A Short History of the JPC Rom Project.

Soon after the HP-71B arrived on the market, the PPC-Paris Chapter began to be one major group for HP-71B development, especially for assembly language LEX files, through JPC - the "Journal of Paris Chapter".

The heroic times

The HP-71B was introduced in Europe on spring 1984. It was presented in details in the April issue of the JPC Journal (JPC#13), with first Basic programs submitted by PPC members. The Forth module that included an assembler, was announced at the same time. But it took up to the end of 1984 to PPC members to master the LEX creation process. The first LEX was published in the JPC#20 issue (dec.84-jan-85),, it was actually a reverse of the HP KEYWAIT$ function, followed by a successful re-assembly with the Forth assembler. From this point, numerous powerful LEX were created by PPC Paris members:
- In March 1985, was published the "desal" LEX (that will become later the desal module in the JPC LEX), its names comes from that it was designed as a support for a disassembler Basic program.
- In April, came the REPLACE LEX that will give several successive versions with extended capabilities, the unrestricted PEEK/POKE functions for the hackers of the time, and the ATTNLEX for convenient control of the ATTN key without cumbersome POKE statements.
- They were followed in May with the famous DRIVELEX that allowed to enable or disable LEX files without deleting and reloading them, and CURLEX that allowed to view the cursor position when entering assembler source file for instance.

Problems soon arose from the uncontrolled LEX development, it was difficult to make sure than LEX simultaneously created by independent users or groups will not use duplicate token number. In the July-Aug, 1985 issue of JPC (#26), a common LEX ID (ID 113, i.e. 71h...) was chosen and it was decided that PPC-Paris would allocate the token numbers to PPC members. Basic programs using these LEX files would have to use these official token numbers. This was a first step towards the JPC LEX program... but the next step happened soon. On mid Sept, 1985 an official LEX ID was allocated by HP to PPC-Paris, this was the ID 225 (E1h).

At the end of 1985, 65 tokens were allocated. Many important keywords of the future JPC LEX did already exist at the time, and for sure the year 1986 would bring new marvels... And this is exactly what happened! Just look:
- the first STRUC1 LEX, a great attempt to implement structured programming keywords to the HP71 (REPEAT/UNTIL, WHILE/ENDWHIE, LEAVE),
- then the BASICLEX that allowed to print formatted listing of BASIC programs, with indentation, breaks on subroutines, etc,
- GRAPHLEX an attempt to make graphics on ThinkJet printer,
- CLLEX to chain LEX files with EDIT and MERGE commands extended to LEX files handling,
- the extended HPIL messages (ILMSGLEX) that gave more accurate error reports for the HP-IL. Finally, 92 tokens were allocated on end of 1986. Some tokens were freed because new functions superseded them, or were reallocated to other functions.

A important change occurred during the year 1986: in the June issue#35 of JPC, Pierre David and Janick Taillandier announced that they were developing their own assembler running on an HP Integral PC. This tool was presented in more details in the next issue (#36) of JPC. Although this

had almost no impact for most PPC-Paris members, it would allow Pierre and Janick to work on large assembler projects.

Armed with their powerful tools, Pierre David and Janick Taillandier started on summer of 1986 to merge all important and useful LEX files written by PPC-Paris members in a single file (the so called JPC LEX). From JPC LEX to JPC Rom, it was a short step. The very first allusion to a HP71 PPC-Paris Rom is found in an answer to a reader in the "Reader's corner" of JPC #38 (oct. 1986), but just to deny the availability of such a thing in the next future.

Finally, the "JPC Module" project (as called at the time) was officially launched on end of 1986. An offer letter and an order form were shipped with the JPC#40 issue (Dec.1986-Jan 1987). The JPC LEX file was about 11kb at the time and included about 87 new functions or commands, but was expected to grow to 16kb soon due to on going new contributions. Members were able to order their 32kb or 64kb module (a front port CMT EPROM module), which would include the JPC LEX plus personal files. The JPC Rom availability was expected for april 87, with a user manual.
The JPC Rom project was strongly inspired from the PPC ROM for the HP41: contribution of PPC members, comprehensive user manual, and no profit for the contributors (all the benefits would go to PPC-Paris, not the members).

Maturity

1987 and 1988 would be consolidation years for the JPC Rom, with successive versions from 'A' to 'D'. The JPC Rom arrived when it was already clear the HP-71B was not a commercial success (production will be stopped on end of 1988), and the new generation of machines was coming: the HP28C was announced on spring 1987. Same happened with the HP-41, the IR module and great third party modules such as the Hepax or the Extended IL modules were introduced at the end of HP-41 life time, but the base of HP-41 users was much larger than for the HP-71B.

However, the JPC LEX continued to grow, for instance with the FINPUT command (April 1987, JPC#43), a large LEX that provided a generalized INPUT form with many possibilities, from a multi-line menu to formatted input and protected fields. Written by Pierre David and Janick Tailandier, it would be for sure almost impossible to create without "Areuh" (as was called their assembler/linker development tool).

The structured programming statements were expanded with the STRUC2 LEX (published only in JPC#52) that provided the LOOP/ENDLOOP, SELECT/CASE and multi-line IF/THEN/ELSE statements. This superseded the previous STRUC1 LEX and is for sure one of the main achievement of the JPC LEX.

Other never-published works were also included in the JPC LEX during the year 1987: for instance KA, an address directory manager, and SYSEDIT, a powerful tool to explore the HP-71B memory. Some keyword names changed due to the registering process within HP. Resources (reserved memory, flag for DMY/MDY mode) were officially allocated by HP.
On end of 1987, 100 tokens were allocated, and the JPC LEX was about 22kb long.

It is also worth to note the announcement in JPC#45 (June 1987) of the GRAPHIC module as a commercial product. This 9k LEX file allowed to use the ThinkJet or the LaserJet printer as a plotter with the HP-71B, with high level keywords such as MOVE, DRAW, LABEL, XAXIS, YAXIS like the equivalent commands found in HP80 or 200/300 series Basic. Written by Pierre David, it was a much more efficient implementation of graphic functions than the previous

GRAPHLEX (already written by Pierre) included in the JPC LEX. This GRAPHIC LEX would be ultimately included in the late revision 'E' of the JPC LEX on end of 1989.

In the PPC-Paris 1987 Annual Report (cf JPC#51), the JPC Rom project was mentioned as a 26kb LEX, for a total source code of 505kb and 25000 lines, which was quite impressive for an amateur development of the time, not to forget the french and english user manuals. However, it was also mentioned that there was only about 20 owners of the module, a very small amount showing the very limited user base for this machine, whereas the HP offer was more and more shifting to the next generation of machines, such as the HP28S and HP27S (to cite only the technical models). However, PPC-Paris was in a relative good health. At the same period, other clubs such as PPC-Toulouse (the other french PPC chapter), PPC-Switzerland, PPC-US and CHHU disappeared.

During the year 1988, the JPC Rom was only slightly improved with bug fixes or minor enhancement. The number of contributions related to the HP-71B decreased, with no major new LEX. At the same time many PPC members were investigating the RPL internals of the HP28C and 28S, which was the new frontier for the next generation...

At the end of 1988, no new token were officially allocated although the JPC Rom was now including the ROMAN, DDIR and PDIR keywords that were, unfortunately, never published in JPC. As already mentioned, the announcement of the end of HP-71B production was made on mid-1988. In the JPC#60 issue (dec.88-jan.89), was announced a new text editor for the HP-71, entirely written in assembly language, replacing -but compatible with- the HP EDTEXT, with a much improved speed and many enhancements including Unix-like generic strings for search and replace functions. This 9kb LEX file was a new brilliant achievement, and was written, again, by Pierre David and Janick Taillandier. The XEDIT sources would be (partially) published only one year later in 3 consecutive issues of JPC.

The PPC-Paris 1988 Annual Report (JPC#61) mentioned that 40 JPC Rom were sold in the USA (the JPC Rom was in the Educalc catalog since mid. 1988), as well as 40 modules sold in France.

The last times.

The year 1989 should have been a transition year for PPC-Paris. The historic team that drove PPC-Paris since 1984, and actually carried on the JPC Rom Project, decided it was time to pass the lead, and a new leading team arrived. The HP71 activity continued to decline slowly but, at least at the end of 1989, started to be published the XEDIT LEX sources. Also the ultimate version of the JPC Rom, the little-known 'E' version, was announced. It included XEDIT, the GRAPHIC module, and some bug fixes and improvements, for a total size of 44kb. Alas! It was the time when PPC-Paris ran into serious trouble. Due to internal conflicts, the new, 1-year-old leading team resigned. Some members tried to take over, but the JPC#70 issue (dec.1989) would be the last of the 'classic' period of PPC-Paris. During more than 2 years, only 2 or 3 JPC issues were published, and it was only on May 1992 that PPC-Paris and JPC came alive again, of course with new focus according to the machines of the time, namely the HP48 and the HP95. But this is an other story...

The bad thing is that due to the 1989 PPC-Paris breakdown, the late JPC Rom version E didn't spread to HP71 users, and the XEDIT source publishing was never finished.

Was that the end of the JPC Rom story? No.

The new era

On 1988, on the other side of the ocean, Rodger Rosenbaum acquired a JPC Rom module (rev. D) from EduCalc. Between 1989 and 1992, he disassembled the JPC Rom and edited the generated source until it reproduced the exact binary of the original, then fixed the bugs that he knew about. He did all this on the HP-71, he had to have the maximum memory installed to do it and it took several hours to assemble the edited source with the HP-71 Forth assembler!

This "unofficial" version was named version X (actually, the VER$ function returns "JPC:Ex"). Beside the bug fixes, Rodger also had his own improvements, for instance some keyword were renamed with english-style names instead of french style, like PPCM (french Plus Petit Commun Multiple) renamed to LCM, PGCD (Plus Grand Commun Diviseur) to GCD, or ARR (Arrangement) to COMB (Combination).

Thanks to the Internet era, this X version started to spread into the remaining world-wide HP user community. I came across this version through a post of the Museum of HP Calculator forum on March 2003. I'm a HP-71B fan since the heroic times, and although I didn't use it anymore for professional purposes, I still appreciate this machine and even developed an HP-71B emulator from 1995. I had the idea to collect and rebuild the JPC source files since a long time, after the PPC-Paris definitive collapse on end of 1994, and lost of all the JPC material. Fortunately, I still had my JPC issue collection, and archives on floppy disks. Finally, I started my "JPC Source Project" on 2005, which lead to the recovery of the JPC Rom source files on May 2006 and the start of the development of a new version, 17 years after the last official version.

Jean-Francois Garnier, August 2006.
(ex-PPC-Paris #232)
For more information about the JPC Rom versions and the rebuilt source files, visit my site at
http://membres.lycos.fr/jeffcalc/jpcrom.html


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JPC Rom development milestones:
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   1985: .. first LEX files in JPC Journal       -
   1986: .. First JPC LEX                        |  PPC
   1987: .. First JPC Rom                        |   -
   1988: .. JPC Rom ver. D ---->------           | Paris
   1989: .. JPC Rom ver. E         |             |   -
                 |                 |
                 |                 v
   1992: ....... | ............ JPC Rom ver. X     (R. Rosenbaum)
                 |                 |
                 | ----------<------
                 | |
               v v
   2006: .. JPC Rom ver. F                       (on going...)
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