII code pages

4

Latin1 DCF code pages

5

Latin2345 EBCDIC and ASCII code pages

6

International non-Latin code pages

7

Special purpose EBCDIC and ASCII code pages

8

International non-Latin ASCII code pages

M
> IBM Logo

c
> Complement (see also):

> **0**
>> Latin1

> **1**
>> Symbols

> **2**
>> Latin235

> **3**
>> Cyrillic Greek

> **4**
>> Arabic

> **5**
>> Hebrew

> **6**
>> Thai

> **7**
>> Latin4

> **8**
>> Katakana

> **9**
>> Lao

> **A**
>> OCR A

> **B**
>> OCR B

> **C**
>> BookMaster Special

> **D**
>> Baltic

> **E**
>> Euro

> **L**
>> Latin

> **P**
>> APL2

p
> Point or pitch size:

> **Typographic fonts**

>> **6**
>>> 6 points

>> **7**
>>> 7 points

>> **8**
>>> 8 points

>> **9**
>>> 9 points

0
10 points

A
11 points

B
12 points

C
13 points

D
14 points

E
15 points

F
16 points

G
17 points

H
18 points

I
19 points

J
20 points

K
21 points

L
22 points

M
23 points

N
24 points

O
25 points

P
26 points

Q
27 points

R
28 points

S
29 points

T
30 points

U
31 points

V
32 points

W
33 points

X
34 points

Y
> 35 points

Z
> 36 points

Uniformly spaced fonts

5
> 5 points, 24 pitch

6
> 6 points, 20 pitch

7
> 7 points, 17.1 pitch

8
> 8 points, 15 pitch

9
> 9 points, 13.3 pitch

0
> 10 points, 12 pitch

B
> 12 points, 10 pitch

D
> 14 points, 8.5 pitch

J
> 20 points, 6 pitch

x
> Coded font (see Table 12 on page 50)

Table 12 on page 50 shows code pages based on the code page category (*t*), coded font (*x*), and complement (*c*) naming convention format for SBCS fonts.

t	x	c	Code page	Description
1 - Latin1 country extended code pages	1	0	T1V10037	United States, Canada
	2	0	T1V10273	Austria, Germany
	3	0	T1V10274	Belgium
	4	0	T1V10275	Brazil
	5	0	T1V10277	Denmark, Norway
	6	0	T1V10278	Finland, Sweden
	7	0	T1V10280	Italy
	8	0	T1V10281	Japan (Latin)
	9	0	T1V10282	Portugal
	0	0	T1V10284	Spain, Latin America
	A	0	T1V10285	United Kingdom
	B	0	T1V10297	France
	C	0	T1V10500	International #5
	D	0	T1V10871	Iceland
	1	E	T1001140	United States, Canada Euro Country Extended Code Pages (ECECP)
	2	E	T1001141	Austria, Germany ECECP
	5	E	T1001142	Denmark, Norway ECECP
	6	E	T1001143	Finland, Sweden ECECP
	7	E	T1001144	Italy ECECP
	0	E	T1001145	Spain, Latin America ECECP
	A	E	T1001146	United Kingdom ECECP
	B	E	T1001147	France ECECP
	C	E	T1001148	International ECECP
	D	E	T1001149	Iceland ECECP

Table 12. Code pages for SBCS fonts. x does not apply to BookMaster fonts.

t	x	c	Code page	Description
Table 12. Code pages for SBCS fonts. x does not apply to BookMaster fonts. (continued)				
t	*x*	*c*	**Code page**	**Description**
2 - Latin1 and Latin9 publishing code pages	1	0	T1000361	International Set #5
	2	0	T1000382	Austria, Germany, Switzerland
	3	0	T1000383	Belgium
	4	0	T1000384	Brazil
	5	0	T1000385	Canada (French)
	6	0	T1000386	Denmark, Norway
	7	0	T1000387	Sweden, Finland
	8	0	T1000388	France, Switzerland
	9	0	T1000389	Italy, Switzerland (Italian)
	0	0	T1000390	Japan (Latin)
	A	0	T1000391	Portugal
	B	0	T1000392	Spain, Philippines
	C	0	T1000393	Latin America (Spanish)
	D	0	T1000394	United Kingdom, Australia, Ireland, Hong Kong, New Zealand
	E	0	T1000395	United States, Canada (English)
	F	0	T1000924	Latin9
3 - Latin1 and Latin9 ASCII code pages	1	0	T1000437	Personal Computer
	2	0	T1000850	Personal Computer: Multilingual
	3	0	T1000860	Personal Computer: Portugal
	4	0	T1000861	Personal Computer: Iceland
	5	0	T1000863	Personal Computer: Canadian French
	6	0	T1000865	Personal Computer: Nordic
	7	0	T10001004	IBM PC Desktop Publishing
	8	0	T1000819	ISO/ANSI 8-Bit: Latin1
	9	0	T1000858	PC Multilingual with Euro
	A	0	T1000923	Latin9
	B	0	T1001252	Windows Latin1
4 - Latin1 DCF code pages	1	0	T1001002	DCF Release 2 Compatibility
	2	0	T1001003	United States Text Subset
	3	0	T1001068	Text with Numeric Spacing
	4	0-7	T1001039	GML List Symbols

t	x	c	Code page	Description
5 - Latin2345 EBCDIC and ASCII code pages	1	2	T1000870	Latin2 EBCDIC
	2	2	T1000905	Latin3 EBCDIC
	3	2	T1001026	Latin5 EBCDIC
	4	2	T1000852	Personal Computer: Latin2
	5	2	T1000853	Personal Computer: Latin3
	6	2	T1000857	Personal Computer: Latin5
	7	2	T1000912	ISO/ANSI 8-Bit: Latin2
	8	2	T1000920	ISO/ANSI 8-Bit: Latin5
	9	7	T1001069	Latin4 EBCDIC
	0	7	T1000914	ISO/ASCII: Latin4
	A	2	T1001110	Latin2 Multilingual
	B	2	T1001111	Latin2 ISO/ANSI 8-Bit
	C	2	T1000913	Latin3 ISO/ASCII
	D	2	T1001122	Estonia EBCDIC
6 - International non-Latin code pages	1	4	T1000420	Arabic Bilingual
	2	3	T1000423	Greece 183
	3	5	T1000424	Hebrew
	4	5	T1000803	Hebrew
	5	3	T1000875	Greece
	6	8	T1V10290	Japan (Katakana)
	7	3	T1000880	Cyrillic Multilingual
	8	6	T1000838	Thailand
	9	3	T1001025	Cyrillic Multilingual
	0	5	T1001028	Hebrew Publishing
	A	8	T1001027	Japanese (Latin) Extended
	B	6	T1000889	Thailand
	C	3	T1001123	Cyrillic, Ukraine EBCDIC
	D	3	T1001124	Cyrillic, Ukraine ASCII
	E	9	T1001132	Lao EBCDIC
	F	8	T1001139	Japan Katakana Numeric

Table 12. Code pages for SBCS fonts. x does not apply to BookMaster fonts. (continued)

t	*x*	*c*	**Code page**	**Description**
7 - Special purpose EBCDIC and ASCII code pages	1	1	T1000259	Symbols, Set 7
	2	P	T1000293	APL (United States)
	3	P	T1000310	Graphic Escape APL
	4	A	T1000892	OCR A
	5	B	T1000393	OCR B
	6	1	T1000899	ASCII: Symbols, Set 7
	7	1	T1001087	Symbols, Adobe
	8	1	T1001038	ASCII: Symbols, Adobe
	9	1	T1001091	Symbols, Set 7 Modified
	0	1	T1001092	ASCII: Symbols, Set 7 Modified
	A	1	T1000363	Symbols, Set 8
	B	1	T1000829	Symbols, Math Symbols
	C	P	T1000910	APL ASCII
	D	A	T1000876	OCR-A ASCII
	E	B	T1000877	OCR-B ASCII
8 - International non-Latin ASCII code pages	1	3	T1000813	ISO/ASCII 8-Bit: Greece
	2	3	T1000851	Personal Computer: Greek
	3	3	T1000855	Personal Computer: Cyrillic
	4	5	T1000856	Personal Computer: Hebrew
	5	5	T1000862	Personal Computer: Hebrew
	6	4	T1000864	Personal Computer: Arabic
	7	3	T1000869	Personal Computer: Greece
	8	6	T1000874	Personal Computer: Thailand
	9	3	T1000915	ISO/ASCII 8-Bit: Cyrillic
	0	5	T1000916	ISO/ASCII 8-Bit: Hebrew
	A	4	T1001008	ISO/ASCII 8-Bit: Arabic
	B	4	T1001029	ISO/ASCII 8-Bit: Arabic
	C	4	T1001046	ISO/ASCII 8-Bit: Arabic Extended
	D	3	T1000866	Personal Computer: Cyrillic #2
	E	8	T1000897	Japan PC #1
	F	8	T1001041	Japanese Extended-PC
	G	9	T1001133	Lao ISO-8
	J	5	T1000867	Israel-Personal Computer

Table 12. Code pages for SBCS fonts. x does not apply to BookMaster fonts. (continued)

The seventh character in the naming convention format, *p*, represents the point size or pitch size of the font. The sizes of typographic and mixed-pitch fonts are expressed in points, which is a vertical measurement that indicates the general size of the font. One point is 1/72 inch. The sizes of uniformly spaced fonts are expressed in pitch, which is the number of characters that can be printed in 1 inch of text. Table 13 on page 54 shows the point and pitch sizes available for the SBCS font AFP typeface names. See Table 14 on page 56 for a list of SBCS fonts by font type, language group, and AFP typeface name.

Table 13. Size in point or pitch for SBCS fonts

AFP typeface name	Size in point or pitch
Courier APL2	10 pitch
Boutros Typing Arabic	6, 8.5, 10, 12, 15, and 17.1 pitch
ITC Boutros Modern Rokaa Arabic	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
ITC Bourtros Setting Arabic	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
BookMaster Specials	5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 24, 30, and 36 points
BookMaster Specials Reverse	5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 24, 30, and 36 points
Courier Cyrillic Greek	6, 8.5, 10, 12, 15, and 17.1 pitch
Helvetica Cyrillic Greek	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Times New Roman Cyrillic Greek	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Shalom Hebrew	6, 8.5, 10, 12, 15, and 17.1 pitch
Narkiss Tam Hebrew	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Narkissim Hebrew	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
IBM Logo	10, 12, 14, 16, 18, 20, 24, 28, 32, 36, 40, and 48 points
Gothic Katakana	6, 8.5, 10, 12, 15, 17.1 and 20 pitch
Boldface Latin1	12 points
BookMaster Latin1	5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 24, 30, and 36 points
BookMaster Latin1 Reverse	5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 24, 30, and 36 points
Courier Latin1	6, 8.5, 10, 12, 15, and 17.1 pitch
Gothic Text Latin1	6, 8.5, 10, 12, 13.3, 15, 17.1, 20, and 24 pitch
Helvetica Latin1	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Letter Gothic Latin1	6, 8.5, 10, 12, 15, 17.1 and 20 pitch
Prestige Latin1	6, 8.5, 10, 12, 15, and 17.1 pitch
Times New Roman Latin1	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Courier Latin235	6, 8.5, 10, 12, 15, and 17.1 pitch
Helvetica Latin235	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Times New Roman Latin235	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Courier Latin4	6, 8.5, 10, 12, 15, and 17.1 pitch
Helvetica Latin4	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Times new Roman Latin4	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points

Table 13. Size in point or pitch for SBCS fonts (continued)	
AFP typeface name	**Size in point or pitch**
OCRA	10 pitch
OCRB	10 pitch
Courier Lao	6, 8.5, 10, 12, 15, and 17.1 pitch
Pusuwan	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Kaewfah	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Courier Symbols	6, 8.5, 10, 12, 15, and 17.1 pitch
Helvetica Symbols	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points
Times New Roman Symbols	6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 30, and 36 points

Summary table for SBCS fonts

This information lists SBCS expanded core fonts by font type, language group, and AFP typeface name.

provides this information:

AFP typeface name
    The IBM name for the typeface.

Type 1 typeface name
    The Type 1 font name for the typeface.

Style and wt
    The style and weight of the font. Possible values are:

   IB
        Italic Bold

   IM
        Italic Medium

   RB
        Roman Bold

   RM
        Roman Medium

Code page
    An eight-character name, with "T1" as the prefix, that identifies the code page. Alphabetic script and symbol fonts use only single-byte code pages.

Character set identifier
    An eight-character name that identifies an AFP raster character set.

Type 1 file name
    The name of a Type 1 font that is used to create the AFP raster font. The file extensions are AFM, INF, and PFB.

Coded font identifier
    An eight-character name of the raster coded font that identifies the combination of code page and character set. IBM BookMaster fonts do not have a coded font identifier because BookMaster does not use coded fonts.

Alternate coded font identifier
    A six-character coded font name for certain operating environments, such as JES, that limit coded font identifiers to six characters; for example, X0GT10. All SBCS fonts with a coded font identifier also have an alternate coded font identifier.

GCSGID
>The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID
>The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

Table 14. Summary of SBCS fonts								
Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Language Group: APL; AFP Typeface Name: Courier APL2								
Courier APL2	RM	T1000293	C0420PB0	APL	X0427PB2	X0480B	1364	307
Courier APL2 Bold	RB	T1000293	C0440PB0	APLB	X0447PB2	X0481B		322
Language Group: Arabic; AFP Typeface Name: Boutros Typing Arabic								
Typing	RM	T1000420	C04204p0	COU_A	X04264p1	X0427p	1264	416
Typing Bold	RB	T1000420	C04404p0	COU_AB	X04464p1	X0449p		420
Typing Italic	IM	T1000420	C04304p0	COU_AI	X04364p1	X0438p		424
Typing Bold Italic	IB	T1000420	C04504p0	COU_ABI	X04564p1	X045Ap		428
Language Group: Arabic; AFP Typeface Name: Boutros Modern Rokaa Arabic								
Rokaa	RM	T1000420	C0H204p0	HEL_A	X0H264p1	X0H27p	1264	2304
Rokaa Bold	RB	T1000420	C0H404p0	HEL_AB	X0H464p1	X0H49p		2305
Rokaa Italic	IM	T1000420	C0H304p0	HEL_AI	X0H364p1	X0H38p		2306
Rokaa Bold Italic	IB	T1000420	C0H504p0	HEL_ABI	X0H564p1	X0H5Ap		2307
Language Group: Arabic; AFP Typeface Name: ITC Boutros Setting Arabic								
Setting	RM	T1000420	C0N204p0	TNR_A	X0H264p1	X0N27p	1264	2308
Setting Bold	RB	T1000420	C0N404p0	TNR_AB	X0H464p1	X0N49p		2309
Setting Italic	IM	T1000420	C0N304p0	TNR_AI	X0H364p1	X0N38p		2310
Setting Bold Italc	IB	T1000420	C0N504p0	TNR_ABI	X0H564p1	X0N5Ap		2311
Language Group: BookMaster Specials; AFP Typeface Name: BookMaster Specials								
BookMaster Specials	RM	T1B00BGS	C0B20Cp0	EDFBS	N/A	N/A	1241	335
BookMaster Specials Bold	RB	T1B00BGS	C0B40Cp0	EDFBSB	N/A	N/A		336
BookMaster Specials Italic	IM	T1B00BGS	C0B30Cp0	EDFBSI	N/A	N/A		337
BookMaster Specials Bold Italic	IB	T1B00BGS	C0B50Cp0	EDFBSBI	N/A	N/A		338
Language Group: BookMaster Specials; AFP Typeface Name: BookMaster Specials Reverse								
BookMaster Specials Reverse	RM	T1B00Bgs	C0B60Cp0	EDFBSR	N/A	N/A	1241	339
Language Group: Cyrillic; AFP Typeface Name: Courier Cyrillic Greek								

Table 14. Summary of SBCS fonts (continued)								
Type 1 typeface name	**Style and weight**	**Code page**	**Character set identifier**	**Type 1 file name**	**Coded font identifier**	**Alternate coded font identifier**	**GCSGID**	**FGID**
Courier Cyr Grk	RM	T1001025	C04203p0	COU_CG	X04263p9	X045Cp	1300	416
Courier Cyr Grk Bold	RB	T1001025	C04403p0	COU_CGB	X04463p9	X045Ep		420
Courier Cyr Grk Italic	IM	T1001025	C04303p0	COU_CGI	X04363p9	X045Dp		424
Courier Cyr Grk Bold Italic	AB	T1001025	C04503p0	COU_CGBI	X04563p9	X045Fp		428
Language Group: Cyrillic; AFP Typeface Name: Helvetica Cyrillic Greek								
Helvetica Cyr Grk	RM	T1001025	C0H203p0	HEL_CG	X0H263p9	X0H5Cp	1300	2304
Helvetica Cyr Grk Bold	RB	T1001025	C0H403p0	HEL_CGB	X0H463p9	X0H5Ep		2305
Helvetica Cyr Grk Italic	IM	T1001025	C0H303p0	HEL_CGI	X0H363p9	X0H5Dp		2306
Helvetica Cyr Grk Bold Italic	IB	T1001025	C0H503p0	HEL_CGBI	X0H563p9	X0H5Fp		2307
Language Group: Cyrillic; AFP Typeface Name: Times New Roman Cyrillic Greek								
Times New Roman Cry Grk	RM	T1001025	C0N203p0	TNR_CG	X0N263p9	X0N5Cp	1300	2308
Times New Roman Cry Grk Bold	RB	T1001025	C0N403p0	TNR_CGB	X0N463p9	X0N5Ep		2309
Times New Roman Cry Grk Italic	IM	T1001025	C0N303p0	TNR_CGI	X0N363p9	X0N5Dp		2310
Times New Roman Cry Grk Bold Italic	IB	T1001025	C0N503p0	TNR_CGBI	X0N563p9	X0N5Fp		2311
Language Group: Greek; AFP Typeface Name: Courier Cyrillic Greek								
Courier Cyl Crk	RM	T1000875	C04203p0	COU_CG	X04263p5	X0448p	1300	416
Courier Cyl Crk Bold	RB	T1000875	C04403p0	COU_CGB	X04463p5	X044Ap		420
Courier Cyl Crk Italic	IM	T1000875	C04303p0	COU_CGI	X04363p5	X0449p		424
Courier Cyl Crk Bold Italic	IB	T1000875	C04503p0	COU_CGBI	X04563p5	X044Bp		428
Language Group: Greek; AFP Typeface Name: Helvetica Cyrillic Greek								
Helvetica Cyr Grk	RM	T1000875	C0H203p0	HEL_CG	X0H263p5	X0H48p	1300	2304
Helvetica Cyr Grk Bold	RB	T1000875	C0H403p0	HEL_CGB	X0H463p5	X0H4Ap		2305
Helvetica Cyr Grk Italic	IM	T1000875	C0H303p0	HEL_CGI	X0H363p5	X0H49p		2306
Helvetica Cyr Grk Bold Italic	IB	T1000875	C0H503p0	HEL_CGBI	X0H563p5	X0H4Bp		2307
Language Group: Greek; AFP Typeface Name: Times New Roman Cyrillic Greek								

Table 14. Summary of SBCS fonts (continued)

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Times New Roman Cyr Grk	RM	T1000875	C0N203p0	TNR_CG	X0N263p5	X0N48p	1300	2308
Times New Roman Cyr Grk Bold	RB	T1000875	C0N403p0	TNR_CGB	X0N463p5	X0N4Ap		2309
Times New Roman Cyr Grk Italic	IM	T1000875	C0N303p0	TNR_CGI	X0N363p5	X0N49p		2310
Times New Roman Cyr Grk Bold Italic	IB	T1000875	C0N503p0	TNR_CGBI	X0N563p5	X0N4Bp		2311
Language Group: Hebrew; AFP Typeface Name: Shalom Hebrew								
Shalom Hebrew	RM	T1000424	C04205p0	COU_H	X04265p3	X042Cp	1362	416
Shalom Hebrew Bold	RB	T1000424	C04205p0	COU_HB	X044265p3	X042Ep		420
Shalom Hebrew Italic	IM	T1000424	C04205p0	COU_HI	X04365p3	X042Dp		424
Shalom Hebrew Bold Italic	IB	T1000424	C04205p0	COU_HBI	X04565p3	X042Fp		428
Language Group: Hebrew; AFP Typeface Name: Narkiss Tam Hebrew								
Narkiss Tam Hebrew	RM	T1000424	C0H205p0	HEL_H	X0H265p3	X0H2Cp	1362	2304
Narkiss Tam Hebrew Bold	RB	T1000424	C0H405p0	HEL_HB	X0H465p3	X0H2Ep		2305
Narkiss Tam Hebrew Italic	IM	T1000424	C0H305p0	HEL_HI	X0H365p3	X0H2Dp		2306
Narkiss Tam Hebrew Bold Italic	IB	T1000424	C0H505p0	HEL_HBI	X0H565p3	X0H2Fp		2307
Language Group: Hebrew; AFP Typeface Name: Narkissim Hebrew								
Narkissim Hebrew	RM	T1000424	C0N205p0	TNR_H	X0N265p3	X0N2Cp	1362	2308
Narkissim Hebrew Bold	RB	T1000424	C0N405p0	TNR_HB	X0N465p3	X0N2Ep		2309
Narkissim Hebrew Italic	IM	T1000424	C0N305p0	TNR_HI	X0N365p3	X0N2Dp		2310
Narkissim Hebrew Bold Italic	IB	T1000424	C0N505p0	TNR_HBI	X0N565p3	X0N2Fp		2311
Language Group: IBM Logo; AFP Typeface Name: IBM Logo								
IBM Logo	RM	C0IBM0p0	LOGOIBM	N/A	N/A	N/A	2040	51767
Language Group: Katakana; AFP Typeface Name: Gothic Katakana								
Gothic Katakana	RM	T1000897	C06208p0	GOT_K	X06288pE	X0699p	1306	304
Gothic Katakana Bold	RM	T1001027	C06208p0	GOT_K	X06268pA	X069Ap		
Gothic Katakana Italic	RM	T1001041	C06208p0	GOT_K	X06288pF	X069Bp		
Gothic Katakana Bold Italic	RM	T1V10290	C06208p0	GOT_K	X06268p6	X0696p		
Language Group: Latin1; AFP Typeface Name: Boldface Latin1								
Boldface	RB	T1V15000	C08400p0	BFC	X08410pc	X0805p	2039	20224

Table 14. Summary of SBCS fonts (continued)								
Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Language Group: Latin1; AFP Typeface Name: BookMaster Latin1								
BookMaster	RM	T1B00500	C0B200p0	EDFBL	N/A	N/A	2039	335
BookMaster Bold	RB	T1B00500	C0B400p0	EDFBLB	N/A	N/A		336
BookMaster Italic	IM	T1B00500	C0B300p0	EDFBLI	N/A	N/A		337
BookMaster Bold Italic	IB	T1B00500	C0B500p0	EDFBLBI	N/A	N/A		338
Language Group: Latin1; AFP Typeface Name: BookMaster Latin1 Reverse								
BookMaster Reverse	RM	T1B00500	C0B600p0	EDFBLR	N/A	N/A	2039	339
Language Group: Latin1; AFP Typeface Name: Courier Latin1								
Courier	RM	T1V10500	C04200p0	COU	X04210pC	X040Dp	2039	416
Courier Bold	RB	T1V10500	C04400p0	COUB	X04410pC	X040Fp		420
Courier Italic	IM	T1V10500	C04300p0	COUI	X04310pC	X040Ep		424
Courier Bold Italic	IB	T1V10500	C04500p0	COUBI	X04510pC	X0410p		428
Language Group: Latin1; AFP Typeface Name: Gothic Text Latin1								
Gothic Text	RM	T1V15000	C06200p0	GOT	X06210pC	X060Dp	2039	304
Language Group: Latin1; AFP Typeface Name: Helvetica Latin1								
Helvetica	RM	T1V10500	C0H200p0	HEL	X0H210pC	X0H0Dp	2039	2304
Helvetica Bold	RB	T1V10500	C0H400p0	HELB	X0H410pC	X0H0Fp		2305
Helvetica Italic	IM	T1V10500	C0H300p0	HELI	X0H310pC	X0H0Ep		2306
Helvetica Bold Italic	IB	T1V10500	C0H500p0	HELBI	X0H510pC	X0H10p		2307
Language Group: Latin1; AFP Typeface Name: Letter Gothic Latin1								
Letter Gothic	RM	T1V15000	C05200p0	LGO	X05210pC	X050Dp	2039	400
Letter Gothic Bold	RB	T1V15000	C05400p0	LGOB	X05410pc	X050Fp		404
Language Group: Latin1; AFP Typeface Name: Prestige Latin1								
Prestige Latin1	RM	T1V15000	C07200p0	PRS	X07210pC	X070Dp	2039	432
Prestige Latin1 Bold	RB	T1V15000	C07400p0	PRSB	X07410pC	X070Fp		318
Prestige Latin1 Italic	IM	T1V15000	C07300p0	PRSI	X07310pC	X070Ep		319
Language Group: Latin1; AFP Typeface Name: Times New Roman Latin1								
Times New Roman	RM	T1V10500	C0N200p0	TNR	X0N210pc	X0N0Dp	2039	2308
Times New Roman Bold	RB	T1V10500	C0N400p0	TNRB	X0N410pc	X0N0Fp		2309
Times New Roman Italic	IM	T1V10500	C0N300p0	TNRI	X0N310pc	X0N0Ep		2310
Times New Roman Bold Italic	IB	T1V10500	C0N500p0	TNRBI	X0N510pc	X0N10p		2311
Language Group: Latin1 euro; AFP Typeface Name: Boldface Latin1								
Boldface	RB	T1001148	C08400p0	BFC	X0841Epc	X080Vp	2041	20224
Language Group: Latin1 euro; AFP Typeface Name: BookMaster Latin1								

Table 14. Summary of SBCS fonts (continued)

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
BookMaster	RM	T1B00500	C0B200p0	EDFBL	N/A	N/A	2041	335
BookMaster Bold	RB	T1B00500	C0B400p0	EDFBLB	N/A	N/A		336
BookMaster Italic	IM	T1B00500	C0B300p0	EDFBLI	N/A	N/A		337
BookMaster Bold Italic	IB	T1B00500	C0B500p0	EDFBLBI	N/A	N/A		338
Language Group: Latin1 euro; AFP Typeface Name: BookMaster Latin1 Reverse								
BookMaster Reverse	RM	T1B00500	C0B600p0	EDFBLR	N/A	N/A	2041	339
Language Group: Latin1 euro; AFP Typeface Name: Courier Latin1								
Courier	RM	T1001148	C04200p0	COU	X0421EpC	X040Sp	2041	416
Courier Bold	RB	T1001148	C04400p0	COUB	X0441EpC	X040Vp		420
Courier Italic	IM	T1001148	C04300p0	COUI	X0431EpC	X040Up		424
Courier Bold Italic	IB	T1001148	C04500p0	COUBI	X0451EpC	X040Wp		428
Language Group: Latin1 euro; AFP Typeface Name: Gothic Text Latin1								
Gothic Text	RM	T1001148	C06200p0	GOT	X0621EpC	X060Sp	2041	304
Language Group: Latin1 euro; AFP Typeface Name: Helvetica Latin1								
Helvetica	RM	T1001148	C0H200p0	HEL	X0H21EpC	X0H0Sp	2041	2304
Helvetica Bold	RB	T1001148	C0H400p0	HELB	X0H41EpC	X0H0Vp		2305
Helvetica Italic	IM	T1001148	C0H300p0	HELI	X0H31EpC	X0H0Up		2306
Helvetica Bold Italic	IB	T1001148	C0H500p0	HELBI	X0H51EpC	X0H0Wp		2307
Language Group: Latin1 euro; AFP Typeface Name: Letter Gothic Latin1								
Letter Gothic	RM	T1001148	C05200p0	LGO	X0521EpC	X050Sp	2041	400
Letter Gothic Bold	RB	T1001148	C05400p0	LGOB	X0541EpC	X050Vp		404
Language Group: Latin1 euro; AFP Typeface Name: Prestige Latin1								
Prestige	RM	T1001148	C07200p0	PRS	X0721EpC	X070Sp	2041	432
Prestige Bold	RB	T1001148	C07400p0	PRSB	X0741EpC	X070Vp		318
Prestige Italic	IM	T1001148	C07300p0	PRSI	X0731EpC	X070Up		319
Language Group: Latin1 euro; AFP Typeface Name: Times New Roman Latin1								
Times New Roman	RM	T1001148	C0N200p0	TNR	X0N21EpC	X0N0Sp	2041	2308
Times New Roman Bold	RB	T1001148	C0N400p0	TNRB	X0N41EpC	X0N0Vp		2309
Times New Roman Italic	IM	T1001148	C0N300p0	TNRI	X0N31EpC	X0N0Up		2310
Times New Roman Bold Italic	IB	T1001148	C0N500p0	TNRBI	X0N51EpC	X0N0Wp		2311
Language Group: Latin2; AFP Typeface Name: Courier Latin235								

Table 14. Summary of SBCS fonts (continued)

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Courier	RM	T1000870	C04202p0	COU	X04252p1	X0444p	1261	416
Courier Bold	RB	T1000870	C04402p0	COUB	X04452p1	X0446p		420
Courier Italic	IM	T1000870	C042302p0	COUI	X04352p1	X0445p		424
Courier Bold Italic	IB	T1000870	C04502p0	COUBI	X04552p1	X0447p		428
Language Group: Latin2; AFP Typeface Name: Helvetica Latin235								
Helvetica	RM	T1000870	C0H202p0	HEL	X0H252p1	X0H44p	1261	2304
Helvetica Bold	RB	T1000870	C0H402p0	HELB	X0H452p1	X0H46p		2305
Helvetica Italic	IM	T1000870	C0H302p0	HELI	X0H352p1	X0H45p		2306
Helvetica Bold Italic	IB	T1000870	C0H502p0	HELBI	X0H552p1	X0H47p		2307
Language Group: Latin2; AFP Typeface Name: Times New Roman Latin235								
Times New Roman	RM	T1000870	C0N202p0	TNR	X0N252p1	X0N44p	1261	2308
Times New Roman Bold	RB	T1000870	C0N402p0	TNRB	X0N452p1	X0N46p		2309
Times New Roman Italic	IM	T1000870	C0N302p0	TNRI	X0N352p1	X0N45p		2310
Times New Roman Bold Italic	IB	T1000870	C0N502p0	TNRBI	X0N552p1	X0N47p		2311
Language Group: Latin3; AFP Typeface Name: Courier Latin235								
Courier	RM	T1000905	C04202p0	COU	X0425202	X044E0	1261	416
Courier Bold	RB	T1000905	C04402p0	COUB	N/A	N/A		420
Courier Italic	IM	T1000905	C04302p0	COUI	N/A	N/A		424
Courier Bold Italic	IB	T1000905	C04502p0	COUBI	N/A	N/A		428
Language Group: Latin3; AFP Typeface Name: Helvetica Latin235								
Helvetica	RM	T1000905	C0H202p0	HEL	X0H25202	X0H4E0	1261	2304
Helvetica Bold	RB	T1000905	C0H402p0	HELB	N/A	N/A		2305
Helvetica Italic	IM	T1000905	C0H302p0	HELI	N/A	N/A		2306
Helvetica Bold Italic	IMB	T1000905	C0H502p0	HELBI	N/A	N/A		2307
Language Group: Latin3; AFP Typeface Name: Times New Roman Latin235								
Times New Roman	RM	T1000905	C0N202p0	TNR	X0N25202	X0N4E0	1261	2308
Times New Roman Bold	RB	T1000905	C0N402p0	TNRB	N/A	N/A		2309
Times New Roman Italic	IM	T1000905	C0N302p0	TNRI	N/A	N/A		2310
Times New Roman Bold Italic	IB	T1000905	C0N502p0	TNRBI	N/A	N/A		2311
Language Group: Latin4; AFP Typeface Name: Courier Latin4								

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Table 14. Summary of SBCS fonts (continued)								
Courier	RM	T1001069	C04207p0	COU	X04257p9	X0473p	1261	416
Courier Bold	RB	T1001069	C04407p0	COUB	X04457p9	X0475p		420
Courier Italic	IM	T1001069	C04307p0	COUI	X04357p9	X0474p		424
Courier Bold Italic	IB	T1001069	C04507p0	COUBI	X04557p9	X0476p		428
Language Group: Latin4; AFP Typeface Name: Helvetica Latin4								
Helvetica	RM	T1001069	C0H207p0	HEL	X0H257p9	X0H73p	1261	2304
Helvetica Bold	RB	T1001069	C0H407p0	HELB	X0H457p9	X0H75p		2305
Helvetica Italic	IM	T1001069	C0H307p0	HELI	X0H357p9	X0H74p		2306
Helvetica Bold Italic	IB	T1001069	C0H507p0	HELBI	X0H557p9	X0H76p		2307
Language Group: Latin4; AFP Typeface Name: Times New Roman Latin4								
Times New Roman	RM	T1001069	C0N207p0	TNR	X0N257p9	X0N73p	1261	2308
Times New Roman Bold	RB	T1001069	C0N407p0	TNRB	X0N457p9	X0N75p		2309
Times New Roman Italic	IM	T1001069	C0N307p0	TNRI	X0N357p9	X0N74p		2310
Times New Roman Bold Italic	IB	T1001069	C0N507p0	TNRBI	X0N557p9	X0N76p		2311
Language Group: Latin5; AFP Typeface Name: Courier Latin235								
Courier	RM	T1001026	C04202p0	COU		X0460p	1261	416
Courier Bold	RB	T1001026	C04402p0	COUB	X04452p3	X0462p		420
Courier Italic	IM	T1001026	C04302p0	COUI	X04352p3	X0461p		424
Courier Bold Italic	IB	T1001026	C04502p0	COUBI	X04552p3	X0463p		428
Language Group: Latin5; AFP Typeface Name: Helvetica Latin235								
Helvetica	RM	T1001026	C0H202p0	HEL	X0H252p3	X0H60p	1261	2304
Helvetica Bold	RB	T1001026	C0H402p0	HELB	X0H452p3	X0H62p		2305
Helvetica Italic	IM	T1001026	C0H302p0	HELI	X0H352p3	X0H61p		2306
Helvetica Bold Italic	IB	T1001026	C0H502p0	HELBI	X0H552p3	X0H63p		2307
Language Group: Latin5; AFP Typeface Name: Times New Roman Latin235								
Times New Roman	RM	T1001026	C0N202p0	TRN	X0N252p3	X0N60p	1261	2308
Times New Roman Bold	RB	T1001026	C0N42p0	TRNB	X0N452p3	X0N60p		2309
Times New Roman Italic	IM	T1001026	C0N232p0	TRNI	X0N352p3	X0N60p		2310
Times New Roman Bold Italic	IB	T1001026	C0N52p0	TRNBI	X0N552p3	X0N60p		2311
Language Group: Optical Character Recognition (OCR); AFP Typeface Name: OCRA								
OCRA	RM	T1000892	C0920AB0	OCR_A	X0927AB4	X09B0B	968	305
Language Group: Optical Character Recognition (OCR); AFP Typeface Name: OCRB								
OCRB	RM	T1000893	C0920BB0	OCR_B	X0927BB5	X09B1B	969	306

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Table 14. Summary of SBCS fonts (continued)								
Language Group: Lao; AFP Typeface Name: Courier Lao								
Courier Lao	RM	T1001132	C04209p0	COU_L	X04269pE	X041Op	1341	416
Courier Lao Bold	RB	T1001132	C04409p0	COU_LB	X04469pE	X041Qp		420
Courier Lao Italic	IM	T1001132	C04309p0	COU_LI	X04369pE	X041Pp		424
Courier Lao Bold Italic	IB	T1001132	C04509p0	COU_LBI	X04569pE	X041Rp		428
Language Group: Lao; AFP Typeface Name: Pusuwan								
Pusuwan	RM	T1001132	C0H209p0	HEL_L	X0H269pE	X0H1Op	1341	2304
Pusuwan Bold	RB	T1001132	C0H409p0	HEL_LB	X0H469pE	X0H1Qp		2305
Pusuwan Italic	IM	T1001132	C0H309p0	HEL_LI	X0H369pE	X0H1Pp		2306
Pusuwan Bold Italic	IB	T1001132	C0H509p0	HEL_LBI	X0H569pE	X0H1Rp		2307
Language Group: Lao; AFP Typeface Name: Kaewfah								
Kaewfah	RM	T1001132	C0N209p0	TNR_L	X0N269pE	X0N1Op	1341	2308
Kaewfah Bold	RB	T1001132	C0N409p0	TNR_LB	X0N469pE	X0N1Qp		2309
Kaewfah Italic	IM	T1001132	C0N309p0	TNR_LI	X0N369pE	X0N1Pp		2310
Kaewfah Bold Italic	IB	T1001132	C0N509p0	TNR_LBI	X0N569pE	X0N1Rp		2311
Language Group: Symbols; AFP Typeface Name: Courier Symbols								
Courier Symbols	RM	T1000259	C04201p0	COU_S	X04271p1	X0412p	1275	416
Courier Symbols Bold	RB	T1000259	C04401p0	COU_SB	X04471p1	X0413p		420
Language Group: Symbols; AFP Typeface Name: Helvetica Symbols								
Helvetica Symbols	RM	T1000259	C0H201p0	HEL_S	X0H271p1	X0H12p	1275	2304
Helvetica Symbols Bold	RB	T1000259	C0H401p0	HEL_SB	X0H471p1	X0H13p		2305
Language Group: Symbols; AFP Typeface Name: Times New Roman Symbols								
Times New Roman Symbols	RM	T1000259	C0N201p0	TNR_S	X0N271p1	X0N12p	1275	2308
Times New Roman Symbols Bold	RB	T1000259	C0N401p0	TNR_SB	X0N471p1	X0N13p		2309
Language Group: Thai; AFP Typeface Name: Courier Thai								
Courier Thai	RM	T1000838	C04206p0	COU_T	X04266p8	X047Bp	1279	416
Courier Thai Bold	RB	T1000838	C04406p0	COU_TB	X04466p8	X047Dp		420
Courier Thai Italic	IM	T1000838	C04306p0	COU_TI	X04366p8	X047Cp		424
Courier Thai Bold Italic	IB	T1000838	C04506p0	COU_TBI	X04566p8	X047Vp		428
Language Group: Thai; AFP Typeface Name: Thonburi								
Thonburi	RM	T1000838	C0H206p0	HEL_T	X0H266p8	X0H7Bp	1279	2304
Thonburi Bold	RB	T1000838	C0H406p0	HEL_TB	X0H466p8	X0H7Dp		2305
Thonburi Italic	IM	T1000838	C0H306p0	HEL_TI	X0H366p8	X0H7Pp		2306
Thonburi Bold Italic	IB	T1000838	C0H506p0	HEL_TBI	X0H566p8	X0H7Vp		2307

Type 1 typeface name	Style and weight	Code page	Character set identifier	Type 1 file name	Coded font identifier	Alternate coded font identifier	GCSGID	FGID
Table 14. Summary of SBCS fonts (continued)								
Language Group: Thai; AFP Typeface Name: Burirum								
Burirum	RM	T1000838	C0N206p0	TNR_T	X0N266p8	X0N7Bp	1279	2308
Burirum Bold	RB	T1000838	C0N406p0	TNR_TB	X0N466p8	X0N7Dp		2309
Burirum Italic	IM	T1000838	C0N306p0	TNR_TI	X0N366p8	X0N7Cp		2310
Burirum Bold Italic	IB	T1000838	C0N506p0	TNR_TBI	X0N566p8	X0N7Vp		2311

DBCS fonts

DBCS core fonts are part of the AFP raster fonts that are included with the z/OS Font Collection. The fonts contain different typefaces that are suitable for printing various Chinese, Japanese, and Korean (CJK) documents. CJK fonts are derived from the Adobe CID-Keyed font technology.

DBCS fonts are provided in 240-pel bounded-box font formats for the z/OS, IBM i, AIX, Linux, and Windows operating systems.

lists DBCS fonts by CJK typeface.

Naming conventions for DBCS fonts

This information shows the naming conventions for DBCS full-width and half-width raster coded fonts and character sets. It also shows the size groups that include the point and box sizes of fonts.

DBCS full-width fonts

The naming convention format for DBCS full-width fonts is *a0tcpbss*, where:

a
> Component:
>
> **C**
> > Character set
>
> **X**
> > Coded font

0
> 240-pel format

tc
> Typestyle, country:
>
> **EF**
> > Heisei Kaku Gothic, Japanese
>
> **KF**
> > Heisei Mincho, Japanese
>
> **PF**
> > Heisei Maru Gothic, Japanese
>
> **IF**
> > Heisei Kaku Gothic, JIS X 0213:2004, Japanese
>
> **OF**
> > Heisei Mincho, JIS X 0213:2004, Japanese
>
> **WF**
> > Heisei Maru Gothic, JIS X 0213:2004, Japanese

GH

Gothic, Korean (Full Hangul: Korean Industrial Standard Code for information interchange (Hangul and Hanja) KSC 5700-199)

GK

Gothic, Korean (KS: Korean Industrial Standard Code for information interchange (Hangul and Hanja) KSC 5601-1989)

MH

Myengjo, Korean (Full Hangul)

MK

Myengjo, Korean (KS)

FP

Fang Song, Simplified Chinese (GB: Code of Chinese Graphic Character Set for Information Interchange GB 2312-80)

HP

Hei, Simplified Chinese (GB)

HS

Hei, Simplified Chinese (GB18030: Code of Chinese Graphic Character Set for Information Interchange GB 18030-2000)

JP

Kai, Simplified Chinese (GB)

SP

Song, Simplified Chinese (GB)

SS

Song, Simplified Chinese (GB18030)

LT

Kai, Traditional Chinese

TT

Sung, Traditional Chinese

pb

Point size or box height:

48

4.8 point size or 16 box height

60

6.0 point size or 20 box height

72

7.2 point size or 24 box height

84

8.4 point size or 28 box height

96

9.6 point size or 32 box height

08

10.8 point size or 36 box height

B0

12.0 point size or 40 box height

C8

13.8 point size or 46 box height

E6

15.6 point size or 52 box height

H0

18.0 point size or 60 box height

J4
   20.4 point size or 68 box height

N0
   24.0 point size or 80 box height

T0
   30.0 point size or 100 box height

Z0
   36.0 point size or 120 box height

ss
   Hexadecimal sector number (character sets only)

DBCS half-width fonts

The naming convention format for DBCS half-width fonts is *a*0H0*tepb*, where:

a
   Component:

   C
      Character set

   X
      Coded font

0
   240-pel format

H0
   Half-width character sets; not used for coded fonts

te
   Typestyle, encoding:

   Japanese

      ED
         Heisei Kaku Gothic, DCF

      KD
         Heisei Mincho, DCF

      PD
         Heisei Maru Gothic, DCF

      EJ
         Heisei Kaku Gothic, PC extended

      KJ
         Heisei Mincho, PC extended

      PJ
         Heisei Maru Gothic, PC extended

      EO
         Heisei Kaku Gothic, Katakana extended

      KO
         Heisei Mincho, Katakana extended

      PO
         Heisei Maru Gothic, Katakana extended

      EV
         Heisei Kaku Gothic, Latin extended

      KV
         Heisei Mincho, Latin extended

PV

Heisei Maru Gothic, Latin extended

EW

Heisei Kaku Gothic, Latin extended with box

KW

Heisei Mincho, Latin extended with box

PW

Heisei Maru Gothic, Latin extended with box

EY

Heisei Kaku Gothic, Katakana extended with box

KY

Heisei Mincho, Katakana extended with box

PY

Heisei Maru Gothic, Katakana extended with box

Korean

GE

Gothic, EBCDIC

ME

Myengjo, EBCDIC

GJ

Gothic, PC

MJ

Myengjo, PC

GW

Gothic, EBCDIC extended with box

MW

Myengjo, EBCDIC extended with box

Simplified Chinese

FE

Fang Song, EBCDIC

HE

Hei, EBCDIC

HQ

Hei, PC (GB18030)

JE

Kai, EBCDIC

SE

Song, EBCDIC

FJ

Fang Song, PC

HJ

Hei, PC

JJ

Kai, PC

SJ

Song, PC

SQ

Song, PC (GB18030)

FW
   Fang Song, EBCDIC extended with box

HW
   Hei, EBCDIC extended with box

JW
   Kai, EBCDIC extended with box

SW
   Song, EBCDIC extended with box

Traditional Chinese

LE
   Kai, EBCDIC

TE
   Sung, EBCDIC

LJ
   Kai, PC

TJ
   Sung, PC

LQ
   Kai, PC IBM Big 5

TQ
   Sung, PC IBM Big 5

LW
   Kai, EBCDIC extended with box

TW
   Sung, EBCDIC extended with box

pb

Point size or box height:

48
   4.8 point size or 16 box height

60
   6.0 point size or 20 box height

72
   7.2 point size or 24 box height

84
   8.4 point size or 28 box height

96
   9.6 point size or 32 box height

08
   10.8 point size or 36 box height

B0
   12.0 point size or 40 box height

C8
   13.8 point size or 46 box height

E6
   15.6 point size or 52 box height

H0
   18.0 point size or 60 box height

J4
   20.4 point size or 68 box height

N0
> 24.0 point size or 80 box height

T0
> 30.0 point size or 100 box height

Z0
> 36.0 point size or 120 box height

Point and box sizes for DBCS fonts

The *pb* characters in the naming convention format represent the point size and box size of the font. The point size and box size that can be used with a font are determined by the size group that is assigned to the font. Table 15 on page 69 shows whether a *pb* point size and box size is in size group 1, size group 2, or both. "Summary table for DBCS fonts" on page 69 shows the size groups that are assigned to the DBCS fonts.

Table 15. Size groups for DBCS font point sizes and box sizes				
pb	Point size	Box size	Size group 1	Size group 2
60	6.0	20	X	
72	7.2	24	X	X
84	8.4	28	X	
96	9.6	32	X	X
08	10.8	36	X	
B0	12.0	40	X	
C8	13.8	46	X	
E6	15.6	52	X	
H0	18.0	60	X	
J4	20.4	68	X	
N0	30.0	80	X	

Summary table for DBCS fonts

This information lists DBCS core fonts for these typefaces:

- Chinese:
  - Simplified Chinese:
    - GB Fang Song
    - GB Hei
    - GB Kai
    - GBK Song
  - Traditional Chinese:
    - Kai
    - Sung
- Japanese:
  - Japanese Heisei Kaku Gothic
  - Japanese Heisei Maru Gothic
  - Japanese Heisei Mincho

- Korean:
    - Gothic
    - Myengjo

Table 16 on page 70 provides this information:

AFP/CID typeface name
    The IBM name for the typeface.

CID file name
    The name of the CID-Keyed font file that is used to create the font. The file extensions are CID and CMP.

Wt
    The weight of the font. Possible values are:

    L
        Light

    M
        Medium

    SB
        Semi-bold

    SL
        Semi-light

Width
    The width of the font. Possible values are:

    Full
        Full-width

    Half
        Half-width

Coded font
    A six-character name of the font, with "X0" as the prefix, that identifies the combination of code page and character set.

Character set
    An eight-character name, with "C0" as the prefix, that identifies an AFP raster character set.

Code page
    An eight-character name, with "T1" as the prefix, that identifies the code page.

GCSGID
    The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID
    The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

Size group
    The group that defines what point size and box size the font can use (see Table 15 on page 69).

AFP/CID typeface name	CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Size group
Table 16. Summary of DBCS fonts									
Simplified Chinese - GB									

Table 16. Summary of DBCS fonts (continued)									
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSGID**	**FGID**	**Size group**
Fang Song	IBSFSGW4	SL	Full	X0FPpb	C0FPpbss	T10837ss	1020	54566	1
			Half	X0FEpb	C0H0FEpb	T1H00836	1174		1
			Half	X0FJpb	C0H0FJpb	T1H01115	1240		1
			Half	X0FWpb	C0H0FWpb	T1H01151	1366		2
Hei	IBSHEIW6	SB	Full	X0HPpb	C0HPpbss	T10837ss	1020	54565	1
			Half	X0HEpb	C0H0HEpb	T1H00836	1174		1
			Half	X0HJpb	C0H0HJpb	T1H01115	1240		1
			Half	X0HWpb	C0H0HWpb	T1H01151	1366		2
Kai	IBSKAIW5	M	Full	X0JPpb	C0JPpbss	T10837ss	1020	54568	1
			Half	X0JEpb	C0H0JEpb	T1H00836	1174		1
			Half	X0JJpb	C0H0JJpb	T1H01115	1240		1
			Half	X0JWpb	C0H0JWpb	T1H01151	1366		2
Song	IKSSNGW5	M	Full	X0SPpb	C0SPpbss	T10837ss	1020	54567	1
			Full	X0SSpb	C0SSpbss	T1K837ss	1085		1
			Half	X0SEpb	C0H0SEpb	T1H00836	1174		1
			Half	X0SJpb	C0H0SJpb	T1H01115	1240		1
			Half	X0SUpb	C0H0SUpb	T1H00836	1174		1
			Half	X0SNpb	C0H0SNpb	T1H01115	1240		1
			Half	X0SQpb	C0H0SQpb	T1H01114	1238		1
			Half	X0SWpb	C0H0SWpb	T1H01151	1366		2
Traditional Chinese									
Kai	IBTKAIW5	M	Full	X0LTpb	C0LTpbss	T10835ss	2074	54568	1
			Half	X0LEpb	C0H0LEpb	T1H00037	1175		1
			Half	X0LJpb	C0H0LJpb	T1H01043	1189		1
			Half	X0LQpb	C0H0LQpb	T1H01114	1500		1
			Half	X0LVpb	C0H0LVpb	T1H01159	1399		1
			Half	X0LWpb	C0H0LWpb	T1H01152	1367		2
Sung	IBTSNGW3	L	Full	X0TTpb	C0TTpbss	T10835ss	2074	54563	1
			Half	X0TEpb	C0H0TEpb	T1H00037	1175		1
			Half	X0TJpb	C0H0TJpb	T1H01043	1189		1
			Half	X0TQpb	C0H0TQpb	T1H01114	1500		1
			Half	X0TVpb	C0H0TVpb	T1H01159	1399		1
			Half	X0TWpb	C0H0TWpb	T1H01152	1367		2
Japanese									

AFP/CID typeface name	CID file name	Weight	Width	Coded font	Character set	Code page	GCSGID	FGID	Size group
Heisei Kaku Gothic	IBJHKGW5	M	Full	X0EFpb	C0EFpbss	T10300ss	2057	53249	1
			Half	X0EDpb	C0H0EDpb	T1H01002	1132		1
			Half	X0EJpb	C0H0EJpb	T1H01041	1187		1
			Half	X0EOpb	C0H0EOpb	T1H00290	1398		1
			Half	X0EVpb	C0H0EVpb	T1H01027	1398		1
			Half	X0EWpb	C0H0EWpb	T1H01031	1363		2
			Half	X0EYpb	C0H0EYpb	T1H01030	1363		2
Heisei Maru Gothic	IBJHMGW4	SL	Full	X0PFpb	C0PFpbss	T10300ss	2057	53250	1
			Half	X0PDpb	C0H0PDpb	T1H01002	1132		1
			Half	X0PJpb	C0H0PJpb	T1H01041	1187		1
			Half	X0POpb	C0H0POpb	T1H00290	1398		1
			Half	X0PVpb	C0H0PVpb	T1H01027	1398		1
			Half	X0PWpb	C0H0PWpb	T1H01031	1363		2
			Half	X0PYpb	C0H0PYpb	T1H01030	1363		2
Heisei Mincho	IBJHMNW3	L	Full	X0KFpb	C0KFpbss	T10300ss	2057	53248	1
			Half	X0KDpb	C0H0KDpb	T1H01002	1132		1
			Half	X0KJpb	C0H0KJpb	T1H01041	1187		1
			Half	X0KOpb	C0H0KOpb	T1H00290	1398		1
			Half	X0KVpb	C0H0KVpb	T1H01027	1398		1
			Half	X0KWpb	C0H0KWpb	T1H01031	1363		2
			Half	X0KYpb	C0H0KYpb	T1H01030	1363		2
Korean									
Gothic	IBHKG2W5	M	Full	X0GKpb	C0GKpbss	T10834ss	1010	53816	1
			Full	X0GHpb	C0GHpbss	T1K834ss	1094		1
			Half	X0GEpb	C0H0GEpb	T1H00833	1173		1
			Half	X0GJpb	C0H0GJpb	T1H01088	1267		1
			Half	X0GUpb	C0H0GUpb	T1H00833	1173		1
			Half	X0GNpb	C0H0GNpb	T1H01088	1267		1
			Half	X0GWpb	C0H0GWpb	T1H01150	1365		2

Table 16. Summary of DBCS fonts (continued)

Table 16. Summary of DBCS fonts (continued)										
AFP/CID typeface name	**CID file name**	**Weight**	**Width**	**Coded font**	**Character set**	**Code page**	**GCSGID**	**FGID**	**Size group**
Myengjo	IBHSM2W5	M	Full	X0MKpb	C0MKpbss	T10834ss	1010	53560	1
			Full	X0MHpb	C0MHpbss	T1K834ss	1094		1
			Half	X0MEpb	C0H0MEpb	T1H00833	1173		1
			Half	X0MJpb	C0H0MJpb	T1H01088	1267		1
			Half	X0MUpb	C0H0MUpb	T1H00833	1173		1
			Half	X0MNpb	C0H0MNpb	T1H01088	1267		1
			Half	X0MWpb	C0H0MWpb	T1H01150	1365		2

APL2, DATA1, Math, PI, and Sonoran fonts

This information lists the APL2, DATA1, Math, and PI 240-pel raster fonts and the Sonoran 240-pel and 300-pel raster fonts that are included in the z/OS Font Collection.

Font name
> The name of the font.

Code page
> An eight-character name, with "T1" as the prefix, that identifies the code page.

GCSGID
> The graphic character set global identifier (GCSGID), which is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

CPGID
> The code page global identifier (CPGID), which is a number that is registered by IBM to uniquely identify each code page.

Width
> The width of the font. Values are:
>
> **M**
> > Medium
>
> **SB**
> > Semi-bold

Weight
> The weight of the font. Values are:
>
> **B**
> > Bold
>
> **I**
> > Italic
>
> **IB**
> > Italic Bold
>
> **M**
> > Medium

Coded font
> A 6-8 character name of the font, with "Xn" as the prefix, that identifies the combination of code page and character set. Values are:
>
> ***n***
> > The format and orientation. Values are:

0
>Bounded-box format

1, 2
>Unbounded-box format

y
>The suffix of the name, which is either C or I.

Character set
>An eight-character name, with "C*n*" as the prefix, that identifies an AFP raster character set. The values for *n* are:

0
>Bounded-box format

1, 2
>Unbounded-box format

Vertical size
>The maximum vertical size of the font in points.

Table 17. Summary of APL2, DATA1, Math, and PI 240-pel fonts								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
APL2	T1L00APL	2010	2115	M	M	XnAPL	CnL00APL	10.0
	T1000293	2010	2115			XnAPLA	CnL00APL	10.0
	T1000310	2010	2115			XnAPLB	CnL00APL	10.0
	T1L0AT10	2008	2114			XnAT10	CnL0AT10	10.0
	T1L0AG10	2010	2109			XnAG10	CnL0AG10	10.0
	T1000293	2010	2109			XnAG0A	CnL0AG10	10.0
	T1000310	2010	2109			XnAG0B	CnL0AG10	10.0
	T1L0AD10	2001	2107			XnAD10	CnL0AD10	10.0
	T1000293	2010	2107			XnAD0A	CnL0AD10	10.0
	T1000310	2010	2107			XnAD0B	CnL0AD10	10.0
	T1L0AT10	2009	2114			XnAT12	CnL0AT12	9.0
	T1L0AG12	2003	2110			XnAG12	CnL0AG12	9.0
	T1000293	2003	2110			XnAG2A	CnL0AG12	9.0
	T1000310	2003	2110			XnAG2B	CnL0AG12	9.0
	T1L0AD10	2002	2107			XnAD12	CnL0AD12	9.0
	T1000293	2002	2107			XnAD2A	CnL0AD12	9.0
	T1000310	2002	2107			XnAD2B	CnL0AD12	9.0
	T1L0AG15	2004	2111			XnAG15	CnL0AG15	8.0
	T1000293	2004	2111			XnAG5A	CnL0AG15	8.0
	T1000310	2004	2111			XnAG5B	CnL0AG15	8.0
	T1S0AP10	2007	2113			XnAP20	CnSOAP20	5.0

Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
Table 17. Summary of APL2, DATA1, Math, and PI 240-pel fonts (continued)								
APL2	T1L0AI10	2005	2112	M	I	XnAI10	CnLOAI10	10.0
	T1L0AI10	2006	2112			XnAI12	CnLOAI12	9.0
	T1S0AP10	2007	2113			XnAP10	CnS0AP10	10.0
	T1S0AP10	2007	2113			XnAP13	CnS0AP13	8.0
DATA1	T1D0BASE	2013	2063	M	M	XnD224	CnS0D224	9.0
		2014				XnD226	CnS0D226	8.0
DATA1	T1D0BASE	2014	2063	M	B	XnD227	CnS0D227	8.0
DATA1	T1D0BASE	2014	2063	M	I	XnD225	CnS0D225	8.0
Math Format	T1M00830	0	2080	M	M	X0MO5500	C0MO5500	10.0
						X0MO5541	C0MO5541	40.0
						X0MO5560	C0MO5560	6.0
						X0MO5570	C0MO5570	7.0
						X0MO5580	C0MO5580	8.0
						X0MO5581	C0MO5581	44.0
						X0MO5590	C0MO5590	9.0
						X0MO55A0	C0MO55A0	11.0
						X0MO55B0	C0MO55B0	12.0
						X0MO55B1	C0MO55B1	48.0
						X0MO55D0	C0MO55D0	14.0
						X0MO55F0	C0MO55F0	16.0
						X0MO55H0	C0MO55H0	18.0
						X0MO55H1	C0MO55H1	54.0
						X0MO55J0	C0MO55J0	20.0
						X0MO55L0	C0MO55L0	22.0
						X0MO55N0	C0MO55N0	24.0
						X0MO55N1	C0MO55N1	60.0
						X0MO55R0	C0MO55R0	28.0
						X0MO55T0	C0MO55T0	30.0
						X0MO55V0	C0MO55V0	32.0
						X0MO55Z0	C0MO55Z0	36.0
						X0MO55Z	C0MO55Z1	72.0

Table 17. Summary of APL2, DATA1, Math, and PI 240-pel fonts (continued)								
Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
Math Symbols Serif	T1M00829	909	829	M	M	X0MP5500	C0MP5500	10.0
						X0MP5560	C0MP5560	6.0
						X0MP5570	C0MP5570	7.0
						X0MP5580	C0MP5580	8.0
						X0MP5590	C0MP5590	9.0
						X0MP55A0	C0MP55A0	11.0
						X0MP55B0	C0MP55B0	12.0
						X0MP55D0	C0MP55D0	14.0
						X0MP55F0	C0MP55F0	16.0
						X0MP55H0	C0MP55H0	18.0
						X0MP55N0	C0MP55N0	24.0
						X0MP55Z0	C0MP55Z0	36.0
Math Symbols Serif	T1M00829	909	829	M	B	X0MP7500	C0MP7500	10.0
						X0MP7560	C0MP7560	6.0
						X0MP7570	C0MP7570	7.0
						X0MP7580	C0MP7580	8.0
						X0MP7590	C0MP7590	9.0
						X0MP75A0	C0MP75A0	11.0
						X0MP75B0	C0MP75B0	12.0
						X0MP75D0	C0MP75D0	14.0
						X0MP75F0	C0MP75F0	16.0
						X0MP75H0	C0MP75H0	18.0
						X0MP75N0	C0MP75N0	24.0
						X0MP75Z0	C0MP75Z0	36.0

Table 17. Summary of APL2, DATA1, Math, and PI 240-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Math Symbols Sans Serif	T1M00829	909	829	M	M	X0MQ5500	C0MQ5500	10.0
						X0MQ5560	C0MQ5560	6.0
						X0MQ5570	C0MQ5570	7.0
						X0MQ5580	C0MQ5580	8.0
						X0MQ5590	C0MQ5590	9.0
						X0MQ55A0	C0MQ55A0	11.0
						X0MQ55B0	C0MQ55B0	12.0
						X0MQ55D0	C0MQ55D0	14.0
						X0MQ55F0	C0MQ55F0	16.0
						X0MQ55H0	C0MQ55H0	18.0
						X0MQ55N0	C0MQ55N0	24.0
						X0MQ55Z0	C0MQ55Z0	36.0
Math Symbols Sans Serif	T1M00829	909	829	M	B	X0MQ7500	C0MQ7500	10.0
						X0MQ7560	C0MQ7560	6.0
						X0MQ7570	C0MQ7570	7.0
						X0MQ7580	C0MQ7580	8.0
						X0MQ7590	C0MQ7590	9.0
						X0MQ75A0	C0MQ75A0	11.0
						X0MQ75B0	C0MQ75B0	12.0
						X0MQ75D0	C0MQ75D0	14.0
						X0MQ75F0	C0MQ75F0	16.0
						X0MQ75H0	C0MQ75H0	18.0
						X0MQ75N0	C0MQ75N0	24.0
						X0MQ75Z0	C0MQ75Z0	36.0
PI Serif	T1GPI363	0	2066	M	M	X0Q0550P	C0Q05500	10.0
						X0Q0556P	C0Q05560	6.0
						X0Q0558P	C0Q05580	8.0
						X0Q055BP	C0Q055B0	12.0
PI Serif	T1GPI363	0	2066	M	B	X0Q0750P	C0Q07500	10.0
						X0Q0756P	C0Q07560	6.0
						X0Q0758P	C0Q07580	8.0
						X0Q075BP	C0Q075B0	12.0

Table 17. Summary of APL2, DATA1, Math, and PI 240-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
PI Sans Serif	T1GPI363	0	2066	M	M	X0P0550P	C0P05500	10.0
						X0P0556P	C0P05560	6.0
						X0P0558P	C0P05580	8.0
						X0P055BP	C0P055B0	12.0
PI Sans Serif	T1GPI363	0	2066	M	B	X0P0750P	C0P07500	10.0
						X0P0756P	C0P07560	6.0
						X0P0758P	C0P07580	8.0
						X0P075BP	C0P075B0	12.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Display (240-pel only)	T1GE0200	0	2081	M	M	X0J055JE	C0J055J0	20.0
						X0J055ZE	C0J055Z0	36.0
Sonoran Petite (240-pel only)	T1GE0300	0	2082	SB	M	X0Z0564E	C0Z05640	4.0
Sonoran Sans Serif	T1DCDCFS T1GI0361	11330	1003 2065	M	M	XnA0556y	CnA05560	6.0
						XnA0557y	CnA05570	7.0
						XnA0558y	CnA05580	8.0
						XnA0559y	CnA05590	9.0
						XnA0550y	CnA05500	10.0
						XnA055Ay	CnA055A0	11.0
						XnA055By	CnA055B0	12.0
						XnA055Dy	CnA055D0	14.0
						XnA055Fy	CnA055F0	16.0
						XnA055Hy	CnA055H0	18.0
						XnA055Jy	CnA055J0	20.0
						XnA055Ny	CnA055N0	24.0
						XnA055Ty	CnA055T0	30.0
						XnA055Zy	CnA055Z0	36.0
Sonoran Sans Serif (240-pel only)	T1DCDCFS T1GI0361	11330	1003 2065	M	M	XnA055By	CnA055B1	48.0
						XnA055Ny	CnA055N1	60.0
						XnA055Zy	CnA055Z1	72.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Sans Serif	T1DCDCFS T1GI0361	1133 0	1003 2065	M	B	XnA0756y	CnA07560	6.0
						XnA0757y	CnA07570	7.0
						XnA0758y	CnA07580	8.0
						XnA0759y	CnA07590	9.0
						XnA0750y	CnA07500	10.0
						XnA075Ay	CnA075A0	11.0
						XnA075By	CnA075B0	12.0
						XnA075Dy	CnA075D0	14.0
						XnA075Fy	CnA075F0	16.0
						XnA075Hy	CnA075H0	18.0
						XnA075Jy	CnA075J0	20.0
						XnA075Ny	CnA075N0	24.0
						XnA075Ty	CnA075T0	30.0
						XnA075Zy	CnA075Z0	36.0
Sonoran Sans Serif (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	B	XnA075By	CnA075B1	48.0
						XnA075Ny	CnA075N1	60.0
						XnA075Zy	CnA075Z1	72.0
Sonoran Sans Serif	T1DCDCFS T1GI0361	1133 0	1003 2065	M	I	XnA1556y	CnA15560	6.0
						XnA1557y	CnA15570	7.0
						XnA1558y	CnA15580	8.0
						XnA1559y	CnA15590	9.0
						XnA1550y	CnA15500	10.0
						XnA155Ay	CnA155A0	11.0
						XnA155By	CnA155B0	12.0
						XnA155Dy	CnA155D0	14.0
						XnA155Fy	CnA155F0	16.0
						XnA155Hy	CnA155H0	18.0
						XnA155Jy	CnA155J0	20.0
						XnA155Ny	CnA155N0	24.0
						XnA155Ty	CnA155T0	30.0
						XnA155Zy	CnA155Z0	36.0
Sonoran Sans Serif (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	I	XnA155By	CnA155B1	48.0
						XnA155Ny	CnA155N1	60.0
						XnA155Zy	CnA155Z1	72.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Sans Serif	T1GI0361	0	2065	M	M	X0A00361	C0A05500	10.0
	T1GI0382		2067			X0A00382		
	T1GI0383		2068			X0A00383		
	T1GI0384		2069			X0A00384		
	T1GI0385		2070			X0A00385		
	T1GI0386		2071			X0A00386		
	T1GI0387		2072			X0A00387		
	T1GI0388		2073			X0A00388		
	T1GI0389		2074			X0A00389		
	T1GI0390		2075			X0A00390		
	T1GI0391		2076			X0A00391		
	T1GI0392		2077			X0A00392		
	T1GI0393		2077			X0A00393		
	T1GI0394		2078			X0A00394		
	T1GI0395		2079			X0A00395		
Sonoran Sans Serif	T1V10037	697	37	M	M	X0A10037	C0A05500	10.0
	T1V10273		273			X0A10273		
	T1V10274		274			X0A10274		
	T1V10275		275			X0A10275		
	T1V10277		277			X0A10277		
	T1V10278		278			X0A10278		
	T1V10280		280			X0A10280		
	T1V10281		281			X0A10281		
	T1V10282		282			X0A10282		
	T1V10284		284			X0A10284		
	T1V10285		285			X0A10285		
	T1V10297		297			X0A10297		
	T1V10500		500			X0A10500		
	T1V10871		871			X0A10871		

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Sans Serif Condensed (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	M	XnA0536y	CnA05360	6.0
						XnA0537y	CnA05370	7.0
						XnA0538y	CnA05380	8.0
						XnA0539y	CnA05390	9.0
						XnA0530y	CnA05300	10.0
						XnA053Ay	CnA053A0	11.0
						XnA053By	CnA053B0	12.0
						XnA053Dy	CnA053D0	14.0
						XnA053Fy	CnA053F0	16.0
						XnA053Hy	CnA053H0	18.0
						XnA053Jy	CnA053J0	20.0
						XnA053Ny	CnA053N0	24.0
						XnA053Ty	CnA053T0	30.0
						XnA053Zy	CnA053Z0	36.0
Sonoran Sans Serif Condensed (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	B	XnA0736y	CnA07360	6.0
						XnA0737y	CnA07370	7.0
						XnA0738y	CnA07380	8.0
						XnA0739y	CnA07390	9.0
						XnA0730y	CnA07300	10.0
						XnA073Ay	CnA073A0	11.0
						XnA073By	CnA073B0	12.0
						XnA073Dy	CnA073D0	14.0
						XnA073Fy	CnA073F0	16.0
						XnA073Hy	CnA073H0	18.0
						XnA073Jy	CnA073J0	20.0
						XnA073Ny	CnA073N0	24.0
						XnA073Ty	CnA073T0	30.0
						XnA073Zy	CnA073Z0	36.0

Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Sonoran Sans Serif Condensed (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	I	XnA1536y	CnA15360	6.0
						XnA1537y	CnA15370	7.0
						XnA1538y	CnA15380	8.0
						XnA1539y	CnA15390	9.0
						XnA1530y	CnA15300	10.0
						XnA153Ay	CnA153A0	11.0
						XnA153By	CnA153B0	12.0
						XnA153Dy	CnA153D0	14.0
						XnA153Fy	CnA153F0	16.0
						XnA153Hy	CnA153H0	18.0
						XnA153Jy	CnA153J0	20.0
						XnA153Ny	CnA153N0	24.0
						XnA153Ty	CnA153T0	30.0
						XnA153Zy	CnA153Z0	36.0
Sonoran Sans Serif Condensed (240-pel only)	T1GI0361	0	2065	M	M	X0AC0361	C0A05300	10.0
	T1GI0382		2067			X0AC0382		
	T1GI0383		2068			X0AC0383		
	T1GI0384		2069			X0AC0384		
	T1GI0385		2070			X0AC0385		
	T1GI0386		2071			X0AC0386		
	T1GI0387		2072			X0AC0387		
	T1GI0388		2073			X0AC0388		
	T1GI0389		2074			X0AC0389		
	T1GI0390		2075			X0AC0390		
	T1GI0391		2076			X0AC0391		
	T1GI0392		2077			X0AC0392		
	T1GI0393		2077			X0AC0393		
	T1GI0394		2078			X0AC0394		
	T1GI0395		2079			X0AC0395		

Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
Sonoran Sans Serif Condensed (240-pel only)	T1V10037	697	37	M	M	X0AG0037	C0A05300	10.0
	T1V10273		273			X0AG0273		
	T1V10274		274			X0AG0274		
	T1V10275		275			X0AG0275		
	T1V10277		277			X0AG0277		
	T1V10278		278			X0AG0278		
	T1V10280		280			X0AG0280		
	T1V10281		281			X0AG0281		
	T1V10282		282			X0AG0282		
	T1V10284		284			X0AG0284		
	T1V10285		285			X0AG0285		
	T1V10297		297			X0AG0297		
	T1V10500		500			X0AG0500		
	T1V10871		871			X0AG0871		
Sonoran Sans Serif Expanded (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	M	XnA0576y	CnA05760	6.0
						XnA0577y	CnA05770	7.0
						XnA0578y	CnA05780	8.0
						XnA0579y	CnA05790	9.0
						XnA0570y	CnA05700	10.0
						XnA057Ay	CnA057A0	11.0
						XnA057By	CnA057B0	12.0
						XnA057Dy	CnA057D0	14.0
						XnA057Fy	CnA057F0	16.0
						XnA057Hy	CnA057H0	18.0
						XnA057Jy	CnA057J0	20.0
						XnA057Ny	CnA057N0	24.0
						XnA057Ty	CnA057T0	30.0
						XnA057Zy	CnA057Z0	36.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)

Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
Sonoran Sans Serif Expanded (240-pel only)	T1DCDCFS T1GI0361	11330	1003 2065	M	B	XnA0776y	CnA07760	6.0
						XnA0777y	CnA07770	7.0
						XnA0778y	CnA07780	8.0
						XnA0779y	CnA07790	9.0
						XnA0770y	CnA07700	10.0
						XnA077Ay	CnA077A0	11.0
						XnA077By	CnA077B0	12.0
						XnA077Dy	CnA077D0	14.0
						XnA077Fy	CnA077F0	16.0
						XnA077Hy	CnA077H0	18.0
						XnA077Jy	CnA077J0	20.0
						XnA077Ny	CnA077N0	24.0
						XnA077Ty	CnA077T0	30.0
						XnA077Zy	CnA077Z0	36.0
Sonoran Sans Serif Expanded (240-pel only)	T1GI0361	0	2065	M	M	X0AE0361	C0A05700	10.0
	T1GI0382		2067			X0AE0382		
	T1GI0383		2068			X0AE0383		
	T1GI0384		2069			X0AE0384		
	T1GI0385		2070			X0AE0385		
	T1GI0386		2071			X0AE0386		
	T1GI0387		2072			X0AE0387		
	T1GI0388		2073			X0AE0388		
	T1GI0389		2074			X0AE0389		
	T1GI0390		2075			X0AE0390		
	T1GI0391		2076			X0AE0391		
	T1GI0392		2077			X0AE0392		
	T1GI0393		2077			X0AE0393		
	T1GI0394		2078			X0AE0394		
	T1GI0395		2079			X0AE0395		

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Sans Serif Expanded (240-pel only)	T1V10037	697	37	M	M	X0AF0037	C0A05700	10.0
	T1V10273		273			X0AF0273		
	T1V10274		274			X0AF0274		
	T1V10275		275			X0AF0275		
	T1V10277		277			X0AF0277		
	T1V10278		278			X0AF0278		
	T1V10280		280			X0AF0280		
	T1V10281		281			X0AF0281		
	T1V10282		282			X0AF0282		
	T1V10284		284			X0AF0284		
	T1V10285		285			X0AF0285		
	T1V10297		297			X0AF0297		
	T1V10500		500			X0AF0500		
	T1V10871		871			X0AF0871		
Sonoran Sans Serif Headliner (240-pel only)	T1DCDCFS	1133	1003	M	BI	X0A055B2	C0A055B1	12.0
						X0A055N2	C0A055N1	24.0
						X0A055Z2	C0A055Z1	36.0
						X0A075B2	C0A075B1	12.0
						X0A075N2	C0A075N1	24.0
						X0A075Z2	C0A075Z1	36.0
						X0A155B2	C0A155B1	12.0
						X0A155N2	C0A155N1	24.0
						X0A155Z2	C0A155Z1	36.0
						X0A175B2	C0A175B1	12.0
						X0A175N2	C0A175N1	24.0
						X0A175Z2	C0A175Z1	36.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Sans Serif Headliner	T1DCDCFS	1133	1003	M	BI	XnA1756y	CnA17560	6.0
						XnA1757y	CnA17570	7.0
						XnA1758y	CnA17580	8.0
						XnA1759y	CnA17590	9.0
						XnA1750y	CnA17500	10.0
						XnA175Ay	CnA175A0	11.0
						XnA175By	CnA175B0	12.0
						XnA175Dy	CnA175D0	14.0
						XnA175Fy	CnA175F0	16.0
						XnA175Hy	CnA175H0	18.0
						XnA175Jy	CnA175J0	20.0
						XnA175Ny	CnA175N0	24.0
						XnA175Ty	CnA175T0	30.0
						XnA175Zy	CnA175Z0	36.0
Sonoran Sans Serif Headliner (240-pel only)	T1DCDCFS	1133	1003	M	BI	XnA175By	CnA175B1	48.0
						XnA175Ny	CnA175N1	60.0
						XnA175Zy	CnA175Z1	72.0
Sonoran Sans Serif Headliner (240-pel only)	T1GI0361	0	2065	M	BI	X0A055B4	C0A055B1	12.0
						X0A055N4	C0A055N1	24.0
						X0A055Z4	C0A055Z1	36.0
						X0A075B4	C0A075B1	12.0
						X0A075N4	C0A075N1	24.0
						X0A075Z4	C0A075Z1	36.0
						X0A155B4	C0A155B1	12.0
						X0A155N4	C0A155N1	24.0
						X0A155Z4	C0A155Z1	36.0
						X0A175B4	C0A175B1	12.0
						X0A175N4	C0A175N1	24.0
						X0A175Z4	C0A175Z1	36.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Serif	T1DCDCFS T1GI0361	1133 0	1003 2065	M	M	XnT0556y	CnT05560	6.0
						XnT0557y	CnT05570	7.0
						XnT0558y	CnT05580	8.0
						XnT0559y	CnT05590	9.0
						XnT0550y	CnT05500	10.0
						XnT055Ay	CnT055A0	11.0
						XnT055By	CnT055B0	12.0
						XnT055Dy	CnT055D0	14.0
						XnT055Fy	CnT055F0	16.0
						XnT055Hy	CnT055H0	18.0
						XnT055Jy	CnT055J0	20.0
						XnT055Ny	CnT055N0	24.0
						XnT055Ty	CnT055T0	30.0
						XnT055Zy	CnT055Z0	36.0
Sonoran Serif (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	M	XnT055By	CnT055B1	48.0
						XnT055Ny	CnT055N1	60.0
						XnT055Zy	CnT055Z1	72.0
Sonoran Serif	T1DCDCFS T1GI0361	1133 0	1003 2065	M	B	XnT0756y	CnT07560	6.0
						XnT0757y	CnT07570	7.0
						XnT0758y	CnT07580	8.0
						XnT0759y	CnT07590	9.0
						XnT0750y	CnT07500	10.0
						XnT075Ay	CnT075A0	11.0
						XnT075By	CnT075B0	12.0
						XnT075Dy	CnT075D0	14.0
						XnT075Fy	CnT075F0	16.0
						XnT075Hy	CnT075H0	18.0
						XnT075Jy	CnT075J0	20.0
						XnT075Ny	CnT075N0	24.0
						XnT075Ty	CnT075T0	30.0
						XnT075Zy	CnT075Z0	36.0
Sonoran Serif (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	B	XnT075By	CnT075B1	48.0
						XnT075Ny	CnT075N1	60.0
						XnT075Zy	CnT075Z1	72.0

Font name	Code page	GCSGID	CPGID	Width	Weight	Coded font	Character set	Vertical size
								Vertical size
Sonoran Serif	T1DCDCFS T1GI0361	1133 0	1003 2065	M	I	XnT1556y	CnT15560	6.0
						XnT1557y	CnT15570	7.0
						XnT1558y	CnT15580	8.0
						XnT1559y	CnT15590	9.0
						XnT1550y	CnT15500	10.0
						XnT155Ay	CnT155A0	11.0
						XnT155By	CnT155B0	12.0
						XnT155Dy	CnT155D0	14.0
						XnT155Fy	CnT155F0	16.0
						XnT155Hy	CnT155H0	18.0
						XnT155Jy	CnT155J0	20.0
						XnT155Ny	CnT155N0	24.0
						XnT155Ty	CnT155T0	30.0
						XnT155Zy	CnT155Z0	36.0
Sonoran Serif (240-pel only)	T1DCDCFS T1GI0361	1133 0	1003 2065	M	I	XnT155By	CnT155B1	48.0
						XnT155Ny	CnT155N1	60.0
						XnT155Zy	CnT155Z1	72.0
Sonoran Serif	T1GI0361	0	2065	M	M	X0T00361	C0T05500	10.0
	T1GI0382		2067			X0T00382		
	T1GI0383		2068			X0T00383		
	T1GI0384		2069			X0T00384		
	T1GI0385		2070			X0T00385		
	T1GI0386		2071			X0T00386		
	T1GI0387		2072			X0T00387		
	T1GI0388		2073			X0T00388		
	T1GI0389		2074			X0T00389		
	T1GI0390		2075			X0T00390		
	T1GI0391		2076			X0T00391		
	T1GI0392		2077			X0T00392		
	T1GI0393		2077			X0T00393		
	T1GI0394		2078			X0T00394		
	T1GI0395		2079			X0T00395		

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Serif	T1V10037	697	37	M	M	X0T10037	C0T05500	10.0
	T1V10273		273			X0T10273		
	T1V10274		274			X0T10274		
	T1V10275		275			X0T10275		
	T1V10277		277			X0T10277		
	T1V10278		278			X0T10278		
	T1V10280		280			X0T10280		
	T1V10281		281			X0T10281		
	T1V10282		282			X0T10282		
	T1V10284		284			X0T10284		
	T1V10285		285			X0T10285		
	T1V10297		297			X0T10297		
	T1V10500		500			X0T10500		
	T1V10871		871			X0T10871		
Sonoran Serif Headliner (240-pel only)	T1DCDCFS	1133	1003	M	BI	X0T055B2	C0T055B1	12.0
						X0T055N2	C0T055N1	24.0
						X0T055Z2	C0T055Z1	36.0
						X0T075B2	C0T075B1	12.0
						X0T075N2	C0T075N1	24.0
						X0T075Z2	C0T075Z1	36.0
						X0T155B2	C0T155B1	12.0
						X0T155N2	C0T155N1	24.0
						X0T155Z2	C0T155Z1	36.0
						X0T175B2	C0T175B1	12.0
						X0T175N2	C0T175N1	24.0
						X0T175Z2	C0T175Z1	36.0

Table 18. Summary of Sonoran 240-pel and 300-pel fonts (continued)								
Font name	**Code page**	**GCSGID**	**CPGID**	**Width**	**Weight**	**Coded font**	**Character set**	**Vertical size**
Sonoran Serif Headliner	T1DCDCFS	1133	1003	M	BI	XnT1756y	CnT17560	6.0
						XnT1757y	CnT17570	7.0
						XnT1758y	CnT17580	8.0
						XnT1759y	CnT17590	9.0
						XnT1750y	CnT17500	10.0
						XnT175Ay	CnT175A0	11.0
						XnT175By	CnT175B0	12.0
						XnT175Dy	CnT175D0	14.0
						XnT175Fy	CnT175F0	16.0
						XnT175Hy	CnT175H0	18.0
						XnT175Jy	CnT175J0	20.0
						XnT175Ny	CnT175N0	24.0
						XnT175Ty	CnT175T0	30.0
						XnT175Zy	CnT175Z0	36.0
Sonoran Serif Headliner (240-pel only)	T1DCDCFS	1133	1003	M	BI	XnT175By	CnT175B1	48.0
						XnT175Ny	CnT175N1	60.0
						XnT175Zy	CnT175Z1	72.0
Sonoran Serif Headliner (240-pel only)	T1GI0361	0	2065	M	BI	X0T055B4	C0T055B1	12.0
						X0T055N4	C0T055N1	24.0
						X0T055Z4	C0T055Z1	36.0
						X0T075B4	C0T075B1	12.0
						X0T075N4	C0T075N1	24.0
						X0T075Z4	C0T075Z1	36.0
						X0T155B4	C0T155B1	12.0
						X0T155N4	C0T155N1	24.0
						X0T155Z4	C0T155Z1	36.0
						X0T175B4	C0T175B1	12.0
						X0T175N4	C0T175N1	24.0
						X0T175Z4	C0T175Z1	36.0

Compatibility fonts

Compatibility fonts are part of the AFP raster fonts that are shipped with the z/OS Font Collection. Compatibility fonts include uniformly spaced, mixed-pitch, and Proprinter Emulation fonts. Uniformly spaced fonts are measured horizontally in pitch. Proportionally spaced and mixed-pitch fonts are measured vertically in points. Compatibility fonts are provided in these formats:

- 240-pel bounded-box
- 240-pel unbounded-box
- 300-pel

"Summary table for compatibility fonts" on page 93 lists compatibility fonts by font type.

Naming conventions for compatibility fonts

The naming convention format for compatibility fonts is *afo0ttnn* or *afo0py*, where:

a
: Component:

  C
  : Character set

  X
  : Coded font

f
: Format:

  0
  : Bounded-box and 300-pel

  1, 2
  : Unbounded-box

o
: Font origin for original fonts and original printer:

  D
  : DCF Release 2 fonts; 3800 Model 1 printer

  L
  : Library character sets; 3800 Model 1 printer

  S
  : 6670 fonts; 6670 information printer

0
: Uniformly spaced or mixed-pitch font components

ttnn
: Type family, typeface, and pitch of font (see Table 19 on page 93)

p
: Pitch exception for coded fonts:

  Migration code pages

  0
  : 10 pitch

  2
  : 12 pitch

  5
  : 15 pitch

  8
  : 18 pitch

  Country extended code pages

  0
  : 10 pitch

  E
  : 12 pitch

5

    15 pitch

8

    18 pitch

y

    Code page exception for coded fonts:

Compatibility font NLS code pages

A

    T1DABASE Austria, Germany

B

    T1DBBASE Belgium, Switzerland, Luxembourg

D

    T1DDBASE Denmark, Norway, Iceland

E

    T1DEBASE Finland, Sweden

F

    T1DFBASE France

I

    T1DIBASE Italy

N

    T1DNBASE Netherlands, Portugal

S

    T1DSBASE Spain, Latin America

U

    T1DUBASE United Kingdom

Country Extended code pages

1

    T1V10037 United States, Canada

2

    T1V10273 Austria, Germany

3

    T1V10277 Denmark, Norway

4

    T1V10278 Finland, Sweden

5

    T1V10280 Italy

6

    T1V10284 Spain, Latin America

7

    T1V10285 United Kingdom

8

    T1V10297 France

9

    T1V10500 International #5

0

    T1V10871 Iceland

J

    T1V10274 Belgium

K

T1V10275 Brazil

L

T1V10281 Japan (Latin)

M

T1V10282 Portugal

Table 19 on page 93 defines the *ttnn* naming convention format for compatibility fonts.

Table 19. ttnn naming convention format for compatibility fonts	
ttnn	**Font type name**
AE10, AE20	APL
BITR, BRTR	Boldface
CB10, CB12, CB15, CD15, CE10, CE12, CH10, CI10, CI12, CI15, CO10, CR10, CR12, CR15, CW15	Courier
DOTR	Document
EBTR, EITR, ELTR, ESTR	Essay
FM10, FM12, FM15	Format
GB10, GB12, GC15, GI12, GL10, GL12, GL15, GR10, GT10, GT12, GT13, GT15, GT18, GT20, GT24, A11, AN, DUMP, G11, GF10, GF12, GF15, GFC, GN, GS10, GS12, GS15, GSC, GU10, GU12, GU15, GUC, H11, HN, P11, PCAN, PCHN, PN, QN, QNC, RN, XN, YN	Gothic
2773, 2774, K290, KATA, KL10, KL12, KL15, KN1, KN10, KN12, KN15, KN20	Gothic and Katakana
1AOA, 1AOD, 1AON, AOA, AOD, AON, BOA, BON, OAA, OAB, ODA, ONA, ONB	Gothic and OCR
GP12, GTRI	Gothic Tri-Pitch
LB12, LR12	Letter Gothic
OB10, OR10	Orator
PB12, PI12, PR10, PR12	Prestige
RT10	Roman
SR12	Script
SB12, SI10, SI12, S012, ST10, ST12, ST15	Serif
S192, S193, S198, SYMO, SYM2	Symbols
SN, T11, TN, TU10	Text

Summary table for compatibility fonts

Table 20 on page 94 provides this information:

AFP typeface name

The IBM name for the typeface.

Style and weight

The style and weight of the font. Possible values are:

IB

Italic Bold

IM

Italic Medium

RB
　　Roman Bold
RC
　　Roman Condensed
RL
　　Roman Light
RM
　　Roman Medium
RSL
　　Roman Semi-Light

Code page
　　An eight-character name, with "T1" as the prefix, that identifies the code page. Alphabetic script and symbol fonts use only single-byte code pages.

Character set identifier
　　An eight-character name that identifies an AFP raster character set.

Coded font identifier
　　A 5-8 character name of the raster coded font that identifies the combination of code page and character set.

GCSGID
　　The graphic character set global identifier (GCSGID) is a collection of characters that are registered with a unique number and sometimes used for font and code page selection.

FGID
　　The font typeface global identifier (FGID) is a number that is assigned to each typeface and is sometimes used for font selection.

Size
　　The size of the font in pitch or points. **MP** stands for mixed pitch.

Table 20. Summary of compatibility fonts							
AFP typeface name	**Style and weight**	**Code page**	**Character set identifier**	**Coded font identifier**	**GCSGID**	**FGID**	**Size**
APL							
APL	RM	T1S0AE10	C0S0AE10	X0AE10	2029	45	10 pitch
	RM	T1S0AE10	C0S0AE20	X0AE20		280	20 pitch
Boldface							
Book (Bold)	RB	T1D0BASE	C0S0BRTR	X0BRTR	2023	159	MP
Book (Italic)	IB	T1D0BASE	C0S0BITR	X0BITR		155	
Courier							

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Courier	RM	T1D0BASE	C0S0CR10	X0CR10	2023	11	10 pitch
	RM	T1D0BASE	C0S0CR12	X0CR12		85	12 pitch
	RM	T1D0BASE	C0S0CR15	X0CR15		223	15 pitch
	RM	T1D0BASE	C0S0CE10	X0CE12		85	12 pitch
Courier (Bold)	RB	T1D0BASE	C0S0CB10	X0CB10	2023	46	10 pitch
	RB	T1D0BASE	C0S0CB12	X0CB12		108	12 pitch
	RB	T1D0BASE	C0S0CB15	X0CB15		214	15 pitch
Courier (Italic)	IM	T1D0BASE	C0S0CI10	X0CI10	2023	18	10 pitch
	IM	T1D0BASE	C0S0CI12	X0CI12		92	12 pitch
	IM	T1D0BASE	C0S0CI15	X0CI15		215	15 pitch
Courier (Double Wide)	RM	T1D0BASE	C0S0CD15	X0CD15	2023	417	15 pitch
Courier (Double Wide Italic)	IM	T1D0BASE	C0S0CW15	X0CW15	2023	425	15 pitch
Courier (Overstruck)	RM	T1D0BASE	C0S0CO10	X0CO10	2025	302	10 pitch
Courier elongated (Overstruck)	RM	T1D0BASE	C0S0CH10	X0CH10	2025	37	10 pitch
Courier extended	RM	T1D0BASE	C0S0CE10	X0CE10	2036	85	10 Pitch
Document							
Book	RM	T1D0BASE	C0S0DOTR	X0DOTR	2023	175	MP
							10 points
Essay							
Essay (Bold)	RB	T1D0BASE	C0S0EBTR	X0EBTR	2023	163	MP
							10 points

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Essay (Italic)	IM	T1D0BASE	C0S0EITR	X0EITR	2023	162	MP
							10 points
Essay (Light)	RL	T1D0BASE	C0S0ELTR	X0ELTR	2023	173	MP
							10 points
Essay (Overstruck)	RM	T1D0BASE	C0S0EOTR	X0EOTR	2028	196	MP
							10 points
Essay	RM	T1D0BASE	C0S0ESTR	X0ESTR	2023	160	MP
							10 points
Format							
Format	RM	T1L00FMT	C0L0FM10	X0FM10	2027	30	10 pitch
	RM	T1L00FMT	C0L0FM12	X0FM12		80	12 pitch
	RM	T1L00FMT	C0L0FM15	X0FM15		225	15 pitch
Gothic							
Gothic (Bold)	RB	T1D0BASE	C0D0GB10	X0GB10	2023	39	10 pitch
	RB	T1D0BASE	C0D0GB12	X0GB12		69	12 pitch
Gothic Uppercase	RC	T1L038BA	C0L00GSC	X0GSC	2038	398	15 pitch
Gothic (Italic)	IM	T1D0BASE	C0D0GI12	X0GI12	2023	68	12 pitch
Gothic Reverse	RM	T1D0BASE	C0D0GR10	X0GR10	2023	310	10 pitch
Gothic13	RM	T1D0BASE	C0D0GT13	X0GT13	2037	203	13.3 pitch

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Gothic	RM	T1D0BASE	C0D0GT10	X0GT10	2023	40	10 pitch
	RM	T1D0BASE	C0D0GT12	X0GT12		66	12 pitch
	RM	T1D0BASE	C0D0GT15	X0GT15		230	15 pitch
	RM	T1D0BASE	C0D0GT18	X0GT18		275	18 pitch
	RM	T1D0BASE	C0D0GT20	X0GT20		230	20 pitch
	RM	T1D0BASE	C0D0GT24	X0GT24		275	24 pitch
	RSL	T1D0BASE	C0D0GL10	X0GL10		303	10 pitch
	RSL	T1D0BASE	C0D0GL12	X0GL12		303	12 pitch
	RSL	T1D0BASE	C0D0GL15	X0GL15		303	15 pitch
	RM	T1D0BASE	C0D0GC15	X0GC15	2037	231	15 pitch
	RM	T1D0BASE	C0L0GU10	X0GU10	2038	312	10 pitch
	RM	T1D0BASE	C0L0GU12	X0GU12		312	12 pitch
	RM	T1D0BASE	C0L0GU15	X0GU15		312	15 pitch
	RM	T1D0BASE	C0L0GUC	X0GUC		311	15 pitch
DUMP	RM	T1L0DUMP	C0L0DUMP	X0DUMP	2022	230	15 pitch
Gothic and Katakana							

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Katakana	RM	T1000290	C0L0KN12	X0KN12	2031	433	12 pitch
	RM	T1000290	C0L0KN15	X0KN15		433	15 pitch
	RM	T1000290	C0L0KN20	X0KN20		433	20 pitch
	RM	T1000290	C0L0KATA	X0KATA		433	10 pitch
	RSL	T1000290	C0K0KL10	X0KL10		521	10 pitch
	RSL	T1000290	C0K0KL12	X0KL12		521	12 pitch
	RSL	T1000290	C0K0KL15	X0KL15		521	15 pitch
Gothic and Optical Character Recognition-A (OCR-A)							
OCR AOA1	RM	T1L0OCR1	C0L01AOA	X01AOA	2034	19	10 pitch
OCRA AOA	RM	T1L0OCR1	C0L00AOA	X0AOA	2034	19	10 pitch
OCR A AON1	RM	T1L0OCR1	C0L01AON	X01AOD	2035	19	10 pitch
OCRA AON	RM	T1L0OCR1	C0L00AOB	X0AOd	2035	19	10 pitch
Gothic and Optical Character Recognition-B (OCR-B)							
OCRB BOA	RM	T1L0OCRB	C0L00BOA	X0BOA	2032	3	10 pitch
OCRB BON	RM	T1L0OCR1	C0L00BOB	X0BON	2032	3	10 pitch
OCRB OAB	RM	T1L0OCR1	C0L00OAB	X0OAB	2032	3	10 pitch
Gothic Tri-Pitch							
Gothic Proportional	RM	T1D0GP12	C0D0GP12	X0GP12	2023	174	MP
							9 points
Letter Gothic							
Letter Gothic	RM	T1D0BASE	C0S0LR12	X0LR12	2023	87	12 pitch
Letter Gothic (Bold)	RB	T1D0BASE	C0S0LB12	X0LB12	2023	110	12 pitch
Orator							

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Orator	RM	T1D0BASE	C0S0OR10	X0OR10	2025	5	10 pitch
Orator (Bold)	RB	T1D0BASE	C0S0OB10	X0OB10	2025	5	10 pitch
Prestige							
Prestige	RM	T1D0BASE	C0S0PR10	X0PR10	2023	12	10 pitch
	RM	T1D0BASE	C0S0PR12	X0PR12		86	12 pitch
Prestige (Bold)	RB	T1D0BASE	C0S0PB12	X0PB12	2023	111	12 pitch
Proprinter Emulation							
Proptr Emul 5 CPI Small	RM	T1000437	C02059L0	X02059LF	1262	443	5 pitch
Proptr Emul 6 CPI Small	RM	T1000437	C02058M0	X02059MF	1262	444	6 pitch
Proptr Emul 8.55 CPI	RM	T1000437	C02056N0	X02056NF	1262	445	8.55 pitch
Proptr Emul 10 CPI Small	RM	T1000437	C02055P0	X02055PF	1262	440	10 pitch
Proptr Emul 12 CPI Small	RM	T1000437	C02054Q0	X02054QF	1262	441	12 pitch
Proptr Emul 17.1 CPI Small	RM	T1000437	C02051R0	X02051RF	1262	442	17.1 pitch
Proptr Emul 5 CPI Small (Bold)	RM	T1000437	C02079L0	X02079LF	1262	448	5 pitch
Proptr Emul 6 CPI Small (Bold)	RM	T1000437	C02078M0	X02079MF	1262	449	6 pitch
Proptr Emul 10 CPI Small (Bold)	RM	T1000437	C02075P0	X02075PF	1262	446	10 pitch
Proptr Emul 12 CPI Small (Bold)	RM	T1000437	C02074Q0	X02074QF	1262	447	12 pitch
Proptr Emul 5 CPI	RM	T1000437	C02059A0	X02059AF	1262	453	5 pitch
Proptr Emul 6 CPI	RM	T1000437	C02059B0	X02059bF	1262	453	6 pitch
Proptr Emul 8.55 CPI	RM	T1000437	C02059C0	X02059CF	1262	453	8.55 pitch
Proptr Emul 10 CPI	RM	T1000437	C02055D0	X02055DF	1262	452	10 pitch
Proptr Emul 12 CPI	RM	T1000437	C02055E0	X02055EF	1262	452	12 pitch

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Proptr Emul 17.1 CPI	RM	T1000437	C02055f0	X02055FF	1262	452	17.1 pitch
Proptr Emul 5 CPI (Bold)	RM	T1000437	C02079A0	X02079AF	1262	456	5 pitch
Proptr Emul 65 CPI (Bold)	RM	T1000437	C02079B0	X02079BF	1262	456	6 pitch
Proptr Emul 10 CPI (Bold)	RM	T1000437	C02075D0	X02075DF	1262	455	10 pitch
Proptr Emul 12 CPI (Bold)	RM	T1000437	C02075E0	X02075EF	1262	455	12 pitch
Proptr Emul 5 CPI Dbl High	RM	T1000437	C02055J0	X02055JF	1262	452	5 pitch
Proptr Emul 10 CPI Dbl High	RM	T1000437	C02051K0	X02051KF	1262	451	10 pitch
Proptr Emul 5 CPI Dbl High (Bold)	RM	T1000437	C02075J0	X02075JF	1262	455	5 pitch
							18 points
Proptr Emul 10 CPI Dbl High (Bold)	RM	T1000437	C02071J0	X02071JF	1262	454	10 pitch
Proptr Emul 9 PT	RM	T1000437	C02059G0	X02059GF	1262	24328	9 points
Proptr Emul 18 PT	RM	T1000437	C02055H0	X02055HF	1262	24320	18 points
Proptr Emul 9 PT (Bold)	RM	T1000437	C02079G0	X02079GF	1262	24329	9 points
Proptr Emul 18 PT (Bold)	RM	T1000437	C02075H0	X02075HF	1262	24322	18 points
Proptr Emul 9 PT Small	RM	T1000437	C02055S0	X02055SF	1262	24324	4 points
Proptr Emul 9 PT Small (Bold)	RM	T1000437	C02075S0	X02075SF	1262	24326	4 points
Proptr Emul 9 PT Expanded Small	RM	T1000437	C02057S0	X02057S0	1262	24325	4 points
Proptr Emul 9 PT Expanded Small (Bold)	RM	T1000437	C020757S0	X02077SF	1262	24327	4 points
Roman							
Roman	RM	T1D0BASE	C0D0RT10	X0RT10	2023	41	10 pitch
Script							

Table 20. Summary of compatibility fonts (continued)

AFP typeface name	Style and weight	Code page	Character set identifier	Coded font identifier	GCSGID	FGID	Size
Table 20. Summary of compatibility fonts (continued)							
Script	RM	T1D0BASE	C0D0SR12	X0SR12	2025	84	12 pitch
Serif							
Serif (Bold)	RB	T1D0BASE	C0D0SB12	X0SB12	2023	72	12 pitch
Serif (Italic)	IM	T1D0BASE	C0D0SI10	X0SI10	2023	43	10 pitch
	IM	T1D0BASE	C0D0SI12	X0SI12		71	12 pitch
Serif (Overstruck)	RM	T1D0BASE	C0D0SO12	X0SO12	2023	332	12 pitch
Serif	RM	T1D0BASE	C0D0ST10	X0ST10	2023	42	10 pitch
	RM	T1D0BASE	C0D0ST12	X0ST12		70	12 pitch
	RM	T1D0BASE	C0D0ST15	X0ST15		229	15 pitch
Symbols							
Symbols	RM	T1S0S198	C0S0S198	X0S198	2024	30	10 pitch
	RM	T1S0S193	C0S0S193	X0S193	2030	80	12 pitch
Symbols OS6	RM	T1S0S192	C0S0S1982	X0S192	2026	80	12 pitch
Symbols7	RM	T1000259	C0S0SYM0	X0SYM0	340	49975	10 pitch
	RM	T1000259	C0S0SYM02	X0SYM2		49975	12 pitch
Text							
Text	RM	T1L038TE	C0L00T11	X0T11	2033	339	10 pitch
Text (Underscored)	RM	T1L038TE	C0L0TU10	X0TU10	2033	334	10 pitch

Chapter 6. Code pages and extended code pages

A code page maps each character of text to the characters in a character set or to the characters associated to a Unicode point. Two types of code pages exist:

- A *traditional code page* includes EBCDIC or ASCII encodings only; it can be used with FOCA character sets and TrueType and OpenType fonts.
- An *extended code page* includes multiple encodings within a single code page and can contain EBCDIC or ASCII encodings along with the Unicode equivalent value; it can be used with TrueType and OpenType fonts.

AFP outline fonts and AFP raster fonts use traditional code pages to map each character of text to the characters in a character set. TrueType and OpenType fonts use traditional and extended code pages to map each character of text to the characters associated with a Unicode point.

Each code point in an extended code page can be mapped to one or more Unicode values. Extended code pages allow code pages that contain user-defined characters (that is, those characters that are not registered with IBM and assigned a GCGID value) to be used with TrueType and OpenType fonts.

Table 21 on page 103 shows the extended code page files.

Table 21. Extended code page files	
Font library	**Extended code page file**
General	`ecp_gl.zip`
Japanese	`ecp_japan.zip`
Korean	`ecp_korea.zip`
Simplified Chinese	`ecp_chs.zip`
Traditional Chinese	`ecp_cht.zip`

"Summary tables for code pages" on page 105 lists code pages and extended code pages in the z/OS Font Collection.

Naming conventions for code pages

All AFP code page names begin with T1, which makes them recognizable as code pages. This information shows the naming conventions for code pages and extended code pages that are used with these font library character sets:

- General Library (outline fonts) and SBCS (expanded core raster fonts)
- CJK (outline fonts) and DBCS (core raster fonts) with full-width characters
- CJK (outline fonts) and DBCS (core raster fonts) with half-width characters

Code pages for General Library and SBCS fonts

The last 6 characters of the code page name are used to identify the code page for General Library and SBCS fonts. The preferred naming convention is where the first 2 characters are 00, V1, or B0, and the final 4 characters are the code page global identifier (CPGID), which is a number that is registered by IBM to uniquely identify each code page.

Table 22 on page 104 shows the naming convention for code pages that are used with General Library outline font character sets and SBCS raster font character sets. The naming convention format is T1*yyyyyy*.

Table 22. Naming convention for General Library and SBCS fonts	
T1	*yyyyyy*

AFP code page prefix	Code page identifier:
	
	00*nnnn*
	    Expanded core code pages; *nnnn* is the CPGID.
	
	V1*nnnn*
	    Expanded core code pages; *nnnn* is the CPGID.
	
	B00*nnn*
	    BookMaster code pages; 0*nnn* is the CPGID.
	
	D*xnnnn*
	    DCF-related code pages
	
	D*x***BASE**
	    Migration code pages
	
	GDP*nnn*
	    Data processing code pages
	
	GE0*nnn*
	    Sonoran Display and Sonoran Petite code pages
	
	GI0*nnn*
	    General code pages
	
	GP0*nnn*
	    General-purpose code pages
	
	L0*nnnn*
	    LCS-related code pages
	
	M00*nnn*
	    Mathematics code pages
	
	S0*nnnn*
	    6670-related code pages
	
	SKB*nnn*
	    Standard keyboard code pages

Code pages with full-width characters for CJK and DBCS fonts

The names of code pages that use full-width characters are typically 6 characters for CJK outline fonts and 8 characters for DBCS raster fonts.

shows the naming convention for code pages that are used with CJK and DBCS full-width character sets. The naming convention format is T1*xxxxss*.

Table 23. Naming convention for code pages that use full-width characters		
T1	*xxxx*	*ss*
AFP code page prefix	Code page global identifier (CPGID), with these exceptions **0300** Japanese JIS X 0213:2000 code page for CPGID:65280 **K300** Japanese JIS X 0213:2004 code page for CPGID:0300 **I300** Japanese IBM JIKEI code page for CPGID:65281 **J300** Japanese IBM JIKEI with JIS90 code page is for CPGID:65282 **0834** Korean KS code page for CPGID:65283 **K834** Korean Full Hangul code page for CPGID:0834 **0835** Traditional Chinese code page for CPGID:0835 **0837** Simplified Chinese GB code page for CPGID:65284 **K837** Simplified Chinese GB18030 code page is for CPGID:0837	Section number for a code page that is used with a raster font.

Code pages with half-width characters for CJK and DBCS fonts

The names of code pages that use half-width characters typically have H0 as the third and fourth characters.

Table 24 on page 105 shows the naming convention for code pages that are used with CJK and DBCS half-width character sets. The naming convention format is T1H*nxxxx*.

Table 24. Naming convention for code pages that use half-width characters		
T1	**H***n*	*xxxx*
AFP code page prefix	**H0** Typically used to represent half-width font. **HK** Used for Japanese CPGID:0037,00290 and Simplified Chinese CPGID:1114.	Code page global identifier (CPGID)

Summary tables for code pages

This information lists code pages and extended code pages that are supported in these font libraries:

- General, includes General Library and SBCS (see Table 25 on page 106)
- Japanese (see Table 26 on page 114)
- Korean (see Table 27 on page 115)
- Simplified Chinese (see Table 28 on page 115)
- Traditional Chinese (see Table 29 on page 115)

The summary tables for code pages provide this information:

Code page ID
A six- or eight-character name, with "T1" as the prefix, that identifies the code page.

CDP
An "X" indicates that the code page is supplied as a traditional code page.

ECP
An "X" indicates that the code page is supplied as an extended code page.

Description
The description of the code page.

General library

Table 25. Summary of code pages for General Library and SBCS font library			
Code page ID	**CDP**	**ECP**	**Description**
T1000038	X	X	US-ASCII Character Set
T1000259	X		Symbols, Set 7
T1000260	X	X	Canadian French - 116
T1000276	X	X	Canada (French) - 94
T1000286	X	X	Austria/Germany F.R., Alt (3270)
T1000287	X	X	Denmark/Norway, Alternate (3270)
T1000288	X	X	Finland/Sweden, Alternate (3270)
T1000289	X	X	Spain, Alternate (3270)
T1000290	X	X	Gothic Katakana, Katakana 10, Katakana 12
T1000293	X		APL (United States)
T1000310	X		APL Graphic Escape
T1000361	X	X	Publishing: International #5
T1000363	X		Symbols, Set 8
T1000367	X	X	ASCII
T1000382	X	X	Publishing: Austria, Germany, Switzerland
T1000383	X	X	Publishing: Belgium
T1000384	X	X	Publishing: Brazil
T1000385	X	X	Publishing: Canada (French)
T1000386	X	X	Publishing: Denmark, Norway
T1000387	X	X	Publishing: Finland, Sweden
T1000388	X	X	Publishing: France, Switzerland

Code page ID	CDP	ECP	Description
Table 25. Summary of code pages for General Library and SBCS font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1000389	X	X	Publishing: Italy, Switzerland
T1000390	X	X	Publishing: Japan (Latin)
T1000391	X	X	Publishing: Portugal
T1000392	X	X	Publishing: Spain, Philippines
T1000393	X	X	Publishing: Latin America (Spanish)
T1000394	X	X	Publishing: United Kingdom, Australia, Hong Kong, Ireland, New Zealand
T1000395	X	X	Publishing: United States, Canada (English)
T1000420	X	X	Arabic Bilingual
T1000423	X	X	Greece 183
T1000424	X	X	Hebrew
T1000437	X	X	Personal Computer: ASCII
T1000803	X		Hebrew Character Set A
T1000808	X	X	Hebrew Character Set A
T1000813	X	X	ISO/ANSI 8-Bit Greek
T1000819	X	X	ISO/ANSI 8-Bit Latin1
T1000829	X		Math Symbols
T1000836	X		People's Republic of China
T1000838	X		Thailand
T1000848	X	X	Personal Computer: Cyrillic, Ukraine with euro
T1000849	X	X	Personal Computer: Cyrillic, Belo Russian with euro
T1000850	X	X	Personal Computer Multilingual
T1000851	X	X	Personal Computer: Greece
T1000852	X	X	Personal Computer: Latin2
T1000853	X	X	Personal Computer: Latin3
T1000855	X	X	Personal Computer: Cyrillic
T1000856	X	X	Personal Computer: Hebrew
T1000857	X	X	Personal Computer: Latin5
T1000858	X	X	Personal Computer: Multilingual with euro
T1000860	X	X	Personal Computer: Portugal
T1000861	X	X	Personal Computer: Iceland
T1000862	X	X	Personal Computer: Hebrew (ASCII)
T1000863	X	X	Personal Computer: France, Canada (French)
T1000864	X	X	Personal Computer: Arabic
T1000865	X	X	Personal Computer: Nordic (Denmark, Norway)

Code page ID	CDP	ECP	Description
			Table 25. Summary of code pages for General Library and SBCS font library (continued)
T1000866	X	X	Personal Computer: Cyrillic #2
T1000867	X	X	Personal Computer: Israel
T1000869	X	X	Personal Computer: Greece
T1000870	X	X	Personal Computer: Latin2 Multilingual
T1000872	X	X	Cyrillic Personal Computer with euro
T1000874	X		Personal Computer: Thailand
T1000875	X	X	Greece
T1000876	X		OCR-A ASCII
T1000877	X		OCR-B ASCII
T1000880	X	X	Cyrillic Multilingual
T1000889	X	X	Thailand
T1000892	X		OCR-A
T1000893	X		OCR-B
T1000897	X	X	Katakana Personal Computer
T1000899	X		ASCII Symbol Set 7
T1000901	X	X	Personal Computer Baltic Multilingual with euro
T1000902	X	X	Multilingual with euro
T1000903	X		People's Republic of China (Latin)
T1000904	X	X	Taiwan (Latin)
T1000905	X	X	Latin3 Multilingual
T1000910	X		APL ASCII
T1000912	X	X	Latin2 ISO/ANSI 8-Bit
T1000913	X	X	Latin3 ISO/ASCII
T1000914	X	X	Latin4 ISO/ANSI
T1000915	X	X	Cyrillic ISO/ANSI 8-Bit
T1000916	X	X	Hebrew ISO/ANSI 8-Bit
T1000920	X	X	Latin5 ISO/ANSI 8-Bit
T1000921	X	X	Personal Computer Baltic Multilingual
T1000922	X	X	Estonia Personal Computer
T1000923	X	X	Latin9
T1000924	X	X	Latin9 EBCDIC
T1001002	X	X	DCF
T1001003	X	X	United States Text Subset
T1001004	X	X	Personal Computer: Desktop Publishing

Table 25. Summary of code pages for General Library and SBCS font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1001008	X	X	Arabic ISO/ASCII 8-Bit
T1001025	X	X	Cyrillic Multilingual
T1001026	X	X	Cyrillic Multilingual
T1001027	X	X	Katakana
T1001028	X	X	Hebrew Publishing
T1001029	X		Arabic ISO/ASCII 8-Bit
T1001038	X		ASCII Symbols Abode
T1001039	X	X	GML List Symbols
T1001041	X	X	Katakana Personal Computer
T1001042	X		Simplified Chinese Extended
T1001043	X	X	Traditional Chinese Extended
T1001046	X	X	Arabic Extended ISO/ASCII 8-Bit
T1001068	X	X	Text with numeric spacing
T1001069	X	X	Latin4
T1001087	X		Symbols Abode
T1001091	X		Symbols, Set 7 Modified
T1001092	X		ASCII Symbols, Set 7 Modified
T1001093	X	X	IBM Logo
T1001110	X	X	Latin2 Multilingual
T1001111	X	X	Latin3 Multilingual
T1001112	X	X	Baltic Multilingual EBCDIC
T1001122	X	X	Estonia EBCDIC
T1001123	X	X	Cyrillic, Ukraine EBCDIC
T1001124	X	X	Cyrillic, Ukraine ISO–8
T1001125	X	X	Personal Computer: Cyrillic, Ukraine
T1001129	X	X	Vietnamese ISO-8
T1001130	X	X	Vietnamese EBCDIC
T1001131	X	X	Personal Computer: Cyrillic, Belo Russian
T1001132	X	X	Lao EBCDIC
T1001133	X	X	Lao ISO-8
T1001139	X	X	Japan Alphanumeric Katakana
T1001140	X	X	United States, Canada ECECP
T1001141	X	X	Austria, Germany ECECP
T1001142	X	X	Denmark, Norway ECECP

Code page ID	CDP	ECP	Description
T1001143	X	X	Finland, Sweden ECECP
T1001144	X	X	Italy ECECP
T1001145	X	X	Spain, Latin America ECECP
T1001146	X	X	UK ECECP
T1001147	X	X	France ECECP
T1001148	X	X	International ECECP
T1001149	X	X	Iceland ECECP
T1001153	X	X	Latin2 Multilingual with euro
T1001154	X	X	EBCDIC Cyrillic, Multilingual with euro
T1001155	X	X	EBCDIC Turkey with euro
T1001156	X	X	EBCDIC Baltic Multilingual with euro
T1001157	X	X	EBCDIC Estonia with euro
T1001158	X	X	EBCDIC Cyrillic, Ukraine with euro
T1001160	X		Thailand EBCDIC with euro
T1001161	X		Thailand Personal Computer with euro
T1001162	X	X	Windows Thailand
T1001163	X	X	Vietnamese ISO-8 with euro
T1001164	X	X	Vietnamese, EBCDIC with euro
T1001166	X	X	EBCDIC Cyrillic, Multilingual with euro
T1001250	X	X	Windows Latin2
T1001251	X	X	Windows Cyrillic
T1001252	X	X	Windows Latin1
T1001253	X	X	Windows Greek
T1001254	X	X	Windows Turkish
T1001257	X	X	Windows Baltic Rim
T1001258	X	X	Windows Vietnamese
T1001300	X		Generic Bar Code/OCR-B
T1B00037	X	X	BookMaster: United States, Canada
T1B00273	X	X	BookMaster: Austria, Germany, Switzerland
T1B00274	X	X	BookMaster: Belgium
T1B00275	X	X	BookMaster: Brazil
T1B00277	X	X	BookMaster: Denmark, Norway
T1B00278	X	X	BookMaster: Finland, Sweden
T1B00280	X	X	BookMaster: Italy, Switzerland

Table 25. Summary of code pages for General Library and SBCS font library (continued)

Code page ID	CDP	ECP	Description
Table 25. Summary of code pages for General Library and SBCS font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1B00281	X	X	BookMaster: Japan (Latin)
T1B00282	X	X	BookMaster: Portugal
T1B00284	X	X	BookMaster: Spain, Latin America
T1B00285	X	X	BookMaster: United Kingdom
T1B00297	X	X	BookMaster: France
T1B00361	X	X	BookMaster International
T1B00382	X	X	BookMaster: Austria, Germany, Switzerland
T1B00383	X	X	BookMaster: Belgium
T1B00384	X	X	BookMaster: Brazil
T1B00385	X	X	BookMaster: Canada (French)
T1B00386	X	X	BookMaster: Denmark, Norway
T1B00387	X	X	BookMaster: Finland, Sweden
T1B00388	X	X	BookMaster: France, Switzerland
T1B00389	X	X	BookMaster: Italy, Switzerland
T1B00390	X	X	BookMaster: Japan (Latin)
T1B00391	X	X	BookMaster: Portugal
T1B00392	X	X	BookMaster: Spain, Philippines
T1B00393	X	X	BookMaster: Latin America (Spanish)
T1B00394	X	X	BookMaster: United Kingdom, Australia, China (Hong Kong S.A.R.), Ireland, New Zealand
T1B00395	X	X	BookMaster: United States, Canada (English)
T1B00500	X	X	BookMaster: International #5
T1B00871	X	X	BookMaster: Iceland
T1B00BGS	X		BookMaster: Specials
T1D0BASE	X	X	Migration: DCF
T1D0GP12	X	X	DCF Gothic Tri-Pitch
T1DABASE	X	X	Migration: Austria, Germany
T1DBBASE	X	X	Migration: Belgium, Luxemburg, Switzerland
T1DCDCFS	X	X	United States Text Subset
T1DDBASE	X	X	Migration: Denmark, Iceland, Norway
T1DEBASE	X	X	Migration: Finland, Sweden
T1DFBASE	X	X	Migration: France
T1DIBASE	X	X	Migration: Italy
T1DNBASE	X	X	Migration: Netherlands, Portugal
T1DSBASE	X	X	Migration: Spain, Latin America

Table 25. Summary of code pages for General Library and SBCS font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1DUBASE	X	X	Migration: United Kingdom
T1E00420	X	X	Arabic Bilingual with euro
T1E00813	X	X	Greece – ISO 8859-7
T1E00852	X	X	Latin2 Multilingual Personal Computer with euro
T1E00857	X	X	Latin5 Turkey Personal Computer with euro
T1E00864	X	X	Arabic Personal Computer with euro
T1E00869	X	X	Greece – Personal Computer
T1E00875	X	X	Greece – EBCDIC
T1E00877	X		OCR B Personal Computer with euro
T1E00893	X		OCR B with euro
T1E01008	X	X	Arabic ISO with euro
T1E01046	X	X	Arabic Extended ISO with euro
T1GE0200	X	X	Sonoran Display Fonts
T1GE0300	X	X	Sonoran Petite Fonts
T1GI0361	X	X	International Set 5
T1GI0382	X	X	Austria, Germany, Switzerland
T1GI0383	X	X	Belgium
T1GI0384	X	X	Brazil
T1GI0385	X	X	Canada (French)
T1GI0386	X	X	Denmark/Norway
T1GI0387	X	X	Sweden/Finland
T1GI0388	X	X	France, Luxembourg, Switzerland
T1GI0389	X	X	Italy, Switzerland (Italian)
T1GI0390	X	X	Japan (Latin)
T1GI0391	X	X	Portugal
T1GI0392	X	X	Spain/Philippines
T1GI0393	X	X	Latin America (Spanish)
T1GI0394	X	X	United Kingdom, Australia, Ireland, Hong Kong, New Zealand
T1GI0395	X	X	United States, Canada (English)
T1GPI363	X		PI Fonts
T1L000GN	X	X	LCS Gothic
T1L000RN	X	X	LCS Gothic
T1L000SN	X	X	LCS Text-1 and Text-2
T1L000XN	X	X	LCS Gothic

Code page ID	CDP	ECP	Description
T1L000YN	X	X	LCS Gothic
T1L00A11	X	X	LCS Gothic
T1L00APL	X		APL2
T1L00FMT	X		LCS Format Characters
T1L00KN1	X	X	LCS Gothic, Katakana (KN1)
T1L00QNC	X	X	LCS Gothic
T1L02773	X	X	LCS Gothic, Katakana (2773)
T1L02774	X	X	LCS Gothic, Katakana (2774)
T1L038BA	X	X	LCS Gothic
T1L038TE	X	X	LCS Text-1 and Text-2
T1L0AD10	X		APL2
T1L0AG10	X		APL2
T1L0AG12	X		APL2
T1L0AG15	X		APL2
T1L0AI10	X		APL2
T1L0AT10	X		APL2
T1L0DUMP	X	X	LCS Dump Character Set
T1L0FOLD	X	X	LCS Gothic Folded
T1L0OCR1	X	X	LCS OCR A
T1L0OCR2	X	X	LCS Gothic and OCR A
T1L0OCR3	X	X	LCS Gothic and OCR A
T1L0OCRB	X	X	LCS Gothic and OCR B
T1L0PCAN	X	X	LCS Gothic
T1L0PCHN	X	X	LCS Gothic
T1M00829	X	X	Math Symbols
T1M00830	X		Math Format
T1S0AE10	X		APL (AE10)
T1S0AP10	X		APL2
T1S0S192	X		6670 Symbol Set
T1S0S193	X		6670 Symbol Set
T1S0S198	X		6670 Symbol Set
T1V10037	X	X	Country Extended: United States, Canada
T1V10273	X	X	Country Extended: Austria, Germany, Switzerland
T1V10274	X	X	Country Extended: Belgium

Table 25. Summary of code pages for General Library and SBCS font library (continued)

Table 25. Summary of code pages for General Library and SBCS font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1V10275	X	X	Country Extended: Brazil
T1V10277	X	X	Country Extended: Denmark, Norway
T1V10278	X	X	Country Extended: Finland, Sweden
T1V10280	X	X	Country Extended: Italy, Switzerland
T1V10281	X	X	Country Extended: Japan (Latin)
T1V10282	X	X	Country Extended: Portugal
T1V10284	X	X	Country Extended: Spain, Latin America
T1V10285	X	X	Country Extended: United Kingdom
T1V10290	X	X	Japan (Katakana)
T1V10297	X	X	Country Extended: France
T1V10500	X	X	Country Extended: International #5
T1V10871	X	X	Country Extended: Iceland

Japanese library

Table 26. Summary of code pages for Japanese font library			
Code page ID	**CDP**	**ECP**	**Description**
T10300	X	X	Japanese DBCS-Host: JIS X0213-2000 character shape
T10300U	X	X	Japanese DBCS-Host: JIS X0213-2000 character shape
T1H00290	X	X	Japanese Katakana Extended
T1H01002	X	X	Japanese DCF Compatibility
T1H01027	X	X	Japanese Latin Extended
T1H01030	X	X	Japanese Katakana Extended with box
T1H01031	X	X	Japanese (Latin) Extended with box
T1H01041	X	X	Japanese Personal Computer Extended
T1HK0037	X	X	Japanese Latin
T1HK0290	X	X	Japanese Katakana
T1I300	X	X	Japanese DBCS Host: Supports 751 unique IBM character shapes
T1J300	X	X	Japanese DBCS Host: Supports 751 unique IBM character shapes with 14 of them changed according to JIS90
T1K300	X	X	Japanese DBCS Host: JIS X 0213-2004 character shape
T1K300U	X	X	Japanese DBCS Host: JIS X 0213-2004 character shape with User Defined Characters

Korean library

Code page ID	CDP	ECP	Description
T10834	X	X	Korean Host DBCS KS
T10834U	X	X	Korean Host DBCS KS with User Defined Char
T1H00833	X	X	Korean SBCS Host
T1H01088	X	X	Korean SBCS Personal Computer
T1H01126	X	X	Korean SBCS Personal Computer
T1H01150	X	X	Korean Latin with Box
T1K834	X	X	Korean Host DBCS Full Hangul
T1K834U	X	X	Korean Host DBCS Full Hangul with User Defined Characters

Table 27. Summary of code pages for Korean font library

Simplified Chinese library

Code page ID	CDP	ECP	Description
T10837	X	X	Simplified Chinese Host DBCS GB
T10837U	X	X	Simplified Chinese Host DBCS GB with User Defined Characters
T1H00836	X	X	Simplified Chinese Host
T1H01115	X	X	Simplified Chinese Personal Computer, GB
T1H01151	X	X	Simplified Chinese Latin with Box
T1H01252	X	X	Simplified Chinese Personal Computer, GB18030
T1HK1114	X	X	Simplified Chinese Personal Computer GBK
T1K837	X	X	Simplified Chinese Host DBCS GB18030
T1K837U	X	X	Simplified Chinese Host DBCS GB18030 with User Defined Characters

Table 28. Summary of code pages for Simplified Chinese font library

Traditional Chinese library

Code page ID	CDP	ECP	Description
T10835	X	X	Traditional Chinese Host DBCS
T10835U	X	X	Traditional Chinese Host DBCS with User Defined Characters
T1H00037	X	X	Traditional Chinese Host DBCS GB
T1H01043	X	X	Traditional Chinese Host SBCS
T1H01114	X	X	Traditional Chinese Personal Computer SBCS
T1H01152	X	X	Traditional Chinese SBCS with box characters

Table 29. Summary of code pages for Traditional Chinese font library

Table 29. Summary of code pages for Traditional Chinese font library (continued)			
Code page ID	**CDP**	**ECP**	**Description**
T1H01159	X	X	Traditional Chinese SBCS with Euro

Chapter 7. WorldType fonts

WorldType fonts are TrueType and OpenType fonts that are supplied in a Microsoft Unicode format. The WorldType fonts include these typefaces:

- WorldType Sans
- WorldType SansDuo
- WorldType Serif
- WorldType SerifDuo

Unicode ranges

The WorldType fonts are organized by subsets and grouped by character blocks as defined by Unicode. These subsets do not fully support all glyphs in every character block and might contain glyphs from other character blocks:

- Windows Glyph List (WGL) is a subset that supports Latin, Greek, Cyrillic, Modified Letters and Combining Marks. It has partial support for Symbols and glyphs in the Special Area. This subset provides the same basic set of characters as Microsoft Windows Glyph List 4.
- Middle East Glyph List is a subset that supports Arabic and Hebrew in addition to the WGL support.
- Indic Glyph List is a subset that supports Indic scripts in addition to the WGL support.
- Southeast Asian Glyph List is a subset that supports Thai, Lao, Khmer, and Vietnamese in addition to the WGL support.
- Complete Glyph List contains every character presently supported. In addition to WGL, Middle East, and Indic support, it supports Han, Hiragana, Katakana, Hangul, Bopomofo and Yi.

Localizations

The Complete Glyph List is available with Han localizations for Japanese, Korean, Simplified Chinese, and Traditional Chinese. There is a 64K glyph limit in the TrueType and OpenType font architecture that limits the amount of support that can be provided with a single font. This limitation requires a different font to be selected to properly represent each locale.

The set of Han glyphs is not fully localized for all four locales. Each of the localizations support the Windows 98 glyph set for a particular locale. The Simplified Chinese locale is the only uniform designed glyph set. There are fallback glyphs in the other locales for those not supported. For example, if a glyph is specified that is not part of the Windows 98 Japanese glyph set, the Simplified Chinese glyph is used for that particular glyph.

Embedded bitmaps

The Complete Glyph List is available with embedded bitmaps. The embedded bitmaps are provided for many of the Han, Hiragana, and Katakana glyphs. These bitmaps improve the quality of the glyph at screen resolutions.

The level of embedded bitmap support is based upon the Windows 95 glyph set. There are six bitmap sizes included in the fonts. Each bitmap size is designed to represent the locale and the type style, except for the smallest bitmap, which is too small to distinguish the difference.

Naming conventions for WorldType fonts

The WorldType font file naming convention uses the format *ttttllsb* with the definitions listed in Table 30 on page 118 and Table 31 on page 118. *tttt* identifies the typeface name and *llsb* identifies the localization, subset, and whether embedded bitmaps are present.

Table 30. tttt WorldType font naming convention

tttt	Typeface name
wt__	WT Serif
wt_d	WT SerifDuo
wts_	WT Sans
wtsd	WT SansDuo

Table 31. llsb WorldType font naming convention

llsb	Typeface name appendage	Description	Bitmaps
i___	IN	Indic	No
j__b	J	Japanese	Yes
j_eb	J EA	Japanese East Asian	Yes
k__b	K	Korean	Yes
k_eb	K EA	Korean East Asian	Yes
m___	ME	Middle East	No
s__b	SC	Simplified Chinese	Yes
s_eb	SC EA	Simplified Chinese East Asian	Yes
sxb_	SC xB	Simplified Chinese-Extension B	No
sea_	SEA	Southeast Asia	No
th_b	HK	Traditional Chinese Hong Kong	Yes
theb	HK EA	Traditional Chinese Hong Kong East Asian	Yes
tt_b	TW	Traditional Chinese Taiwan	Yes
tteb	TW EA	Traditional Chinese Taiwan East Asian	Yes
w___		Windows Glyph List 4	No

Highlights for WorldType fonts

This information describes the highlights for the latest version of the WorldType fonts that are contained in the z/OS Font Collection.

Version 8.2

Version 8.2 of the WorldType fonts has these updates:

- These characters are corrected:
  - Bopomofo letter I (U+3127)

- Kannada vowel sign AI (U+0CC8)
- Kannada AI length mark (U+0CD6)
- Arabic Letter Feh with dot below (U+06A3)
- These characters are new:
    - Arabic Letter Mark (U+061C) for text formatting
    - Currency symbols:
        - Azerbaijan Manat (U+20BC)
        - Russian Ruble (U+20BD)
        - Georgia Lari (U+20BE)
    - Simplified Chinese Basic Multilingual Plane (BMP) Unicode code points 9FCC, 9FCD, 9FCE, 9FCF, 9FD0, 9FD1, 9FD2, 9FD3, 9FD4, and 9FD5 are added in the FULL and East Asian EA WorldType fonts. The new characters are provided in bitmap and outline formats in the Song and Hei styles.

9FCC	9FCD	9FCE	9FCF	9FD0	9FD1	9FD2	9FD3	9FD4	9FD5

- Lao Opentype features
- Simplified Chinese Extension C, D, and E Unicode code points are added in the WT SansDuo SC xB font. The new code points are only provided in outline format in the Hei style.
    - Simplified Chinese Extension C Unicode code points:

2A7DD	2A8FB	2A917	2AA30	2AA36	2AA58	2AFA2	2B127	2B128	2B137	2B138
2B1ED	2B300	2B363	2B36F	2B372	2B37D	2B404	2B410	2B413	2B461	2B4E7
2B4EF	2B4F6	2B4F9	2B50D	2B50E	2B536	2B5AE	2B5AF	2B5B3	2B5E7	2B5F4
2B61C	2B61D	2B626	2B627	2B628	2B62A	2B62C	2B695	2B696	2B6AD	2B6ED

- Simplified Chinese Extension D Unicode code points

2B7A9	2B7C5	2B7E6	2B7F9	2B7FC	2B806	2B80A	2B81C

- Simplified Chinese Extension E Unicode code points

2B8B8	2BAC7	2BB5F	2BB62	2BB7C	2BB83	2BC1B	2BD77	2BD87	2BDF7	2BE29
2C029	2C02A	2C0A9	2C0CS	2C1D5	2C1D9	2C1F9	2C27C	2C288	2C2A4	2C317
2C35B	2C361	2C364	2C488	2C494	2C497	2C542	2C613	2C618	2C621	2C629
2C62B	2C62C	2C62D	2C62F	2C642	2C64A	2C64B	2C72C	2C72F	2C79F	2C7C1
2C7FD	2C8D9	2C8DE	2C8E1	2C8F3	2C907	2C90A	2C91D	2CA02	2CA0E	2CA7D
2CAA9	2CB29	2CB2D	2CB2E	2CB31	2CB38	2CB39	2CB3B	2CB3F	2CB41	2CB4A
2CB4E	2CB5A	2CB5B	2CB64	2CB69	2CB6C	2CB6F	2CB73	2CB76	2CB78	2CB7C
2CBB1	2CBBF	2CBC0	2CBCE	2CC56	2CC5F	2CCF5	2CCF6	2CCFD	2CCFF	2CD02
2CD03	2CD0A	2CD8B	2CD8D	2CD8F	2CD90	2CD9F	2CDA0	2CDA8	2CDAD	2CDAE
2CDD5	2CE18	2CE1A	2CE23	2CE26	2CE2A	2CE7C	2CE88	2CE93		

Updates from Version 8.2 to Version 8.22

Version 8.22 of the WorldType fonts has these updates:

- Enhancements are made to the Thai language scripts for better character combining.
- Stroke enhancements are made to some Simplified Chinese characters in the WT SansDuo SC xB font.

- Six extended xB Simplified and Traditional Chinese fonts are added to the z/OS Font collection to enhance the range of graphic capabilities for Chinese fonts. The extended xB fonts complement the existing Chinese fonts by adding ideographs from the Unicode Supplemental Ideographic Plane in the Song and Hei styles.
  - New Simplified Chinese fonts with Song ideographs:
    - WT Serif SC xB
    - WT SerifDuo SC xB
  - New Traditional Chinese Taiwan fonts with Hei ideographs:
    - WT Sans TW xB
    - WT SansDuo TW xB
  - New Traditional Chinese Taiwan fonts with Song ideographs:
    - WT Serif TW xB
    - WT SerifDuo TW xB

Updates from Version 8.22 to Version 8.30

Version 8.30 of the WorldType fonts has these updates:

- This character is new:
  - Japanese Reiwa Imperial Era character (U+32FF)
- The Japanese Reiwa Imperial Era character has been added to these WorldType fonts:

Table 32. WorldType fonts updated with Reiwa Imperial Era character		
Full font name	**File name**	**Localization**
WT Sans HK	`wts_th_b.ttf`	Traditional Chinese Hong Kong
WT Sans HK EA	`wts_theb.ttf`	Traditional Chinese Hong Kong
WT Sans J	`wts_j__b.ttf`	Japanese
WT Sans J EA	`wts_j_eb.ttf`	Japanese
WT Sans K	`wts_k__b.ttf`	Korean
WT Sans K EA	`wts_k_eb.ttf`	Korean
WT Sans SC	`wts_s__b.ttf`	Simplified Chinese
WT Sans SC EA	`wts_s_eb.ttf`	Simplified Chinese
WT Sans TW	`wts_tt_b.ttf`	Traditional Chinese Taiwan
WT Sans TW EA	`wts_tteb.ttf`	Traditional Chinese Taiwan
WT SansDuo HK	`wtsdth_b.ttf`	Traditional Chinese Hong Kong
WT SansDuo HK EA	`wtsdtheb.ttf`	Traditional Chinese Hong Kong
WT SansDuo J	`wtsdj__b.ttf`	Japanese
WT SansDuo J EA	`wtsdj_eb.ttf`	Japanese
WT SansDuo K	`wtsdk__b.ttf`	Korean
WT SansDuo K EA	`wtsdk_eb.ttf`	Korean
WT SansDuo SC	`wtsds__b.ttf`	Simplified Chinese
WT SansDuo SC EA	`wtsds_eb.ttf`	Simplified Chinese

Table 32. WorldType fonts updated with Reiwa Imperial Era character (continued)

Full font name	File name	Localization
WT SansDuo TW	`wtsdtt_b.ttf`	Traditional Chinese Taiwan
WT SansDuo TW EA	`wtsdtteb.ttf`	Traditional Chinese Taiwan
WT Serif HK	`wt__th_b.ttf`	Traditional Chinese Hong Kong
WT Serif HK EA	`wt__theb.ttf`	Traditional Chinese Hong Kong
WT Serif J	`wt__j__b.ttf`	Japanese
WT Serif J EA	`wt__j_eb.ttf`	Japanese
WT Serif K	`wt__k__b.ttf`	Korean
WT Serif K EA	`wt__k_eb.ttf`	Korean
WT Serif SC	`wt__s__b.ttf`	Simplified Chinese
WT Serif SC EA	`wt__s_eb.ttf`	Simplified Chinese
WT Serif TW	`wt__tt_b.ttf`	Traditional Chinese Taiwan
WT Serif TW EA	`wt__tteb.ttf`	Traditional Chinese Taiwan
WT SerifDuo HK	`wt_dth_b.ttf`	Traditional Chinese Hong Kong
WT SerifDuo HK EA	`wt_dtheb.ttf`	Traditional Chinese Hong Kong
WT SerifDuo J	`wt_dj__b.ttf`	Japanese
WT SerifDuo J EA	`wt_dj_eb.ttf`	Japanese
WT SerifDuo K	`wt_dk__b.ttf`	Korean
WT SerifDuo K EA	`wt_dk_eb.ttf`	Korean
WT SerifDuo SC	`wt_ds__b.ttf`	Simplified Chinese
WT SerifDuo SC EA	`wt_ds_eb.ttf`	Simplified Chinese
WT SerifDuo TW	`wt_dtt_b.ttf`	Traditional Chinese Taiwan
WT SerifDuo TW EA	`wt_dtteb.ttf`	Traditional Chinese Taiwan

Summary tables for WorldType fonts

This information lists summary tables for Version 8.1 and later base and link WorldType fonts. It also includes a summary table of symbolic links for upgrading to the latest version of WorldType fonts.

Base fonts

provides this information for base WorldType fonts:

Full font name
　　The combination of the font family name and the font subfamily name.

File name
　　The name of the font file with a file extension of `.ttf`.

Localization
　　The view preference of the glyph shapes.

Glyph List
　　The set of glyphs that is contained in the font.

Bitmaps

An indicator of whether the font contains embedded bitmaps for better screen resolution quality.

The style and weight of all WorldType fonts is Roman Medium.

Table 33. Summary of base WorldType fonts

Full font name	File name	Localization	Glyph List	Bitmaps
WT Sans	`wts_w___.ttf`	N/A	Windows Glyph List (WGL)	No
WT Sans HK	`wts_th_b.ttf`	Traditional Chinese Hong Kong	Complete	Yes
WT Sans HK EA	`wts_theb.ttf`	Traditional Chinese Hong Kong	East Asian	Yes
WT Sans IN	`wts_i___.ttf`	N/A	Indic	No
WT Sans J	`wts_j__b.ttf`	Japanese	Complete	Yes
WT Sans J EA	`wts_j_eb.ttf`	Japanese	East Asian	Yes
WT Sans K	`wts_k__b.ttf`	Korean	Complete	Yes
WT Sans K EA	`wts_k_eb.ttf`	Korean	East Asian	Yes
WT Sans ME	`wts_m___.ttf`	N/A	Middle East	No
WT Sans SC	`wts_s__b.ttf`	Simplified Chinese	Complete	Yes
WT Sans SC EA	`wts_s_eb.ttf`	Simplified Chinese	East Asian	Yes
WT Sans SEA	`wts_sea_.ttf`	N/A	Southeast Asian	No
WT Sans TW	`wts_tt_b.ttf`	Traditional Chinese Taiwan	Complete	Yes
WT Sans TW EA	`wts_tteb.ttf`	Traditional Chinese Taiwan	East Asian	Yes
WT Sans TW xB	`wts_ttxb.ttf`	Traditional Chinese Taiwan	Extension B	Yes
WT SansDuo	`wtsdw___.ttf`	N/A	WGL	No
WT SansDuo HK	`wtsdth_b.ttf`	Traditional Chinese Hong Kong	Complete	Yes
WT SansDuo HK EA	`wtsdtheb.ttf`	Traditional Chinese Hong Kong	East Asian	Yes
WT SansDuo IN	`wtsdi___.ttf`	N/A	Indic	No
WT SansDuo J	`wtsdj__b.ttf`	Japanese	Complete	Yes
WT SansDuo J EA	`wtsdj_eb.ttf`	Japanese	East Asian	Yes
WT SansDuo K	`wtsdk__b.ttf`	Korean	Complete	Yes
WT SansDuo K EA	`wtsdl_eb.ttf`	Korean	East Asian	Yes
WT SansDuo ME	`wtsdm___.ttf`	N/A	Middle East	No
WT SansDuo SC	`wtsds__b.ttf`	Simplified Chinese	Complete	Yes
WT SansDuo SC EA	`wtsds_eb.ttf`	Simplified Chinese	East Asian	Yes
WT SansDuo SC xB	`wtsdsxb_.ttf`	Simplified Chinese	Extension B	No
WT SansDuo SEA	`wtsdsea_.ttf`	N/A	Southeast Asian	No
WT SansDuo TW	`wtsdtt_b.ttf`	Traditional Chinese Taiwan	Complete	Yes

Full font name	File name	Localization	Glyph List	Bitmaps
WT SansDuo TW EA	`wtsdtteb.ttf`	Traditional Chinese Taiwan	East Asian	Yes
WT SansDuo TW xB	`wtsdttxb.ttf`	Traditional Chinese Taiwan	Extension B	Yes
WT Serif	`wt__w___.ttf`	N/A	WGL	No
WT Serif HK	`wt__th_b.ttf`	Traditional Chinese Hong Kong	Complete	Yes
WT Serif HK EA	`wt_theb.ttf`	Traditional Chinese Hong Kong	East Asian	Yes
WT Serif IN	`wt__i___.ttf`	N/A	Indic	No
WT Serif J	`wt__j__b.ttf`	Japanese	Complete	Yes
WT Serif J EA	`wt__j_eb.ttf`	Japanese	East Asian	Yes
WT Serif K	`wt__k__b.ttf`	Korean	Complete	Yes
WT Serif K EA	`wt__k_eb.ttf`	Korean	East Asian	Yes
WT Serif ME	`wt__m___.ttf`	N/A	Middle East	No
WT Serif SC	`wt__s__b.ttf`	Simplified Chinese	Complete	Yes
WT Serif SC EA	`wt__s_eb.ttf`	Simplified Chinese	East Asian	Yes
WT Serif SC xB	`wt__s_xb.ttf`	Simplified Chinese	Extension B	Yes
WT Serif SEA	`wt__sea_.ttf`	N/A	Southeast Asian	No
WT Serif TW	`wt__tt_b.ttf`	Traditional Chinese Taiwan	Complete	Yes
WT Serif TW EA	`wt__tteb.ttf`	Traditional Chinese Taiwan	East Asian	Yes
WT Serif TW xB	`wt__ttxb.ttf`	Traditional Chinese Taiwan	Extension B	Yes
WT SerifDuo	`wt_dw___.ttf`	N/A	WGL	No
WT SerifDuo HK	`wt_dth_b.ttf`	Traditional Chinese Hong Kong	Complete	Yes
WT SerifDuo HK EA	`wt_dtheb.ttf`	Traditional Chinese Hong Kong	East Asian	Yes
WT SerifDuo IN	`wt_di___.ttf`	N/A	Indic	No
WT SerifDuo J	`wt_dj__b.ttf`	Japanese	Complete	Yes
WT SerifDuo J EA	`wt_dj_eb.ttf`	Japanese	East Asian	Yes
WT SerifDuo K	`wt_dk__b.ttf`	Korean	Complete	Yes
WT SerifDuo K EA	`wt_dk_eb.ttf`	Korean	East Asian	Yes
WT SerifDuo ME	`wt_dm___.ttf`	N/A	Middle East	No
WT SerifDuo SC	`wt_ds__b.ttf`	Simplified Chinese	Complete	Yes
WT SerifDuo SC EA	`wt_ds_eb.ttf`	Simplified Chinese	East Asian	Yes
WT SerifDuo SC xB	`wt_ds_xb.ttf`	Simplified Chinese	Extension B	Yes
WT SerifDuo SEA	`wt_dsea_.ttf`	N/A	Southeast Asian	No
WT SerifDuo TW	`wt_dtt_b.ttf`	Traditional Chinese Taiwan	Complete	Yes

Table 33. Summary of base WorldType fonts (continued)

Table 33. Summary of base WorldType fonts (continued)				
Full font name	**File name**	**Localization**	**Glyph List**	**Bitmaps**
WT SerifDuo TW EA	`wt_dtteb.ttf`	Traditional Chinese Taiwan	East Asian	Yes
WT SerifDuo TW xB	`wt_dttxb.ttf`	Traditional Chinese Taiwan	Extension B	Yes

Link fonts

Link fonts are searched when the Unicode value is not found in the base font, which extends the base font. The link font is included as a base font. Table 34 on page 124 defines the link fonts added to the resource access table (RAT) for WorldType fonts. It provides this information:

Full font name
The combination of the font family name and the font subfamily name for the base font or the linked font.

File name
The name of the base or linked font file with a file extension of `.ttf`.

Table 34. Summary of link WorldType fonts				
Full font name (base font)	**File name (base font)**	**Full font name (link font)**	**File name (link font)**	**Version**
WT Sans SC	`wts_s__b.ttf`	WT SansDuo SC xB	`wtsdsxb_.ttf`	8.30
WT Sans SC EA	`wts_s_eb.ttf`			
WT SansDuo SC	`wtsds__b.ttf`			
WT SansDuo SC EA	`wtsds_eb.ttf`			
WT Sans TW	`wts_tt_b.ttf`	WT Sans TW xB	`wts_ttxb.ttf`	8.30
WT Sans TW EA	`wts_tteb.ttf`			
WT SansDuo TW	`wtsdtt_b.ttf`	WT SansDuo TW xB	`wtsdttxb.ttf`	8.30
WT SansDuo TW EA	`wtsdtteb.ttf`			
WT Serif SC	`wt__s__b.ttf`	WT Serif SC xB	`wt__s_xb.ttf`	8.30
WT Serif SC EA	`wt__s_eb.ttf`			
WT Serif TW	`wt__tt_b.ttf`	WT Serif TW xB	`wt__ttxb.ttf`	8.30
WT Serif TW EA	`wt__tteb.ttf`			
WT SerifDuo SC	`wt_ds__b.ttf`	WT SerifDuo SC xB	`wt_ds_xb.ttf`	8.30
WT SerifDuo SC EA	`wt_ds_eb.ttf`			
WT SerifDuo TW	`wt_dtt_b.ttf`	WT SerifDuo TW xB	`wt_dttxb.ttf`	8.30
WT SerifDuo TW EA	`wt_dtteb.ttf`			

Symbolic links

To upgrade to the latest version of WorldType fonts, you can use the symbolic links that are found in this directory:
`/usr/lpp/fonts/worldtype`

Table 35 on page 125 defines the symbolic links for the latest version of WorldType fonts. It provides this information:

Earlier version file name
    The file name for an earlier version WorldType font.

Latest version file name
    The file name for the latest version WorldType font.

Table 35. Summary of symbolic links for the latest version of WorldType fonts

Earlier version file name	Latest version file name
`mts_i___.ttf`	`wts_i___.ttf`
`mts_j___.ttf`	`wts_j__b.ttf`
`mts_j__b.ttf`	`wts_j__b.ttf`
`mts_j_e_.ttf`	`wts_j_eb.ttf`
`mts_j_eb.ttf`	`wts_j_eb.ttf`
`mts_k___.ttf`	`wts_k__b.ttf`
`mts_k__b.ttf`	`wts_k__b.ttf`
`mts_k_e_.ttf`	`wts_k_eb.ttf`
`mts_k_eb.ttf`	`wts_k_eb.ttf`
`mts_m___.ttf`	`wts_m___.ttf`
`mts_s___.ttf`	`wts_s__b.ttf`
`mts_s__b.ttf`	`wts_s__b.ttf`
`mts_s_e_.ttf`	`wts_s_eb.ttf`
`mts_s_eb.ttf`	`wts_s_eb.ttf`
`mts_t___.ttf`	`wts_th_b.ttf`
`mts_t__b.ttf`	`wts_th_b.ttf`
`mts_t_e_.ttf`	`wts_theb.ttf`
`mts_t_eb.ttf`	`wts_theb.ttf`
`mts_tt__.ttf`	`wts_tt_b.ttf`
`mts_tt_b.ttf`	`wts_tt_b.ttf`
`mts_tte_.ttf`	`wts_tteb.ttf`
`mts_tteb.ttf`	`wts_tteb.ttf`
`mts_w___.ttf`	`wts_w___.ttf`
`mtsans_t.ttf`	`wts_th_b.ttf`
`mtsans_w.ttf`	`wts_w___.ttf`
`mtsansdj.ttf`	`wtsdj__b.ttf`
`mtsansdk.ttf`	`wtsdk__b.ttf`
`mtsansdm.ttf`	`wtsdm___.ttf`
`mtsansds.ttf`	`wtsds__b.ttf`
`mtsansdt.ttf`	`wtsdth_b.ttf`

Earlier version file name	Latest version file name
mtsansdw.ttf	wtsdw___.ttf
MTSanXBS.ttf	wtsdsxb_.ttf
mtsdi___.ttf	wtsdi___.ttf
mtsdj___.ttf	wtsdj__b.ttf
mtsdj__b.ttf	wtsdj__b.ttf
mtsdj_e_.ttf	wtsdj_eb.ttf
mtsdj_eb.ttf	wtsdj_eb.ttf
mtsdk___.ttf	wtsdk__b.ttf
mtsdk__b.ttf	wtsdk__b.ttf
mtsdk_e_.ttf	wtsdk_eb.ttf
mtsdk_eb.ttf	wtsdk_eb.ttf
mtsdm___.ttf	wtsdm___.ttf
mtsds___.ttf	wtsds__b.ttf
mtsds__b.ttf	wtsds__b.ttf
mtsds_e_.ttf	wtsds_eb.ttf
mtsds_eb.ttf	wtsds_eb.ttf
mtsdsxb_.ttf	wtsdsxb_.ttf
mtsdt___.ttf	wtsdth_b.ttf
mtsdt__b.ttf	wtsdth_b.ttf
mtsdt_e_.ttf	wtsdtheb.ttf
mtsdt_eb.ttf	wtsdtheb.ttf
mtsdtt__.ttf	wtsdtt_b.ttf
mtsdtt_b.ttf	wtsdtt_b.ttf
mtsdtte_.ttf	wtsdtteb.ttf
mtsdtteb.ttf	wtsdtteb.ttf
mtsdw___.ttf	wtsdw___.ttf
thrdi___.ttf	wt_di___.ttf
thrdj___.ttf	wt_dj__b.ttf
thrdj__b.ttf	wt_dj__b.ttf
thrdj_e_.ttf	wt_dj_eb.ttf
thrdj_eb.ttf	wt_dj_eb.ttf
thrdk___.ttf	wt_dk__b.ttf
thrdk__b.ttf	wt_dk__b.ttf
thrdk_e_.ttf	wt_dk_eb.ttf

Table 35. Summary of symbolic links for the latest version of WorldType fonts (continued)

Table 35. Summary of symbolic links for the latest version of WorldType fonts (continued)	
Earlier version file name	**Latest version file name**
`thrdk_eb.ttf`	`wt_dk_eb.ttf`
`thrdm___.ttf`	`wt_dm___.ttf`
`thrds___.ttf`	`wt_ds__b.ttf`
`thrds__b.ttf`	`wt_ds__b.ttf`
`thrds_e_.ttf`	`wt_ds_eb.ttf`
`thrds_eb.ttf`	`wt_ds_eb.ttf`
`thrdt___.ttf`	`wt_dth_b.ttf`
`thrdt__b.ttf`	`wt_dth_b.ttf`
`thrdt_e_.ttf`	`wt_dtheb.ttf`
`thrdt_eb.ttf`	`wt_dtheb.ttf`
`thrdtt__.ttf`	`wt_dtt_b.ttf`
`thrdtt_b.ttf`	`wt_dtt_b.ttf`
`thrdtte_.ttf`	`wt_dtteb.ttf`
`thrdtteb.ttf`	`wt_dtteb.ttf`
`thrdw___.ttf`	`wt_dw___.ttf`
`thrnd_j.ttf`	`wt_dj__b.ttf`
`thrnd_k.ttf`	`wt_dk__b.ttf`
`thrnd_m.ttf`	`wt_dm___.ttf`
`thrnd_s.ttf`	`wt_ds__b.ttf`
`thrnd_t.ttf`	`wt_dth_b.ttf`
`thrnd_w.ttf`	`wt_dw___.ttf`
`tnr_i___.ttf`	`wt__i___.ttf`
`tnr_j___.ttf`	`wt__j__b.ttf`
`tnr_j__b.ttf`	`wt__j__b.ttf`
`tnr_j_e_.ttf`	`wt__j_eb.ttf`
`tnr_j_eb.ttf`	`wt__j_eb.ttf`
`tnr_k___.ttf`	`wt__k__b.ttf`
`tnr_k__b.ttf`	`wt__k__b.ttf`
`tnr_k_e_.ttf`	`wt__k_eb.ttf`
`tnr_k_eb.ttf`	`wt__k_eb.ttf`
`tnr_m___.ttf`	`wt__m___.ttf`
`tnr_s___.ttf`	`wt__s__b.ttf`
`tnr_s__b.ttf`	`wt__s__b.ttf`
`tnr_s_e_.ttf`	`wt__s_eb.ttf`

Table 35. Summary of symbolic links for the latest version of WorldType fonts (continued)	
Earlier version file name	**Latest version file name**
tnr_s_eb.ttf	wt__s_eb.ttf
tnr_t___.ttf	wt__th_b.ttf
tnr_t__b.ttf	wt__th_b.ttf
tnr_t_e_.ttf	wt__theb.ttf
tnr_t_eb.ttf	wt__theb.ttf
tnr_tt__.ttf	wt__tt_b.ttf
tnr_tt_b.ttf	wt__tt_b.ttf
tnr_tte_.ttf	wt__tteb.ttf
tnr_tteb.ttf	wt__tteb.ttf
tnr_w___.ttf	wt__w___.ttf
tnrwt_j.ttf	wt__j__b.ttf
tnrwt_k.ttf	wt__k__b.ttf
tnrwt_m.ttf	wt__m___.ttf
tnrwt_s.ttf	wt__s__b.ttf
tnrwt_t.ttf	wt__th_b.ttf
tnrwt_w.ttf	wt__w___.ttf
wt__j___.ttf	wt__j__b.ttf
wt__j_e_.ttf	wt__j_eb.ttf
wt__k___.ttf	wt__k__b.ttf
wt__k_e_.ttf	wt__k_eb.ttf
wt__s___.ttf	wt__s__b.ttf
wt__s_e_.ttf	wt__s_eb.ttf
wt__th__.ttf	wt__th_b.ttf
wt__the_.ttf	wt__theb.ttf
wt__tt__.ttf	wt__tt_b.ttf
wt__tte_.ttf	wt__tteb.ttf
wt_dj___.ttf	wt_dj__b.ttf
wt_dj_e_.ttf	wt_dj_eb.ttf
wt_dk___.ttf	wt_dk__b.ttf
wt_dk_e_.ttf	wt_dk_eb.ttf
wt_ds___.ttf	wt_ds__b.ttf
wt_ds_e_.ttf	wt_ds_eb.ttf
wt_dth__.ttf	wt_dth_b.ttf
wt_dthe_.ttf	wt_dtheb.ttf

Table 35. Summary of symbolic links for the latest version of WorldType fonts (continued)	
Earlier version file name	**Latest version file name**
`wt_dtt__.ttf`	`wt_dtt_b.ttf`
`wt_dtte_.ttf`	`wt_dtteb.ttf`
`wts_j___.ttf`	`wts_j__b.ttf`
`wts_j_e_.ttf`	`wts_j_eb.ttf`
`wts_k___.ttf`	`wts_k__b.ttf`
`wts_k_e_.ttf`	`wts_k_eb.ttf`
`wts_s___.ttf`	`wts_s__b.ttf`
`wts_s_e_.ttf`	`wts_s_eb.ttf`
`wts_th__.ttf`	`wts_th_b.ttf`
`wts_the_.ttf`	`wts_theb.ttf`
`wts_tt__.ttf`	`wts_tt_b.ttf`
`wts_tte_.ttf`	`wts_tteb.ttf`
`wtsdj___.ttf`	`wtsdj__b.ttf`
`wtsdj_e_.ttf`	`wtsdj_eb.ttf`
`wtsdk___.ttf`	`wtsdk__b.ttf`
`wtsdk_e_.ttf`	`wtsdk_eb.ttf`
`wtsds___.ttf`	`wtsds__b.ttf`
`wtsds_e_.ttf`	`wtsds_eb.ttf`
`wtsdth__.ttf`	`wtsdth_b.ttf`
`wtsdthe_.ttf`	`wtsdtheb.ttf`
`wtsdtt__.ttf`	`wtsdtt_b.ttf`
`wtsdtte_.ttf`	`wtsdtteb.ttf`

Appendix A. Accessibility

Accessible publications for this product are offered through IBM Documentation (www.ibm.com/docs/en/zos).

If you experience difficulty with the accessibility of any z/OS information, send a detailed message to the Contact the z/OS team web page (www.ibm.com/systems/campaignmail/z/zos/contact_z) or use the following mailing address.

> IBM Corporation
> Attention: MHVRCFS Reader Comments
> Department H6MA, Building 707
> 2455 South Road
> Poughkeepsie, NY 12601-5400
> United States

Accessibility features

Accessibility features help users who have physical disabilities such as restricted mobility or limited vision use software products successfully. The accessibility features in z/OS can help users do the following tasks:

- Run assistive technology such as screen readers and screen magnifier software.
- Operate specific or equivalent features by using the keyboard.
- Customize display attributes such as color, contrast, and font size.

Consult assistive technologies

Assistive technology products such as screen readers function with the user interfaces found in z/OS. Consult the product information for the specific assistive technology product that is used to access z/OS interfaces.

Keyboard navigation of the user interface

You can access z/OS user interfaces with TSO/E or ISPF. The following information describes how to use TSO/E and ISPF, including the use of keyboard shortcuts and function keys (PF keys). Each guide includes the default settings for the PF keys.

- *z/OS TSO/E Primer*
- *z/OS TSO/E User's Guide*
- *z/OS ISPF User's Guide Vol I*

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users who access IBM Documentation with a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line because they are considered a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that the screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1)

are mutually exclusive alternatives. If you hear the lines `3.1 USERID` and `3.1 SYSTEMID`, your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol is placed next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format `3 \* FILE`. Format `3* FILE` indicates that syntax element FILE repeats. Format `3* \* FILE` indicates that syntax element `* FILE` repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol to provide information about the syntax elements. For example, the lines `5.1*, 5.1 LASTRUN, and 5.1 DELETE` mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, it indicates a reference that is defined elsewhere. The string that follows the % symbol is the name of a syntax fragment rather than a literal. For example, the line `2.1 %OP1` means that you must refer to separate syntax fragment OP1.

The following symbols are used next to the dotted decimal numbers.

? indicates an optional syntax element

The question mark (?) symbol indicates an optional syntax element. A dotted decimal number followed by the question mark symbol (?) indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example `5? NOTIFY`). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines `5 ?, 5 NOTIFY`, and `5 UPDATE`, you know that the syntax elements NOTIFY and UPDATE are optional. That is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

! indicates a default syntax element

The exclamation mark (!) symbol indicates a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the dotted decimal number can specify the ! symbol. For example, if you hear the lines `2? FILE, 2.1! (KEEP), and 2.1 (DELETE)`, you know that (KEEP) is the default option for the FILE keyword. In the example, if you include the FILE keyword, but do not specify an option, the default option KEEP is applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, the default FILE(KEEP) is used. However, if you hear the lines `2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE)`, the default option KEEP applies only to the next higher dotted decimal number, `2.1` (which does not have an associated keyword), and does not apply to `2? FILE`. Nothing is used if the keyword FILE is omitted.

* indicates an optional syntax element that is repeatable

The asterisk or glyph (*) symbol indicates a syntax element that can be repeated zero or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line `5.1* data area`, you know that you can include one data area, more than one data area, or no data area. If you hear the lines `3*, 3 HOST, 3 STATE`, you know that you can include `HOST, STATE`, both together, or nothing.

Notes:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you can write HOST STATE, but you cannot write HOST HOST.
3. The * symbol is equivalent to a loopback line in a railroad syntax diagram.

+ indicates a syntax element that must be included

The plus (+) symbol indicates a syntax element that must be included at least once. A dotted decimal number followed by the + symbol indicates that the syntax element must be included one or more times. That is, it must be included at least once and can be repeated. For example, if you hear the line `6.1+ data area`, you must include at least one data area. If you hear the lines `2+, 2 HOST,` and `2 STATE`, you know that you must include `HOST, STATE,` or both. Similar to the * symbol, the + symbol can repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loopback line in a railroad syntax diagram.

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