Changes since the end of last year appear as extracts from the files `TeX82.BUG` and `MF84.BUG`, in the supplement at the end of this issue.

Changes to TeX

These are the changes that precipitated each new version of TeX beginning with changes made in November 1987. The reward for being the first to find a new bug in TeX now stands at $81.92.

2.6 (November 1987) Added 10sp to width when shipping leaders, to improve the handling of rounding in device drivers.

2.7 (November 1987) Improved the rounding of negative-width characters.

2.8 (December 1987) Removed a loop that occurred when no hyphenation patterns have been loaded and hyphenation is attempted when a `\lccode` is 1.

2.9 (December 1987) Made the assignment of `\csnames` global, so that they don't disappear when the first definition occurs inside a group.

2.91 (April 1988) Fixed a bug that showed up when trying to process `\outer\def\a0{}\a\a`.

2.92 (May 1988) Fixed a problem with `\patterns`. Also fixed bad handling of file names generated with complex macros; in 2.91, typing `\input\romannumeral6` in response to the `**` prompt, and `\end` on the next line, would result in TeX reporting that it has written a transcript file called "viTEXPUT".

2.93 (June 1988) Fixed negative halving in memory allocation, which caused a problem just before running out of memory when *mem_min* is negative.

Changes to METAFONT

Here are the changes to METAFONT. The reward for being the first to find a new METAFONT bug is now $20.48.

1.4 (May 1988) A typo which suppressed detection of an error was fixed. The timing of *scan_declared_variable* was also fixed.

1.5 (June 1988) Comparable to the change for TeX 2.93.

Changes to PLAIN.TeX

The following definitions should be corrected in PLAIN.

```
\def\arrowvert{\delimiter"33C000 }
\def\Arrowvert{\delimiter"33D000 }
\def\bracevert{\delimiter"33E000 }
```

TeX implementors' early warning system

Since Knuth has included me in the list of people he informs whenever he makes any changes to TeX, METAFONT, *C&T* or the CM fonts, I have set up a mailing list of all the implementors and distributors I know about, so that changes can be communicated to them as quickly as possible. The details of all the changes mentioned above have been sent out to the list, and acknowledgements were received from most of the addressees, so TeX 2.93 should be generally available soon.

If you are an implementor or distributor of TeX software and believe you should be included on the list, send me your name and address (preferably a valid Internet address) and a short description of what you're doing that makes you eligible.

64-bit TeX

Bart Childs

Most of us have seen one of the little warnings, "`TeX capacity exceeded ...`" at one time or another. When it is memory that has been exceeded, it is probably most often due to a missing brace or similar error. But some macro packages, like Michael Wichura's PiCTeX, Michael Spivak's *Tables to Die For*, and even LaTeX, can encourage this error in legal uses.

While I was working on the port of Cray TeX and reviewing Don Knuth's tapes on *TeX: the Program*, it dawned on me that we can change TeX to use 64-bit words rather than 32-bit words on most systems. We generally use 128k memory as opposed to the former limit of 64k. When we do this, we have noticed an increase in speed of about 7% under AOS/VS.

Lily Barkovic-Mummert has installed these changes on several Mach systems at CMU, IBM PC-RT, SUN 3, and μVAX. These too are probably faster. We will be publishing the details later. If you are interested in obtaining these change files, please contact us.