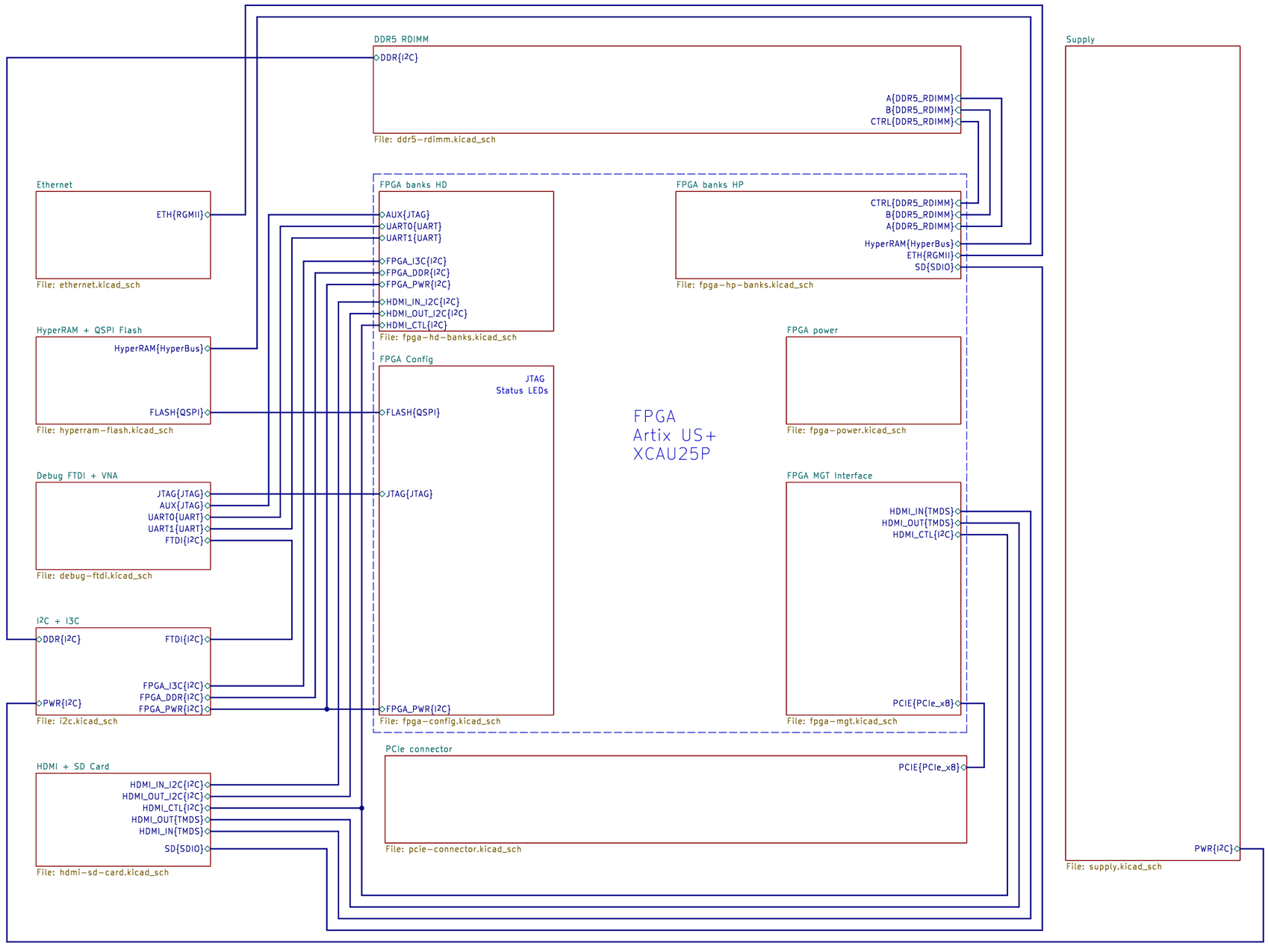
RDIMM DDR5 Tester



Mechanical

A1
Heatsink_ATS-61500R-C2-R0

Horizontal lightguide 1x3
H2
Lightpipe_Mentor_1296.2013

antmicro

open source hardware

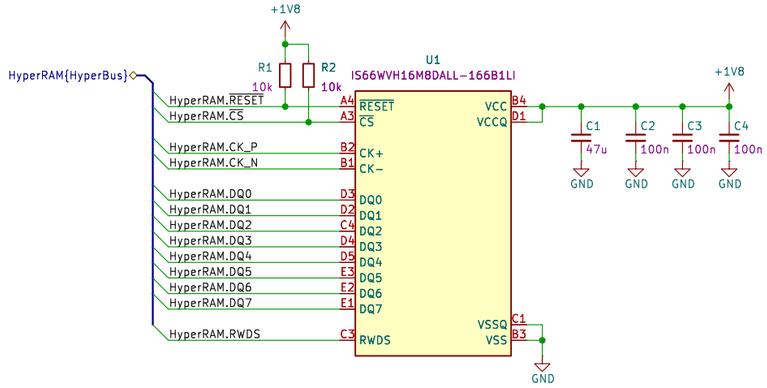
www.antmicro.com
Antmicro

Sheet: /
File: data-center-rdimm-ddr5-tester.kicad_sch

Title: RDIMM DDR5 Tester

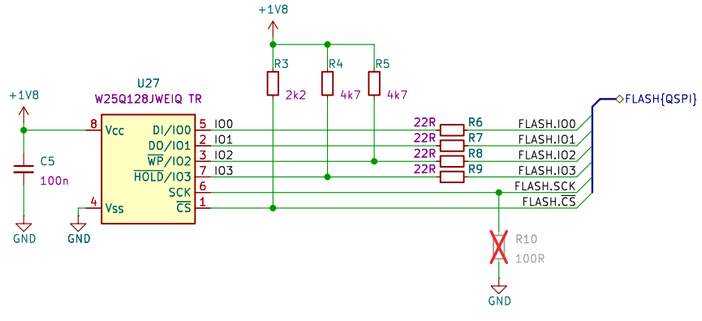
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 1/17

HyperRAM



(Q)SPI flash

Master SPI Quad (x4) configuration scheme
Follows FPGAs Configuration User Guide UG570



antmicro
open source hardware

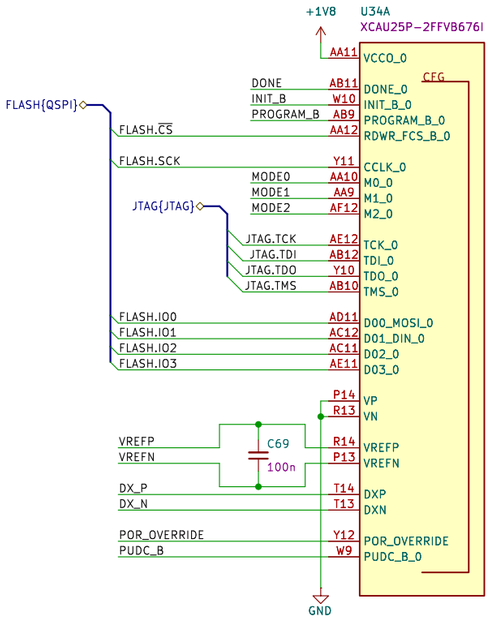
Antmicro
www.antmicro.com
Antmicro

Sheet: /HyperRAM + QSPI Flash/
File: hyperram-flash.kicad_sch

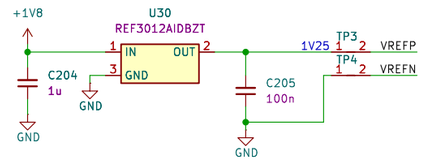
Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 2/17

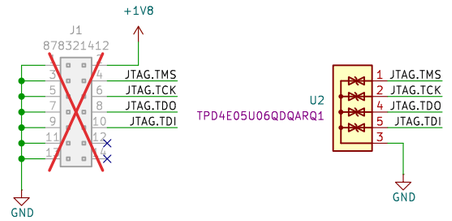
FPGA BANK 0



LDO

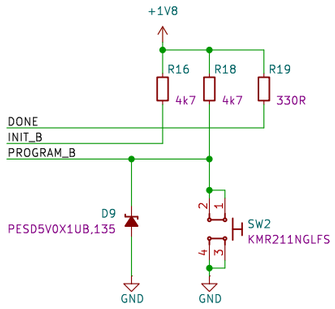


JTAG Connector

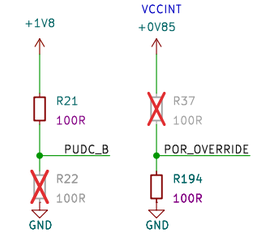


Compatible with Xilinx Platform Cable

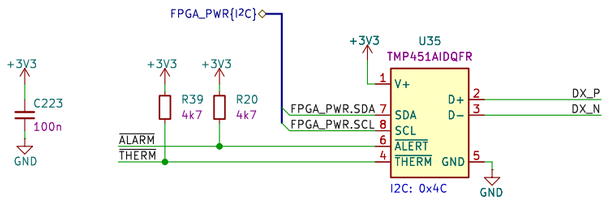
Pull-ups



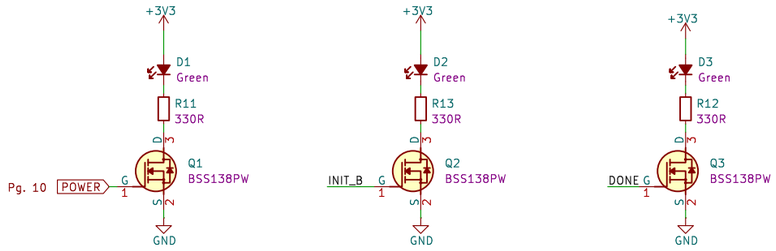
Probes



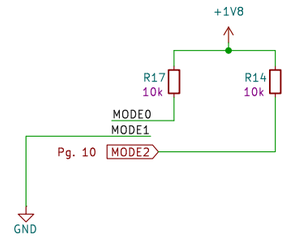
Temp sensor



STATUS LEDs



Configuration Modes



Config. mode	MODE[2:0]
Master Serial	000
Master SPI	001
Master BPI	010
Master SelectMAP	100
JTAG	101
Slave SelectMAP	110
Slave Serial	111

For details, see UG570

antmicro

open source hardware

Antmicro
www.antmicro.com
Antmicro

Sheet: /FPGA Config/
File: fpga-config.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 3/17

DDR5 RDIMM connector

Subchannel A

Subchannel B

A{DDR5_RDIMM}

B{DDR5_RDIMM}

J2A
DDR504111002KQ

A.DQ0	7	DQ0_A	DQ0_B	100	B.DQ0
A.DQ1	9	DQ1_A	DQ1_B	102	B.DQ1
A.DQ2	152	DQ2_A	DQ2_B	245	B.DQ2
A.DQ3	154	DQ3_A	DQ3_B	247	B.DQ3
A.DQS0_P	11	DQS0_A_T	DQS0_B_T	104	B.DQS0_P
A.DQS0_N	12	DQS0_A_C	DQS0_B_C	105	B.DQS0_N
A.DQ4	14	DQ4_A	DQ4_B	107	B.DQ4
A.DQ5	16	DQ5_A	DQ5_B	109	B.DQ5
A.DQ6	159	DQ6_A	DQ6_B	252	B.DQ6
A.DQ7	161	DQ7_A	DQ7_B	254	B.DQ7
A.DQS5_P	157	DQS5_A_T	DQS5_B_T	250	B.DQS5_P
A.DQS5_N	156	DQS5_A_C	DQS5_B_C	249	B.DQS5_N
A.DQ8	18	DQ8_A	DQ8_B	111	B.DQ8
A.DQ9	20	DQ9_A	DQ9_B	113	B.DQ9
A.DQ10	163	DQ10_A	DQ10_B	256	B.DQ10
A.DQ11	165	DQ11_A	DQ11_B	258	B.DQ11
A.DQS1_P	22	DQS1_A_T	DQS1_B_T	115	B.DQS1_P
A.DQS1_N	23	DQS1_A_C	DQS1_B_C	116	B.DQS1_N
A.DQ12	25	DQ12_A	DQ12_B	118	B.DQ12
A.DQ13	27	DQ13_A	DQ13_B	120	B.DQ13
A.DQ14	170	DQ14_A	DQ14_B	263	B.DQ14
A.DQ15	172	DQ15_A	DQ15_B	265	B.DQ15
A.DQS6_P	168	DQS6_A_T	DQS6_B_T	261	B.DQS6_P
A.DQS6_N	167	DQS6_A_C	DQS6_B_C	260	B.DQS6_N
A.DQ16	29	DQ16_A	DQ16_B	122	B.DQ16
A.DQ17	31	DQ17_A	DQ17_B	124	B.DQ17
A.DQ18	174	DQ18_A	DQ18_B	267	B.DQ18
A.DQ19	176	DQ19_A	DQ19_B	269	B.DQ19
A.DQS2_P	33	DQS2_A_T	DQS2_B_T	126	B.DQS2_P
A.DQS2_N	34	DQS2_A_C	DQS2_B_C	127	B.DQS2_N
A.DQ20	36	DQ20_A	DQ20_B	129	B.DQ20
A.DQ21	38	DQ21_A	DQ21_B	131	B.DQ21
A.DQ22	181	DQ22_A	DQ22_B	274	B.DQ22
A.DQ23	183	DQ23_A	DQ23_B	276	B.DQ23
A.DQS7_P	179	DQS7_A_T	DQS7_B_T	272	B.DQS7_P
A.DQS7_N	178	DQS7_A_C	DQS7_B_C	271	B.DQS7_N
A.DQ24	40	DQ24_A	DQ24_B	133	B.DQ24
A.DQ25	42	DQ25_A	DQ25_B	135	B.DQ25
A.DQ26	185	DQ26_A	DQ26_B	278	B.DQ26
A.DQ27	187	DQ27_A	DQ27_B	280	B.DQ27
A.DQS3_P	44	DQS3_A_T	DQS3_B_T	137	B.DQS3_P
A.DQS3_N	45	DQS3_A_C	DQS3_B_C	138	B.DQS3_N
A.DQ28	47	DQ28_A	DQ28_B	140	B.DQ28
A.DQ29	49	DQ29_A	DQ29_B	142	B.DQ29
A.DQ30	192	DQ30_A	DQ30_B	285	B.DQ30
A.DQ31	194	DQ31_A	DQ31_B	287	B.DQ31
A.DQS8_P	190	DQS8_A_T	DQS8_B_T	283	B.DQS8_P
A.DQS8_N	189	DQS8_A_C	DQS8_B_C	282	B.DQS8_N
A.CB0	51	CB0_A	CB0_B	96	B.CB0
A.CB1	53	CB1_A	CB1_B	98	B.CB1
A.CB2	196	CB2_A	CB2_B	241	B.CB2
A.CB3	198	CB3_A	CB3_B	243	B.CB3
A.DQS4_P	55	DQS4_A_T	DQS4_B_T	239	B.DQS4_P
A.DQS4_N	56	DQS4_A_C	DQS4_B_C	238	B.DQS4_N
A.CB4	58	CB4_A	CB4_B	89	B.CB4
A.CB5	60	CB5_A	CB5_B	91	B.CB5
A.CB6	203	CB6_A	CB6_B	234	B.CB6
A.CB7	205	CB7_A	CB7_B	236	B.CB7
A.DQS9_P	201	DQS9_A_T	DQS9_B_T	93	B.DQS9_P
A.DQS9_N	200	DQS9_A_C	DQS9_B_C	94	B.DQS9_N

Power, address command and control

VDC
Q23
SI7613DN-T1-GE3
PWR_FLAG
VIN_BULK
R238
47k
D21
Green
R242
4k7
GND
Pg. 13
VIN_BULK_EN
Q25
BSS138PW
R240
47k
GND

+3V3
Q27
SI7613DN-T1-GE3
PWR_FLAG
VIN_MGMT
R244
47k
D22
Green
R246
330R
GND
Pg. 13
VIN_MGMT_EN
Q26
BSS138PW
R245
47k
GND

J2B
DDR504111002KQ

CTRL{DDR5_RDIMM}
A{DDR5_RDIMM}
DDR{I2C}
CTRL{DDR5_RDIMM}
B{DDR5_RDIMM}

VIN_BULK	1	VIN_BULK	HSA	148	HSA
VIN_MGMT	3	VIN_MGMT	HSDA	5	DDR.SDA
CTRL.PWR_GOOD	147	PCAMP	HSCL	4	DDR.SCL
CTRL.DLBDQ	86	DLBDQ	ALERT_N	62	CTRL.ALERT
CTRL.DLBDQS	87	DLBDQS	CK_T	217	CTRL.CK_P
CTRL.RESET	207	RESET_N	CK_C	218	CTRL.CK_N
A.CA0	66	CA0_A	CA0_B	76	B.CA0
A.CA1	211	CA1_A	CA1_B	221	B.CA2
A.CA2	68	CA2_A	CA2_B	78	B.CA1
A.CA3	213	CA3_A	CA3_B	223	B.CA3
A.CA4	70	CA4_A	CA4_B	80	B.CA4
A.CA5	215	CA5_A	CA5_B	225	B.CA5
A.CA6	72	CA6_A	CA6_B	82	B.CA6
A.PAR	74	PAR_A	PAR_B	227	B.PAR
A.CS0_c	64	CS0_A_N	CS0_B_N	84	B.CS0_c
A.CS1_c	209	CS1_A_N	CS1_B_N	229	B.CS1_c
VSS_DET1	75	VSS_DET			
	10	VSS	SH	51	
			SH	52	
			SH	53	

VIN_BULK
C6
100n
C7
10u
GND
GND

VIN_MGMT
C317
100n
C319
10u
GND
GND

HOT SWAP status LED

D20
APTF1616SURKCGKSYKC
R, G, Y
+3V3
R61
330R
R62
330R
R63
330R
Pg. 13
HOT_SWAP_RED
Q11
BSS138PW
Pg. 13
HOT_SWAP_GREEN
Q10
BSS138PW
Pg. 13
HOT_SWAP_YELLOW
Q9
BSS138PW
GND
GND
GND

HOT SWAP eject button

+3V3
R78
4k7
HOT_SWAP_BUTTON
Pg. 13
SW3
KMR211NGLFS
C127
1u
Optional RC filter, tr=10ms
GND

RDIMM detect

	Populated	Not populated
DDR_PRESENCE	0	1

+3V3
R25
47k
VSS_DET1
0R
R27
DDR_PRESENCE
Pg. 13
0R
GND

Plane decoupling

VDDQ
C8
100n
VDDQ
C9
100n
VDDQ
C10
100n
GND
GND
GND

Serial adress select

HSA
R128
10k
GND
Default 000

antmicro

open source hardware

Antmicro
www.antmicro.com
Antmicro
Sheet: /DDR5 RDIMM/
File: ddr5-rdimm.kicad_sch

Title: RDIMM DDR5 Tester

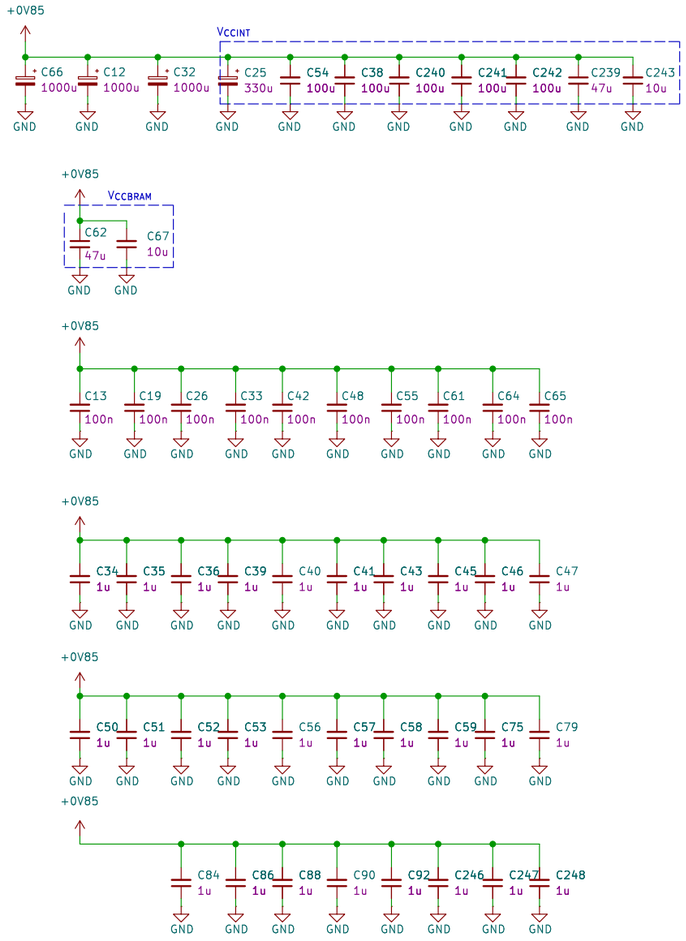
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 4/17

FPGA Power rails

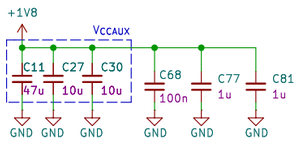
Bank marked by dashed line
referenced from US+ Series FPGAs
PCB Design Guide UG583
(AUP25P+ XCKU5P FFVB Package worst case)

MGT decoupling marked by dahed line
referenced from US+ Series FPGAs
PCB Design Guide UG576
(AUP25P+ XCKU5P FFVB Package worst case)

VCCINT decoupling



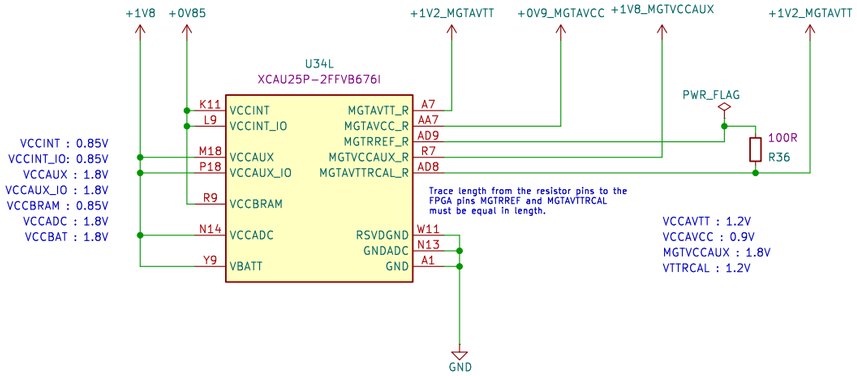
VCCINT decoupling



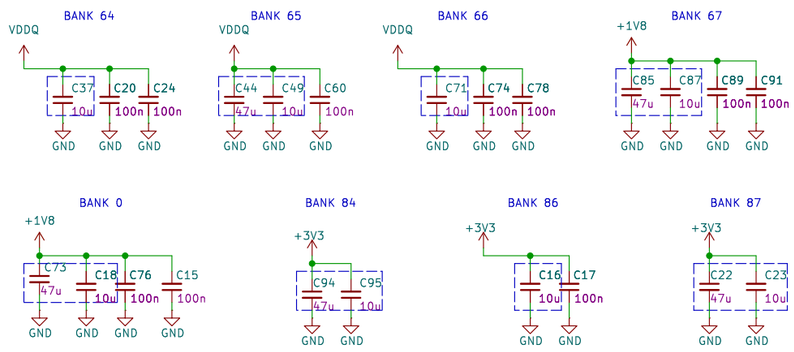
antmicro

open source hardware

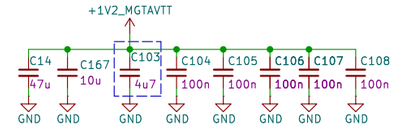
FPGA

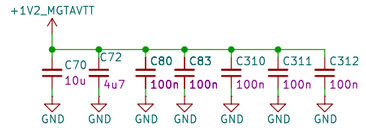


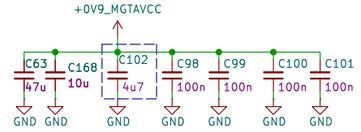
Bank decoupling

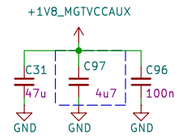


MGT decoupling









Antmicro
www.antmicro.com
Antmicro

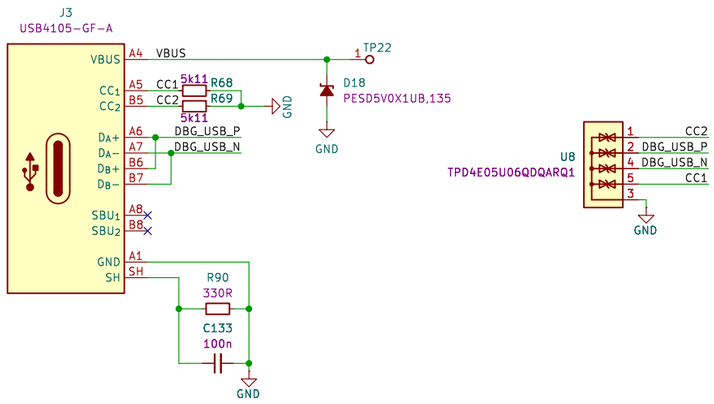
Sheet: /FPGA power/
File: fpga-power.kicad_sch

Title: RDIMM DDR5 Tester

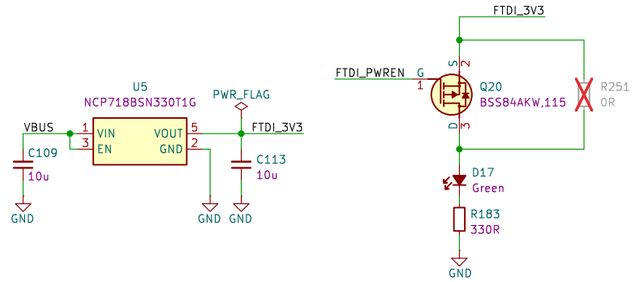
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 5/17

Debug FTDI

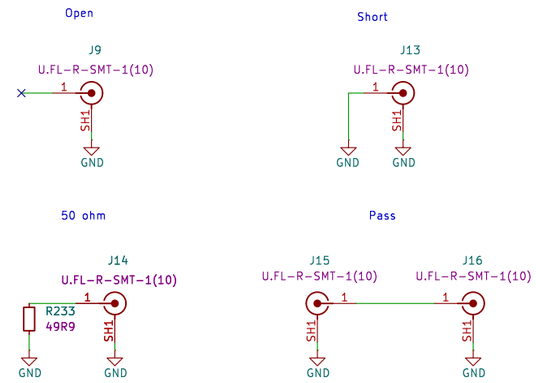
USB-C



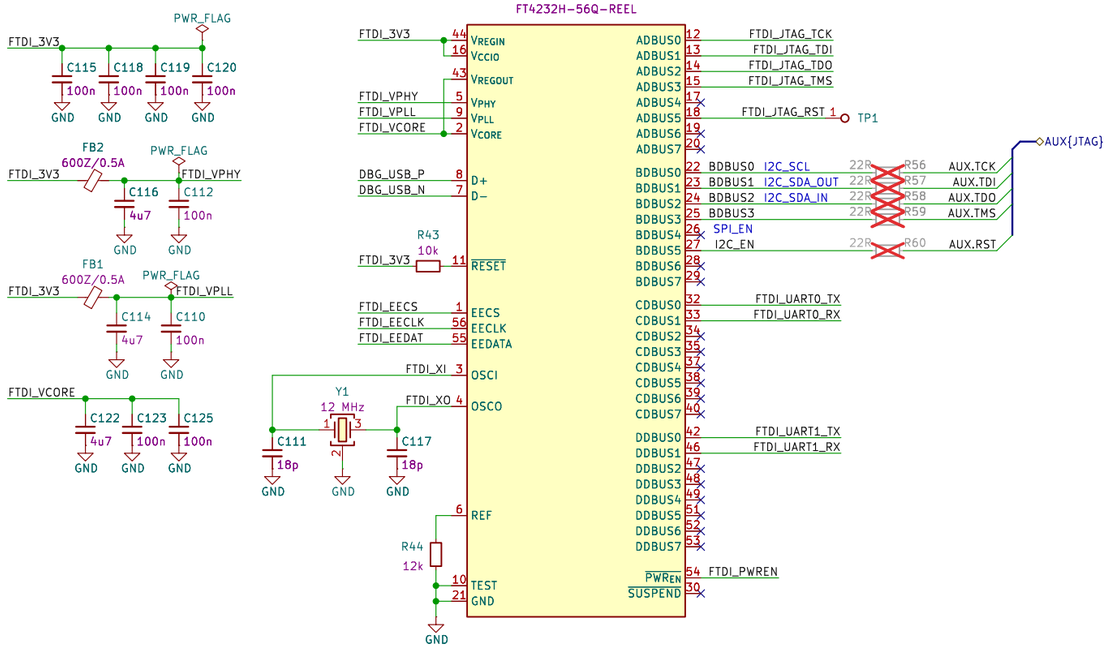
LDO



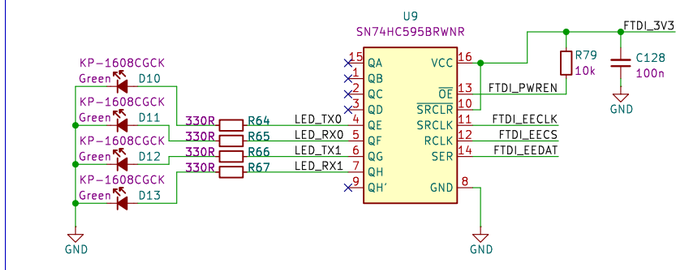
VNA calibration



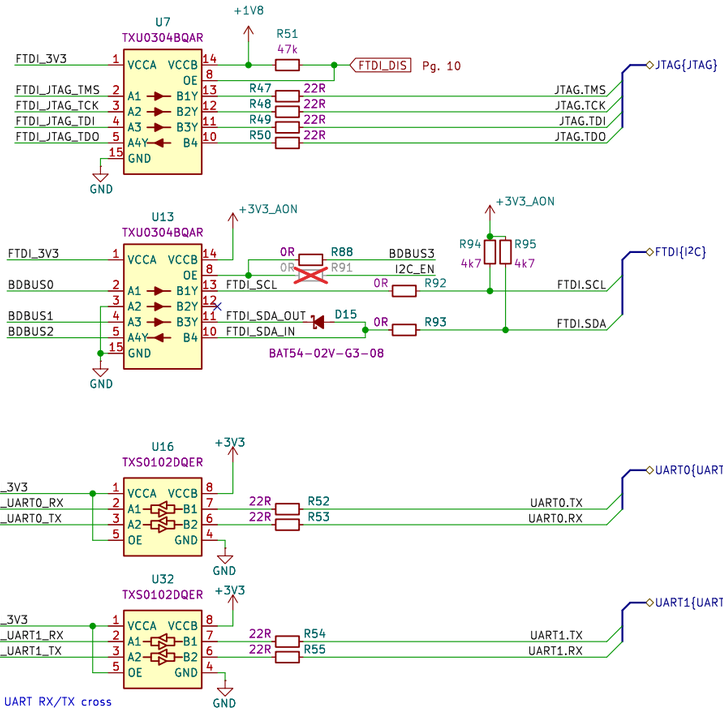
FTDI



Shift register



Logic level translators



antmicro

open source hardware

Antmicro
www.antmicro.com
Antmicro

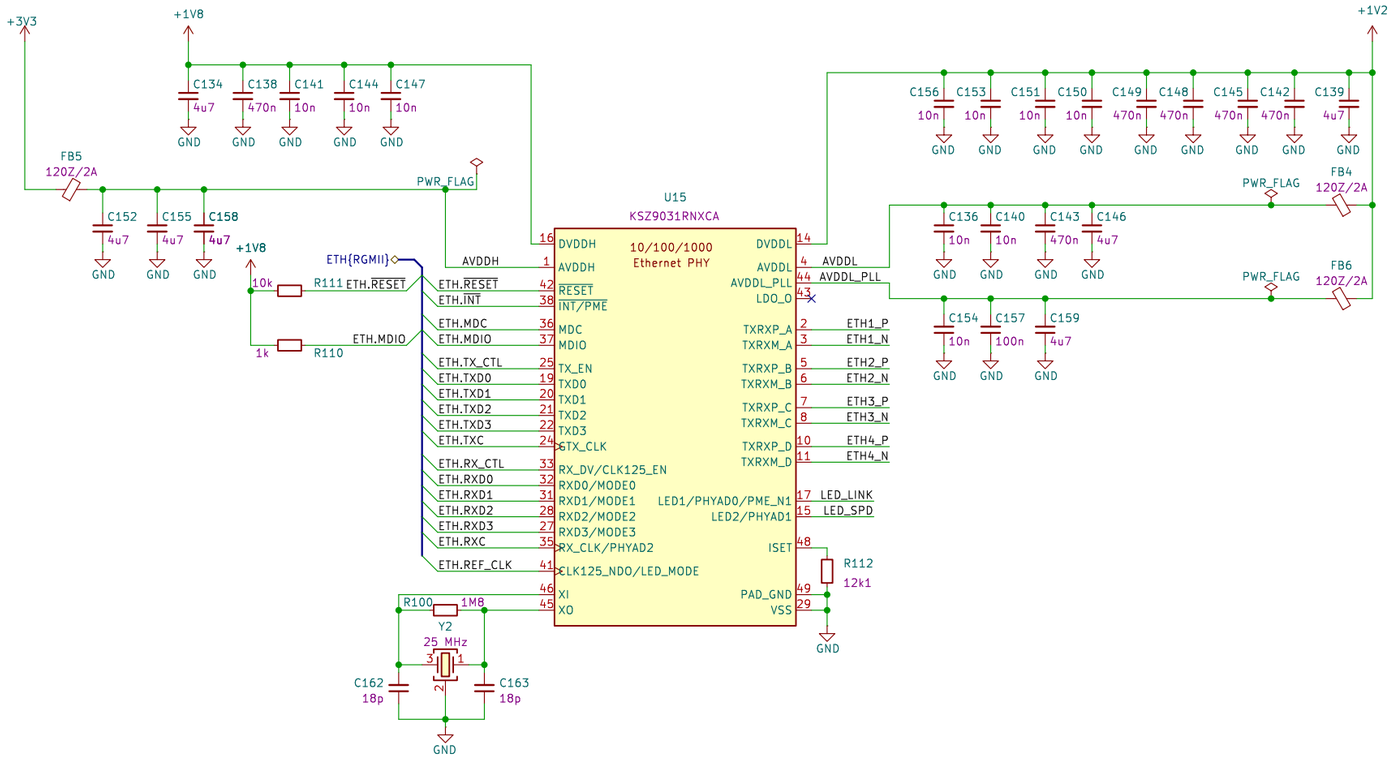
Sheet: /Debug FTDI + VNA/
File: debug-ftdi.kicad_sch

Title: RDIMM DDR5 Tester

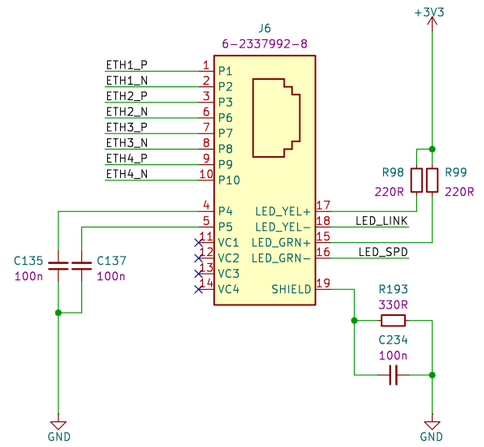
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 6/17

Gigabit Ethernet

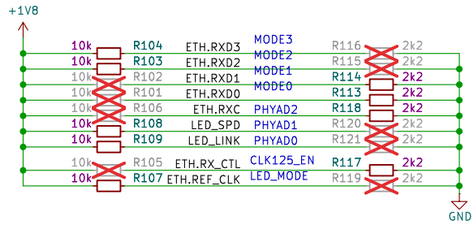
Ethernet PHY



RJ45 connector

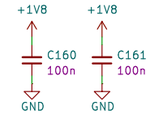


Bootstrap configuration



MODE[3:0] : 1100 (RGMII mode – Advertise 1000BASE-T full-duplex only)
PHYAD[4:0]: 00011
CLK125_EN: 0, disabled
LED_MODE: 1, Single-LED mode

Reference plane decoupling



antmicro

open source hardware

Antmicro
www.antmicro.com
Antmicro

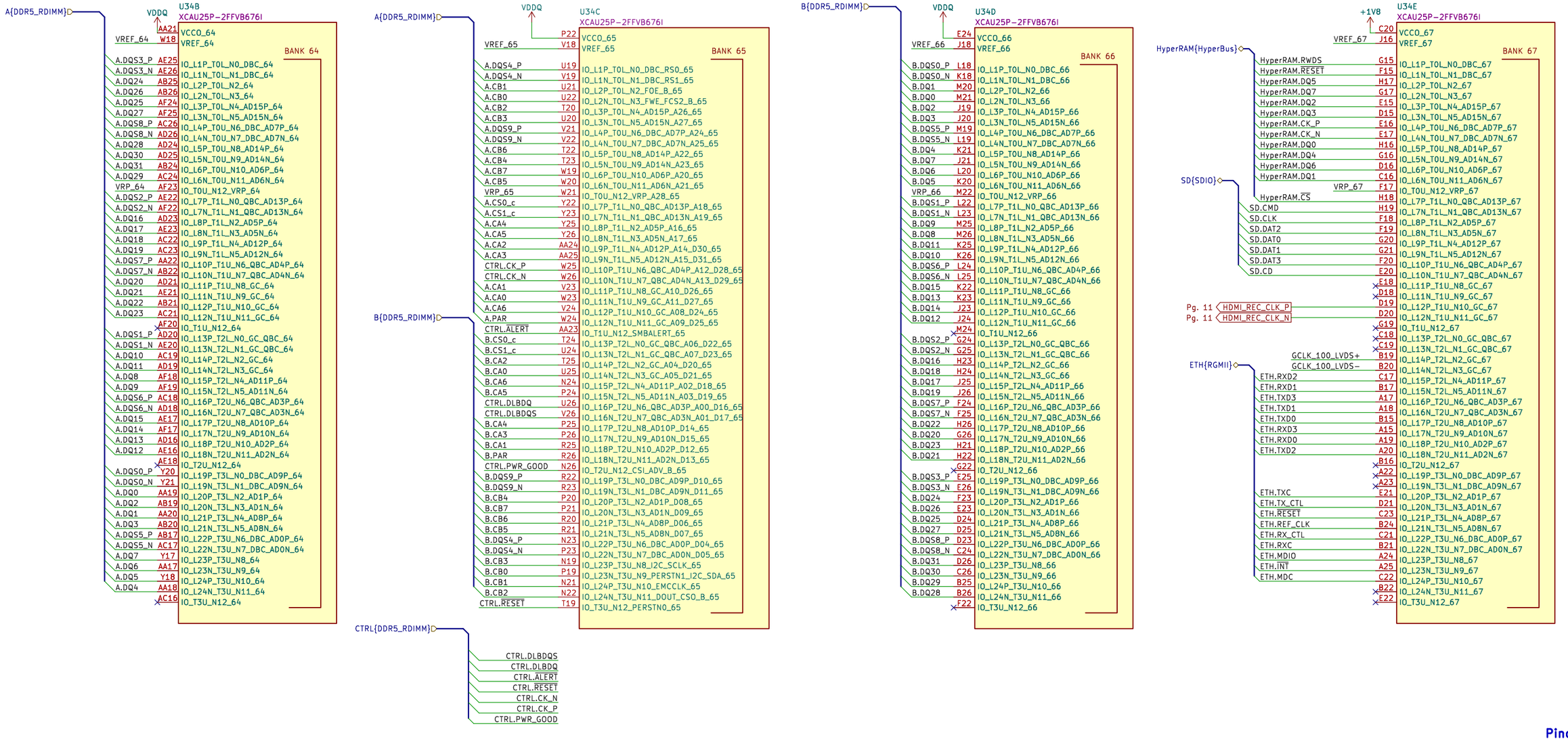
Sheet: /Ethernet/
File: ethernet.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 8/17

HP Banks

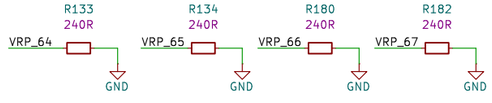
VCCO (HP banks) max: 1.9V



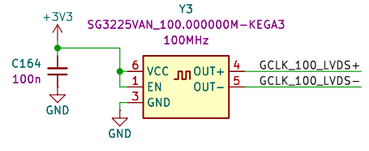
Pinout 1.1.1

VREF

Reference termination



Clock source



antmicro

open source hardware

Antmicro
www.antmicro.com
Antmicro

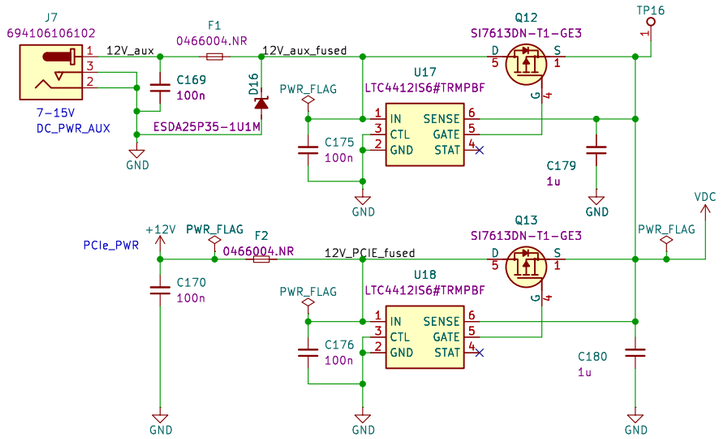
Sheet: /FPGA banks HP/
File: fpga-hp-banks.kicad_sch

Title: RDIMM DDR5 Tester

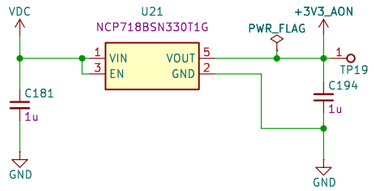
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 9/17

Power supply

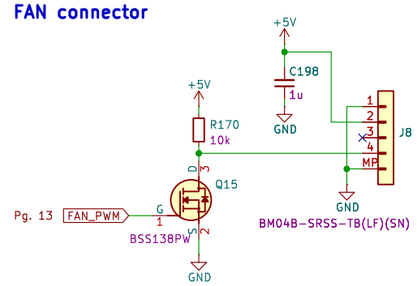
Power source



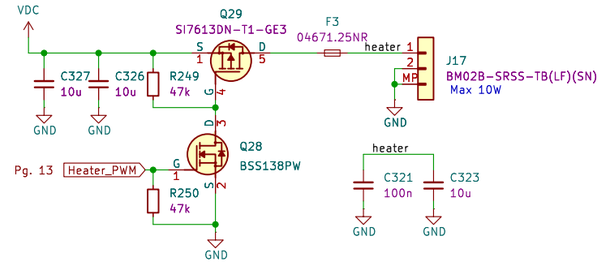
Always-ON +3V3 LDO



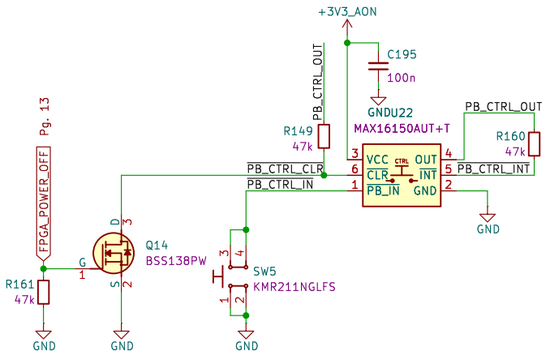
FAN connector



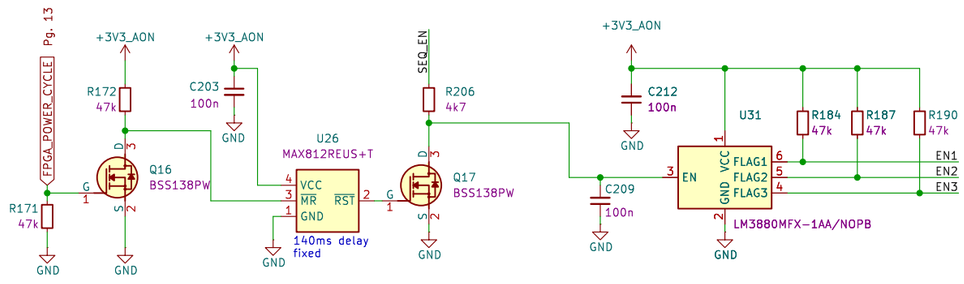
Heater connector



ON/OFF Button controller

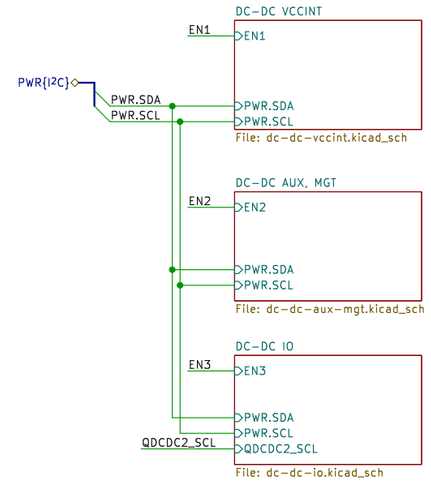


Power cycle

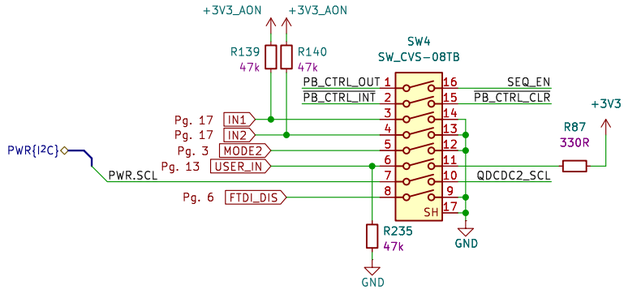


Power supply sequencer

DC-DCs

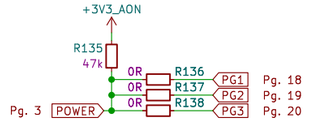


Config switch

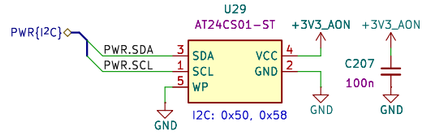


NOTE:
1. AUTO ON/ PB-Controller
2. 8s off/ instant off
3. PWR I2C MUX input select 1
4. PWR I2C MUX input select 2
5. JTAG/SPI FLASH
6. USER_IN
7. Connect QDCDC2 I2C
8. Disable FTDI JTAG

Power good



UID



Ground probe pads

open source hardware

antmicro

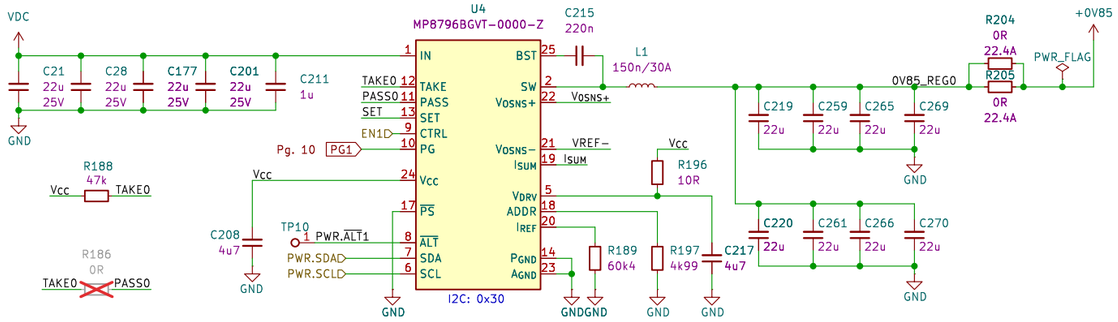
Antmicro
www.antmicro.com
Antmicro

Sheet: /Supply/
File: supply.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 10/17

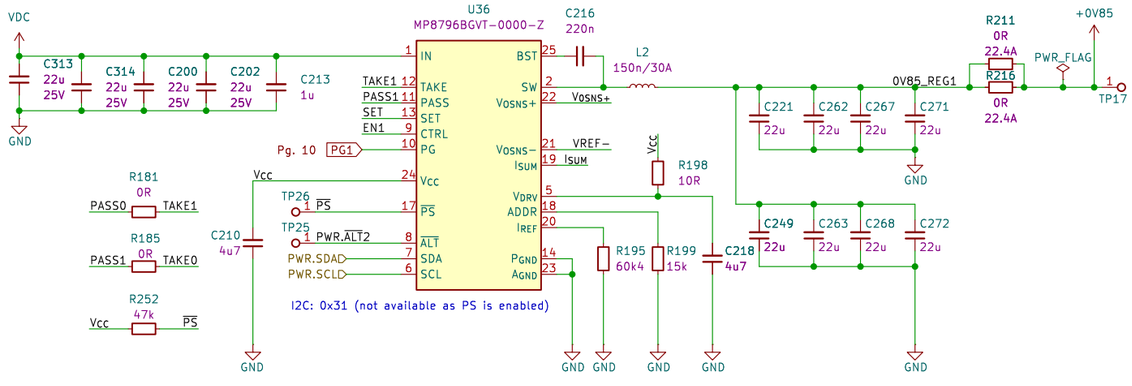
DC-DC INT

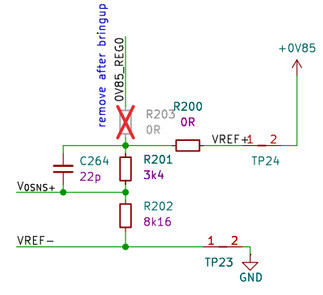


MP8796BGVT-0000-Z selected due to its wide availability on the market
Replace with MPQ8655GVT when it becomes available on the market

Pin compatible PN: MPQ8645P, MPQ8655GVT

Second phase is for VCCINT > 20A applications
Do Not Populate if not required
(place R188 instead)





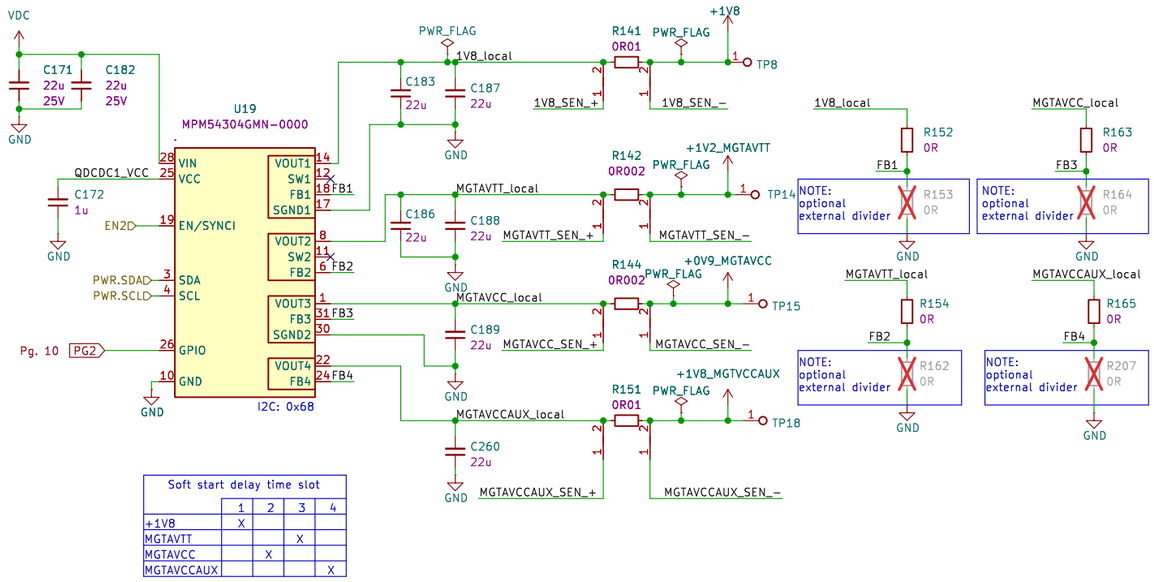
Antmicro
www.antmicro.com
Antmicro

Sheet: /Supply/DC-DC VCCINT/
File: dc-dc-vccint.kicad_sch

Title: RDIMM DDR5 Tester

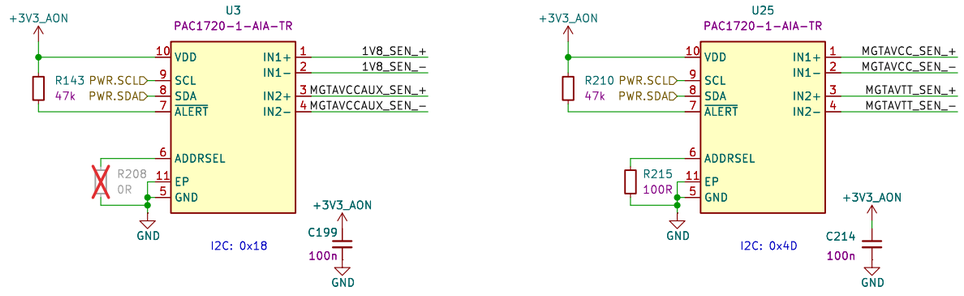
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 18/17

DC–DC AUX, MGT



Soft start delay time slot				
	1	2	3	4
+1V8	X			
MGTAVTT			X	
MGTAVCC		X		
MGTAVCCAUX				X

Current sense monitors



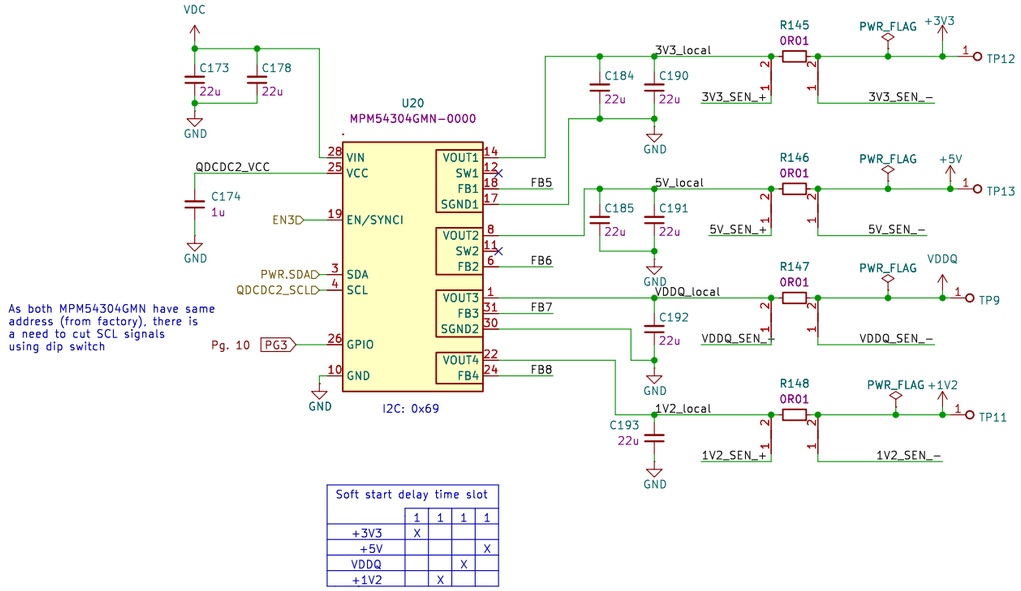
Antmicro
www.antmicro.com
Antmicro

Sheet: /Supply/DC–DC AUX, MGT/
File: dc–dc–aux–mgt.kicad_sch

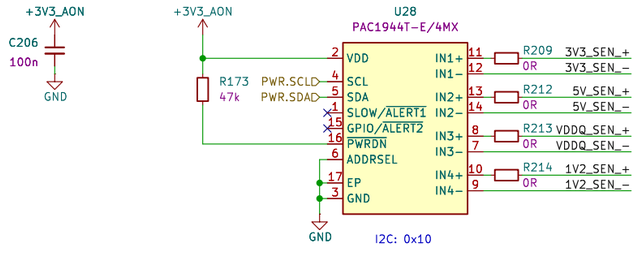
Title: RDIMM DDR5 Tester

Size: A3	Date: 2024–12–20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 19/17

DC-DC IO



Current sense monitor



Antmicro
www.antmicro.com
Antmicro

Sheet: /Supply/DC-DC IO/
File: dc-dc-io.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 20/17

MGT Interface

PCIe 3.0 x8

U34I
XCAU25P-2FFVB676I

GTX 224

MGTYTXP0_224	AF7	GTY_224_TX0_P
MGTYTXN0_224	AF6	GTY_224_TX0_N
MGTYTXP1_224	AE9	GTY_224_TX1_P
MGTYTXN1_224	AE8	GTY_224_TX1_N
MGTYTXP2_224	AD7	GTY_224_TX2_P
MGTYTXN2_224	AD6	GTY_224_TX2_N
MGTYTXP3_224	AC5	GTY_224_TX3_P
MGTYTXN3_224	AC4	GTY_224_TX3_N
MGTYRXP0_224	AF2	GTY_224_RX0_P
MGTYRXN0_224	AF1	GTY_224_RX0_N
MGTYRXP1_224	AE4	GTY_224_RX1_P
MGTYRXN1_224	AE3	GTY_224_RX1_N
MGTYRXP2_224	AD2	GTY_224_RX2_P
MGTYRXN2_224	AD1	GTY_224_RX2_N
MGTYRXP3_224	AB2	GTY_224_RX3_P
MGTYRXN3_224	AB1	GTY_224_RX3_N
MGTREFCLK0P_224	AB7	GTR_REFCLK0_P
MGTREFCLK0N_224	AB6	GTR_REFCLK0_N
MGTREFCLK1P_224	Y7	
MGTREFCLK1N_224	Y6	

U34J
XCAU25P-2FFVB676I

GTX 225

MGTYTXP0_225	AA5	GTY_225_TX0_P
MGTYTXN0_225	AA4	GTY_225_TX0_N
MGTYTXP1_225	W5	GTY_225_TX1_P
MGTYTXN1_225	W4	GTY_225_TX1_N
MGTYTXP2_225	U5	GTY_225_TX2_P
MGTYTXN2_225	U4	GTY_225_TX2_N
MGTYTXP3_225	R5	GTY_225_TX3_P
MGTYTXN3_225	R4	GTY_225_TX3_N
MGTYRXP0_225	Y2	GTY_225_RX0_P
MGTYRXN0_225	Y1	GTY_225_RX0_N
MGTYRXP1_225	V2	GTY_225_RX1_P
MGTYRXN1_225	V1	GTY_225_RX1_N
MGTYRXP2_225	T2	GTY_225_RX2_P
MGTYRXN2_225	T1	GTY_225_RX2_N
MGTYRXP3_225	P2	GTY_225_RX3_P
MGTYRXN3_225	P1	GTY_225_RX3_N
MGTREFCLK0P_225	V7	
MGTREFCLK0N_225	V6	
MGTREFCLK1P_225	T7	
MGTREFCLK1N_225	T6	

Place capacitors close to connector

GTY_224_TX0_P	100n C251	PCIE.TXD7_P	PCIE{PCIe_x8}
GTY_224_TX0_N	100n C252	PCIE.TXD7_N	
GTY_224_TX1_P	100n C253	PCIE.TXD6_P	
GTY_224_TX1_N	100n C254	PCIE.TXD6_N	
GTY_224_TX2_P	100n C255	PCIE.TXD5_P	
GTY_224_TX2_N	100n C250	PCIE.TXD5_N	
GTY_224_TX3_P	100n C256	PCIE.TXD4_P	
GTY_224_TX3_N	100n C257	PCIE.TXD4_N	
GTY_225_TX0_P	100n C226	PCIE.TXD3_P	
GTY_225_TX0_N	100n C230	PCIE.TXD3_N	
GTY_225_TX1_P	100n C227	PCIE.TXD2_P	
GTY_225_TX1_N	100n C231	PCIE.TXD2_N	
GTY_225_TX2_P	100n C228	PCIE.TXD1_P	
GTY_225_TX2_N	100n C233	PCIE.TXD1_N	
GTY_225_TX3_P	100n C229	PCIE.TXD0_P	
GTY_225_TX3_N	100n C232	PCIE.TXD0_N	
GTY_224_RX0_P		PCIE.RXD7_P	
GTY_224_RX0_N		PCIE.RXD7_N	
GTY_224_RX1_P		PCIE.RXD6_P	
GTY_224_RX1_N		PCIE.RXD6_N	
GTY_224_RX2_P		PCIE.RXD5_P	
GTY_224_RX2_N		PCIE.RXD5_N	
GTY_224_RX3_P		PCIE.RXD4_P	
GTY_224_RX3_N		PCIE.RXD4_N	
GTY_225_RX0_P		PCIE.RXD3_P	
GTY_225_RX0_N		PCIE.RXD3_N	
GTY_225_RX1_P		PCIE.RXD2_P	
GTY_225_RX1_N		PCIE.RXD2_N	
GTY_225_RX2_P		PCIE.RXD1_P	
GTY_225_RX2_N		PCIE.RXD1_N	
GTY_225_RX3_P		PCIE.RXD0_P	
GTY_225_RX3_N		PCIE.RXD0_N	
GTR_REFCLK0_P	10n C222	PCIE.CLK_P	
GTR_REFCLK0_N	10n C258	PCIE.CLK_N	

HDMI

U34K
XCAU25P-2FFVB676I

GTX 226

MGTYTXP0_226	N5	HDMI_FPGA.TX0_P
MGTYTXN0_226	N4	HDMI_FPGA.TX0_N
MGTYTXP1_226	L5	HDMI_FPGA.TX1_P
MGTYTXN1_226	L4	HDMI_FPGA.TX1_N
MGTYTXP2_226	J5	HDMI_FPGA.TX2_P
MGTYTXN2_226	J4	HDMI_FPGA.TX2_N
MGTYTXP3_226	G5	HDMI_FPGA.TX_CLK_P
MGTYTXN3_226	G4	HDMI_FPGA.TX_CLK_N
MGTYRXP0_226	M2	HDMI_FPGA.RX0_P
MGTYRXN0_226	M1	HDMI_FPGA.RX0_N
MGTYRXP1_226	K2	HDMI_FPGA.RX1_P
MGTYRXN1_226	K1	HDMI_FPGA.RX1_N
MGTYRXP2_226	H2	HDMI_FPGA.RX2_P
MGTYRXN2_226	H1	HDMI_FPGA.RX2_N
MGTYRXP3_226	F2	
MGTYRXN3_226	F1	
MGTREFCLK0P_226	P7	HDMI_SI5319_CLK_P
MGTREFCLK0N_226	P6	HDMI_SI5319_CLK_N
MGTREFCLK1P_226	M7	HDMI_IN_CLK_C_P
MGTREFCLK1N_226	M6	HDMI_IN_CLK_C_N

HDMI_FPGA.TX0_P	C275 100n	C276 100n	HDMI_OUT.D0_P
HDMI_FPGA.TX0_N			HDMI_OUT.D0_N
HDMI_FPGA.TX1_P	C279 100n	C290 100n	HDMI_OUT.D1_P
HDMI_FPGA.TX1_N			HDMI_OUT.D1_N
HDMI_FPGA.TX2_P	C292 100n	C293 100n	HDMI_OUT.D2_P
HDMI_FPGA.TX2_N			HDMI_OUT.D2_N
HDMI_FPGA.TX_CLK_P	C244 100n	C245 100n	HDMI_OUT.CLK_P
HDMI_FPGA.TX_CLK_N			HDMI_OUT.CLK_N
HDMI_FPGA.RX0_P	C307 100n	C306 100n	HDMI_IN.D0_P
HDMI_FPGA.RX0_N			HDMI_IN.D0_N
HDMI_FPGA.RX1_P	C305 100n	C304 100n	HDMI_IN.D1_P
HDMI_FPGA.RX1_N			HDMI_IN.D1_N
HDMI_FPGA.RX2_P	C303 100n	C302 100n	HDMI_IN.D2_P
HDMI_FPGA.RX2_N			HDMI_IN.D2_N
HDMI_SI5319_CLK_P	C289 100n	C291 100n	HDMI_IN.CLK_P
HDMI_SI5319_CLK_N			HDMI_IN.CLK_N

HDMI_OUT{TMDS}
HDMI_IN{TMDS}

Clock multipler

+3V3
C288 10u
C287 100n
C286 100n
C285 100n
GND GND GND GND

+3V3
R70 4k7
Pg. 13 SI_5319_RST

U39
SI5319C-C-GM-ND

	5	VDD	
	1	RST	
Y4 114.285 MHz	6	XA	
	7	XB	
	36	CMODE	
Pg. 9 HDMI_REC_CLK_P	16	CKIN+	CKOUT+ 28 HDMI_SI5319_C_CLK_P
Pg. 9 HDMI_REC_CLK_N	17	CKIN-	CKOUT- 29 HDMI_SI5319_C_CLK_N
	11	RATE0	
	15	RATE1	
HDMI_CTL{I2C}	27	SDI	
HDMI_CTL.SDA	23	SDA_SDO	
HDMI_CTL.SCL	22	SCL	
	26	A2_SS	
	25	A1	
	24	A0	
	21	CS	
	8	GND	
	3	INT_CB	INT_CB Pg. 13
	18	LOL	LOL Pg. 13

C315 100n
R35 100R
C316 100n
C309 100n
C308 100n
TP5 1
TP6 1
R74 4k7
GND GND

Rate set to MM for third overtone 144.285 MHz crystal

I2C: 0x68

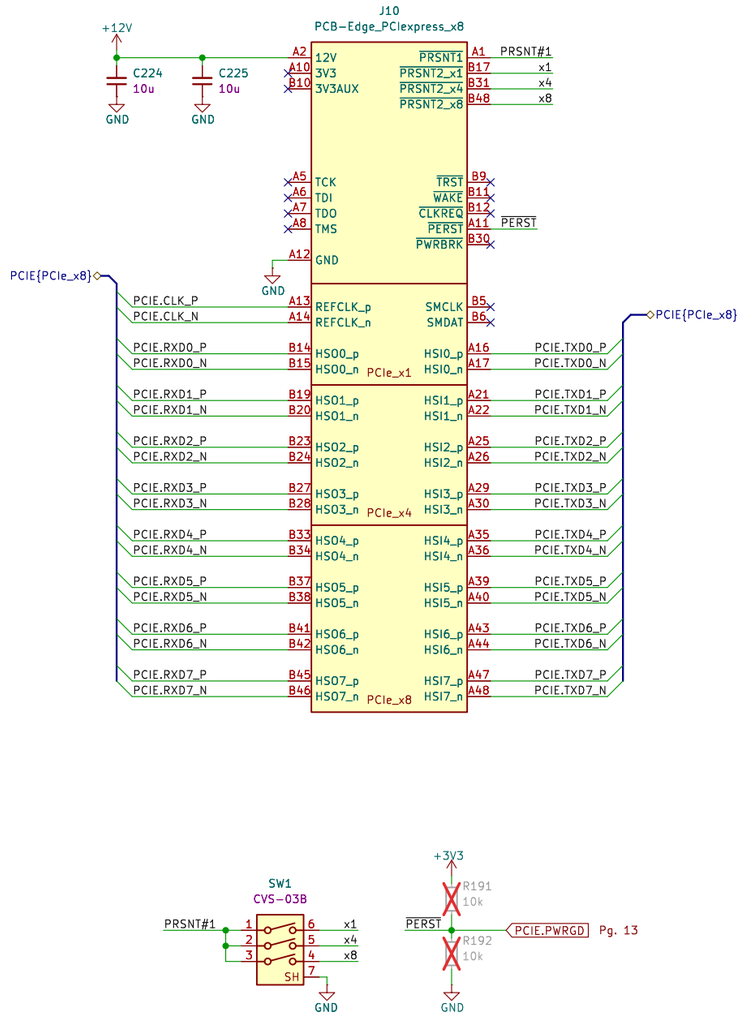
Antmicro
www.antmicro.com
Antmicro

Sheet: /FPGA MGT Interface/
File: fpga-mgt.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 11/17

PCIe



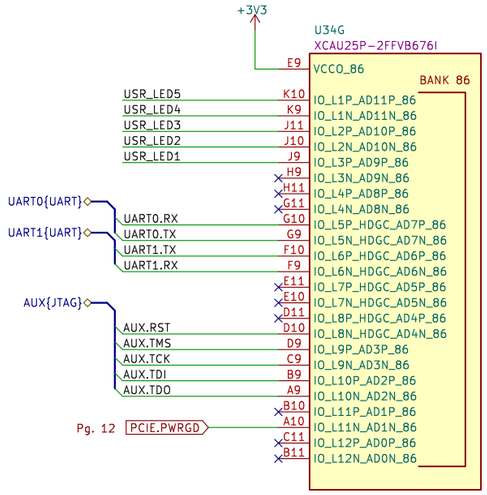
Antmicro
www.antmicro.com
Antmicro

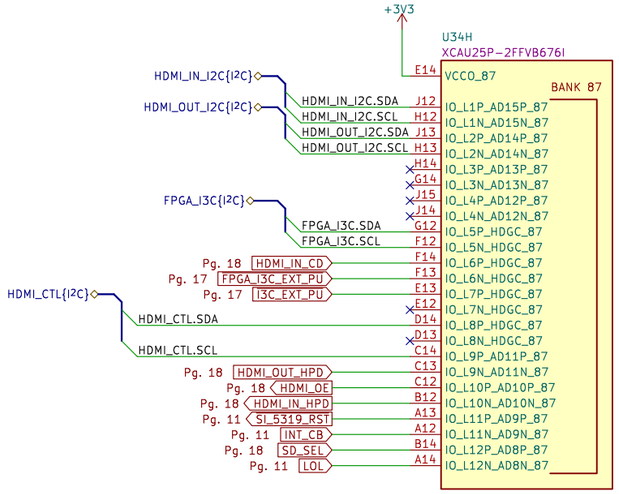
Sheet: /PCIe connector/
File: pcie-connector.kicad_sch

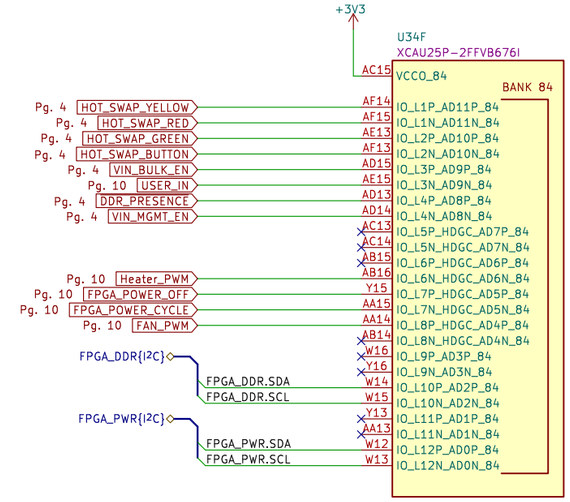
Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 12/17

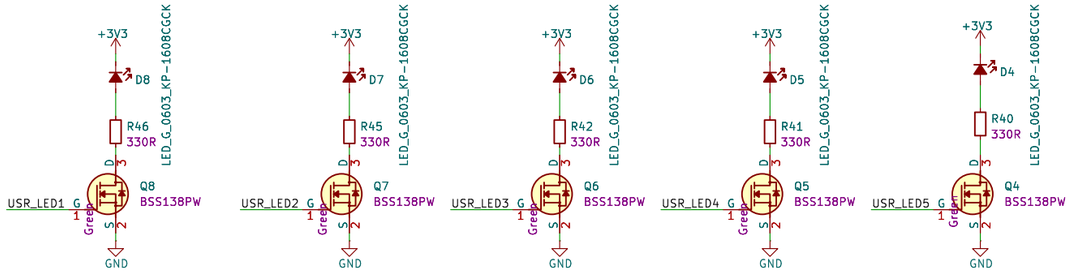
BANKS HD







User LEDs



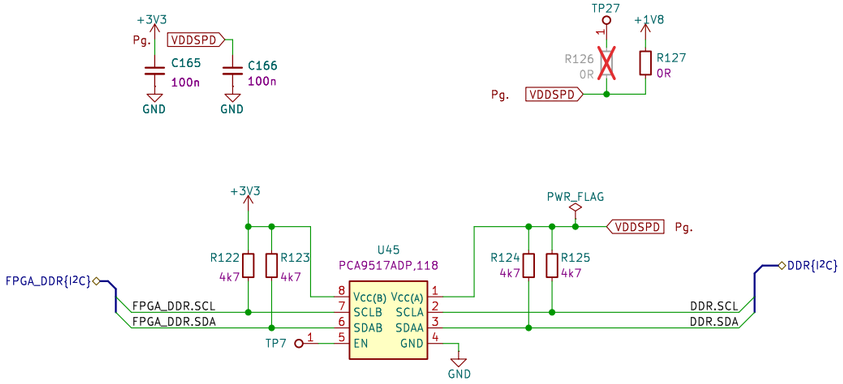
Antmicro
www.antmicro.com
Antmicro

Sheet: /FPGA banks HD/
File: fpga-hd-banks.kicad_sch

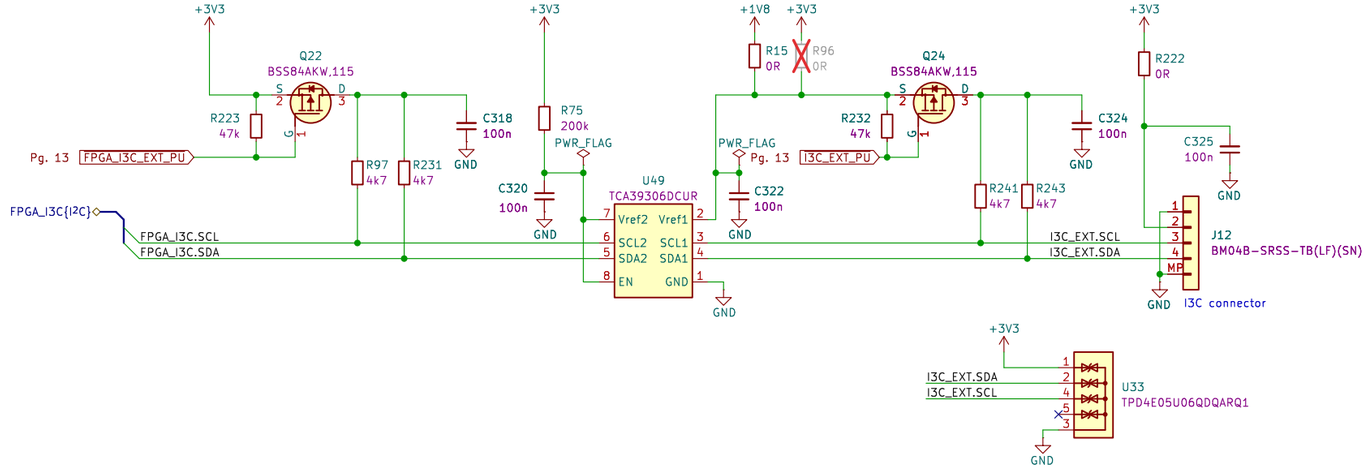
Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 13/17

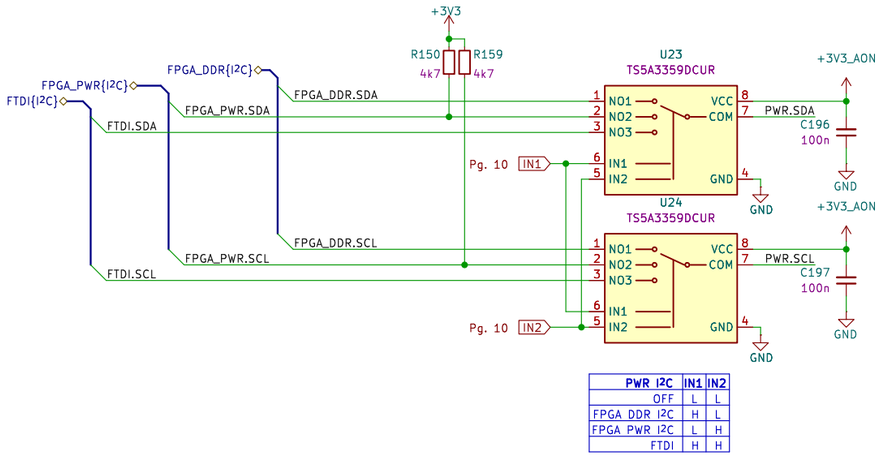
I2C



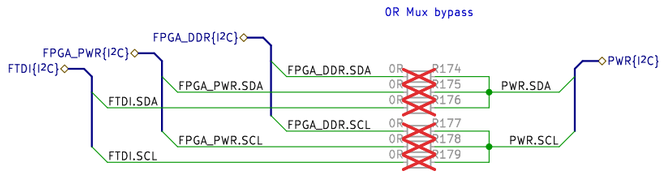
I3C



PWR I2C MUX



PWR I2C	IN1	IN2
OFF	L	L
FPGA DDR I2C	H	L
FPGA PWR I2C	L	H
FTDI	H	H



Antmicro
www.antmicro.com
Antmicro

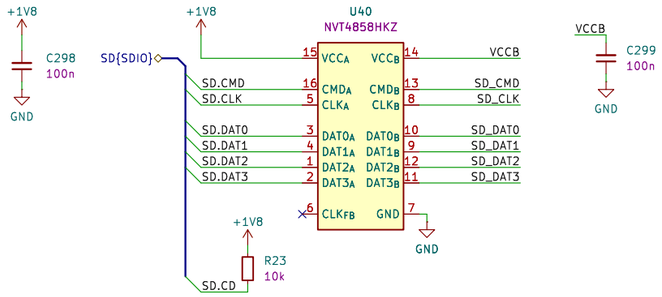
Sheet: /I2C + I3C/
File: i2c.kicad_sch

Title: RDIMM DDR5 Tester

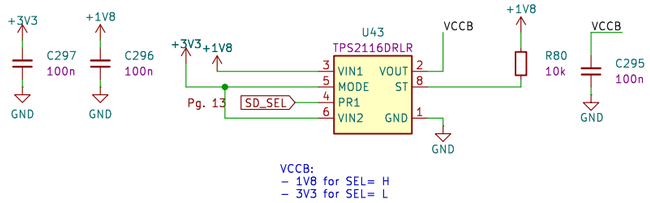
Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 17/17

SD 3.0 card

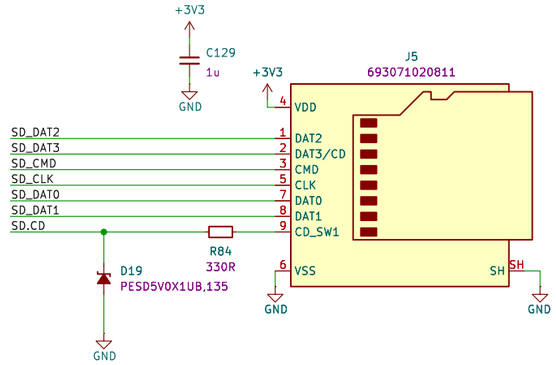
Voltage level translator



Power multiplexer

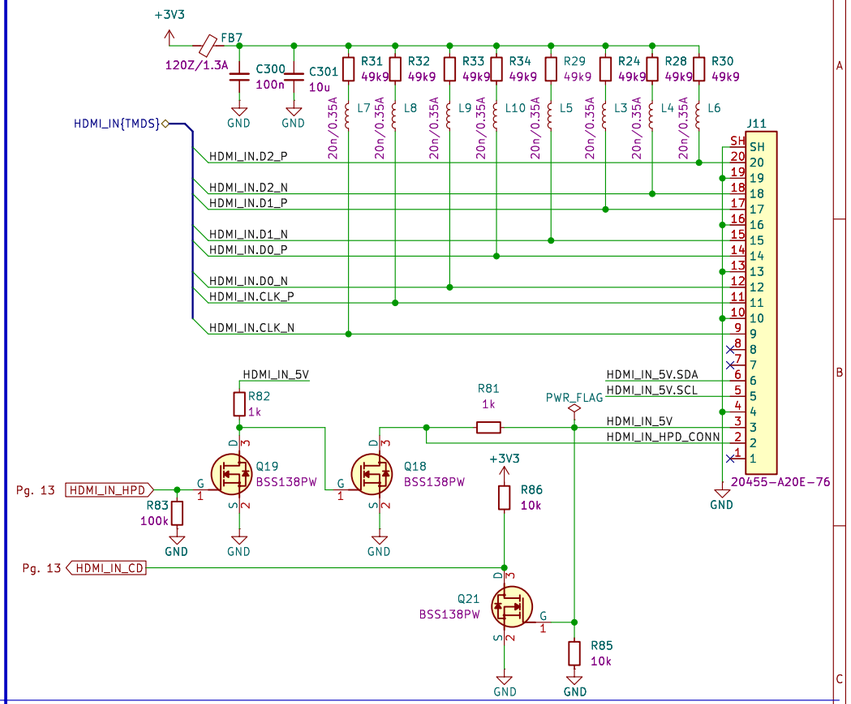


uSD card slot



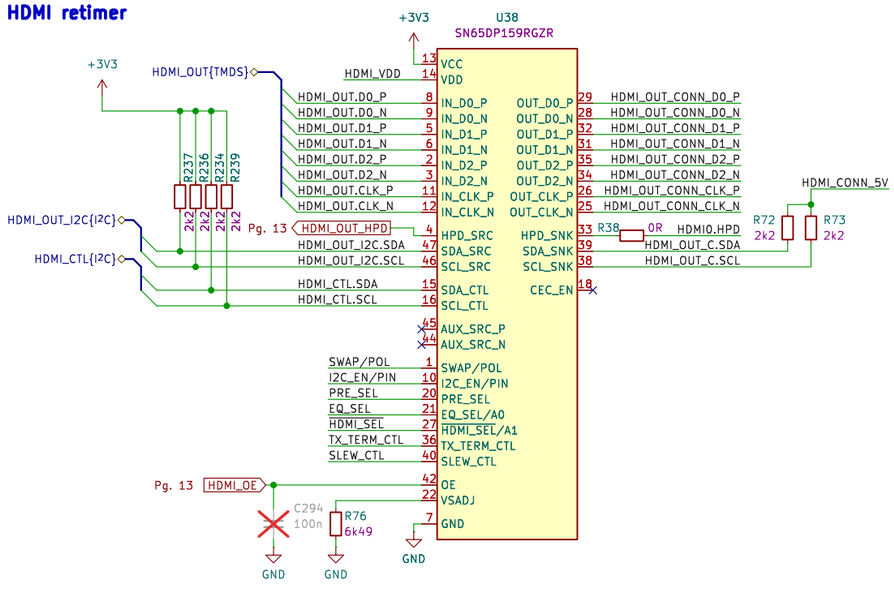
HDMI IN

HDMI input connector

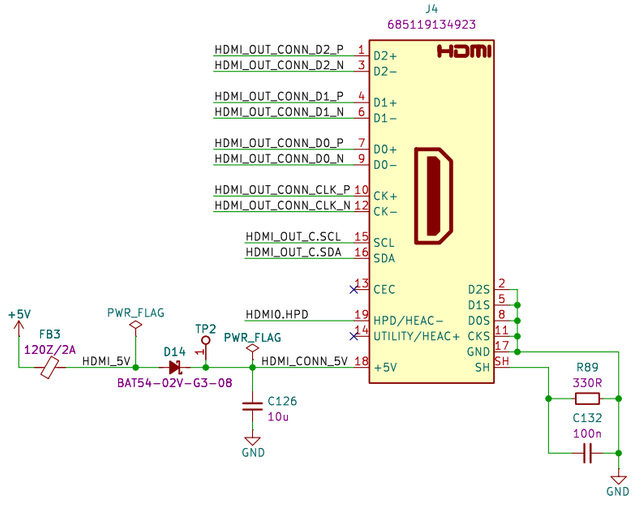


HDMI OUT

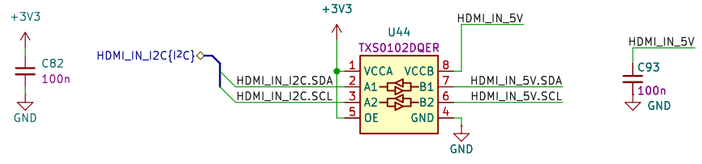
HDMI retimer



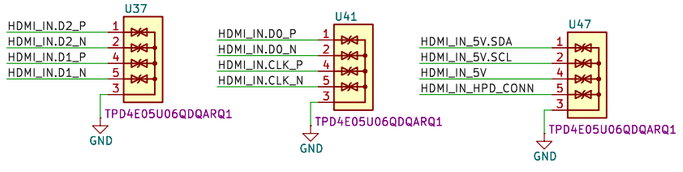
HDMI output connector



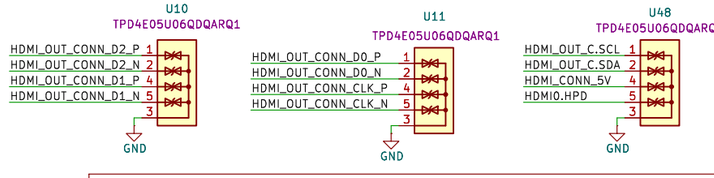
Logic level translator



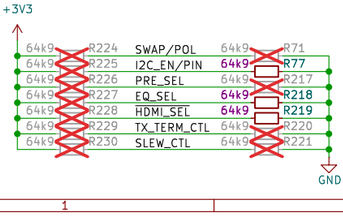
TVS IN



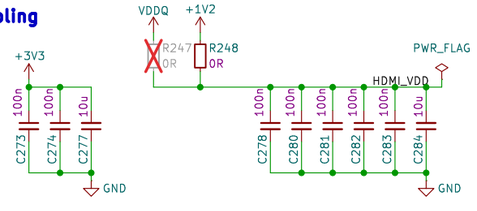
TVS OUT



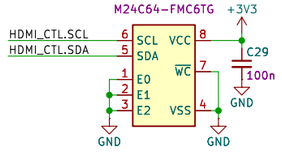
Bootstrap configuration



Decoupling



EEPROM



Antmicro
www.antmicro.com
Antmicro

Sheet: /HDMI + SD Card/
File: hdmi-sd-card.kicad_sch

Title: RDIMM DDR5 Tester

Size: A3	Date: 2024-12-20	**Rev: 2.1.0:2ebd8152**
KiCad E.D.A. 9.0.6		Id: 18/17