CPU

OUT3 OUT2 OUT1 DI OUT1 OUT2 OUT3 OUT4
8 7 6 5
120 120 120 160
n.f. (for LED dim tuning)
4x 22k
8 7 6 5 4 3 2 1
1 2 3 4

IC1
AVR64DB32-I_RXB

PC2 PC1 PC0 PA7 PA6 PA5 PA4 PA3

OUT4 —[120]— 9 PC3
[DAC] 10 VDDIO2
[OUT1] 11 PD1
DO —[160]— 12 PD2
[OUT2] 13 PD3
[OUT3] 14 PD4
[OUT4] 15 PD5
[DAC] 16 PD6

EP 33 GND
PA2 32
PA1_(XTALHF2) 31
PA_0_(XTALHF1) 30
GND_2 29 GND
VDD 28 VDD
UPDI 27 UPDI
PF6(RESET) 26
PF5 25

USART-0

PD7 AVDD GND_1 PF0_(XTAL32K1) PF1_(XTAL32K2) PF2 PF3 PF4
17 18 19 20 21 22 23 24

VDD GND V24.tx V24.rx V24.rts V24.cts

USART-2

Hbt (grn) —[3.3k]— VDD

[DAC] VDD

100n 100n 100n
GND GND

Muliplex Signal connector

OUT1 4
OUT2 3
OUT3 2
OUT4 1
J7
Multiplex out

OUT1 1
OUT2 2
OUT3 3
OUT4 4
J1
Multiplex out

Power

+5V VDD

JP1
skip LDO
1 2

U2
MIC5205-5.0YM5
1 IN OUT 5
3 EN BP 4
GND
2

n.f.

4.7u/10V 4.7u/10V

GND

Interfaces

1
DO 2 WS-bus output
3

+5V 1
2 WS-bus input
DI 3

UPDI 1
VDD 2
3 UPDI
4
5
6

V24.rts 1
VDD 2
3 Debug IF
V24.rx 4
V24.tx 5
V24.cts 6

GND

H1 MountingHole
H2 MountingHole
H4 MountingHole
H3 MountingHole

WS2811 chip emulator for 12 multiplex LEDs
Frank Schumacher
Sheet: /
File: E13.sch
Title: RTB E13 module
Size: A4 | Date: 2024-02-23 | **Rev: 1**
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