LETTERS TO THE EDITOR

To the Editor:

Someone has done the IEEE, its members and its leadership a real disservice. In the August 1984 issue of IEEE Micro (p. 4) is an editorial box containing the following phrase: "...Will RAB and TAB still be at each other's throats?..." This unsigned statement is a most misleading observation about the relationship between the entities in the IEEE which represent the geographical and technical interests of the members. We categorically deny any major disputes or animosities between these two major Boards of the Institute. In fact, in several actions of note a warm and cooperative spirit among many of the regional and technical entities exists. Several recent actions are typical:

—RAB’s initiative to enlarge its representation on the Board of Directors to enable its Societies to group themselves into technically coherent Divisions would not have succeeded without the support of RAB Directors which was required to achieve the two-thirds majority needed for Board approval.

—RAB’s request for increased funding for Sections was fully supported by TAB’s Division Directors on the Board of Directors during the most recent budgeting process of Institution funds.

—RAB’s wish to have more autonomy in distributing these funds was unanimously supported by TAB whose stated position was that such distribution should be strictly a matter for the RAB Vice President and his Board.

—Current attempts to provide more support for Society Chapters within the Section structure in Regions is being fully supported by both RAB and TAB Directors.

—Extensive and successful efforts by the Computer Society’s Division Director Merlin Smith, newly elected Vice President to the TAB after lunch at the meeting recently in Houston on February 22, explicitly referred to the acrimonious relationships that had existed in the past between the RAB and TAB directors. He too was pleased that situation seems now to have changed.

It is clear that an organization like the IEEE is not always perfect. It must make its way amongst the rock piles of life as do we all. The inspiring aspect I’ve observed is the tremendous labors of love its dedicated volunteers contribute to the organization. That’s why I finished the boxed segment with:

"May the IEEE adapt and grow and continue to be a great organization undertaking great tasks for a great profession."

Robert G. Stewart
First Vice President
IEEE Computer Society

To the Editor:

The June 1983 issue of IEEE Micro (pp. 40-50) carried the excellent article by A. Perez entitled, "Byte-wise CRC Calculations." The super-fast approach presented used the Perez CRC Table lookup algorithm for the Bisync protocol that uses the generating polynomial of X + X X + 1, also called CRC-16.

Using Mr. Perez’ brilliant approach we derived a table for the IBM SDLC, CCITT HDLC, and X.25 protocols, which utilize a generating polynomial of X + X X + 1. The CRC dividend is handled somewhat differently by these protocols. The subroutine in Figure 1 illustrates these differences. In addition to the newly generated lookup table values, the dividend/remainder is initialized to all 1’s, the two CRC bytes transmitted are an inversion or one-complement of the generated CRC value, the high bit of the CRC 2 byte field is transmitted first, and the dividend/remainder of a correctly received frame yields the constant 61624 decimal.
We have used Mr. Perez' super-fast CRC algorithm with the Richcraft SDLC, HDLC, and X.25 software approach to packet communications with great success the past year. Our software approach completely eliminates the expensive terminal node controller on all nodes running the Bell 202 type standard, synchronously at 1200 baud and up.

Robert M. Richardson
Richcraft Engineering Ltd.
Chautauqua, NY 14722

Figure 1a. Modified lookup table for byte-wise CRC calculations.

Figure 1b. This is the 512-byte CRC look-up table printed out as 256 two-byte words to save space. The label TABLE is at location 1.
To the Editor:

I thought your article, "Copy-protection-defeating programs: Should Congress Act?" in the December 1984 IEEE Micro was excellent. I wish Congress great wisdom and godspeed in solving the nasty problems of copyright protection in the context of cheap, anonymous, electronic duplication of machine-readable files, including computer programs.

There appear to me to be two areas where the problems will be even nastier than your article indicated.

The first is really outside the scope of your article: with cheap print-reading devices coming on the market, it will cost very little to put almost any text into "machine-readable" form (see the Omni-Reader ad on page 92 of the same issue of IEEE Micro, for example). Once there, of course, it is subject to the same cheap, anonymous duplication (and distribution over the telephone network) as are computer programs. The duplication of a book by office copier may well be more expensive than purchase of the book, but the duplication of a machine-readable version of the text is not likely to be so. The technology jeopardizes copyrights on more than just computer programs.

Not everyone will immediately be eager to read a best-seller from a computer console, but the possibility exists. And now there are bona fide text-to-speech systems on the market. (Have you listened to DecTalk lately?)

The second problem area is very much within the scope of your article and is of major concern to many of us already: floppy disks are a very inconvenient medium for storage of programs that are used frequently. Many of us owners of small computers have bought hard disks and/or extra RAM to avoid the clumsy manual operation and low performance that results from use of floppy. Copying a program from the source floppy disk brings benefits to us in some combination of three main ways.

First, if one wants to use a program that is resident only on a floppy disk, that disk must be mounted in a disk drive (thus excluding other uses during program-load time...and during overlay-thasme, as noted below). Also, if that drive is needed for a data input or output disk associated with the task in hand, someone must be present and alert to swap disks when needed. Further, simple safety procedures require that a floppy (especially one whose contents are not backed-up somewhere) must be removed before the system is powered down. A program that cannot be copied from one floppy to another presumably cannot be copied from a floppy to hard disk, so a copy-protected program requires the dedication of a human being to mind-numbing, error-prone tasks. The cost in dollars and misery is high. This cost adds to the incentives to copy disks, even if protected.

Second, disk transfer speeds from hard disks are higher than from floppy and are likely to remain so. Even initial program load-time is noticeably faster for programs on hard disk, and for compilers and other large programs with overlays that act on large files a piece at a time, the improvement in performance with a hard disk is often quite significant. More incentive.

Third, many operating systems provide for dedication of a portion of RAM to be used temporarily as a pseudo-disk (e.g. MDRIVE in MS-DOS v.2.05). Its performance is even higher than that of a hard disk. An application that uses MDRIVE fairly hums, and the user gets strikingly improved response from the computer system. Conversely, after one uses MDRIVE and then is forced to revert to operation from a floppy drive, the pauses often seem interminable. The pseudo-disk disappears when the system is powered down, and any information on it is lost. A copy-protected program can't be transferred to or run on MDRIVE, of course, so here is an additional incentive to use a copy-protection defeating program.

The excerpt you gave from Section 117 of the Federal Copyright Act requires that, to avoid infringement, a copy must be "...created as an essential step in the utilization of the computer program..." (emphasis mine). Use of the hard disk and RAM-resident pseudo-disk are essential only to efficiency (and perhaps survival) of the business, not to utilization of the computer program, so it appears to me that Section 117 doesn't meet some important current needs of a software user. The proposed corrective measures documented in your article seem incomplete to me in the light of the problems I have raised, and I would like to have the measures re-cast before I choose among them.

I believe that any measure that discusses backup and archive copies only and doesn't address the change-of-medium problems I have presented here will almost surely fail to relieve many law-abiding computer owners of incentives to bypass the copy-protection mechanisms.

So far, I have stayed squeaky-clean with respect to making copies of copy-protected disks. I have done so by refusing to buy software that only comes in that form. I have had to pass up some excellent software that way, of course. Both the software vendors and I are suffering that penalty. As a possible future vendor of software, I have even more reason to hope for a quick, workable, equitable solution to an extremely sticky set of problems.

Let the debate continue, but not forever. Thank you for your contributions.

Roy Keir
530 Northmont Way
Salt Lake City, UT 84103