

Remembering the Gen2 HP-41 - Who Else Cares?

Richard J. Nelson

The HP-41 holds a special place in my heart because I was so involved with it. After starting the HP-65 Users Club when I became enthralled with programming; I wanted to continue with the machines that followed. The HP-67A was more of the same, and I place these two machines into the first generation, Gen1, of HP high end calculators⁽¹⁾. The HP-65 Users club name was changed to PPC and by the time the HP-41 came along 30 years ago the active HP User Community, and PPC, was well known to HP. 15,000 users passed through PPC at that time, and that was a significant technical resource.

PPC published highly technical articles, with photographs of the internals, and we actively promoted HP machine modification. Speeding up the calculator was always being tested, and designing new accessories was a very popular activity for PPC members. It is the latter aspect of Gen1 activities that especially caught the attention of HP because they designed the HP-41 as the heart of an extensive system. Did all the PPC published activity of HP calculator expansion provide a little inspiration? Some of the HP pioneers that we could ask are no longer with us.

Another reason that HP was especially interested in the HP-41 activities of PPC members was the two year PPC ROM project. The PPC ROM was one of the first and largest orders, 5,000 pieces, of custom ROMs for HP⁽²⁾. During 1979 and 1980 I spent a significant amount of time visiting HP in Corvallis. My most memorable experience has to do with a non-disclosure agreement while visiting Corvallis during the HP-67A days. I signed an NDA for the HP-41 and I was given an early machine months before announcement⁽³⁾. The use of non-normalized numbers in producing unique HP-67A displays was of great interest to HP engineers, especially Bill Egbert, who wanted to know how we got into the internals and modify “numbers” to cause the previously unknown effects. The engineers were simply astounded.

Keep in mind that HP people of 30 years ago are much the same as they are today; they simply don't have the time to follow the HP User Community, HPUC. It is only because the present HP engineers have come from the HP User community that HP has the faintest clue of what is being done with their machines. Today, the HP Handheld Conferences' provide a unique opportunity for information/interest exchange between HP managers and the HPUC.

Another aspect of an HHC is that the Conference inspires users to finish projects that they are working on in order to present them at the Conference. This year is no exception. The history of the well documented HHC's is rich with ideas presented and then being implemented either by HP or by other users.

Because the HP-41 was such a popular machine with over one million machines sold over a ten year period there appears to still be a strong interest 30 years later. Why? That is one question I would like to see answered during HHC 2009. Because of the long HP-41 product life, its easy FOCAL RPN

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1. *Gen1 is the HP-65/67, 5 yrs, '74-'79; Gen2 is the HP-41, 3 yrs, '79-'82; Gen3 is the HP-75/71, 5 yrs, '82-'87; and Gen4 is the HP28/48/49/50, '87-present, 22 yrs. Gen2 & Gen3 greatly overlap. We eagerly await Gen5.*
 2. *Additional details of lesser known HP-PPC HP-41 activities will be provided in my presentation at HHC 2009.*
 3. *The HEX table work of David Kemper on the HP-65A and HP-67A provided a great deal of internal insight into the compatible HP-41, and this led to what is known as synthetic programming once Bill Wickes and Keith Jarrett published their Byte Jumper and Byte Grabber methods of arbitrary byte altering. Because PPC had a very good understanding of these machines we jumped into the HP-41 with the acceleration of a rocket launch.*

programming language, having four I/O ports, and being the first HP alphanumeric calculator, the HP-41 has earned a special place in our memories. So! Who still cares? I will be especially interested in seeing how many current HP-41 users attend HHC 2009 to celebrate the glorious 30th birthday of their favorite calculator. How many of you are familiar with the HP-41NEWT (Nut Expanded with Turbo) Micro-processor now designed and being published? This was described by its designer at HHC 2004 and 2005.

One of the most interesting relationships that developed between HP and PPC was the policy of sharing information. Some of these historical, heretofore, unpublished, informal agreements will be discussed during my HHC 2009 presentation. The most public of these was the "Clearing Private" and the NOMAS policy.

What the users wanted was internal information/understanding. Knowing what the specification actually was is much better than a single sample measurement. Knowing exactly why a particular instruction, component, color, or feature was chosen is much better than wild speculation. The HP calculator engineers that I knew actually enjoyed the work of their enthusiastic customers because they worked in a highly specialized field with few peers. Having a User's Group dedicated to their products was considered a very special honor.

Because of the special relationship between PPC and HP I have acquired a great deal of documentation⁽⁴⁾ related to HP calculators. I have most of HP's Owner's Manuals in all their revisions; most of HP's other publications, and even some unusual hardware. Much of the information is available on the Internet, but I doubt that all of it is⁽⁵⁾. Yesterday I unpacked a manuscript, (it was never published) called *Catalog 2, A Guide to HP-41 System Software*. I worked with the author to gather the information. It was announced at the Atlanta Conference in May 1985. One section had an HP-41 XROM list. I know that there is an extensive list on the Internet, but the Catalog 2 list was compiled and provided by HP. Mine has all XROM addresses with the function names. I haven't had the time to compare the two lists.

What makes the alphanumeric HP-41 display interesting? I just unpacked the page shown in Appendix A. This shows the Half Nut ROM display characters. Wouldn't a more modern display be nice in a Gen5 machine that was inspired by the basic personality of the HP-41?

My question to the HP User Community is to determine how much interest there is in unpublished HP-41 documentation. Is there a way to reach these HP-41 users? After I write and post this on the HHC website I will try to post on the various HP-41 sites to find out. Who cares? Should I place all this documentation in the dumpster?

The most important aspect of the HP-41 is that it was part of a complete system and it was announced as such. HP had an active advertising program, and it promoted the system with extensive documentation.

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4. *I am unpacking 18,000 pounds of HP related materials shipped from Southern California storage to Mesa Arizona at a cost of 40 cents per pound. Much of what I have is from over a dozen pallets shipped to me when HP moved from Corvallis to Singapore. Because I worked at EduCALC at the time I had warehouse space available to receive a semitrailer load of discarded calculator materials. When I went to Jim Carter and asked him if I could use the space for a few months he could not believe what had arrived. "HP shipped this to you?", was his response as the truck was being unloaded. Of course we "shared" a lot of material. When Jim later left the business, I was his last EduCALC employee, and he gave me a lot of calculator materials as well. I was unemployed, and I had to sell my home so a lot of material went into storage without my having the time to review it all. I have been donating many items from this "booty" over the years to Conference activities.*
 5. *I just opened a box that contained a three inch stack of the VASM listings (serious HP-41 users know what these are) for the HP-41 Mainframe Microcode addresses 00-1771, the HP-41 Time Module, the HP-IL Printer, and the HP-IL Cassette & Control Functions. I have many more documents. Are these currently available?*

HP also encouraged third party developers⁽⁶⁾ to make products that supported the HP-41. Current HP-41 enthusiasts carry on this tradition⁽⁷⁾. There was also a second system that was part of the HP-41, and that was the HP-IL system. HP-IL linked Gen2, Gen3, and a host of other HP and third party instruments. The HP-IL story itself is an example of the HP-41/IL systems being far ahead of anything else in the market.

One aspect of my HP-41 talk will be to review the best and lesser known/understood features of the HP-41 and HP-IL systems to provide a list of features that history has shown to be very popular with users – over one million of them! Most current people at HP do not know anything about the HP-41, and I will bet \$1000 that HP can not show a *complete* HP-41 system – we will at HHC 2009. Now is the time to communicate the timeless qualities of this feature rich system information to them. The HP-41 is the only single machine model generational design.

If we want a Gen5 machine, after waiting for 22 years, we have to convince HP that it will be well received and that it will sell as well as the legendary Gen2 HP-41. We have to clearly show why the HP-41 had such great appeal, and how students can use some of its forgotten features for computational and learning excellence.

What are better sales people to do this than knowledgeable enthusiastic HP-41 users? I would like to hear from you to know that you are truly interested and that you really care. I do, I will prove it by example, and I am asking for your help.

As the title says, Who Else Cares?

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Richard J. Nelson
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Ideas and suggestions are always welcome.

Please contact any HHC 2009 committee member or me at: rjnelsoncf@cox.net

P.S. Based on a \$150 PPC ROM being sold on eBay today, there are \$600 worth of PPC ROMs and many hundreds of dollars of other HP-41 items now or soon to be posted on the HHC 2009 Door Prize list. See the current list at:

<http://holyjoe.net/hhc2009/DoorPrizes.pdf>

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6. *Plug in EPROM boxes, ROM emulators, and RAM boxes became the staple for expanding the HP-41 System. The AME Design Port Extender added seven physical ports, and allowed an ever increasing number of devices to be connected to the four HP-41 ports. Historical third party examples are Handheld Products, Corvallis Microtechnology, W&W Software Products, Zengrange, and ERAMCO SYSTEMS just to name a very few that immediately come to mind.*
 7. *Should the dedicated HP-41 user community remain apart from the general HPUC? That is a classical user enthusiast's question. Personally I believe that all HP users benefit from an active community that stays connected, supports all interests, and actively communicates with HP. The silent minority contributes little and advances little (over all) by living in a cave. I have dedicated 35 years to documenting the HPUC interests and accomplishments, and I believe that the historical results demonstrate that I am right on this "philosophical" question. It is a win-win relationship for an independent user group to actively "communicate" with, and work with the manufacturer. A special interest group by definition is usually small and everyone knows it is a "numbers game" when something important needs to be done – especially these days.*

Appendix A

Half Nut Rom Data Table Display Characters

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1																
2																
3																
4																
5																
6																
7																