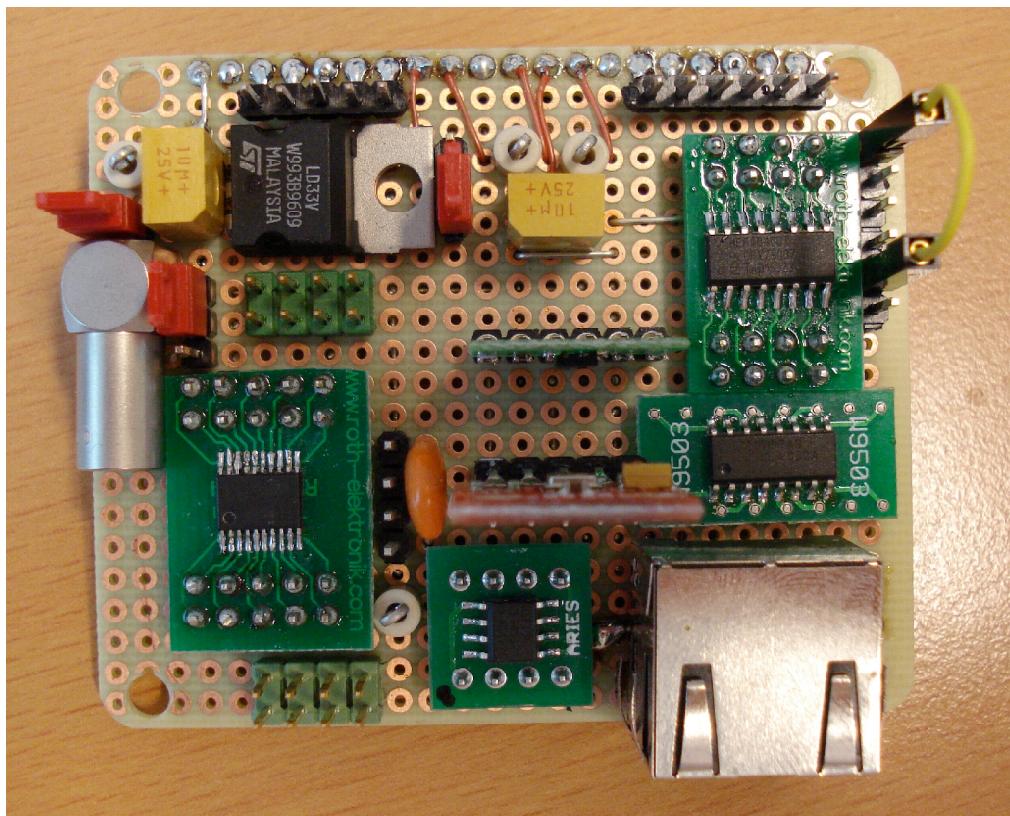
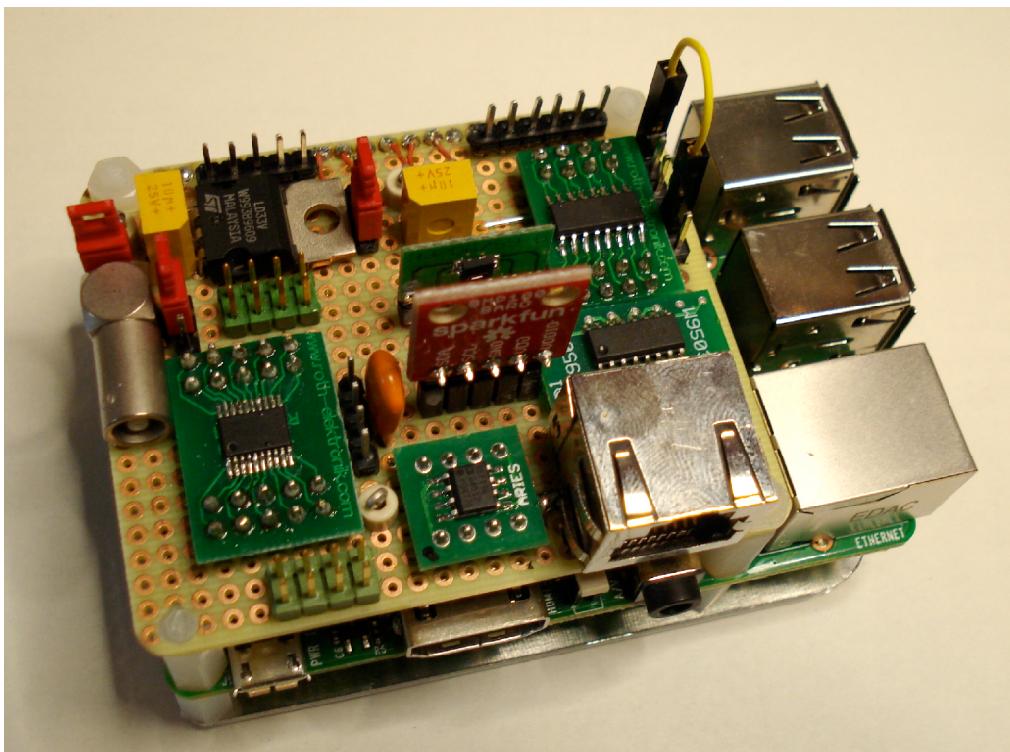
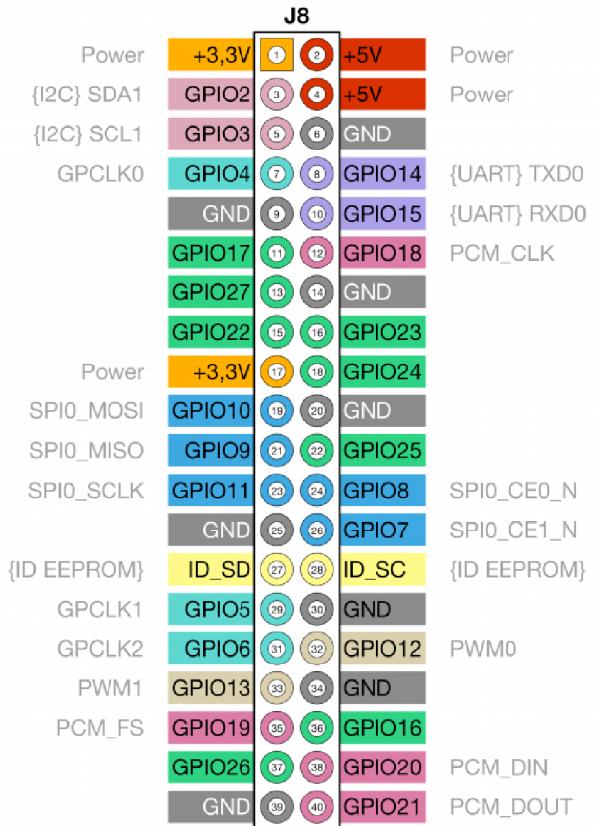
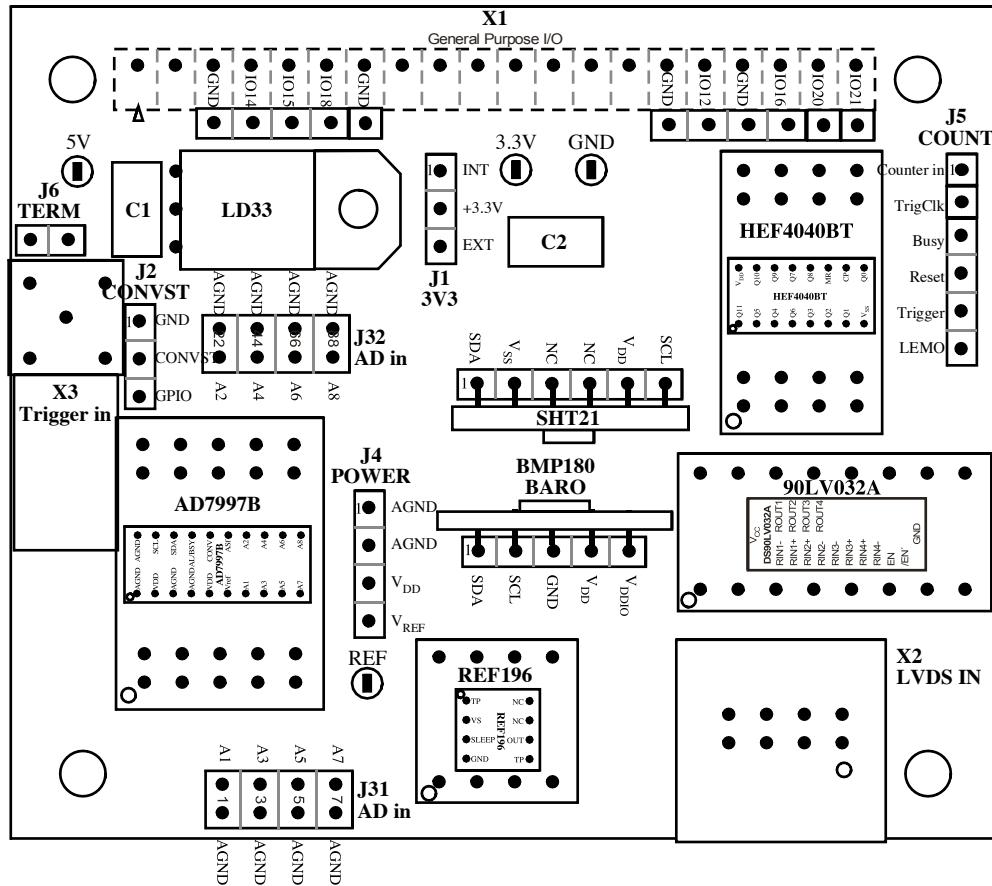


## Raspberry Pi - TEST BEAM SHIELD





Pull-up-Widerstand (Rp) für I2C bereits auf RasPi, je 1k8,  
Terminierung auf Barometermodul entlöten !  
Serielle Schutzwiderstände bis 300Ω lt. I2C-Spezifikation  
LVDS-Terminierung 100Ω

#### RasPi I2C-Adressen:

- ADC 0x22 hex
- SHT21 0x40 hex
- BMP180 0x77 hex

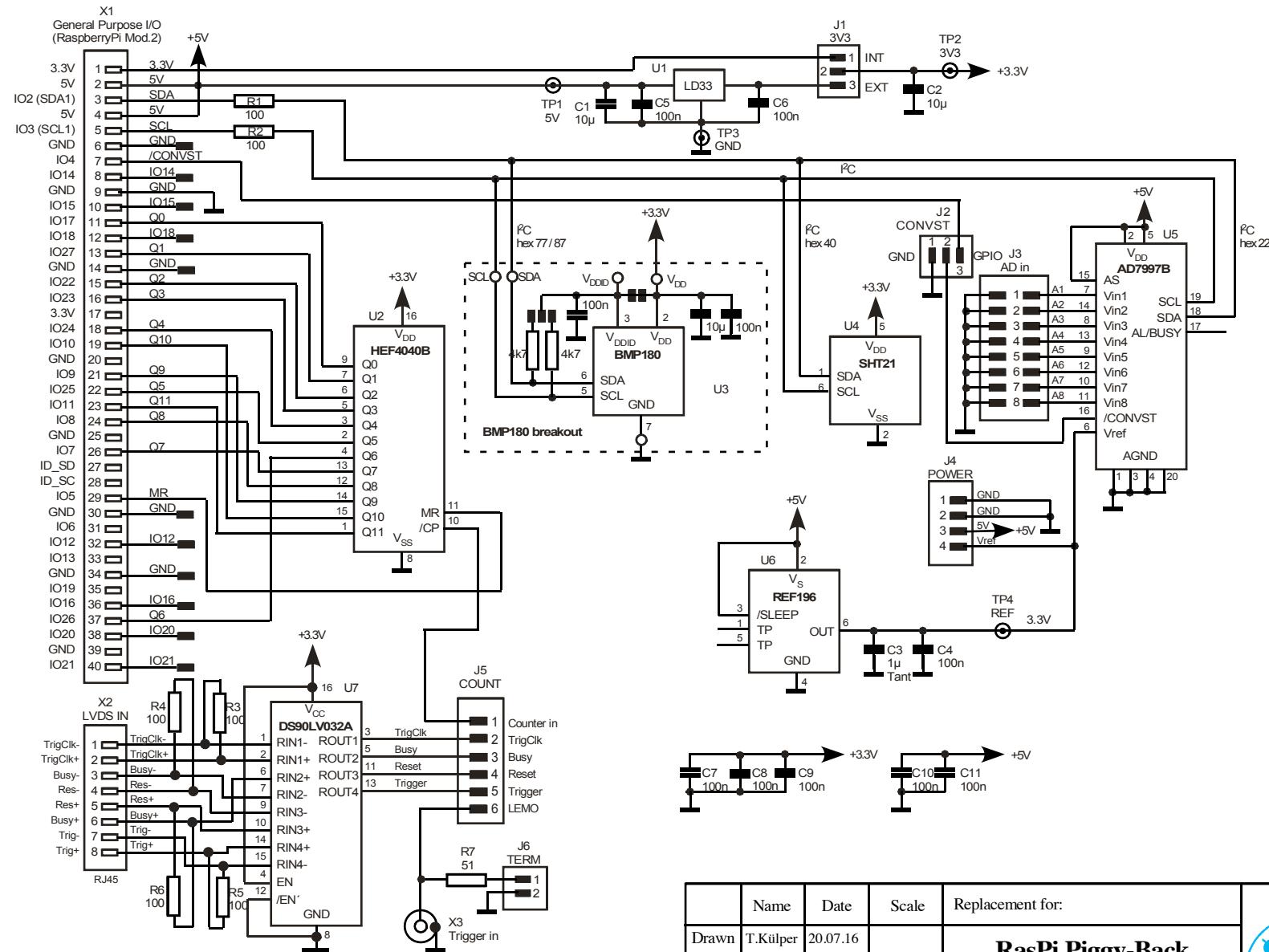
#### Versorgungsspannung:

- |           |                  |
|-----------|------------------|
| - HEF4040 | 3,3V / max. 50mA |
| - SHT21   | 3,3V / max. 2mA  |
| - BMP180  | 3,3V / max. 1mA  |
| - ADC     | 5V / max 2mA     |
| - REF     | 5V / max 2/20mA  |

	Name	Date	Scale	Replacement for:	Curr. no.:	
Drawn	T.Küller	20.07.16	2:1	<b>RasPi Piggy-Back Layout</b>		
Mod						
Mod						
Mod						
				File Raspi Piggy-Back.csv	Page 1 of 4	



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	Name	Date	Scale	Replacement for:		Curr. no.:	
Drawn	T.Küller	20.07.16	<b>RasPi Piggy-Back circuit diagram</b>	File Raspi Piggy-Back.cvx			
Mod							
Mod							
Mod						Page 2 of 4	

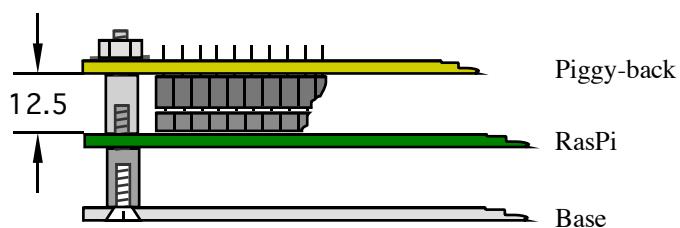
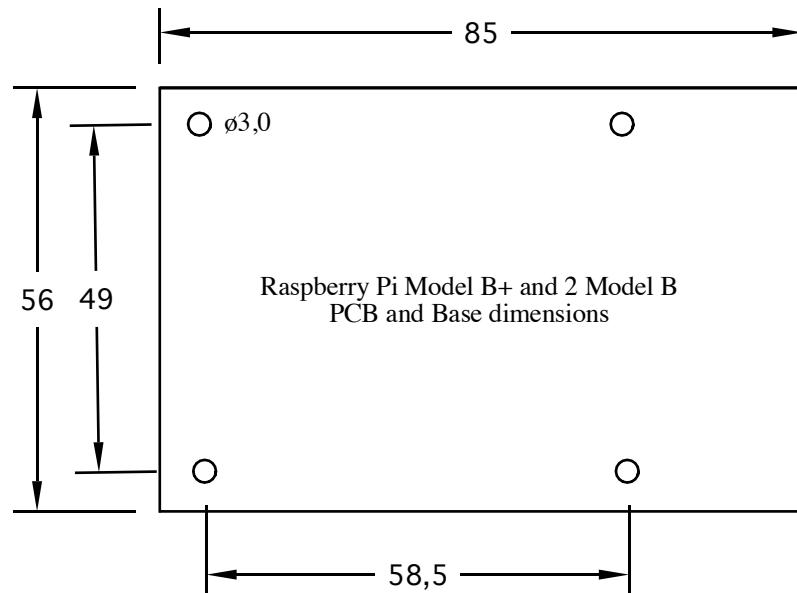
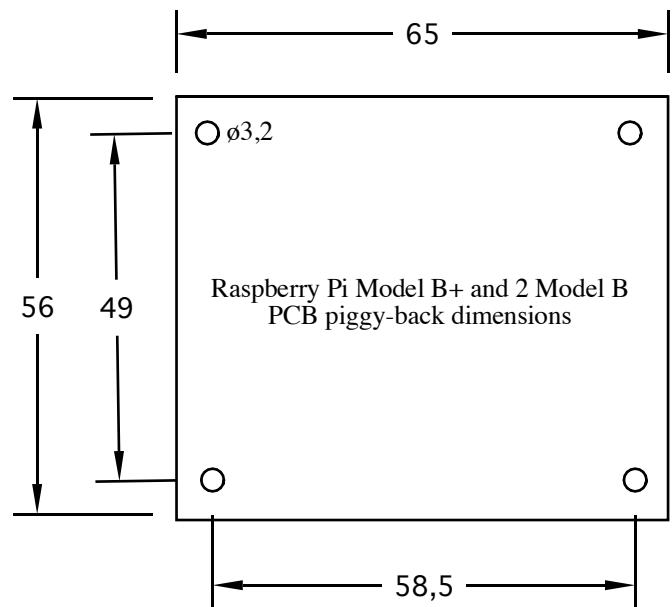
## GPIO mapping

Function	GPIO#	P1 pin#	WiringPi#
<b>ADC (AD7997B)</b>			
I <sup>2</sup> C SCL	3	5	9
I <sup>2</sup> C SDA	2	3	8
/CONVST	4	7	7
<b>COUNTER (HEF4040B)</b>			
Q0	17	11	0
Q1	27	13	2
Q2	22	15	3
Q3	23	16	4
Q4	24	18	5
Q5	25	22	6
Q6	26	37	25
Q7	7	26	11
Q8	8	24	10
Q9	9	21	13
Q10	10	19	12
Q11	11	23	14
MR	5	29	21
<b>Pressure sensor (BMP180)</b>			
I <sup>2</sup> C SCL	3	5	9
I <sup>2</sup> C SDA	2	3	8
<b>Humidity and temperature sensor (SHT21)</b>			
I <sup>2</sup> C SCL	3	5	9
I <sup>2</sup> C SDA	2	3	8
<b>Optional (reserves)</b>			
GPIO14	14	8	15
GPIO15	15	10	16
GPIO18	18	12	1
GPIO12	12	32	26
GPIO16	16	36	27
GPIO20	20	38	28
GPIO21	21	40	29

## Jumper mapping

Jumper	Connection	Function
J1	pin 1 - 2	3V3 INT 3.3V is used from RasPi internally generated (max. current 50mA !)
	pin 2 - 3	3V3 EXT 3.3V generated from the RasPi external 5V power supply (max. current depends on U1 (LD33) and specs of the external power supply.
J2	pin 1 - 2	AD converter: CONVST terminated to GND A-D conversion is permanently enabled
	pin 2 - 3	AD converter: CONVST connected to GPIO4 A-D conversion is triggered from the RasPi GPIO4
J5	pin 1 - 2	'TrigClk' from TLU is the counter input
	pin 1 - 3	'Busy' from TLU is the counter input
	pin 1 - 4	'Reset' from TLU is the counter input
	pin 1 - 5	'Trigger' from TLU is the counter input
	pin 1 - 6	Signal from LEMO socket (X1) is the counter input
	AVOID ANY OTHER COMBINATION !!	
J6	pin 1 - 2	Sets the termination of the LEMO signal to 50Ω, otherwise high impedance.

	Name	Date	Scale	Replacement for:	Curr. no.:
Drawn	T.Küller	20.07.16	RasPi Piggy-Back pin-out	File Raspi Piggy-Back.csv	HELMHOLTZ GEMEINSCHAFT
Mod					
Mod					
Mod					



	Name	Date	Scale	Replacement for:	Curr. no.:
Drawn	T.Küller	20.07.16	1:1	<b>RasPi Piggy-Back mechanical drawings</b>	HELMHOLTZ GEMEINSCHAFT
Mod					
Mod				File Raspi Piggy-Back.cvx	
Mod				Page 4 of 4	