Rugged Board

I2C

https://community.ruggedboard.com

RB-I2C

- I²C (pronounce: I squared C and written I2C in the kernel documentation) is a protocol developed by Philips.
- It is a slow two-wire protocol (variable speed, up to 400 kHz), with a high speed extension (3.4 MHz). It provides an inexpensive bus for connecting many types of devices with infrequent or low bandwidth communications needs.
- I2C is widely used with embedded systems.
- SMBus (System Management Bus) is based on the I2C protocol, and is mostly a subset of I2C protocols and signaling.
- The most common devices connected through SMBus are RAM modules configured using I2C EEPROMs, and hardware monitoring chips.
- Because the SMBus is mostly a subset of the generalized I2C bus, we can use its protocols on many I2C systems.

RB-I2C

- Usually, I2C devices are controlled by a kernel driver.
- But it is also possible to access all devices on an adapter from userspace, through the /dev interface.
- You need to load module i2c-dev for this.
- Each registered I2C adapter gets a number, counting from 0.
- You can examine /sys/class/i2c-dev/ to see what number corresponds to which adapter.
- Alternatively, you can run “i2cdetect -l” to obtain a formatted list of all I2C adapters present on your system at a given time.
- They should be called “i2c-%d” (i2c-0, i2c-1, …, i2c-10, …).

RB-I2C

Step 1: open the device file

```
file = open("/dev/i2c-0", O_RDWR);
```

Step 2: specify with what device address you want to communicate:

```
ioctl(file, I2C_SLAVE, addr)
```

Step 3:You can now use SMBus commands to communicate with device.

```
i2c_smbus_write_word_data(file, reg, data)
i2c_smbus_read_word_data(file, reg);
```

reg is device register to access

C Program to write and read EEEPROM contents in RuggedBoard

Connect-us

Developer Wiki

Open Discussions