ADF11

MULTI CHANNEL SAMPLE

MD-11-DZADK-A

HOLD DIAGNOSTIC

EP-DZADK-A-DL

FICHE 1 OF 1

MAY 1978

digital

MADE IN USA

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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                                ;THIS PROGRAM IS INTENDED TO EXERCISE THE AC02 SAMPLE AND HOLD
                                ;OPTION WHICH IS INTERFACED TO THE ADF11 ANALOG TO DIGITAL CONVERTER.
                                ;
                                ;THE PROGRAM WILL TAKE CONVERTIONS INTHE SEQUENTIAL CHANNEL MODE
                                ;USING THE VALUES IN LOCATIONS "FIRSCH" & "LASTCH" AS THERANGE
                                ;OF THE CHANNELS TO BE SAMPLED.
                                ;
                                ;THE CHANNELS RANGE IS NOT TO EXCEED THE ABSOLUTE VALUE OF LOCATION
                                ; "MAXCH"
                                ;THE ENTIRE RANGE OF THE CHANNELS IS SAMPLED AND THE CONVERTED
                                ;DATA IS STORED IN TABLE BUFF:"
                                ;
                                ;SWITCH REGISTER BIT 15 IS RAISED TO INITIATE THE SEQUENCE OF
                                ;CONVERTIONS THEN IF SWITCH REGISTER BIT 14 IS RAISED THE
                                ;SWITCH REGISTER BITS 0-7 ARE USED TO INDEX INTO THE DATA BUFFER
                                ;TO RETRIEVE DATA WHICH IS THEN DISPLAYED IN THE CONSOLE SWITCH
                                ;LIGHTS .THE DISPLAYING WILL CONTINUE UNTILL BIT
                                ;14 IS LOWERED. TO TAKE A NEW TABLE OF CONVERTIONS BIT 15 MUST
                                ;BE RAISED.
                                ;
                                ;SWITCH REGISTER BIT 13 IS RAISED TO INITIATE CALIBRATION
                                ;ROUTINE FOR A461'S
                                ;IF A CALIBRATION ROUTINE IS TO BE RUN  BIT 15 AND
                                ; BIT 13 MUST BE USED IN CONJUNCTION
                                ;
                                ;BEFORE INITIATEING THIS TEST THE OPERATOR MUST PRE-
                                ;LOAD LOCATIONS "FIRSCH:","LASTCH:"&"MAXCH:".


                                        .ABS
177570                                  SWR=177570      ;SWITCH REGISTER
100000                                  BIT15=100000
040000                                  BIT14=040000
020000                                  BIT13=020000
177776                                  PSR=177776              ;PROCESSOR STATUS
000006                                  SP=%6
000005                                  R5=%5
000004                                  R4=%4
000003                                  R3=%3
000002                                  R2=%2
000001                                  R1=%1
000007                                  PC=%7


                                ;DEVICE REGISTERS

164000                                  ADSWR=164000
164002                                  ADWRA=164002
164004                                  ADWCR=164004
164006                                  ADCR=164006
164010                                  ADCSR=164010
164012                                  ADDBR=164012
164014                                  ADWAR=164014
164016                                  ADIMO=164016
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```
                000400                          .=400
000400  000000    FIRSCH: 0
000402  000000    LASTCH: 0
000404  000000    MAXCH:  0                       ;VALUE OF HIGHEST CHANNEL # (OCT.)
000406  000000    WCNT:   0                   ;WORD COUNT VALUE
000410  000274    ADINT:274
000412  000276    ADLVL:276
000414  000001    LOOP:   1                   ;# OF ITERATIONS OF DISPLAY LOOP (MORE THAN 0)


                001000                          .=1000
001000  000000    STACK:  0
                001000                          .=1000
001000  000005    START:  RESET
001002  012706  001000                          MOV     #STACK,SP
001006  012767  000340  176762                  MOV     #340,PSW


001014  000005                                  RESET
001016  016701  177360                          MOV     LASTCH,R1
001022  016702  177352                          MOV     FIRSCH,R2
001026  160201                                  SUB     R2,R1
001030  010167  177352                          MOV     R1,WCNT         ;IF LEGAL THE DIFFERANCE IS W.C.
001034  020167  177344                          CMP     R1,MAXCH
001040  003401                                  BLE     RET
001042  000000                                  HALT                ;CHANNELS NOT WITHIN RANGE
001044  016701  177332          RET:    MOV     LASTCH,R1
001050  005767  176514                          TST     SWR             ;WAIT FOR SIG TO TAKE CONVERTIONS
001054  100373                                  BPL     RET


                                        ;PRIME ADF11 TO TAKE CONVERTIONS IN THE SEQUENTIAL CHANNEL MODE FROM
                                        ;FIRST CHANNEL.
001056  052737  020000  164010                  BIS     #20000,@#ADCSR          ;INIT THE ADF11
001064  005267  177316                          INC     WCNT                    ;+1 TO INCLUDE CH0
001070  005467  177312                          NEG     WCNT                    ;SET UP THE W.C.
001074  016737  177306  164004                  MOV     WCNT,@#ADWCR            ;LOAD THE WORD COUNT REGISTER
001102  012737  001240  164002                  MOV     #BUFF,@#ADWBA           ;LOAD DATA BUFFER A POINTER
001110  052701  111000                          BIS     #111000,R1              ;FINAL CHANNEL,DMA, SEQ
001114  010137  164006                          MOV     R1,@#ADCR               ;LOAD FINAL CHANNEL
001120  052702  110000                          BIS     #110000,R2              ;SEQ,DMA
001124  010237  164006                          MOV     R2,@#ADCR               ;AND START CONVERT OR ENABLE START IF EXTERNAL
                                        ;
                                        ;WAIT FOR I/O COMPLETION BY TESTING THE STATUS OF THE ADF11S CONTROL &
                                        ;STATUS REGISTER.
                                        ;


001130  005737  164010          2$:     TST     @#ADCSR                 ;TEST FOR ERROR
001134  100001                          BPL     3$
001136  000000                          HALT                            ;ADF11 STATUS ERROR!
001140  105737  164010          3$:     TSTB    @#ADCSR                 ;TEST THE DONE BIT
001144  100371                          BPL     2$
```

```
                                        ;TEST SWITCH REGISTER BIT 14 IF RAISED USE SWITCH REGISTER BITS 7-0
                                        ;AS AN INDEX TO RETRIEVE DATA TO BE DISPLAYED IN THE CONSOLE LIGHTS
                                        ;IF BIT 14 NOT RAISED SCAN 15 & 14 AWAITING FOR OPERATOR INTERVENTION
                                        ;
001146  032767  020000  176414  CYC:    BIT     #BIT13,SWR              ;IF SET BIT 13 OVER RIDES ALL
001154  001010                          BNE     DISP                    ;CALIB.ROUTINE
001156  032767  040000  176404          BIT     #BIT14,SWR              ;TEST FOR OUTPUT DESIRED
001164  001004                          BNE     DISP
001166  032767  100000  176374          BIT     #BIT15,SWR              ;14 NOT SET TRY 15
001174  001301                          BNE     START                   ;GO TAKE MORE CONVERTIONS,THEN COME BACK
001176  116703  176366          DISP:   MOVB    SWR,R3
001202  006103                          ROL     R3                      ;SET INDEX TO ADDRESS FULL WORD
001204  062703  001240                  ADD     #BUFF,R3                ;GET THE FULL INDEX INTO R3
001210  011300                          MOV     (R3),R0                 ;GET VALUE TO BE DISPLAYED
001212  016701  177176                  MOV     LOOP,R1                 ;SET # OF ITERATIONS
001216  000005                  1$:     RESET
001220  005301                          DEC     R1                      ;-1 TO ITERATION COUNT
001222  001375                          BNE     1$
001224  032767  020000  176336          BIT     #BIT13,SWR
001232  001262                          BNE     START
001234  000167  177706                  JMP     CYC                     ;CHECK OPERATORS DESIRES
                                        ;
                                        ;
                                        ;
001240  000000                  BUFF:   0                       ;DATA BUFFER AREA
        003242                          .=.+2000
        000001                          .END
```

DAN.SRC CROSS REFERENCE TABLE

```
ADCR   = 164006              50#      95#      97#
ADCSR  = 164010              51#      89#     103      106
ADDBR  = 164012              52#
ADIMO  = 164016              54#
ADINT    000410              60#
ADLVL    000412              61#
ADSWR  = 164000              47#
ADWCR  = 164004              49#      92#
ADWBA  = 164002              48#      93#
ADWBC  = 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#
RFT      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#
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E1

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.MAIN.  MACY11 27(657)  22-JUL-75  13:37  PAGE 1-4
DAN.SRC CROSS REFERENCE TABLE

ADD        121
MIS         84       94       96
MIT        113      115      117      127
MLP         81
MNE        114      116      118      126      128
MPL         85      104      107
CMP         80
DEC        125
HALT        82      105
INC         90
JMP        129
MOV         70       71       76       77       79       83       92       93       95       97      122      123
MOVM       119
NEG         91
RESET       89       75      124
ROT        120
SUM         78
TST         84      103
TSTM       106
.ABS        80
.END       135



 ERRORS DETECTED:  0

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

F1