Subject: Re: Linking IDL with FORTRAN routines under UNIX: interpol.f
Posted by thompson on Tue, 24 Sep 1991 19:54:13 GMT
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This is the FORTRAN source code for the sample program on a Sun workstation. Please note that I have not been able to use CALL_EXTERNAL with FORTRAN subroutines on the SUN.

```
      SUBROUTINE INTERPOL(X_IN,Y_IN,N_IN,X_OUT,Y_OUT,N_OUT)
C+
C NAME:
C INTERPOL
C PURPOSE:
C Perform bilinear interpolation.  Called using CALL_EXTERNAL from the
C IDL routine INTERPOL.
C CALLING SEQUENCE:
C CALL INTERPOL(X_IN,Y_IN,N_IN,X_OUT,Y_OUT,N_OUT)
C INPUT PARAMETERS:
C X_IN = Input array of X values.
C Y_IN = Input array of Y values.
C N_IN = Number of elements in X_IN, Y_IN.
C X_OUT = Array of points along the X axis to interpolate to.
C N_OUT = Number of points in X_OUT, Y_OUT.
C OUTPUT PARAMETERS:
C Y_OUT = Array of interpolated points.
C COMMON BLOCKS:
C None.
C SIDE EFFECTS:
C None.
C RESTRICTIONS:
C None.
C PROCEDURE:
C Straightforward.
C MODIFICATION HISTORY:
C William Thompson, August 1991.
C-
C
      DIMENSION X_OUT(N_OUT),Y_OUT(N_OUT),X_IN(N_IN),Y_IN(N_IN)
C
C  Find the interval in the input arrays that corresponds to the point to be
C  interpolated to.
C
      DO I = 1,N_OUT
        J = 2
        IF (X_IN(2) .GT. X_IN(1)) THEN
          DO WHILE ((X_IN(J) .LT. X_OUT(I)) .AND. (J .LT. N_IN))
            J = J + 1
          ENDDO
```

```
      ELSE
        DO WHILE ((X_IN(J) .GT. X_OUT(I)) .AND. (J .LT. N_IN))
          J = J + 1
        ENDDO
      ENDIF
C
C  Calculate the slope and intercept of the line connecting the two points
C  defining the interval found above, and perform the interpolation.
C
      SLOPE = (Y_IN(J) - Y_IN(J-1))/(X_IN(J) - X_IN(J-1))
      Y_OUT(I) = Y_IN(J-1) + SLOPE*(X_OUT(I) - X_IN(J-1))
C
    ENDDO
C
    RETURN
    END
```

Subject: Re: Linking IDL with FORTRAN routines under UNIX: interpol.f
Posted by thompson on Tue, 24 Sep 1991 20:34:36 GMT
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In article <1991Sep24.185544.10439@nsisrv.gsfc.nasa.gov>, I wrote

> Please note that I have not been able to use CALL_EXTERNAL with FORTRAN
> subroutines on the SUN.

This is a typo. I meant to say that I have not been able to use CALL_EXTERNAL with FORTRAN *functions* on the SUN. Calling subroutines was what the example was all about.

Mea culpa.

Bill Thompson
