

1

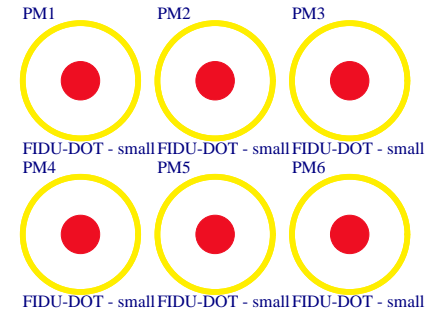
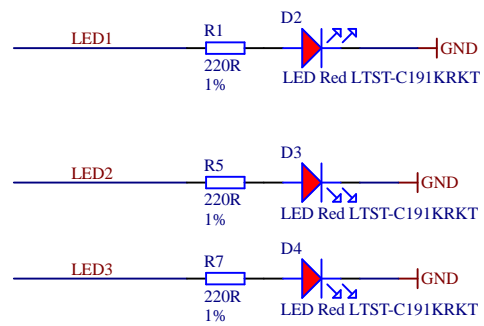
2

3

4

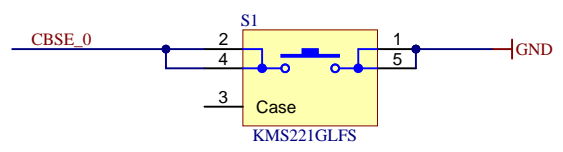
A

A



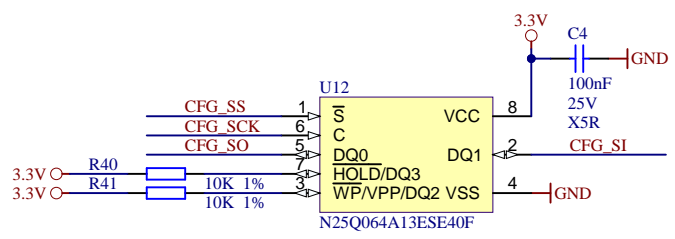
B

B



C

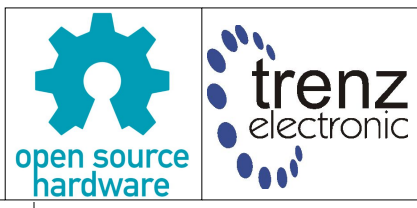
C



Serial1
Serial
Serialnumber 6,3 x 6.3mm

D

D



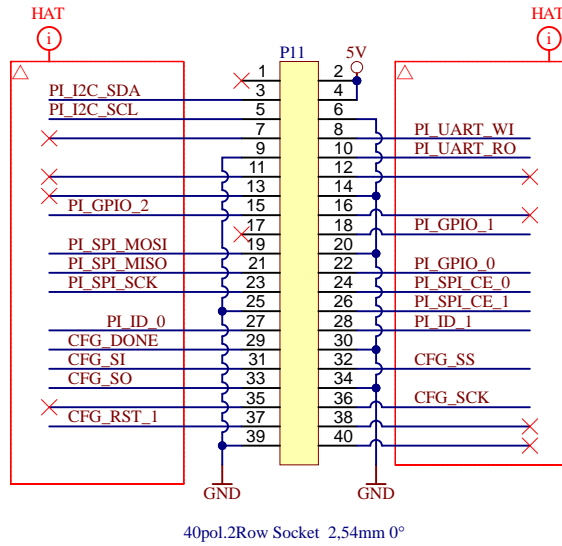
Title: TE0876 - Connectors		
A4	Number: TE0876 DEFAULT	Rev. 02
Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page1 of 7
Filename: TE0876.SchDoc		

1

2

3

4



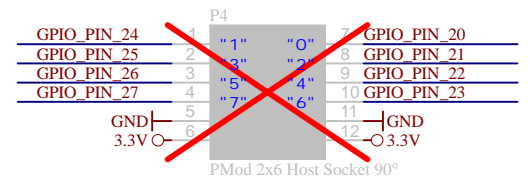
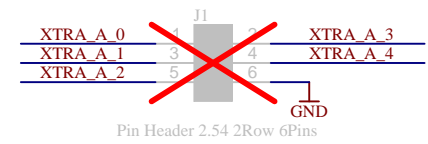
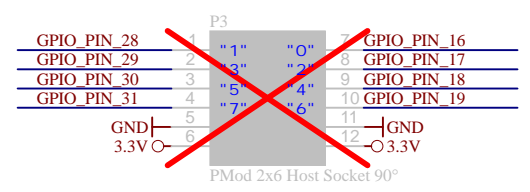
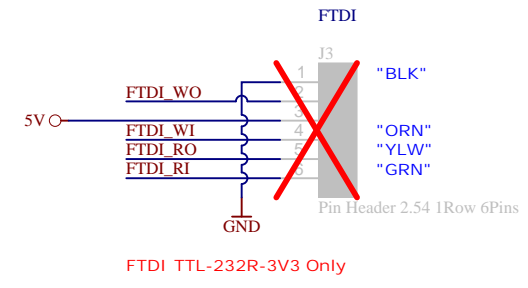
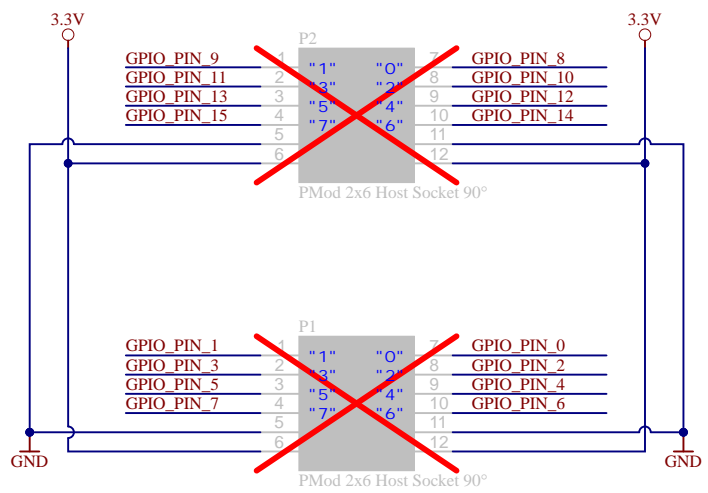
Raspberry PI Standard Pinout



+3V3	1	2	+5V
GPIO2 / SDA1	3	4	+5V
GPIO3 / SDCL1	5	6	GND
GPIO4	7	8	TXD0 / GPIO 14
GND	9	10	RXD0 / GPIO 15
GPIO17	11	12	GPIO18
GPIO27	13	14	GND
GPIO22	15	16	GPIO23
+3V3	17	18	GPIO24
GPIO10 / MOSI	19	20	GND
GPIO9 / MISO	21	22	GPIO25
GPIO11 / SCLK	23	24	CE# / GPIO8
GND	25	26	CE1# / GPIO7
GPIO0 / ID_SD	27	28	ID_SC / GPIO1
GPIO5	29	30	GND
GPIO6	31	32	GPIO12
GPIO13	33	34	GND
GPIO19 / MISO	35	36	CE2# / GPIO16
GPIO26	37	38	MOSI / GPIO20
GND	39	40	SCLK / GPIO21

"5V"
"GND"



Title: TE0876 - Connectors		
A4	Number: TE0876 DEFAULT	Rev. 02
Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page 2 of 7
Filename: Connectors.SchDoc		



 	Title: TE0876 - PMOD		
	A4	Number: TE0876 DEFAULT	Rev. 02
	Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page 3 of 7
	Filename: PMOD.SchDoc		

UIA

BANK 0	IOT_168	110	LED1
	IOT_169	112	PI_UART_RO
	IOT_170	113	PI_UART_WI
	IOT_171	114	PI_I2C_SCL
	IOT_172	115	PI_I2C_SDA
	IOT_173	116	XTRA_A_2
	IOT_174	117	XTRA_A_3
	IOT_177	118	XTRA_A_4
	IOT_178	119	FTDI_WO
	IOT_179	120	XTRA_A_0
	IOT_181	121	XTRA_A_1
	IOT_190	122	FTDI_WI
	IOT_191	124	FTDI_RO
	IOT_192	125	FTDI_RI
	IOT_197_GBIN1	128	XTRA_CLK1
	IOT_198_GBIN0	129	XTRA_CLK2
	IOT_206	130	GPIO_PIN_7
	IOT_212	134	GPIO_PIN_6
	IOT_213	135	GPIO_PIN_5
	IOT_214	136	GPIO_PIN_4
	IOT_215	137	GPIO_PIN_3
	IOT_216	138	GPIO_PIN_2
	IOT_217	139	GPIO_PIN_1
	IOT_219	141	GPIO_PIN_0
	IOT_220	142	GPIO_PIN_23
	IOT_221	143	GPIO_PIN_22
	IOT_222	144	GPIO_PIN_21

ICE40HX4K-TQ144

UIB

BANK 1	IOR_109	73	PI_ID_0
	IOR_110	74	PI_ID_1
	IOR_111	75	SRAM_UB1
	IOR_112	76	SRAM_OE1
	IOR_114	78	PI_SPI_CE_1
	IOR_115	79	PI_SPI_SCK
	IOR_116	80	SRAM_D15
	IOR_117	81	SRAM_LB1
	IOR_118	82	SRAM_D13
	IOR_119	83	SRAM_D14
	IOR_120	84	SRAM_D12
	IOR_128	85	PI_SPI_CE_0
	IOR_136	87	PI_SPI_MISO
	IOR_137	88	PI_GPIO_0
	IOR_138	90	PI_SPI_MOSI
	IOR_139	91	SRAM_D11
	IOR_140_GBIN3	93	LED2
	IOR_141_GBIN2	94	LED3
	IOR_144	95	SRAM_D10
	IOR_146	96	SRAM_D9
	IOR_147	97	SRAM_D8
	IOR_148	98	SRAM_A18
	IOR_152	99	PI_GPIO_1
	IOR_160	101	PI_GPIO_2
	IOR_161	102	SRAM_A14
	IOR_164	104	SRAM_A13
	IOR_165	105	SRAM_A12
	IOR_166	106	SRAM_A11
	IOR_167	107	SRAM_A10

ICE40HX4K-TQ144

UIC

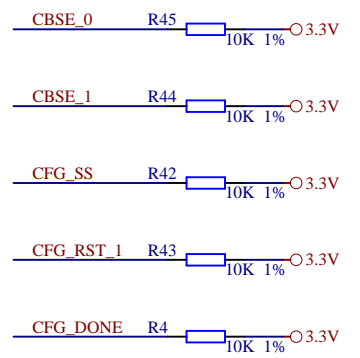
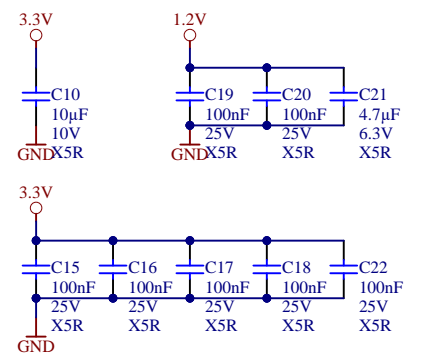
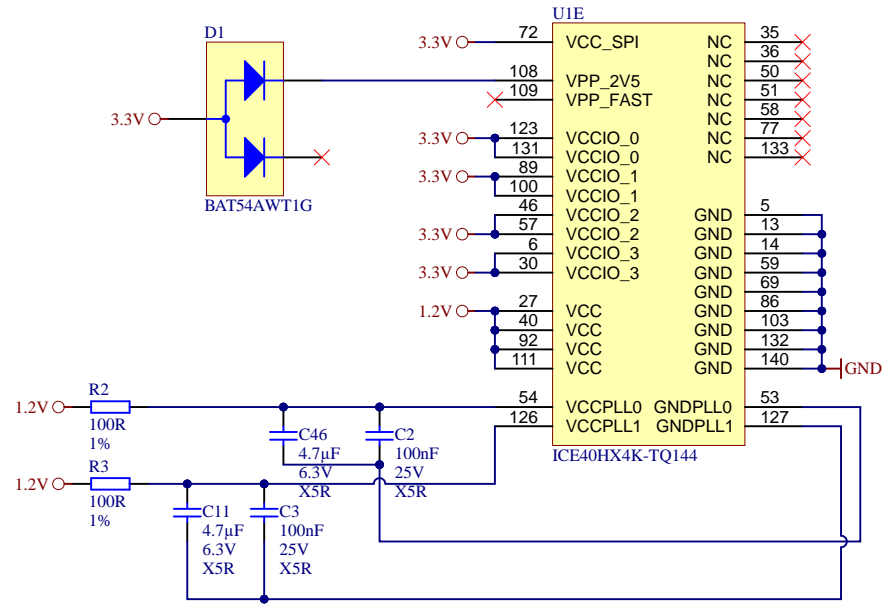
BANK 2	IOB_56	37	GPIO_PIN_19
	IOB_57	38	GPIO_PIN_18
	IOB_61	39	GPIO_PIN_17
	IOB_63	41	GPIO_PIN_16
	IOB_64	42	GPIO_PIN_14
	IOB_71	43	GPIO_PIN_15
	IOB_72	44	GPIO_PIN_12
	IOB_73	45	GPIO_PIN_13
	IOB_79	47	GPIO_PIN_10
	IOB_80	48	GPIO_PIN_11
	IOB_81_GBIN5	49	ICE_CLK
	IOB_82_GBIN4	52	GPIO_PIN_31
	IOB_91	55	GPIO_PIN_8
	IOB_94	56	GPIO_PIN_9
	IOB_95	60	SRAM_A16
	IOB_96	61	SRAM_A17
	IOB_102	62	SRAM_A15
	IOB_103_CBSEL0	63	CBSE_0
	IOB_104_CBSEL1	64	CBSE_1
	IOB_105_SDO	67	CFG_SO
	IOB_106_SDI	68	CFG_SI
	IOB_107_SCK	70	CFG_SCK
	IOB_108_SS_B	71	CFG_SS
	CDONE	65	CFG_DONE
	CRESET_B	66	CFG_RST_1


ICE40HX4K-TQ144

UID


BANK 3	IOL_2B	2	SRAM_A9
	IOL_2A	4	GPIO_PIN_20
	IOL_3B	4	SRAM_A7
	IOL_3A	3	SRAM_A8
	IOL_4B	8	GPIO_PIN_26
	IOL_4A	7	GPIO_PIN_27
	IOL_5B	10	SRAM_A5
	IOL_5A	9	SRAM_A6
	IOL_8B	12	SRAM_D7
	IOL_8A	11	SRAM_WE1
	IOL_10B	16	SRAM_D5
	IOL_10A	15	SRAM_D6
	IOL_12B	18	SRAM_D3
	IOL_12A	17	SRAM_D4
	IOL_12A_GBIN7	20	GPIO_PIN_25
	IOL_13A	19	SRAM_D2
	IOL_14B	22	SRAM_D1
	IOL_14A_GBIN6	21	GPIO_PIN_24
	IOL_17B	24	SRAM_CE1
	IOL_17A	23	SRAM_D0
	IOL_18B	26	GPIO_PIN_28
	IOL_18A	25	SRAM_A4
	IOL_23B	29	GPIO_PIN_29
	IOL_23A	28	GPIO_PIN_30
	IOL_24B	32	SRAM_A2
	IOL_24A	31	SRAM_A3
	IOL_25B	34	SRAM_A0
	IOL_25A	33	SRAM_A1

ICE40HX4K-TQ144



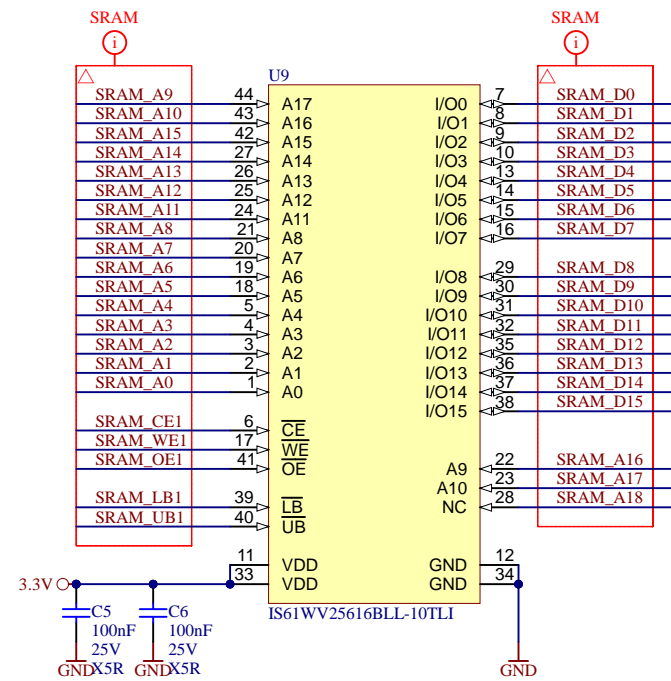
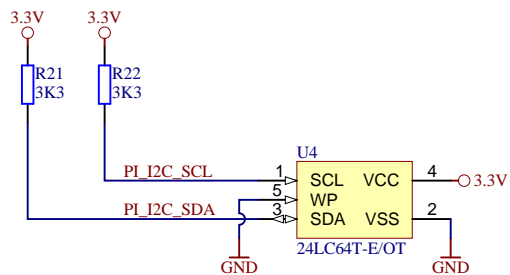
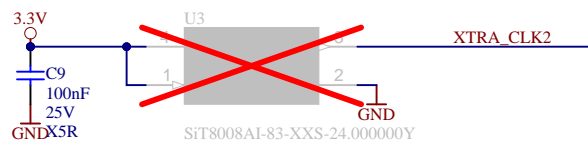
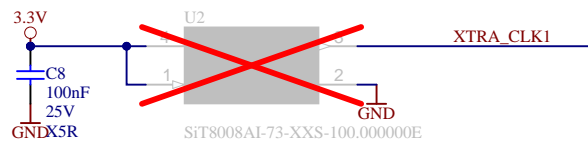
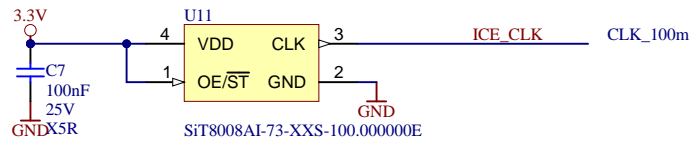


open source
hardware



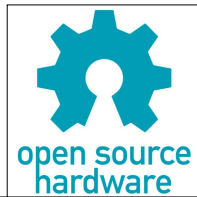
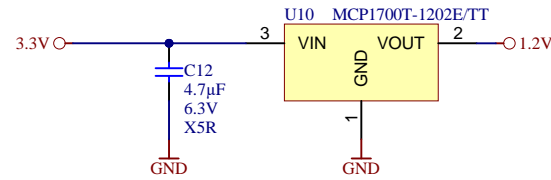
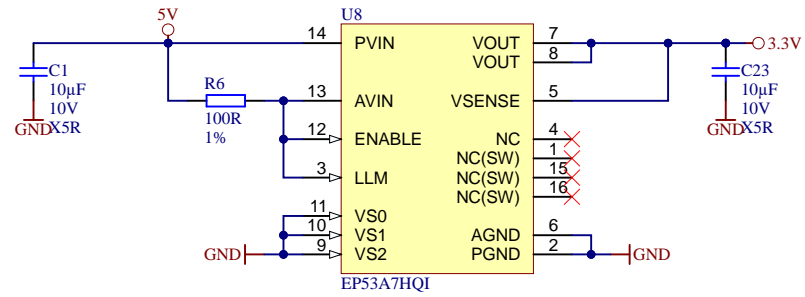
trenz
electronic

Title: TE0876 - FPGA		
A4	Number: TE0876 DEFAULT	Rev. 02
Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page4 of 7
Filename: FPGA.SchDoc		



Title: TE0876 - Interface

A4	Number: TE0876 DEFAULT	Rev. 02
Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page5 of 7
Filename: Interface.SchDoc		



Title: TE0876 - Power		
A4	Number: TE0876 DEFAULT	Rev. 02
Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page6 of 7
Filename: PWR_FPGA.SchDoc		

1

2

3

4

Rev. 02:

- 1. SCH: added input LDO capacitor C12
- 2. PCB: routing and component placement optimization
- 3. New SRAM: 10ns instead 45ns access time

A

A

B


B

C

C

D

D

	Title: TE0876 - Revision changes		
	A4	Number: TE0876 DEFAULT	Rev. 02
	Date: 2017-07-19	Copyright: Trenz Electronic GmbH	Page 7 of 7
	Filename: Revision_changes.SchDoc		

1

2

3

4