This document describes the i2c protocol. Or will, when it is finished :-)

Key to symbols
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S   (1 bit) : Start bit
P   (1 bit) : Stop bit
Rd/Wr (1 bit) : Read/Write bit. Rd equals 1, Wr equals 0.
A, NA (1 bit) : Accept and reverse accept bit.
Addr (7 bits): I2C 7 bit address. Note that this can be expanded as usual to
                get a 10 bit I2C address.
Comm (8 bits): Command byte, a data byte which often selects a register on
                the device.
Data (8 bits): A plain data byte. Sometimes, I write DataLow, DataHigh
                for 16 bit data.
Count (8 bits): A data byte containing the length of a block operation.

[..]: Data sent by I2C device, as opposed to data sent by the host adapter.

Simple send transaction
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This corresponds to i2c_master_send.

  S Addr Wr [A] Data [A] Data [A] ... [A] Data [A] P

Simple receive transaction
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This corresponds to i2c_master_recv

  S Addr Rd [A] [Data] A [Data] A ... A [Data] NA P

Combined transactions
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This corresponds to i2c_transfer

They are just like the above transactions, but instead of a stop bit P
a start bit S is sent and the transaction continues. An example of
a byte read, followed by a byte write:

  S Addr Rd [A] [Data] NA S Addr Wr [A] Data [A] P

Modified transactions
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We have found some I2C devices that needs the following modifications:

  Flag I2C_M_NOSTART:
    In a combined transaction, no 'S Addr Wr/Rd [A]' is generated at some
    point. For example, setting I2C_M_NOSTART on the second partial message

generates something like:
S Addr Rd [A] [Data] NA Data [A] P
If you set the I2C_M_NOSTART variable for the first partial message, we do not generate Addr, but we do generate the startbit S. This will probably confuse all other clients on your bus, so don't try this.

Flags I2C_M_REV_DIR_ADDR
This toggles the Rd/Wr flag. That is, if you want to do a write, but need to emit an Rd instead of a Wr, or vice versa, you set this flag. For example:
S Addr Rd [A] Data [A] Data [A] ... [A] Data [A] P

Flags I2C_M_IGNORE_NAK
Normally message is interrupted immediately if there is [NA] from the client. Setting this flag treats any [NA] as [A], and all of message is sent.
These messages may still fail to SCL lo->hi timeout.

Flags I2C_M_NO_RD_ACK
In a read message, master A/NA bit is skipped.