

Processing voter files in microcomputers

By Bill Daly

Microcomputers are being used for many things in most political campaigns and organizations today. Most microcomputers have more than enough capacity to handle contributor accounting, volunteer communications, financial record keeping and reporting, scheduling, etc. for most political campaigns. When it comes to processing voter files, however, most microcomputers will come up short of the necessary capacity to handle much voter file processing for most political campaigns.

DISK STORAGE

The first thing to consider is bulk magnetic storage to process your file. Most microcomputers use floppy diskettes for bulk magnetic storage. IBM PC double-sided double-density diskettes, those generally in use, will hold a maximum of about 2500 voters. This means if you have a district with 25,000 voters it is going to take 10 diskettes just to hold the file, and if you want to sort it, copy it, or do much else than just store it that is going to increase. It is going to be pretty much of a fuss to do any effective processing of voter files over 5,000 voters using diskettes.

For larger files you can consider using some type of "Winchester," or fixed disk. The IBM XT will hold 10,000,000 bytes or about 70,000 voter records. A good rule of thumb for data processing is to fill half or less of your available bulk magnetic storage with fixed data, so something in the 25,000 to 35,000 voter range is about the maximum that can be processed effectively on an XT. Of course there are larger disk systems available, but costs start to climb, and at some point a microcomputer really isn't so micro anymore.

PRINTING

Printing is another feature of your microcomputer that will be stressed much more by voter file processing than by other applications. Printers are generally much slower than the computers they are connected to, all the way up to the fastest printers in existence. On large scale computers

most printing is done by line printers in the one to two thousand line a minute range, or by laser printers in the five to ten thousand sheet an hour range. In terms of character rates this means about 3000 characters a second for the line printer and 6000 characters a second for the laser. A line printer will turn out 10,000 labels in about ten minutes, whereas a high speed laser printer will turn out about 8000 $8\frac{1}{2} \times 11$ letters an hour.

Contrast this with some typical microcomputer printers that produce an effective continuous character rate of something under 100 characters per second. The 10,000 label run that took ten minutes on a large computer now takes four hours. Printing a list of the 25,000 voter file in the XT takes 10 hours, if everything holds together. During this period the computer isn't going to be used for anything else. Again there are faster printers, but even the cheapest microcomputer laser printers cost over \$3500, and again the "micro" computer has grown into more of a mini range.

INTERCHANGING DATA

It is necessary to get the voter file loaded into the microcomputer to start with, and this is not a trivial task. The general mode of exchange of voter files is IBM compatible magnetic tape, and such tapes drives are expensive and rarely available for microcomputers. Sometimes it is possible to purchase your voter file already on diskettes, but if you are planning to do this be sure and check on cost and availability before you start. Voter files typically are kept up to date by just getting entirely new copies from the county or city, so this process may have to be repeated frequently.

A frequently discussed solution is just to send the voter file over a phone line. Most microcomputers have modems, you can buy one for \$300 or so, and just dial up and let 'er rip. And rip and rip and rip... Most modems are 300 BAUD, which means they are even slower than most printers. It is possible to go 1200 BAUD over a dial up phone line, but not faster, and 1200 BAUD transmission is more error prone

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Typical Parameters for Voter File Processing

Voters	# 2-side 2-density Diskettes	Hours to Print Labels	Hours to Print Letters	Hours to Transmit 300 BAUD	Hours to Transmit 1200 BAUD
10,000	6	4	48	12	3
25,000	15	10	120	30	7
100,000	60	40	480	120	28
250,000	150	100	1200	300	70
500,000	300	200	2400	600	140

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and the modems are more expensive. Even at 1200 BAUD it will take about FOUR hours of connect time to send 10,000 voters. If you are going to do this be sure there is some provision for restart in the case of phone line failure or dropout, which has been known to occur in long phone conversations.

SUMMARY

In summary, then, the numbers can get out of hand pretty fast for voter files using current technology and typical sizes for districts. The table shows some values for storage, printing and transmission of some different size districts. (An average congressional district has around 250,000 voters.)

Be careful if you are going to count on a microcomputer for an important part of the voter file processing in your next campaign. It may be feasible, but it probably won't be worth it. Keep your computer whizzing away on raising money, scheduling and word processing. Get your voter file work done on larger hardware cheaper and faster.

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