played on the screen again. Then the user selects the Return option to return to the main Menu and then either exits Asystant GPIB or selects another option to continue working with Asystant.

Overall I have to say that it was a pleasure to work with such useful and easy to use software as Asystant GPIB. It helped a great deal with solving the problems and troubles I had with a project I was working on. I would recommend the use of Asystant GPIB to any user who wishes to collect, manipulate, analyze, and graphically display scientific and engineering data.

REFERENCES AND NOTES

(1) Asystant GPIB is available from Asyst Software Technologies, Inc., 100 Corporate Woods, Rochester, NY 14623 [(716) 272-0070 or (800) 348-0033]. The price is $695.00.

Lahey FORTRAN 77 Language System

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F77L is a FORTRAN language compiler that requires an MS-DOS or a PC-DOS operating system, version 2.00 or higher, and 256K of RAM memory and is able to make use of the INTEL family of numeric data coprocessors.

The F77L package includes a compiler for standard source files, a graphics development Toolkit binding, a P77L Profiler Demo, a NDP exception routines, and a conversion program from free to standard format and vice versa. It would have been nice if the developers had an editor included with the package.

The FORTRAN language, because of its logic and math orientation, is still very popular among engineers and scientists. Its popularity has not declined, as the experts predicted, as newer languages such as Pascal and C have been developed. As a result of FORTRAN's popularity, there are a number of FORTRAN compilers on the market.

The FORTRAN 77 language compiler from Lahey Computer Systems, Inc., is supported with very good documentation. The manual clearly shows every step of the installation of F77L, and further sections teach the user how to program in FORTRAN; there are many self-explanatory examples.

The F77L software has most of the same standard features that are available on mini and mainframe FORTRAN languages packages, but it also has some shortages like jumps in IF...THEN blocks. Personally, I also miss the DO...WHILE and DO-block loop, which are standard features on some other PC FORTRAN compilers but are missing in this compiler.

Among nice features are some nonstandard functions (like character handling routines, random number generators, and bit handling routines), DOS interface subroutines, interfaces to other languages (C, MS-FORTRAN), toolkits like IBM graphic library, and math chip exception subroutines for handling arithmetic errors. The F77L subprogram code is re-entrant so that subprograms can be invoked recursively, which is quite a rare option even in FORTRAN compilers on mainframe computers.

The F77L compiler has a lot of different options that are very useful for efficient error analyzing and further debugging with SOLD debugger. In addition, Lahey Computer System, Inc., also provides the PLINK86 Overlay Linker, which allows efficient library management.

Lahey Computer System, Inc., provides technical support at no cost to F77L users, but there is no toll-free number. Of course this support is limited to F77L problems and does not include tutoring in how to program in FORTRAN or how to use DOS.

After evaluating all the features the F77L compiler offers, from the considerable documentation, standard and nonstandard features, and technical support, I think that the F77L compiler is well worth the money.

REFERENCES AND NOTES

(1) The Lahey FORTRAN 77 Language System for personal computers, F77L, is available from Lahey Computer System, Inc., P.O. Box 6091, 917 Tahoe Blvd., Incline Village, NV 89450 [(702) 831-2500]. The price is $477.00.

TRC Databases for Chemistry and Engineering—Vapor Pressures

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The Thermodynamics Research center (TRC) at Texas A&M University has been in the data business for decades and has recently started to release some of its data in searchable form on disk for IBM PC compatible computers. This review is for the first of their products, a database of the vapor pressures for 5766 compounds.[1] Actually, it is not a database in the usual sense in that what the system contains are not actual data values, but rather the Antoine and extended Antoine coefficients and equations that allow one to calculate the vapor pressure at the given temperature and pressure

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****** CALCULATE VAPOR PRESSURE. ******

    62-53-3 C6H7N       aniline
                        aminobenzene
                        benzenamine
                        phenylamine
REFERENCE : 1973
 Boublik,T. ETC. 'THE VAPOR PRESSURE OF PURE SUBSTANCES',NEW YORK,1973
INPUT TEMPERATURE(K) : initial=300 final=500 increment=20

TEMPERATURE PRESSURE  STATE COD RAT   TEMPERATURE PRESSURE  STATE COD RAT
   (K)       (kPa)                      (K)       (kPa)
---------------------------------- ----------------------------------
  300.000            Out of range       320.000            Out of range
  340.000            Out of range       360.000            Out of range
  380.000   8.151      L   I   B       400.000   17.53      L   I   B
  420.000   34.55      L   I   B       440.000   63.33      L   I   B
  460.000            Out of range
```

Figure 1.

```
****** SEARCHING FOR COMPOUNDS WITH GIVEN TEMP. & PRESSURE. ******

INPUT:Temp.(K)=250 Pres.(kPa)=100 Tol.(kPa)=10

1       74-87-3 CH3Cl       chloromethane
                            methyl chloride
                            methane, chloro-
  State: L   Temp.(K)= 250   Pres.(kPa)= 106.006

2       74-99-7 C3H4        propyne
                            1-propyne
                            methylacetylene
  State: L   Temp.(K)= 250   Pres.(kPa)= 100.793

3      115-10-6 C2H6O       methoxymethane
                            dimethyl ether
                            ether, dimethyl-
  State: L   Temp.(K)= 250   Pres.(kPa)= 109.125

.
.
.

13    7291-09-0 C2H6Si      vinylsilane
  State: L   Temp.(K)= 250   Pres.(kPa)= 98.9719

    13 compounds found from 5766 records in the file.
```

Figure 2.

desired.

The system came on one 3-1/2-in. floppy disk and took a matter of seconds to install on my hard disk. (It is also available on 5-1/4-in. 360K or 1.2 MB floppy disks.) The system requires an IBM or equivalent with PC or MS DOS version 2.0 or higher and about 1.2 MB of hard disk space. A printer is needed if you want to print out the results of a search or retrieval. The program started right up and worked without any problems. The system capabilities include searching chemical name(s), searching by molecular formula, and searching by CAS Registry Number. There are HELP messages throughout the program, which is a very nice feature. All search results described below are stored in a file and can be printed out at the end of a session.

There are three main system options, Retrieve, Search, and File. The Retrieve option allows one to retrieve a chemical by name, molecular formula, or CAS Registry Number and then calculate the vapor pressure for that specific chemical over a specified temperature. For example, Figure 1 shows the results of a search for aniline. This search was made by use of the name option (the same answer was found when the molecular formula option was used), and then the vapor pressure over the range 300–500 K in 20 K increments was asked for.

In the Search option one is asked for a temperature, pressure, and increment. The example in Figure 2 is for all compounds with a vapor pressure of 100 ± 10 kPa at a temperature of 250 K. There are 13 compounds whose vapor pressures at 250 K meet this criterion, and the first three and last one are shown in Figure 2. The system allows for a variety of units of both temperature and pressure. The temperature units allowed are Celsius, Fahrenheit, and Rankine. The allowable pressure units include pascal, bar, Torr (mmHg), inches of Hg, atmospheres, kg/cm^2, and lb/in.^{2}.

The File option allows one to Review, Print, and/or Save the results of previous searches. Even though I have a 386 CPU machine with 4 MB of main memory (640K of DOS accessible memory), I always got an error message that there was "not enough memory to open window", so I was unable to review the results of previous searches. The Print option worked just fine, as did the Save option. I used the Save option to save the results of searches and edit them for the material included in Figures 1 and 2.

There are a few bothersome points that I hope the authors will fix in their next release. For example, for a CAS Registry Number search for 1912-24-9, which is atrazine, the most widely used pesticide in the U.S. today, the system responds "No such compound". One gets the same answer for a search for atrazine using the name search option. I would think "This compound is not currently in the database or no such compound exists" would be a better message. As the program is case dependent (why it is in this day and age I cannot imagine), a search for aniline using c6h7n results in the message "formula pack error", requiring one to re-enter the data as C6H7N to get a hit (actually four hits as there are three other chemicals in the database with this same formula).

The system comes with a nice, short, 11-page manual, which is clearly written and easy to understand. For people who need vapor pressure data, this is an excellent, easy to use way to get it, assuming the chemical needed is one of the 5766 in the database.

REFERENCES AND NOTES

(1) Available from TRC Data Distribution, TEES Business Office, Mail Stop 3124, The Texas A&M University System, College Station, TX 77843-9988 [(409) 845-4940; FAX (409) 845-9267]. The price is $550.00.

Sigma-Plot, Version 3.1

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Sigma-Plot[1] is an IBM PC (XT, AT, or PS/2 and equivalent) based package for creating publication-quality graphics in conjunction with a high-resolution printer or plotter. The version reviewed here is 3.1, but version 4.0 is expected to be available by the time this review is printed. Sigma-Plot comes on seven 360K floppy disks with a manual of about 250 pages and requires about 0.5 MB of hard disk storage for the basic programs, 512 (or 640K depending on your system configuration) kB of memory, MS or PC DOS 2.1 or higher, CGA, EGA, VGA, or Hercules graphics card, and a plotter or printer

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