

# Fast Graphics 15 Routines#

## General Information

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Language: ACTION!

Compiler/Interpreter: ACTION!

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## Fast Graphics 15 Routines#

```
00010          .LI OFF
00020 *****
00030 *
00040 * PROGRAMM:GR15GRAFIK          *
00050 * AUTOR      :CARSTEN STROTMANN *
00060 * DATUM      :
00070 * VERSION   :
00080 * FUER       :ACTION!
00090 *
00100 *****
00110 ;
00120 ROWAC = $70
00130 COLAC = $72
00140 BITMSK = $6E
00150 SHFAMT = $6F
00160 SAVMSC = $58
00170 XNEU = $5A
00180 YNEU = $5B
00190 XALT = $55
00200 YALT = $54
00210 ZAEHLER = $E4
00220 DELTAX = $76
00230 DELTAY = $77
00240 XFLAG = $74
00250 YFLAG = $75
00251 HLP = $E6
00260 HILFA = $E9
00270 HILFB = $EB
00280 HILFT = $ED
00290 FILLDAT = $2FD
00300 ;
00310 ;
00320          .OR $0600
00330          .OF "D:GR15MOD.COM"
00340 ;
00350 ;
00360 PLOT
00370          AND #3
00380          STA BITMSK
00390          STX XALT
00400          STY YALT
00410          LDA #0
00420          STA HLP
00430          STA HLP+1
00440          STA HLP+2
00450          TYA
00460          ASL
```

```

00470      ROL HLP
00480      ASL
00490      ROL HLP
00500      ASL
00510      ROL HLP      Y*8
00520      STA HLP+1
00530      LDX HLP
00540      STX HLP+2
00550      ASL
00560      ROL HLP
00570      ASL
00580      ROL HLP
00590      CLC
00600      ADC HLP+1
00610      STA HLP+1
00620      LDA HLP+2
00630      ADC HLP
00640      STA HLP+2
00650      CLC
00660      LDA SAVMSC
00670      ADC HLP+1
00680      STA ROWAC
00690      LDA SAVMSC+1
00700      ADC HLP+2
00710      STA ROWAC+1
00720      LDA XALT
00730      AND #3      ;X MOD 4
00740      STA SHFAMT
00750      LDA XALT
00760      LSR      ;X/4
00770      LSR
00780      CLC
00790      ADC ROWAC
00800      STA ROWAC
00810      BCC .3
00820      INC ROWAC+1
00830 .3      LDX BITMSK
00840      LDA COLR,X
00850      LDX SHFAMT
00860      AND OFFS,X
00870      STA BITMSK
00880      LDY #0
00890      LDA (ROWAC),Y
00900      AND OFF2,X
00910      ORA BITMSK
00920      STA (ROWAC),Y
00930      RTS
00940 -----
00950 OFFS      .HX C0300C03
00960 OFF2      .HX 3FCFF3FC
00970 COLR      .HX 00AA55FF
00990 -----
01000      .OR $7000
01010 ;
01020 LINE
01030      STX XNEU
01040      STY YNEU
01050      STA FILLDAT
01060      LDX XALT

```

```

01070          LDY YALT
01080          JSR PLOT
01090          LDA #0
01100          STA XFLAG
01110          STA YFLAG
01120          LDX XNEU
01130          LDY YNEU
01140 ;
01150          CPX XALT
01160          BNE .1
01170          CPY YALT
01180          BNE .1
01190          RTS
01200 ;
01210 .1       CPX XALT
01220          BCC DRX
01230          INC XFLAG
01240          TXA
01250          SBC XALT
01260          JMP DR2
01270 ;
01280 DRX
01290          DEC XFLAG
01300          SEC
01310          LDA XALT
01320          SBC XNEU
01330 ;
01340 DR2
01350          STA DELTAX
01360          CPY YALT
01370          BCC DRY
01380          INC YFLAG
01390          TYA
01400          SBC YALT
01410          JMP DR3
01420 ;
01430 DRY
01440          DEC YFLAG
01450          SEC
01460          LDA YALT
01470          SBC YNEU
01480 ;
01490 DR3
01500          STA DELTAY
01510          LDA XALT
01520          STA XNEU
01530          LDA YALT
01540          STA YNEU
01550          LDA DELTAX
01560          CMP DELTAY
01570          BCC DRYSTEP
01580 ;
01590          LDA DELTAY
01600          ASL
01610          STA HILFA
01620          LDA #0
01630          ROL
01640          STA HILFA+1
01650 ;

```

```

01660          SEC
01670          LDA HILFA
01680          SBC DELTAX
01690          STA HILFT
01700          LDA HILFA+1
01710          SBC #0
01720          STA HILFT+1
01730 ;
01740          SEC
01750          LDA HILFT
01760          SBC DELTAX
01770          STA HILFB
01780          LDA HILFT+1
01790          SBC #0
01800          STA HILFB+1
01810 ;
01820          LDA DELTAX
01830          STA ZAEHLER
01840 ;
01850 DXSCHL
01860          CLC
01870          LDA XNEU
01880          ADC XFLAG
01890          STA XNEU
01900          LDA HILFT+1
01910          BPL DRX5
01920 ;
01930          CLC
01940          LDA HILFT
01950          ADC HILFA
01960          STA HILFT
01970          LDA HILFT+1
01980          ADC HILFA+1
01990          STA HILFT+1
02000 ;
02010          JMP DRX4
02020 ;
02030 DRX5
02040          CLC
02050          LDA HILFT
02060          ADC HILFB
02070          STA HILFT
02080          LDA HILFT+1
02090          ADC HILFB+1
02100          STA HILFT+1
02110 ;
02120          CLC
02130          LDA YNEU
02140          ADC YFLAG
02150          STA YNEU
02160 ;
02170 DRX4
02180          LDX XNEU
02190          LDY YNEU
02200          LDA FILLDAT
02210          JSR PLOT
02220          DEC ZAEHLER
02230          BNE DXSCHL
02240          JMP DREND

```

```

02250 ;
02260 DRYSTEP
02270     LDA DELTAX
02280     ASL
02290     STA HILFA
02300     LDA #0
02310     ROL
02320     STA HILFA+1
02330 ;
02340     SEC
02350     LDA HILFA
02360     SBC DELTAY
02370     STA HILFT
02380     LDA HILFA+1
02390     SBC #0
02400     STA HILFT+1
02410 ;
02420     SEC
02430     LDA HILFT
02440     SBC DELTAY
02450     STA HILFB
02460     LDA HILFT+1
02470     SBC #0
02480     STA HILFB+1
02490 ;
02500     LDA DELTAY
02510     STA ZAEHLER
02520 ;
02530 DYSCHL
02540     CLC
02550     LDA YNEU
02560     ADC YFLAG
02570     STA YNEU
02580     LDA HILFT+1
02590     BPL DRY5
02600 ;
02610     CLC
02620     LDA HILFT
02630     ADC HILFA
02640     STA HILFT
02650     LDA HILFT+1
02660     ADC HILFA+1
02670     STA HILFT+1
02680 ;
02690     JMP DRY4
02700 ;
02710 DRY5
02720     CLC
02730     LDA HILFT
02740     ADC HILFB
02750     STA HILFT
02760     LDA HILFT+1
02770     ADC HILFB+1
02780     STA HILFT+1
02790     CLC
02800     LDA XNEU
02810     ADC XFLAG
02820     STA XNEU
02830 DRY4

```

```

02840          LDX XNEU
02850          LDY YNEU
02860          LDA FILLDAT
02870          JSR PLOT
02880          DEC ZAEHLER
02890          BNE DYSCHL
02900 ;
02910 DREND
02920          LDX XNEU
02930          LDY YNEU
02940          STX XALT
02950          STY YALT
02960          RTS
02970 -----

```

---

## ACTION Routinen#

```

;*****
;**                                     **
;** Phoenix SoftCrew ACTION!         **
;** Programme und Tips f. 8Bit      **
;**                                     **
;** Carsten Strotmann                **
;**                                     **
;*****

; Programmname:Gr.15 Fast Modul
; done by:Carsten Strotmann
; Filename:GR15MOD.ACT
; first Version:12.04.90
; last change:12.04.90
; fast gr 15 routines
;

;

PROC FPlot=$0600 (BYTE color,x,y)
PROC FLine=$7000 (BYTE color,x,y)

PROC Pixel (CARD x,y)

    IF x>=0 AND x<160 AND y>=0 AND y<192 THEN
        FPlot (color,x,y)
    FI

RETURN

PROC LineTo (BYTE x1,y1,x2,y2)

    Pixel (x1,y1)
    FLine (color,x2,y2)

RETURN

CARD FUNC Abs (INT val)

    IF val<0 THEN

```

```
    val=-val
    FI
RETURN (val)
```

```
{code}
```

```
----
```

```
1.1.1 Demo Program
```

```
{code}
```

```
;*****
;**                                     **
;** Phoenix SoftCrew ACTION!          **
;** Programme und Tips f. 8Bit        **
;**                                     **
;** Carsten Strotmann                 **
;**                                     **
;*****

; Programmname:BOX15.ACT
; done by:BJOERN ISREAL/CARSTEN STROTMANN
; Filename:BOX15.ACT
; first Version:22.04.90
; last change:22.04.90
; DEMO
;
```

```
INCLUDE "GR15MOD.ACT"
```

```
PROC Kiste ()
```

```
    BYTE hcol=710,pcol=709,rcol=712,
           za,c,pza,
           xpos1,xpos2,px1,px2,
           ypos1,ypos2,py1,py2,
           x2pos1,x2pos2,px21,px22,
           y2pos1,y2pos2,py21,py22,
           rra,rri,obra,obri,ura,uri,lra,lri
```

```
    rra=150
    rri=140
    obra=3
    obri=13
    ura=190
    uri=180
    lra=3
    lri=13
```

```
    xpos1=10
    ypos1=10
    xpos2=30
    ypos2=20
```

```
    x2pos1=10
    y2pos1=10
    x2pos2=30
```

y2pos2=20

px1=3

px2=3

py1=3

py2=3

px21=3

px22=3

py21=3

py22=3

c=1

pza=0

za=0

Graphics (31)

hcol=12

pcol=2

rcol=14

color=2

LineTo (0,0,159,0)

LineTo (159,0,159,191)

LineTo (159,191,0,191)

LineTo (0,191,0,0)

DO

xpos1==+px1

xpos2==+px2

ypos1==+py1

ypos2==+py2

IF xpos1>rra THEN

px1=-3

FI

IF xpos1<lra THEN

px1=3

FI

IF xpos2>rri THEN

px2=-3

FI

IF xpos2<lri THEN

px2=3

FI

;

;\*\*\*\*\*

;

IF ypos1>ura THEN

py1=-3

FI



```

IF ypos1<obra THEN
  py1=3
FI

IF ypos2>uri THEN
  py2=-3
FI

IF ypos2<obri THEN
  py2=3
FI

;
;****
;

color=1

LineTo (xpos1,ypos1,xpos2,ypos2)

IF pza=0 THEN
  za==+1
FI

IF za=30 THEN
  pza=1

  x2pos1==+px21
  x2pos2==+px22
  y2pos1==+py21
  y2pos2==+py22

  IF x2pos1>rra THEN
    px21=-3
  FI

  IF x2pos1<lra THEN
    px21=3
  FI

  IF x2pos2>rri THEN
    px22=-3
  FI

  IF x2pos2<lri THEN
    px22=3
  FI

;
;****
;

IF y2pos1>ura THEN
  py21=-3
FI

IF y2pos1<obra THEN
  py21=3

```

```
FI

IF y2pos2>uri THEN
  py22=-3
FI

IF y2pos2<obri THEN
  py22=3
FI

;
;****
;

color=0

LineTo (x2pos1,y2pos1,x2pos2,y2pos2)
FI
OD

RETURN
```