# The IBM Personal Computer Newsletter
## For Internal Business Computing

IBM Internal Use Only

## PREFACE

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Articles to be considered for publication and subscription requests for this document should be addressed to:

    Newsletter Editor        -or-        VM(BCRVM1/PCNEWS)
    2L9 / 227-2
    P.O.Box 1328
    Boca Raton, FL 33432

The editor prefers to receive articles in machine-readable form, sent to VM(BCRVM1/PCNEWS). Specifically, articles should be sent as FILES, via either DISK DUMP or XMIT.

If it is not possible to send machine-readable articles, then hard-copy articles will be accepted.

As used within this document:

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## EDITORIAL SECTION

It is a pleasure for me to join the Entry Systems organization and be working with one of the most exciting products in IBM. I am looking forward to working not only with the team here, but also with each of you.

Many of the articles in the past contained questions that were in large part answered personally by Keith. I am not yet as knowledgeable regarding the Personal Computer, and it will be some time until I attain sufficient level of expertise to address the kinds of questions Keith answered. However, I will do my best to find answers to the questions I receive.

There is another way you can get answers to your questions too. At most major IBM locations in the U.S., Entry Systems has established persons called Site Coordinators. These people have many responsibilities, including the procuring and distribution of Personal Computers at their locations, and acting as interfaces between their locations and Entry Systems in Boca Raton.

Assisting the Site Coordinators are people called Technical Liaisons, who address technical inquiries about the Personal Computer. Stated another way, your Site Coordinator's Technical Liaison is your technical interface for the IBM Personal Computer at your location. Your Technical Liaison will either be able to handle your question directly, or will contact Entry Systems for assistance.

By having Site Coordinators and Technical Liaisons, we are able to satisfy several things. We relieve Entry Systems in Boca Raton of excessive contact with Personal Computer users; we establish local experts at all major locations; our experts become even more expert as a result of handling many inquiries and problems; and, through our communications with Site Coordinators and Technical Liaisons, we in Entry Systems are able to get a handle on the kinds of concerns our internal Personal Computer users have. A bit later in this issue you will find an up-to-date list of Site Coordinators and their Technical Liaisons.

The newsletter will continue to handle newsy items. If you have developed a neat internal Personal Computer program that you want to share with others, by all means send in your information for publication. If you have a response to an earlier article, please send it in. If yours is a query for help or information from other readers, please submit it.

Finally, I personally will be out of the office for most of the time between May 17 and June 2, so it is likely that PCN8206 will be published in mid-June. I hope that, beginning with PCN8207, we will once again return to a normal publication schedule, the first business day of every month.

Mike Engelberg

## GUEST EDITORIAL

Through the Personal Computer Newsletter and through other communications we receive, there have been many requests with the same recurring theme: how do IBM employees submit internally-developed Personal Computer programs for possible marketing?

I'm pleased to announce that there is now a way to submit Personal Computer programs you developed on the job. We call it the IBM Internal Software Submission Plan. It was announced on IBM bulletin boards April 30. This issue of the newsletter contains further details.

The Internal Software Submission Plan will naturally evolve over time. If there are ways you feel we can improve the process, please send us your comments and suggestions.

I thank those of you who planted the seed that helped lead to the new Internal Software Submission Plan. Your support is very much appreciated.

Now that the plan is in place, I encourage all of you to give thorough consideration to the market potential of your internally-developed Personal Computer software. If you determine your programs make good candidates for marketing, then please submit them to us under the new Internal Software Submission Plan for our evaluation.

Thank you.


Joyce M. Wrenn
Director, Software Publishing
Entry Systems, Boca Raton

## INTERNAL BUSINESS SECTION

The articles in this section were submitted by individuals outside of the Entry Systems Organization.  These articles have not been reviewed by Entry Systems for accuracy and are not official statements of either Entry Systems or the IBM Corporation.

IBM PC programs described in this section were developed using IBM resources and are the property of IBM.  These programs are provided to improve the capability and productivity of IBM employees on the job.  They are not be be discussed with non-IBM employees.  There is no commitment to release as IBM products any programs described in this section.

Articles for this section can be submitted by anyone within IBM.  The articles should be brief and not more than two pages in length.The author must be identified and the article can not be confidential.  Responsibility for clearance of material submitted is the responsibility of the author.

Articles should address one of the following areas:

* Announce a program or technique for the IBM Personal Computer.
* Query for the existence of a program or process.
* Describe current work-in-progress (not IBM Confidential).
* Express an individual's point of view (letter to the editor).

The editor reserves the right to not publish articles received and to perform editing as required.

## SYMPOSIUM ON INTERNAL APPLICATIONS OF THE IBM PERSONAL COMPUTER

The purpose of the Symposium on Internal Applications of the IBM Personal Computer is to bring together, for a formal presentation of their work, those people who have been actively developing, applying, and using tools and applications for the IBM Personal Computer.  We hope to encourage the discussion and interchange of ideas, goals, and needs in the context of the IBM-PC.  Only IBM on-the-job, work-related subjects will be covered.

The symposium will be held October 5, 6, and 7, 1982, in the Research Auditorium, Yorktown Heights NY.

Abstracts should be submitted to:

        Karl Konnerth
        532 / 17-123
        IBM T. J. Watson Research Center
        P. O. Box 218
        Yorktown Heights NY 10598

If at all possible, please submit abstracts in machine-readable form to Karl Konnerth at VM(YKTVMT/KON2).

Abstracts should be submitted as soon as possible, in accordance with the schedule below:

| | |
|---|---|
| Abstracts deadline | 18 June 1982 |
| Paper selection | early July 1982 |
| Paper deadline | 20 August 1982 |

This symposium has Corporate sponsorship (CTC, EP&T, TPD).

## Scope for papers:

We seek presentations of unique applications, techniques, and development tools for the IBM Personal Computer, including new hardware as well as software/firmware. Papers are solicited for, but not limited to, the following areas:

- Word Processing, including
  - Editors
  - Formatters
  - Output devices and drivers
- Other office applications
- General purpose editors
- Application generators
- Communications
- Networking
- Intelligent terminal
- Speech input/output
- Work scheduling
- Manufacturing applications
- Programming environment
- Engineering
- Data base applications
- Modeling
  - Statistical
  - Scientific
- Instrumentation control
- Computer-aided design
- Robotics
- New attachment cards/peripheral devices
- Hardware/software development tools
- Compilers/interpreters
- Operating systems
- Learning aids

## Guide for Symposium Papers

The proceedings will be IBM Confidential. Clearance to speak is the responsibility of the author.

Your submission should include the following:

- Subject of paper (business-related only).
- An extended abstract of approximately 500 words in length.
  - State the problem being addressed / expected benefits.
  - Comparisons with relevant extant work will be helpful.
  - State IBM-PC configuration and any auxiliary equipment required.
  - State the level of completeness of your project, including your project documentation completion date.

For further information or questions, contact:

Stan Rosenfeld, Symposium Chairman, VM(STLVM11/ROSENFEL), GPD HQ, V32/G253, Santa Teresa CA, TL 543-5150, (408) 463-5150, ITPS(AAST).

## LETTERS TO THE EDITOR

### 8205-01  ACCOLADES, OR DON'T BREAK ARM PATTING SELF ON BACK

(Editor: we appreciate very much comments such as these.)

\* \* \*

"Congratulations!  Just started looking at the new (8204) issue of the PC Newsletter, and it is FANTASTIC.  Keith, I really do not know how you managed to improve it so much; we now have to re-evaluate our standards for excellence.  Mike, you have a tough act to follow, but we will all be with you all the way.  Joe, you got some great talent there....

"The General Information section is a godsend.  Suggest that it be kept cumulative as an appendix, and the new information be included in the body in future issues....

"Keep up the good work."

\* \* \*

"Received PCN8204.....  Wow!  It really looks good.  Nice work guys, everyone (here) owes you a cup."

\* \* \*

"Have just been re-reading the last newsletter.  It certainly is an outstanding piece of workmanship, keep up the good work."

\* \* \*

"I received PCN8204 today.  That is great work.  It is about time that someone down there has owned up to passing that kind of info around. We all really appreciate it here."

\* \* \*

"Just reviewed PCN8204.  WOW!!  I'm really impressed that you all got so much out.  Thanks for your efforts and perseverance, it sure paid off...."

\* \* \*

"Just wanted to let you know that the last newsletter was fantastic. I'm not alone in my opinion either; anyone I speak to here ... has nothing but praise for the April newsletter.  The danger in being so commendable is that it degrades from the preceding newsletters and I do not mean to do that; they were all extremely good.  However, there

was something about this one, both the content and the format, that seemed to reflect the fact that you really outdid yourself ...."


## 8205-02    LETTER: SUGGESTED NEWSLETTER IMPROVEMENT

I know that you are already over-worked, but I have an idea for an additional service that you could perform which would be greatly appreciated by employees.

Since most new product announcements for the PC are not posted at IBM locations, employees don't know that anything has been announced until they happen to stop by ComputerLand. I still have people asking me if I think that CP/M will ever be available for the PC.

How about if, each time new products are announced, one of you puts together a short blurb and transmits it to your newsletter distributors. They in turn could get the information out to the locals in a hurry.

John Bernauer, VM(SJEVM1/CUTTRAS), San Jose CA, TL 276-3577

(Editor: We certainly agree with you. In this newsletter we describe the products announced yesterday.)


## 8205-03    LETTER: MUSICAL NOTATION IS CORRECT

In reference to the statement on page 52, (publication errata, paragraph 4) of the Personal Computer Newsletter, PCN8204, that B#, E#, F-, and C- are incorrect musical notation, a correction is offered. While it is entirely possible to write music without using these notations, they are in fact commonly used, and completely correct. Please refer to Beethoven's "Moonlight Sonata" (Sonata No. 14, Opus 27, No. 2). The notation B# and E# appear throughout the first and third movements. C- makes its appearance in the second movement. In glancing through the music, I did not spot F-, but I think the point is made.

Michael Bull, MVS(AUSMVS1/A009072), 515/045-2, Austin TX, TL 678-9409


## 8205-04    LETTER: CORRECTION IN VNET I.D.

I would like to correct an error in my vnet ID for items 8204-06 and 8204-07 in the April Newsletter. I would also like to apologize to anyone who was unable to contact me due to this error. My correct VNET address is listed below.

Ed Skorynko, MVS(FSHNET1/EAS76L), East Fishkill NY, TL 532-4623

# READER CONTRIBUTIONS

## 8205-05   PC 3277/ANR CARD INFORMATION UPDATE

As matters currently stand, twelve prototype cards were received from our vendor in April; several have been populated and are now operational. Some engineering changes will follow. IBM Raleigh has undertaken responsibility for volume production, funded by IBM Kingston, to support a PC-based special application. Tom Pogledich, H83/632, Research Triangle Park NC 27709, TL 441-5686, is now the focal point for manufacturing and eventual distribution of the PC 3277/ANR card. The cost is presently estimated to be $750, due to the small initial order quantity of PCB's. This will probably change to reflect both larger volumes and the cost of vendor population and testing. An inter-plant transfer (IPT) of funds will ultimately be required to place an order. Tom should be contacted by those who expect to have an internal requirement for these cards.

Werner F. Meyer, VM(YKTVMV/WERNER), 81-X02, Yorktown NY, TL 862-1664

## 8205-06   ASCII COMMUNICATIONS SUPPORT PROBLEM

I received my PC in April with high hopes of using the ASCII adapter and IBM Asynchronous Communications Support Program to allow access to TSO at TUCC, the computer system used at Duke Univ., Univ. of N.C., and N.C. State Univ. where I am a part-time graduate student.

I am sorry to report that the TSO upload/download support does not work properly. Let me try to describe the problem and then outline the changes I made to TERMINAL.BAS to correct it. The problem description is in three parts: what is wrong; why it is wrong; why it fools you into believing that it is not wrong.

The problem is that files downloaded and immediately uploaded without change to another file name are not the same -- neither in content nor file characteristics.

When download is initiated, the TSO edit is invoked, VERIFY is turned on, and the DOWN subcommand is repetitively issued to send the lines of the host file over the line. Since EDIT normally displays line (sequence) numbers, they become part of the local file. When upload is initiated, EDIT is again invoked, but this time NONUM is specified. NONUM prevents line (sequence) number prompting on input. Now the local file lines are sent to the host in INPUT mode. The result is a new file which has the NONUM characteristic and what used to be line numbers as part of the source.

The reason we are fooled into believing that all is well is that COMPARE works on both host files. I can explain that too. When COMPARE is invoked, it repeats the sequence used in download. This of course works for the original file and the copy downloaded. It also works with the uploaded copy, because when EDIT encounters a file with no

line (sequence) numbers, it assumes NONUM. Thus only the sequence numbers that are now part of the file are sent. Both the local and the host files have the same line numbers as part of the file, so they look fine.

If you have a headache by now, you can be sure that I did too. Relief is on the way. Let me outline the fix without going through the actual code changes. I will provide the code if it would help to get the fix to our customers quickly.

Briefly, I changed the download support to leave VERIFY off. Instead of just issuing "DOWN", I follow it with "L * SNUM". This lists the current line without displaying the line (sequence) numbers. This does make detection of the end of data a little more difficult, but not significantly. Also, I changed the upload support so that NONUM is not specified. With these changes, both files have sequence numbers and identical source. Be aware that the sequence numbers may be different, but since they are not sent over the line, the compare will agree, as it should.

Before I close, I have one other change which is not a fix but a suggestion. Currently, the upload facility only supports host files with type ".TEXT". This ensures that COMPARE will work when files on the PC are in mixed case, because "TEXT" files default to "ASIS". I suggest that some additional types (e.g., PLI, FORTG, etc.) be supported with a message to the console that COMPARE will not work due to conversion to "CAPS".

I hope these comments will be constructive and prevent any future purchasers of the Asynchronous Communications Support program the frustration I experienced with the product.

Glen R. Shelton, VM(RALVMA/RF68GRSE), Raleigh NC, TL 442-3269


## 8205-07  QUERY FOR COPY UTILITY PROGRAM

I need a copy utility similar in function to the VM COPY command (COPY fn ft fm fn ft fm (specs)). Minimum function should include column relocation, addition, and deletion. Any information would be appreciated.

Hal Austin, STFTEXT/FS109HAO, East Fishkill NY, TL 532-1759


## 8205-08  SEARCH A BASIC PROGRAM FILE FOR A USER-SPECIFIED STRING

I plead nolo contendere on my very first submission. After having my PC for three weeks and using the DOS capability of having the screen data echoed to the printer, I erroneously assumed that you could do the same from BASIC. Since I now know that this is not possible, I have modified the program to allow the user to get the information from the summary report by including the line numbers of the BASIC program in which the matches occurred.

The following BASIC program will search a BASIC program file for the occurrence of a user-specified string. If the string is found, the line(s) will be displayed on the screen, and all occurrences of the string in those lines will be highlighted as blinking characters. The ENTER key must be pressed after each line is displayed.

The only requirement is that the file to be searched should be in ASCII format. The program will check for the existence of the specified file and check to make sure that it is in ASCII format. The program assumes the file to be in ASCII format if the first character in the first record is numeric (a BASIC line number).

After the file has been completely searched, a summary of the total number of records scanned and the total number of occurrences of the string will be displayed. If the string was found, a list of BASIC line numbers in which the string was found will be printed.

Following is a sample of the summary report:

NAME.BAS

A total of 28 records were searched.

There were 8 occurrences of the string "String".

The occurrences were found in the following lines:
10    110    130    1005    1015    1030

The summary screen is designed to allow you to use the PrtSc key for a hardcopy of the results of the file scan.

If you have a long file to search and you care not to press ENTER after each match is found, delete the following statements from line 160:

```
LOCATE 8,1:
LINE INPUT AN$:
```

Line 120 of the program may not print out correctly on your printer. The first statement in this line is DLIN=NB% (integer divide) 80 + 3. The character for integer division is the backward slash.

(Editor: The following program was apparently edited for readability. Any line that does not have a line number should be appended to the most previous line that does have one. For example, line 10 below should read **10 CLEAR : KEY OFF : CLS** )

```
  1 'ASCII File - String Search Utility
  2 'John Patterson
  5 '*** Get the file info for the file to be searched
 10 CLEAR:
    KEY OFF:
    CLS
 20 PRINT"Enter Drive Specification (A or B): ";:
    LINE INPUT DRIVE$:
    IF LEN(DRIVE$)=0 THEN 30 ELSE IF LEN(DRIVE$)>1 OR
    INSTR("AaBb",DRIVE$)=0 THEN 20 ELSE DRIVE$=CHR(ASC(DRIVE$) AND 223):
    DRIVE$=DRIVE$+":"
 30 PRINT:
    PRINT"Enter Basic File-id To Be Searched (ENTER to End)"
 40 ON ERROR GOTO 80:
    FI$="":
    LINE INPUT FI$:
    IF FI$="" THEN ON ERROR GOTO 0:
    END
 50 FOR I=1 TO LEN(FI$):
    AV=ASC(MID$(FI$,I,1)):
    IF AV<97 OR AV>122 THEN 60
    ELSE MID$(FI$,I,1)=CHR$(AV AND 223)
 60 NEXT
 70 OPEN "I",1,DRIVE$+FI$:
    GOTO 90
 80 PRINT"File Not Found":
    PRINT:
    RESUME 20
 90 ON ERROR GOTO 0:
    GOSUB 250
 95 '*** Get string to be searched for...
100 PRINT:
    PRINT"Enter String to be Searched For:":
    LINE INPUT SEARCH$:
    IF SEARCH$="" THEN 100 ELSE CLS:
    KNT=0:
    LKNT=0:
    LN$="":
    MXCNT=0
105 '*** Start the search......
110 IF EOF(1) THEN 170 ELSE LINE INPUT #1,PT$:
    LKNT=LKNT+1:
    NB%=INSTR(PT$,SEARCH$):
    IF NB%=0 THEN 110
    ELSE PRINT TAB(32)"Record Number";LKNT:
    PRINT:
    PRINT PT$:
    KNT=KNT+1
    LN$(MXCNT)=LN$(MXCNT)+LEFT$(PT$,INSTR(PT$," ")):
    IF LEN(LN$(MXCNT))>250 THEN MXCNT=MXCNT+1
120 DLIN=NB%\80 + 3:
    COL=NB% MOD 80:
    IF COL=0 THEN COL=80:
    DLIN=DLIN-1 '(DLIN is the result of
       integer division of NB% by 80)
```

```
130 IF COL+LEN(SEARCH$)>80 THEN 150
140 LOCATE DLIN,COL:
    COLOR 23:
    PRINT SEARCH$;:
    GOTO 160
150 LOCATE DLIN,COL:
    COLOR 23:
    PRINT LEFT$(SEARCH$,81-COL);:
    LOCATE DLIN+1,1:
    PRINT MID$(SEARCH$,82-COL);
160 COLOR 7:
    NB%=INSTR(NB%+1,PT$,SEARCH$):
    IF NB%=0 THEN LOCATE 8,1:
    LINE INPUT AN$:
    CLS:
    GOTO 110 ELSE KNT=KNT+1:
    GOTO 120
165 '*** Search complete, print out statistics.....
170 CN$=STR$(KNT):
    IF KNT=0 THEN CN$=" no"
180 CLOSE:
    IF KNT=1 THEN OC$=" occurrence ":
    VB$="was":
    LI$=" line:" ELSE OC$=" occurrences ":
    VB$="were":
    LI$=" lines:"
190 PRINT TAB((80-(LEN(DR$)+LEN(FI$)))/2) DR$;FI$:
    PRINT:
    PRINT"A total of";LKNT;"records were searched."
200 PRINT:
    PRINT"There ";VB$;CN$;OC$;
    "of the string ";CHR$(34);
    SEARCH$;CHR$(34);"."
210 IF KNT<>0 THEN PRINT:
    PRINT"The";OC$;VB$;
    " found in the following";LI$:
    MCNT=0 ELSE GOTO 240
220 GOSUB 290:
    IF LEN(LN$(MCNT))<=6 AND MCNT=MXCNT THEN
    GOTO 240 ELSE
    IF LEN(LN$(MCNT))<=6 THEN MCNT=MCNT+1:
    IF POS(0)>=74 THEN PRINT:
    GOTO 220 ELSE GOTO 220
230 LN$(MCNT)=MID$(LN$(MCNT),INSTR(LN$(MCNT)," ")+1):
    IF POS(0)>=74 THEN PRINT:
    GOTO 220 ELSE GOTO 220
240 PRINT:
    PRINT:
    END
245 '*** Subroutine: is file is in ASCII format?
250 LINE INPUT#1,PT$:
    CLOSE:
    TGT$=LEFT$(PT$,1):
    IF INSTR("0123456789",TGT$)<>0 THEN
    OPEN "I",1,DRIVE$+FI$:
    RETURN
260 CLS:
    PRINT"File ";CHR$(34);FI$;CHR$(34);
    " was not saved in ASCII format."
```

```
270  PRINT"End your SAVE statement with the ";
     CHR$(34);",A";CHR$(34);
     " option, i.e.,"
280  PRINT:
     PRINT TAB((55-(15+LEN(FI$)))/2)"SAVE ";
     CHR$(34);DRIVE$;FI$;
     CHR$(34);",A":
     PRINT:
     END
290  PRINT USING"#######";
     VAL(LEFT$(LN$(MCNT),INSTR(LN$(MCNT)," ")));:
     RETURN
```

John  Patterson,  VM(PLKSE/K53SJMPC)  or  VM(PLKSB/PATERSON),  60V/315,
    Kingston NY


## 8205-09  USER-PROGRAMMABLE TERMINAL FUNCTION

A 3270-emulation program which supports a variety of system con-
nections is being offered for field test use by interested IBMers.
Developed at the T.J. Watson Research Lab, this emulator performs 3277
emulation functions appropriate to the system connection and also of-
fers users the ability to manipulate screen data with a BASIC program
which can be called either from the keyboard or from the datastream.
Dubbed a "CoResident" program, the BASIC program can perform calcu-
lations, plot graphs, prepare response data fields, get or put data to
disk, etc., without disturbing the terminal session with the host.

The authors are interested in evaluating the capabilities of this sys-
tem as a way of introducing new terminal function without massive host
programming  dependencies.   Interested  IBMers  are  sought  to  use  the
system during this evaluation period.  The only requirement is that
you treat the programs and associated documentation as IBM Confiden-
tial  and  provide  comments  on  your  accomplishments  and/or  problems
back to the authors to help them provide a thoroughly-tested system.

If you are interested in obtaining a copy of this program, send a re-
quest to Karl Konnerth.  For further information, contact Dave Keefe.

Dave Keefe, VM(YKTVMV/KEEFE), 532/40-121, Yorktown NY, TL 862-1462

Karl Konnerth, VM(YKTVMT/KON2), 532/17-123, Yorktown NY, TL 862-2326


## 8205-10  QUERY FOR FORTRAN-CALLABLE PLOT ROUTINES

I am interested in obtaining FORTRAN-callable routines which use the
high resolution graphics adapter on the PC to produce X-Y plots.  My
long term plan is to produce a FORTRAN-callable package which supplies
many of the high level functions provided by GRAPHPAK and which will
produce plots on a monitor or on an X-Y plotter.

Any subroutines (high level or hardware drivers) and descriptions of
work in progress will be appreciated.

Louis Lopez, VM(PALOALTO/LOPEZ), IBM Palo Alto Scientific Center,
TL 465-3112

## 8205-11   PROJECTING VIDEO IMAGES FROM THE IBM PC

I believe we all recognize the potential for the IBM PC to be used as a
presentation system. Wouldn't it be nice if we could carry our pres-
entations around on a 5-1/4 inch disk?

Also, the ability to project an image from the IBM PC to be used in the
classroom has potential.

To accomplish this, we need the ability to project the video image of
the color card. Several projection TV systems are on the market that
can accept the composite video signal and project an acceptable image
on a 50 to 70 inch screen. These systems have two drawbacks: 1) the
composite signal from the color card does not show the full capability
of the IBM PC, and 2) the screen size and limited viewing angle do not
support audience sizes of more than 8 or 10 successfully.

Therefore, what is needed is a projection system that will accept the
RED GREEN BLUE inputs from the direct drive connector from the color
card and project an image up to 96 inches wide. I have installed such
a system in our facility and have demonstrated its capability. To put
it mildly, it is impressive!

The projector is an Aquastar III-B, made by Electronic Systems Pro-
ducts, Titusville, Florida. The projector is designed as an indus-
trial model, and is intended to be permanently mounted in the room.
The installation may be designed around either front projection or
back projection. If front projection is desired, the projector is
normally mounted from the ceiling. Screen widths can be accommodated
up to 20 feet. Screen widths greater than about 6 feet require very
low levels of light in the viewing area. Up to about 8 feet  lighting
that is acceptable for the projection of 35mm slides is acceptable for
viewing the video images. The video projector uses a flat screen --
therefore the viewing angle is dependent upon the type of screen used.
A matte white screen is recommended to provide the widest viewing an-
gles.

This projector requires a SYNC signal in addition to the R G B inputs
from the color card. Since the IBM PC presents RED, GREEN, BLUE, HOR-
IZONTAL, VERTICAL, and INTENSITY to the connector, there is a problem
of providing SYNC to this projector (or to any other studio monitor
for that matter). I have designed around this by using the "composite"
output on the color card to supply the SYNC. A good engineer would
cringe at this approach, but it works. For you technical readers, the
SYNC pulse on the video envelope is the highest amplitude and is at
the leading edge of the signal. The SYNC circuits in the projector
(or monitor) recognizes this as a SYNC pulse and ignores the
remainder. The level of the SYNC signal can be adjusted in the Aquas-
tar III-B to provide a reliable SYNC. (Not all monitors can be
adjusted, if you want to use this approach on a studio monitor.)

This approach has proven to be quite adequate for my applications.

Until the television industry installs compatible inputs to match the IBM PC (or until IBM provides a standard SYNC signal on a color card) we will have to work around the incompatibilities.

The Aquastar III-B also has composite video inputs, so the projector can be used with any video tape, disk, or camera, etc. that provides a standard NTSC signal.

The price of the installation of this projector is approximately $10,000.

I have researched the projection video field fairly extensively prior to selecting the Aquastar III-B. Other companies are beginning to offer products aimed at the industrial market. However, when I purchased the Aquastar III-B, it represented the best compromise available.


Eddie E. Lowe, VM(BLDFE2/R958460), Raleigh, TL 361-2216


## 8205-12   PCLIB -- THE PC PROGRAM LIBRARY ON VM


If you are a PC user with access to a network-attached VM system, you will soon be able to use PCLIB -- the PC Program Library.

It works like this:

* You send a message to the PCLIB host saying: "PCLIB HELP PLEASE".

* The host sends back a file containing a catalog and an exec.

* When you invoke the exec, it presents you with a menu of three primary functions:

                    R ==> REQUEST items from the library
                    C ==> CONTRIBUTE to the library
                    I ==> INFORM the library

* If you select REQUEST, the exec prompts you to list the items you want, and then sends in the request.

* When the host receives your request, it sends back the files you asked for, along with a message file describing the items and telling how to download them to your PC.

If you are a codesmith, you may want to contribute programs. The PCLIB exec guides you in doing this. It takes the CMS files you specify and sends them to the host, along with a description to go in the catalog. The host checks them and catalogs them automatically. (Afterwards, you can update or delete the programs at any time.)

The last item on the menu is for sending in feedback. You can send in a comment or problem report on any program - and it is forwarded to the program author. Or you can send in a "Nielsen rating". The host averages all the ratings it receives for each program and puts them in the library catalog.

In principle, the PC Program Library will be accessible to anyone on the Network. If we find we can open it to all locations without over-burdening our system or network connections, we will do so. However, we hope that other locations may eventually be interested in installing their own copies of the system. The architecture allows for this: if several copies of the library exist, contributions received by any one of them will automatically be distributed to all the others. There is also a mechanism for restricting access to specific locations or users.

I have found that contributing to the PC Newsletter carries an unexpected penalty: dozens of messages and phone calls! So PLEASE do not call to ask when PCLIB will be ready. When we have it working reliably, we will open it by degrees -- first for a few test sites, then for other locations. We will announce our plans in the next issue of the Newsletter.

Blair Martin, GDLS2/MARTIN, U05/032-2, Endicott NY, TL 252-8680

## 8205-13   QUERY: INDUSTRIAL ENGINEERING USE OF THE PERSONAL COMPUTER

I am interested in finding out if anyone is considering using the PC for Industrial Engineering. Specific applications for resource management, tool plan controls, statistical trend evaluations, and/or modeling would be helpful.

Any information and/or perhaps a joint development venture proposal would be considered.

Frank Mazur, VM(BTVVMOFS/KBLANCHA), 755/965-3, Burlington VT, TL 446-2659

## 8205-14   QUERY FOR VISICALC DATA FILES AND ADRS/II

I would like to know if anyone has successfully uploaded VisiCalc data files to CMS.

Also, I am entertaining the idea of putting ADRS/II on the PC. Before I do this I would like to know if anyone else is thinking along the same lines.

Paul D. Nigro, VM(DEMOWEST/INFO465), TL 278-9359

## 8205-15   SPEECH SYNTHESIZER

I have installed an ECHO GP Speech Synthesizer from Street Electronics for use with my personal PC. They provide RS-232 and parallel versions (I am using the RS-232 version). I preferred the Echo's voice over the Votrax (I listened to both at the San Francisco Computer

Faire).  It provides text-to-speech firmware.  I had to re-wire the cable (instructions were included, once I figured out which in-structions applied to the PC).  Contact: Street Electronics Corpo-ration, 3152 East LaPalma Avenue, Suite D, Anaheim CA 92806.

Jim  Panttaja,  VM(STLVM7/PANTTAJA),  M43/E33,  Santa  Teresa  CA, TL 543-3264

(Editor: Although this item is worded from the personal perspective, I feel that voice output could be useful within the business.  I would like to see more on this subject. )

## 8205-16   DOCUMENT: PC BY EXAMPLE

We have a pictorial (comic-book-like) guide to the rudiments of the PC (how to turn it on, what some of the keys usually do, simple state-ments and editing in BASIC, some DOS commands).  It has been well re-ceived both on and off site, and has been made into a Research Report (RA 133).   Copies are available from ITIRC, or wherever you get RA's from.   Comments are welcome and encouraged.

The manual is a departure from the usual methods of book-teaching, in that it tries to SHOW the user how the machine works, rather than TELLING.   We made extensive use of the PrtSc key in preparing the or-iginals.

PC By Example is aimed especially at those who have never seen a PC before, but are now beginning to use one.

PC By Example is by Dave Chess and Art Appel.

Dave Chess, VM(YKTVMV/CHESS), 473/32-012, Yorktown NY, TL 862-2245

## 8205-17   STATUS UPDATE: 3277 EMULATOR

This is a status update for the 3277 Emulator which was mentioned in the March PC Newsletter, 8203-15.  In that article, I mentioned that I would let you know via the newsletter of the availability of documen-tation and hardware ANR cards.

The cards are not yet available, and we are experiencing at least the normal number of snafus.  Please be patient.

Preliminary  --  emphasize PRELIMINARY -- documentation is available now, however.The documentation file is on the Yorktown IBMPC machine under the file name PC3277 SCRIPT.

There is currently a lot of change activity in the area of services that are provided by the Emulator to user-developed software execut-ing in the Emulator background, and the documentation is being updated frequently to reflect these changes.

I don't think that I made an important point in my previous article, so I will make it now:  the services that are provided by the Emulator

to software which executes concurrently in the background provide the basis for transforming the PC into an intelligent terminal, where the intelligent functions are defined and implemented by user-developed software.

There is a plethora of opportunity for creative ideas, so if I've piqued your imagination, be sure to read the document.

Technical and editorial critiques are welcome.

Earl J. Franklin, VM(AUSVM2/FRANKLIN), 81H/984, Austin TX, TL 8-678-8238


## 8205-18   VIDEOTEX SERVICES FOR THE IBM PERSONAL COMPUTER

The Advanced Office System Technology laboratory in CPD Gaithersburg has developed a plug-in card and software for the IBM Personal Computer which makes the PC compatible with VIDEOTEX Services. This permits access to data such as Dow-Jones stock prices, airline guides, and some banking systems. This card generates RGB outputs for color television monitors such as AMDEK, HITACHI NEC and VIDEOTEK. Color displays of alphabetic and mosaic graphics are presented. The connector is the same pinout as the Color Graphics card for the PC.

Anyone having interest in providing VIDEOTEX compatibility for the PC and wishing to obtain cards for test and evaluation should send requirements/message of interest to:

Dr. Walter S. Rosenbaum, VM(YKTVMT/WALTER), 613/4-1A30, Gaithersburg MD, TL 372-2303


## 8205-19   QUERY: TWO OPEN COMMUNICATION FILES

I would like to know if anyone has tried to use two communication files at the same time, that is, OPEN COM1 and OPEN COM2 simultaneously.

It doesn't seem to receive an ASCII-coded message with both files open, but it works fine with just one file open.

If anyone has gotten this to work, please call:

John Dodge, 59J/023-1, Boulder CO, TL 263-7843


## 8205-20   QUERY FOR 'MENU' SOFTWARE FOR THE IBM PC

I am looking for any type of MENU software for PC. By 'MENU' software, I mean something that resembles the TSO panel driver, IXF, PROFS - an 'ease-of-use' interface between existing PC software and inexperienced users.

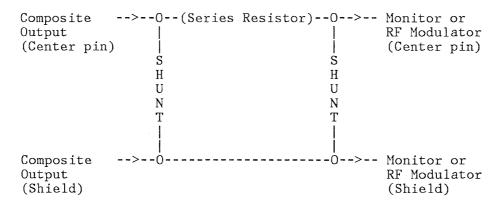Mike Parker, VM(TOROHONE/64924880), TL 942-6244, Toronto Banking + Trust


## 8205-21   COLOR/GRAPHICS ADAPTER SIGNAL ATTENUATION


A few articles in previous issues of this newsletter mention various problems with the fact that the Color/Graphics Adapter has a 1.5 volts p/p output on its composite output port (phono jack). After doing some research for a 75 ohm attenuator that would lower the output level to about 1.0 volts p/p, I decided that a 3 dB 75 ohm balanced attenuator was what I needed.

In chapter 11 (attenuators) of "Reference Data for Radio Engineers", by ITT, published by Howard Sams, I found values for "Symmetrical Pi Attenuators". I adapted the impedance to 75 ohms, and here is a list of values for the attenuators:

| LOSS dB | SHUNT resistor Ohms | SERIES resistor Ohms |
|---------|--------------------|--------------------|
| 3 | 439 | 26.4 |
| 4 | 332 | 35.8 |
| 5 | 268 | 45.6 |
| 6 | 226 | 56.0 |

The circuit is extremely simple and is as follows:

```
Composite     -->--O--(Series Resistor)--O-->-- Monitor or
Output             |                      |      RF Modulator
(Center pin)       |                      |      (Center pin)
                   S                      S
                   H                      H
                   U                      U
                   N                      N
                   T                      T
                   |                      |
                   |                      |
Composite     -->--O----------------------O-->-- Monitor or
Output                                           RF Modulator
(Shield)                                         (Shield)
```

This circuit presents about a 75 Ohm impedance and should be used with 75 Ohm coax (such as RG 59 or TV coax) to minimized reflections (ghosting) that can reduce the sharpness of the picture. You must determine what level of attenuation you need, and that will be dependent on the input level needed by the device that you are connecting. A good guess would be in the 3 dB area for about a 1.0 volt p/p signal.

Jerry M. Pine, Region 14 I.S. Services, Los Angeles, 228/84F,
TL 285-6055.

## 8205-22   QUERY FOR INFORMATION

The newsletter, always useful, has become invaluable to us. The new
format, including notes about the status of PC products, is even more
helpful since it deepens understanding of the product amongst those of
us who receive questions from potential customers.

Much of the communication in the letter exchanges useful information
across plants and labs but little on existing applications within the
marketing divisions.

Are there any projects underway in NAD to:

* complement support we presently have in VM ,VNET, PROFS

* improve access to IBM Internal applications from PC's as individ-
  ual workstations

* provide increased visibility to our customers of our commitment
  to the concept of the PC as an intelligent workstation

Steve Ryan, VM(BOSTON/STEPHENR), Boston, TL 249-9167

## IBM INTERNAL USE ONLY PROGRAMS

## 8205-23   B3101 TERMINAL SUPPORT PROGRAM, RELEASE 4

This is to announce the fourth release of the B3101 terminal support
program with the following revisions and enhancements:

* B3101 has been extended to be less picky about host protocols.

  — Number of stop bits may be specified at signon.

  — B3101 sets itself to the parity (even, odd, mark, space) of
    the host. Once parity is set, status line messages signal ar-
    rival of character(s) of incorrect parity.

  — B3101 now supports downloading from Yorktown VM.

* The backspace key is now a destructive backspace instead of a du-
  plicate of the left arrow keypad key. This is compatible with the
  PCEDIT Editor (see below) and the forthcoming 3277 emulator from
  Austin.

* On a formatted screen, the HOME key will position the cursor to
  the first unprotected field on the screen.  Compatible to Austin
  3277 emulator.

- Trailing blanks as well as trailing nulls in a field or line are not sent to the host on ENTER.

- A null (zero-length) line sent to the host is not stored in the line recall buffers.

- The host support for file up/download has been changed.

  - The CMDIN defaults for assumed tab settings have been changed to no tab settings. **This is a change to the user interface.** The previous default was to assume a tab position every 8 columns. NXTAB (no tab expansion on receive) is forced when there are no assumed tab settings. Tabs beyond the last assumed tab column are not expanded (they were previously expanded to one blank) and a warning message is issued.

  - The RDH EXEC has been revised. Its entry format is **changed.** The purpose of this change is to simplify coding of B3101 batch files and to eliminate use of EXSERV. This change does not affect TSO users.

- Other minor changes to improve usability are documented in the User's Guide.

Previous users of this package will NOT be automatically sent the new version. The latest version of this package is maintained on the Yorktown IBMPC disk. Non-STL VM users should obtain updates there. Other users should send requests by NETMAIL to the ID below. You can order the PC code sent over the network in either EXPORT or TBH format. EXPORT format can be downloaded with the Cambridge Terminal program and converted to binary by IMPORT version 3. TBH format can be downloaded directly to binary by the March or April 1982 versions of the B3101 program. If neither of these is available, send a blank diskette in a self-addressed mailer to the internal mailing address below. Upload/Download HOST support for either VM or TSO/VTAM will be sent over the network. New HOST support should be ordered to reflect documentation changes. Documentation can be sent over the network as SCRIPT/GML input. You can get a hard copy of documentation by sending a self-addressed large envelope to the internal address below.

Product Prerequisites - B3101 (May 1982)

- Minimum memory - 64KB.
- Minimum diskette drives - 1.
- Operating system - DOS.
- Displays:
  - IBM Monochrome Display - Supported.
  - Color/Graphics Adapter, 80 character text - Supported.
  - Color/Graphics Adapter, 40 character text - Not Supported.
  - Color/Graphics Adapter, color - No support in product.
  - Color/Graphics Adapter, APA graphics - No support in product.
- Printer - Supported.
- Asynchronous Communications Adapter - Supported.
- Game Control Adapter - No support in product.

Edgar W. Swank, MVS(STLMVS1/S788281), D71/H20, Santa Teresa CA, TL 543-3828, 408-463-3828

## 8205-24   PCEDIT FULL SCREEN EDITOR VERSION 2.0

Version 2.0 of the IBM Personal Computer Full Screen Editor Program is now available. It incorporates a number of fixes to problems found in Version 1.2 and new functions including:

1. The screen routines have been completely rewritten to improve performance in writing data to the display. Scrolling is now extremely fast, even when the entire screen must be re-written.

2. Features have been added to allow the user to recover characters and complete lines which have been accidentally deleted.

3. A data macro facility has been added which permits frequently used character strings and/or groups of lines to be defined as part of the editor profile. These "macros" can then be inserted into the text being edited with a single key stroke using the ALT key in conjunction with an alphabetic or numeric key. They may also be used to enter frequently used commands. Macros may be redefined during the edit session.

All users of record of Version 1.2 should have received information on Version 2.0 by now.

The program may be ordered from the author either via mail or via the network. It will also be placed on the Yorktown IBMPC disk. Distribution and use of the program and documentation is restricted to IBM INTERNAL BUSINESS USE ONLY.

To order the program by mail, please send a 5-1/4" diskette in a reusable protective mailer to:

INTERNAL MAIL:                      EXTERNAL MAIL:

Walter J. Paul                      Walter J. Paul, D72/H20
D72/H20                             IBM Santa Teresa Laboratory
IBM Santa Teresa Laboratory         555 Bailey Ave.
San Jose, CA.                       P.O. Box 50020
                                    San Jose, CA. 95150

Please indicate the number of copies of the document required. To order the program via the network, please send your request to node STLMVS1, userid P472627. Please include the following information:

- The host format of the program desired: B3101 or EXPORT/IMPORT Version 3.

- The number of copies of the documentation to be mailed. Please include your mailing address.

- If you require a large number of copies, I can send you the SCRIPT/VS output formatted for printing on the 3800 printer. This must be printed using 9-1/2x11" forms, 8 lines/inch, and 3800 fonts GT12,GB10.

The PCEDIT program will also be placed on the Yorktown IBMPC disk as three files:

1.  PCEDIT.B3101 is the program module in B3101 format.

2.  PCEDIT.EXPORT is the program module in EXPORT Version 3 format.

3.  PCEDIT.PRINT is the SCRIPT/VS output for the User's Guide.

I am not able to distribute the source for either the program or document.

Walt Paul, MVS(STLMVS1/P472627), IBM Santa Teresa Lab, TL 543-3827

## 8205-25   PASCAL-CALLABLE GRAPHICS ROUTINES FOR THE PC

I have written a set of Pascal-callable routines to use the medium resolution graphics mode of the PC. These will (currently) do the following:

- MOVE(x,y) - move the current position to (x,y)
- DRAWLINE(x,y) - draws a line from the current position to (x,y)
- AREA - fill an area according to a pattern
- SETCOLOR - select the current foreground color
- SCREEN(background,palette) - clears screen and sets background color and palette.
- TEXT(string,n) - text of n characters starting at the current position (to pel precision).
- PATTERN - to select current pattern for area fill.
- CHARDIR - to select direction to write text.

More function, e.g. circles and arcs, will be implemented soon. The functions may not be 100% bug-free, but at the time of writing (5/10/82) the only known bug was in the area filling when interior polygons were involved.

Also the area filling relies (at the moment) on the calling program ensuring that the area to be filled fits on the screen.

Anyone wishing to use these routines (usual disclaimers applying) can obtain an export version and write-up from me.

James West, VM(WINH6/HDS81), Mail Point 155, Hursley

## SITE COORDINATORS AND TECHNICAL LIAISONS

Listed below are the Site Coordinators and Technical Liaisons that Entry Systems interfaces with:

People whose names appear (or inadvertently do not appear) on this list are requested to make necessary corrections and respond to the newsletter editor at VM(BCRVM1/PCNEWS) or 2L9/227-2, IBM, P.O. Box 1328, Boca Raton FL 33432.

| Location | Site Coordinator | Technical Liaison |
|----------|------------------|-------------------|
| Armonk | Martin Penn<br>870/2B-36<br>Armonk<br>251-7310 | Jean Seeler<br>10/697 rm 225<br>White Plains<br>236-3522<br>BARVM(CJZ06)<br><br>Ken Harris<br>10/697 rm 224<br>White Plains<br>236-6930 |
| Atlanta | Walt Danchak<br>660/A10R1<br>331-3146<br>DBSVM1(XJOHN) | Roy Martin<br>85V/A11E1<br>331-3386 |
| Austin | Delmas Smith<br>201/041<br>678-7027<br>AUSVM1(A884197) | Delmas Smith<br>201/041<br>678-7027<br>AUSVM1(A884197) |
| Bethesda(NAD) | T. P. Ward<br>Dept. 596746, Loc. M30<br>10401 Fernwood Rd.<br>Bethesda MD<br>727-3933 | |
| Boca Raton | Sy Schulman<br>76A/002-2<br>443-3801 | Dick Wright<br>75A/002-2<br>443-4049<br>BCRVM1(VM298664)<br><br>Beverly Pizzuto<br>75A/002-2<br>443-1081<br>BCRVM1(VM065213) |
| Boulder | George Haily<br>827/001-3<br>263-7981<br>BLDVM1(HAILEY) | Ken Lowroy<br>839/001-3<br>263-6742<br>BLDVM1(LOWROY) |
| Burlington | Jim Schumacher<br>714/965-2<br>446-3244<br>BTVMAE(B281593) | Jim Schumacher<br>714/965-2<br>446-3244<br>BTVMAE(B281593)<br><br>Doug Olufsen<br>523/970-1<br>446-3533 |

| Location | Site Coordinator | Technical Liaison |
|---|---|---|
| Cambridge Scientific Center | Tom Wolfe DPH7B2 White Plains 254-2095 | Arnie Miller Sys Tech Square CambridgeMA 02139 249-9244 CAMBRIDG(AMILLER) |
| | | Frank Becquaert Sys Tech Square Cambridge MA 02139 249-9279 CAMBRIDG(FRANKBEQ) |
| Charlotte | Ed Tucker 05P/201-2 474-4379 | Mike Krissel 05H/201-1 474-4980 CLTVM1(KRISSEL) |
| | | Ed Tucker 05P/201-1 474-4379 |
| Dallas TX Irving (NAD) | Bob Rago | |
| Danbury CT | IBM Instruments Chuck Perrett 95/748 Orchard Park Danbury CT 06810 455-2499 | |
| East Fishkill | Norris Hamner 50P/333-71A 532-6463 | Veronica Blair 50P/333-71A 532-8050 FSHNET1(RBM50P) |
| Endicott | Jack Wainwright 522/14-1 252-7364 ENDCMPVM(WAINWRIG) | Mike Sabo 321/46-2 252-7613 ENDCMPVM(SABO) |
| | | Brian Biery K01/5A40 252-4896 GLDSD2(BRIAN) |
| Franklin Lakes | Ron Messic 1YN/024 731-3872 | |
| Kingston | Ginny Byron 52C/055 373-4497 | Bill Williams 52C/055 373-6768 PLKSE(K52CVRBC) |
| | | Bob Barringer 52C/024-2 373-6768 PLKSK(K52CVRBC) |

| Location | Site Coordinator | Technical Liaison |
|---|---|---|
| Lexington | Bob Block<br>968/200-4<br>445-3339 | Dave Roberts<br>933/200-4<br>445-4357<br><br>Wes Smith<br>942/200-3<br>445-6085<br>LEXMVS1(ISS2114) |
| Owego | Robert Taylor<br>101A/L06<br>662-2036 | Tim Owen<br>101A/L06<br>662-4980<br>OWGVM1(OL06TCO) |
| Poughkeepsie | George Boyer<br>867/914<br>554-4931<br>TDCSYS3(H67-GXB) | Frank DeVito<br>790/001-1<br>253-5314<br><br>Ed Madlon<br>944/001-1<br>253-2259<br>PKMFGVM(EAM944) |
| Raleigh | Jack Overacre<br>381/639-4<br>442-4950 | George Campbell<br>388/639-3<br>442-4948<br>RALVM8(R384GHCE)<br><br>Don Clayton<br>384/639-4<br>442-4975<br>RALVM8(R384DBCE) |
| Raleigh (FED) | Ed Lowe<br>Dept. 815/645<br>5505 Six Forks Road<br>Raleigh NC 27609<br>361-2216<br>BLDFE2(R958460) | |
| Rochester | Glenn Meyers<br>769/005-2<br>456-6784 | Gene Bergstrom<br>765/002-2<br>456-0508<br>RCHIS1(D765ERB)<br><br>Mark Rendahl<br>765/020-2<br>456-0540 |

| Location | Site Coordinator | Technical Liaison |
|---|---|---|
| San Jose | Joe Paddock<br>P41/098<br>294-6384 | Stan Rosenfeld<br>V30/G25 STL<br>543-3690<br>STLVM11(ROSENFEL) |
| Tucson | Jack Woodson<br>83A/060<br>562-7594<br>TUCVM1(WOODSON) | Jack Woodson<br>83A/060<br>562-7594<br>TUCVM1(WOODSON)<br><br>Diane Williford<br>83D/040<br>562-6271<br>TUCVM2(TPDATE) |
| Sterling Forest | Al Marcus<br>V22/STV1<br>STETEXT(STV22FUAMO) | |
| Yorktown | Marty Loughlin<br>40/07-009<br>862-2128 | Dave Chess<br><br>862-2245<br>YKTVMV(CHESS) |
| Westchester | Frank Ardvino<br>21/650<br>RECD<br>482-3830<br>TARVM(CTM00) | Charlie Grainey<br>N204<br>Tarrytown 2<br>482-3770 |
| White Plains | Pete Lambertson<br>Dept. 77G/2A118<br>360 Hamilton Ave.<br>236-1263 | |

In addition, several IBM Personal Computers have been distributed to IBM international locations for their internal use.  Contact:

| | | |
|---|---|---|
| Boeblingen | J. Gruetz<br>D3123/16-201<br>Boeblingen, Germany | |
| Essonnes | L. Vogel<br>Dept. 1043/2<br>Essonnes, France<br>ESONLAB(VOGEL) | |
| Fujisawa | K. Ohata<br>671C<br>Fujisawa, Japan | |
| Hursley | Alistair Watson<br>Mail Point 126<br>Hursley, England<br>WINH6(HLMASW) | |
| La Gaude | J. D. Colas<br>0775/?<br>La Gaude, France | |

This section provides information about the IBM Personal
Computer hardware and software products marketed by IBM.

## PRODUCT ANNOUNCEMENTS, MAY 17, 1982

The following additional IBM Personal Computer products are now
available:

## 5-1/4 INCH 320KB DISKETTE DRIVE (1503810)

The 5-1/4 inch 320KB Diskette Drive allows the IBM Personal Computer to
read and write data on both sides of a 5-1/4 inch double-sided diskette,
for a total storage capacity of approximately 320KB of data.

### Highlights

*   Can accept either 160KB or 320KB diskettes
*   Up to two drives per System Unit: 160KB, 320KB, or mixed
*   In-use light

### Packaging

A 5-1/4 inch 320KB Diskette Drive is packaged with the necessary
installation and operational instructions.

### Prerequisites

This option requires the IBM 5-1/4 inch Diskette Drive Adapter.
Up to two drives can be
installed with one adapter.  Both 160KB and 320KB drives are supported
by the adapter.  An operating system is required.

320KB drive support is provided by the IBM Personal Computer DOS
(Version 1.1), CP/M-86, and the UCSD p-System, Version IV.O.

## SYSTEM UNIT (5150064)

This System Unit comes with one 320KB diskette drive and 64KB of user
storage.  It may be ordered in place of System Unit 5150014, which

comes with one 160KB diskette drive and 64KB of user storage.

The 320KB diskette drive will accept either 320KB or 160KB
diskettes.  The 160KB diskette drive will ONLY support
160KB diskettes.

Although the IBM Personal Computer DOS supports a mixed configuration,
some software packages using DOS (e.g., the accounting systems by BPI
Systems and Peachtree Software) do not support a mixed configuration.
Therefore,
when ordering a second drive, it is a good idea to match the drive size
(160KB or 320KB) with the drive size you have selected with your System
Unit, although a mixed configuration is supported.

## IBM PERSONAL COMPUTER DISK OPERATING SYSTEM (DOS) VERSION 1.1 (6024001)

The IBM Personal Computer Disk Operating System (DOS) Version 1.1
replaces DOS Version 1.0.  Version 1.1 supports 320KB diskette drives,
and provides several enhancements to DOS version 1.0, Disk BASIC
Version D1.0, and Advanced BASIC Version A1.0.  Diskette Performance has
been improved.  Application program compatibility has been
maintained.

## IBM PERSONAL COMPUTER BASIC COMPILER (6024027)

The BASIC Compiler allows programs written in IBM Personal Computer
BASIC to be converted to object code for improved run-time performance.
Most functions supported by the Disk and Advanced versions of the BASIC
Interpreter are also supported by the BASIC compiler.

Application programs using BASIC-compiled code may require licensed
run-time libraries.  Information concerning distribution must be
obtained from IBM.

## Highlights

* Programs may be written and tested using the BASIC Interpreter and
  the BASIC program editor.
* Performance gains over Interpreter timings are
  possible (results vary by program).
* Object modules may be linked with subroutines written with the IBM
  Personal Computer Macro Assembler.
* Compiler supports some double-precision arithmetic not supported by
  the BASIC Interpreter.
* Compiler directives are available to control output formats and
  run-time options.

The BASIC Compiler is resident on two diskettes.  It is packaged with
the IBM Personal Computer BASIC Compiler reference manual.

## Prerequisites

The BASIC Compiler requires a minimum 64KB system and one 160KB diskette
drive to compile a program, although the program itself may be
executable on a smaller system.  (Two drives are recommended for easier
operation.)  The IBM Personal Computer DOS Diskette is needed to provide
the necessary I/O routines and the text editor (EDLIN).  While both the
IBM Monochrome Display and the Color/Graphics Monitor Adapter (40 or 80
column formats) are supported, 80 columns are recommended for displaying
Compiler messages and listings.  A printer is also recommended.

## ACCOUNTS RECEIVABLE BY BPI SYSTEMS, INC. (6024027)

Accounts Receivable by BPI Systems, Inc. is designed for small
businesses and professional offices.  It may be used as a stand-alone
product or in combination with the General Accounting application by BPI
Systems, Inc.

The manual provides a tutorial for the new user, and a sample "company"
diskette is included for practice.  The user then builds his customer
accounts on his data diskettes, which can be extended to multiple
diskettes for larger businesses.  Daily operation involves only
entries in the invoice register and the journals.  Posting of ledgers,
financial statement preparation, and the closing of books are selected
as needed.

## Highlights

- "Skeleton" General Ledger for double entry control
- Automatic posting
- Balance forward or open item
- Detailed ledger with optional invoice description
- Aged trial balance
- Customer statements
- Mailing labels
- Past due notices
- Account analysis
- Alphabetical and categorical account listings
- Account monthly activity summary
- Calculated finance charges

Packaging

Accounts Receivable by BPI Systems, Inc. is distributed with:

- Accounts Receivable by BPI Systems, Inc. user reference manual
- Reference card
- Three program diskettes
- One sample data diskette

## Prerequisites

Accounts Receivable by BPI Systems, Inc. operates on the following configuration:

- IBM Personal Computer with at least 64KB of memory
- Two 160KB diskette drives
- IBM Personal Computer DOS diskette
- IBM 80 CPS Matrix Printer
- One of the following display options:
  - IBM Monochrome Display and IBM Monochrome Display and Printer Adapter
  - A Color/Graphics Monitor Adapter and a Printer Adapter with either a color or black-and-white monitor or a TV used with an RF modulator.

A display capable of clearly displaying 80 characters per line is recommended.

## INVENTORY CONTROL BY BPI SYSTEMS, INC. (6024030)

Inventory Control by BPI Systems, Inc. is designed for small businesses and professional offices. It may be used as a stand-alone product or in combination with the General Accounting and Accounts Receivable applications by BPI Systems, Inc.

The manual provides a tutorial for the new user, and a sample "company" diskette is included for practice. The next step is setting up the actual inventory accounts, providing the minimum quantities and prices. Usage of the system is simplified with menu-drive choices for the various displayed and printed reports available.

## Highlights

- Supports FIFO, LIFO, and Average Inventory Methods
- Highly automated
- Prints purchase orders
- Tracks received merchandise
- Prints price labels
- Creates invoices
- Inventory listings

Packaging

Inventory Control by BPI is distributed with:

- Inventory Control by BPI Systems, Inc. user reference manual
- Reference card
- Four program diskettes
- One sample data diskette

## Prerequisites

Inventory Control by BPI Systems, Inc. operates on the following configuration:

- IBM Personal Computer with at least 64KB of memory
- Two 160KB diskette drives
- IBM Personal Computer DOS diskette
- IBM 80 CPS Matrix Printer
- One of the following display options:
  - IBM Monochrome Display and IBM Monochrome Display and Printer Adapter.
  - A Color/Graphics Monitor Adapter and a Printer Adapter with either a color or black-and-white monitor or a TV used with an RF modulator.

A display capable of clearly displaying 80 characters per line is recommended.

## SOFTWARE PREREQUISITES

### IBM Personal Computer Disk Operating System (DOS) Version 1.1

- Minimum memory - 32KB.
- Minimum diskette drives - one 160KB.
- Operating system - none.
- Displays:
  - IBM Monochrome Display - Supported.
  - Color/Graphics Adapter, 80 character text - Supported.
  - Color/Graphics Adapter, 40 character text - Supported.
  - Color/Graphics Adapter, color -- No support in product.
  - Color/Graphics Adapter, APA graphics -- No support in product.
- Printer - Supported.
- Asynchronous Communications Adapter - Supported. Note: with DOS 1.1, all application programs may use the Asynchronous Communications Adapter to support serial printers via redirected I/O.
- Game Control Adapter - No support in product.

### IBM Personal Computer BASIC Compiler

- Minimum memory - 64KB.
- Minimum diskette drives - one 160KB.

- Operating system - DOS.
- Displays:
  - IBM Monochrome Display - Preferred.
  - Color/Graphics Adapter, 80 character text - Preferred.
  - Color/Graphics Adapter, 40 character text - Supported.
  - Color/Graphics Adapter, color - Supported.
  - Color/Graphics Adapter, APA graphics - Supported.
- Printer - Preferred.
- Asynchronous Communications Adapter - Supported.
- Game Control Adapter - Supported.

## Accounts Receivable by BPI Systems, Inc.

- Minimum memory - 64KB.
- Minimum diskette drives - two 160KB.
- Operating system - DOS.
- Displays:
  - IBM Monochrome Display - Preferred.
  - Color/Graphics Adapter, 80 character text - Preferred.
  - Color/Graphics Adapter, 40 character text - Supported.
  - Color/Graphics Adapter, color - Supported.
  - Color/Graphics Adapter, APA Graphics - No support in product.
- Printer - Required.
- Asynchronous Communications Adapter - No support in product.
- Game Control Adapter - No support in product.

## Inventory Control by BPI Systems, Inc.

- Minimum Memory - 64KB.
- Minimum Diskette Drives - two 160KB.
- Operating System - DOS.
- Displays:
  - IBM Monochrome Display - Preferred.
  - Color/Graphics Adapter, 80 character text - Preferred.
  - Color/Graphics Adapter, 40 character text - Supported.
  - Color/Graphics Adapter, color - Supported.
  - Color/Graphics Adapter, APA graphics - No support in product.
- Printer - Required.
- Asynchronous Communications Adapter - No support in product.
- Game Control Adapter - No support in product.

## IBM BASIC TIPS

### Full-Screen BASIC Invocation

Did you
ever copy a diskette full of BASIC programs for someone who is not familiar
with BASIC commands?  By adding this MENU program to a diskette, and the
AUTOEXEC.BAT file containing BASICA MENU, each time the diskette is booted
a list of programs will appear.  Selection is by number.  Usability can be
further improved by having each program turn control back to MENU when done.

```
 10 DIM PROG$(64)        'BASIC Program Menu
 20 SCREEN 0:KEY OFF:KEY 1,"RUN"+CHR$(34)+"MENU"+CHR$(13)
                         'Return to Menu
 30 CLS:WIDTH 80:COLOR 0,0:FILES "*.bas"
                         'Display BASIC file names invisibly
 40 FOR DR%=1 TO 24      'Row on screen to be read
 50 FOR DC%=0 TO 65 STEP 13  'File names are in 6 columns
 60 IF CHR$(SCREEN(DR%,DC%+1))" " THEN 130
                         'Stop when no more file names
 70 AR%=AR%+1            'Go to next row in array
 80 FOR L%=1 TO 8        'Read first 8 characters of file name
 90 PROG$(AR%)=PROG$(AR%)+CHR$(SCREEN(DR%,DC%+L%))
                         'Add name to array
100 NEXT L%
110 NEXT DC%
120 NEXT DR%
130 WIDTH 40:LOCATE 1,4:COLOR 14,0
135 PRINT "BASIC programs on this diskette:"
140 FOR DC%=1 TO 27 STEP 13'Display file names in 3 columns
150 FOR DR%=3 TO 23   'from screen rows 3 - 23
160 I%=I%+1              'Go to next row in array
170 IF PROG$(I%)="" THEN 200 ELSE LOCATE DR%,DC%
175 COLOR 0,7:PRINT USING "##";I%;:
176 COLOR 7,0:PRINT " ";PROG$(I%);
                         'Stop when no more file names in array
180 NEXT DR%
190 NEXT DC%
200 LOCATE 25,1:INPUT "Enter number of program desired: ",P
210 LOCATE 25,1:
    PRINT "Press F1 to return to menu when finished";
220 RUN PROG$(P)        'Run the program selected.......
```

### BASIC's Arithmetic and Printed Results

There has recently been some concern and confusion about BASIC's
arithmetic and printed results.  Rest assured that the IBM Personal
Computer does calculate correctly, and we hope this short tutorial
explains the situation.

You're probably familiar with the fact that certain numbers cannot be
represented exactly in the decimal (base 10) number system.  For

example, one-third (1/3) cannot be represented exactly in decimal notation.  No matter how many threes you add on to the end of 0.333333......, it is never exactly equal to one-third.

Similarly, the binary (base 2) numbering system that most computers use also has numbers that it cannot represent exactly.  For example, 0.1 and 0.99
cannot be represented exactly in binary notation.  No matter how many ones and zeros you add on to the end of those binary numbers, they will never be exactly equal to their decimal notation.

Doing repetitive calculations with numbers whose representation is not exact can cause even very slight inaccuracies to be magnified.  For example, adding one-third to itself a few hundred times using decimal notation (0.33333) will show a result different from what you would expect.  Similarly, adding 0.1 to itself a few hundred times using binary notation will cause the end result to be slightly, but noticeably, different from what you would expect.

The more binary digits (bits) that the computer uses to represent a number, the closer it can come to the exact value.  This is the reason that IBM Personal Computer BASIC provides two different lengths for numbers -- single precision and double precision.  Single precision numbers use 32 bits, and double precision numbers use 64 bits.  This means that single precision numbers are accurate to about seven decimal digits, and double precision numbers are accurate to about seventeen decimal digits.

When you require a high degree of accuracy in your calculations, you should use double precision variables and constants.  Avoid using both single and double precision variables and constants in the same formula, because it slows processing and may reduce accuracy.

Numbers are kept in their binary form while they are being used in calculations.  When they are displayed or printed or, in some cases, stored on diskette, they are converted to a decimal form, which is much easier for us to read than binary.  In the process of that conversion, some rounding may occur.

When we designed the BASIC Interpreter for the IBM Personal Computer, we decided to round single precision numbers to seven digits, since most numbers calculated in single precision are accurate to at least this length.  A few numbers, however, are not accurate to the seventh digit.  When these results are converted from binary notation to decimal, and displayed or printed using the PRINT, WRITE, and LPRINT statements or the STR$ function, the results may not appear exactly as you would expect them to.  For example, printing the figure 0.99 with the PRINT statement will result in the answer 0.9899999.  In fact, that answer is closer to the actual single precision value in binary notation than 0.99 is.

There are times, even in single precision calculations, when it is important for you to know, with as much precision as possible, exactly what a particular value is.  The statements and functions built into the IBM Personal Computer give you that ability.

There are other times, though, when it is more important to have the result displayed in a less precise (relative to the internal binary representation) but more generally accepted decimal format.  In these cases, the PRINT USING and LPRINT USING statements should be used.  These statements allow the programmer to specify the format in which the result should be displayed or printed.

Consider the following:

```
10 A=800
20 PRINT A/100;
30 A=A+1
40 IF A<1000 GOTO 20
```

This program yields some unusual results. For example, when A=802, the
result of the division is 8.020001. As explained before, this seven
digit answer is the closest to the actual binary value. If you would
prefer to see 8.02 as the answer, you have essentially two options.
You can use double precision numbers by adding the following line to
the preceding example:

```
5 DEFDBL A-Z
```

Or you can use the PRINT USING statement by changing line 20 as follows:

```
20 PRINT USING "###.##";A
```

Combining the two methods produces the most precise and best formatted
answers.

This tutorial has been brief, but we hope that you now better understand
how numbers are represented and used on many computers including the IBM
Personal Computer. By using the appropriate numeric precision and
display formats, the desired results can easily be obtained.

# SOFTWARE SUBMISSION PLANS UPDATE

Recently, changes were announced to the software submissions plan for the
IBM Personal Computer.
The following provides more details on that announcement.

## GETTING YOUR IBM PERSONAL COMPUTER SOFTWARE PUBLISHED

If you are a regular IBM employee, there are now two ways you can
submit your software for publication.

## IBM EMPLOYEE SOFTWARE SUBMISSION PLAN

If you developed the software on your own time and equipment, the
software should be submitted using the IBM Employee Software
Submission Agreement.  You will automatically receive a submission
packet containing the agreement and guidelines if you ordered a
Personal Computer through the IBM Employee Purchase Plan or if you
have previously submitted software.  Submission packets will be mailed
beginning May 24.

To submit your software, complete the IBM Employee Software Submission
Agreement and send it in.  If your submission is accepted, you will be
offered an IBM Employee Software Contract.

There is no dollar ceiling set on your possible earnings.  Your
percentages, advances, and duration of payment are individually
determined for each submission on the basis of business potential and
technical factors.  Every copy of your documentation sold is eligible
for royalties, regardless of the number of copies of code sold.

## IBM INTERNAL SOFTWARE SUBMISSION PLAN

If you developed software as a part of your job
assignment, the software should
be submitted using the IBM Internal Software Submission Agreement.
Your manager must sign the Agreement affirming the software was
internally developed, is IBM-owned, and that it can be released for
marketing at a later date.
You man receive author recognition on the product.
There is no royalty provision for products developed as a part of
your job assignment.

## READY TO SUBMIT?

If you have software ready to submit, you can obtain a submission packet
by writing to the Software Submissions Department, P.O. Box 1328-S,

Boca Raton FL 33432.  Please indicate whether you need an IBM Employee
Software Submission Agreement or an IBM Internal Software
Submission Agreement.

Your submission packet will contain everything you need to submit your
software: blank agreement forms and the IBM Software Submission
Guide.  Consult the guide for suggestions regarding
language, code, reliability, testing, servicing, documentation, and
marketability.

# SOFTWARE SUBMISSION GUIDE TABLE OF CONTENTS

The Table of Contents of the new IBM Software Submission Guide is
printed below for your information.

Additional IBM Personal Computer products can now be purchased under the
Employee Purchase Plan (for details see "New Product Announcements, May
17, 1982" in the General Information Section.)

These new products will be available to employees who have a ship date
of **AUGUST 1982** or later.

Alterations to current orders will be accepted, provided they are
received in writing by the IBM Employee Sales Department, 8M1/227-1,
P.O. Box 1328, Boca Raton FL 33432.  All changes must be signed, and
must reference:

1.  Order number.
2.  Employee serial number.
3.  Scheduled ship date.

Be sure to include all item numbers.

Employee Order Change forms can be obtained by calling the Employee
Sales Response line, tie line 443-6075 or outside line 305-998-6075.

In accordance with the price reductions announced by IBM, the following
items can now be purchased through the Employee Purchase Plan at a
reduced price:

| Component | Old Employee Price | New Employee Price |
|---|---|---|
| 5150014 System Unit w/160KB Diskette Drive | $1,562 | $1,485 |
| 5152001 80 CPS Matrix Printer | 555 | 373 |
| 1503800 160KB Diskette Drive | 366 | 289 |

All **EXISTING** orders with ship dates of **MAY** or
later will automatically be changed to reflect the new prices.


## PRICE LIST


This is the composite price list for IBM employees.  The IBM employee
price applies to components purchased with a system unit.

|  | Item Number | Hardware Product Description | IBM Employee Price |
|---|---|---|---|
| \| | 5150014 | System Unit (64KB) w/Keyboard, 160KB Diskette Drive, & Diskette Drive Adapter | 1485 |
| * | 5150064 | System Unit (64KB) w/Keyboard, 320KB Diskette Drive, & Diskette Drive Adapter | 1613 |
|  | 5151001 | Monochrome Display | 227 |
| \| | 5152001 | Matrix Printer (80 cps) | 373 |
|  | 1501011 | 32KB Memory Expansion | 212 |
|  | 1501012 | 64KB Memory Expansion | 344 |
|  | 1501300 | Game Control Adapter | 39 |
|  | 1502074 | Asynchronous Communications Adapter | 96 |
| \| | 1503800 | 160KB Diskette Drive (second drive) | 289 |
| * | 1503810 | 320KB Diskette Drive (second drive) | 417 |
|  | 1504900 | Monochrome Display and Printer Adapter | 207 |
|  | 1504910 | Color/Graphics Monitor Adapter | 223 |
|  | 1505200 | Printer Adapter | 89 |
|  | 1525612 | Printer Cable | 37 |
|  | 1525614 | Printer Stand | 37 |

|  | Item Number | Software Product Description | IBM Employee Price |
|---|---|---|---|
| * | 6024001 | DOS 1.1 and BASIC Language Extension | 20 |
|  | 6024002 | IBM Macro Assembler | 50 |
| * | 6024003 | IBM BASIC Compiler | 175 |
|  | 6024004 | VisiCalc | 135 |
|  | 6024005 | EasyWriter | 91 |
|  | 6024006 | Microsoft Adventure | 18 |
|  | 6024007 | Accounts Payable, by Peachtree Software, Inc. | 300 |
|  | 6024008 | General Ledger, by Peachtree Software, Inc. | 300 |
|  | 6024009 | Accounts Receivable, by Peachtree Software, Inc. | 300 |
|  | 6024010 | IBM Pascal Compiler | 150 |
|  | 6024011 | IBM COBOL Compiler | 400 |
|  | 6024012 | IBM FORTRAN Compiler | 200 |
|  | 6024013 | Typing Tutor (diskette version) | 15 |
|  | 6024015 | Inventory Control, by Peachtree Software, Inc. | 300 |
|  | 6024016 | UCSD p-System with UCSD Pascal | 375 |
|  | 6024017 | UCSD p-System with FORTRAN-77 | 375 |
|  | 6024019 | Time Manager | 60 |
|  | 6024023 | FACT TRACK | 55 |
|  | 6024024 | Arithmetic Games Set 1 | 35 |
|  | 6024025 | Arithmetic Games Set 2 | 35 |
|  | 6024026 | General Accounting by BPI Systems, Inc. | 240 |
| * | 6024027 | Accounts Receivable by BPI Systems, Inc. | 240 |
| * | 6024030 | Inventory Control by BPI Systems, Inc. | 240 |
|  | 6024031 | DOW JONES Reporter | 60 |
|  | 6024032 | Asynchronous Communications Support | 25 |
|  | 6024033 | UCSD Pascal Compiler alone | 105 |
|  | 6024034 | UCSD FORTRAN-77 Compiler alone | 105 |
|  | 6024035 | CP/M-86 Operating System by Digital Research, Inc. | 140 |
|  | 6025005 | Technical Reference Manual | 21.50 |
|  | 6025072 | Hardware Maintenance & Service (Manual and Advanced Diagnostic Diskette) | 93 |

* New products announced May 17, 1982
\| Reduced prices