



# DECUS

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DECUS NO.	12-16
TITLE	MODCLK
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DATE	November 16, 1970
SOURCE LANGUAGE	LAP6-DIAL



# MODCLK

DECUS Program Library Write-up

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0001      *20
0002      /TITLE: MODCLK
0003      /BY: STEPHEN J. MAYOR, PH.D.
0004      /LOCATION: DEPTS. OF PHYSIOLOGY & PSYCH-
0005      /IATRY, MEDICAL COLLEGE OF OHIO AT TOL-
0006      /EDO, BOX 6190, TOLEDO, OHIO.
0007      /DATE:10-22-70
0008      /PURPOSE: A TEST OF THE KW-12 CLOCK
0009      /WHICH USES THE SENSE SWITCHES & TELE-
0010      /TYPE. EACH SENSE SWITCH CORRESPONDS
0011      /TO A PARTICULAR CLOCK FREQUENCY & DE-
0012      /PRESSING A SWITCH CAUSES THE TELETYPE
0013      /BELL TO RING AT A CERTAIN RATE AS FOL-
0014      /LOWS: SNS0, 100 HZ, 1/SEC; SNS1, 1KHZ,
0015      /1/2 SEC; SNS2, 10 KHZ, 1/4 SEC; SNS3,
0016      /100 KHZ, 1/6 SEC; SNS4, 400 KHZ, 1/8
0017      /SEC.
0018      /ABBREVIATIONS:
0019      /AC=ACCUMULATOR
0020      /APPROP=APPROPRIATE
0021      /B/P=BUFFER/PRESET
0022      /CLK=CLOCK
0023      /CONST=CONSTANT
0024      /CTL=CONTROL
0025      /CTR=COUNTER
0026      /EST=ESTABLISHES
0027      /F=FREQUENCY
0028      /HZ=HERTZ
0029      /INSTRN=INSTRUCTION
0030      /LOC=LOCATION
0031      /NO=NUMBER
0032      /OCT=OCTAL
0033      /PGM=PROGRAM
0034      /R=REGISTER
0035      /SNSW=SENSE SWITCH
0036      /SR=SUBROUTINE
0037      /S0=SNSW ZERO, ETC.
0038      /STAT=STATUS
0039      /TTY=TELETYPE
0040      PMODE
0041      *200
0042      0200 7300  CLA CLL
0043      0201 6132  CLLR /ZEROES CLK CTL R.
0044      0202 6134  CLEN /ZEROES CLK ENABLE R.
0045      0203 6135  CLSA /CLK STAT INTO AC & ZEROES.
0046      0204 7300  CLA CLL
0047      0205 5771  JMP I SNSW /READ SNSW SR.

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0057	0206	7300	RPT,	CLA CLL
0060	0207	1345		TAD CTREG /PICKS UP CONST,
0061	0210	7041		CIA /COMPLEMENTS & INCREMENTS
0062	0211	6133		CLAB /IT & PLACES IN B/P R.
0063	0212	7200		CLA
0064	0213	1361		TAD MX /PUTS CONST FOR NO OF
0065	0214	7041		CIA /LOOP PASSES INTO MX R.
0066	0215	3344		DCA CTR
0067	0216	7200		CLA
0070	0217	1346		TAD K100 /EST ODD MODE FOR
0071	0220	6132		CLLR /CLEN INSTRN TO WORK.
0072	0221	7200		CLA
0073	0222	1351		TAD K300 /SETS AC04 & 05 = 1.
0074	0223	6134		CLEN /B/P INTO CTR ON OVERFLOW
0075	0224	7200		CLA /WHEN RESET TO ZERO.
0076	0225	1370		TAD RATE /STARTS CLK BY PUTTING
0077	0226	6132		CLLR /RATE CONST INTO CLK CTL R.
0100	0227	6131	LOOP,	CLSK /WAITS FOR CTR R TO
0101	0230	5227		JMP LOOP /OVERFLOW.
0102	0231	6135		CLSA /CLEARS CLK STAT R & CTR
0103	0232	7200		CLA /R OVERFLOW;PUTS B/P IN CTR.
0104	0233	1344		TAD CTR /EST NO OF PASSES THRU
0105	0234	1343		TAD A1 /LOOP BEFORE GOING TO
0106	0235	3344		DCA CTR /RING SR.
0107	0236	1344		TAD CTR
0110	0237	7440		SZA
0111	0240	5227		JMP LOOP
0112	0241	5242		JMP RING
0113	0242	7200	RING,	CLA /SR FOR TTY BELL.
0114	0243	1350		TAD K207
0115	0244	6046		TLS
0116	0245	7200		CLA
0117	0246	1361		TAD MX
0120	0247	7041		CIA
0121	0250	3344		DCA CTR
0122	0251	5227		JMP LOOP
0123	0252	7200	LOAD,	CLA /SR WHICH LOOKS FOR
0124	0253	1772		TAD I SS0 /SNSW LOC THAT HAS
0125	0254	7440		SZA /0001 STORED IN IT & TRANS
0126	0255	5273		JMP F100 /FERS PGM TO APPROP
0127	0256	7200		CLA /LOC TO PICKUP CONSTS.
0130	0257	1773		TAD I SS1
0131	0260	7440		SZA
0132	0261	5303		JMP F1KC
0133	0262	7200		CLA
0134	0263	1774		TAD I SS2
0135	0264	7440		SZA
0136	0265	5313		JMP F10KC
0137	0266	7200		CLA
0140	0267	1775		TAD I SS3
0141	0270	7440		SZA
0142	0271	5323		JMP F100KC
0143	0272	5333		JMP F400KC

0144	0273	7200	F100,	CLA
0145	0274	1347		TAD K144 /OCT 100 FOR B/P R.
0146	0275	3345		DCA CTREG
0147	0276	1357		TAD K5100 /SETS F=100 HZ &
0150	0277	3370		DCA RATE /PRESET TIME MODE.
0151	0300	1362		TAD M1 /NO OF LOOP PASSES
0152	0301	3361		DCA MX /BEFORE ENTERING RING SR.
0153	0302	5206		JMP RPT /ENTERS CONSTS IN
0154	0303	7200	F1KC,	CLA /APPROX CLK R.
0155	0304	1353		TAD K1750
0156	0305	3345		DCA CTREG
0157	0306	1356		TAD K4100
0160	0307	3370		DCA RATE
0161	0310	1363		TAD M2
0162	0311	3361		DCA MX
0163	0312	5206		JMP RPT
0164	0313	7200	F10KC,	CLA
0165	0314	1360		TAD K7640
0166	0315	3345		DCA CTREG
0167	0316	1355		TAD K3100
0170	0317	3370		DCA RATE
0171	0320	1364		TAD M12
0172	0321	3361		DCA MX
0173	0322	5206		JMP RPT
0174	0323	7200	F100KC,	CLA
0175	0324	1360		TAD K7640
0176	0325	3345		DCA CTREG
0177	0326	1354		TAD K2100
0200	0327	3370		DCA RATE
0201	0330	1366		TAD M226
0202	0331	3361		DCA MX
0203	0332	5206		JMP RPT
0204	0333	7200	F400KC,	CLA
0205	0334	1360		TAD K7640
0206	0335	3345		DCA CTREG
0207	0336	1352		TAD K1100
0210	0337	3370		DCA RATE
0211	0340	1367		TAD M1440
0212	0341	3361		DCA MX
0213	0342	5206		JMP RPT
0214	0343	0001	A1,	0001
0215	0344	0000	CTR,	0000
0216	0345	0000	CTREG,	0000
0217	0346	0100	K100,	0100
0220	0347	0144	K144,	0144
0221	0350	0207	K207,	0207
0222	0351	0300	K300,	0300
0223	0352	1100	K1100,	1100
0224	0353	1750	K1750,	1750
0225	0354	2100	K2100,	2100
0226	0355	3100	K3100,	3100
0227	0356	4100	K4100,	4100
0230	0357	5100	K5100,	5100
0231	0360	7640	K7640,	7640
0232	0361	0000	MX,	0000
0233	0362	0001	M1,	0001
0234	0363	0002	M2,	0002

0235	0364	0012	M12,	0012
0236	0365	0031	M31,	0031
0237	0366	0226	M226,	0226
0240	0367	1440	M1440,	1440
0241	0370	0000	RATE,	0000
0242	0371	0400	SNSW,	READ
0243	0372	0440	SS0,	S0
0244	0373	0441	SS1,	S1
0245	0374	0442	SS2,	S2
0246	0375	0443	SS3,	S3
0247	0376	0444	SS4,	S4
0250				*400
0251	0400	6141	READ,	LINC
0252				LMODE
0253	0401	0011		CLR /STORES 0 IN SNSW LOCS
0254	0402	4440		STC S0 /S0 TO S4.
0255	0403	4441		STC S1
0256	0404	4442		STC S2
0257	0405	4443		STC S3
0260	0406	4444		STC S4
0261	0407	0440	RSNSW,	SNS 0 /LOOKS AT EACH SNSW
0262	0410	6414		JMP .+4 /UNTIL ONE IS PRESSED
0263	0411	2437		ADD P1 /THEN STORES 0001 IN
0264	0412	4440		STC S0 /APPROP LOC & TRANSFERS
0265	0413	6435		JMP PM /PGM CTL TO ANOTHER
0266	0414	0441		SNS 1 /SR WHICH PICKS UP
0267	0415	6421		JMP .+4 /& STORES VARIOUS CONSTS
0270	0416	2437		ADD P1 /WHICH RUN THE CLK.
0271	0417	4441		STC S1
0272	0420	6435		JMP PM
0273	0421	0442		SNS 2
0274	0422	6426		JMP .+4
0275	0423	2437		ADD P1
0276	0424	4442		STC S2
0277	0425	6435		JMP PM
0300	0426	0443		SNS 3
0301	0427	6433		JMP .+4
0302	0430	2437		ADD P1
0303	0431	4443		STC S3
0304	0432	6435		JMP PM
0305	0433	0444		SNS 4
0306	0434	6407		JMP RSNSW
0307	0435	0002	PM,	PDP
0310				PMODE
0311	0436	5645		JMP I PLOAD
0312	0437	0001	P1,	0001
0313	0440	0000	S0,	0000
0314	0441	0000	S1,	0000
0315	0442	0000	S2,	0000
0316	0443	0000	S3,	0000
0317	0444	0000	S4,	0000
0320	0445	0252	PLOAD,	LOAD

0000 ERRORS

A1	0343	SS2	0374
CTR	0344	SS3	0375
CTREG	0345	SS4	0376
F1KC	0303	S0	0440
F10KC	0313	S1	0441
F100	0273	S2	0442
F100KC	0323	S3	0443
F400KC	0333	S4	0444
K100	0346		
K1100	0352		
K144	0347		
K1750	0353		
K207	0350		
K2100	0354		
K300	0351		
K3100	0355		
K4100	0356		
K5100	0357		
K7540	0360		
LOAD	0252		
LOOP	0227		
MX	0361		
M1	0362		
M12	0364		
M1440	0367		
M2	0363		
M226	0366		
M31	0365		
PLOAD	0445		
PM	0435		
P1	0437		
RATE	0370		
READ	0400		
RING	0242		
RPT	0206		
RSNSW	0417		
SNSW	0371		
SS0	0372		
SS1	0373		

