

Personal Computer News Letter  
For On-the-Job Computing

Document Number PCN8202

February 1, 1982

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## ABSTRACT

This document is an IBM Internal newsletter dealing with matters of interest to users of personal computers for IBM business reasons. It contains articles, written by the user community within IBM, that

- announce programs and techniques relating to personal computers
- query for existence of a program or process
- describe current Work In Progress (WIP)
- give early warning of problems
- express an individual's point of view (letter to the editor)

Articles may be submitted by anyone within IBM as long as they address one of the above areas and are not:

- confidential
- more than two pages in length
- anonymous

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This document is published on the first working day of each month. Please submit your input to the editor as early as possible for editing, but not later than five working days before the end of the prior month.

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## EDITORIAL

### DON'T BLINDLY RE-INVENT THE WHEEL

I find that many departments have started a hardware or software development effort to meet some need they have. Because the IBM PC is so new, the normal assumption is that no one has done it before. Some machines were delivered quite early, though, and this is not always true. Nearly every day I have had the opportunity to inform someone that they are working on a project similar to one at another location, or that their product is already available on the open market.

**YOU** may save **US(IBM)** a great deal of effort by sending me a short description of work you have in progress. This issue has many such contributions.

If you expose your effort early in its life, you will probably get some input from other people that will speed up your effort or improve your product. There is also a good chance that you will learn of another similar effort that is far ahead of yours, but has not yet been openly described. **YOU** could save **YOURSELF** a lot of work. If your project is confidential, I cannot put it in the newsletter and I will continue to help make one-on-one connections.

### FUTURE - NEAR IN

I am particularly interested in how the IBM PC will be used within the company. It appears as though every organization can profitably use it to enhance their productivity. What is keeping us from making this happen immediately is the lack of proper software and a couple of hardware adapters.

I firmly believe that the configuration we will mostly see the PC used in by mid '83 will be as an intelligent terminal attached to a large host. There will be a significant number of stand-alone machines, but the trend will be to host attach them. There are a variety of reasons for this:

**Data Storage Capacity:** The volume of data most people need to access far exceeds the capacity of the floppy disks and in many cases, the capacities of hard disks that are commonly attached to microcomputers.

The existing Mainframe systems within IBM already have stored on DASD the data that people need to access. If the PC could be given a way to access and retrieve a portion of the data, then there would be little need for large capacity DASD to be directly attached to the PC. When a PC user finishes making changes to extracted data, the data would be returned to the host for storage.

**Data Storage Backup:** Keeping backup copies of critical data is a business requirement. A standalone machine requires each user to backup data and maintain a library of diskettes. This is time consuming and not usually very reliable from a consistency standpoint; it is easy to put off the backup process for weeks.

Every DP Center currently has a backup process in place. It happens regularly without the user being aware of it. If a PC uses the existing mainframe systems for primary data storage, the backup process is already operational.

**Communications:** The trend within IBM has been to connect all of our large systems together via VNET or CCDN. Commands have been developed to allow the users to send messages and data to other users. The networks have proven to be very beneficial and many people could not perform their jobs without them. This newsletter is a prime example of a function that requires the network to be successful.

Current VM and MVS users will have to take a big "step down" to use a PC in a standalone mode. There is a real need for hardware and software to connect the PC to the mainframe systems. It should allow us to run in Connect-mode, Standalone-mode, and Shared-mode. By Shared-mode, I mean that the user could be doing a standalone type of operation while the PC is handling a long transmission with the mainframe.

**Software Distribution:** As the number of installed PC's grows, we will have a sizable task just keeping the machines up-to-date with the latest software. Standalone machines will need private copies of each package each time there is a change. If the system software is what has changed, every diskette will have to be checked to see if the change must be added to it.

With the PC connected to a host, software could be kept on the host and accessed or down-loaded when needed. When the software is updated, the host copy is changed. If a PC accesses it, it is up to date without any fuss. If the PC has down-loaded it, there would need to be a trigger mechanism to cause the program to be down-loaded again.

## HOW DO WE GET THERE

What I believe is needed is really a two stage process. First, we need the ability to connect the PC's to our current host machines so that they emulate existing terminals. In this environment we will need upload/download utilities to move data back and forth. For example, look carefully at the programs by Edgar Swank announced in this issue that emulate the IBM 3101.

The second stage would be to move to a Local Area Network(LAN) configuration which would add an inbetween level to the structure. A functional area of an organization that is working together would install a LAN and connect all their PC's to it. On the LAN would be service machines that have large DASD, fast printers, and other expensive or special devices. The LAN would be of high enough speed to remove the need for DASD to be attached to each PC. Each PC on the LAN would be able to share data easily with the others. A server machine on the LAN would handle data and network transmissions to a mainframe system or other LAN's. Each PC could still have hardware to allow direct connection to a mainframe for dumb terminal emulation, but it may not be needed.

There are many efforts currently under way within IBM to build major software and hardware for the PC. In particular I would like to hear about projects that will provide a multi-tasking operating system. It is my opinion that we need this facility early-on to use as a foundation for the rest of the work.

## FUTURE - NOT SO NEAR

I had the opportunity to hear a speech given by Dr. Lewis Branscomb, IBM Vice President and Chief Scientist, here at the Santa Teresa Laboratory last fall. During the speech, Dr. Branscomb referred often to the IBM Personal Computer. During the question and answer time, I asked "What will be the capacities of an intelligent professional workstation in the 1985 time frame?". He indicated that the CPU could be capable of one Million Instructions Per Second(MIPS), have memory on the order of 2 Megabytes, a shared hard disk, high resolution graphics, and be connected to a mainframe via a local area network. It is essentially the same as giving a 370/158 to a programmer or engineer to use by himself.

## IS YOUR CONTRIBUTION MISSING?

If you sent me a message between Wednesday, Jan 20, and Sunday, Jan 24 at noon, it was lost in a cold start here. In the future, I will acknowledge receipt of all newsletter contributions. If you don't get an ACK within 2 to 3 days, please resend your file.

It will help me if your input is in upper and lower case and without sequence numbers. Cutoff date for input to the March issue is February 22.

Keith Eckhardt

EXTERNAL PRESS

SATN - THE JOURNAL FOR VISICALC USERS

Software Arts, Inc., the creators of VisiCalc, produce a journal for VisiCalc users called Software Arts Technical Notes (SATN). It gives hints and techniques on using VisiCalc along with some simple applications. The Nov/Dec issue contained examples mostly oriented to the home, but it may be worth reading for the techniques shown.

Send subscriptions requests to: SATN subscriptions, P.O. Box 815, Quincy, MA 02169

LETTERS TO THE EDITOR

EDITOR,

I spent last weekend attempting to read the P.C. PASCAL manual. It appears to be excellent as a reference manual. However, this is my first exposure to PASCAL and I was overwhelmed by this manual. Although I'm not a programmer, I've had significant hardware and software exposure in IBM over the last twenty years.

My concern is that we did not provide a basic introduction or instruction course with P.C. PASCAL. I believe that our target market for this product will include a very high percentage of people less prepared than I am.

A simple reference to additional material is not sufficient. We must do our best to make the whole package as user friendly as possible. I think the P.C. is a fine product and want it to be even better.

Don Knieriemen, NADHQ SPECIAL PRODUCT MARKETING, Chicago, TL 261-2028

(EDITOR: I agree that a reference manual is not the place for a non-programmer to start. I suggest you find a PASCAL primer and use it to get you started. One I was impressed by is Apple Pascal: a hands-on approach, by Luehrmann and Peckham, published by Mc Graw Hill.)

EDITOR,

I have been asked to teach a PC familiarity course for internal users. The course might fill a day and a fraction. The "graduation ceremony" will be the uncabbling of the system, signing for it, and carting it off to the work location. There are five sessions planned to cover the internal PC community. The idea of the course is to get the users up to speed ASAP, since IBM is paying wages for the time the users would be thrashing around in the documentation and playing with the system. At home, that would not be a consideration, since wages are not involved.

Developing the course turned up no major problems. The PC is, of course, impressive. However, some minor deficiencies were noted.

1. The DIR command (DOS) lists a diskette VTOC (volume table of contents), but does not give the space remaining. This information is vital for efficient management of disk space.

(EDITOR: The CHKDSK command provides space remaining information.)

2. The DIR command, when you have more than a screenful of files on the disk, pages merrily on by before you can read the first ones. Since a diskette can keep up to 64 files AND the screen has only 24 lines, it would seem that the DIR command would present the VTOC list one screenful at a time - with a user response causing the next screenful, etc. Possibly, a (or any) function key or the space bar would be sufficient response.

(EDITOR: Use the Ctrl-NumLock sequence to hold the screen at any point. Press any key to continue.)



3. EDLIN - a real neanderthal! It looks like someone set out to produce a mediocre editor - and they met their objective! Too bad. The deficiencies might not be so glaring, except the BASIC full screen capability puts EDLIN to shame. Please tell me that EDLIN will be replaced with a POWERFUL full screen editor SOON!

(EDITOR: The EDLIN command is certainly much less of an editor than what most of us are accustomed to. I have been using it to prepare foils for a class and find it acceptable for data input. The lack of ability to move lines is the biggest problem. Item 8103-11 in the December issue of the newsletter announced the availability of ESPF/PC, a full screen editor. This issue announces another one called ED.)

Herb Lacey, VM(RALVM8/RG62HLLLE), RTP, TL 441-0791

#### EDITOR,

A short comment on item 8201-16 in the PC Newsletter - The address for Addison-Wesley is incorrect. It should read

Addison-Wesley Publishing Co.  
Jacob Way  
Reading, MA. 01867

The spelling of "Reading" as "Redding" is the error.

Bob Cronin, VM(PLKSK/K62CRLCC), Kingston, TL 373-2772

#### EDITOR,

Stan Rosenfeld's note in the last issue of the PC Newsletter mentions that I was working on a full duplex 3101 character mode emulation program for the PC, and investigating an IEEE-488 interface for the PC. Since I spoke with Stan, I found out that such a program had been developed and fully tested with the Series/1 Yale Extended ASCII Terminal Support IUP. Since working with that IUP was my original goal, I decided not to reinvent the wheel.

It may be of interest that you have to be careful when sending control sequences over the communications line. Take, for example, sending an escape followed by "A". As I recall, PRINT #1, CHR\$(27) + "A"; does not work. What I have found to work is PRINT #1, CHR\$(27); "A";. I have been told PRINT #1, CHR\$(27) : PRINT #1, "A"; will work just as well.

As for the IEEE-488 interface (also called the General Purpose Interface Bus, or GPIB), I have been investigating it a little. (I support GPIB on the Series/1 Event Driven Executive, and help out the community of IBM groups using EDX/GPIB systems in lab and production testing.) Someone in Yorktown has bought a TecMar GPIB interface. He tells me that it is based on the Intel chip set, but uses BASIC language support which is very slow. He is writing assembly language support for the interface.

A GPIB interface on the PC, such as TecMar sells, would allow you to do the following, with obvious permutations:

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- connect a Series/1 to one or more PC's.
- connect a group of PC's.
- connect a PC to a group of GPIB devices.

The number of lab and DP devices with GPIB adapters available is in the hundreds. Among them are voltmeters, plotters, printers (e. g., Epson MX-80), disks, and so on. I believe the Commodore PET uses GPIB as its standard bus.

By the way, I'm using a modified version of the foil making program, and it looks very useful. In my opinion, emphasized mode is somewhat more readable than doublestrike as used in the published version.

Craig Newmark, VM(BCRVM1/VM569674), Boca Raton, TL 443-7470.

## CONTRIBUTIONS

## 8202-01 MINOR CORRECTION TO FOILS PROGRAM

I confess that I keyed the FOILS program into VM rather quickly last month and caused a bug in line 170. Line 170 was too long for a single line in the newsletter, so I typed it as two lines and didn't give the second part a line number. Then I added a bunch of comments and ended up generating 2 bugs in what most people assumed was the proper code.

It turns out that an IF-THEN-ELSE statement must be totally coded on a single line, so you must enter 170 and the ELSE statement following it together as one line. Second, there is no way to put a comment in the middle of a statement, so throw away the comment.

A second confusing aspect is the CHR\$(92) in this statement. The 92 is the ASCII code for a backslash. I used this form because the backslash will not print on many of the output devices used to print this newsletter. My program on the PC uses a backslash (to the left of the Z key) within quotes instead. Listed below are the current contents of statement 170 in my version of the program, but with the backslash in coded form.

```
170 IF LEFT$(REC$,1) = CHR$(92) THEN GOSUB 1000 ELSE LPRINT
                                CHR$(14);LEFT$(REC$,40) : LPRINT
```

Keith Eckhardt, VM(STLVM3/ECKHARDT), Santa Teresa, TL 543-3121

## 8202-02 IBM PC TO SERIES/1 COMMUNICATION

This is an answer to article 8201-02. The series/1 communication monitor(CM/1) supports the IBM personal computer through the asynchronous ASCII message path program, using the 4978 programmable communications subsystem. This new support is included in CM/1 release 1.2 which will be available to users on 2/26/82. This support allows IBM PC to communicate with CM/1 or with another PC through CM/1. CM/1 commands can be entered from PC. The user may specify the following options: baud rate, parity, number of stop bits, answer tone, change of direction character, echoplex, and switched line support.

HO CHOI, VM(MENLO/C816513), Palo Alto, TL 465-6963

**8202-03 UNINITIALIZED BASIC VARIABLES NOT INTERPRETED PROPERLY**

It is important to initialize variables in the current level of BASIC, even though uninitialized variables are supposed to have a 0 or null value. Listed below is an example of a problem.

Failing example

```

110 THRU = 1
120 FOR A = 1 TO 2
130 NEXT A
135 PRINT WIN
140 IF WIN = 0 THEN THRU = 0
150 PRINT WIN THRU
170 END
RUN
0
0 1      NOTE: The second number should have been a zero
          also. See line 140 above.

```

Working example

```

110 THRU = 1
120 FOR A = 1 TO 2
130 NEXT A
135 PRINT A
140 IF WIN = 0 THEN THRU = 0
150 PRINT WIN THRU
170 END
RUN
3
0 0      NOTE CORRECT ANSWER THIS RUN FOR THRU

```

The response received back from Boca Raton is that the problem will be fixed in the next release.

JH Bickford, VM(OWGVM1/OD60JHB), Owego, TL 662-2179

**8202-04 MODIFYING RADIO SHACK JOYSTICKS FOR IBM PC GRAPHIC APPLICATIONS**

This article describes how to modify the Radio Shack TRS-80 Color Computer joysticks for use on the IBM Personal Computer. If you are not familiar with safe soldering practices, find someone to help you.

The Color Computer joysticks available from Radio Shack consist of 2 100K pots and a pushbutton. They are attached to the Radio Shack Color Computer with a 5 pin DIN plug. This must be removed and a DB-15 male connector must be used to enable these to plug into the Analog/Digital Input Adapter (Game Adapter) of the IBM Personal Computer.

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THE PIN CONFIGURATION FOR THE JOYSTICK IS AS FOLLOWS:

PIN	FUNCTION	COLOR(THIS MAY VARY FROM ONE JOYSTICK TO ANOTHER)
1	X CHANNEL	YELLOW
2	Y CHANNEL	GREEN
3	GROUND	BLACK
4	PUSHBUTTON	RED
5	+5 VOLTS	WHITE

For each joystick, these should be attached to the DB-15 male connector as follows:

PIN	FUNCTION	COLOR	JOYSTICK
1	+5 VOLTS	WHITE	A
2	BUTTON 4	RED	A
3	POSITION 0(X)	YELLOW	A
4	GROUND	BLACK	A
5	GROUND	---	-
6	POSITION 1(Y)	GREEN	A
7	BUTTON 5	---	-
8	+5 VOLTS	---	-
9	+5 VOLTS	WHITE	B
10	BUTTON 6	RED	B
11	POSITION 2(X)	YELLOW	B
12	GROUND	BLACK	B
13	POSITION 3(Y)	GREEN	B
14	BUTTON 7	---	-
15	+5 VOLTS	---	-

The joysticks must also be opened and modified. The joysticks have one side of the pots connected to ground. This must be disconnected. The best way to do this is as follows:

The ground wire is connected to four points inside the joystick-- one side of the switch, one side of each pot and the chassis (small metal tab). The pots must be totally disconnected from the ground. The switch should be connected to ground as well as the chassis.

The joysticks produce input values to the personal computer as follows:

```

(101,91)          (3,91)
*****
*                 *
*                 *
*                 *
*                 *
*****
(101,3)           (3,3)

```

These values will vary from one joystick to another. usually the minimum is between 3 and 5 and the maximum is between 90 and 100.

It is up to the programmer to program around these variations. this implementation was tested on December 29, 1981 and worked fine. the software to check it out included the diagnostics which comes with the system, a simple program to check the range of the joysticks and the "eyesore" program (somewhat modified) from the demo package.

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I hope this can be of some use to those who want to use joysticks. I am also trying to locate a compatible light pen. If anybody finds one, please let me know.

Please contact me if there are any questions.

Carol A. Ziemba, IBM BO 495, 673 Morris Ave, Springfield, NJ 07081,  
TL-222-1250, (201)467-2000x250

### 8202-05 WORK IN PROGRESS TO BUILD A DI/DO OPTION CARD FOR THE IBMPC

I am currently building a 32 pin DI/DO card for the PC. Eight of the lines are fixed as DI, eight fixed as DO, and 16 are selectable as either. The card is address jumperable to allow up to 3 cards to be addressed. DO lines are reset at power on and can be reset by software or a remote switch. The connector is a 37 pin D type with two spare pins. Each DO driver is plugable to use one of many types.

The card is not operational yet. Contact me only if you have a serious business need for this unit or you are also working on a similar unit.

Buck Keagy, 58B/107, Rochester, TL 456-5500

(EDITOR: In addition to what sounds like an excellent card, Buck, I just found that IBM Instrument Systems has a product called the IBM 7406 Device Coupler. It provides DI, DO, A/D, and D/A ability and can do logging on an IBM 7407 tape. The unit appears to be at least twice the size of the PC system unit. One of the normal configurations is to have it attached to a 5100 Portable Computer via an RS-232C serial port. The product description manual is available from Mechanicsburg: GA22-7108. I have no price information.)

### 8202-06 VERSION 0.2 OF THE ED FULL SCREEN EDITOR IS NOW AVAILABLE

Version 0.2 of the ED full screen editor (see PC Newsletter 8201-06) is now available. New features include:

- User settable key definitions
- String search
- Multiple simultaneously active files
- Simple substitution macros
- Performance enhancements

The user's guide for ED may be retrieved from the IBMPC machine at YKTVMV using the name 'ED SCRIPT'. There is also a file there called 'ED MAIL' which contains comments, criticisms, bug reports, etc. You are invited to add your comments using the APPEND function of the IBMPC exec. The procedure for accessing the IBMPC machine was described in PC Newsletter item 8102-05.

The object code for version 0.2 of ED resides on the Yorktown IBMPC machine. There are two procedures for obtaining ED over the network, one more complex than the other but requiring somewhat less data transfer.

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Either procedure requires that you first obtain and generate version 2.0 of the IMPORT/EXPORT programs from IBMPC. The procedure for generating IMPORT/EXPORT is documented in file 'EXPORT SCRIPT'. Since IMPORT and EXPORT are written in Pascal and distributed in source form, you will need a 128K PC with Pascal to generate them.

The less complicated procedure to generate ED consists of the following steps:

1. Retrieve, download, and generate the IMPORT program as described above.
2. Retrieve the following files from the IBMPC machine and download them to your PC, renaming them as shown in parentheses:

ED PRO (ed.pro),  
ED KEY (ed.key), and  
ED EXPORT (ed.exp).

It takes about 45 minutes to download ED EXPORT at 300 baud. Remember to set LINEDIT, MSG, WNG, and SMSG off before starting a file transfer (messages from the operator make lousy object code).

3. Run the command 'import ed.exp ed.exe' to recreate the executable ED module.

The more complicated, but shorter ED generation procedure is:

1. Retrieve, download, and generate the IMPORT program as described above.
2. Retrieve the following files from the IBMPC machine and download them to your PC, renaming them as shown in parentheses:

ED PRO (ed.pro),  
ED KEY (ed.key),  
EDGEN BAT (edgen.bat),  
EDLINK ARF (edlink.arf),  
EDMAIN EXPORT (edmain.exp),  
EDZAP EXPORT (edzap.exp),  
EDM1 EXPORT (edm1.exp),  
EDM2 EXPORT (edm2.exp),  
EDM3 EXPORT (edm3.exp),  
EDM4 EXPORT (edm4.exp), and  
EDM5 EXPORT (edm5.exp).

3. Run the file edgen.bat to decode the object files and then link them together to form ed.exe. This step requires the Pascal runtime library disk.

If your local computer and phone lines are sufficiently reliable, I recommend the first procedure. The second procedure has the advantage that the code transfer is broken into several pieces, each of which can be independently restarted if something goes wrong.

If you cannot build ED by either procedure described above, send me a formatted diskette and I will return ED, IMPORT, and EXPORT. I request that you make every effort to get ED without my intervention before calling or sending a diskette, however. Time spent distributing ED sub-

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tracts from the time I have available to improve it. If you are using ED, I would like to hear from you so that I may add you to my mailing list. My internal address is

Jim Wyllie  
K61/282  
IBM Research  
San Jose

My external address is

Jim Wyllie  
K61/282  
IBM Research  
5600 Cottle Road  
San Jose, Calif. 95193

Jim Wyllie, VM(SJRLVM1/WYLLIE), San Jose, 8+276-2844

8202-07 TRANSFERRING PROGRAMS TO THE IBM PC FROM OTHER MICROS

It is with great pleasure that I announce the successful marriage of a TRS-80 with an IBM Personal Computer. Although skeptics suggest such a union was doomed to failure, it turned out to be fruitful.

Basic programs in ASCII format can be successfully transmitted from a TRS-80 Model I to the IBM Personal Computer. Typically one must insert spaces after all key words, and edit out the PRINT@ statements, but they run, and faster even.

The RS-232C interface must be configured as so:

TRS-80		IBM PC
1	-----	1
2	-----	3
3	-----	2
5	-----	4
6	-----	20
7	-----	7
20	-----o---	6
		--- 5
		--- 8

Copies of the program will be copied to your disk. You need to have a TRS-80 with disk and RS-232 interface along side an IBM PC with 64K, disk, and RS-232 and the Async Comm Support.

(EDITOR: This technique should work with any number of different microcomputers that have communications software.)

We also have a program that will insert the necessary blanks after the key words, but it needs further testing. Theoretically, it should cut the editing down considerably. It operates on the TRS-80 and converts the program before it is transmitted.

More information will be available from:

Dave Schwaderer, SPPVM1(TA93G13), Tampa, TL 438-3018



**8202-08 CORRECTION TO VISICALC DOCUMENTATION**

A VISICALC Manual has a TYPO on Page B-8. The End-Of-Data Record Description should have EOD instead of BOT in the diagram. Yes, it does make a difference.

Dave Schwaderer, SPPVM1(TA93G13), Tampa, TL 438-3018

**8202-09 USING AN RF MODULATOR ON THE IBM PC**

If you are attempting to use one of the commercially available RF modulators with the PC and a color TV, you may experience a loss of the 8 (eight) intensified colors. There appear to be a number of modulators on the market that will tolerate only a one volt maximum input signal. The Color Graphics Adapter puts out 1.5 volts. This results in the RF modulator being saturated (particularly on the intensified colors) and of course this leads to clipping. Unfortunately, it's the color burst signal that gets clipped. There is a simple fix; place a resistor in series with the center lead of the composite video cable. We've discovered that a value of approximately 100 ohms works well in most cases. It should be noted that we've had some modulators and TV sets that required a slightly different valued resistor to work satisfactorily. An alternate solution is to place a 200 Ohm potentiometer in series instead. This has worked in all cases we've tried. I encourage you to install the resistor or potentiometer on the modulator end, so that the Color Graphics Adapter remains unaltered.

Augie Olsen, 48D/050-3, SPD Rochester, MN 55901, TL 456-5148

**8202-10 SCHEME FOR TRACKING DISKETTE CONTENTS**

In an effort to keep my diskettes mildly organized, I have tried two schemes both of which are documented below.

**SCHEME 1 EXTERNAL LABEL ONLY**

In this scheme I label the diskette with an external label that is essentially meaningless - e.g. initials plus 3 digit serial number. I have found that with few exceptions (e.g. DOS diskette, PASCAL) the contents soon bear no resemblance to the external label.

From time-to-time (daily in my more frantic periods) I run the following BAT: (DISCTOC.BAT)

```
pause press Ctrl+PrtSc
rem Table of Contents of Diskettes
date
pause Contents of THS001
dir b:
chkdsk b:
pause Contents of THS002
dir b:
chkdsk b:
.
.
.
```

The above BAT causes the dialog to be copied to the printer thus giving me a hardcopy table-of-contents for all my diskettes.

## SCHEME 2 LABELED DISKS

In this scheme each disk carries both an external label similar to Scheme 1 plus a file named external\_label.LBL stored on the disk. To get a hard copy table-of-contents the following BAT can be used.

```
pause press Ctrl+PrtSc
rem Table of Contents of Diskettes
date
pause insert any diskette in drive b:
copy b:*.lbl lpt1:
dir b:
chkdsk b:
copy b:*.lbl lpt1:
dir b:
chkdsk b:
.
.
.
```

**Note:** Since there is no GOTO construct in BAT files, the COPY...CHKDSK group must be repeated for as many diskettes as desired.

My cohort Doug Lorch looked at the above and suggested having the BAT file invoke itself. I refined it somewhat to the following two BATs:

```
DISCTOC.BAT
pause press Ctrl+PrtSc
rem Table of Contents of Diskettes
date
rem Contents of System Diskette
copy *.lbl lpt1:
dir
chkdsk
disc2toc
```

```
DISC2TOC.BAT
pause insert any diskette in drive b: or press Ctrl+Break to exit
copy b:*.lbl lpt1:
dir b:
chkdsk b:
disc2toc
```

### A note on BAT execution

If another BAT file is named in an executing BAT, control passes to the named file with no return i.e. it acts like a GOTO or XCTL.

Tom Sawyer, VM(STLVM7/ASDF), Santa Teresa Lab, TL 543-4229

### 8202-11 QUERY FOR EXISTENCE OF HIGH SPEED INTERFACE HARDWARE

I am looking for high speed interface hardware (4 Mbits/S) which is operational, being developed or just being planned for the PERSONAL COMPUTER. This interface hardware should provide Direct Memory Access like functions for a single attached device. It should also provide input and output registers (similar to the Intel 8255 Programmable Peripheral Interface chip) to send commands to and read status from an attached device.

Please contact me if you have information or interest in such hardware.

Lee Recknor, VM(ZLAB/LRE), IBM Research Lab, Ruschlikon, Switzerland

### 8202-12 PURCHASE OF DISKETTES FOR THE PC

Our site PC procedures indicate that supplies are to be ordered through the internal branch office or Stationery Stores. However, until these channels are working, instead of paying \$4-\$5 per diskette from the nearest micro-computer store, we found a mail order house where we could purchase diskettes for no more than \$3 each, with a minimum of paper work. I called and ordered 20 diskettes, charged it to my Master Card, and had it delivered to my home. When it arrived 8-10 days later, I submitted a Petty Cash voucher and was reimbursed in 2-3 days. We have done this twice and find it a satisfactory source of initial supplies for our department.

Laura Camp, VM(AUSVM2/A223414), 642/802, Austin, TL 678-1388

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(EDITOR: We used a similiar technique here in San Jose initially to get a few diskettes. Once we got our Stationary Stores people going on getting diskettes, they had IBM ones in stock in about a week. Departments with PC's inhouse can now order on the normal order forms. San Jose department managers should see their technical PC reps for the order number and other requirements.)

### 8202-13 TWO 3101 EMULATOR PROGRAMS AVAILABLE FOR THE IBM PC

This is to announce availability of two terminal support programs for the IBM PC with an Async communications card.

B3101 is a Block Mode 3101 emulator program, which implements a sufficient subset of real 3101 function to provide full-screen access to either VM/CMS through PVM or TSO/VTAM/NTO through VAMP3101.

B3101 can also be used to logon to CMS or TSO in "native" line-by-line mode. Full-screen applications are not supported, but you can do insert/delete line editing, and recall previous input lines (similar to VM TEST REQ function).

C3101 provides no full-screen functions, but provides TTY-like support to initiate and maintain a native terminal session. C3101 interfaces with System/370 host applications through a normal, native terminal session (not through PVM or VAMP3101) to provide reliable file transfer between System/370 EBCDIC and PC/ASCII files. The file transfer protocol includes sequence numbers, header and trailer recognition characters, parity checking, and a checksum for each line. Any error detected results in a retry until the error is corrected. The timeout procedure in the PC attempts to restart if the host application fails to respond after the PC sends or acknowledges receipt of a line. Recognition characters prevent messages being confused with transmitted data from the host.

C3101 also contains a facility, as previously implemented for the Heath H89, of being able to receive a complete file from the 370 Host, storing a normal ASCII copy and a small file of line hash totals. The ASCII file can be updated using any PC stand-alone editor. C3101 can then compare the updated ASCII file and the hash total file and, in coordination with the host application, update the host file to match the updated ASCII file by sending only the changed or added lines and a small amount of control information over the communication line.

C3101 can also send binary (non-ASCII) PC files, for example COM or EXE files, to the host in a hex format. These files can be shipped anywhere over CJN. The hex file can then be received back as an identical binary file on another PC.

**Note:** Hex format is not compatible with IMPORT/EXPORT or PC DEBUG.

C3101 also supports direct sessions and ASCII and binary file transfer between two IBM PC's (no-host peer-peer session) if appropriate modems are available or by direct cable connection.

I will ship the host support files over the network. I can do the same for the PC code in either IMPORT/EXPORT or hex format. If you send me a diskette and a pre-addressed envelope, I will copy the PC code onto your diskette and return it to you.

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

8202-14 HINTS AND KINKS FROM STAN

**OTHER NEWSLETTERS:** Three publications your PC department or library may be interested in subscribing to are:

PC (The Independent Guide To IBM Personal Computers)  
1239 21st Ave. San Francisco, CA 94122

Personal Computer Age  
CRC Publishing, 10057 Commerce Ave. Tujunga, CA 91042

And, hot off the press..

PERSONNA "The National Association for Users of the IBM Personal  
Computer"  
Personna, P.O. Box 759, Point Pleasant, N.J. 08742

**SORTS:** I have been asked to put out an APB for a PC sort (fast) for the PC.

**FORTH:** We have a copy of the source for FIG-FORTH Release 1.0 for the 8088/8086...Before we take the 10 or so hours to key it in, does anyone have the machine readable version?

**VISICALC:** Burt Snitz (GPD Manufacturing) has done a phenomenal job with Visicalc since he received his PC, just a few weeks ago. Some of his models may be useful to you (or the ideas contained therein). Following is a brief summary of his models' functions:

1. Tracking and statistics of an awards system within a manufacturing data center.
2. Organization charts
3. PC inventory including software, as well as an accounting of outstanding requests.
4. Functional level analysis by department (by regs, nonregs, mgmt., staff, oper., AD, etc.)
5. Common Staffing Study.
6. Excellence Plus measurements.
7. PC planning, by quarter, including capital required vs. available.
8. Travel plans vs. actual, by purpose, by \$.

Burt and I both realize that his models contain sensitive data. What I will do if interest is shown in his models is to blank out the sensitive fields before passing them along. Burt will be available to answer questions (through me) if they arise on template usage.

**KINKS:** The manual for Visicalc will be changed to indicate that @COUNT will count only value fields and not non-blank fields as is now indicated. ALSO, if you wish to receive the new Visicalc diskette containing 256KB support plus the fix for non IBM parallel printers, be sure to send in your warranty card. Shipments of the release in 1st Q '82 will be keyed off the warranty card.

**INPUT REQUESTED:** We, as internal business users of the IBM Personal Computer, will have the need to purchase OEM equipment when a needed function doesn't exist in the IBM product line. When you have tried a piece of OEM gear, drop me a note with comments on performance, etc., for the edification of the internal IBM PC user population.

Stan Rosenfeld, VM(STLVM3/ROSENFEL), Santa Teresa, 8+543-3690

#### 8202-15 WORK IN PROGRESS - REX IN PASCAL

We are working on a version of REX written in Pascal and oriented towards small machines. We plan to test and debug the original version under Pascal/VS and then port it to the 925 (the San Jose Research Lab experimental work station), the PC, and possibly the Displaywriter.

We would like to keep mail (electronic and otherwise) on this topic to a minimum. We have heard from submitters of REX items that the volume of mail can be enormous, and we need our time for writing code. Specifically discouraged at this time are requests for the code and words of encouragement. If and when the code is ready to be distributed, an announcement will be made through the usual internal sources.

An example of the kind of thing we would like to receive at this stage are detailed information on PC DOS and BASIC (above and beyond the TRM) that would help us interface and/or use portions of these systems. Another example would be information on the whereabouts of a good string handling package written in Pascal. It would have to be something available for use within IBM.

Jim Mehl, VM(SJRLVM1/MEHL), San Jose, 8+276-7657

Steve Zilles, VM(SJRLVM1/ZILLES), San Jose, 8+276-7559

#### 8202-16 UPDATE ON JOYSTICKS

This is a follow-on to my article in the previous PC Newsletter (8201-19). I'd like to acknowledge the comments from Paul Hundley AUSVM1 on the subject of approaches to getting better granularity out of Joystick pots. Paul's comments net to using the Joystick coordinates as acceleration vectors rather than location vectors. The implementation is fairly straight-forward, and involves dividing the joystick's sweep into ranges. The program then interprets the current X and Y values as movement requests in the plus or minus X and Y directions. For example take X values 0-20 and 80-100 and declare them to represent a request for say 10 pels per cycle through the code. Declare X values 21-40 and 61-80 as a request to move 1 pel per cycle through the code. And finally an X reading between 41-60 could be interpreted as "NO X movement requested". Similar assumptions could work in the Y direction.

More on hardware interface vs BASIC's presentation to the program. A test was run with the card installed and NO joysticks present (i.e. infinity OHMs resistance. The machine language kernel used in previous tests reveals that software will see an infinite resistance; however, BASIC presents a value of zero. What follows then is that BASIC has a clipping level in the BIOS interface which limits the resistance value presented to a BASIC program. I have not determined what the clip is yet; however, I have seen values as high as 111 presented to a BASIC program from 100K OHM pot's. I'll supply an update on BASIC's clip when I find out what it is. Based on the granularity issues presented here and in the previous article, my recommendation is that Paul's suggestion of the acceleration vector technique will produce a finer measure of control and tend to make the cursor or bug used to mark the position on the screen much more stable.

Jack Woodson, VM(TUCVM1/WOODSON), 83A/040, Tucson, TL 562-7594

**8202-17** QUERY FOR RS422 INTERFACE ADAPTER FOR THE IBM PC

I am looking for an RS422 interface card for the IBM PC. Is anyone working on such a thing?

Tom Underhill, VM(BLDVM1/UNDERHIL), 552/023, Boulder, TL 263-4540

**8202-18** WORK IN PROGRESS ON DIGITIZING PAD

Just a short note on our work in progress with the PC. We are using it at present to operate a digitizing pad, to obtain digital data from a plot on an 11 x 17 sheet of graph paper. In principle, we should be able to do the same thing from a 'scope photograph. We had some problems initially as the errata sheet for the communications interface did not come with our unit, so the current loop/voltage sense switch was set incorrectly. The last newsletter came just as we were going through the interconnections, and was very helpful. We assembled the 'cheater' cable, and everything works. We are using the PC to do the number-crunching also, so there is no need for transfer of data from the PC to a larger machine. If you are in the neighborhood, drop in for a demo.

Michael Stevens, VM(MHVSPA/A33-MTS), A33/052, Poughkeepsie, TL 253-8546

Gary Dauser, VM(MHVSPA/A33-GCD), A33/052, Poughkeepsie, TL 253-6796

8202-19 WORK IN PROGRESS ON COMMON PC PROGRAM LIBRARY

Several of us in Endicott are experimenting with a VM disconnected machine operating as a common PC program library. No commitments yet - but keep watching this space!

Blair Martin, VM(GDLS2/MARTIN), U05/032, Endicott, TL 252-8680

8202-20 GUIDE TO OPERATIONS DOCUMENTATION ERROR FOR PRINTER

The Guide to Operations has two notes reversed on page "Printer 3-15". At the top of the page, the single and double asterisk notes are swapped. The first item should have the double asterisk, the second one the single asterisk.

John F. Howard, 52Y/022, Boulder, TL 263-6679

8202-21 S/370 ATTACHMENT OF THE IBM/PC

Since I have had a number of calls about attaching the IBM PC to S/370 hosts, I thought that I would pass along what I know.

- All of the existing software for the PC is ASCII. ASCII has several advantages:
  - The non-IBM world is ASCII.
  - With Edgar Swank's block mode 3101 emulator (announced in this issue) and either the PVM/3101 IUP or the VAMP/3101 internal use program, a PC can access 3270 applications.
  - Escape sequences can be defined very easily in ASCII.
- A 2741 is NOT an ASCII terminal. It is technically feasible to write a 2741 emulator that would run in the PC but why bother -- It would be a lot less work to regen your 3705 and system.
- Tektronics 4015's can be run as either an ASCII terminal or as a 2741. Within IBM, they are usually run as 2741's. Several people have incorrectly thought that they could use their (2741 mode) Tektronics ports with the PC.
- We are using VADIC VA3400 series modems, specifically the VA3455 Direct Connect Modem at the terminal end and the VA3447 Modem at the host end. The sample gens should work with Bell 212 compatible modems and (by changing the speed from 1200 to 300) with Bell 103 compatible modems. IBM has a corporate contract with Vadic -- you get the 100 quantity rate even if you only order a single unit.
- I recommend against Bell 202 compatible modems as they are half duplex and you cannot interrupt using the BREAK key.
- 300 baud can be very slow, but you may be able to use existing equipment left over from when there were many 2741's.
- I have sample 3705 and system gens for both MVS(VTAM) and VM. Send me a message if you would like a copy. VM bigots should not worry



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about the fact that I am on MVS -- I can handle VMSGs, RMSGs, punch files, and about anything else.

Chuck Tribolet, MVS(STLMVS1/T811329), Santa Teresa, TL 543-3337