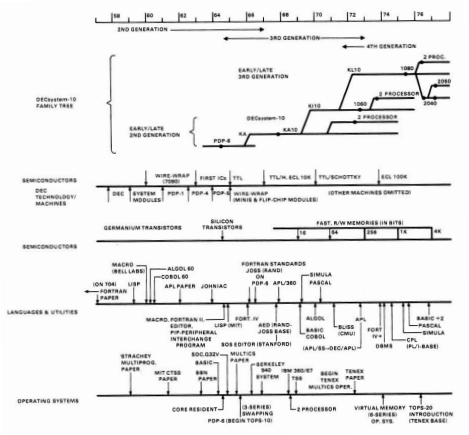
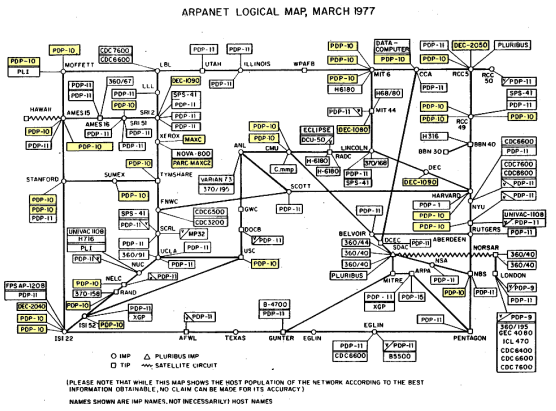
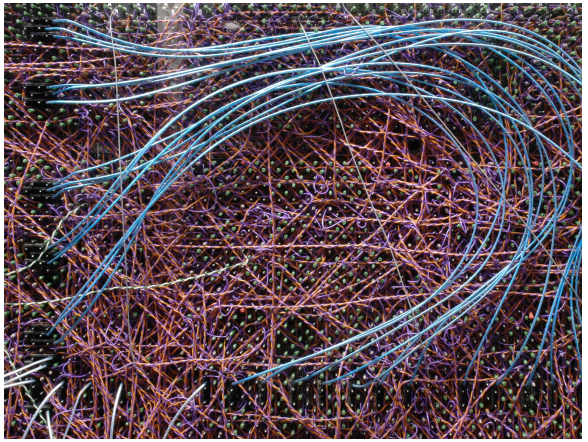
PDP Series

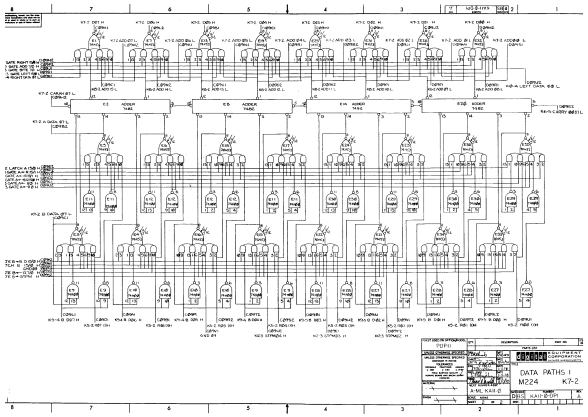
MODEL	DATE	PRICE	BITS	NUMBER	COMMENTS
PDP-1	1960	$120,000	18	50	DEC's first computer
PDP-2		NA	24	-	Never built? Prototype only?
PDP-3		NA	36		One built by a customer*, not by DEC.
PDP-4	1962	$60,000	18	45	Predecessor of the PDP-7.
PDP-5	1963	$27,000	12	1,000	The ancestor of the PDP-8.
PDP-6	1964	$300,000	36	23	A big computer; 23 built, most for MIT.
PDP-7	1965	$72,000	18	120	Widely used for real-time control.
PDP-8	1965	$18,500	12	~50,000	The smallest and least expensive PDP.
PDP-9	1966	$35,000	18	445	An upgrade of the PDP-7.
PDP-10	1967	$110,000	36	**~700	A PDP-6 followup, great for timesharing.
PDP-11	1970	$10,800	16	>600,000	DEC's first and only 16 bit computer.
PDP-12	1969	$27,900	12	725	A PDP-8 relative.
PDP-13		NA		-	Bad luck, there was no such machine.
PDP-14				***	A ROM-based programmable controller.
PDP-15	1970	$16,500	18	790	A TTL upgrade of the PDP-9.
PDP-16	1972	NA	8/16	?	A register-transfer module system.

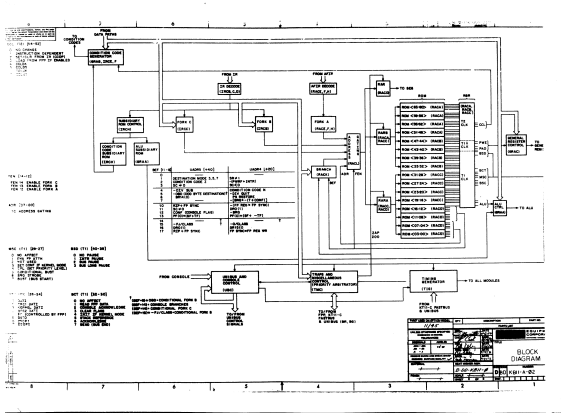


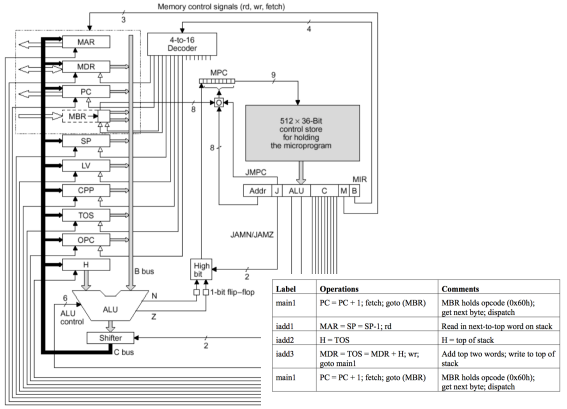
Gordon Bell & Alan Kotok



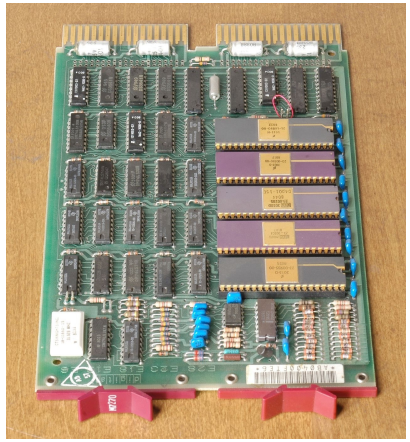








Label	Operations	Comments
main1	PC = PC + 1; fetch; goto (MBR)	MBR holds opcode (0x60h); get next byte; dispatch
iadd1	MAR = SP = SP-1; rd	Read in next-to-top word on stack
iadd2	H = TOS	H = top of stack
iadd3	MDR = TOS = MDR + H; wr; goto main1	Add top two words; write to top of stack
main1	PC = PC + 1; fetch; goto (MBR)	MBR holds opcode (0x60h); get next byte; dispatch



```
MOVE 4, B                       ; load B into register 4
CAML 4, FOO                     ; IF (b >= foo) THEN
 PUSHJ P, [                     ;   BEGIN
      HRROI A, [ASCIZ/.LT./]    ;     message = ".LT.";
      SETOM LESS                ;     less = -1;
      AOS (P)                   ;   END (skip around ELSE)
      POPJ P, ]                 ; ELSE
 PUSHJ P, [                     ;   BEGIN
      HRROI A, [ASCIZ/.GE./]    ;     message = ".GE.";
      SETZM LESS                ;     less = 0;
      POPJ P, ]                 ;   END;
PSOUT                           ; PRINT message;
```

Figure 1: MACRO-10 assembly language for the PDP-10

PDP-7

https://www.youtube.com/watch?v=DPioENtAHuY

PDP-11

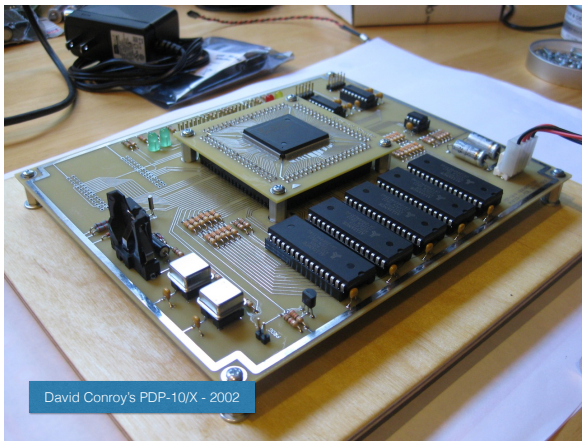
Ken Thompson (sitting)
Dennis Ritchie

```
    /*
     * If no process is runnable, idle.
     */
    if(p == NULL) {
            p = rp;
            idle();
            goto loop;
    }
    rp = p;
    curpri = n;
    /* Switch to stack of the new process and set up
     * his segmentation registers.
     */
    retu(rp->p_addr);
    sureg();
    /*
     * If the new process paused because it was
     * swapped out, set the stack level to the last call
     * to savu(u_ssav). This means that the return
     * which is executed immediately after the call to aretu
     * actually returns from the last routine which did
     * the savu.
     *
     * You are not expected to understand this.
     */
    if(rp->p_flag&SSWAP) {
            rp->p_flag =& ~SSWAP;
            aretu(u.u_ssav);
    }
    /* The value returned here has many subtle implications.
     * See the newproc comments.
     */
    return(1);
}
/* ------------------------       */
```

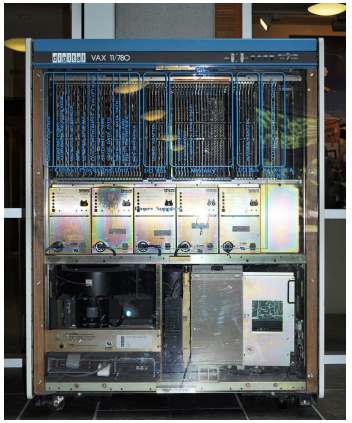
```
 * After
 * the u
 */
expand(n
{
    int i
    regis

    p = u
    n = p
    p->p_
    a1 =
    if(n

    }
    savu(
    a2 =
    if(a2

    }
    p->p_
    for(i

    mfree
    retu(
    sureg
}
/* -----
```

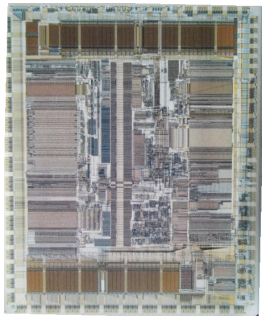
Name	Vendor	Year	Clock speed (MHz)	Virtual memory address (bits)	Physical memory address (bits)	Max memory (words)	Cache (words)	Page table entries	Front end	Microcode (words x size)	Comment
Type 166	DEC	1964	Async	18	18	256K	No	None	None	No	
KA10	DEC	1967	Async	18	18	256K	No	None	None	No	
KI10	DEC	*1971-72*	9.1	18	22	4M	No	32	None	No	
KL10-PA	DEC	1974	25	18	22	4M	2K	512	PDP-11/40	1280 x 80	KL10 Model A
KL10-PV	DEC	*1978?*	30	23	22	4M	2K	512	PDP-11/40	2K x 80	KL10 Model B
KL10-PW	DEC	*1984?*	30	23	22	4M	4K	1K	PDP-11/40	2K x 80	KL10 Model B
KS10	DEC	1978	20	18	20	512K	512	512	8080	2K x 96	Some configurations support 1MW memory.
KC10	DEC	cancelled	50-100	30					F-11	4.5K x 102	"Jupiter"
MAXC	Xerox PARC	*ca 1972?*	6.7	18	21	1M	No	1K	Nova	1K or 2K x 72	KA10 clone with BBN pager
F-1	Foonly	*1974-78?*	10?, 11	18		4M	2K	512	KA10	2K x 72	
F-2	Foonly			18		1M				7 x 72	*Small*
F-3	Foonly	*1979-82*		18						Yes, 7 x 72	*KL10 clone, designed as F-1 front end*
F-4	Foonly	*1983?*		18		2M				Yes, 10S?	*KL10 clone, KI paging*
F-4B	Foonly					2M					
F-5	Foonly	*1981?*									Desktop model
System 26	Tymshare	*c1984*		18		512K					KA10 clone with BBN pager, based on F-4
System 26KL	Tymshare	*1984-96*		23?			No		IBM PC-XT		*KL10 clone with BBN pager, based on F-4*
SC-20	SC Group		SC/25 / 2	23?					SPARC		
SC-25	SC Group			23?					SPARC		
SC-30M	SC Group	1985		23?					SPARC		"Mars"
SC-40	SC Group	1993		30	26	64M	32K	2K	SPARC	32K x 80	
		1994	33	30	33	128M	128K	8K	Builtin	8K x 128	
		2007		30						Yes	
?	Neil Franklin	2007							Microcontroller	No	
PDP-10/X	David Conroy	2002	*33?*	18	22	4M	No	1K		32K x 24	Runs ITS

Simulator characteristics



http://pdp11.aiju.de





digital

COMPAQ

hp

interesting bits

- smaller end machines often used as the front end to “big iron” machines
- origin of “hackers” and “open source”
- stuck with 36 bits
  - big bad little endian
- time sharing!
  - scheduling and virtual memory designed needed
    - virtual memory was from segments
- “fast memory”
- super CISC (complex instruction set computer)