File created: 16-May-90 20:46:21 **{DSK}<usr>local>lde>lispcore>sources>MODARITH.;2**

changes to: (VARS MODARITHCOMS)

previous date: 2-Nov-86 17:42:53 {DSK}<usr>local>lde>lispcore>sources>MODARITH.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

;;


```
(RPAQQ MODARITHCOMS
       (;; The intent, as of Feb 1983, is to move most of these macros into the system under real or CommonLisp names, and to move the various
        ;; CONSTANTS into some arithmetic package.
        (ADDVARS * (LIST (CONS 'EXPANDMACROFNS MODARITHMACROS)))
        (EXPORT (MACROS * MODARITHMACROS)
               (CONSTANTS BITSPERNIBBLE NIBBLESPERBYTE BITSPERBYTE BITSPERCELL BITSPERWORD BYTESPERCELL
                      BYTESPERPAGE BYTESPERWORD CELLSPERPAGE CELLSPERSEGMENT PAGESPERSEGMENT WORDSPERCELL
                      WORDSPERPAGE WORDSPERSEGMENT WORDSPERQUAD CELLSPERQUAD BYTESPERQUAD)
               (CONSTANTS * INTEGERSIZECONSTANTS))))
```

;; The intent, as of Feb 1983, is to move most of these macros into the system under real or CommonLisp names, and to move the various
;; CONSTANTS into some arithmetic package.

```
(ADDTOVAR EXPANDMACROFNS CEIL FLOOR FOLDHI FOLDLO MODUP UNFOLD MOD)
```

;; FOLLOWING DEFINITIONS EXPORTED

```
(RPAQQ MODARITHMACROS (CEIL FLOOR FOLDHI FOLDLO MODUP UNFOLD MOD))

(DECLARE%: EVAL@COMPILE

(PUTPROPS CEIL MACRO ((X N)
                      (FLOOR (IPLUS X (CONSTANT (SUB1 N)))
                             N)))

(PUTPROPS FLOOR MACRO [(X N)
                       (LOGAND X (CONSTANT (LOGXOR (SUB1 N)
                                                   -1])

(PUTPROPS FOLDHI MACRO [X (PROG [(FORM (CAR X))
                                 (DIVISOR (CAR (CONSTANTEXPRESSIONP (CADR X]
                                (OR (AND DIVISOR (POWEROFTWOP DIVISOR))
                                    (\ILLEGAL.ARG (CADR X)))
                                (RETURN (LIST 'LRSH (LIST 'IPLUS FORM (SUB1 DIVISOR))
                                              (SUB1 (INTEGERLENGTH DIVISOR])

(PUTPROPS FOLDLO MACRO [X (PROG [(FORM (CAR X))
                                 (DIVISOR (CAR (CONSTANTEXPRESSIONP (CADR X]
                                (OR (AND DIVISOR (POWEROFTWOP DIVISOR))
                                    (\ILLEGAL.ARG (CADR X)))
                                (RETURN (LIST 'LRSH FORM (SUB1 (INTEGERLENGTH DIVISOR])

(PUTPROPS MODUP MACRO (OPENLAMBDA (X N)
                        (IDIFFERENCE (SUB1 N)
                               (IMOD (SUB1 X)
                                     N))))

(PUTPROPS UNFOLD MACRO [X (PROG [(FORM (CAR X))
                                 (DIVISOR (CAR (CONSTANTEXPRESSIONP (CADR X]
                                (OR (AND DIVISOR (POWEROFTWOP DIVISOR))
                                    (\ILLEGAL.ARG (CADR X)))
                                (RETURN (LIST 'LLSH FORM (SUB1 (INTEGERLENGTH DIVISOR])

(PUTPROPS MOD MACRO (= . IMOD))
)

(DECLARE%: EVAL@COMPILE

(RPAQQ BITSPERNIBBLE 4)

(RPAQQ NIBBLESPERBYTE 2)

(RPAQQ BITSPERBYTE 8)

(RPAQQ BITSPERCELL 32)

(RPAQQ BITSPERWORD 16)

(RPAQQ BYTESPERCELL 4)
```

```
(RPAQQ BYTESPERPAGE 512)

(RPAQQ BYTESPERWORD 2)

(RPAQQ CELLSPERPAGE 128)

(RPAQQ CELLSPERSEGMENT 32768)

(RPAQQ PAGESPERSEGMENT 256)

(RPAQQ WORDSPERCELL 2)

(RPAQQ WORDSPERPAGE 256)

(RPAQQ WORDSPERSEGMENT 65536)

(RPAQQ WORDSPERQUAD 4)

(RPAQQ CELLSPERQUAD 2)

(RPAQQ BYTESPERQUAD 8)

(CONSTANTS BITSPERNIBBLE NIBBLESPERBYTE BITSPERBYTE BITSPERCELL BITSPERWORD BYTESPERCELL BYTESPERPAGE
       BYTESPERWORD CELLSPERPAGE CELLSPERSEGMENT PAGESPERSEGMENT WORDSPERCELL WORDSPERPAGE WORDSPERSEGMENT
       WORDSPERQUAD CELLSPERQUAD BYTESPERQUAD)
)

(RPAQQ INTEGERSIZECONSTANTS
       ((BITS.PER.SMALLP (ADD1 BITSPERWORD))
        (SMALLP.LENGTH (SUB1 BITS.PER.SMALLP))
        [MAX.SMALLP (LOGOR (LSH 1 (SUB1 SMALLP.LENGTH))
                           (SUB1 (LSH 1 (SUB1 SMALLP.LENGTH]
        (MIN.SMALLP (IDIFFERENCE -1 MAX.SMALLP))
        (BITS.PER.FIXP BITSPERCELL)
        (FIXP.LENGTH (SUB1 BITS.PER.FIXP))
        [MAX.FIXP (LOGOR (LSH 1 (SUB1 FIXP.LENGTH))
                         (SUB1 (LSH 1 (SUB1 FIXP.LENGTH]
        (MIN.FIXP (IDIFFERENCE -1 MAX.FIXP))))

(DECLARE%: EVAL@COMPILE

(RPAQ BITS.PER.SMALLP (ADD1 BITSPERWORD))

(RPAQ SMALLP.LENGTH (SUB1 BITS.PER.SMALLP))

(RPAQ MAX.SMALLP [LOGOR (LSH 1 (SUB1 SMALLP.LENGTH))
                        (SUB1 (LSH 1 (SUB1 SMALLP.LENGTH])

(RPAQ MIN.SMALLP (IDIFFERENCE -1 MAX.SMALLP))

(RPAQ BITS.PER.FIXP BITSPERCELL)

(RPAQ FIXP.LENGTH (SUB1 BITS.PER.FIXP))

(RPAQ MAX.FIXP [LOGOR (LSH 1 (SUB1 FIXP.LENGTH))
                      (SUB1 (LSH 1 (SUB1 FIXP.LENGTH])

(RPAQ MIN.FIXP (IDIFFERENCE -1 MAX.FIXP))

(CONSTANTS (BITS.PER.SMALLP (ADD1 BITSPERWORD))
       (SMALLP.LENGTH (SUB1 BITS.PER.SMALLP))
       [MAX.SMALLP (LOGOR (LSH 1 (SUB1 SMALLP.LENGTH))
                          (SUB1 (LSH 1 (SUB1 SMALLP.LENGTH]
       (MIN.SMALLP (IDIFFERENCE -1 MAX.SMALLP))
       (BITS.PER.FIXP BITSPERCELL)
       (FIXP.LENGTH (SUB1 BITS.PER.FIXP))
       [MAX.FIXP (LOGOR (LSH 1 (SUB1 FIXP.LENGTH))
                        (SUB1 (LSH 1 (SUB1 FIXP.LENGTH]
       (MIN.FIXP (IDIFFERENCE -1 MAX.FIXP)))
)

;; END EXPORTED DEFINITIONS

(PUTPROPS MODARITH COPYRIGHT ("Venue & Xerox Corporation" 1982 1983 1984 1986 1990))
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CONSTANT INDEX

MACRO INDEX

VARIABLE INDEX