

Kernel driver i2c-parport

Author: Jean Delvare <jdelvare@suse.de>

This is a unified driver for several i2c-over-parallel-port adapters, such as the ones made by Philips, Velleman or ELV. This driver is meant as a replacement for the older, individual drivers:

- i2c-philips-par
- i2c-elv
- i2c-velleman
- video/i2c-parport (NOT the same as this one, dedicated to home brew teletext adapters)

It currently supports the following devices:

- (type=0) Philips adapter
- (type=1) home brew teletext adapter
- (type=2) Velleman K8000 adapter
- (type=3) ELV adapter
- (type=4) Analog Devices ADM1032 evaluation board
- (type=5) Analog Devices evaluation boards: ADM1025, ADM1030, ADM1031
- (type=6) Barco LPT->DVI (K5800236) adapter
- (type=7) One For All JP1 parallel port adapter
- (type=8) VCT-jig

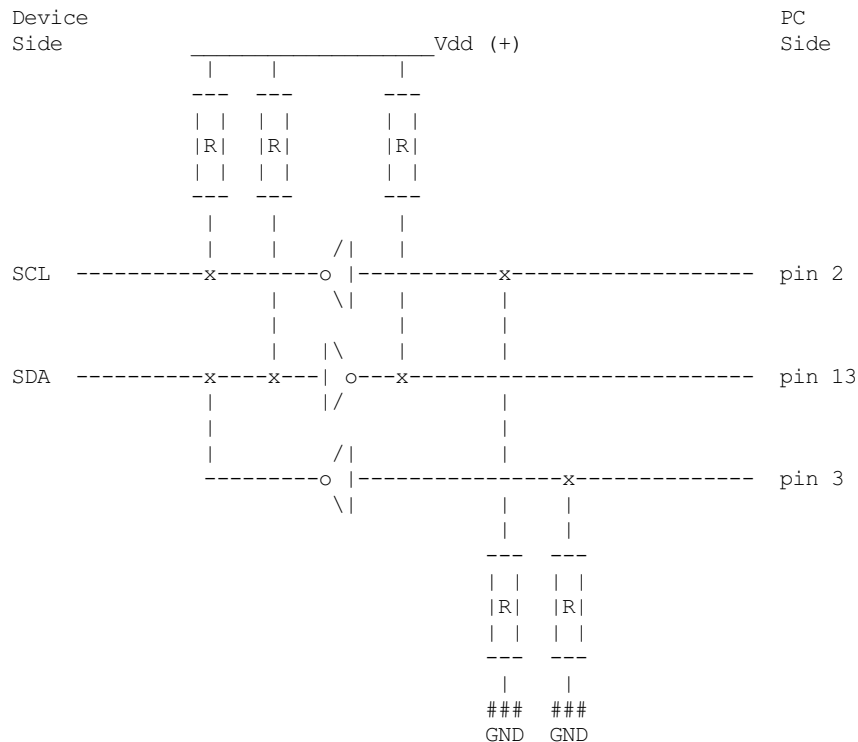
These devices use different pinout configurations, so you have to tell the driver what you have, using the type module parameter. There is no way to autodetect the devices. Support for different pinout configurations can be easily added when needed.

Earlier kernels defaulted to type=0 (Philips). But now, if the type parameter is missing, the driver will simply fail to initialize.

SMBus alert support is available on adapters which have this line properly connected to the parallel port's interrupt pin.

Building your own adapter

If you want to build you own i2c-over-parallel-port adapter, here is a sample electronics schema (credits go to Sylvain Munaut):



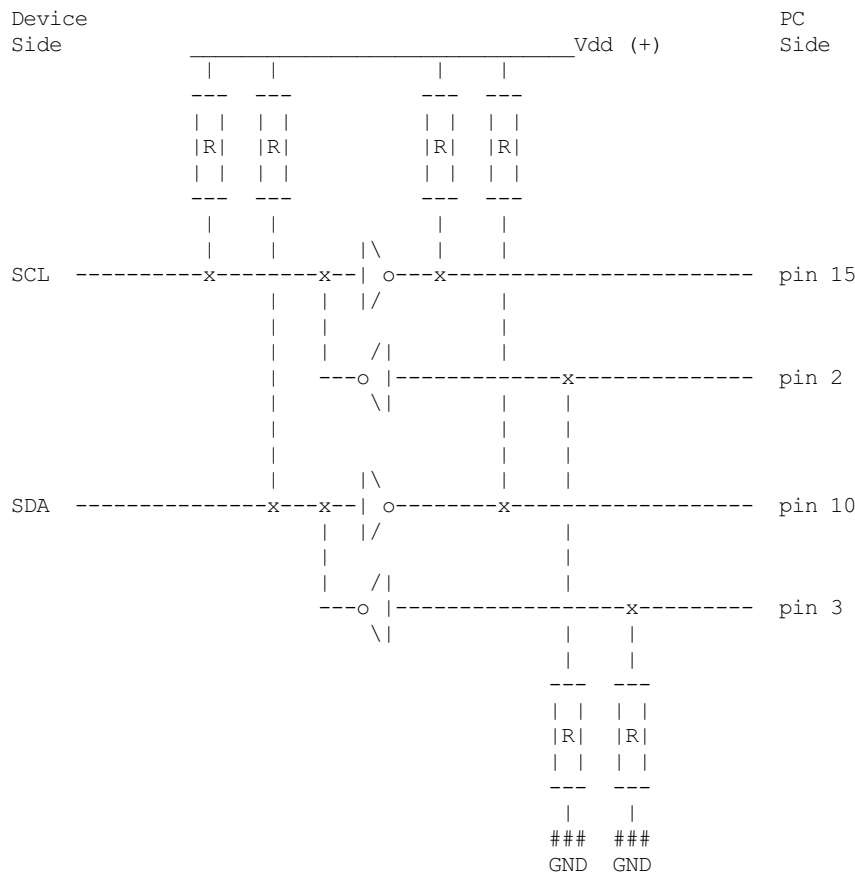
Remarks:

- This is the exact pinout and electronics used on the Analog Devices evaluation boards.
- All inverters:



must be 74HC05, they must be open collector output.

- All resistors are 10k.
- Pins 18-25 of the parallel port connected to GND.
- Pins 4-9 (D2-D7) could be used as VDD if the driver drives them high. The ADM1032 evaluation board uses D4-D7. Beware that the amount of current you can draw from the parallel port is limited. Also note that all connected lines **MUST BE** driven at the same state, else you'll short circuit the output buffers! So plugging the I2C adapter after loading the i2c-parport module might be a good safety since data line state prior to init may be unknown.
- This is 5V!
- Obviously you cannot read SCL (so it's not really standard-compliant). Pretty easy to add, just copy the SDA part and use another input pin. That would give (ELV compatible pinout):



If possible, you should use the same pinout configuration as existing adapters do, so you won't even have to change the code.

Similar (but different) drivers

This driver is NOT the same as the i2c-pport driver found in the i2c package. The i2c-pport driver makes use of modern parallel port features so that you don't need additional electronics. It has other restrictions however, and was not ported to Linux 2.6 (yet).

This driver is also NOT the same as the i2c-pcf-epp driver found in the lm_sensors package. The i2c-pcf-epp driver doesn't use the parallel port as an I2C bus directly. Instead, it uses it to control an external I2C bus master. That driver was not ported to Linux 2.6 (yet) either.

Legacy documentation for Velleman adapter

Useful links:

- Velleman <http://www.velleman.be/>
- Velleman K8000 Howto <http://howto.html16.ac.at/k8000-howto.html>

The project has lead to new libs for the Velleman K8000 and K8005:

LIBK8000 v1.99.1 and LIBK8005 v0.21

With these libs, you can control the K8000 interface card and the K8005 stepper motor card with the simple commands which are in the original Velleman software, like SetIOchannel, ReadADchannel, SendStepCCWFull and many more, using /dev/velleman.

- <http://home.wanadoo.nl/hihihi/libk8000.htm>
- <http://home.wanadoo.nl/hihihi/libk8005.htm>

- <http://struyve.mine.nu:8080/index.php?block=k8000>
- <http://sourceforge.net/projects/libk8005/>

One For All JP1 parallel port adapter

The JP1 project revolves around a set of remote controls which expose the I2C bus their internal configuration EEPROM lives on via a 6 pin jumper in the battery compartment. More details can be found at:

<http://www.hifi-remote.com/jp1/>

Details of the simple parallel port hardware can be found at:

<http://www.hifi-remote.com/jp1/hardware.shtml>