

MOTHERBOARD : 6-71-N7400-D04A
MODEL : N740WU

N740WU

System Block Diagram

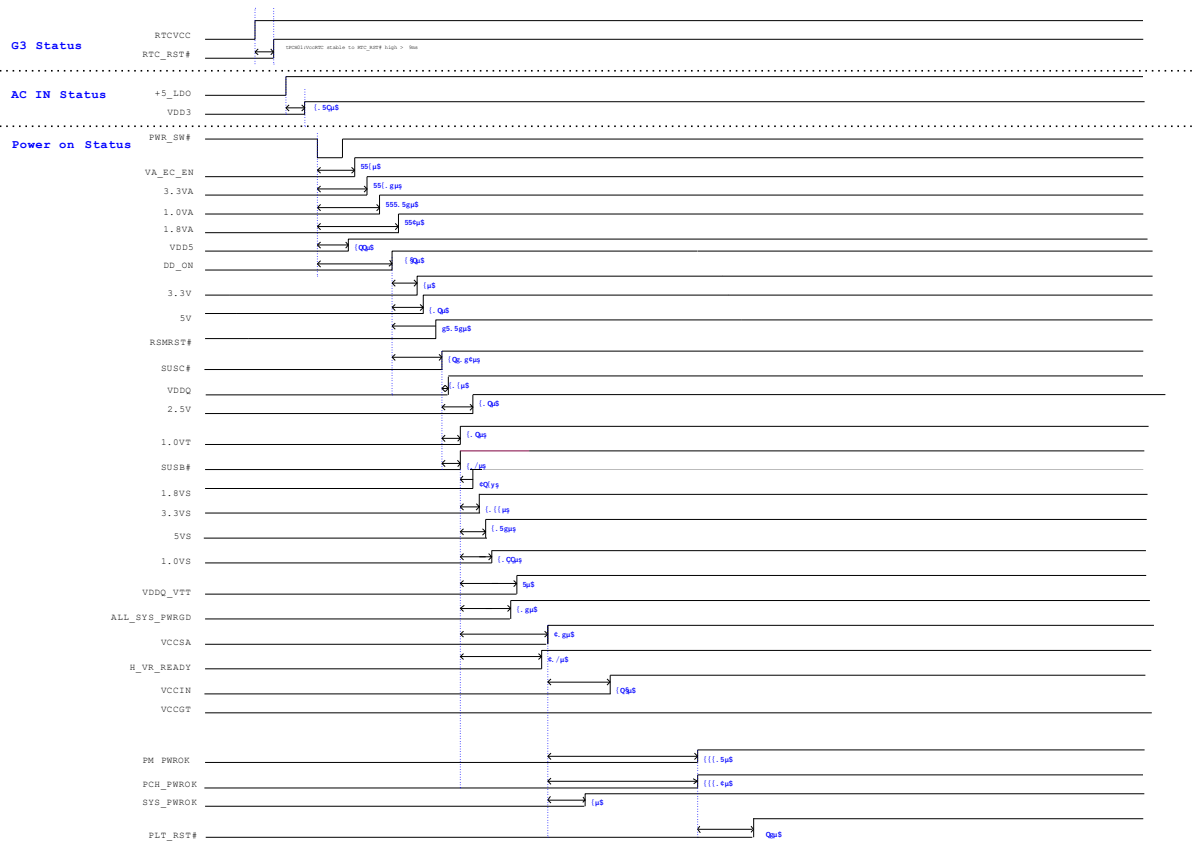
(Kaby lake RULT)

2019-08-10

REV 1.0

>

POWER SEQ. G3-->S0



DDI TO VGAPORT

VGA_D1_TX0_N
VGA_D1_TX0_P
VGA_D1_TX1_N
VGA_D1_TX1_P

HDMI 1.4

HDMI_DATA0N
HDMI_DATA0P
HDMI_DATA1N
HDMI_DATA1P
HDMI_DATA2N
HDMI_DATA2P
HDMI_CLOCKN
HDMI_CLOCKP

3.3VS0
HDMI_CTRLCLK
HDMI_CTRLCLK_N
3.3VS0
VCCIO_OUT

Max < 600MILS, W=5MILS, SPACE=25MILS

U31A

E55
F55
E58
F58
F63
G53
F66
G66
C50
A50
C52
D52
A50
B50
D51
C51

DDI
E18DDPB_CTRLCLK
GPP_E18DDPB_CTRLCLK
E20DDPC_CTRLCLK
GPP_E20DDPC_CTRLCLK
GPP_E22
GPP_E23
EDP_ROMP
EDP_ROMP

EDP_TXM0
EDP_TXP0
EDP_TXM1
EDP_TXP1
EDP_TXM2
EDP_TXP2
EDP_TXM3
EDP_TXP3
EDP_AUX_N
EDP_AUX_P
EDP_DSP_UTL
DDI1_AUX_N
DDI1_AUX_P
DDI2_AUX_N
DDI2_AUX_P
RSVD_50
RSVD_49

C47
D46
D46
D46
D46
D46
D46
D46
D46
D46
E45
F45
C50
D50
E48
F48
L9
R77
R78
L10
R12
R11
U13

EDP_TXM_0
EDP_TXN_0
EDP_TXM_1
EDP_TXN_1
EDP_TXM_2
EDP_TXN_2
EDP_TXM_3
EDP_TXN_3
EDP_AUXN
EDP_AUXP

B52 EDP_DSP_UTL
GGA_AUX_CH_N
GGA_AUX_CH_P
F171A
VGA_HPD
VGA_HPD
VGA_HPD
EDP_HPD
BLON
EDP_BRIGHTNESS
NB_ENAVDD

U31I

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KBL_R_U42_1P0_P/BGA

Analog Thermal Sensor

6-17-10400-730 EWTFO2-104F4F-N

TH1 100k 1% 0402_NTC
EWTFO2-104F4F-N

1:2 (4mils:8mils)

EV1 3/4 Ther mdu ; P C B
度 , NC SPCB . 度

5 CLEYO CO.

[03] KBL 2/11 DISPLAY

Rev	03	Doc Name	6-17-N7400-D04A	Rev	1.0
Rev	03	Doc Name	6-17-N7400-D04A	Rev	1.0
Rev	03	Doc Name	6-17-N7400-D04A	Rev	1.0

[4,5,6,7,13,14,15,16,17,18,19,20,23,24,26,27,28,30,33]
[6,15,20,23,24,26,27,28,30,33]

VCCIO_OUT
3.3VS
3.3V

TX CAP close to device or conn

USBH

POE/USB3/SATA

SSC / USB3

AUDIO CONN 2 del

RTL8411b LAN+CARD READER

M.2 WIIIGIG

M.2 WLAN

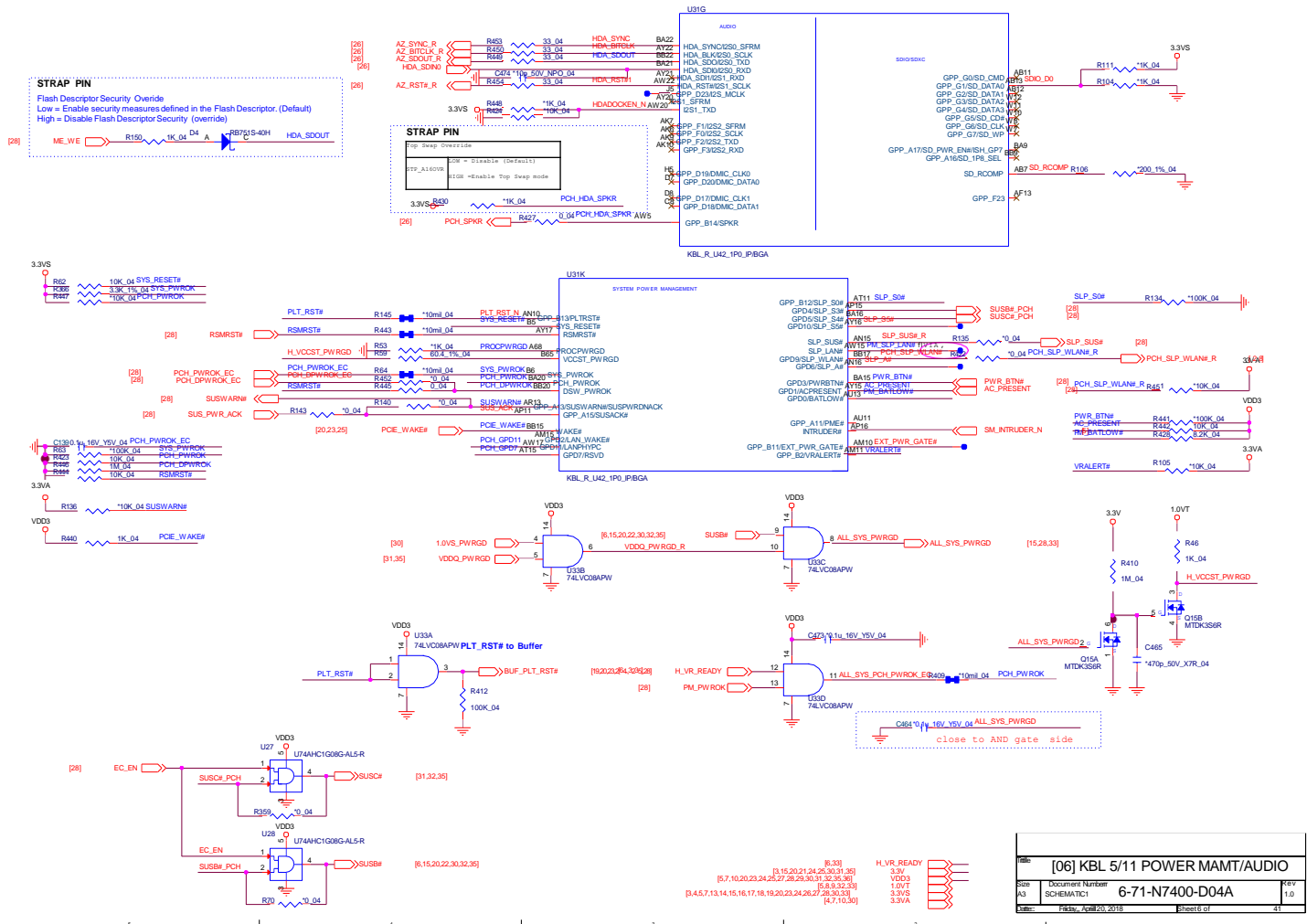
ASM2142 USB3

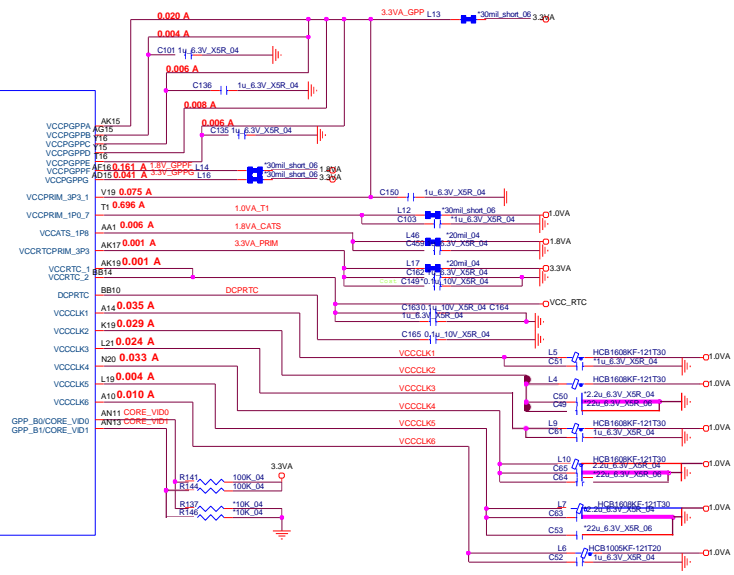
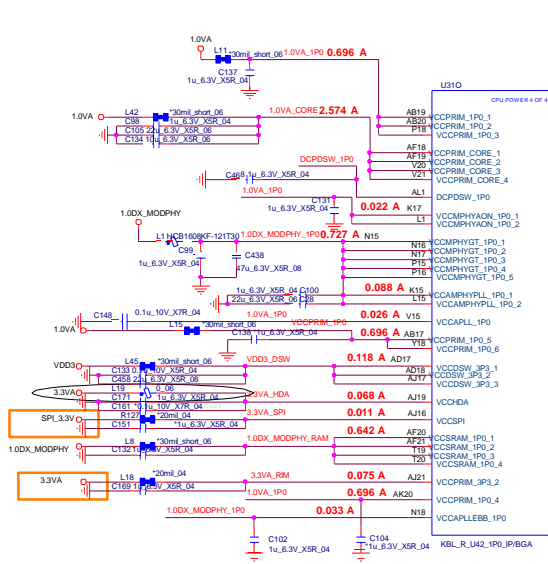
Main HDD

ODD

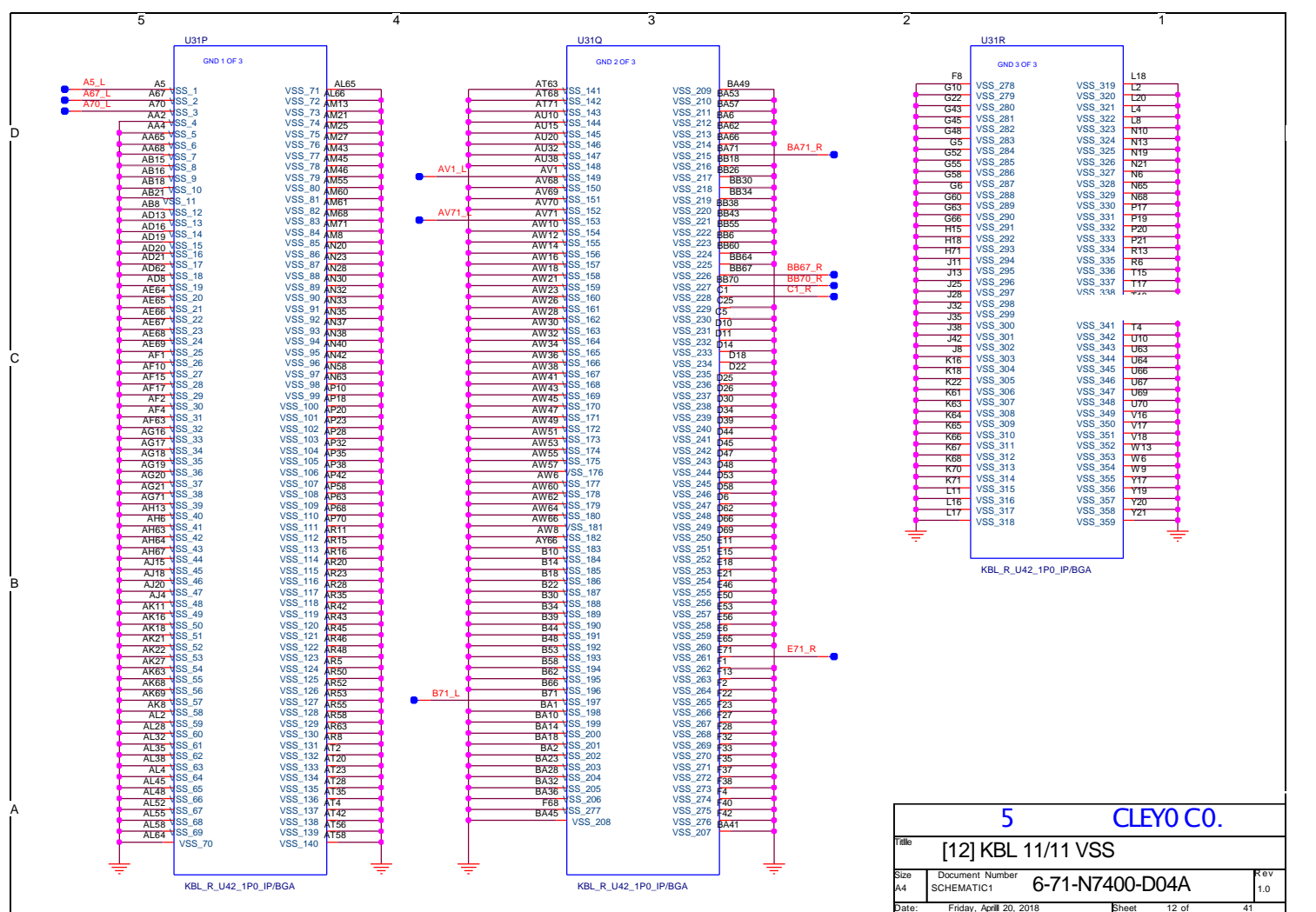
M.2 SSD 4X POET 9-12

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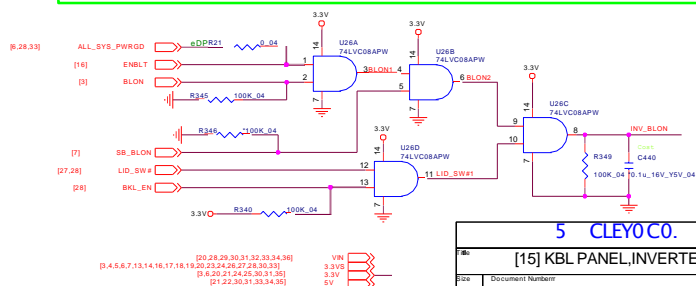
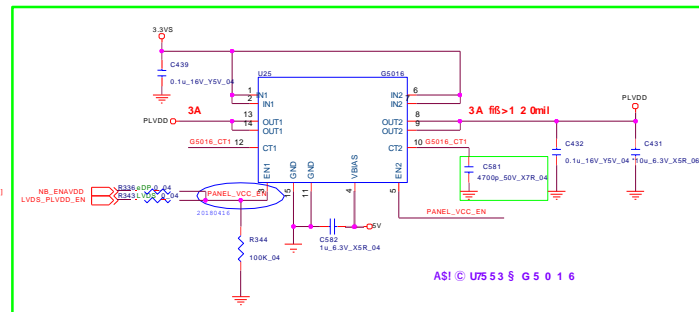




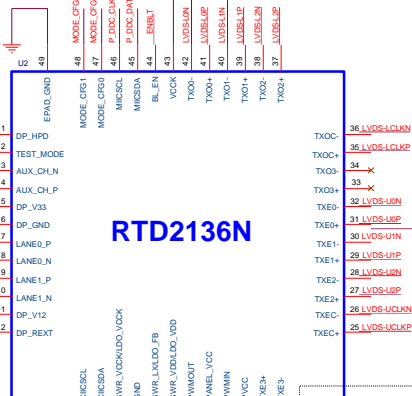
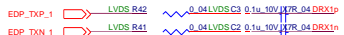
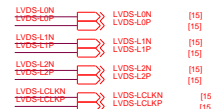
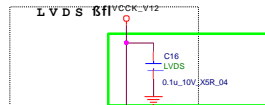


5		CLEYO CO.	
Title [12] KBL 11/11 VSS			
Size A4	Document Number SCHEMATIC1	6-71-N7400-D04A	Rev 1.0
Date: Friday, April 20, 2018	Sheet 12 of 41		

eDP panel



5 CLEY0C0.	
[15] KBL PANEL, INVERTER	
Size A3	Document Number SCHEMATIC1 6-71-N7400-D04A
Rev 1.0	



RTD2138N-CG LVDS 3f
LVDS
6-03-02136-031



LDO MODE

R1 R200 0.06

LVDS

LVDS & f1

C353 LVDS 2.2n (0.0000022F)

C352 LVDS 0.1u (0.0000001F)

VDDK_V12

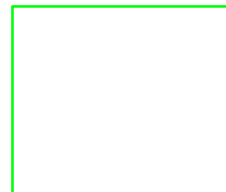
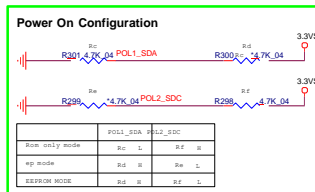
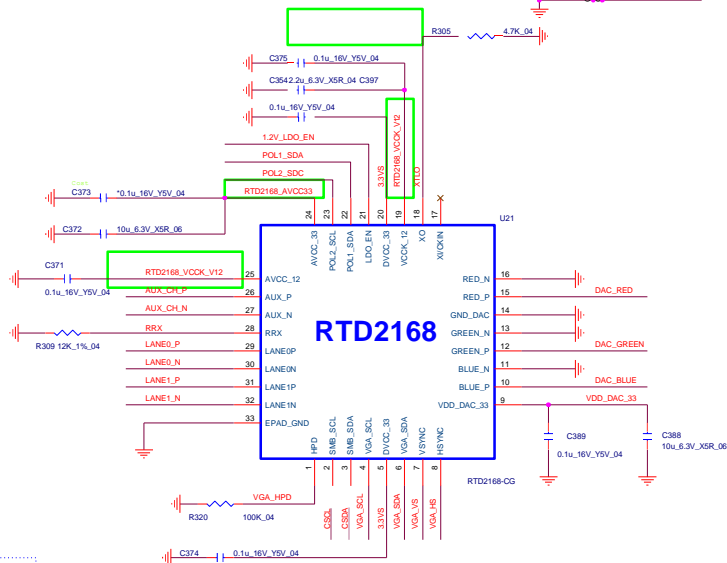
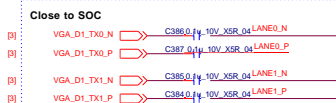
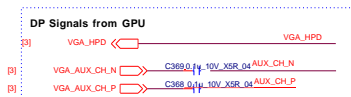
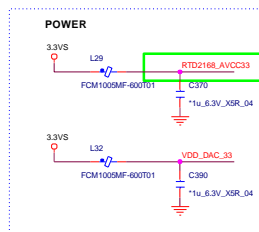
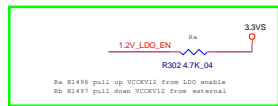
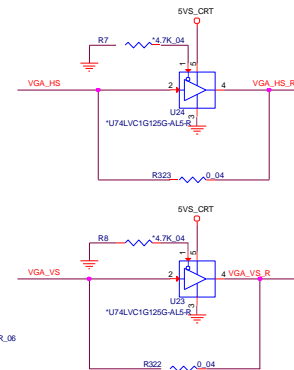
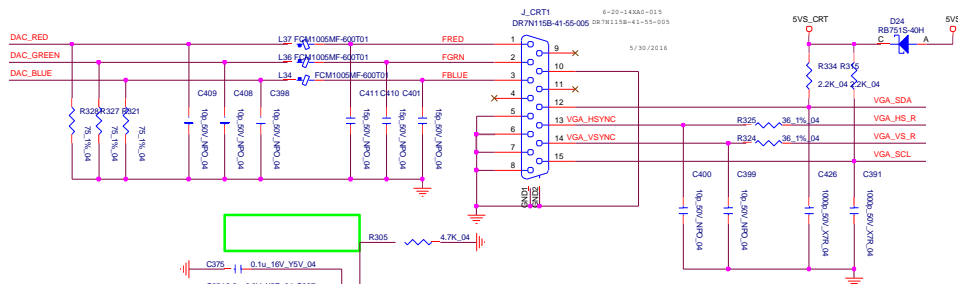
Cap closed to PIN17

1. EEPROM with a size 8K-Byte
2. EEPROM device should be 2-byte addressing device
3. Slave address should configure as 0xA8

6-71-N7400-D04A

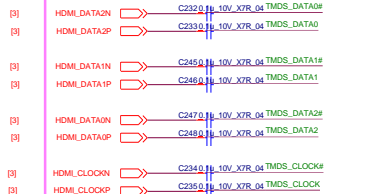
File	[16] RTD2136N (EDP to LVDS)		
Size	Document Number	Rev	
A3	6-71-N7400-D04A	1.0	
Date:	Friday, April 20, 2018	Sheet 16 of	41

CRT



5 CLEY0 C0.			
[17] KBL VGA_RTD2168			
Size A3	Document Number SCHEMATIC1	Rev 1.0	
Issue	Released	17	dt

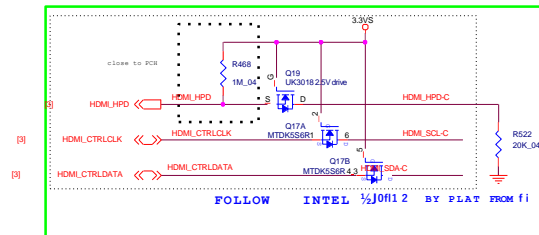
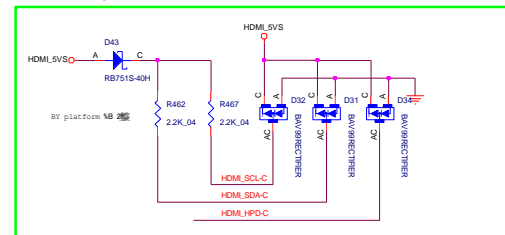
5VS 5VS 6-02-75495-9C0 HDMI_5VS (W/O LEVELSHIFT)



```

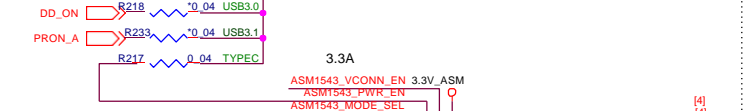
IC                                CONNECTOR
DATA2                            DATA0
DATA1                            DATA1
DATA0                            DATA2
CLOCK                           CLOCK
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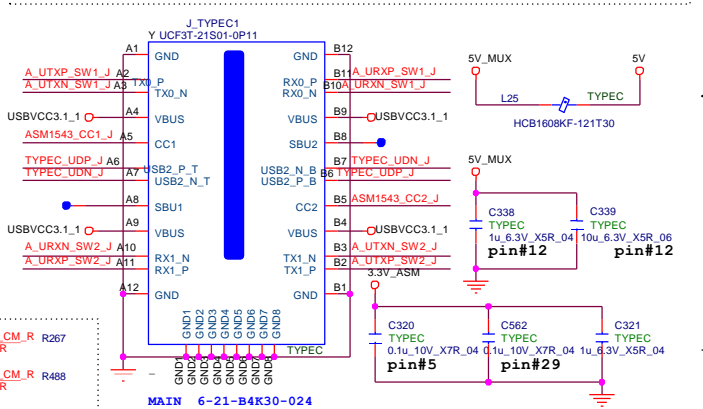
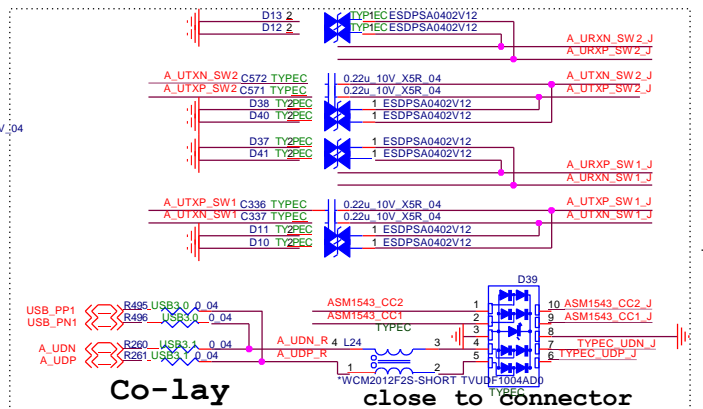
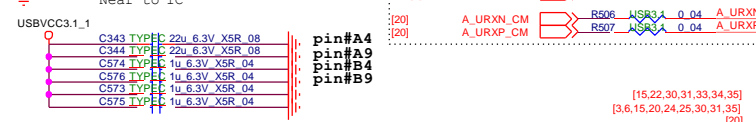
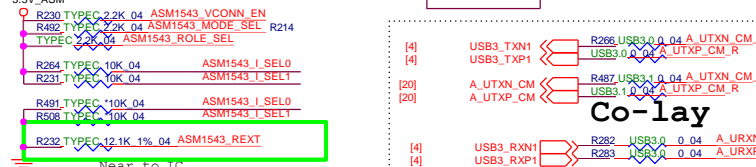
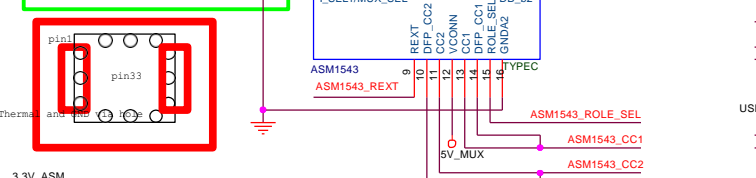
3.3VS
5VS

5 CLEYO CO.	
Title [18] HDMI	
Size A3	Document Number 6-71-N7400-D04A
Rev 1.0	

[illegible]

A_UTXN_CM_R
A_UTXP_CM_R

A_URXN_CM_R 3.3V_ASM
A_URXP_CM_R
ASM1543



5	Title	[21]ASM21
Size	Document Number	6
A4	SCHEMATIC1	

5 CLEYO CO.

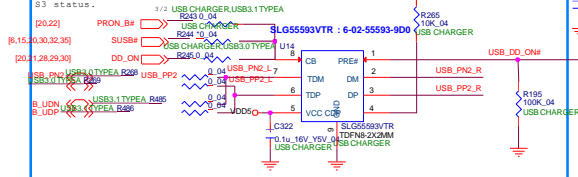
[21]ASM2142 (USB3.1 2/2)

Size A4	Document Number SCHEMATIC1	6-71-N7400-D04A	Rev 1.0
Date:	Friday, April 20, 2018	Sheet 21 of 41	

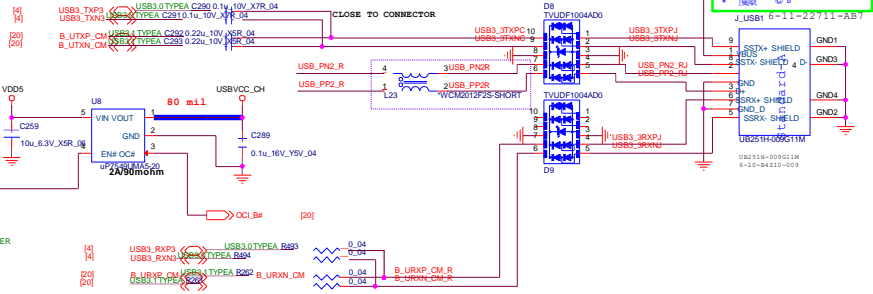
USB 3.0 port (CHARGER)

CB Smart pin#	pin#	Function
0	X	DCP autodetect with mouse/keyboard wake up
1	0	S0 Charging with SDP
1	1	S0 Charging with CDP

If select CB pin contact to USB#, you can Support DCP mode and Apple-compliant devices charge in S3 status.



USB3.0 Max Trace length Follow Design Guide

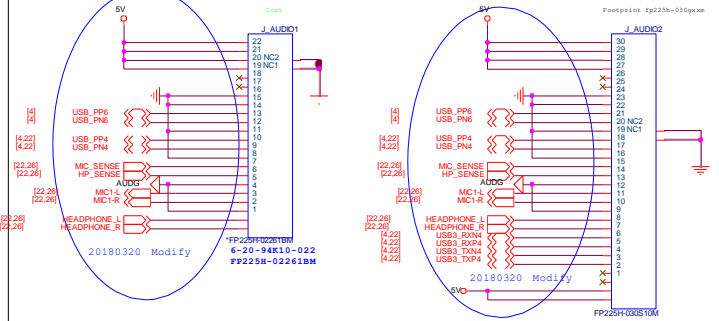


USB PORT Charge

W/O USB CHARGER



AUDIO BOARD Connect (Co-lay)



5 CLEYO.CO.

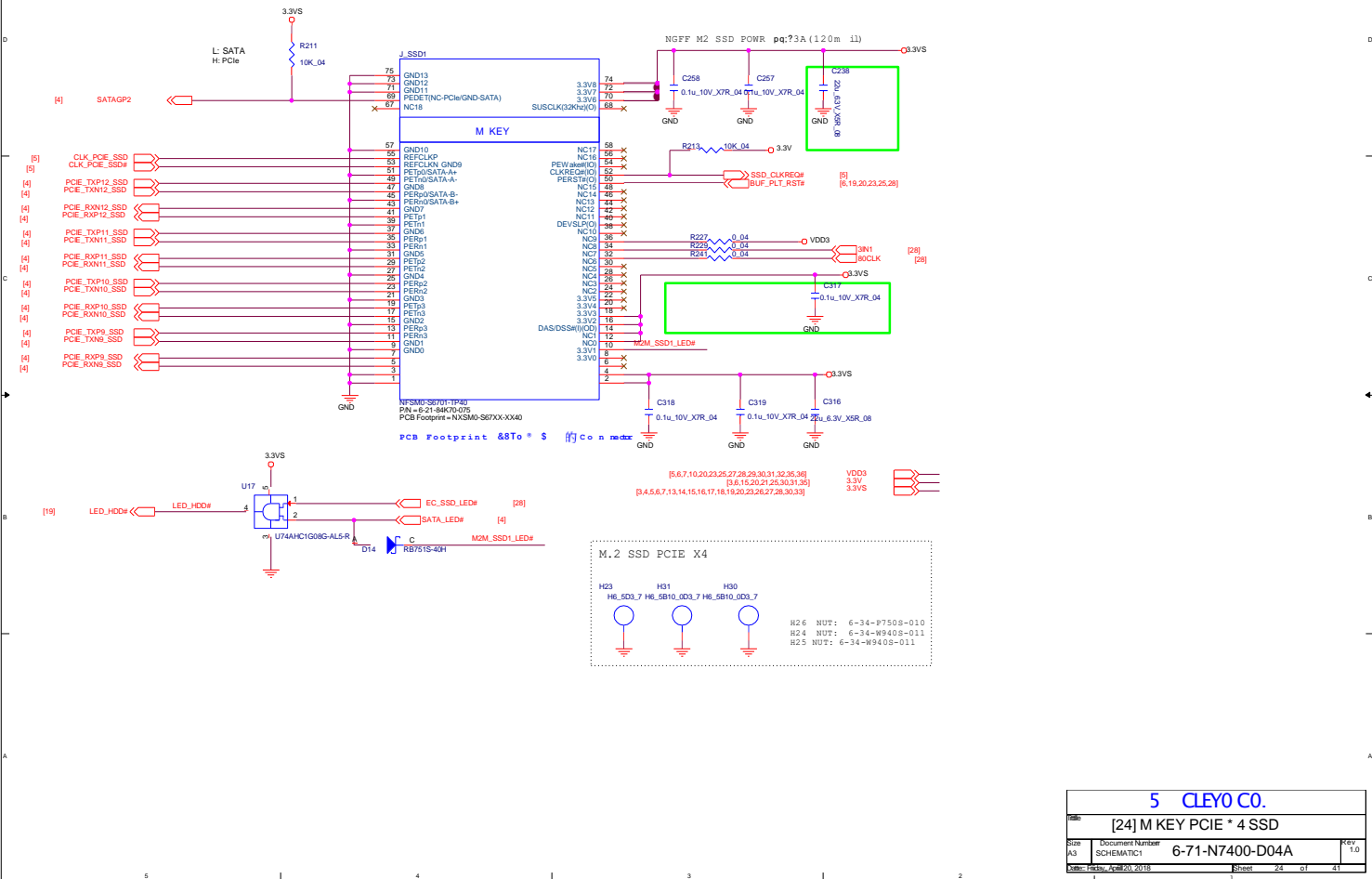
Doc#	Document Number
A3	SCHEMATIC1
Rev	Rev
1.0	1.0
File: Pcb_1_2018	Page 22 of 41

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Title: [23] CARD READER & LAN_RTL8411B	
Size A3	Document Number SCHEMATIC1
6-71-N7400-D04A	
Date: Friday, April 20, 2018	Sheet 23 of 41

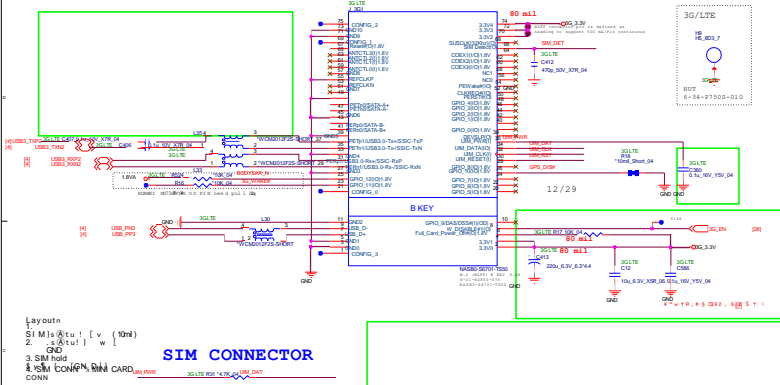
5 CLEY0C0.			
Title: [23] CARD READER & LAN_RTL8411B			
Size A3	Document Number SCHEMATIC1	Rev 1.0	
6-71-N7400-D04A			
Date: Friday, April 20, 2018	Sheet	23	of 41

NGFF_M (M2) SSD (PCIE 4X)

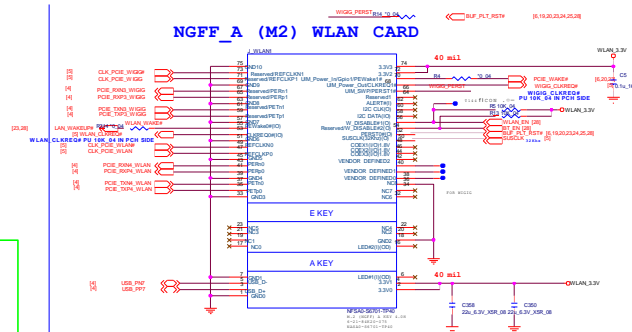


5 CLEYO C0.			
Title [24] M KEY PCIE * 4 SSD			
Size A3	Document Number SCHEMATIC1	6-71-N7400-D04A	
Rev 1.0			
Date: Friday, April 20, 2018		Sheet 24 of 41	

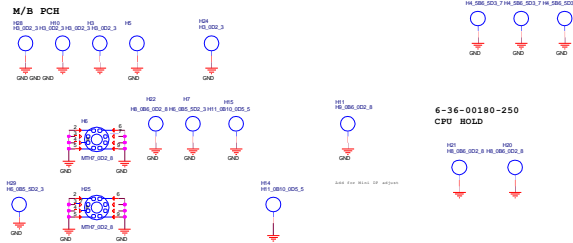
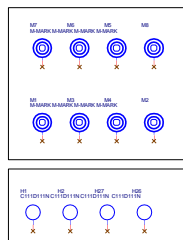
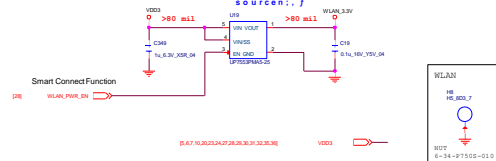
NGFF B (M2) 3G/LTE CARD



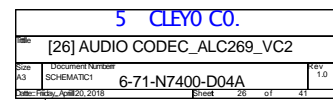
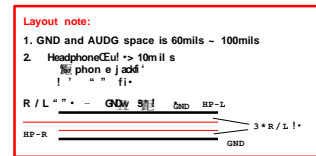
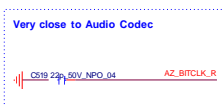
NGFF A (M2) WLAN CARD



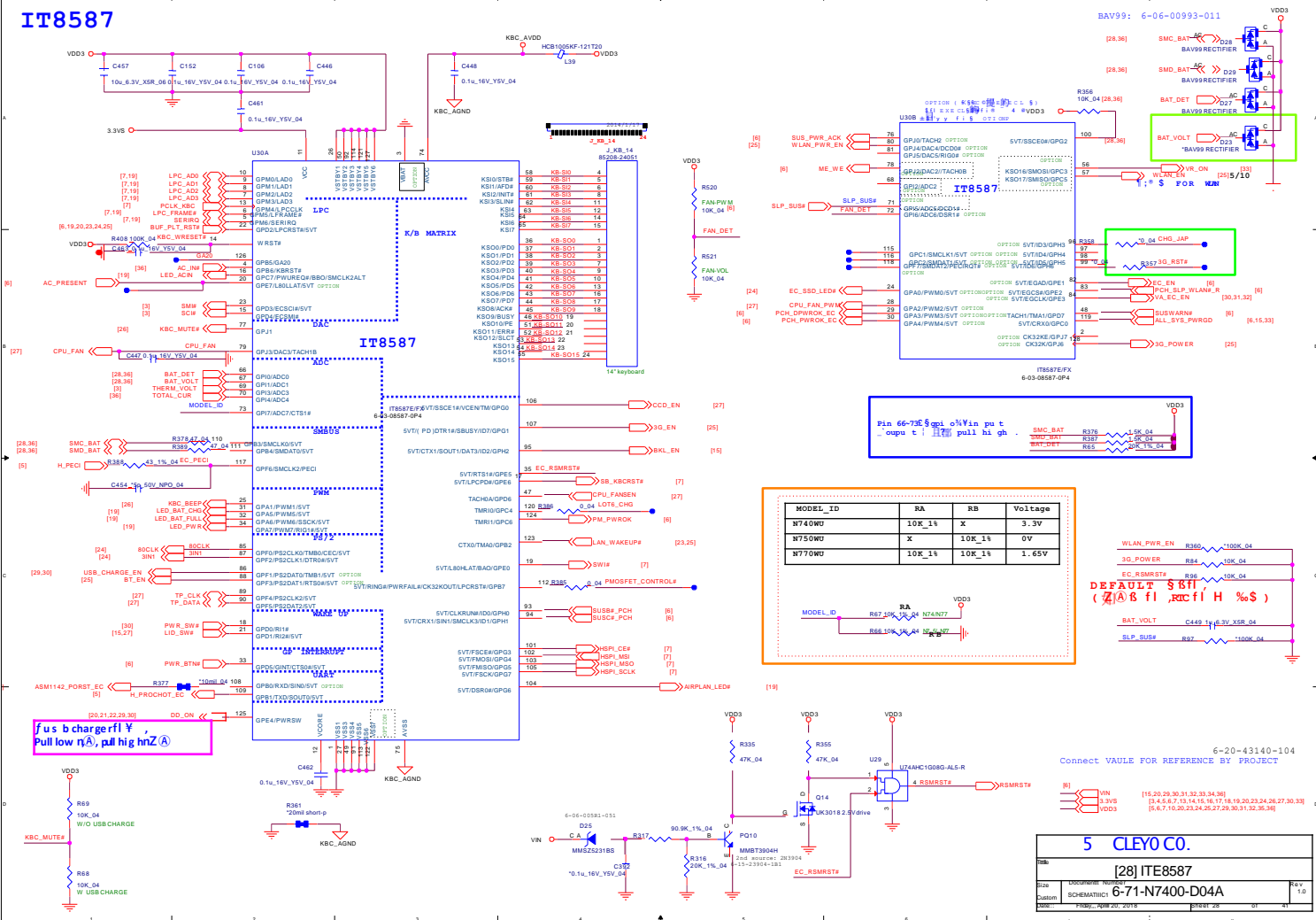
WLAN POWER

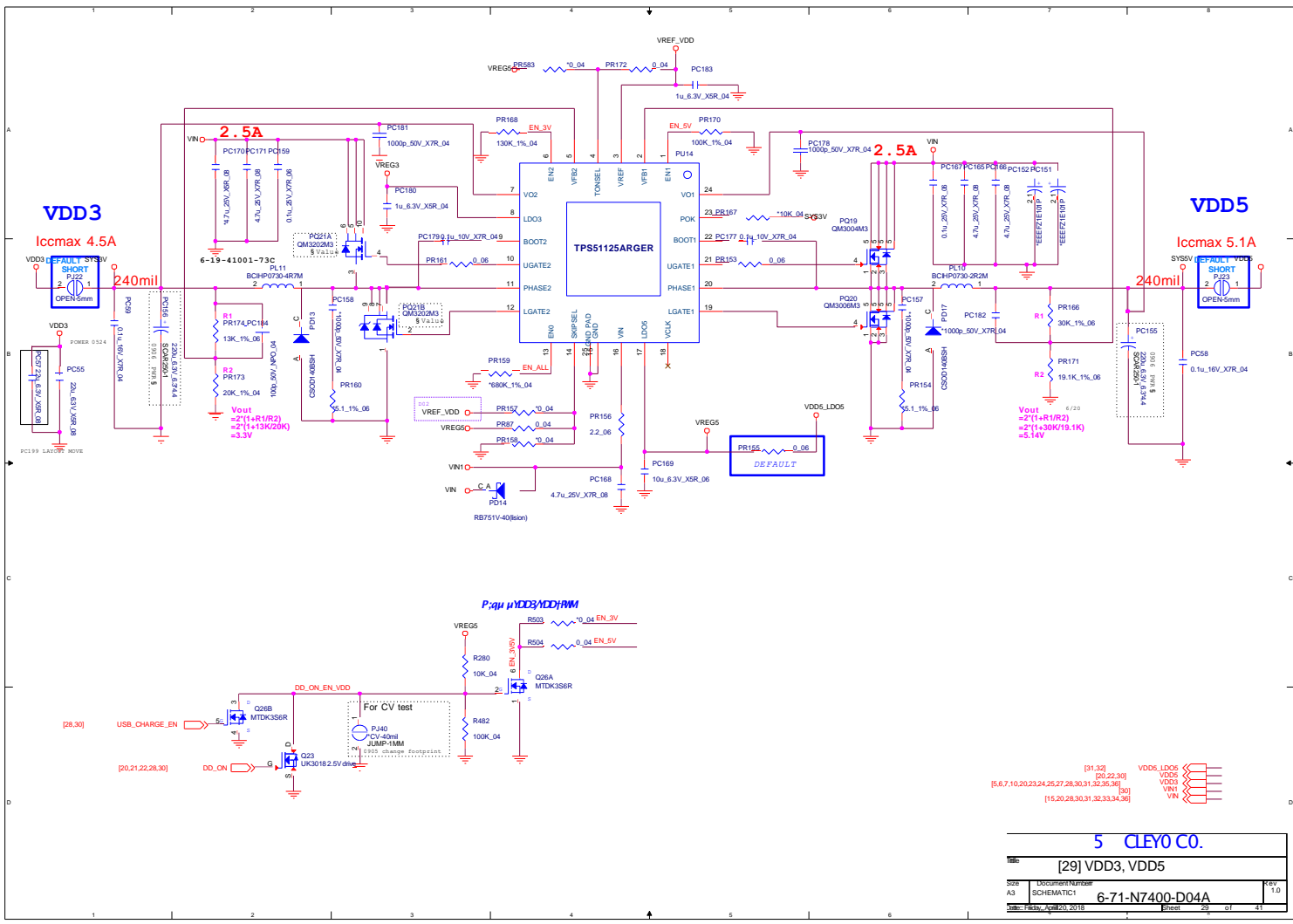
Smart Connect Function fl6 3A® S 2nd
sourcen;

6-36-00180-250
CPU HOLD



IT8587

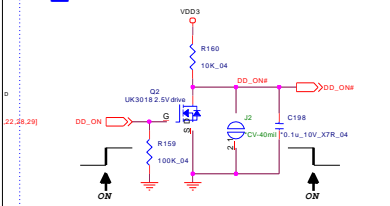




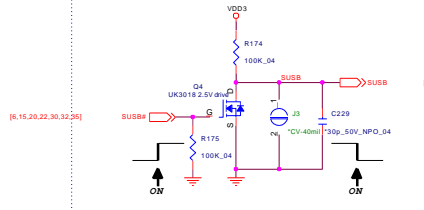
[31,32] [20,22,30]
 [6,6,7,10,20,23,24,25,27,28,30,31,32,35,36]
 [30]
 [15,20,28,30,31,32,33,34,36]

5 CLEY0 C0.	
[29] VDD3, VDD5	
Doc	
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Of	41

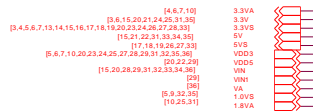
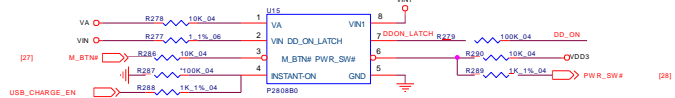
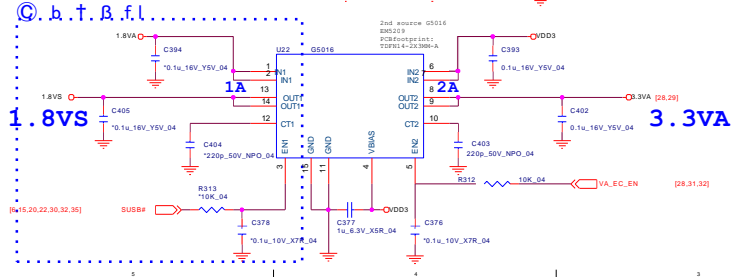
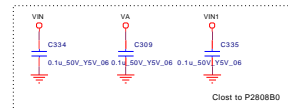
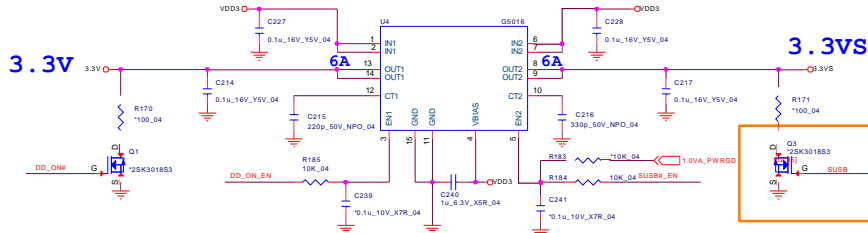
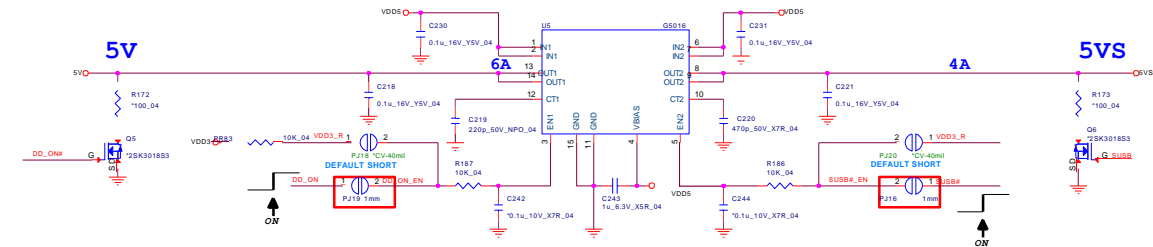
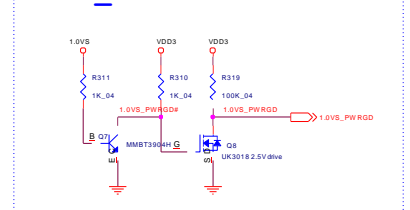
DD ON#



SUSB

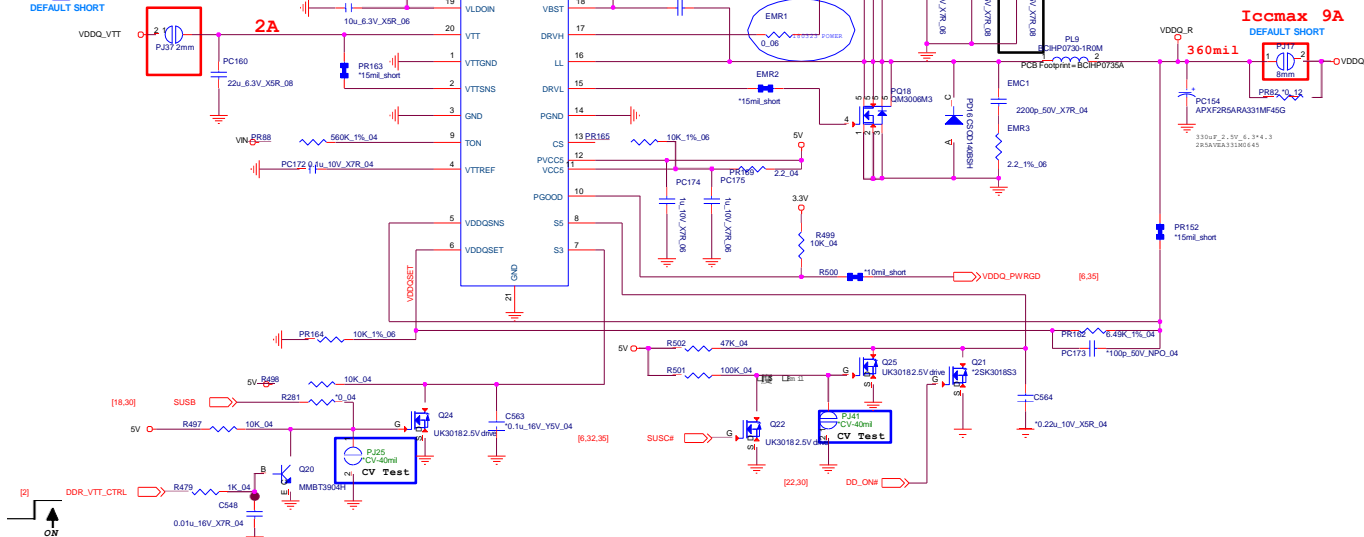


1.0VS PWRGD

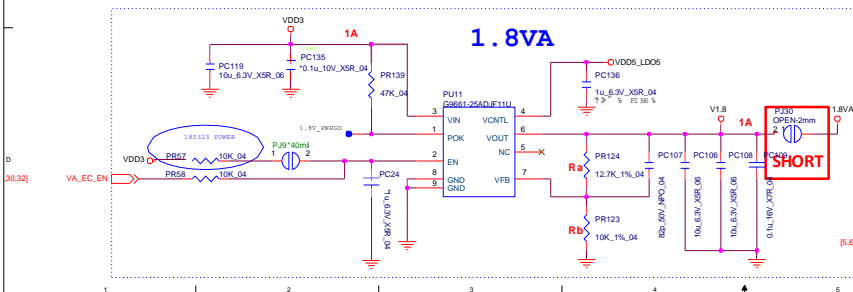


5 CLEY0 C0.			
Part	[30] 3V,5V,3VS,5VS,1.8VS, CTL		
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DDR4
1.2V/0.6VS
VDDQ_VTT (0.6V)



1.8VA



[10,25,30]
[9,13,14]
[3,6,15,20,21,24,25,30,35]
[5,6,7,10,20,23,24,25,27,28,29,30,32,35,36]
[15,21,22,30,33,34,35]
[15,20,28,29,30,32,33,34,36]
[29,32]

1.8VA
VDDQ_VTT
3.3V
VDD3
VIN
VDD6_VDD5

5 CLEY0 C0.

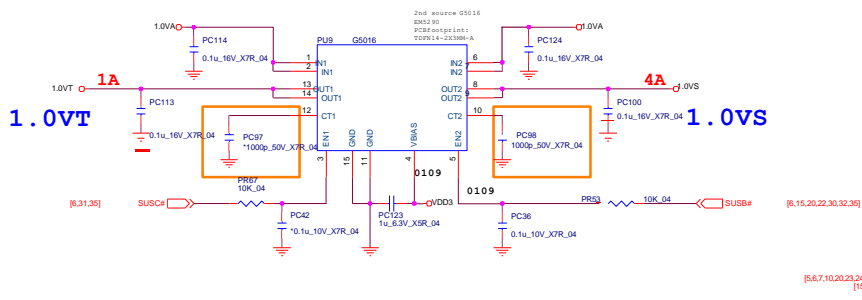
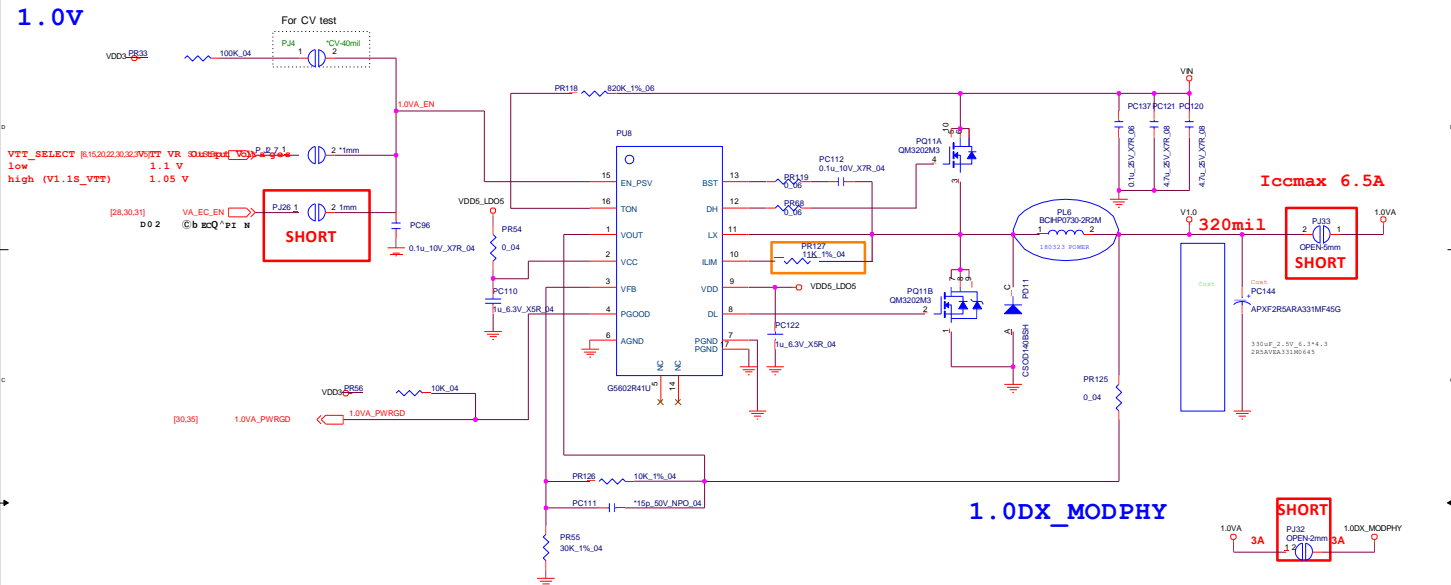
[31] VDDQ,VDDQ_VTT,1.5VS,1.8VA

Size Document Number
A3 SCHEMATIC1

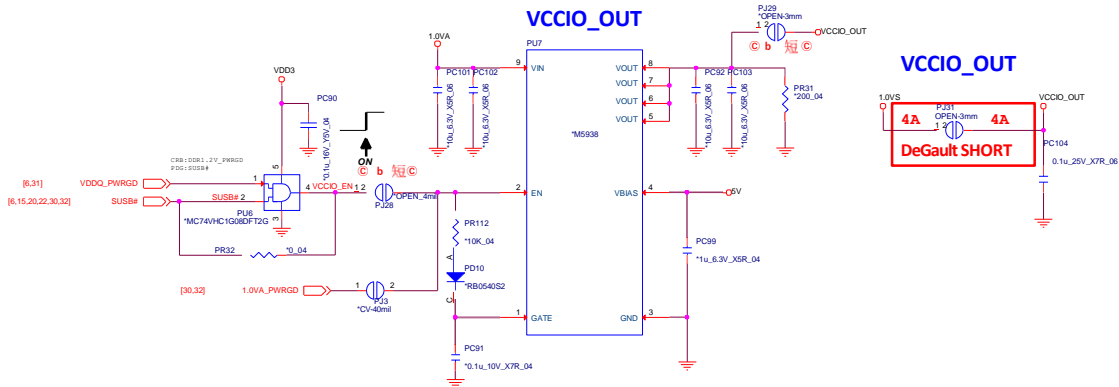
6-71-N7400-D04A

Rev 1.0

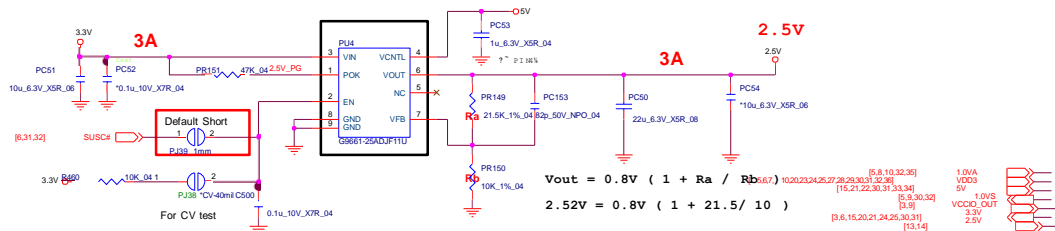
1.0V



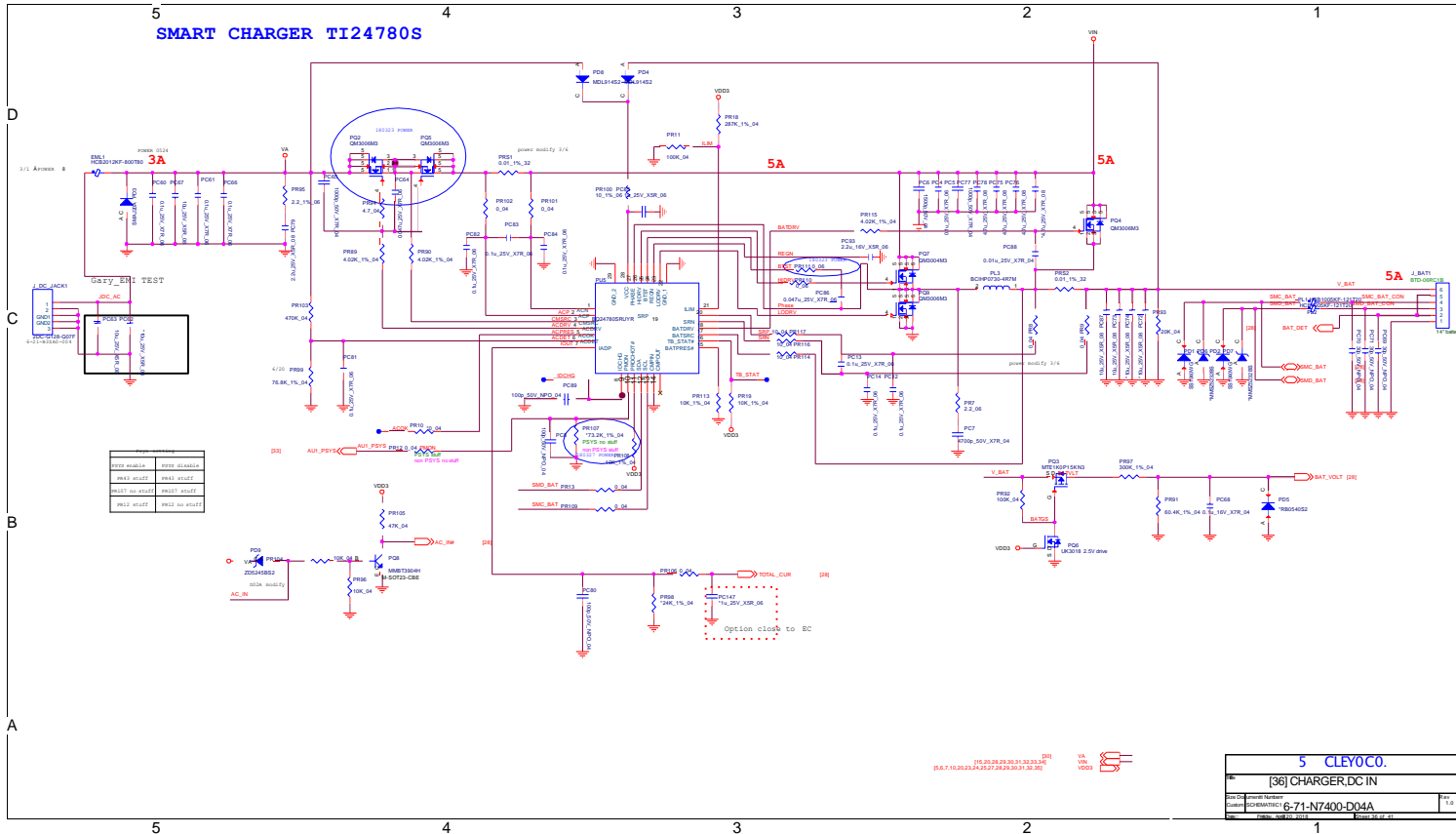
5 CLEY0C0.			
[32] 1.0V SERIES			
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A3 SCH	EMATIC1	6-71-N7400-D04A	1.0
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Layout trace 2A after jumper



SMART CHARGER TI24780S



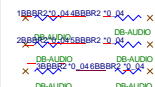
BB_USBVCC



Coat
Footprint fp225h-030qxxm



Layout note:
HeadphoneCE! > 10mils
phon e jack
R / L " " - GNDw 9



CLEY0 C0. 5

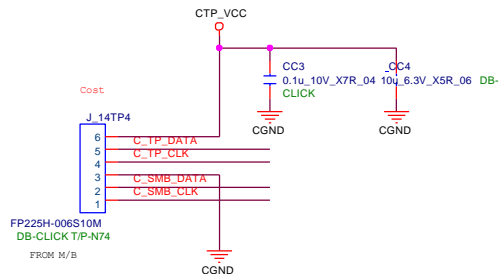
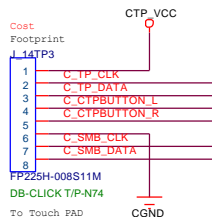
[41] KBL AUDIO BOARD (for N740)

Size A3	Document Number	6-71-N7408-D03
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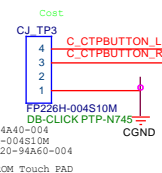
Date: Friday, April 20, 2018

N74 CLICK BOARD

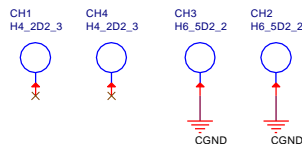
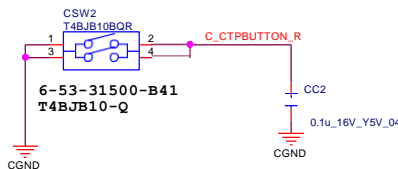
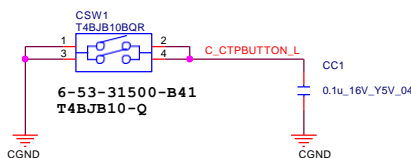
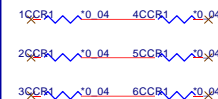
PS2 for N74



PTP for N745



PCBA CHECK



5

CLEY0 C0.

Title [38] KBL CLICK BOARD

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W/ USB CHARGER 3.0 TYPEA	W/O USB CHARGER 3.0 TYPEA
U14 SLG55593VTR C332 0.1u 16V_Y5V_04 R195 100K_04 R265 10K_04 R245 0_04	R69 10K_04 R489 0_04 R490 0_04 R194 0_04

W/ USB CHARGER 3.1 TYPEA (C b)	W/O USB CHARGER 3.1 TYPEA (C b)
U14 SLG55593VTR C332 0.1u 16V_Y5V_04 R195 100K_04 R265 10K_04 R243 0_04	R69 10K_04 R489 0_04 R490 0_04 R242 0_04

eDP	LVDS
C417 0.1u 10V X7R_04 C418 0.1u 10V X7R_04 C419 0.1u 10V X7R_04 C420 0.1u 10V X7R_04 C421 0.1u 10V X7R_04 C422 0.1u 10V X7R_04 C433 0.1u 10V X7R_04 C434 0.1u 10V X7R_04 C435 0.1u 10V X7R_04 C436 0.1u 10V X7R_04 R10 0_04 R21 0_04 R336 0_04 R34 100K_04 R35 1K_04 R384 10K_04 D26 BAV99 RECTIFIER J_LCD1 lvdh-03008-tp00+	C1 0.1u 10V X7R_04 C10 2.2u 6.3V X5R_04 C16 0.1u 10V X7R_04 C17 0.1u 10V X7R_04 C18 0.1u 10V X7R_04 C2 0.1u 10V X7R_04 C3 0.1u 10V X7R_04 C4 0.1u 10V X7R_04 C7 0.1u 10V X7R_04 C8 0.1u 10V X7R_04 C9 0.1u 10V X7R_04 C352 0.1u 10V X7R_04 C353 2.2u 6.3V X5R_06 C361 2.2u 6.3V X5R_04 C362 0.1u 10V X7R_04 C363 0.1u 10V X7R_04 C364 0.1u 10V X7R_04 R11 10K_04 R12 0_06 R19 2.2K_04 R20 2.2K_04 R22 10K_04 R23 4.7K_04 R26 4.7K_04 R27 100K_04 R28 0_04 R3 12K 1%_04 R306 0_06 R307 0_06 R343 0_04 R36 0_04 R37 0_04 R383 10K_04 R39 0_04 R40 0_04 R41 0_04 R42 0_04 U2 RPD2136N-CG J_LCD2 LVDPH-04008-TP00+

USB3.1	
C236 0.1u 16V_Y5V_04 C249 20p 50V NPO_04 C250 22u 6.3V X5R_08 C251 22u 6.3V X5R_08 C260 0.1u 10V X7R_04 C270 0.1u 16V_Y5V_04 C271 0.1u 16V_Y5V_04 C272 0.1u 16V_Y5V_04 C273 0.22u 10V X5R_04 C274 0.22u 10V X5R_04 C275 0.22u 10V X5R_04 C276 1000p 50V X7R_04 C277 4.7u 25V X5R_08 C278 4.7u 25V X5R_08 C296 10u 6.3V X5R_06 C297 0.1u 16V_Y5V_04 C298 0.1u 16V_Y5V_04 C299 10u 6.3V X5R_06 C300 4.7u 6.3V X5R_06 C301 0.22u 10V X5R_04 C302 0.22u 10V X5R_04 C303 0.22u 10V X5R_04 C304 0.22u 10V X5R_04 C305 0.22u 10V X5R_04 C306 220p 50V NPO_04 C307 15p 50V NPO_04 C308 1u 6.3V X5R_04 C324 0.1u 16V_Y5V_04 C325 0.1u 16V_Y5V_04 C326 0.1u 16V_Y5V_04 C327 12p 50V NPO_04 C328 0.22u 10V X5R_04 C329 10u 6.3V X5R_06 C331 0.1u 16V_Y5V_04 C332 0.1u 16V_Y5V_04 D7 RB75IV-40 (liasion) L22 BCHP0420TB-2R2M	R182 4.7K_04 R196 1K_04 R197 4.7K_04 R198 4.7K_04 R199 4.7K_04 R200 4.7K_04 R215 4.7K_04 R222 10K_04 R223 10_06 R224 10K_04 R235 0_04 R236 100K 1%_04 R237 76.8K 1%_04 R238 47K 1%_04 R248 12.1K 1%_04 R250 0_04 R251 40.2K 1%_04 R260 0_04 R261 0_04 R272 4.7K_04 R487 0_04 R488 0_04 R506 0_04 R507 0_04 C553 10u 6.3V X5R_06 C554 0.1u 16V_Y5V_04 C555 10u 6.3V X5R_06 C556 4.7u 6.3V X5R_06 C557 10u 6.3V X5R_06 C558 0.1u 16V_Y5V_04 C559 0.1u 16V_Y5V_04 C560 0.1u 16V_Y5V_04 C561 0.1u 16V_Y5V_04 U11 ME2315GJ-Z U12 ASM1142 U13 EMS209 U6 GD25D10BTIGR X2 FSX3M 20.0000000M16FA0

USB3.1 TYPEA (C b)	USB3.0 TYPEA
C292 0.22u 10V X5R_04 C293 0.22u 10V X5R_04 P01 28K301883 PR84 10K_04 PR85 10K_04 PR86 100K_04 R262 0_04 R263 0_04 R485 0_04 R486 0_04	C290 0.22u 10V X5R_04 C291 0.22u 10V X5R_04 R268 0_04 R269 0_04 R493 0_04 R494 0_04

W/ TPM	W/O TPM
U32 SLB9665TT 5.51 C456 0.1u 16V_Y5V_04 C460 0.1u 16V_Y5V_04 C471 0.1u 16V_Y5V_04 C472 0.1u 16V_Y5V_04 R401 4.7K_04 R392 10K_04 R433 22_04	R396 100K_04

W/ 3G LTE (14"/15")
C12 22u 6.3V X5R_06 C13 22u 6.3V X5R_06 C14 0.1u 16V_Y5V_04 C24 22u 6.3V X5R_06 C25 22u 6.3V X5R_06 C26 0.1u 16V_Y5V_04 C379 22u 6.3V X5R_06 C380 0.1u 16V_Y5V_04 C395 1u 6.3V X5R_04 C396 0.1u 16V_Y5V_04 C406 0.1u 10V X7R_04 C407 0.1u 10V X7R_04 C412 470p 50V X7R_04 C413 6.3V 6.3*5.7MM C6 22u 6.3V X5R_06 J_3G1 NASB00-s6701-TS50 Q10 MTS357266 Q9 28K301883 R17 10K_04 R32 330K_04 R329 10_06 R33 100K_04

W/ 3G LTE (14"/17")
C11 0.1u 16V_Y5V_04 C20 0.01u 16V_X7R_04 J_SIM1 FLY-160429-02

W/ 3G LTE (14"/17")
C11 0.1u 16V_Y5V_04 C20 0.01u 16V_X7R_04 J_SIM1 FLY-160429-02

USB3.1 2142 (option)
C340 0.1u 16V_Y5V_04 C341 4.7u 6.3V X5R_06 C342 1u 6.3V X5R_04 L57 HCB1608KF-121T30 R246 0_04 R273 47K 1%_04 R274 44.2K 1%_04 R275 10K 1%_04 U16 NCT37050-A

W/ 3G LTE (14"/17")
C11 0.1u 16V_Y5V_04 C20 0.01u 16V_X7R_04 J_SIM1 FLY-160429-02

W/ 3G LTE (17")
C12 22u 6.3V X5R_06 C13 22u 6.3V X5R_06 C14 0.1u 16V_Y5V_04 C24 22u 6.3V X5R_06 C25 22u 6.3V X5R_06 C26 0.1u 16V_Y5V_04 C379 22u 6.3V X5R_06 C380 0.1u 16V_Y5V_04 C395 1u 6.3V X5R_04 C396 0.1u 16V_Y5V_04 C406 0.1u 10V X7R_04 C407 0.1u 10V X7R_04 C412 470p 50V X7R_04 C413 6.3V 6.3*5.7MM C6 22u 6.3V X5R_06 J_3G1 NASB00-s6701-TS50 Q10 MTS357266 Q9 28K301883 R17 10K_04 R32 330K_04 R329 10_06 R33 100K_04

W/ 3G LTE (17")
C12 22u 6.3V X5R_06 C13 22u 6.3V X5R_06 C14 0.1u 16V_Y5V_04 C24 22u 6.3V X5R_06 C25 22u 6.3V X5R_06 C26 0.1u 16V_Y5V_04 C379 22u 6.3V X5R_06 C380 0.1u 16V_Y5V_04 C395 1u 6.3V X5R_04 C396 0.1u 16V_Y5V_04 C406 0.1u 10V X7R_04 C407 0.1u 10V X7R_04 C412 470p 50V X7R_04 C413 6.3V 6.3*5.7MM C6 22u 6.3V X5R_06 J_3G1 NASB00-s6701-TS50 Q10 MTS357266 Q9 28K301883 R17 10K_04 R32 330K_04 R329 10_06 R33 100K_04

W/ 3G LTE (17")
C12 22u 6.3V X5R_06 C13 22u 6.3V X5R_06 C14 0.1u 16V_Y5V_04 C24 22u 6.3V X5R_06 C25 22u 6.3V X5R_06 C26 0.1u 16V_Y5V_04 C379 22u 6.3V X5R_06 C380 0.1u 16V_Y5V_04 C395 1u 6.3V X5R_04 C396 0.1u 16V_Y5V_04 C406 0.1u 10V X7R_04 C407 0.1u 10V X7R_04 C412 470p 50V X7R_04 C413 6.3V 6.3*5.7MM C6 22u 6.3V X5R_06 J_3G1 NASB00-s6701-TS50 Q10 MTS357266 Q9 28K301883 R17 10K_04 R32 330K_04 R329 10_06 R33 100K_04

USB3.1 1142 (default)
L56 HCB1608KF-121T30 R247 0_04

USB3.0
R266 0_04 R267 0_04 R282 0_04 R283 0_04 R495 0_04 R496 0_04

PWR U4+2
C444 12p 50V NPO_04 C450 12p 50V NPO_04 R103 0.2m 1%_08 R364 1M 1%_04 R88 0.2m 1%_08 X4 FSX3M 24MHZ PR16 51K 1%_04 PR22 33.2K 1%_04 PR46 31.6K 1%_04 PR47 46.4K 1%_04 PR48 34K 1%_04 PC19 33p 50V NPO_04 PR17 10.5K 1%_04 C142 1u 6.3V X5R_04 C126 22u 6.3V X5R_06 C120 10u 6.3V X5R_06 C123 10u 6.3V X5R_06 C124 10u 6.3V X5R_06

PWR U2+2
C451 12p 50V NPO_04 C452 12p 50V NPO_04 R370 1M 1%_04 R86 0_04 R87 0.2m 1%_08 X3 FSX3M 24MHZ PR16 270K 1%_04 PR22 29.4K 1%_04 PR46 3.9K 1%_0402 PR47 49.9K 1%_04 PR48 34K 1%_04 PC19 68p 50V NPO_04 PR17 9.1K 1%_04 C140 22u 6.3V X5R_06 C77 1u 6.3V X5R_04 C118 10u 6.3V X5R_06