

File created: 8-Dec-2023 21:32:41 {WMEDLEY}<lispusers>DSPSCALE.;3

edit by: rmk

changes to: (FNS INITSCALEDIMAGESTREAM \CHARSET.SCALED)  
(VARS DSPSCALECOMS)  
(RECORDS SCALEDIMAGEDATA CONVERT)  
(MACROS DSPUNSCALE.XPOSITION DSPUNSCALE.YPOSITION)

previous date: 19-Jul-88 13:36:39 {WMEDLEY}<lispusers>DSPSCALE.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

## (RPAQQ DSPSCALECOMS

```
((LOCALVARS . T)
(* * SCALED ImageStream ImageOp Functions)
(FNS INITSCALEDIMAGESTREAM OPENIMAGESTREAM.SCALED)
(FNS \BACKCOLOR.SCALED \BITBLT.SCALED \BLTSHADE.SCALED \BOTTOMMARGIN.SCALED \BOUT.SCALED
\CHARWIDTH.SCALED \CHARWIDTHY.SCALED \CLIPPINGREGION.SCALED \CLOSEFN.SCALED \COLOR.SCALED
\DEFAULTSTATE.SCALED \DRAWARC.SCALED \DRAWCIRCLE.SCALED \DRAWCURVE.SCALED \DRAWELLIPSE.SCALED
\DRAWLINE.SCALED \DRAWPOINT.SCALED \DRAWPOLYGON.SCALED \FILLCIRCLE.SCALED \FILLPOLYGON.SCALED
\FONT.SCALED \LEFTMARGIN.SCALED \LINEFEED.SCALED \MOVETO.SCALED \NEWPAGE.SCALED \OPERATION.SCALED
\POPSTATE.SCALED \PUSHSTATE.SCALED \RESET.SCALED \RIGHTMARGIN.SCALED \ROTATE.SCALED \SCALE.SCALED
\SCALEDBITBLT.SCALED \SPACEFACTOR.SCALED \STRINGWIDTH.SCALED \TERPRI.SCALED \TOPMARGIN.SCALED
\TRANSLATE.SCALED \XPOSITION.SCALED \YPOSITION.SCALED \OUTCHAR.SCALED)
(* * Self Scaling DSP* Functions)
(FNS CENTERPRINTINREGION! CHARWIDTH! CHARWIDTHY! CURSORPOSITION! BITBLT! BITMAPBIT! BLTSHADE! DSPBACKUP!
DSPBOTTOMMARGIN! DSPCLIPPINGREGION! DRAWBETWEEN! DRAWARC! DRAWCIRCLE! DRAWCURVE! DRAWELLIPSE!
DRAWLINE! DRAWPOINT! DRAWPOLYGON! DRAWTO! FILLCIRCLE! FILLPOLYGON! FONTPROP! DSPLEFTMARGIN!
DSPLINEFEED! GETPOSITION! MOVETO! MOVETOUPPERLEFT! DSPRIGHTMARGIN! DSPSCALE! RELDRAWTO! RELMOVETO!
SCALEDBITBLT! STRINGREGION! STRINGWIDTH! DSPSPACEFACTOR! DSPTRANSLATE! DSPTOPMARGIN! DSPUNITS!
DSPXOFFSET! DSPXPOSITION! DSPYOFFSET! DSPYPOSITION!)
(* * Low Level Scaling Functions)
(FNS DSPSCALE.BRUSH DSPSCALE.DASHING DSPSCALE.POINTS DSPSCALE.REGION DSPSCALE.NUMBER DSPSCALE.POSITION
DSPSCALE.XPOSITION DSPSCALE.YPOSITION DSPSCALE.WIDTH DSPUNSCALE.REGION DSPUNSCALE.POSITION
DSPUNSCALE.NUMBER DSPUNSCALE.CHARACTER)
(MACROS DSPUNSCALE.XPOSITION DSPUNSCALE.YPOSITION)
(* * etc.)
(DECLARE%: DONTCOPY (RECORDS SCALEDIMAGEDATA CONVERT))
[ADDVARS (IMAGESTREAMTYPES (SCALED (OPENSTREAM OPENIMAGESTREAM.SCALED)]
(INITVARS \SCALEDIMAGEOPS \NULLFDEV)
(GLOBALVARS \SCALEDIMAGEOPS \NULLFDEV)
[INITVARS (DSPSCALE.SCRATCHBRUSH '(ROUND 1 NIL))
(DSPSCALE.SCRATCHREGION (create REGION))
(DSPSCALE.SCRATCHPOSITION (create POSITION))
(DSPSCALE.SCRATCHLIST (to 10 collect))
(DSPSCALE.SCRATCHDASHING (to 10 collect))
(DSPSCALE.SCRATCHPOINTS (to 10 collect (create POSITION))
(GLOBALVARS DSPSCALE.SCRATCHBRUSH DSPSCALE.SCRATCHREGION DSPSCALE.SCRATCHPOSITION DSPSCALE.SCRATCHLIST
DSPSCALE.SCRATCHDASHING DSPSCALE.SCRATCHPOINTS)
(P (MOVD? 'DSPUNITS! 'DSPUNITS)
(INITSCALEDIMAGESTREAM)))
```

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)  
)

(\* \* SCALED ImageStream ImageOp Functions)

(DEFINEQ

## (INITSCALEDIMAGESTREAM

```
[LAMBDA NIL ; Edited 19-Jul-88 10:59 by cdl
(DECLARE (GLOBALVARS \DISPLAYIMAGEOPS))
[if (NULL \NULLFDEV)
then (SETQ \NULLFDEV (create FDEV
CLOSEFILE _ (FUNCTION NIL])
(SETQ \SCALEDIMAGEOPS (create IMAGEOPS
IMAGETYPE _ 'SCALED
IMCLOSEFN _ (FUNCTION \CLOSEFN.SCALED)
IMXPOSITION _ (FUNCTION \XPOSITION.SCALED)
IMYPOSITION _ (FUNCTION \YPOSITION.SCALED)
IMFONT _ (FUNCTION \FONT.SCALED)
IMLEFTMARGIN _ (FUNCTION \LEFTMARGIN.SCALED)
IMRIGHTMARGIN _ (FUNCTION \RIGHTMARGIN.SCALED)
IMLINEFEED _ (FUNCTION \LINEFEED.SCALED)
IMDRAWLINE _ (FUNCTION \DRAWLINE.SCALED)
IMDRAWCURVE _ (FUNCTION \DRAWCURVE.SCALED)
IMDRAWCIRCLE _ (FUNCTION \DRAWCIRCLE.SCALED)
IMDRAWELLIPSE _ (FUNCTION \DRAWELLIPSE.SCALED)
IMFILLCIRCLE _ (FUNCTION \FILLCIRCLE.SCALED)
IMBLTSHADE _ (FUNCTION \BLTSHADE.SCALED)
```

```

IMBITBLT _ (FUNCTION \BITBLT.SCALED)
IMNEWPAGE _ (FUNCTION \NEWPAGE.SCALED)
IMMOVETO _ (FUNCTION \MOVETO.SCALED)
IMSCALE _ (FUNCTION \SCALE.SCALED)
IMTERPRI _ (FUNCTION \TERPRI.SCALED)
IMTOPMARGIN _ (FUNCTION \TOPMARGIN.SCALED)
IMBOTTOMMARGIN _ (FUNCTION \BOTTOMMARGIN.SCALED)
IMSPACEFACTOR _ (FUNCTION \SPACEFACTOR.SCALED)
IMFONTCREATE _ 'DISPLAY
IMOPERATION _ (FUNCTION \OPERATION.SCALED)
IMCOLOR _ (FUNCTION \COLOR.SCALED)
IMSTRINGWIDTH _ (FUNCTION \STRINGWIDTH.SCALED)
IMCHARWIDTH _ (FUNCTION \CHARWIDTH.SCALED)
IMCHARWIDTHY _ (FUNCTION \CHARWIDTHY.SCALED)
IMBACKCOLOR _ (FUNCTION \BACKCOLOR.SCALED)
IMCLIPPINGREGION _ (FUNCTION \CLIPPINGREGION.SCALED)
IMRESET _ (FUNCTION \RESET.SCALED)
IMDRAWPOLYGON _ (FUNCTION \DRAWPOLYGON.SCALED)
IMFILLPOLYGON _ (FUNCTION \FILLPOLYGON.SCALED)
IMSCALEDBITBLT _ (FUNCTION \SCALEDBITBLT.SCALED)
IMROTATE _ (FUNCTION \ROTATE.SCALED)
IMDRAWARC _ (FUNCTION \DRAWARC.SCALED)
IMTRANSLATE _ (FUNCTION \TRANSLATE.SCALED)
IMPUSHSTATE _ (FUNCTION \PUSHSTATE.SCALED)
IMPOPSTATE _ (FUNCTION \POPSTATE.SCALED)
IMDEFAULTSTATE _ (FUNCTION \DEFAULTSTATE.SCALED)
IMDRAWPOINT _ (FUNCTION \DRAWPOINT.SCALED)

```

(OPENIMAGESTREAM.SCALED

[LAMBDA (IMAGESTREAM OPTIONS)

```

(* cdl "26-Jan-87 09:23")
(* DECLARATIONS%: (RECORD PAIR
(KEY VALUE)))

```

(LET (STREAM SCALE)

```

[SETQ OPTIONS (for PAIR on OPTIONS by (CDDR PAIR) when (with PAIR PAIR (SELECTQ KEY
(SCALE (SETQ SCALE VALUE)
NIL)
T))

```

join (with PAIR PAIR (LIST KEY VALUE]

(with STREAM (SETQ STREAM (create STREAM

```

IMAGEDATA _ (create SCALEDIMAGEDATA
IMAGESTREAM _ IMAGESTREAM)

```

```

IMAGEOPS _ (create IMAGEOPS
IMFONTCREATE _ (with IMAGEOPS (fetch (STREAM IMAGEOPS)
of IMAGESTREAM)
IMFONTCREATE)

```

reusing \SCALEDIMAGEOPS)

OUTCHARFN \_ (FUNCTION \OUTCHAR.SCALED)

ACCESS \_ 'OUTPUT

DEVICE \_ \NULLFDEV))

(SETQ STRMBOUTFN (FUNCTION \BOUT.SCALED)))

```

(if SCALE
then (DSPSCALE! SCALE IMAGESTREAM)
STREAM))

```

)

(DEFINEQ

(\BACKCOLOR.SCALED

[LAMBDA (STREAM COLOR)

(\* cdl "26-Jan-87 09:04")

```

(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMBACKCOLOR IMAGESTREAM IMAGESTREAM COLOR))

```

(\BITBLT.SCALED

```

[LAMBDA (SOURCEBITMAP SOURCELEFT SOURCEBOTTOM STREAM DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT SOURCETYPE
OPERATION TEXTURE CLIPPINGREGION)
(* cdl "26-Jan-87 10:37")

```

(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)

```

(BITBLT SOURCEBITMAP SOURCELEFT SOURCEBOTTOM IMAGESTREAM (DSPSCALE.XPOSITION DESTINATIONLEFT
IMAGESTREAM)

```

```

(DSPSCALE.YPOSITION DESTINATIONBOTTOM IMAGESTREAM)
WIDTH HEIGHT SOURCETYPE OPERATION TEXTURE (DSPSCALE.REGION CLIPPINGREGION IMAGESTREAM))

```

(\BLTSHADE.SCALED

[LAMBDA (TEXTURE STREAM DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT OPERATION CLIPPINGREGION)

(\* cdl "26-Jan-87 10:05")

(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)

```

(IMAGEOP 'IMBLTSHADE IMAGESTREAM TEXTURE IMAGESTREAM (DSPSCALE.XPOSITION DESTINATIONLEFT IMAGESTREAM)
(DSPSCALE.YPOSITION DESTINATIONBOTTOM IMAGESTREAM)
(DSPSCALE.NUMBER WIDTH IMAGESTREAM)
(DSPSCALE.NUMBER HEIGHT IMAGESTREAM)
OPERATION
(DSPSCALE.REGION CLIPPINGREGION IMAGESTREAM))

```

```
(\BOTTOMMARGIN.SCALED
  [LAMBDA (STREAM YPOSITION) (* cdl "26-Jan-87 08:55")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (DSPUNSCALE.YPOSITION (IMAGEOP 'IMBOTTOMMARGIN IMAGESTREAM IMAGESTREAM (if YPOSITION
        then (DSPSCALE.YPOSITION
          YPOSITION IMAGESTREAM)
        ))
      IMAGESTREAM])
```

```
(\BOUT.SCALED
  [LAMBDA (STREAM BYTE) (* cdl "26-Jan-87 08:49")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (BOUT IMAGESTREAM BYTE])
```

```
(\CHARWIDTH.SCALED
  [LAMBDA (STREAM CHARCODE) (* cdl "26-Jan-87 09:50")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (DSPUNSCALE.CHARACTER (IMAGEOP 'IMCHARWIDTH IMAGESTREAM IMAGESTREAM CHARCODE)
        (DSPFONT NIL IMAGESTREAM)
        IMAGESTREAM])
```

```
(\CHARWIDTHY.SCALED
  [LAMBDA (STREAM CHARCODE) (* cdl "26-Jan-87 10:17")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (DSPUNSCALE.CHARACTER (IMAGEOP 'IMCHARWIDTHY IMAGESTREAM IMAGESTREAM CHARCODE)
        (DSPFONT NIL IMAGESTREAM)
        IMAGESTREAM])
```

```
(\CLIPPINGREGION.SCALED
  [LAMBDA (STREAM REGION) (* cdl "26-Jan-87 09:48")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (DSPUNSCALE.REGION (IMAGEOP 'IMCLIPPINGREGION IMAGESTREAM IMAGESTREAM (if REGION
        then (DSPSCALE.REGION
          REGION IMAGESTREAM)
        ))
      IMAGESTREAM])
```

```
(\CLOSEFN.SCALED
  [LAMBDA (STREAM) (* cdl "26-Jan-87 08:49")
    (with STREAM STREAM (PROG1 (CLOSEF (with SCALEDIMAGEDATA IMAGEDATA IMAGESTREAM))
      (SETQ IMAGEDATA NIL])
```

```
(\COLOR.SCALED
  [LAMBDA (STREAM COLOR) (* cdl "26-Jan-87 08:57")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (IMAGEOP 'IMCOLOR IMAGESTREAM IMAGESTREAM COLOR])
```

```
(\DEFAULTSTATE.SCALED
  [LAMBDA (STREAM)
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (IMAGEOP 'IMDEFAULTSTATE IMAGESTREAM IMAGESTREAM])
  ; Edited 19-Jul-88 08:34 by cdl
```

```
(\DRAWARC.SCALED
  [LAMBDA (STREAM CENTERX CENTERY RADIUS STARTANGLE NDEGREES BRUSH DASHING)
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (IMAGEOP 'IMDRAWARC IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION CENTERX IMAGESTREAM)
        (DSPSCALE.YPOSITION CENTERY IMAGESTREAM)
        (DSPSCALE.NUMBER RADIUS IMAGESTREAM)
        STARTANGLE NDEGREES (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
        (DSPSCALE.DASHING DASHING IMAGESTREAM])
    ; Edited 14-Sep-87 14:30 by cdl
```

```
(\DRAWCIRCLE.SCALED
  [LAMBDA (STREAM CENTERX CENTERY RADIUS BRUSH DASHING) (* cdl "26-Jan-87 09:03")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (IMAGEOP 'IMDRAWCIRCLE IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION CENTERX IMAGESTREAM)
        (DSPSCALE.YPOSITION CENTERY IMAGESTREAM)
        (DSPSCALE.NUMBER RADIUS IMAGESTREAM)
        (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
        (DSPSCALE.DASHING DASHING IMAGESTREAM])
```

```
(\DRAWCURVE.SCALED
  [LAMBDA (STREAM KNOTS CLOSED BRUSH DASHING) (* cdl "26-Jan-87 09:36")
    (with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
      (IMAGEOP 'IMDRAWCURVE IMAGESTREAM IMAGESTREAM (DSPSCALE.POINTS KNOTS IMAGESTREAM)
        CLOSED
        (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
        (DSPSCALE.DASHING DASHING IMAGESTREAM])
```

**(DRAWELLIPSE.SCALED**

```
[LAMBDA (STREAM CENTERX CENTERY SEMIMINORRADIUS SEMIMAJORRADIUS ORIENTATION BRUSH DASHING)
(* cdl "26-Jan-87 09:26")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMDRAWELLIPSE IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION CENTERX IMAGESTREAM)
  (DSPSCALE.YPOSITION CENTERY IMAGESTREAM)
  (DSPSCALE.NUMBER SEMIMINORRADIUS IMAGESTREAM)
  (DSPSCALE.NUMBER SEMIMAJORRADIUS IMAGESTREAM)
  ORIENTATION
  (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
  (DSPSCALE.DASHING DASHING IMAGESTREAM])
```

**(DRAWLINE.SCALED**

```
[LAMBDA (STREAM X1 Y1 X2 Y2 WIDTH OPERATION COLOR DASHING) (* cdl "26-Jan-87 09:41")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMDRAWLINE IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION X1 IMAGESTREAM)
  (DSPSCALE.YPOSITION Y1 IMAGESTREAM)
  (DSPSCALE.XPOSITION X2 IMAGESTREAM)
  (DSPSCALE.YPOSITION Y2 IMAGESTREAM)
  (DSPSCALE.WIDTH WIDTH IMAGESTREAM)
  OPERATION COLOR (DSPSCALE.DASHING DASHING IMAGESTREAM])
```

**(DRAWPOINT.SCALED**

```
[LAMBDA (STREAM X Y BRUSH OPERATION) ; Edited 14-Sep-87 14:30 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMDRAWPOINT IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION X IMAGESTREAM)
  (DSPSCALE.YPOSITION Y IMAGESTREAM)
  (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
  OPERATION])
```

**(DRAWPOLYGON.SCALED**

```
[LAMBDA (STREAM KNOTS CLOSED BRUSH DASHING) (* cdl "26-Jan-87 09:37")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMDRAWPOLYGON IMAGESTREAM IMAGESTREAM (DSPSCALE.POINTS KNOTS IMAGESTREAM)
  CLOSED
  (DSPSCALE.BRUSH BRUSH IMAGESTREAM)
  (DSPSCALE.DASHING DASHING IMAGESTREAM])
```

**(FILLCIRCLE.SCALED**

```
[LAMBDA (STREAM CENTERX CENTERY RADIUS TEXTURE) (* cdl "26-Jan-87 08:59")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMFILLCIRCLE IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION CENTERX IMAGESTREAM)
  (DSPSCALE.YPOSITION CENTERY IMAGESTREAM)
  (DSPSCALE.NUMBER RADIUS IMAGESTREAM)
  TEXTURE])
```

**(FILLPOLYGON.SCALED**

```
[LAMBDA (STREAM KNOTS TEXTURE OPERATION WINDNUMBER) ; Edited 19-Jul-88 10:30 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMFILLPOLYGON IMAGESTREAM IMAGESTREAM (DSPSCALE.POINTS KNOTS IMAGESTREAM)
  TEXTURE OPERATION WINDNUMBER])
```

**(FONT.SCALED**

```
[LAMBDA (STREAM FONT) (* cdl "26-Jan-87 09:13")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (IMAGEOP 'IMFONT IMAGESTREAM IMAGESTREAM FONT])
```

**(LEFTMARGIN.SCALED**

```
[LAMBDA (STREAM XPOSITION) (* cdl "26-Jan-87 08:50")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (DSPUNSCALE.XPOSITION (IMAGEOP 'IMLEFTMARGIN IMAGESTREAM IMAGESTREAM (if XPOSITION
                                                                    then (DSPSCALE.XPOSITION
                                                                    XPOSITION
                                                                    IMAGESTREAM) ) )
  IMAGESTREAM])
```

**(LINEFEED.SCALED**

```
[LAMBDA (STREAM DELTAY) (* cdl "26-Jan-87 09:28")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
  (DSPUNSCALE.NUMBER (IMAGEOP 'IMLINEFEED IMAGESTREAM IMAGESTREAM (if DELTAY
                                                                    then (DSPSCALE.NUMBER DELTAY
                                                                    IMAGESTREAM) ) )
  IMAGESTREAM])
```

**(MOVETO.SCALED**

```
[LAMBDA (STREAM X Y) (* cdl "26-Jan-87 09:30")
```

(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMMOVETO IMAGESTREAM IMAGESTREAM (DSPSCALE.XPOSITION X IMAGESTREAM)
(DSPSCALE.YPOSITION Y IMAGESTREAM]))

(\NEWPAGE.SCALED

[LAMBDA (STREAM) (\* cdl "26-Jan-87 09:10")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMNEWPAGE IMAGESTREAM IMAGESTREAM))

(\OPERATION.SCALED

[LAMBDA (STREAM OPERATION) (\* cdl "26-Jan-87 08:50")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMOPERATION IMAGESTREAM IMAGESTREAM OPERATION))

(\POPSTATE.SCALED

[LAMBDA (STREAM) ; Edited 19-Jul-88 08:32 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMPOPSTATE IMAGESTREAM IMAGESTREAM))

(\PUSHSTATE.SCALED

[LAMBDA (STREAM) ; Edited 19-Jul-88 08:31 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMPUSHSTATE IMAGESTREAM IMAGESTREAM))

(\RESET.SCALED

[LAMBDA (STREAM) (\* cdl "26-Jan-87 09:09")
(with STREAM STREAM (SETQ CHARPOSITION 0)
(with SCALEDIMAGEDATA IMAGEDATA (IMAGEOP 'IMRESET IMAGESTREAM IMAGESTREAM))

(\RIGHTMARGIN.SCALED

[LAMBDA (STREAM XPOSITION) (\* cdl "26-Jan-87 08:50")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.XPOSITION (IMAGEOP 'IMRIGHTMARGIN IMAGESTREAM IMAGESTREAM (if XPOSITION
then (DSPSCALE.XPOSITION
XPOSITION IMAGESTREAM)
)
IMAGESTREAM]))

(\ROTATE.SCALED

[LAMBDA (STREAM ROTATION) ; Edited 14-Sep-87 14:22 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(IMAGEOP 'IMROTATE IMAGESTREAM IMAGESTREAM ROTATION))

(\SCALE.SCALED

[LAMBDA (STREAM SCALE) (\* cdl "26-Jan-87 09:34")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(if SCALE
then (DSPSCALE! SCALE IMAGESTREAM)
else (IMAGEOP 'IMSCALE IMAGESTREAM IMAGESTREAM))

(\SCALEDBITBLT.SCALED

[LAMBDA (SOURCEBITMAP SOURCELEFT SOURCEBOTTOM STREAM DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT SOURCTYPE
OPERATION TEXTURE CLIPPINGREGION SCALE) (\* cdl "26-Jan-87 10:38")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(SCALEDBITBLT SOURCEBITMAP SOURCELEFT SOURCEBOTTOM IMAGESTREAM (DSPSCALE.XPOSITION DESTINATIONLEFT
IMAGESTREAM)
(DSPSCALE.YPOSITION DESTINATIONBOTTOM IMAGESTREAM)
WIDTH HEIGHT SOURCTYPE OPERATION TEXTURE (DSPSCALE.REGION CLIPPINGREGION IMAGESTREAM)
SCALE))

(\SPACEFACTOR.SCALED

[LAMBDA (STREAM FACTOR) (\* cdl "26-Jan-87 09:46")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.NUMBER (IMAGEOP 'IMSPACEFACTOR IMAGESTREAM IMAGESTREAM (if FACTOR
then (DSPSCALE.NUMBER FACTOR
IMAGESTREAM) ) )
IMAGESTREAM))

(\STRINGWIDTH.SCALED

[LAMBDA (STREAM STRING RDTBL) (\* cdl "26-Jan-87 09:45")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.CHARACTER (IMAGEOP 'IMSTRINGWIDTH IMAGESTREAM IMAGESTREAM STRING RDTBL)
(DSPFONT NIL IMAGESTREAM)
IMAGESTREAM))

(\TERPRI.SCALED

[LAMBDA (STREAM) ; (\* cdl "26-Jan-87 09:06")
(with STREAM STREAM (SETQ CHARPOSITION 0)
(with SCALEDIMAGEDATA IMAGEDATA (IMAGEOP 'IMTERPRI IMAGESTREAM IMAGESTREAM]))

(\TOPMARGIN.SCALED

[LAMBDA (STREAM YPOSITION) ; (\* cdl "26-Jan-87 08:54")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.YPOSITION (IMAGEOP 'IMTOPMARGIN IMAGESTREAM IMAGESTREAM (if YPOSITION
then (DSPSCALE.YPOSITION
YPOSITION
IMAGESTREAM)))
IMAGESTREAM])

(\TRANSLATE.SCALED

[LAMBDA (STREAM Tx Ty) ; Edited 19-Jul-88 13:32 by cdl
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(STREAMPROP IMAGESTREAM 'TRANSLATE (CREATEPOSITION (DSPSCALE.NUMBER Tx STREAM)
(DSPSCALE.NUMBER Ty STREAM]))

(\XPOSITION.SCALED

[LAMBDA (STREAM XPOSITION) ; (\* cdl "26-Jan-87 08:51")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.XPOSITION (IMAGEOP 'IMXPOSITION IMAGESTREAM IMAGESTREAM (if XPOSITION
then (DSPSCALE.XPOSITION
XPOSITION
IMAGESTREAM)))
IMAGESTREAM])

(\YPOSITION.SCALED

[LAMBDA (STREAM YPOSITION) ; (\* cdl "26-Jan-87 08:51")
(with SCALEDIMAGEDATA (with STREAM STREAM IMAGEDATA)
(DSPUNSCALE.YPOSITION (IMAGEOP 'IMYPOSITION IMAGESTREAM IMAGESTREAM (if YPOSITION
then (DSPSCALE.YPOSITION
YPOSITION
IMAGESTREAM)))
IMAGESTREAM])

(\OUTCHAR.SCALED

[LAMBDA (STREAM CHARCODE) ; (\* cdl "26-Jan-87 10:20")
[if (EQ CHARCODE (CHARCODE EOL))
then (with STREAM STREAM (SETQ CHARPOSITION 0))
else (freplace CHARPOSITION of STREAM with (\LOLOC (\ADDBASE (ffetch CHARPOSITION of STREAM)
1]
(BOUT STREAM CHARCODE])

(\* \* Self Scaling DSP\* Functions)

(DEFINEQ

(CENTERPRINTINREGION!

[LAMBDA (EXP REGION STREAM) ; (\* cdl "29-Jul-85 12:09")
(CENTERPRINTINREGION EXP (if REGION
then (DSPSCALE.REGION REGION STREAM))
STREAM])

(CHARWIDTH!

[LAMBDA (CHARCODE FONT STREAM) ; Edited 19-Jul-88 13:16 by cdl
(DSPUNSCALE.CHARACTER (CHARWIDTH CHARCODE FONT)
FONT
(OR STREAM (IMAGESTREAMP FONT]))

(CHARWIDTHY!

[LAMBDA (CHARCODE FONT STREAM) ; Edited 19-Jul-88 13:16 by cdl
(DSPUNSCALE.CHARACTER (CHARWIDTHY CHARCODE FONT)
FONT
(OR STREAM (IMAGESTREAMP FONT]))

(CURSORPOSITION!

[LAMBDA (NEWPOSITION STREAM OLDPOSITION) ; (\* cdl "30-Oct-85 08:15")
(DSPUNSCALE.POSITION (CURSORPOSITION (if NEWPOSITION
then (DSPSCALE.POSITION NEWPOSITION STREAM OLDPOSITION))
STREAM OLDPOSITION)
STREAM OLDPOSITION])

**(BITBLT!**

[LAMBDA (SOURCE SOURCELEFT SOURCEBOTTOM DESTINATION DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT SOURCETYPE OPERATION TEXTURE CLIPPINGREGION) (\* cdl "29-Jul-85 12:09")  
(BITBLT SOURCE SOURCELEFT SOURCEBOTTOM DESTINATION (**DSPSCALE.XPOSITION** DESTINATIONLEFT DESTINATION) (**DSPSCALE.YPOSITION** DESTINATIONBOTTOM DESTINATION) WIDTH HEIGHT SOURCETYPE OPERATION TEXTURE (**DSPSCALE.REGION** CLIPPINGREGION DESTINATION))

**(BITMAPBIT!**

[LAMBDA (STREAM X Y NEWVALUE) (\* cdl "29-Jul-85 12:01")  
(BITMAPBIT STREAM (**DSPSCALE.XPOSITION** X STREAM) (**DSPSCALE.YPOSITION** Y STREAM) NEWVALUE)]

**(BLTSHADE!**

[LAMBDA (TEXTURE DESTINATION DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT OPERATION CLIPPINGREGION) (\* cdl "29-Jul-85 12:02")  
(BLTSHADE TEXTURE DESTINATION (**DSPSCALE.XPOSITION** DESTINATIONLEFT DESTINATION) (**DSPSCALE.YPOSITION** DESTINATIONBOTTOM DESTINATION) (**DSPSCALE.NUMBER** WIDTH DESTINATION) (**DSPSCALE.NUMBER** HEIGHT DESTINATION) OPERATION (**DSPSCALE.REGION** CLIPPINGREGION DESTINATION))

**(DSPBACKUP!**

[LAMBDA (WIDTH DISPLAYSTREAM) (\* cdl "29-Jul-85 12:02")  
(DSPBACKUP (if WIDTH then (**DSPSCALE.XPOSITION** WIDTH DISPLAYSTREAM)) DISPLAYSTREAM)]

**(DSPBOTTOMMARGIN!**

[LAMBDA (YPOSITION STREAM) (\* cdl "29-Jul-85 12:02")  
(DSPUNSCALE.YPOSITION (DSPBOTTOMMARGIN (if YPOSITION then (**DSPSCALE.YPOSITION** YPOSITION STREAM)) STREAM) STREAM)]

**(DSPCLIPPINGREGION!**

[LAMBDA (REGION STREAM) (\* cdl "29-Jul-85 08:41")  
(DSPUNSCALE.REGION (DSPCLIPPINGREGION (if REGION then (**DSPSCALE.REGION** REGION STREAM)) STREAM) STREAM)]

**(DRAWBETWEEN!**

[LAMBDA (PT1 PT2 WIDTH OPERATION STREAM COLOR DASHING) (\* cdl "29-Oct-85 15:30")  
(DRAWBETWEEN (**DSPSCALE.POSITION** PT1 STREAM (CAR DSPSCALE.SCRATCHPOINTS)) (**DSPSCALE.POSITION** PT2 STREAM (CADR DSPSCALE.SCRATCHPOINTS)) (**DSPSCALE.WIDTH** WIDTH STREAM) OPERATION STREAM COLOR (**DSPSCALE.DASHING** DASHING STREAM))

**(DRAWARC!**

[LAMBDA (CENTERX CENTERY RADIUS STARTANGLE NDEGREES BRUSH DASHING STREAM) (\* cdl "29-Sep-87 14:34 by cdl"; Edited 14-Sep-87 14:34 by cdl  
(DRAWARC (**DSPSCALE.XPOSITION** CENTERX STREAM) (**DSPSCALE.YPOSITION** CENTERY STREAM) (**DSPSCALE.NUMBER** RADIUS STREAM) STARTANGLE NDEGREES (**DSPSCALE.BRUSH** BRUSH STREAM) (**DSPSCALE.DASHING** DASHING STREAM) STREAM)]

**(DRAWCIRCLE!**

[LAMBDA (CENTERX CENTERY RADIUS BRUSH DASHING STREAM) (\* cdl "29-Jul-85 12:03")  
(DRAWCIRCLE (**DSPSCALE.XPOSITION** CENTERX STREAM) (**DSPSCALE.YPOSITION** CENTERY STREAM) (**DSPSCALE.NUMBER** RADIUS STREAM) (**DSPSCALE.BRUSH** BRUSH STREAM) (**DSPSCALE.DASHING** DASHING STREAM) STREAM)]

**(DRAWCURVE!**

[LAMBDA (KNOTS CLOSED BRUSH DASHING STREAM) (\* cdl "29-Jul-85 10:04")  
(DRAWCURVE (**DSPSCALE.POINTS** KNOTS STREAM) CLOSED (**DSPSCALE.BRUSH** BRUSH STREAM) (**DSPSCALE.DASHING** DASHING STREAM) STREAM)]

**(DRAWELLIPSE!**

```
[LAMBDA (CENTERX CENTERY SEMIMINORRADIUS SEMIMAJORRADIUS ORIENTATION BRUSH DASHING STREAM)
  (* cdl "29-Jul-85 12:03")
  (DRAWELLIPSE (DSPSCALE.XPOSITION CENTERX STREAM)
    (DSPSCALE.YPOSITION CENTERY STREAM)
    (DSPSCALE.NUMBER SEMIMINORRADIUS STREAM)
    (DSPSCALE.NUMBER SEMIMAJORRADIUS STREAM)
    ORIENTATION
    (DSPSCALE.BRUSH BRUSH STREAM)
    (DSPSCALE.DASHING DASHING STREAM)
    STREAM])
```

**(DRAWLINE!**

```
[LAMBDA (X1 Y1 X2 Y2 WIDTH OPERATION STREAM COLOR DASHING)
  (* cdl "29-Oct-85 15:28")
  (DRAWLINE (DSPSCALE.XPOSITION X1 STREAM)
    (DSPSCALE.YPOSITION Y1 STREAM)
    (DSPSCALE.XPOSITION X2 STREAM)
    (DSPSCALE.YPOSITION Y2 STREAM)
    (DSPSCALE.WIDTH WIDTH STREAM)
    OPERATION STREAM COLOR (DSPSCALE.DASHING DASHING STREAM))
```

**(DRAWPOINT!**

```
[LAMBDA (X Y BRUSH STREAM OPERATION)
  (* cdl "29-Oct-85 15:28")
  (DRAWPOINT (DSPSCALE.XPOSITION X STREAM)
    (DSPSCALE.YPOSITION Y STREAM)
    (DSPSCALE.BRUSH BRUSH STREAM)
    STREAM OPERATION)] ; Edited 14-Sep-87 14:36 by cdl
```

**(DRAWPOLYGON!**

```
[LAMBDA (POINTS CLOSED BRUSH DASHING STREAM)
  (* cdl "29-Jul-85 10:05")
  (DRAWPOLYGON (DSPSCALE.POINTS POINTS STREAM)
    CLOSED
    (DSPSCALE.BRUSH BRUSH STREAM)
    (DSPSCALE.DASHING DASHING STREAM)
    STREAM)]
```

**(DRAWTO!**

```
[LAMBDA (X Y WIDTH OPERATION STREAM COLOR DASHING)
  (* cdl "29-Oct-85 15:31")
  (DRAWTO (DSPSCALE.XPOSITION X STREAM)
    (DSPSCALE.YPOSITION Y STREAM)
    (DSPSCALE.WIDTH WIDTH STREAM)
    OPERATION STREAM COLOR (DSPSCALE.DASHING DASHING STREAM))
```

**(FILLCIRCLE!**

```
[LAMBDA (CENTERX CENTERY RADIUS TEXTURE STREAM)
  (* cdl "7-Feb-86 15:02")
  (FILLCIRCLE (DSPSCALE.XPOSITION CENTERX STREAM)
    (DSPSCALE.YPOSITION CENTERY STREAM)
    (DSPSCALE.NUMBER RADIUS STREAM)
    TEXTURE STREAM)]
```

**(FILLPOLYGON!**

```
[LAMBDA (KNOTS TEXTURE STREAM)
  (* cdl "30-Oct-85 07:44")
  (FILLPOLYGON (DSPSCALE.POINTS KNOTS STREAM)
    TEXTURE STREAM)]
```

**(FONTPROP!**

```
[LAMBDA (FONT PROP STREAM)
  (* cdl "19-Jul-88 13:18 by cdl")
  (SELECTQ PROP
    ((ASCENT DESCENT HEIGHT)
     (DSPUNSCALE.CHARACTER (FONTPROP FONT PROP)
       FONT
       (OR STREAM (IMAGESTREAMP FONT))))
    (FONTPROP FONT PROP))
```

**(DSPLEFTMARGIN!**

```
[LAMBDA (XPOSITION STREAM)
  (* cdl "29-Jul-85 12:05")
  (DSPUNSCALE.XPOSITION (DSPLEFTMARGIN (if XPOSITION
    then (DSPSCALE.XPOSITION XPOSITION STREAM))
    STREAM)
    STREAM)]
```

**(DSPLINEFEED!**

```
[LAMBDA (DELTAY STREAM)
  (* cdl "29-Jul-85 11:11")
  (DSPUNSCALE.NUMBER (DSPLINEFEED (if DELTAY
    then (DSPSCALE.NUMBER DELTAY STREAM))
    STREAM)
    STREAM)]
```



```
(GETPOSITION!
 [LAMBDA (STREAM CURSOR)
 (DSPUNSCALE.POSITION (GETPOSITION STREAM CURSOR)
 STREAM)] (* cdl "30-Oct-85 08:03")
```

```
(MOVETO!
 [LAMBDA (X Y STREAM)
 (MOVETO (DSPSCALE.XPOSITION X STREAM)
 (DSPSCALE.YPOSITION Y STREAM)
 STREAM)] (* cdl "29-Jul-85 12:06")
```

```
(MOVETOUPPERLEFT!
 [LAMBDA (WINDOW REGION)
 (MOVETOUPPERLEFT WINDOW (if REGION
 then (DSPSCALE.REGION REGION WINDOW)]) (* cdl "29-Jul-85 12:10")
```

```
(DSPRIGHTMARGIN!
 [LAMBDA (XPOSITION STREAM)
 (DSPUNSCALE.XPOSITION (DSPRIGHTMARGIN (if XPOSITION
 then (DSPSCALE.XPOSITION XPOSITION STREAM)
 STREAM)
 STREAM)] (* cdl "16-Oct-85 16:11")
```

```
(DSPSCALE!
 [LAMBDA (SCALE STREAM)
 (if (NOT (type? STREAM STREAM))
 then (SETQ STREAM (GETSTREAM STREAM)))
 (PROG1 (OR (STREAMPROP STREAM 'SCALE)
 (DSPSCALE NIL STREAM))
 [if SCALE
 then (STREAMPROP STREAM 'SCALE SCALE)
 (STREAMPROP STREAM 'SCALED T)
 (LET [(RATIO (STREAMPROP STREAM 'RATIO)]
 [if (NULL RATIO)
 then (STREAMPROP STREAM 'RATIO (SETQ RATIO (create CONVERT
 SOURCE _ 1]
 (with CONVERT RATIO (SETQ DESTINATION (TIMES SCALE (DSPSCALE NIL STREAM))))]) (* cdl "23-Apr-86 09:40")
```

```
(RELDRAWTO!
 [LAMBDA (DX DY WIDTH OPERATION STREAM COLOR DASHING)
 (RELDRAWTO (DSPSCALE.NUMBER DX STREAM)
 (DSPSCALE.NUMBER DY STREAM)
 (DSPSCALE.WIDTH WIDTH STREAM)
 OPERATION STREAM COLOR (DSPSCALE.DASHING DASHING STREAM)] (* cdl "29-Oct-85 15:31")
```

```
(RELMOVETO!
 [LAMBDA (DX DY STREAM)
 (RELMOVETO (DSPSCALE.NUMBER DX STREAM)
 (DSPSCALE.NUMBER DY STREAM)
 STREAM)] (* cdl "30-Oct-85 07:43")
```

```
(SCALEDBITBLT!
 [LAMBDA (SOURCE SOURCELEFT SOURCEBOTTOM DESTINATION DESTINATIONLEFT DESTINATIONBOTTOM WIDTH HEIGHT SOURCETYPE
 OPERATION TEXTURE CLIPPINGREGION SCALE) (* cdl "29-Jul-85 12:13")
 (SCALEDBITBLT SOURCELEFT SOURCEBOTTOM DESTINATION (DSPSCALE.XPOSITION DESTINATIONLEFT DESTINATION)
 (DSPSCALE.YPOSITION DESTINATIONBOTTOM DESTINATION)
 WIDTH HEIGHT SOURCETYPE OPERATION TEXTURE (DSPSCALE.REGION CLIPPINGREGION DESTINATION)
 SCALE)]
```

```
(STRINGREGION!
 [LAMBDA (STR STREAM PRIN2FLG RDTBL)
 (LET ((REGION (STRINGREGION STR STREAM PRIN2FLG RDTBL)))
 (DSPUNSCALE.REGION REGION STREAM REGION)] (* cdl "2-May-86 14:05")
```

```
(STRINGWIDTH!
 [LAMBDA (STR FONT FLG RDTBL STREAM)
 (DSPUNSCALE.CHARACTER (STRINGWIDTH STR FONT FLG RDTBL)
 FONT
 (OR STREAM (IMAGESTREAMP FONT))) ; Edited 19-Jul-88 13:18 by cdl
```

```
(DSPSPACEFACTOR!
 [LAMBDA (FACTOR STREAM)
 (DSPUNSCALE.NUMBER (DSPSPACEFACTOR (if FACTOR
 then (DSPSCALE.NUMBER FACTOR STREAM)
 STREAM)
 STREAM)] (* cdl "29-Jul-85 11:12")
```

**(DSPTRANSLATE!**

```
[LAMBDA (Tx.OR.POSITION Ty.OR.STREAM STREAM.OR.NIL) ; Edited 19-Jul-88 09:03 by cdl
  (if (POSITIONP Tx.OR.POSITION)
      then
        (STREAMPROP (GETSTREAM Ty.OR.STREAM)
                    'TRANSLATE Tx.OR.POSITION)
      else (STREAMPROP (GETSTREAM STREAM.OR.NIL)
                    'TRANSLATE
                    (CREATEPOSITION Tx.OR.POSITION Ty.OR.STREAM]))
    (* Koto Compatibility)
```

**(DSPTOPMARGIN!**

```
[LAMBDA (YPOSITION STREAM) (* cdl "29-Jul-85 12:00")
  (DSPUNSCALE.YPOSITION (DSPTOPMARGIN (if YPOSITION
    then (DSPSCALE.YPOSITION YPOSITION STREAM)
    STREAM)
  STREAM))
```

**(DSPUNITS!**

```
[LAMBDA (UNITS STREAM) (* cdl "23-Apr-86 09:40")
  (if (NOT (type? STREAM STREAM))
      then (SETQ STREAM (GETSTREAM STREAM)))
  (PROG1 (STREAMPROP STREAM 'UNITS)
    [if UNITS
      then (STREAMPROP STREAM 'UNITS UNITS)
            (STREAMPROP STREAM 'SCALED T)
            (LET [(RATIO (STREAMPROP STREAM 'RATIO)]
              [if (NULL RATIO)
                then (STREAMPROP STREAM 'RATIO (SETQ RATIO (create CONVERT
                  DESTINATION _ 1)
                (with CONVERT RATIO (SETQ SOURCE UNITS)))]))
```

**(DSPXOFFSET!**

```
[LAMBDA (XOFFSET DISPLAYSTREAM) (* cdl "29-Jul-85 11:12")
  (DSPUNSCALE.NUMBER (DSPXOFFSET (if XOFFSET
    then (DSPSCALE.NUMBER XOFFSET DISPLAYSTREAM)
    DISPLAYSTREAM)
  DISPLAYSTREAM))
```

**(DSPXPOSITION!**

```
[LAMBDA (XPOSITION STREAM) (* cdl "29-Jul-85 12:00")
  (DSPUNSCALE.XPOSITION (DSPXPOSITION (if XPOSITION
    then (DSPSCALE.XPOSITION XPOSITION STREAM)
    STREAM)
  STREAM))
```

**(DSPYOFFSET!**

```
[LAMBDA (YOFFSET DISPLAYSTREAM) (* cdl "29-Jul-85 11:59")
  (DSPUNSCALE.NUMBER (DSPYOFFSET (if YOFFSET
    then (DSPSCALE.NUMBER YOFFSET DISPLAYSTREAM)
    DISPLAYSTREAM)
  DISPLAYSTREAM))
```

**(DSPYPOSITION!**

```
[LAMBDA (YPOSITION STREAM) (* cdl "29-Jul-85 11:59")
  (DSPUNSCALE.YPOSITION (DSPYPOSITION (if YPOSITION
    then (DSPSCALE.YPOSITION YPOSITION STREAM)
    STREAM)
  STREAM))
```

)

(\* \* Low Level Scaling Functions)

(DEFINEQ

**(DSPSCALE.BRUSH**

```
[LAMBDA (BRUSH STREAM) (* cdl "29-Oct-85 15:29")
  (if (NULL BRUSH)
      then (create BRUSH
        BRUSHSHAPE _ 'ROUND
        BRUSHSIZE _ (DSPSCALE.WIDTH 1 STREAM) smashing DSPSCALE.SCRATCHBRUSH)
      elseif (LISTP BRUSH)
        then (with BRUSH BRUSH (create BRUSH
          BRUSHCOLOR _ BRUSHCOLOR
          BRUSHSHAPE _ BRUSHSHAPE
          BRUSHSIZE _ (DSPSCALE.WIDTH BRUSHSIZE STREAM) smashing
          DSPSCALE.SCRATCHBRUSH)
        )
```

```

elseif (NUMBERP BRUSH)
  then (DSPSCALE.WIDTH BRUSH STREAM)
else BRUSH])

```

(DSPSCALE.DASHING

```

[LAMBDA (DASHING STREAM) ; Edited 19-Jul-88 10:21 by cdl
  (if (LISTP DASHING)
    then [SCRATCHLIST DSPSCALE.SCRATCHDASHING (for WIDTH in DASHING do (ADDTOSCRATCHLIST (DSPSCALE.WIDTH
      WIDTH STREAM)
    else (NUMBERP DASHING)
    then (DSPSCALE.WIDTH DASHING STREAM)
    else DASHING])

```

(DSPSCALE.POINTS

```

[LAMBDA (KNOTS STREAM) ; Edited 19-Jul-88 09:52 by cdl
  (SCRATCHLIST DSPSCALE.SCRATCHLIST (bind (KNOTSLST _ DSPSCALE.SCRATCHPOINTS) for KNOT in KNOTS
    do (ADDTOSCRATCHLIST (DSPSCALE.POSITION
      KNOT STREAM (if KNOTSLST
        then (pop KNOTSLST)
        else (push DSPSCALE.SCRATCHPOINTS
          (create POSITION))
          (CAR DSPSCALE.SCRATCHPOINTS]))

```

(DSPSCALE.REGION

```

[LAMBDA (REGION STREAM SMASH) (* cdl "28-Oct-85 09:00")
  (if (type? REGION REGION)
    then (with REGION REGION (create REGION
      LEFT _ (DSPSCALE.XPOSITION LEFT STREAM)
      BOTTOM _ (DSPSCALE.YPOSITION BOTTOM STREAM)
      WIDTH _ (DSPSCALE.NUMBER WIDTH STREAM)
      HEIGHT _ (DSPSCALE.NUMBER HEIGHT STREAM) smashing (OR SMASH
        DSPSCALE.SCRATCHREGION
        )))
    else REGION])

```

(DSPSCALE.NUMBER

```

[LAMBDA (VALUE STREAM) (* cdl "23-Apr-86 09:10")
  (if (NUMBERP VALUE)
    then (if (NOT (type? STREAM STREAM))
      then (SETQ STREAM (GETSTREAM STREAM)))
      (if [FLOATP (SETQ VALUE (if (GETSTREAMPROP STREAM 'SCALED)
        then (with CONVERT (GETSTREAMPROP STREAM 'RATIO)
          (QUOTIENT (TIMES VALUE DESTINATION)
            SOURCE))
        else (TIMES (IMAGEOP 'IMSCALE STREAM STREAM)
          VALUE])
        then (FIXR VALUE)
        else VALUE)
    else VALUE])

```

(DSPSCALE.POSITION

```

[LAMBDA (POSITION STREAM SMASH) (* cdl "29-Jul-85 11:57")
  (with POSITION POSITION (create POSITION
    XCOORD _ (DSPSCALE.XPOSITION XCOORD STREAM)
    YCOORD _ (DSPSCALE.YPOSITION YCOORD STREAM) smashing (OR SMASH
      DSPSCALE.SCRATCHPOSITION
      ]))

```

(DSPSCALE.XPOSITION

```

[LAMBDA (VALUE STREAM) (* cdl " 1-Nov-85 08:47")
  (if (NUMBERP VALUE)
    then (if (NOT (type? STREAM STREAM))
      then (SETQ STREAM (GETSTREAM STREAM)))
      [LET [(TRANSLATE (GETSTREAMPROP STREAM 'TRANSLATE)
        (if TRANSLATE
          then (with POSITION TRANSLATE (add VALUE XCOORD)
            (DSPSCALE.NUMBER VALUE STREAM)
          else VALUE])

```

(DSPSCALE.YPOSITION

```

[LAMBDA (VALUE STREAM) (* cdl " 1-Nov-85 08:47")
  (if (NUMBERP VALUE)
    then (if (NOT (type? STREAM STREAM))
      then (SETQ STREAM (GETSTREAM STREAM)))
      [LET [(TRANSLATE (GETSTREAMPROP STREAM 'TRANSLATE)
        (if TRANSLATE
          then (with POSITION TRANSLATE (add VALUE YCOORD)
            (DSPSCALE.NUMBER VALUE STREAM)
          else VALUE])

```

**(DSPSCALE.WIDTH**

```
[LAMBDA (WIDTH STREAM)
  (if (ZEROP (SETQ WIDTH (DSPSCALE.NUMBER WIDTH STREAM)))
    then 1
    else WIDTH])
(* cdl "29-Oct-85 15:27")
```

**(DSPUNSCALE.REGION**

```
[LAMBDA (REGION STREAM SMASH)
  (if (type? REGION REGION)
    then (with REGION REGION (create REGION
      LEFT _ (DSPUNSCALE.XPOSITION LEFT STREAM)
      BOTTOM _ (DSPUNSCALE.YPOSITION BOTTOM STREAM)
      WIDTH _ (DSPUNSCALE.NUMBER WIDTH STREAM)
      HEIGHT _ (DSPUNSCALE.NUMBER HEIGHT STREAM) smashing (OR SMASH
        DSPSCALE.SCRATCHREGION
        )))
    else REGION])
(* cdl " 2-May-86 14:04")
```

**(DSPUNSCALE.POSITION**

```
[LAMBDA (POSITION STREAM SMASH)
  (with POSITION POSITION (create POSITION
    XCOORD _ (DSPUNSCALE.XPOSITION XCOORD STREAM)
    YCOORD _ (DSPUNSCALE.YPOSITION YCOORD STREAM) smashing (OR SMASH
      DSPSCALE.SCRATCHPOSITION
      )))
(* cdl "17-Sep-85 14:21")
```

**(DSPUNSCALE.NUMBER**

```
[LAMBDA (VALUE STREAM OFFSET)
  (if (NUMBERP VALUE)
    then (if (NOT (type? STREAM STREAM))
      then (SETQ STREAM (GETSTREAM STREAM))
      [SETQ VALUE (if (GETSTREAMPROP STREAM 'SCALED)
        then (with CONVERT (GETSTREAMPROP STREAM 'RATIO)
          (QUOTIENT (TIMES VALUE SOURCE)
            DESTINATION))
        else (QUOTIENT VALUE (IMAGEOP 'IMSCALE STREAM STREAM)
          [if OFFSET
            then (LET [(TRANSLATE (GETSTREAMPROP STREAM 'TRANSLATE)
              (if TRANSLATE
                then (with POSITION TRANSLATE (SELECTQ OFFSET
                  (X (SETQ VALUE (DIFFERENCE VALUE XCOORD)))
                  (Y (SETQ VALUE (DIFFERENCE VALUE YCOORD)))
                  NIL])
                (if (FLOATP VALUE)
                  then (FIXR VALUE)
                  else VALUE)
                else VALUE])
            else VALUE])
(* cdl "27-Jan-87 11:32")
```

**(DSPUNSCALE.CHARACTER**

```
[LAMBDA (WIDTH FONT STREAM)
  (LET (CONVERT VALUE)
    (if (NUMBERP WIDTH)
      then (if [FLOATP (SETQ VALUE (if (AND STREAM (OR (type? STREAM STREAM)
        (SETQ STREAM (GETSTREAM STREAM)))
        (GETSTREAMPROP STREAM 'SCALED)))
        then (with CONVERT (GETSTREAMPROP STREAM 'RATIO)
          (QUOTIENT (TIMES WIDTH SOURCE)
            DESTINATION))
        else (QUOTIENT WIDTH (OR (with FONTDESCRIPTOR FONT FONTSIZE)
          (IMAGEOP 'IMSCALE STREAM STREAM)
          then (FIXR VALUE)
          else VALUE)
        else WIDTH])
(* cdl "23-Apr-86 09:11")
```

```
)
(DECLARE%: EVAL@COMPILE
(PUTPROPS DSPUNSCALE.XPOSITION MACRO ((VALUE STREAM)
  (DSPUNSCALE.NUMBER VALUE STREAM 'X))
(PUTPROPS DSPUNSCALE.YPOSITION MACRO ((VALUE STREAM)
  (DSPUNSCALE.NUMBER VALUE STREAM 'Y))
)
```

(\* \* etc.)

```
(DECLARE%: DONTCOPY
(DECLARE%: EVAL@COMPILE
```

```
{MEDLEY}<lispusers>DSPSCALE.;1

(RECORD SCALEDIMAGEDATA (IMAGESTREAM))

(RECORD CONVERT (SOURCE . DESTINATION))
)
)

(ADDTOVAR IMAGESTREAMTYPES (SCALED (OPENSTREAM OPENIMAGESTREAM.SCALED)))

(RPAQ? \ SCALEDIMAGEOPS NIL)

(RPAQ? \ NULLFDEV NIL)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS \ SCALEDIMAGEOPS \ NULLFDEV)
)

(RPAQ? DSPSCALE.SCRATCHBRUSH ' (ROUND 1 NIL))

(RPAQ? DSPSCALE.SCRATCHREGION (create REGION))

(RPAQ? DSPSCALE.SCRATCHPOSITION (create POSITION))

(RPAQ? DSPSCALE.SCRATCHLIST (to 10 collect))

(RPAQ? DSPSCALE.SCRATCHDASHING (to 10 collect))

(RPAQ? DSPSCALE.SCRATCHPOINTS (to 10 collect (create POSITION)))

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS DSPSCALE.SCRATCHBRUSH DSPSCALE.SCRATCHREGION DSPSCALE.SCRATCHPOSITION DSPSCALE.SCRATCHLIST
  DSPSCALE.SCRATCHDASHING DSPSCALE.SCRATCHPOINTS)
)

(MOVD? 'DSPUNITS! 'DSPUNITS)

(INITSCALEDIMAGESTREAM)
```

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