GETBYT	CERN Program Library	M439

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Language : Assembler

Library: KERNLIB
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Set or Retrieve a Bit String

GETBYT extracts and right-adjusts a group of bits of any length up to a full word from a bit string which may extend across word boundaries. SETBYT is the inverse of GETBYT.

Structure:

SUBROUTINE subprogram
User Entry Names: GETBYT, SETBYT
Internal Entry Names: SHRERR
Files Referenced: Printer

Usage:

```
CALL GETBYT(ADDR,IBEG,ILEN,IRES)
```

ADDR Name of an array containing the desired group of bits.

IBEG The bit position within ADDR of the left-most bit of the group (bits are numbered starting at 1 with the left-most or most significant bit in ADDR(1)).

ILEN Length of the group in bits (at most one word).

IRES Will contain the desired group, right-justified and zero-filled.

```
CALL SETBYT(ADDR,IBEG,ILEN,IBYT)
```

causes the ILEN right-most bits of IBYT to replace the group of bits of length ILEN starting at the IBEG-th bit in the array ADDR (bits are numbered starting at 1 with the left-most or most significant bit in ADDR(1)). Replacement goes across word boundaries, i.e. the most significant (left-most) bit of ADDR(N+1) is adjacent to the least significant (right-most) bit of ADDR(N).

Error handling:

Calling either GETBYT or SETBYT with IBEG $<$ 1 or ILEN $>$ the number of bits in one word (errors) will result in a diagnostic message. After more than 20 such errors the job will come to a STOP.

Examples:

IBM:
If ADDR(1) and ADDR(2) contain the 32-bit configurations '0...001110001' and '110100...0' respectively, then

```
CALL GETBYT(ADDR,27,10,IRES)
```

will set IRES to '0...001100011101' or decimal 797.
If IBYT contains the integer value 3 (binary '11') and ADDR(1) $=$ ADDR(2) $=$ 0, then

```
CALL SETBYT(ADDR,32,2,IBYT)
```

will set ADDR(1) to 0...001' and ADDR(2) to '100...0'.
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