SPEC7 reset via SMB i/f

System management bus based on (a subset of) i2c.

Datasheet SMB chip on the Spec7 board: https://www.nxp.com/docs/en/data-sheet/PCA9554_9554A.pdf:

The kernel module resides in the modules directory of the kernel

Kernel driver documentation https://www.kernel.org/doc/Documentation/i2c/dev-interface

Linux userspace utily 'i2c-tools'

```
# yum install i2c-tools
```

```
# modprobe i2c_dev
```

Find which i2c Device is linked to the Spec7 card. This is dynamically determined at boot time:

```
# i2cdetect -l
(...)
i2c-0   smbus         SMBus I801 adapter
at f040         SMBus adapter
```

```
Scan i2c-0:
# i2cdetect -y 0
(...)
```

```
20: 20 -- -- -- -- -- -- -- -- -- --
-- -- -- -- --
```

Output should show 0x20 present, which is the address of the SMB gpio chip on the SPEC7 card.

Read input register on bus 0, chip addres 0x20 and data address 0:
```
# i2cget -y 0 0x20 0
0xFF
```

Set pin 1 as output (led drive):
```
# i2cset -r -y 0 0x20 3 0xfd
Value 0xfd written, readback matched
```

Issue a reset (pin 0). First set pin as output, then set low and then high again.
```
# i2cset -r -y 0 0x20 3 0xfe
# i2cset -r -y 0 0x20 1 0xfe
# i2cset -r -y 0 0x20 1 0xff
```

With mask usage:
```
# i2cset -r -y -m 1 0 0x20 3 0
# i2cset -r -y -m 1 0 0x20 1 0
# i2cset -r -y -m 1 0 0x20 1 1
```

Note: the -y option disables the interctive mode and skips the confirmation.

Note: the reset line is ac coupled. Setting it high again only makes it possible to issue an other reset.

Sheet 27 of https://www.ohwr.org/project/spec7/wikis/

uploads/4d695283eafd4415de920bd07f5fac6d/ SPEC7_Abracon_Powered_190814.pdf shows the circuit diagram of the SMB interface on the Spec7 card (U39 PC9554B) which generates the reset pulse.

I2ctool on github: https://github.com/alan-shen/i2ctool