EBS HD62 DIY PCB (PCB-Rev. 1.3)

a 'Multimedia Decoder Board' using the Fujitsu/Socionext MB8AL2030 (HD62) Soc
NOTE: this Schematic (EbsHd62Diy_Sch_Vxxxxyyzz.pdf) is provided for public interest and non commercial use
(for some description refer to the associated 'EbsHd62Pcb_PubHwNotes_Vxxxxyyzz.pdf')

with opt. JTAG-Debug & RS232
"plug on PCB"

NOTE: pictures only in "color *.pdf"

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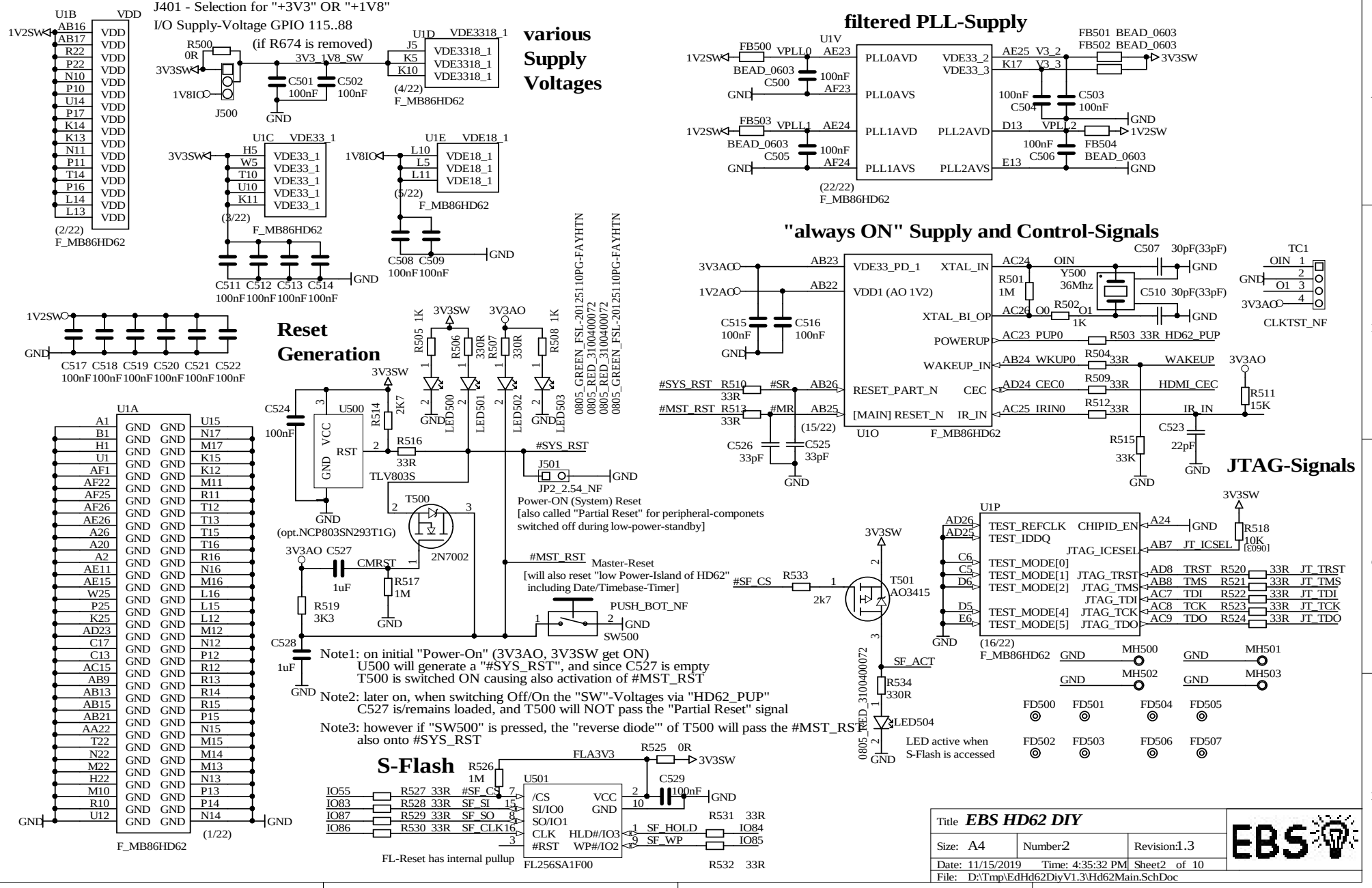
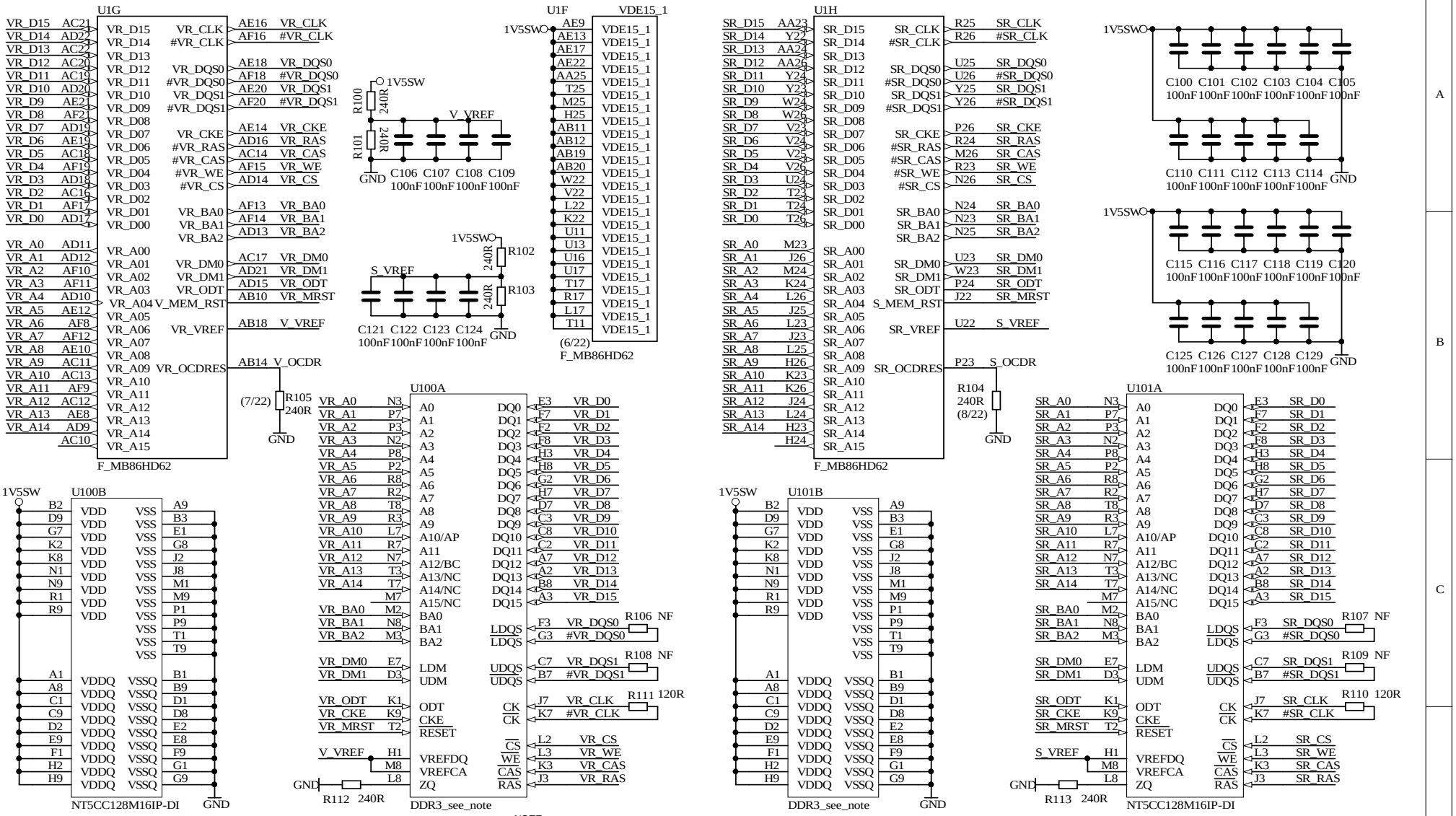
Title *EBS HD62 DIY*		
Size: A4	Number:1	Revision:1.3
Date: 11/15/2019 Time: 4:35:32 PM	Sheet1 of 10	
File: D:\Tmp\EdHd62DiyV1.3\EBS_HD62_PCB_Notes.SchDoc		

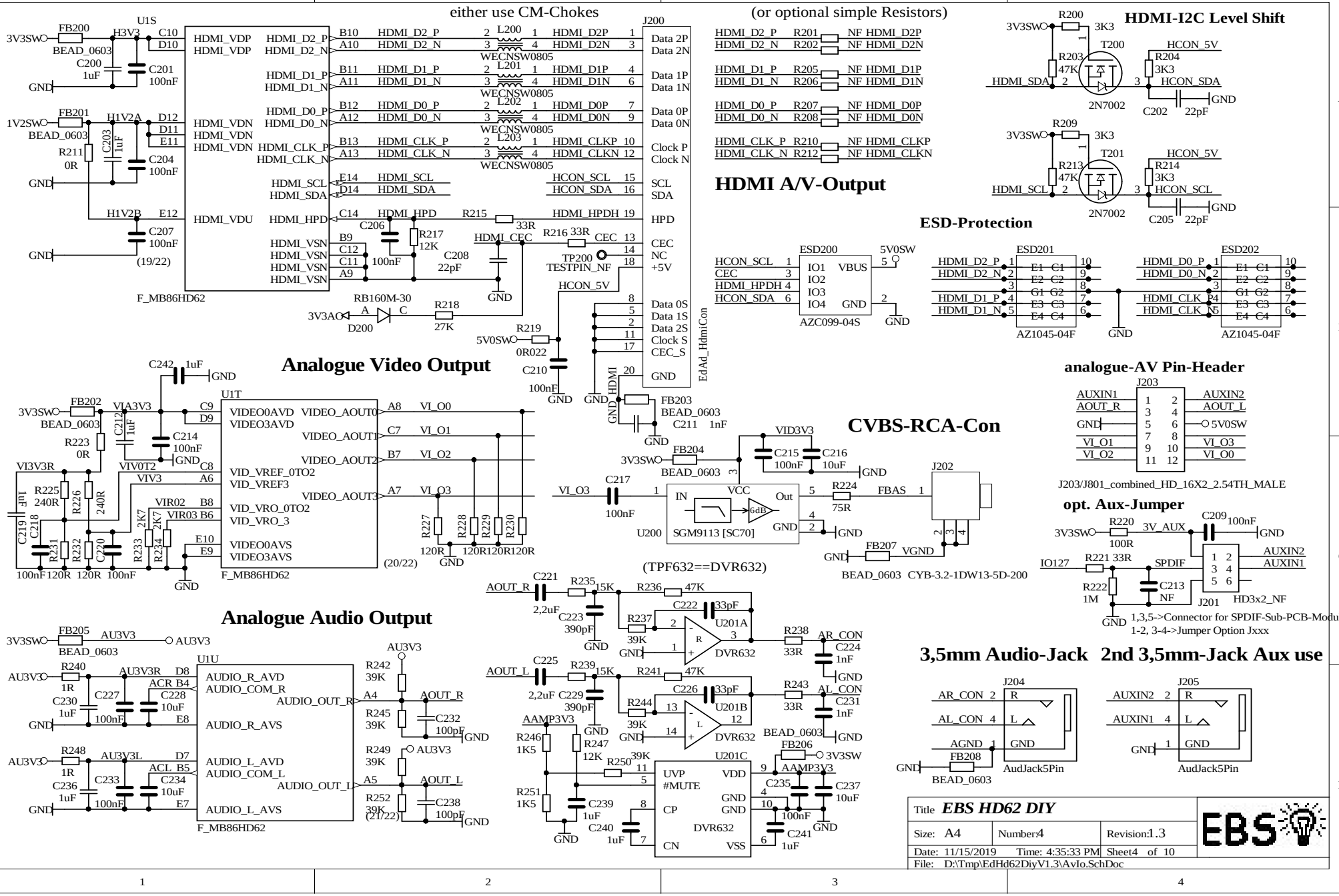

J401 - Selection for "+3V3" OR "+1V8"
I/O Supply-Voltage GPIO 115..88
(if R674 is removed)
various Supply Voltages
filtered PLL-Supply
"always ON" Supply and Control-Signals
Reset Generation
JTAG-Signals
S-Flash
F_MB86HD62
FL256SA1F00
Power-ON (System) Reset
[also called "Partial Reset" for peripheral-componets switched off during low-power-standby]
Master-Reset
[will also reset "low Power-Island of HD62" including Date/Timebase-Timer]
Note1: on initial "Power-On" (3V3AO, 3V3SW get ON)
U500 will generate a "#SYS_RST", and since C527 is empty
T500 is switched ON causing also activation of #MST_RST
Note2: later on, when switching Off/On the "SW"-Voltages via "HD62_PUP"
C527 is/remains loaded, and T500 will NOT pass the "Partial Reset" signal
Note3: however if "SW500" is pressed, the "reverse diode"' of T500 will pass the #MST_RST also onto #SYS_RST
FL-Reset has internal pullup
LED active when S-Flash is accessed
Title EBS HD62 DIY
Size: A4
Number2
Revision:1.3
Date: 11/15/2019
Time: 4:35:32 PM
Sheet2 of 10
File: D:\Tmp\EdHd62DiyV1.3\Hd62Main.SchDoc



NOTE:
2x 2GBit Version use NT5CB128M16FP-DI or NT5CB128M16IP-DI
2x 4GBit Version use NT5CB256M16DP-EK

2x DDR3-Memory

Title *EBS HD62 DIY*		
Size: A4	Number:3	Revision:1.3
Date: 11/15/2019 Time: 4:35:32 PM	Sheet3 of 10	
File: D:\Tmp\EdHd62DiyV1.3\Ddr3Mem.SchDoc		


either use CM-Chokes
(or optional simple Resistors)
HDMI A/V-Output
HDMI-I2C Level Shift
ESD-Protection
Analogue Video Output
CVBS-RCA-Con
analogue-AV Pin-Header
Analogue Audio Output
(TPF632==DVR632)
opt. Aux-Jumper
3,5mm Audio-Jack
2nd 3,5mm-Jack Aux use
F_MB86HD62
AZC099-04S
AZ1045-04F
BEAD_0603 CYB-3.2-1DW13-5D-200
J203/J801_combined_HD_16X2_2.54TH_MALE
1,3,5->Connector for SPDIF-Sub-PCB-Module
1-2, 3-4->Jumper Option Jxxx
AudJack5Pin
EdAd_HdmiCon
Title EBS HD62 DIY
Size: A4
Number4
Revision:1.3
Date: 11/15/2019
Time: 4:35:33 PM
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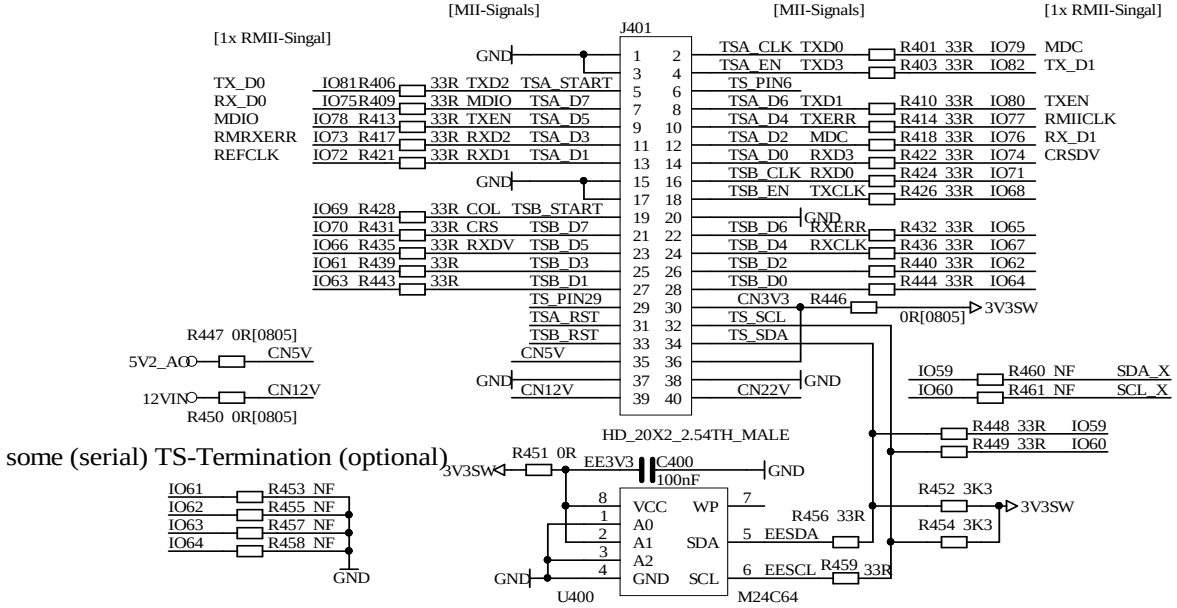
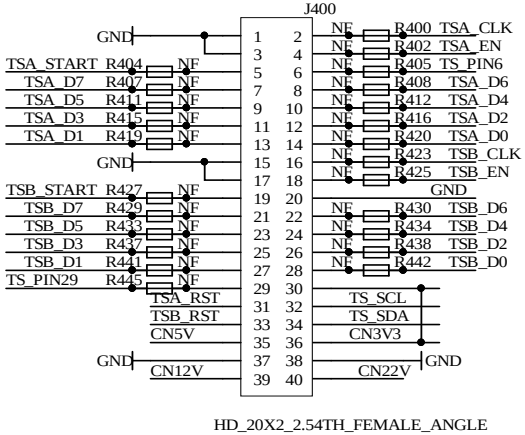
File: D:\Tmp\EdHd62DiyV1.3\AvIo.SchDoc

TSA/TSB-Connector TOP



TSA/TSB-Connector BOT

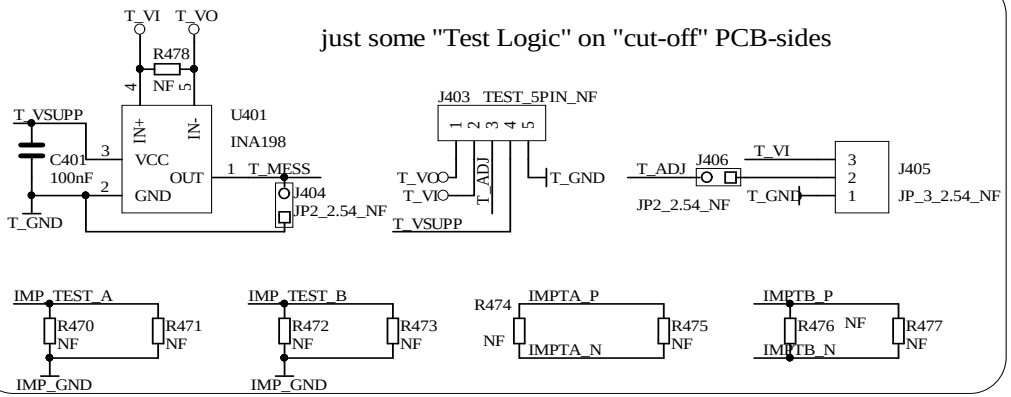


some (serial) TS-Termination (optional)

EEProm (can be used to store freq.used non-vol.data)

NOTE: TS-A/B pins/nets labled as "original Fujitsu DK-version"
However for "EBS applications" TS-B is preferably used as 'main (1st) TS-Input'
(TS-A might actually be used as 'TS-Output' or for other ext.boards, e.g. 2nd Eth.IF)

just some "Test Logic" on "cut-off" PCB-sides



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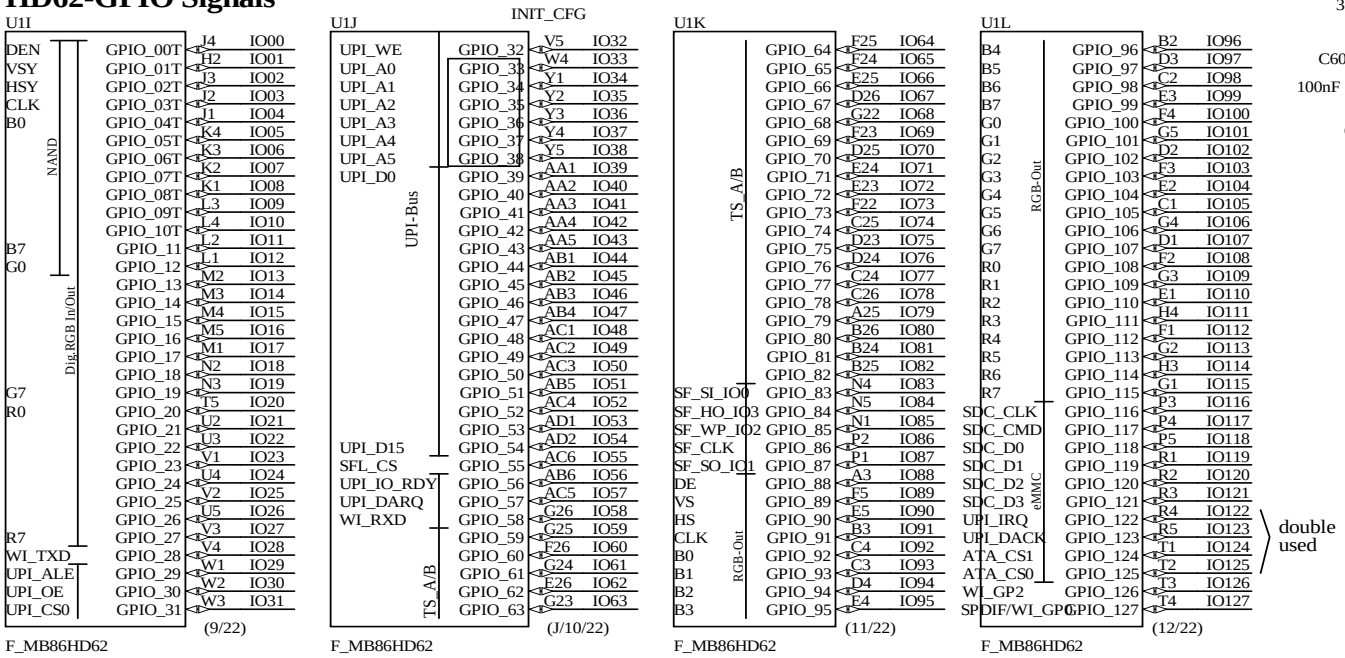
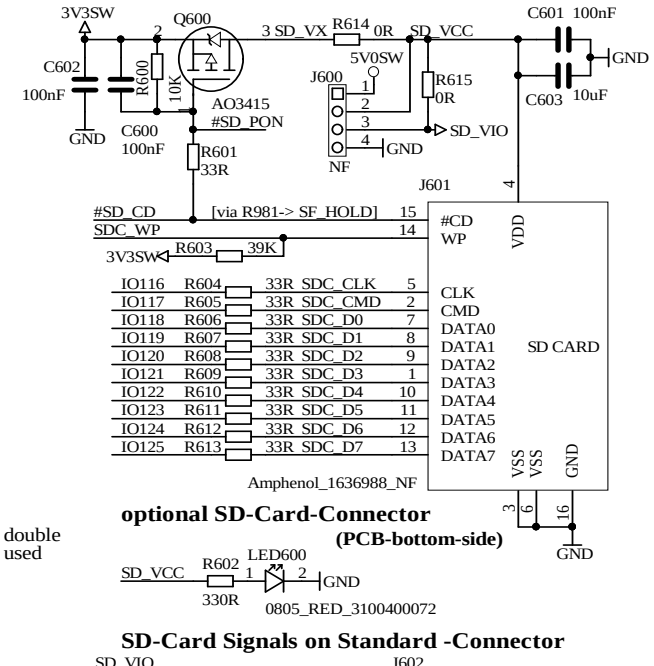
Date: 11/15/2019	Time: 4:35:33 PM	Sheet5 of 10	
File: D:\Tmp\EdHd62DiyV1.3\TsInpEtc.SchDoc			

HD62-GPIO Signals



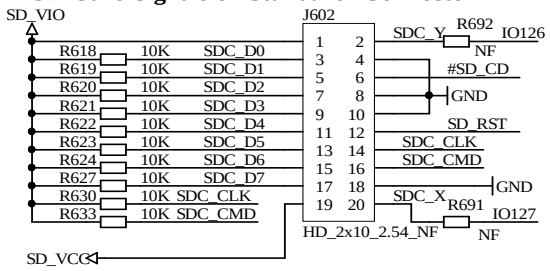
NOTE: SymbolPinMistakes fixed compared to Rev.1.1



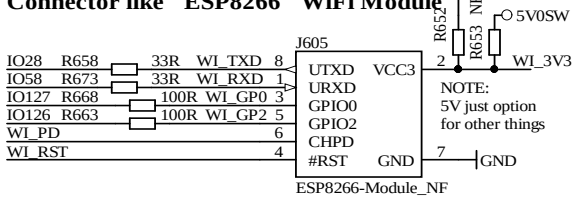
optional SD-Card-Connector

(PCB-bottom-side)

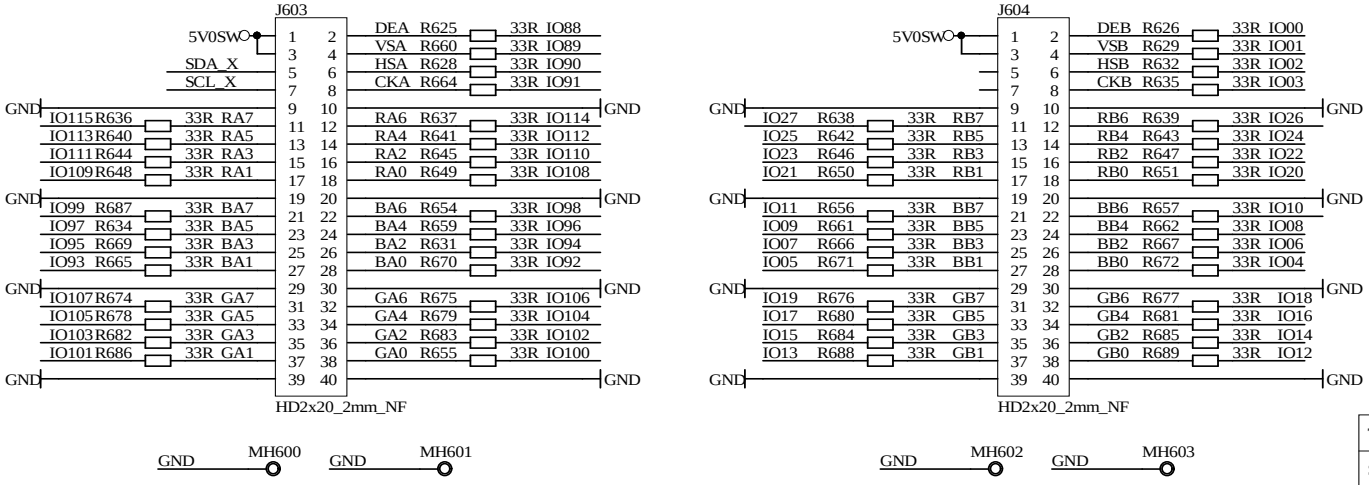
SD-Card Signals on Standard -Connector



Connector like "ESP8266" WiFi Module

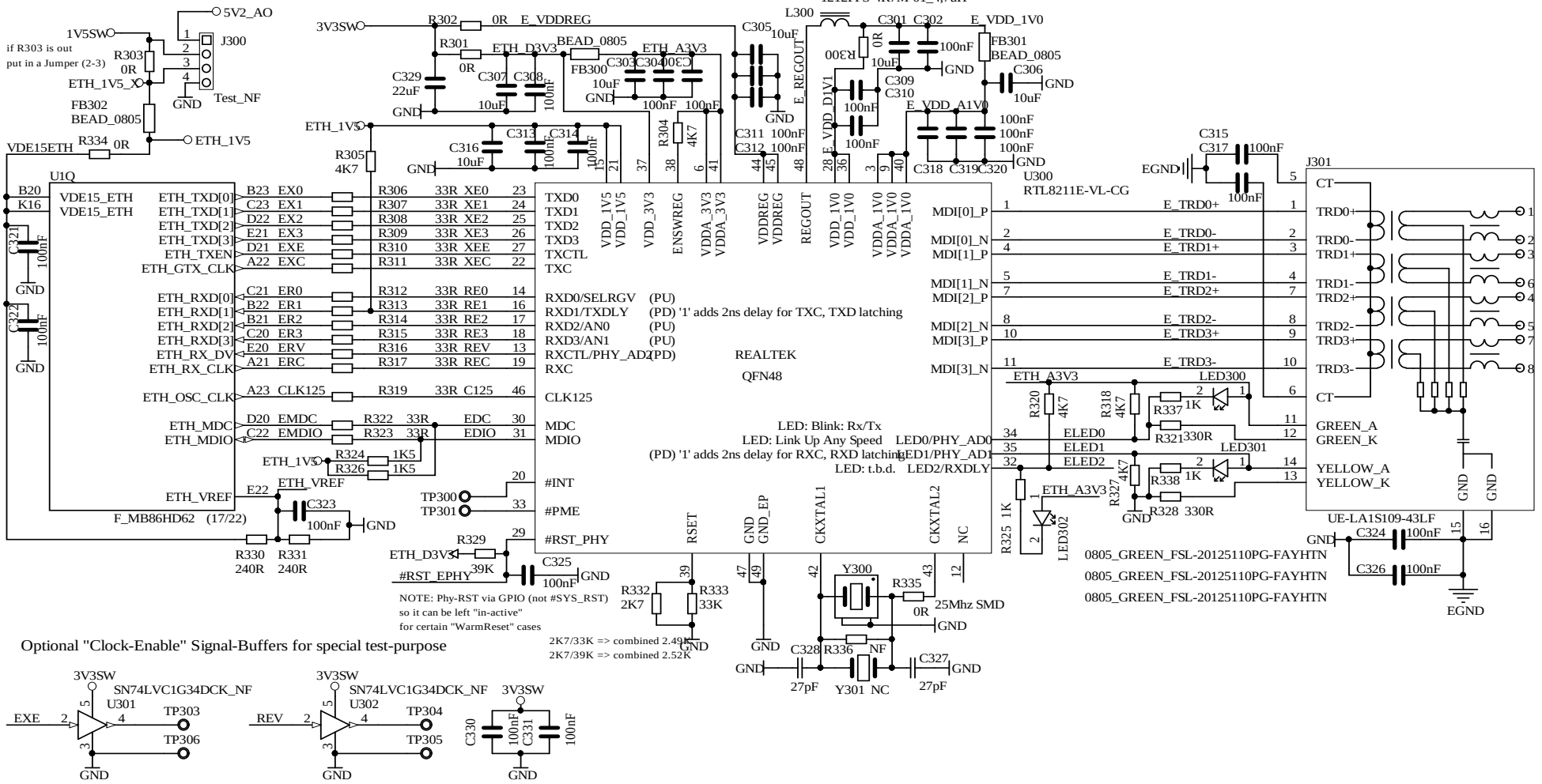


Connectors with GPIOs for "digital Video In/Out"



Title *EBS HD62 DIY*		
Size: A4	Number: 6	Revision: 1.3
Date: 11/15/2019	Time: 4:35:33 PM	Sheet 6 of 10
File: D:\Tmp\EdHd62DiyV1.3\GpioDef.SchDoc		

Gigabit Ethernet Interface



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Date: 11/15/2019	Time: 4:35:34 PM	Sheet7 of 10	
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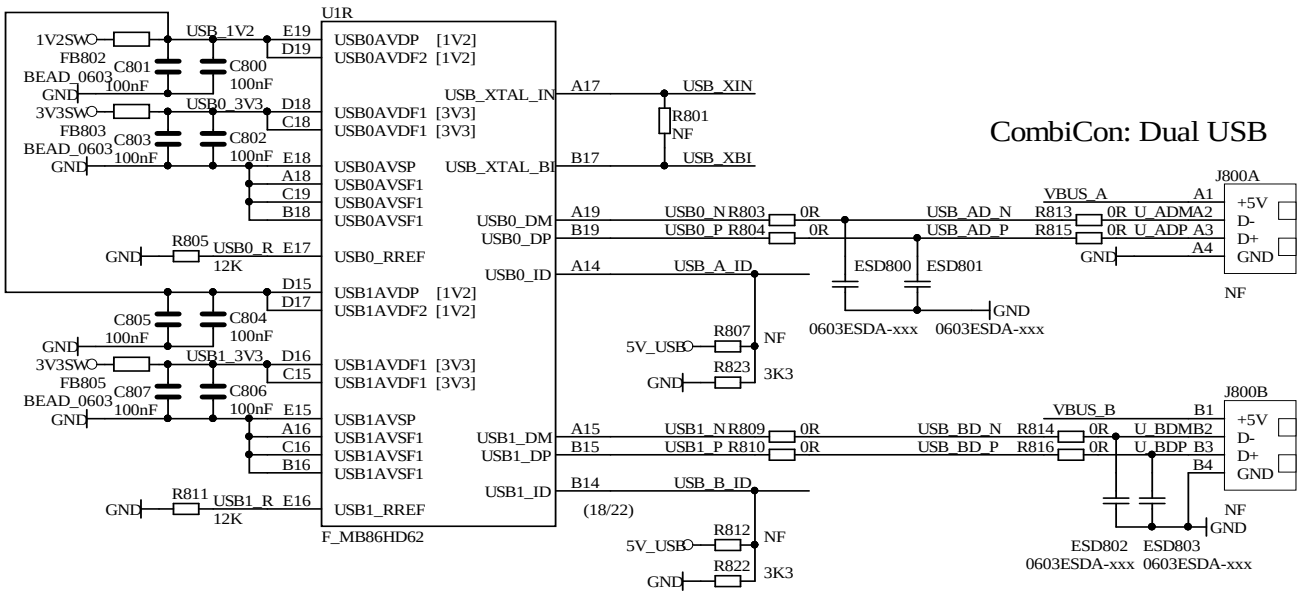


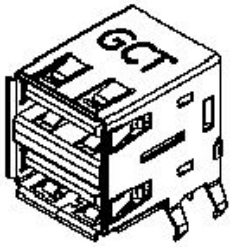
CombiCon: Dual USB

Combi-Connector

Eth.Jack

2x USB 2.0

e.g. WR-MJ Modular Jack
+ Dual USB stacked
https://katalog.we-online.de
/em/datasheet/615016338621.p

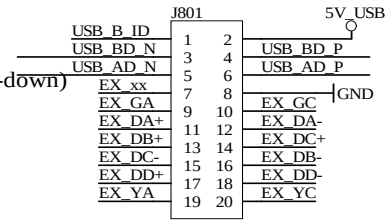


or opt. just dual USB-Connector

Pin-Header connecting to

- USB Signals

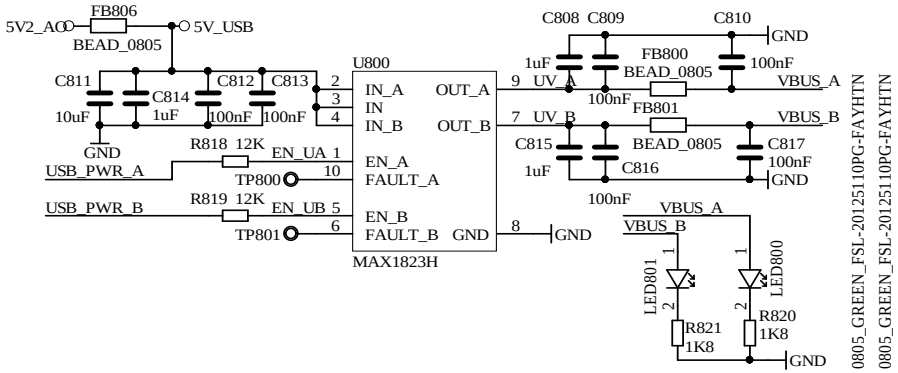
- Eth.Jack of "Combi-Connector"



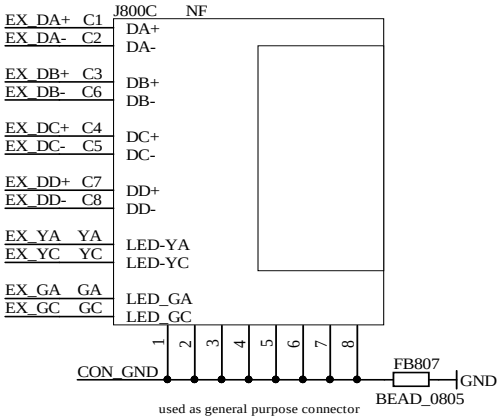
J203/J801_combined_HD_16X2_2.54TH_MALE

NOTE: The Eth.Jack "Ex_" Signals hav
no function on this PCB, they only allo
connect an "inside pluged-on Ext.Boar
to the "outside"
Since the "Combi Connector"
is relativly high, optionally
a "dual USB-Connector"
can be populated instead

we use "5V_AO", VBUS-On/Off via USB_PWR_x), (can be switched OFF during PWR-down)

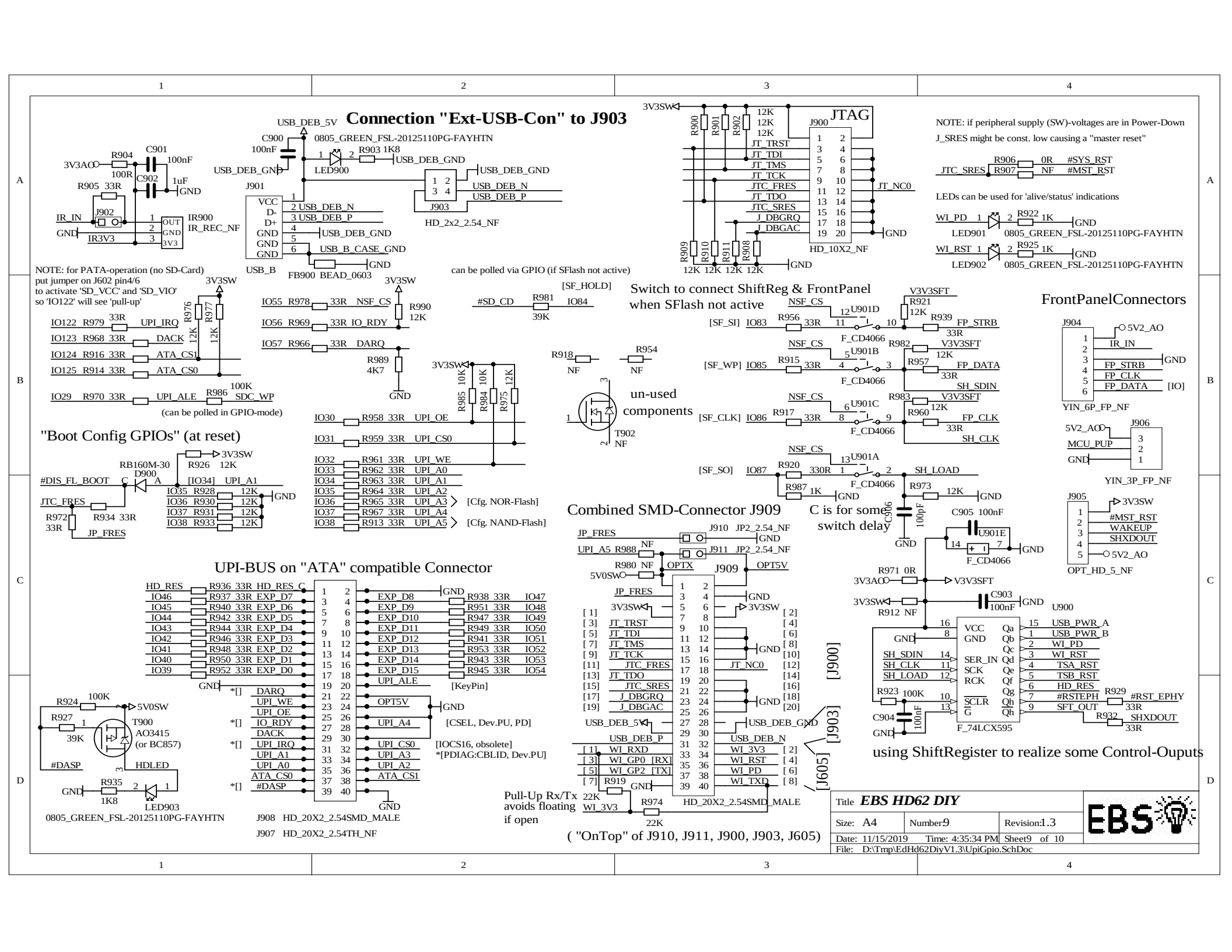


CombiCon: Eth.Jack



used as general purpose connector

Title	***EBS HD62 DIY***		
Size: A4	Number8	Revision:1.3	EBS
Date: 11/15/2019	Time: 4:35:34 PM	Sheet8 of 10	
File: D:\Tmp\EdHd62DiyV1.3\UsbInterface.SchDoc			


Connection "Ext-USB-Con" to J903
JTAG
NOTE: if peripheral supply (SW)-voltages are in Power-Down
J_SRES might be const. low causing a "master reset"
LEDs can be used for 'alive/status' indications
NOTE: for PATA-operation (no SD-Card)
put jumper on J602 pin4/6
to activate 'SD_VCC' and 'SD_VIO'
so 'IO122' will see 'pull-up'
can be polled via GPIO (if SFlash not active)
Switch to connect ShiftReg & FrontPanel
when SFlash not active
FrontPanelConnectors
"Boot Config GPIOs" (at reset)
un-used
components
Combined SMD-Connector J909
C is for some
switch delay
UPI-BUS on "ATA" compatible Connector
[Cfg. NOR-Flash]
[Cfg. NAND-Flash]
[KeyPin]
[CSEL, Dev.PU, PD]
[IOCS16, obsolete]
*[PDIAG:CBLID, Dev.PU]
Pull-Up Rx/Tx
avoids floating
if open
("OnTop" of J910, J911, J900, J903, J605)
using ShiftRegister to realize some Control-Ouputs
Title EBS HD62 DIY
Size: A4
Number 9
Revision 1.3
Date: 11/15/2019
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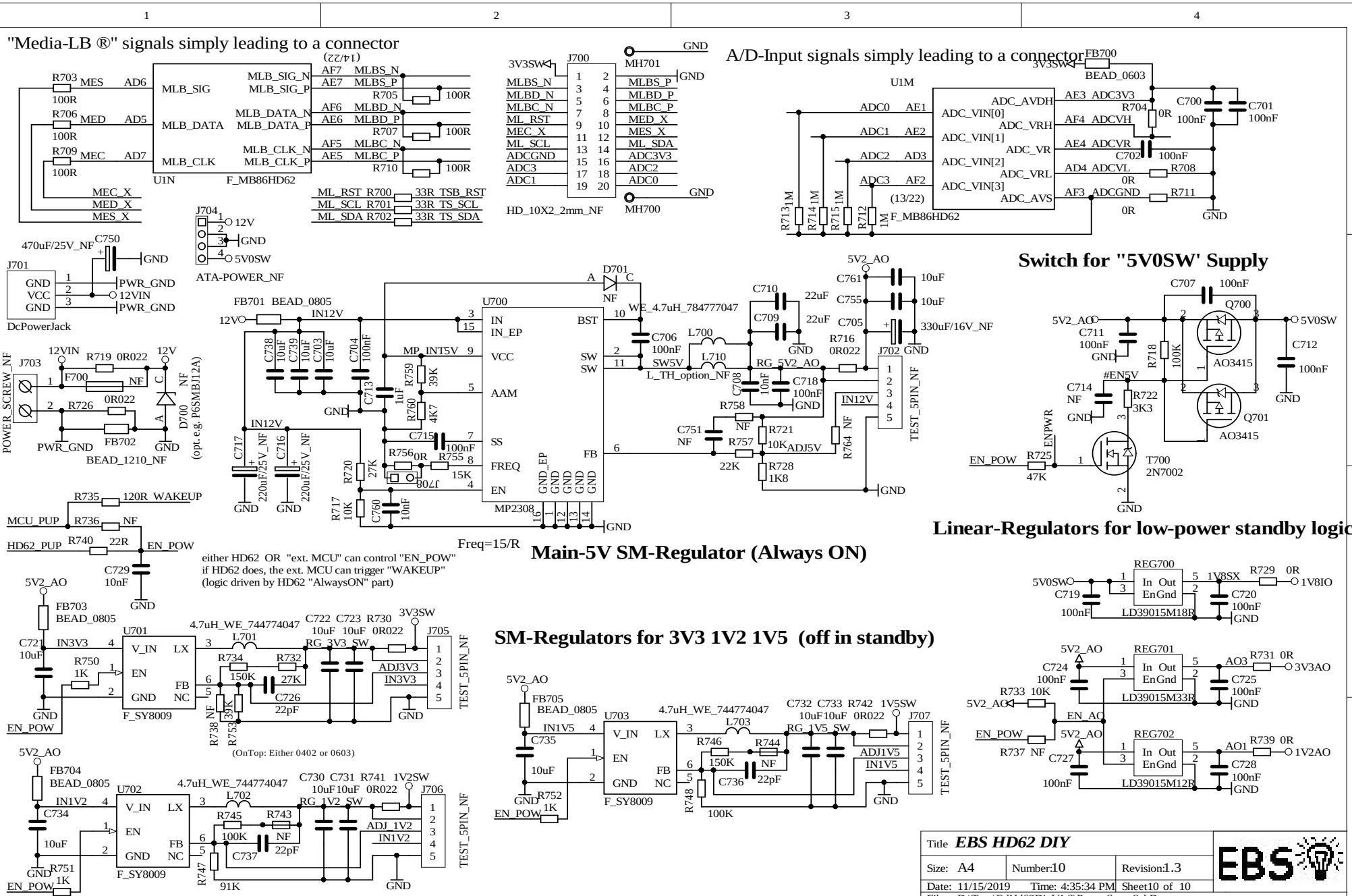
File: D:\Tmp\EdHd62DiyV1.3\UpiGpio.SchDoc


"Media-LB ®" signals simply leading to a connector
A/D-Input signals simply leading to a connector
Switch for "5V0SW' Supply
Main-5V SM-Regulator (Always ON)
Linear-Regulators for low-power standby logic
SM-Regulators for 3V3 1V2 1V5 (off in standby)
either HD62 OR "ext. MCU" can control "EN_POW"
if HD62 does, the ext. MCU can trigger "WAKEUP"
(logic driven by HD62 "AlwaysON" part)
Freq=15/R
(OnTop: Either 0402 or 0603)
Title EBS HD62 DIY
Size: A4
Number:10
Revision:1.3
Date: 11/15/2019
Time: 4:35:34 PM
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File: D:\Tmp\EdHd62DiyV1.3\PowerSupp.SchDoc