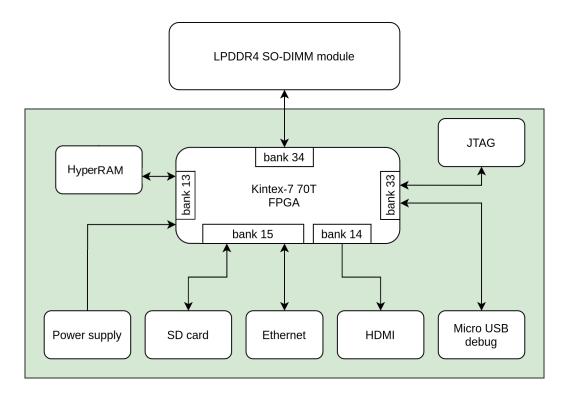
LPDDR4 Test Board



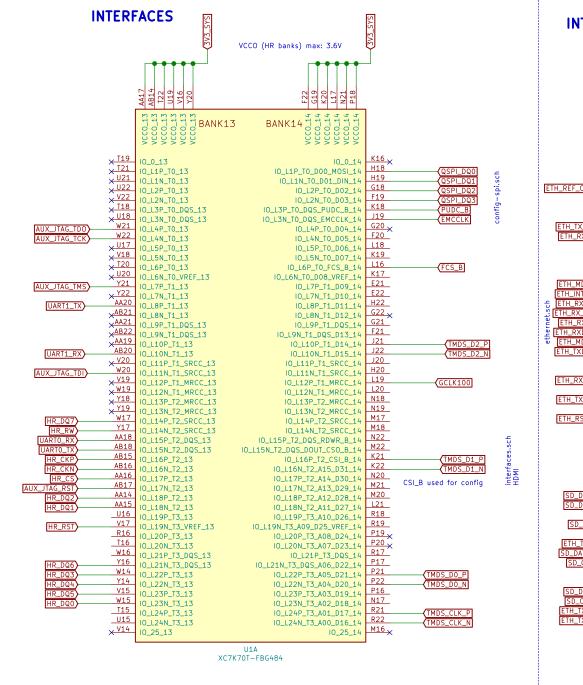
Sheet: HyperRAM Sheet: FPGA Banks Sheet: Interfaces Sheet: Config SPI flash Sheet: FPGA power Sheet: Ethernet Sheet: Supply Sheet: SO-DIMM File: fpga-banks.sch File: interfaces.sch File: config—spi.sch File: fpga—power.sch File: ethernet.sch File: supply.sch

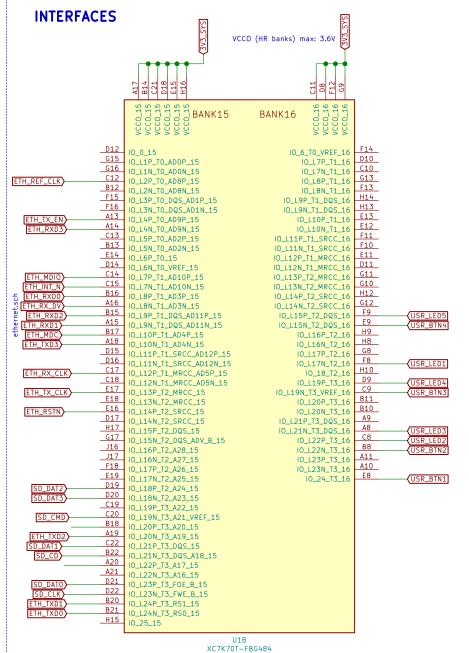
Logo N1 oshw\_logo Logo N2 antmicro\_logo LPDDR4 Test Board

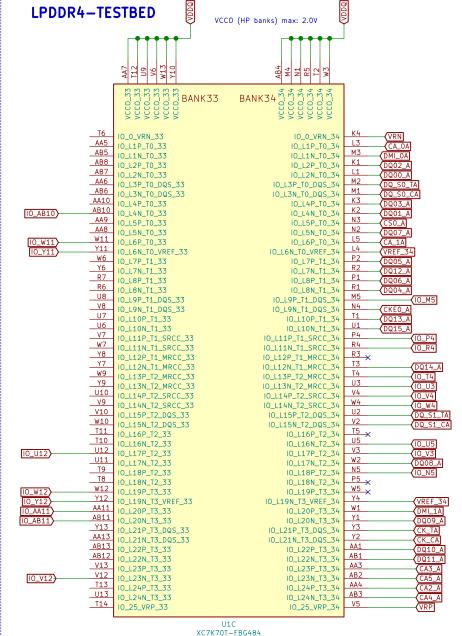
Sheet: / File: lpddr4-test-board.sch

Title: LPDDR4 Test Board

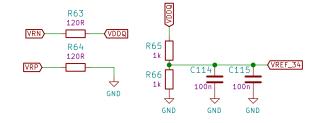
Size: A3 Date: KiCad E.D.A. eeschema 5.1.4+dfsg1-1bpo10+1 **Rev: 1.0.4** Id: 1/9





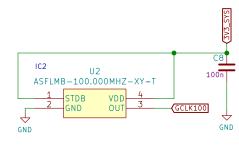


#### LPDDR VREF



	FPGA Banks/ a-banks.sch	
Title: L	.PDDR4 Test Board	
Size: A3	Date:	Rev: 1.0.4
KiCad E.I	O.A. eeschema 5.1.4+dfsg1-1bpo10+1 7	Id: 2/9 8

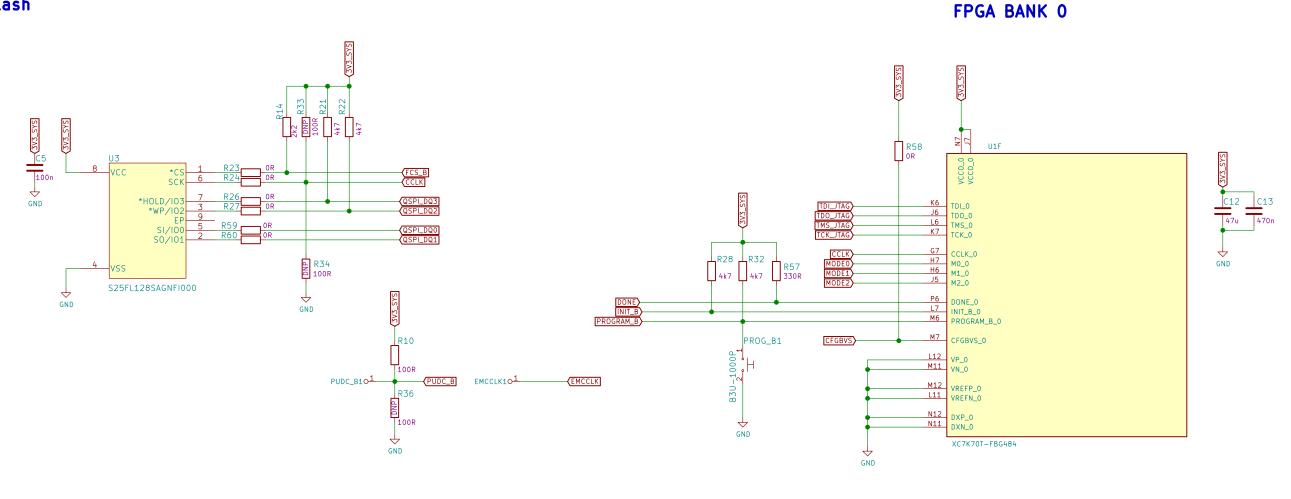
#### Clock source



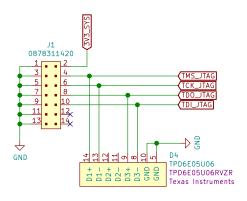
# Master SPI Quad (x4) configuration scheme

Follows Figure 2–14 7 Series FPGAs Configuration User Guide UG470 (v1.13.1)

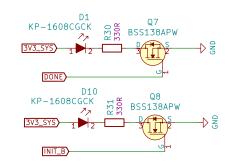
# (Q)SPI flash



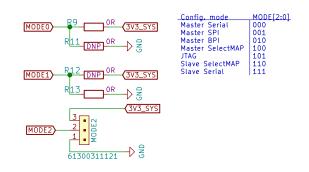
# JTAG Connector



#### STATUS LEDs



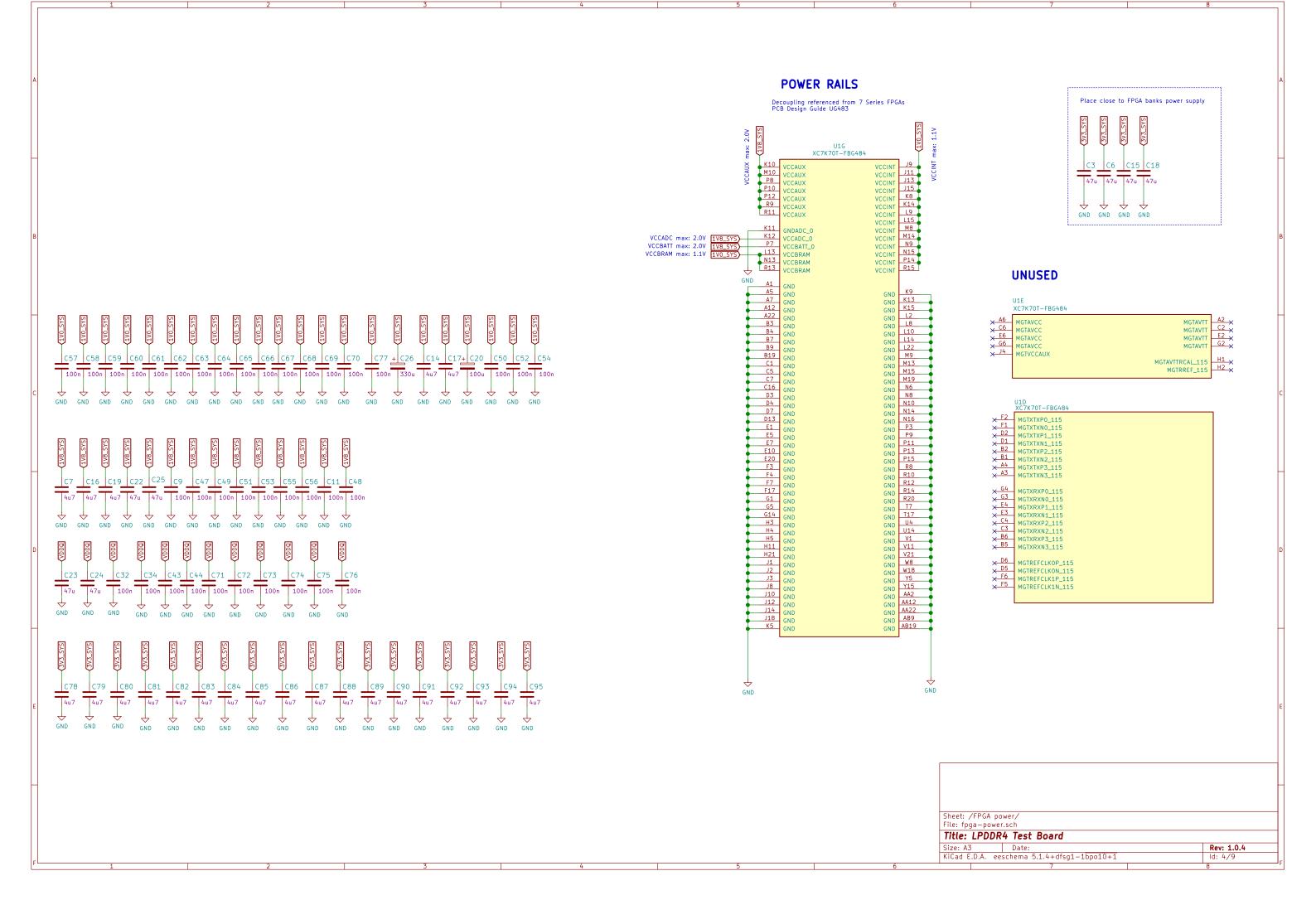
# Configuration Modes For details, see UG470 p. 21



Sheet: /Config SPI flash/ File: config-spi.sch

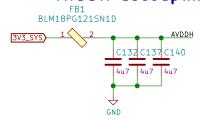
Title: LPDDR4 Test Board

Size: A3 Date: KiCad E.D.A. eeschema 5.1.4+dfsg1-1bpo10+1

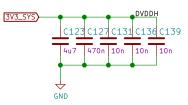


# DVDDL decoupling C119 C120 C122 C126 C130 C135 C138 C141 C142 4u7 470n 470n 470n 470n 10n 10n 10n 10n

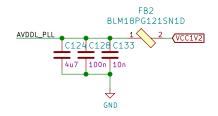
#### **AVDDH** decoupling



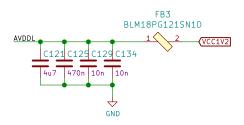
## DVDDH decoupling



# AVDDL\_PLL decoupling

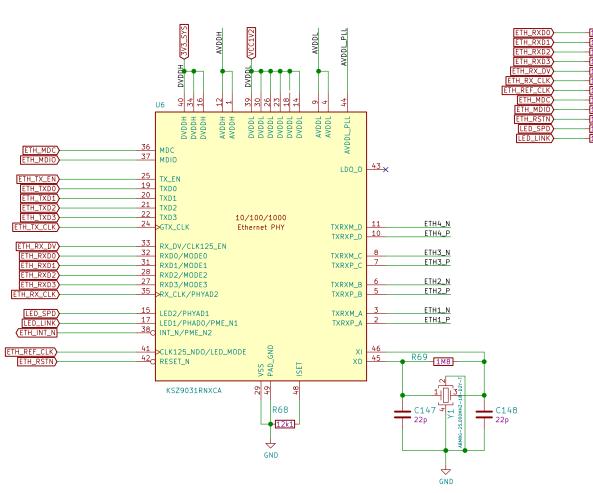


# **AVDDL** decoupling

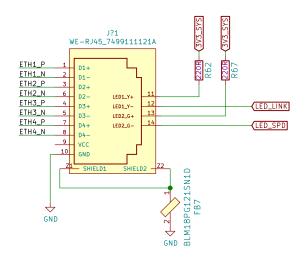


## PHY

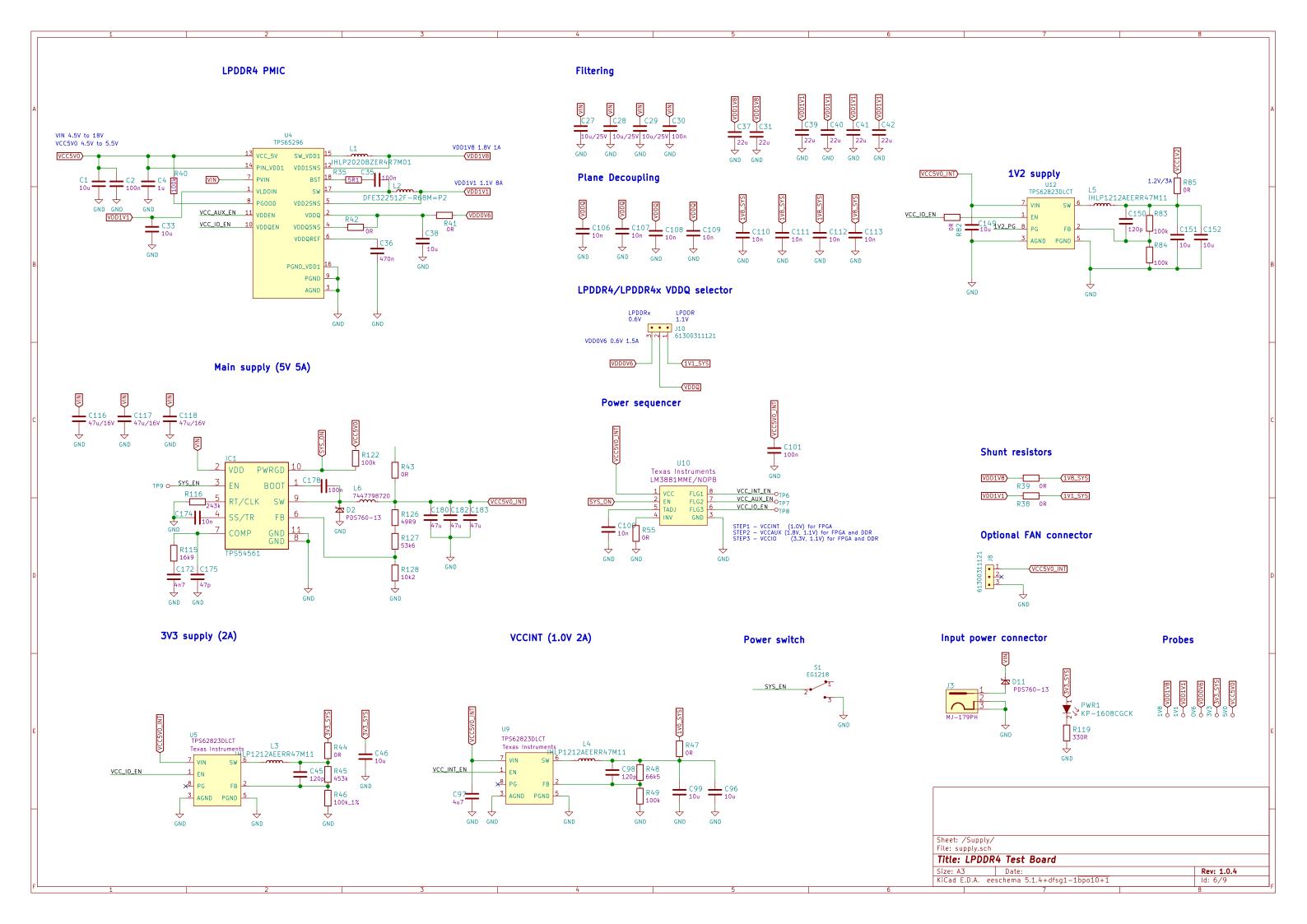
# Pull up resistors

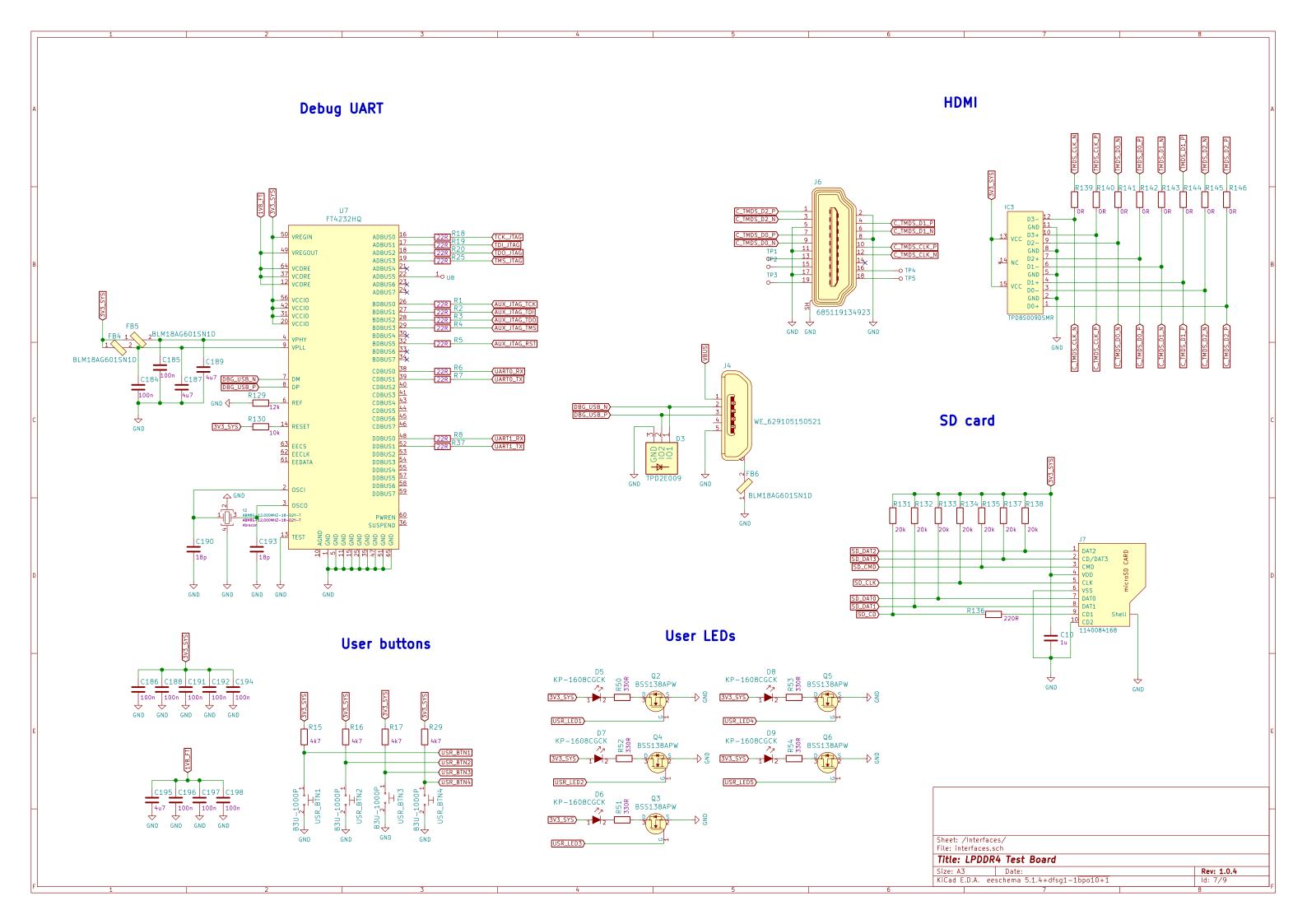


#### **RJ45 Connector**



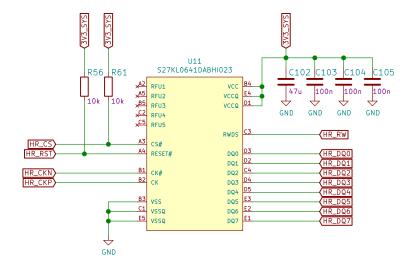
Sheet: /Ethernet/				
File: ethernet.s	ch			
Title: LPDD	R4 Test Board			
Size: A3	Date:	Rev: 1.0.4		
KiCad E.D.A.	eschema 5.1.4+dfsg1-1bpo10+1	ld: 5/9		
	7			





DDR4 SODIMM connector | 132 | 132 | 134 | 136 | 136 | 138 | 138 | 140 | 140 | 141 | 146 | 146 | 150 | 150 | 152 | 154 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 | 156 167 169 169 171 173 173 48 48 50 50 52 52 54 54 56 56 58 58 60 60 62 62 64 64 66 66 68 68 70 70 72 72 74 74 76 76 78 78 80 80 82 82 84 84 86 86 88 88 90 90 90 92 92 92 94 94 96 96 98 98 100 102 102 102 104 104 106 106 108 108 110 110 111 111 112 112 114 114 116 116 116 116 118 118 49 49
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# HyperRAM



Sheet: /HyperRAM/
File: hyperram.sch

Title: LPDDR4 Test Board

Size: A3 Date:

KiCad E.D.A. eeschema 5.1.4+dfsg1-1bpo10+1