

Modification of TP-Link MC220L for accessing SFP management bus (I2C).

Luka Mustafa - Musti *musti@wlan-si.net*

TP-Link MC220L media converter

TP-Link MC220L media converter is an Ethernet to SFP converter for use with SFP fibre or copper modules for either 100Mbps or 1Gbps Ethernet communication. It is based on Marvell Alaska 88E1111 Ethernet PHY media converter, that outputs serialised data directly to the SFP module at 3.3V logical level as per SFP MSA agreement. The 3 layer PCB is neatly designed, with a power plane in the middle layer, in addition to PHY chip adding necessary components for Ethernet isolation and stable filtered power supplies. 88E1111 does not implement the support for SFP management interface, thus the modification for accessing it is rather simplistic, but requiring precise soldering.



FIG. 1: TP-Link MC220L media converter and an SFP module

SFP module 4 and 5 pins are used for I2C communication and can be located on the bottom side of the PCB. There is an array of resistor footprints, most of them unpopulated. Left (orientation normal to the solder mask) resistor pads of footprints R57-SCL and R55-SDA as in Fig. 3 allow a thin wire to be soldered and thus the access to I2C interface. A MCU circuit board can be added and powered from the media converter directly. SFP power supply decoupling and filtering section is located on the top side of the PCB, to the right of the SFP cage. For best noise performance and decoupling of additional circuitry, 3.3V power must be taken from the mid point between the two inductors with markings IR0. Ground should be taken from the capacitor pads C58 or C57.

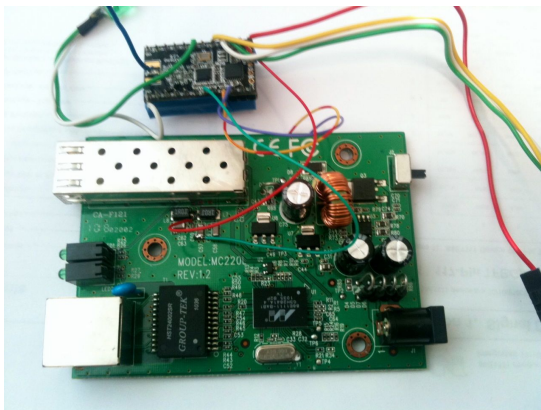


FIG. 2: Accessing power supply pins on MC220L.

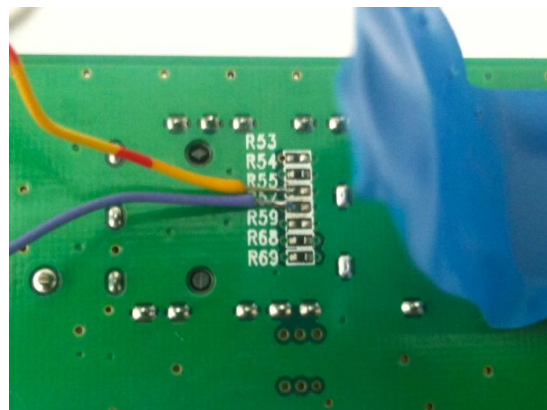


FIG. 3: Accessing I2C pins on MC220L