

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

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(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 NIBBLESERBYTE BITSPERBYTE BITSPERCELL BITSPERWORD BYTESPERCELL
 BYTESPERPAGE BYTESPERWORD CELLSERPAGE CELLSERSEGMENT PAGESERSEGMENT WORDSPERCELL
 WORDSPERPAGE WORDSPERSEGMENT WORDSPERQUAD CELLSERQUAD 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 **NIBBLESERBYTE** 2)

(RPAQQ **BITSPERBYTE** 8)

(RPAQQ **BITSPERCELL** 32)

(RPAQQ **BITSPERWORD** 16)

(RPAQQ **BYTESPERCELL** 4)

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(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 BITSVERNIBBLE NIBBLESERBYTE BITSERBYTE BITSERCELL BITSERWORD BYTESERCELL BYTESERPAGE
  BYTESERWORD CELLSERPAGE CELLSERSEGMENT PAGESERSEGMENT WORDSPERCELL WORDSPERPAGE WORDSPERSEGMENT
  WORDSPERQUAD CELLSERQUAD BYTESERQUAD)
)

(RPAQQ INTEGERSIZECONSTANTS
  ((BITS.PER.SMALLP (ADD1 BITSERWORD))
    (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 BITSERCELL)
    (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 BITSERWORD))

(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 BITSERCELL)

(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 BITSERWORD))
  (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 BITSERCELL)
  (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

BITS.PER.FIXP2	BITSPERWORD2	CELLSPERPAGE2	MAX.SMALLP2	SMALLP.LENGTH2
BITS.PER.SMALLP ...2	BYTESPERCELL2	CELLSPERQUAD2	MIN.FIXP2	WORDSPERCELL2
BITSPERBYTE2	BYTESPERPAGE2	CELLSPERSEGMENT ...2	MIN.SMALLP2	WORDSPERPAGE2
BITSPERCELL2	BYTESPERQUAD2	FIXP.LENGTH2	NIBBLESERBYTE ...2	WORDSPERQUAD2
BITSPERNIBBLE2	BYTESPERWORD2	MAX.FIXP2	PAGESPERSEGMENT ...2	WORDSPERSEGMENT ...2

MACRO INDEX

CEIL1	FLOOR1	FOLDHI1	FOLDLO1	MOD1	MODUP1	UNFOLD1
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VARIABLE INDEX

EXPANDMACROFNS1	INTEGERSIZECONSTANTS2	MODARITHMACROS1
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