

Infoprint Fonts



Introduction to Type Transformer and Utilities for Windows

Version 1 Release 1

Infoprint Fonts



Introduction to Type Transformer and Utilities for Windows

Version 1 Release 1

Note:

Before using this information and the product it supports, be sure to read the information in "Notices" on page 45.

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This edition applies to Version 1 Release 1 Modification 0 of IBM Infoprint Fonts for Multiplatforms (Program Number 5648-E77), and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. Be sure to use the correct edition for the level of the product.

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Preface

Type Transformer, a part of IBM Infoprint Fonts, is a program that transforms Adobe Type 1 format and CID-keyed format outline fonts into fonts that can be used with IBM's advanced function printers.

Notes:

1. Type Transformer was **formerly** part of AFP Font Collection.
2. Adobe Type 1 format outline fonts are hereafter referred to as *Type 1 fonts*. Adobe CID-keyed format outline fonts, also called Type 0 format fonts, are hereafter referred to as *CID-keyed fonts*.

This publication should be used by the font administrator when working with fonts for IBM's advanced function printers. You should have a background in using Windows and an understanding of how fonts are used for printing on advanced function printers. Knowledge of Advanced Function Presentation (AFP) licensed programs in the AIX, MVS, Operating System/400 (OS/400), VM, or VSE operating systems is also helpful. You may need help from the system programmer.

After you install IBM Infoprint Fonts, you may need to set up your host system for Type Transformer.

Contents of this publication

This publication contains the following information to help you use Type Transformer and the other font utilities:

- Chapter 1, "A few words about fonts" on page 1 introduces basic font concepts.
- Chapter 2, "What is Type Transformer?" on page 9 introduces Type Transformer and the other font utilities, and describes the hardware and software you need to use it.
- Chapter 3, "Introduction to DBCS fonts" on page 11 contains basic information about DBCS fonts and the Asian languages printed with DBCS fonts.
- Chapter 4, "AFP Font Editor and other utilities" on page 17 introduces the AFP Font Editor and also introduces other font utilities.
- Chapter 5, "Type Transformer naming conventions for font character sets and coded fonts" on page 19 shows how Type Transformer identifies transformed font components.
- Chapter 6, "If problems occur" on page 43 tells you how to access online help for Type Transformer error messages and includes information about contacting IBM Service.
- The "Glossary" on page 49 and "Index" on page 59 follow the reference information.

Related publications

For a list of related publications and CD-ROMs, please see *IBM Infoprint Fonts: Font Summary*, G544-5846.

These Adobe Systems Incorporated publications describe Adobe fonts:

- *Adobe CMap and CIDFont Files Specification*, Technical Specification #5014, Version 1.0, (Mountain View, CA: Adobe Systems Incorporated, 16 October 1995)
- *Adobe Type 1 Font Format*, Version 1.1 (Reading, MA: Addison-Wesley Publishing Company, Inc., 1990), ISBN 0-201-57044-0
- *PostScript Language Reference Manual*, 2nd edition (Reading, MA: Addison-Wesley Publishing Company, Inc., 1990), ISBN 0-201-18127-4

Chapter 1. A few words about fonts

This chapter provides a short overview of fonts, including some clarification of terminology.

What are fonts?

When printing was done with metal type, a *font* was the the source, or matrix, from which type was cast, or a set of type in one size and style cast from the same font. Now, in the strictest definition, a *font* is a single weight of a single width of a single style of a single typeface, either unsized or in a single size. Unless the term *font* is qualified, this is its meaning in this publication.

Weight

Weight is the lightness or darkness of the printed characters. Heavy characters have thicker lines and look blacker than light characters. Typical weights are:

Medium

Bold

Width Width, or *proportion*, is determined in relation to a character's height. Typical widths are:

Condensed

Normal

Expanded

Style Style, or *posture*, is the inclination of a letter around a vertical axis. Typical styles are:

Roman

Italic

Typeface

A typeface is the design from which fonts are created. It is usually either copyrighted or registered as a trademark of an owner.

Typical typefaces are:

Courier

Helvetica

Times New Roman

In strict IBM and Adobe terminology, different styles of the same design are considered to be different typefaces of the same *typeface family* or *type family*. In Hewlett-Packard (HP) terminology, and in less strict usage elsewhere, a typeface family is called simply a typeface. In this publication, style and posture are specified whenever they are relevant, so the context indicates which meaning of *typeface* is meant.

Some other terms that are closely associated with fonts are:

Code page

A code page maps a collection of *code points*, or *character codes*, to unique

character identifiers. Code pages are used to associate the character codes in the print data stream with characters in the font character set.

A *single-byte code page* contains 256 or fewer one-byte code points. Single-byte code pages are large enough for languages with alphabetic writing systems, such as English, Greek, and Arabic.

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.

CMap

In Adobe fonts, a CMap, like an IBM code page, maps character codes to unique character identifiers.

Character set

A character set is a group of related characters, for example, all the letters, numerals, and punctuation marks required to print English.

Font character set

A font character set is a file containing the identifiers, descriptions, and raster patterns or outlines of characters. This file is used to describe a font as a resource type to Advanced Function Presentation (AFP).

Single-byte character set (SBCS)

A single-byte character set is a font character set intended for use with a single-byte code page.

Double-byte character set (DBCS)

A double-byte character set is a font character set intended for use with a double-byte code page.

CIDFont

In Adobe fonts, a CIDFont, like an IBM font character set, maps character identifiers to PostScript outlines of the characters.

Coded font

A coded font is a mapping between a font character set and a code page.

Coded fonts are sometimes simply called fonts because when you want to specify a font for printing line data on MVS or VM, you must actually specify a coded font.

CID-keyed font

A CID-keyed font is a font consisting of one CMap and one CIDFont. Adobe CID-keyed fonts correspond roughly to IBM coded fonts. Adobe uses CID-keyed fonts for Asian languages.

Font object

A font object is any member of a font library, such as a code page, coded font, or font character set.

In what formats are fonts available?

Different vendors supply fonts in different formats. All fonts are either *outline* or *bitmapped*.

Bitmapped (raster) fonts

Bitmapped fonts, also called *raster fonts*, describe each character as a *raster pattern*, or a pattern of dots. Figure 1 shows two raster patterns for the same character. Raster fonts are always printed in the same size, so if you want to *scale* (change the



Figure 1. Two raster patterns

size of) a bitmapped font, you must create a new raster pattern in the new point size.

Raster fonts are available in 240-pel and 300-pel *resolutions*. The number indicates how many dots, or *pels*, can be printed in one inch. Figure 1 shows that the higher the resolution (the more dots per inch), the clearer the character.

Raster fonts are in either *bounded-box* or *unbounded-box* format. Bounded-box fonts do not require white space around the characters in order to position them; unbounded-box fonts do. Most 240-pel IBM printers and all 300-pel IBM printers use bounded-box fonts. Type Transformer creates bounded-box fonts.

Outline fonts

Outline fonts are programs describing the shape of each character. To execute a very simple outline font, go out on a snowy day and walk around in a circle. Your feet outline the letter O in the snow. Outline fonts can be scaled at the printer.

Adobe Type 1 and CID-keyed format outline fonts

All Adobe Type 1 fonts (for single-byte encoding) and CID-keyed fonts (for double-byte encoding) are outline. (CID stands for *character identifier*.) Some applications prebuild outline fonts at specific common sizes to improve printing performance.

Type 1 fonts, also called PostScript fonts or PSFonts, are described in *Adobe Type 1 Font Format*, a publication available from Adobe Systems, Incorporated. These fonts are available from many font vendors.

CID-keyed fonts, also called Type 0 fonts, are similar to Type 1 fonts in the way they are outlined. These fonts are available from IBM and Adobe.

Type 1 and CID-keyed are abbreviations for Adobe Type 1 font format and Adobe CID-keyed format. These abbreviated forms are used throughout this publication.

Type 1 fonts consist of at least one file, usually more, with the extensions listed in Table 1 on page 4.

1. *Kerning* is reducing the space between characters to improve the appearance of certain letter combinations.

Table 1. Type 1 font file extensions

| Extension | Contents | Use |
|-----------|---|--|
| .PFB | Font outlines in binary format | Required |
| .AFM | Font metrics (character width and kerning ¹ information used by text formatters) | Required on Windows unless .PFM is present |
| .PFM | Font metrics in binary format | Required on Windows unless .AFM and .INF are present; not used by Type Transformer |
| .INF | Font information file | Required on Windows unless .PFM is present |
| .PFA | Font outlines in ASCII format | Required for font downloads into a printer |

CID-keyed fonts consist of two files with the extensions listed in Table 2.

Table 2. CID-keyed font file extensions

| Extension | Contents | Use |
|-----------|----------|----------|
| .CMP | CMap | Required |
| .CID | CIDFont | Required |

Adobe Type 1 and CID-keyed outline fonts are technically classified as PostScript language programs, because font design is not copyrightable in the United States of America. A set of instructions that describes a set of character outlines meets the broad definition of a program, which is copyrightable.

IBM AFP outline fonts

Some AFP printers, such as the IBM 3935, can use IBM AFP outline fonts that have not been converted to raster format. These printers can rescale the AFP outline fonts.

About this release of Infoprint Fonts

The Infoprint Fonts includes Type Transformer for SBCS and DBCS fonts, the Type Transformer tools described in Chapter 4, “AFP Font Editor and other utilities” on page 17, and these groups of fonts:

- IBM Expanded Core Fonts
- IBM DBCS Core Fonts

IBM Expanded Core Fonts

The IBM Expanded Core Fonts combine the IBM Core Interchange Fonts, IBM Coordinated Fonts, and IBM BookMaster Fonts. They include the following font families:

- Boldface
- BookMaster Latin1
- BookMaster Reverse
- BookMaster Specials
- BookMaster Specials Reverse
- Courier
- Courier APL2
- Gothic Katakana
- Gothic Text
- Helvetica
- IBM Logo

- Letter Gothic
- OCR-A
- OCR-B
- Prestige
- Times New Roman

Courier, Helvetica, and Times New Roman contain characters for the language groups listed under “What languages are supported?”. Each of these three type families also contains a symbols collection of scientific, mathematical, and special-purpose characters in Roman Medium and Roman Bold typefaces.

The IBM Expanded Core Fonts are all derived from Type 1 font technology and are provided in the following formats:

- AFP outline format
- Adobe Type 1 outline format

DBCS Core Fonts

The DBCS Core Fonts include:

- Japanese Heisei Kaku Gothic
- Japanese Heisei Maru Gothic
- Japanese Heisei Mincho
- Korean Gothic
- Korean Myengjo
- Simplified Chinese Fang Song
- Simplified Chinese Hei
- Simplified Chinese Kai
- Simplified Chinese Song
- Traditional Chinese Kai
- Traditional Chinese Sung

These are DBCS fonts. They are provided as CID-keyed outline fonts from which Type Transformer can create AFP outline fonts.

What languages are supported?

The IBM Expanded Core Fonts include characters for the following language groups defined in International Organization for Standardization (ISO) standard 8859:

- The Latin language group includes Latin1 through Latin5 and Vietnamese.
- The Latin1 language group (ISO 8859-1) includes Danish, Dutch, English, Faeroese, Finnish, French, German, Icelandic, Irish, Italian, Norwegian, Portuguese, Spanish, and Swedish.
- The Latin2 language group (ISO 8859-2) includes Albanian, Czech, English, German, Hungarian, Polish, Romanian, Serbocroatian, 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, Estonian, Finnish, French, German, Greenlandic, Lappish, Latvian, Lithuanian, and Norwegian.
- The Latin/Cyrillic language group (ISO 8859-5) includes Bulgarian, Byelorussian, English, Macedonian, Russian, Serbocroatian, and Ukrainian.
- The Latin/Arabic language group (ISO 8859-6) includes Latin and Arabic scripts.
- The Latin/Greek language group (ISO 8859-7) includes Latin and Greek scripts.

- The Latin/Hebrew language group (ISO 8859-8) includes Latin and Hebrew scripts.
- The Latin5 language group (ISO 8859-9) includes Danish, Dutch, English, Finnish, French, Irish, Italian, Norwegian, Portuguese, Spanish, Swedish, and Turkish.
- The Latin/Thai language group contains characters for Latin and Thai scripts.
- The Latin/Lao language group contains characters for Latin and Lao scripts.

Note: Not every font provides characters for every language listed.

The IBM DBCS Core fonts include characters for the following languages:

- The Heisei Mincho, Heisei Kaku Gothic, and Heisei Maru Gothic fonts provide characters for Japanese.
- The Fang Song and Kai provide GB support, and Hei and Song provide GB18030 support for Simplified Chinese.
- The Kai and Sung fonts provide characters for Traditional Chinese.
- The Gothic and Myengjo fonts provide characters for Korean with 11,172 hangul characters.

How do I obtain fonts?

Generally, Type 1 fonts are available in type families, such as ITC Souvenir and Monotype Garamond. Each type family may contain several different typefaces such as roman medium, roman bold, italic medium, and italic bold. For descriptions and examples of these terms, see *IBM AFP Fonts: Introduction to Typography*.

Type 1 fonts are sometimes sold as packages. For example, the Adobe Plus Pack contains the ITC Avant Garde Gothic, ITC Bookman, Helvetica Narrow, New Century Schoolbook, Palatino, ITC Zapf Chancery, and ITC Zapf Dingbat type families.

Type 1 fonts are usually shipped on diskette, although some vendors offer large groupings of Type 1 fonts on CD-ROM. For more information about Type 1 fonts, contact the font supplier or vendor. Some of the vendors that market Type 1 fonts include:

- IBM
- Adobe
- Agfa Monotype
- Bitstream
- International Typeface Corporation
- Linotype Library
- The Font Company

CID-keyed fonts are available from several vendors, including IBM and Adobe.

IBM Infoprint outline fonts are available on CD-ROM as part of IBM Infoprint Fonts, which also includes Type Transformer.

What is a license agreement and how does it affect me?

A *license agreement* is a legal understanding between you and the font vendor on how the fonts will be used. You, as the licensee, have certain responsibilities when you use Type 1 or CID-keyed fonts. For example, you may be licensed to use the fonts on only one printer, or your license may allow you to use the fonts on a network of printers.

Not all license agreements are the same. You must read each license agreement carefully to ensure that you are not in violation of it. Items you need to look for in the license agreement include:

- The number of backup copies you may make of the fonts. Often, you are allowed only one set of backup copies.
- The number of computers on which the fonts may be installed. Some license agreements allow you to install fonts on only one host, while others allow you to install them on many computers, as long as the fonts are used with only one printer.

If the license agreement restricts your use to a single printer and you decide that you want to use the fonts on many printers, you can sometimes obtain a multisystem license for this purpose.

License Agreements

It is your responsibility to abide by the terms specified in the license agreement for each Type 1 or CID-keyed font that you transform with Type Transformer.

Chapter 2. What is Type Transformer?

Infoprint Fonts Type Transformer is a program that transforms Type 1 and CID-keyed outline fonts into fonts that can be used for printing with IBM advanced function printers.

By using Type Transformer, you can generate your own fonts for printing. With the many type families available, Type Transformer enables you to create fonts of different styles and sizes so that you can print documents with your own customized style.

Type Transformer runs in the Windows environment. After Type Transformer transforms fonts, you can store them in font libraries or directories accessible by AIX, z/OS, OS/400, or Windows.

Why do I need to transform fonts?

IBM page printers print from a data stream called the *Advanced Function Presentation (AFP) data stream*. This data stream contains the formatted text and information about fonts and other files used in printing.

The fonts used in AFP must be in a format that the printers can interpret. Most IBM page printers can use fonts in the following formats:

- *raster* format. In raster format, a file must exist for each point size, weight, width, and style in each typeface. For example, if you want to print a document using 10-point Times New Roman roman medium and roman bold, you must have two files—one for each style. These files contain the characters in bitmapped form; a pattern of dots forms the character.
- *AFP outline* format. These are Type 1 fonts with added information that permits the printer to create its own bitmaps. The printer can create bitmaps in as many point sizes as you need from a single AFP Outline.

To obtain fonts that can be used in AFP, you must transform the Type 1 or CID-keyed outline fonts to raster or AFP Outline format using Type Transformer. Type Transformer also includes additional information about the font (such as spacing for each character) that is used by AFP at print time.

What are the system requirements for Type Transformer?

Type Transformer requires the following hardware and software.

Hardware requirements (all of the following):

- A workstation capable of running Microsoft Windows.
- A CD-ROM drive.
- A hard disk. The amount of free disk space required for Type Transformer is determined at installation. How much additional free disk space you need for the transformed fonts depends on how many fonts you transform.
- At least 32MB of random access memory (RAM), in addition to operating system requirements.

Software requirements for Type Transformer

Windows 32-bit operating system, such as Windows NT, Windows 2000, or Windows XP.

How do I install Type Transformer?

To install Type Transformer, place the *IBM Infoprint Fonts: Type Transformer and Utilities for Windows* CD-ROM in your CD-ROM drive. A menu program displays from which you can select the program to be installed.

Chapter 3. Introduction to DBCS fonts

Chapter 1, “A few words about fonts” on page 1 introduced some basic font concepts, including a brief discussion of double-byte character sets (DBCS), which are required for printing Asian languages.

You can use Type Transformer for DBCS fonts without knowing a word of any language except English. English speakers may want to read the brief survey in “Asian writing systems”.

Asian writing systems

The languages of the Western world, as well as those of the Middle East, are all written in descendants of the Phoenician alphabet. Different as the characters of the Latin, Greek, Cyrillic, Hebrew, Arabic, and Armenian alphabets may appear, the principle that one letter should represent one sound prevails from Iraq to Hawaii.

Writing in Asia developed on different principles: first *ideograms*, or picture writing, then phonetic systems in which one symbol represents a whole syllable. Except in North Korea, phonetic writing supplements the Asian ideograms rather than replacing them.

Traditional Chinese

Traditional Chinese ideograms, still used in Taiwan, are the oldest form of writing in Asia. These are pictures of objects. Abstractions are expressed by pictorial metaphors. For example, the sign for “sun” also means “day”, the sign for “moon” also means “month”, and “sun” and “moon” together mean “bright”. Since each unit of meaning in Chinese is expressed by a single word, not by phonetic changes to a stem, ideograms alone are well suited to writing Chinese.

Simplified Chinese

Many of the Traditional Chinese ideograms are very detailed, hard to remember and time-consuming to write. Simplified Chinese, used in Mainland China, has redrawn many of the ideograms so that they are more abstract and less detailed.

Korean

Ideograms derived from traditional Chinese characters, called *hanzi* or *hanja*, are still used in South Korea to supplement the principal Korean writing system, *hangul*. Hangul is used without Chinese characters in North Korea.

Hangul is a phonetic *syllabary*. That is, one character is used for each possible combination of sounds in the Korean language, as if English had different characters for a, ba, bac, bad, baf, and so on. Unlike some syllabaries, Hangeul has alphabetic features. Within each syllabic character, it is possible to distinguish the signs for the individual sounds, called *elements*.

Japanese

Japanese has the most complicated writing system in Asia. Four different kinds of characters can be found on a single page:

Kanji Ideograms derived from Traditional Chinese. Some closely resemble Traditional Chinese, others have changed.

Hiragana

A pure syllabary, that is, one in which it is not possible to distinguish alphabetic elements. Hiragana is used for grammatical inflections that cannot be represented by kanji and to “spell out” kanji in dictionaries and in teaching reading. Children’s books have small hiragana printed above difficult kanji.

Katakana

Another pure syllabary. Katakana is used for foreign words and for emphasis, like italics in English. Unlike roman and italics, hiragana and katakana are considered two different character sets, not different representations of the same characters, although they represent the same sounds. Katakana is more angular than hiragana.

Kana means hiragana, katakana, or both.

Romaji

“Roman characters”. The Latin alphabet, used for foreign words and phrases. Proper names tend to be written in romaji, foreign words that have entered the Japanese vocabulary in katakana.

User-defined characters

In addition to the standard characters used in writing Asian languages, individual users may need special characters, such as a corporate logo or a name. Westerners often develop highly individual signatures, but reserve them for the use of one particular person in signing documents; a letter to that person is typed in standard alphabetic characters. Asians who use variants of the standard characters in writing their names expect to see the variant when others write to them; it is more like a spelling preference than a signature.

These special characters are called *user-defined characters (UDCs)* or *gaiji*, Japanese for “external characters”. *Gai* is also translated “foreign”, but in this sense it means “foreign to the standard character set.” Do not confuse gaiji with romaji.

Writing direction

Chinese, Japanese, and Korean were originally all written with the lines running from top to bottom of the page and the sequence of lines going from right to left. This is still the usual order for Traditional Chinese and in South Korea.

Writing from left to right, top to bottom, has been introduced under Western influence. This is the usual order for Simplified Chinese and in North Korea.

Both writing directions are used in Japanese, at the discretion of the typographer. A technical manual would probably be printed left to right, a literary classic top to bottom. Newspapers frequently use both directions on the same page.

Most characters look the same no matter which direction the writing takes, but some are *sensitive to writing direction (SWD)*. Parentheses, for example, look the same as in English when the writing runs from left to right, but when it runs from top to bottom, they are turned sideways so that the open side of the opening parenthesis faces down and the open side of the closing parenthesis faces up. Figure 2 on page 13 shows the different forms of horizontal and vertical parentheses.



Figure 2. Characters that are sensitive to writing direction

Single-byte and double-byte character sets

Languages written in any of the Western or Middle Eastern alphabets have relatively few characters. English, for example, has twenty-six uppercase and twenty-six lowercase letters, ten numerals, a blank space, some punctuation marks, and a few special symbols like the ampersand and the plus sign. A single byte is large enough to assign a different code point to each character, so a set of code points used for English is called a *single-byte code page*. A font character set intended for use with a single-byte code page is called a *single-byte character set (SBCS)*.

Asian languages far exceed the 256-character limit imposed by a single byte. Japanese, for example, uses about 2000 kanji for everyday purposes, more kanji for special vocabularies, two phonetic syllabaries, Latin alphabetic characters, Arabic numerals, and both Japanese and Western punctuation marks. It takes two bytes to assign a code point to each character, so a set of code points used for Japanese is called a *double-byte code page*; and a Japanese font character set is called a *double-byte character set (DBCS)*. Programs written for single-byte code pages won't work for Asian languages.

Single-byte characters in Asian fonts

Type Transformer for DBCS fonts can include single-byte characters in a DBCS font. This is most obviously useful for Western characters: romaji, Arabic numerals, and punctuation marks. Single-byte codes have also been assigned to katakana and *half-width characters*, which are narrow forms of normal characters for condensed printing. Most single-byte characters also have double-byte character codes. Half-width characters are single-byte only.

Although single-byte characters used in DBCS fonts can be proportionally spaced in theory, all the existing ones are half-width. As a result, the terms “single-byte character” and “half-width character” are used interchangeably in the sections of this publication dealing with DBCS fonts.

DBCS 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 within 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.

Type Transformer processes low sections (41 to 44) and high sections (45 to FE) a little differently. Type Transformer examines only high sections to determine the size of the largest character in a DBCS font. Romaji and SWD characters should be placed only in low sections.

Where to get DBCS fonts

DBCS fonts are available from various vendors, including IBM. Fonts from other vendors may not have all the characters in IBM fonts.

The IBM fonts available for Advanced Function Presentation are summarized in *IBM Infoprint Fonts: Font Summary*.

CID-keyed fonts

Since computer printing was evolved independently in many different places, different countries, and even different operating systems in the same country, use different code pages. This is why electronic mail often arrives with some startling character substitutions. The same code point can represent different characters in the sender's and receiver's code pages. It's confusing enough in the Latin alphabet. Given the number of characters in Asian languages, the possibilities for chaos are obvious.

To avoid character substitutions in printing, you need some way of making clear which character codes represent which character descriptions. Instead of mapping code points directly to the character descriptions that determine how the printed characters look, Adobe fonts for Asian languages use a file called a CMap, like an IBM code page, to map code points to *character identifiers (CIDs)*. A CID is unique and permanently assigned to a character. A file called a CIDFont, like an IBM font character set, maps CIDs to character descriptions. A CID-keyed font puts a specific CMap and a specific CIDFont together, so that the same code point always means the same character description. If you want to change code pages, you must change CID-keyed fonts.

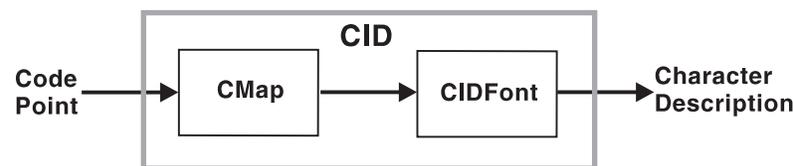


Figure 3. Using a CID-keyed font

Transforming fonts

When you buy a CID-keyed font for Traditional Chinese, Simplified Chinese, Japanese, or Korean, you get PostScript programs describing the outline of each character. Type Transformer for DBCS translates CID-keyed fonts into two formats for printing on AFP printers:

- *Raster fonts* for 240-*pel* printers (printers capable of printing 240 dots, or *picture elements*, per inch). Raster fonts contain a separate bit map for each character in each point size desired.

- *AFP Outline fonts*, which contain enough information to allow certain AFP printers to create their own bit maps. A single AFP Outline font allows a printer to create bit maps in any point size.

Customizing fonts

You may not wish to use a font exactly as the vendor supplies it. Type Transformer allows you to customize fonts by defining UDCs and by anamorphic scaling.

Defining UDCs

Type Transformer permits users to add user-defined characters to a character set. A font without any UDCs is called a *base font*. UDCs are defined in an *extension*. The base and extension can be combined to create an *extended base font*.

You can create UDCs with FontLab, which is included with IBM Infoprint Fonts. For more information, see *IBM Infoprint Fonts: Creating User-Defined Characters*.

Anamorphic scaling

Type Transformer allows you to create characters with proportions differing from the supplied font by *anamorphic scaling*. This means scaling the height and width of the character by two different factors, creating short and fat characters or tall and thin ones.

Chapter 4. AFP Font Editor and other utilities

The AFP Font Editor allows you to read, display, and edit information about:

- AFP Characters Sets (raster and outline, single byte and double byte)
- AFP Code Pages (single byte and double byte)
- AFP Coded Fonts (single byte and double byte)

The AFP Font Editor enables you to edit SBCS and DBCS code pages. You may want to do this if:

- You have defined a new character. (User-defined characters are supported only for DBCS code pages.) This is especially useful if you print in Asian languages.
- You want to replace all instances of one character with another character, without going back and editing the source documents. For example, you might want to replace all the double-box fill characters with single fill characters.

Invoking the AFP Font Editor

You can invoke the AFP Font Editor from the following places:

- **Start** → **Programs** → **Infoprint Fonts** → **Utilities** → **AFP Font Editor**
- SBCS Type Transformer **Utilities** Menu
- DBCS Type Transformer **Utilities** Menu

Using Other Font Utilities

Type Transformer includes the following font utility programs:

- “CID to EPS: Generating an EPS file of a character” to generates an encapsulated PostScript (EPS) file of a character from a selected CID-keyed font. Use it to extract characters from a base font to use in creating UDCs.
- “DUVRMARK: Changing the date and time stamp or the capture setting” changes the date and time stamp or the capture setting of a font object.

CID to EPS: Generating an EPS file of a character

Use CID to DEPS to extract a character from a CID-keyed base font and present it as an EPS image. You can use the FontLab online font editor to edit an existing character as a base for creating UDCs.

DUVRMARK: Changing the date and time stamp or the capture setting

DUVRMARK changes the date and time stamp or the capture setting of a font file.

In order for a metric-only font to activate a printer-resident font, they must have the same date and time stamp. Check the printer information manual for the date and time stamp of the resident fonts, then use DUVRMARK to make the date and time stamp on your font objects match.

If you created a half-width font with a capture setting of YES, PSF may require you to change the capture setting to NO in some situations, for example, when PSF for OS/390 maps a raster font to an outline.

Chapter 5. Type Transformer naming conventions for font character sets and coded fonts

This appendix describes the Type Transformer naming conventions for the following font objects:

- Font character sets
- Coded fonts

For code page naming conventions, see *IBM Infoprint Fonts: Fonts Summary*.

SBCS font objects

When you work with IBM-supplied fonts, Type Transformer for SBCS fonts suggests font character set and coded font names based on the IBM naming conventions.

You can change the names of font character set and coded fonts, using **Font object names** from the **Customize** pull-down

SBCS font character sets

This section explains the naming convention for single-byte font character sets shown in Table 3. Table 11 on page 23 summarizes the naming convention.

Table 3. Naming convention for SBCS font character sets

| | | | | |
|-------------|-----------------------|---------------------------------|------------|-----|
| A A | T T | R | F | S M |
| Font object | Type family and style | Reserved Character filter | Point size | |

For Type Transformer, you can specify a font character set name for the Type 1 font to be transformed using **Font object names** from the **Customize** pull-down. Type Transformer first suggests a font character set name based on the naming convention that follows. You can change characters 3, 4 and 6 of the font character set name. If you change the third or fourth character of the font character set name, its associated coded font name will also change.

IBM-supplied fonts have font character set names based on attributes of components pointed to by the font character set. These conventions are shown in this appendix. If a naming convention has already been established at your site, you should continue to follow that convention.

Font object

The first two characters (AA) of the font character set name indicate the type of font object.

Type Transformer assigns the characters C0 to indicate that the font object is a raster font character set, or CZ to indicate that the font object is an outline font character set. (Table 4 on page 20).

Table 4. Font Object

| A A | T T | R | F | S M |
|-----------|----------------------------|---|---|-----|
| AA | Font object | | | |
| C0 | Raster font character set | | | |
| CZ | Outline font character set | | | |

Type family and style

The third and fourth characters (TT) of the font character set name indicate the type family and style.

For IBM Expanded Core fonts (a group of fonts supplied as part of AFP Font Collection), Type Transformer suggests these characters based on the name of the type family and the style (for example, bold, italic, or bold italic) of the characters. For other fonts, Type Transformer suggests an arbitrary value. You can select **Font object names** from the **Customize** pull-down to change these two characters (Table 5)

Table 5. Type family and style

| A A | T T | R | F | S M |
|-----------|---|---|---|-----|
| TT | Type family and style (examples) | | | |
| 42 | Courier | | | |
| 43 | Courier italic | | | |
| 44 | Courier bold | | | |
| 45 | Courier bold italic | | | |
| 52 | Letter Gothic | | | |
| 54 | Letter Gothic bold | | | |
| 62 | Katakanna, Gothic text | | | |
| 72 | Prestige | | | |
| 73 | Prestige italic | | | |
| 74 | Prestige bold | | | |
| 84 | Boldface bold | | | |
| 92 | OCR A | | | |
| 93 | OCR B | | | |
| B2 | BookMaster | | | |
| B3 | BookMaster italic | | | |
| B4 | BookMaster bold | | | |
| B5 | BookMaster bold italic | | | |
| B6 | BookMaster Reverse | | | |
| H2 | Helvetica | | | |
| H3 | Helvetica italic | | | |
| H4 | Helvetica bold | | | |

- H5 Helvetica bold italic
- N2 Times New Roman
- N3 Times New Roman italic
- N4 Times New Roman bold
- N5 Times New Roman bold italic

Reserved

The fifth character (R) of the font character set name is reserved for IBM use (Table 6).

Table 6. Reserved for IBM User

| A A | T T | R | F | S M |
|-----|-----|----------|--------------------------------------|-----|
| | | R | Reserved | |
| | | 0 | Reserved list | |
| | | 8 | Character filter does not match font | |
| | | U | No CHARLIST filter for Katakana | |

Character filters

The sixth character (F) of the font character set name indicates the character filter used to select the list of characters included in the font character set.

Type Transformer suggests this character (F) based on the filter, for example, the Latin1 list or a code page. You can select **Font object names** from the **Customize** pull-down to change this character.

For IBM-supplied fonts, Type Transformer suggests a character for the character filter (Table 7).

Table 7. Character Filter

| A A | T T | R | F | S M |
|-----|-----|----------|-------------------------|-----|
| | | F | Character filter | |
| | | 0 | Latin1 list | |
| | | 0 | BookMaster list | |
| | | 1 | Symbols list | |
| | | 2 | Latin235 list | |
| | | 3 | Cyrillic Greek list | |
| | | 4 | Arabic list | |
| | | 5 | Hebrew list | |
| | | 6 | Thai list | |
| | | 7 | Latin4 list | |
| | | 8 | Katakana list | |

- 9 Lao list
- A OCRA list
- B OCRB list
- D Baltic list with Latin Font
- P APL list

Point size

The seventh and eighth characters (SM) of the font character set name indicate point size.

Type Transformer assigns characters (SM) to indicate the point size of the font character set (Table 8).

Table 8. Point Size

| | | | | |
|-----|-----|---|---|------------------------------|
| A A | T T | R | F | S M |
| | | | | SM Point Size |
| | | | | Point size = (M × 36) + S |

Use the following algorithm to determine the point size from the value of SM:

1. Determine the value of the eighth character (M) from Table 9; and multiply that value by 36.

Table 9. M values for determining point size

| M | Value | M | Value | M | Value | M | Value |
|---|-------|---|-------|---|-------|---|-------|
| 0 | 0 | 7 | 7 | E | 14 | L | 21 |
| 1 | 1 | 8 | 8 | F | 15 | M | 22 |
| 2 | 2 | 9 | 9 | G | 16 | N | 23 |
| 3 | 3 | A | 10 | H | 17 | O | 24 |
| 4 | 4 | B | 11 | I | 18 | P | 25 |
| 5 | 5 | C | 12 | J | 19 | Q | 26 |
| 6 | 6 | D | 13 | K | 20 | R | 27 |

2. Determine the value of the seventh character (S) from Table 10. Note that 0 is not 0, as for S, but 10; and that A through F are not 10 through 15, but 11 through 16.

Table 10. S values for determining point size

| S | Value | S | Value | S | Value | S | Value |
|---|-------|---|-------|---|-------|---|-------|
| 1 | 1 | 0 | 10 | I | 19 | R | 28 |
| 2 | 2 | A | 11 | J | 20 | S | 29 |
| 3 | 3 | B | 12 | K | 21 | T | 30 |
| 4 | 4 | C | 13 | L | 22 | U | 31 |
| 5 | 5 | D | 14 | M | 23 | V | 32 |
| 6 | 6 | E | 15 | N | 24 | W | 33 |
| 7 | 7 | F | 16 | O | 25 | X | 34 |
| 8 | 8 | G | 17 | P | 26 | Y | 35 |
| 9 | 9 | H | 18 | Q | 27 | Z | 36 |

3. Add the values you got in step 1 and step 2.

For example, If SM is QR, M is R. According to Table 9 on page 22, R equals 27. 27 times 36 is 972. S is Q. According to Table 10 on page 22, Q equals 27. 972 plus 27 gives a point size of 999. If SM is Z2, 2 times 36, plus 36, gives a point size of 108.

Use the following algorithm to determine the value of SM from the point size:

1. Divide the point size by 36.
2. If the remainder is 0:
 - a. S is Z.
 - b. M is the quotient minus 1.
3. If the remainder is anything other than 0:
 - a. S is the value corresponding to the remainder in Table 10 on page 22.
 - b. M is the quotient.

For example, 972 divided by 36 is 27 remainder 27. According to Table 10 on page 22, 27 is R; and according to Table 9 on page 22, 27 is Q; so SM is QR. 108 divided by 36 is 3 remainder 0. Because the remainder is 0, S is Z, and M is 3 minus 1, so SM is Z2.

Summary

Table 11 summarizes the naming convention for SBCS font character set.

Table 11. Summary of the Type Transformer naming convention for SBCS font character sets

| A A | T T | R | F | Character filter |
|-----|-----|---|---|-----------------------------|
| | | | 0 | Latin1 list |
| | | | 0 | BookMaster list |
| | | | 1 | Symbols list |
| | | | 2 | Latin235 list |
| | | | 3 | Cyrillic Greek list |
| | | | 4 | Arabic list |
| | | | 5 | Hebrew list |
| | | | 6 | Thai list |
| | | | 7 | Latin4 list |
| | | | 8 | Katakana list |
| | | | 9 | Lao list |
| | | | A | OCRA list |
| | | | B | OCRB list |
| | | | D | Baltic list with Latin Font |
| | | | P | APL list |
| | | | F | S M |

Table 11. Summary of the Type Transformer naming convention for SBCS font character sets (continued)

| AA | Font object | TT | Type family and style (examples) | R | Reserved | SM | Point size |
|----|-----------------------------|----|----------------------------------|---|--------------------------------------|----|---------------------------|
| C0 | Raster font character set | 42 | Courier | 0 | Reserved list | | Point size = (M × 36) + S |
| CZ | Outline font character set | 43 | Courier italic | 8 | Character filter does not match font | | |
| | | 44 | Courier bold | | | | |
| | | 45 | Courier bold italic | U | No CHARLIST for Katakana | | |
| | | 52 | Letter Gothic | | | | |
| | | 54 | Letter Gothic bold | | | | |
| | | 62 | Katakanna, Gothic text | | | | |
| | | 72 | Prestige | | | | |
| | | 73 | Prestige italic | | | | |
| | | 74 | Prestige bold | | | | |
| | | 84 | Boldface bold | | | | |
| | | 92 | OCR A | | | | |
| | | 93 | OCR B | | | | |
| | | B2 | BookMaster | | | | |
| | | B3 | BookMaster italic | | | | |
| | | B4 | BookMaster bold | | | | |
| | | B5 | BookMaster bold italic | | | | |
| | | B6 | BookMaster Reverse | | | | |
| | | H2 | Helvetica | | | | |
| | | H3 | Helvetica italic | | | | |
| | | H4 | Helvetica bold | | | | |
| H5 | Helvetica bold italic | | | | | | |
| N2 | Times New Roman | | | | | | |
| N3 | Times New Roman italic | | | | | | |
| N4 | Times New Roman bold | | | | | | |
| N5 | Times New Roman bold italic | | | | | | |

SBCS coded fonts

This section explains the naming convention for SBCS coded fonts shown in Table 12. Table 19 on page 29 summarizes the naming convention.

Table 12. Naming convention for SBCS coded fonts

| | | | |
|-------------|-----------------------|-----------|------------|
| A A | T T | P P | S M |
| Font object | Type family and style | Code page | Point size |

For Type Transformer, you can specify a coded font name for the Type 1 font to be transformed, using **Font object names** from the **Customize** pull-down. Type Transformer first suggests a font character set name based on the naming convention detailed in “SBCS font character sets” on page 19. You can change characters 3, 4, and 6 of the font character set name. If you change the third or fourth character of the font character set name, its associated coded font name will also change.

IBM-supplied fonts have coded font names based on attributes of components pointed to by the coded font. These conventions are shown in this appendix. If a naming convention has already been established at your site, you should continue to follow that convention.

Font object

The first two characters (AA) of the coded font name indicate the type of font object.

Type Transformer assigns the characters X0 to indicate that the font object is a raster coded font, or XZ to indicate that the font object is an outline coded font. (Table 13).

Table 13. Font object

| | | | |
|-----------|--------------------|-----|-----|
| A A | T T | P P | S M |
| AA | Font object | | |
| X0 | Raster coded font | | |
| XZ | Outline coded font | | |

Type family and style

The third and fourth characters (TT) of the coded font name indicate the type family and style.

Type Transformer suggests these characters based on the name of the type family and the style (for example, roman, bold, italic, and bold italic) of the characters. You can select **Font object names** from the **Customize** pull-down to change these two characters by first changing the characters in the font character set name. When you do this, the coded font name changes, automatically.

For IBM Expanded Core fonts (a group of fonts supplied as part of AFP Font Collection), Type Transformer suggests characters for the type family and style (Table 14 on page 26).

Table 14. Type family and style

| A A | T T | P P | S M |
|-----|-----------|---|-----|
| | TT | Type family and style (examples) | |
| | 42 | Courier | |
| | 43 | Courier italic | |
| | 44 | Courier bold | |
| | 45 | Courier bold italic | |
| | H2 | Helvetica | |
| | H3 | Helvetica italic | |
| | H4 | Helvetica bold | |
| | H5 | Helvetica bold italic | |
| | N2 | Times New Roman | |
| | N3 | Times New Roman italic | |
| | N4 | Times New Roman bold | |
| | N5 | Times New Roman bold italic | |

Code page identifier

The fifth and sixth characters (PP) of the coded font name indicate the code page associated with the coded font.

Type Transformer assigns these characters (PP) based on the code page used with the coded font. Once a code page is used, Type Transformer remembers the code page identifier characters (PP) and uses them anytime you use that particular code page to define a coded font.

Type Transformer suggests characters for the code page identifier. Table 15 on page 27 shows the suggested characters for a subset of the code pages.

Table 15. Code page identifier

| A A | T T | P P | S M | | |
|-----|-----------|-----------|-----------|-------------|----------|
| | PP | PP | PP | | |
| | Code page | Code page | Code page | | |
| | 10 | T1V10284 | 53 | T1001026 A0 | T1B00388 |
| | 11 | T1V10037 | 54 | T1000852 A1 | T1000038 |
| | 12 | T1V10273 | 55 | T1000853 A2 | T1000260 |
| | 13 | T1V10274 | 56 | T1000857 A3 | T1000276 |
| | 14 | T1V10275 | 57 | T1000912 A4 | T1000286 |
| | 15 | T1V10277 | 58 | T1000920 A5 | T1000287 |
| | 16 | T1V10278 | 59 | T1001069 A6 | T1000286 |
| | 17 | T1V10280 | 60 | T1001028 A7 | T1000289 |
| | 18 | T1V10281 | 61 | T1000420 A8 | T1000367 |
| | 19 | T1V10282 | 62 | T1000423 A9 | T1000836 |
| | 1A | T1V10285 | 63 | T1000424 AA | T1000858 |
| | 1B | T1V10297 | 64 | T1000803 AB | T1000867 |
| | 1C | T1V10500 | 65 | T1000875 AC | T1000876 |
| | 1D | T1V10871 | 66 | T1000290 AD | T1000877 |
| | 20 | T1000390 | 67 | T1000880 AE | T1000889 |
| | 21 | T1000361 | 68 | T1000838 AF | T1000897 |
| | 22 | T1000382 | 69 | T1001025 AG | T1000903 |
| | 23 | T1000383 | 6A | T1V10290AH | T1000904 |
| | 24 | T1000384 | 70 | T1001092 AI | T1000910 |
| | 25 | T1000385 | 71 | T1000259 AJ | T1000913 |
| | 26 | T1000386 | 72 | T1000293 AK | T1000923 |
| | 27 | T1000387 | 73 | T1000310 AL | T1000924 |
| | 28 | T1000388 | 74 | T1000892 AM | T1001027 |
| | 29 | T1000389 | 75 | T1000893 AN | T1001041 |
| | 2A | T1000391 | 76 | T1000899 AO | T1001042 |
| | 2B | T1000392 | 77 | T1001087 AP | T1001043 |
| | 2C | T1000393 | 78 | T1001038 AQ | T1001093 |
| | 2D | T1000394 | 79 | T1001091 AR | T1001110 |
| | 2E | T1000395 | 7A | T1000363 AS | T1001111 |
| | 31 | T1000437 | 7B | T1000829 AT | T1001112 |
| | 32 | T1000850 | 7C | T1001300 AU | T1001122 |
| | 33 | T1000860 | 80 | T1000916 AV | T1001123 |
| | 34 | T1000861 | 81 | T1000813 AW | T1001124 |
| | 35 | T1000863 | 82 | T1000851 AX | T1001132 |
| | 36 | T1000865 | 83 | T1000855 AY | T1001133 |
| | 37 | T1001004 | 84 | T1000856 AZ | T1001139 |
| | 38 | T1000819 | 85 | T1000862 B0 | T1001140 |
| | 41 | T1001002 | 86 | T1000864 B1 | T1001141 |
| | 42 | T1001003 | 87 | T1000869 B2 | T1001142 |
| | 43 | T1001068 | 88 | T1000874 B3 | T1001143 |
| | 44 | T1001039 | 89 | T1000915 B4 | T1001144 |
| | 50 | T1000914 | 8A | T1001008 B5 | T1001145 |
| | 51 | T1000870 | 8B | T1001029 B6 | T1001146 |
| | 52 | T1000905 | 8C | T1001046 B7 | T1001147 |
| | B8 | T1001148 | 8D | T1000866 DR | T1M00830 |
| | B9 | T1001149 | CI | T1GI0361 DS | T1S0AE10 |
| | BA | T1001252 | CJ | T1GI0382 DT | T1S0AP10 |
| | BB | T1B00037 | CK | T1GI0383 DU | T1S0S192 |
| | BC | T1B00273 | CL | T1GI0384 DV | T1S0S193 |
| | BD | T1B00274 | CM | T1GI0385 DW | T1S0S198 |
| | BE | T1B00275 | CN | T1GI0386 | |
| | BF | T1B00277 | CO | T1GI0387 | |

Table 15. Code page identifier (continued)

| | | | |
|----|----------|----|----------|
| BG | T1B00278 | CP | T1GI0388 |
| BH | T1B00280 | CQ | T1GI0389 |
| BI | T1B00281 | CR | T1GI0390 |
| BJ | T1B00282 | CS | T1GI0391 |
| BK | T1B00284 | CT | T1G10392 |
| BL | T1B00285 | CU | T1GI0393 |
| BM | T1B00297 | CV | T1GI0394 |
| BN | T1B00361 | CW | T1GI0395 |
| BO | T1B00382 | CX | T1GPI363 |
| BP | T1B00383 | CY | T1L000GN |
| BQ | T1B00384 | CZ | T1L000RN |
| BR | T1B00385 | D0 | T1L000SN |
| BS | T1B00386 | D1 | T1L000XN |
| BT | T1000387 | D2 | T1L000YN |
| BU | T1B00389 | D3 | T1L00A11 |
| BV | T1B00390 | D4 | T1L00APL |
| BW | T1B00391 | D5 | T1L00FMT |
| BX | T1B00392 | D6 | T1L00KN1 |
| BY | T1B00393 | D7 | T1L00QNC |
| BZ | T1B00394 | D8 | T1L02773 |
| C0 | T1B00395 | D9 | T1L02774 |
| C1 | T1B00500 | DA | T1L038BA |
| C2 | T1B00871 | DB | T1L038TE |
| C3 | T1B00BGS | DC | T1L0AD10 |
| C4 | T1D0BASE | DD | T1L0AG10 |
| C5 | T1D0GP12 | DE | T1L0AG12 |
| C6 | T1DABASE | DF | T1LOAG15 |
| C7 | T1DDBASE | DG | T1L0AI10 |
| C8 | T1DCDCFS | DH | T1L0AT10 |
| C9 | T1DDBASE | DI | T1L0DUMP |
| CA | T1DEBASE | DJ | T1L0FOLD |
| CB | T1DFBASE | DK | T1L0OCR1 |
| CC | T1D1BASE | DL | T1L0OCR2 |
| CD | T1DNBASE | DM | T1L0OCR3 |
| CE | T1DSBASE | DN | T1L0OCRB |
| CF | T1DUBASE | DO | T1L0PCAN |
| CG | T1GE0200 | DP | T1L0PCHN |
| CH | T1GE0300 | DQ | T1M00829 |

Point size

The seventh and eighth characters (SM) of the coded font name indicate point size.

Type Transformer assigns characters (SM) to indicate the point size of the coded font (Table 16).

Table 16. Point size

| | | | |
|-----|-----|-----|------------------------------|
| A A | T T | P P | S M |
| | | | SM Point Size |
| | | | Point size = (M × 36) + S |

Use the following algorithm to determine the point size from the value of SM:

1. Determine the value of the eighth character (M) from Table 17; and multiply that value by 36.

Table 17. M values for determining point size

| M | Value | M | Value | M | Value | M | Value |
|---|-------|---|-------|---|-------|---|-------|
| 0 | 0 | 7 | 7 | E | 14 | L | 21 |
| 1 | 1 | 8 | 8 | F | 15 | M | 22 |
| 2 | 2 | 9 | 9 | G | 16 | N | 23 |
| 3 | 3 | A | 10 | H | 17 | O | 24 |
| 4 | 4 | B | 11 | I | 18 | P | 25 |
| 5 | 5 | C | 12 | J | 19 | Q | 26 |
| 6 | 6 | D | 13 | K | 20 | R | 27 |

2. Determine the value of the seventh character (S) from Table 18. Note that 0 is not 0, as for M, but 10; and that A through F are not 10 through 15, but 11 through 16.

Table 18. S values for determining point size

| S | Value | S | Value | S | Value | S | Value |
|---|-------|---|-------|---|-------|---|-------|
| 1 | 1 | 0 | 10 | I | 19 | R | 28 |
| 2 | 2 | A | 11 | J | 20 | S | 29 |
| 3 | 3 | B | 12 | K | 21 | T | 30 |
| 4 | 4 | C | 13 | L | 22 | U | 31 |
| 5 | 5 | D | 14 | M | 23 | V | 32 |
| 6 | 6 | E | 15 | N | 24 | W | 33 |
| 7 | 7 | F | 16 | O | 25 | X | 34 |
| 8 | 8 | G | 17 | P | 26 | Y | 35 |
| 9 | 9 | H | 18 | Q | 27 | Z | 36 |

3. Add the values you got in step 1 and step 2.

For example, If SM is QR, M is R. According to Table 17, R equals 27. 27 times 36 is 972. S is Q. According to Table 18, Q equals 27. 972 plus 27 gives a point size of 999. If SM is Z2, 2 times 36, plus 36, gives a point size of 108.

Use the following algorithm to determine the value of SM from the point size:

1. Divide the point size by 36.
2. If the remainder is 0:
 - a. S is Z.
 - b. M is the quotient minus 1.
3. If the remainder is anything other than 0:
 - a. S is the value corresponding to the remainder in Table 18.
 - b. M is the quotient.

For example, 972 divided by 36 is 27 remainder 27. According to Table 18, 27 is R; and according to Table 17, 27 is Q; so SM is QR. 108 divided by 36 is 3 remainder 0. Because the remainder is 0, S is Z, and M is 3 minus 1, so SM is Z2.

Summary

Table 19 summarizes the naming convention for SBCS coded fonts.

Table 19. Summary of the Type Transformer naming convention for SBCS coded fonts

| | | | | | | | |
|-----|-----|----|-----------|----|-----------|-----|-----------|
| A A | T T | PP | Code page | PP | Code page | S M | Code page |
| | | 10 | T1V10284 | 53 | T1001026 | A0 | T1B00388 |

Table 19. Summary of the Type Transformer naming convention for SBCS coded fonts (continued)

| | | | | | |
|----|----------|----|----------|----|----------|
| 11 | T1V10037 | 54 | T1000852 | A1 | T1000260 |
| 12 | T1V10273 | 55 | T1000853 | A2 | T1000276 |
| 13 | T1V10274 | 56 | T1000857 | A3 | T1000286 |
| 14 | T1V10275 | 57 | T1000912 | A4 | T1000287 |
| 15 | T1V10277 | 58 | T1000920 | A5 | T1000288 |
| 16 | T1V10278 | 59 | T1001069 | A6 | T1000289 |
| 17 | T1V10280 | 60 | T1001028 | A7 | T1000367 |
| 18 | T1V10281 | 61 | T1000420 | A8 | T1000836 |
| 19 | T1V10282 | 62 | T1000423 | A9 | T1000858 |
| 1A | T1V10285 | 63 | T1000424 | AA | T1000867 |
| 1B | T1V10297 | 64 | T1000803 | AB | T1000876 |
| 1C | T1V10500 | 65 | T1000875 | AC | T1000877 |
| 1D | T1V10871 | 66 | T1000290 | AD | T1000889 |
| 20 | T1000390 | 67 | T1000880 | AE | T1000897 |
| 21 | T1000361 | 68 | T1000838 | AF | T1000903 |
| 22 | T1000382 | 69 | T1001025 | AG | T1000904 |
| 23 | T1000383 | 6A | T1V10290 | AH | T1000910 |
| 24 | T1000384 | 70 | T1001092 | AI | T1000913 |
| 25 | T1000385 | 71 | T1000259 | AJ | T1000923 |
| 26 | T1000386 | 72 | T1000293 | AK | T1000924 |
| 27 | T1000387 | 73 | T1000310 | AL | T1001027 |
| 28 | T1000388 | 74 | T1000892 | AM | T1001041 |
| 29 | T1000389 | 75 | T1000893 | AN | T1001042 |
| 2A | T1000391 | 76 | T1000899 | AO | T1001043 |
| 2B | T1000392 | 77 | T1001087 | AP | T1001093 |
| 2C | T1000393 | 78 | T1001038 | AQ | T1001110 |
| 2D | T1000394 | 79 | T1001091 | AR | T1001111 |
| 2E | T1000395 | 7A | T1000363 | AS | T1001112 |
| 31 | T1000437 | 7B | T1000829 | AT | T1001122 |
| 32 | T1000850 | 7C | T1001300 | AU | T1001123 |
| 33 | T1000860 | 80 | T1000916 | AV | T1001124 |
| 34 | T1000861 | 81 | T1000813 | AW | T1001132 |
| 35 | T1000863 | 82 | T1000851 | AX | T1001133 |
| 36 | T1000865 | 83 | T1000855 | AY | T1001139 |
| 37 | T1001004 | 84 | T1000856 | AZ | T1001140 |
| 38 | T1000819 | 85 | T1000862 | B0 | T1001141 |
| 41 | T1001002 | 86 | T1000864 | B1 | T1001142 |
| 42 | T1001003 | 87 | T1000869 | B2 | T1001143 |
| 43 | T1001068 | 88 | T1000874 | B3 | T1001144 |
| 44 | T1001039 | 89 | T1000915 | B4 | T1001145 |
| 50 | T1000914 | 8A | T1001008 | B5 | T1001146 |
| 51 | T1000870 | 8B | T1001029 | B6 | T1001147 |
| 52 | T1000905 | 8C | T1001046 | B7 | T1001148 |
| B8 | T1001149 | 8D | T1000866 | DR | T!M00830 |
| B9 | T1001252 | CI | T1GI0361 | DS | T1S0AE10 |
| BA | T1B00037 | CJ | T1GI0382 | DT | T1S0AP10 |
| BB | T1B00273 | CK | T1GI0383 | DU | T1S0S192 |
| BC | T1B00274 | CL | T1GI0384 | DV | T1S0S193 |
| BD | T1B00275 | CM | T1GI0385 | DW | T1S0S198 |
| BE | T1B00277 | CN | T1GI0386 | | |
| BF | T1B00278 | CO | T1GI0387 | | |
| BG | T1B00280 | CP | T1GI0388 | | |
| BH | T1B00281 | CQ | T1GI0389 | | |
| BI | T1B00282 | CR | T1GI0390 | | |
| BJ | T1B00284 | CS | T1GI0391 | | |

Table 19. Summary of the Type Transformer naming convention for SBCS coded fonts (continued)

| | | | |
|----|----------|----|----------|
| BK | T1B00285 | CT | T1G10392 |
| BL | T1B00297 | CU | T1G10393 |
| BM | T1B00361 | CV | T1G10394 |
| BN | T1B00382 | CW | T1G10395 |
| BO | T1B00383 | CX | T1GPI363 |
| BP | T1B00384 | CY | T1L000GN |
| BQ | T1B00385 | CZ | T1L000RN |
| BR | T1B00386 | D0 | T1L000SN |
| BS | T1B00387 | D1 | T1L000XN |
| BT | T1000388 | D2 | T1L000YN |
| BU | T1B00389 | D3 | T1L00A11 |
| BV | T1B00390 | D4 | T1L00APL |
| BW | T1B00391 | D5 | T1L00FMT |
| BX | T1B00392 | D6 | T1L00KN1 |
| BY | T1B00393 | D7 | T1L00QNC |
| BZ | T1B00394 | D8 | T1L02773 |
| C0 | T1B00395 | D9 | T1L02774 |
| C1 | T1B00500 | DA | T1L038BA |
| C2 | T1B00871 | DB | T1L038TE |
| C3 | T1B00BGS | DC | T1L0AD10 |
| C4 | T1D0BASE | DD | T1L0AG10 |
| C5 | T1D0GP12 | DE | T1L0AG12 |
| C6 | T1DABASE | DF | T1LOAG15 |
| C7 | T1DDBASE | DG | T1L0AI10 |
| C8 | T1DCDCFS | DH | T1L0AT10 |
| C9 | T1DDBASE | DI | T1L0DUMP |
| CA | T1DEBASE | DJ | T1L0FOLD |
| CB | T1DFBASE | DK | T1L0OCR1 |
| CC | T1D1BASE | DL | T1L0OCR2 |
| CD | T1DNBASE | DM | T1L0OCR3 |
| CE | T1DSBASE | DN | T1L0OCRB |
| CF | T1DUBASE | DO | T1L0PCAN |
| CG | T1GE0200 | DP | T1L0PCHN |
| CH | T1GE0300 | DQ | T1M00829 |

DBCS font objects

Type Transformer for DBCS fonts is less restrictive in naming requirements than Type Transformer for SBCS fonts. We do suggest a convention, but you are free not to use it. This section shows the Type Transformer for DBCS fonts naming convention and our suggestions.

DBCS full-width raster font character sets

This section explains the naming convention for DBCS full-width raster font character sets shown in Table 20. Table 24 on page 33 summarizes the naming convention.

Table 20. Naming convention for DBCS full-width raster font character sets

| | | |
|-------------|-----------------------|---------|
| A A | U U U U | S S |
| Font object | User-defined template | Section |

Font object

The first two characters (AA) of the font character set name indicate the type of font object.

Type Transformer assigns the characters C0 to indicate that the font object is a raster font character set (Table 21).

Table 21. Font object

| | | |
|----|---------------------------|----|
| AA | UUUU | SS |
| AA | Font object | |
| C0 | Raster font character set | |

User-defined template

The third through sixth characters of the name of a DBCS full-width raster font character set are selected by the user and coded on the CFNAME keyword in the Type Transformer batch file.

Table 22. User-defined template

| | | |
|----|------|----|
| AA | UUUU | SS |
|----|------|----|

UUUU

User-defined template (CFNAME operand)

We suggest *tcpd*, where:

t is the type style:

| | |
|---|---------------------------|
| E | Heisei Kaku Gothic |
| F | Fang Song |
| G | Gothic |
| H | Hei |
| J | Kai (Simplified Chinese) |
| K | Heisei Mincho |
| L | Kai (Traditional Chinese) |
| M | Myengjo |
| P | Heisei Maru Gothic |
| S | Song |
| T | Sung |

c is the character complement:

| | |
|---|------------------------------------|
| F | Japan (full set) |
| H | Hangul (11,172 characters) |
| K | Korea (full set) |
| P | Simplified Chinese (PRC) – GB |
| S | Simplified Chinese (PRC) – GB18030 |
| T | Traditional Chinese (Taiwan) |

p is the number of whole points in the point size:

1-9 1-9 points

0 10 points

A-Z 11-36 points

d is the number of decipoints (0-9) in the point size.

Section

The seventh and eighth characters of a DBCS full-width raster font character set name indicate the code page section number (Table 23).

Table 23. Section number

| | | | |
|-----|---------|-----|-----------------------|
| A A | U U U U | S S | |
| | | SS | Section number |

Summary

Table 24 summarizes the naming convention for DBCS full-width raster font character sets.

Table 24. Summary of the Type Transformer naming convention for DBCS full-width raster font character sets

| | | | |
|-----------|---------------------------|-----------|-----------------------|
| A A | U U U U | S S | |
| AA | Font object | SS | Section number |
| C0 | Raster font character set | | |

UUUU

User-defined template (CFNAME operand)

We suggest *tcpd*, where:

t is the type style:

E Heisei Kaku Gothic

F Fang Song

G Gothic

H Hei

J Kai (Simplified Chinese)

K Heisei Mincho

L Kai (Traditional Chinese)

M Myengjo

P Heisei Maru Gothic

S Song

T Sung

c is the character complement:

F Japan (full set)

H Hangul (11,172 characters)

- K** Korea (full set)
- P** Simplified Chinese (PRC) – GB
- S** Simplified Chinese (PRC) – GB18030
- T** Traditional Chinese (Taiwan)

p is the number of whole points in the point size:

- 1-9** 1-9 points
- 0** 10 points
- A-Z** 11-36 points

d is the number of decipoints (0-9) in the point size.

DBCS half-width raster font character sets

This section explains the naming convention for DBCS half-width raster font character sets shown in Table 25. Table 28 on page 35 summarizes the naming convention.

Table 25. Naming convention used for DBCS half-width raster font character sets

| | |
|-------------|-----------------------|
| AA | UUUUUU |
| Font object | User-defined template |

Font object

The first two characters (AA) of the font character set name indicate the type of font object.

Type Transformer assigns the characters C0 to indicate that the font object is a raster font character set (Table 26).

Table 26. Font object

| | |
|-----------|---------------------------|
| AA | UUUUUU |
| AA | Font object |
| C0 | Raster font character set |

User-defined template

The third through eighth characters of the name of DBCS half-width raster font character set are selected by the user and coded on the FCSNAMESB keyword in the Type Transformer batch file keywords.

Table 27. User-defined template

| | |
|----|--------|
| AA | UUUUUU |
|----|--------|

UUUUUU **User-defined template (FCSNAMESB operand)**

We suggest H0t*cpd*, where:

H0
indicates a half-width font character set.

t is the type style:

E Heisei Kaku Gothic

- F Fang Song
- G Gothic
- H Hei
- J Kai (Simplified Chinese)
- K Heisei Mincho
- L Kai (Traditional Chinese)
- M Myengjo
- P Heisei Maru Gothic
- S Song
- T Sung

c is the character complement:

- D Japan (DCF set)
- E Korea (EBCDIC set) Simplified Chinese (EBCDIC set) Traditional Chinese (EBCDIC set)
- J Japan (PC set) Korea (PC set) Simplified Chinese (PC set) Traditional Chinese (PC set)
- O Japan (extended Katakana set)
- Q Simplified Chinese GB18030 (PC Set) Traditional Chinese (PC Big 5)
- V Japan (extended Latin set) Traditional Chinese (EBCDIC with Euro)
- W Japan (extended Latin with box characters) Korean (EBCDIC with box characters) Simplified Chinese (EBCDIC with box characters) Traditional Chinese (EBCDIC with box characters)
- Y Japan (extended Katakana with box characters)

p is the number of whole points in the point size:

- 1-9 1-9 points
- 0 10 points
- A-Z 11-36 points

d is the number of decipoints (0-9) in the point size.

Summary

Table 28 summarizes the naming convention for DBCS half-width raster font character sets.

Table 28. Summary of the Type Transformer naming convention for DBCS half-width raster font character sets

A A U U U U U U

- AA Font object
- C0 Raster font character set

UUUUUU User-defined template (FCSNAMESB operand)

We suggest H0t*cpd*, where:

H0

indicates a half-width font character set.

t is the type style:

| | |
|----------|---------------------------|
| E | Heisei Kaku Gothic |
| F | Fang Song |
| G | Gothic |
| H | Hei |
| J | Kai (Simplified Chinese) |
| K | Heisei Mincho |
| L | Kai (Traditional Chinese) |
| M | Myengjo |
| P | Heisei Maru Gothic |
| S | Song |
| T | Sung |

c is the character complement:

| | |
|----------|---|
| D | Japan (DCF set) |
| E | Korea (EBCDIC set) Simplified Chinese (EBCDIC set) Traditional Chinese (EBCDIC set) |
| J | Japan (PC set) Korea (PC set) Simplified Chinese (PC set) Traditional Chinese (PC set) |
| O | Japan (extended Katakana set) |
| Q | Simplified Chinese GB18030 (PC Set) Traditional Chinese (PC Big 5) |
| V | Japan (extended Latin set) Traditional Chinese (EBCDIC with Euro) |
| W | Japan (extended Latin with box characters) Korean (EBCDIC with box characters) Simplified Chinese (EBCDIC with box characters) Traditional Chinese (EBCDIC with box characters) |
| Y | Japan (extended Katakana with box characters) |

p is the number of whole points in the point size:

| | |
|------------|--------------|
| 1-9 | 1-9 points |
| 0 | 10 points |
| A-Z | 11-36 points |

d is the number of decipoints (0-9) in the point size.

DBCS outline font character sets

This section explains the naming convention for DBCS full-width and half-width outline font character sets. shown in Table 29 Table 32 on page 37 summarizes the naming convention.

Table 29. Naming convention for DBCS outline font character sets

| | |
|-------------|-----------------------|
| A A | U U U U |
| Font object | User-defined template |

Font object

The first two characters (AA) of the font character set name indicate the type of font object.

Type Transformer assigns the characters CZ to indicate that the font object is an outline font character set (Table 30).

Table 30. Font object

| | |
|----|----------------------------|
| AA | Font object |
| CZ | Outline font character set |

User-defined template

The third through sixth characters of the name of a DBCS outline font character set are selected by the user and coded on the FCSNAME keyword in the Type Transformer batch file.

Table 31. User-defined template

| | |
|-------------|---|
| UUUU | User-defined template (FCSNAME operand) |
| We suggest: | |
| HKG2 | Korean Gothic |
| HSM2 | Korean Myengjo |
| JHKG | Japanese Heisei Kaku Gothic |
| JHMG | Japanese Heisei Maru Gothic |
| JHMN | Japanese Heisei Mincho |
| SFSG | Simplified Chinese Fang Song |
| SHEI | Simplified Chinese Hei |
| SKAI | Simplified Chinese Kai |
| SSNG | Simplified Chinese Song |
| TKAI | Traditional Chinese Kai |
| TSNG | Traditional Chinese Sung |

Summary

Table 32 summarizes the naming convention for DBCS outline font character sets.

Table 32. Summary of the Type Transformer naming convention for DBCS outline font character sets

| | |
|----|------|
| AA | UUUU |
|----|------|

Table 32. Summary of the Type Transformer naming convention for DBCS outline font character sets (continued)

| | | | |
|-----------|----------------------------|-------------|--|
| AA | Font object | UUUU | User-defined template (FCSNAME operand) |
| CZ | Outline font character set | We suggest: | |
| | | HKG2 | Korean Gothic |
| | | HSM2 | Korean Myengjo |
| | | JHKG | Japanese Heisei Kaku Gothic |
| | | JHMG | Japanese Heisei Maru Gothic |
| | | JHMN | Japanese Heisei Mincho |
| | | SFSG | Simplified Chinese Fang Song |
| | | SHEI | Simplified Chinese Hei |
| | | SKAI | Simplified Chinese Kai |
| | | SSNG | Simplified Chinese Song |
| | | TKAI | Traditional Chinese Kai |
| | | TSNG | Traditional Chinese Sung |

DBCS coded fonts

This section explains the naming convention for DBCS coded fonts shown in Table 33. Table 36 on page 40 summarizes the naming convention.

Table 33. Naming convention for DBCS coded fonts

| | |
|-------------|-----------------------|
| A A | U U U U |
| Font object | User-defined template |

Font object

The first two characters (AA) of the coded font name indicate the type of font object.

Type Transformer assigns the characters X0 to indicate that the font object is a raster coded font, or XZ to indicate that the font object is an outline coded font (Table 34).

Table 34. Font object

| | |
|------------|--------------------|
| A A | U U U U |
| AA | Font object |
| X0 | Raster coded font |
| XZ | Outline coded font |

User-defined template

The third through sixth characters of the name of a DBCS coded font are selected by the user and coded on the CFNAME or CFNAMESB keyword in the Type Transformer batch file.

Table 35. User-defined template

A A U U U U

UUUU User-defined template

CFNAME operand

Full-width coded font

CFNAMESB operand

Half-width coded font

We suggest *tcpd*, where:

t is the type style:

- E** Heisei Kaku Gothic
- F** Fang Song
- G** Gothic
- H** Hei
- J** Kai (Simplified Chinese)
- K** Heisei Mincho
- L** Kai (Traditional Chinese)
- M** Myengjo
- P** Heisei Maru Gothic
- S** Song
- T** Sung

c is the character complement:

- D** Japan (DCF set)
- E** Korea (EBCDIC set) Simplified Chinese (EBCDIC set) Traditional Chinese (EBCDIC set)
- F** Japan (full set)
- H** Hangul (11,172 characters)
- J** Japan (PC set) Korea (PC set) Simplified Chinese (PC set) Traditional Chinese (PC set)
- K** Korea (full set)
- O** Japan (extended Katakana set)
- P** Simplified Chinese (PRC) – GB
- Q** Simplified Chinese GB18030 (PC Set) Traditional Chinese (PC Big 5)
- S** Simplified Chinese (PRC) – GB18030
- T** Traditional Chinese (Taiwan)
- V** Japan (extended Latin set) Traditional Chinese (EBCDIC with Euro)
- W** Japan (extended Latin with box characters) Korean (EBCDIC with box characters) Simplified Chinese (EBCDIC with box characters) Traditional Chinese (EBCDIC with box characters)

Y Japan (extended Katakana with box characters)

p is the number of whole points in the point size:

1-9 1-9 points

0 10 points

A-Z 11-36 points

d is the number of decipoints (0-9) in the point size.

Summary

Table 36 summarizes the naming convention for DBCS coded fonts.

Table 36. Summary of the Type Transformer naming convention for DBCS coded fonts

A A U U U U

AA Font object

X0 Raster coded
font

XZ Outline
coded font

UUUU User-defined template

CFNAME operand

Full-width coded font

CFNAMESB operand

Half-width coded font

We suggest *tcpd*, where:

t is the type style:

E Heisei Kaku Gothic

F Fang Song

G Gothic

H Hei

J Kai (Simplified Chinese)

K Heisei Mincho

L Kai (Traditional Chinese)

M Myengjo

P Heisei Maru Gothic

S Song

T Sung

c is the character complement:

D Japan (DCF set)

E Korea (EBCDIC set) Simplified Chinese (EBCDIC set) Traditional Chinese (EBCDIC set)

F Japan (full set)

H Hangul (11,172 characters)

J Japan (PC set) Korea (PC set) Simplified Chinese (PC set) Traditional Chinese (PC set)
K Korea (full set)
O Japan (extended Katakana set)
P Simplified Chinese (PRC) – GB (PC Set)
Q Simplified Chinese GB18030 (PC Set) Traditional Chinese (PC Big 5)
S Simplified Chinese (PRC) – GB18030
T Traditional Chinese (Taiwan)
V Japan (extended Latin set) Traditional Chinese (EBCDIC with Euro)

p is the number of whole points in the point size:

1-9 1-9 points

0 10 points

A-Z 11-36 points

d is the number of decipoints (0-9) in the point size.

Chapter 6. If problems occur

This section tells you how to get help when you encounter problems with Type Transformer.

Using error messages

When you run Type Transformer, error messages might appear either on the screen or in the message log for a particular job.

For an explanation of an error message and for information on how to correct the problem, you can go to the online help index and find **Error messages**. Message numbers are listed under this topic in numerical order. Double-click on the number of the message you received.

Responding to unresolved problems

If you are unable to resolve a problem with Type Transformer, contact the IBM Level 1 Support Center for assistance. The IBM support specialist who answers your call must be provided with the following information to diagnose the problem and to suggest a solution:

1. Record what action you were taking when the problem occurred. Include the steps you followed before the problem occurred.
2. Record the exact text of any displayed messages.
3. Determine the level of Type Transformer currently installed by selecting **About** from the **Help** menu.
4. Have your product identification number available (5648-E77).

In the United States, the telephone number for the United States IBM Support Center is 1-800-237-5511. In other countries, contact your local IBM Level 1 support person to report the problem.

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REQTEXT

References

The following cross references are used in this glossary:

Contrast with. This refers to a term that has an opposed or substantively different meaning.

Synonym for. This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the dictionary.

Synonymous with. This is a backward reference from a defined term to all other terms that have the same meaning.

See. This refers the reader to multiple-word terms that have the same last word.

See also. This refers the reader to related terms that have a related, but not synonymous, meaning.

A

Advanced Function Presentation (AFP). The ability of programs to print all-points-addressable text and images.

Advanced Function Presentation (AFP) data stream. The printer data stream used for printing Advanced Function Presentation data. The AFP data stream includes composed text, page segments, electronic overlays, form definitions, and fonts that are downloaded from the operating system to the printer.

Advanced Function Printing. The former name of Advanced Function Presentation.

AFM. Type 1 font files that contain font metrics (character width and kerning information). Contrast with PFA and PFB.

AFP. Advanced Function Presentation.

alias name. The full name of a Type 1 font as it appears in the rearranged font file.

all points addressable (APA). In computer graphics, pertaining to the ability to address and display or not display each picture element (pel) on a display surface. See also picture element.

alphabetic character. A letter or other symbol, excluding numerals, used in a language. Any one of the letters A through Z (uppercase and lowercase). Some licensed programs include as alphabetic characters the special characters #, \$, and @.

alphameric. Synonym for alphanumeric.

alphanumeric . Pertaining to a character set that contains letters, numerals, and usually other characters, such as punctuation marks. (T)

APA. All points addressable.

Application System/400 (AS/400). Pertaining to the hardware that runs the IBM Operating System/400 licensed program.

AS/400. Application System/400.

ascender. The parts of characters; for example, certain lowercase letters, such as b, d, or f, that rise above the top edge of other lowercase letters such as a, c, and e. Contrast with descender.

ASCII (American National Standard Code for Information Interchange). The standard code, using a coded character set consisting of 7-bit coded characters

(8-bits including parity check), that is used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. (A)

A-space. The area in the character box to the left of the first picture element (pel) of the graphic character raster pattern. See also B-space and C-space.

attribute. A named property of an entity. A property of a character set, for example, weight, width, or style. See also character attribute.

B

base font. A font without user-defined characters.

baseline. The primary horizontal reference line for character alignment and measurement of vertical distances. (T) In a font, the imaginary line on which the bottom of each successive character is aligned.

baseline direction. The direction in which successive lines of text are added. Synonymous with print direction.

baseline offset. The distance between the initial point and the sequential baseline.

bit map. A coded representation in which each bit, or group of bits, represents or corresponds to an item, for example, a configuration of bits in main storage in which each bit indicates whether a peripheral device or storage block is available or in which each group of bits corresponds to one pixel of a display image.

bold. Any typeface characterized by wide strokes. Contrast with light. See also semibold.

boldface. A heavy-faced type. Printing in heavy-faced type.

bounded-box format. An organization of character graphics and information used by Advanced Function Presentation programs for printers, such as the IBM 3820 Page Printer or IBM 3827 Page Printer. Character boxes containing each character graphic do not require character positioning information in the form of white space in the character boxes. In addition, a single character set can be used for all combinations of character rotation and text orientation. Contrast with unbounded-box format.

B-space. The area in the character box that has a pel defined for any row of the graphic character pattern. See also A-space and C-space.

byte. A binary character operated upon as a unit and usually shorter than a computer word. (A) A string that consists of a particular number of bits, usually 8, that is treated as a unit and that represents a character.

C

caps. Capital letters, an uppercase font. A printing style that uses two type sizes of a single uppercase font. The smaller size is used instead of a lowercase font. See also small caps.

character. A member of a set of elements that is used for the representation, organization, or control of data. (T) A letter, numeral, or other symbol that is used as part of the organization, control, or representation of data. A character is often in the form of a spatial arrangement of adjacent or connected strokes. (A)

character attribute. In the 3270 data stream, a code that defines a single property of a character or characters, for example, extended color, character set, or extended highlighting. A character can have more than one defined character attribute. See also attribute.

character baseline. An imaginary line on which characters are aligned in the text formatting process.

character collection. Any collection or group of distinct characters. Ordered character collection.

character description. Synonymous with glyph data.

character graphic. The visual representation of a character, defined by toned or untoned picture elements (pels). An untoned pel (a reverse character) is visually represented by the toned pels around it.

character ID. Character identifier.

character identifier. A symbol that represents a character. The identifier that represents a character, regardless of its style, for example, all uppercase A's have the same character ID. Synonymous with graphic character identifier. In Adobe Systems Inc. terminology, a unique, permanently assigned integer that represents a character. Abbreviated CID.

character increment. The distance the current print position is increased for the particular character printed. Synonymous with character spacing.

character list. A collection of graphic character IDs. For IBM AFP fonts, character lists are language-oriented. For example, the Latin235 character list contains characters for the Eastern European languages, such as Turkish and Czech.

character metrics. Measurement information that defines individual character values, such as height, width, and space. Character metrics can be expressed in specific fixed units, such as pels, or in relative units that are independent of both the resolution and size of the font. Metrics are often included as part of the more general term font metrics. See also font metrics.

character name. An alphanumeric string that uniquely identifies a character.

character properties. Details about how a character is printed relative to the other characters around it. Character properties are box size, horizontal and vertical character size, character ID, center line, baseline, left space (A-space), right space (C-space), above space, and below space.

character raster pattern. The scan patterns for a graphic character of a particular size, weight, and style.

character rotation. In printing, the alignment of a character with respect to the baseline, measured in degrees in a clockwise direction. Examples are 0°, 90°, 180°, and 270°. Zero-degree character rotation exists when a character is in its customary alignment with the baseline.

character set. A finite set of different characters that is complete for a given purpose, for example, the character set in ISO Standard 646, “7-Bit Coded Character Set for Information Processing Interchange.” (T) A group of characters used for a specific reason, for example, the set of characters a printer can print. Often a synonym for font character set. See also coded font. In Adobe Systems Inc. terminology, a subset of a character collection.

character spacing. Synonym for character increment.

coded font. A font library member that associates a code page and a font character set. See also character set, code page, and font character set.

charset. Character set.

charstring data. Synonymous with glyph data.

CID. Character identifier.

CIDFont. A file containing the glyph data for a font.

CID-keyed font. A font consisting of a CMap and a CIDFont.

CMap. A file that maps character codes to CIDs.

code page. A font library member that associates code points and character identifiers. A code page also identifies invalid code points. Double-byte character sets have a code page for each 256-character section. See also coded font.

code page global identifier (CPGID). A 5-digit registered identifier used to specify a particular assignment of code points to graphic characters.

code point. A 1-byte code representing one of 256 potential characters.

condensed type. A typeface in which all characters are narrowed, making them appear taller. Contrast with expanded type.

Core Interchange font. See IBM Core Interchange font.

country extended code page. An 8-bit code page that has a 93-character set on its nationally standardized code points but is extended to the multilingual character set for the national languages of some European countries.

CPGID. Code page global identifier.

C-space. The area in the character box to the right of the rightmost picture element for the graphic character pattern. See also A-space and B-space.

curative. Letters created to imitate handwriting. Synonym for script.

custom font. A font designed or modified by a customer.

D

DASD. Direct access storage device.

DBCS. Double-byte character set.

DCF. Document Composition Facility.

default. Pertaining to an attribute, value, or option that is assumed when none is specified. (I)

descender. In a font, the distance from the baseline to the bottom of the character box. This value can differ for different characters of a given font. Contrast with ascender.

diacritic. A mark added to a letter to indicate a special phonetic value.

direct access storage device (DASD). A device in which access time is effectively independent of the location of the data.

document. A named, structural unit of text that can be stored, retrieved, and exchanged among systems and users as a separate unit. (T) Information and the medium on which it is recorded that can be read by humans or by machine. In word processing, synonymous with file.

Document Composition Facility (DCF). A licensed program that provides text formatting for a number of IBM printers.

double-byte character set (DBCS). A character set in which each character is represented by two bytes. Languages such as Chinese, Japanese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Contrast with single-byte character set.

E

element. In a phonetic syllabary, a part of a syllabic character that represents a single sound.

em. In printing, a unit of measure equal to the side of a square formed by the font point size. In relative metrics, the em is always 1000 relative units for medium-width fonts and is scaled up or down for expanded or condensed fonts.

em space. For medium-width fonts, the em space is 1000 relative units. For condensed or expanded fonts, the em space is scaled up or down.

en. In printing, a unit of measure equal to one-half the width of an em. For many typefaces, lowercase characters tend to average the width of an en.

environment. Selections of typefaces, point sizes, and other information made before **Start job** from the **Transform** pull-down is selected. Environments can be saved to a file and retrieved later.

escapement. Movement of one character space between the paper carrier and typing or printing position, parallel with the typing or printing line. The unit of vertical or horizontal movement that is built into a device, for example, the 1403 Printer with a 10-pitch train has a horizontal escapement unit of 1/10th inch.

expanded type. A typeface in which all characters are widened. Contrast with condensed type.

extended base font. A base font and extension font created as a single object.

extension font. A font containing user-defined characters for use with a base font.

F

FGID. Font global identifier.

figure space. A unit of measure equal to the width of the en space in a particular font. In Document Composition Facility, the width of the figure zero.

file. A named set of records stored or processed as a unit. (T) A generic term for the object type that refers to a database file, device file, or set of related records treated as a unit. In word processing, synonym for document.

fixed metrics. Measurement information in specific units such as pels, inches, or centimeters for individual or collections of graphic characters. Contrast with relative metrics. See also font metrics.

fixed-space font. Synonym for uniformly spaced font.

flat file. A one-dimensional or two-dimensional array: a list or table of items. A file that has no hierarchical structure.

FOCA. Font Object Content Architecture

font. A family of characters of a given size and style, for example, 9-point Helvetica. (T) See font character set. See also type font.

font administrator. The system administrator who makes fonts available for printing.

font character set. A font file that contains the raster patterns or outlines identifiers, and descriptions of characters. Often synonymous with character set. See also coded font.

font global identifier (FGID). A number that identifies the character style and size for certain printers. The FGID is found in bytes 77 and 78 of the Font Descriptor (FND) structured field, the second structured field of the font character set. The unique value that identifies the type family, typeface and, sometimes, the point size of the character set.

font metrics. Measurement information that defines individual character values, such as height, width, and space, as well as overall font values, such as averages and maximums. Font metrics can be expressed in specified fixed units, such as pels, or in relative units that are independent of both the resolution and size of the font. See also character metrics and relative metrics.

G

gaiji. One or more characters added to a standard character set, usually for an Asian language, by the user. Japanese for “external character”. Synonym for user-defined character.

GCGID. Graphic character global identifier.

GCSGID. Graphic character set global identifier.

glyph. An image, usually of a character, in a font.

glyph data. The PostScript program that determines the appearance of a printed character.

graphic character. A visual representation of a character, other than a control character, that is usually produced by writing, printing, or displaying.

graphic character identifier. Synonym for character identifier.

graphic character global identifier (GCGID). A 1- to 8-character identifier (usually 8 characters) assigned to each graphic character.

graphic character set global identifier (GCSGID). The unique value that identifies the list of graphic character IDs included in the component. The GCSGID is found in bytes 76 and 77 of the Font Descriptor (FND) structured field, the second structured field of the font character set.

group. A set of related records that have the same value for a particular field in all records. A series of records logically joined together.

H

hangeul. Another spelling for *hangul*.

hangul. The phonetic syllabary used to write Korean. Also spelled *hanguel*.

hanja. Another transliteration of *hanzi*.

hanzi. Ideograms derived from Traditional Chinese used in writing Korean.

hardware. All or part of the physical components of an information processing system, such as computers or peripheral devices. (T) Contrast with software.

hexadecimal. Pertaining to a numbering system with the base of 16; valid numbers include the numerals 0 through 9 and characters A through F, where A represents 10 and F represents 15. For example, hexadecimal 1B equals decimal 27.

hiragana. One of two phonetic syllabaries used in writing Japanese. Hiragana is used when no kanji exists for a native Japanese word or to “spell out” kanji. See also katakana.

I

IBM AFP Font Collection. A licensed program including IBM AFP fonts, Type Transformer, and code pages.

IBM AFP fonts. A category of fonts supplied as part of IBM AFP Font Collection IBM AFP fonts include the IBM Expanded Core fonts, IBM Compatibility Fonts, and IBM 4028 Font Metrics

IBM Core Interchange fonts. A former category of fonts now included in the Expanded Core fonts supplied as part of IBM AFP Font Collection. Examples of IBM Core Interchange fonts include Latin1: Helvetica, Latin235: Times New Roman, and Latin4: Courier.

IBM font structure. IBM’s method of defining font components for use with some Advanced Function Presentation licensed programs and page printers.

ideogram. A pictorial character representing a word.

inline. In printing, the direction of successive characters in a line of text. Synonymous with inline direction.

inline direction. Synonym for inline.

intelligent printer data stream (IPDS). An all-points addressable data stream that allows users to position text, images, and graphics at any defined point on a printed page.

intercharacter space. Horizontal space between two adjacent capital letter matrices.

interword space. Synonym for word space.

IPDS. Intelligent printer data stream.

italic. A type style with characters that slant to the right.

J

JCL. Job control language.

job. Selections of typefaces, point sizes, and other information made after **Start job** from the **Transform** pull-down is selected. Jobs are identified at transformation by a job name. You can restore a job with its selections and defaults or purge a job along with its associated files.

job control language (JCL). A control language used to identify a job to an operating system and to describe the job’s requirements.

K

kana. Hiragana, katakana, or both.

kanji. The system of ideograms used in writing Japanese. One or more individual Japanese ideograms.

katakana. One of two phonetic syllabaries used in writing Japanese. Katakana is used for foreign words and for emphasis. See also hiragana.

KB. Kilobyte; 1024 bytes.

kerning. Reducing the space between characters to improve the appearance of printed copy.

keyboard character. A character (letter, numeral, mark, or sign) visible on the keys of a terminal keyboard. Contrast with printed character.

L

licensed program. A separately priced program and its associated materials that bear an IBM copyright and are offered to customers under the terms and

conditions of either the Agreement for IBM Licensed Programs or the IBM Program License Agreement.

light. Any typeface characterized by fine strokes. Contrast with bold.

line space. The vertical distance between the baseline of the current line and the baseline of the preceding line.

lowercase. Pertaining to small letters as distinguished from capitals, for example, a, b, g, rather than A, B, G. Contrast with uppercase.

M

member. A partition of a partitioned data set. In MVS, the smallest unit of data that can be stored in and retrieved from a sublibrary.

metrics. See font metrics.

MO:DCA. Mixed Object Document Content Architecture. An architecture developed to allow the interchange of object data among applications within the interchange environment and among environments.

MO:DCA-P. Mixed Object Document Content Architecture—Presentation. In the ImagePlus program, a subset architecture of MO:DCA that is used as an envelope to contain documents that are sent to the ImagePlus workstation for displaying or printing.

monospaced font. Synonym for uniformly spaced font.

monospacing. A method of spacing in which the space between the characters does not vary. Contrast with proportional spacing.

Multiple Virtual Storage (MVS). Multiple Virtual Storage, consisting of MVS/System Product Version 1 and the MVS/370 Data Facility Product operating on a System/370 processor.

MVS. Multiple Virtual Storage.

N

naming convention. The established pattern of letters and numerals used in forming the names of font components.

national language support. Coded fonts, code pages, and character sets that provide access to characters and symbols needed for one or more languages or countries.

O

operating system (OS). Software that controls the execution of programs and that can provide services such as resource allocation, scheduling, input/output control, and data management. Although operating systems are predominantly software, partial hardware implementations are possible. (I) (A)

Operating System/400 (OS/400). Pertaining to the IBM licensed program that can be used as the operating system for Application System/400.

ordered character collection. A collection of n characters numbered with CIDs from 0 to n-1.

orientation. The number of degrees an object is rotated relative to a reference, for example, the orientation of printing on a page relative to the page coordinates. See also rotation and text orientation.

OS/400. Operating System/400.

outline fonts. Fonts whose graphic character shapes are defined mathematically rather than by raster patterns. Fonts created in the format described in *Adobe Type 1 Font Format*, a publication available from Adobe Systems, Inc.

overstriking. The merging of two or more graphic characters on a sheet of paper.

P

partitioned data set (PDS). A data set in direct access storage that is divided into partitions, called members, each of which can contain a program, part of a program, or data. Synonymous with program library.

PDS. Partitioned data set.

pel. Picture element.

pel density. The number of picture elements per unit of linear measurement. See also resolution.

PFA. Type 1 font outlines in ASCII format. Contrast with PFB.

PFB. Type 1 font outlines in binary format. Contrast with PFA.

pica. A unit of about 1/6 inch used in measuring typographical material. It is similar to a cicero in the Didot point system.

picture element (pel). In computer graphics, the smallest element of a display surface that can be independently assigned color and intensity. (T) The addressable unit on a page printer. See also all points addressable and raster pattern.

pitch. A unit of width of type, based on the number of characters that can be placed in a linear inch, for example, 10-pitch has 10 characters per inch. Uniformly spaced fonts are measured in pitch. Contrast with point.

point. In printing, a unit of about 1/72 of an inch used in measuring typographical material. There are 12 points in a pica. Contrast with pitch.

prefix. The first 2 characters of a font component that identify the type of font component.

print direction. Synonym for baseline direction.

printed character. Any character that can be printed by a printing device, whether or not that character is visible on the attached terminal keyboard. Contrast with keyboard character.

printer. An output unit that produces a hard copy record of data in the form of a sequence of discrete graphic characters that belong to one or more predetermined character sets. (T) A device that writes output data from a system on paper or other media.

printer queue. A list of items waiting to be printed.

printer resolution. See resolution.

Print Services Facility (PSF). The access method that supports advanced function printers. PSF can interface either directly to a user's application program or indirectly through the Job Entry Subsystem of MVS.

program. A sequence of instructions suitable for processing by a computer. Processing can include the use of an assembler, a compiler, an interpreter, or a translator to prepare the program for execution, as well as to execute it. (I)

program library. An organized collection of computer programs, or parts of computer programs, and possibly information pertaining to their use. A program library is often called according to the characteristic of its elements, for example, a procedure library, a source program library. (T) Synonym for partitioned data set.

proportion. Relationship of the width of a letter to its height.

proportionally spaced font. A font with graphic characters contained in character cells varying with the size of each graphic character. This allows for even spacing between printed characters and eliminates excess white space around narrow characters, such as the letter i. Contrast with uniformly spaced font.

proportional spacing. Spacing of characters according to their natural width. Contrast with monospacing.

PSF. Print Services Facility.

R

raster. In computer graphics, a predetermined pattern of lines that provides uniform coverage of a display space. (T) In advanced function printers, an on/off pattern of electrostatic images produced by the laser print head under control of the character generator.

raster pattern. A series of picture elements (pels) arranged in scan lines to form an image. See also picture element.

rearranged font. A font combining characters from several other fonts.

relative metrics. Measurements in dimensionless units for one or several graphic characters. Dimensionless units are expressed as fractional parts of a unit-square design space (em-square) whose sides correspond to the vertical size of the font. Because the units are dimensionless, the same metrics can be used for different point sizes and different raster-pattern resolutions. Relative metrics require defining the units of measure for the em-square, the point size of the font, and, if applicable, the pel resolution of the raster pattern. For example, for 1000 units per em-square, a relative value of 500 (500/1000 of an em-square) is equivalent to 0.08333 inches for a 12-point 240-pel font (500/1000 × 12/72 inch). Contrast with fixed metrics. See also font metrics.

resolution. In computer graphics, a measure of the sharpness of an image, expressed as the number of lines and columns on the display screen or the number of pels per unit area. See also pel density.

romaji. Letters of the Latin alphabet used in Japan, literally "Roman characters".

roman. Relating to a type style with upright letters.

rotation. In printing, the number of degrees a graphic character is turned relative to the page coordinates. See also orientation.

S

sans serif. Type that is characterized by the absence of serifs. Contrast with serif.

SBCS. Single-byte character set.

script. Letters created to imitate handwriting. Synonymous with cursive.

semibold. A typeface that is lighter than bold but darker than medium. See also bold.

sensitive to writing direction (SWD). Of a character used in writing Asian languages, varying in shape according to whether the writing runs left to right or top to bottom.

serif. A short line angling from or crossing the free end of a stroke. This includes horizontal lines at the top and bottom of vertical strokes on capital letters, for example, I and H, and the decorative stroke at the end of one or more of the horizontal members, for example, a capital E. Contrast with sans serif.

single-byte character set (SBCS). A character set in which each character is represented by a one-byte code. Contrast with double-byte character set.

small caps. Capital letters in the same style as the normal capital letters in a font, but approximately the size of the lowercase letters. See also caps.

SMP. System Modification Program.

software. All or part of the programs, procedures, rules, and associated documentation of a data processing system. Software is an intellectual creation that is independent of the medium on which it is recorded. (T) Contrast with hardware.

space. A basic unit of area, usually the size of a single character. (A) A blank area separating words or lines. To cause a printer to move the paper a specified number of lines either before or after it prints a line.

special character. A graphic character that is not a letter, numeral, or blank character, and usually not an ideogram, for example, a punctuation mark, general currency symbol, or percent sign. (T) A character other than a numeral, letter, #, \$, or @, for example, *, +, and % are special characters.

storage. A functional unit into which data can be placed, in which they can be retained, and from which they can be retrieved. (T) The action of placing data into a storage device. (I) (A) A storage device. (A)

storage allocation. The assignment of storage areas to specified data. (I) (A)

structured field. In Advanced Function Presentation, a self-identifying string of bytes and its data or parameters.

style. Inclination of a letter around a vertical axis. It can be upright (as in roman) or slanted (as in italic or cursive).

SWD. Sensitive to writing direction.

syllabary. A writing system in which each character represents a syllable.

System Modification Program (SMP). A program used to install software and software changes on OS/VS1 and OS/VS2 systems.

T

terminal. A functional unit in a system or communication network at which data can enter or leave. (T)

text. In text processing, a sequence of elements intended to convey a meaning, whose interpretation is essentially based upon the reader's knowledge of some natural language or artificial language, for example, a business letter printed on paper or displayed on a screen. The elements can consist of characters, symbols, words, phrases, paragraphs, sentences, or tables. (T)

text orientation. A description of the appearance of text as a combination of the print direction and character rotation.

translating. The process of incorporating characters that are unavailable on the keyboard into a document.

Type 1 font. A font conforms to the format described in the publication *Adobe Type 1 Font Format*, available from Adobe Systems, Incorporated. Type 1 fonts are also known as outline fonts, from which fonts of different sizes can be generated. Type 1 fonts are generally shipped with two files: an .AFM file and a .PFB file.

Type 1 name. A name which is an alphabetic description of a character. For example, aacute describes a lowercase a with an acute accent.

typeface. A specific type style, such as Helvetica or Times New Roman. One of the many attributes of a font, others, for example, being size and weight. A collection of fonts, each having a different height or size of character set.

type family. All characters of a single design, regardless of attributes, such as width, weight, style, and size, for example, Courier and Helvetica.

type font. Type of a given size and style, for example, 10-point Times New Roman roman medium. (A)

type size. A measurement in pitch or points of the width and height of a graphic character in a font. One of the many attributes of a font, others, for example, being weight and typeface.

type style. The form of characters within a set of the same font, for example, elite and pica. (T) Attributes such as posture, style, weight, and width can vary in a type style.

type weight. The degree of boldness of a typeface series, caused by different thickness of the strokes that form a graphic character. One of the many attributes of a font, others, for example, being size and typeface. The weight can be described in such terms as light, semibold, bold, and so on.

type width. The horizontal size (set size) of a given typeface. The width can be given in units of measurement, such as set 9 point, or it can be descriptive: ultra-condensed or expanded.

typographic font. A typeface originally designed for typesetting systems. Typographic fonts are usually proportionally spaced fonts.

typography. Presentation with type.

U

UDC. User-defined character

unbounded-box format. An organization of character graphics and information used by Advanced Function Presentation programs for printers such as the IBM 3800 Printing Subsystem Model 3. Character boxes containing each character graphic do require some character positioning information in the form of white space in the character boxes. In addition, a separate character set is required for each combination of character rotation and text orientation. Contrast with bounded-box format.

underscore. A line printed under a character. To place a line under one or more characters; to underline.

uniformly spaced font. A font with graphic characters contained in character cells of uniform size. The distance between reference points of adjacent graphic characters is constant in the inline progression. The white space between the graphic characters can vary. Synonymous with fixed-spaced font and monospaced font. Contrast with proportionally spaced font.

uppercase. Pertaining to the capital letters, as distinguished from the small letters, for example, A, B, G, rather than a, b, g. Contrast with lowercase.

user-defined character (UDC). A character added to a standard character set, usually for an Asian language, by the user.

V

virtual machine (VM). In VM, a functional equivalent of either a System/370 computing system or a System/370-Extended Architecture computing system. Each virtual machine is controlled by an operating system. VM controls concurrent execution of multiple virtual machines on a single system.

VM. Virtual machine.

W

weight. See type weight.

width. See type width.

word space. The space placed between words in a line. Synonymous with interword space.

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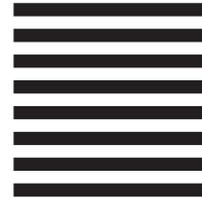
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