ICM_1 to ICM_4, Differences

item	ICM_1	ICM_2	ICM_3	ICM_4	remark
JTAG interface, J4 TCK pull-up resistor	**330R**	**330R**	1k	1k	The low-cost programmer **JTAG-HS3** has very weak drivers. The config. partly failed, when additional parts (mainboard-FPGA) were in the JTAG chain, due to the too low 330R value at ICM_1, _2.
FPGA input **PUDC_B**	GND	**GND** Check if your MBPWR_EN has a pull-down of ~1K (330uA x 1k = 0.33V)	P1V8	P1V8	**GND**: all I/Os with weak pull-up while configuration See below min. / max. pull-up current vs. VCCO: V_{CCO} = 3.3V. 90 – 330 µA V_{CCO} = 2.5V. 68 – 250 µA V_{CCO} = 1.8V. 34 – 220 µA V_{CCO} = 1.5V. 23 – 150 µA V_{CCO} = 1.2V. 12 – 120 µA **P1V8**, (for ICM_3, _4 mounting option, R48=DNL) all I/Os are floating while configuration
Con. P1, pins 15,17,19,21 Signal names and termination scheme	MB_GPIO_0..3 MB_GPIO_0/_1 MB_GPIO_2/_3 by **3.3V** FPGA bank_ 34, Each signal with 47R serial termination	CAL_TRIG_P/N, CAL_TIME_P/N Driven by **1.8V** FPGA bank_14 Each pair with 100R parallel termination			For **ICM_1 other FPGA pins** are being used !!! When using ICM_2..4 in the **mini_Fieldhub, R81, R82** have to be removed before!
Flash write protection Signal D02_nWP	Permanently pull-up to P1V8 by R16 (4k7), pull down to GND per Jumper J6		Permanently pulled down by R16 (4k7), C85 (100nF) to P1V8 for debouncing. ICM_4 allows to readback the D02_nWP signal via FPGA pin D10		Use J6 to connect an infrared photo-transistor, e.g. 1540601NEA200. (1540601NEA200 is hand-soldered on J6 pads) Disable the write protection using an infrared lamp (~900nm).
Signal **PCA_ID** (MB_ID)	MB_ID w/o pull-up	PCA_ID with 1k pull-up (R83)			Not sure why the name got changed to PCA_ID
Comm. ADC, diff. anlog input filter	2x(2x47R+100pF)	1x (2x470R + 47pF)			Check individual ICM_1 for possible changes