

ADF11

MULTI CHANNEL SAMPLE
MD-11-DZADK-A
HOLD DIAGNOSTIC

EP-DZADK-A-DL
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FICHE 1 OF 1

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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZADK-A-LA
PRODUCT NAME: (ADF11) MULTI CH. SAMPLE & HOLD DIAG.
DATE CREATED: AUGUST 12, 1975
MAINTAINER: IPGCS
AUTHOR: RAY BALDWIN

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1 ;THIS PROGRAM IS INTENDED TO EXERCISE THE ACO2 SAMPLE AND HOLD
2 ;OPTION WHICH IS INTERFACED TO THE ADF11 ANALOG TO DIGITAL CONVERTER.
3 ;
4 ;THE PROGRAM WILL TAKE CONVERSIONS IN THE SEQUENTIAL CHANNEL MODE
5 ;USING THE VALUES IN LOCATIONS "FIRSCH" & "LASTCH" AS THE RANGE
6 ;OF THE CHANNELS TO BE SAMPLED.
7 ;
8 ;THE CHANNELS RANGE IS NOT TO EXCEED THE ABSOLUTE VALUE OF LOCATION
9 ; "MAXCH"
10 ;THE ENTIRE RANGE OF THE CHANNELS IS SAMPLED AND THE CONVERTED
11 ;DATA IS STORED IN TABLE BUFF:"
12 ;
13 ;SWITCH REGISTER BIT 15 IS RAISED TO INITIATE THE SEQUENCE OF
14 ;CONVERSIONS THEN IF SWITCH REGISTER BIT 14 IS RAISED THE
15 ;SWITCH REGISTER BITS 0-7 ARE USED TO INDEX INTO THE DATA BUFFER
16 ;TO RETRIEVE DATA WHICH IS THEN DISPLAYED IN THE CONSOLE SWITCH
17 ;LIGHTS .THE DISPLAYING WILL CONTINUE UNTILL BIT
18 ;14 IS LOWERED. TO TAKE A NEW TABLE OF CONVERSIONS BIT 15 MUST
19 ;BE RAISED.
20 ;
21 ;SWITCH REGISTER BIT 13 IS RAISED TO INITIATE CALIBRATION
22 ;ROUTINE FOR A461'S
23 ;IF A CALIBRATION ROUTINE IS TO BE RUN BIT 15 AND
24 ;BIT 13 MUST BE USED IN CONJUNCTION
25 ;
26 ;BEFORE INITIATING THIS TEST THE OPERATOR MUST PRE-
27 ;LOAD LOCATIONS "FIRSCH:", "LASTCH:" & "MAXCH:".
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```
30 ;ABS
31 177570 SWR=177570 ;SWITCH REGISTER
32 100000 BIT15=100000
33 040000 BIT14=040000
34 020000 BIT13=020000
35 177776 PSR=177776 ;PROCESSOR STATUS
36 000006 SP=%6
37 000005 R5=%5
38 000004 R4=%4
39 000003 R3=%3
40 000002 R2=%2
41 000001 R1=%1
42 000007 PC=%7
43
44
45 ;DEVICE REGISTERS
46
47 164000 ADSWR=164000
48 164002 ADWRA=164002
49 164004 ADWCR=164004
50 164006 ADCR=164006
51 164010 ADCSR=164010
52 164012 ADDBP=164012
53 164014 ADWkH=164014
54 164016 ADIMO=164016
```

```

55          000400          .=400
56 000400 000000  FIRSCH: 0
57 000402 000000  LASTCH: 0
58 000404 000000  MAXCH: 0          ;VALUE OF HIGHEST CHANNEL * (OCT.)
59 000406 000000  WCNT: 0          ;WORD COUNT VALUE
60 000410 000274  ADINT:274
61 000412 000276  ADLVL:276
62 000414 000001  LOOP: 1          ;# OF ITERATIONS OF DISPLAY LOOP (MORE THAN 0)
63
64
65
66          001000          .=1000
67 001000 000000  STACK: 0
68          001000          .=1000
69 001000 000005  START: RESET
70 001002 012706 001000  MOV      #STACK,SP
71 001006 012767 000340 176762  MOV      #340,PSR
72
73
74
75 001014 000005  RESET
76 001016 016701 177360  MOV      LASTCH,R1
77 001022 016702 177352  MOV      FIPSCH,R2
78 001026 160201  SUB      R2,R1
79 001030 010167 177352  MOV      R1,WCNT          ;IF LEGAL THE DIFFERENCE IS W.C.
80 001034 020167 177344  CMP      R1,MAXCH
81 001040 003401  RLE     RET
82 001042 000000  HALT           ;CHANNELS NOT WITHIN RANGE
83 001044 016701 177332  RET:     MOV      LASTCH,R1
84 001050 005767 176514  TST      SWR          ;WAIT FOR SIG TO TAKE CONVERSIONS
85 001054 100373  BPL     RET
86
87          ;PRIME ADF11 TO TAKE CONVERSIONS IN THE SEQUENTIAL CHANNEL MODE FROM
88          ;FIRST CHANNEL.
89 001056 052737 020000 164010  BIS      #20000,##ADCSR          ;INIT THE ADF11
90 001064 005267 177316  INC      WCNT          ;+1 TO INCLUDE CH0
91 001070 005467 177312  NEG      WCNT          ;SET UP THE W.C.
92 001074 016737 177306 164004  MOV      WCNT,##ADWCR          ;LOAD THE WORD COUNT REGISTER
93 001102 012737 001240 164002  MOV      #BUFF,##ADWRA          ;LOAD DATA BUFFER A POINTER
94 001110 052701 111000  HIS      #111000,R1          ;FINAL CHANNEL,DMA, SEQ
95 001114 010137 164006  MOV      R1,##ADCR          ;LOAD FINAL CHANNEL
96 001120 052702 110000  BIS      #110000,R2          ;SEQ,DMA
97 001124 010237 164006  MOV      R2,##ADCR          ;AND START CONVERT OR ENABLE START IF EXTERNAL
98
99          ;
100         ;WAIT FOR I/O COMPLETION BY TESTING THE STATUS OF THE ADF11S CONTROL &
101         ;STATUS REGISTER.
102         ;
103 001130 005737 164010  2s:     TST      ##ADCSR          ;TEST FOR ERROR
104 001134 100001  RPL     3s
105 001136 000000  HALT           ;ADF11 STATUS ERROR!
106 001140 105737 164010  3s:     TSTB     ##ADCSR          ;TEST THE DONE BIT
107 001144 100371  RPL     26
108

```

```

109          ;TEST SWITCH REGISTER BIT 14 IF RAISED USE SWITCH REGISTER BITS 7-0
110          ;AS AN INDEX TO RETRIEVE DATA TO BE DISPLAYED IN THE CONSOLE LIGHTS
111          ;IF BIT 14 NOT RAISED SCAN 15 & 14 WAITING FOR OPERATOR INTERVENTION
112          ;
113 001146 032767 020000 176414 CYC:   BIT      #BIT13,SWP          ;IF SET BIT 13 OVER RIDES ALL
114 001154 001010                BNE     DISP            ;CALIB.ROUTINE
115 001156 032767 040000 176404        BIT      #BIT14,SWP          ;TEST FOR OUTPUT DESIRED
116 001164 001004                BNE     DISP
117 001166 032767 100000 176374        BIT      #BIT15,SWP          ;14 NOT SET TRY 15
118 001174 001301                BNE     START            ;GO TAKE MORE CONVERSIONS,THEN COME BACK
119 001176 116703 176366        DISP:  MOVB   SWP,R3
120 001202 006103                ROL     R3                ;SET INDEX TO ADDRESS FULL WORD
121 001204 062703 001240        ADD     #BUFF,R3          ;GET THE FULL INDEX INTO R3
122 001210 011300                MOV     (R3),P0          ;GET VALUE TO BE DISPLAYED
123 001212 016701 177176        MOV     LOOP,R1         ;SET # OF ITERATIONS
124 001216 000005                IS:    RESET
125 001220 005301                DEC     R1                ;-1 TO ITERATION COUNT
126 001222 001375                BNE     IS
127 001224 032767 020000 176336        BIT      #BIT13,SWP
128 001232 001262                BNE     START
129 001234 000167 177706        JMP     CYC              ;CHECK OPERATORS DESIRES
130          ;
131          ;
132          ;
133 001240 000000        BUFF:  0                ;DATA BUFFER AREA
134          003242        .=.+2000
135          000001        .END

```

ADCH = 164006	50*	95*	97*																	
ADCSP = 164010	51*	89*	103	106																
ADDR = 164012	52*																			
ADIMO = 164016	54*																			
ADINT 000410	60*																			
ADLVL 000412	61*																			
ADSWR = 164000	47*																			
ADWCR = 164004	49*	92*																		
ADWRA = 164002	48*	93*																		
ADWRB = 164014	53*																			
BIT13 = 020000	34*	113	127																	
BIT14 = 040000	33*	115																		
BIT15 = 100000	32*	117																		
BUFF 001240	93	121	133*																	
CYC 001146	113*	129																		
DISP 001176	114	116	119*																	
FIRSCH 000400	56*	77																		
LASTCH 000402	57*	76	83																	
LOOP 000414	62*	123																		
MAXCH 000404	58*	80																		
PC =%000007	42*																			
PSR = 177776	35*	71*																		
RET 001044	81	83*	85																	
R0 =%000000	122*																			
R1 =%000001	41*	76*	78*	79	80	83*	94*	95	123*	125*										
R2 =%000002	40*	77*	78	96*	97															
R3 =%000003	39*	119*	120*	121*	122															
R4 =%000004	38*																			
R5 =%000005	37*																			
SP =%000006	36*	70*																		
STACK 001000	67*	70																		
START 001000	69*	118	128																	
SWR = 177570	31*	84	113	115	117	119	127													
WCNT 000406	59*	79*	90*	91*	92															
. = 003242	55*	66*	68*	134*																

ADD	121												
HIS	89	94	96										
HIT	113	115	117	127									
HLE	81												
RNE	114	116	118	126	128								
HPL	85	104	107										
CMP	80												
DFC	125												
HALT	82	105											
INC	90												
JMP	129												
MOV	70	71	76	77	79	83	92	93	95	97	122	123	
MOVH	119												
NEG	91												
RESET	69	75	124										
ROL	120												
SUB	78												
TST	84	103											
TSTH	106												
.ABS	30												
.END	135												

ERRORS DETECTED: 0

*AC02,AC02/CRF=DAN.SRC
RUN-TIME: 0 0 0 SECONDS
CORE USED: 5K