ADAS Subroutine xxr8ss

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      subroutine xxr8ss(n, lup, ia, itag)

C-----------------------------------------------------------------------
C
C  ******************* FORTRAN77 SUBROUTINE: XXR8SS ********************
C
C  PURPOSE: Sorts an integer array xa and its index array. This is a
C           bubble sort designed for small arrays.
C
C
C  CALLING PROGRAM:  General use
C
C
C  SUBROUTINE:
C
C  INPUT       :  (I*4)  N     = Size of input arrays
C  INPUT       :  (L*4)  LUP   = .TRUE. sort in ascending order
C                                .FALSE. descending order
C  INPUT/OUPUT :  (I*4)  IA    = Array to be sorted
C  INPUT/OUPUT :  (I*4)  ITAG  = Original index of sorted XA
C
C  ROUTINES    : NONE
C
C  NOTES       : Shell sort from Numerical Receipies.
C
C  AUTHOR      : Martin O'Mullane
C
C  DATE        : 7-02-2000
C
C  VERSION     : 1.1
C
C
C-----------------------------------------------------------------------
      INTEGER             ITAG(*),     N
      LOGICAL             LUP
      REAL*8              IA(*)
```