Description for the hipecs Server Demo

This project can be used either in connection with a terminal program or together with the „hipecs TCP client demo“. This tutorial shows how to use the hipecs as a server in a network in a very simple way.

Introduction

For using this demo project you'll need at least a hipecs CORE10 module or a hipecs PLC1020,1030,1220 or 1230. Of course a properly configured network is necessary.

Preparation

Concerning the hardware, there is no special preparation needed, except from a network connection.

A proper configured system.ini file in the boot directory is an advantage, but not mandatory. It is possible to get the IP address of the hipecs in the visualization.

hipecs setup

When using a frenzel + berg Visu-P Panel, you have to use the COM3 (RS422) interface for the SGI connection to the panel. Baudrate is 460.000 Baud. Check Visu-Panel DIP switches, too.

The “app_hipecssocketserver_v1r1_en.prj” file is the CoDeSys PLC program for this example. The communication parameters are COM15 and 57600 Baud. **This must be changed to your demands!**

Starting and using the demo project

It is recommended to use the target visualisation to operate the demo application. In the “Filesystem_VISU” visualization, there are several grey buttons. These buttons trigger the corresponding function once. The blue fields are meant to enter strings for changing the port number or to enter the hostname you want to search for. Searching for localhost returns the IP of the hipecs itself.

Attention!! Unlike in this demo, it is strongly recommended to run socket related functions in a separated task. This library contains functions blocking the current task, such as the accept function waiting for the client. If executed in the same task as the PLC_PRG, this could trigger the output watchdog, resetting the hipecs hardware I/Os. Depending on your application you may not want this to happen.

PLC_PRG

This project only uses the PLC_PRG POU. All functions are called here. Only functions of the “SysLibSocket” library are used in this project. All grey buttons of the visualization will trigger a function by changing the “step” variable in the “PLC_PRG” POU. The function is executed and the variable is set to 0 again. The green or red circles indicate whether the function was successful or not.

Command Order

To start a server and accept a connection you have to:

1. initialize the server port
2. create a socket
3. bind the socket
4. listen
5. and accept the connection

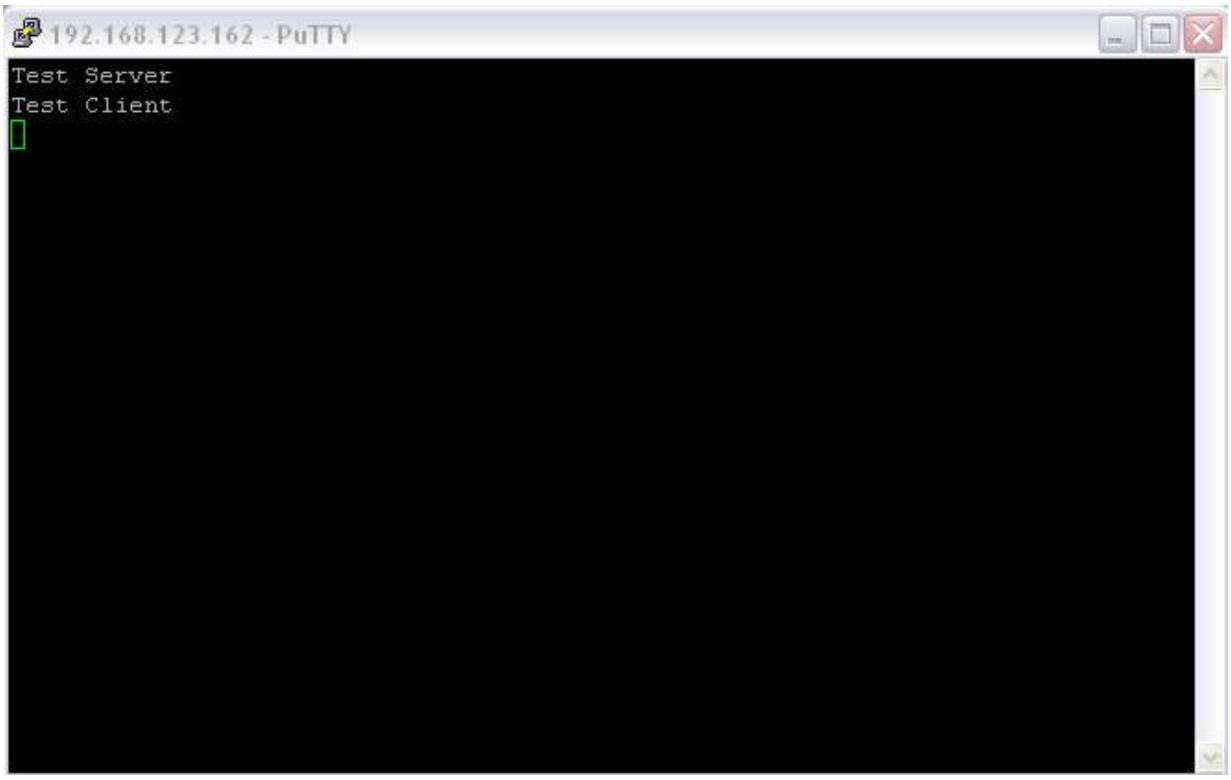
You can click all these buttons one after another and then connect with your client.

TCP client

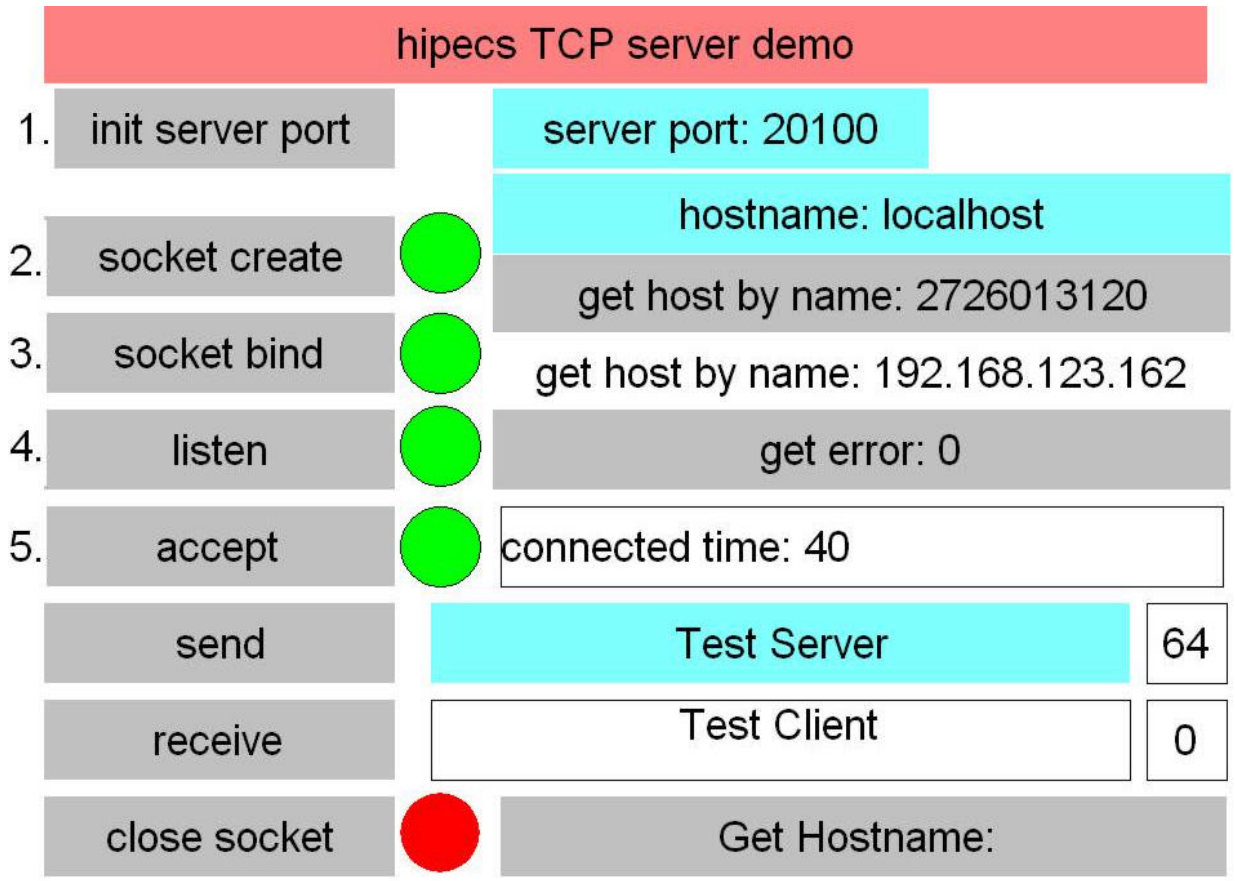
You have several possibilities to connect to your server:

1. You can use another hipecs e.g. with the “hipecs TCP client demo”
2. You can use a terminal program like PuTTY, which is very easy to use or any other (hyperterminal….)
3. Your own application

For this demo, the PuTTY terminal was used.



Visu



Schaltfläche	Funktion
Init server port	sets the port number for the server. default is 20100
socket create	creates the socket by calling „SysSockCreate()“
socket bind	binds socket by calling „SysSocketBind()“
listen	calls funtion „SysSocketListen()“ to listen for clients trying to connect to the server
accept	calls function „SysSocketAccept()“ in order to accept the request of an client. A new handle is returned for this new connection
send	sends data from the blue box on the right
receive	calls function „SysSocketReceive“ Attention: this function is called automatically by this specific demo program, if connection is established
close socket	closes the socket connection
get host by name	returns the IP of the host entered in the blue box above. localhost returns the own IP
get error	returns the last error code
Get Hostname	returns the hostname of the hipecs