Graph2D Library --- DOS ---

Generated by Doxygen 1.8.19

Chapter 1

Graph2D / Plot10 & AG II- DOS Port

Graphic Driver for DOS

The library was developed with the Microsoft FTN-77 compiler and MASM assembler, basing on the CP/M version. In the beginning the basic graphic library graphics.lib was used, which was part of the MS-compiler package. Later on the system was ported to the free Open Watcom compiler/assembler and its library graph.lib. In order to keep the ability to use the MS-compiler, the include files fgraph.fd and fgraph.fi adjust the relevant procedure calls to the Watcom-library.

How to build the library:
Copy the sources into the /build subdirectory by invoking "$getfiles.bat DOS" and use the Watcom-Workspace files.

Using the library:
After building the library and linking it to the applications, the main characteristics could be changed by the following files:
graphlib.fon: Fontfile for the graphic text
graphlib.lng: Translations of the messages

Hardcopies are generated as standard ∗.bmp-files.

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

Chapter 3

File Documentation

3.1 AG2.for File Reference

Graph2D: Tektronix Advanced Graphing II Emulation.

Functions/Subroutines

- subroutine ag2lev (ilevel)
- subroutine line (ipar)
- subroutine symbl (ipar)
- subroutine steps (ipar)
- subroutine infin (par)
- subroutine npts (ipar)
- subroutine stepl (ipar)
- subroutine sizes (par)
- subroutine sizel (par)
- subroutine xneat (ipar)
- subroutine yneat (ipar)
- subroutine xzero (ipar)
- subroutine yzero (ipar)
- subroutine xloc (ipar)
- subroutine yloc (ipar)
- subroutine xloctp (ipar)
- subroutine ylocrt (ipar)
- subroutine xlab (ipar)
- subroutine ylab (ipar)
- subroutine xden (ipar)
- subroutine yden (ipar)
- subroutine xtics (ipar)
- subroutine ytics (ipar)
- subroutine xlen (ipar)
- subroutine ylen (ipar)
- subroutine xfrm (ipar)
- subroutine yfrm (ipar)
- subroutine xmtcs (ipar)
- subroutine ymtcs (ipar)
- subroutine xmfrm (ipar)

- subroutine ymfrm (ipar)
- subroutine dlimx (xmin, xmax)
- subroutine dlimy (ymin, ymax)
- subroutine slimx (ixmin, ixmax)
- subroutine slimy (iymin, iymax)
- subroutine place (ipar)
- subroutine xtype (ipar)
- subroutine ytype (ipar)
- subroutine xwdth (ipar)
- subroutine ywdth (ipar)
- subroutine xetyp (ipar)
- subroutine yetyp (ipar)
- subroutine setwin
- subroutine dinitx
- subroutine dinity
- subroutine hbarst (ishade, iwbar, idbar)
- subroutine vbarst (ishade, iwbar, idbar)
- subroutine binitt
- subroutine check (x, y)
- subroutine typck (ixy, arr)
- subroutine rgchek (ixy, arr)
- subroutine mnmx (arr, amin, amax)
- subroutine cmnmx (arr, amin, amax)
- subroutine optim (ixy)
- subroutine loptim (ixy)
- subroutine coptim (ixy)
- real function calpnt (arr, i)
- subroutine calcon (amin, amax, labtyp, ubgc)
- subroutine ymdyd (iJulYrOut, iJulDayOut, iGregYrIn, iGregMonIn, iGregDayIn)
- integer function leap (iyear)
- subroutine iubgc (iyear, iday, iubgcO)
- subroutine oubgc (iyear, iday, iubgcI)
- subroutine frame
- subroutine dsplay (x, y)
- subroutine cplot (x, y)
- subroutine keyset (array, key)
- real function datget (arr, i, key)
- subroutine bar (x, y, line)
- subroutine filbox (minx, miny, maxx, maxy, ishade, lspace)
- subroutine bsyms (x, y, isym)
- subroutine symout (isym, fac)
- subroutine teksym (isym, amult)
- subroutine teksym1 (istart, iend, incr, siz)
- subroutine grid
- subroutine logtix (nbase, start, tintvl, mstart, mend)
- subroutine tset (nbase)
- subroutine tset2 (newloc, nfar, nlen, nfrm, kstart, kend)
- subroutine monpos (nbase, iy1, dpos, spos)
- subroutine gline (nbase, datapt, spos)
- subroutine label (nbase)
- subroutine numsetc (fnum, iwidth, nbase, outstr)
- subroutine iformc (fnum, iwidth, outstr)
- subroutine fformc (fnum, iwidth, idec, outstr)
- subroutine fonlyc (fnum, iwidth, idec, outstr)
- subroutine eformc (fnum, iwidth, idec, outstr)

- subroutine esplit (fnum, iwidth, idec, iexpon)
- subroutine expoutc (nbase, iexp, outstr)
- subroutine alfsetc (fnum, labtyp, string)
- subroutine notatec (ix, iy, string)
- subroutine vlablc (string)
- subroutine justerc (string, iPosFlag, iOff)
- subroutine width (nbase)
- subroutine lwidth (nbase)
- subroutine remlab (nbase, iloc, labtyp, ix, iy)
- subroutine spread (nbase)
- real function findge (val, tab, iN)
- real function findle (val, tab, iN)
- integer function locge (ival, itab, iN)
- integer function locle (ival, itab, iN)
- real function roundd (value, finterval)
- real function roundu (value, finterval)
- subroutine savcom (Array)
- subroutine rescom (Array)
- integer function iother (ipar)

3.1.1 Detailed Description

Graph2D: Tektronix Advanced Graphing II Emulation.

Version

(2022,284, x)

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Layer 2: scientific 2-D graphic subroutines

Note

The control character for exponent (originally -1) is now SOH=char(1) and for index (originally -2) STX=char(2).

```
Package:
 - AG2.for:         chart plotting routines
 - AG2Holerith.for: deprecated routines
 - AG2USR.for:      default userroutines
 - G2dAG2.fd:       commonblock
```

Definition in file AG2.for.

3.1.2 Function/Subroutine Documentation

3.1.2.1 ag2lev()

```
subroutine ag2lev (
             integer, dimension(3) ilevel )
```

Definition at line 94 of file AG2.for.

3.1.2.2 alfsetc()

```
subroutine alfsetc (
             real fnum,
             integer labtyp,
             character *(*) string )
```

Definition at line 2564 of file AG2.for.

3.1.2.3 bar()

```
subroutine bar (
             real x,
             real y,
             integer line )
```

Definition at line 1689 of file AG2.for.

3.1.2.4 binitt()

```
subroutine binitt
```

Definition at line 714 of file AG2.for.

3.1.2.5 bsyms()

```
subroutine bsyms (
             real x,
             real y,
             integer isym )
```

Definition at line 1841 of file AG2.for.

3.1.2.6 calcon()

```
subroutine calcon (
             real amin,
             real amax,
             integer labtyp,
             logical ubgc )
```

Definition at line 1326 of file AG2.for.

3.1.2.7 calpnt()

```
real function calpnt (
             real, dimension(5) arr,
             integer i )
```

Definition at line 1271 of file AG2.for.

3.1.2.8 check()

```
subroutine check (
             real, dimension(5) x,
             real, dimension(5) y )
```

Definition at line 798 of file AG2.for.

3.1.2.9 cmnmx()

```
subroutine cmnmx (
             real, dimension(5) arr,
             real amin,
             real amax )
```

Definition at line 920 of file AG2.for.

3.1.2.10 coptim()

```
subroutine coptim (
             integer ixy )
```

Definition at line 1115 of file AG2.for.

3.1.2.11 cplot()

```
subroutine cplot (
             real, dimension(5) x,
             real, dimension(5) y )
```

Definition at line 1539 of file AG2.for.

3.1.2.12 datget()

```
real function datget (
             real, dimension(5) arr,
             integer i,
             integer key )
```

Definition at line 1661 of file AG2.for.

3.1.2.13 dinitx()

```
subroutine dinitx
```

Definition at line 644 of file AG2.for.

3.1.2.14 dinity()

```
subroutine dinity
```

Definition at line 658 of file AG2.for.

3.1.2.15 dlimx()

```
subroutine dlimx (
             real xmin,
             real xmax )
```

Definition at line 464 of file AG2.for.

3.1.2.16 dlimy()

```
subroutine dlimy (
             real ymin,
             real ymax )
```

Definition at line 476 of file AG2.for.

3.1.2.17 dsplay()

```
subroutine dsplay (
             real, dimension(5) x,
             real, dimension(5) y )
```

Definition at line 1525 of file AG2.for.

3.1.2.18 eformc()

```
subroutine eformc (
             real fnum,
             integer iwidth,
             integer idec,
             character, dimension(*) outstr )
```

Definition at line 2435 of file AG2.for.

3.1.2.19 esplit()

```
subroutine esplit (
             real fnum,
             integer iwidth,
             integer idec,
             integer iexpon )
```

Definition at line 2468 of file AG2.for.

3.1.2.20 expoutc()

```
subroutine expoutc (
             integer nbase,
             integer iexp,
             character, dimension(*) outstr )
```

Definition at line 2488 of file AG2.for.

3.1.2.21 fformc()

```
subroutine fformc (
             real fnum,
             integer iwidth,
             integer idec,
             character, dimension(*) outstr )
```

Definition at line 2376 of file AG2.for.

3.1.2.22 filbox()

```
subroutine filbox (
             integer minx,
             integer miny,
             integer maxx,
             integer maxy,
             integer ishade,
             integer lspace )
```

Definition at line 1756 of file AG2.for.

3.1.2.23 findge()

```
real function findge (
             real val,
             real, dimension(1) tab,
             integer iN )
```

Definition at line 2923 of file AG2.for.

3.1.2.24 findle()

```
real function findle (
             real val,
             real, dimension(1) tab,
             integer iN )
```

Definition at line 2942 of file AG2.for.

3.1.2.25 fonlyc()

```
subroutine fonlyc (
             real fnum,
             integer iwidth,
             integer idec,
             character, dimension(*) outstr )
```

Definition at line 2404 of file AG2.for.

3.1.2.26 frame()

```
subroutine frame
```

Definition at line 1511 of file AG2.for.

3.1.2.27 gline()

```
subroutine gline (
             integer nbase,
             real datapt,
             integer spos )
```

Definition at line 2174 of file AG2.for.

3.1.2.28 grid()

```
subroutine grid
```

Definition at line 1957 of file AG2.for.

3.1.2.29 hbarst()

```
subroutine hbarst (
             integer ishade,
             integer iwbar,
             integer idbar )
```

Definition at line 672 of file AG2.for.

3.1.2.30 iformc()

```
subroutine iformc (
             real fnum,
             integer iwidth,
             character, dimension(*) outstr )
```

Definition at line 2344 of file AG2.for.

3.1.2.31 infin()

```
subroutine infin (
             real par )
```

Definition at line 142 of file AG2.for.

3.1.2.32 iother()

```
integer function iother (
             integer ipar )
```

Definition at line 3067 of file AG2.for.

3.1.2.33 iubgc()

```
subroutine iubgc (
             integer iyear,
             integer iday,
             integer iubgcO )
```

Definition at line 1474 of file AG2.for.

3.1.2.34 justerc()

```
subroutine justerc (
             character, dimension(*) string,
             integer iPosFlag,
             integer iOff )
```

Definition at line 2667 of file AG2.for.

3.1.2.35 keyset()

```
subroutine keyset (
             real, dimension(1) array,
             integer key )
```

Definition at line 1635 of file AG2.for.

3.1.2.36 label()

```
subroutine label (
             integer nbase )
```

Definition at line 2201 of file AG2.for.

3.1.2.37 leap()

```
integer function leap (
             integer iyear )
```

Definition at line 1460 of file AG2.for.

3.1.2.38 line()

```
subroutine line (
             integer ipar )
```

Definition at line 109 of file AG2.for.

3.1.2.39 locge()

```
integer function locge (
             integer ival,
             integer, dimension(1) itab,
             integer iN )
```

Definition at line 2964 of file AG2.for.

3.1.2.40 locle()

```
integer function locle (
            integer ival,
            integer, dimension(1) itab,
            integer iN )
```

Definition at line 2982 of file AG2.for.

3.1.2.41 logtix()

```
subroutine logtix (
            integer nbase,
            real start,
            real tintvl,
            integer mstart,
            integer mend )
```

Definition at line 2043 of file AG2.for.

3.1.2.42 loptim()

```
subroutine loptim (
            integer ixy )
```

Definition at line 988 of file AG2.for.

3.1.2.43 lwidth()

```
subroutine lwidth (
            integer nbase )
```

Definition at line 2733 of file AG2.for.

3.1.2.44 mnmx()

```
subroutine mnmx (
            real, dimension(5) arr,
            real amin,
            real amax )
```

Definition at line 881 of file AG2.for.

3.1.2.45 monpos()

```
subroutine monpos (
             integer nbase,
             integer iy1,
             real dpos,
             integer spos )
```

Definition at line 2160 of file AG2.for.

3.1.2.46 notatec()

```
subroutine notatec (
             integer ix,
             integer iy,
             character *(*) string )
```

Definition at line 2619 of file AG2.for.

3.1.2.47 npts()

```
subroutine npts (
             integer ipar )
```

Definition at line 155 of file AG2.for.

3.1.2.48 numsetc()

```
subroutine numsetc (
             real fnum,
             integer iwidth,
             integer nbase,
             character, dimension(*) outstr )
```

Definition at line 2317 of file AG2.for.

3.1.2.49 optim()

```
subroutine optim (
             integer ixy )
```

Definition at line 971 of file AG2.for.

3.1.2.50 oubgc()

```
subroutine oubgc (
             integer iyear,
             integer iday,
             integer iubgcI )
```

Definition at line 1488 of file AG2.for.

3.1.2.51 place()

```
subroutine place (
             integer ipar )
```

Definition at line 512 of file AG2.for.

3.1.2.52 remlab()

```
subroutine remlab (
             integer nbase,
             integer iloc,
             integer labtyp,
             integer ix,
             integer iy )
```

Definition at line 2808 of file AG2.for.

3.1.2.53 rescom()

```
subroutine rescom (
             integer, dimension(1) Array )
```

Definition at line 3051 of file AG2.for.

3.1.2.54 rgchek()

```
subroutine rgchek (
             integer ixy,
             real, dimension(5) arr )
```

Definition at line 854 of file AG2.for.

3.1.2.55 roundd()

```
real function roundd (
              value,
             real, value finterval )
```

Definition at line 3000 of file AG2.for.

3.1.2.56 roundu()

```
real function roundu (
              value,
             real, value finterval )
```

Definition at line 3016 of file AG2.for.

3.1.2.57 savcom()

```
subroutine savcom (
             integer, dimension(1) Array )
```

Definition at line 3035 of file AG2.for.

3.1.2.58 setwin()

```
subroutine setwin
```

Definition at line 622 of file AG2.for.

3.1.2.59 sizel()

```
subroutine sizel (
             real par )
```

Definition at line 188 of file AG2.for.

3.1.2.60 sizes()

```
subroutine sizes (
             real par )
```

Definition at line 177 of file AG2.for.

3.1.2.61 slimx()

```
subroutine slimx (
             integer ixmin,
             integer ixmax )
```

Definition at line 488 of file AG2.for.

3.1.2.62 slimy()

```
subroutine slimy (
             integer iymin,
             integer iymax )
```

Definition at line 500 of file AG2.for.

3.1.2.63 spread()

```
subroutine spread (
             integer nbase )
```

Definition at line 2871 of file AG2.for.

3.1.2.64 stepl()

```
subroutine stepl (
             integer ipar )
```

Definition at line 166 of file AG2.for.

3.1.2.65 steps()

```
subroutine steps (
             integer ipar )
```

Definition at line 131 of file AG2.for.

3.1.2.66 symbl()

```
subroutine symbl (
             integer ipar )
```

Definition at line 120 of file AG2.for.

3.1.2.67 symout()

```
subroutine symout (
             integer isym,
             real fac )
```

Definition at line 1858 of file AG2.for.

3.1.2.68 teksym()

```
subroutine teksym (
             integer isym,
             real amult )
```

Definition at line 1883 of file AG2.for.

3.1.2.69 teksym1()

```
subroutine teksym1 (
             integer istart,
             integer iend,
             integer incr,
             real siz )
```

Definition at line 1931 of file AG2.for.

3.1.2.70 tset()

```
subroutine tset (
             integer nbase )
```

Definition at line 2090 of file AG2.for.

3.1.2.71 tset2()

```
subroutine tset2 (
             integer newloc,
             integer nfar,
             integer nlen,
             integer nfrm,
             integer kstart,
             integer kend )
```

Definition at line 2128 of file AG2.for.

3.1.2.72 typck()

```
subroutine typck (
             integer ixy,
             real, dimension(5) arr )
```

Definition at line 823 of file AG2.for.

3.1.2.73 vbarst()

```
subroutine vbarst (
             integer ishade,
             integer iwbar,
             integer idbar )
```

Definition at line 692 of file AG2.for.

3.1.2.74 vlablc()

```
subroutine vlablc (
             character, dimension(*) string )
```

Definition at line 2644 of file AG2.for.

3.1.2.75 width()

```
subroutine width (
             integer nbase )
```

Definition at line 2692 of file AG2.for.

3.1.2.76 xden()

```
subroutine xden (
             integer ipar )
```

Definition at line 312 of file AG2.for.

3.1.2.77 xetyp()

```
subroutine xetyp (
             integer ipar )
```

Definition at line 596 of file AG2.for.

3.1.2.78 xfrm()

```
subroutine xfrm (
             integer ipar )
```

Definition at line 390 of file AG2.for.

3.1.2.79 xlab()

```
subroutine xlab (
             integer ipar )
```

Definition at line 290 of file AG2.for.

3.1.2.80 xlen()

```
subroutine xlen (
             integer ipar )
```

Definition at line 364 of file AG2.for.

3.1.2.81 xloc()

```
subroutine xloc (
             integer ipar )
```

Definition at line 246 of file AG2.for.

3.1.2.82 xloctp()

```
subroutine xloctp (
             integer ipar )
```

Definition at line 268 of file AG2.for.

3.1.2.83 xmfrm()

```
subroutine xmfrm (
             integer ipar )
```

Definition at line 438 of file AG2.for.

3.1.2.84 xmtcs()

```
subroutine xmtcs (
             integer ipar )
```

Definition at line 416 of file AG2.for.

3.1.2.85 xneat()

```
subroutine xneat (
             integer ipar )
```

Definition at line 202 of file AG2.for.

3.1.2.86 xtics()

```
subroutine xtics (
             integer ipar )
```

Definition at line 342 of file AG2.for.

3.1.2.87 xtype()

```
subroutine xtype (
             integer ipar )
```

Definition at line 544 of file AG2.for.

3.1.2.88 xwdth()

```
subroutine xwdth (
             integer ipar )
```

Definition at line 570 of file AG2.for.

3.1.2.89 xzero()

```
subroutine xzero (
             integer ipar )
```

Definition at line 224 of file AG2.for.

3.1.2.90 yden()

```
subroutine yden (
             integer ipar )
```

Definition at line 327 of file AG2.for.

3.1.2.91 yetyp()

```
subroutine yetyp (
             integer ipar )
```

Definition at line 609 of file AG2.for.

3.1.2.92 yfrm()

```
subroutine yfrm (
             integer ipar )
```

Definition at line 403 of file AG2.for.

3.1.2.93 ylab()

```
subroutine ylab (
             integer ipar )
```

Definition at line 301 of file AG2.for.

3.1.2.94 ylen()

```
subroutine ylen (
             integer ipar )
```

Definition at line 377 of file AG2.for.

3.1.2.95 yloc()

```
subroutine yloc (
             integer ipar )
```

Definition at line 257 of file AG2.for.

3.1.2.96 ylocrt()

```
subroutine ylocrt (
             integer ipar )
```

Definition at line 279 of file AG2.for.

3.1.2.97 ymdyd()

```
subroutine ymdyd (
             integer iJulYrOut,
             integer iJulDayOut,
             integer iGregYrIn,
             integer iGregMonIn,
             integer iGregDayIn )
```

Definition at line 1405 of file AG2.for.

3.1.2.98 ymfrm()

```
subroutine ymfrm (
             integer ipar )
```

Definition at line 451 of file AG2.for.

3.1.2.99 ymtcs()

```
subroutine ymtcs (
             integer ipar )
```

Definition at line 427 of file AG2.for.

3.1.2.100 yneat()

```
subroutine yneat (
             integer ipar )
```

Definition at line 213 of file AG2.for.

3.1.2.101 ytics()

```
subroutine ytics (
             integer ipar )
```

Definition at line 353 of file AG2.for.

3.1.2.102 ytype()

```
subroutine ytype (
             integer ipar )
```

Definition at line 557 of file AG2.for.

3.1.2.103 ywdth()

```
subroutine ywdth (
             integer ipar )
```

Definition at line 583 of file AG2.for.

3.1.2.104 yzero()

```
subroutine yzero (
             integer ipar )
```

Definition at line 235 of file AG2.for.

3.2 AG2.for

```
00001 C> \file       AG2.for
00002 C> \brief      Graph2D: Tektronix Advanced Graphing II Emulation
00003 C> \version    (2022,284, x)
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C>
00007 C> \~german
00008 C>  Schicht 2: Unterprogramme zur Erzeugung wissenschaftlicher 2-D Graphiken
00009 C> \note
00010 C>     Die Sonderzeichen Hochindex (alt: -1) und Index (alt: -2) sind jetzt
00011 C>     SOH=char(1) (Hochindex) bzw. STX=char(2) (Index).
00012 C>
00013 C> \~english
00014 C> Layer 2: scientific 2-D graphic subroutines
00015 C> \note
00016 C>     The control character for exponent (originally -1) is now SOH=char(1)
00017 C>     and for index (originally -2) STX=char(2).
00018 C>
00019 C> \~
00020 C> \note \verbatim
00021 C>   Package:
00022 C>    - AG2.for:         chart plotting routines
00023 C>    - AG2Holerith.for: deprecated routines
00024 C>    - AG2USR.for:      default userroutines
00025 C>    - G2dAG2.fd:       commonblock
00026 C> \endverbatim
00027 C
00028 C
00029 C  Tektronix Advanced Graphics 2 - Version 2.x
00030 C
00031 C
00032 C     Neuer Code in Fortran 77. Die Verwendung der im Manual dokumentierten
00033 C     Unterprogramme bleibt unveraendert, die direkte Manipulation von
00034 C     Variablen des zugrundeliegenden Commonblockes ist jedoch nicht mehr
00035 C     empfehlenswert. IBASEX (iPar) und IBASEY(iPar) mit ipar <>0,
00036 C     IBASEC, COMGET und COMSET sollten in neuen Programmen nicht verwendet
00037 C     werden.
00038 C
00039 C     Die Zwischenspeicherung der Statusvariablen ueber
00040 C           SAVCOM und RESCOM
00041 C     und die Achsensteuerung ueber
00042 C           IBASEX(0), IBASEY(0) und IOTHER
00043 C     werden weiterhin unterstuetzt.
00044 C
00045 C     Die Implementation der Unterprogramme COMGET und COMSET setzt die gleiche
00046 C     Laenge von REAL und INTEGER-Variablen voraus.
00047 C
00048 C     Da Holerithvariablen von modernen Compilern uneinheitlich unterstuetzt
00049 C     werden (4Habcd entweder als gepackte Integervariable oder als Character-
00050 C     variable interpretiert), wurden die folgenden Routinen angepasst:
00051 C      - subroutine PLACE (Lit): Lit wird nur noch als Ordnungszahl (1..13)
00052 C        und nicht mehr alternativ als Literal ('STD', 'UPH') interpretiert.
00053 C
00054 C     subroutine LEAP (iyear): Die Schaltjahrkorrektur erfolgt nicht mehr
00055 C     als SUBROUTINE ueber einen Common-Block, sondern direkt als
00056 C     integer function LEAP (iyear) ! = 1: Schaltjahr, sonst 0
00057 C
00058 C     Die Sonderzeichen Hochindex (alt: -1) und Index (alt: -2) sind jetzt
00059 C     SOH=char(1) (Hochindex) bzw. STX=char(2) (Index).
00060 C
00061 C     Intern erfolgt die Stringverarbeitung ueber Charactervariablen als
00062 C     nullterminierte C-Strings.
00063 C
00064 C     Der User-API wurden die folgenden Unterprogramme als Charactervarianten
00065 C     der Original-Holerithroutinen hinzugefuegt:
00066 C      - subroutine NUMSETC (fnum,nbase, outstr,fillstr)
00067 C      - subroutine FONLYC (fnum,iwidth,idec, outstr,fillstr)
00068 C      - subroutine EFORMC (fnum,iwidth,idec, outstr,fillstr)
00069 C      - subroutine EXPOUTC (nbase,iexp, outstr,fillstr)
00070 C      - subroutine ALFSETC (fnum,iwidth,labtyp,outstr)
00071 C      - subroutine NOTATEC (IX,IY,LENCHR,IARRAY)
```

```
00072 C      - subroutine JUSTERC
00073 C
00074 C      - subroutine USESETC (fnum, iwidth, nbase, labstr)
00075 C
00076 C      subroutine MONPOS (nbase,iy1,dpos, spos) ! spos ist INTEGER
00077 C      subroutine GLINE (nbase,datapt,spos) ! spos ist INTEGER
00078 C
00079 C     Der Code ab Version 2.0 wird nicht mehr fuer CP/M entwickelt. Letzte
00080 C     unter CP/M compilierbare Version: (2006, 013, 1)
00081 C
00082 C     Zugehoerige Module:
00083 C      - AG2.FOR:     Basisfunktionen
00084 C      - AG2Holerith: Veraltete Unterprogramme zur Wahrung der Kompatibilitaet
00085 C                     (Unterstuetzung Holerithvariablen und vektorisierter Zu-
00086 C                     griff auf den Commonblock)
00087 C      - AG2USR.FOR:  Userroutinen
00088 C      - G2dAG2.fd:   Commonblockdefinition
00089 C
00090
00091 C
00092 C  Ausgabe der Softwareversion
00093 C
00094       subroutine ag2lev (ilevel)
00095       implicit none
00096       integer ilevel(3)
00097
00098       call tcslev (ilevel) ! level(3)= System aus TCS
00099       ilevel(1)=2022       ! Aenderungsjahr
00100       ilevel(2)= 284       ! Aenderungstag
00101       return
00102       end
00103
00104
00105
00106 C
00107 C  Setzen allgemeiner Commonvariablen
00108 C
00109       subroutine line (ipar)
00110       implicit none
00111       integer ipar
00112       include 'G2dAG2.fd'
00113
00114       cline= ipar
00115       return
00116       end
00117
00118
00119
00120       subroutine symbl (ipar)
00121       implicit none
00122       integer ipar
00123       include 'G2dAG2.fd'
00124
00125       csymbl= ipar
00126       return
00127       end
00128
00129
00130
00131       subroutine steps (ipar)
00132       implicit none
00133       integer ipar
00134       include 'G2dAG2.fd'
00135
00136       csteps= ipar
00137       return
00138       end
00139
00140
00141
00142       subroutine infin (par)
00143       implicit none
00144       real par
00145       include 'G2dAG2.fd'
00146
00147       if (par .gt. 0.) then
00148        cinfin= par
00149       end if
00150       return
00151       end
00152
00153
00154
00155       subroutine npts (ipar)
00156       implicit none
00157       integer ipar
00158       include 'G2dAG2.fd'
```

```
00159
00160       cnpts= ipar
00161       return
00162       end
00163
00164
00165
00166       subroutine stepl (ipar)
00167       implicit none
00168       integer ipar
00169       include 'G2dAG2.fd'
00170
00171       cstepl= ipar
00172       return
00173       end
00174
00175
00176
00177       subroutine sizes (par)
00178       implicit none
00179       real par
00180       include 'G2dAG2.fd'
00181
00182       csizes= par
00183       return
00184       end
00185
00186
00187
00188       subroutine sizel (par)
00189       implicit none
00190       real par
00191       include 'G2dAG2.fd'
00192
00193       csizel= par
00194       return
00195       end
00196
00197
00198
00199 C
00200 C  Setzen der achsenbezogenen Commonvariablen
00201 C
00202       subroutine xneat (ipar)
00203       implicit none
00204       integer ipar
00205       include 'G2dAG2.fd'
00206
00207       cxyneat(1) = ipar .ne. 0
00208       return
00209       end
00210
00211
00212
00213       subroutine yneat (ipar)
00214       implicit none
00215       integer ipar
00216       include 'G2dAG2.fd'
00217
00218       cxyneat(2) = ipar .ne. 0
00219       return
00220       end
00221
00222
00223
00224       subroutine xzero (ipar)
00225       implicit none
00226       integer ipar
00227       include 'G2dAG2.fd'
00228
00229       cxyzero(1) = ipar .ne. 0
00230       return
00231       end
00232
00233
00234
00235       subroutine yzero (ipar)
00236       implicit none
00237       integer ipar
00238       include 'G2dAG2.fd'
00239
00240       cxyzero(2) = ipar .ne. 0
00241       return
00242       end
00243
00244
00245
```

```
00246       subroutine xloc (ipar)
00247       implicit none
00248       integer ipar
00249       include 'G2dAG2.fd'
00250
00251       cxyloc(1)= ipar
00252       return
00253       end
00254
00255
00256
00257       subroutine yloc (ipar)
00258       implicit none
00259       integer ipar
00260       include 'G2dAG2.fd'
00261
00262       cxyloc(2)= ipar
00263       return
00264       end
00265
00266
00267
00268       subroutine xloctp (ipar)
00269       implicit none
00270       integer ipar
00271       include 'G2dAG2.fd'
00272
00273       cxyloc(1)= ipar+abs(cxysmax(2)-cxysmin(2))
00274       return
00275       end
00276
00277
00278
00279       subroutine ylocrt (ipar)
00280       implicit none
00281       integer ipar
00282       include 'G2dAG2.fd'
00283
00284       cxyloc(2)= ipar + abs(cxysmax(1)-cxysmin(1))
00285       return
00286       end
00287
00288
00289
00290       subroutine xlab (ipar)
00291       implicit none
00292       integer ipar
00293       include 'G2dAG2.fd'
00294
00295       cxylab(1)= ipar
00296       return
00297       end
00298
00299
00300
00301       subroutine ylab (ipar)
00302       implicit none
00303       integer ipar
00304       include 'G2dAG2.fd'
00305
00306       cxylab(2)= ipar
00307       return
00308       end
00309
00310
00311
00312       subroutine xden (ipar)
00313       implicit none
00314       integer ipar
00315       include 'G2dAG2.fd'
00316
00317       if ((ipar .ge. 0) .and. (ipar .le. 10)) then
00318        cxyden(1)= ipar
00319        cxytics(1)= 0
00320        cxymtcs(1)= 0
00321       end if
00322       return
00323       end
00324
00325
00326
00327       subroutine yden (ipar)
00328       implicit none
00329       integer ipar
00330       include 'G2dAG2.fd'
00331
00332       if ((ipar .ge. 0) .and. (ipar .le. 10)) then
```

```
00333         cxyden(2)= ipar
00334         cxytics(2)= 0
00335         cxymtcs(2)= 0
00336       end if
00337       return
00338       end
00339
00340
00341
00342       subroutine xtics (ipar)
00343       implicit none
00344       integer ipar
00345       include 'G2dAG2.fd'
00346
00347       cxytics(1)= abs(ipar)
00348       return
00349       end
00350
00351
00352
00353       subroutine ytics (ipar)
00354       implicit none
00355       integer ipar
00356       include 'G2dAG2.fd'
00357
00358       cxytics(2)= abs(ipar)
00359       return
00360       end
00361
00362
00363
00364       subroutine xlen (ipar)
00365       implicit none
00366       integer ipar
00367       include 'G2dAG2.fd'
00368
00369       if (ipar .ge. 0) then
00370         cxylen(1)= ipar
00371       end if
00372       return
00373       end
00374
00375
00376
00377       subroutine ylen (ipar)
00378       implicit none
00379       integer ipar
00380       include 'G2dAG2.fd'
00381
00382       if (ipar .ge. 0) then
00383         cxylen(2)= ipar
00384       end if
00385       return
00386       end
00387
00388
00389
00390       subroutine xfrm (ipar)
00391       implicit none
00392       integer ipar
00393       include 'G2dAG2.fd'
00394
00395       if ((ipar .ge. 0) .and. (ipar .le. 6)) then
00396         cxyfrm(1)= ipar
00397       end if
00398       return
00399       end
00400
00401
00402
00403       subroutine yfrm (ipar)
00404       implicit none
00405       integer ipar
00406       include 'G2dAG2.fd'
00407
00408       if ((ipar .ge. 0) .and. (ipar .le. 6)) then
00409         cxyfrm(2)= ipar
00410       end if
00411       return
00412       end
00413
00414
00415
00416       subroutine xmtcs (ipar)
00417       implicit none
00418       integer ipar
00419       include 'G2dAG2.fd'
```

```
00420
00421       cxymtcs(1)= abs(ipar)
00422       return
00423       end
00424
00425
00426
00427       subroutine ymtcs (ipar)
00428       implicit none
00429       integer ipar
00430       include 'G2dAG2.fd'
00431
00432       cxymtcs(2)= abs(ipar)
00433       return
00434       end
00435
00436
00437
00438       subroutine xmfrm (ipar)
00439       implicit none
00440       integer ipar
00441       include 'G2dAG2.fd'
00442
00443       if ((ipar .ge. 0) .and. (ipar .le. 6)) then
00444        cxymfrm(1)= ipar
00445       end if
00446       return
00447       end
00448
00449
00450
00451       subroutine ymfrm (ipar)
00452       implicit none
00453       integer ipar
00454       include 'G2dAG2.fd'
00455
00456       if ((ipar .ge. 0) .and. (ipar .le. 6)) then
00457        cxymfrm(2)= ipar
00458       end if
00459       return
00460       end
00461
00462
00463
00464       subroutine dlimx (xmin,xmax)
00465       implicit none
00466       real xmin,xmax
00467       include 'G2dAG2.fd'
00468
00469       cxydmin(1)= xmin
00470       cxydmax(1)= xmax
00471       return
00472       end
00473
00474
00475
00476       subroutine dlimy (ymin,ymax)
00477       implicit none
00478       real ymin,ymax
00479       include 'G2dAG2.fd'
00480
00481       cxydmin(2)= ymin
00482       cxydmax(2)= ymax
00483       return
00484       end
00485
00486
00487
00488       subroutine slimx (ixmin,ixmax)
00489       implicit none
00490       integer ixmin,ixmax
00491       include 'G2dAG2.fd'
00492
00493       cxysmin(1)= ixmin
00494       cxysmax(1)= ixmax
00495       return
00496       end
00497
00498
00499
00500       subroutine slimy (iymin,iymax)
00501       implicit none
00502       integer iymin,iymax
00503       include 'G2dAG2.fd'
00504
00505       cxysmin(2)= iymin
00506       cxysmax(2)= iymax
```

```
00507       return
00508       end
00509
00510
00511
00512       subroutine place (ipar)
00513       implicit none
00514       include 'G2dAG2.fd'
00515       integer ipar
00516
00517       integer postab (4,13)        ! Koordinaten des Zeichenbereiches
00518       data postab /150,900, 125,700,
00519      2             150,850, 525,700,
00520      3             150,850, 150,325,
00521      4             150,450, 525,700,
00522      5             650,950, 525,700,
00523      6             150,450, 150,325,
00524      7             650,950, 150,325,
00525      8             150,325, 525,700,
00526      9             475,650, 525,700,
00527      a             800,975, 525,700,
00528      1             150,325, 150,325,
00529      2             475,650, 150,325,
00530      3             800,975, 150,325/
00531       save postab
00532
00533       if ((ipar .ge. 1) .and. (ipar.le.13)) then
00534        cxysmin(1)= postab(1,ipar)
00535        cxysmax(1)= postab(2,ipar)
00536        cxysmin(2)= postab(3,ipar)
00537        cxysmax(2)= postab(4,ipar)
00538       end if
00539       return
00540       end
00541
00542
00543
00544       subroutine xtype (ipar)
00545       implicit none
00546       integer ipar
00547       include 'G2dAG2.fd'
00548
00549       if ((ipar .ge. 1) .and. (ipar .le. 8)) then
00550        cxytype(1)= ipar
00551       end if
00552       return
00553       end
00554
00555
00556
00557       subroutine ytype (ipar)
00558       implicit none
00559       integer ipar
00560       include 'G2dAG2.fd'
00561
00562       if ((ipar .ge. 1) .and. (ipar .le. 8)) then
00563        cxytype(2)= ipar
00564       end if
00565       return
00566       end
00567
00568
00569
00570       subroutine xwdth (ipar)
00571       implicit none
00572       integer ipar
00573       include 'G2dAG2.fd'
00574
00575       if (ipar .ge. 0) then
00576        cxywdth(1)= ipar
00577       end if
00578       return
00579       end
00580
00581
00582
00583       subroutine ywdth (ipar)
00584       implicit none
00585       integer ipar
00586       include 'G2dAG2.fd'
00587
00588       if (ipar .ge. 0) then
00589        cxywdth(2)= ipar
00590       end if
00591       return
00592       end
00593
```

```
00594
00595
00596       subroutine xetyp (ipar)
00597       implicit none
00598       integer ipar
00599       include 'G2dAG2.fd'
00600
00601       if ((ipar .ge. 0) .and. (ipar .le. 4)) then
00602        cxyetyp(1)= ipar
00603       end if
00604       return
00605       end
00606
00607
00608
00609       subroutine yetyp (ipar)
00610       implicit none
00611       integer ipar
00612       include 'G2dAG2.fd'
00613
00614       if ((ipar .ge. 0) .and. (ipar .le. 4)) then
00615        cxyetyp(2)= ipar
00616       end if
00617       return
00618       end
00619
00620
00621
00622       subroutine setwin
00623       implicit none
00624       include 'G2dAG2.fd'
00625
00626       call twindo (cxysmin(1),cxysmax(1), cxysmin(2),cxysmax(2))
00627       call dwindo (cxydmin(1),cxydmax(1), cxydmin(2),cxydmax(2))
00628       if (cxytype(1) .eq. 2) then
00629        if (cxytype(2) .eq. 2) then
00630         call logtrn (3)
00631        else
00632         call logtrn (1)
00633        end if
00634       else if (cxytype(2) .eq. 2) then
00635         call logtrn (2)
00636       else
00637        call lintrn
00638       end if
00639       return
00640       end
00641
00642
00643
00644       subroutine dinitx
00645       implicit none
00646       include 'G2dAG2.fd'
00647
00648       cxydmin(1)= 0.         ! Datenbereich
00649       cxydmax(1)= 0.
00650       cxywdth(1)= 0          ! Dezimalstellen
00651       cxydec(1)=  0          ! Dezimalstellen
00652       cxyepon(1)= 0          ! Exponent Label
00653       return
00654       end
00655
00656
00657
00658       subroutine dinity
00659       implicit none
00660       include 'G2dAG2.fd'
00661
00662       cxydmin(2)= 0.         ! Datenbereich
00663       cxydmax(2)= 0.
00664       cxywdth(2)= 0          ! Dezimalstellen
00665       cxydec(2)=  0          ! Dezimalstellen
00666       cxyepon(2)= 0          ! Exponent Label
00667       return
00668       end
00669
00670
00671
00672       subroutine hbarst (ishade,iwbar,idbar)
00673       implicit none
00674       integer ishade,iwbar,idbar
00675       include 'G2dAG2.fd'
00676
00677       cline= -3
00678       if ((ishade .ge. 0).and. (ishade .le. 15)) csymbl= ishade
00679       csizes= real(idbar)
00680       csizel= real(iwbar)
```

```
00681
00682       if (cxyfrm(2) .eq. 5) then
00683        cxyfrm(2)= 2
00684       else if (cxyfrm(2) .eq. 6) then
00685        cxyfrm(2)= 1
00686       end if
00687       return
00688       end
00689
00690
00691
00692       subroutine vbarst (ishade,iwbar,idbar)
00693       implicit none
00694       integer ishade,iwbar,idbar
00695       include 'G2dAG2.fd'
00696
00697       cline=  -2
00698       if ((ishade .ge. 0) .and. (ishade .le. 15)) csymbl= ishade
00699       csizes= real(idbar)
00700       csizel= real(iwbar)
00701       if (cxyfrm(1) .eq. 5) then
00702        cxyfrm(1)= 2
00703       else if (cxyfrm(1) .eq. 6) then
00704        cxyfrm(1)= 1
00705       end if
00706       return
00707       end
00708
00709
00710
00711 C
00712 C  Berechnung der Commonvariablen
00713 C
00714       subroutine binitt
00715       implicit none
00716       integer ih
00717       include 'G2dAG2.fd'
00718
00719       cline= 0
00720       csymbl= 0
00721       csteps= 1
00722       cinfin= 1.e30
00723       cnpts= 0
00724       cstepl= 1
00725       cnumbr= 0
00726       csizes= 1.
00727       csizel= 1.
00728
00729       cxyneat(1)= .true.
00730       cxyneat(2)= .true.
00731       cxyzero(1)= .true.
00732       cxyzero(2)= .true.
00733       cxyloc(1)= 0
00734       cxyloc(2)= 0
00735       cxylab(1)= 1
00736       cxylab(2)= 1
00737       cxyden(1)= 8
00738       cxyden(2)= 8
00739       cxytics(2)= 0
00740       cxytics(2)= 0
00741
00742       call csize (ih,cxylen(1))
00743       cxylen(2)= cxylen(1)
00744
00745       cxyfrm(1)= 5
00746       cxyfrm(2)= 5
00747       cxymtcs(1)= 0
00748       cxymtcs(2)= 0
00749       cxymfrm(1)= 2
00750       cxymfrm(2)= 2
00751       cxydec(1)= 0
00752       cxydec(2)= 0
00753       cxydmin(1)= 0.
00754       cxydmin(2)= 0.
00755       cxydmax(1)= 0.
00756       cxydmax(2)= 0.
00757
00758       cxysmin(1)= 150
00759       cxysmin(2)= 125
00760       cxysmax(1)= 900
00761       cxysmax(2)= 700
00762
00763       cxytype(1)= 1
00764       cxytype(2)= 1
00765       cxylsig(1)= 0
00766       cxylsig(2)= 0
00767       cxywdth(1)= 0
```

```
00768       cxywdth(2)= 0
00769       cxyepon(1)= 0
00770       cxyepon(2)= 0
00771       cxystep(1)= 1
00772       cxystep(2)= 1
00773       cxystag(1)= 1
00774       cxystag(2)= 1
00775       cxyetyp(1)= 0
00776       cxyetyp(2)= 0
00777       cxybeg(1)= 0
00778       cxybeg(2)= 0
00779       cxyend(1)= 0
00780       cxyend(2)= 0
00781       cxymbeg(1)= 0
00782       cxymbeg(2)= 0
00783       cxymend(1)= 0
00784       cxymend(2)= 0
00785       cxyamin(1)= 0.
00786       cxyamin(2)= 0.
00787       cxyamax(1)= 0.
00788       cxyamax(2)= 0.
00789       return
00790       end
00791
00792
00793
00794 C
00795 C  Datenanalyse
00796 C
00797
00798       subroutine check (x,y)
00799       implicit none
00800       real  x(5),y(5)
00801       include 'G2dAG2.fd'
00802
00803       external SPREAD ! External wg. Namenskonflikt FTN90-Intrinsic
00804
00805       call typck (1,x)
00806       call rgchek(1,x)
00807       call optim (1)
00808       call width (1)
00809       if (cxystag(1) .eq. 1) call spread (1)
00810       call tset (1)
00811
00812       call typck (2,y)
00813       call rgchek(2,y)
00814       call optim(2)
00815       call width(2)
00816       if (cxystag(2) .eq. 1) call spread (2)
00817       call tset (2)
00818       return
00819       end
00820
00821
00822
00823       subroutine typck (ixy, arr)
00824       implicit none
00825       integer ixy
00826       real arr(5)
00827       integer i
00828       include 'G2dAG2.fd'
00829
00830       if ((cxytype(ixy) .lt. 3) .or. (nint(arr(1)) .lt. -1 )) then
00831        if ((cnpts .ne. 0) .or. (nint(arr(1)) .ne. -2) ) return
00832        i= nint(arr(3))
00833        if ( i .eq. 1) then
00834         cxytype(ixy)= 8
00835        else if ( i .eq. 4) then
00836         cxytype(ixy)= 7
00837        else if ( i .eq. 12) then
00838         cxytype(ixy)= 6
00839        else if ( i .eq. 13) then
00840         cxytype(ixy)= 5
00841        else if ( i .eq. 52) then
00842         cxytype(ixy)= 4
00843        else if ( i .eq. 365) then
00844         cxytype(ixy)= 3
00845        end if
00846       else
00847        cxytype(ixy)= 1
00848       end if
00849       return
00850       end
00851
00852
00853
00854       subroutine rgchek (ixy,arr)
```

```
00855       implicit none
00856       integer ixy
00857       real arr(5)
00858       real amin, amax
00859       include 'G2dAG2.fd'
00860
00861       if (cxydmax(ixy) .eq. cxydmin(ixy)) then ! Bereich schon bestimmt?
00862        if (cxyzero(ixy)) then ! Nullpunktunterdrueckung?
00863         amin= cinfin
00864        else
00865         amin= 0.
00866        end if
00867        amax= -amin
00868        call mnmx (arr, amin, amax)
00869        if (amax .eq. amin) then
00870         amin= amin - 0.5
00871         amax= amax + 0.5
00872        end if
00873        cxydmin(ixy)= amin
00874        cxydmax(ixy)= amax
00875       end if
00876       return
00877       end
00878
00879
00880
00881       subroutine mnmx (arr,amin,amax)
00882       implicit none
00883       real arr(5), amin,amax, aminmax
00884       integer i, itype, nstart,nlim
00885       include 'G2dAG2.fd'
00886
00887       if (cnpts .eq. 0) then                          ! Tek Standard-Format
00888        nlim= nint(arr(1)) + 1
00889        nstart= 2
00890       else
00891        nlim= cnpts
00892        nstart= 1
00893       end if
00894       if ((arr(1) .lt. 0.) .and. (cnpts .eq. 0))  then ! Kurzformate
00895        itype= abs(arr(1))
00896        if (itype .eq. 1) then
00897         aminmax= arr(3) + (arr(2)-1.) * arr(4)
00898         amin= amin1(arr(3),aminmax,amin)
00899         amax= amax1(arr(3),aminmax,amax)
00900        else if (itype .eq. 2) then
00901         call cmnmx (arr,amin,amax)
00902        else
00903         call umnmx (arr,amin,amax)
00904        end if
00905       else                                            ! Langformate
00906        if (nstart .le. nlim) then
00907         do 100 i= nstart, nlim
00908          if (arr(i) .lt. cinfin) then
00909           if (arr(i).lt. amin) amin= arr(i)
00910           if (arr(i).gt. amax) amax= arr(i)
00911          end if
00912 100     continue
00913        end if
00914       end if
00915       return
00916       end
00917
00918
00919
00920       subroutine cmnmx (arr,amin,amax)
00921       implicit none
00922       real arr(5), amin, amax
00923       integer nTage, iStUBGC, nIntv, iadj, imin,imax
00924       integer minTg,minJr, maxTg,maxJr
00925
00926
00927       nintv= nint(arr(3))
00928       if ((nintv .eq. 52).or.(nintv .eq. 13).or.(nintv .eq. 4)) then
00929        if (nintv .eq. 52) then          ! Wochen
00930         ntage=7
00931        else if (nintv .eq. 13) then     ! 28 Tagemonat
00932         ntage= 28
00933        else if (nintv .eq. 4) then      ! Quartal
00934         ntage=91
00935        end if
00936        call iubgc (nint(arr(4)),1, istubgc)    ! Start: Jahr=arr(4), Tag=1
00937        iadj= mod(istubgc,7)
00938        if (iadj .gt. 3) iadj=iadj-7
00939        imin= istubgc-iadj + nint(arr(5))*ntage ! Min= f(Startjahr,StartIntervall)
00940        imax= imin + nint(arr(2))*ntage
00941
```

```
00942       else
00943        if (nintv .eq. 1) then ! Jahre
00944         mintg= 1
00945         maxtg= 1
00946         minjr= nint(arr(4))+1
00947         maxjr= nint(arr(4)+arr(2))
00948        else if ( nintv .eq. 12) then ! Monate
00949         call ymdyd (minjr,mintg, nint(arr(4)),nint(arr(5))+1,1)
00950         call ymdyd (maxjr,maxtg, nint(arr(4)),nint(arr(5)+arr(2)),1)
00951        else if ( nintv .eq. 365) then ! Tage
00952         minjr= nint(arr(4))
00953         mintg= nint(arr(5))
00954         maxjr= nint(arr(4))
00955         maxtg= nint(arr(5)+arr(2)) -1
00956        end if
00957        call iubgc (minjr,mintg, imin)
00958        call iubgc (maxjr,maxtg, imax)
00959       end if
00960       if (real(imax) .gt. amax) amax= real(imax)
00961       if (real(imin) .lt. amin) amin= real(imin)
00962       return
00963       end
00964
00965
00966
00967 C
00968 C  Ticmarkoptimierung
00969 C
00970
00971       subroutine optim (ixy)
00972       implicit none
00973       integer ixy
00974       include 'G2dAG2.fd'
00975
00976       if (cxytype(ixy) .eq. 2) cxylab(ixy)= 2
00977       if (cxylab(ixy) .eq. 2) cxylab(ixy)= cxytype(ixy)
00978       if (cxytype(ixy) .le. 2) then
00979        call loptim (ixy) ! Tic-Mark Optimierung fuer lineare und log. Daten
00980       else
00981        call coptim (ixy) ! Tic-Mark Optimierung fuer Kalenderdaten
00982       end if
00983       return
00984       end
00985
00986
00987
00988       subroutine loptim (ixy)
00989       implicit none
00990       integer ixy ,i, labtyp, ntics, lsig, mtcs
00991       real dataint, amin,amax, aminor,amaxor, sigfac
00992       integer idataint
00993       integer mintic
00994       integer LINWDT, LINHGT
00995       real ROUNDD, ROUNDU
00996       include 'G2dAG2.fd'
00997
00998       labtyp=abs( cxylab(ixy)) ! <0: Userlabel
00999       if (labtyp .le. 1) labtyp= cxytype(ixy) ! Default: Achsentyp = Datentyp
01000
01001       amin= cxydmin(ixy)
01002       amax= cxydmax(ixy)
01003       ntics= abs(cxytics(ixy)) ! Anzahl >=1, 0= Flag fuer autoscale
01004       mintic= 0
01005
01006       if (labtyp .eq. 2) then ! logarithmische Achsen
01007        amin= log10(max(amin,1./cinfin)) + 1.e-7  ! !> 0 => log10 definiert
01008        amax= log10(amax)
01009       end if
01010
01011       aminor= amin
01012       amaxor= amax
01013
01014       if (ntics .eq. 0) then ! = F( X-Achsenlaenge,Buchstabengroesse)
01015        if (ixy.eq.1) then
01016         i= linwdt(8) ! 100 + LINWDT(3)
01017        else
01018         i= linhgt(3) ! 50 + LINHGT(3)
01019        end if
01020        ntics= (cxysmax(ixy) - cxysmin(ixy)) / i
01021        if (ntics .lt. 1) ntics= 1
01022       end if
01023       dataint= abs(amax-amin) / real(ntics)
01024
01025 310   continue ! repeat...
01026        if (labtyp .eq. 2) dataint= roundu(dataint,1.) ! logarithmische Achsen
01027        lsig= roundd(log10(dataint),1.) ! Anzahl signifikanter Nachkommastellen
01028        sigfac=10.**(lsig)
```

```
01029        if (cxyneat(ixy)) then ! Achsenteilung aus Tabelle
01030         if(labtyp .ne. 2) then ! nicht bei log. Achsen
01031          if ((dataint/sigfac) .le. 1.) then
01032           dataint= 1. * sigfac
01033           mintic= 10
01034          else if ((dataint/sigfac) .le. 2.) then
01035           dataint= 2. * sigfac
01036           mintic= 2
01037          else if ((dataint/sigfac) .le. 2.5) then
01038           dataint= 2.5 * sigfac
01039           mintic= 5
01040           lsig=lsig-1
01041          else if ((dataint/sigfac) .le. 5.) then
01042           dataint= 5. * sigfac
01043           mintic=  5
01044          else if ((dataint/sigfac) .le. 10.) then
01045           dataint= 10. * sigfac
01046           mintic= 10
01047           lsig=lsig+1
01048          else
01049           dataint= cinfin
01050           mintic= 0
01051          end if
01052         end if ! log. Achse
01053        else ! .not. neat
01054         lsig=lsig-2
01055        end if
01056        if (lsig .ge. 0) lsig=lsig+1
01057       if (cxyneat(ixy) .or. (labtyp .eq. 2) ) then ! ... until
01058        amin= roundd(amin+.01*sigfac,dataint) !  runde auf TicIntervall
01059        amax= roundu(amax-.01*sigfac,dataint) ! .01*sigfac= Genauigkeit Plot
01060        ntics= int(abs(amax-amin)/dataint+.0001)
01061        if(cxytics(ixy) .ne. 0) then ! until: ntics nicht vorbesetzt oder = vorbesetzt
01062         if(abs(cxytics(ixy)) .lt. ntics) then
01063          dataint= dataint * 1.1
01064          amin=aminor
01065          amax=amaxor
01066          goto 310 ! noch eine Iterationsschleife
01067         else if (abs(cxytics(ixy)) .gt. ntics) then
01068          ntics= abs(cxytics(ixy))
01069          amax= amin + real(ntics) * dataint
01070         end if ! abs(cxytics(ixy)) .eq. ntics: no action
01071        end if
01072       end if
01073       cxytics(ixy)= ntics
01074
01075       if ((cxymtcs(ixy) .eq. 0) .and. (cxyden(ixy) .ge. 6)) then ! unbesetzt oder wenig TICS
01076        mtcs= mintic ! Bestimmung Minor TicMarcs
01077        if((mtcs .eq. 10) .or. (labtyp .eq. 2)) then
01078         if(cxyden(ixy) .lt. 9) mtcs=5
01079         if(cxyden(ixy) .lt. 7) mtcs=2
01080         if(labtyp .eq. 2) then ! log. Achsen
01081          idataint= nint(dataint)
01082          if (idataint .ne. 1) then ! mehrere Achsenintervalle
01083           i= 1
01084 320       continue ! repeat...
01085            mtcs= idataint/i
01086           if ((mtcs*i .ne. idataint) .and. (i .lt. (idataint-1))) then ! ...until
01087            i= i+1
01088            goto 320
01089           else if (mtcs .gt. 10 ) then
01090            mtcs= 0  ! Failure
01091           end if
01092          else ! einzelne logarithmische Dekade
01093           if ((cxysmax(ixy) - cxysmin(ixy)) .ge. 100* ntics) mtcs=-1 ! logarithm. Tics
01094           if ((cxysmax(ixy) - cxysmin(ixy)) .ge. 20* linhgt(1)) mtcs=-2 ! Label
01095          end if
01096         end if
01097        end if
01098        cxymtcs(ixy)= mtcs
01099       end if
01100
01101       cxylsig(ixy)= lsig
01102       cxyamin(ixy)= amin
01103       cxyamax(ixy)= amax
01104       if (labtyp .eq. 2) then ! logarithmische Achsen: Wiederherstellung der Originalwerte
01105        amax=10.**amax
01106        amin=10.**amin
01107       end if
01108       cxydmin(ixy)= amin
01109       cxydmax(ixy)= amax
01110       return
01111       end
01112
01113
01114
01115       subroutine coptim (ixy)
```

```
01116       implicit none
01117       integer ixy , labtyp, ntics
01118       real dataint, amin,amax, aminor,amaxor
01119       integer LINWDT
01120       real ROUNDD, ROUNDU
01121       include 'G2dAG2.fd'
01122
01123       if (cxytics(ixy) .eq. 1) cxytics(ixy)= 2 ! Minimum manuelle Ticwahl: 2
01124       labtyp=abs( cxylab(ixy)) ! <0: Userlabel
01125       if (labtyp .le. 1) labtyp= cxytype(ixy) ! Default: Achsentyp = Datentyp
01126       amin= cxydmin(ixy)
01127       amax= cxydmax(ixy)
01128       call calcon (amin,amax,labtyp,.true.) ! Konvertiere UBGC -> Labelzeiteinheit
01129       ntics= cxytics(ixy)
01130       aminor=amin
01131       amaxor=amax
01132       if (ntics .eq. 0) then ! = F( X-Achsenlaenge,Buchstabengroesse)
01133        ntics= (cxysmax(ixy) - cxysmin(ixy)) / (25 + linwdt(1))
01134        if (ntics .lt. 2) ntics= 2
01135       end if
01136       dataint= abs(amax-amin) / real(ntics)
01137
01138       if (cxyneat(ixy)) then ! Achsenteilung aus Tabelle
01139 310    continue ! repeat...
01140         if (cxytics(ixy) .eq. 0) then ! keine manuelle Belegung erfolgt
01141          if (labtyp.eq.3) then ! Labeltyp: Tage
01142           if (dataint .le. 1.) then
01143            dataint= 1.
01144           else if (dataint .le. 7.) then
01145            dataint= 7.
01146           else if (dataint .le. 14.) then
01147            dataint= 14.
01148           else if (dataint .le. 28.) then
01149            dataint= 28.
01150           else if (dataint .le. 56.) then
01151            dataint= 56.
01152           else if (dataint .le. 128.) then
01153            dataint= 128.
01154           end if ! dataint > 128 -> unveraendert
01155          else if (labtyp.eq.4) then ! Labeltyp: Wochen
01156           if (dataint .le. 1.) then
01157            dataint= 1.
01158           else if (dataint .le. 2.) then
01159            dataint= 2.
01160           else if (dataint .le. 4.) then
01161            dataint= 4.
01162           else if (dataint .le. 8.) then
01163            dataint= 8.
01164           else if (dataint .le. 16.) then
01165            dataint= 16.
01166           else if (dataint .le. 26.) then
01167            dataint= 26.
01168           else if (dataint .le. 52.) then
01169            dataint= 52.
01170           else if (dataint .le. 104.) then
01171            dataint= 104.
01172           end if ! dataint -> unveraendert
01173          else if (labtyp.eq.5) then ! Labeltyp: Kalenderabschnitte
01174           if (dataint .le. 1.) then
01175            dataint= 1.
01176           else if (dataint .le. 2.) then
01177            dataint= 2.
01178           else if (dataint .le. 13.) then
01179            dataint= 13.
01180           else if (dataint .le. 26.) then
01181            dataint= 26.
01182           else if (dataint .le. 52.) then
01183            dataint= 52.
01184           end if ! dataint -> unveraendert
01185          else if (labtyp.eq.6) then ! Labeltyp: Monate
01186           if (dataint .le. 1.) then
01187            dataint= 1.
01188           else if (dataint .le. 2.) then
01189            dataint= 2.
01190           else if (dataint .le. 3.) then
01191            dataint= 3.
01192           else if (dataint .le. 4.) then
01193            dataint= 4.
01194           else if (dataint .le. 6.) then
01195            dataint= 6.
01196           else if (dataint .le. 12.) then
01197            dataint= 12.
01198           else if (dataint .le. 24.) then
01199            dataint= 24.
01200           else if (dataint .le. 36.) then
01201            dataint= 36.
01202           end if ! dataint -> unveraendert
```

```
01203          else if (labtyp.eq.7) then ! Labeltyp: Quartale
01204           if (dataint .le. 1.) then
01205            dataint= 1.
01206           else if (dataint .le. 2.) then
01207            dataint= 2.
01208           else if (dataint .le. 4.) then
01209            dataint= 4.
01210           else if (dataint .le. 8.) then
01211            dataint= 8.
01212           else if (dataint .le. 12.) then
01213            dataint= 12.
01214           else if (dataint .le. 16.) then
01215            dataint= 16.
01216           else if (dataint .le. 24.) then
01217            dataint= 24.
01218           end if ! dataint -> unveraendert
01219          else if (labtyp.eq.8) then ! Labeltyp: Jahre
01220           if (dataint .le. 1.) then
01221            dataint= 1.
01222           else if (dataint .le. 2.) then
01223            dataint= 2.
01224           else if (dataint .le. 5.) then
01225            dataint= 5.
01226           else if (dataint .le. 10.) then
01227            dataint= 10.
01228           else if (dataint .le. 20.) then
01229            dataint= 20.
01230           else if (dataint .le. 50.) then
01231            dataint= 50.
01232           else if (dataint .le. 100.) then
01233            dataint= 100.
01234           end if ! dataint -> unveraendert
01235          end if ! labtyp 3..8
01236         end if ! manuelle Vorbesetzung
01237         amin= roundd(amin,dataint) !  runde auf TicIntervall
01238         amax= roundu(amax,dataint)
01239         ntics= ifix(abs(amax-amin)/dataint+.0001)
01240         if (ntics .eq. 0) ntics = 2
01241        if(cxytics(ixy) .ne. 0) then ! until: ntics nicht oder = vorbesetzt
01242         if(abs(cxytics(ixy)) .lt. ntics) then ! Verringere Ticanzahl
01243          dataint= dataint * 1.1
01244          amin=aminor
01245          amax=amaxor
01246          goto 310 ! noch eine Iterationsschleife
01247         else if (abs(cxytics(ixy)) .gt. ntics) then ! Vergroessere Ticanzahl
01248          ntics= abs(cxytics(ixy))
01249          amax= amin + real(ntics) * dataint
01250         end if ! abs(cxytics(ixy)) .eq. ntics: no action
01251        end if ! Ende der Schleife
01252       end if ! neat
01253       cxytics(ixy)= ntics
01254       cxylsig(ixy)= 0
01255       cxyamin(ixy)= amin
01256       cxyamax(ixy)= amax
01257       call calcon (amin,amax,labtyp,.false.) ! Labelzeiteinheit -> UBGC
01258       cxydmin(ixy)= amin
01259       cxydmax(ixy)= amax
01260       return
01261       end
01262
01263
01264
01265 C
01266 C  Kalenderroutinen
01267 C
01268
01269
01270
01271       real function calpnt (arr,i)
01272       implicit none
01273       integer i
01274       real arr(5)
01275       integer iy,idays, itmp
01276       integer icltyp, istyr, istper, iubg1, iweek1, nodays
01277       save icltyp, istyr, istper, iubg1, iweek1, nodays
01278
01279       if (i .eq. 1) then ! 1. Datenpunkt: Formatanalyse, Parameterberechnung
01280        istyr= nint(arr(4))
01281        istper= nint(arr(5))
01282        itmp= nint(arr(3)) ! Laenge Intervall in Tagen
01283        if (itmp .eq. 12) then ! Zeitintervall Monat
01284         icltyp= 2
01285        else if (itmp .eq. 365) then ! Zeitintervall Tage
01286         icltyp=3
01287         call iubgc (istyr,istper,iubg1)
01288        else if (itmp .eq. 52) then ! Zeitintervall Wochen
01289         icltyp= 4
```

```
01290         nodays= 7
01291        else if (itmp .eq. 13) then ! Zeitintervall 4 Wochen
01292         icltyp= 5
01293         nodays= 28
01294        else if (itmp .eq. 4) then  ! Zeitintervall Quartal
01295         icltyp= 6
01296         nodays= 91
01297        else ! Zeitintervall Jahre
01298         icltyp= 1
01299        end if
01300        if (icltyp .ge. 4) then
01301         call iubgc (istyr,1,iubg1)
01302         itmp= mod(iubg1+1,7)
01303         if(itmp .gt. 3) itmp= itmp-7
01304         iweek1= iubg1-itmp
01305         iubg1= iweek1+(istper-1)*nodays
01306        end if
01307       end if ! Ende Initialisierung, jetzt Berechnung
01308
01309       if (icltyp .eq. 1) then ! Zeitintervall Jahr
01310        call iubgc (istyr+i,1,iubg1)
01311        calpnt= iubg1
01312       else if (icltyp .eq. 2) then ! Zeitintervall Monat
01313        call ymdyd (iy,idays,istyr,istper+i,1)
01314        call iubgc (iy,idays,iubg1)
01315        calpnt= iubg1 ! Zeitintervall Tage
01316       else if (icltyp .eq. 3) then
01317        calpnt= iubg1+i-1
01318       else ! Zeitintervall Wochen oder 4 Wochen
01319        calpnt= iweek1+(istper-1+i)*nodays
01320       end if
01321       return
01322       end
01323
01324
01325
01326       subroutine calcon (amin,amax,labtyp,ubgc)
01327       implicit none
01328       real amin, amax
01329       integer labtyp
01330       logical ubgc
01331       integer iubg1, iubg2, iday1, iadj, id, month1,month2 , imin,imax
01332       real dimin, dimax
01333       integer iweek1
01334       real fnoday
01335       integer iy1,iy2, iy3,iy4, idays
01336       save iweek1, fnoday
01337       save iy1,iy2, iy3, iy4, idays
01338
01339       real ROUNDD, ROUNDU
01340
01341       if (labtyp .le. 3) return ! nicht Kalender, bzw.Tage: keine Transformation
01342
01343       if (ubgc) then ! Konvertierung UBGC in Labeltype
01344        if ( (labtyp .eq. 4).or.(labtyp .eq. 5).or.(labtyp .eq. 7) ) then
01345         if (labtyp .eq. 4) fnoday= 7.
01346         if (labtyp .eq. 5) fnoday= 28.
01347         if (labtyp .eq. 7) fnoday= 91.
01348         iubg1=amin
01349         iubg2=amax
01350         call oubgc (iy1,idays,iubg1) ! Wochenanfang der 1.KW Startjahr
01351         iday1=iubg1-idays+1
01352         iadj=mod(iday1+1,7)
01353         if(iadj .gt. 3) iadj=iadj-7
01354         iweek1= iday1-iadj           ! Merken in iweek1
01355         dimin= roundd(real(iubg1-iweek1),fnoday)
01356         dimin= dimin/fnoday+1.
01357         call oubgc (iy2,idays,iubg2)
01358         dimax= roundu(real(iubg2-iweek1),fnoday)
01359         dimax= dimax/fnoday
01360        else if (labtyp .eq. 6) then
01361         call oubgc (iy1,idays,nint(amin))
01362         call ydymd (iy1,idays,iy3,month1,id)
01363         dimin= month1
01364         call oubgc (iy2,idays,nint(amax))
01365         call ydymd (iy2,idays,iy4,month2,id)
01366         dimax= (iy4-iy3)*12+month2
01367         if(id .gt. 1) dimax=dimax+1.
01368        else if (labtyp .eq. 8) then
01369         call oubgc (iy1,idays,nint(amin))
01370         dimin= iy1
01371         call oubgc(iy2,idays,nint(amax))
01372         dimax= iy2
01373         if(idays .gt. 1) dimax=dimax+1.
01374        end if
01375        amin= dimin-1.
01376        amax= dimax-1.
```

```
01377        return
01378
01379       else ! Konvertierung Labeltype in UBGC
01380        amin=amin+1.
01381        amax=amax+1.
01382        if ((labtyp .eq. 4).or.(labtyp .eq. 5).or.(labtyp .eq. 7)) then
01383         amin= iweek1 + (nint(amin)-1) * nint(fnoday)
01384         amax= iweek1+(nint(amax)-1)*nint(fnoday)
01385        else if (labtyp .eq. 6)then
01386         iy4= iy3
01387         call ymdyd (iy1,idays,iy3,nint(amin),1)
01388         call iubgc (iy1,idays,imin)
01389         amin= imin
01390         call ymdyd (iy2,idays,iy4,nint(amax),1)
01391         call iubgc (iy2,idays,imax)
01392         amax= imax
01393        else if (labtyp .eq. 8) then
01394         call iubgc (nint(amin),1,imin)
01395         amin= imin
01396         call iubgc (nint(amax),1,imax)
01397         amax= imax
01398        end if
01399       endif
01400       return
01401       end
01402
01403
01404
01405       subroutine ymdyd (iJulYrOut,iJulDayOut,
01406      1                              iGregYrIn,iGregMonIn,iGregDayIn)
01407       implicit none
01408       integer iJulYrOut,iJulDayOut, iGregYrIn,iGregMonIn,iGregDayIn
01409       integer iJulYrIn,iJulDayIn, iGregYrOut,iGregMonOut,iGregDayOut
01410       integer iMon, LEAP
01411       integer iDatTab(12)
01412       save idattab
01413       data idattab /0,31,59,90,120,151,181,212,243,273,304,334/
01414
01415       ijulyrout= igregyrin
01416       imon= igregmonin
01417 100   if (imon .lt. 1) then ! while iMon .not. in [1..12]
01418        imon= imon + 12
01419        ijulyrout= ijulyrout-1
01420        goto 100
01421       else if (imon .gt. 12) then
01422        imon= imon -12
01423        ijulyrout= ijulyrout+1
01424        goto 100
01425       end if
01426       ijuldayout= igregdayin + idattab(imon)
01427       if (imon .gt.2) ijuldayout= ijuldayout + leap(ijulyrout)
01428       return
01429
01430
01431       entry ydymd(ijulyrin,ijuldayin,
01432      1                        igregyrout,igregmonout,igregdayout)
01433
01434       igregdayout= ijuldayin
01435       igregyrout= ijulyrin
01436 110   if (igregdayout .lt. 1) then ! while iGregDayOut .not. in [1..365(366)]
01437        igregyrout= igregyrout-1
01438        igregdayout= igregdayout + 365 + leap(igregyrout)
01439        goto 110
01440       else if (igregdayout .gt. 365+ leap(igregyrout)) then
01441        igregyrout= igregyrout+1
01442        igregdayout= igregdayout - 365 - leap(igregyrout)
01443        goto 110
01444       end if
01445
01446       igregmonout= int( real(igregdayout)/29.5+1.)
01447       if (igregdayout .le. idattab(igregmonout)) then
01448        if ((igregmonout .le. 2) .or.
01449      1   (igregdayout.le.(idattab(igregmonout)+leap(igregyrout)))) then
01450          igregmonout= igregmonout-1
01451        end if
01452       end if
01453       igregdayout= igregdayout- idattab(igregmonout)
01454       if (igregmonout .gt. 2) igregdayout= igregdayout -leap(igregyrout)
01455       return
01456       end
01457
01458
01459
01460       integer function  leap (iyear)
01461       implicit none
01462       integer iyear
01463       if (  (mod(iyear,4) .eq. 0) .and.
```

```
01464       1     ((mod(iyear,100).ne.0) .or. (mod(iyear,400).eq.0))  ) then
01465         leap= 1
01466        else
01467         leap= 0
01468        end if
01469        return
01470        end
01471
01472
01473
01474        subroutine iubgc(iyear,iday, iubgcO)
01475        implicit none
01476        integer iyear,iday,iubgcO
01477        integer iYr1
01478
01479        iyr1= iyear-1 ! Schaltjahreskorrektur erst nach Jahresabschluss
01480        iubgco= 365* (iyear-1901) ! Verhinderung Overflow: Offset im Faktor
01481        iubgco= iubgco + int(iyr1/4) - int(iyr1/100) + int(iyr1/400)
01482        iubgco= iubgco + iday -460 ! Bezugsdatum 1.1.1901= 365*1901 + 460 Schalttage
01483        return
01484        end
01485
01486
01487
01488        subroutine oubgc(iyear,iday,iubgcI)
01489        implicit none
01490        integer iyear,iday,iubgcI
01491        integer iYr1
01492
01493        iyear= int( (real(iubgci) + 694325.99) / 365.2425 )
01494 100    continue ! Schleife der evtl. Nachiteration
01495         iyr1= iyear-1 ! Schaltjahreskorrektur erst nach Jahresabschluss
01496         iday= iubgci + 460 - 365*(iyear-1901)
01497         iday= iday + int(iyr1/100) - int(iyr1/4) - int(iyr1/400)
01498        if (iday .lt. 1) then ! Nachiteration?
01499         iyear= iyear-1
01500         goto 100
01501        end if
01502        return
01503        end
01504
01505
01506
01507 C
01508 C  Zeichenroutinen
01509 C
01510
01511        subroutine frame
01512        implicit none
01513        include 'G2dAG2.fd'
01514
01515        call movabs (cxysmax(1),cxysmin(2))
01516        call drwabs (cxysmax(1),cxysmax(2))
01517        call drwabs (cxysmin(1),cxysmax(2))
01518        call drwabs (cxysmin(1),cxysmin(2))
01519        call drwabs (cxysmax(1),cxysmin(2))
01520        return
01521        end
01522
01523
01524
01525        subroutine dsplay (x,y)
01526        implicit none
01527        real x(5),y(5)
01528
01529        call setwin
01530        call cplot (x,y)
01531        call grid
01532        call label (1)
01533        call label (2)
01534        return
01535        end
01536
01537
01538
01539        subroutine cplot (x,y)
01540        implicit none
01541        real x(5),y(5)
01542        logical symbol
01543        integer i,i1, keyx, keyy, lines, linsav, icount, imax
01544        real xpoint(1), ypoint(1)
01545        real DATGET
01546        include 'G2dAG2.fd'
01547
01548        call keyset (x,keyx)
01549        call keyset (y,keyy)
01550        if (keyx .eq. 1) then ! standard long
```

```
01551        imax= x(1)
01552       else if ((keyx .ge. 2) .and. (keyx .le. 4)) then ! short
01553        imax= x(2)
01554       else ! nonstandard
01555        imax= cnpts
01556       end if
01557       if (keyy .eq. 1) then ! standard long
01558        if (imax .lt. y(1)) imax= y(1)
01559       else if ((keyx .ge. 2) .and. (keyx .le. 4)) then ! short
01560        if (imax .lt. y(2)) imax= y(2)
01561       else ! nonstandard
01562        if (imax .lt. cnpts) imax= cnpts
01563       end if
01564
01565       symbol= (csymbl .ne. 0) .and.(cline .ne.-2) .and.(cline .ne.-3)
01566
01567       i= 1 ! Suche Startpunkt
01568 100   continue ! repeat
01569        if (i .gt. imax) return ! kein Punkt zu zeichnen
01570        xpoint(1)= datget(x,i,keyx)
01571        ypoint(1)= datget(y,i,keyy)
01572       if ((xpoint(1) .ge. cinfin) .or. (ypoint(1) .ge. cinfin)) then ! while
01573        i= i+cstepl
01574        goto 100
01575       end if
01576
01577       call movea (xpoint(1),ypoint(1))
01578       if (cline .eq. -4) call pointa (xpoint(1),ypoint(1))
01579       if (cline .lt. -10) call uline (xpoint(1),ypoint(1),1)
01580       if (cline .eq.-2 .or. cline .eq.-3) then
01581        call bar (xpoint(1),ypoint(1),cline)
01582       end if
01583       if (symbol) call bsyms (xpoint(1),ypoint(1),csymbl)
01584
01585       if (cline .eq. -1) then
01586        lines= 2
01587       else if ((cline .eq. -2) .or. (cline .eq. -3)) then
01588        lines= 3
01589       else if (cline .eq. -4) then
01590        lines=4
01591       else if (cline .lt. -10) then
01592        lines=5
01593       else
01594        lines=1 ! bei cline = 0: dash ergibt durchgezogene Linie
01595       end if
01596
01597       i1= i+cstepl
01598       if (i1 .ge. imax) return
01599       icount= csteps
01600       linsav= lines
01601
01602       do 900 i=i1,imax,cstepl
01603        xpoint(1)= datget(x,i,keyx)
01604        ypoint(1)= datget(y,i,keyy)
01605        if ((xpoint(1) .ge. cinfin) .or. (ypoint(1) .ge. cinfin)) then
01606         if (i.gt.imax-cstepl) return ! Der letzte Punkt ist ungueltig -> done
01607         if ((cline .ne. -2) .and. (cline .ne. 3)) lines= 2
01608        else
01609         if (lines .eq. 1 ) then
01610          call dasha (xpoint(1),ypoint(1), cline) ! dashed or solid
01611         else if (lines .eq. 2 ) then
01612          call movea (xpoint(1),ypoint(1))
01613          lines=linsav ! restore after missing data
01614         else if (lines .eq. 3 ) then
01615          call bar (xpoint(1),ypoint(1),0)
01616         else if (lines .eq. 4 ) then
01617          call pointa (xpoint(1),ypoint(1))
01618         else
01619          call uline (xpoint(1),ypoint(1),i)
01620         end if
01621         if (symbol) then
01622          icount=icount-1
01623          if(icount .le. 0) then
01624           icount= csteps
01625           call bsyms (xpoint(1),ypoint(1),csymbl)
01626          end if
01627         end if
01628        end if
01629 900   continue
01630       return
01631       end
01632
01633
01634
01635       subroutine keyset (array,key)
01636       implicit none
01637       integer key
```

```
01638       integer npts
01639       real array(1)
01640       include 'G2dAG2.fd'
01641
01642       if (cnpts .ne. 0) then       ! nonstandard array
01643        key= 5
01644       else
01645        npts= nint(array(1))
01646        if (npts .ge. 0) then       ! standard long
01647         key= 1
01648        else if (npts .eq. -1) then ! short
01649         key= 2
01650        else if (npts .eq. -2) then ! short calendar
01651         key= 3
01652        else                        ! short user
01653         key= 4
01654        end if
01655       end if
01656       return
01657       end
01658
01659
01660
01661       real function datget (arr,i,key)
01662       implicit none
01663       integer i, key
01664       real calpnt, upoint
01665       real arr(5) ! Dimension 5 sonst GNU-Compilerwarnung bei dat= ...arr(5)...
01666       real dat, olddat
01667       save olddat
01668
01669       if (key.eq.1) then ! standard long
01670        dat= arr(i+1)
01671       else if (key.eq.2) then ! standard short
01672        dat= arr(3) + arr(4)*real(i-1)
01673       else if (key.eq.3) then ! short calendar
01674        dat= calpnt(arr,i)
01675       else if (key.eq.4) then ! user
01676        dat= upoint(arr,i,olddat)
01677       else if (key.eq.5) then ! non standard
01678        dat= arr(i)
01679       endif
01680       olddat= dat
01681       datget= dat
01682       return
01683       end
01684
01685
01686
01687 C  Balkendiagramme
01688
01689       subroutine bar (x,y,line)
01690       implicit none
01691       real x, y
01692       integer line
01693       integer key, ix,iy, ixl,iyl,ixh,iyh
01694       real xfac, yfac
01695       logical VerticalBar
01696       integer isymb, ihalf, lspace, minx,maxx,miny,maxy, ibegx,ibegy
01697       SAVE isymb, ihalf, lspace, minx,maxx,miny,maxy, ibegx,ibegy
01698       SAVE verticalbar
01699       include 'G2dAG2.fd'
01700
01701       if (line .ne. 0) then ! Erster Aufruf -> Parameterbestimmung
01702        verticalbar= line .ne. -3
01703        isymb= csymbl
01704        ihalf= .5 * csizel
01705        lspace= csizes
01706        if (lspace .le. 1) lspace=20 ! Default: 20 Pixel Schraffur
01707        if (ihalf .lt. 2) ihalf=20 ! Default: 40 Pixel Balkenbreite
01708        if (cxysmin(1) .le. cxysmax(1)) then
01709         minx= cxysmin(1)
01710         maxx= cxysmax(1)
01711        else
01712         minx= cxysmax(1)
01713         maxx= cxysmin(1)
01714        end if
01715        if (cxysmin(2) .le. cxysmax(2)) then
01716         miny= cxysmin(2)
01717         maxy= cxysmax(2)
01718        else
01719         miny= cxysmax(2)
01720         maxy= cxysmin(2)
01721        end if
01722
01723        call seetrn(xfac,yfac, key)
01724        if (key .eq. 2) then ! logarithmische Werte
```

```
01725         ibegx= cxysmin(1)
01726         ibegy= cxysmin(2)
01727        else
01728         call wincot (0.,0.,ibegx,ibegy)
01729        end if
01730       end if
01731
01732       call wincot (x,y,ix,iy)
01733       if (verticalbar) then ! vertikale Balken
01734        iyl= min0(ibegy,iy)
01735        iyh= max0(ibegy,iy)
01736        ixl= min0(ix-ihalf,ix+ihalf)
01737        ixh= max0(ix-ihalf,ix+ihalf)
01738       else ! horizontale Balken
01739        iyl= min0(iy-ihalf,iy+ihalf)
01740        iyh= max0(iy-ihalf,iy+ihalf)
01741        ixl= min0(ibegx,ix)
01742        ixh= max0(ibegx,ix)
01743       end if
01744       ixl=max0(ixl,minx)
01745       ixh=min0(ixh,maxx)
01746       iyl=max0(iyl,miny)
01747       iyh=min0(iyh,maxy)
01748       if ((ixh-ixl .ge. 2) .and. (iyh-iyl .ge. 2)) then ! mindestens 2x2 Pxl
01749        call filbox(ixl,iyl,ixh,iyh,isymb,lspace)
01750       end if
01751       return
01752       end
01753
01754
01755
01756       subroutine filbox (minx,miny,maxx,maxy,ishade,lspace)
01757       implicit none
01758       integer minx,miny,maxx,maxy,ishade,lspace
01759       integer iminx,imaxx,iminy,imaxy
01760       integer i, ishift, idely, iymax
01761       real ximin, ximax
01762       real savcom (60)
01763
01764       iminx= min0(minx,maxx)        ! zeichne Rechteck
01765       iminy= min0(miny,maxy)
01766       imaxx= max0(minx,maxx)
01767       imaxy= max0(miny,maxy)
01768
01769       call movabs (iminx,iminy)
01770       call drwabs (imaxx,iminy)
01771       call drwabs (imaxx,imaxy)
01772       call drwabs (iminx,imaxy)
01773       call drwabs (iminx,iminy)
01774
01775       if ((ishade .le.0) .or. (ishade .gt. 15)) return ! ohne Schraffur
01776
01777       ishift= ishade / 2
01778       if ((ishade-ishift*2) .ne. 0) then ! Bit0: horizontale Schraffur
01779        i= iminy
01780 100    continue ! repeat...
01781         i= i+lspace
01782        if (i .lt. imaxy) then
01783         call movabs (iminx,i)
01784         call drwabs (imaxx,i)
01785         goto 100 ! ... until
01786        end if
01787       end if ! horizontale Schraffur gezeichnet
01788
01789       if (mod(ishift,2) .ne. 0) then ! Bit1: vertikale Schraffur
01790        i= iminx
01791 110    continue ! repeat
01792         i= i+lspace
01793        if(i .lt. imaxx) then
01794         call movabs (i,iminy)
01795         call drwabs (i,imaxy)
01796         goto 110
01797        end if ! vertikale Schraffur gezeichnet
01798       end if
01799
01800       if (ishade .ge. 4) then ! diagonale Schraffuren
01801        ximin= real(iminx)
01802        ximax= real(imaxx)
01803        call svstat (savcom) ! verwende TCS-Clipping
01804        call lintrn
01805        call dwindo (ximin,ximax,real(iminy),real(imaxy))
01806        call twindo (iminx,imaxx,iminy,imaxy)
01807
01808        if (ishade .ge. 8) then ! Bit3: diagonal fallend
01809         idely= iminx-imaxx
01810         iymax= imaxy+imaxx-iminx
01811         i= iminy+lspace
```

```
01812 120     continue ! repeat ...
01813          call movea (ximin,real(i))
01814          call drawa (ximax,real(i+idely))
01815          i= i+lspace
01816         if (i .lt. iymax) goto 120 ! ... until
01817         ishift= ishade -8
01818        else
01819         ishift= ishade
01820        end if
01821
01822        if (ishift .ge. 4) then ! Bit2: diagonal steigend
01823         idely= imaxx-iminx
01824         iymax= real(imaxy)
01825         i= iminy - idely + lspace
01826 130     continue ! repeat...
01827          call movea (ximin,real(i))
01828          call drawa (ximax,real(i+idely))
01829          i= i+lspace
01830         if (i .lt. iymax) goto 130 ! ...until
01831        end if
01832        call restat (savcom)
01833       end if ! Diagonalen
01834       return
01835       end
01836
01837
01838
01839 C  Zeichnen von Symbolen
01840
01841       subroutine bsyms (x,y,isym)
01842       implicit none
01843       real x,y
01844       integer isym
01845       include 'G2dAG2.fd'
01846
01847       if (isym .ge. 0) then
01848        call symout (isym, csizes)
01849       else
01850        call users (x,y,isym)
01851       end if
01852       call movea (x,y)
01853       return
01854       end
01855
01856
01857
01858       subroutine symout (isym,fac)
01859       implicit none
01860       integer isym
01861       real fac
01862       integer ix,iy, ihorz,ivert
01863
01864       call seeloc (ix,iy)
01865       if (isym .gt. 127) then
01866        call softek (isym)
01867       else if (isym .ge. 33) then
01868        call csize (ihorz,ivert)
01869        ihorz= int( real(ihorz)*.3572)
01870        ivert= int( real(ivert)*.3182)
01871        call movrel (-ihorz,-ivert)
01872        call alfmod
01873        call toutpt (isym)
01874       else if (isym .le. 11) then
01875        call teksym (isym,fac)
01876       end if
01877       call movabs (ix,iy)
01878       return
01879       end
01880
01881
01882
01883       subroutine teksym (isym,amult)
01884       implicit none
01885       integer isym
01886       real amult
01887       integer ihalf, ifull
01888
01889       ihalf= nint(8.* amult)
01890       ifull=ihalf * 2
01891       if (isym .eq. 1) then ! Kreis
01892        call teksym1 (0, 360, 30, 8.*amult)
01893       else if (isym .eq. 2) then ! X
01894        call movrel (ihalf,ihalf)
01895        call drwrel (-ifull,-ifull)
01896        call movrel (0,ifull)
01897        call drwrel (ifull,-ifull)
01898       else if (isym .eq. 3) then ! Dreieck
```

```
01899         call teksym1 (90, 450, 120, 8.*amult)
01900       else if (isym .eq. 4) then ! Quadrat
01901         call teksym1 (45, 405, 90, 8.*amult)
01902       else if (isym .eq. 5) then ! Stern
01903         call teksym1 (90, 810, 144, 8.*amult)
01904       else if (isym .eq. 6) then ! Raute
01905         call teksym1 (90, 450, 90, 8.*amult)
01906       else if (isym .eq. 7) then ! vertikaler Balken
01907         call teksym1 (90, 270, 180, 8.*amult)
01908       else if (isym .eq. 8) then ! Kreuz
01909         call movrel (0,ihalf)
01910         call drwrel (0,-ifull)
01911         call movrel (-ihalf,ihalf)
01912         call drwrel (ifull,0)
01913       else if (isym .eq. 9) then ! Pfeil nach oben
01914         call drwrel (-2,-6)
01915         call drwrel (4,0)
01916         call drwrel (-2,6)
01917         call drwrel (0,-ifull)
01918       else if (isym .eq. 10) then ! Pfeil nach unten
01919         call drwrel (-2,6)
01920         call drwrel (4,0)
01921         call drwrel (-2,-6)
01922         call drwrel (0,ifull)
01923       else if (isym .eq. 11) then ! Durchstreichung
01924         call teksym1 (270, 630, 120, 8.*amult)
01925       end if
01926       return
01927       end
01928
01929
01930
01931       subroutine teksym1 (istart, iend, incr, siz)
01932       implicit none
01933       integer istart, iend, incr
01934       real siz
01935       integer i, mx,my,mix,miy
01936       real b
01937
01938       b= real(istart)*.01745
01939       mx= nint(siz*cos(b))
01940       my= nint(siz*sin(b))
01941       call movrel (mx,my)
01942       do 100 i= istart+incr, iend, incr
01943         b= real(i)*.01745
01944         mix= nint(siz*cos(b))
01945         miy= nint(siz*sin(b))
01946         call drwrel (mix-mx,miy-my)
01947         mx= mix
01948         my= miy
01949 100   continue
01950       return
01951       end
01952
01953
01954
01955 C Netz und Ticmarks
01956
01957       subroutine grid
01958       implicit none
01959       integer i, mlim
01960       real xyext,xyextm, tintvl,tmntvl
01961       include 'G2dAG2.fd'
01962
01963       if (cxyfrm(2) .ne. 0) then ! Zeichnen der y-Achse
01964         i= min0(cxysmin(1),cxysmax(1)) + cxyloc(2)
01965         call movabs (i, cxysmax(2))
01966         call drwabs (i, cxysmin(2))
01967         if (cxybeg(2) .ne. cxyend(2)) then ! Zeichnen y-Ticmarks
01968           i= cxylab(2) ! Labeltyp
01969           if (i .eq. 1) i= cxytype(2) ! =1: Typ entsprechend Daten
01970           if (i .ne. 6) then ! =6 (Monate): Tics durch GLINE zeichnen lassen
01971             if(cxytics(2) .ne. 0) then
01972               tintvl= real(cxysmax(2)-cxysmin(2)) / real( cxytics(2))
01973             end if
01974             if (cxymtcs(2) .gt. 0) tmntvl= tintvl / real(cxymtcs(2))
01975             call movabs(cxybeg(2),cxysmin(2))
01976             call drwabs(cxyend(2),cxysmin(2))
01977             xyext= real(cxysmin(2))
01978             do 100, i=1,cxytics(2)
01979               if (cxymbeg(2) .ne. cxymend(2)) then ! Zeichnen Minor Ticmarks
01980                 mlim= cxymtcs(2)-1
01981                 xyextm= xyext
01982 110             continue ! repeat...
01983                 if (mlim.gt.0) then ! ...until mlim <= 0
01984                   xyextm= xyextm+tmntvl
01985                   call movabs (cxymbeg(2), nint(xyextm))
```

```
01986              call drwabs (cxymend(2), nint(xyextm))
01987              mlim=mlim-1
01988              goto 110
01989             else if (mlim. lt. 0) then
01990              call logtix (2,xyext,tintvl,cxymbeg(2),cxymend(2))
01991             end if
01992            end if
01993            xyext= xyext+tintvl
01994            call movabs (cxybeg(2), nint(xyext))
01995            call drwabs (cxyend(2), nint(xyext))
01996 100       continue
01997          end if ! Labtyp=6: Monate
01998         end if ! Ende Zeichnen Ticmarks
01999        end if ! Ende Zeichnen der Achse
02000
02001        if (cxyfrm(1) .ne. 0) then ! Zeichnen der x-Achse
02002         i= min0(cxysmin(2),cxysmax(2)) + cxyloc(1)
02003         call movabs (cxysmin(1), i)
02004         call drwabs (cxysmax(1), i)
02005         if (cxybeg(1) .ne. cxyend(1)) then ! Zeichnen y-Ticmarks
02006          i= cxylab(1) ! Labeltyp
02007          if (i .eq. 1) i= cxytype(1) ! =1: Typ entsprechend Daten
02008          if (i .ne. 6) then ! =6 (Monate): Tics durch GLINE zeichnen lassen
02009           if(cxytics(1) .ne. 0) then
02010            tintvl= real(cxysmax(1)-cxysmin(1)) / real( cxytics(1))
02011           end if
02012           if (cxymtcs(1) .gt. 0) tmntvl= tintvl / real(cxymtcs(1))
02013           call movabs(cxysmin(1), cxybeg(1))
02014           call drwabs(cxysmin(1), cxyend(1))
02015           xyext= real(cxysmin(1))
02016           do 120, i=1,cxytics(1)
02017            if (cxymbeg(1) .ne. cxymend(1)) then ! Zeichnen Minor Ticmarks
02018             mlim= cxymtcs(1)-1
02019             xyextm= xyext
02020 130         continue ! repeat...
02021             if (mlim.gt.0) then ! ...until mlim <= 0
02022              xyextm= xyextm+tmntvl
02023              call movabs (nint(xyextm), cxymbeg(1))
02024              call drwabs (nint(xyextm), cxymend(1))
02025              mlim=mlim-1
02026              goto 130
02027             else if (mlim. lt. 0) then
02028              call logtix (1,xyext,tintvl,cxymbeg(1),cxymend(1))
02029             end if
02030            end if
02031            xyext= xyext+tintvl
02032            call movabs (nint(xyext), cxybeg(1))
02033            call drwabs (nint(xyext), cxyend(1))
02034 120       continue
02035          end if ! Labtyp=6: Monate
02036         end if ! Ende Zeichnen Ticmarks
02037        end if ! Ende Zeichnen der Achse
02038        return
02039        end
02040
02041
02042
02043        subroutine logtix (nbase,start,tintvl,mstart,mend)
02044        implicit none
02045        integer nbase,mstart,mend
02046        real start, tintvl
02047        integer i, logtic, ihorz, ivert, idx,idy
02048        character*1 loglab
02049        include 'G2dAG2.fd'
02050
02051        call csize (ihorz,ivert)
02052        do 100 i=2,9
02053         write (unit=loglab, fmt='(i1)') i ! Unicodefaehig durch Compilerfeature
02054         logtic= nint(log10(real(i))*tintvl + start)
02055         if (nbase .eq. 1) then ! x-Achse
02056          idx=  -ihorz/3
02057          if  (mstart .gt. mend) then
02058           idy= ivert
02059          else
02060           idy= -ivert
02061          end if
02062          call movabs (logtic,mend)
02063          call drwabs (logtic,mstart)
02064          if (cxymtcs(nbase) .eq. -2) then ! numerisches Ticmarklabel
02065           call movrel (idx,idy)
02066           call toutstc (loglab)
02067          end if
02068
02069         else if (nbase .eq. 2) then ! y-Achse
02070          if  (mstart .gt. mend) then
02071           idx= ihorz
02072          else
```

```
02073           idx= -ihorz
02074          end if
02075          idy=  -ivert / 3
02076          call movabs (mend,logtic)
02077          call drwabs (mstart,logtic)
02078         end if
02079
02080         if (cxymtcs(nbase) .eq. -2) then ! numerisches Ticmarklabel
02081          call movrel (idx,idy)
02082          call toutstc (loglab)
02083         end if
02084 100    continue
02085         return
02086         end
02087
02088
02089
02090         subroutine tset (nbase)
02091         implicit none
02092         integer nbase
02093         integer IOTHER
02094         integer otherbase, near, nfar, newloc, nlen
02095         include 'G2dAG2.fd'
02096
02097         otherbase= iother(nbase)
02098         near= min0(cxysmin(otherbase), cxysmax(otherbase))
02099         nfar= max0(cxysmin(otherbase), cxysmax(otherbase))
02100         newloc= near + cxyloc(nbase)
02101         if (cxyfrm(nbase) .ne. 1) then
02102          if (newloc .lt. ((nfar+near)/2)) then
02103           nlen= cxylen(nbase)
02104          else
02105           nlen= -cxylen(nbase)
02106           nfar= near
02107          end if
02108          call tset2 (newloc,nfar,nlen,cxyfrm(nbase),
02109       1                               cxybeg(nbase),cxyend(nbase))
02110         else
02111          cxybeg(nbase)= 0
02112          cxyend(nbase)= 0
02113         end if
02114
02115         if ((cxymfrm(nbase) .ne. 1) .and. (cxymtcs(nbase) .ne. 0)) then
02116          nlen= nlen / 2
02117          call tset2 (newloc,nfar,nlen,cxymfrm(nbase),
02118       1                               cxymbeg(nbase),cxymend(nbase))
02119         else
02120          cxymbeg(nbase)= 0
02121          cxymend(nbase)= 0
02122         end if
02123         return
02124         end
02125
02126
02127
02128         subroutine tset2 (newloc,nfar,nlen,nfrm,kstart,kend)
02129         implicit none
02130         integer newloc,nfar,nlen,nfrm,kstart,kend
02131
02132         if (nfrm .eq. 3 .or. nfrm .eq. 6) then
02133          kstart= newloc
02134         else
02135          kstart=newloc-nlen
02136         end if
02137         if (kstart .lt. 0) then
02138          kstart= 0
02139         else if (kend .gt. 1023) then
02140          kstart= 1023
02141         end if
02142
02143         if (nfrm .eq. 2) then
02144          kend= newloc
02145         else if (nfrm .eq. 5 .or. nfrm .eq. 6) then
02146          kend = nfar
02147         else
02148          kend=newloc+nlen
02149         end if
02150         if (kend .lt. 0) then
02151          kend= 0
02152         else if (kend .gt. 1023) then
02153          kend= 1023
02154         end if
02155         return
02156         end
02157
02158
02159
```

```
02160       subroutine monpos (nbase,iy1,dpos, spos)
02161       implicit none
02162       integer nbase, iy1, spos
02163       integer iy,idays,iubgc1
02164       real dpos
02165
02166       call ymdyd (iy,idays,iy1, nint(dpos)+1,1)
02167       call iubgc (iy,idays, iubgc1)
02168       call gline (nbase, real(iubgc1), spos)
02169       return
02170       end
02171
02172
02173
02174       subroutine gline (nbase,datapt,spos)
02175       implicit none
02176       integer nbase, spos
02177       real datapt
02178       integer i
02179       include 'G2dAG2.fd'
02180
02181       if (nbase .eq. 1) then ! x-Achsengrid
02182        call wincot (datapt,1., spos,i)
02183        if (iabs(cxyend(1)-cxybeg(1)) .ge. 2) then
02184         call movabs(spos,cxybeg(1))
02185         call drwabs(spos,cxyend(1))
02186        end if
02187       else ! y-Achsengrid
02188        call wincot (1.,datapt, i,spos)
02189        if (iabs(cxyend(2)-cxybeg(2)) .ge. 2) then
02190         call movabs(cxybeg(2),spos)
02191         call drwabs(cxyend(2),spos)
02192        end if
02193       end if
02194       return
02195       end
02196
02197
02198
02199 C Label
02200
02201       subroutine label (nbase)
02202       implicit none
02203       integer nbase
02204       logical even, stag
02205       integer i, icv, igap, iquadrant, labtyp, ilim, iposflag, ioff, iy
02206       integer ispos,isintv, iyear
02207       integer level1, level2
02208       real fnum, fac, dpos, dintv
02209       character *(255) labstr
02210       integer IOTHER
02211       include 'G2dAG2.fd'
02212
02213       labtyp= cxylab(nbase)
02214       if(labtyp .eq. 1) labtyp= cxytype(nbase) ! LabTyp=1: = dataType
02215       if (labtyp .eq. 0) return ! LabTyp=0: keine Label
02216
02217       fac= 10.**(-cxyepon(nbase))
02218
02219       dintv= real(cxystep(nbase)) / real(cxytics(nbase)) ! Zwischenergebnis
02220       isintv= nint(real(cxysmax(nbase)-cxysmin(nbase)) * dintv)
02221       dintv= (cxyamax(nbase)-cxyamin(nbase)) * dintv
02222
02223       call csize (i,icv) ! nur icv = vertikale Hoehe benoetigt
02224       igap= icv / 3
02225       if (nbase.eq.1) igap= 2*igap
02226       if (iabs(cxysmax(iother(nbase))-cxysmin(iother(nbase)))
02227      1                                    .gt. 2* cxyloc(nbase)) then
02228        iquadrant= -1 ! untere Haelfte
02229       else
02230        iquadrant= +1
02231       end if
02232       level1= min0(cxysmax(iother(nbase)),cxysmin(iother(nbase)))
02233      1                             - (igap-icv/3 ) + cxyloc(nbase)
02234      2                        + isign(igap+cxylen(nbase),iquadrant)
02235       level2= level1 + isign(icv+igap, iquadrant)
02236
02237       if (nbase .eq. 1) then ! Label links/zentriert/rechts?
02238        iposflag= 0 ! x-Achse: zentriert
02239       else
02240        iposflag= -iquadrant
02241       end if
02242
02243       stag= cxystag(nbase) .eq. 2 ! Verwendung in Schleife
02244       even= .false.
02245       ilim= cxytics(nbase) + 1
02246
```

```
02247       dpos= cxyamin(nbase)
02248       ispos= cxysmin(nbase)
02249
02250       if (iabs(labtyp) .ge. 3 .and. iabs(labtyp) .le. 8) then ! Kalenderdaten
02251        call oubgc (iyear,i,ifix(cxydmin(nbase))) ! i: Tag nicht benoetigt
02252        dpos= dpos+dintv ! 1. Tic ungelabelt
02253        ispos= ispos+isintv
02254        ilim=ilim-1
02255        if (nbase .eq. 1) iposflag= 1 ! x-Achse Kalender: rechtsbuendig
02256       end if
02257
02258       do 100 i=1,ilim, cxystep(nbase)
02259        if ((labtyp .le. 2) .or. (labtyp .ge. 8)) then
02260         fnum= dpos
02261        else ! Kalendertyp ohne Jahr
02262         if (labtyp.eq.3) then ! Tage
02263          fnum= 7.
02264         else if (labtyp.eq.4) then ! Wochen
02265          fnum= 52.
02266         else if (labtyp.eq.5) then ! Periods
02267          fnum= 13.
02268         else if (labtyp.eq.6) then ! Monate
02269          fnum= 12.
02270         else if (labtyp.eq.7) then ! Quartal
02271          fnum= 4.
02272         end if ! Jahr wird wie linear behandelt
02273         fnum= amod(dpos-1.,fnum)+1.
02274        end if
02275
02276        if (labtyp .lt. 0) then
02277         call usesetc (fnum, cxywdth(nbase), nbase, labstr)
02278        else if ((labtyp .eq. 6) .OR. (labtyp .eq. 3)) then
02279         call alfsetc (fnum, labtyp, labstr)
02280         if (cxywdth(nbase) .lt. len(labstr)) then
02281          labstr(cxywdth(nbase)+1:cxywdth(nbase)+1)= char(0)
02282         end if
02283         if (labtyp .eq. 6) call monpos (nbase,iyear,dpos,ispos)
02284        else
02285         call numsetc (fnum*fac,cxywdth(nbase),nbase,labstr)
02286        end if
02287        call justerc (labstr, iposflag, ioff)
02288
02289        if (nbase .eq. 1) then ! x-Achse
02290         iy= level1
02291         if(stag .and. even) iy= level2
02292         even= .not. even
02293         call notatec (ispos+ioff,iy, labstr)
02294        else ! y-Achse
02295         call notatec (level1+ioff,ispos-igap,labstr)
02296        end if
02297        dpos= dpos+dintv
02298        ispos= ispos+isintv
02299 100   continue ! end do
02300
02301       if ((labtyp .ne. 2) .and. (cxyetyp(2) .ge. 0)) then ! nicht logarithm.
02302        if (nbase .eq. 1) then ! x-Achse
02303         if (stag) level2= level2 + isign(icv+igap,iquadrant)
02304         i=(cxysmin(nbase)+cxysmax(nbase))/2.
02305         iy=level2
02306        else
02307         i= level1
02308         iy= max0(cxysmin(nbase),cxysmax(nbase)) +icv+igap
02309        end if
02310        call remlab (nbase,cxyloc(nbase),labtyp,i,iy)
02311       end if
02312       return
02313       end
02314
02315
02316
02317       subroutine numsetc (fnum,iwidth,nbase, outstr)
02318       implicit none
02319       real fnum
02320       integer iwidth,nbase
02321       character outstr *(*)
02322       integer iexp
02323       include 'G2dAG2.fd'
02324
02325       if (cxytype(nbase) .eq. 2) then
02326        if (fnum .gt. 0.) then
02327         iexp= fnum + .00005
02328        else if (fnum .lt. 0.) then
02329         iexp= fnum - .00005
02330        else
02331         iexp= 0
02332        end if
02333        call expoutc (nbase,iexp, outstr)
```

```
02334       else if ((cxytype(nbase).eq.1) .and. (cxydec(nbase).gt.0)) then
02335        call fformc (fnum,iwidth, cxydec(nbase), outstr)
02336       else
02337        call iformc (fnum,iwidth, outstr)
02338       end if
02339       return
02340       end
02341
02342
02343
02344       subroutine iformc (fnum,iwidth, outstr)
02345       implicit none
02346       real fnum
02347       integer iwidth
02348       character outstr *(*)
02349       character fmtstr *(11)
02350
02351       if (iwidth .le. 0) then ! iwidth=0: ohne Label
02352        outstr= char(0)
02353        return
02354       end if
02355
02356       if (iwidth .gt. 99) goto 200 ! Errorhandler
02357       write (unit=fmtstr,fmt=100, err=200) iwidth
02358       if (len(outstr) .gt. iwidth) then
02359        write (unit= outstr, fmt=fmtstr, err=200) nint(fnum),0 ! 0: End of String
02360       else
02361        write (unit= outstr, fmt=fmtstr, err=200) nint(fnum) ! evtl. ohne EoS?
02362       end if
02363
02364       return
02365
02366 200   continue ! Error Handler
02367       outstr= '???'
02368       if (iwidth.lt.len(outstr)) outstr(iwidth+1:iwidth+1)= char(0)
02369       return
02370
02371 100   format ('(SS,I' ,i2.2, ',A1)')
02372       end
02373
02374
02375
02376       subroutine fformc (fnum,iwidth,idec, outstr)
02377       implicit none
02378       real fnum
02379       integer iwidth,idec
02380       character outstr *(*)
02381       integer nDgtM
02382       real fa
02383       include 'G2dAG2.fd'
02384
02385       ndgtm= iwidth-idec
02386       if (fnum .ge. 0.) then
02387        ndgtm= ndgtm -1  ! Ziffern Mantisse
02388       else
02389        ndgtm= ndgtm-2   ! 1 Ziffer Vorzeichen
02390       end if
02391       fa= abs(fnum) ! Skalierung mindestens 2 signfikante Stellen: .1*abs(fnum)
02392
02393       if ( ((fa .lt. 10./cinfin) .or. (fa .gt. .1**idec))
02394      1                          .and.(fa .lt. 10.**ndgtm)) then
02395        call fonlyc (fnum,iwidth,idec, outstr)
02396       else
02397        call eformc (fnum,iwidth,idec, outstr)
02398       end if
02399       return
02400       end
02401
02402
02403
02404       subroutine fonlyc (fnum,iwidth,idec, outstr)
02405       implicit none
02406       real fnum
02407       integer iwidth,idec
02408       character outstr *(*)
02409       character fmtstr *(14)
02410
02411       if (iwidth .le. 0) then ! iwidth=0: ohne Label
02412        outstr= char(0)
02413        return
02414       end if
02415
02416       if ((idec .gt. iwidth-1) .or. (iwidth .gt. 99)) goto 200 ! Errorhandler
02417       write (unit=fmtstr,fmt=100, err=200) iwidth,idec
02418       if (len(outstr) .gt. iwidth) then
02419        write (unit= outstr, fmt=fmtstr, err=200) fnum,0 ! 0: End of String
02420       else
```

```
02421        write (unit= outstr, fmt=fmtstr, err=200) fnum ! evtl. ohne EoS?
02422       end if
02423       return
02424
02425 200   continue ! Error Handler
02426       outstr= '???'
02427       if (iwidth.lt.len(outstr)) outstr(iwidth+1:iwidth+1)= char(0)
02428       return
02429
02430 100   format ('(SS,F' ,i2.2,'.', i2.2,',A1)')
02431       end
02432
02433
02434
02435       subroutine eformc (fnum,iwidth,idec, outstr)
02436       implicit none
02437       real fnum
02438       integer iwidth,idec
02439       character outstr *(*)
02440       integer iexpon
02441       character fmtstr *(18)
02442
02443       if (iwidth .le. 0) then ! iwidth=0: ohne Label
02444        outstr= char(0)
02445        return
02446       end if
02447
02448       call esplit (fnum,iwidth,idec,iexpon)
02449       if ((idec .gt. iwidth-7) .or. (iwidth .gt. 99)) goto 200 ! Errorhandler
02450       write (unit=fmtstr,fmt=100, err=200) iwidth-idec-6,iwidth,iwidth-7
02451       if (len(outstr) .gt. iwidth) then
02452        write (unit= outstr, fmt=fmtstr, err=200) fnum,0 ! 0: End of String
02453       else
02454        write (unit= outstr, fmt=fmtstr, err=200) fnum ! evtl. ohne EoS?
02455       end if
02456       return
02457
02458 200   continue ! Error Handler
02459       outstr= '???'
02460       if (iwidth.lt.len(outstr)) outstr(iwidth+1:iwidth+1)= char(0)
02461       return
02462
02463 100   format ('(SS,' ,i2.2,'P,E' ,i2.2,'.', i2.2,',A1)')
02464       end
02465
02466
02467
02468       subroutine esplit (fnum,iwidth,idec,iexpon)
02469       implicit none
02470       real fnum
02471       integer iwidth,idec,iexpon
02472       real fabs
02473       include 'G2dAG2.fd'
02474
02475       fabs= abs(fnum)
02476       if (fabs .ge. 1.) then
02477        iexpon= ifix( alog10(fabs)+1.000005) - iwidth+idec+6 ! 6: Vorz.-Pkt-Exp(4)
02478       else if (fabs .ge. 10./cinfin) then
02479        iexpon= alog10(fabs)
02480       else
02481        iexpon= -alog10(cinfin)
02482       end if
02483       return
02484       end
02485
02486
02487
02488       subroutine expoutc (nbase,iexp, outstr)
02489       implicit none
02490       integer nbase,iexp, i, iL, nexp
02491       character outstr *(*), tmpstr *(4)
02492       include 'G2dAG2.fd'
02493
02494       il= len(outstr)
02495       nexp= abs(iexp)
02496
02497       if ( (cxyetyp(nbase).eq.2) .and. (il.gt. 5)
02498      1             .and. (mod(nexp,3) .eq. 0)
02499      2             .and. (iexp.ge.1)  .and. (iexp.le.9) ) then ! MMMs
02500         do 20 i=3,nexp,3
02501          outstr(i/3:i/3)= 'M'
02502 20      continue
02503         outstr(nexp/3+1:)= char(39) // 'S' // char(0)
02504
02505       else if ( (cxyetyp(nbase).eq.3) .and. (il.gt.17)
02506      1                  .and. (iexp.ge.1) .and. (iexp.le.6)) then ! TENS
02507         if (nexp .eq. 1) then
```

```
02508         outstr= 'TENS' // char(0)
02509        else if (nexp .eq. 2) then
02510         outstr= 'HUNDREDS' // char(0)
02511        else if (nexp .eq. 3) then
02512         outstr= 'THOUSANDS' // char(0)
02513        else if (nexp .eq. 4) then
02514         outstr= 'TEN THOUSANDS' // char(0)
02515        else if (nexp .eq. 5) then
02516         outstr= 'HUNDRED THOUSANDS' // char(0)
02517        else if (nexp .eq. 6) then
02518         outstr= 'MILLIONS' // char(0)
02519        end if
02520       else if( (cxyetyp(nbase).eq.4) ! 10000
02521      1    .and. (iexp.ge.1)  .and. (iexp.le.9)
02522      2                   .and. (il.ge.nexp+2)) then
02523        do 30 i=2,nexp+1
02524         outstr(i:i)= '0'
02525   30    continue
02526        outstr(1:1)= '1'
02527        outstr(nexp+2:)= char(0)
02528
02529       else if (il .gt. 7) then ! Default: Superscript EXP
02530        if (iexp .ne. 1) then
02531         if (nexp .lt. 10) then
02532          i=1
02533         else
02534          i=2
02535         end if
02536         if (iexp .lt. 0) then
02537          i= i+1
02538         end if
02539         call iformc (real(iexp), i, tmpstr)
02540        else
02541         tmpstr= char(0) ! 10 wird ohne Exponenten 1 ausgegeben
02542        end if
02543        if (iexp .ne. 0) then
02544         if (cxytype(nbase) .ne. 2) then
02545          outstr(1:1)= 'x'
02546          i= 2
02547         else
02548          i= 1
02549         end if
02550         outstr(i:)= '10' // char(1) ! Index UP
02551         outstr(i+3:)= tmpstr ! char(0) wird bei IFORMC angehaengt
02552        else
02553         outstr(1:)= '1' // char(0) ! 1 wird nicht als 10**0 ausgegeben
02554        end if
02555       else ! outstr zu kurz
02556        outstr= '???'
02557       end if
02558
02559       return
02560       end
02561
02562
02563
02564       subroutine alfsetc (fnum, labtyp, string)
02565       implicit none
02566       integer inum, labtyp
02567       real fnum
02568       character *(*) string
02569
02570       inum= fnum + .001 ! truncate real to integer
02571       if (labtyp .eq. 3) then ! Tage
02572        if ((inum .eq. 0) .or. (inum .eq. 7)) then
02573         string= 'MONDAY' // char(0)
02574        else if (inum .eq. 1) then
02575         string= 'TUESDAY' // char(0)
02576        else if (inum .eq. 2) then
02577         string= 'WEDNESDAY' // char(0)
02578        else if (inum .eq. 3) then
02579         string= 'THURSDAY' // char(0)
02580        else if (inum .eq. 4) then
02581         string= 'FRIDAY' // char(0)
02582        else if (inum .eq. 5) then
02583         string= 'SATURDAY' // char(0)
02584        else if (inum .eq. 6) then
02585         string= 'SUNDAY' // char(0)
02586        end if
02587       else if (labtyp .eq. 6) then ! Monate
02588        if (inum .eq. 1) then
02589         string= 'JANUARY' // char(0)
02590        else if (inum .eq. 2) then
02591         string= 'FEBRUARY' // char(0)
02592        else if (inum .eq. 3) then
02593         string= 'MARCH' // char(0)
02594        else if (inum .eq. 4) then
```

```
02595         string= 'APRIL' // char(0)
02596        else if (inum .eq. 5) then
02597         string= 'MAY' // char(0)
02598        else if (inum .eq. 6) then
02599         string= 'JUNE' // char(0)
02600        else if (inum .eq. 7) then
02601         string= 'JULY' // char(0)
02602        else if (inum .eq. 8) then
02603         string= 'AUGUST' // char(0)
02604        else if (inum .eq. 9) then
02605         string= 'SEPTEMBER' // char(0)
02606        else if (inum .eq. 10) then
02607         string= 'OCTOBER' // char(0)
02608        else if (inum .eq. 11) then
02609         string= 'NOVEMBER' // char(0)
02610        else if (inum .eq. 12) then
02611         string= 'DECEMBER' // char(0)
02612        end if
02613       end if
02614       return
02615       end
02616
02617
02618
02619       subroutine notatec (ix,iy, string)
02620       implicit none
02621       integer ix, iy
02622       character *(*) string
02623       integer i, iv, is
02624       integer ISTRINGLEN
02625
02626       call csize(i,iv)        ! nur iv benoetigt
02627       call movabs(ix,iy)
02628
02629       is= 1
02630       do 100 i=1, istringlen(string)
02631        if (string(i:i) .lt. char(31) ) then
02632         if (i.gt.is) call toutstc (string(is:i-is))
02633         if (string(i:i) .eq. char(1)) call movrel (0, iv/2)  ! Hochindex
02634         if (string(i:i) .eq. char(2)) call movrel (0, -iv/2) ! Index
02635         is= i+1
02636        end if
02637 100   continue
02638       if (is .le. istringlen(string)) call toutstc (string(is:))
02639       return
02640       end
02641
02642
02643
02644       subroutine vlablc (string)
02645 C
02646 C  Sollte in das TCS verlagert werden, um vertikale Schrift zu erzeugen
02647 C
02648       implicit none
02649       character string*(*)
02650       integer i, icy, ix,iy
02651       integer ISTRINGLEN
02652
02653       if (istringlen(string) .le. 0) return
02654       call csize (i,icy)
02655       call seeloc (ix,iy)
02656       do 100 i=1,istringlen(string)
02657        iy= iy-icy
02658        if (iy .lt. 0) return
02659        call movabs (ix,iy)
02660        call toutpt (ichar(string(i:i)))
02661 100   continue
02662       return
02663       end
02664
02665
02666
02667       subroutine justerc (string, iPosFlag, iOff)
02668       implicit none
02669       integer iPosFlag, iOff
02670       character string*(*)
02671       integer i, iLen, nCtrl
02672       integer ISTRINGLEN, LINWDT
02673
02674       ilen= istringlen(string)
02675       nctrl= 0    ! Zaehlen der Ctrlcharacter
02676       do 100 i=1, ilen
02677        if (string(i:i) .lt. char(31) ) nctrl= nctrl+1
02678 100   continue
02679
02680       if (iposflag .lt. 0) then ! linksbuendig
02681        ioff= 0
```

```
02682       else ! rechtsbuendig und zentriert
02683        ioff= -linwdt((ilen-nctrl)*8-2)/8       ! rechtsbuendig
02684        if (iposflag.eq.0) ioff= ioff / 2        ! zentriert
02685       end if
02686
02687       return
02688       end
02689
02690
02691
02692       subroutine width (nbase)
02693       implicit none
02694       integer nbase
02695       integer labtyp
02696       include 'G2dAG2.fd'
02697
02698       labtyp= cxylab(nbase)
02699       if(labtyp .eq. 1) labtyp= cxytype(nbase) ! LabTyp=1: = dataType
02700
02701       if ((cxywdth(nbase).ne.0) .and. (labtyp.ne.1)) return ! Manuelle Vorgabe nichtlinear
02702
02703       if (labtyp.le.1) then ! lineare Achsen und anwenderdefinierte Label
02704        call lwidth (nbase)
02705
02706       else if (labtyp .eq. 2) then ! logarithmische Achsen
02707        if (cxyetyp(nbase) .le. 1) then ! 10 mit Exponent
02708         cxywdth(nbase)= 6
02709        else if (cxyetyp(nbase) .eq. 2) then ! M, MM...
02710         cxywdth(nbase)= int(alog10(abs(cxydmax(nbase)))/3. ) + 6
02711        else if (cxyetyp(nbase) .eq. 3) then ! Ausgeschriebene Worte
02712         cxywdth(nbase)= 20
02713         cxystep(nbase)= 1
02714         cxystag(nbase)= 2
02715        else if (cxyetyp(nbase) .eq. 4) then ! 1 mit 0
02716         cxywdth(nbase)= max(abs(alog10(abs(cxydmin(nbase)))),
02717      1                      abs(alog10(abs(cxydmin(nbase)))) ) + 2
02718        end if
02719
02720       else if (labtyp .gt. 2) then ! Kalenderachsen
02721        if ((labtyp .eq. 3) .or. (labtyp .eq. 6)) then ! Tage oder Monate
02722         cxywdth(nbase)= 9
02723        else
02724         cxywdth(nbase)= 4
02725        end if
02726       end if
02727
02728       return
02729       end
02730
02731
02732
02733       subroutine lwidth (nbase)
02734       implicit none
02735       integer nbase
02736       integer iadj, most, least, isign,iwidth, idelta, ndec, iexp
02737       real xmax
02738       real ROUNDD
02739       include 'G2dAG2.fd'
02740
02741       iadj= 0
02742       xmax= amax1(abs(cxydmin(nbase)),abs(cxydmax(nbase)))
02743       if (xmax .gt. 1.) then
02744        most= int(alog10(xmax) + 1.00005) ! Position Most Significant Digit
02745        iadj= 1
02746       else if (xmax .eq. 1.) then
02747        most= 0
02748       else
02749        most= int(alog10(xmax) - 0.00005)
02750       end if
02751
02752       ndec= cxydec(nbase)
02753       if (cxydec(nbase) .ne. 0) then ! Anzahl Dezimalstellen vorgegeben
02754        least= -ndec ! Entspricht Position LeastSignificant Digit
02755       else
02756        least= cxylsig(nbase)
02757       end if
02758
02759       if (cxydmin(nbase) .lt. 0.) then
02760        isign=1    ! 1 Buchstabe Vorzeichen
02761       else
02762        isign=0
02763       end if
02764
02765       if ((most .lt. 0) .or. (least .ge. 0)) then
02766        iwidth= max0(1,most)- min0(0,least) + isign
02767        if (most .lt. 0) iwidth= iwidth+1 ! 1 Dezimalpunkt
02768        if ((iwidth .gt. 5 ) .and. (cxyetyp(nbase) .ge. 0)) then
```

```
02769         if (cxyetyp(nbase).eq.2) then
02770          iexp= int( roundd(real(most-iadj),3.))
02771         else
02772          iexp= int( roundd(real(most-iadj),1.))
02773         end if
02774         iwidth= most-least+isign+ 2
02775         ndec= max0(0,iexp-least+iadj)
02776        else
02777         ndec= max(0,-least)
02778         iexp= 0
02779        end if
02780       else
02781        iexp= 0
02782        ndec= max(0,-least)
02783        iwidth= most-least+isign+1
02784        if (most .eq. 0) iwidth= iwidth+1 ! Einbezug fuehrende Null
02785       end if
02786
02787       if ((cxywdth(nbase) .ne. 0).and.(cxywdth(nbase).lt. iwidth)) then
02788        idelta= iwidth - cxywdth(nbase) - ndec
02789        if ((ndec .gt. 0) .and. (idelta .lt. 1) ) then
02790         ndec= max0(0,-idelta)
02791         iwidth= cxywdth(nbase)
02792        else
02793         iexp= iexp+idelta
02794         if(ndec .gt. 0) iexp=iexp-1
02795         iwidth= cxywdth(nbase)
02796         ndec=0
02797        end if
02798       end if
02799
02800       cxywdth(nbase)= iwidth
02801       cxydec(nbase)= ndec
02802       cxyepon(nbase)= iexp
02803       return
02804       end
02805
02806
02807
02808       subroutine remlab (nbase,iloc,labtyp,ix,iy)
02809       implicit none
02810       integer nbase, iloc, labtyp, ix, iy
02811       integer iyear1,iday1, iyear2,iday2
02812       integer iyear,imon,iday, ioff, iposflag
02813       character label *(25)
02814       include 'G2dAG2.fd'
02815
02816       if (iabs(labtyp) .eq. 1) then ! lineare Daten
02817        if (cxyepon(nbase) .eq. 0) return ! kein Exponent
02818        call expoutc (nbase,cxyepon(nbase), label)
02819       else ! Kalenderdaten
02820        if ((labtyp .ge. 4) .and. (labtyp.ne.6)) then ! Wochen, Quartale, Jahre
02821         ioff= 4 ! Überlappung der Jahre vermeiden
02822        else
02823         ioff= 0
02824        end if
02825        call oubgc (iyear1,iday1, nint(cxydmin(nbase))+ioff)
02826        call oubgc (iyear2,iday2, nint(cxydmax(nbase))-ioff)
02827        if (iday2 .le. 1) iyear2=iyear2-1
02828        iday2=iday2-1
02829        call ydymd(iyear1,iday1,iyear,imon,iday)
02830
02831        if (iabs(labtyp).eq. 3) then
02832         call iformc (real(iday), 2, label(1:2))
02833         label(3:3)= ' ' ! 'dd '
02834         call alfsetc (real(imon), 6, label(4:6)) ! labtyp 6= Monate, Laenge 3
02835         label(7:7)= ' ' ! 'dd mmm '
02836         call iformc (real(iyear), 4, label(7:10)) ! 'dd mm yyyy'
02837         label(11:11)= char(0) ! evtl. Labelende
02838         if (iyear1 .lt. iyear2) then ! bei Bedarf Start und Endjahr
02839          label(11:11)= '-' ! 'dd mm yyyy-'
02840          call ydymd(iyear2,iday2,iyear,imon,iday)
02841          call iformc (real(iday), 2, label(12:13)) ! 'dd'
02842          label(14:14)= ' ' ! 'dd mm yyyy-dd '
02843          call alfsetc (real(imon), 6, label(15:17)) ! 'dd mmm'
02844          label(18:18)= ' ' ! 'dd mm yyyy-dd mmm '
02845          call iformc (real(iyear), 4, label(19:22)) ! 'dd mm yyyy-'
02846          label(23:23)= char(0)
02847         end if
02848        else
02849         call iformc (real(iyear), 4, label(1:4)) ! 'yyyy'
02850         label(5:5)= char(0)
02851         if (iyear1 .lt. iyear2) then ! bei Bedarf Start und Endjahr
02852          label(5:5)= '-' ! 'yyyy-'
02853          call iformc (real(iyear2), 4, label(6:9)) ! 'yyyy-yyyy'
02854          label(10:10)= char(0)
02855         end if
```

```
02856        end if
02857       end if
02858
02859       if ((nbase.eq.1) .or. (iloc.eq.1)) then ! X-Achse oder y Zentriert
02860        iposflag= 0
02861       else
02862        iposflag= isign(1,1-iloc)
02863       end if
02864       call justerc (label, iposflag, ioff)
02865       call notatec (ix+ioff, iy,label)
02866       return
02867       end
02868
02869
02870
02871       subroutine spread (nbase)
02872       implicit none
02873       integer nbase
02874       integer ih, labtyp, iwidth, iMaxWid
02875       integer LINWDT
02876       include 'G2dAG2.fd'
02877
02878       if (cxystag(nbase) .ne. 1) return
02879
02880       labtyp= cxylab(nbase)
02881       if ((labtyp .eq. 1) .or. (labtyp .eq. 0)) labtyp= cxytype(nbase)
02882
02883 100   continue ! outer loop
02884        if (nbase .eq. 1) then ! x-Achse
02885         iwidth= linwdt(cxywdth(nbase))
02886        else
02887         call csize(ih, iwidth)
02888        end if
02889
02890        imaxwid= iabs(cxysmax(nbase)-cxysmin(nbase))- 2*iwidth
02891        imaxwid= imaxwid* cxystep(nbase)* cxystag(nbase) / cxytics(nbase)
02892
02893        cxystep(nbase)= 1
02894        cxystag(nbase)= 1
02895
02896        if (iwidth .lt. imaxwid) return ! exit loop
02897
02898        if (nbase .eq. 1) then ! x-Achse
02899         cxystag(nbase)= 2
02900        else
02901         cxystep(nbase)= cxystep(nbase) + 1
02902        end if
02903
02904 110    continue ! inner loop
02905         if(iwidth .lt. imaxwid) return ! exit loop
02906         if(cxystep(nbase) .gt. cxytics(nbase)) return ! exit loop
02907        if (labtyp .ne. 3 .and. labtyp .ne. 6) then ! cycle inner loop
02908         cxystep(nbase)= cxystep(nbase)+1
02909         goto 110
02910       else ! cycle outer loop
02911        if (cxywdth(nbase) .eq. 3) return
02912        cxywdth(nbase)=3
02913        goto 100
02914       end if ! cycle until force exit
02915       end
02916
02917
02918
02919 C
02920 C  Tabellensuche und Rundungen
02921 C
02922
02923       real function findge (val,tab,in)
02924       implicit none
02925       integer in
02926       real val, tab(1)
02927
02928 100   if (tab(in) .lt. val) goto 110 ! while
02929        in= in-1
02930        goto 100
02931 110   continue ! endwhile
02932
02933 120   continue ! repeat
02934        in= in+1
02935       if (tab(in) .lt. val) goto 120 ! end repeat
02936       findge= tab(in)
02937       return
02938       end
02939
02940
02941
02942       real function findle (val,tab,in)
```

```
02943       implicit none
02944       integer in
02945       real val, tab(1)
02946       real valeps
02947
02948       valeps= val+ 1.e-7 ! Vergleich um 0 ermoeglichen (Rechengenauigkeit!)
02949
02950 100   if (tab(in) .le. valeps) goto 110 ! while
02951        in= in-1
02952        goto 100
02953 110   continue ! endwhile
02954
02955 120   continue ! repeat
02956        in= in+1
02957       if (tab(in) .lt. valeps) goto 120 ! end repeat
02958       findle= tab(in-1)
02959       return
02960       end
02961
02962
02963
02964       integer function locge (ival,itab,iN)
02965       implicit none
02966       integer ival, itab(1), in
02967
02968 100   if (itab(in) .lt. ival) goto 110 ! while
02969        in= in-1
02970        goto 100
02971 110   continue ! endwhile
02972
02973 120   continue ! repeat
02974        in= in+1
02975       if (itab(in) .lt. ival) goto 120 ! end repeat
02976       locge= itab(in)
02977       return
02978       end
02979
02980
02981
02982       integer function locle (ival,itab,iN)
02983       implicit none
02984       integer ival, itab(1), in
02985
02986 100   if (itab(in) .le. ival) goto 110 ! while
02987        in= in-1
02988        goto 100
02989 110   continue ! endwhile
02990
02991 120   continue ! repeat
02992        in= in+1
02993       if (itab(in) .le. ival) goto 120 ! end repeat
02994       locle= itab(in-1)
02995       return
02996       end
02997
02998
02999
03000       real function roundd (value,finterval)
03001       implicit none
03002       real value,finterval
03003       integer ifrac
03004       real frac
03005
03006       frac= value/finterval
03007       ifrac= int(frac)
03008       if (real(ifrac) .gt. frac) ifrac= ifrac-1 ! Abrunden bei frac neg.
03009       roundd = real(ifrac) * finterval
03010       if (roundd .gt. value) roundd= value
03011       return
03012       end
03013
03014
03015
03016       real function roundu (value,finterval)
03017       implicit none
03018       real value,finterval
03019       integer ifrac
03020       real frac
03021
03022       frac= value/finterval
03023       ifrac= int(frac)
03024       if (real(ifrac) .lt. frac) ifrac= ifrac+1 ! Aufrunden bei frac pos.
03025       roundu = real(ifrac) * finterval
03026       if (roundu .lt. value) roundu= value
03027       return
03028       end
03029
```

```
03030
03031
03032 C
03033 C  Generelle Manipulationen der Commonvariablen
03034 C
03035       subroutine savcom (Array)
03036       implicit none
03037       integer array(1)
03038       include 'G2dAG2.fd'
03039
03040       integer i
03041       integer arr(1)
03042       equivalence(arr(1),cline)
03043       do 10 i=1,g2dag2l
03044        array(i)= arr(i)
03045 10    continue
03046       return
03047       end
03048
03049
03050
03051       subroutine rescom (Array)
03052       implicit none
03053       integer array(1)
03054       include 'G2dAG2.fd'
03055
03056       integer i
03057       integer arr(1)
03058       equivalence(arr(1),cline)
03059       do 10 i=1,g2dag2l
03060        arr(i)= array(i)
03061 10    continue
03062       return
03063       end
03064
03065
03066
03067       integer function iother (ipar)
03068       implicit none
03069       integer ipar
03070
03071       if (mod(ipar,2) .eq. 1) then ! ungerader Parameter=x-Achse
03072        iother= ipar+1
03073       else
03074        iother= ipar-1
03075       end if
03076       return
03077       end
```

3.3 AG2Holerith.for File Reference

Graph2D: deprecated AG2 routines.

Functions/Subroutines

- subroutine notate (ix, iy, lenchr, iarray)
- subroutine alfset (fnum, kwidth, labtyp, ilabel)
- subroutine numset (fnum, iwidth, nbase, ilabel, ifill)
- subroutine expout (nbase, iexp, ilabel, nchars, ifill)
- subroutine hstrin (iString)
- subroutine hlabel (iLen, iString)
- subroutine vstrin (iarray)
- subroutine vlabel (iLen, iString)
- subroutine juster (iLen, iString, iposflag, ifill, lenchr, ioff)
- subroutine eform (fnum, iwidth, idec, ilabel, ifill)
- subroutine fform (fnum, iwidth, idec, ilabel, ifill)
- subroutine fonly (fnum, iwidth, idec, ilabel, ifill)
- subroutine iform (fnum, iwidth, ilabel, ifill)
- integer function ibasec (iPar)

- integer function ibasex (ipar)
- integer function ibasey (ipar)
- real function comget (iPar)
- subroutine comset (iPar, val)
- subroutine comdmp

3.3.1 Detailed Description

Graph2D: deprecated AG2 routines.

Version

2.2

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Compatibility routines dealing with holerith characters and direct manipulation of common variables.

Definition in file AG2Holerith.for.

3.3.2 Function/Subroutine Documentation

3.3.2.1 alfset()

```
subroutine alfset (
             real fnum,
             integer kwidth,
             integer labtyp,
             integer, dimension(kwidth) ilabel )
```

Definition at line 45 of file AG2Holerith.for.

3.3.2.2 comdmp()

```
subroutine comdmp
```

Definition at line 328 of file AG2Holerith.for.

3.3.2.3 comget()

```
real function comget (
             integer iPar )
```

Definition at line 271 of file AG2Holerith.for.

3.3.2.4 comset()

```
subroutine comset (
             integer iPar,
             real val )
```

Definition at line 299 of file AG2Holerith.for.

3.3.2.5 eform()

```
subroutine eform (
             real fnum,
             integer iwidth,
             integer idec,
             integer, dimension(iwidth) ilabel,
             integer ifill )
```

Definition at line 173 of file AG2Holerith.for.

3.3.2.6 expout()

```
subroutine expout (
             integer nbase,
             integer iexp,
             integer, dimension(nchars) ilabel,
             integer nchars,
             integer ifill )
```

Definition at line 90 of file AG2Holerith.for.

3.3.2.7 fform()

```
subroutine fform (
             real fnum,
             integer iwidth,
             integer idec,
             integer, dimension(255) ilabel,
             integer ifill )
```

Definition at line 189 of file AG2Holerith.for.

3.3.2.8 fonly()

```
subroutine fonly (
             real fnum,
             integer iwidth,
             integer idec,
             integer, dimension(iwidth) ilabel,
             integer ifill )
```

Definition at line 205 of file AG2Holerith.for.

3.3.2.9 hlabel()

```
subroutine hlabel (
             integer iLen,
             integer, dimension(ilen) iString )
```

Definition at line 121 of file AG2Holerith.for.

3.3.2.10 hstrin()

```
subroutine hstrin (
             integer, dimension(2) iString )
```

Definition at line 112 of file AG2Holerith.for.

3.3.2.11 ibasec()

```
integer function ibasec (
             integer iPar )
```

Definition at line 241 of file AG2Holerith.for.

3.3.2.12 ibasex()

```
integer function ibasex (
             integer ipar )
```

Definition at line 251 of file AG2Holerith.for.

3.3.2.13 ibasey()

```
integer function ibasey (
             integer ipar )
```

Definition at line 261 of file AG2Holerith.for.

3.3.2.14 iform()

```
subroutine iform (
             real fnum,
             integer iwidth,
             integer, dimension(iwidth) ilabel,
             integer ifill )
```

Definition at line 221 of file AG2Holerith.for.

3.3.2.15 juster()

```
subroutine juster (
             integer iLen,
             integer, dimension(ilen) iString,
             integer iposflag,
             integer ifill,
             integer lenchr,
             integer ioff )
```

Definition at line 154 of file AG2Holerith.for.

3.3.2.16 notate()

```
subroutine notate (
             integer ix,
             integer iy,
             integer lenchr,
             integer, dimension(lenchr) iarray )
```

Definition at line 30 of file AG2Holerith.for.

3.3.2.17 numset()

```
subroutine numset (
             real fnum,
             integer iwidth,
             integer nbase,
             integer, dimension(iwidth) ilabel,
             integer ifill )
```

Definition at line 67 of file AG2Holerith.for.

3.3.2.18 vlabel()

```
subroutine vlabel (
             integer iLen,
             integer, dimension(ilen) iString )
```

Definition at line 139 of file AG2Holerith.for.

3.3.2.19 vstrin()

```
subroutine vstrin (
             integer, dimension(2) iarray )
```

Definition at line 130 of file AG2Holerith.for.

3.4 AG2Holerith.for

```
00001 C> \file       AG2Holerith.for
00002 C> \version    2.2
00003 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00004 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00005 C> \~german
00006 C> \brief   Graph2D: obsolete AG2 Routinen
00007 C> \~english
00008 C> \brief   Graph2D: deprecated AG2 routines
00009 C> \~
00010 C>
00011 C> \~german
00012 C>     Unterprogramme zur Behandlung von Holerithvariablen und direkter
00013 C>     Manipulation des Commonblocks
00014 C>
00015 C> \~english
00016 C>     Compatibility routines dealing with holerith characters
00017 C>     and direct manipulation of common variables.
00018 C>
00019 C
00020 C
00021 C  Tektronix Advanced Graphics 2 - Version 2.x
00022 C
00023 C     Optionale Unterprogramme
00024 C
00025
00026 C
00027 C Stringfunktionen fuer Holerithvariablen
00028 C
00029
00030       subroutine notate (ix,iy,lenchr,iarray)
00031       implicit none
```

```
00032       integer ix,iy,lenchr, iarray(lenchr)
00033       integer i
00034       character *(255) buf
00035
00036       do 100 i=1,lenchr
00037        buf(i:i)= char(iarray(i))
00038 100   continue
00039       call notatec (ix,iy,buf(1:lenchr))
00040       return
00041       end
00042
00043
00044
00045       subroutine alfset (fnum,kwidth,labtyp,ilabel)
00046       implicit none
00047       integer kwidth,labtyp, ilabel(kwidth)
00048       real fnum
00049       integer i, buflen
00050       character *(255) buf
00051       integer ISTRINGLEN
00052
00053       call alfsetc (fnum, labtyp, buf)
00054       buflen= istringlen(buf)
00055       do 100 i=1,kwidth
00056        if (i .le. buflen) then
00057         ilabel(i)= ichar(buf(i:i))
00058        else
00059         ilabel(i)= ichar(' ')
00060        end if
00061 100   continue
00062       return
00063       end
00064
00065
00066
00067       subroutine numset (fnum,iwidth,nbase,ilabel,ifill)
00068       implicit none
00069       integer iwidth,nbase,ilabel(iwidth),ifill
00070       real fnum
00071       integer i, iLeadFill
00072       character *(255) buf
00073       integer ISTRINGLEN
00074
00075       call numsetc (fnum,iwidth,nbase, buf)
00076       ileadfill= max(0,iwidth-istringlen(buf))
00077       do 100 i=1,iwidth
00078        ilabel(ileadfill+i)= ichar(buf(i:i))
00079 100   continue
00080       i=1 ! iLabel ist rechtsjustiert!
00081       if (i.gt.ileadfill) goto 110 ! while
00082        ilabel(i)= ifill
00083        i= i+1
00084 110   continue ! endwhile
00085       return
00086       end
00087
00088
00089
00090       subroutine expout (nbase,iexp,ilabel,nchars,ifill)
00091       implicit none
00092       integer nbase,iexp, nchars, ilabel(nchars), ifill
00093       integer i, iLeadFill
00094       character *(255) buf
00095       integer ISTRINGLEN
00096
00097       call expoutc (nbase,iexp, buf(1:nchars))
00098       ileadfill= max(0,nchars-istringlen(buf))
00099       do 100 i=1,nchars
00100        ilabel(ileadfill+i)= ichar(buf(i:i))
00101 100   continue
00102       i=1 ! iLabel ist rechtsjustiert!
00103       if (i.gt.ileadfill) goto 110 ! while
00104        ilabel(i)= ifill
00105        i= i+1
00106 110   continue ! endwhile
00107       return
00108       end
00109
00110
00111
00112       subroutine hstrin (iString)
00113       implicit none
00114       integer iString(2)
00115       call anstr (istring(1),istring(2))
00116       return
00117       end
00118
```

```
00119
00120
00121       subroutine hlabel (iLen, iString)
00122       implicit none
00123       integer iLen, iString(iLen)
00124       call anstr (ilen, istring)
00125       return
00126       end
00127
00128
00129
00130       subroutine vstrin (iarray)
00131       implicit none
00132       integer iarray(2)
00133       call vlabel (iarray(1),iarray(2))
00134       return
00135       end
00136
00137
00138
00139       subroutine vlabel (iLen,iString)
00140       implicit none
00141       integer iLen, iString(iLen)
00142       integer i
00143       character *(255) buf
00144       integer ISTRINGLEN
00145       do 100 i=1, ilen
00146        buf(i:i)= char(istring(i))
00147 100   continue
00148       call vlablc (buf(:ilen))
00149       return
00150       end
00151
00152
00153
00154       subroutine juster (iLen,iString,iposflag,ifill,lenchr, ioff)
00155       implicit none
00156       integer iLen,iString(iLen), iposflag,ifill, lenchr, ioff
00157       integer i
00158       character *(255) buf
00159
00160       lenchr= 0
00161       do 100 i=1, ilen
00162        if ( (i .gt. 1) .or. (istring(i) .ne. ifill) ) then ! Ueberlese Startfillchars
00163         lenchr= lenchr+1
00164         buf(lenchr:lenchr)= char(abs(istring(i))) ! Tek Index -1,-2 -> char(1),char(2)
00165        end if
00166 100   continue
00167       call justerc (buf, iposflag, ioff)
00168       return
00169       end
00170
00171
00172
00173       subroutine eform (fnum,iwidth,idec,ilabel,ifill)
00174       implicit none
00175       integer iwidth,idec, ilabel(iwidth), ifill
00176       real fnum
00177       integer i
00178       character *(255) buf
00179
00180       call eformc (fnum,iwidth,idec, buf)
00181       do 100 i=1,iwidth
00182        ilabel(i)= ichar(buf(i:i))
00183 100   continue
00184       return
00185       end
00186
00187
00188
00189       subroutine fform (fnum,iwidth,idec,ilabel,ifill)
00190       implicit none
00191       integer iwidth,idec, ilabel(255), ifill
00192       real fnum
00193       integer i
00194       character *(255) buf
00195
00196       call fformc (fnum,iwidth,idec, buf)
00197       do 100 i=1,iwidth
00198        ilabel(i)= ichar(buf(i:i))
00199 100   continue
00200       return
00201       end
00202
00203
00204
00205       subroutine fonly (fnum,iwidth,idec,ilabel,ifill)
```

```
00206       implicit none
00207       integer iwidth,idec, ilabel(iwidth), ifill
00208       real fnum
00209       integer i
00210       character *(255) buf
00211
00212       call fonlyc (fnum,iwidth,idec, buf)
00213       do 100 i=1,iwidth
00214        ilabel(i)= ichar(buf(i:i))
00215 100   continue
00216       return
00217       end
00218
00219
00220
00221       subroutine iform (fnum,iwidth,ilabel,ifill)
00222       implicit none
00223       integer iwidth,idec, ilabel(iwidth), ifill
00224       real fnum
00225       integer i
00226       character *(255) buf
00227
00228       call iformc (fnum,iwidth,idec, buf)
00229       do 100 i=1,iwidth
00230        ilabel(i)= ichar(buf(i:i))
00231 100   continue
00232       return
00233       end
00234
00235
00236
00237 C
00238 C  Direkte Manipulation des Commonblocks
00239 C
00240
00241       integer function ibasec (iPar)
00242       implicit none
00243       integer ipar
00244
00245       ibasec= -1-ipar
00246       return
00247       end
00248
00249
00250
00251       integer function ibasex (ipar)
00252       implicit none
00253       integer ipar
00254
00255       ibasex= 1 + 2*ipar
00256       return
00257       end
00258
00259
00260
00261       integer function ibasey (ipar)
00262       implicit none
00263       integer ipar
00264
00265       ibasey= 2 + 2*ipar
00266       return
00267       end
00268
00269
00270
00271       real function comget (ipar)
00272       implicit none
00273       integer ipar
00274       include 'G2dAG2.fd'
00275
00276       integer iarr(1), iarr2(1)
00277       real arr(1), arr2(1)
00278       equivalence(iarr(1),cline), (iarr2(1),cxyneat)
00279       equivalence(arr(1),cline), (arr2(1),cxyneat)
00280
00281       if ((ipar.lt.0) .and. (ipar.ge. -9))then
00282        if ((ipar .eq. -4) .or. (ipar .le. -8)) then
00283         comget= arr(-ipar)
00284        else
00285         comget= real(iarr(-ipar))
00286        end if
00287       else if ((ipar.gt.0) .and. (ipar.le.56)) then
00288        if ((ipar.le.22) .or. ((ipar .ge. 27).and.(ipar.le.52))) then
00289         comget= real(iarr2(ipar))
00290        else
00291         comget= arr2(ipar)
00292        end if
```

```
00293       end if
00294       return
00295       end
00296
00297
00298
00299       subroutine comset (iPar,val)
00300       implicit none
00301       integer iPar
00302       real val
00303       include 'G2dAG2.fd'
00304
00305       integer iarr(1), iarr2(1)
00306       real arr(1), arr2(1)
00307       equivalence(iarr(1),cline), (iarr2(1),cxyneat)
00308       equivalence(arr(1),cline), (arr2(1),cxyneat)
00309
00310       if ((ipar.lt.0) .and. (ipar.ge. -9))then
00311        if ((ipar.eq.-4) .or. (ipar .le. -8)) then
00312         arr(-ipar)= val
00313        else
00314         iarr(-ipar)= int(val)
00315        end if
00316       else if ((ipar.gt.0) .and. (ipar.le.56)) then
00317        if ((ipar.le.22) .or. ((ipar .ge. 27).and.(ipar.le.52))) then
00318         iarr2(ipar)= int(val)
00319        else
00320         arr2(ipar)= val
00321        end if
00322       end if
00323       return
00324       end
00325
00326
00327
00328       subroutine comdmp
00329       implicit none
00330       integer i
00331       character *80 buf
00332       include 'G2dAG2.fd'
00333
00334       call erase
00335       call home
00336
00337       write (unit= buf,fmt=600, err=200) (cxyneat(i),i=1,2), cline
00338 600   format (1x,' 0:  cxneat(1)=',l14,', (2)=',l14,',   cline=',i14)
00339       call toutstc (buf)
00340       call newlin
00341       write (unit= buf,fmt=601, err=200) (cxyzero(i),i=1,2), csymbl
00342 601   format (1x,' 1: cxyzero(1)=',l14,', (2)=',l14,',  csymbl=',i14)
00343       call toutstc (buf)
00344       call newlin
00345       write (unit= buf,fmt=602, err=200) (cxyloc(i),i=1,2), csteps
00346 602   format (1x,' 2:  cxyloc(1)=',i14,', (2)=',i14,',  csteps=',i14)
00347       call toutstc (buf)
00348       call newlin
00349       write (unit= buf,fmt=603, err=200) (cxylab(i),i=1,2), cinfin
00350 603   format (1x,' 3:  cxylab(1)=',i14,', (2)=',i14,',  cinfin=',e14.7)
00351       call toutstc (buf)
00352       call newlin
00353       write (unit= buf,fmt=604, err=200) (cxyden(i),i=1,2), cnpts
00354 604   format (1x,' 4:  cxyden(1)=',i14,', (2)=',i14,',   cnpts=',i14)
00355       call toutstc (buf)
00356       call newlin
00357       write (unit= buf,fmt=605, err=200) (cxytics(i),i=1,2), cstepl
00358 605   format (1x,' 5: cxytics(1)=',i14,', (2)=',i14,',  cstepl=',i14)
00359       call toutstc (buf)
00360       call newlin
00361       write (unit= buf,fmt=606, err=200) (cxylen(i),i=1,2), cnumbr
00362 606   format (1x,' 6:  cxylen(1)=',i14,', (2)=',i14,',  cnumbr=',i14)
00363       call toutstc (buf)
00364       call newlin
00365       write (unit= buf,fmt=607, err=200) (cxyfrm(i),i=1,2), csizes
00366 607   format (1x,' 7:  cxyfrm(1)=',i14,', (2)=',i14,',  csizes=',e14.7)
00367       call toutstc (buf)
00368       call newlin
00369       write (unit= buf,fmt=608, err=200) (cxymtcs(i),i=1,2), csizel
00370 608   format (1x,' 8: cxymtcs(1)=',i14,', (2)=',i14,',  csizel=',e14.7)
00371       call toutstc (buf)
00372       call newlin
00373       write (unit= buf,fmt=609, err=200) (cxymfrm(i),i=1,2)
00374 609   format (1x,' 9: cxymfrm(1)=',i14,', (2)=',i14)
00375       call toutstc (buf)
00376       call newlin
00377       write (unit= buf,fmt=610, err=200) (cxydec(i),i=1,2)
00378 610   format (1x,'10:  cxydec(1)=',i14,', (2)=',i14)
00379       call toutstc (buf)
```

```
00380       call newlin
00381       write (unit= buf,fmt=611, err=200) (cxydmin(i),i=1,2)
00382 611   format (1x,'11: cxydmin(1)=',e14.7,', (2)=',e14.7)
00383       call toutstc (buf)
00384       call newlin
00385       write (unit= buf,fmt=612, err=200) (cxydmax(i),i=1,2)
00386 612   format (1x,'12: cxydmax(1)=',e14.7,', (2)=',e14.7)
00387       call toutstc (buf)
00388       call newlin
00389       write (unit= buf,fmt=613, err=200) (cxysmin(i),i=1,2)
00390 613   format (1x,'13: cxysmin(1)=',i14,', (2)=',i14)
00391       call toutstc (buf)
00392       call newlin
00393       write (unit= buf,fmt=614, err=200) (cxysmax(i),i=1,2)
00394 614   format (1x,'14: cxysmax(1)=',i14,', (2)=',i14)
00395       call toutstc (buf)
00396       call newlin
00397       write (unit= buf,fmt=615, err=200) (cxytype(i),i=1,2)
00398 615   format (1x,'15: cxytype(1)=',i14,', (2)=',i14)
00399       call toutstc (buf)
00400       call newlin
00401       write (unit= buf,fmt=616, err=200) (cxylsig(i),i=1,2)
00402 616   format (1x,'16: cxylsig(1)=',i14,', (2)=',i14)
00403       call toutstc (buf)
00404       call newlin
00405       write (unit= buf,fmt=617, err=200) (cxywdth(i),i=1,2)
00406 617   format (1x,'17: cxywdth(1)=',i14,', (2)=',i14)
00407       call toutstc (buf)
00408       call newlin
00409       write (unit= buf,fmt=618, err=200) (cxyepon(i),i=1,2)
00410 618   format (1x,'18: cxyepon(1)=',i14,', (2)=',i14)
00411       call toutstc (buf)
00412       call newlin
00413       write (unit= buf,fmt=619, err=200) (cxystep(i),i=1,2)
00414 619   format (1x,'19: cxystep(1)=',i14,', (2)=',i14)
00415       call toutstc (buf)
00416       call newlin
00417       write (unit= buf,fmt=620, err=200) (cxystag(i),i=1,2)
00418 620   format (1x,'20: cxystag(1)=',i14,', (2)=',i14)
00419       call toutstc (buf)
00420       call newlin
00421       write (unit= buf,fmt=621, err=200) (cxyetyp(i),i=1,2)
00422 621   format (1x,'21: cxyetyp(1)=',i14,', (2)=',i14)
00423       call toutstc (buf)
00424       call newlin
00425       write (unit= buf,fmt=622, err=200) (cxybeg(i),i=1,2)
00426 622   format (1x,'22:  cxybeg(1)=',i14,', (2)=',i14)
00427       call toutstc (buf)
00428       call newlin
00429       write (unit= buf,fmt=623, err=200) (cxyend(i),i=1,2)
00430 623   format (1x,'23:  cxyend(1)=',i14,', (2)=',i14)
00431       call toutstc (buf)
00432       call newlin
00433       write (unit= buf,fmt=624, err=200) (cxymbeg(i),i=1,2)
00434 624   format (1x,'24: cxymbeg(1)=',i14,', (2)=',i14)
00435       call toutstc (buf)
00436       call newlin
00437       write (unit= buf,fmt=625, err=200) (cxymend(i),i=1,2)
00438 625   format (1x,'25: cxymend(1)=',i14,', (2)=',i14)
00439       call toutstc (buf)
00440       call newlin
00441       write (unit= buf,fmt=626, err=200) (cxyamin(i),i=1,2)
00442 626   format (1x,'26: cxyamin(1)=',e14.7,', (2)=',e14.7)
00443       call toutstc (buf)
00444       call newlin
00445       write (unit= buf,fmt=627, err=200) (cxyamax(i),i=1,2)
00446 627   format (1x,'27: cxyamax(1)=',e14.7,', (2)=',e14.7)
00447       call toutstc (buf)
00448
00449       call graphicerror (11,char(0))
00450       call erase
00451
00452 200   continue
00453       return
00454       end
```

3.5 AG2uline.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine uline (x, y, i)

3.5.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2uline.for.

3.5.2 Function/Subroutine Documentation

3.5.2.1 uline()

```
subroutine uline (
                  x,
                  y,
                  i )
```

Definition at line 10 of file AG2uline.for.

3.6 AG2uline.for

```
00001 C> \file    AG2uline.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009
00010       subroutine uline (x,y,i)
00011       return
00012       end
00013
```

3.7 AG2umnmx.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine umnmx (array, amin, amax)

3.7.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2umnmx.for.

3.7.2 Function/Subroutine Documentation

3.7.2.1 umnmx()

```
subroutine umnmx (
              array,
              amin,
              amax )
```

Definition at line 9 of file AG2umnmx.for.

3.8 AG2umnmx.for

```
00001 C> \file    AG2umnmx.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       subroutine umnmx (array,amin,amax)
00010       return
00011       end
00012
```

3.9 AG2upoint.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- real function upoint (arr, ii, oldone)

3.9.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2upoint.for.

3.9.2 Function/Subroutine Documentation

3.9.2.1 upoint()

```
real function upoint (
              arr,
              ii,
              oldone )
```

Definition at line 9 of file AG2upoint.for.

3.10 AG2upoint.for

```
00001 C> \file    AG2upoint.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       real function upoint (arr,ii,oldone)
00010       upoint=0.
00011       return
00012       end
```

3.11 AG2users.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine users (x, y, i)

3.11.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2users.for.

3.11.2 Function/Subroutine Documentation

3.11.2.1 users()

```
subroutine users (
              x,
              y,
              i )
```

Definition at line 9 of file AG2users.for.

3.12 AG2users.for

```
00001 C> \file    AG2users.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       subroutine users (x,y,i)
00010       return
00011       end
```

3.13 AG2useset.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine useset (fnum, iwidth, nbase, labeli)

3.13.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2useset.for.

3.13.2 Function/Subroutine Documentation

3.13.2.1 useset()

```
subroutine useset (
              real fnum,
              integer iwidth,
              integer nbase,
              integer, dimension(1) labeli )
```

Definition at line 9 of file AG2useset.for.

3.14 AG2useset.for

```
00001 C> \file    AG2useset.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       subroutine useset (fnum,iwidth,nbase,labeli)
00010       implicit none
00011       real fnum
00012       integer iwidth, nbase
00013       integer labeli(1)
00014       integer i
00015
00016       do 100 i=1, iwidth
00017        labeli(i)= 32 ! Blank
00018 100   continue
00019       return
00020       end
00021
```

3.15 AG2usesetC.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine usesetc (fnum, iwidth, nbase, labstr)

3.15.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2usesetC.for.

3.15.2 Function/Subroutine Documentation

3.15.2.1 usesetc()

```
subroutine usesetc (
             real fnum,
             integer iwidth,
             integer nbase,
             character *(*) labstr )
```

Definition at line 9 of file AG2usesetC.for.

3.16 AG2usesetC.for

```
00001 C> \file    AG2usesetC.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       subroutine usesetc (fnum,iwidth, nbase, labstr)
00010       implicit none
00011       real fnum
00012       integer iwidth, nbase
00013       character *(*) labstr
00014       integer labeli(20)
00015       integer i, i1, iw, ISTRINGLEN
00016
00017       iw= min(20, iwidth, istringlen(labstr))
00018       call useset (fnum,iw,nbase,labeli)
00019
00020       i1= 0
00021       do 100 i=1,iw
00022        i1= i1+1
00023        labstr(i1:i1)= char(labeli(i))
00024 100   continue
00025       if (i1 .lt. iw) labstr(i1+1:i1+1)= char(0)
00026       return
00027       end
00028
```

3.17 AG2UsrSoftek.for File Reference

Graph2D: Dummy User Routine.

Functions/Subroutines

- subroutine softek (isym)

3.17.1 Detailed Description

Graph2D: Dummy User Routine.

Definition in file AG2UsrSoftek.for.

3.17.2 Function/Subroutine Documentation

3.17.2.1 softek()

```
subroutine softek (
              isym )
```

Definition at line 9 of file AG2UsrSoftek.for.

3.18 AG2UsrSoftek.for

```
00001 C> \file    AG2UsrSoftek.for
00002 C> \brief   Graph2D: Dummy User Routine
00003 C
00004 C  Tektronix Advanced Graphics 2 - Version 2.0
00005 C
00006 C     User Subroutinen
00007 C
00008
00009       subroutine softek (isym)
00010       return
00011       end
```

3.19 Fgraph.fd File Reference

DOS Port: Declarations OW graph.lib.

3.19.1 Detailed Description

DOS Port: Declarations OW graph.lib.

Functions and constants of the Watcom DOS Graphic Library. Substitution for the INCLUDE-file of the Microsoft Fortran Compiler, derived from the Watcom Headerfile graph.fi.

Author

Dr.-Ing. Klaus Friedewald

Note

Watcom-FTN77 variable names are allowed to be 32 characters long and may contain $ and _. That for $notruncate und $notstrict are superfluous.

Hexadecimal numbers are represented by 'ff'x instead of #ff.

The Watcom library graph.lib ist not included in Graph2Ddos.lib and has to be linked to the main programs: -libr graph.

Definition in file Fgraph.fd.

3.20 Fgraph.fd

```
00001 C> \file    Fgraph.fd
00002 C> \brief   DOS Port: Declarations OW graph.lib
00003 C>
00004 C> \~german
00005 C> Konstanten und Funktionen der Watcom DOS Graphik-Library. Ersatz für das zum
00006 C> Microsoft Fortan-Compiler gehörende INCLUDE-File, abgeleitet aus dem
00007 C> Watcom-Headerfile graph.fi.
00008 C>
00009 C> \~english
00010 C> Functions and constants of the Watcom DOS Graphic Library. Substitution for
00011 C> the INCLUDE-file of the Microsoft Fortran Compiler, derived from the
00012 C> Watcom Headerfile graph.fi.
00013 C>
00014 C> \~
00015 C> \author  Dr.-Ing. Klaus Friedewald
00016 C>
00017 C> \~german
00018 C> \note
00019 C> Der Watcom Compiler erlaubt 32 Zeichen lange Variablennamen unter Verwendung
00020 C> von $ und _. Deswegen sind $notruncate und $notstrict überflüssig.
00021 C>
00022 C> \note
00023 C> Hex-Zahlen werden nicht durch \#ff sondern durch 'ff'x dargestellt.
00024 C>
00025 C> \note
00026 C> Die OpenWatcom Library graph.lib ist nicht Bestandteil von Graph2Ddos.lib
00027 C> und muss bei den Linkoptionen der Hauptprogramme aufgeführt werden:
00028 C> -libr graph.
00029 C> \~english
00030 C> \note
00031 C> Watcom-FTN77 variable names are allowed to be 32 characters long and may
00032 C> contain $ and _. That for $notruncate und $notstrict are superfluous.
00033 C>
00034 C> \note
00035 C> Hexadecimal numbers are represented by 'ff'x instead of \#ff.
00036 C>
00037 C> \note
00038 C> The Watcom library graph.lib ist not included in Graph2Ddos.lib and has to
00039 C> be linked to the main programs:
00040 C> -libr graph.
00041 C> \~
00042 C>
00043 C> \cond
00044
00045       structure/videoconfig/      ! structure for getvideoconfig
00046         integer*2 numxpixels
```

```
00047         integer*2 numypixels
00048         integer*2 numtextcols
00049         integer*2 numtextrows
00050         integer*2 numcolors
00051         integer*2 bitsperpixel
00052         integer*2 numvideopages
00053         integer*2 mode
00054         integer*2 adapter
00055         integer*2 monitor
00056         integer*2 memory
00057       end structure
00058
00059       structure/xycoord/          ! structure for pixel position
00060         integer*2 xcoord
00061         integer*2 ycoord
00062       end structure
00063
00064       structure/rccoord/          ! structure for text position
00065         integer*2 row
00066         integer*2 col
00067       end structure
00068
00069 C Videomodes
00070
00071       integer*2, $MAXRESMODE, $MAXCOLORMODE, $DEFAULTMODE,$TEXTBW40,
00072      1           $TEXTC40,$TEXTBW80,$TEXTC80, $MRES4COLOR,$MRESNOCOLOR,
00073      2           $HRESBW,$TEXTMONO,$HERCMONO, $MRES16COLOR,$HRES16COLOR,
00074      3           $ERESNOCOLOR,$ERESCOLOR, $VRES2COLOR,$VRES16COLOR,
00075      4           $MRES256COLOR,$ORESCOLOR
00076       parameter($maxresmode   =-3)    ! graphics mode with highest resolution
00077       parameter($maxcolormode =-2)    ! graphics mode with most colors
00078       parameter($defaultmode  =-1)    ! restore screen to original mode
00079       parameter($textbw40      =0)    ! 40 x 25 text, 16 grey
00080       parameter($textc40       =1)    ! 40 x 25 text, 16/8 color
00081       parameter($textbw80      =2)    ! 80 x 25 text, 16 grey
00082       parameter($textc80       =3)    ! 80 x 25 text, 16/8 color
00083       parameter($mres4color    =4)    ! 320 x 200, 4 color
00084       parameter($mresnocolor   =5)    ! 320 x 200, 4 grey
00085       parameter($hresbw        =6)    ! 640 x 200, BW
00086       parameter($textmono      =7)    ! 80 x 25 text, BW
00087       parameter($hercmono      =8)    ! 720 x 348, BW for HGC
00088       parameter($mres16color   =13)   ! 320 x 200, 16 color
00089       parameter($hres16color   =14)   ! 640 x 200, 16 color
00090       parameter($eresnocolor   =15)   ! 640 x 350, BW
00091       parameter($erescolor     =16)   ! 640 x 350, 4 or 16 color
00092       parameter($vres2color    =17)   ! 640 x 480, BW
00093       parameter($vres16color   =18)   ! 640 x 480, 16 color
00094       parameter($mres256color  =19)   ! 320 x 200, 256 color
00095       parameter($orescolor     =64)   ! 640 x 400, 1 of 16 colors (Olivetti)
00096
00097       integer*4 $MDPA,$CGA,$EGA,$MCGA,$VGA,$HGC,$OCGA,$OEGA,$OVGA
00098       parameter($mdpa     ='0001'x)    ! Monochrome Display Adapter (MDPA)
00099       parameter($cga      ='0002'x)    ! Color Graphics Adapter     (CGA)
00100       parameter($ega      ='0004'x)    ! Enhanced Graphics Adapter  (EGA)
00101       parameter($vga      ='0008'x)    ! Video Graphics Array       (VGA)
00102       parameter($mcga     ='0010'x)    ! MultiColor Graphics Array  (MCGA)
00103       parameter($hgc      ='0020'x)    ! Hercules Graphics Card     (HGC)
00104       parameter($ocga     ='0042'x)    ! Olivetti Color Graphics Adapter (OCGA)
00105       parameter($oega     ='0044'x)    ! Olivetti Enhanced Graphics Adapter (OEGA)
00106       parameter($ovga     ='0048'x)    ! Olivetti Video Graphics Array (OVGA)
00107
00108       integer*4 $MONO,$COLOR,$ENHCOLOR,$ANALOGMONO,$ANALOGCOLOR,$ANALOG
00109       parameter($mono       ='0001'x)     ! Monochrome
00110       parameter($color      ='0002'x)     ! Color (or Enhanced emulating color)
00111       parameter($enhcolor   ='0004'x)     ! Enhanced Color
00112       parameter($analogmono ='0008'x)     ! Analog Monochrome only
00113       parameter($analogcolor='0010'x)     ! Analog Color only
00114       parameter($analog     ='0018'x)     ! Analog
00115
00116 C Plotting Action
00117
00118       integer*2 $GBORDER,$GFILLINTERIOR,
00119      1          $GCLEARSCREEN, $GVIEWPORT,$GWINDOW
00120
00121       parameter($gborder       =2)      ! draw outline only
00122       parameter($gfillinterior =3)      ! fill using current fill mask
00123
00124       parameter($gclearscreen=0)
00125       parameter($gviewport   =1)
00126       parameter($gwindow     =2)
00127
00128       integer*4 $GCURSOROFF,$GCURSORON,$GWRAPOFF,$GWRAPON
00129       parameter($gcursoroff=0)
00130       parameter($gcursoron =1)
00131
00132       parameter($gwrapoff  =0)
00133       parameter($gwrapon   =1)
```

```
00134
00135       integer*4 $GSCROLLUP, $GSCROLLDOWN
00136       parameter($gscrollup   =1)
00137       parameter($gscrolldown =-1)
00138
00139       integer*4 $MAXTEXTROWS
00140       parameter($maxtextrows =-1)
00141
00142       integer*4 $GPSET,$GPRESET,$GAND,$GOR,$GXOR
00143       parameter($gpset         =3)
00144       parameter($gpreset       =2)
00145       parameter($gand          =1)
00146       parameter($gor           =0)
00147       parameter($gxor          =4)
00148
00149       integer*4 $BLACK,$BLUE,$GREEN,$CYAN,$RED,$MAGENTA,$BROWN,
00150      1          $WHITE,$GRAY, $LIGHTBLUE,$LIGHTGREEN,$LIGHTCYAN,
00151      2          $LIGHTRED,$LIGHTMAGENTA, $LIGHTYELLOW,$BRIGHTWHITE
00152       parameter($black         ='000000'x)
00153       parameter($blue          ='2a0000'x)
00154       parameter($green         ='002a00'x)
00155       parameter($cyan          ='2a2a00'x)
00156       parameter($red           ='00002a'x)
00157       parameter($magenta       ='2a002a'x)
00158       parameter($brown         ='00152a'x)
00159       parameter($white         ='2a2a2a'x)
00160       parameter($gray          ='151515'x)
00161       parameter($lightblue     ='3F1515'x)
00162       parameter($lightgreen    ='153f15'x)
00163       parameter($lightcyan     ='3f3f15'x)
00164       parameter($lightred      ='15153f'x)
00165       parameter($lightmagenta  ='3f153f'x)
00166       parameter($lightyellow   ='153f3f'x)
00167       parameter($brightwhite   ='3f3f3f'x)
00168
00169       integer*4 $MODEFOFF,$MODEFOFFTOON,$MODEFOFFTOHI,$MODEFONTOOFF,
00170      1          $MODEFON,$MODEFONTOHI,$MODEFHITOOFF,$MODEFHITOON,
00171      2          $MODEFHI
00172       parameter($modefoff      =0)
00173       parameter($modefofftoon  =1)
00174       parameter($modefofftohi  =2)
00175       parameter($modefontooff  =3)
00176       parameter($modefon       =4)
00177       parameter($modefontohi   =5)
00178       parameter($modefhitooff  =6)
00179       parameter($modefhitoon   =7)
00180       parameter($modefhi       =8)
00181
00182       integer*4 $MODE7OFF,$MODE7ON,$MODE7HI
00183       parameter($mode7off      =0)
00184       parameter($mode7on       =1)
00185       parameter($mode7hi       =2)
00186
00187 C external functions
00188
00189       external setvideomode
00190       integer*2 setvideomode
00191
00192       external setvideomoderows
00193       integer*2 setvideomoderows
00194
00195       external setactivepage
00196       integer*2 setactivepage
00197
00198       external setvisualpage
00199       integer*2 setvisualpage
00200
00201       external getactivepage
00202       integer*2 getactivepage
00203
00204       external getvisualpage
00205       integer*2 getvisualpage
00206
00207       external getvideoconfig
00208       external setvieworg
00209       external getviewcoord
00210       external getphyscoord
00211       external setcliprgn
00212       external setviewport
00213       external clearscreen
00214       external moveto
00215       external getcurrentposition
00216
00217       external lineto
00218       integer*2 lineto
00219
00220       external rectangle
```

```
00221       integer*2 rectangle
00222
00223       external ellipse
00224       integer*2 ellipse
00225
00226       external arc
00227       integer*2 arc
00228
00229       external pie
00230       integer*2 pie
00231
00232       external setpixel
00233       integer*2 setpixel
00234
00235       external getpixel
00236       integer*2 getpixel
00237
00238       external floodfill
00239       integer*2 floodfill
00240
00241       external setcolor
00242       integer*2 setcolor
00243
00244       external getcolor
00245       integer*2 getcolor
00246
00247       external setlinestyle
00248
00249       external getlinestyle
00250       integer*2 getlinestyle
00251
00252       external setfillmask
00253       external getfillmask
00254
00255       external setbkcolor
00256       integer*4 setbkcolor
00257
00258       external getbkcolor
00259       integer*4 getbkcolor
00260
00261       external remappalette
00262       integer*4 remappalette
00263
00264       external remapallpalette
00265       integer*2 remapallpalette
00266
00267       external selectpalette
00268       integer*2 selectpalette
00269
00270       external settextrows
00271       integer*2 settextrows
00272
00273       external settextwindow
00274       external scrolltextwindow
00275       external outtext
00276
00277       external wrapon
00278       integer*2 wrapon
00279
00280       external displaycursor
00281       integer*2 displaycursor
00282
00283       external settextcursor
00284       integer*2 settextcursor
00285
00286       external gettextcursor
00287       integer*2 gettextcursor
00288
00289       external settextposition
00290       external gettextposition
00291
00292       external settextcolor
00293       integer*2 settextcolor
00294
00295       external gettextcolor
00296       integer*2 gettextcolor
00297
00298       external getimage
00299       external putimage
00300
00301       external imagesize
00302       integer*4 imagesize
00303
00304
00305
00306       structure/wxycoord/       ! window coordinates
00307         double precision wx
```

```
00308         double precision wy
00309       end structure
00310
00311       external setwindow
00312       integer*2 setwindow
00313
00314       external getwindowcoord
00315       external getviewcoord_w
00316       external getcurrentposition_w
00317
00318
00319       external arc_w
00320       integer*2 arc_w
00321
00322       external ellipse_w
00323       integer*2 ellipse_w
00324
00325       external floodfill_w
00326       integer*2 floodfill_w
00327
00328       external getpixel_w
00329       integer*2 getpixel_w
00330
00331       external lineto_w
00332       integer*2 lineto_w
00333
00334       external moveto_w
00335
00336       external pie_w
00337       integer*2 pie_w
00338
00339       external rectangle_w
00340       integer*2 rectangle_w
00341
00342       external setpixel_w
00343       integer*2 setpixel_w
00344
00345       external getimage_w
00346
00347       external imagesize_w
00348       integer*2 imagesize_w
00349
00350       external putimage_w
00351
00352       structure/fontinfo/
00353         integer*2 type          ! b0 set = vector,clear = bit map
00354         integer*2 ascent        ! pix dist from top to baseline
00355         integer*2 pixwidth      ! character width in pixels, 0=prop
00356         integer*2 pixheight     ! character height in pixels
00357         integer*2 avgwidth      ! average character width in pixels
00358         character*81 filename   ! file name including path
00359         character*32 facename   ! font name
00360       end structure
00361
00362
00363       integer*2 $NO_SPACE, $FIXED_SPACE, $PROP_SPACE
00364       parameter($no_space    = 0)
00365       parameter($fixed_space = 1)
00366       parameter($prop_space  = 2)
00367
00368       integer*2 $NO_FONT_MAP, $VECTOR_MAP, $BIT_MAP
00369       parameter($no_font_map = 0)
00370       parameter($vector_map  = 1)
00371       parameter($bit_map     = 2)
00372
00373       external registerfonts
00374       integer*2 registerfonts
00375
00376       external unregisterfonts
00377
00378       external setfont
00379       integer*2 setfont
00380
00381       external getfontinfo
00382       integer*2 getfontinfo
00383
00384       external outgtext
00385
00386       external getgtextextent
00387       integer*2 getgtextextent
00388 C
00389 C> \endcond
```

3.21 Fgraph.fi File Reference

DOS Port: Interface OW graph.lib.

3.21.1 Detailed Description

DOS Port: Interface OW graph.lib.

Interface definition for the Watcom DOS Graphic Library. Substitutes the INCLUDE-file of the Microsoft Fortran Compiler, derived from the Watcom headerfile graphapi.fi.

Author

Dr.-Ing. Klaus Friedewald

Note

Watcom-FTN77 variable names are allowed to be 32 characters long and may contain $ and _. That for $notruncate und $notstrict are superfluous.

The Watcom library graph.lib ist not included in Graph2Ddos.lib and has to be linked to the main programs: -libr graph.

Definition in file Fgraph.fi.

3.22 Fgraph.fi

```
00001 C> \file    Fgraph.fi
00002 C> \brief   DOS Port: Interface OW graph.lib
00003 C>
00004 C> \~german
00005 C> Interfacedeklaration der Watcom DOS Graphik-Library. Ersatz für das zum
00006 C> Microsoft Fortran-Compiler gehörende INCLUDE-File, abgeleitet aus dem
00007 C> Watcom-Headerfile graphapi.fi.
00008 C>
00009 C> \~english
00010 C> Interface definition for the Watcom DOS Graphic Library. Substitutes
00011 C> the INCLUDE-file of the Microsoft Fortran Compiler, derived from the
00012 C> Watcom headerfile graphapi.fi.
00013 C>
00014 C> \~
00015 C> \author  Dr.-Ing. Klaus Friedewald
00016 C>
00017 C> \~german
00018 C> \note
00019 C> Der Watcom Compiler erlaubt 32 Zeichen lange Variablennamen unter Verwendung
00020 C> von $ und _. Deswegen sind $notruncate und $notstrict überflüssig.
00021 C>
00022 C> \note
00023 C> Die OpenWatcom Library graph.lib ist nicht Bestandteil von Graph2Ddos.lib
00024 C> und muss bei den Linkoptionen der Hauptprogramme aufgeführt werden:
00025 C> -libr graph.
00026 C> \~english
00027 C> \note
00028 C> Watcom-FTN77 variable names are allowed to be 32 characters long and may
00029 C> contain $ and _. That for $notruncate und $notstrict are superfluous.
00030 C>
00031 C> \note
00032 C> The Watcom library graph.lib ist not included in Graph2Ddos.lib and has to
00033 C> be linked to the main programs:
00034 C> -libr graph.
00035 C> \~
00036 C>
00037
00038
00039 c$pragma aux arc "_arc_" parm (VALUE*2)
```

```
00040
00041 c$pragma aux arc_w "_arc_w_" parm (VALUE*8)
00042
00043 c$pragma aux clearscreen "_clearscreen_" parm (VALUE*2)
00044
00045 c$pragma aux displaycursor "_displaycursor_" parm (VALUE*2)
00046
00047 c$pragma aux ellipse  "_ellipse_" parm (VALUE*2)
00048
00049 c$pragma aux ellipse_w "_ellipse_w_" parm (VALUE*2, VALUE*8)
00050
00051 c$pragma aux floodfill  "_floodfill_" parm (VALUE*2)
00052
00053 c$pragma aux floodfill_w "_floodfill_w_" parm (VALUE*8, VALUE*8, VALUE*2)
00054
00055 c$pragma aux getactivepage  "_getactivepage_"
00056
00057 c$pragma aux getbkcolor  "_getbkcolor_"
00058
00059 c$pragma aux getcolor "_getcolor_"
00060
00061 c$pragma aux getcurrentposition "_getcurrentposition_" parm (REFERENCE FAR)
00062
00063 c$pragma aux getcurrentposition_w "_getcurrentposition_w_" parm (REFERENCE FAR)
00064
00065 c$pragma aux getfillmask "_getfillmask_" parm (REFERENCE FAR)
00066
00067 c$pragma aux getimage "_getimage_" parm (VALUE*2,VALUE*2,VALUE*2,VALUE*2, \
00068 c REFERENCE FAR)
00069
00070 c$pragma aux getimage_w "_getimage_w_" parm (VALUE*8,VALUE*8,VALUE*8, \
00071 c  VALUE*8,REFERENCE FAR)
00072
00073 c$pragma aux  getlinestyle "_getlinestyle_"
00074
00075 c$pragma aux getphyscoord "_getphyscoord_" parm (VALUE*2,VALUE*2, \
00076 c  REFERENCE FAR)
00077
00078 c$pragma aux getpixel "_getpixel_" parm (VALUE*2)
00079
00080 c$pragma aux getpixel_w "_getpixel_w_" parm (VALUE*8)
00081
00082 c$pragma aux gettextcolor "_gettextcolor_"
00083
00084 c$pragma aux gettextcursor "_gettextcursor_"
00085
00086 c$pragma aux gettextposition "_gettextposition_" parm (REFERENCE FAR)
00087
00088 c$pragma aux getvideoconfig "_getvideoconfig_" parm (REFERENCE FAR)
00089
00090 c$pragma aux getviewcoord "_getviewcoord_" parm (VALUE*2,VALUE*2, \
00091 c  REFERENCE FAR)
00092
00093 c$pragma aux getviewcoord_w "_getviewcoord_w_" parm (VALUE*8,VALUE*8, \
00094 c  REFERENCE FAR)
00095
00096 c$pragma aux getvisualpage "_getvisualpage_"
00097
00098 c$pragma aux getwindowcoord "_getwindowcoord_" parm (VALUE*2,VALUE*2, \
00099 c  REFERENCE FAR)
00100
00101 c$pragma aux imagesize "_imagesize_" parm (VALUE*2)
00102
00103 c$pragma aux imagesize_w "_imagesize_w_" parm (VALUE*8)
00104
00105 c$pragma aux lineto "_lineto_" parm (VALUE*2)
00106
00107 c$pragma aux lineto_w "_lineto_w_" parm (VALUE*8)
00108
00109 c$pragma aux moveto "_moveto_" parm (VALUE*2,VALUE*2,REFERENCE FAR)
00110
00111 c$pragma aux moveto_w "_moveto_w_" parm (VALUE*8,VALUE*8,REFERENCE FAR)
00112
00113 c$pragma aux _outtext "_outtext_" parm (DATA_REFERENCE FAR)
00114
00115 c$pragma aux pie "_pie_" parm (VALUE*2)
00116
00117 c$pragma aux pie_w "_pie_w_" parm (VALUE*2,VALUE*8)
00118
00119 c$pragma aux putimage "_putimage_" parm (VALUE*2,VALUE*2,REFERENCE FAR,VALUE*2)
00120
00121 c$pragma aux putimage_w "_putimage_w_" parm (VALUE*8,VALUE*8, \
00122 c  REFERENCE FAR,VALUE*2)
00123
00124 c$pragma aux rectangle "_rectangle_" parm (VALUE*2)
00125
00126 c$pragma aux rectangle_w "_rectangle_w_" parm (VALUE*2,VALUE*8)
```

```
00127
00128 c$pragma aux remappalette "_remappalette_" parm (VALUE*2,VALUE*4)
00129
00130 c$pragma aux remapallpalette "_remapallpalette_" parm (VALUE*4)
00131
00132 c$pragma aux scrolltextwindow "_scrolltextwindow_" parm (VALUE*2)
00133
00134 c$pragma aux selectpalette "_selectpalette_" parm (VALUE*2)
00135
00136 c$pragma aux setactivepage "_setactivepage_" parm (VALUE*2)
00137
00138 c$pragma aux setbkcolor "_setbkcolor_" parm (VALUE*4)
00139
00140 c$pragma aux setcliprgn "_setcliprgn_" parm (VALUE*2)
00141
00142 c$pragma aux setcolor "_setcolor_" parm (VALUE*2)
00143
00144 c$pragma aux setfillmask "_setfillmask_" parm (REFERENCE FAR)
00145
00146 c$pragma aux setlinestyle "_setlinestyle_" parm (VALUE*2)
00147
00148 c$pragma aux setpixel "_setpixel_" parm (VALUE*2)
00149
00150 c$pragma aux setpixel_w"_setpixel_w_" parm (VALUE*8)
00151
00152 c$pragma aux settextcolor "_settextcolor_" parm (VALUE*2)
00153
00154 c$pragma aux settextcursor "_settextcursor_" parm (VALUE*2)
00155
00156 c$pragma aux settextposition "_settextposition_" parm (VALUE*2,VALUE*2, \
00157 c  REFERENCE FAR)
00158
00159 c$pragma aux settextrows "_settextrows_" parm (VALUE*2)
00160
00161 c$pragma aux settextwindow "_settextwindow_" parm (VALUE*2)
00162
00163 c$pragma aux setvideomode "_setvideomode_" parm (VALUE*2)
00164
00165 c$pragma aux setvideomoderows "_setvideomoderows_" parm (VALUE*2)
00166
00167 c$pragma aux setvieworg "_setvieworg_" parm (VALUE*2, VALUE*2,REFERENCE FAR)
00168
00169 c$pragma aux setviewport "_setviewport_" parm (VALUE*2)
00170
00171 c$pragma aux setvisualpage "_setvisualpage_" parm (VALUE*2)
00172
00173 c$pragma aux setwindow "_setwindow_" parm (VALUE*2,VALUE*8)
00174
00175 c$pragma aux wrapon "_wrapon_" parm (VALUE*2)
00176
00177
00178 c$pragma aux getfontinfo "_getfontinfo_" parm (REFERENCE FAR)
00179
00180 c$pragma aux getgtextextent "_getgtextextent_" parm (DATA_REFERENCE FAR)
00181
00182 c$pragma aux outgtext "_outgtext_" parm (DATA_REFERENCE FAR)
00183
00184 c$pragma aux registerfonts "_registerfonts_" parm (DATA_REFERENCE FAR)
00185
00186 c$pragma aux setfont "_setfont_" parm (DATA_REFERENCE FAR)
00187
00188 c$pragma aux unregisterfonts "_unregisterfonts_"
```

3.23 G2dAG2.fd File Reference

Graph2D: AG2 Common Block G2dAG2.

3.23.1 Detailed Description

Graph2D: AG2 Common Block G2dAG2.

Version

2.0

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Definition in file G2dAG2.fd.

3.24 G2dAG2.fd

```
00001 C> \file       G2dAG2.fd
00002 C> \brief      Graph2D: AG2 Common Block G2dAG2
00003 C> \version    2.0
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C
00007 C  Da die folgende Definition kein Bestandteil eines Moduls
00008 C  ist versagt der DOXYGEN-Parser bei der Kombination von
00009 C  COMMON und integer. Workaraound: \\cond ... \\endcond
00010 C> \cond
00011
00012 C Common Block G2dAG2, Version 2.0 für AG2
00013 C     Die Funktion der Variablen entspricht dem Tektronix AG2 User-Manual,
00014 C     jedoch sind die achsenbezogenen Variablen in einem Feld zusammenge-
00015 C     fasst. Die x-Achse wird durch Index=1, y durch Index=2 beschrieben.
00016 C
00017       integer     cline,csymbl,csteps ! ibase+ 0..2
00018       real        cinfin ! 3
00019       integer     cnpts,cstepl,cnumbr ! 4..6
00020       real        csizes,csizel ! 7,8
00021
00022       logical     cxyneat(2),cxyzero(2) ! nbase+ 0, 1
00023       integer     cxyloc(2),cxylab(2),cxyden(2),cxytics(2) ! nbase+ 2..5
00024       integer     cxylen(2),cxyfrm(2),cxymtcs(2),cxymfrm(2),cxydec(2) ! 6..10
00025       real        cxydmin(2),cxydmax(2) ! 11,12
00026       integer     cxysmin(2),cxysmax(2),cxytype(2) ! 13..15
00027       integer     cxylsig(2),cxywdth(2),cxyepon(2) ! 16..18
00028       integer     cxystep(2),cxystag(2),cxyetyp(2) ! 19..21
00029       integer     cxybeg(2),cxyend(2),cxymbeg(2),cxymend(2) ! 22..25
00030       real        cxyamin(2),cxyamax(2) ! 26,27
00031
00032       common /g2dag2/
00033 C     & extent,cvectr,xvectr,yvectr,
00034 C     & xtentc,xtentx,xtenty,
00035 C
00036      & cline,csymbl,csteps,
00037      & cinfin,
00038      & cnpts,cstepl,cnumbr,csizes,csizel,
00039 C
00040      & cxyneat,cxyzero,cxyloc,cxylab,cxyden,cxytics,
00041      & cxylen,cxyfrm,cxymtcs,cxymfrm,cxydec,
00042      & cxydmin,cxydmax,cxysmin,cxysmax,cxytype,
00043      & cxylsig,cxywdth,cxyepon,cxystep,cxystag,cxyetyp,
00044      & cxybeg,cxyend,cxymbeg,cxymend,cxyamin,cxyamax
00045 C
00046 C     & reserv(8)
00047       save /g2dag2/
00048
00049       integer G2dAG2L         ! Benoetigt von SAVCOM, RESCOM
00050       parameter(g2dag2l=65)   ! integer, real und logical gleich lang!
00051 C> \endcond
```

3.25 GetHDC.for File Reference

Utility: Restore Hardcopies.

Functions/Subroutines

- logical function gethdc (Filnam)

3.25.1 Detailed Description

Utility: Restore Hardcopies.

Version

1.0

Author

(C) 2023 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Read and plot hardcopies
Temporary input unit: 41. If already used, an other channel will be searched.

Definition in file GetHDC.for.

3.25.2 Function/Subroutine Documentation

3.25.2.1 gethdc()

```
logical function gethdc (
             character *(*) Filnam )
```

Parameters

FilNam	Hardcopyfie

Returns

(optional) .true. -> Error

Definition at line 15 of file GetHDC.for.

3.26 GetHDC.for

```
00001 C> \file       GetHDC.for
00002 C> \brief      Utility: Restore Hardcopies
00003 C> \version    1.0
00004 C> \author     (C) 2023 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C> \~german
00007 C> Einlesen und Zeichnen von Hardcopydateien\n
```

```
00008 C> Verwendete temporaeres Ein/Ausgabeunit: 41. Falls bereits belegt, wird ein freier Kanal gesucht
00009 C> \~english
00010 C> Read and plot hardcopies\n
00011 C> Temporary input unit: 41. If already used, an other channel will be searched.
00012 C> \~
00013 C
00014
00015       logical function gethdc (Filnam)
00016 C> \param FilNam: Hardcopyfie
00017 C> \result (optional) .true. -> Error
00018       implicit none
00019       integer tcs_messagelen, iunit
00020       parameter(tcs_messagelen=132)
00021       character *(*) filnam
00022       logical iunitused
00023       character *(TCS_MESSAGELEN+1) txtstring
00024
00025       integer ios, idash, iprntlen, iactlen
00026       integer action, i1, i2
00027
00028       iunit= 40
00029       gethdc= .true.
00030
00031  5    continue ! repeat
00032         iunit= iunit+1
00033         inquire (unit=iunit, opened= iunitused)
00034       if (iunitused) goto 5
00035
00036       open (iunit,file=filnam,status='old',iostat=ios,form='formatted')
00037       if (ios.ne.0) then
00038         call graphicerror (6, ' ')
00039         return
00040       end if
00041
00042  10   continue ! repeat
00043         read (iunit, fmt='(i2,1x,i4,1x,i3)', iostat=ios)action, i1, i2
00044         if (ios.gt.0) then ! Error, not EOF
00045          call graphicerror (8, ' ')
00046          return
00047         end if
00048         if (action.eq.1) then ! XACTION_INITT
00049           call defaultcolour()
00050           call erase ()
00051         else if (action.eq.2) then ! XACTION_ERASE
00052           call erase ()
00053         else if (action.eq.3) then ! XACTION_MOVABS
00054           call movabs (i1,i2)
00055         else if (action.eq.4) then ! XACTION_DRWABS
00056           call drwabs (i1,i2)
00057         else if (action.eq.5) then ! XACTION_DSHSTYLE
00058           idash= i1
00059         else if (action.eq.6) then ! XACTION_DSHABS
00060           call dshabs (i1,i2,idash)
00061         else if (action.eq.7) then ! XACTION_PNTABS
00062           call pntabs (i1,i2)
00063         else if (action.eq.8) then ! XACTION_GTEXT
00064           iprntlen= i1
00065           if (iprntlen.gt.tcs_messagelen) iprntlen= tcs_messagelen
00066           txtstring(1:1)= char(i2)
00067           if (iprntlen.eq.1) then
00068             txtstring= txtstring(1:1) // char(0)
00069             call toutstc (txtstring)
00070           else
00071             iactlen= 1
00072           end if
00073         else if (action.eq.9) then ! XACTION_ASCII
00074           if (iactlen.lt.iprntlen) then
00075             iactlen= iactlen+1
00076             txtstring(iactlen:iactlen)= char(i1)
00077           end if
00078           if (iactlen.lt.iprntlen) then
00079             iactlen= iactlen+1
00080             txtstring(iactlen:iactlen)= char(i2)
00081           end if
00082           if (iactlen.ge.iprntlen) then
00083             txtstring(iactlen+1:iactlen+1) = char(0)
00084             call toutstc (txtstring)
00085           end if
00086         else if (action.eq.10) then ! XACTION_BCKCOL
00087           call bckcol(i1)
00088         else if (action.eq.11) then ! XACTION_LINCOL
00089           call lincol (i1)
00090         else if (action.eq.12) then ! XACTION_TXTCOL
00091           call txtcol (i1)
00092         else if (action.eq.13) then ! XACTION_FONTATTR
00093           if (i1.eq.0) call italir()
00094           if (i1.eq.1) call italic()
```

```
00095           if (i2.eq.0) call nrmsiz()
00096           if (i2.eq.1) call dblsiz()
00097         else if (action.eq.14) then ! XACTION_NOOP
00098           continue
00099         else ! unknown
00100           continue
00101         end if
00102       if (ios.eq.0) goto 10 ! until EOF
00103
00104       close (iunit)
00105       gethdc= .false.
00106       return
00107
00108  99       continue ! Error Exit
00109           call graphicerror (8, ' ')
00110       return
00111       end
```

3.27 hdcopy.for File Reference

DOS Port: Hardcopy.

Functions/Subroutines

- subroutine hdcopy
- subroutine writebuf (iHandle, Buf, iPtr, iWrite)

3.27.1 Detailed Description

DOS Port: Hardcopy.

Version

1.35

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

TCS Hardcopy from Screen

Definition in file hdcopy.for.

3.27.2 Function/Subroutine Documentation

3.27.2.1 hdcopy()

```
subroutine hdcopy
```

Definition at line 40 of file hdcopy.for.

3.27.2.2 writebuf()

```
subroutine writebuf (
             integer*2 iHandle,
             integer*1, dimension(1) Buf,
             integer iPtr,
             integer iWrite )
```

Definition at line 241 of file hdcopy.for.

3.28 hdcopy.for

```
00001 C> \file       hdcopy.for
00002 C> \brief      DOS Port: Hardcopy
00003 C> \version    1.35
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C>
00007 C> \~german
00008 C> TCS Bildschirmhardcopy
00009 C> \~english
00010 C> TCS Hardcopy from Screen
00011 C> \~
00012 C>
00013 C
00014 C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC   Changelog   CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
00015 C
00016 C  TCS Graphik Hardcopy für DOS
00017 C
00018 C     Version 1.1
00019 C
00020 C           subroutine HDCOPY: Erzeugt Windows-Bitmapfile der Form HDCxxx.bmp
00021 C
00022 C      21.11.01         Dr.-Ing. K. Friedewald
00023 C
00024 C     08.02.02 Version 1.2
00025 C           Implementierung multilinguale Meldungen
00026 C
00027 C     31.05.02 Version 1.3:
00028 C           Ersatz Hex-Konstante durch Dezimalkonstante zur Erzielung Kompatibilität mit
       WATCOM-Kompiler
00029 C           INCLUDE Interface TCSDOSA.FI zur Anpassung an den WATCOM-Compiler
00030 C
00031 C     19.10.02 Version 1.34
00032 C           Umbenennung TKTRNX.FOR in TKTRNX.FD zur Kompatibilität CP/M
00033 C
00034 C     06.02.03 Version 1.35
00035 C           Interne Umbenennung lib$movc3 in lib_movc3
00036 C
00037       include 'FGRAPH.FI'
00038       include 'TCSdDOSa.FI'
00039
00040       subroutine hdcopy
00041       include 'TKTRNX.FD'
00042       include  'FGRAPH.FD'
00043       structure /bitmapfileheader/
00044             integer*2   DatKennung  ! = $4d42
00045             integer*4   DatSize     ! Bilddateigroesse in Byte
00046             integer*2   Reserved1
00047             integer*2   Reserved2
00048             integer*4   GraphDatDst ! Entfernung BITMAPFILEHEADER zu Graphikdaten (Byte)
00049       end structure
00050       structure /bitmapinfoheader/
00051             integer*4   BMpInfHdSiz ! Größe Bitmapinfoheader in Byte
```

```
00052             integer*4   PicWidth    ! Bildbreite Pixel, abgespeicherte Bytes durch 4 teilbar!
00053             integer*4   PicHeight   ! Bildhöhe in Pixel
00054             integer*2   iLayer      ! = 1
00055             integer*2   iBitPix     ! Bits per Pixel (1,4,8,24)
00056             integer*4   Kompr       ! Komprimierung =0(ohne),1(RLE8),2(RLE4)
00057             integer*4   PicSiz      ! Bildgroesse in Byte
00058             integer*4   HorPixDen   ! Horizontale Auflösung Pixel/ Meter
00059             integer*4   VerPixDen   ! Vertikale Auflösung Pixel/ Meter
00060             integer*4   iCol        ! Anzahl benutzte Farben
00061             integer*4   iVIPCol     ! Anzahl wichtige Farben =0(alle)
00062       end structure
00063       structure /rgbquad/
00064             integer*1   Blue
00065             integer*1   Green
00066             integer*1   Red
00067             integer*1   Reserved    ! =0
00068       end structure
00069       structure /fileheader/
00070             record /bitmapfileheader/  bfh
00071             record /bitmapinfoheader/  bih
00072             record /rgbquad/           palette(16)
00073       end structure
00074
00075       record /fileheader/ filhead
00076
00077       integer iWrtBuf
00078       parameter(iwrtbuf=650)
00079       integer*1 Buf(iWrtBuf)            ! > 2* (VGA-Auflösung/2)
00080       equivalence(buf,filhead)
00081
00082
00083       integer nByteRow
00084       integer iPtr, iPathlen
00085       integer*2 iHandle, ierr
00086       character*10 FilNam, Path*80
00087
00088       call graphicerror (10,' ') ! Hardcopy in progress
00089 c
00090 c  Initialisierung Fileheader
00091 c
00092       nbyterow=(kscrx+7-mod(kscrx-1,8))/2 ! Byte pro Zeile durch 4 teilbar
00093       if (2*nbyterow.gt.iwrtbuf) then
00094        call graphicerror (8, ' ') ! Hardcopy: Write Buffer Overflow
00095       end if
00096
00097       filhead.bfh.datkennung= 19778 ! = 4d42h
00098
00099       filhead.bfh.reserved1= 0
00100       filhead.bfh.reserved2= 0
00101
00102       filhead.bfh.graphdatdst= 118 ! = 76h
00103       filhead.bfh.datsize=nbyterow*(kscry+1) + filhead.bfh.graphdatdst
00104
00105       filhead.bih.bmpinfhdsiz= 40 ! = 28h
00106       filhead.bih.picwidth= kscrx+1
00107       filhead.bih.picheight= kscry+1
00108
00109       filhead.bih.ilayer= 1
00110       filhead.bih.ibitpix=4         ! Auch bei Monochrom???
00111       filhead.bih.kompr= 0
00112       filhead.bih.picsiz= 0         ! nicht verwendet
00113       filhead.bih.horpixden= 0
00114       filhead.bih.verpixden= 0
00115       filhead.bih.icol= 0
00116       filhead.bih.ivipcol= 0
00117
00118       filhead.palette(1).red= 0
00119       filhead.palette(1).green= 0
00120       filhead.palette(1).blue= 0
00121
00122       filhead.palette(2).red= 0
00123       filhead.palette(2).green= 0
00124       filhead.palette(2).blue= 160
00125
00126       filhead.palette(3).red= 0
00127       filhead.palette(3).green= 160
00128       filhead.palette(3).blue= 0
00129
00130       filhead.palette(4).red= 0
00131       filhead.palette(4).green= 160
00132       filhead.palette(4).blue=160
00133
00134       filhead.palette(5).red= 160
00135       filhead.palette(5).green= 0
00136       filhead.palette(5).blue= 0
00137
00138       filhead.palette(6).red= 160
```

```
00139       filhead.palette(6).green= 0
00140       filhead.palette(6).blue= 160
00141
00142       filhead.palette(7).red= 160
00143       filhead.palette(7).green= 80
00144       filhead.palette(7).blue= 0
00145
00146       filhead.palette(8).red= 160
00147       filhead.palette(8).green= 160
00148       filhead.palette(8).blue= 160
00149
00150       filhead.palette(9).red= 80
00151       filhead.palette(9).green= 80
00152       filhead.palette(9).blue= 80
00153
00154       filhead.palette(10).red= 80
00155       filhead.palette(10).green= 80
00156       filhead.palette(10).blue= 240
00157
00158       filhead.palette(11).red= 80
00159       filhead.palette(11).green= 240
00160       filhead.palette(11).blue= 80
00161
00162       filhead.palette(12).red= 80
00163       filhead.palette(12).green= 240
00164       filhead.palette(12).blue= 240
00165
00166       filhead.palette(13).red= 240
00167       filhead.palette(13).green= 80
00168       filhead.palette(13).blue= 80
00169
00170       filhead.palette(14).red= 240
00171       filhead.palette(14).green= 80
00172       filhead.palette(14).blue= 240
00173
00174       filhead.palette(15).red= 240
00175       filhead.palette(15).green= 240
00176       filhead.palette(15).blue= 80
00177
00178       filhead.palette(16).red= 240
00179       filhead.palette(16).green= 240
00180       filhead.palette(16).blue= 240
00181
00182       do 3 i=1,16
00183  3     filhead.palette(i).reserved= 0
00184 c
00185 c Create Filename and open
00186 c
00187       path= 'SPL='//char(0)
00188       call getenv (path, len(path))
00189       ipathlen=istringlen(path)
00190
00191       i=0
00192  5    continue
00193        i= i+1
00194        write (filnam,fmt=300) i
00195        if (ipathlen.gt.0) then
00196         call openbytfil(ierr,ihandle,
00197      1                  path(:ipathlen)//'\'//filnam//char(0))
00198        else
00199         call openbytfil(ierr,ihandle, filnam//char(0))
00200        end if
00201       if (ierr.eq.80) goto 5  ! File exists - increase FilNam
00202       if (ierr.ne.0) call graphicerror (6, ' ') ! Hardcopy: Error during OPEN
00203 c
00204 c Zeilenweises Auslesen Bildschirmspeicher, Puffern und Fileausgabe
00205 c
00206       iptr= filhead.bfh.graphdatdst +1
00207
00208       do 20 iy=kscry,0,-1      ! oder 1?
00209        ix=0
00210  10    continue                     ! repeat
00211         buf(iptr)= ishl(getpixel(ix,iy),4)
00212         ix= ix+1
00213         if(ix.le.kscrx)buf(iptr)=buf(iptr).or.(getpixel(ix,iy).and.15)
00214         iptr= iptr+1
00215         ix=ix+1
00216        if (ix.le.kscrx) goto 10
00217        ix=ix                        ! Anzahl belegter Halfbytes
00218  15    if (ix.lt.2*nbyterow) then   ! do while
00219         buf(iptr)= 0
00220         iptr= iptr+1
00221         ix=ix+2
00222         goto 15
00223        end if                       ! end while
00224        call writebuf (ihandle, buf(1),iptr, 256)
00225  20   continue
```

```
00226 c
00227 c Empty Buffer and Close File
00228 c
00229       call wrtbytfil (ierr, ihandle, buf(1), iptr)
00230       if (ierr.ne.0) call graphicerror (7, ' ') ! Hardcopy: Error during WRITE
00231
00232       call closebytfil (ihandle)
00233       call statst (' ')
00234       return
00235
00236 300   format ('HDC',i3.3,'.BMP')
00237       end
00238
00239
00240
00241       subroutine writebuf (iHandle, Buf, iPtr, iWrite)
00242       integer*1 Buf(1)
00243       integer iPtr, iWrite
00244       integer*2 iHandle
00245       integer*2 iErr
00246  10   continue
00247        if (iptr.le.iwrite) return
00248        call wrtbytfil (ierr, ihandle, buf(1), iwrite)
00249        if (ierr.ne.0) call graphicerror (7, ' ') ! Hardcopy: Error during WRITE
00250        call lib_movc3 (iptr-iwrite,buf(iwrite+1), buf(1))
00251        iptr= iptr-iwrite
00252       goto 10
00253       end
00254
00255
```

3.29 Mainpage.dox File Reference

3.30 outtext.for File Reference

DOS Port: alphanumeric output to the graphic screen.

Functions/Subroutines

- subroutine outtext (text)

3.30.1 Detailed Description

DOS Port: alphanumeric output to the graphic screen.

Version

1.0

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Version

1.0

Unification of the Watcom and Microsoft version

Definition in file outtext.for.

3.30.2 Function/Subroutine Documentation

3.30.2.1 outtext()

```
subroutine outtext (
             character *(*) text )
```

Definition at line 23 of file outtext.for.

3.31 outtext.for

```
00001 C> \file       outtext.for
00002 C> \version    1.0
00003 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00004 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00005 C>
00006 C> \~german
00007 C> \brief   DOS Port: Textausgabe in den Grafikbereich
00008 C> \~english
00009 C> \brief   DOS Port: alphanumeric output to the graphic screen
00010 C> \~
00011 C> \version 1.0
00012 C> \~german
00013 C> Angleichung der Watcom-Graphikroutine an die MS-Version
00014 C> \~english
00015 C> Unification of the Watcom and Microsoft version
00016 C> \~
00017 C>
00018 C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC   Changelog   CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
00019 C OUTTEXT.FOR - Angleichung der Watcom-Graphikroutine an die MS-Version
00020 C
00021       include 'FGRAPH.FI'
00022
00023       subroutine outtext (text) ! Angleichung an MS-Version
00024       character *(*) text
00025       character *(81) TextBuf
00026       textbuf= text//char(0)
00027       call _outtext (textbuf)
00028       return
00029       end
00030
```

3.32 Strings.for File Reference

TCS: String functions.

Functions/Subroutines

- subroutine substitute (Source, Destination, Old1, New1)
- integer function istringlen (String)
- character *(*) function printstring (String)
- integer function itrimlen (string)

3.32.1 Detailed Description

TCS: String functions.

Version

1.26

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Fortran utility functions for string processing

Definition in file Strings.for.

3.32.2 Function/Subroutine Documentation

3.32.2.1 istringlen()

```
integer function istringlen (
             character *(*) String )
```

Definition at line 94 of file Strings.for.

3.32.2.2 itrimlen()

```
integer function itrimlen (
             character *(*) string )
```

Definition at line 133 of file Strings.for.

3.32.2.3 printstring()

```
character*(*) function printstring (
             character, dimension(*) String )
```

Definition at line 114 of file Strings.for.

3.32.2.4 substitute()

```
subroutine substitute (
             character *(*) Source,
             character *(*) Destination,
             character *(*) Old1,
             character *(*) New1 )
```

Definition at line 30 of file Strings.for.

3.33 Strings.for

```
00001 C> \file       Strings.for
00002 C> \brief      TCS: String functions
00003 C> \version    1.26
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C> \~german
00007 C> Hilfsfunktionen zur Fortran Stringverarbeitung
00008 C> \~english
00009 C> Fortran utility functions for string processing
00010 C> \~
00011 C>
00012 C
00013 Ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
00014 C
00015 C  Unterprogramme zur Behandlung von Fortran-Strings.
00016 C  Die Stringenden werden entweder durch CHAR(0) markiert oder
00017 C  ueber die Deklaration ermittelt.
00018 C
00019 C     9.11.88     K. Friedewald
00020 C
00021 C  Ergaenzungen:
00022 C     iTrimLen
00023 C
00024 C     7.12.01     K. Friedewald
00025 C
00026 C  Version: 1.26
00027 C
00028 Ccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccccc
00029
00030       subroutine substitute (Source, Destination, Old1, New1)
00031 C
00032 C  Durchsucht SOURCE nach den Substrings OLD, ersetzt sie durch NEW
00033 C  und uebergibt das Ergebniss in DESTINATION. Wenn New=CHAR(0), werden
00034 C  die vorkommenden OLD nur geloescht.
00035 C
00036 C  Stringenden koennen durch CHAR(0) markiert werden.
00037 C
00038       implicit none
00039       integer iNext, iNext2, TempLen
00040       integer iStringLen
00041       character *(*) Source, Destination, Old1, New1
00042       character*255 temp, old, new
00043
00044       if (istringlen(old1).le.0) return
00045       if (istringlen(source) .le. 0) then
00046        destination= char(0)
00047        return
00048       end if
00049
00050       old= old1 // char(0)          ! old evtl. = Destination
00051       new= new1 // char(0)          ! => retten!
00052
00053       temp= source(1:istringlen(source)) // char(0) ! evtl. Ueberlappung!
00054       destination= temp
00055       inext= index( destination(:istringlen(destination)),
00056      1                                      old(:istringlen(old)) )
00057       do while (inext.gt.0)
00058        if (inext.eq.1) then
00059         temp= destination
00060         if (new.eq.char(0)) then
00061          destination= temp(istringlen(old)+1:)
00062         else
00063          destination= new(:istringlen(new)) // temp(istringlen(old)+1:)
00064         end if
00065        else
00066         temp= destination(1:inext-1)
```

```
00067         templen= inext-1
00068         if (new.ne.char(0)) then
00069          temp= temp(1:templen)//new
00070          templen= templen+istringlen(new)
00071         end if
00072         if (inext+istringlen(old).lt.len(destination)) then
00073          temp= temp(1:templen)//destination(inext+istringlen(old):)
00074         end if
00075         destination= temp
00076        end if
00077        inext2= inext+istringlen(new)
00078        if (inext2.lt.len(destination)) then
00079         inext2= index(destination(inext2:), old(:istringlen(old)) )
00080        else
00081         inext2=0
00082        end if
00083        if (inext2.gt.0) then
00084         inext= inext+istringlen(new)+inext2-1
00085        else
00086         inext=0
00087        end if
00088       end do
00089       return
00090       end
00091
00092
00093
00094       function istringlen (String)
00095 C
00096 C Ermittelt die Stringlänge bei durch char(0) abgeschlossenen STRINGs.
00097 C Falls kein char(0) vorhanden ist, wird die Gesamtlänge übergeben.
00098 C
00099       implicit none
00100       character *(*) string
00101       integer istringlen, i
00102
00103       i= index(string,char(0))-1
00104       if (i.ge.0) then
00105        istringlen=i
00106       else
00107        istringlen= len(string)
00108       end if
00109       return
00110       end
00111
00112
00113
00114       character*(*) function printstring (String)
00115 C
00116 C  Kopiert STRING in einen variabel langen PRINTSTRING. Hierdurch wird
00117 C  der Ausdruck von Nullstrings (Fortran-Fehler!) vermieden.
00118 C
00119       implicit none
00120       character string *(*)
00121       integer istringlen
00122
00123       if (istringlen(string).gt.0) then
00124        printstring= string(1:istringlen(string))
00125       else
00126        printstring= ' '
00127       end if
00128       return
00129       end
00130
00131
00132
00133       integer function itrimlen (string)
00134 C
00135 C  Bestimmt die Länge des Strings ohne angehängte Leerzeichen.
00136 C  Bei Bedarf wird ein Char(0) angehaengt. Es darf in Ftn77 nie ein
00137 C  Nullstring erzeugt werden, da sonst die RTL-Library abstuerzt. Deswegen
00138 C  ist der kleinste erzeugte String ein Blank ' '.
00139 C
00140       implicit none
00141       character *(*) string
00142       integer i, istringlen
00143
00144       i=istringlen(string) +1
00145
00146  10   continue
00147        i= i-1
00148        if (i.ge.1) then
00149         if (string(i:i).eq.' ') goto 10
00150       end if
00151       itrimlen=i
00152       if ((i.lt.len(string)).and.(len(string).gt.1)) then
00153        string(i+1:i+1)= char(0) ! .gt.1: Achtung, nie Nullstring erzeugen!
```

```
00154       end if
00155       return
00156       end
00157
```

3.34 TCS.for File Reference

TCS: Tektronix Plot 10 Emulation.

Functions/Subroutines

- subroutine vcursr (IC, X, Y)
- subroutine drawr (X, Y)
- subroutine mover (X, Y)
- subroutine pointr (X, Y)
- subroutine dashr (X, Y, iL)
- subroutine rel2ab (Xrel, Yrel, Xabs, Yabs)
- subroutine drawa (X, Y)
- subroutine movea (X, Y)
- subroutine pointa (X, Y)
- subroutine dasha (X, Y, iL)
- subroutine wincot (X, Y, IX, IY)
- subroutine revcot (IX, IY, X, Y)
- subroutine anstr (NChar, IStrin)
- subroutine ancho (ichar)
- subroutine newlin
- subroutine cartn
- subroutine linef
- subroutine baksp
- subroutine newpag
- function linhgt (Numlin)
- function linwdt (NumChr)
- subroutine lintrn
- subroutine logtrn (IMODE)
- subroutine twindo (IX1, IX2, IY1, IY2)
- subroutine swindo (IX, LX, IY, LY)
- subroutine dwindo (X1, X2, Y1, Y2)
- subroutine vwindo (X, XL, Y, YL)
- subroutine rescal
- subroutine rrotat (Grad)
- subroutine rscale (Faktor)
- subroutine home
- subroutine setmrg (Mlinks, Mrecht)
- subroutine seetrm (IBaud, Iterm, ICSize, MaxScr)
- subroutine seetrn (xf, yf, key)
- logical function genflg (ITEM)

3.34.1 Detailed Description

TCS: Tektronix Plot 10 Emulation.

Version

4.0

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

System independent subroutines

Definition in file TCS.for.

3.34.2 Function/Subroutine Documentation

3.34.2.1 ancho()

```
subroutine ancho (
              ichar )
```

Definition at line 315 of file TCS.for.

3.34.2.2 anstr()

```
subroutine anstr (
              NChar,
             dimension(1) IStrin )
```

Definition at line 305 of file TCS.for.

3.34.2.3 baksp()

```
subroutine baksp
```

Definition at line 360 of file TCS.for.

3.34.2.4 cartn()

```
subroutine cartn
```

Definition at line 341 of file TCS.for.

3.34.2.5 dasha()

```
subroutine dasha (
              X,
              Y,
              iL )
```

Definition at line 266 of file TCS.for.

3.34.2.6 dashr()

```
subroutine dashr (
              X,
              Y,
              iL )
```

Definition at line 212 of file TCS.for.

3.34.2.7 drawa()

```
subroutine drawa (
              X,
              Y )
```

Definition at line 233 of file TCS.for.

3.34.2.8 drawr()

```
subroutine drawr (
              X,
              Y )
```

Definition at line 188 of file TCS.for.

3.34.2.9 dwindo()

```
subroutine dwindo (
              X1,
              X2,
              Y1,
              Y2 )
```

Definition at line 438 of file TCS.for.

3.34.2.10 genflg()

```
logical function genflg (
              ITEM )
```

Definition at line 534 of file TCS.for.

3.34.2.11 home()

```
subroutine home
```

Definition at line 494 of file TCS.for.

3.34.2.12 linef()

```
subroutine linef
```

Definition at line 350 of file TCS.for.

3.34.2.13 linhgt()

```
function linhgt (
              Numlin )
```

Definition at line 376 of file TCS.for.

3.34.2.14 lintrn()

```
subroutine lintrn
```

Definition at line 394 of file TCS.for.

3.34.2.15 linwdt()

```
function linwdt (
              NumChr )
```

Definition at line 384 of file TCS.for.

3.34.2.16 logtrn()

```
subroutine logtrn (
              IMODE )
```

Definition at line 404 of file TCS.for.

3.34.2.17 movea()

```
subroutine movea (
              X,
              Y )
```

Definition at line 244 of file TCS.for.

3.34.2.18 mover()

```
subroutine mover (
              X,
              Y )
```

Definition at line 196 of file TCS.for.

3.34.2.19 newlin()

```
subroutine newlin
```

Definition at line 333 of file TCS.for.

3.34.2.20 newpag()

```
subroutine newpag
```

Definition at line 368 of file TCS.for.

3.34.2.21 pointa()

```
subroutine pointa (
              X,
              Y )
```

Definition at line 255 of file TCS.for.

3.34.2.22 pointr()

```
subroutine pointr (
              X,
              Y )
```

Definition at line 204 of file TCS.for.

3.34.2.23 rel2ab()

```
subroutine rel2ab (
              Xrel,
              Yrel,
              Xabs,
              Yabs )
```

Definition at line 220 of file TCS.for.

3.34.2.24 rescal()

```
subroutine rescal
```

Definition at line 457 of file TCS.for.

3.34.2.25 revcot()

```
subroutine revcot (
              IX,
              IY,
              X,
              Y )
```

Definition at line 290 of file TCS.for.

3.34.2.26 rrotat()

```
subroutine rrotat (
              Grad )
```

Definition at line 477 of file TCS.for.

3.34.2.27 rscale()

```
subroutine rscale (
              Faktor )
```

Definition at line 486 of file TCS.for.

3.34.2.28 seetrm()

```
subroutine seetrm (
              IBaud,
              Iterm,
              ICSize,
              MaxScr )
```

Definition at line 512 of file TCS.for.

3.34.2.29 seetrn()

```
subroutine seetrn (
              xf,
              yf,
              key )
```

Definition at line 523 of file TCS.for.

3.34.2.30 setmrg()

```
subroutine setmrg (
              Mlinks,
              Mrecht )
```

Definition at line 503 of file TCS.for.

3.34.2.31 swindo()

```
subroutine swindo (
              IX,
              LX,
              IY,
              LY )
```

Definition at line 426 of file TCS.for.

3.34.2.32 twindo()

```
subroutine twindo (
              IX1,
              IX2,
              IY1,
              IY2 )
```

Definition at line 419 of file TCS.for.

3.34.2.33 vcursr()

```
subroutine vcursr (
              IC,
              X,
              Y )
```

Definition at line 178 of file TCS.for.

3.34.2.34 vwindo()

```
subroutine vwindo (
               X,
               XL,
               Y,
               YL )
```

Definition at line 445 of file TCS.for.

3.34.2.35 wincot()

```
subroutine wincot (
               X,
               Y,
               IX,
               IY )
```

Definition at line 277 of file TCS.for.

3.35 TCS.for

```
00001 C> \file       TCS.for
00002 C> \brief      TCS: Tektronix Plot 10 Emulation
00003 C> \version    4.0
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C> \~german
00007 C> Systemübergreifende TCS-Routinen
00008 C> \~english
00009 C> System independent subroutines
00010 C> \~
00011 C
00012 C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC   Changelog   CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
00013 C
00014 C      27.11.20 Version 4.0:
00015 C               Einheitliche Version CPM/DOS/Windows/SDL2
00016 C
00017 C      17.08.20 Version 3.2
00018 C               Harmonisierung der Verwendung des Commonblocks TKTRNX
00019 C               Variable KHOMEY wird jetzt (analog alter DOS-Version) verwendet.
00020 C               Da KHOMEY nicht in der CP/M Version vorhanden ist, muss ab dieser
00021 C               Version fuer eine Complilation unter CP/M die entsprechende Zeile
00022 C               in der SUBROUTINE HOME geändert werden.
00023 C
00024 C      13.11.17 Version 3.1
00025 C               Anpassung an OpenWatcom 2.0
00026 C               Bugfix: Unterscheidung Aufrufe ueber windowsx.h (win16) und GDI (win32)
00027 C                - SelectPen -> SelectObject
00028 C                - DeletePen -> DeleteObject
00029 C                - DeleteBrush -> DeleteObject
00030 C                - GetStockBrush -> GetStockObject
00031 C                - DeleteRgn -> DeleteObject
00032 C                - SelectFont -> SelectObject
00033 C                - DeleteFont -> DeleteObject
00034 C
00035 C      27.03.13 Version 3.0
00036 C               Anpassung an Windows 7 und OpenWatcom 1.9
00037 C               Anpassung an gfortran anstelle von g77 der GCC
00038 C
00039 C      22.12.05 Version 2.19
00040 C               Elimination berechnetes GOTO in LOGTRN
00041 C
00042 C      18.10.05 Version 2.18
00043 C               Anpassung der Windowsversionen zur gemeinsamen Verwendung SDL2:
00044 C                 TCSdrWIN.for
00045 C                 TCSdWINc.h
00046 C                 - Überfuehrung der Deklaration aus TCSdWIN.c nach *.h:
```

```
C                   GraphicError und CreateMainWindow_IfNecessary
C                 - Definition der Fehlernummern als Konstante statt enum
C               Abhaengigkeit Watcom-Defaultwindowsystem eliminiert
C               - TCSdWINc.c: Kein Abbruch bei OpenWatcom > 1.3 und
C                 definiertem Symbol trace_calls
C
C      26.10.04 Version 2.17
C               Bugfix Windows-System: Größe und Defaultposition des Status-
C                fensters wird bei der Erzeugung berechnet -> 1. RESTORE nach
C                Verkleinern des Graphikfensters entspricht dem vorherigen
C                Bild. 2. Angleichung des Verhaltens von 16- und 32bit Windows
C               Bei Definition des Symbols STAT_WINDOW_PRIVATE erhält das
C                Statusfenster einen privaten Devicekontext.
C               Zusammenfuehrung Initialisierung der Windows-Library und
C                Windows-DLL -> zusaetzliche Sourcefiles
C                TCSinitt.for, CreateMainWindow.c, GetMainInstance.c
C
C      23.06.04 Version 2.16:
C               Anpassungen an GNU-Compiler fuer Win32. Zusätzliches Sourcefile
C                fuer die GNU-Version: WinMain.c
C               CSIZE in Windows-Version: Korrektur Rundungsfehler
C
C      08.06.04 Version 2.15:
C               Umbenennung lib$movc3 in lib_movc3 (entsprechend ANSI-Fortran)
C               Modul STRINGS.FOR: Version 1.24
C
C      27.06.03 Version 2.14:
C               Verarbeitung Steuerzeichen in ANCHO
C
C      21.10.02 Version 2.13:
C               Einheitliche Version CPM/DOS/Windows
C
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
C
C  Grundversion fuer C128 / Version 1.0:
C
C      Zugehoerige Module:
C              TKTRNX.FOR    Common-Block TKTRNX
C              TCSBASIC.ASM  Low-Level Routinen in Bank 0, C128 spezifisch
C              TCSDRIVR.ASM  Treiber fuer TCSBASIC
C              TCSGIN.ASM    Treiber des Gin-Cursors
C
C      20.4.88         Dr.-Ing. K. Friedewald
C                      4000 Duesseldorf 1
C                      Gerresheimerstr. 84
C
C      21.10.02 Version 2.13:
C               Vereinheitlichung CPM/DOS/Windowsversion
C               Zusätzliches Modul: TCSdrCPM.FOR: früher Teil von TCS.FOR
C               Ausschließliche Verwendung von durch grosses "C" eingeleiteten
C                Kommentaren zur Kompatibilität mit FORTRAN 4
C               Umbenennung des Includefiles in Tktrnx.fd. So kann unter CP/M
C                das als Teil des Filenamens interpretierte "'" der INCLUDE-
C                Anweisung entsprechend der 8.3 Filenamen umgesetzt werden.
C               Implementierung Unterprogramm TCSLEV
C               Bugfix: Kommentar in Tktrnx.fd wurde falsch gekennzeichnet
C                       (c statt C) -> SVSTAT und RESTAT fehlerhaft, da nicht
C                       erkannte Kommentare zusaetzliche Variablen erzeugten.
C
C      TBD: Implementierung vertikale Auflösung von 400 Pixeln
C
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
C
C  Anpassung an DOS:
C
C      Änderungen gegenüber CP/M-Version:
C               SEELOC, DCURSR, SVSTAT, RESTAT, CSIZE in TCSdrDOS.FOR
C      Bugfix:  DASHA, DASHR - Korrektur Parameterliste
C               SEETRM - ibaud statt ibaudr
C
C      Zugehörige Module:
C               TKTRNX.FOR    Common-Block TKTRNX
C               TCSdrDOS.FOR  Bildschirmtreiber
C               TCSdDOSa.ASM  Betriebssystemspezifische Low-Level Routinen
C               HDCOPY.FOR    Hardcopyroutine
C               STRINGS.FOR   Hilfsroutinen zur Stringverarbeitung
C               OUTTEXT.FOR   nur für WATCOM-Compiler
C
C      25.10.01 Version 2.00:  Dr.-Ing. K. Friedewald
C
C      07.02.02 Version 2.10:
C               Implementierung multilinguale Fehlermeldungen
C
C      11.10.02 Version 2.12:
C               Vereinheitlichung DOS/Windowsversion
C
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

```
C
C  Anpassungen an Microsoft-Windows:
C
C      Änderungen gegenüber DOS-Version:
C               INITT befinden sich jetzt in TCSdrWIN.FOR bzw. TCSinitt.FOR
C
C      Zugehörige Module:
C               TKTRNX.FOR    Common-Block TKTRNX
C               TKTRNX.h      Common-Block TKTRNX für Zugriff durch C
C               TCSdrWIN.FOR  Bildschirmtreiber
C               TCSdWINc.c    Windowspezifische API-Routinen
C               TCSdWINc.h    Compiler- und systemspezifische Deklarationen
C               STRINGS.FOR   Hilfsroutinen zur Stringverarbeitung
C
C      27.10.01 Version 2.11: Dr.-Ing. K. Friedewald
C
C      11.10.02 Version 2.12:
C               Vereinheitlichung DOS/Windowsversion
C
C
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
C
C  Anpassungen an SDL2:
C
C      Änderungen gegenüber Windows-Version:
C               Fehlerausgabe in den Windows-Debug-Channel (bzw. *ix Fehlerkanal)
C               Statusfenster analog DOS nur einzeilig ohne Scrollmöglichkeit
C
C      Zugehörige Module:
C               TKTRNX.FOR    identisch mit Windows-Version
C               TKTRNX.h      identisch mit Windows-Version
C               TCSdrSDL.FOR  SDL2-spezifische API-Routinen
C               TCSdSDLc.c    SDL2-spezifische API-Routinen
C               TCSdSDLc.h    Compiler- und systemspezifische Deklarationen
C               STRINGS.FOR   identisch mit Windows-Version
C
C      27.11.20 Version 4.00: Dr.-Ing. K. Friedewald
C


C
C Graphic Input
C

      subroutine vcursr (IC,X,Y)
      call dcursr (ic,ix,iy)
      call revcot (ix,iy,x,y)
      return
      end

C
C  Virtuelle Graphik, relativ
C

      subroutine drawr (X,Y)
      call rel2ab (x,y,xabs,yabs)
      call drawa (xabs,yabs)
      return
      end



      subroutine mover (X,Y)
      call rel2ab (x,y,xabs,yabs)
      call movea (xabs,yabs)
      return
      end



      subroutine pointr (X,Y)
      call rel2ab (x,y,xabs,yabs)
      call pointa (xabs,yabs)
      return
      end



      subroutine dashr (X,Y, iL)
      call rel2ab (x,y,xabs,yabs)
      call dasha (xabs,yabs, il)
      return
      end



      subroutine rel2ab (Xrel, Yrel, Xabs, Yabs)
```

```
00221       include 'Tktrnx.fd'
00222       call seeloc (ix,iy)
00223       call revcot (ix,iy,xabs,yabs)
00224       xabs= (( xrel*trcosf - yrel*trsinf)*trscal)+xabs
00225       yabs= (( xrel*trsinf + yrel*trcosf)*trscal)+yabs
00226       return
00227       end
00228
00229 C
00230 C  Virtuelles Zeichnen, absolut
00231 C
00232
00233       subroutine drawa (X,Y)
00234       include 'Tktrnx.fd'
00235       call wincot (x,y,ix,iy)
00236       call swind1 (kminsx,kminsy,kmaxsx,kmaxsy)
00237       call drwabs (ix,iy)
00238       call swind1 (0,0,1023,780)
00239       return
00240       end
00241
00242
00243
00244       subroutine movea (X,Y)
00245       include 'Tktrnx.fd'
00246       call wincot (x,y,ix,iy)
00247       call swind1 (kminsx,kminsy,kmaxsx,kmaxsy)
00248       call movabs (ix,iy)
00249       call swind1 (0,0,1023,780)
00250       return
00251       end
00252
00253
00254
00255       subroutine pointa (X,Y)
00256       include 'Tktrnx.fd'
00257       call wincot (x,y,ix,iy)
00258       call swind1 (kminsx,kminsy,kmaxsx,kmaxsy)
00259       call pntabs (ix,iy)
00260       call swind1 (0,0,1023,780)
00261       return
00262       end
00263
00264
00265
00266       subroutine dasha (X,Y, iL)
00267       include 'Tktrnx.fd'
00268       call wincot (x,y,ix,iy)
00269       call swind1 (kminsx,kminsy,kmaxsx,kmaxsy)
00270       call dshabs (ix,iy, il)
00271       call swind1 (0,0,1023,780)
00272       return
00273       end
00274
00275
00276
00277       subroutine wincot (X,Y,IX,IY)
00278       include 'Tktrnx.fd'
00279       dx= x-tminvx
00280       dy= y-tminvy
00281       if ((xlog.lt.255.).and.(x.gt.0.)) dx= alog(x)-xlog
00282       if ((ylog.lt.255.).and.(y.gt.0.)) dy= alog(y)-ylog
00283       ix= ifix(dx*xfac+.5)+kminsx
00284       iy= ifix(dy*yfac+.5)+kminsy
00285       return
00286       end
00287
00288
00289
00290       subroutine revcot (IX,IY,X,Y)
00291       include 'Tktrnx.fd'
00292       dx= float(ix-kminsx) / xfac
00293       dy= float(iy-kminsy) / yfac
00294       x= dx + tminvx
00295       y= dy + tminvy
00296       if (xlog.lt.255.) x= 2.718282**(dx+xlog)
00297       if (ylog.lt.255.) y= 2.718282**(dy+ylog)
00298       return
00299       end
00300
00301 C
00302 C  Alphanumerische Ausgabe
00303 C
00304
00305       subroutine anstr (NChar, IStrin)
00306       dimension istrin(1)
00307       do 10 i=1,nchar
```

```
00308        call ancho (istrin(i))
00309 10    continue
00310       return
00311       end
00312
00313
00314
00315       subroutine ancho (ichar)
00316       include 'Tktrnx.fd'
00317
00318       if (ichar.gt.31) goto 10
00319       if (ichar.eq.7) call bell
00320       if (ichar.eq.10) call linef
00321       if (ichar.eq.13) call cartn
00322       return
00323
00324  10   call seeloc (ix,k)
00325       call csize (ixlen,k)
00326       if (ix.gt.krmrgn-ixlen) call newlin
00327       call toutpt (ichar)
00328       return
00329       end
00330
00331
00332
00333       subroutine newlin
00334       call cartn
00335       call linef
00336       return
00337       end
00338
00339
00340
00341       subroutine cartn
00342       include 'Tktrnx.fd'
00343       call seeloc (ix,iy)
00344       call movabs (klmrgn,iy)
00345       return
00346       end
00347
00348
00349
00350       subroutine linef
00351       call seeloc (j,iy)
00352       call csize (j,iylen)
00353       if (iy.lt.iylen) call home
00354       call movrel (0,-iylen)
00355       return
00356       end
00357
00358
00359
00360       subroutine baksp
00361       call csize (ix,iy)
00362       call movrel (-ix,0)
00363       return
00364       end
00365
00366
00367
00368       subroutine newpag
00369       call erase
00370       call home
00371       return
00372       end
00373
00374
00375
00376       function linhgt (Numlin)
00377       call csize (ix,iy)
00378       linhgt= numlin*iy
00379       return
00380       end
00381
00382
00383
00384       function linwdt (NumChr)
00385       call csize (ix,iy)
00386       linwdt= numchr*ix
00387       return
00388       end
00389
00390 C
00391 C  Initialisierungsroutinen
00392 C
00393
00394       subroutine lintrn
```

```
00395       include 'Tktrnx.fd'
00396       xlog= 255.
00397       ylog= 255.
00398       call rescal
00399       return
00400       end
00401
00402
00403
00404       subroutine logtrn (IMODE)
00405       include 'Tktrnx.fd'
00406       call lintrn
00407       if ((imode .eq. 1) .or. (imode .eq. 3)) then
00408        xlog= 0.
00409       end if
00410       if ((imode .eq. 2) .or. (imode .eq. 3)) then
00411        ylog= 0.
00412       end if
00413       call rescal
00414       return
00415       end
00416
00417
00418
00419       subroutine twindo (IX1,IX2,IY1,IY2)
00420       call swindo (ix1,ix2-ix1,iy1,iy2-iy1)
00421       return
00422       end
00423
00424
00425
00426       subroutine swindo (IX,LX,IY,LY)
00427       include 'Tktrnx.fd'
00428       kminsx= ix
00429       kmaxsx= ix+lx
00430       kminsy= iy
00431       kmaxsy= iy+ly
00432       call rescal
00433       return
00434       end
00435
00436
00437
00438       subroutine dwindo (X1,X2,Y1,Y2)
00439       call vwindo (x1,x2-x1,y1,y2-y1)
00440       return
00441       end
00442
00443
00444
00445       subroutine vwindo (X,XL,Y,YL)
00446       include 'Tktrnx.fd'
00447       tminvx= x
00448       tmaxvx= x+xl
00449       tminvy= y
00450       tmaxvy= y+yl
00451       call rescal
00452       return
00453       end
00454
00455
00456
00457       subroutine rescal
00458       include 'Tktrnx.fd'
00459       xfac= 0.
00460       yfac= 0.
00461       if ((tmaxvx.eq.tminvx) .or. (tmaxvy.eq.tminvy)) return
00462       dx= tmaxvx-tminvx
00463       dy= tmaxvy-tminvy
00464       if ((xlog.eq.255.).or.(amin1(tminvx,tmaxvx).le.0.)) goto 10
00465        xlog= alog(tminvx)
00466        dx= alog(tmaxvx)-xlog
00467 10    if ((ylog.eq.255.).or.(amin1(tminvy,tmaxvy).le.0.)) goto 20
00468        ylog= alog(tminvy)
00469        dy= alog(tmaxvy)-ylog
00470 20    xfac= float(kmaxsx-kminsx) / dx
00471       yfac= float(kmaxsy-kminsy) / dy
00472       return
00473       end
00474
00475
00476
00477       subroutine rrotat (Grad)
00478       include 'Tktrnx.fd'
00479       trsinf= sin(grad/57.29578)
00480       trcosf= cos(grad/57.29578)
00481       return
```

```
00482       end
00483
00484
00485
00486       subroutine rscale (Faktor)
00487       include 'Tktrnx.fd'
00488       trscal= faktor
00489       return
00490       end
00491
00492
00493
00494       subroutine home
00495       include 'Tktrnx.fd'
00496 C      call movabs(klmrgn,750) Fuer CP/M (kein khomey verfuegbar, -> !=750)
00497       call movabs(klmrgn,khomey)
00498       return
00499       end
00500
00501
00502
00503       subroutine setmrg (Mlinks, Mrecht)
00504       include 'Tktrnx.fd'
00505       klmrgn= mlinks
00506       krmrgn= mrecht
00507       return
00508       end
00509
00510
00511
00512       subroutine seetrm (IBaud,Iterm,ICSize,MaxScr)
00513       include 'Tktrnx.fd'
00514       ibaud= 0
00515       iterm= 1
00516       icsize= 1
00517       maxscr= 1023
00518       return
00519       end
00520
00521
00522
00523       subroutine seetrn (xf,yf,key)
00524       include 'Tktrnx.fd'
00525       xf= xfac
00526       yf= yfac
00527       key= 1
00528       if ((xlog.lt.255.).or.(ylog.lt.255.)) key=2
00529       return
00530       end
00531
00532
00533
00534       logical function genflg (ITEM)
00535       genflg= item.eq.0
00536       return
00537       end
00538
```

3.36 TCSdDosa.asm File Reference

DOS Port: x86 Assembler Routinen.

Functions

- int ktinput ()

  Tastaturabfrage.
- void bell ()

  Signalton.
- void GinCrsIn (bool iAvail, int iButton, int iXmin, int iXmax, int iYmin, int iYmax)

  Initialisierung Graphikmaus.
- void GinCrs (int ic, int ix, int iy)

  Abfrage Graphikmaus.

- void GinCrsEx ()
  Reset Graphikmaus.
- void GetEnv (char Buf, int BufLen)
  Abfrage Enviromentvariable
- void lib_movc3 (int iByte, char Source, char Dest)
  Kopieren eines Feldes
- void OpenBytFil (int iErr, int iHandle, char FilNam)
  Oeffnen eines Bytefiles.
- void WrtBytFil (int iErr, int iHandle, char buf, int iWrite)
  WrtBytFil Byteweises Schreiben ohne Steuerzeichen.
- void CloseBytFil (int iHandle)
  Schliesen eines Bytefiles.

3.36.1 Detailed Description

DOS Port: x86 Assembler Routinen.

Version

1.4 ;

Author

(C) 2022 Dr.-Ing. Klaus Friedewald ;

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Definition in file TCSdDosa.asm.

3.36.2 Function Documentation

3.36.2.1 bell()

```
void bell ( )
```

Signalton.

3.36.2.2 CloseBytFil()

```
void CloseBytFil (
            int iHandle )
```

Schliesen eines Bytefiles.

Parameters

in	*iHandle*	Filehandle

3.36.2.3 GetEnv()

```
void GetEnv (
             char Buf,
             int BufLen )
```

Abfrage Enviromentvariable

Parameters

in,out	*Buf*	in=Variable out=Uebersetzung
in	*BufLen*	

3.36.2.4 GinCrs()

```
void GinCrs (
             int ic,
             int ix,
             int iy )
```

Abfrage Graphikmaus.

Parameters

out	*ic*	Gedrueckte Taste
out	*ix,iy*	Cursorposition

3.36.2.5 GinCrsEx()

```
void GinCrsEx ( )
```

Reset Graphikmaus.

3.36.2.6 GinCrsIn()

```
void GinCrsIn (
            bool iAvail,
            int iButton,
            int iXmin,
            int iXmax,
            int iYmin,
            int iYmax )
```

Initialisierung Graphikmaus.

Parameters

out	*iAvail*	Maus vorhanden
out	*iButton*	Anzahl Tasten
in	*iXmin,iXmax,iYmin,iYmax*	Zeichenfläche

3.36.2.7 ktinput()

```
int ktinput ( )
```

Tastaturabfrage.

Parameters

out	*[↩ AX]*	Funktionsrückgabe ASCII

3.36.2.8 lib_movc3()

```
void lib_movc3 (
            int iByte,
            char Source,
            char Dest )
```

Kopieren eines Feldes

Parameters

in	*iByte*	Anzahl verschiebender Bytes (0 zulässig)
in	*Source*	zu kopierende Daten
out	*Dest*	Zielfeld, kann auch Source überlappen

3.36.2.9 OpenBytFil()

```
void OpenBytFil (
             int iErr,
             int iHandle,
             char FilNam )
```

Oeffnen eines Bytefiles.

Parameters

out	*iErr*	Errorflag
out	*iHandle*	Filehandle
in	*FilNam*	Dateiname

3.36.2.10 WrtBytFil()

```
void WrtBytFil (
             int iErr,
             int iHandle,
             char buf,
             int iWrite )
```

WrtBytFil Byteweises Schreiben ohne Steuerzeichen.

Parameters

out	*iErr*	Errorflag
in	*iHandle*	Filehandle
in	*buf*	Daten
in	*iWrite*	Anzahl zu schreibender Bytes

3.37 TCSdDosa.asm

```
00001 ; // DOXYGEN Dokumentation TCSdDOS.asm: als C-Programm möglich da ";" C-Leerbefehl entspricht
00002 ; /** \file TCSdDosa.asm \brief DOS Port: x86 Assembler Routinen \version 1.4
00003 ; \author  (C) 2022 Dr.-Ing. Klaus Friedewald
00004 ; \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3   */
00005
00006 ; //! \brief Tastaturabfrage \param[out] [AX] Funktionsrückgabe ASCII
00007 ; (int) ktinput ()
00008
00009 ; //! \brief Signalton
00010 ; (void) bell ()
00011
00012 ; //! \brief Initialisierung Graphikmaus
00013 ; //! \param[out] iAvail Maus vorhanden
00014 ; //! \param[out] iButton Anzahl Tasten
00015 ; //! \param[in] iXmin, iXmax, iYmin, iYmax Zeichenfläche
00016 ; (void) GinCrsIn (bool iAvail,int iButton,int iXmin,int iXmax,int iYmin,int iYmax)
00017
00018 ; //! \brief Abfrage Graphikmaus
00019 ; //! \param[out] ic Gedrueckte Taste
00020 ; //! \param[out] ix, iy  Cursorposition
00021 ; (void) GinCrs (int ic,int ix,int iy)
00022
```

```
00023 ; //! \brief Reset Graphikmaus
00024 ; (void) GinCrsEx ()
00025
00026 ; //! \brief Abfrage Enviromentvariable
00027 ; //! \param[in,out] Buf in=Variable out=Uebersetzung
00028 ; //! \param[in]   BufLen
00029
00030 ; (void) GetEnv (char Buf, int BufLen)
00031 ; //! \brief Kopieren eines Feldes
00032 ; //! \param[in] iByte Anzahl verschiebender Bytes (0 zulässig)
00033 ; //! \param[in] Source zu kopierende Daten
00034 ; //! \param[out] Dest Zielfeld, kann auch Source überlappen
00035
00036 ; (void) lib_movc3 (int iByte, char Source,char Dest)
00037 ; //! \brief Oeffnen eines Bytefiles
00038 ; //! \param[out] iErr Errorflag
00039 ; //! \param[out] iHandle Filehandle
00040 ; //! \param[in] FilNam Dateiname
00041
00042 ; (void) OpenBytFil(int iErr,int iHandle,char FilNam)
00043 ; //! \brief WrtBytFil   Byteweises Schreiben ohne Steuerzeichen
00044 ; //! \param[out] iErr Errorflag
00045 ; //! \param[in] iHandle Filehandle
00046 ; //! \param[in] buf Daten
00047 ; //! \param[in] iWrite Anzahl zu schreibender Bytes
00048
00049 ; (void) WrtBytFil (int iErr,int iHandle, char buf, int iWrite)
00050 ; //! \brief Schliesen eines Bytefiles
00051 ; //! \param[in] iHandle Filehandle
00052
00053 ; (void) CloseBytFil (int iHandle)
00054 ; //! \cond
00055 ; ---------------------------   Changelog   -------------------------------
00056 ;
00057 ;  Version 1.2
00058 ;     25.10.01               Dr. Ing. K. Friedewald
00059 ;
00060 ;           ktinput:    Tastaturabfrage
00061 ;           bell:       Signalton
00062 ;           GinCrsIn:   Initialisierung Graphikmaus
00063 ;           GinCrs:     Abfrage Graphikmaus
00064 ;           GinCrsEx:   Wiederherstellen Graphikmaus
00065 ;
00066 ;           GetEnv:     Abfrage Enviromentvariable (C-Characterformat!)
00067 ;                        Input: Pufferfeld, Vorbesetzt mit Variablenname
00068 ;                               max. Länge Pufferfeld (einschliesslich char(0))
00069 ;                       Output:Pufferfeld, Übersetzter Wert
00070 ;
00071 ;           Lib_movC3   Kopieren eines Feldes
00072 ;                        Input: iByte, Anzahl verschiebender Bytes (0 zulässig)
00073 ;                               Source, zu kopierende Daten
00074 ;                       Output:Dest, Zielfeld, kann auch Source überlappen
00075 ;
00076 ;           OpenBytFil  Oeffnen eines Bytefiles
00077 ;                        Input: FilNam
00078 ;                        Output:iErr, iHandle
00079 ;
00080 ;           WrtBytFil   Byteweises Schreiben ohne Steuerzeichen
00081 ;                        Input: iHandle, Buf(*), iCount
00082 ;                        Output:iErr
00083 ;
00084 ;           CloseBytFil Schliesen eines Bytefiles
00085 ;                         Input: iHandle
00086 ;
00087 ;
00088 ;
00089 ;  Version 1.31
00090 ;     30.05.02               Dr. Ing. K. Friedewald
00091 ;
00092 ;           Anpassung an WATCOM-Assembler:
00093 ;            Auskommentieren der Microsoft-spezifischen Assemblerdirektiven
00094 ;            .no87, .list, title, subtitle, page
00095 ;           Bugfix: Fehlerhafte Parameterübergabe WRTBYTFIL:
00096 ;                    DS von Buf wurde überschrieben
00097 ;                    iErr jetzt übergeben (Programm: MOV, Deklaration:Offset)
00098 ;
00099 ;
00100 ;  Version 1.32
00101 ;     25.10.02               Dr. Ing. K. Friedewald
00102 ;
00103 ;           Bugfix: Schnell aufeinanderfolgende GINCRS-Aufrufe fehlerhaft
00104 ;                   Warten auf nicht gedrueckte Maustaste ergaenzt
00105 ;
00106 ;  Version 1.33
00107 ;     29.10.04               Dr. Ing. K. Friedewald
00108 ;
00109 ;           Anpassung an OpenWatcom-Linker 1.3: Großschreibung PUBLIC-Symbole
```

```
00110 ;
00111 ;  Version 1.4
00112 ;     04.12.20               Dr. Ing. K. Friedewald
00113 ;
00114 ;           Dokumentation durch DOXYGEN
00115 ;
00116 ;
00117
00118 ;           title       'TCS Assembler Routinen'
00119             .8086
00120 ;            .no87
00121 ;            .list
00122             .model large
00123
00124             public      KTINPUT     ; FORTRAN: integer*2 function ktinput ()
00125
00126             public      BELL        ; FORTRAN: call bell ()
00127
00128             public      GINCRS      ; FORTRAN: call gincrs (ic,ix,iy)
00129 iC          equ   [BP] + 14         ; Integer*2 (Rückgabe 1,2: linke,rechte Maustaste sonst ASCII
00130 iX          equ   [BP] + 10         ; Integer*2
00131 iY          equ   [BP] + 6          ; Integer*2
00132
00133             public      GINCRSIN    ; FORTRAN: call gincrsIn (iAvail, iButton, iX0,iX1,iY0,iY1)
00134 iAvail      equ   [BP] + 26         ; Integer*2 oder Logical*2
00135 iButton     equ   [BP] + 22         ; Integer*2
00136 iX0         equ   [BP] + 18         ; Integer*2
00137 iX1         equ   [BP] + 14         ; Integer*2
00138 iY0         equ   [BP] + 10         ; Integer*2
00139 iY1         equ   [BP] + 6          ; Integer*2
00140
00141             public      GINCRSEX    ; FORTRAN: call GinCrsEx ()
00142
00143             public      GETENV      ; FORTRAN: call GetEnv (CHARBUF, CharBufL)
00144 CharBuf     equ   [BP] + 10         ; Vorbesetzt mit "NAME="//char(0)
00145 CharBufL    equ   [BP] + 6
00146
00147             public      OPENBYTFIL  ; FORTRAN: call OpenBytFil (iErr, iHandle, Filnam)
00148 iErrO       equ   [BP] + 14
00149 iHandleO    equ   [BP] + 10         ; integer*2 iHandle <> 0 falls o.k.
00150 FilNam      equ   [BP] + 6          ; C-String
00151
00152             public      WRTBYTFIL   ; FORTRAN: call WrtBytFil (iErr, iHandle, Buf, iCount)
00153 iErr        equ   [BP] + 18
00154 iHandle     equ   [BP] + 14         ; Integer*2
00155 Buf         equ   [BP] + 10         ; byte array
00156 iCount      equ   [BP] + 6          ; Integer*2
00157
00158             public      CLOSEBYTFIL ; FORTRAN: call CloseBytFil (iHandle)
00159 iHandleC    equ   [BP] + 6
00160
00161             public      LIB_MOVC3_  ; FORTRAN: call Lib_MovC3_ (iByte, Source, Dest)
00162 iByte       equ   [BP] + 14
00163 Source      equ   [BP] + 10
00164 Dest        equ   [BP] + 6
00165
00166 TCSdDosA_data segment public 'DATA'   ; obligatorischer Name für MS-Compiler
00167
00168
00169 CrsDefHotX  equ   0                   ; Definition Graphikmousecursor
00170 CrsDefHotY  equ   0                   ; Vorsicht, Cursor kann nicht über linke, obere Ecke geclippt
       werden!
00171 CrsDef      dw    16 dup (0ffffh)   ; Screenmask (wird AND verküpft)
00172             dw    07c00h, 0c000h    ; Cursorform (wird XOR verknüpft)
00173             dw    0a000h, 09000h
00174             dw    08800h, 08400h
00175             dw    00200h, 00100h
00176             dw    00080h, 00000h
00177             dw    00000h, 00000h
00178             dw    00000h, 00000h
00179             dw    00000h, 00000h
00180
00181 TCSdDosA_data  ends
00182
00183 DGROUP      group TCSdDosA_data
00184
00185 ;            subtitle    'TCS Basisfunktionen'
00186 ;            page
00187
00188 TcsdDosA_text segment public 'code'   ; obligatorischer Name für MS-Compiler
00189
00190             assume CS:TcsdDosA_text, DS:DGROUP, SS:DGROUP
00191
00192 DOS         equ   021h              ; DOS-Interrupt
00193 MOUSE       equ   033h              ; Mousedriver
00194 VideoBIOS   equ   010h
00195
```

```
00196 ;
00197 ; ********************
00198 ; *                  *
00199 ; * Function KTINPUT *
00200 ; *                  *
00201 ; ********************
00202 ;
00203
00204 ktinput     proc far
00205
00206             push  bp
00207             mov   bp,sp             ; lokale Basis
00208             push  ds
00209
00210             mov   ah, 07h           ; DOS 7: Zeichen ohne Echo einlesen
00211             int   DOS
00212             mov   ah,0h
00213
00214             pop   ds
00215             pop   bp
00216             ret
00217
00218 ktinput     endp
00219 ;
00220 ; ********************
00221 ; *                  *
00222 ; * Subroutine BELL *
00223 ; *                  *
00224 ; ********************
00225 ;
00226 bell        proc far
00227
00228             push  bp
00229             mov   bp,sp             ; lokale Basis
00230             push  ds
00231
00232             mov   ah, 0eh           ; Video-Bios: TTY Out
00233             mov   al, 07h           ; Bell
00234             mov   bh,0              ; Bildschirmnummer
00235             mov   bl,0              ; Grafik-Vordergrundfarbe
00236             int   VideoBIOS
00237
00238             pop   ds
00239             pop   bp
00240             ret
00241
00242 bell        endp
00243
00244 ;            subtitle    'Graphic Input Cursor'
00245 ;            page
00246 ;
00247 ; ***********************
00248 ; *                     *
00249 ; * Subroutine GINCRSIN *
00250 ; *                     *
00251 ; ***********************
00252 ;
00253 ginCrsIn    proc far
00254
00255             push  bp
00256             mov   bp,sp             ; lokale Basis
00257             push  ds
00258             push  es
00259
00260             mov   ax, 00h           ; FN : Reset Mouse
00261             int   MOUSE
00262             push  bx                ; Freimachen Indexregister
00263             lds   bx, iAvail        ; Adresse iAvail nach BX laden
00264             mov   [bx],ax           ; Wert AX nach iAvail
00265             lds   bx, iButton       ; Adresse iButton nach BX laden
00266             pop   ax
00267             mov   [bx],ax           ; Wert AX nach iButton
00268
00269             mov   ax, 07h           ; FN : Setzen iXmin und iXmax
00270             lds   bx, iX0
00271             mov   cx,[bx]
00272             lds   bx, iX1
00273             mov   dx,[bx]
00274             int   MOUSE
00275
00276             mov   ax, 08h           ; FN : Setzen iYmin und iYmax
00277             lds   bx, iY0
00278             mov   cx,[bx]
00279             lds   bx, iY1
00280             mov   dx,[bx]
00281             int   MOUSE
00282
```

```
00283             mov   ax, 09h           ; FN : Definition Cursorform
00284             mov   bx, CrsDefHotX
00285             mov   cx, CrsDefHotY
00286             mov   dx, seg CrsDef    ; Mousedriver: Adressangabe über ES!
00287             mov   es, dx
00288             mov   dx, offset CrsDef
00289             int   MOUSE
00290
00291             pop   es
00292             pop   ds
00293             pop   bp
00294             ret   24                ; Parameteranzahl * 4 Bytes freigeben
00295 gincrsIn    endp
00296 ;
00297 ; ***********************
00298 ; *                     *
00299 ; * Subroutine GINCRSEX *
00300 ; *                     *
00301 ; ***********************
00302 ;
00303 ginCrsEx    proc far
00304
00305             push  bp
00306             mov   bp,sp             ; lokale Basis
00307             push  ds
00308
00309             mov   ax, 00h           ; FN : Reset Mouse
00310             int   MOUSE
00311
00312             pop   ds
00313             pop   bp
00314             ret   0                 ; Parameteranzahl * 4 Bytes freigeben
00315 gincrsEx    endp
00316 ;
00317 ; *********************
00318 ; *                   *
00319 ; * Subroutine GINCRS *
00320 ; *                   *
00321 ; *********************
00322 ;
00323 gincrs      proc far
00324
00325             push  bp
00326             mov   bp,sp             ; lokale Basis
00327             push  ds
00328
00329             mov   ax, 01h           ; FN : Show Cursor
00330             int   MOUSE
00331
00332 WaitUp:     mov   ax, 03h           ; FN: Get Button Status
00333             int   MOUSE
00334             test  bx,bx             ; Taste noch gedrueckt?
00335             jnz   WaitUp            ; noch vom letzten mal -> Warte
00336
00337 KeyLoop:    mov   ax, 03h           ; FN : Get Button Status
00338             int   MOUSE             ; MouseDriver-Call
00339             test  bx,bx             ; Bit0 linke, Bit 1 rechte Maustaste
00340             jnz   ExitKeyLp         ; Taste gedrückt -> fertig
00341
00342             mov   ah,06h            ; DOS 6: Zeichen ohne Warten einlesen
00343             mov   dl,0ffh
00344             int   DOS
00345             jz    KeyLoop           ; keine Keyboardtaste gedrückt -> weiter
00346
00347             mov   ah,0h
00348             push  ax                ; Terminator
00349             mov   ax, 03h           ; FN : Get Mouse Koordinaten
00350             int   MOUSE
00351             pop   bx                ; Terminator ASCII
00352
00353 ExitKeyLp:  push  bx                ; Terminator
00354             lds   bx, iX            ; Adresse iX nach BX laden
00355             mov   [bx],cx           ; CX: horizontale Mauskoordinate
00356             lds   bx, iY            ; Adresse iY nach BX laden
00357             mov   [bx],dx           ; DX: vertikale Mauskoordinate
00358             pop   ax                ; Terminator
00359             lds   bx, iC            ; Adresse iC nach BX laden
00360             mov   [bx],ax           ; Übergabe in iC
00361
00362
00363             mov   ax, 02h           ; FN : Hide Cursor
00364             int   MOUSE
00365
00366             pop   ds
00367             pop   bp
00368             ret   12                ; Parameteranzahl * 4 Bytes freigeben
00369 gincrs      endp
```

```
00370
00371 ;            subtitle    'Get Enviroment'
00372 ;            page
00373 ;
00374 ; *********************
00375 ; *                   *
00376 ; * Subroutine GETENV *
00377 ; *                   *
00378 ; *********************
00379 ;
00380 GetEnv      proc far
00381
00382             push  bp
00383             mov   bp,sp             ; lokale Basis
00384             push  ds
00385             push  es
00386             push  di
00387             push  si
00388             pushf                   ; Rette Direction Flag!
00389
00390             cld                     ; Stringsuche aufwärts
00391 ;
00392 ; Bestimmung Stringlänge Suchstring
00393 ;
00394             mov   cx, 0             ; Counter
00395             lds   si, CharBuf       ; Buffer = Suchstring
00396 LenLoop:    mov   al,byte ptr ds:[si]; nächstes Zeichen
00397             or    al,al             ; Char(0) = Ende?
00398             jz    LenDone           ; ja
00399             inc   cx
00400             inc   si
00401             jmp   LenLoop
00402
00403 LenDone:    push  cx                ; Länge des Suchstrings
00404 ;
00405 ; Get Enviroment
00406 ;
00407             mov   ah, 62h           ; DOS 62h: Get PSP
00408             int   DOS
00409             mov   es,bx             ; ES:00 jetzt auf PSP
00410             mov   bx,es:[2ch]       ; PSP Element 2c: Enviroment
00411             mov   es, bx
00412             xor   di,di             ; Jetzt: ES:DI auf 1. Eintrag Enviroment
00413
00414 SearchLoop: lds   si, CharBuf       ; Suchstring in DS:AX
00415             pop   cx                ; Länge Suchstring
00416             push  cx
00417             repe  cmpsb             ; vergleichen mit Enviroment
00418             jz    Found
00419             xor   al,al             ; Ende Enviromenteintrag suchen
00420             mov   cx,-1
00421             repnz scasb
00422             cmp   byte ptr es:[di],0; letzter Eintrag?
00423             jnz   SearchLoop
00424             jmp   NotFound
00425 ;
00426 ; Abspeichern in den Puffer
00427 ;
00428 NotFound:                           ; ES:DI auf Char(0)
00429 Found:                              ; ES:DI auf Inhalt Enviromentvariable
00430
00431             lds   bx, CharBufL      ; Parameter Bufferlänge
00432             mov   cx,[bx]           ; Counter = Bufferlänge
00433
00434             lds   si, CharBuf       ; Zieladresse
00435 StoreLoop:  mov   al,byte ptr es:[di]; nächstes Zeichen
00436             mov   byte ptr ds:[si],al; speichern
00437             or    al,al             ; Char(0) = Ende?
00438             jz    StoreDone         ; ja
00439             inc   di
00440             inc   si
00441             dec   cx
00442             jz    StoreDone         ; Bufferende erreicht
00443             jmp   StoreLoop
00444
00445 StoreDone:  pop   ax                ; Clear Stack, Suchstringlänge
00446
00447             popf                    ; Restore Status
00448             pop   si
00449             pop   di
00450             pop   es
00451             pop   ds
00452             pop   bp
00453             ret   8
00454
00455 GetEnv      endp
00456
```

```
00457 ;            subtitle    'Byte Files'
00458 ;            page
00459 ;
00460 ; ***********************
00461 ; *                     *
00462 ; * Function OpenBytFil *
00463 ; *                     *
00464 ; ***********************
00465 ;
00466 OpenBytFil  proc far
00467
00468             push  bp
00469             mov   bp,sp             ; lokale Basis
00470             push  ds
00471
00472             lds   dx,FilNam
00473             xor   cx,cx             ; Löschen Attribut -> unbeschränkter Zugriff
00474             mov   ah,05bh           ; Open New File
00475             int   DOS
00476
00477             lds   bx, iHandleO      ; Adresse iButton nach BX laden
00478             mov   [bx],ax           ; FileHandle nach iHandle
00479
00480             lds   bx, iErrO
00481             jc    ErrO              ; kein Carryflag -> iErr=0: i.O.
00482             xor   ax,ax             ; iErr=3: path not found, =4 too many open files
00483 ErrO:       mov   [bx],ax           ; =5 access denied, =50h file exists
00484
00485             pop   ds
00486             pop   bp
00487             ret   12                ; 12 = 3 Parameter
00488
00489 OpenBytFil  endp
00490 ;
00491 ;
00492 ; ***********************
00493 ; *                     *
00494 ; * Function WrtBytFil *
00495 ; *                     *
00496 ; ***********************
00497 ;
00498
00499 WrtBytFil   proc far
00500
00501             push  bp
00502             mov   bp,sp             ; lokale Basis
00503             push  ds
00504
00505             lds   bx,iCount
00506             mov   cx,[bx]
00507             jcxz  NoWrt             ; keine Bytes zu schreiben
00508
00509             lds   bx,iHandle
00510             mov   bx,[bx]
00511
00512             lds   dx,Buf            ; letzter Befehl vor DOS-call, DS auf Buf!
00513
00514             mov   ah,040h           ; Write File
00515             int   DOS
00516
00517             lds   bx,iCount
00518             mov   cx,[bx]
00519             xor   dx,dx             ; Clear Error-Flag
00520             cmp   ax,cx             ; Count IST < Count SOLL?
00521             jnl   WrtIO
00522             mov   dx,0ffffh         ; SET Error-Flag
00523 WrtIO:      lds   bx,iErr           ; Store Error-Flag
00524             mov   [bx],dx
00525
00526 NoWrt:      pop   ds
00527             pop   bp
00528             ret   16                ; 16 = 4 Parameter
00529
00530 WrtBytFil   endp
00531 ;
00532 ; ************************
00533 ; *                      *
00534 ; * Function CloseBytFil *
00535 ; *                      *
00536 ; ************************
00537 ;
00538 CloseBytFil proc far
00539
00540             push  bp
00541             mov   bp,sp             ; lokale Basis
00542             push  ds
00543
```

```
00544             lds   bx,iHandleC
00545             mov   bx,[bx]
00546             mov   ah,03eh           ; Close File
00547             int   DOS
00548
00549             pop   ds
00550             pop   bp
00551             ret   4                 ; 4 = 1 Parameter
00552
00553 CloseBytFil endp
00554
00555 ;             subtitle    'lib$MoveC3'
00556 ;             page
00557 ;
00558 ; ************************
00559 ; *                      *
00560 ; * Subroutine lib_MovC3 *
00561 ; *                      *
00562 ; ************************
00563 ;
00564 lib_movc3_  proc far
00565
00566             push  bp
00567             mov   bp,sp             ; lokale Basis
00568             push  ds
00569             push  es
00570             push  di
00571             push  si
00572             pushf                   ; Rette Direction Flag!
00573
00574 ;
00575 ; Kopieren des Strings
00576 ;
00577
00578             lds   bx,iByte
00579             mov   cx,[bx]           ; Counter
00580             lds   si, Source        ; Buffer = Suchstring
00581             les   di, Dest
00582
00583             cld                     ; aufwärts
00584             cmp   di,si
00585             jb    domove
00586
00587             add   di,cx
00588             dec   di
00589             add   si,cx
00590             dec   si
00591             std                     ; abwärts
00592
00593 domove:     rep   movsb
00594
00595             popf                    ; Restore Status
00596             pop   si
00597             pop   di
00598             pop   es
00599             pop   ds
00600             pop   bp
00601             ret   12
00602
00603 lib_movc3_  endp
00604
00605 TcsdDosA_text ends
00606
00607             end
00608 ;
00609 ; //! \endcond
00610
```

3.38 TCSdDosa.fi File Reference

DOS Port: FORTRAN-Interface TCSdDOSa.asm.

3.38.1 Detailed Description

DOS Port: FORTRAN-Interface TCSdDOSa.asm.

Interface definitions for the Watcom Fortran Compiler

Author

Dr.-Ing. Klaus Friedewald

Version

1.32

Date

06.02.2003

Note

Assemblerroutines are written according to the Microsoft Procedure Call Standard.

Watcom-FTN77 variable names are allowed to be 32 characters long and may contain $ and _. That for $notruncate und $notstrict are superfluous.

Hexadecimal numbers are represented by 'ff'x instead of #ff.

Definition in file TCSdDosa.fi.

3.39 TCSdDosa.fi

```
00001 C> \file    TCSdDosa.fi
00002 C> \brief   DOS Port: FORTRAN-Interface TCSdDOSa.asm
00003 C>
00004 C> \~german
00005 C> Interfacedeklarationen fuer den Watcom Fortran-Compiler
00006 C> \~english
00007 C> Interface definitions for the Watcom Fortran Compiler
00008 C> \~
00009 C> \author  Dr.-Ing. Klaus Friedewald
00010 C> \version 1.32
00011 C> \date 06.02.2003
00012 C> \~german
00013 C> \note
00014 C> Assemblerroutinen entsprechend Microsoft Procedure Call Standard
00015 C>
00016 C> \note
00017 C> Watcom Compiler erlaubt 32 Zeichen lange Variablennamen unter Verwendung
00018 C> von $ und _. Deswegen $notruncate und $notstrict ueberfluessig.
00019 C>
00020 C> \note
00021 C> Hex-Zahlen werden nicht durch \#ff sondern durch \'ff\'x dargestellt
00022 C> \~english
00023 C> \note
00024 C> Assemblerroutines are written according to the Microsoft Procedure Call Standard.
00025 C>
00026 C> \note
00027 C> Watcom-FTN77 variable names are allowed to be 32 characters long and may
00028 C> contain $ and _. That for $notruncate und $notstrict are superfluous.
00029 C>
00030 C> \note
00031 C> Hexadecimal numbers are represented by 'ff'x instead of \#ff.
00032 C> \~
00033 C>
00034 C
00035 C Interfacedeklarationen fuer den Watcom Fortran-Compiler
00036 C Assemblerroutinen entsprechend Microsoft Procedure Call Standard
00037 C
00038 C
00039 C   ktinput:    Tastaturabfrage [AX] dos7h
00040 C   bell:       Signalton [ax,bx] video bios tty out
00041 C   GinCrsIn:   Initialisierung Graphikmaus [ax,bx,cx,dx] int mouse
00042 C   GinCrsEX:   Wiederherstellen Graphikmaus [ax] int mouse
00043 C   GinCrs:     Abfrage Graphikmaus [ax,bx,cx,dx] int mouse
00044 C
00045 C   GetEnv:     Abfrage Enviroment (C-Characterformat!)[ax,bx,cx,dx] int dos
00046 C
00047 C   Lib_movC3_: Kopieren eines Feldes [ax,bx,cx]
```

```
00048 C
00049 C   OpenBytFil [ax,bx,cd,dx] dos
00050 C   WrtBytFil [ax,bx,cd,dx] dos
00051 C   CloseBytFil [ax,bx]
00052 C   i.O.: kTinput, bell
00053 C
00054 C \cond
00055
00056 c$pragma aux kTinput value [ax] modify exact [ax]
00057
00058 c$pragma aux bell parm [] modify exact [ax bx]
00059
00060 c$pragma aux GetEnv parm reverse (DATA_REFERENCE FAR, REFERENCE FAR) []\
00061 c  modify exact [ax bx cx dx]
00062
00063 c$pragma aux GinCrsIn parm reverse (REFERENCE FAR, reference far, \
00064 c  reference far) [] modify exact [ax bx cx dx]
00065
00066 c$pragma aux GinCrs parm reverse (REFERENCE FAR) [] \
00067 c  modify exact [ax bx cx dx]
00068
00069 c$pragma aux GinCrsEx modify exact [ax]
00070
00071 c$pragma aux lib_movC3_ parm reverse (REFERENCE FAR, DATA_REFERENCE FAR, \
00072 c  DATA_REFERENCE FAR) [] modify exact [ax bx cx]
00073
00074 c$pragma aux OpenBytFil parm reverse (REFERENCE FAR, REFERENCE FAR, \
00075 c  DATA_REFERENCE FAR) [] modify exact [ax bx cx dx]
00076
00077 c$pragma aux WrtBytFil parm reverse (REFERENCE FAR, REFERENCE FAR, \
00078 c  DATA_REFERENCE FAR, REFERENCE FAR) [] modify exact [ax bx cx dx]
00079
00080 c$pragma aux CloseBytFil parm reverse (REFERENCE FAR) [] modify exact [ax bx]
00081 C
00082 C \endcond
```

3.40 TCSdrDOS.for File Reference

DOS Port: High-Level Driver.

Functions/Subroutines

- subroutine tcslev (LEVEL)
- subroutine initt (iDummy)
- subroutine initt1
- subroutine italic
- subroutine graphicerrorinit
- subroutine lincol (iCol)
- subroutine txtcol (iCol)
- subroutine bckcol (iCol)
- subroutine defaultcolour
- integer function icolcode (iCol)
- integer function iscreenxcoord (iX)
- integer function iscreenycoord (iY)
- integer function irevscreenxcoord (iX)
- integer function irevscreenycoord (iY)
- subroutine erase
- subroutine finitt
- subroutine svstat (Array)
- subroutine restat (Array)
- subroutine movabs (ix, iy)
- subroutine pntabs (ix, iy)
- subroutine drwabs (ix, iy)
- subroutine dshabs (ix, iy, iMask)

- subroutine movrel (iX, iY)
- subroutine pntrel (iX, iY)
- subroutine drwrel (iX, iY)
- subroutine dshrel (iX, iY, iMask)
- subroutine seeloc (IX, IY)
- subroutine swind1 (ix1, iy1, ix2, iy2)
- subroutine alpha
- subroutine csize (lxlen, iylen)
- subroutine toutpt (iChr)
- subroutine toutst (nChr, iChrArr)
- subroutine toutstc (String)
- subroutine statst (String)
- subroutine tinput (iChr)
- subroutine dcursr (IC, IX, IY)
- subroutine lib_movc3 (iLen, sou, dst)
- subroutine anmode

3.40.1 Detailed Description

DOS Port: High-Level Driver.

Version

(2005, 45,2)

Author

(C) 2022 Dr.-Ing. Klaus Friedewald

Copyright

GNU LESSER GENERAL PUBLIC LICENSE Version 3

Note

```
Extensions of the Tektronix TCS:
 subroutine TOUTSTC (String): Output Fortran-String
 subroutine LINCOL (iCol): Set line color (iCol=0..15)
 subroutine TXTCOL (iCol): Set text color
 subroutine BCKCOL (iCol): Set background color (visible after ERASE)
 subroutine DefaultColour: Reset default colors
```

Definition in file TCSdrDOS.for.

3.40.2 Function/Subroutine Documentation

3.40.2.1 alpha()

```
subroutine alpha
```

Definition at line 686 of file TCSdrDOS.for.

3.40.2.2 anmode()

```
subroutine anmode
```

Definition at line 801 of file TCSdrDOS.for.

3.40.2.3 bckcol()

```
subroutine bckcol (
            integer iCol )
```

Definition at line 427 of file TCSdrDOS.for.

3.40.2.4 csize()

```
subroutine csize (
             Ixlen,
             iylen )
```

Definition at line 698 of file TCSdrDOS.for.

3.40.2.5 dcursr()

```
subroutine dcursr (
            integer IC,
            integer IX,
            integer IY )
```

Definition at line 767 of file TCSdrDOS.for.

3.40.2.6 defaultcolour()

```
subroutine defaultcolour
```

Definition at line 436 of file TCSdrDOS.for.

3.40.2.7 drwabs()

```
subroutine drwabs (
              ix,
              iy )
```

Definition at line 587 of file TCSdrDOS.for.

3.40.2.8 drwrel()

```
subroutine drwrel (
              iX,
              iY )
```

Definition at line 645 of file TCSdrDOS.for.

3.40.2.9 dshabs()

```
subroutine dshabs (
              ix,
              iy,
              iMask )
```

Definition at line 599 of file TCSdrDOS.for.

3.40.2.10 dshrel()

```
subroutine dshrel (
              iX,
              iY,
              iMask )
```

Definition at line 655 of file TCSdrDOS.for.

3.40.2.11 erase()

```
subroutine erase
```

Definition at line 500 of file TCSdrDOS.for.

3.40.2.12 finitt()

```
subroutine finitt
```

Definition at line 513 of file TCSdrDOS.for.

3.40.2.13 graphicerrorinit()

```
subroutine graphicerrorinit
```

Definition at line 254 of file TCSdrDOS.for.

3.40.2.14 icolcode()

```
integer function icolcode (
              iCol )
```

Definition at line 444 of file TCSdrDOS.for.

3.40.2.15 initt()

```
subroutine initt (
              iDummy )
```

Definition at line 121 of file TCSdrDOS.for.

3.40.2.16 initt1()

```
subroutine initt1
```

Definition at line 135 of file TCSdrDOS.for.

3.40.2.17 irevscreenxcoord()

```
integer function irevscreenxcoord (
              iX )
```

Definition at line 484 of file TCSdrDOS.for.

3.40.2.18 irevscreenycoord()

```
integer function irevscreenycoord (
              iY )
```

Definition at line 492 of file TCSdrDOS.for.

3.40.2.19 iscreenxcoord()

```
integer function iscreenxcoord (
              iX )
```

Definition at line 468 of file TCSdrDOS.for.

3.40.2.20 iscreenycoord()

```
integer function iscreenycoord (
              iY )
```

Definition at line 476 of file TCSdrDOS.for.

3.40.2.21 italic()

```
subroutine italic
```

Definition at line 219 of file TCSdrDOS.for.

3.40.2.22 lib_movc3()

```
subroutine lib_movc3 (
             integer iLen,
             character *(*) sou,
             character *(*) dst )
```

Definition at line 790 of file TCSdrDOS.for.

3.40.2.23 lincol()

```
subroutine lincol (
             integer iCol )
```

Definition at line 406 of file TCSdrDOS.for.

3.40.2.24 movabs()

```
subroutine movabs (
              ix,
              iy )
```

Definition at line 557 of file TCSdrDOS.for.

3.40.2.25 movrel()

```
subroutine movrel (
              iX,
              iY )
```

Definition at line 625 of file TCSdrDOS.for.

3.40.2.26 pntabs()

```
subroutine pntabs (
              ix,
              iy )
```

Definition at line 570 of file TCSdrDOS.for.

3.40.2.27 pntrel()

```
subroutine pntrel (
              iX,
              iY )
```

Definition at line 635 of file TCSdrDOS.for.

3.40.2.28 restat()

```
subroutine restat (
             integer, dimension(1) Array )
```

Definition at line 541 of file TCSdrDOS.for.

3.40.2.29 seeloc()

```
subroutine seeloc (
              IX,
              IY )
```

Definition at line 667 of file TCSdrDOS.for.

3.40.2.30 statst()

```
subroutine statst (
             character *(*) String )
```

Definition at line 744 of file TCSdrDOS.for.

3.40.2.31 svstat()

```
subroutine svstat (
             integer, dimension(1) Array )
```

Definition at line 529 of file TCSdrDOS.for.

3.40.2.32 swind1()

```
subroutine swind1 (
              ix1,
              iy1,
              ix2,
              iy2 )
```

Definition at line 676 of file TCSdrDOS.for.

3.40.2.33 tcslev()

```
subroutine tcslev (
            integer, dimension(3) LEVEL )
```

Definition at line 104 of file TCSdrDOS.for.

3.40.2.34 tinput()

```
subroutine tinput (
              iChr )
```

Definition at line 760 of file TCSdrDOS.for.

3.40.2.35 toutpt()

```
subroutine toutpt (
              iChr )
```

Definition at line 707 of file TCSdrDOS.for.

3.40.2.36 toutst()

```
subroutine toutst (
              nChr,
            integer, dimension (1) iChrArr )
```

Definition at line 725 of file TCSdrDOS.for.

3.40.2.37 toutstc()

```
subroutine toutstc (
             character *(*) String )
```

Definition at line 735 of file TCSdrDOS.for.

3.40.2.38 txtcol()

```
subroutine txtcol (
             integer iCol )
```

Definition at line 418 of file TCSdrDOS.for.

3.41 TCSdrDOS.for

```
00001 C> \file       TCSdrDOS.for
00002 C> \brief      DOS Port: High-Level Driver
00003 C> \version    (2005, 45,2)
00004 C> \author     (C) 2022 Dr.-Ing. Klaus Friedewald
00005 C> \copyright  GNU LESSER GENERAL PUBLIC LICENSE Version 3
00006 C>
00007 C> \~german
00008 C> \note \verbatim
00009 C>    Erweiterungen gegenüber Tektronix:
00010 C>     subroutine TOUTSTC (String): Ausgabe Fortran-String
00011 C>     subroutine LINCOL (iCol): Setzen Linienfarbe (iCol=0..15)
00012 C>     subroutine TXTCOL (iCol): Setzen Textfarbe
00013 C>     subroutine BCKCOL (iCol): Hintergrundfarbe (nach ERASE sichtbar)
00014 C>     subroutine DefaultColour: Wiederherstellung Defaultfarben
00015 C> \endverbatim
00016 C> \~english
00017 C> \note \verbatim
00018 C>    Extensions of the Tektronix TCS:
00019 C>     subroutine TOUTSTC (String): Output Fortran-String
00020 C>     subroutine LINCOL (iCol): Set line color (iCol=0..15)
00021 C>     subroutine TXTCOL (iCol): Set text color
00022 C>     subroutine BCKCOL (iCol): Set background color (visible after ERASE)
00023 C>     subroutine DefaultColour: Reset default colors
00024 C> \endverbatim
00025 C> \~
00026 C>
00027 C
00028 C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC   Changelog   CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
00029 C
00030 C     07.02.02 Version 1.2:
00031 C           Implementierung multilinguale Fehlermeldungen
00032 C
00033 C     24.05.02 Version 1.3:
00034 C           Umgebungsvariablen werten auch mit ";" getrennte Pfade aus
00035 C           INCLUDE Interface TCSDOSA.FI zur Anpassung an den WATCOM-Compiler
00036 C           TKTRNX.for: geänderte Common-Blocklänge aufgrund INTEGER*4
00037 C                       bei WATCOM (MS: INTEGER*2)
00038 C           DSHABS:     Ersatz Hex-Konstante durch Dezimalkonstante zur
00039 C                       Erzielung Kompatibilität mit WATCOM-Compiler
00040 C           INITT1:     Anpassung WATCOM-Compiler:
00041 C                       - Apostrophe innerhalb von Strings durch 2 Apostrophe
00042 C                       - Strings muessen mit CHAR(0) abgeschlossen werden
00043 C                       BugFix: SETVIEWPORT erwartet INTEGER*2 statt REAL*4!
00044 C           TOUTPT:     Anpassung WATCOM: auszugebender Character mit CHAR (0)
00045 C           GraphicError: Format 900 ist bei den *.lng-Files streng zu be-
00046 C                       folgen, d.h. "_12,Text" . Ausgabe OUTTEXT mit char(0).
00047 C
00048 C     23.07.02 Version 1.31:
00049 C           Erweiterung: subroutine WINLBL (GraphicWinLbl, StatusWindLbl):
00050 C                       Kompatibilität zu Windowsversion.
00051 C           Eigenes Modul OUTTEXT zur Kompatibilität MS-WATCOM
00052 C                        (Watcom benötigt char(0), dann MS Zeilenüberlauf)
00053 C
00054 C     24.08.02 Version 1.32:
00055 C           ITALIC, ITALIR, DBLSIZ, NRMSIZ: Schriftarten Graphikausgabe.
```

```
00056 C                       Kombination groß/kursiv nicht vorgesehen.
00057 C                       Implementiert durch Fontfile GraphLib.FON
00058 C                       (Quelle: Programm SOFTY und Arial Terminal TTF-Basis)
00059 C           DSHABS:     Standardisierung Dash-Linestyles DOS-Windows:
00060 C                       0: solid, 1: dotted, 2: dash-dotted, 3:dashed
00061 C           DEFAULTCOLOUR: Bugfix Namensgebung, nicht DEFAULTCOLOURS
00062 C
00063 C     10.10.02 Version 1.33:
00064 C           INITT:      Zur Vereinheitlichung DOS/Windows jetzt in diesem File
00065 C           TCSLEV:     neu, zur Angleichung mit AG2LEV und Systemerkennung
00066 C
00067 C     19.10.02 Version 1.34 bzw. (2002,292,2)
00068 C           Umbenennung TKTRNX.FOR in TKTRNX.FD zur Kompatibilität CP/M
00069 C
00070 C     25.10.02 Version (2002,298,2)
00071 C           Entprellen Mousetaste bei GIN-Cursoreingabe
00072 C
00073 C     06.02.03 Version (2003, 37,2)
00074 C           Vereinheitlichtes Interface lib$movc3 (Kompatibilitaet Windows)
00075 C
00076 C     12.01.04 Version (2004, 12,2)
00077 C           INITT1:     Bugfix Endlosschleife bei fehlerhaftes Fontfile und
00078 C                       Severity 5
00079 C           GRAPHICERRORINIT: Defaultseverity 10 bei EXIT (FINITT, iErr=12)
00080 C           Anmerkung: Die Subroutine GRAPHICERROR ruft sich bei Programm-
00081 C                 abbruch über FINITT implizit selber rekursiv auf (nicht
00082 C                 FORTRAN-konform!). Da jedoch keine lokalen Variablen ver-
00083 C                 wendet werden, ist dies in der Regeln nicht kritisch.
00084 C
00085 C     25.10.04 Version (2004,299,2)
00086 C           WINLBL:     Wertet jetzt den 3. Parameter (Initilisierungsfile)
00087 C                       analog zur Windowsversion aus (einschliesslich Ueber-
00088 C                       setzung '%:' und '.%'
00089 C           LIB$MOVC3:  Umbenannt in LIB_MOVC3. Alte Assemblerroutine heisst
00090 C                       jetzt LIB_MOVC3_.
00091 C
00092 C     15.02.05 Version (2005, 45,2)
00093 C           GRAPHICERROR: Bugfix ErrSeverity=0 entspricht jetzt NO ACTION.
00094 C
00095
00096       include 'FGRAPH.FI'
00097       include 'TCSdDOSa.FI'
00098
00099
00100
00101 C
00102 C  Ausgabe der Softwareversion
00103 C
00104       subroutine tcslev(LEVEL)
00105       integer LEVEL(3)
00106       level(1)=2005     ! Aenderungsjahr
00107       level(2)=  45     ! Aenderungstag
00108       level(3)=   2     ! System= DOS
00109
00110       return
00111       end
00112
00113
00114
00115 C
00116 C  Bildschirm Verwaltung
00117 C
00118
00119
00120
00121       subroutine initt (iDummy)
00122       call lintrn
00123       call swindo (0,1023,0,780)
00124       call vwindo (0.,1023.,0.,780.)
00125       call rrotat (0.)
00126       call rscale (1.)
00127       call setmrg (0,1023)
00128       call initt1
00129       call home
00130       return
00131       end
00132
00133
00134
00135       subroutine initt1
00136       include 'FGRAPH.FD'
00137       include 'TKTRNX.FD'
00138       integer*2 iErr, iAvail, iButton, kScrX2, kScrY2
00139       integer iLen, iTrimLen, iParse
00140
00141       character*80 cBuf, cBuf1*80
00142       record /videoconfig/ myscreen
```

```
00143       record /fontinfo/ myfont
00144
00145       character *13 cFontFile           ! Graphikfontfile
00146       parameter(cfontfile='GRAPHLIB.FON'//char(0))
00147
00148       character*5 cEnv                  ! Logischer Name für den Fontfilepfad
00149       parameter(cenv='LIB='//char(0))
00150
00151       call graphicerrorinit
00152
00153       ierr= setvideomode($maxresmode)
00154
00155       if (ierr .eq. 0) then
00156        call graphicerror (2,' ') ! TCS-Initt: unknown graphic adapter
00157       end if
00158
00159       call getvideoconfig (myscreen)
00160       kscrx= myscreen.numxpixels-1
00161       kscry= myscreen.numypixels-1-
00162      1    (myscreen.numypixels/myscreen.numtextrows)      ! Höhe Statuszeile
00163
00164       call setviewport (0,0, kscrx, kscry)
00165
00166       call settextwindow (myscreen.numtextrows,1,myscreen.numtextrows,
00167      1  myscreen.numtextcols)                              ! Statuszeile
00168       kstcol= myscreen.numtextcols - 1 ! Verhindere Scrollen durch -1
00169
00170       if (registerfonts(cfontfile).lt.0) then
00171        cbuf= cenv                              ! Abfrage Enviroment
00172        call getenv (cbuf, len(cbuf))
00173        ilenpath= itrimlen(cbuf)
00174        iparse=1
00175    10  continue ! while
00176         if (iparse.le.ilenpath) then
00177          ilen= index(cbuf(iparse:ilenpath), ';')-1
00178          if (ilen.le.0) ilen=ilenpath-iparse+1
00179         else
00180          ilen= -1
00181         end if
00182         if ((ilen.lt.1).or.(iparse.gt.ilenpath)) then
00183          cbuf1= cenv    ! Notwendig zur Bildung des Substrings aus PARAMETER
00184          cbuf1=cbuf1(1:istringlen(cbuf1))//':'//cfontfile
00185          call graphicerror (3,cbuf1(1:istringlen(cbuf1))) !openerror fontfile
00186          goto 15 ! ENDWHILE falls Errorseverity(3) < 10 (STOP)
00187         else
00188          cbuf1= cbuf(iparse:iparse+ilen-1)//'\'//cfontfile ! Chr0 in cFontFile
00189          call substitute (cbuf1,cbuf1, '\\', '\') ! kein doppelter Backslash!
00190         end if
00191        if (registerfonts(cbuf1(1:istringlen(cbuf1))).lt.0) then ! end while
00192         if (ilen.lt.ilenpath) then
00193          iparse= iparse+ilen+1
00194          goto 10        ! nächster Eintrag im Pfad
00195         else
00196          call graphicerror (3,cbuf1(1:istringlen(cbuf1)))
00197         end if
00198    15  end if
00199       end if
00200
00201       call nrmsiz               ! Standardschrift: normalgroß, nicht kursiv
00202
00203       kscrx2= kscrx             ! Konvertierung in int*2 durch WATCOM-Compiler
00204       kscry2= kscry
00205       call gincrsin (iavail, ibutton, 0, kscrx2, 0, kscry2)
00206       if (iavail.eq.-1) then
00207        imouse= ibutton
00208       else
00209        imouse= 0
00210       end if
00211       call defaultcolour
00212       call erase
00213
00214       return
00215       end
00216
00217
00218
00219       subroutine italic
00220 C
00221 C Verändern des Graphik-Fonts
00222 C
00223       include 'FGRAPH.FD'
00224       include 'TKTRNX.FD'
00225       integer*2 iErr
00226       record /fontinfo/ myfont
00227
00228       ierr= setfont('t''Italic'"//char(0))
00229       goto 10
```

```
00230
00231       entry dblsiz
00232       ierr= setfont('t''Double'"//char(0))
00233       goto 10
00234
00235       entry italir
00236       entry nrmsiz
00237       ierr= setfont('t''Normal'"//char(0))
00238
00239  10   continue          ! identischer Code für ITALIC und ITALIR
00240       if (ierr.lt.0) then
00241        call graphicerror (4,'Normal/Italic/Double') ! TCS-Initt: unknown font
00242       end if
00243       ierr= getfontinfo(myfont)
00244       khorsz= isign(irevscreenxcoord(int(myfont.pixwidth))
00245      1  - irevscreenxcoord(0),1)
00246       kversz= isign(irevscreenycoord(int(myfont.pixheight))
00247      1  - irevscreenycoord(0),1)
00248       khomey= 780-(1.1*kversz)
00249       return
00250       end
00251
00252
00253
00254       subroutine graphicerrorinit
00255 C
00256 C  SUBROUTINE GraphicErrorInit, ENTRIES WinLbl, GraphicError
00257 C  Internationalisierung der Fehlermeldungen
00258 C
00259       implicit none
00260       include 'FGRAPH.FD'
00261       save errseverity, errmsg, filnam
00262
00263       integer MaxErr
00264       parameter(maxerr=12)
00265       character *(*) Mssg
00266       character *(*) WinLblDummy, StatLblDummy, MessageFile
00267       integer iErr, i, iTrimLen,iStringLen, iErrSev
00268       integer iLenPath, iParse, iLen
00269
00270       character*132 cEnv, FilNam, cBuf
00271       integer ErrSeverity (MaxErr)
00272       character*80 ErrMsg (MaxErr)
00273       data cenv,filnam /'LIB=','GRAPHLIB.LNG'/
00274       data errmsg/'GRAPHLIB %%% INITT: Incompatible message file - Press
00275      1 any key',
00276      2      'GRAPHLIB %%% INIT: Unknown graphic adapter',
00277      3      'GRAPHLIB %%% INIT: Error opening fontfile $$',
00278      4      'GRAPHLIB %%% INIT: Unknown font $$',
00279      5      'GRAPHLIB %%% INPUT: No mousedriver available, use keyboard'
00280      6     ,'GRAPHLIB %%% HARDCOPY: Error during OPEN',
00281      7      'GRAPHLIB %%% HARDCOPY: Error during WRITE',
00282      8      'GRAPHLIB %%% HARDCOPY: Internal error (buffer overflow)',
00283      9      '$$','Hardcopy in progress','Press any key to continue',
00284      2      'Press any key to exit program'/
00285
00286       data errseverity /5,10,10,10, 1, 5, 5, 5, 1, 1, 5, 10/
00287
00288       external iGetArg           ! Watcom Library-Funktion
00289       integer iGetArg
00290
00291       cenv=cenv(1:itrimlen(cenv))//char(0)
00292       filnam= filnam(1:itrimlen(filnam))//char(0)
00293
00294 C
00295 C  1.Priorität: Message-File durch WinLbl spezifiziert
00296 C  2.Priorotät: GRAPHLIB.LNG im Arbeitsdirectory
00297 C
00298
00299       open (unit=9,form='FORMATTED', err=5, status='OLD', file=
00300      1                        filnam(1:istringlen(filnam)))
00301       goto 7      ! File gefunden -> Einlesen
00302
00303 C
00304 C  3.Priorität: Message-File GRAPHLIB.LNG in LIB:
00305 C
00306
00307 5     call getenv (cenv, len(cenv))
00308       ilenpath= itrimlen(cenv)
00309       iparse=1
00310    10 continue ! while
00311        if (iparse.le.ilenpath) then
00312         ilen= index(cenv(iparse:ilenpath), ';')-1
00313         if (ilen.le.0) ilen=ilenpath-iparse+1
00314        else
00315         goto 99         ! benutze Default
00316        end if
```

```
00317        if ((ilen.ge.1).and.(iparse.le.ilenpath)) then
00318         cbuf= cenv(iparse:iparse+ilen-1)//'\'//filnam ! Chr0 bereits in FilNam
00319         call substitute (cbuf,cbuf, '\\', '\') ! kein doppelter Backslash !
00320        end if
00321        open (unit=9,form='FORMATTED', err=6, status='OLD', file=
00322      1                        cbuf(1:istringlen(cbuf)))
00323       goto 7      ! File gefunden -> Einlesen
00324 6     if (ilen.lt.ilenpath) then ! end while
00325        iparse= iparse+ilen+1
00326        goto 10  ! nächster Eintrag im Pfad
00327       else
00328        goto 99 ! kein File vorhanden - > benutze Default
00329       end if
00330
00331 7     do 20 i=1,maxerr
00332        read (unit=9, err=90, fmt=900) errseverity(i),errmsg(i)
00333 20    continue
00334
00335       close (unit=9)
00336
00337 99    return
00338 C
00339 C Ausgabe Fehlermeldung Messagefile
00340 C
00341 90    call outtext (errmsg(1)) ! Graphiksystem wurde noch nicht initialisiert!
00342       call tinput (i)
00343       return
00344
00345
00346
00347       entry winlbl(winlbldummy, statlbldummy, messagefile)
00348 C
00349 C  Setzen des Messagefiles und Uebersetzung '%:' bzw. '.%'
00350 C
00351       if (istringlen(messagefile).le.0) return
00352       filnam= messagefile
00353       i= igetarg(0, cbuf) ! Arg. 0: Programmname mit Directory
00354       if (i.gt.1) then
00355    30  continue ! repeat
00356         i= i-1
00357        if ((cbuf(i:i).ne.'\').and.(i.gt.1)) goto 30
00358        cbuf(i+1:i+1)= char(0)
00359        call substitute (filnam, filnam,'%:',cbuf)
00360       end if
00361       call substitute (filnam, filnam,'.%','.lng')
00362       return
00363
00364
00365
00366       entry graphicerror(ierr,mssg)
00367 C
00368 C  Ausgabe der Fehlermeldung
00369 C
00370       if (ierr.eq.99) then             ! Programmabbruch aus FINITT (2. Aufruf)
00371        if (errseverity(12).eq.10) then
00372         ierrsev= 99                              ! STOP
00373        else if (errseverity(12).eq.5) then
00374         ierrsev= 1                               ! TINPUT bereits durchgeführt
00375        else
00376         ierrsev= errseverity(12)
00377        end if
00378       else
00379        ierrsev= errseverity(ierr)
00380        if (ierrsev.gt.0) then
00381         call bell
00382         call substitute (errmsg(ierr),cbuf, '$$', mssg)
00383         call statst (cbuf)
00384        end if
00385       end if
00386
00387       if (ierrsev.le.1) then               ! =1: Statusmeldung
00388        return
00389       else if (ierrsev.eq.99) then
00390        stop                                ! =99: aus FINITT
00391       else
00392        call tinput (i)
00393        if (ierrsev.eq.5) then              ! =5: Warnung
00394         return
00395        else if (ierrsev.eq.10) then        ! =10: Abbruch
00396         if (ierr.ne.12) call finitt ()     ! Rekursion iErr=12 verhindern
00397        end if
00398       end if
00399
00400       return
00401 900   format (1x,i2,1x,a)
00402       end
00403
```

```
00404
00405
00406       subroutine lincol (iCol)
00407       include 'FGRAPH.FD'
00408       include 'TKTRNX.FD'
00409       integer iColCode, iCol
00410       integer *2 iErr
00411       ilincol= icolcode(icol)
00412       ierr= setcolor(ilincol)
00413       return
00414       end
00415
00416
00417
00418       subroutine txtcol (iCol)
00419       include 'TKTRNX.FD'
00420       integer iColCode, iCol
00421       itxtcol= icolcode(icol)
00422       return
00423       end
00424
00425
00426
00427       subroutine bckcol (iCol)
00428       include 'TKTRNX.FD'
00429       integer iColCode, iCol
00430       ibckcol= icolcode(icol)
00431       return
00432       end
00433
00434
00435
00436       Subroutine defaultcolour
00437       call bckcol (0)
00438       call lincol (1)
00439       call txtcol (1)
00440       return
00441       end
00442
00443
00444       integer function icolcode (iCol)
00445       include 'FGRAPH.FD'
00446       integer icoltab (15)    ! Anpassung Farbindex an VGA-Palette
00447       data icoltab/  15       ,12         ,10         ,11         ,9
00448 C        iCol=       1        2           3           4           5
00449 C        entspricht: weiss    rot         gruen       blau        lila
00450      1               ,14      ,7          ,13         ,4          ,2
00451 C        iCol=       6        7           8           9           10
00452 C        entspricht: gelb     grau        violett     mattrot     mattgruen
00453      2               ,1       ,3          ,6          ,8          ,5/
00454 C        iCol=       11       12          13          14          15
00455 C        entspricht: mattblau mattlila    orange      mattgrau    mattviolett
00456       if (icol.le.0) then
00457        icolcode= 0
00458       else if (icol.gt.15) then
00459        icolcode= icoltab(1)
00460       else
00461        icolcode= icoltab(icol)
00462       end if
00463       return
00464       end
00465
00466
00467
00468       integer function iscreenxcoord (iX)
00469       include 'TKTRNX.FD'
00470       iscreenxcoord= (ix*kscrx)/1023
00471       return
00472       end
00473
00474
00475
00476       integer function iscreenycoord (iY)
00477       include 'TKTRNX.FD'
00478       iscreenycoord= kscry-(kscry*iy)/780
00479       return
00480       end
00481
00482
00483
00484       integer function irevscreenxcoord (iX)
00485       include 'TKTRNX.FD'
00486       irevscreenxcoord= (ix*1023)/kscrx
00487       return
00488       end
00489
00490
```

```
00491
00492       integer function irevscreenycoord (iY)
00493       include 'TKTRNX.FD'
00494       irevscreenycoord= 780-(780*iy)/kscry
00495       return
00496       end
00497
00498
00499
00500       subroutine erase
00501       include 'FGRAPH.FD'
00502       include 'TKTRNX.FD'
00503       call clearscreen ($gclearscreen)
00504       ierr= setcolor(ibckcol)
00505       ierr= rectangle( $gfillinterior, 0, 0, kscrx, kscry)
00506       ierr= setcolor(ilincol)
00507       call movabs (kbeamx, kbeamy)      ! Cursorposition wiederherstellen
00508       return
00509       end
00510
00511
00512
00513       subroutine finitt
00514       implicit none
00515       include 'FGRAPH.FD'
00516       integer*2 iErr
00517       call graphicerror (12,' ')        ! Press any key to exit program
00518       call unregisterfonts ()
00519       ierr= setvideomode($defaultmode)
00520       call gincrsex
00521       call graphicerror (99,' ')        ! Jetzt auch STOP möglich
00522       return
00523       end
00524
00525 C
00526 C  Abspeichern Terminal Status Area
00527 C
00528
00529       subroutine svstat (Array)
00530       integer array(1)
00531       include 'TKTRNX.FD'
00532       integer arr(1)
00533       equivalence(arr(1),khomey)
00534       do 10 i=1,itktrnxl
00535 10     array(i)= arr(i)
00536       return
00537       end
00538
00539
00540
00541       subroutine restat (Array)
00542       integer array(1)
00543       include 'TKTRNX.FD'
00544       integer arr(1)
00545       equivalence(arr(1),khomey)
00546       do 10 i=1,itktrnxl
00547 10     arr(i)= array(i)
00548       call movabs (kbeamx, kbeamy)
00549       return
00550       end
00551
00552
00553 C
00554 C  Absolute Zeichenbefehle
00555 C
00556
00557       subroutine movabs (ix,iy)
00558       include 'FGRAPH.FD'
00559       include 'TKTRNX.FD'
00560       record /xycoord/ oldxy
00561       integer iScreenXcoord, iScreenYcoord
00562       call moveto (iscreenxcoord(ix),iscreenycoord(iy), oldxy)
00563       kbeamx= ix
00564       kbeamy= iy
00565       return
00566       end
00567
00568
00569
00570       subroutine pntabs (ix,iy)
00571       include 'FGRAPH.FD'
00572       include 'TKTRNX.FD'
00573       integer iScreenXcoord, iScreenYcoord
00574       integer oldPixel,ixs,iys
00575       record /xycoord/ oldxy
00576       ixs= iscreenxcoord(ix)
00577       iys= iscreenycoord(iy)
```

```
00578       call moveto (ixs,iys, oldxy)
00579       oldpixel= setpixel(ixs,iys)
00580       kbeamx= ix
00581       kbeamy= iy
00582       return
00583       end
00584
00585
00586
00587       subroutine drwabs (ix,iy)
00588       include 'FGRAPH.FD'
00589       include 'TKTRNX.FD'
00590       integer iScreenXcoord, iScreenYcoord
00591       ierr= lineto(iscreenxcoord(ix), iscreenycoord(iy))
00592       kbeamx= ix
00593       kbeamy= iy
00594       return
00595       end
00596
00597
00598
00599       subroutine dshabs (ix,iy, iMask)
00600       include 'FGRAPH.FD'
00601       include 'TKTRNX.FD'
00602       integer iScreenXcoord, iScreenYcoord
00603       integer*2 iErr
00604       if (imask.eq.0) then      ! solid line
00605        imask= 65535             ! 1111 1111 1111 1111
00606       else if (imask.eq.1) then ! dotted line
00607        imask= 43690             ! 1010 1010 1010 1010
00608       else if (imask.eq.2) then ! dash-dotted line
00609        imask= 58596             ! 1110 0100 1110 0100
00610       else if (imask.eq.3) then ! dashed line
00611        imask= 61680             ! 1111 0000 1111 0000
00612       end if
00613       call setlinestyle (imask)
00614       ierr= lineto(iscreenxcoord(ix), iscreenycoord(iy))
00615       call setlinestyle (65535) ! =#ffff, so zu WATCOM-Compiler kompatibel
00616       kbeamx= ix
00617       kbeamy= iy
00618       return
00619       end
00620
00621 C
00622 C  Relative Zeichenbefehle
00623 C
00624
00625       subroutine movrel (iX, iY)
00626       include 'TKTRNX.FD'
00627       ixx= kbeamx + ix
00628       iyy= kbeamy + iy
00629       call movabs (ixx, iyy)
00630       return
00631       end
00632
00633
00634
00635       subroutine pntrel (iX, iY)
00636       include 'TKTRNX.FD'
00637       ixx= kbeamx + ix
00638       iyy= kbeamy + iy
00639       call pntabs (ixx, iyy)
00640       return
00641       end
00642
00643
00644
00645       subroutine drwrel (iX, iY)
00646       include 'TKTRNX.FD'
00647       ixx= kbeamx + ix
00648       iyy= kbeamy + iy
00649       call drwabs (ixx, iyy)
00650       return
00651       end
00652
00653
00654
00655       subroutine dshrel (iX, iY, iMask)
00656       include 'TKTRNX.FD'
00657       ixx= kbeamx + ix
00658       iyy= kbeamy + iy
00659       call dshabs (ixx, iyy, imask)
00660       return
00661       end
00662
00663 C
00664 C   Ersatz SEELOC der CP/M-Version, SEELOC1 unnötig
```

```
00665 C
00666
00667       subroutine seeloc (IX,IY)
00668       include 'TKTRNX.FD'
00669       ix= kbeamx
00670       iy= kbeamy
00671       return
00672       end
00673
00674
00675
00676       Subroutine swind1 (ix1,iy1, ix2,iy2)
00677       include 'FGRAPH.FD'
00678       integer iScreenXcoord, iScreenYcoord
00679       call setcliprgn (iscreenxcoord(ix1),iscreenycoord(iy1),
00680      1                     iscreenxcoord(ix2),iscreenycoord(iy2))
00681       return
00682       end
00683
00684
00685
00686       Subroutine alpha
00687       implicit none
00688       include 'FGRAPH.FD'
00689       integer*2 iErr
00690       ierr= setvideomode($defaultmode)
00691       return
00692       end
00693
00694 C
00695 C  Textausgabe
00696 C
00697
00698       subroutine csize (Ixlen,iylen)
00699       include 'TKTRNX.FD'
00700       ixlen= khorsz
00701       iylen= kversz
00702       return
00703       end
00704
00705
00706
00707       subroutine toutpt (iChr)
00708       include 'FGRAPH.FD'
00709       include 'TKTRNX.FD'
00710       record /xycoord/ oldxy
00711       integer iScreenXcoord, iScreenYcoord
00712       integer*2 iErr
00713       call moveto (iscreenxcoord(kbeamx),iscreenycoord(kbeamy+kversz)
00714      1      , oldxy)
00715       ierr= setcolor(itxtcol)
00716       call outgtext (char(ichr)//char(0))
00717       ierr= setcolor(ilincol)
00718       kbeamx= kbeamx+khorsz
00719       call moveto (iscreenxcoord(kbeamx), iscreenycoord(kbeamy), oldxy)
00720       return
00721       end
00722
00723
00724
00725       subroutine toutst (nChr, iChrArr)
00726       integer iChrArr (1)
00727       if (nchr.eq.0) return
00728       do 10 i=1,nchr
00729 10     call toutpt (ichrarr(i))
00730       return
00731       end
00732
00733
00734
00735       subroutine toutstc (String)
00736       character *(*) String
00737       do 10 i=1,istringlen(string)
00738  10    call toutpt (ichar(string(i:i)))
00739       return
00740       end
00741
00742
00743
00744       subroutine statst (String)
00745       include 'FGRAPH.FD'
00746       include 'TKTRNX.FD'
00747       record /rccoord/ s
00748       character *(*) String
00749       character *80 Buf
00750       buf= string(1:istringlen(string)) ! Mit Blanks auf 80 Zeichen aufgefüllt
00751       call settextposition (1,1,s)
```

```
00752       call outtext (buf(1:min(80,kstcol)))
00753       return
00754       end
00755
00756 C
00757 C  Eingabe
00758 C
00759
00760       subroutine tinput (iChr)
00761       integer *2 kTinput
00762       ichr= ktinput()  ! Konversion Integer*2 nach *4 durch Compiler
00763       return
00764       end
00765
00766
00767       subroutine dcursr (IC,IX,IY)
00768       include 'TKTRNX.FD'
00769       integer ic, ix, iy
00770       integer*2 ic2, ix2, iy2
00771       if (imouse.ne.0) then
00772        call gincrs (ic2,ix2,iy2)
00773        ix= ix2                    ! Watcom: Konvertierung int*2 in int*4
00774        iy= iy2
00775        ic= ic2
00776       else
00777        call graphicerror (5, ' ') ! No Mousedriver available, use Keyboard
00778        call tinput (ic)
00779        ix= 0
00780        iy= 0
00781       end if
00782       ix= irevscreenxcoord(ix)
00783       iy= irevscreenycoord(iy)
00784       return
00785       end
00786
00787 C
00788 C  Interface lib$movc3 (Anpassung Parameterübergabe durch "TcsDDosA.FI"
00789 C
00790       subroutine lib_movc3 (iLen, sou, dst)
00791       integer iLen
00792       character *(*) sou,dst
00793       call lib_movc3_ (ilen, sou, dst)
00794       return
00795       end
00796
00797 C
00798 C  Dummyroutinen
00799 C
00800
00801       subroutine  anmode
00802       entry       alfmod
00803       entry       pclipt
00804       entry       iowait
00805       return
00806       end
```

3.42 TKTRNX.fd File Reference

DOS Port: TCS Common Block TKTRNX.

3.42.1 Detailed Description

DOS Port: TCS Common Block TKTRNX.

Version

1.0

Author

Dr.-Ing. Klaus Friedewald

Common Block TKTRNX, version for DOS and INTEGER∗4 variables (WATCOM-Compiler)

Because the following declaration not beeing part of a module, DOXYGEN could not interpret the combinattion COMMON / INTEGER. Workaround: \cond ... \endcond

Definition in file TKTRNX.fd.

3.43 TKTRNX.fd

```
00001 C> \file TKTRNX.fd
00002 C> \brief   DOS Port: TCS Common Block TKTRNX
00003 C> \version 1.0
00004 C> \author  Dr.-Ing. Klaus Friedewald
00005 C> \~german
00006 C> Common Block TKTRNX, Version für DOS und INTEGER*4 Variablen (WATCOM-Compiler)
00007 C> \~english
00008 C> Common Block TKTRNX, version for DOS and INTEGER*4 variables (WATCOM-Compiler)
00009 C> \~german
00010 C> \note
00011 C> Da die folgende Definition kein Bestandteil eines Moduls
00012 C> ist, versagt der DOXYGEN-Parser bei der Kombination von
00013 C> COMMON und integer. Workaround: \\cond ... \\endcond
00014 C> \~english
00015 C> Because the following declaration not beeing part of a module, DOXYGEN could
00016 C> not interpret the combinattion COMMON / INTEGER.
00017 C> Workaround: \\cond ... \\endcond
00018 C> \~
00019 C> \cond
00020 C>
00021 C Common Block TKTRNX, Version für DOS und INTEGER*4 Variablen (WATCOM-Compiler)
00022 C
00023       COMMON /tktrnx/
00024 c            kbaudr,kerror,kgrafl,
00025      1 khomey,
00026 c            kkmode,
00027      2 khorsz,kversz,
00028 c            kitalc,ksizef,
00029      3 klmrgn,krmrgn, kscrx,kscry,
00030 c            ktblsz,khorzt(10),kvertt(10),
00031      4 kbeamx,kbeamy,
00032 c            kmovef,kpchar(4),kdasht,
00033      5 kminsx,kminsy,kmaxsx,kmaxsy,tminvx,tminvy,tmaxvx,tmaxvy,
00034 c      trealx,trealy,timagx,timagy,
00035      6 trcosf,trsinf,trscal
00036      u ,xfac,yfac,xlog,ylog,kstcol,
00037      u ilincol, ibckcol, itxtcol, imouse
00038       SAVE /tktrnx/
00039
00040       integer iTktrnxL
00041       parameter(itktrnxl=29) ! +11)
00042
00043 c Neue Variablen:
00044 c     kScrX, kScrY: Zeichenfläche in Pixeln
00045 c           Unterer Bildschirmrand für eine Statuszeile freigehalten
00046 c     kBeamX, kBeamY: Aktuelle Strahlposition im (1024/780) Koordinatensystem
00047 c     kStCol: Maximale Zeichenzahl in der Statuszeile
00048 c     iLinCol, iBckCol, iTxtCol: Farbindices
00049 c     iMouse: Anzahl der Maustasten. iMouse=0: keine Maus vorhanden
00050 c
00051 c Achtung:
00052 c       Anpassung Parameters iTktrnxL der Routinen SVSTAT, RESTAT aus TCS.FOR!
00053 c     Vorsicht, bei Integer*2 Variablen zählen Real-Variablen doppelt (*4!)
00054 c
00055 C
00056 C> \endcond
```

Index