This file is part of the FreeRTOS port for ZiLOG's EZ80F91 Module.
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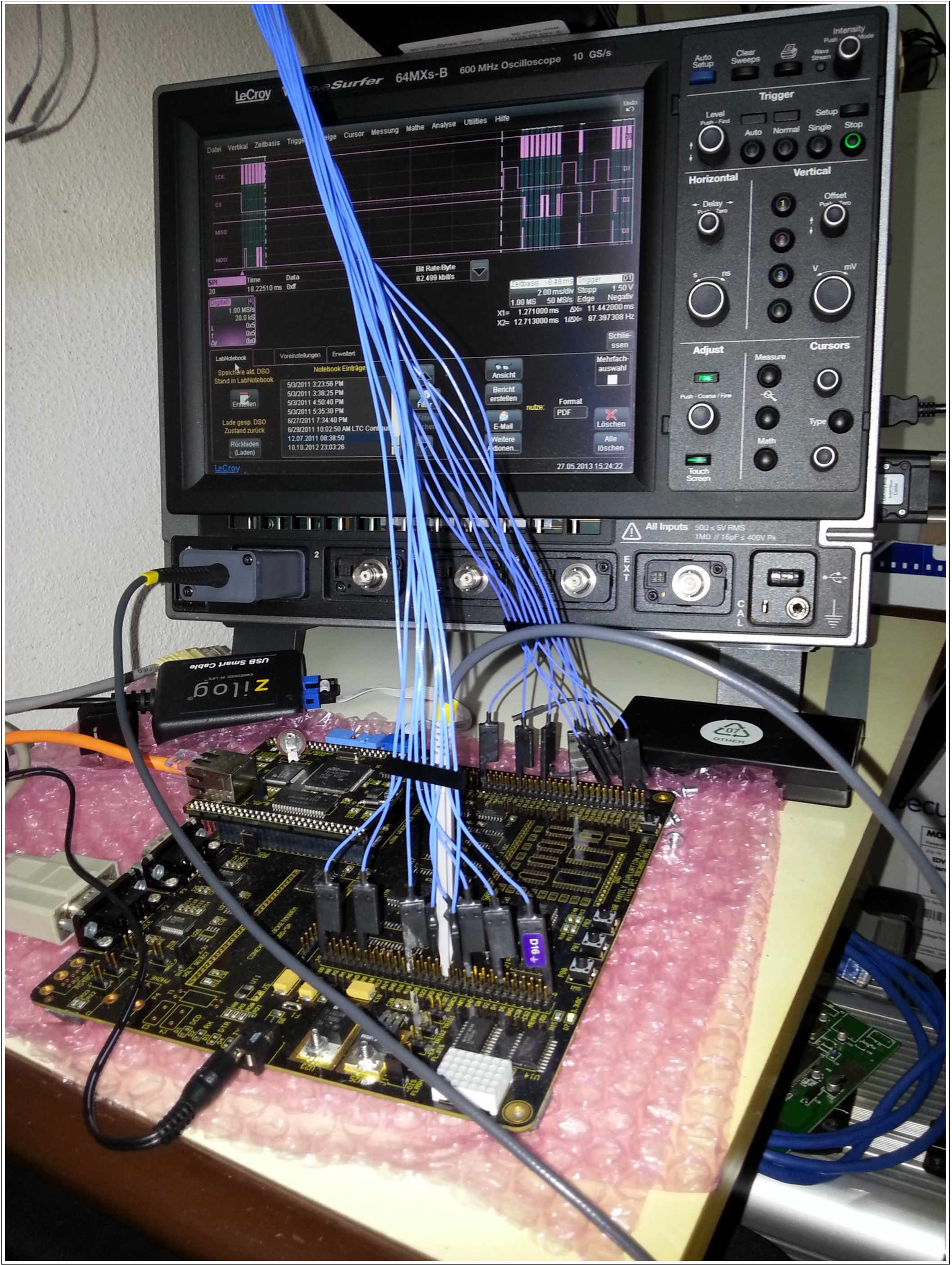


The Port was made and rudimentary tested on ZiLOG's EZ80F910300ZCOG Developer Kit using ZDSII Acclaim 5.3.4 Developer

Environment and comes WITHOUT ANY WARRANTY to you!

Developer:

SIE   Juergen Sievers <JSievers@NadiSoft.de>

Repository directories:

- CPM CP/M 2.2 source and environment.
- doc some documantation.
- FreeRTOS the modified FreeRTOS real time kernel source code.
- FreeRTOSCLI the FreeRTOS-Plus-CLI command line interface source code.
- FreeRTOSTCP the modified FreeRTOS-Plus-TCP TCP/IP source code.
- Inc The Demo’s header files.
- monitor Z80 machine monitor. (not usable yet)
- src The Demo’s source files.
- uzlib The compress/un-compress library

.

See http://www.freertos.org.html for full details of the FreeRTOS directory structure and information on locating the files you require.

My Build- and Test-environment:

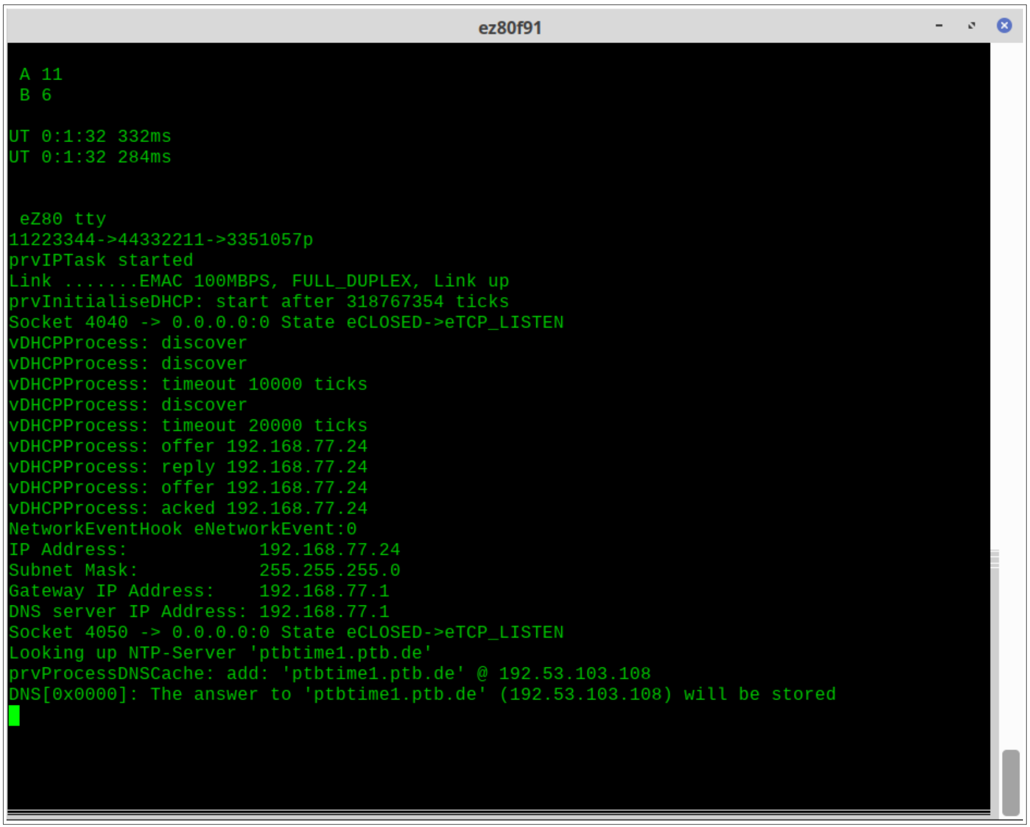
I use a Fedora Linux Workstation as host system. On this host a Windows 10 is running as guest under QEMU. On Windows I mount a samba share as drive Z: with at least the following directories.

1. **Z:\ZDSII_eZ80Acclaim!_5.3.4**
   ZiLOG Developer Studio II—eZ80Acclaim!® installation.
   Free download from www.zilog.com.

2. **Z:\workspace**

The Target is connected over its Serial and Ethernet port on the Linux-PC

The Debug-output uses target’s serial-port 0 115200,8,1,n,RTS/CTS. I use PuTTY on the Linux-PC to display such information.



```
 A 11
 B 6

UT 0:1:32 332ms
UT 0:1:32 284ms


 eZ80 tty
11223344->44332211->3351057p
prvIPTask started
Link .......EMAC 100MBPS, FULL_DUPLEX, Link up
prvInitialiseDHCP: start after 318767354 ticks
Socket 4040 -> 0.0.0.0:0 State eCLOSED->eTCP_LISTEN
vDHCPProcess: discover
vDHCPProcess: discover
vDHCPProcess: timeout 10000 ticks
vDHCPProcess: discover
vDHCPProcess: timeout 20000 ticks
vDHCPProcess: offer 192.168.77.24
vDHCPProcess: reply 192.168.77.24
vDHCPProcess: offer 192.168.77.24
vDHCPProcess: acked 192.168.77.24
NetworkEventHook eNetworkEvent:0
IP Address:             192.168.77.24
Subnet Mask:            255.255.255.0
Gateway IP Address:     192.168.77.1
DNS server IP Address: 192.168.77.1
Socket 4050 -> 0.0.0.0:0 State eCLOSED->eTCP_LISTEN
Looking up NTP-Server 'ptbtime1.ptb.de'
prvProcessDNSCache: add: 'ptbtime1.ptb.de' @ 192.53.103.108
DNS[0x0000]: The answer to 'ptbtime1.ptb.de' (192.53.103.108) will be stored
```

On the Linux-PC also runs a DHCP-Server with will answer to the target’s DHCP Requests.

At last the ZiLOG USBSmartCable is connect between the target and Lunux-PC. This

USB -Device is routed to the Windows guest. It will be used by ZiLOG’s Developer Studio for download, flashing and debugging.

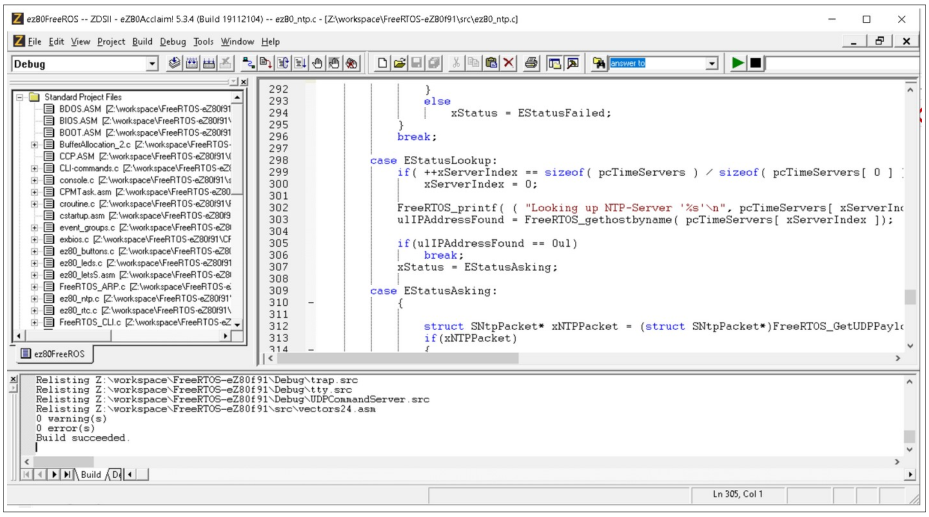
Changing to directory Z:\workspace (or on the linux to the shared) and clone the project https://github.com/notwendig/FreeRTOS-eZ80f91.git including submodules.

Apply the patch to zulib.

On the Windows-guest run the ZiLOG Developer Studio. Open the Project-file Z:\workspace\FreeRTOS-eZ8091\uzib.zdsproj and build the uzlib[d].lib.

On a linux terminal change to directory uzlib and type make to build the packer/unpacker. Change to CPM directory and type make to build the CP/M 2.2 boot-tracks and the Disk-Image as packed C-Array.

Now you are ready to open and build the z80FreeROS.zdsproj, and build it.

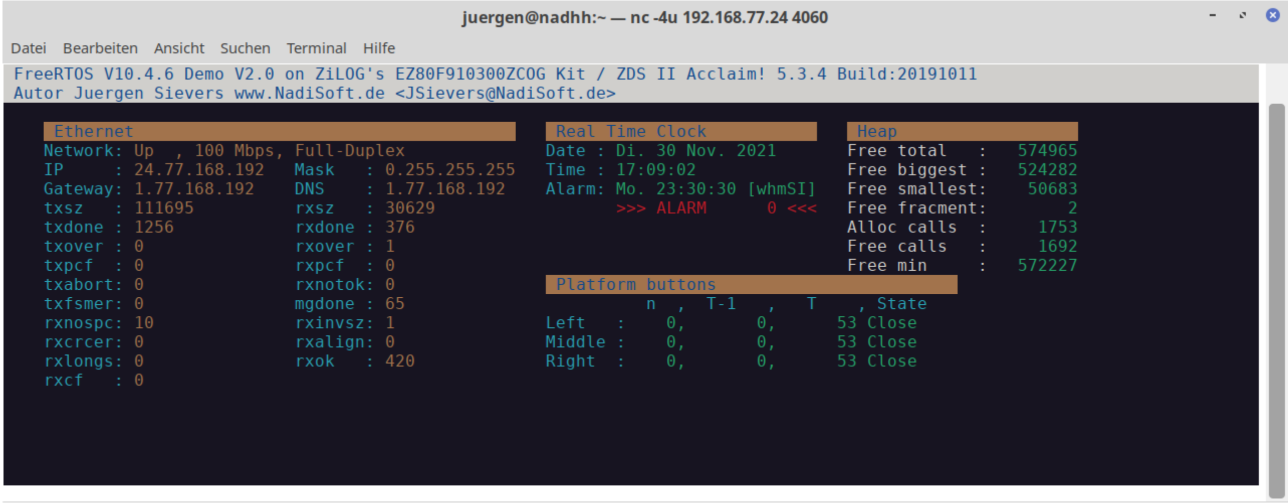

ez80FreeROS -- ZDSII - eZ80Acclaim! 5.3.4 (Build 19112104) -- ez80_ntp.c - [Z:\workspace\FreeRTOS-eZ80f91\src\ez80_ntp.c]
File Edit View Project Build Debug Tools Window Help
Debug
answer to
Standard Project Files
BDOS.ASM [Z:\workspace\FreeRTOS-eZ80f91
BIOS.ASM [Z:\workspace\FreeRTOS-eZ80f91\
BOOT.ASM [Z:\workspace\FreeRTOS-eZ80f91
BufferAllocation_2.c [Z:\workspace\FreeRTOS-
CCP.ASM [Z:\workspace\FreeRTOS-eZ80f91\
CLI-commands.c [Z:\workspace\FreeRTOS-eZ
console.c [Z:\workspace\FreeRTOS-eZ80f91\s
CPMTask.asm [Z:\workspace\FreeRTOS-eZ80
croutine.c [Z:\workspace\FreeRTOS-eZ80f91\
cstartup.asm [Z:\workspace\FreeRTOS-eZ80f9
event_groups.c [Z:\workspace\FreeRTOS-eZ8
exbios.c [Z:\workspace\FreeRTOS-eZ80f91\CF
ez80_buttons.c [Z:\workspace\FreeRTOS-eZ8
ez80_leds.c [Z:\workspace\FreeRTOS-eZ80f91
ez80_letsS.asm [Z:\workspace\FreeRTOS-eZ8
FreeRTOS_ARP.c [Z:\workspace\FreeRTOS-e
ez80_ntp.c [Z:\workspace\FreeRTOS-eZ80f91'
ez80_rtc.c [Z:\workspace\FreeRTOS-eZ80f91\
FreeRTOS_CLI.c [Z:\workspace\FreeRTOS-eZ
ez80FreeROS
Build
De
Ln 305, Col 1

```
            }
            else
                xStatus = EStatusFailed;
        }
        break;

    case EStatusLookup:
        if( ++xServerIndex == sizeof( pcTimeServers ) / sizeof( pcTimeServers[ 0 ] 
            xServerIndex = 0;

        FreeRTOS_printf( ( "Looking up NTP-Server '%s'\n", pcTimeServers[ xServerInc
        ulIPAddressFound = FreeRTOS_gethostbyname( pcTimeServers[ xServerIndex ]);

        if(ulIPAddressFound == 0ul)
            break;
        xStatus = EStatusAsking;

    case EStatusAsking:
        {

            struct SNtpPacket* xNTPPacket = (struct SNtpPacket*)FreeRTOS_GetUDPPaylc
            if(xNTPPacket)
            {
```

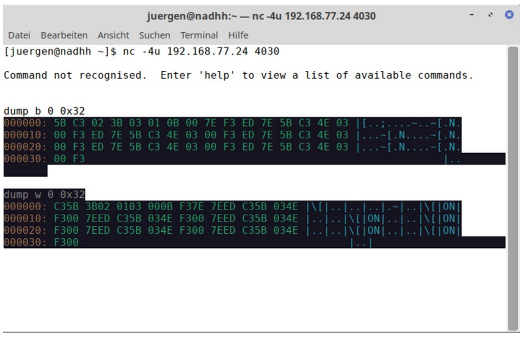
```
Relisting Z:\workspace\FreeRTOS-eZ80f91\Debug\trap.src
Relisting Z:\workspace\FreeRTOS-eZ80f91\Debug\tty.src
Relisting Z:\workspace\FreeRTOS-eZ80f91\Debug\UDPCommandServer.src
Relisting Z:\workspace\FreeRTOS-eZ80f91\src\vectors24.asm
0 warning(s)
0 error(s)
Build succeeded.
```

Before you download and run the Demo to the Target, a terminal (PuTTY) should be running on the target's serial-port connection.

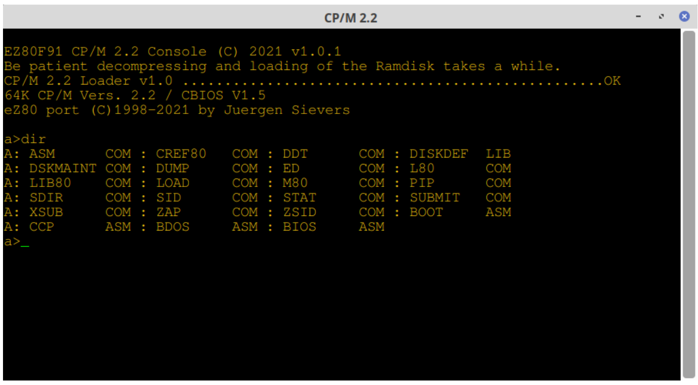
After the target has gotten it’s IP you may start several other connection to the target.


juergen@nadhh:~ — nc -4u 192.168.77.24 4060
Datei Bearbeiten Ansicht Suchen Terminal Hilfe

```
FreeRTOS V10.4.6 Demo V2.0 on ZiLOG's EZ80F910300ZCOG Kit / ZDS II Acclaim! 5.3.4 Build:20191011
Autor Juergen Sievers www.NadiSoft.de <JSievers@NadiSoft.de>

  Ethernet                                    Real Time Clock             Heap
 Network: Up  , 100 Mbps, Full-Duplex         Date : Di. 30 Nov. 2021     Free total   :   574965
 IP     : 24.77.168.192   Mask   : 0.255.255.255  Time : 17:09:02          Free biggest :   524282
 Gateway: 1.77.168.192    DNS    : 1.77.168.192   Alarm: Mo. 23:30:30 [whmSI]  Free smallest:    50683
 txsz   : 111695          rxsz   : 30629            >>> ALARM       0 <<<  Free fracment:        2
 txdone : 1256            rxdone : 376                                 Alloc calls  :     1753
 txover : 0               rxover : 1                                   Free calls   :     1692
 txpcf  : 0               rxpcf  : 0                                   Free min     :   572227
 txabort: 0               rxnotok: 0          Platform buttons
 txfsmer: 0               mgdone : 65                 n  ,  T-1   ,   T    , State
 rxnospc: 10              rxinvsz: 1          Left   :   0,       0,      53 Close
 rxcrcer: 0               rxalign: 0          Middle :   0,       0,      53 Close
 rxlongs: 0               rxok   : 420        Right  :   0,       0,      53 Close
 rxcf   : 0
```


juergen@nadhh:~ — nc -4u 192.168.77.24 4030
Datei Bearbeiten Ansicht Suchen Terminal Hilfe

```
[juergen@nadhh ~]$ nc -4u 192.168.77.24 4030

Command not recognised.  Enter 'help' to view a list of available commands.


dump b 0 0x32
000000: 5B C3 02 3B 03 01 0B 00 7E F3 ED 7E 5B C3 4E 03 |[..;....~..~[.N.
000010: 00 F3 ED 7E 5B C3 4E 03 00 F3 ED 7E 5B C3 4E 03 |...~[.N....~[.N.
000020: 00 F3 ED 7E 5B C3 4E 03 00 F3 ED 7E 5B C3 4E 03 |...~[.N....~[.N.
000030: 00 F3                                           |..

dump w 0 0x32
000000: C35B 3B02 0103 000B F37E 7EED C35B 034E |\[|..|..|..|.~|..|\[|ON|
000010: F300 7EED C35B 034E F300 7EED C35B 034E |..|..|\[|ON|..|..|\[|ON|
000020: F300 7EED C35B 034E F300 7EED C35B 034E |..|..|\[|ON|..|..|\[|ON|
000030: F300                                    |..|
```



```
EZ80F91 CP/M 2.2 Console (C) 2021 v1.0.1
Be patient decompressing and loading of the Ramdisk takes a while.
CP/M 2.2 Loader v1.0 ..................................................OK
64K CP/M Vers. 2.2 / CBIOS V1.5
eZ80 port (C)1998-2021 by Juergen Sievers

a>dir
A: ASM      COM : CREF80   COM : DDT      COM : DISKDEF  LIB
A: DSKMAINT COM : DUMP     COM : ED       COM : L80      COM
A: LIB80    COM : LOAD     COM : M80      COM : PIP      COM
A: SDIR     COM : SID      COM : STAT     COM : SUBMIT   COM
A: XSUB     COM : ZAP      COM : ZSID     COM : BOOT     ASM
A: CCP      ASM : BDOS     ASM : BIOS     ASM
a>_
```

Regards

Jürgen