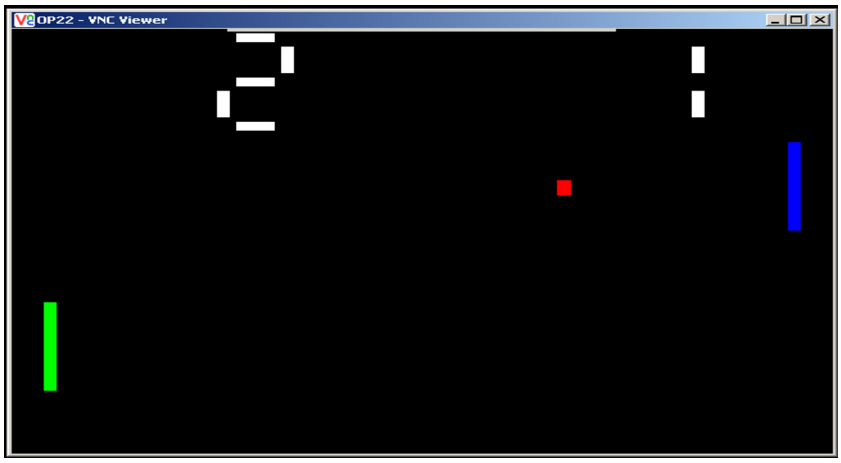
VIDEO GAME
IN PAC
USING RFB PROTOCOL



RFB PROTOCOL

RFB or "Remote Frame Buffer" protocol was created in the Olivetti Research Laboratory to manage graphic interfaces remotely. The idea was to create a protocol as simple as possible, so as much hardware as possible (thin clients) could deal with it. One of its simplest function is to draw rectangles specifying basically 5 parameters: x position, y position, width, height and color. In that way an image can be composed of multiple rectangles, sending only 5 parameters per rectangle and there's no need to send desktop image pixel by pixel to the thin client, saving bandwidth.

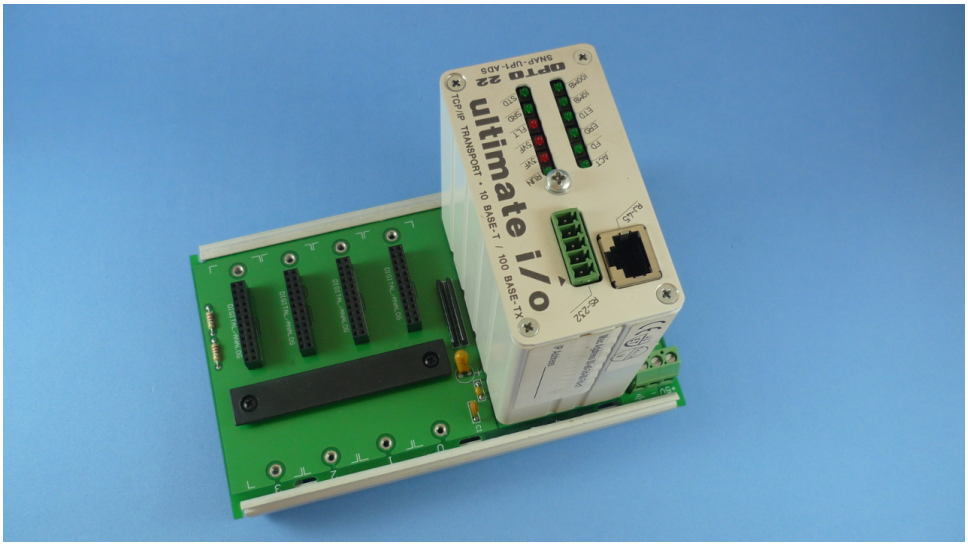
RFB SERVER

The main use today of RFB servers is to take an actual image of a desktop (windows, menus, icons, apps, etc.) and send them to the remote client, also capture client actions (mouse movements, clicks, key press) and send them to the desktop. However, due to the protocol independence from any operating system, this can be used to generate content for the client that not necessarily exists in a graphical form in the server. A classic example is a game server, where the server doesn't have screen, graphic card, controllers or keyboard, only data processing and a communication channel, it's on the client side (player) where the graphic card, monitor and keyboard are installed.

IMPLEMENTING RFB IN PAC

To develop an app RFB server two things are needed: some kind of network connectivity and some platform to write programs than can send/receive network packets. There are some examples of RFB apps, in this case a counter that can be compiled on any system with a suitable C compiler, and an extreme case where an ESP8266 module is used as an RFB server.

A PAC (in this case an Opto22 SNAP UP1 ADS) has these characteristics. If there is no PAC available, a free simulator PAC Sim can be used.
.

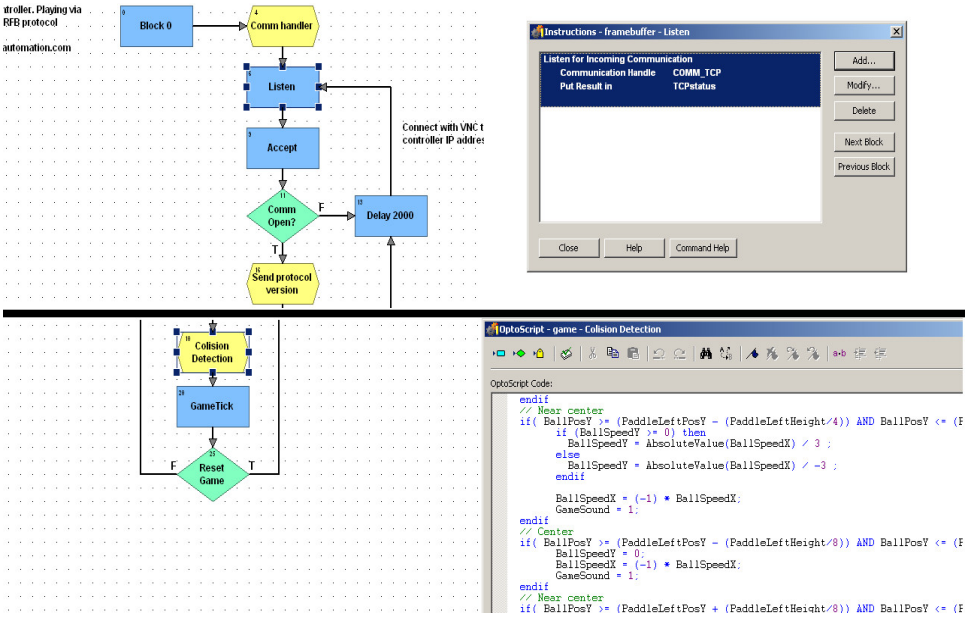


OPTOSCRIPT AND FLOWCHART PROGRAMMING

The game was developed using free PAC control for Windows suite. There isn't an official tool to program an Opto22 PAC using Linux, however, due to the control strategies sent to the PAC are text files with content coded in FORTH shouldn't be very hard to develop an alternative.The programming language uses flowcharts. Several charts could be created and run in parallel, in that way the game's logic could be split from RFB protocol implementation. A big advantage of PAC vs PLC (the gap is closes a bit every day!) is the ability to use basic network primitives, that can be used to build new protocols not included like RFB. In this case the primitives are very close to the client/server socket functions of familiar programming languages.

The game's logic, paddle positioning, ball movement, collision detection and scores were programmed in an independent flowchart, in that way the game could be accessed by other means or protocols like digital or analog I/O, or using a SCADA with Modbus, etc. The game is for a single player and there's a small "smart" algorithm that plays as a computer opponent.

In the implementation of RFB protocol some shortcuts were taken, a lot of client requests are ignored, a very simple color palette was transmitted and a very crude rectangle encoding were used, so the game have not very advanced graphics!



CONCLUSIONS

- It is possible to implement the RFB protocol in an Opto22 PAC. A possible use for it is to develop "less fun" apps like remote SCADA or HMI accessible via VNC client, as a different alternative for IoT apps.

- The game only allows one single client connected, however, is possible to modify it for two or more simultaneous remote players.

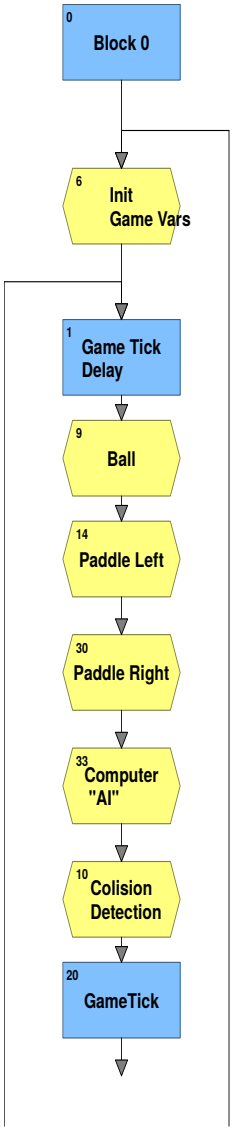
- Rectangle based games where the screen doesn't scroll or changes often (i.e. Pong, Tetris, Breakout) are easier to develop using RFB.

- The control strategy works with a real PAC or with a PAC SImulator.

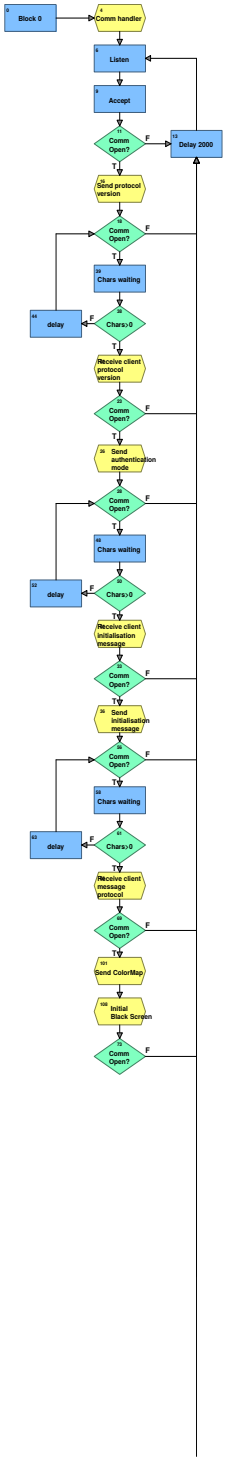
LINKS

Video shows two tests: Real PAC and Simulator thru VNC: **http://youtu.be/rnYa2fj7JpI**
Thin client for remote connection withoun PC: **http://s.click.aliexpress.com/e/YjA2NzZfM**

GAME CHART


0
Block 0
6
Init
Game Vars
1
Game Tick
Delay
9
Ball
14
Paddle Left
30
Paddle Right
33
Computer
"AI"
10
Colision
Detection
20
GameTick

FRAMEBUFFER CHART



GAME CHART CODE

TITLE: Chart Block Instructions
STRATEGY: RFB
CHART: game
DATE: 03/29/16 TIME: 12:35:41

ACTIONS

Action Block: Block 0 (Id: 0)
Exit to: Init Game Vars (Id: 6)

There are no instructions in this action block.

Action Block: Game Tick Delay (Id: 1)
Exit to: Ball (Id: 9)

Delay (mSec)
GameTickDelay

Action Block: GameTick (Id: 20)
Exit to: Reset Game (Id: 25)

Move
From 1
To GameTick

SCRIPTS

OptoScript Block: Init Game Vars (Id: 6)
Exit to: Game Tick Delay (Id: 1)

```
GameReset = 0;
GameTickDelay = 100;

FieldColor = 0;
FieldUp = 120;
FieldDown = 480;
FieldLeft = 0;
FieldRight = 640;


BallColor = 1;
BallHeight = 11;
BallWidth = 11;


PaddleLeftColor = 2;
PaddleLeftHeight = 100;
PaddleLeftWidth = 10;
PaddleLeftposX = 30;
PaddleLeftposY = FieldUp + ( (FieldDown - FieldUp) / 2 ) ;
PaddleLeftSpeedY = 7;

PaddleRightColor = 3;
PaddleRightHeight = 100;
PaddleRightWidth = 10;
PaddleRightposX = 610;
PaddleRightposY = FieldUp + ( (FieldDown - FieldUp) / 2 ) ;
PaddleRightSpeedY = 7;
```

```
BallSpeedX = 10;
BallSpeedY = 0;

BallPosX = FieldLeft + ( (FieldRight - FieldLeft) / 2 ) ;
BallPosY = FieldUp + ( (FieldDown - FieldUp) / 2 ) ;



Game7SegColor = 4;
Game7SegHeight = 30;
Game7SegWidth = 10;

GameLeft7SegAposX = 175;
GameLeft7SegAposY = 5;

GameLeft7SegBposX = 210;
GameLeft7SegBposY = 20;

GameLeft7SegCposX = 210;
GameLeft7SegCposY = 70;

GameLeft7SegDposX = 175;
GameLeft7SegDposY = 105;

GameLeft7SegEposX = 160;
GameLeft7SegEposY = 70;

GameLeft7SegFposX = 160;
GameLeft7SegFposY = 20;

GameLeft7SegGposX = 175;
GameLeft7SegGposY = 55;


GameRight7SegAposX = GameLeft7SegAposX+320;
GameRight7SegAposY = GameLeft7SegAposY;

GameRight7SegBposX = GameLeft7SegBposX+320;
GameRight7SegBposY = GameLeft7SegBposY;

GameRight7SegCposX = GameLeft7SegCposX+320;
GameRight7SegCposY = GameLeft7SegCposY;

GameRight7SegDposX = GameLeft7SegDposX+320;
GameRight7SegDposY = GameLeft7SegDposY;

GameRight7SegEposX = GameLeft7SegEposX+320;
GameRight7SegEposY = GameLeft7SegEposY;

GameRight7SegFposX = GameLeft7SegFposX+320;
GameRight7SegFposY = GameLeft7SegFposY;

GameRight7SegGposX = GameLeft7SegGposX+320;
GameRight7SegGposY = GameLeft7SegGposY;

PaddleLeftScore = 0 ;
PaddleRightScore = 0;
```

OptoScript Block: Ball (Id: 9)
Exit to: Paddle Left (Id: 14)

```
// X position
if ( BallSpeedX > 0) then

  if ( BallPosX + BallSpeedX + (BallWidth/2) > FieldRight) then
    BallPosX =  FieldRight - BallWidth/2;
  else
    BallPosX = BallPosX + BallSpeedX;
  endif
```

```
else

  if ( BallPosX + BallSpeedX - (BallWidth/2) < FieldLeft) then
    BallPosX =  FieldLeft + BallWidth/2;
  else
    BallPosX = BallPosX + BallSpeedX;
  endif

endif

// Y position

if ( BallSpeedY > 0) then

  if ( BallPosY + BallSpeedY + (BallHeight/2) > FieldDown) then
    BallPosY =  FieldDown - BallHeight/2;
  else
    BallPosY = BallPosY + BallSpeedY;
  endif

else

  if ( BallPosY + BallSpeedY - (BallHeight/2) < FieldUp) then
    BallPosY =  FieldUp + BallHeight/2;
  else
    BallPosY = BallPosY + BallSpeedY;
  endif

endif
```

OptoScript Block: Colision Detection (Id: 10)
Exit to: GameTick (Id: 20)

```
// Field bounces

/*
if ( BallSpeedX > 0) then
  if ( BallPosX + (BallWidth/2) >= FieldRight) then
     BallSpeedX = (-1) * BallSpeedX;
     BallPosX = BallPosX -1;
  endif

endif

if ( BallSpeedX < 0) then
  if ( BallPosX - (BallWidth/2) <= FieldLeft) then
     BallSpeedX = (-1) * BallSpeedX ;
     BallPosX = BallPosX +1;
  endif
endif
*/

if ( BallSpeedY > 0) then
  if ( BallPosY + (BallHeight/2) >= FieldDown) then
     BallSpeedY = (-1) * BallSpeedY ;
     BallPosY = BallPosY -1;
     GameSound = 1;
  endif
endif

if ( BallSpeedY < 0) then
  if ( BallPosY - (BallHeight/2) <= FieldUp) then
     BallSpeedY = (-1) * BallSpeedY ;
     BallPosY = BallPosY +1;
     GameSound = 1;
```

```
  endif
endif



// Ball bounce  paddle angle  (BallSpeedY)

// Edge         = 1.0 * BallSpeedX
// Near Edge    = 0.7 * BallSpeedX
// Near center  = 0.3 * BallSpeedX
// Center       = 0.0 * BallSpeedX
// Center       = 0.0 * BallSpeedX
// Near center  = 0.3 * BallSpeedX
// Near Edge    = 0.7 * BallSpeedX
// Edge         = 1.0 * BallSpeedX



// Left paddle X zone
if ( (BallPosX - (BallWidth /2) ) <= (PaddleLeftPosX + (PaddleLeftWidth/2))   and BallSpeedX < 1) then

  // edge
  if( BallPosY >= (PaddleLeftPosY - (PaddleLeftHeight /2) ) AND BallPosY <= (PaddleLeftPosY - ((PaddleLeftHeight * 3) /8) ))then

      if (BallSpeedY >= 0) then
        BallSpeedY =  AbsoluteValue(BallSpeedX)  ;
      else
        BallSpeedY =  AbsoluteValue(BallSpeedX) * -1  ;
      endif

      BallSpeedX = (-1) * BallSpeedX;
      GameSound = 1;
  endif

  // near edge
  if( BallPosY >= (PaddleLeftPosY - (PaddleLeftHeight/4) - (PaddleLeftHeight/8)) AND BallPosY <= (PaddleLeftPosY -
(PaddleLeftHeight/4)  ))then
      if (BallSpeedY >= 0) then
        BallSpeedY = ( AbsoluteValue(BallSpeedX) * 2 ) /3 ;
      else
        BallSpeedY = ( AbsoluteValue(BallSpeedX) * -2 ) /3 ;
      endif


      BallSpeedX = (-1) * BallSpeedX;
      GameSound = 1;
  endif
  // Near center
  if( BallPosY >= (PaddleLeftPosY - (PaddleLeftHeight/4)) AND BallPosY <= (PaddleLeftPosY - (PaddleLeftHeight/8)))then
      if (BallSpeedY >= 0) then
        BallSpeedY = AbsoluteValue(BallSpeedX) / 3 ;
      else
        BallSpeedY = AbsoluteValue(BallSpeedX) / -3 ;
      endif

      BallSpeedX = (-1) * BallSpeedX;
      GameSound = 1;
  endif
  // Center
  if( BallPosY >= (PaddleLeftPosY - (PaddleLeftHeight/8)) AND BallPosY <= (PaddleLeftPosY + (PaddleLeftHeight/8)))then
      BallSpeedY = 0;
      BallSpeedX = (-1) * BallSpeedX;
      GameSound = 1;
  endif
  // Near center
  if( BallPosY >= (PaddleLeftPosY + (PaddleLeftHeight/8)) AND BallPosY <= (PaddleLeftPosY + (PaddleLeftHeight/4)))then
      if (BallSpeedY >= 0) then
        BallSpeedY = AbsoluteValue(BallSpeedX) / 3 ;
      else
        BallSpeedY = AbsoluteValue(BallSpeedX) / -3 ;
```

```
            endif


            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // near edge
        if( BallPosY >= (PaddleLeftPosY + (PaddleLeftHeight/4)) AND BallPosY <= (PaddleLeftPosY + (PaddleLeftHeight/4) +
(PaddleLeftHeight/8)))then

            if (BallSpeedY >= 0) then
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * 2 ) /3 ;
            else
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * -2 ) /3 ;
            endif

            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // edge
        if( BallPosY >= (PaddleLeftPosY + ( (PaddleLeftHeight * 3 ) /8)) AND BallPosY <= (PaddleLeftPosY + (PaddleLeftHeight/2) ))then

            if (BallSpeedY >= 0) then
              BallSpeedY =  AbsoluteValue(BallSpeedX)  ;
            else
              BallSpeedY =  AbsoluteValue(BallSpeedX) * -1  ;
            endif

            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif


      endif

      // Right paddle X zone
      if ( (BallPosX + (BallWidth/2) ) >= (PaddleRightPosX - (PaddleRightWidth/2)) and BallSpeedX > 1) then

        // edge
        if( BallPosY >= (PaddleRightPosY - (PaddleRightHeight /2) ) AND BallPosY <= (PaddleRightPosY - ((PaddleRightHeight * 3) /8) ))then

            if (BallSpeedY >= 0) then
              BallSpeedY =  AbsoluteValue(BallSpeedX)  ;
            else
              BallSpeedY =  AbsoluteValue(BallSpeedX) * -1  ;
            endif

            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif

        // near edge
        if( BallPosY >= (PaddleRightPosY - (PaddleRightHeight/4) - (PaddleRightHeight/8)) AND BallPosY <= (PaddleRightPosY -
(PaddleRightHeight/4)  ))then
            if (BallSpeedY >= 0) then
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * 2 ) /3 ;
            else
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * -2 ) /3 ;
            endif


            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // Near center
        if( BallPosY >= (PaddleRightPosY - (PaddleRightHeight/4)) AND BallPosY <= (PaddleRightPosY - (PaddleRightHeight/8)))then
            if (BallSpeedY >= 0) then
              BallSpeedY = AbsoluteValue(BallSpeedX) / 3 ;
            else
              BallSpeedY = AbsoluteValue(BallSpeedX) / -3 ;
            endif
```

```
            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // Center
        if( BallPosY >= (PaddleRightPosY - (PaddleRightHeight/8)) AND BallPosY <= (PaddleRightPosY + (PaddleRightHeight/8)))then
            BallSpeedY = 0;
            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // Near center
        if( BallPosY >= (PaddleRightPosY + (PaddleRightHeight/8)) AND BallPosY <= (PaddleRightPosY + (PaddleRightHeight/4)))then
            if (BallSpeedY >= 0) then
              BallSpeedY = AbsoluteValue(BallSpeedX) / 3 ;
            else
              BallSpeedY = AbsoluteValue(BallSpeedX) / -3 ;
            endif


            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // near edge
        if( BallPosY >= (PaddleRightPosY + (PaddleRightHeight/4)) AND BallPosY <= (PaddleRightPosY + (PaddleRightHeight/4) +
(PaddleRightHeight/8)))then

            if (BallSpeedY >= 0) then
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * 2 ) /3 ;
            else
              BallSpeedY = ( AbsoluteValue(BallSpeedX) * -2 ) /3 ;
            endif

            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif
        // edge
        if( BallPosY >= (PaddleRightPosY + ( (PaddleRightHeight * 3 ) /8)) AND BallPosY <= (PaddleRightPosY + (PaddleRightHeight/2)
))then

            if (BallSpeedY >= 0) then
              BallSpeedY =  AbsoluteValue(BallSpeedX)  ;
            else
              BallSpeedY =  AbsoluteValue(BallSpeedX) * -1  ;
            endif

            BallSpeedX = (-1) * BallSpeedX;
            GameSound = 1;
        endif


    endif


    // Scores.

    // Left paddle X zone
    if ( (BallPosX - (BallWidth /2) ) <= PaddleLeftPosX   ) then
      PaddleRightScore  = PaddleRightScore + 1;
      BallPosX = FieldLeft + ( (FieldRight - FieldLeft) / 2 ) ;
      BallPosY = FieldUp + ( (FieldDown - FieldUp) / 2 ) ;
      BallSpeedX  = AbsoluteValue(BallSpeedX) * -1 ;
      BallSpeedY = 0 ;
      GameRedrawScores = 1 ;
      GameSound = 1;
    endif


    // Right paddle X zone
    if ( ( BallPosX + (BallWidth/2) ) >= PaddleRightPosX  ) then
      PaddleLeftScore  = PaddleLeftScore + 1;
      BallPosX = FieldLeft + ( (FieldRight - FieldLeft) / 2 ) ;
```

```
    BallPosY = FieldUp + ( (FieldDown - FieldUp) / 2 ) ;
    BallSpeedX  = AbsoluteValue(BallSpeedX)  ;
    BallSpeedY = 0 ;
    GameRedrawScores = 1 ;
    GameSound = 1;
   endif

   if(PaddleLeftScore > 9 or PaddleRightScore > 9 )then
    PaddleLeftScore = 0 ;
    PaddleRightScore = 0;
   endif
```

OptoScript Block: Paddle Left (Id: 14)
Exit to: Paddle Right (Id: 30)

```
   // Y position

   if ( PaddleLeftKey > 0) then

     if ( PaddleLeftPosY + PaddleLeftSpeedY + (PaddleLeftHeight/2) > FieldDown) then
       PaddleLeftPosY =  FieldDown - PaddleLeftHeight/2;
     else
       PaddleLeftPosY = PaddleLeftPosY + PaddleLeftSpeedY;
     endif

     PaddleLeftKey = 0;

   endif


   if ( PaddleLeftKey < 0) then

     if ( PaddleLeftPosY - PaddleLeftSpeedY - (PaddleLeftHeight/2) < FieldUp) then
       PaddleLeftPosY =  FieldUp + PaddleLeftHeight/2;
     else
       PaddleLeftPosY = PaddleLeftPosY - PaddleLeftSpeedY;
     endif

     PaddleLeftKey = 0;

   endif
```

OptoScript Block: Paddle Right (Id: 30)
Exit to: Computer "AI" (Id: 33)

```
   // Y position

   if ( PaddleRightKey > 0) then

     if ( PaddleRightPosY + PaddleRightSpeedY + (PaddleRightHeight/2) > FieldDown) then
       PaddleRightPosY =  FieldDown - PaddleRightHeight/2;
     else
       PaddleRightPosY = PaddleRightPosY + PaddleRightSpeedY;
     endif

     PaddleRightKey = 0;

   endif


   if ( PaddleRightKey < 0) then
```

```
  if ( PaddleRightPosY - PaddleRightSpeedY - (PaddleRightHeight/2) < FieldUp) then
    PaddleRightPosY =  FieldUp + PaddleRightHeight/2;
  else
    PaddleRightPosY = PaddleRightPosY - PaddleRightSpeedY;
  endif

  PaddleRightKey = 0;

 endif
```

OptoScript Block: Computer "AI" (Id: 33)
Exit to: Colision Detection (Id: 10)

```
 // Not so smart computer intelligence!!!

 if (BallPosY > PaddleRightPosY) then
   PaddleRightKey = 1;
 endif

 if (BallPosY < PaddleRightPosY) then
   PaddleRightKey = -1;
 endif
```

CONDITIONS

Condition Block: Reset Game (Id: 25)
Operator Type: AND
TRUE Exit to: Init Game Vars (Id: 6)
FALSE Exit to: Game Tick Delay (Id: 1)

```
    Is              GameReset
  Equal?
    To               1
```

CONTINUE BLOCKS

There are no continue blocks in this flowchart.

FRAMEBUFFER CHART CODE

TITLE: Chart Block Instructions
STRATEGY: RFB
CHART: framebuffer
DATE: 03/29/16 TIME: 12:34:15

ACTIONS

Action Block: Block 0 (Id: 0)
Exit to: Comm handler (Id: 4)

There are no instructions in this action block.

Action Block: Listen (Id: 6)
Exit to: Accept (Id: 9)

Listen for Incoming Communication
Communication HandleCOMM_TCP
Put Result in TCPstatus

Action Block: Accept (Id: 9)
Exit to: Comm Open? (Id: 11)

Accept Incoming Communication
Communication HandleCOMM_TCP
Put Result in TCPstatus

Action Block: Delay 2000 (Id: 13)
Exit to: Listen (Id: 6)

Delay (mSec)
2000

Action Block: Chars waiting (Id: 39)
Exit to: Chars>0 (Id: 38)

Get Number of Characters Waiting
Communication HandleCOMM_TCP
Put in nCharsWaiting

Action Block: delay (Id: 44)
Exit to: Comm Open? (Id: 18)

Delay (mSec)
10

Action Block: Chars waiting (Id: 48)
Exit to: Chars>0 (Id: 50)

Get Number of Characters Waiting
Communication HandleCOMM_TCP
Put in nCharsWaiting

Action Block: delay (Id: 52)
Exit to: Comm Open? (Id: 28)

Delay (mSec)
10

Action Block: Chars waiting (Id: 58)
Exit to: Chars>0 (Id: 61)

Get Number of Characters Waiting
Communication HandleCOMM_TCP
Put in nCharsWaiting

Action Block: delay (Id: 63)
Exit to: Comm Open? (Id: 56)

Delay (mSec)
10

Action Block: Chars waiting (Id: 75)
Exit to: Comm Open? (Id: 138)

Get Number of Characters Waiting
Communication HandleCOMM_TCP
Put in nCharsWaiting

Action Block: delay 1 ms (Id: 111)
Exit to: Game Tick (Id: 156)

Delay (mSec)
1

Action Block: Game Reset (Id: 170)
Exit to: Chars waiting (Id: 75)

Move
From 1
To GameReset

SCRIPTS

OptoScript Block: Comm handler (Id: 4)
Exit to: Listen (Id: 6)

```
// Init comm handler
SetCommunicationHandleValue("tcp:5900", COMM_TCP);
```

OptoScript Block: Send protocol version (Id: 16)
Exit to: Comm Open? (Id: 18)

```
TCPstringwrite = "";
TCPstringwrite = "RFB 003.003"+ chr(10);
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Receive client protocol version (Id: 21)
Exit to: Comm Open? (Id: 23)

```
 TCPstatus = ReceiveNChars(TCPstringread, nCharsWaiting, COMM_TCP);
```

OptoScript Block: Send authentication mode (Id: 26)
Exit to: Comm Open? (Id: 28)

```
 TCPstringwrite = "";
 for tmp0 =0 to 3 step 1
  TCPstringwrite = TCPstringwrite + "X";
 next

 TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
 TCPstatus = SetNthCharacter(1, TCPstringwrite, 3);

 TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Receive client initialisation message (Id: 31)
Exit to: Comm Open? (Id: 33)

```
 TCPstatus = ReceiveNChars(TCPstringread, nCharsWaiting, COMM_TCP);
```

OptoScript Block: Send initialisation message (Id: 36)
Exit to: Comm Open? (Id: 56)

```
 TCPstringwrite = "";

 TCPstringwrite = "";
 for tmp0 =0 to 27 step 1
  TCPstringwrite = TCPstringwrite + "X";
 next


 // Framebuffer Width
 // -------------------
 TCPstatus = SetNthCharacter(2, TCPstringwrite, 0);
 TCPstatus = SetNthCharacter(128, TCPstringwrite, 1);

 // Framebuffer Height
 // -------------------
 TCPstatus = SetNthCharacter(1, TCPstringwrite, 2);
 TCPstatus = SetNthCharacter(224, TCPstringwrite, 3);

 // Server pixel Format
 // -------------------

 // bits-per-pixel
 TCPstatus = SetNthCharacter(8, TCPstringwrite, 4);
 // dept
 TCPstatus = SetNthCharacter(8, TCPstringwrite, 5);
 // big endian flag
 TCPstatus = SetNthCharacter(1, TCPstringwrite, 6);
 // true color flag
 TCPstatus = SetNthCharacter(1, TCPstringwrite, 7);
 // red max
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 8);
 TCPstatus = SetNthCharacter(7, TCPstringwrite, 9);
 // green max
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 10);
 TCPstatus = SetNthCharacter(7, TCPstringwrite, 11);
 // blue max
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
 TCPstatus = SetNthCharacter(3, TCPstringwrite, 13);
 // red shift
 TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
 // green shift
```

```
  TCPstatus = SetNthCharacter(3, TCPstringwrite, 15);
  // blue shift
  TCPstatus = SetNthCharacter(6, TCPstringwrite, 16);
  // padding
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

  // name length
  // --------------------
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 20);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 21);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 22);
  TCPstatus = SetNthCharacter(4, TCPstringwrite, 23);

  // name string ( name length times ...)
  // --------------------
  TCPstatus = SetNthCharacter(79, TCPstringwrite, 24);
  TCPstatus = SetNthCharacter(80, TCPstringwrite, 25);
  TCPstatus = SetNthCharacter(50, TCPstringwrite, 26);
  TCPstatus = SetNthCharacter(50, TCPstringwrite, 27);



  TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);

OptoScript Block: Receive client message protocol (Id: 66)
Exit to: Comm Open? (Id: 69)


  TCPstatus = ReceiveNChars(TCPstringread, nCharsWaiting, COMM_TCP);

OptoScript Block: Receive client requests (Id: 78)
Exit to: Searching Keyboard Messages (Id: 165)


  TCPstatus = ReceiveNChars(TCPstringread, nCharsWaiting, COMM_TCP);

OptoScript Block: Send ColorMap (Id: 101)
Exit to: Initial Black Screen (Id: 108)


  TCPstringwrite = "";

  for tmp0 =0 to 35 step 1
    TCPstringwrite = TCPstringwrite + "X";
  next



  // Color Map ( 5 colors K,R,G,B,W) easy and short
  // ------------------------------------------------
  TCPstatus = SetNthCharacter(1, TCPstringwrite, 0);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);

  TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 3);

  TCPstatus = SetNthCharacter(0, TCPstringwrite, 4);
  TCPstatus = SetNthCharacter(5, TCPstringwrite, 5);


  TCPstatus = SetNthCharacter(0, TCPstringwrite, 6);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 7);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 8);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 9);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 10);
  TCPstatus = SetNthCharacter(0, TCPstringwrite, 11);


  TCPstatus = SetNthCharacter(255, TCPstringwrite, 12);
```

```
TCPstatus = SetNthCharacter(255, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 15);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);

TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 20);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 22);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 23);

TCPstatus = SetNthCharacter(0, TCPstringwrite, 24);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 26);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 28);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 29);


TCPstatus = SetNthCharacter(255, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 32);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(255, TCPstringwrite, 35);



TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Initial Black Screen (Id: 108)
Exit to: Comm Open? (Id: 73)

```
TCPstringwrite = "";

for tmp0 =0 to 20 step 1
  TCPstringwrite = TCPstringwrite + "X";
next


// Framebuffer Update
// -------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(1, TCPstringwrite, 3);


// X
TCPstatus = SetNthCharacter(0, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 5);

// Y
TCPstatus = SetNthCharacter(0, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 7);


// W
TCPstatus = SetNthCharacter(2, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(128, TCPstringwrite, 9);


// H
TCPstatus = SetNthCharacter(1, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(224, TCPstringwrite, 11);
```

```
// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(0, TCPstringwrite, 20);



TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Redraw Ball & Paddles (Id: 155)
Exit to: Sound (Id: 185)

```
GameTick = 0;

TCPstringwrite = "";

for tmp0 =0 to 105 step 1
  TCPstringwrite = TCPstringwrite + "X";
next


// First time game vars non undefined
if(zFBtmp1 == 0 )then
  zFBtmp1 = BallPosX;
endif
if(zFBtmp2 == 0 )then
  zFBtmp2 = BallPosY;
endif
if(zFBtmp3 == 0 )then
  zFBtmp3 = PaddleLeftPosX;
endif
if(zFBtmp4 == 0 )then
  zFBtmp4 = PaddleLeftPosY;
endif
if(zFBtmp5 == 0 )then
  zFBtmp5 = PaddleRightPosX;
endif
if(zFBtmp6 == 0 )then
  zFBtmp6 = PaddleRightPosY;
endif




// Framebuffer Update ( ball, paddles )
// -------------------------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(6, TCPstringwrite, 3);


// Erasing previous BALL

// X
```

```
int8H = ( zFBtmp1 - (BallWidth/2) ) >> 8;
int8L = 0x000000FF bitand ( zFBtmp1 - (BallWidth/2) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 5);

// Y
int8H = ( zFBtmp2 - (BallHeight/2) ) >> 8;
int8L = 0x000000FF bitand ( zFBtmp2 - (BallHeight/2));
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 7);

// W
int8H = BallWidth >> 8;
int8L = 0x000000FF bitand BallWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 9);

// H
int8H = BallHeight >> 8;
int8L = 0x000000FF bitand BallHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 11);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 20);


// Draw actual BALL

// X
int8H = ( BallPosX - (BallWidth/2) ) >> 8;
int8L = 0x000000FF bitand ( BallPosX - (BallWidth/2) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite,22);

// Y
int8H = ( BallPosY - (BallHeight/2) ) >> 8;
int8L = 0x000000FF bitand ( BallPosY - (BallHeight/2));
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 23);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 24);

// W
int8H = BallWidth >> 8;
int8L = 0x000000FF bitand BallWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 26);

// H
int8H = BallHeight >> 8;
int8L = 0x000000FF bitand BallHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 28);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 29);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 32);
```

```
// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 35);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 36);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(BallColor, TCPstringwrite, 37);


// Erasing previous PADDLE LEFT

// X
int8H = ( FieldLeft ) >> 8;
int8L = 0x000000FF bitand ( FieldLeft );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 38);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 39);

// Y
int8H = ( FieldUp )  >> 8;
int8L = 0x000000FF bitand ( FieldUp );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 40);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 41);

// W
int8H = ( ( PaddleLeftPosX + (PaddleLeftWidth/2 ) ) - FieldLeft )>> 8;
int8L = 0x000000FF bitand ( ( PaddleLeftPosX + (PaddleLeftWidth/2 ) ) - FieldLeft );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 42);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 43);

// H
int8H = ( FieldDown - FieldUp ) >> 8;
int8L = 0x000000FF bitand ( FieldDown - Fieldup );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 44);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 45);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 46);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 47);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 48);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 49);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 50);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 51);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 52);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 53);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 54);


// Draw actual PADDLE LEFT

// X
int8H = ( PaddleLeftPosX - (PaddleLeftWidth/2) ) >> 8;
int8L = 0x000000FF bitand ( PaddleLeftPosX - (PaddleLEftWidth/2) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 55);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite,56);

// Y
int8H = ( PaddleLeftPosY - (PaddleLeftHeight/2) ) >> 8;
int8L = 0x000000FF bitand ( PaddleLeftPosY - (PaddleLeftHeight/2));
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 57);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 58);

// W
int8H = PaddleLeftWidth >> 8;
```

```
int8L = 0x000000FF bitand PaddleLeftWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 59);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 60);

// H
int8H = PaddleLeftHeight >> 8;
int8L = 0x000000FF bitand PaddleLeftHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 61);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 62);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 63);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 64);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 65);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 66);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 67);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 68);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 69);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 70);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(PaddleLeftColor, TCPstringwrite, 71);


// Erasing previous PADDLE RIGHT

// X
int8H = ( PaddleRightPosX - (PaddleRightWidth/2 )) >> 8;
int8L = 0x000000FF bitand ( PaddleRightPosX - (PaddleRightWidth/2 ) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 72);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 73);

// Y
int8H = ( FieldUp )  >> 8;
int8L = 0x000000FF bitand ( FieldUp );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 74);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 75);

// W
int8H = ( FieldRight - ( PaddleRightPosX - (PaddleRightWidth/2 ) ) ) >> 8;
int8L = 0x000000FF bitand ( FieldRight - ( PaddleRightPosX - (PaddleRightWidth/2 ) ) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 76);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 77);

// H
int8H = ( FieldDown - FieldUp ) >> 8;
int8L = 0x000000FF bitand ( FieldDown - Fieldup );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 78);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 79);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 80);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 81);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 82);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 83);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 84);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 85);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 86);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 87);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 88);


// Draw actual PADDLE RIGHT
```

```
// X
int8H = ( PaddleRightPosX - (PaddleRightWidth/2) ) >> 8;
int8L = 0x000000FF bitand ( PaddleRightPosX - (PaddleRightWidth/2) );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 89);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite,90);

// Y
int8H = ( PaddleRightPosY - (PaddleRightHeight/2) ) >> 8;
int8L = 0x000000FF bitand ( PaddleRightPosY - (PaddleRightHeight/2));
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 91);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 92);

// W
int8H = PaddleRightWidth >> 8;
int8L = 0x000000FF bitand PaddleRightWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 93);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 94);

// H
int8H = PaddleRightHeight >> 8;
int8L = 0x000000FF bitand PaddleRightHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 95);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 96);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 97);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 98);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 99);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 100);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 101);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 102);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 103);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 104);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(PaddleRightColor, TCPstringwrite, 105);



// Transmit socket RFB
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);


// Update previous postitions
zFBtmp1 = BallPosX;
zFBtmp2 = BallPosY;
zFBtmp3 = PaddleLeftPosX;
zFBtmp4 = PaddleLeftPosY;
zFBtmp5 = PaddleRightPosX;
zFBtmp6 = PaddleRightPosY;
```

OptoScript Block: Searching Keyboard Messages (Id: 165)
Exit to: Comm Open? (Id: 85)

```
// Ignoring ALL client request except keyboard actions

// w key pressed 0x04 0xZZ 0xYY 0xYY 0x00 0x00 0x00 0x77
// s key pressed 0x04 0xZZ 0xYY 0xYY 0x00 0x00 0x00 0x73

// 0xZZ NON zero!
// 0xYY padding


tmp1 = 0;
tmp4 = 1;
```

```
while ( tmp4 )

 tmp0 = FindCharacterInString(4, tmp1, TCPstringread);

 if (tmp0 > -1 ) then

  tmp2 = GetNthCharacter(TCPstringread, tmp0+1);

  if(tmp2 > 0) then

   tmp3 = GetNthCharacter(TCPstringread, tmp0+7);

   if(tmp3 == 0x77) then
    PaddleLeftKey = -1;
   endif

   if(tmp3 == 0x73) then
    PaddleLeftKey = 1;
   endif

   if(tmp3 < 0) then
    tmp4 = 0;
   endif

  else
   tmp4 = 0;
  endif

 else
  tmp4 = 0;
 endif

 tmp1=tmp0+1;

wend
```

OptoScript Block: Redraw Scores Left (Id: 174)
Exit to: Redraw Scores Right (Id: 179)

```
GameRedrawScores = 0;

GameTick = 0;

TCPstringwrite = "";

for tmp0 =0 to 139 step 1
 TCPstringwrite = TCPstringwrite + "X";
next


// mask for 7 segment display to draw.
// Bit 0 seg A,
// Bit 1 seg B
//
// Bit 7 seg G

if (PaddleLeftScore == 0) then
 GameLeft7SegMask = 0xB00111111;
endif
if (PaddleLeftScore == 1) then
 GameLeft7SegMask = 0xB00000110;
endif
if (PaddleLeftScore == 2) then
 GameLeft7SegMask = 0xB01011011;
endif
if (PaddleLeftScore == 3) then
```

```
  GameLeft7SegMask = 0xB01001111;
endif
if (PaddleLeftScore == 4) then
  GameLeft7SegMask = 0xB01100110;
endif
if (PaddleLeftScore == 5) then
  GameLeft7SegMask = 0xB01101101;
endif
if (PaddleLeftScore == 6) then
  GameLeft7SegMask = 0xB01111101;
endif
if (PaddleLeftScore == 7) then
  GameLeft7SegMask = 0xB00000111;
endif
if (PaddleLeftScore == 8) then
  GameLeft7SegMask = 0xB01111111;
endif
if (PaddleLeftScore == 9) then
  GameLeft7SegMask = 0xB01101111;
endif



// Framebuffer Update ( scoreboard  )
// -------------------------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(8, TCPstringwrite, 3);

// Erase Left scoreboard

// X
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0 );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 5);

// Y
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 7);

// W
int8H = 640 >> 8;
int8L = 0x000000FF bitand 320;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 9);

// H
int8H = FieldUp >> 8;
int8L = 0x000000FF bitand FieldUp;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 11);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 20);
```

```
// Left 7 Segment A

// X
int8H = ( GameLeft7SegAposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegAposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 22);

// Y
int8H = ( GameLeft7SegAposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegAposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 23);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 24);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 26);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 28);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 29);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 32);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 35);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 36);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000001) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 37);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 37);
endif


// Left 7 Segment B

// X
int8H = ( GameLeft7SegBposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegBposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 38);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 39);

// Y
int8H = ( GameLeft7SegBposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegBposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 40);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 41);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 42);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 43);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
```

```
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 44);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 45);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 46);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 47);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 48);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 49);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 50);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 51);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 52);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 53);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000010) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 54);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 54);
endif


// Left 7 Segment C

// X
int8H = ( GameLeft7SegCposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegCposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 55);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 56);

// Y
int8H = ( GameLeft7SegCposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegCposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 57);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 58);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 59);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 60);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 61);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 62);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 63);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 64);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 65);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 66);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 67);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 68);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 69);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 70);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000100) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 71);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 71);
endif
```

```
// Left 7 Segment D

// X
int8H = ( GameLeft7SegDposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegDposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 72);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 73);

// Y
int8H = ( GameLeft7SegDposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegDposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 74);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 75);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 76);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 77);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 78);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 79);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 80);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 81);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 82);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 83);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 84);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 85);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 86);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 87);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00001000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 88);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 88);
endif


// Left 7 Segment E

// X
int8H = ( GameLeft7SegEposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegEposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 89);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 90);

// Y
int8H = ( GameLeft7SegEposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegEposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 91);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 92);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 93);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 94);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
```

```
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 95);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 96);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 97);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 98);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 99);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 100);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 101);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 102);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 103);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 104);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00010000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 105);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 105);
endif


// Left 7 Segment F

// X
int8H = ( GameLeft7SegFposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegFposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 106);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 107);

// Y
int8H = ( GameLeft7SegFposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegFposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 108);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 109);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 110);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 111);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 112);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 113);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 114);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 115);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 116);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 117);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 118);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 119);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 120);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 121);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00100000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 122);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 122);
endif
```

```
// Left 7 Segment G

// X
int8H = ( GameLeft7SegGposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegGposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 123);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 124);

// Y
int8H = ( GameLeft7SegGposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegGposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 125);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 126);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 127);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 128);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 129);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 130);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 131);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 132);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 133);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 134);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 135);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 136);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 137);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 138);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB01000000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 139);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 139);
endif




// Transmit socket RFB
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Redraw Scores Right (Id: 179)
Exit to: Chars waiting (Id: 75)

```
GameRedrawScores = 0;

GameTick = 0;

TCPstringwrite = "";

for tmp0 =0 to 139 step 1
  TCPstringwrite = TCPstringwrite + "X";
next

// mask for 7 segment display to draw.
// Bit 0 seg A,
```

```
// Bit 1 seg B
//
// Bit 7 seg G

if (PaddleRightScore == 0) then
  GameRight7SegMask = 0xB00111111;
endif
if (PaddleRightScore == 1) then
  GameRight7SegMask = 0xB00000110;
endif
if (PaddleRightScore == 2) then
  GameRight7SegMask = 0xB01011011;
endif
if (PaddleRightScore == 3) then
  GameRight7SegMask = 0xB01001111;
endif
if (PaddleRightScore == 4) then
  GameRight7SegMask = 0xB01100110;
endif
if (PaddleRightScore == 5) then
  GameRight7SegMask = 0xB01101101;
endif
if (PaddleRightScore == 6) then
  GameRight7SegMask = 0xB01111101;
endif
if (PaddleRightScore == 7) then
  GameRight7SegMask = 0xB00000111;
endif
if (PaddleRightScore == 8) then
  GameRight7SegMask = 0xB01111111;
endif
if (PaddleRightScore == 9) then
  GameRight7SegMask = 0xB01101111;
endif


// Framebuffer Update ( scoreboard  )
// ------------------------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(8, TCPstringwrite, 3);

// Erase right scoreboard

// X
int8H = 320  >> 8;
int8L = 0x000000FF bitand 320 ;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 5);

// Y
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 7);

// W
int8H = 320 >> 8;
int8L = 0x000000FF bitand 320;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 9);

// H
int8H = FieldUp >> 8;
int8L = 0x000000FF bitand FieldUp;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 11);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
```

```
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 20);

// Right 7 Segment A

// X
int8H = ( GameRight7SegAposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegAposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 22);

// Y
int8H = ( GameRight7SegAposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegAposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 23);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 24);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 26);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 28);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 29);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 32);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 35);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 36);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000001) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 37);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 37);
endif


// Right 7 Segment B

// X
int8H = ( GameRight7SegBposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegBposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 38);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 39);

// Y
int8H = ( GameRight7SegBposY ) >> 8;
```

```
int8L = 0x000000FF bitand ( GameRight7SegBposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 40);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 41);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 42);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 43);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 44);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 45);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 46);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 47);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 48);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 49);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 50);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 51);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 52);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 53);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000010) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 54);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 54);
endif


// Right 7 Segment C

// X
int8H = ( GameRight7SegCposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegCposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 55);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 56);

// Y
int8H = ( GameRight7SegCposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegCposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 57);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 58);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 59);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 60);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 61);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 62);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 63);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 64);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 65);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 66);


// # subrects
```

```
TCPstatus = SetNthCharacter(0, TCPstringwrite, 67);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 68);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 69);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 70);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000100) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 71);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 71);
endif


// Right 7 Segment D

// X
int8H = ( GameRight7SegDposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegDposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 72);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 73);

// Y
int8H = ( GameRight7SegDposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegDposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 74);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 75);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 76);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 77);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 78);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 79);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 80);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 81);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 82);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 83);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 84);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 85);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 86);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 87);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00001000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 88);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 88);
endif



// Right 7 Segment E

// X
int8H = ( GameRight7SegEposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegEposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 89);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 90);

// Y
```

```
int8H = ( GameRight7SegEposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegEposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 91);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 92);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 93);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 94);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 95);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 96);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 97);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 98);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 99);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 100);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 101);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 102);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 103);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 104);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00010000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 105);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 105);
endif



// Right 7 Segment F

// X
int8H = ( GameRight7SegFposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegFposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 106);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 107);

// Y
int8H = ( GameRight7SegFposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegFposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 108);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 109);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 110);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 111);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 112);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 113);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 114);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 115);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 116);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 117);
```

```
// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 118);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 119);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 120);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 121);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00100000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 122);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 122);
endif



// Right 7 Segment G

// X
int8H = ( GameRight7SegGposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegGposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 123);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 124);

// Y
int8H = ( GameRight7SegGposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegGposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 125);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 126);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 127);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 128);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 129);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 130);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 131);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 132);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 133);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 134);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 135);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 136);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 137);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 138);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB01000000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 139);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 139);
endif




// Transmit socket RFB
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Send Bell (Id: 182)
Exit to: Scores (Id: 173)

```
// 5.1 Channel 3D sound effect
GameSound = 0;

TCPstringwrite = "";
TCPstringwrite = "X";



// Bell
// --------------------
TCPstatus = SetNthCharacter(2, TCPstringwrite, 0);


TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

OptoScript Block: Redraw Scores Right (Id: 196)
Exit to: Game Reset (Id: 170)

```
GameRedrawScores = 0;

GameTick = 0;

TCPstringwrite = "";

for tmp0 =0 to 139 step 1
  TCPstringwrite = TCPstringwrite + "X";
next

// mask for 7 segment display to draw.
// Bit 0 seg A,
// Bit 1 seg B
//
// Bit 7 seg G

if (PaddleRightScore == 0) then
  GameRight7SegMask = 0xB00111111;
endif
if (PaddleRightScore == 1) then
  GameRight7SegMask = 0xB00000110;
endif
if (PaddleRightScore == 2) then
  GameRight7SegMask = 0xB01011011;
endif
if (PaddleRightScore == 3) then
  GameRight7SegMask = 0xB01001111;
endif
if (PaddleRightScore == 4) then
  GameRight7SegMask = 0xB01100110;
endif
if (PaddleRightScore == 5) then
  GameRight7SegMask = 0xB01101101;
endif
if (PaddleRightScore == 6) then
  GameRight7SegMask = 0xB01111101;
endif
if (PaddleRightScore == 7) then
  GameRight7SegMask = 0xB00000111;
endif
if (PaddleRightScore == 8) then
  GameRight7SegMask = 0xB01111111;
endif
if (PaddleRightScore == 9) then
  GameRight7SegMask = 0xB01101111;
```

```
endif


// Framebuffer Update ( scoreboard  )
// -----------------------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(8, TCPstringwrite, 3);

// Erase right scoreboard

// X
int8H = 320  >> 8;
int8L = 0x000000FF bitand 320 ;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 5);

// Y
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 7);

// W
int8H = 320 >> 8;
int8L = 0x000000FF bitand 320;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 9);

// H
int8H = FieldUp >> 8;
int8L = 0x000000FF bitand FieldUp;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 11);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 20);

// Right 7 Segment A

// X
int8H = ( GameRight7SegAposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegAposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 22);

// Y
int8H = ( GameRight7SegAposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegAposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 23);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 24);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 26);
```

```
// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 28);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 29);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 32);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 35);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 36);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000001) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 37);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 37);
endif


// Right 7 Segment B

// X
int8H = ( GameRight7SegBposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegBposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 38);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 39);

// Y
int8H = ( GameRight7SegBposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegBposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 40);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 41);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 42);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 43);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 44);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 45);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 46);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 47);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 48);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 49);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 50);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 51);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 52);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 53);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000010) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 54);
else
```

```
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 54);
endif


// Right 7 Segment C

// X
int8H = ( GameRight7SegCposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegCposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 55);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 56);

// Y
int8H = ( GameRight7SegCposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegCposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 57);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 58);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 59);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 60);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 61);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 62);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 63);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 64);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 65);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 66);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 67);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 68);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 69);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 70);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00000100) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 71);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 71);
endif


// Right 7 Segment D

// X
int8H = ( GameRight7SegDposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegDposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 72);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 73);

// Y
int8H = ( GameRight7SegDposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegDposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 74);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 75);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 76);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 77);
```

```
// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 78);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 79);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 80);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 81);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 82);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 83);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 84);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 85);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 86);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 87);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00001000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 88);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 88);
endif



// Right 7 Segment E

// X
int8H = ( GameRight7SegEposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegEposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 89);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 90);

// Y
int8H = ( GameRight7SegEposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegEposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 91);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 92);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 93);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 94);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 95);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 96);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 97);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 98);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 99);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 100);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 101);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 102);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 103);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 104);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00010000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 105);
```

```
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 105);
endif



// Right 7 Segment F

// X
int8H = ( GameRight7SegFposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegFposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 106);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 107);

// Y
int8H = ( GameRight7SegFposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegFposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 108);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 109);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 110);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 111);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 112);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 113);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 114);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 115);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 116);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 117);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 118);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 119);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 120);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 121);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB00100000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 122);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 122);
endif



// Right 7 Segment G

// X
int8H = ( GameRight7SegGposX ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegGposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 123);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 124);

// Y
int8H = ( GameRight7SegGposY ) >> 8;
int8L = 0x000000FF bitand ( GameRight7SegGposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 125);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 126);

// W
int8H = Game7SegHeight >> 8;
```

```
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 127);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 128);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 129);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 130);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 131);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 132);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 133);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 134);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 135);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 136);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 137);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 138);

// pixel color data according to bits per pixel
if(GameRight7SegMask bitand 0xB01000000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 139);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 139);
endif




// Transmit socket RFB
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);


OptoScript Block: Redraw Scores Left (Id: 197)
Exit to: Redraw Scores Right (Id: 196)


GameRedrawScores = 0;

GameTick = 0;

TCPstringwrite = "";

for tmp0 =0 to 139 step 1
  TCPstringwrite = TCPstringwrite + "X";
next


// mask for 7 segment display to draw.
// Bit 0 seg A,
// Bit 1 seg B
//
// Bit 7 seg G

if (PaddleLeftScore == 0) then
  GameLeft7SegMask = 0xB00111111;
endif
if (PaddleLeftScore == 1) then
  GameLeft7SegMask = 0xB00000110;
endif
if (PaddleLeftScore == 2) then
  GameLeft7SegMask = 0xB01011011;
endif
if (PaddleLeftScore == 3) then
  GameLeft7SegMask = 0xB01001111;
endif
```

```
if (PaddleLeftScore == 4) then
  GameLeft7SegMask = 0xB01100110;
endif
if (PaddleLeftScore == 5) then
  GameLeft7SegMask = 0xB01101101;
endif
if (PaddleLeftScore == 6) then
  GameLeft7SegMask = 0xB01111101;
endif
if (PaddleLeftScore == 7) then
  GameLeft7SegMask = 0xB00000111;
endif
if (PaddleLeftScore == 8) then
  GameLeft7SegMask = 0xB01111111;
endif
if (PaddleLeftScore == 9) then
  GameLeft7SegMask = 0xB01101111;
endif



// Framebuffer Update ( scoreboard  )
// -----------------------------------
TCPstatus = SetNthCharacter(0, TCPstringwrite, 0);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 1);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 2);
TCPstatus = SetNthCharacter(8, TCPstringwrite, 3);

// Erase Left scoreboard

// X
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0 );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 4);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 5);

// Y
int8H = ( 0 ) ;
int8L = 0x000000FF bitand ( 0);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 6);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 7);

// W
int8H = 640 >> 8;
int8L = 0x000000FF bitand 320;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 8);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 9);

// H
int8H = FieldUp >> 8;
int8L = 0x000000FF bitand FieldUp;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 10);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 11);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 12);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 13);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 14);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 15);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 16);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 17);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 18);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 19);

// pixel color data according to bits per pixel
TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 20);

// Left 7 Segment A
```

```
// X
int8H = ( GameLeft7SegAposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegAposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 21);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 22);

// Y
int8H = ( GameLeft7SegAposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegAposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 23);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 24);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 25);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 26);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 27);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 28);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 29);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 30);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 31);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 32);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 33);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 34);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 35);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 36);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000001) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 37);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 37);
endif


// Left 7 Segment B

// X
int8H = ( GameLeft7SegBposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegBposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 38);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 39);

// Y
int8H = ( GameLeft7SegBposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegBposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 40);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 41);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 42);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 43);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 44);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 45);
```

```
// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 46);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 47);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 48);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 49);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 50);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 51);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 52);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 53);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000010) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 54);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 54);
endif


// Left 7 Segment C

// X
int8H = ( GameLeft7SegCposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegCposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 55);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 56);

// Y
int8H = ( GameLeft7SegCposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegCposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 57);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 58);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 59);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 60);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 61);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 62);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 63);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 64);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 65);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 66);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 67);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 68);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 69);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 70);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00000100) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 71);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 71);
endif



// Left 7 Segment D
```

```
// X
int8H = ( GameLeft7SegDposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegDposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 72);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 73);

// Y
int8H = ( GameLeft7SegDposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegDposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 74);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 75);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 76);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 77);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 78);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 79);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 80);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 81);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 82);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 83);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 84);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 85);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 86);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 87);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00001000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 88);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 88);
endif


// Left 7 Segment E

// X
int8H = ( GameLeft7SegEposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegEposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 89);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 90);

// Y
int8H = ( GameLeft7SegEposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegEposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 91);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 92);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 93);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 94);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 95);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 96);
```

```
// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 97);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 98);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 99);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 100);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 101);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 102);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 103);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 104);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00010000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 105);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 105);
endif


// Left 7 Segment F

// X
int8H = ( GameLeft7SegFposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegFposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 106);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 107);

// Y
int8H = ( GameLeft7SegFposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegFposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 108);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 109);

// W
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 110);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 111);

// H
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 112);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 113);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 114);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 115);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 116);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 117);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 118);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 119);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 120);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 121);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB00100000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 122);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 122);
endif



// Left 7 Segment G
```

```
// X
int8H = ( GameLeft7SegGposX ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegGposX );
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 123);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 124);

// Y
int8H = ( GameLeft7SegGposY ) >> 8;
int8L = 0x000000FF bitand ( GameLeft7SegGposY);
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 125);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 126);

// W
int8H = Game7SegHeight >> 8;
int8L = 0x000000FF bitand Game7SegHeight;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 127);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 128);

// H
int8H = Game7SegWidth >> 8;
int8L = 0x000000FF bitand Game7SegWidth;
TCPstatus = SetNthCharacter(int8H, TCPstringwrite, 129);
TCPstatus = SetNthCharacter(int8L, TCPstringwrite, 130);

// Enc
TCPstatus = SetNthCharacter(0, TCPstringwrite, 131);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 132);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 133);
TCPstatus = SetNthCharacter(2, TCPstringwrite, 134);


// # subrects
TCPstatus = SetNthCharacter(0, TCPstringwrite, 135);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 136);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 137);
TCPstatus = SetNthCharacter(0, TCPstringwrite, 138);

// pixel color data according to bits per pixel
if (GameLeft7SegMask bitand 0xB01000000) then
  TCPstatus = SetNthCharacter(Game7SegColor, TCPstringwrite, 139);
else
  TCPstatus = SetNthCharacter(FieldColor, TCPstringwrite, 139);
endif




// Transmit socket RFB
TCPstatus = TransmitString(TCPstringwrite, COMM_TCP);
```

CONDITIONS

Condition Block: Comm Open? (Id: 11)
Operator Type: AND
TRUE Exit to: Send protocol version (Id: 16)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Comm Open? (Id: 18)
Operator Type: AND
TRUE Exit to: Chars waiting (Id: 39)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Comm Open? (Id: 23)
Operator Type: AND
TRUE Exit to: Send authentication mode (Id: 26)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Comm Open? (Id: 28)
Operator Type: AND
TRUE Exit to: Chars waiting (Id: 48)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Comm Open? (Id: 33)
Operator Type: AND
TRUE Exit to: Send initialisation message (Id: 36)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Chars>0 (Id: 38)
Operator Type: AND
TRUE Exit to: Receive client protocol version (Id: 21)
FALSE Exit to: delay (Id: 44)

Is nCharsWaiting
Greater?
Than 0

Condition Block: Chars>0 (Id: 50)
Operator Type: AND
TRUE Exit to: Receive client initialisation message (Id: 31)
FALSE Exit to: delay (Id: 52)

Is nCharsWaiting
Greater?
Than 0

Condition Block: Comm Open? (Id: 56)
Operator Type: AND
TRUE Exit to: Chars waiting (Id: 58)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP
Communication Open?

Condition Block: Chars>0 (Id: 61)
Operator Type: AND
TRUE Exit to: Receive client message protocol (Id: 66)
FALSE Exit to: delay (Id: 63)

Is Greater? Than nCharsWaiting 0

Condition Block: Comm Open? (Id: 69)
Operator Type: AND
TRUE Exit to: Send ColorMap (Id: 101)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP Communication Open?

Condition Block: Comm Open? (Id: 73)
Operator Type: AND
TRUE Exit to: Redraw Scores Left (Id: 197)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP Communication Open?

Condition Block: Chars>0 (Id: 79)
Operator Type: AND
TRUE Exit to: Receive client requests (Id: 78)
FALSE Exit to: delay 1 ms (Id: 111)

Is Greater? Than nCharsWaiting 0

Condition Block: Comm Open? (Id: 85)
Operator Type: AND
TRUE Exit to: delay 1 ms (Id: 111)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP Communication Open?

Condition Block: Comm Open? (Id: 138)
Operator Type: AND
TRUE Exit to: Chars>0 (Id: 79)
FALSE Exit to: Delay 2000 (Id: 13)

Communication HandleCOMM_TCP Communication Open?

Condition Block: Game Tick (Id: 156)
Operator Type: AND
TRUE Exit to: Redraw Ball & Paddles (Id: 155)
FALSE Exit to: Chars waiting (Id: 75)

Is Equal? To GameTick 1

Condition Block: Scores (Id: 173)
Operator Type: AND

TRUE Exit to: Redraw Scores Left (Id: 174)
FALSE Exit to: Chars waiting (Id: 75)

Is Equal? To	GameRedrawScores 1

Condition Block: Sound (Id: 185)
Operator Type: AND
TRUE Exit to: Send Bell (Id: 182)
FALSE Exit to: Scores (Id: 173)

Is Equal? To	GameSound 1

CONTINUE BLOCKS

There are no continue blocks in this flowchart.

VARIABLES

TITLE: Strategy Database
STRATEGY: RFB
DATE: 03/29/16 TIME: 12:33:29

NUMERIC VARIABLES

NAME	TYPE	INIT. VALUE	REF. COUNT
BallColor	INT	RUN	0 2
BallHeight	INT	RUN	0 15
BallPosX	INT	RUN	0 19
BallPosY	INT	RUN	0 51
BallSpeedX	INT	RUN	0 64
BallSpeedY	INT	RUN	0 52
BallWidth	INT	RUN	0 17
chartstatus	INT	RUN	0 2
FieldColor	INT	RUN	0 36
FieldDown	INT	RUN	0 17
FieldLeft	INT	RUN	0 13
FieldRight	INT	RUN	0 8
FieldUp	INT	RUN	0 34
Game7SegColor	INT	RUN	0 29
Game7SegHeight	INT	RUN	0 57
Game7SegWidth	INT	RUN	0 57
GameLeft7SegAposX	INT	RUN	0 6
GameLeft7SegAposY	INT	RUN	0 6
GameLeft7SegBposX	INT	RUN	0 6
GameLeft7SegBposY	INT	RUN	0 6
GameLeft7SegCposX	INT	RUN	0 6
GameLeft7SegCposY	INT	RUN	0 6
GameLeft7SegDposX	INT	RUN	0 6
GameLeft7SegDposY	INT	RUN	0 6
GameLeft7SegEposX	INT	RUN	0 6
GameLeft7SegEposY	INT	RUN	0 6
GameLeft7SegFposX	INT	RUN	0 6
GameLeft7SegFposY	INT	RUN	0 6
GameLeft7SegGposX	INT	RUN	0 6
GameLeft7SegGposY	INT	RUN	0 6
GameLeft7SegMask	INT	RUN	0 34
GameRedrawScores	INT	RUN	0 7
GameReset	INT	RUN	0 3
GameRight7SegAposX	INT	RUN	0 5
GameRight7SegAposY	INT	RUN	0 5
GameRight7SegBposX	INT	RUN	0 5
GameRight7SegBposY	INT	RUN	0 5
GameRight7SegCposX	INT	RUN	0 5
GameRight7SegCposY	INT	RUN	0 5
GameRight7SegDposX	INT	RUN	0 5
GameRight7SegDposY	INT	RUN	0 5
GameRight7SegEposX	INT	RUN	0 5
GameRight7SegEposY	INT	RUN	0 5
GameRight7SegFposX	INT	RUN	0 5
GameRight7SegFposY	INT	RUN	0 5
GameRight7SegGposX	INT	RUN	0 5
GameRight7SegGposY	INT	RUN	0 5
GameRight7SegMask	INT	RUN	0 34
GameSound	INT	RUN	0 20
GameTick	INT	RUN	0 7
GameTickDelay	INT	RUN	0 2
int8H	INT	RUN	0 304
int8L	INT	RUN	0 304
nCharsWaiting	INT	RUN	0 12
PaddleLeftColor	INT	RUN	0 2
PaddleLeftHeight	INT	RUN	0 25
PaddleLeftKey	INT	RUN	0 6

PaddleLeftPosX	INT	RUN	0	9
PaddleLeftPosY	INT	RUN	0	27
PaddleLeftScore	INT	RUN	0	25
PaddleLeftSpeedY	INT	RUN	0	5
PaddleLeftWidth	INT	RUN	0	8
PaddleRightColor	INT	RUN	0	2
PaddleRightHeight	INT	RUN	0	25
PaddleRightKey	INT	RUN	0	6
PaddleRightPosX	INT	RUN	0	11
PaddleRightPosY	INT	RUN	0	29
PaddleRightScore	INT	RUN	0	25
PaddleRightSpeedY	INT	RUN	0	5
PaddleRightWidth	INT	RUN	0	10
TCPstatus	INT	RUN	0	801
tmp0	INT	RUN	0	14
tmp1	INT	RUN	0	3
tmp2	INT	RUN	0	2
tmp3	INT	RUN	0	4
tmp4	INT	RUN	0	5
zFBtmp1	INT	RUN	0	5
zFBtmp2	INT	RUN	0	5
zFBtmp3	INT	RUN	0	3
zFBtmp4	INT	RUN	0	3
zFBtmp5	INT	RUN	0	3
zFBtmp6	INT	RUN	0	3

STRING VARIABLES

NAME	INIT.	WIDTH	REF. COUNT	VALUE
TCPstringread	RUN	512	7	
TCPstringwrite	RUN	512	827	

COMMUNICATION HANDLES

NAME	REF. COUNT	INIT.	VALUE
COMM_TCP	32	RUN	