# Processor Tech History from Old-Computers.com

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| Processor Technology Corp |
| SOL - 10 / 20  |

The Sol Computer was developed by Bob Marsh, Lee Felsenstein and Gordon French. Bob founded his company, Processor Technology, in April 1975 making 4K RAM memory boards for the Altair (cause MITS couldn't make a working memory board)In June 1975, Bob and Les Solomon (technical editor of Popular Electronics) dreamed up the Sol-20 computer, Bob had a bunch of cheap walnut that he originally intended to use in a digital clock, he didn't want it to go to waste and used it in the Sol-20 (see picture). About 10,000 of them were produced, some as kits, some as pre-builts. Based on the Intel 8080 microprocessor, this machine occupies a special niche in computer history for technical and esthetic reasons. It was one of the earliest to include a keyboard interface and support circuitry for full implementation of every 8080 function. It was a pioneer towards modern video output boards by having a design that actually put up alphanumeric characters on the screen, using a form of distributed processing that didn't lean on the CPU for all processing. There were several models of the SOL-20 system :* The SOL System I ($1649 in kit or $2129 assembled), with SOL Operating System, 8 KB RAM, a 12" TV/Monitor, and a cassette recorder with BASIC software tape.
* The SOL System II ($1883 in kit or $2283 assembled), is a SOL System I with 16 KB.
* The SOL System III ($4750 in kit or $5450 assembled), is a system II with 32 KB RAM, a video monitor, the HELIOS II Disk Memory System and a DISK BASIC floppy.

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| Martin Scott Goldberg says :The Sol was not designed by Bob Marsh and the Osborne was not made a reality by Adam Osborne. Both were designed and built by Lee Felsenstein, who lived in Bob Marsh's garrage and was the actual electrical engineer of their stuff. He's also known for being the moderator of the Home Brew Computer Club. The operating system was written by the infamous Steve Dompier (the man who made the Altair play music at a Homebrew meeting).The idea Les Solomon had put forth was for an intelligent terminal, not an actuall full computer, and that's the way the Sol was presented in Popular Electronics in 1976. Though it was actually a full blown computer with a terminal built in.When Proc Tech folded by 1980, Lee was then hired that year by Adam Osborne to design and build a "portable" computer. This of course turned out to be the [Osborne 1](http://www.old-computers.com/museum/computer.asp?c=181).http://www.old-computers.com/museum/description/ProcTechnology/ProcessorTech_Sol_ReadMore.gif**Bob Marsh** replies:The Sol-20 electronics were jointly designed by Lee F. and me. The mechanical design was managed by Gordon French, in whose garage the very first Homebrew Computer Club meeting was held. I was out of work when I founded Processor Technology Corp. (jointly with Gary Ingram) but not when the Sol was invented. Lee never lived in any garage (that I know of). We shared use of a garage-like commercial space on Fourth Street in Berkeley, where Processor Tech later began. Concerning Osborne Computer Corp. - PTC folded in May 1979, and a year later Lee F and Adam O were both co-founders of OCC.http://www.old-computers.com/museum/description/ProcTechnology/ProcessorTech_Sol_ReadMore.gifInformation from **John Dowd**:The Sol came with one of three "personality modules", or ROM's.  Consol was one.  There was another which turned it into an intelligent terminal.  And then there was SOLOS which was the stand-alone computer ROM.  It had the cassette, parallel and serial IO interfaces as well as the capability to read memory locations out in Hexadecimal, insert hex values into memory locations and execute programs starting at a provided hex location.The source code for the ROM was included in the voluminous documentation that came with the Sol kit.  Oh, and the personality module was on a pluggable mini circuit board that plugged into a right angle connector on the main board.  This was accessible from the rear of the computer. In addition the Sol 20 had a daughter board with four S100 connectors for adding memory, controllers, etc.It's biggest drawback I think was its memory mapped video.  Memory ended at C000 because the ROM began there and video memory began at CC00.  This limited contigous memory to 48K.http://www.old-computers.com/museum/description/ProcTechnology/ProcessorTech_Sol_ReadMore.gifMore technical information from **Mike Boyd**:The Sol was born from the VDM-1 Video display board, list $160 - it was 16 lines of 64 characters - memory mapped.The designers of the board must have forgot to route the databus across the board because there was a wide ribbon cable that you had to solder on the back of the board from one side to another.The character set was a 2716 EEPROM, and PT supplied two versions - one with weird characters for the control-characters, like LF being a little "L" over a little "F" and the other had "space" characters instead so that you could play Processor Technology "Space War" with; if you got the wrong character set - your "LF" ships would shoot at your "CR" ships - not very exciting.To scroll the video, you could set the beginning line of the display using an output port.One of the first software programs was a "patch" that PT supplied in Basic; that would go and modify MicroSoft basic - to re-direct the serial output from the teletype to the VDM-1; you still would use the teletype keyboard to type to your computer.It was a very fast board, I remember running the output thru a "Pixie-Verter" (transmitter) to my parents TV set. |

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