```
EEEEEEEEEE  XX      XX    AAAAAA    MM      MM  PPPPPPPP    LL          EEEEEEEEEE    SSSSSSSS
EEEEEEEEEE  XX      XX    AAAAAA    MM      MM  PPPPPPPP    LL          EEEEEEEEEE    SSSSSSSS
EEEEEEEEEE  XX      XX    AAAAAA    MM      MM  PPPPPPPP    LL          EEEEEEEEEE    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   MMMMMMMMMM  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
EE            XX  XX     AA    AA   MM  MM  MM  PP      PP  LL          EE          SS
EEEEEEEE        XX       AA    AA   MM      MM  PPPPPPPP    LL          EEEEEEEE      SSSSSS
EEEEEEEE        XX       AA    AA   MM      MM  PPPPPPPP    LL          EEEEEEEE      SSSSSS
EEEEEEEE        XX       AA    AA   MM      MM  PPPPPPPP    LL          EEEEEEEE      SSSSSS
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
EE          XX      XX   AA    AA   MM      MM  PP          LL          EE                  SS
EEEEEEEEEE  XX      XX   AA    AA   MM      MM  PP          LLLLLLLLLL  EEEEEEEEEE  SSSSSSSS
EEEEEEEEEE  XX      XX   AA    AA   MM      MM  PP          LLLLLLLLLL  EEEEEEEEEE  SSSSSSSS
EEEEEEEEEE  XX      XX   AA    AA   MM      MM  PP          LLLLLLLLLL  EEEEEEEEEE  SSSSSSSS
```

FILEID**LABIOSAMP

```
LL            AAAAAA    BBBBBBBB      IIIIII      000000      SSSSSSSS    AAAAAA    MM      MM  PPPPPPPP
LL            AAAAAA    BBBBBBBB      IIIIII      000000      SSSSSSSS    AAAAAA    MM      MM  PPPPPPPP
LL          AA      AA  BB      BB      II      00      00  SS          AA      AA  MMMM  MMMM  PP      PP
LL          AA      AA  BB      BB      II      00      00  SS          AA      AA  MMMM  MMMM  PP      PP
LL          AA      AA  BB      BB      II      00      00  SS          AA      AA  MM  MM  MM  PP      PP
LL          AA      AA  BB      BB      II      00      00  SS          AA      AA  MM  MM  MM  PP      PP
LL          AA      AA  BBBBBBBB        II      00      00    SSSSSS    AA      AA  MM      MM  PPPPPPPP
LL          AA      AA  BBBBBBBB        II      00      00    SSSSSS    AA      AA  MM      MM  PPPPPPPP
LL          AAAAAAAAAA  BB      BB      II      00      00          SS  AAAAAAAAAA  MM      MM  PP
LL          AAAAAAAAAA  BB      BB      II      00      00          SS  AAAAAAAAAA  MM      MM  PP
LL          AA      AA  BB      BB      II      00      00          SS  AA      AA  MM      MM  PP
LL          AA      AA  BB      BB      II      00      00          SS  AA      AA  MM      MM  PP
LLLLLLLLLL  AA      AA  BBBBBBBB      IIIIII      000000      SSSSSSSS    AA      AA  MM      MM  PP
LLLLLLLLLL  AA      AA  BBBBBBBB      IIIIII      000000      SSSSSSSS    AA      AA  MM      MM  PP

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
FFFFFFFF    00      00  RRRRRRRR
FFFFFFFF    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
```

```
File:  LABIOSAMP.FOR
       Version 'V04-000'
```



```
!       Program LABIO_SAMPLE
!
! This program samples channel #2 once every 10 seconds.
! It acquires 10 points at 1/tic, averages them and then
! Reports the date, time, and average value on logcial device
! LABIO_SAMPLE_DATA

        Include 'LABCHNDEF.FOR'

        Parameter MBX_NAME = 'LABIO_SAMPLE'
        Character*130 RETURN
        Character*15 COMMAND
        Character*24 DATE_TIME
        Logical*4 SUCCESS,SYS$CREMBX
        Integer*4 DELTA_TIME(2),NEXT_TIME(2)
        Integer*4 AVERAGE

        Parameter AD_CHANNEL = 2                ! Channel
        Parameter AD_RATE = 1                   !
        Parameter AD_BUF_SIZE = 10
        Parameter SAMPLE_RATE = '0 0:0:10'
        Parameter MAX_SAMPLE = 10 000           ! Maximum # samples

!
! Map To the Global Data Base and the event flags

!
        Call LABIO_INIT(0)
!
```

```
! Open Mailbox to LABIO_CONNECT

      Open ( Unit = 1, Name = 'LABIO_CONNECT' , Type = 'OLD' )

! Create Mailbox for response from LABIO_CONNECT

      SUCCESS = SYS$CREMBX(,MBX_CHANNEL,,,%Val('FD00'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 SYS$DASSGN( %Val(MBX_CHANNEL) )

! Open A Data File

      Open( Unit = 3, Name = 'LAB_SAMPLE_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
!          Collect 1 buffer at a time

      COMMAND = 'ALLOCATE'
      Write(1,400) COMMAND,AD_CHANNEL,AD_RATE,AD_BUF_SIZE,1
      If( RETURN_CODE .ne. 0 ) Go To 99        !Failed to allocate!

!
! Every SAMPLE_RATE secs. we will collect one buffer of data
!

! Convert ASCII delta time to binary
      Call SYS$BINTIM( SAMPLE_RATE, DELTA_TIME )

! Schedule wake-ups every delt time interval
! But first cancel any previous wake-ups
      Call SYS$CANWAK(,)
      Call SYS$SCHDWK(,,DELTA_TIME,DELTA_TIME)

! Wait for scheduled time interval
10    Call SYS$HIBER()

! Enable data acqusition by setting event flag ACTIVITY and NOTIFY
```

```
!
        Call SYS$SETEF(%Val(EF_ACTIVITY_OFF+AD_CHANNEL))
        Call SYS$SETEF(%Val(EF_NOTIFY_OFF+AD_CHANNEL))
        Call SYS$ASCTIM(,DATE_TIME,,)

! Now, wait for buffer to be filled, event flag STATUS will be set
! when data are ready
        Call SYS$WAITFR( %Val(EF_STATUS_OFF+AD_CHANNEL) )

! Buffer is filled, get the buffer index
        INDEX = AD_BLOCK(7,AD_CHANNEL)

! Clear the STATUS event flag and notify the I/O process
        Call SYS$CLREF( %Val(EF_STATUS_OFF+AD_CHANNEL) )
        Call SYS$SETEF( %Val(EF_NOTIFY_OFF+AD_CHANNEL) )
! Average the points
        AVERAGE = 0
        Do 20 I = 1, AD_BUF_SIZE
20      AVERAGE = AVERAGE + DATA_BUFFER(I,INDEX,AD_CHANNEL)
        AVERAGE = AVERAGE/AD_BUF_SIZE

! Write out average with the acq. date/time
        Write(3,400) DATE_TIME,AVERAGE

! If we're all done, close files and exit
        If( AD_BLOCK(6,AD_CHANNEL) .lt. MAX_SAMPLE ) Go To 10

! All done, Call the exit routine

99      Call EXIT(1)                !Exit

100     Format(' ',A,A)
200     Format(I2,A)
400     Format(' ',A,4I)
        End
![End of File]
```

XALINK
MAR

DRMASTER
FOR

LABIOLINK
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LPATEST
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LABIOPEAK
FOR

LABIOSTRT
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XAMESSAGE
MAR

XATEST
FOR

LABIOCOM
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LBRDEMO
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LABMBXDEF
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LABIOSAMP
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