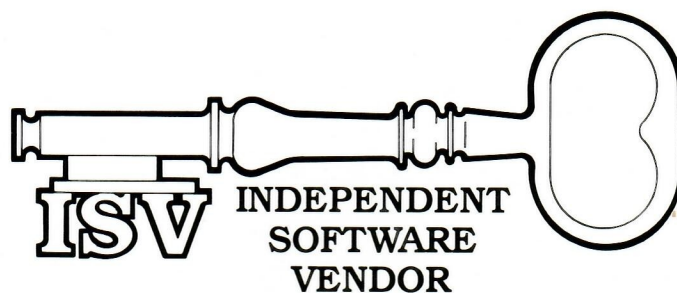


Why Microcomputer Consultants Co. Chose PL/I-80™ For Business Applications

**A Case History
By
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PL/I-80™: The prog:

It can be a tough decision for a successful company.

It can be a tough decision for a successful company, selling application programs to satisfied users, to convert to a different language. But the Microcomputer Consultants Company is doing that, and glad they are. The four year old software house is writing all its new programs in PL/I-80, abandoning the languages it previously used. The company has already written two new packages in PL/I-80, and plans to convert those it already offers to the more efficient language. Says its president, Charles C. Russell, "We're committed to convert everything to PL/I-80 from the other languages we have been using. In six months, we will have nothing but PL/I-80 programs."

This switch is a major project for the Davis, California company, and one it already feels has paid off. "PL/I-80 is faster, uses less memory, and has better error checking and control."

One reason that Russell so enthusiastically embraced PL/I-80 is the market his firm serves. It sells software packages to small businesses, especially first time users. The PL/I-80 based programs offer a number of advantages to the user. These include faster response, more available memory, and fool-proof operation. "I've never had an error in a PL/I-80 program which caused a customer to have to reenter hours of work," says Russell.

Most business users are sensitive to these problems, of course. But perhaps some of Russell's customers are even more concerned. The company offers popular business packages; general ledger, accounts receivable, wholesale and retail inventory, plus hard to find manufacturing programs for small companies. These include Inventory Control for Manufacturing (ICM) and Job Cost Control (JCC). Microcomputer Consultants has already written ICM and JCC in PL/I-80. All of the company's software runs under CP/M®, the industry's most popular microcomputer operating system. CP/M, like PL/I-80, is a product developed and sold by Digital Research, Inc., in Pacific Grove, California.

It worked the first time.

Russell says that the language he had been using was the best on the market for his firm, but that it has limitations. For one, its revisions created problems for users. "A couple of times a year, they made revisions. These solved some problems, but always created others in the process. So the customer had to worry about this, including purchasing the correct version of that language's interpreter."

By contrast, PL/I-80 is standardized. Digital Research's PL/I-80 is based on the American National Standards Institute (ANSI) Subset G of PL/I, the same version used by many mini-computers. As such, it is supported by Digital Equipment Corporation, Data General, Wang, Prime and other suppliers.

Another advantage of PL/I-80 is that it doesn't require an interpreter, so it is faster. Russell says that PL/I-80 worked the first time. "We didn't have any significant problems."

Some of the biggest pluses of PL/I-80 become apparent as it is used. For one thing, it is much more efficient in operating speed than the popular language formerly used. Part of the reason is that Microcomputer Consultants has been able to implement very fast filing systems which don't require sorting. "Typically, the other language slows down with large files; you have to sort the files to use many programs. With the utilities I can generate with my PL/I-80 programs, however, I can eliminate the sorting required by the programs written in the previous language. You don't need a half empty disk for sorting, and the access time doesn't significantly increase as the file size grows," he adds.

Another advantage to the user is PL/I-80's efficient use of memory. Like any programmer, Russell likes to have as much memory available as possible. In one case, he notes, a PL/I-80 program fit with 12 kilobytes left over. "The other program filled the memory available all by itself."

Efficient application programs often call for composite programming, combining assembly language with PL/I-80. Russell notes that this is easy to do with PL/I-80's direct calls to assembly language programs. The PL/I-80 linker, LINK-80™, allows users to combine programs written in assembly language.

Russell also finds PL/I-80's block structure very easy to use, but reserves some of his greatest praise for the way PL/I-80 handles errors. "Its exception processing is a great aid to the programmer. This is a feature that is not available on most microcomputer based systems," he says.

rogrammers' language.

With PL/I-80, Russell finds that he can create programs that are largely crash proof. "I could quickly crash the other programs. In seconds, I could lose stored data. This is much harder to do with PL/I-80 programs." Perhaps even more significant, he finds that it's easy to correct errors in the program. "In a typical program, errors can arise which the user has to take time to correct. With PL/I-80, the program can solve them for him. We don't need a user who is an expert in CP/M."

"It's a programmer's language."

PL/I-80 isn't a panacea, however. Russell has considerable experience, including graduate study in software. He points out that PL/I-80 isn't a good beginner's language. "It's a programmer's language, ideal for the experienced programmer, just as PASCAL and BASIC are good for beginners."

Russell found it easy to pick up PL/I-80, little surprise in view of his study of computer languages. He says that one of the company's other programmers who already knew FORTRAN and COBOL learned PL/I-80 with little trouble, and feels it would be relatively simple for other experienced programmers to learn it, too. He says that there are two elements to learning a computer language; its syntax or grammar, and its quirks. "The syntax of the language is relatively easy to learn since most of them are quite similar. It's the quirks of the language that are tricky." Russell found PL/I-80 relatively straightforward. "I spent little time learning its quirks. It's standardized, and works the same way on a microcomputer as on a larger computer system."

Some of PL/I-80's advantages relate less to the language than its supplier, in Russell's estimation.

Digital Research developed an Independent Software Vendor (ISV) program which supports independent companies that write software under CP/M. This program includes a CP/M compatible reference catalog. It describes such software and the companies which distribute it. ISV FORUM is a quarterly newsletter. It includes seminar information, special columns, profile of an ISV, letters to the editor, ISV marketplace, advertisement space, and other helpful articles. ISV seminars run

three days. They cover PL/I-80 programming and advanced techniques plus sessions on marketing, legal software protection, technical writing, and advertising. The ISV program is to strengthen companies which produce CP/M based software — strengthen through increased sales exposure (ISV Referral Catalog), and increased technical knowledge (ISV Seminars). Russell recently attended a Digital Research ISV Seminar. He now plans to send each one of his programmers to a similar course in the future.

One of the least expected benefits of using PL/I-80 didn't even occur to Russell until recently. He found that mentioning PL/I-80, CP/M or Digital Research in his news releases resulted in better pickup from the press, and that it enhanced his product's credibility. "It helps raise us out of the noise in the crowded software market."

"With CP/M, we can market to everyone."

Even before its recent conversion to PL/I-80, Microcomputer Consultants chose CP/M for all its application software. It wasn't a hard choice. CP/M is the overwhelming choice of independent microcomputer manufacturers, and it's even available on the popular Radio Shack and Apple computers. "With CP/M, we can market to everyone. It's very flexible and is available on many machines. We've even had two manufacturers of computers we use go out of business, but they didn't affect us since we can put the programs on other computers," says Russell.

He also likes the potential for upgrading to more powerful computers in the future, since Digital Research has developed a version of CP/M, CP/M-86, for the popular Intel 8086 16-bit microcomputer. "We expect to be able to upgrade from 8 to 16-bit microcomputers with little problem. With other operating systems, we would have to start from scratch."

He adds, "Digital Research is trying to make the upward path for the software vendor as simple as possible. This is good for him, and it's good for the user as well, because it ensures a lower development cost and, ultimately, a lower user price."



BT-80™ supports PL/I-80.

BT-80, Digital Research's unique file manager, provides extended PL/I-80 support throughout your program's development. Listings for screen or printer output are organized by writing minimal code. BT-80 also provides an organized access method for handling large and intermediate size minicomputer data bases. It features primary keyed index with multiple secondary keys.

BT stands for "balanced tree," balanced organization of access to keys. In less than five passes, all levels of your data base are accessed. That's a tremendous speed advantage over any unbalanced structure, especially when large and/or complex data bases are involved.

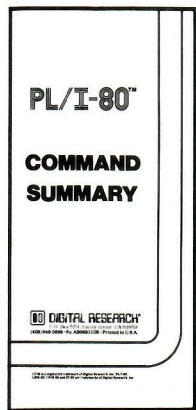
As complex data bases come to the micro world, BT-80 will expand your product marketing horizons.

PL/I-80™ LANGUAGE MANUAL

PL/I-80™ APPLICATIONS GUIDE

LINK-80™ OPERATOR'S GUIDE

BT-80™ RECORD RETRIEVAL SYSTEM



PL/I-80 Documentation

The PL/I-80 Language Manual gives you the details necessary to formulate PL/I-80 statements.

The PL/I-80 Applications Guide explains the operation of the compiler, discusses commercial processing, and provides over 30 working sample programs from business and science.

The LINK-80 Operator's Guide details the operation of the linkage editor and the relocation dependent operations of RMAC™, which specifically produces relocatable object code.

The BT-80 Record Retrieval System Reference Guide shows you how to use this file manager, and how to give your products a higher level of data base control.

The PL/I-80 Command Summary provides a convenient, quick reference to 343 commands and error messages.

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