

How to access the LEDs of the DNP/5280 Evaluation Board

With the help of the DNP/5280 Hardware Access Driver (SSVHWA) you can access direct the MCF5280 special function registers with a user space program.

- **1. Step:** Use the following C source code as sample. This code implements a simple 8-bit binary counter. The current counter value goes direct to the LEDs at port A of the DNP/5280 PIO.

```
// Counter Demo for DIL/NetPC DNP/5280-3V
// Author   : mha@st1.de
// Date    : 26.08.2003
// Version  : 1.00
// License  : GPL

#include <unistd.h>
#include <stdio.h>

#include "ssvhwa.h"

#define MCFBAR    0x40000000

#define PORTQA    (MCFBAR + 0x00190006)    // 8 bit
#define PORTQB    (MCFBAR + 0x00190007)    // 8 bit
#define DDRQA     (MCFBAR + 0x00190008)    // 8 bit
#define DDRQB     (MCFBAR + 0x00190009)    // 8 bit

void write_portA (unsigned char data)
{
    // write data Port A[0-3]

    ssvhwa_write8 (PORTQA, ((data & 0x0c) << 1) | (data & 0x03));

    // write data Port A[4-7]

    ssvhwa_write8 (PORTQB, (data >> 4));
}

int main (void)
{
    int iCnt;

    // get user identity

    if (geteuid () != 0) {
        fprintf (stderr, "No root access rights !\n");
        exit (1);
    }

    // open ssvhwa driver

    if (ssvhwa_open () < 0) {
        perror ("ssvhwa open");
        exit (-1);
    }
}
```

```
    }

    // set the bits for PIO port A for output

    ssvhwa_write8 (DDRQA, 0x1b);      // Port A[0-3] output
    ssvhwa_write8 (DDRQB, 0x0f);      // Port A[4-7] output

    printf (" Start Binary Counter...\n");
    printf (" Current Counter Value=  0");

    // run counter until user break by CTRL-C...

    for (;;) {

        // write 8-bit binary counter value to Port A...

        for (iCnt= 0; iCnt < 256; iCnt++) {
            write_portA (iCnt);
            printf ("\r Current Counter Value= %3d", iCnt);
            fflush (stdout);
            usleep (100000);
        }
    }

    ssvhwa_close ();
    return 0;
}
```

- **2. Step:** Translate the C source code with the GNU C cross compiler to a executable for the DNP/5280.
- **3. Step:** Transfer the executable within a TFTP session from your development PC to the DNP/5280.
- **4. Step:** Make sure that the executable owns executable rights (`chmod +x prg-name`).
- **5. Step:** Run the executable on the DNP/5280. Use a Telnet session for user I/O.