Author(s) : M. Metcalf, R. Matthews
Library: KERNLIB
Submitter :
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Language : Fortran or Assembler

Locate the One-Bits of a Word or an Array

`UBITS` locates and counts the `1`-bits in the right-most `NBITS` bits in a word or full-word array, returning their positions. Bit numbering is right to left, bit number 1 being the least significant bit in the first full word, bit number `NBPW+1` being the least significant bit in the second full word, where `NBPW` is the number of bits per machine word.

Structure:

`SUBROUTINE` subprogram
User Entry Names: `UBITS`
External References: `UPKBYT` (M422) (Fortran version only)

Usage:

```
    CALL UBITS(IWORDS,NBITS,IXV,NX)
```

`IWORDS`	Word or full-word array to be analysed.
`NBITS`	Bits 1 to `NBITS` of array `IWORDS` are inspected.
`IXV`	Bit positions of the `1`-bits in `IWORD` are placed into `IXV(1)` through `IXV(NX)` in increasing order. `IXV` must be dimensioned to `NBITS` at least.
`NX`	Number of `1`-bits found.

Examples:

```
      DIMENSION IXV(9)
      IWORD=1676
C     1676 in base 2 is 11010001100
      CALL UBITS(IWORD,9,IXV,NX)
```

sets

```
   NX = 3, IXV(1) = 3, IXV(2) = 4, IXV(3) = 8.
```

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