

Personal Computer News Letter  
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ABSTRACT

This document is an IBM Internal newsletter dealing with matters of interest to users of personal computers for business reasons. It will at times address items of interest to personal computer chapters of the IBM Club where these items foster the establishment and management of the clubs, rather than personal use. It contains articles, written by the user community within IBM, that

- announce programs, techniques, and suggestions 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)

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- confidential
- more than two pages in length
- anonymous

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### EDITORIAL

Welcome to the first issue of the Personal Computer Newsletter. With the birth of the IBM PC, use of personal computers within IBM has been strongly legitimized. There are many uses for this newcomer within the company and I offer this newsletter as a focal point for presenting ideas and experiences that will help others justify and profitably use this new tool.

The IBM PC itself looks very good. IBM has recognized the good features of competitive PC's and implemented equal or better function. The keyboard feels very good. It has tactile feedback, but the accompanying audible click is slightly too loud for my taste. The system unit is beautifully done inside from a maintenance point of view. The option cards plug easily into the planar board and are each held by a single screw at the back of the unit. Each option board has the opportunity to add an external connector to the back of the unit and the screw anchors all of this in place. Each physical item in the system unit can be removed without having to first remove some other item, except for the planar board. To remove the planar board, obviously all the option cards must first be unplugged. After that, only one screw is removed and the planar board slips out.

Each of the major sites had the opportunity to send people to a class in Boca Raton the first week of September. I attended for the San Jose area. Two one-day classes were given; the first day focused on hardware configuration and software, the second on hardware internals. Each student had a system to himself consisting of a system unit, two disk drives, keyboard, monochrome display, and printer. We had the opportunity to use Visicalc and Easywriter in class. The more adventuresome (like myself) played with BASIC and DOS. I didn't run any benchmarks to test performance, but it seemed to be slightly faster than an Apple II.

The hardware part was especially fun. We totally dismantled the system unit so that only the frame was left, plus one of the disk drives. Then we put it back together and ran diagnostics. Everybody's machine worked fine. Next we put a bug on our machine and asked a neighbor to find it. Along with the diagnostic programs, there is a hardware maintenance manual that is very detailed. It leads you step by step through a testing process to isolate the Field Replaceable Unit(FRU). Customers will not normally go this deep however. There are diagnostics built into the system unit that are invoked when the machine is powered on (Power On Self Test(POST)) that isolate problems to the Customer Replaceable Unit(CRU). CRU's are physical boxes such as the printer, keyboard, and system unit. IBM's maintenance policy is to handle CRU's on an exchange basis. If a machine is under warranty(90 days) or the highest level of maintenance policy and within a service area, a courier will deliver a replacement box as he picks up the defective one. Note I said REPLACEMENT, not loaner. You will never see the original one again. There is some question on what happens if it is the system unit, because of the many options possible. Don't know the answer on that one yet.

When you get the employee package with instructions on how to order your own personal unit, you should pay extra attention to the question of which display option to choose. The issue involved is graphics versus text quality. If you order the Monochrome adapter and display, you will have crisp green on black characters with upper and lower case that are very readable at 80 characters per line. BUT you will NOT have any ability to do point addressable graphics. There are many graphic characters available, but these are text characters. There is no facility to turn dots on and off. On the other hand, the Color/Graphics option has point addressable graphics, but uses lower resolution characters. Unless you use a high quality video monitor, you will not be able to display 80 characters per line with the color adapter. The alternative is 40 character mode. Note that the Easywriter software requires 80 character mode.

We have started an IBM PC Club as part of the San Jose IBM Club. We had our first meeting September 8th and had over 250 people in attendance. We later discovered that many people had not seen the bulletin board notice, so at the next meeting we could have many more people. We passed out a questionnaire to learn people's interests about meeting frequency, format, length, subject matter of interest, etc. Most people feel a monthly meeting of 1 to 2 hours is about right after the club is firmly established.

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Many people felt that twice a month for the first 3 months would be very desirable. The format we proposed was a very informal one consisting of three segments:

1. Presentations (speaker, lecture, demo)
2. Random Access (Individual questions/statements to whole group)
3. One-on-one (bring your computer, show new things, software library exchange, seek help)

Note that there is no old business/new business portion. The focus is on sharing and helping. We have developed a short constitution that reflects this informal structure and you are welcome to a copy of it.

I am very excited about the potential of the Personal Computer within IBM. I believe that in the future we will see a PC on many employee's desks. The PC's will be connected locally by a network such as a loop or Ethernet with a connection also to a large Host for batch work and access to the global network. Virtually all editing and documentation will be done at the PC. Many vertical applications will be written for PC execution. Yes, it's going to be fun.

Until next month!

Keith Eckhardt

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QUOTES

"Never trust a computer you can't lift."

Attributed to

Stan Masor, Intel Corp.

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The following is a quote from a CPA. He was asked some questions about writing off a personal computer as a business expense. Remember this is an individuals opinion, not an official IRS position. I offer it for your input as you consider IBM's plan to purchase software from employees.

"If you buy a computer from IBM and use it solely to write programs for sale to them, you have a business. Even if you never sell one program, you have a business. Now, the trick is convincing IRS you have a business and not just a hobby. It must be run in a business-like manner and well documented as to the work you do. In other words, keeping all work sheets, etc. for three years for audit purposes.

You can deduct depreciation on the computer and any other equipment. You get an investment credit on the equipment. Also you can deduct the cost of any supplies used for business purposes as well as an office in the home. The only thing not deductible is the value of your time to write the programs - anyway we all know the value of that!"

Submitted by: Keith Eckhardt, VM(STLVM3/ECKHARDT)

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Excerpt from "Electronic Engineering Times", Sept 14, 1981, p54.

"With IBM looking for third-party software for its new 8088-based personal computer, there's a bit more than casual interest in how to program that microprocessor. Well, Intel has come to the rescue. It has published a 300 pager that gives all the programming details of its iAPX 88/10 (8808) 8-bit micro-P. After an overview of the 8088's key features, addressing techniques and extensions, the new book details the chip's architecture from a programmer's point of view. Also covered are the use of the 8088's 8/16 bit registers, megabyte-memory addressing and the instruction set.

A separate section goes into the details of the hardware, like bus timing, interface connections to memory and peripherals, interrupt handling and DMA. Rounding out the hardware coverage is a section with examples of real applications, like multiplexed/demultiplexed-bus designs for a personal or small-business computer.

A copy of Intel's iAPX 88 book costs \$7.50. It's available from Intel, Literature Dept., 3065 Bowers Ave., Santa Clara, CA 95051, (408) 734-8102."

I called the above number and was told about a coupon in the "EE Times" that allows you to order the book for only \$5.00. With the book you will receive another coupon to allow you to pickup a free 8088 at your nearby Intel dealer.

Submitted by: Stan Rosenfeld, VM(STLVM3/ROSENFEL)

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LETTERS TO THE EDITOR

Duplication of effort / A bouquet to Keith for starting the newsletter

With the entrance of IBM into the PC market and the inauguration of an internal PC program, I see some very exciting things beginning to happen. It is my opinion that a properly used PC will go a long ways towards making it possible for us IBM'ers to be more productive with less frustration. I think that the biggest risk we all run in the PC arena is that old bugaboo known as duplication of effort or more simply wheel re-invention. We have had several experiences in the VM and MVS arenas where duplication of effort was reduced or eliminated because of articles in VMNEWS or MVSNEWS. I believe that PCNEWS will be even more effective in assuring productivity. I know a lot of folks out there have great ideas of things that can be put together with and for the PC, and I hope that we all take the time to share this information with each other. I would like to recommend that the same guidelines used in MVSNEWS and VMNEWS deliverables (i.e. source code, support position statement, etc.) be put in place for PCNEWS. Keith, I would lastly like to commend you for undertaking the effort to pull the PC community together before it gets totally away from us.

THANK YOU,

Jack Woodson, TUCVM1(WOODSON),  
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This newsletter is supposed to be primarily for direct business use of the personal computer. However, I would like to take one article and address a few items concerning corporate support of personal use of the personal computer, hereafter known as PC.

I would like to see a corporate statement allowing things like:

- Tie line usage from 6PM to 6AM local for use in exchanging programs.
  - This should not cost the company anything since these resources are generally unused at night.
- Priority 99 (lowest priority) on the network to send information about the PC from one place to another.
  - This includes items like computer club newsletters. This is not completely free. However the lowest priority files only flow when the particular line is otherwise idle. An agreement to not originate files until late in the day may also be in order.
- A VM or TSO userid in each major location for PC club newsletters and lists.
  - We already have one of these in Raleigh that the PC club officers have access to. The profile is set up to not allow access between 8-11 AM and between 1-4 PM.
- Some way to get a price break on PC equipment and programs after initial shipment.
  - This could take the form of group purchases by the IBM club or allowing an individual to sell pieces to other employees. I realize that there is some overhead in placing an order, and maybe the discount would not apply on total orders under \$1000. However, it would give the employees more of a warm feeling that the company is truly behind them if there was some kind of continuing discount. All other companies that I know about that are in the area of 'consumer products' give their employees a continuing discount on items that they sell. This includes Sears. Even IBM discounts typewriters from OP and discounts blank floppy diskettes from

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IRD. It is even mentioned as a benefit in the 'About Your Company' booklet. I appreciate the initial discount, and I will certainly take advantage of it. In the long term, I believe I would have preferred the 20% typewriter style discount to be available for the foreseeable future. The general feeling that I have encountered is that the early participants are penalized instead of rewarded for taking a risk with the early systems.

I do not know where to begin to get this kind of statement started, but I do believe that it needs to come from a very high source. There is not a lot of consistency among locations or divisions on topics of this nature. For example, SCD said not to use the network for IBM computer club activity, while I understand that Research Division did not discourage the practice.

I am also not a fan of a lot of bureaucracy, and do not expect a long list of approvals to send a file on the network. However, I would like to see a guideline that says "It doesn't cost anything, it fosters communication between groups, it is on the employee's own time (like this article), it will benefit the employee in the long run, and we (the company) may get a product out of it, so do it," rather than "Gee, I don't know, you better not."

Reid Sayre, VM(RALVM8/R481545E), SCD, Raleigh, 8+442-2844  
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CONTRIBUTIONS

8101-01 QUERY FOR REX ON IBM PERSONAL COMPUTER

Does anyone plan to implement REX on the IBM Personal Computer? My group would like to use it and would be interested in helping with its development, but we can't do it all ourselves and certainly don't want to duplicate other efforts.

David Singer, BCRVM1/VM883623, 8/443-7908

8101-02 QUERY FOR 8087/8089 INFORMATION

The IBM PC uses an 8088 microprocessor which supports the Intel 8087 Co-Processor. The 8087 co-processor is referred to as a 'floating point processor' and as an 'arithmetic processor'. It is activated by using the 8088 ESC (escape) instruction and can instruct the 8087 to perform 64 different instructions in parallel with the 8088. The 8088 WAIT instruction can be used to assure the co-processor is idle before the next ESC instruction is issued. With this brief information, the following questions arise:

1. Where is the 8087 instruction set defined, i.e. book, article, etc.
2. Are there any other co-processors available?
3. What is an 8089?

Jim Gilliam, VM(PLKSK/K58PJHGC), Dept 58P201-1, IBM SCD KINGSTON, x1257

8101-03 COMMENTS ON MX-80 PRINTER WITH GRAFTRAX

The EPSON MX-80 has 16 print styles. The user can select from 40, 66, 80, or 132 characters per line, and print any of these in four print densities.

compression	expansion	chars/line
OFF	OFF	80
OFF	ON	40
ON	OFF	132
ON	ON	66

The four densities are:

normal	normal
normal	double-print
emphasized	normal
emphasized	double-print

I have the GRAFTRAX option on my MX-80. It consists of three 2716 EPROMS and a manual. With it installed, the emphasized and double-emphasized print modes are not available for the compressed print fonts. Graftrax is hard to use but should give some super graphics. It allows 960 dots per line (120 dots/inch, 1/2 dot spacing), and vertical spacing of 1/3rd dot (1/216 of an inch). The 1/3rd dot may not be realistic because it is hard to move paper in this small of an increment.

If any one has any questions, please send me a message.

John Bernauer, VM(SJEVM1/CUTTRAS), San Jose, 8+276-7186

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8101-04 RECOMMENDATIONS FOR IBM PC INTERNAL USE IN 1981 AND EARLY 1982

There are some important facts relating to the IBM Personal Computer recently announced.

- IBM PC is in short supply this year for internal use.
- Software is minimal with a standalone orientation and much of IBM internal is online oriented.
- Certain hardware interfaces must be acquired to properly support engineering and manufacturing.

With this as a given, the most important use of the first systems should be to grow the IBM PC's capabilities as quickly as possible. It is therefore my recommendation that the PC be allocated primarily to development groups that will:

1. produce software to provide online interfaces
2. produce hardware to connect additional devices
3. produce software to offload applications from mainframe systems

Secondarily, a very limited number of machines should be allocated to:

1. Provide education.
2. Productively use the IBM PC standalone software.
  - Visicalc -- financial types
  - BASIC -- APL offload?
  - Easywriter -- Examine very carefully

Note that I am totally talking about the first six months of internal use of this machine. After that point any good business justification of the use of the machine should be considered. It is the initial days that are critical to growing the capability of the machine so that we all may become productive.

Keith Eckhardt, VM(STLVM3/ECKHARDT), San Jose, 8+294-6641

8101-05 QUERY FOR PC APPLICATION PLANS

I am currently working with the IBM PC, both for business purposes as well as for personal use. On the job, I am looking (along with Keith Eckhardt) at the best applications for the PC. We are also looking at control and maintenance questions. Keith, Tom Conrad, and I started the local IBM PC club and have learned a lot from that operation as well.

Please let me know of your ideas for business use of the PC. We will be glad to be a "clearing house" of such applications information. We want to know what you are working on and what you need.

I have also been looking at RGB Monitors to use with the PC and have collected quite a bit of data. I will publish my findings in the next issue of the newsletter. If you just can't wait, you are welcome to call.

Stan Rosenfeld, VM(STLVM3/ROSENFEL), San Jose, 8+294-6642

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### 8101-06 PERSONAL COMPUTER HANDS-ON REPORT

I've followed with much interest IBM's work on a personal computer since 1978 when I had a briefing on an early effort in this area. I anticipated it would be many months after the August 12 announcement before I could see a real live model of the unit, but on September 11 I was lucky enough to see and touch the first one in the state of Texas which was in the Customer Support Center at a local Dallas branch office.

Since I own an APPLE II (tm) computer, my first reactions were based on my knowledge of that machine and its comparisons to the new IBM 5150 (interesting number) better known as the Personal Computer. My first impression is that the IBM unit should be compared to the APPLE III instead of its lower priced and less powerful brother the APPLE II. The PC (affectionate contraction) is more powerful and has a more flexible configuration at a lower cost than a comparably equipped APPLE III.

At first glance the PC has some outstanding features. The keyboard is so superior to units on the other popular machines that it is in a class by itself. It compares favorably with the best 3270 layouts with things like the inclusion of program function keys which the software uses for various single keystroke tasks. The only complaint I had was that the "enter" key was not labeled as such but had a symbol identical to the "new-line" one on most 3270's. With the cover removed, one thing is clear; after the stout looking power supply and the two disk drives are in place there isn't much room left. In fact, the five slots that are available for expansion, when filled with cards like the color graphics adaptor, are all that would fit inside the metal case.

The software available on the PC that I used did not include the Visicalc (tm) or Easywriter (tm) packages but did have an impressive version of Basic that had many more commands than in my APPLESOFT (tm). The DOS provided is not as powerful as the promised CP/M operating system that I've seen demonstrated on other computers but is adequate for most applications.

The color graphics looked good - better than my APPLE in my opinion - and because the system is fast, animation effects are possible. When displaying characters in the 40 per line mode on a standard television receiver, they are easily readable but in the 80 character mode they less acceptable and quality varied between the two different television sets I used. The monochrome tube and adapter can coexist in the same system with the color adapter but cannot be used at the same time; a power down and a switch change is required to go back and forth. <Editor: this is controllable via software.> If your primary use of the PC will be business applications you should consider the monochrome tube.

To summarize, the IBM Personal Computer is a highly desirable, technically advanced, reasonably priced home computer that I intend to obtain for myself if the employee discount (rumored to be about 33%) is confirmed by the information packet being sent to all those who sent in their cards. Those packets started going out September 22 so you may have yours already. The first day order deadline has been extended to October 31 so we have more time to make our decision. All first day orders would be shipped before Christmas if I had my way (not likely).

Good luck with your PC and since all our units will have the communication controller perhaps we can set up a nation wide network to talk directly to each other.

Marty Sharik, VM(DALVM1/DEVDLMS), DALLAS AEC.

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8101-07 QUERY FOR PERSONAL COMPUTER AND DISCOVISION HOOKUP

I am interested in communicating with anyone who is working with a Personal Computer hookup with a Discovision videodisc unit. I have done some preliminary work and have the hardware available but need a "black box" to allow a composite signal from both devices to display on the television screen. Any information would be helpful.

Marty Sharik, VM(DALVM1/DEVDLMS), DALLAS AEC

8101-08 ARITHMETIC BENCHMARK ON IBM PC USING BASIC

A simple benchmark has been run on the IBM Personal Computer and several other micro computers.

This benchmark was tested by inputting the program and waiting for the cursor to return. In most cases the timing was done with a wristwatch. The times are plus or minus about a second. No consideration was originally given to internal floating point precision (ie--apple is 9 bits, softcard is 7 bits, northstar/radio shack/IBM are unknown). Also some of the machines have a real time clock running (IBM, Pet, possibly Radio Shack). The numbers are still valid as they reflect what the 'guy off the street' would see if he ran the program.

Listed below are the program and the measured times.

```
Program:
10 A = 56478900
20 B = 12457893
30 FOR I=1 TO 1000
40 C = A*B
50 C = A/B
60 C = A+B
70 C = A-B
80 NEXT I
90 END
```

COMPUTER	TIME
IBM Pers. Computer	13 Sec
OSI C1P 6-Digit Basic	13 Sec
APPLE (applesoft)	14 sec
TRS-80 color (6809)	15 sec
Super Brain	15 Sec
Northstar (BAZIC)	16 sec
PET	16 sec
OSI C1P 9-Digit Basic	17 Sec
Northstar (BASIC)	22 sec
Softcard	23 sec
TRS-80 Lv12 Model 3	29 Sec

Dick Ide, VM(GDLS4/IDEDICK), Endicott, 8+252-3670