Advanced Microcontroller PCB Design: STM32

POWER SUPPLY

VBUS

U1
AMS1117-3.3

+3.3V

D1
RED_LED

PWR_LED_K

VI VO
GND

C1
22u

C2
22u

R1
1K5

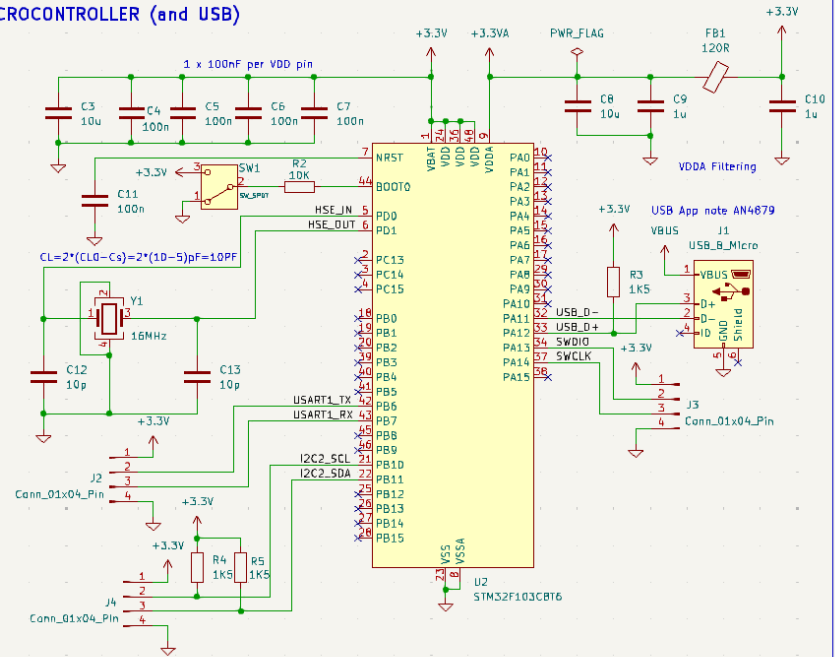VBUS from USB connector (nom. +5v)   Min. 22uF inp./outp. caps

Mounting Holes

H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

M2

MICROCONTROLLER (and USB)

1 x 100nF per VDD pin

+3.3V   +3.3VA   PWR_FLAG

FB1
120R

+3.3V

C3
10u

C4
100n

C5
100n

C6
100n

C7
100n

C8
10u

C9
1u

C10
1u

VDDA Filtering

NRST
VBAT
VDD VDD VDD
VDDA

PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13
PA14
PA15

BOOT0

C11
100n

SW1
SW_SPST

R2
10K

+3.3V

HSE_IN   PD0
HSE_OUT PD1

CL=2*(CL0-Cs)=2*(10-5)pF=10PF

Y1
16MHz

C12
10p

C13
10p

+3.3V

PC13
PC14
PC15

PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PB8
PB9
PB10
PB11
PB12
PB13
PB14
PB15

USART1_TX
USART1_RX

I2C2_SCL
I2C2_SDA

+3.3V

R3
1K5

USB App note AN4879

VBUS   J1
USB_B_Micro

VBUS
D+
D-
ID
GND
Shield

USB_D-
USB_D+

SWDIO
SWCLK

+3.3V

J3
Conn_01x04_Pin

J2
Conn_01x04_Pin

+3.3V

R4
1K5

R5
1K5

J4
Conn_01x04_Pin

VSS
VSSA

U2
STM32F103C8T6

Pin-out using STM32_Cube_IDE

SW1 UART C3
R2
C12 C4 C7
Y1 C13 J2
C8
C9
C10
FB1 C11 C5
R4 R5
I2C
BOOT
SWD
J1 USB
C6
R3
PCB Edge
C1
C2
R1
D1
VBUS +3.3V GND
U1
+3.3V

Layers Manager

Layers | Items

☑ 1 STM32-PTH.drl (Other, Drill)
☑ 2 STM32-Edge_Cuts.gbr (Profile, NP)
☑ 3 STM32-NPTH.drl (Other, Drill)
☑ 4 STM32-F_Paste.gbr (Paste, Top)
☑ 5 STM32-F_Silkscreen.gbr (Legend, Top)
☑ 6 STM32-F_Mask.gbr (Soldermask, Top)
☑ 7 STM32-F_Cu.gbr (Copper, L1)
☑ 8 STM32-B_Cu.gbr (Copper, L2)
☑ 9 STM32-B_Mask.gbr (Soldermask, Bot)
☑ 10 STM32-B_Silkscreen.gbr (Legend, Bot)
☑ 11 STM32-B_Paste.gbr (Paste, Bot)