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LaserWriters: Printing 2-byte Languages/Characters (4/94)

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TOPIC -----

We want to use third-party Chinese fonts which require a 2-byte printer. We were told the LaserWriter 810 is 1-byte and won't work. Is the Apple LaserWriter Pro 630 1-byte or 2-byte, and specifically what does this mean?

DISCUSSION -----

If the Chinese fonts are TrueType then printer type is not an issue as the fonts will work with all Apple printers, and prints well on a QuickDraw printer (StyleWriter). The best printers to use are the ones with the TrueType interpreter in the ROMs:

- LaserWriter IIx/IIg
- LaserWriter Pro 600/630
- LaserWriter Select 360
- Personal LaserWriter NTR
- Personal LaserWriter 320

The LaserWriter Pro 630 supports composite fonts but has not been tested nor optimized for use with third party composite fonts (on a hard disk); the same holds true for the LaserWriter Pro 810. Apple released a Kanji version of the LaserWriter Select 360 optimized for printing Kanji characters. This printer is available in Japan and may be something you should look into. The entire system (printer, hard disk, fonts) has been tested and optimized. The main difference between the Kanji optimized printer and one bought in the United States is the speed in which documents print. In terms of the specific printer suggested by the font supplier, the same requirements above hold true for that printer.

Explanation of 1-byte and 2-byte

The difference between a "1-byte" or "2-byte" printer can be summarized by whether or not the printer supports composite font technology. Thus, the LaserWriter Pro 630 and 810 can both be considered "2-byte" printers, however, there are various other requirements for printing large character sets such as Chinese or Japanese.

These requirements are as follows:

- The printer must support composite font technology. PostScript Level 2

has built-in support, though there are some PostScript Level 1 implementations that have the composite font extensions (that is, LW NTX-J). As stated in the "PostScript Language Reference Manual" from Adobe, "A composite font is a collection of base fonts organized heirarchically."

This basically means that instead of the typical 1-byte-per-character mapping when using a single base font (1 byte = 256 characters), the usage of multiple base fonts allows for a 2-byte-per-character mapping to represent up to 65,536 characters.

- The composite fonts themselves must have some intelligence built-in. The "daughter" fonts need to have some instructions to access their glyphs from storage (that is, instructions to access the hard drive where the glyphs reside).
- A hard disk of composite fonts, supplied with the printer. Since one composite font takes up a large amount of memory (for example, 7MB), the fonts need to reside on a hard drive, as opposed to being downloaded or in RAM.
- The printer should be designed and tested for use with composite fonts. Generally, any PostScript Level 2 printer processes composite fonts, but without any design changes or testing there could be some serious bugs and/or poor performance. Some of the most important design changes are ones such as font caching or file system utilization to handle the large amounts of font data.

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