LaserWriter 2.0 ROM: Performance Enhancements

This article last reviewed: 4 September 1987

The performance of the LaserWriter for many applications has been significantly improved in the new implementation of the LaserWriter software. The main areas of improvement are as follows:

  -- PostScript interpreter

The PostScript interpreter is substantially (30 to 40 percent) faster than before. This improvement applies primarily to programs that are being interpreted from procedures already stored in VM; programs being interpreted from a file or string receive little benefit.

  -- AppleTalk

Efficiency of AppleTalk communication has been improved by a buffer strategy that permits greater overlap between the work being performed on the LaserWriter and on the host. This is especially noticed when using Apple's Print Manager on the Macintosh, which sends relatively short (512 byte) blocks.

  -- Throughput

Page throughput for many applications is significantly increased by a new printing strategy that permits imaging of a page to be overlapped with execution of the PostScript description for the next page. Formerly, page imaging and PostScript execution were performed serially; the imaging time (up to 6 seconds per page) was entirely wasted.

  -- Compressed character mechanism

Page descriptions that print large characters may benefit from the compressed character mechanism. Large characters now are often obtained from the font cache, whereas formerly they were always produced by re-executing the character descriptions.

  -- Font cashe

Characters may be retained in the font cache even after removal of the font definition from which they were generated. If the same font is later defined again, the cached characters will be found and used if they still exist. This

depends on correct use of the UniqueID entry in the font definitions; see the discussion under 'Modifying and creating fonts' in the PostScript Language Tutorial and Cookbook.

  -- Virtual memory

The total amount of virtual memory available is not exactly the same as in the original LaserWriter, although it is close to being the same. This may affect the maximum number of down-loaded and user defined fonts that can be present simultaneously. Note that PostScript page descriptions with large preambles can obtain significant VM space savings by making use of the packed array facility.
<None>

Keywords: <None>

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19960215 11:05:19.00

Tech Info Library Article Number: 591