

```

EEEEEEEEEE XX XX AAAAAA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSSS
EEEEEEEEEE XX XX AAAAAA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSSS
EEEEEEEEEE XX XX AAAAAA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSSS
EE XX XX AA AA MMMM MMMM PP PP LL EE SS
EE XX XX AA AA MMMM MMMM PP PP LL EE SS
EE XX XX AA AA MMMM MMMM PP PP LL EE SS
EE XX XX AA AA MM MM MM PP PP LL EE SS
EE XX XX AA AA MM MM MM PP PP LL EE SS
EEEEEEEE XX XX AA AA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSS
EEEEEEEE XX XX AA AA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSS
EEEEEEEE XX XX AA AA MM MM PPPPPPPP LL EEEEEEEEE SSSSSSS
EE XX XX AAAAAAAAAA MM MM PP LL EE SS
EE XX XX AAAAAAAAAA MM MM PP LL EE SS
EE XX XX AAAAAAAAAA MM MM PP LL EE SS
EE XX XX AA AA MM MM PP LL EE SS
EE XX XX AA AA MM MM PP LL EE SS
EEEEEEEEEE XX XX AA AA MM MM PP LLLLLLLLLL EEEEEEEEE SSSSSSSS
EEEEEEEEEE XX XX AA AA MM MM PP LLLLLLLLLL EEEEEEEEE SSSSSSSS
EEEEEEEEEE XX XX AA AA MM MM PP LLLLLLLLLL EEEEEEEEE SSSSSSSS

```

```

LL      AAAAAA  BBBB8888  IIIIII  000000  PPPPPPPP  EEEEEEEEEE  AAAAAA  KK      KK
LL      AAAAAA  BBBB8888  IIIIII  000000  PPPPPPPP  EEEEEEEEEE  AAAAAA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      PP  EE      AA      AA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      PP  EE      AA      AA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      PP  EE      AA      AA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      PP  EE      AA      AA  KK      KK
LL      AA      AA  BBBB8888  II      00      00  PPPPPPPP  EE      AA      AA  KKKKKK  KK
LL      AA      AA  BBBB8888  II      00      00  PPPPPPPP  EE      AA      AA  KKKKKK  KK
LL      AAAAAAAAAA  BB      BB      II      00      00  PP      EE      AAAAAAAAAA  KK      KK
LL      AAAAAAAAAA  BB      BB      II      00      00  PP      EE      AAAAAAAAAA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      EE      AA      AA  KK      KK
LL      AA      AA  BB      BB      II      00      00  PP      EE      AA      AA  KK      KK
LLLLLLLLLL  AA      AA  BBBB8888  IIIIII  000000  PP      EEEEEEEEEE  AA      AA  KK      KK
LLLLLLLLLL  AA      AA  BBBB8888  IIIIII  000000  PP      EEEEEEEEEE  AA      AA  KK      KK

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```

FFFFFFFFFF  000000  RRRRRRRR
FFFFFFFFFF  000000  RRRRRRRR
FF      00      00  RR      RR
FF      00      00  RR      RR
FF      00      00  RR      RR
FF      00      00  RR      RR
FFFFFFFFFF  00      00  RRRRRRRR
FFFFFFFFFF  00      00  RRRRRRRR
FF      00      00  RR      RR
FF      00      00  RR      RR
FF      00      00  RR      RR
FF      00      00  RR      RR
FF      000000  RR      RR
FF      000000  RR      RR

```

! I
! 9

23
! C

! N

24

! G

25

! R

30

! D

40

! G

50

51

File: LABIOPEAK.FOR
Version 'V04-000'

```
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```
Program LABIO_PEAK
! This routine continuously samples channel #1 search for peaks.
! The sample rate is 1/TIC. It reports the PEAK height and position
! to logical channel 'LABIO_PEAK_DATA'

Include 'LABCHNDEF.FOR'

Parameter MBX_NAME = 'LABIO_PEAK'
Character*130 RETURN
Character*15 COMMAND
Character*24 DATE_TIME
Logical*4 SUCCESS,SYSS$CREMBX

Parameter AD_CHANNEL = 1           ! Channel Number
Parameter AD_RATE = 1             ! Rate
Parameter AD_BUF_SIZE = 512      ! Buffer Size

Parameter MAX_PEAKS = 10
Integer*4 ITABLE(10),INLAST,INPTR,OUTPUT(2,MAX_PEAKS),IDIMO,NPEAKS
Integer*2 INPUT(AD_BUF_SIZE*2)

Data ITABLE/10*0/
Data INLAST,INPTR,IDIMO,NPEAKS/0,0,MAX_PEAKS,0/

! Map To the Global Data Base and the event flags

Call LABIO_INIT(0)

! Open Mailbox to LABIO_CONNECT
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```
!
!   Open ( Unit = 1, Name = 'LABIO_CONNECT' , Type = 'OLD' )
! Create Mailbox for response from LABIO_CONNECT
!   SUCCESS = SYSS$CREMBX(,MBX_CHANNEL,,%Val('FDOO'x),,MBX_NAME)
!   If (.not. SUCCESS ) Call FATAL_ERROR( SUCCESS, 'CREATING MAILBOX')
!
! Open via FORTRAN
!   Open ( Unit = 2, Name = MBX_NAME, Type = 'OLD' )
! Deassign the channel assigned when we created it
!   Call SYSS$DASSGN( %Val(MBX_CHANNEL) )
!
! Open A Data File
!   Open( Unit = 3, Name = 'LABIO_PEAK_DATA' ,Type = 'NEW' )
!
! Connect to the LABIO system
!   COMMAND = 'CONNECT'
!   Write(1,100) COMMAND,MBX_NAME
!
! Wait for Response from LABIO system
!   Read(2,200) RETURN_CODE,RETURN
!   If( RETURN_CODE .ne. 0 ) Go To 99      !Failed to connect!
!
! Allocate Channel AD_CHANNEL
!   Rate = AD_RATE
!   Buffer size = AD_BUF_SIZE
!
!   COMMAND = 'ALLOCATE'
!   Write(1,400) COMMAND,AD_CHANNEL,AD_RATE,AD_BUF_SIZE,0
!   Read(2,200) RETURN_CODE,RETURN
!   If( RETURN_CODE .ne. 0 ) Go To 99      !Failed to allocate!
!
! Enable data acquisition by setting event flag ACTIVITY and NOTIFY
!   Call SYSS$SETEF(%Val(EF_ACTIVITY_OFF+AD_CHANNEL))
!   Call SYSS$SETEF(%Val(EF_NOTIFY_OFF+AD_CHANNEL))
!
! Now, wait for buffer to be filled, event flag STATUS will be set
! when data are ready
5   Call SYSS$WAITFR( %Val(EF_STATUS_OFF+AD_CHANNEL) )
!
! Buffer is filled, get the buffer index
!   INDEX = AD_BLOCK(7,AD_CHANNEL)
!
! Move data from data buffer to peak processing buffer
```

```
10      Do 10 I = 1, AD_BUF_SIZE
        INPUT(I+INLAST) = DATA_BUFFER(I,INDEX,AD_CHANNEL)
        INLAST = INLAST + AD_BUF_SIZE

! Clear the STATUS event flag and notify the I/O process
!
! Call SYSSCLREF( %Val(EF_STATUS_OFF+AD_CHANNEL) )
!(DEBUG) only
! Write (3,600) (DATA_BUFFER(I,INDEX,AD_CHANNEL),I=1,AD_BUF_SIZE)
!
! Call the peak processing routine
15      Call PEAK(I1TABLE,INPUT,INLAST,INPTR,OUTPUT,MAX_PEAKS,NPEAKS)

! Report the peak info
        PEAK_SWITCH = NPEAKS           !Remember the peak switch

        If( NPEAKS .ne. 0 ) Then       !We have some peaks
          If( NPEAKS .lt. 0 ) NPEAKS = MAX_PEAKS !WE have the max
          Do 20 I = 1, NPEAKS
            TOTAL_PEAKS = TOTAL_PEAKS + 1 !One more
            Write(3,500) TOTAL_PEAKS,(OUTPUT(J,I), J = 1,2)
          End If
        End If

        NPEAKS = 0                     !Reset the pointer
        If( PEAK_SWITCH .lt. 0 ) Go To 15 !More peaks to find

! Move any unprocessed data to the beginning of the input array
        If ( (INPTR .gt. 0) .and. (INPTR .lt. INLAST) ) Then
          Do 30 I = 1, INLAST-INPTR
            INPUT(I) = INPUT( INPTR+I ) !Move the data
            INLAST = I                 !Last element stored
          Else
            INLAST = 0
          End If
        End If

        INPTR = 0                      !Last element processed

! Go wait for more data
        Go To 5

! All done, Call the exit routine
99      Call EXIT(1)                   !Exit

100     Format(' ',A,A)
200     Format(12,A)
400     Format(' ',A,41)
500     Format(3110)
600     Format(15)
        End
![[End of File]
```

0158

AH-BT13A-SE
VAX/VMS V4.0

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