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New hardware with modern I2C address conflicts

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For some time now, special camera setups exist having features which are challenging for I2C address layouts as we know them in Linux: a) a high-speed serial link which can embed I2C communication (e.g. GMSL or FPD-Link III) and b) the ability to reprogram the client addresses of the I2C devices on the camera.

The use case for these cameras is to run multiple of them in parallel, and not just a single one. To be easily pluggable, they don't have a way to configure the I2C addresses they need. They use initially all the same I2C addresses and rely on software to reprogram them and sort out that problem.

The really tricky thing is now that they are connected to the same serial high speed link. As a result, all the clients with initially equal addresses sit (more or less, depending on the link) on the same I2C bus as well and need to be carefully reprogrammed one-by-one to a unique address.

The camera setup above is the primary example we are facing right now. Some early implementations for GMSL and FPD-Link exist with different approaches to map the I2C topology. However, there might be other hardware facing very similar problems. We definitely want to have you in the room.

An introductory talk gives a few more details of current implementations, and explains the current problems in abstracting all this. From there on, we hope to have gathered enough highly interested people for discussion, opinions, and brainstorming. The goal is, of course, to enhance the I2C core to provide reasonable support for such scenarios which will be beneficial for all users like these high speed links.

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