

File created: 20-Jan-93 15:04:46 {DSK}<python>lde>lispcore>library>VMEM.;2

changes to: (RECORDS REMOTEPOINTER)

previous date: 9-Nov-92 16:30:26 {DSK}<python>lde>lispcore>library>VMEM.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

```
::  
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```

(RPAQQ VMEMCOMS

```
[ (FNS INITVMEM REOPENVMFILE VVAG2)  
  (INITVARS (VMEMFILE))  
  (FNS VGETBASE0 VPUTBASE0 VGETBASEPTR0 VPUTBASEPTR0 INVALIDADDR)  
  (COMS (FNS PRINTVM ENDMPRINT)  
    (DECLARE%: DONTCOPY (CONSTANTS NOPAGE)))  
  (FNS OPENVMFILE UNMAPVM CLOSEVMEMFILE MAPVMPAGE VBIN1 VBOUT1 VBIN2 VBOUT2)  
  (FNS SETVMPTR VMPAGEP)  
  [DECLARE%: EVAL@COMPILE DONTCOPY (MACROS * VMACROS)  
    (RECORDS REMOTEPOINTER)  
    DONTEVAL@LOAD  
    (P (OR (SELECTQ (AND (GETD 'COMPILEMODE)  
                        (COMPILEMODE))  
            (ALTO D)  
            T)  
        NIL)  
      (FILESLOAD (LOADCOMP)  
                  DCODEFOR10]  
  [COMS (FNS VTYPEDPOINTER \REMOTEPOINTER.DEFPRINT)  
    (INITRECORDS REMOTEPOINTER)  
    (DECLARE%: DONTEVAL@LOAD DOCOPY (P (DEFPRINT 'REMOTEPOINTER '\REMOTEPOINTER.DEFPRINT]  
  (ADDVARS (VMEMVARS (PGEMPTY (FIXPARRAY 256))  
                    (PGTAB (POINTERARRAY 256 PGEMPTY))  
                    (RDSYSINIT T)))  
  (GLOBALVARS PGTAB PGEMPTY VMEMFILEX VMEMFILE FIRSTPMT)  
  (COMS (FNS POINTERARRAY WORDARRAY FIXPARRAY)  
    (P (MAPC ' ((ELT FASTELT FASTELTN FASTELTW)  
              (SETA FASTSETA FASTSETAN FASTSETAW)  
              (GETHASH IGETHASH)  
              (PUTHASH IPUTHASH))  
        (FUNCTION (LAMBDA (X)  
                  (MAPC (CDR X)  
                        (FUNCTION (LAMBDA (Y)  
                                  (MOVD? (CAR X)  
                                          Y])
```

(DEFINEQ

(INITVMEM

```
[LAMBDA (FILE WRITEABLE) (* bvm%: "13-Sep-86 17:40")  
  (COND  
    (VMEMFILE (CLOSEVMEMFILE)))  
  (COND  
    ((NLISTP FILE)  
     (SETQ FILE (OPENVMFILE (OR FILE 'LISP.SYSOUT)  
                             WRITEABLE))  
     (SETQ VMOUTFILEX (AND WRITEABLE VMEMFILE))  
     [for X in VMEMVARS do (OR (BOUNDP (CAR X))  
                               (SET (CAR X)  
                                   (EVAL (CADR X)))  
                               (* Read the pagemap pages and record the page addresses.)  
     (UNMAPVM)  
     (VREADPAGEMAP))  
  (T (OPENREMOTEVMEMFILE (CAR FILE]))
```

(REOPENVMFILE

```
[LAMBDA (FILE WRITEABLE) (* bvm%: "13-Sep-86 17:40")  
  (** VMEMFILEX soon to be obsolete)  
  (SETQ VMEMFILE (SETQ VMEMFILEX (OPENSTREAM FILE (COND  
                                                    (WRITEABLE 'BOTH)  
                                                    (T 'INPUT))  
                                                    'OLD 8]))
```

(VVAG2

```
[LAMBDA (HI LO) (* Imm "9-MAR-81 09:34")  
  (* DOESN'T BELONG HERE, BUT ON MEM! INCLUDED BECAUSE REMOTE-PRINTCODE CALLS VVAG2 BUT DIDN'T  
  IMPORT MEM)
```

```

([LAMBDA (X)
  (DECLARE (LOCALVARS . T))
  (COND
    ((ZEROP X)
     NIL)
    (T X)
  (IPLUS (LLSH HI 16)
   LO])
)

```

(RPAQ? VMEMFILE)

(DEFINEQ

(VGETBASE0

(* Imm "20-AUG-81 16:43")

```

[LAMBDA (PTR)
  (COND
    ((NLISTP VMEMFILE)
     (SETVMPTR PTR)
     (VBIN2))
    (T (WORDCONTENTS (WORDOFFSET (VMAPPAGE (LRSH PTR 8))
    (LOGAND PTR 255))

```

(VPUTBASE0

(* Imm "20-AUG-81 16:43")

```

[LAMBDA (PTR VALUE)
  (COND
    ((NLISTP VMEMFILE)
     (SETVMPTR PTR)
     (VBOUT2 VALUE))
    (T (SETWORDCONTENTS (WORDOFFSET (VMAPPAGE (LRSH PTR 8))
    (LOGAND PTR 255))
    VALUE)
    (REMOTESETWORD PTR VALUE)))
  VALUE])

```

(VGETBASEPTR0

(* Imm "8-SEP-81 23:12")

```

[LAMBDA (PTR)
  (AND [NOT (ZEROP (SETQ PTR (COND
    ((NLISTP VMEMFILE)
     (SETVMPTR PTR)
     (VBIN1)
     (VVAG2 (VBIN1)
     (VBIN2)))
    (T (VVAG2 [LOGAND 255 (WORDCONTENTS (SETQ PTR (WORDOFFSET (VMAPPAGE
    (LRSH PTR 8))
    (LOGAND 255 PTR]
    (WORDCONTENTS (WORDOFFSET PTR 1]
    PTR]))

```

(VPUTBASEPTR0

(* Imm "20-AUG-81 16:43")

```

[LAMBDA (PTR VALUE)
  (COND
    ((NLISTP VMEMFILE)
     (SETVMPTR PTR)
     (VBOUT2 (VHILOC VALUE))
     (VBOUT2 (VLOLOC VALUE)))
    (T (PROG (WORD)
    (SETWORDCONTENTS (SETQ WORD (WORDOFFSET (VMAPPAGE (LRSH PTR 8))
    (LOGAND PTR 255)))
    (VHILOC VALUE))
    (SETWORDCONTENTS (WORDOFFSET WORD 1)
    (VLOLOC VALUE))
    (REMOTESETWORD PTR (VHILOC VALUE))
    (REMOTESETWORD (ADD1 PTR)
    (VLOLOC VALUE))
    (RETURN VALUE])

```

(INVALIDADDR

; Edited 9-Nov-92 15:22 by sybalsky:mv:envos

:: Handle Invalid addresses in Teleraid and INIT building. For INIT building, I changed the ERROR! to ERROR so we can do diagnosis. JDS
:: 11/9/92

```

(printout T "Invalid Address: ")
(VPRINTVA PTR)
(TERPRI T)
(ERROR "Invalid address"])

```

(* ERROR!)

)

(DEFINEQ

(PRINTVM

```

[LAMBDA NIL
  (PROG ((LASTSEG NOPAGE)
        (LASTPAGE NOPAGE)
        LASTE FIRSTE)
    [for SEG from 0 to 255 bind P do (OR (EQ (SETQ P (FASTELT PGTAB SEG))
                                           PGEMPTY)
    (for PAGE from 0 to 255 bind E
      do (COND
        ((NEQ (SETQ E (FASTELTN P PAGE))
              0)
         (COND
          ((NOT (IEQ SEG LASTSEG))
           (ENDVMPRINT)
           (printout T T "segment " (SETQ LASTSEG SEG)
                    T)))
          (COND
           ((OR (NOT (IEQ (SUB1 PAGE)
                        LASTPAGE))
                (NOT (IEQ (SUB1 E)
                        LASTE)))
            (ENDVMPRINT)
            (printout T PAGE)
            (SETQ FIRSTE E))
            (SETQ LASTPAGE PAGE)
            (SETQ LASTE E]
        )
      )
    )
  (ENDVMPRINT])

```

(* Imm " 4-MAY-82 21:09")

(ENDVMPRINT

```

[LAMBDA NIL
  (COND
    ((NOT (IEQ LASTPAGE NOPAGE))
     (COND
      ((IEQ FIRSTE LASTE)
       (printout T 10 (COND
         ((IGEQ FIRSTE 32768)
          (SETQ FIRSTE (LOGAND FIRSTE 32767))
          (SETQ LASTE (LOGAND LASTE 32767))
          "*"
          (T " ")))
        (T " ")))
      (T (printout T "-" LASTPAGE 10 (COND
        ((IGEQ FIRSTE 32768)
         (SETQ FIRSTE (LOGAND FIRSTE 32767))
         (SETQ LASTE (LOGAND LASTE 32767))
         "*"
         (T " ")))
        (T " ")))
        FIRSTE "-" LASTE T)))
    (SETQ LASTPAGE NOPAGE])
)

```

(* Imm " 4-MAY-82 21:47")

(DECLARE%: DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ NOPAGE -2)

(CONSTANTS NOPAGE)

)

(DEFINEQ

(OPENVMFILE

```

[LAMBDA (NAME WRITEABLE)
  (WHENCLOSE (REOPENVMFILE NAME WRITEABLE)
    'CLOSEALL
    'NO
    'AFTER
    'CLOSEVMEMFILE
    'STATUS
    (FUNCTION (LAMBDA (FILE)
      (LIST 'REOPENVMFILE FILE (OPENP FILE 'BOTH]))
  )
)

```

(* Imm "19-DEC-81 00:21")

(UNMAPVM

```

[LAMBDA NIL
  (for I from 0 to 255 bind P do (OR (EQ (SETQ P (FASTELT PGTAB I))
                                           PGEMPTY)
    (for J from 0 to 255 do (FASTSETAN P J 0]))
)

```

(* Imm " 3-AUG-80 22:12")

(CLOSEVMEMFILE

```

[LAMBDA NIL
  (COND
    (

```

(* bvm%: "13-Jul-84 17:22")

```

((NLISTP VMEMFILE)
 (CLOSEF? VMEMFILE))
(T (CLOSEREMOTEVMEMFILE)))
(SETQ VMEMFILE])

```

(MAPVMPAGE

```

[LAMBDA (VP PAGE)

(PROG ((A (LRSH VP 8))
      (B (LOGAND VP 255))
      D)
 [COND
  ((EQ (SETQ D (FASTELT PGTAB A))
       PGEMPTY)
   (FASTSETA PGTAB A (SETQ D (FIXPARRAY 256)
                             (FASTSETAN D B PAGE))])

```

(* Imm "21-AUG-81 22:38")
(* Associate virtual page VP with page PAGE of the vmem file)

(VBIN1

```

[LAMBDA NIL
 (\BIN VMEMFILE)]

```

(* bvm%: "13-Sep-86 17:38")

(VBOUT1

```

[LAMBDA (BYTE)
 (\BOUT (OR VMOUTFILEX (ERROR "Can't write on " VMEMFILE))
 BYTE)]

```

(* Imm "16-MAY-81 16:52")

(VBIN2

```

[LAMBDA NIL
 (IPLUS (LLSH (VBIN1)
             8)
 (VBIN1))]

```

(VBOUT2

```

[LAMBDA (VALUE)
 (VBOUT1 (LRSH VALUE 8))
 (VBOUT1 (LOGAND VALUE 255))
 VALUE)]

```

(* Imm "19-MAR-81 12:24")

(DEFINEQ

(SETVMPTR

```

[LAMBDA (PTR)

```

(* Imm " 4-MAY-82 20:42")

(* Positions VMEMFILE to start reading at virtual address PTR, and sets VMBYTESLEFT to the number of bytes left on the page.)

```

(PROG ((A (FASTELT PGTAB (VHILOC PTR)))
      (J (LRSH (VLOLOC PTR)
              8)))
 [COND
  ((IEQP (FASTELEN A J)
         0)
   (INVALIDADDR (IPLUS PTR 0)
 (SETFILEPTR VMEMFILE (IPLUS (LLSH (LOGAND (FASTELEN A J)
                                         32767)
                                     9)
                             (LLSH (LOGAND (VLOLOC PTR)
                                         255)
                                     1]))

```

(* The multiple FASTELTNs are to avoid boxing)

(VMPAGEP

```

[LAMBDA (VP)
 (NOT (IEQP (.LOOKUPMAP. VP)
           0))]

```

(* bvm%: "10-Dec-84 12:46")

(DECLARE%: EVAL@COMPILE DONTCOPY

(RPAQQ VMACROS (VPAGEBASE VADDBASE VHILOC VVAG2 VGETBASEBYTE VLOLOC VPAGELOC VGETBASE VPUTBASE VGETBASEPTR VPUTBASEPTR VBIN1 VBIN2 .LOOKUPMAP.))

(DECLARE%: EVAL@COMPILE

(PUTPROPS VPAGEBASE MACRO ((PTR)
 (LOGAND PTR -256)))

(PUTPROPS VADDBASE MACRO ((PTR D)
 (IPLUS PTR D)))

```

(PUTPROPS VHILOC MACRO ((PTR)
                        (LRSH (OR PTR 0)
                              16)))

(PUTPROPS VVAG2 MACRO ((HI LO)
                       (IPLUS (LLSH HI 16)
                                LO)))

(PUTPROPS VGETBASEBYTE MACRO [LAMBDA (PTR N)
                                (COND
                                 ((ZEROP (LOGAND N 1))
                                  (LRSH (VGETBASE PTR (LRSH N 1))
                                        8))
                                 (T (LOGAND 255 (VGETBASE PTR (LRSH N 1)))))
                                ] (* Imm "9-MAR-81 09:49")

(PUTPROPS VLOLOC MACRO ((PTR)
                        (LOGAND (OR PTR 0)
                              65535)))

(PUTPROPS VPAGELOC MACRO ((PTR)
                        (LRSH (OR PTR 0)
                              8)))

(PUTPROPS VGETBASE MACRO ((PTR D)
                        (VGETBASE0 (VADDBASE PTR D))))

(PUTPROPS VPUTBASE MACRO ((PTR D VAL)
                        (VPUTBASE0 (VADDBASE PTR D)
                                      VAL)))

(PUTPROPS VGETBASEPTR MACRO ((PTR D)
                        (VGETBASEPTR0 (VADDBASE PTR D))))

(PUTPROPS VPUTBASEPTR MACRO ((PTR D VALUE)
                        (VPUTBASEPTR0 (VADDBASE PTR D)
                                          VALUE)))

(PUTPROPS VBIN1 MACRO (NIL (\BIN VMEMFILE)))

(PUTPROPS VBIN2 MACRO (NIL (IPLUS (LLSH (VBIN1)
                                      8)
                                    (VBIN1))))

(PUTPROPS .LOOKUPMAP. MACRO ((VP)
                        (FASTELTN (FASTELT PGTAB (LRSH VP 8))
                                  (LOGAND VP 255))))

)

(DECLARE%: EVAL@COMPILE

(DATATYPE REMOTEPOINTER ((RPTYPE POINTER)
                        (RPHILOC WORD)
                        (RPLOLOC WORD)))

)

(/DECLAREDATATYPE 'REMOTEPOINTER ' (POINTER WORD WORD)
;: ---field descriptor list elided by lister---
' 4)

(OR (SELECTQ (AND (GETD 'COMPILEMODE)
                 (COMPILEMODE))
    ((ALTO D)
     T)
    NIL)
    (FILESLOAD (LOADCOMP)
                DCODEFOR10))

)

(DEFINEQ

(VTYPEDPOINTER
 [LAMBDA (TYPE POINTER)
          (* bvm%: "15-Feb-85 18:06")

          (* Produces a local object that represents a remote POINTER with type information.
          Used for visual presentation to teleraid user)

          (create REMOTEPOINTER
                   RPTYPE _ TYPE
                   RPHILOC _ (VHILOC POINTER)
                   RPLOLOC _ (VLOLOC POINTER])

(\REMOTEPOINTER.DEFPRINT
 [LAMBDA (RPTR)
          (* bvm%: "15-Feb-85 18:11")

```

(* How to print a REMOTEPOINTER)

```

(LIST (CONCAT '{ (OR (ffetch RPTYPE of (\DTEST RPTR 'REMOTEPOINTER))
      ""))
      "#")
      (OCTALSTRING (ffetch RPHILOC of RPTR))
      '%,
      (OCTALSTRING (ffetch RPLOLOC of RPTR])
)

(/DECLAREDATATYPE 'REMOTEPOINTER ' (POINTER WORD WORD)
  ;; ---field descriptor list elided by lister---
  ' 4)

(DECLARE%: DONTEVAL@LOAD DOCOPY

(DEFPRINT 'REMOTEPOINTER '\REMOTEPOINTER.DEFPRINT)
)

(ADDTOVAR VMEMVARS (PGEMPTY (FIXPARRAY 256))
            (PGTAB (POINTERARRAY 256 PGEMPTY))
            (RDSYSINIT T))

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS PGTAB PGEMPTY VMEMFILEX VMEMFILE FIRSTPMT)
)

(DEFINEQ
(POINTERARRAY
 [LAMBDA (N INIT)
  (ARRAY N 'POINTER INIT 0)])
(* Imm " 4-DEC-80 16:58")

(WORDARRAY
 [LAMBDA (N)
  (ARRAY N 'SMALLPOSP 0 0)])
(* Imm " 4-DEC-80 16:58")

(FIXPARRAY
 [LAMBDA (N)
  (ARRAY N 'FIXP 0 0)])
(* Imm " 4-DEC-80 16:58")
)

[MAPC '((ELT FASTELT FASTELTN FASTELTW)
      (SETA FASTSETA FASTSETAN FASTSETAW)
      (GETHASH IGETHASH)
      (PUTHASH IPUTHASH))
      (FUNCTION (LAMBDA (X)
                (MAPC (CDR X)
                      (FUNCTION (LAMBDA (Y)
                                (MOVD? (CAR X)
                                         Y])
)

(PUTPROPS VMEM COPYRIGHT ("Venue & Xerox Corporation" 1982 1984 1985 1986 1990 1992 1993))

```

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