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DECUS NO.	8-589a
TITLE	BOOTST, UNIVERSAL OS/8 (PS/8) BOOTSTRAP
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SOURCE LANGUAGE	PAL III

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BOOTST, UNIVERSAL OS/8 (PS/8) BOOTSTRAP

Hardware: PDP-8 series computer configured for OS-8/PS-8.  
(the writer has had no opportunity to try this routine on a PDP-8/S; it should run on the other 8's.)

Function: When started at \*4000 in field 0, the program communicates with the user via the console typewriter. The user names the system device (by typing the first two letters of its name, e.g. "DF" for DF-32); the program responds by finding the bootstrap for that device, loading it into core, and starting it. If the device is configured for OS-8/PS-8, a "." will be printed on the keyboard.

Loading: The paper tape is divided into the following:

- (a) code 200, a binary program, code 200
- (b) several feet of blanks, "Help" format material (odd-looking)
- (c) 10 punches (one inch) of code 200, RIM format material

Binary loading: Use the paper tape binary loader, ABSLDR, or any other binary loader to load section (a) in the usual fashion.

RIM loading: Use the RIM loader (S.A.=7756) to load section (c) into field 0.

"Help" loading: If a high-speed reader is available, load the blanks (section (b)) into the reader. Toggle in the following instructions:

(Field 0)	<u>Address</u>	<u>Contents</u>
	0000	6014
	1	6016
	2	6001
	3	7530
	4	3410
	5	7106
	6	5006
	7	0
	10	0

Start at address 0000 in field 0.

[This bootstrap/"Help" combination are the work of Frank Palmisano and may be found in the DECUS library.]

Dialogue: The dialogue is self-explanatory and needs no comment here. The only legal user input is alphabetic letters (two); other characters, if typed, are ignored entirely. If the device specified is unknown to BOOTST, the dialogue is re-started from the beginning. Space is left in the program for another device.

UNIVERSAL OS-8 BOOTSTRAP

LEGAL DEVICES ARE:

TC = TC01 OR TC08  
TD = TD8E, 12K CORE  
RO = ROM TD8E SYSTEM  
DF = DF32 DISK  
RF = RF08 DISK  
RK = RK8 DISK (NOT RK8E ! )  
RE = RK8E DECPACK

YOUR SYS: DEVICE IS ?? RE

```

1          /"BOOTST".RK8(E)
2
3          0000  FIELD 0
4
5          0020  *20
6          00020 7610  RK8E,  CLA SKP
7          00021 7610  RK8,   CLA SKP
8          00022 1033          TAD K10
9          00023 1032          TAD K6733
10         00024 3030          DCA 30
11         00025 7101          IAC CLL
12         00026 6742          6742
13         00027 6732          6732
14         00030 7000          NOP
15         00031 5031          JMP .
16         00032 6733  K6733, 6733
17         00033 0010  K10,   10
18

```

/WILL = 6733 OR 6743

```

20      /"BOOTST", 05-8 BOOTSTRAP
21
22      4000 *4000
23
24      /.SAVE ... BOOTST 20-33,3600-4377;4001=2003
25
26      04000 7000      NOP      /RIM CAN BLOW *4000
27      04001 7300      K7300,   CLA CLL
28      04002 6211      CDF 10
29      04003 3663      DCA I K7642  /OS-8 WANTS THIS CLEAR
30      04004 6201      CDF
31      04005 4657      JMS I TXT    /PRINT MESSAGE
32
33      04006 6032      GETNAM,  KCC
34      04007 4264      JMS READ   /READ USER RESPONSE
35      04010 7106      CLL RTL
36      04011 7006      RTL
37      04012 7006      RTL
38      04013 3262      DCA STOR
39      04014 4264      JMS READ
40      04015 1262      TAD STOR   /6 BITS OF 1ST LETTER
41      04016 3262      DCA STOR   /2 LTRS. PACKED AS 1 WD.
42      04017 1236      TAD KLISTA
43      04020 3260      DCA PTRI
44      04021 2260      LOOPDV,  ISZ PTRI  /LOOK FOR NAME IN LISTA
45      04022 1660      TAD I PTRI
46      04023 7500      SMA
47      04024 5200      JMP 4000   /DEVICE NOT FOUND.
48      04025 1262      TAD STOR
49      04026 7640      SZA CLA   /FOUND DEVICE YET?
50      04027 5221      JMP LOOPDV /NOT YET, TRY AGAIN
51
52      04030 1260      FOUND,  TAD PTRI
53      04031 1247      TAD AUGMNT
54      04032 3260      DCA PTRI  /NOW POINTS TO LISTB
55      04033 1660      TAD I PTRI
56      04034 3260      DCA PTRI  /ADRS. OF ROUTINE FOR
57      04035 5660      JMP I PTRI / THIS DEVICE
58
59      04036 4036      KLISTA, .
60      04037 5375      LISTA,  -2403  /-TC  [-01 OR -08]
61      04040 5374      -2404  /-TD  [TD8E, 12 KI]
62      04041 5561      -2217  /-RO  [SAME, ROM ]
63      04042 7372      -0406  /-DF
64      04043 5572      -2206  /-RF
65      04044 5565      -2213  /-RK
66      04045 5573      -2205  /-RE  [RK8E]
67      04046 0000      0      / (SPARE)
68
69      04047 0011      AUGMNT, LISTB-LISTA
70
71      04050 4133      LISTB,  TC0
72      04051 4162      TD8E

```

73	04052	4200		ROM	
74	04053	4150		DF32	
75	04054	4150		RF08	
76	04055	0021		RK8	
77	04056	0020		RK8E	
78					
79	04057	4257	TXT,	TEXTYP	
80	04060	0000	PTR1,	0	
81	04061	0000	PTR2,	0	
82	04062	0000	STOR,	0	
83	04063	7642	K7642,	7642	
84					
85	04064	0000	READ,	0	/READ LETTER (A TO Z)
86	04065	6031		KSF	/ IGNORE ILLEGAL CODES
87	04066	5265		JMP .-1	
88	04067	6036		KRB	
89	04070	0314		AND K177	/7 BITS, DROP PARITY
90	04071	1317		TAD M101	/-A
91	04072	7510		SPA	
92	04073	5265		JMP READ+1	
93	04074	1320		TAD M31	/-Z NET
94	04075	7540		SMA SZA	
95	04076	5265		JMP READ+1	
96	04077	1315	NORMAL,	TAD K132	/RESTORE
97	04100	3321		DCA STOR2	
98	04101	1321		TAD STOR2	
99	04102	4306		JMS TYPE	/ONLY LEGAL CHARS. ECHOED
100	04103	1321		TAD STOR2	
101	04104	0316		AND K77	/6 BITS
102	04105	5664		JMP I READ	
103	04106	0000	TYPE,	0	
104	04107	6041		TSF	
105	04110	5307		JMP .-1	
106	04111	6046		TLS	
107	04112	7200		CLA	
108	04113	5706		JMP I TYPE	
109					
110	04114	0177	K177,	177	
111	04115	0132	K132,	132	
112	04116	0077	K77,	77	
113	04117	7677	M101,	-101	
114	04120	7747	M31,	-31	
115	04121	0000	STOR2,	0	
116					
117	04122	0000	DEPOST,	0	/DEPOSIT PROPER BOOTSTRAP
118				/	CALLED WITH 1ST ADRS. IN AC
119	04123	3260		DCA PTR1	
120	04124	1661		TAD I PTR2	
121	04125	7450		SNA	
122	04126	5722		JMP I DEPOST	/0=END OF LIST
123	04127	3660		DCA I PTR1	
124	04130	2261		ISZ PTR2	
125	04131	2260		ISZ PTR1	
126	04132	5324		JMP DEPOST+2	

127					
128	04133	1355	TC0,	TAD KLIST1	
129	04134	3261		DCA PTR2	
130	04135	1344		TAD K7613	
131	04136	4322		JMS DEPOST	/DEPOSIT AT ADRS.=7613 & FF.
132					
133	04137	1345		TAD K7577	
134	04140	3746		DCA I K7754	
135	04141	1345		TAD K7577	
136	04142	3747		DCA I K7755	
137	04143	5744		JMP I K7613	
138					
139	04144	7613	K7613,	7613	
140	04145	7577	K7577,	7577	
141	04146	7754	K7754,	7754	
142	04147	7755	K7755,	7755	
143					
144			RF08,		
145	04150	1356	DF32,	TAD KLIST2	
146	04151	3261		DCA PTR2	
147	04152	1360		TAD K7750	
148	04153	4322		JMS DEPOST	
149	04154	5760		JMP I K7750	
150					
151	04155	4203	KLIST1,	LIST1	
152	04156	4215	KLIST2,	LIST2	
153	04157	4223	KLIST3,	LIST3	
154					
155	04160	7750	K7750,	7750	
156	04161	5031	K5031,	5031	
157					
158	04162	1357	TD8E,	TAD KLIST3	
159	04163	3261		DCA PTR2	
160	04164	1201		TAD K7300	
161	04165	4322		JMS DEPOST	
162	04166	5601		JMP I K7300	
163					
164		4200	*4200		
165					
166	04200	6272	ROM,	CIF 70	
167	04201	5602		JMP I .+1	
168	04202	7470		7470	



169			
170			LIST1,
171	04203	6774	6774
172	04204	1222	1222
173	04205	6766	6766
174	04206	6771	6771
175	04207	5216	5216
176	04210	1223	1223
177	04211	5215	5215
178	04212	0600	600
179	04213	0220	220
180	04214	0000	0
181			
182			LIST2,
183	04215	7600	7600
184	04216	6603	6603
185	04217	6622	6622
186	04220	5352	5352
187	04221	5752	5752
188	04222	0000	0
189			
190			LIST3,
191	04223	1312	1312
192	04224	4312	4312
193	04225	4312	4312
194	04226	6773	6773
195	04227	5303	5303
196	04230	6777	6777
197	04231	3726	3726
198	04232	2326	2326
199	04233	5303	5303
200	04234	5732	5732
201			
202	04235	2000	2000
203	04236	1300	1300
204	04237	6774	6774
205	04240	6771	6771
206	04241	5315	5315
207	04242	6776	6776
208	04243	0331	331
209	04244	1327	1327
210	04245	7640	7640
211	04246	5315	5315
212	04247	2321	2321
213	04250	5712	5712
214			
215	04251	7354	7354
216	04252	7756	7756
217	04253	7747	7747
218	04254	0077	77
219	04255	7400	7400
220	04256	0000	0

221					
222	04257	0000	TEXTYP, 0		/THE FIRST LOCN. (3600) OF PACKED
223			/		TEXT CONTAINS THE LINE COUNT
224					
225	04260	6046		TLS	
226	04261	1342		TAD C3600	/TEXT ADRS.
227	04262	3333		DCA LOCN	/POINTER TO TEXT
228	04263	1733		TAD I LOCN	
229	04264	7041		CIA	
230	04265	3330		DCA LINECT	/SETS UP LINE COUNTER
231	04266	2333	GO,	ISZ LOCN	/GET WORD
232	04267	1733		TAD I LOCN	
233	04270	3332		DCA WORD	
234	04271	7144		CLL CMA RAL	/-2
235	04272	3331		DCA CYCLE	
236	04273	1332		TAD WORD	
237	04274	7112		CLL RTR	
238	04275	7012		RTR	
239	04276	7012		RTR	
240	04277	0334	LOOP,	AND C77	
241	04300	7450		SNA	/0 IN BITS 6-11?
242	04301	5314		JMP NEWLIN	/YES, A NEW LINE
243	04302	1341		TAD N40	/LETTER OR NUMBER?
244	04303	7510		SPA	
245	04304	1335		TAD C100	/LETTER, NEEDS 300
246	04305	1340		TAD C240	/RESTORE 40, ADD 200
247	04306	4727		JMS I PTYPE	/TYPE IT
248	04307	1332		TAD WORD	
249	04310	2331		ISZ CYCLE	/DONE BOTH HALVES?
250	04311	5277		JMP LOOP	/NO, GO BACK
251	04312	7200		CLA	/YES
252	04313	5266		JMP GO	
253					
254	04314	2330	NEWLIN,	ISZ LINECT	/DONE ALL LINES?
255	04315	7410		SKP	
256	04316	5657		JMP I TEXTYP	/YES, EXIT
257	04317	4321		JMS CRLF	/NO, PREPARE FOR NEXT
258	04320	5266		JMP GO	
259					
260	04321	0000	CRLF,	0	
261	04322	1337		TAD C215	
262	04323	4727		JMS I PTYPE	
263	04324	1336		TAD C212	
264	04325	4727		JMS I PTYPE	
265	04326	5721		JMP I CRLF	
266					
267	04327	4106	PTYPE,	TYPE	
268					
269	04330	0000	LINECT,	0	
270	04331	0000	CYCLE,	0	
271	04332	0000	WORD,	0	
272	04333	0000	LOCN,	0	

273				
274	04334	0077	C77,	77
275	04335	0100	C100,	100
276	04336	0212	C212,	212
277	04337	0215	C215,	215
278	04340	0240	C240,	240
279	04341	7740	N40,	-40
280	04342	3600	C3600,	3600
281				
282			/THE STORED MESSAGE TEXT, PACKED IN 6-BIT FORMAT,	
283			/RESIDES IN LOCATIONS 3600 FF.	
284				
285				
286				
287		3600	*3600	
288	03600	0016	LINES	
289	03601	0000	0	
290	03602	2516	TEXT "UNIVERSAL OS-8 BOOTSTRAP"	
291	03603	1126		
292	03604	0522		
293	03605	2301		
294	03606	1440		
295	03607	1723		
296	03610	5570		
297	03611	4002		
298	03612	1717		
299	03613	2423		
300	03614	2422		
301	03615	0120		
302	03616	0000		
303	03617	0000	0	
304	03620	1405	TEXT "LEGAL DEVICES ARE:"	
305	03621	0701		
306	03622	1440		
307	03623	0405		
308	03624	2611		
309	03625	0305		
310	03626	2340		
311	03627	0122		
312	03630	0572		
313	03631	0000		
314	03632	0000	0	
315	03633	2403	TEXT "TC = TC01 OR TC08"	
316	03634	4040		
317	03635	4040		
318	03636	7540		
319	03637	2403		
320	03640	6061		
321	03641	4017		
322	03642	2240		
323	03643	2403		
324	03644	6070		
325	03645	0000		
326	03646	2404	TEXT "TD = TD8E, 12K CORE"	
327	03647	4040		

328	03650	4040		
329	03651	7540		
330	03652	2404		
331	03653	7005		
332	03654	5440		
333	03655	6162		
334	03656	1340		
335	03657	0317		
336	03660	2205		
337	03661	0000		
338	03662	2217	TEXT "RO	= ROM TD&E SYSTEM"
339	03663	4040		
340	03664	4040		
341	03665	7540		
342	03666	2217		
343	03667	1540		
344	03670	2404		
345	03671	7005		
346	03672	4023		
347	03673	3123		
348	03674	2405		
349	03675	1500		
350	03676	0406	TEXT "DF	= DF32 DISK"
351	03677	4040		
352	03700	4040		
353	03701	7540		
354	03702	0406		
355	03703	6362		
356	03704	4004		
357	03705	1123		
358	03706	1300		
359	03707	2206	TEXT "RF	= RF08 DISK"
360	03710	4040		
361	03711	4040		
362	03712	7540		
363	03713	2206		
364	03714	6070		
365	03715	4004		
366	03716	1123		
367	03717	1300		
368	03720	2213	TEXT "RK	= RK8 DISK (NOT RK8E ! )"
369	03721	4040		
370	03722	4040		
371	03723	7540		
372	03724	2213		
373	03725	7040		
374	03726	0411		
375	03727	2313		
376	03730	4050		
377	03731	1617		
378	03732	2440		
379	03733	2213		
380	03734	7005		
381	03735	4041		
382	03736	4051		

383	03737	0000		
384	03740	2205	TEXT "RE	= RK8E DECPACK"
385	03741	4040		
386	03742	4040		
387	03743	7540		
388	03744	2213		
389	03745	7005		
390	03746	4004		
391	03747	0503		
392	03750	2001		
393	03751	0313		
394	03752	0000		
395	03753	0000		
396	03754	3117	TEXT "YOUR	SYS: DEVICE IS ?? "
397	03755	2522		
398	03756	4040		
399	03757	2331		
400	03760	2372		
401	03761	4040		
402	03762	0405		
403	03763	2611		
404	03764	0305		
405	03765	4011		
406	03766	2340		
407	03767	7777		
408	03770	4000		
409				
410	0016	LINES=16		
411				
412		\$\$\$ 8-23-73 REV.		

AUGMNT	4047	STOR2	4121
CRLF	4321	TC0	4133
CYCLE	4331	TD8E	4162
C100	4335	TEXTYP	4257
C212	4336	TXT	4057
C215	4337	TYPE	4106
C240	4340	WORD	4332
C3600	4342		
C77	4334		
DEPOST	4122		
DF32	4150		
FOUND	4030		
GETNAM	4006		
GO	4266		
KLISTA	4036		
KLIST1	4155		
KLIST2	4156		
KLIST3	4157		
K10	0033		
K132	4115		
K177	4114		
K5031	4161		
K6733	0032		
K7300	4001		
K7577	4145		
K7613	4144		
K7642	4063		
K77	4116		
K7750	4160		
K7754	4146		
K7755	4147		
LINECT	4330		
LINES	0016		
LISTA	4037		
LISTB	4050		
LIST1	4203		
LIST2	4215		
LIST3	4223		
LOCN	4333		
LOOP	4277		
LOOPDV	4021		
M101	4117		
M31	4120		
NEWLIN	4314		
NORMAL	4077		
N40	4341		
PTR1	4060		
PTR2	4061		
PTYPE	4327		
READ	4064		
RF08	4150		
RK8	0021		
RK8E	0020		
ROM	4200		
STOR	4062		

AUGMNT	53	69#								
CRLF	257	260#	265							
CYCLE	235	249	270#							
C100	245	275#								
C212	263	276#								
C215	261	277#								
C240	246	278#								
C3600	226	280#								
C77	240	274#								
DEPOST	117#	122	126	131	148	161				
DF32	74	145#								
FOUND	52#									
GETNAM	33#									
GO	231#	252	258							
KLISTA	42	59#								
KLIST1	128	151#								
KLIST2	145	152#								
KLIST3	153#	158								
K10	8	17#								
K132	96	111#								
K177	89	110#								
K5031	156#									
K6733	9	16#								
K7300	27#	160	162							
K7577	133	135	140#							
K7613	130	137	139#							
K7642	29	83#								
K77	101	112#								
K7750	147	149	155#							
K7754	134	141#								
K7755	136	142#								
LINECT	230	254	269#							
LINES	288	410#								
LISTA	60#	69								
LISTB	69	71#								
LIST1	151	170#								
LIST2	152	182#								
LIST3	153	190#								
LOCN	227	228	231	232	272#					
LOOP	240#	250								
LOOPDV	44#	50								
M101	90	113#								
M31	93	114#								
NEWLIN	242	254#								
NORMAL	96#									
N40	243	279#								
PTR1	43	44	45	52	54	55	56	57	80#	119
	123	125								
PTR2	81#	120	124	129	146	159				
PTYPE	247	262	264	267#						
READ	34	39	85#	92	95	102				
RF08	75	144#								
RK8	7#	76								
RK8E	6#	77								
ROM	73	166#								
STOR	38	40	41	48	82#					
STOR2	97	98	100	115#						
TC0	71	128#								
TD8E	72	158#								

TEXTYP	79	222#	256	
TXT	31	79#		
TYPE	99	103#	108	267
WORD	233	236	248	271#