MS-AA711 Ver: 1.1

AA711 MB panel & converter	
Panel	Chimei 20.5" 606-AA711-010(AC73) multi touch
	Chimei 20.5" 606-AA711-020(AC73) multi touch
	Samsung 20" 606-AA711-030(AA71) multi touch
	Chimei 18.5" 606-AA711-040(A951) single touch
	Chimei 18.5" 606-AA711-050(A951) non touch

CPU:

INTEL-Sandy bridge LGA1155

System Chipset:

INTEL-Cougar Point (H61)

OnBoard Chipset:

HD Audio Codec:ALC887

LAN:Realtek RTL8111E

SIO:Nuvoton NCT6681D

USB3.0:ASMedia ASM1042

DUAL SPI ROM:Fintek F75221

Main Memory:

DDRIII (1066/1333MHz) * 2 (Dual Channel)

Expansion Slots:

MINIPCI Express (X1) Slot * 2

PWM:

Controller:NCP6131 3+1Phase (65W)

Other:

SATA(SATA2-300MB/s) *2

USB2.0 *4

USB3.0 *2

HDMI OUT*1

HDMI IN*1

Card reader*1

COM Port*1

0002980 FOR RMA(丁德基)

MSI 微星 CONFIDENTIAL RD(C)20110818001 ONLY

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MS-AA711

Size	Document Description	Rev
C	Cover Sheet	1.1

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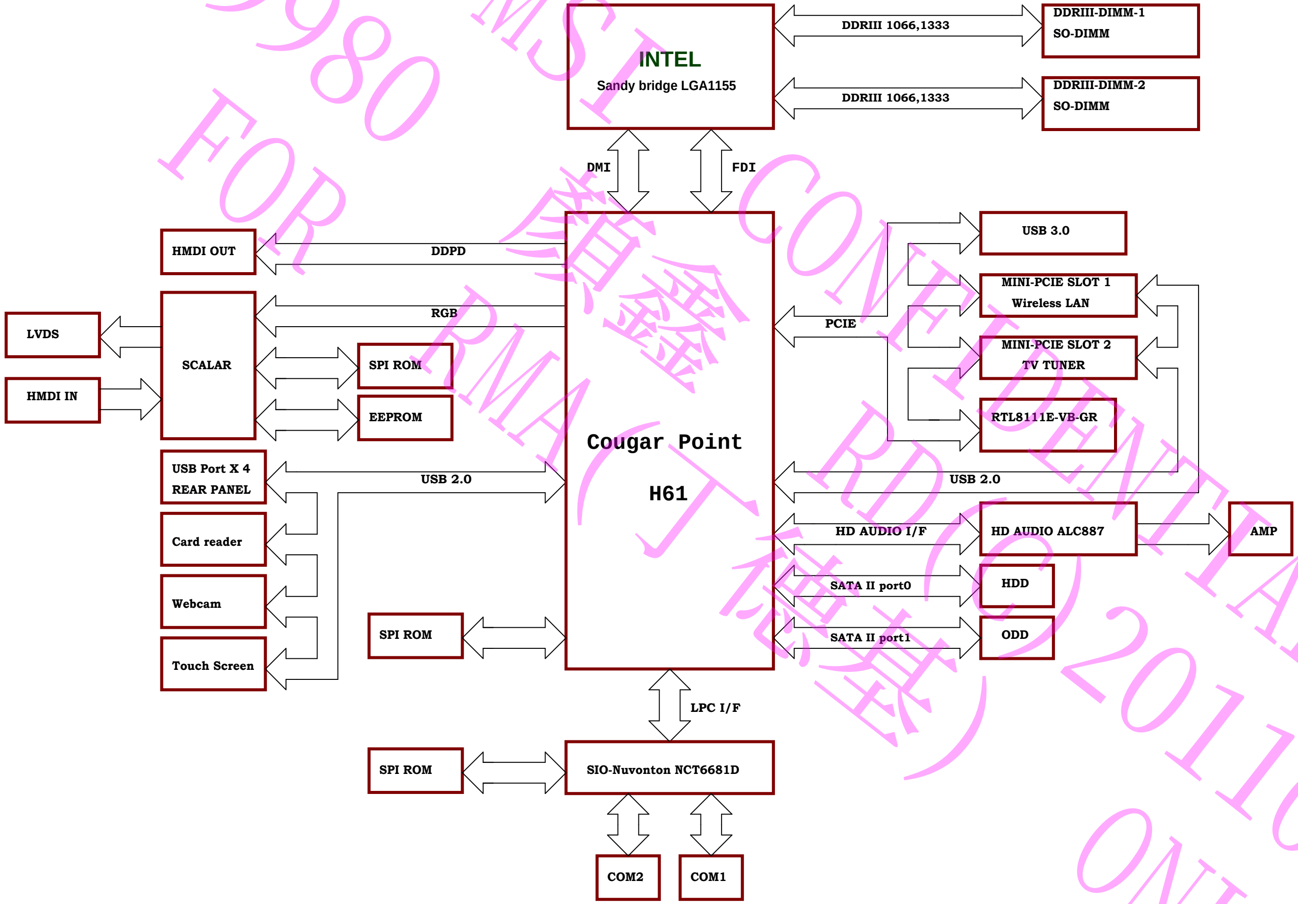
MS-AC73 (MS-AA711)



00029980 MSI CONFIDENTIAL
FOR RMA (丁德基) 顏鑫 RD (C) 20110818001 ONLY

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MS-AA711		
Size: C	Document Description: **Block Diagram**	Rev: 1.1
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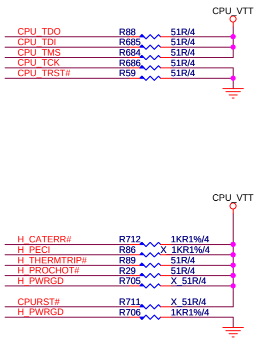

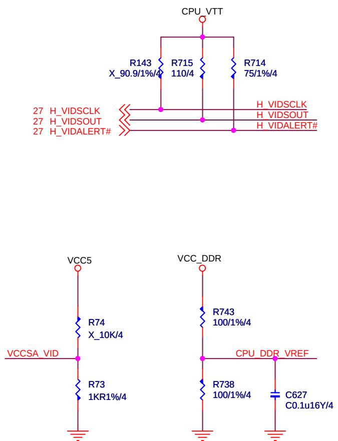

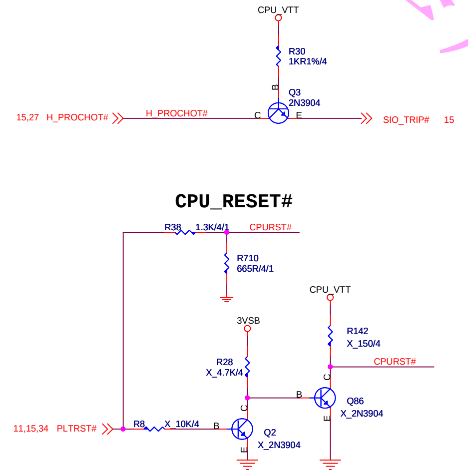

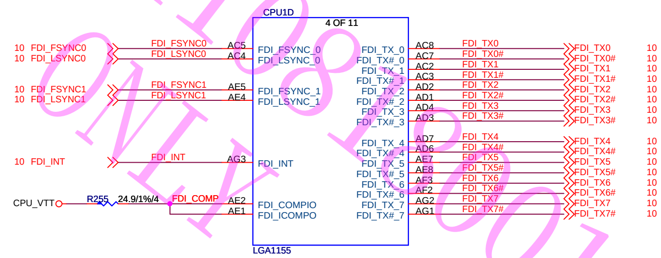

PEG CONFIG TABLE

SEL2	SEL1	SEL0	PCIE CONFIG
1	1	1	1 X 16
1	1	0	2 X 8

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Size	Document Description	Rev
C	CPU-CNTL/CLK/MISC	1.1

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00020980 MSI FOR 煩鑫 RMA(丁德基) CONFIDENTIAL RD(C)20110811 ONLY
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MS-AA711		
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MSI CONFIDENTIAL FOR RMA（丁德基）ONLY 颀鑫 20110818001

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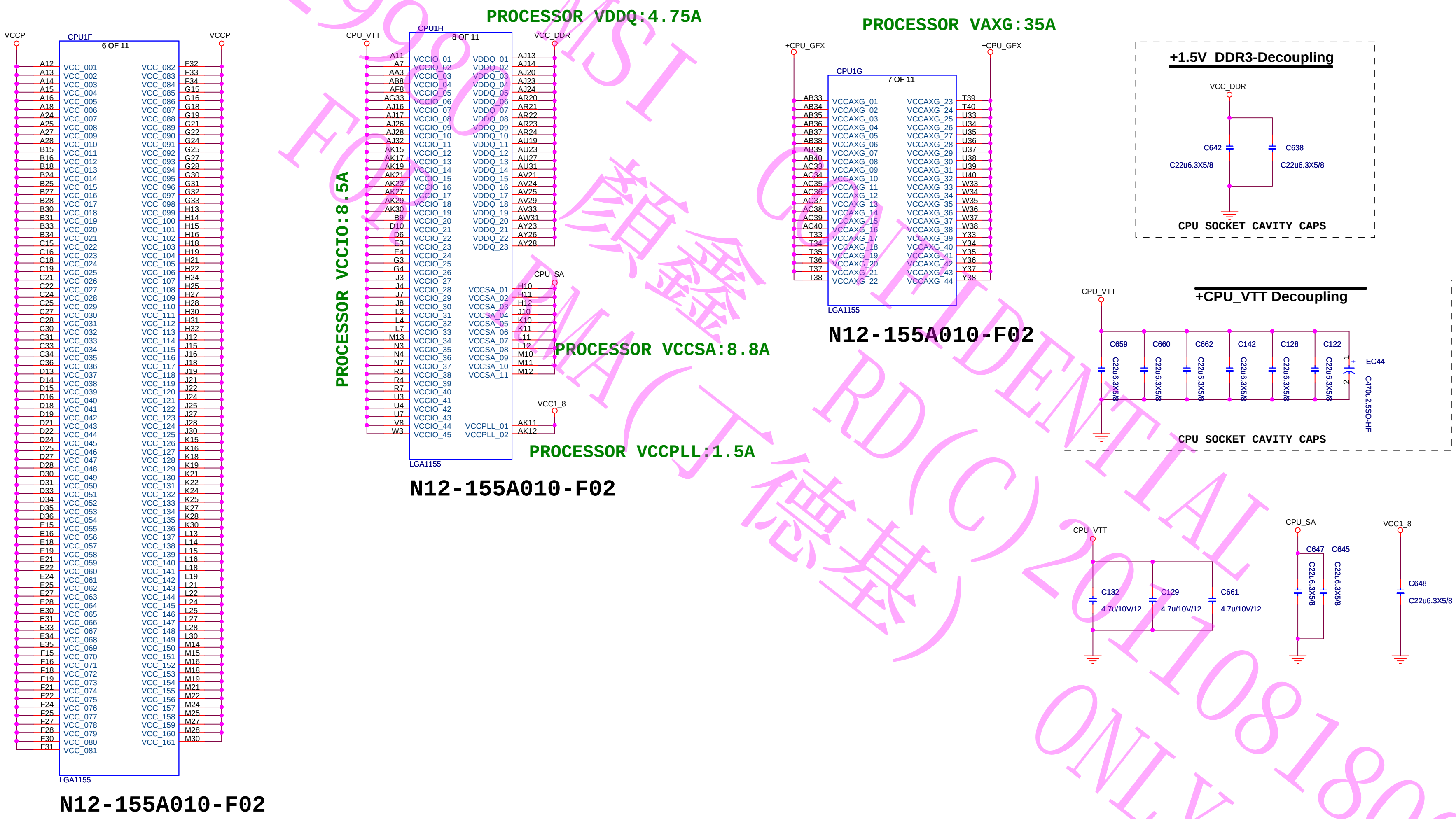

0002998 MSI CONFIDENTIAL FOR 顏鑫 DMA(丁德基) RD(C)20110818001 ONLY

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Size	Document Description	Rev
C	CPU-Power	1.1

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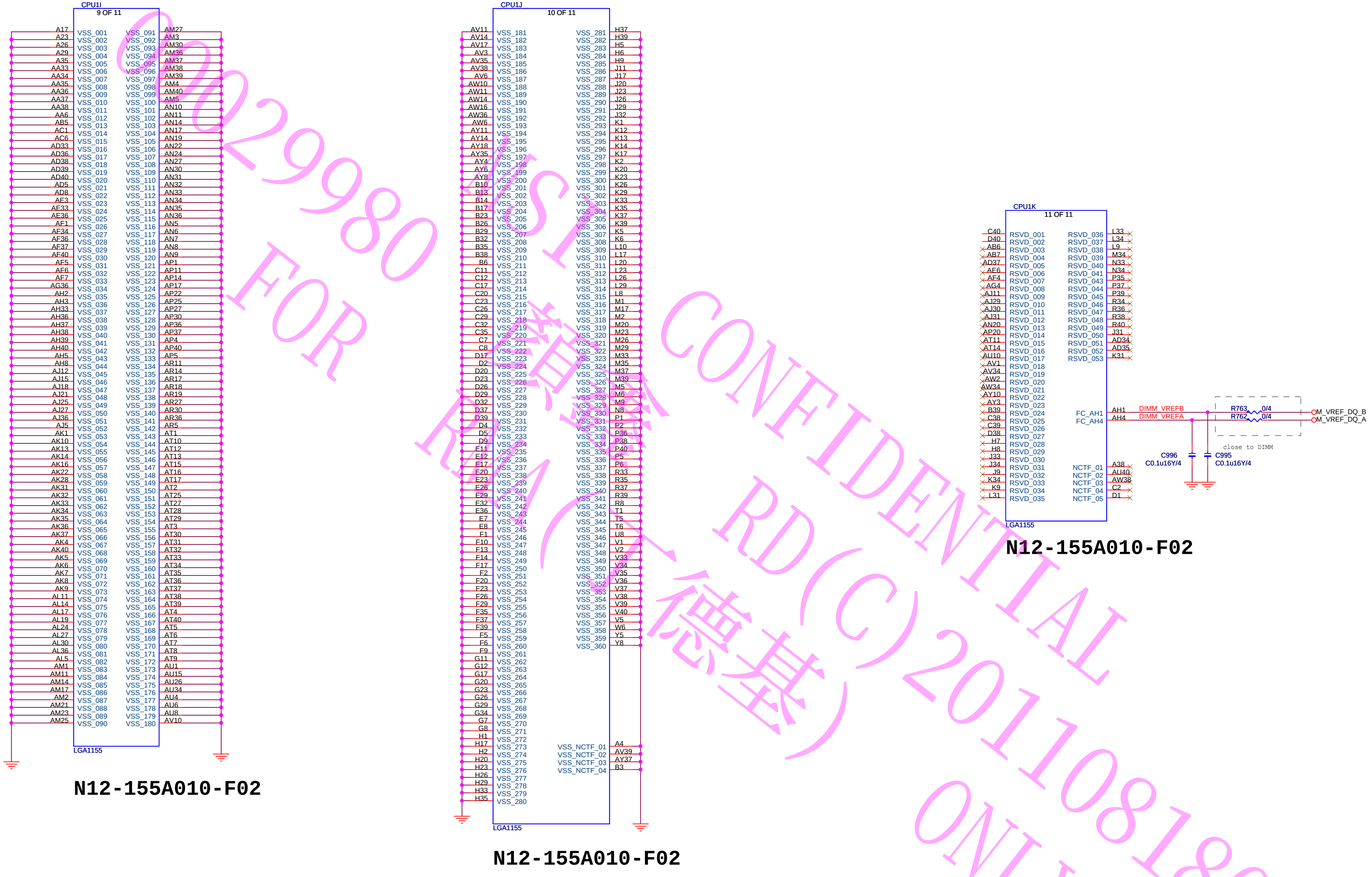

00029980 MSI 德基 FOR RD(C) CONFIDENTIAL RD(C) 2011081 8001 ONLY

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Size	Document Description	Rev
C	CPU-GND	1.1

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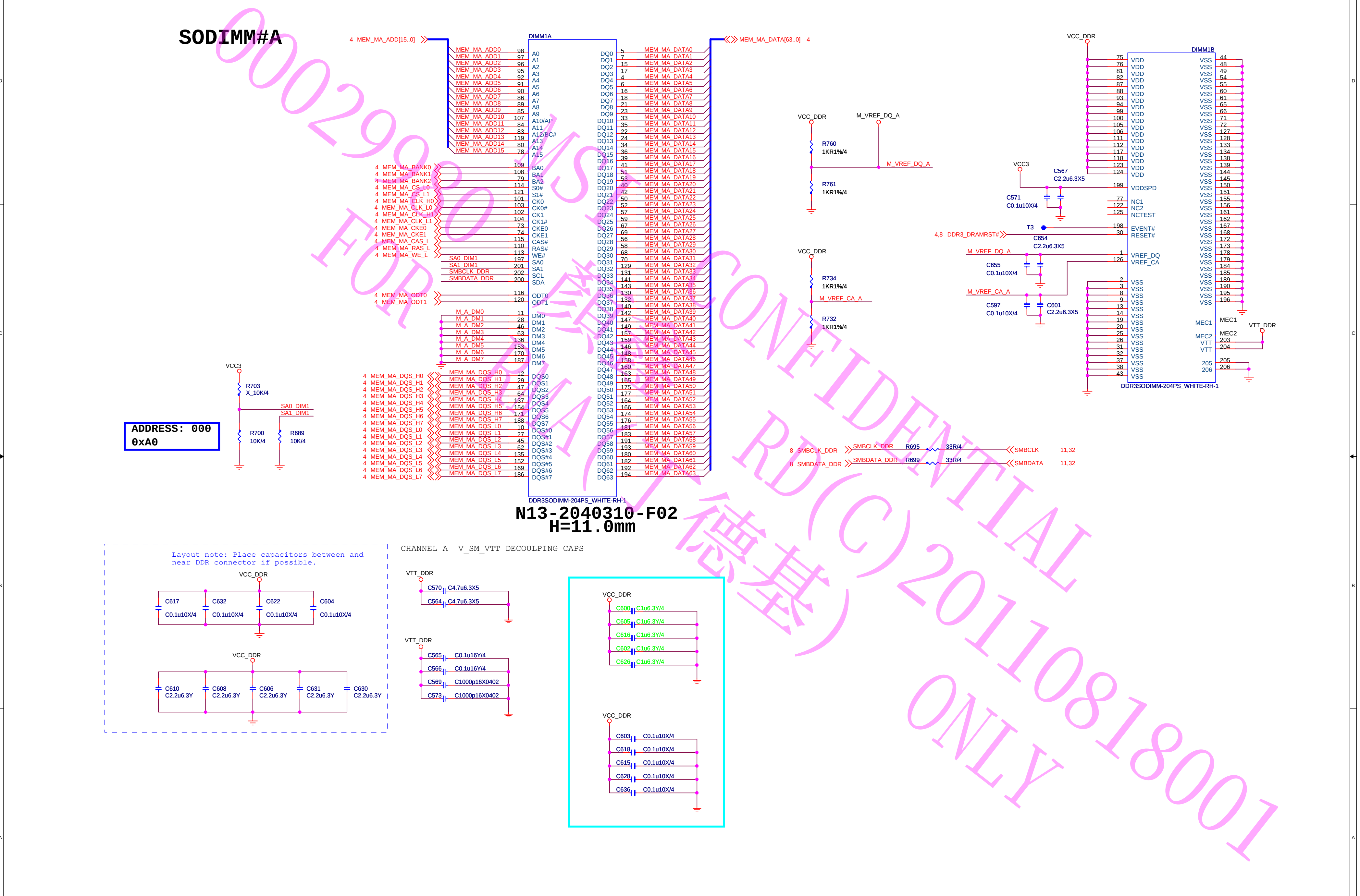

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MS-AA711		
Size C	Document Description DDR III SODIMM 1	Rev 1.1
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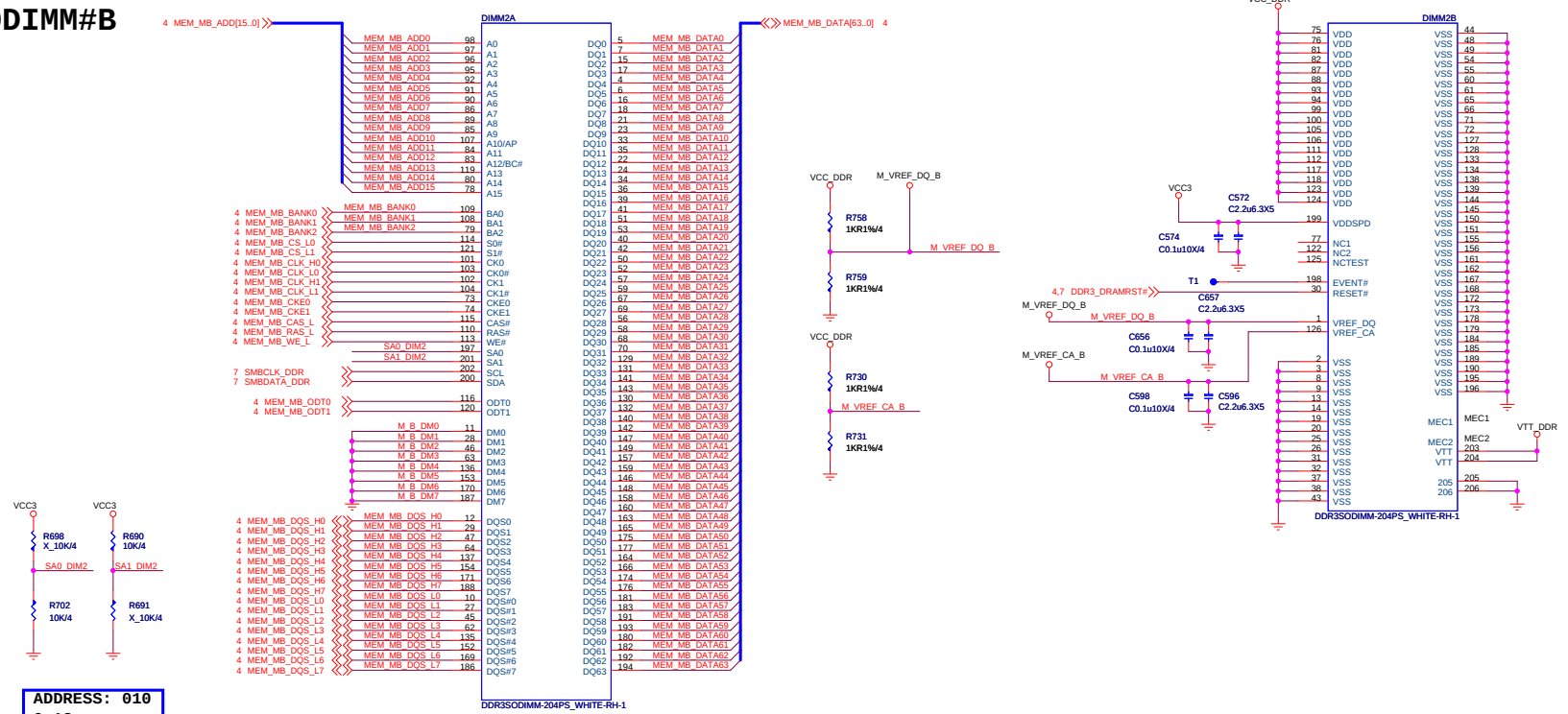
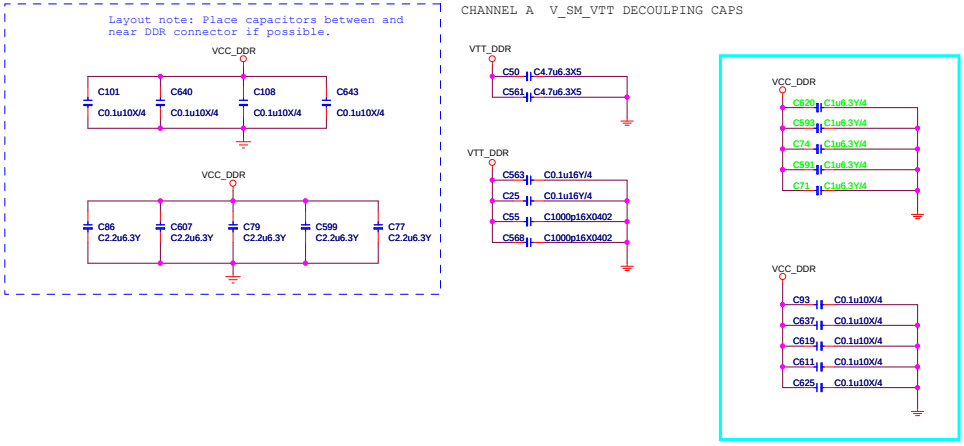
SODIMM#B



N13-2040310-F02
H=11.0mm



CHANNEL A V_SM_VTT DECOULPING CAPS

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	MS-AA711	
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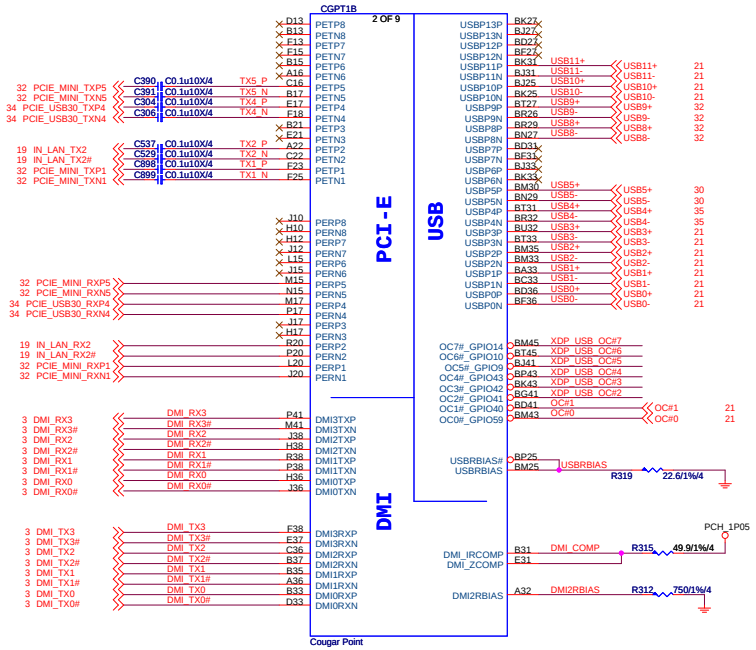
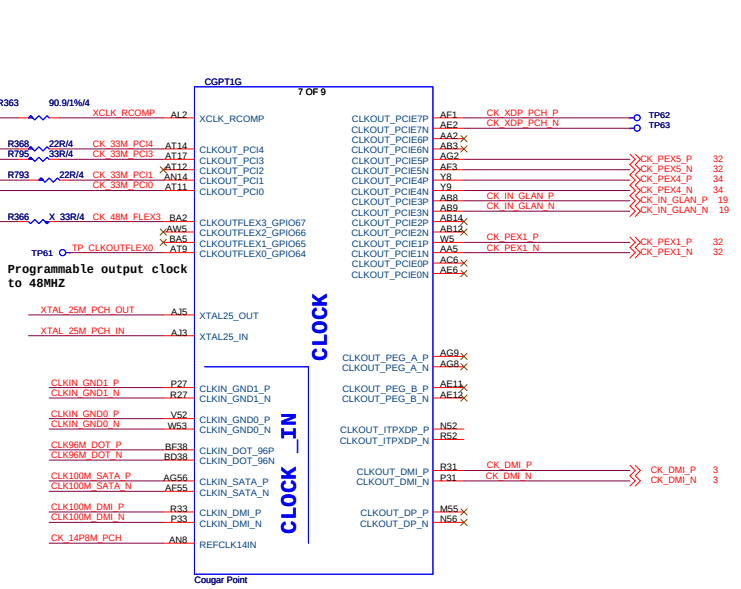
H61 SKU:PCIe ports 7 and 8 are disabled.
H61 SKU:USB ports 6, 7, 12 and 13 are disabled.



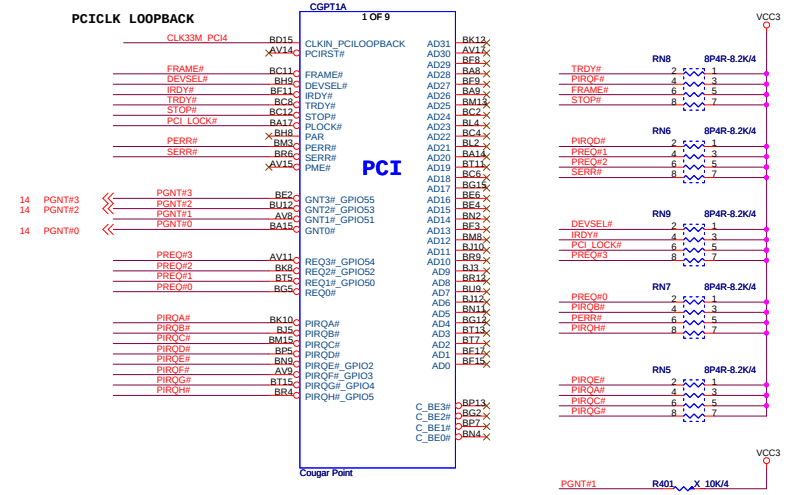
B01-00H6105-I06

Pair		Device	OC
EHCI#1	0	USB Ext. Port ?	OC#0
	1	USB Ext. Port ?	OC#0
	2	USB Ext. Port ?	OC#1
	3	USB Ext. Port ?	OC#1
	4	-	
	5	Card Reader	
	6	X	
	7	X	
EHCI#2	8	Mini card (WLAN)	
	9	Mini card (TV)	
	10	Webcam	
	11	Touch Screen	
	12	X	
	13	X	



Programmable output clock to 48MHZ

B01-00H6105-I06



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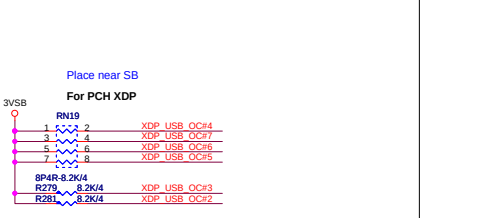

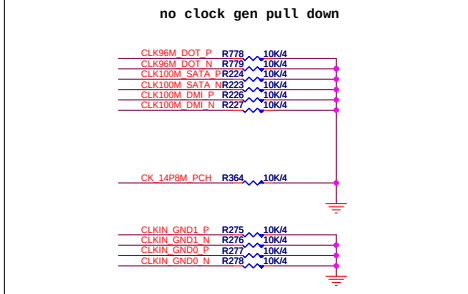

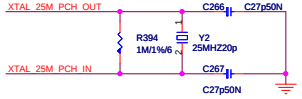

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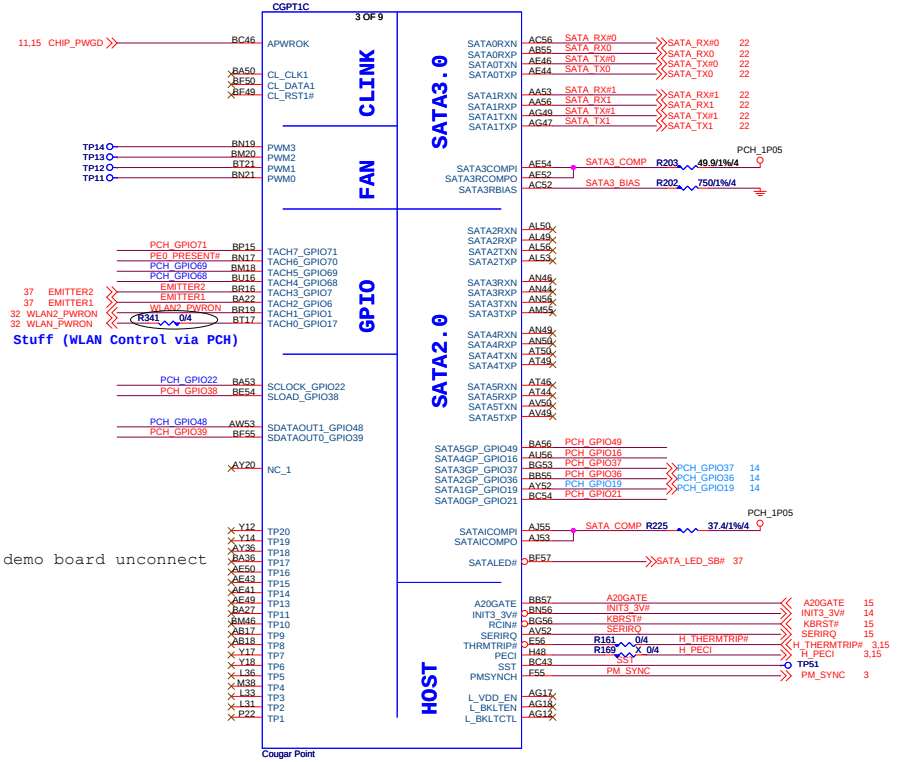
H61 SKU:SATA ports 2 and 3 are disabled.



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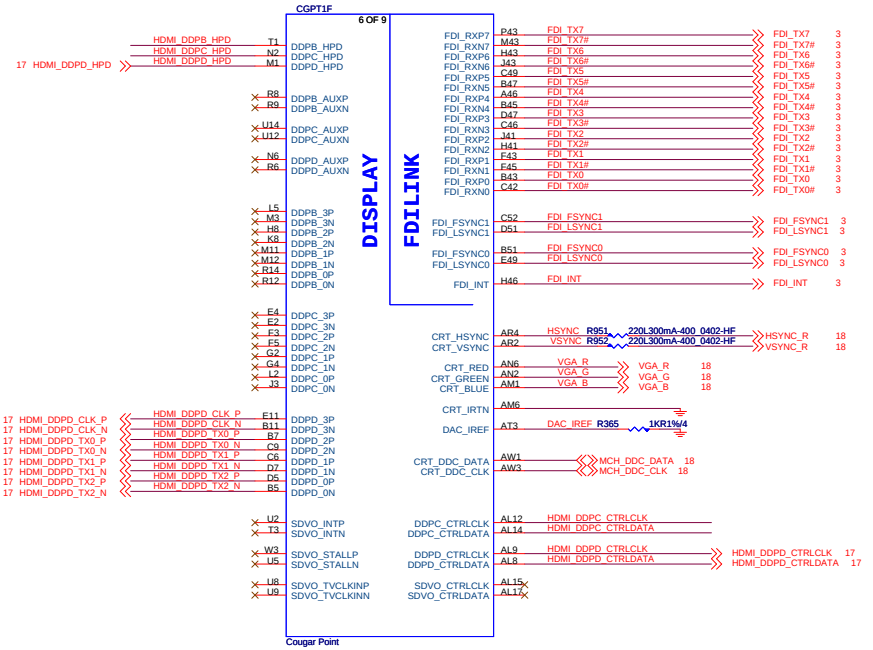
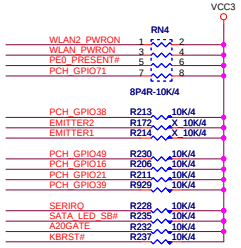
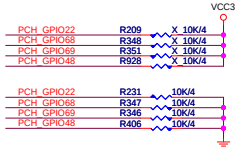


B01-00H6105-I06

Pull HIGH for PCH



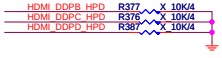
GPIO FOR BIOS(MB ID)



	GPIO22	GPIO68	GPIO69	
AA71	0	0	0	
AC73	1	0	0	w/ COMA
AC73	0	1	0	w/o COMA
AC73	1	1	0	w/o COMA (for MCJ)
	0	0	1	
	1	0	1	
	0	1	1	
AA71	1	1	1	for 清華同方

GPI048	CIR and COMA select
1	Hi : Enable CIR function
0	Lo : Enable COMA function

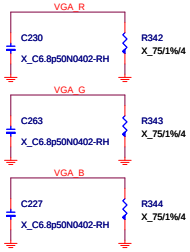
No VGA(pull down)



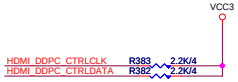
Video Connector

Thw R ,G ,B route lengths should be length match to 700mils.

PLACE CLOSE TO MCH, WITHIN 0.3 INCH.



Enable VGA (CTRLCLK/DATA PULL HIGH)



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MS-AA711

Size	Document Description	Rev
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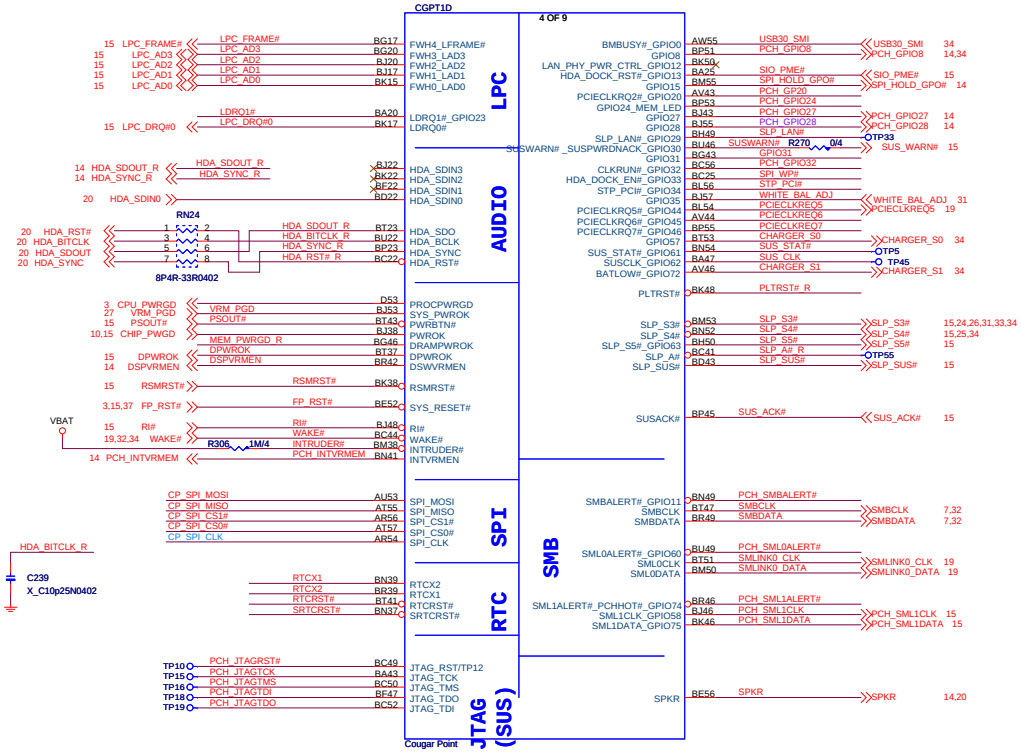

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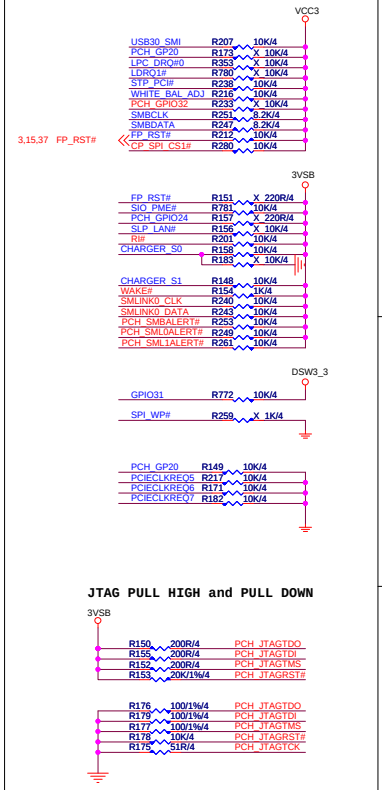
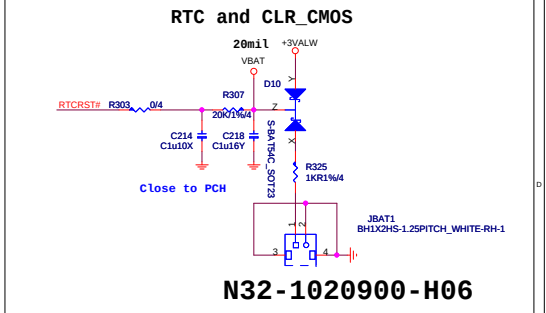
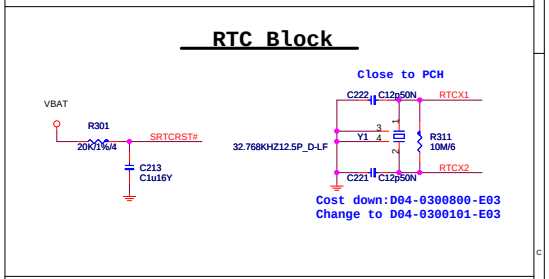
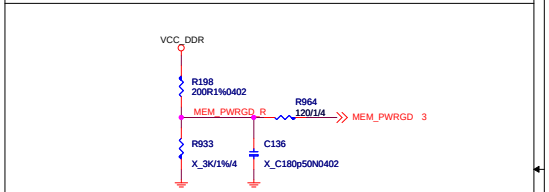
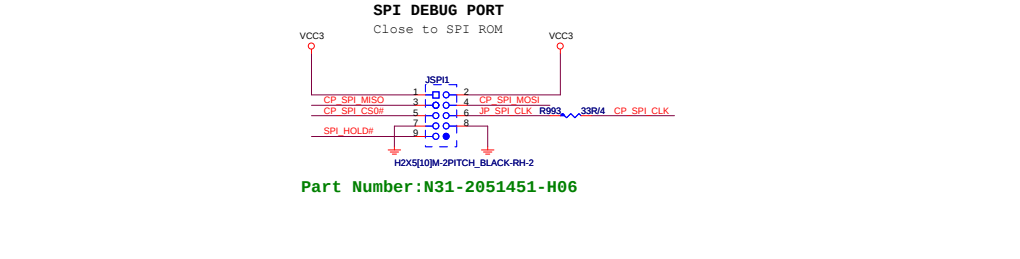




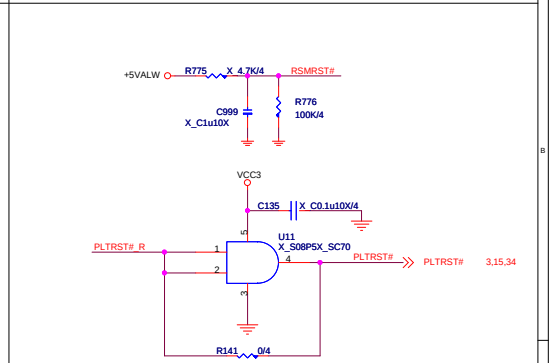
N32-1020900-H06

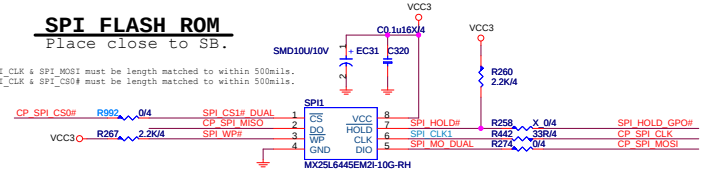




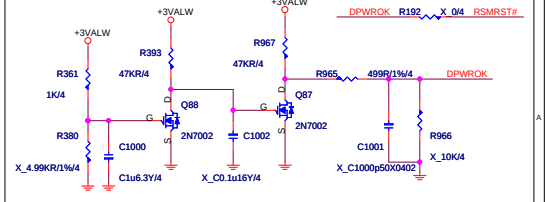


Part Number:N31-2051451-H06





M31-25L6422-M24



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Size: C	Document Description: CP SMB/LPC/AUDIO/RTC	Rev: 1.1
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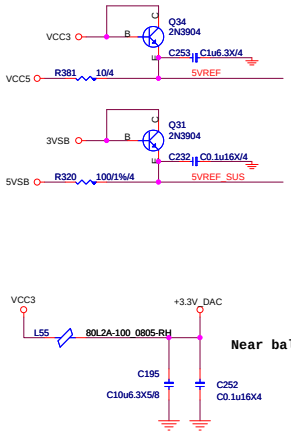
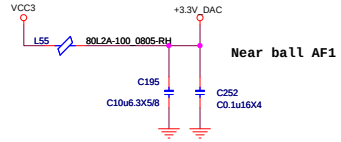
Table 3-7. VCCPLL Decoupling Requirements

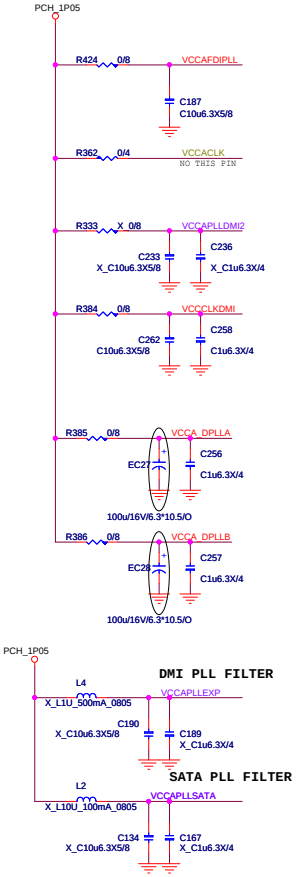
Capacitance	Qty	ESR (each)	ESL (each)	Filter	Placement	Notes
Aluminum Electrolytic 220µF	1	77mΩ	3.3nH	Output	North of processor - as close to RM keep-out as possible	1
10µF 0805 X5R	1	3mΩ	0.51nH	Output		1, 2 3

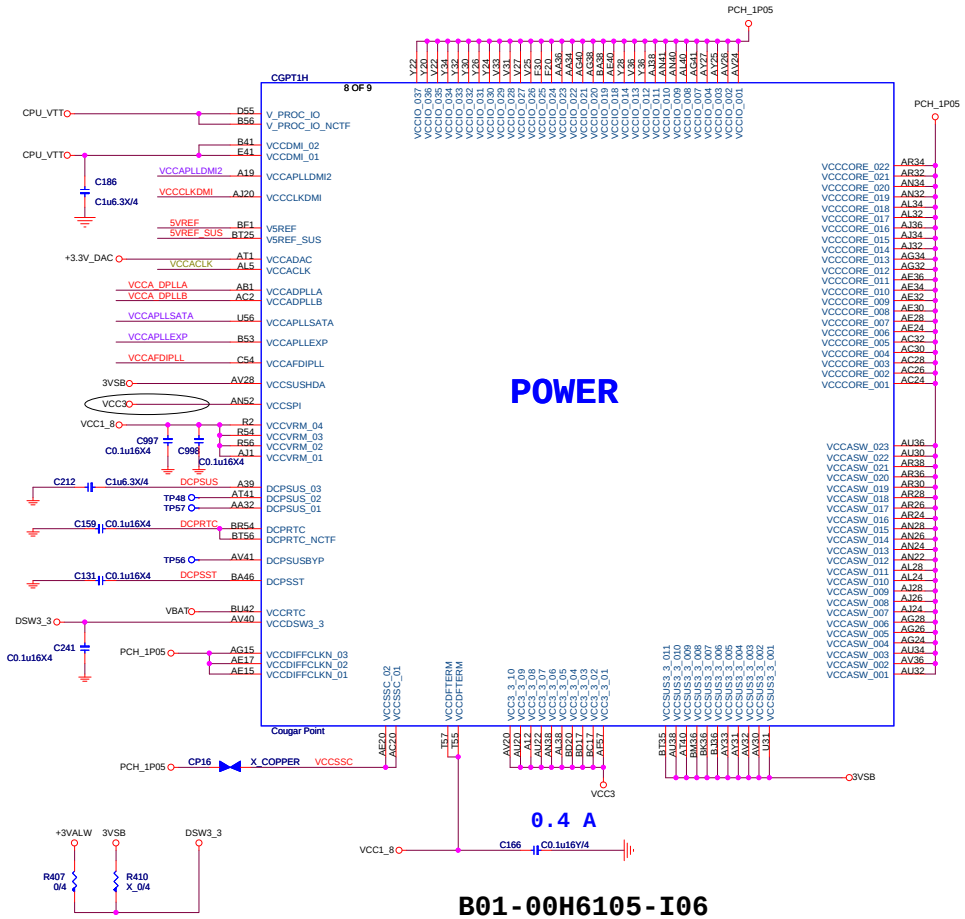
5VREF & 5VREF_SUS Sequencing Circuit





Change to 10UH if VCCA_DPLLA/VCCA_DPLLB has noise issue.

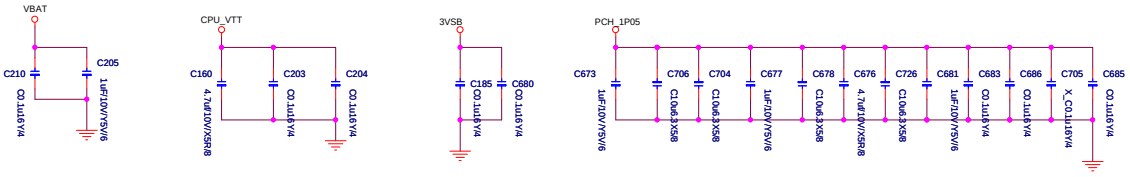


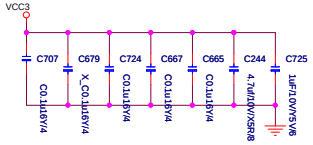


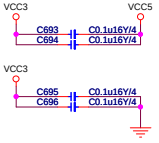
POWER

B01-00H6105-I06

PCH decoupling cap







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MS-AA711		
Size: C	Document Description: CP POWER	Rev: 1.1
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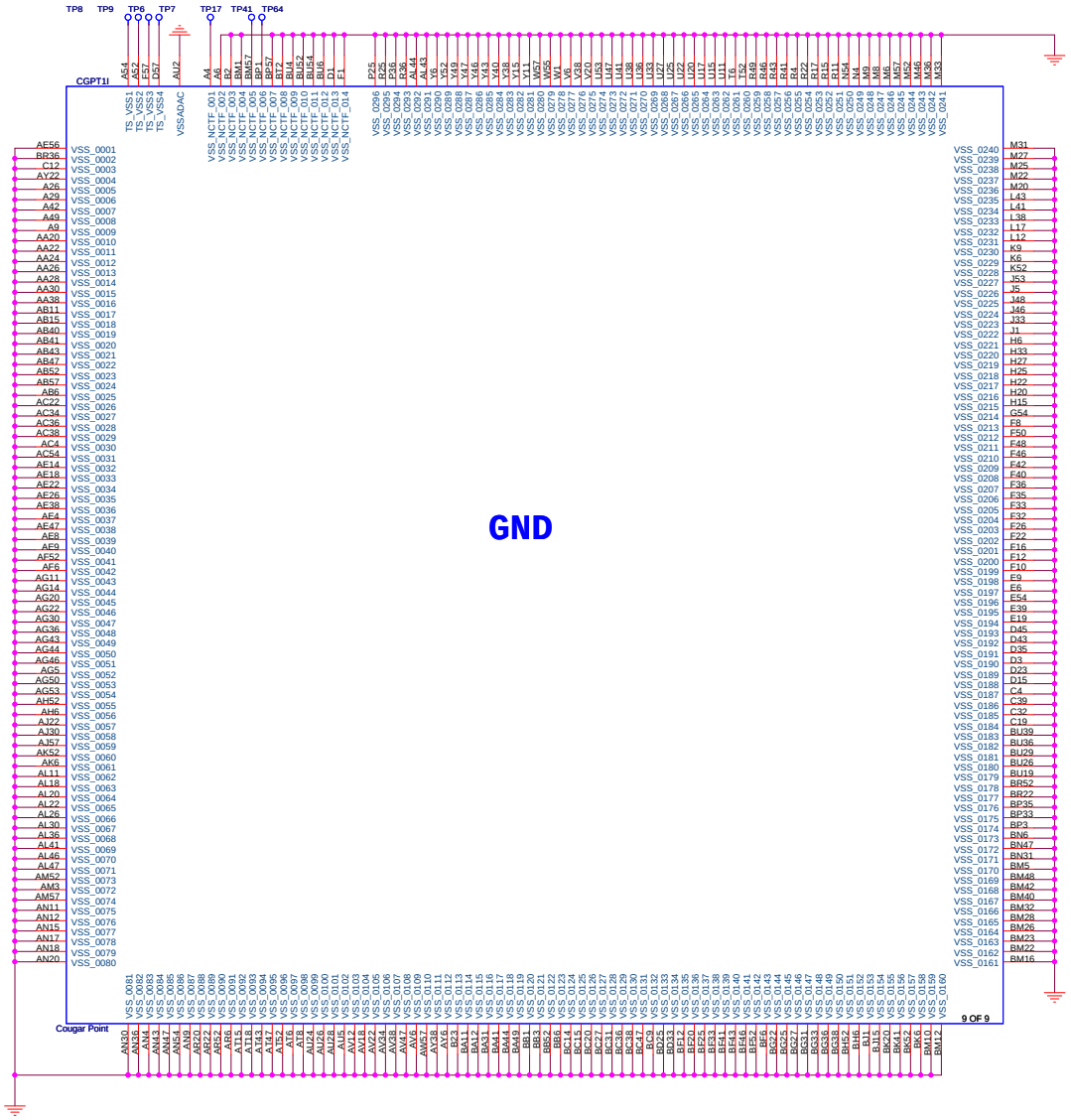
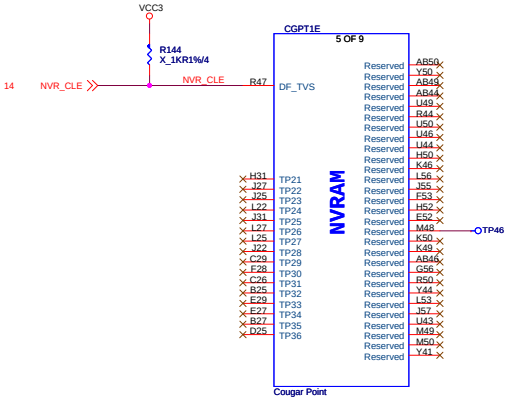


B01-00H6105-I06

DMI/FDI TERMINATION VOLTAGE
DC COUPLED: TX/RX TO VCC ISF SAMPLED HIGH
DC COUPLED: TX/RX TO VSS IF SAMPLED LOW
AC COUPLED: TX SET TO VCC/2, RX SET TO VSS REGARDLESS OF THIS STRAP



B01-00H6105-I06

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MS-AA711			
Size: C	Document Description: CP GND/NVRAM		Rev: 1.1
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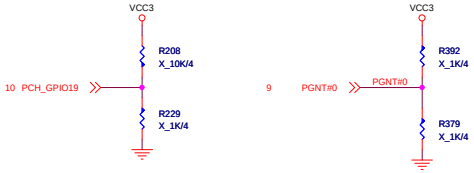
CP REQUIRED STRAPS

BOOT DEVICE	GNT0	SATA1GP/GPIO19
LPC	0	0
PCI	0	Floating
SPI	Floating	Floating



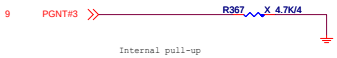
INTVRMEN
0: DISABLE INTERNAL VRM
1: ENABLE INTERNAL VRM *

When these voltageregulators are enabled, the integrated GbE only operates at 10/100 Mbps during S3-S5.

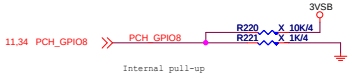
DSWVRMEN
0 : Disable Internal Deep Sleep 1.05 V regulators.
1 : Enable Internal Deep Sleep 1.05 V regulators.

This signal enables the internal Deep Sleep 1.05 V regulators. Must beconnected even when not supporting DSW.

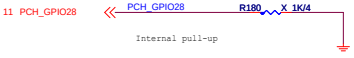
DMI AC/DC MODE
0 : AC
1 : DC *



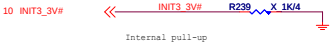
Topblock swap override when pull-low
Signal has a weak internal pull-up



GPIO8
0 : Integrated Clocking Enable (FCIM)*
1 : Buffer Through Mode Enable (BTM)



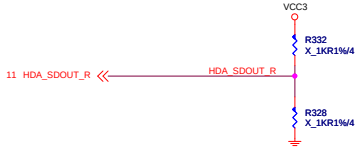
GPIO28
0 : OD PLL VR disabled
1 : OD PLL VR enabled *
Signal has a weak internal pull-up



INT3_3V#
0 : ??????????????
1 : ?????????????? *

1: INIT3_3V to asserted for 16 PCI clock to reset the processor by some evens occur.
0: Can not to reset the processor.

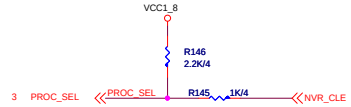
HDA_SYNC
OD PLL VR SUPPLY SEL
0: 1.8V SUPPLY *
1: 1.5V SUPPLY



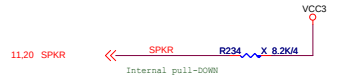
HDA_SDO
Disable ME in Manufacturing Mode when pull LOW ????

HDA_SDO has internal pull down.
Default should be connected to SDIN of codec, no pull up/down.
To Disable ME need to have a jumper to pull high

GPIO15
0 : TLS CIPHER SUITE WITH NO CONFIDENTIALITY *
1 : TLS CIPHER SUITE WITH CONFIDENTIALITY



DMI/FDI TERMINATION VOLTAGE
DC COUPLED: TX/RX TO VCC ISF SAMPLED HIGH
DC COUPLED: TX/RX TO VSS IF SAMPLED LOW *?
AC COUPLED: TX SET TO VCC/2, RX SET TO VSS REGARDLESS OF THIS STRAP

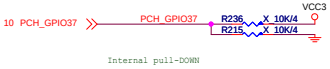


SPKR
0 : EN TCO REBOOT *
1 : DIS TCO REBOOT

In Deep Sleep Power Well.

If not used,require a weak pull-up(8.2k~10k) to VccDSW3_3

Cougar point EDS PAGE:93 This signal should not be pull high



Cougar point EDS PAGE:93 This signal should not be pull high

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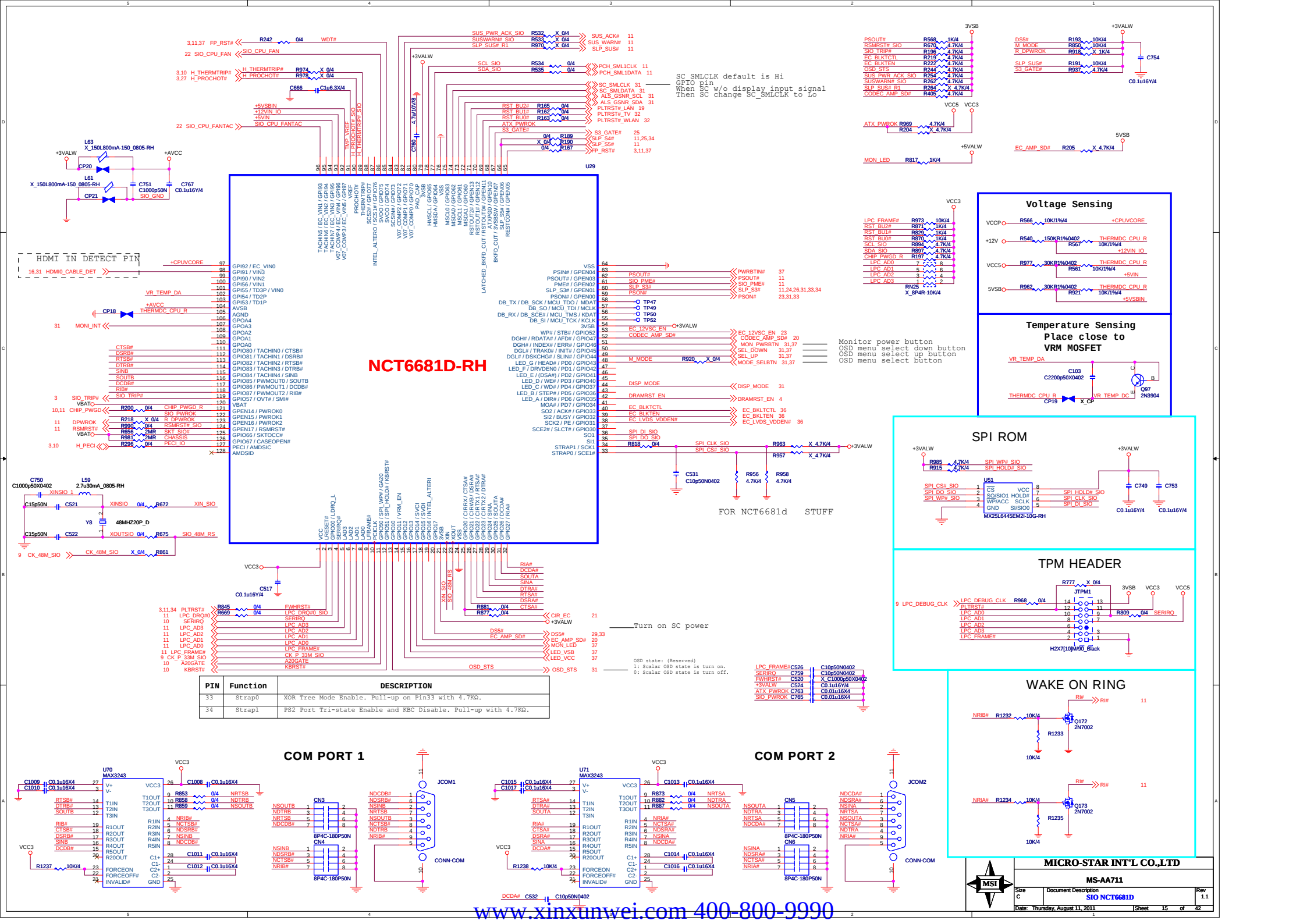

PIN	Function	DESCRIPTION
33	Strap0	XOR Tree Mode Enable. Pull-up on Pin33 with 4.7KΩ.
34	Strap1	PS2 Port Tri-state Enable and KBC Disable. Pull-up with 4.7KΩ.

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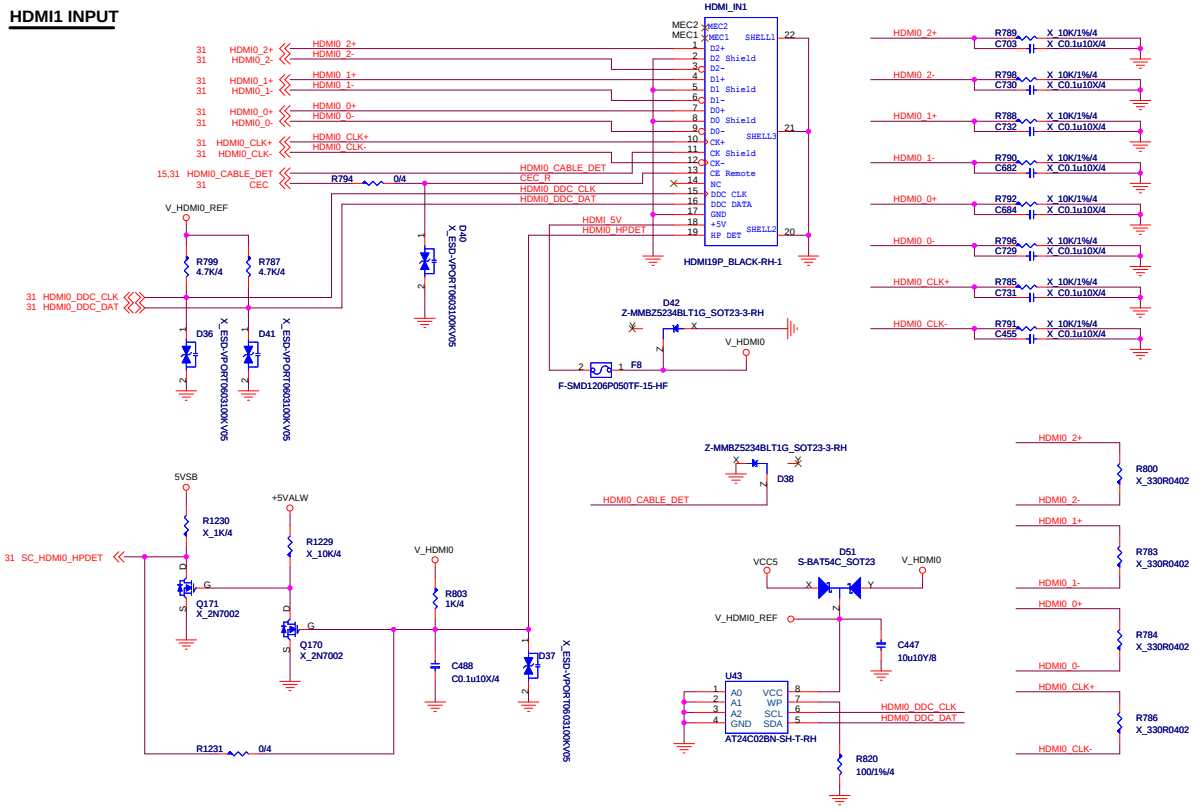
HDMI1 INPUT



M33-24C02X3-A26

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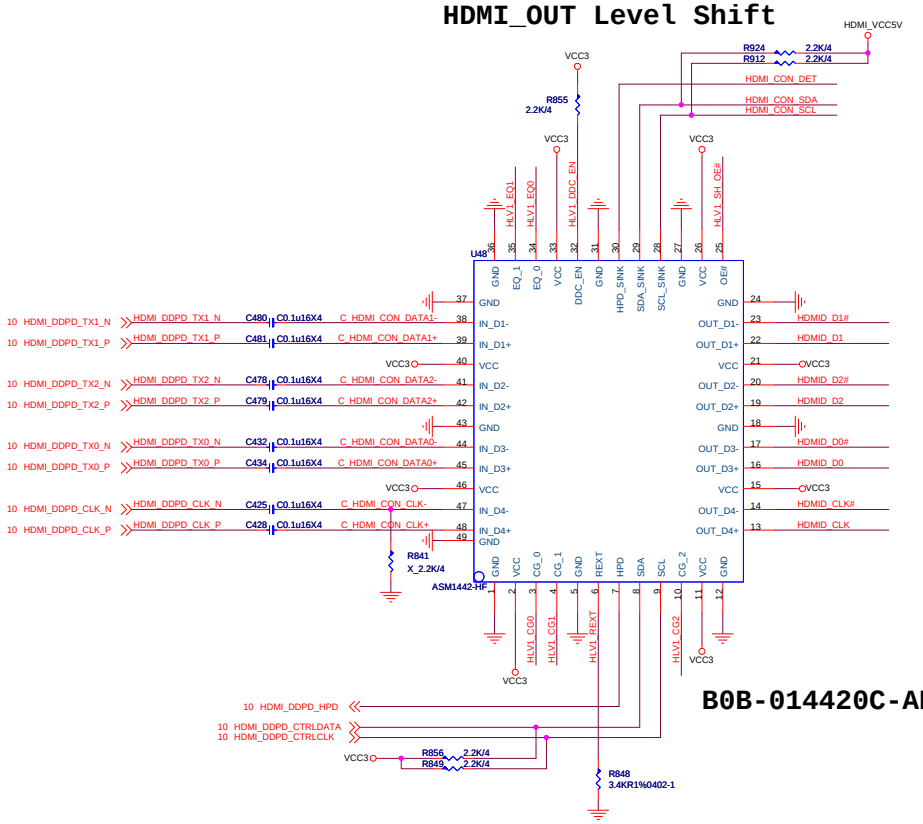
HDMI_OUT Level Shift



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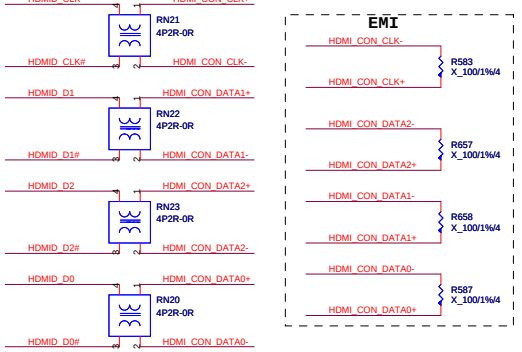

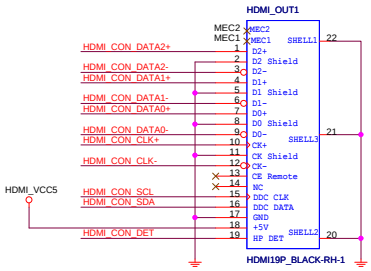

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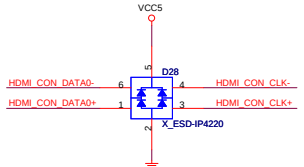
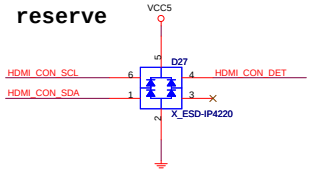
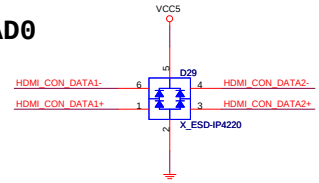
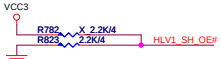
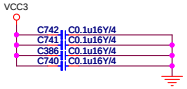


reserve

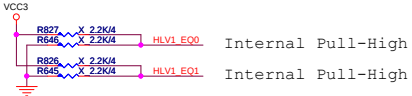




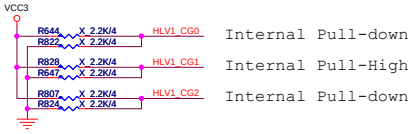




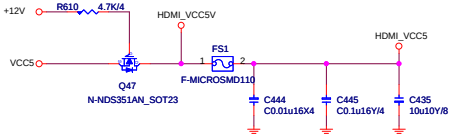
STRAPPING PIN



EQ_1	EQ_0	Equalization	Note
0	0	12dB	
0	1	9dB	
1	0	6dB	
1	1	3dB	Default



CG_2	CG_1	CG_0	Swing	Pre-amp	Slew-rate	Note
0	0	0	450	0	0	
0	0	1	420	0	-3dB	Shortest trace
0	1	0	450	0	-3dB	Shortest trace Default
0	1	1	460	0	-4dB	
1	0	0	340	0	0	
1	0	1	400	2dB	0	Longest trace
1	1	0	400	2dB	0	Longest trace
1	1	1	420	0	0	



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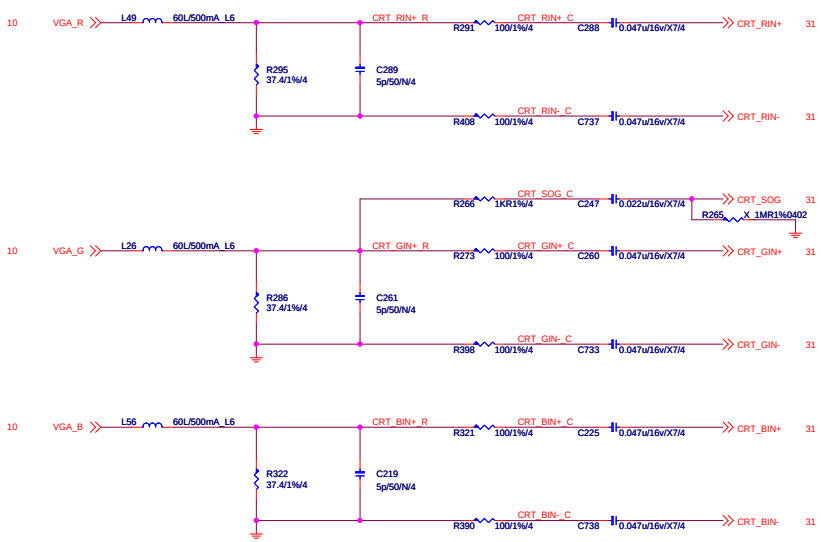
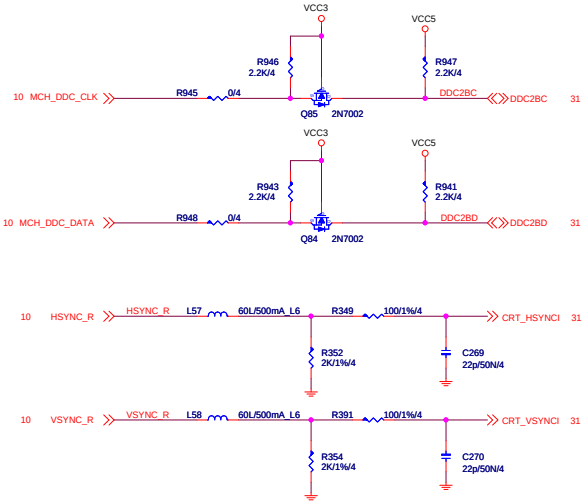
PLACE NEAR SCALER IC





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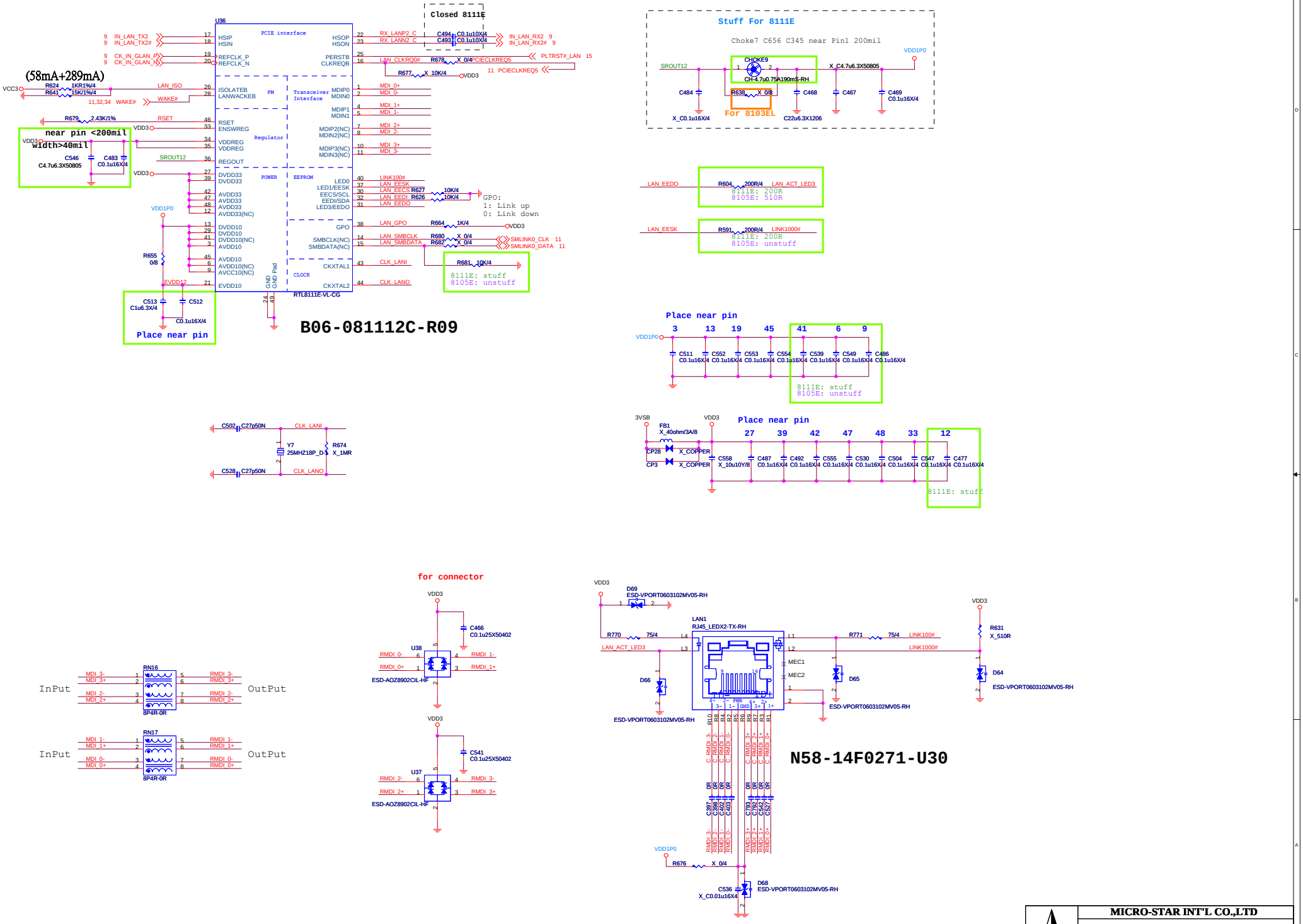

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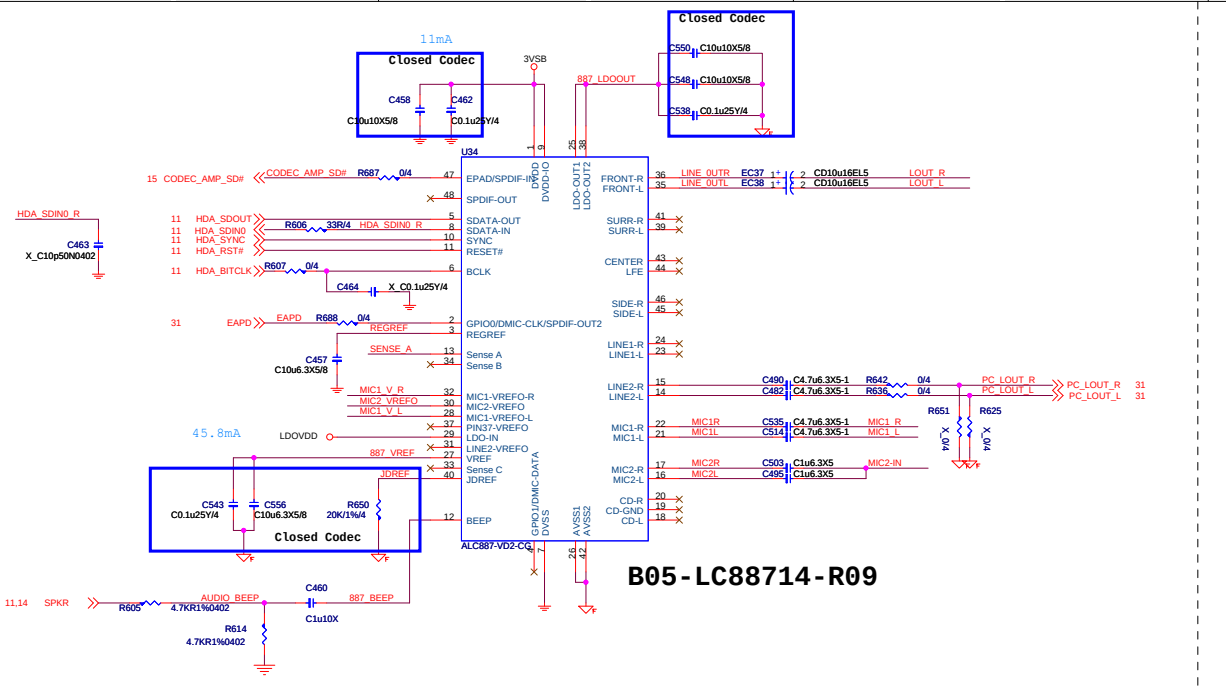

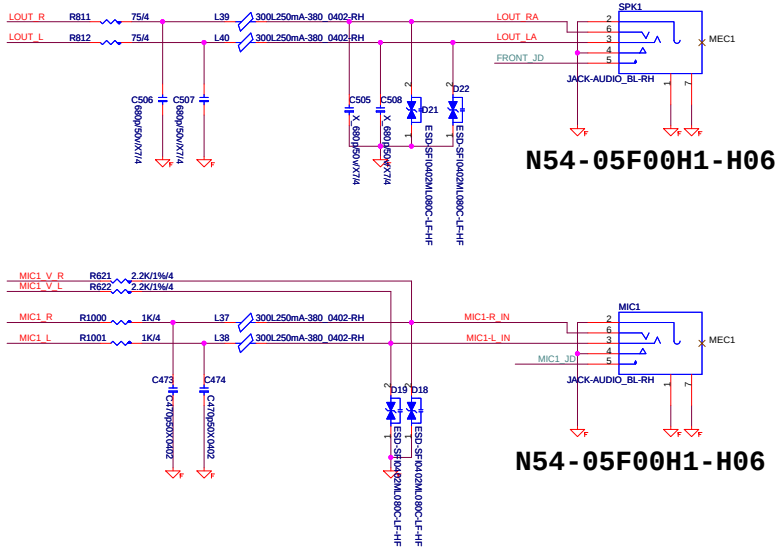

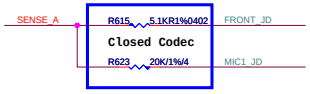

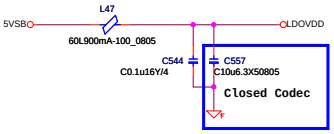

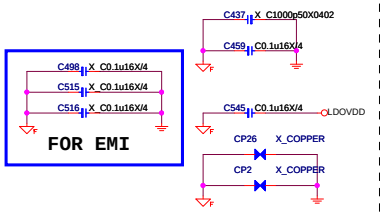

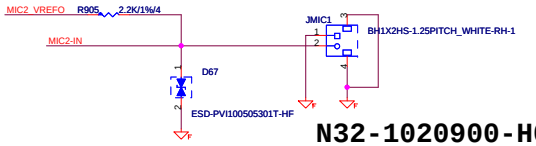

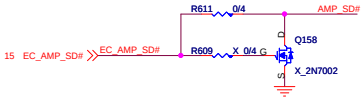

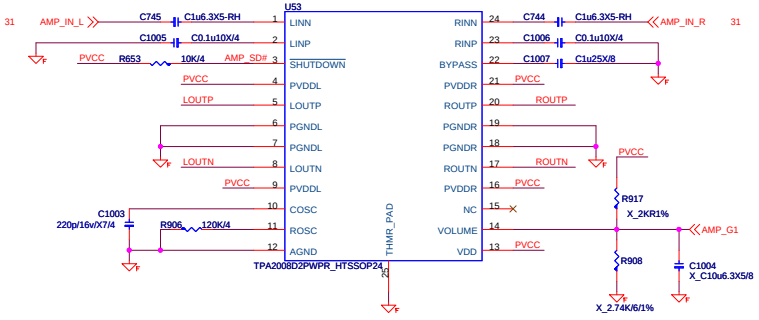

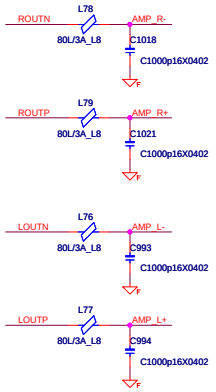

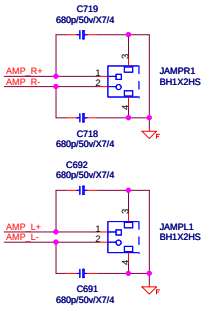

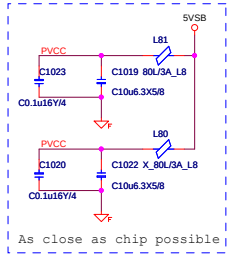

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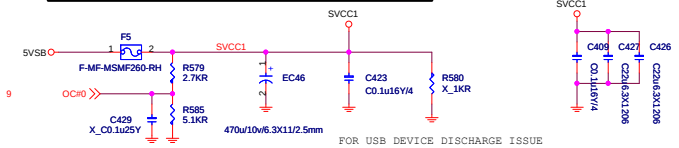
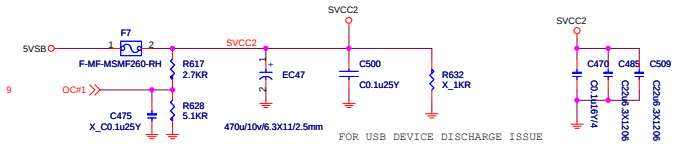
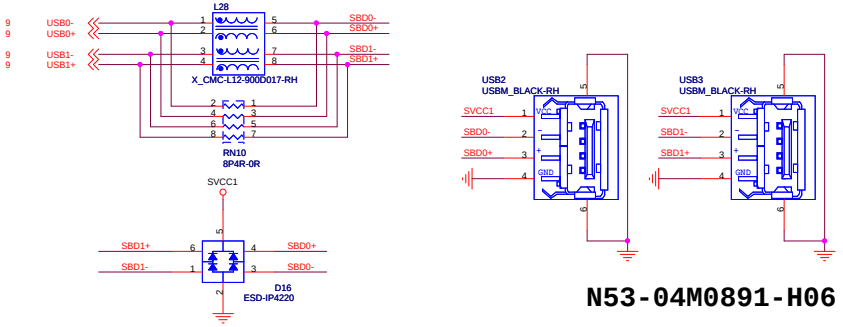
POWER CIRCUIT FOR USB PORT 0,1 (REAR)



POWER CIRCUIT FOR USB PORT 2,3 (REAR)

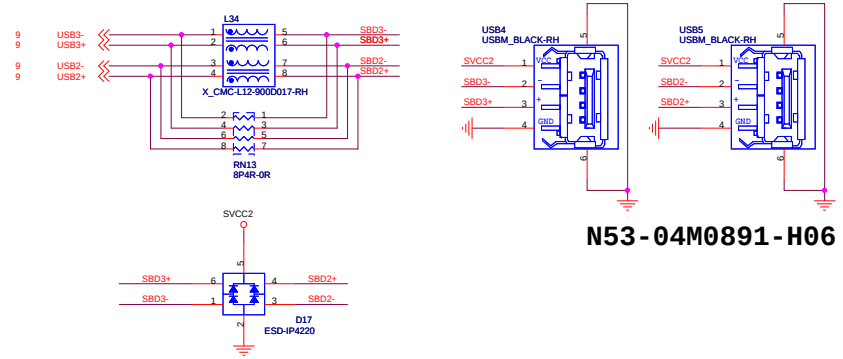


REAR PANEL USB CONNECTOR FOR USB PORT 0,1



N53-04M0891-H06

REAR PANEL USB CONNECTOR FOR USB PORT 2,3



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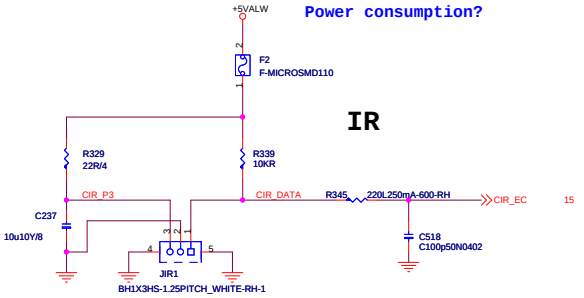
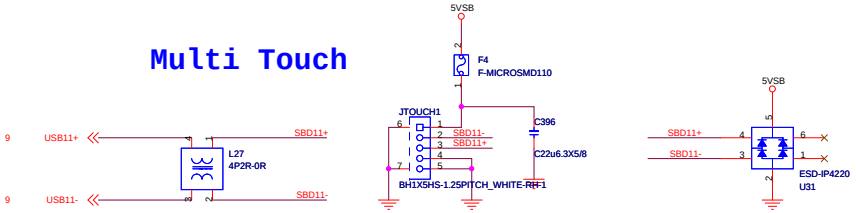


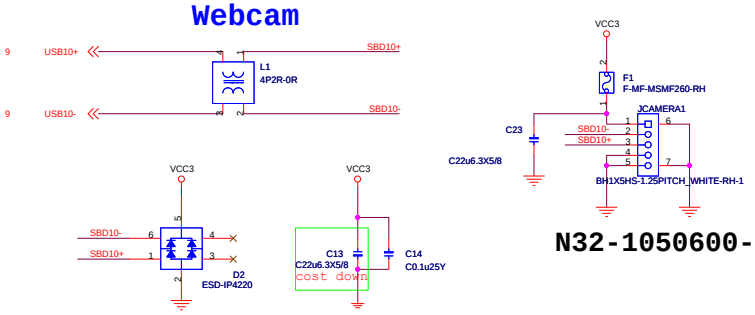
N32-1030130-H06

Multi Touch



N32-1050600-H06

Webcam



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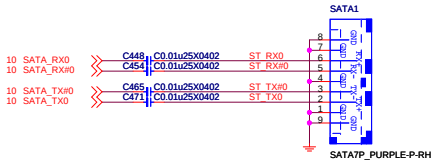
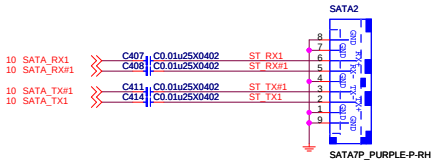
SATA HDD

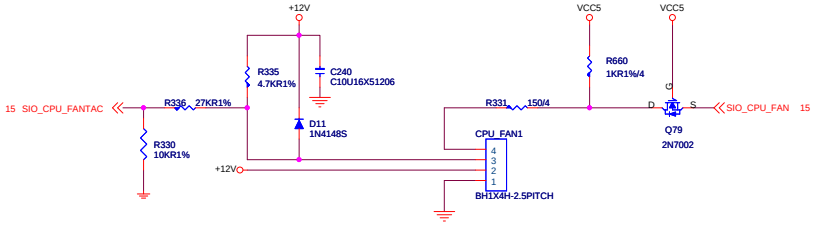


SATA 0DD



N5N-07M0221-H06

CPU FAN



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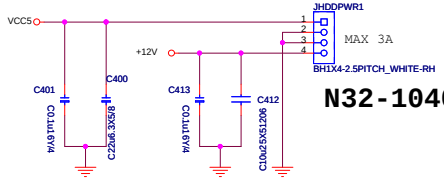
HDD & ODD Power



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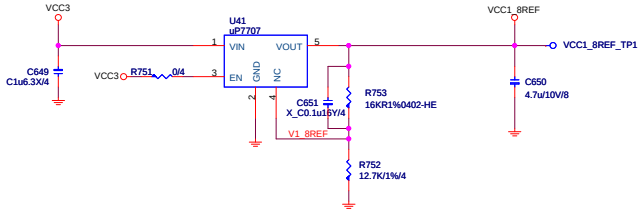
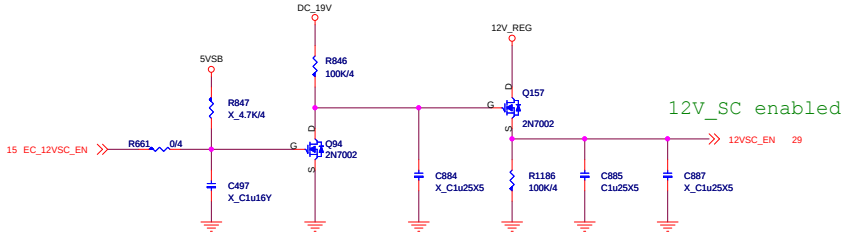
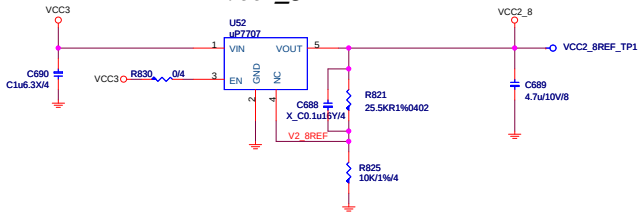
VCC1_8REF

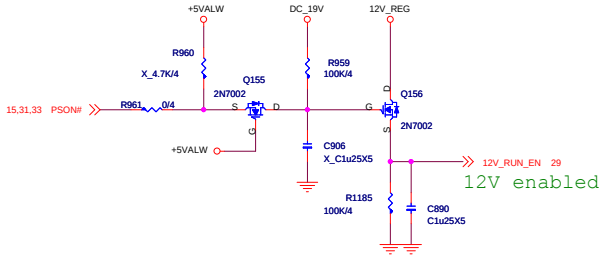




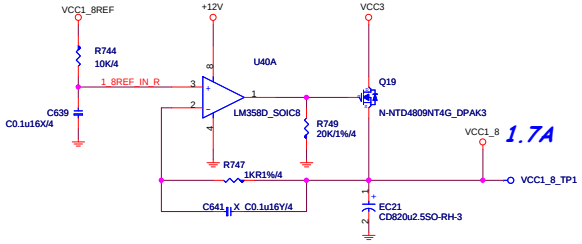
VCC2_8



RUN POWER ACPI



CPU_PLL_1_8



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CPU_SA Power

VTT-->CPU_SA

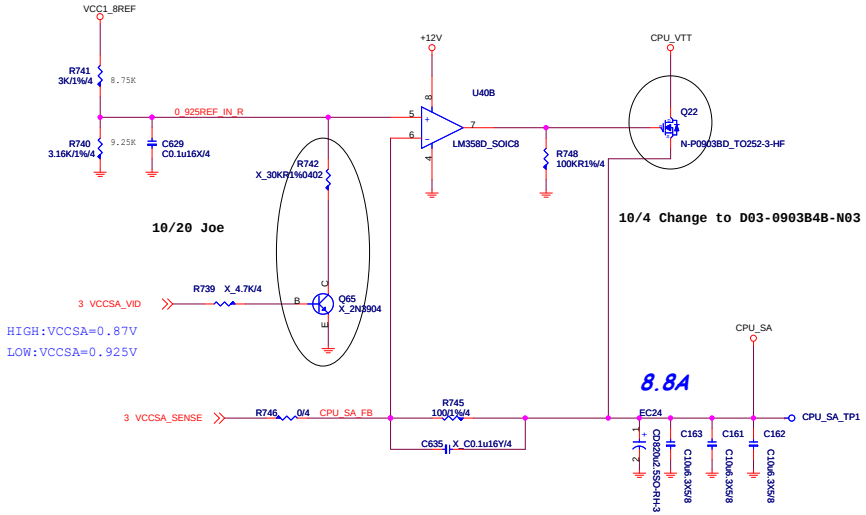
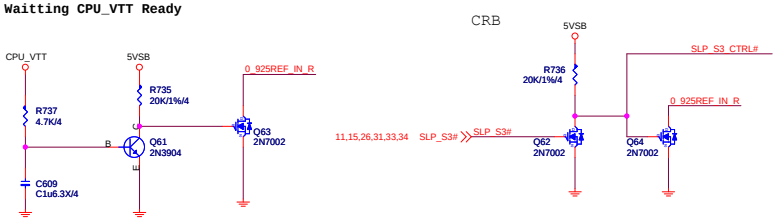


Table 3-10. VCCSA Decoupling Requirements

Capacitance	Qty	ESR (each)	ESL (each)	Filter	Placement	Notes
Aluminum Polymer 560µF	1	7mΩ	1.4nH	Output	As close to RM loop-out as possible	1
10µF 0805 X5R	2	3mΩ	0.51nH	Output	Inside processor socket cavity	1,13

Waitting CPU_VTT Ready



CP Power

DDR-->PCH

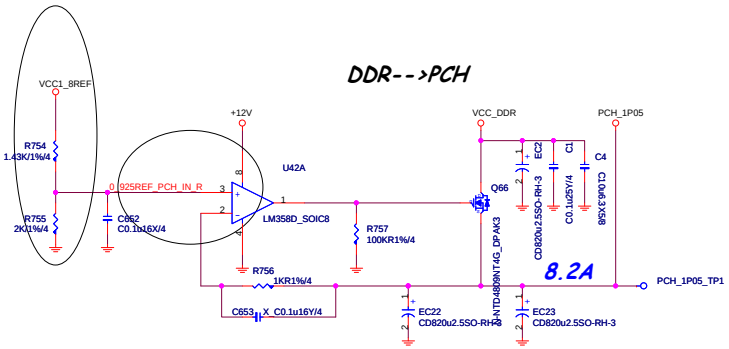
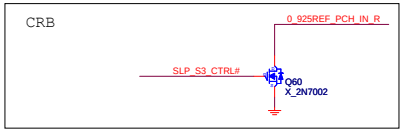


Table 4-1. V1.05A_PCH Plane Decoupling Recommendations

Bulk Decoupling Location	Qty x µF (size)	ESR, m
1.05S rail for VccCore & VccIO (dedicated)(AMT sku)	1x820uF	21mohm (bulk)
1.05A rail for VccASW (dedicated)(AMT sku)	2x22uF MLCC	
1.05S rail merge with 1.05A rail (non- AMT sku)	1X560uF 2x 22uF MLCC	7mohm (bulk)

Note: Bulk electrolytic capacitors (tantalum or aluminum based) render an aggregate ESR that matches the motherboard impedance budget. Other electrolytic capacitors that render motherboard impedance match can be deemed suitable as long as ripple current ratings and attach rate renders Bulk ESR not significantly different that those shown.



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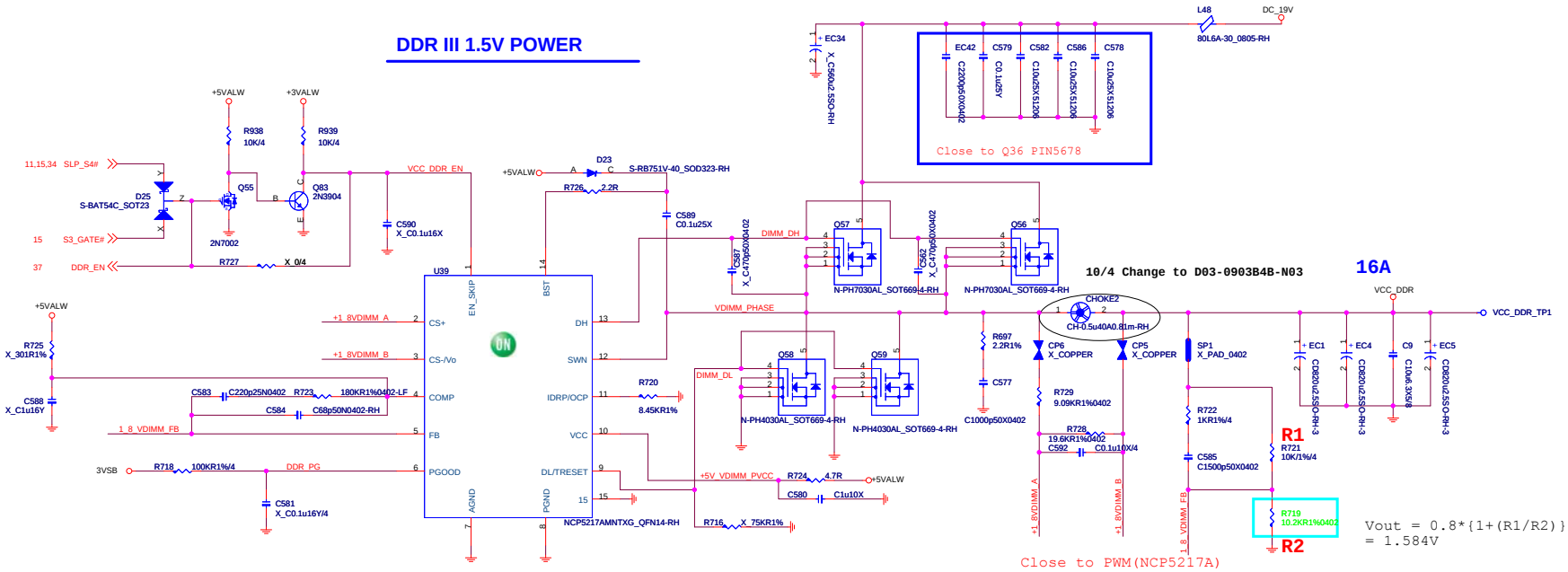
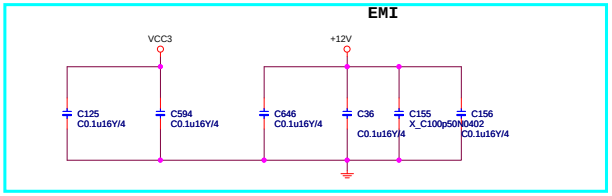
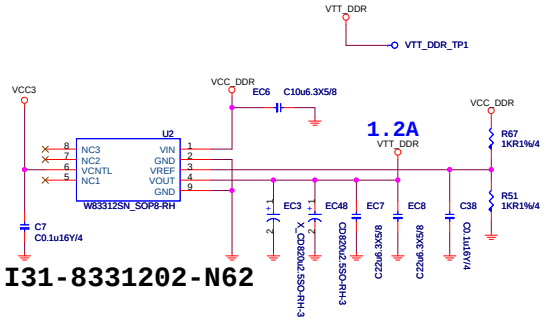
DDR III 1.5V POWER



I32-5217A0C-005





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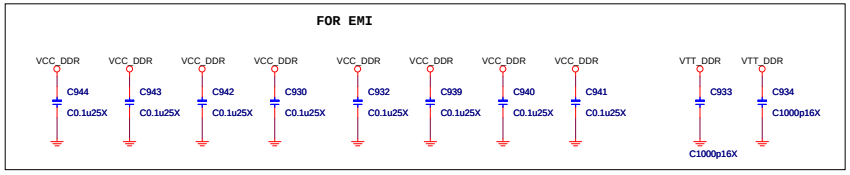

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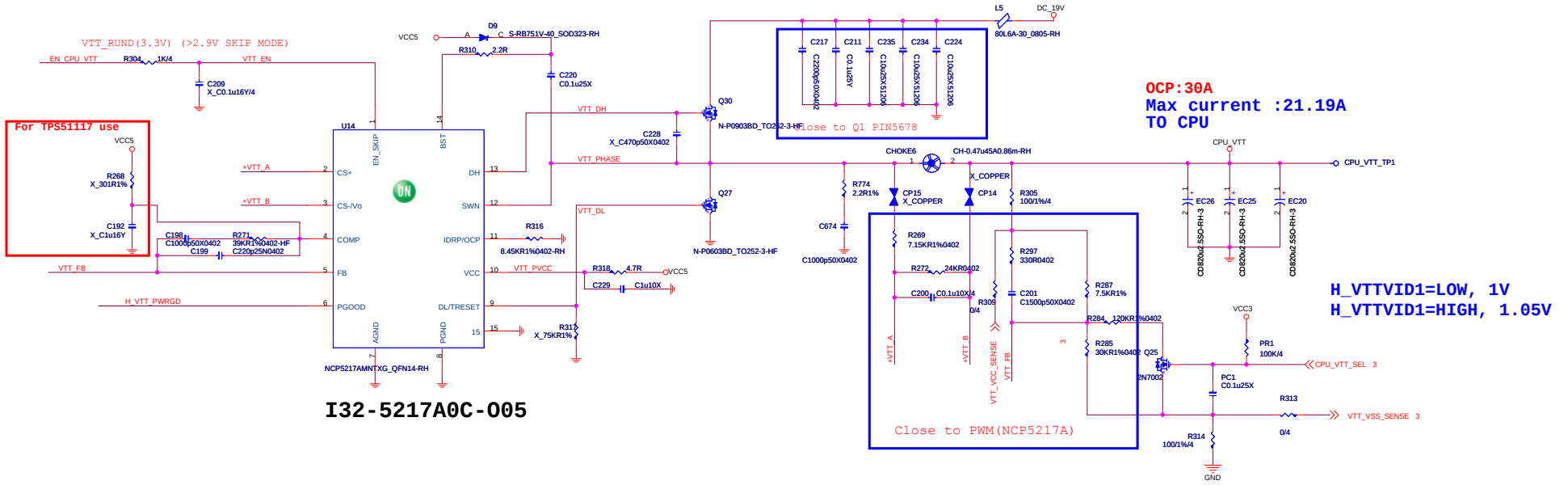

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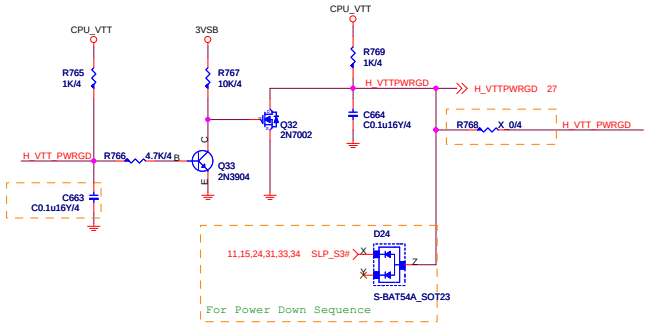

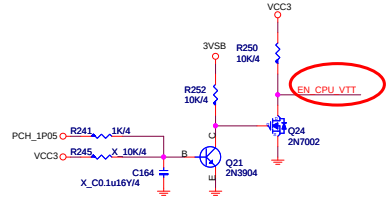

1. Rocest = Iout*DCR/Iocset ; Iocset = 10uA

If DCR = 1m ; Iout = 20A, Rocset = 20A*1m/10uA --> Rocset = 2K

2. Csen = L/Rocset*DCR

If DCR = 1m ; L = 1U, Csen = 1U/2K*1m --> Csen = 0.5U

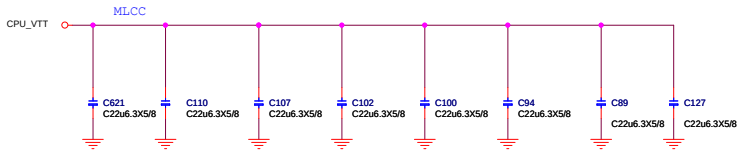

Table 3-6. VCCIO Decoupling Requirements

Capacitance	Qty	ESR (each)	ESL (each)	Filter	Placement	Notes
Aluminum Polymer 560µF	3	7mΩ	1.4nH	Output	Various. See layout figures	1
22µF 0805 X5R	9	5mΩ	0.55nH	Output	Inside processor socket cavity	1, 2 3
0805 placeholders	16				Backside	

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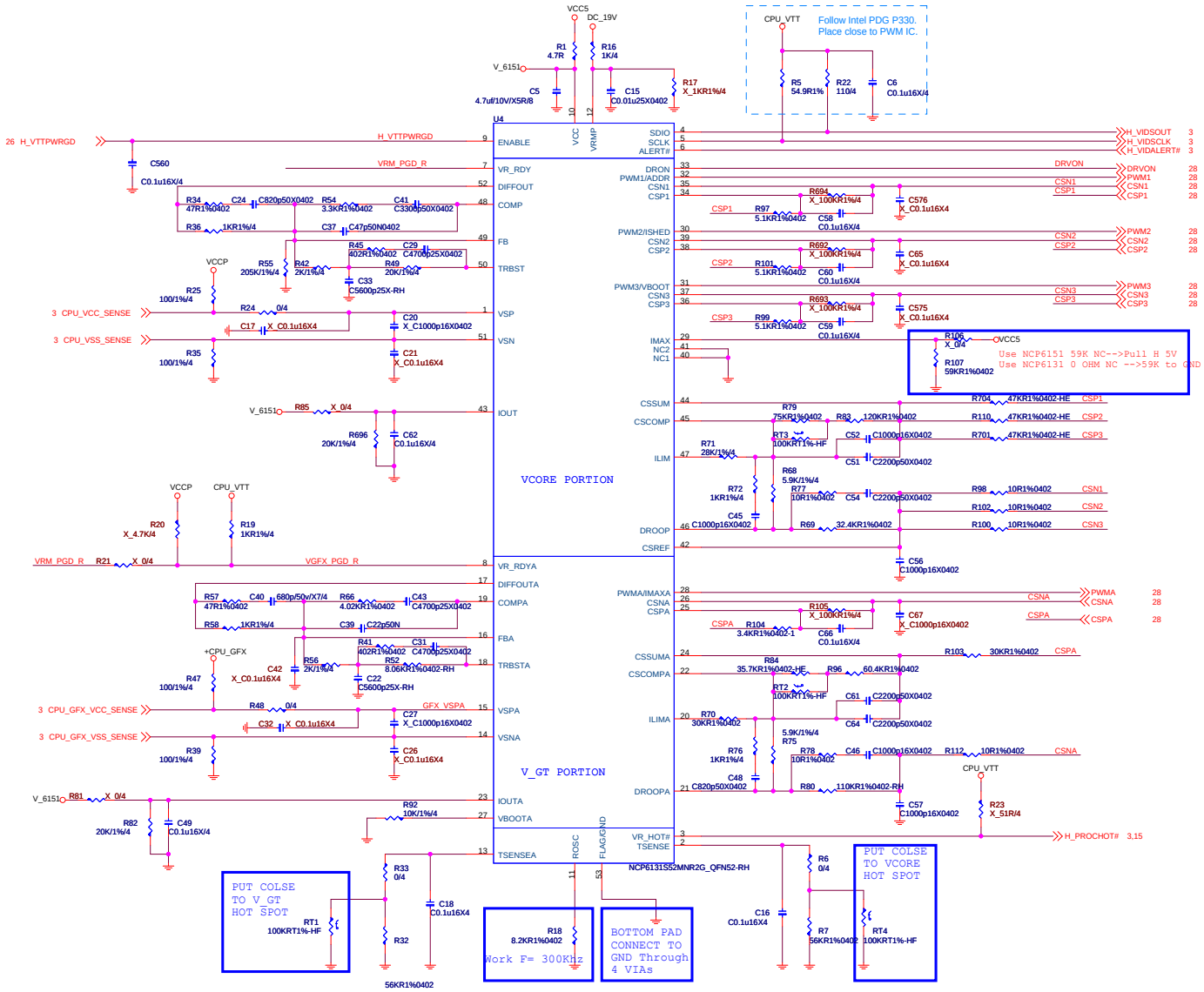
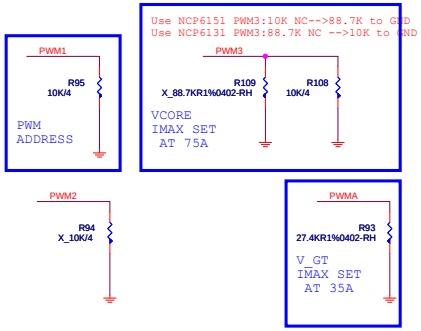
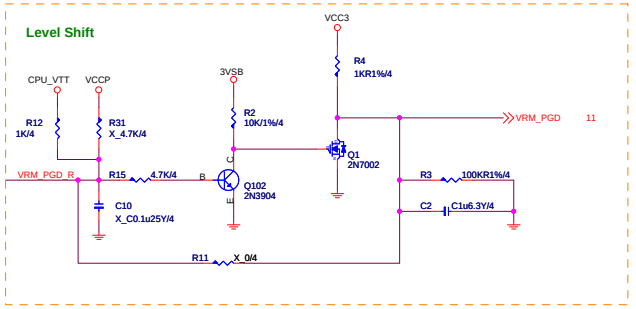
Modulize of NCP6151/NCP6131 COLAY (19V VR12)



BOOT VOLTAGE	
RESISTOR VALUE	BOOT VOLTAGE
10K	0V

PWM ADDRESS		
RESISTOR VALUE	SVID ADDRESS FOR VCORE RAIL	SVID ADDRESS FOR V_GT RAIL
10K	0000	0001
25K	0010	0011
45K	0100	0101
70K	0110	0111
95K	1000	1001
125K	1010	1011
165K	1100	1101





I32-6131S0C-005

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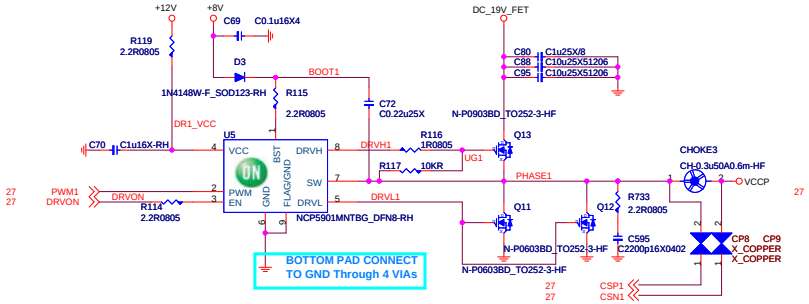
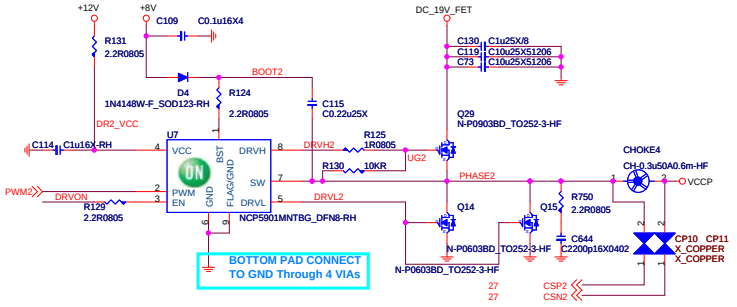
+CPU_VCCP

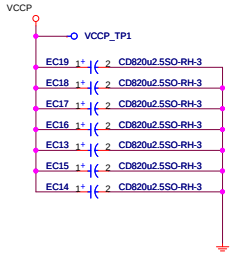
High Side D03-0480900-O05 High Side D03-0903B4B-N03
Low Side D03-0480600-O05 Low Side D03-0603B2B-N03

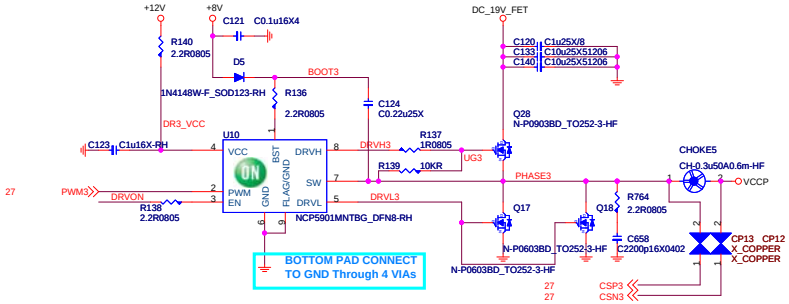
VCCP:75A



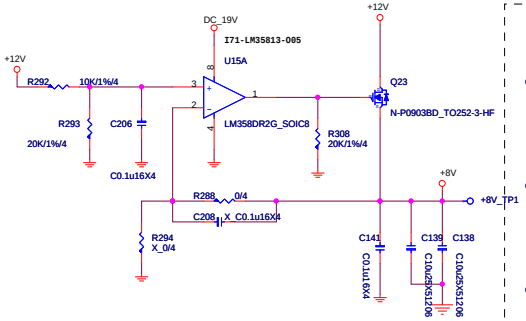


+CPU_VCCP Output Caps

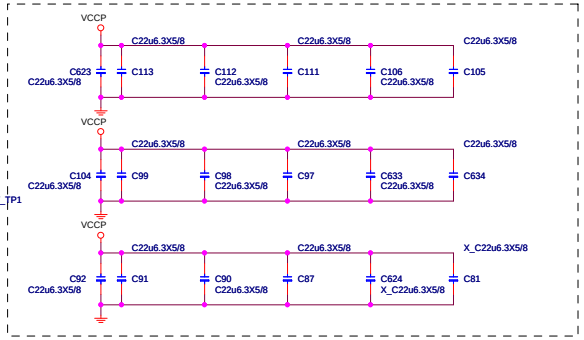




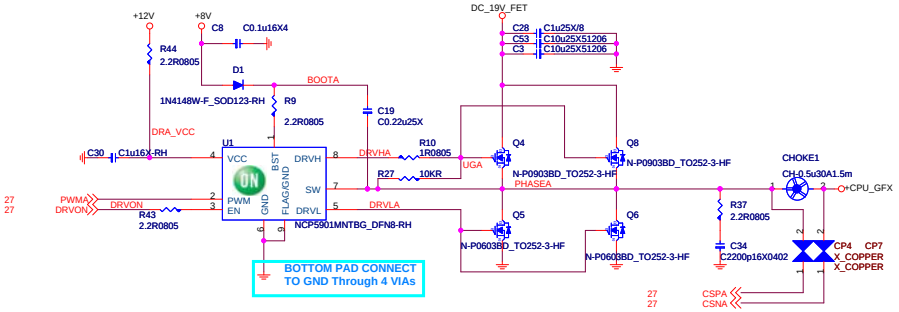
12V to 8V 0.5A



+CPU_VCCP-Decoupling



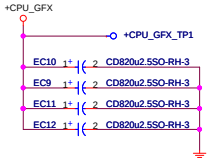
+CPU_GFX

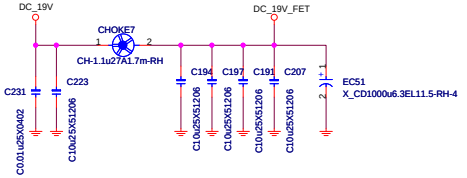


I33-5901M0C-005

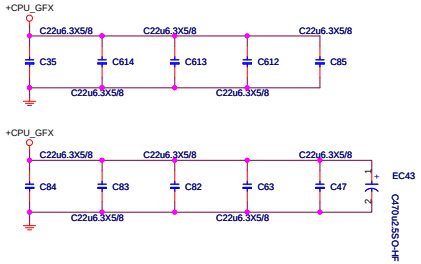
+CPU_GFX Output Caps

+CPU_GFX:35A





+CPU_GFX Decoupling



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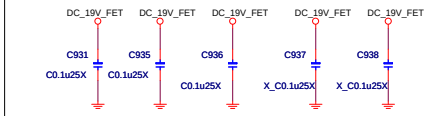

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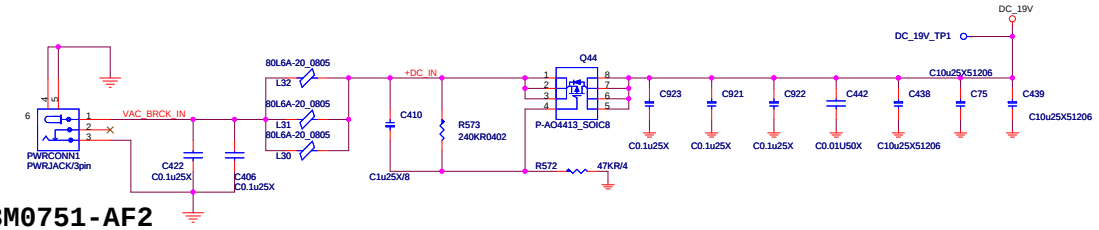

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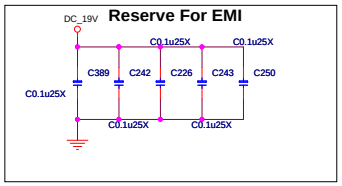

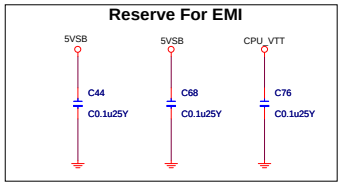

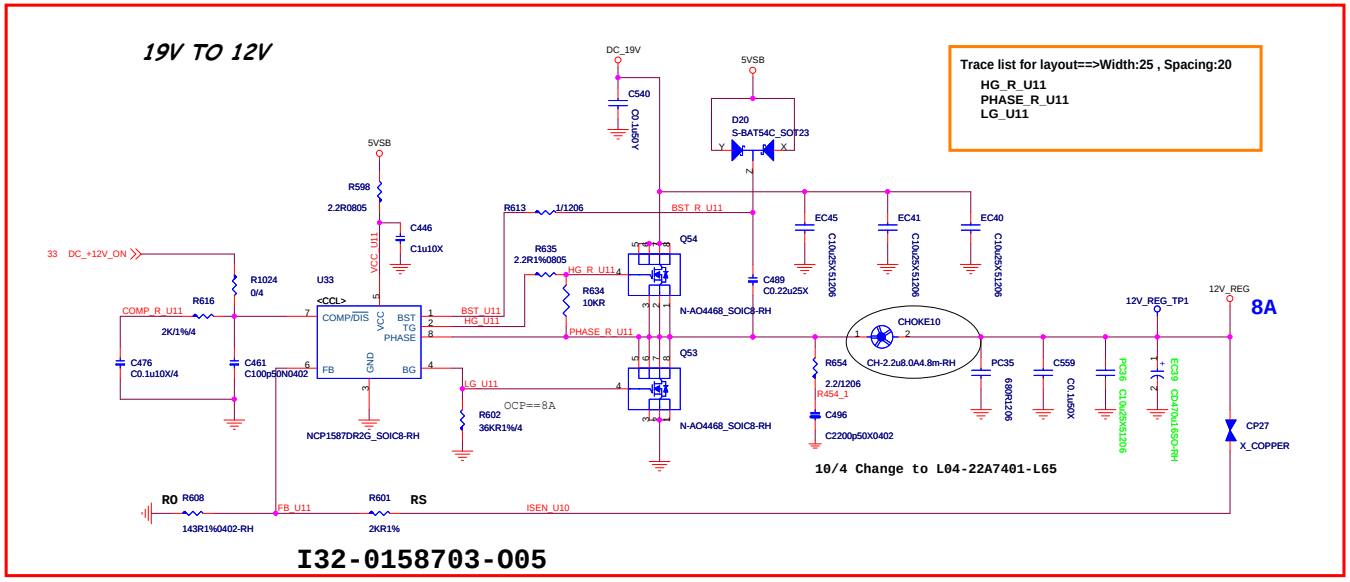

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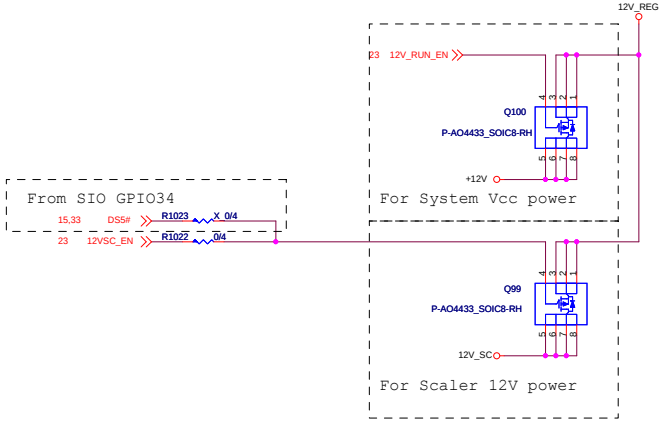

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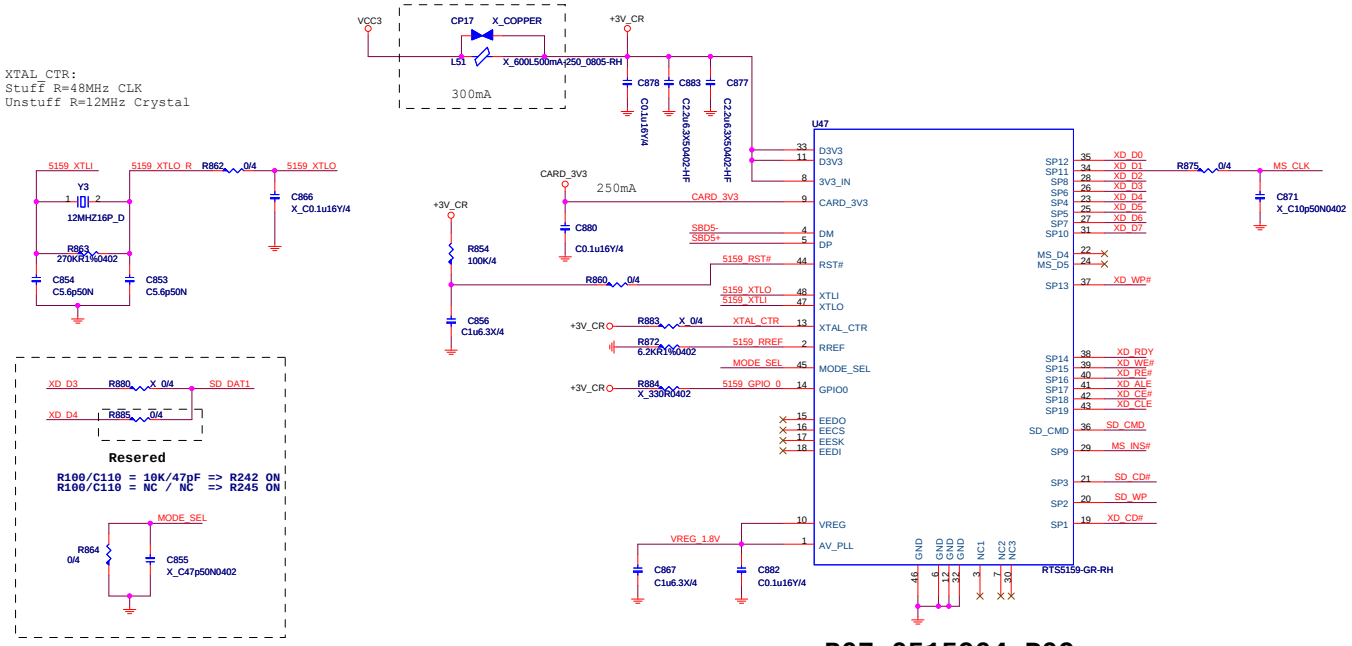
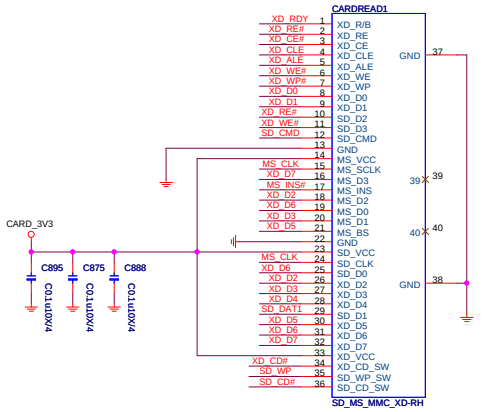
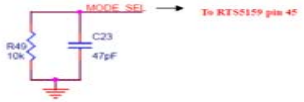


B07-0515904-R09



N58-38F0010-N40

SP4	I/O	xD Data Bus 4 (xD_D4), SD Data 1 (SD_DAT1)
SP5	I/O	xD Data 5 (xD_D5) and MS BS
SP6	I/O	xD Data 3 (xD_D3) and MS Data 1 (MS_D1)
SP7	I/O	SD Data 0 (SD_DAT0), xD Data 6 (xD_D6) and MS Data 0 (MS_D0)
SP8	I/O	SD Data 7 (SD_DAT7), xD Data 2 (xD_D2) and MS Data 2 (MS_D2)
SP11	I/O	SD clock (SD_CLK), xD Data 1 (xD_D1) and MS clock (MS_CLK)
SP12	I/O	SD Data5 (SD_DAT5), xD Data 0 (xD_D0) and MS Data 6 (MS_D6)
SP13	I/O	SD Data 4 (SD_DAT4), xD Write Protect (xD_WP#) and MS DATA 7 (MS_D7)
SP15	I/O	SD Data 3 (SD_DAT3) and xD_WE#
SP16	I/O	SD Data 2 (SD_DAT2) and xD_RE#



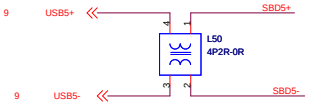
The mode selection table is blow:

R49	C23	USB Auto De-link (*1)	MS Formatter (*2)	Description
0	NC	Yes		Recommended
NC	47pF	Yes	Yes	
NC	NC			Compatible with RTS5158E
NC	680pF	Yes		LED ON (*3)
10K	180pF			LED ON (*3)
10K	680pF		Yes	

*1. **USB Auto De-link mode:** If user remove memory card from socket, RTS5159 will terminate USB bus connection and enter power saving state.

*2. **MS Formatter:** MSPRO, MSPRO DUO, MSPRO-HG or MSPRO-HG DUO card will be formatted as factory default setting if user formatted these card types under Vista OS.

*3. **LED ON:** RTS5159 LED keeps ON (GPIO0 low) when memory card existed, flashing while memory card is accessing. RTS5159's LED access mode is only this mode. Other RTS5159's LED mode is LED keeps OFF (GPIO0 high) no matter memory card existed or not, flashing while memory card is accessing.



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WHITE BALANCE ADJUST

WHITE_BAL_ADJ → WHITE_BAL_ADJ 11

MONI_INT set to GPIO function.
Lo : Default
Hi : AMP shutdown

B07-2482D14-R09

RTD2482-GR-RH

HDMI IN (HDMI CON)

RGB

M31-25L1002-M24

1M(1Mx1bit) SPI ROM

MX25L1005MC-12G-RH

M33-24C16D3-S10

M24C16-WMN6TP-RH

APL5913KAC-TRL_SOP8-RH

130mA

SYSTEM ID SELECT

	SYS_ID0	SYS_ID1	SYS_ID2	
AC73	0	0	0	Chimei 21.5
AA71	0	0	1	Samsung 20
A951	0	1	0	
AC73	0	1	1	Samsung 21.5
X	1	0	0	
X	1	0	1	
X	1	1	0	
X	1	1	1	

LVDS

reserve for write EEPROM

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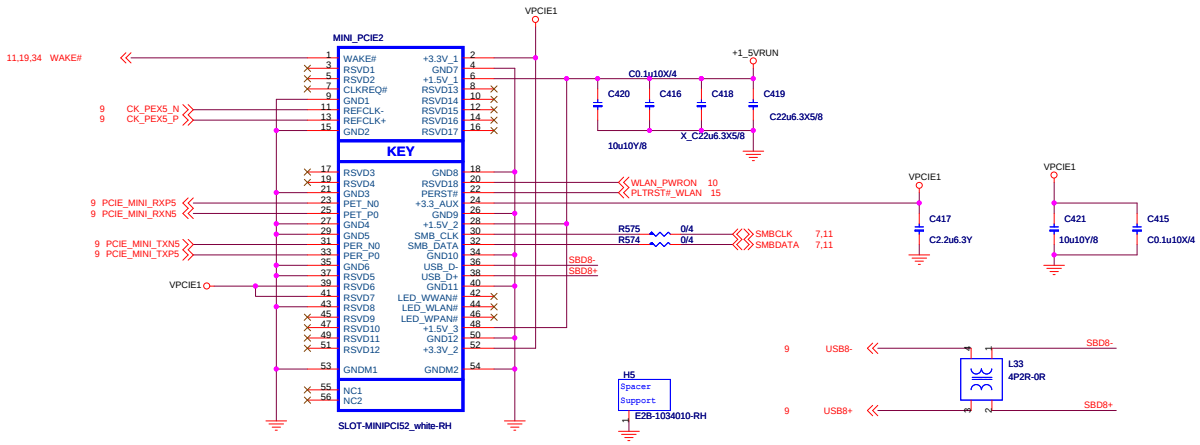
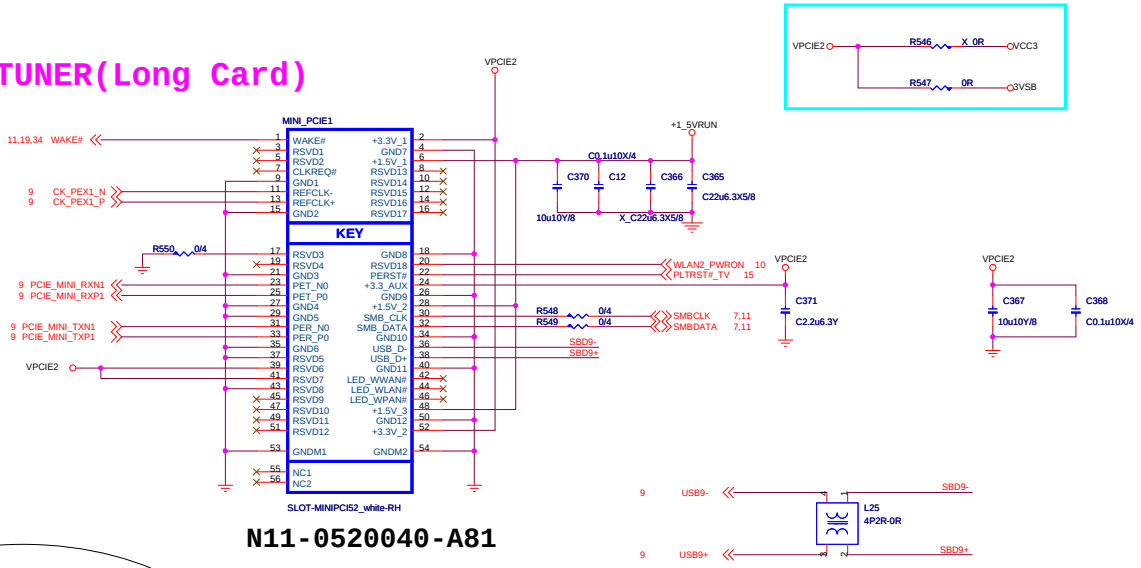
Wireless LAN(Short Card)

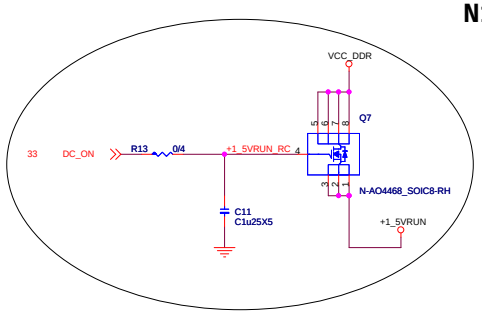


TV TUNER(Long Card)



N11-0520040-A81

PCI ExpressR
Mini Card Electromechanical
Specification
Revision 1.2



H8
Spacer
Support
E2B-1034010-RH

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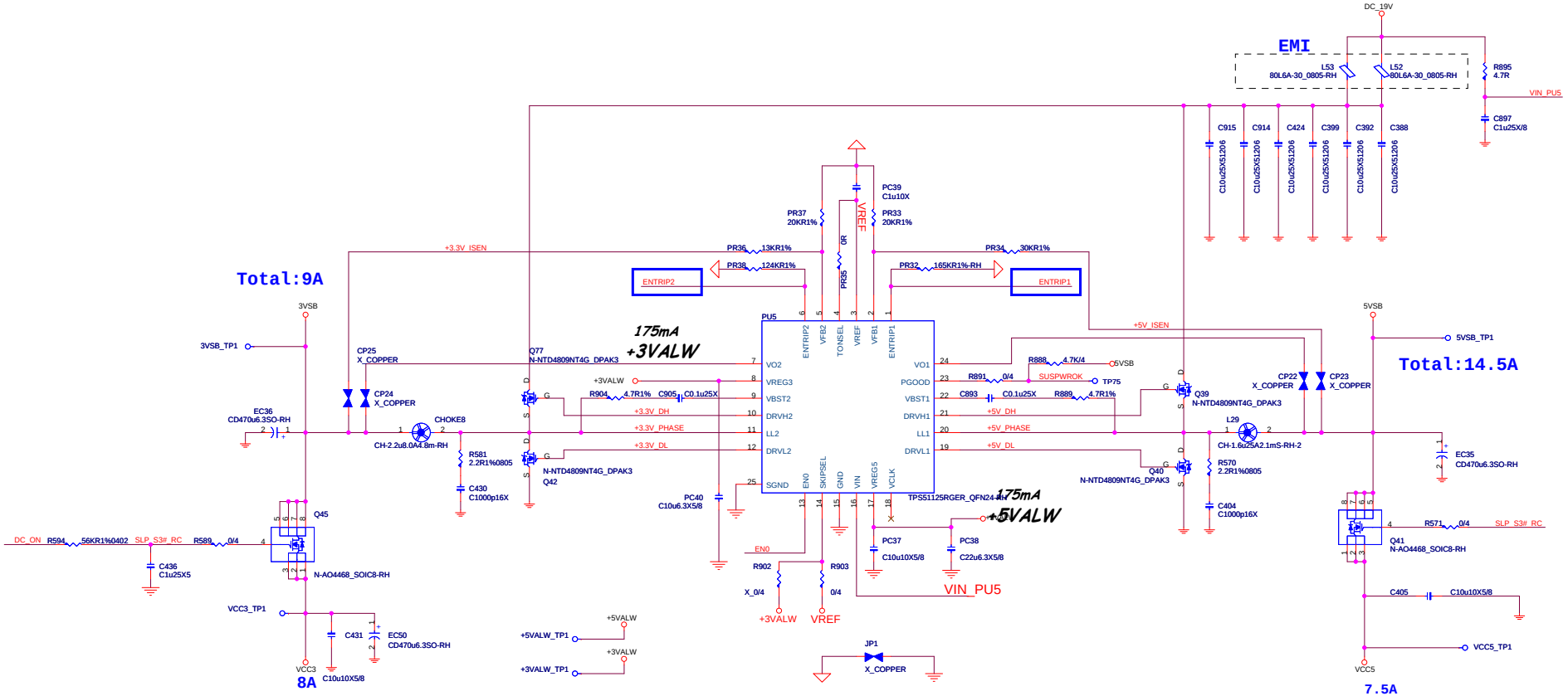
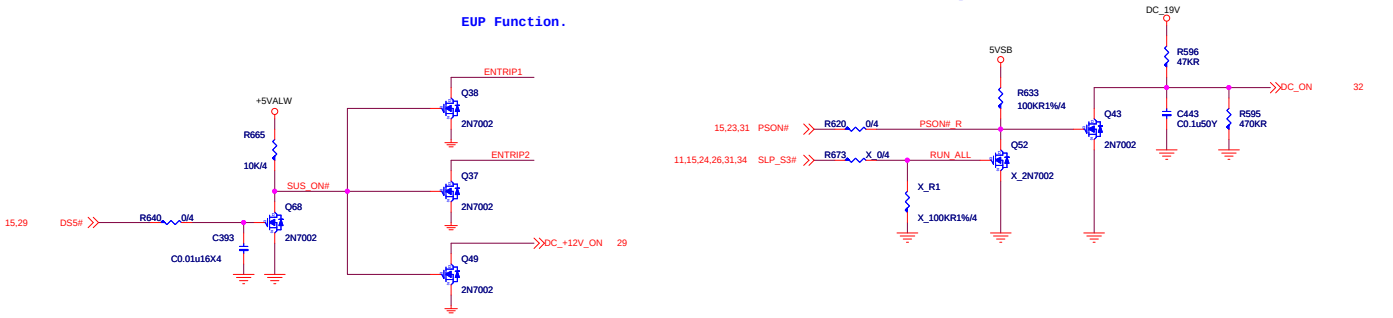


EN0 open: LDO on and turn on switcher channel



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Size: C	Document Description: System Power VCC3 / VCC5	Rev: 1.1
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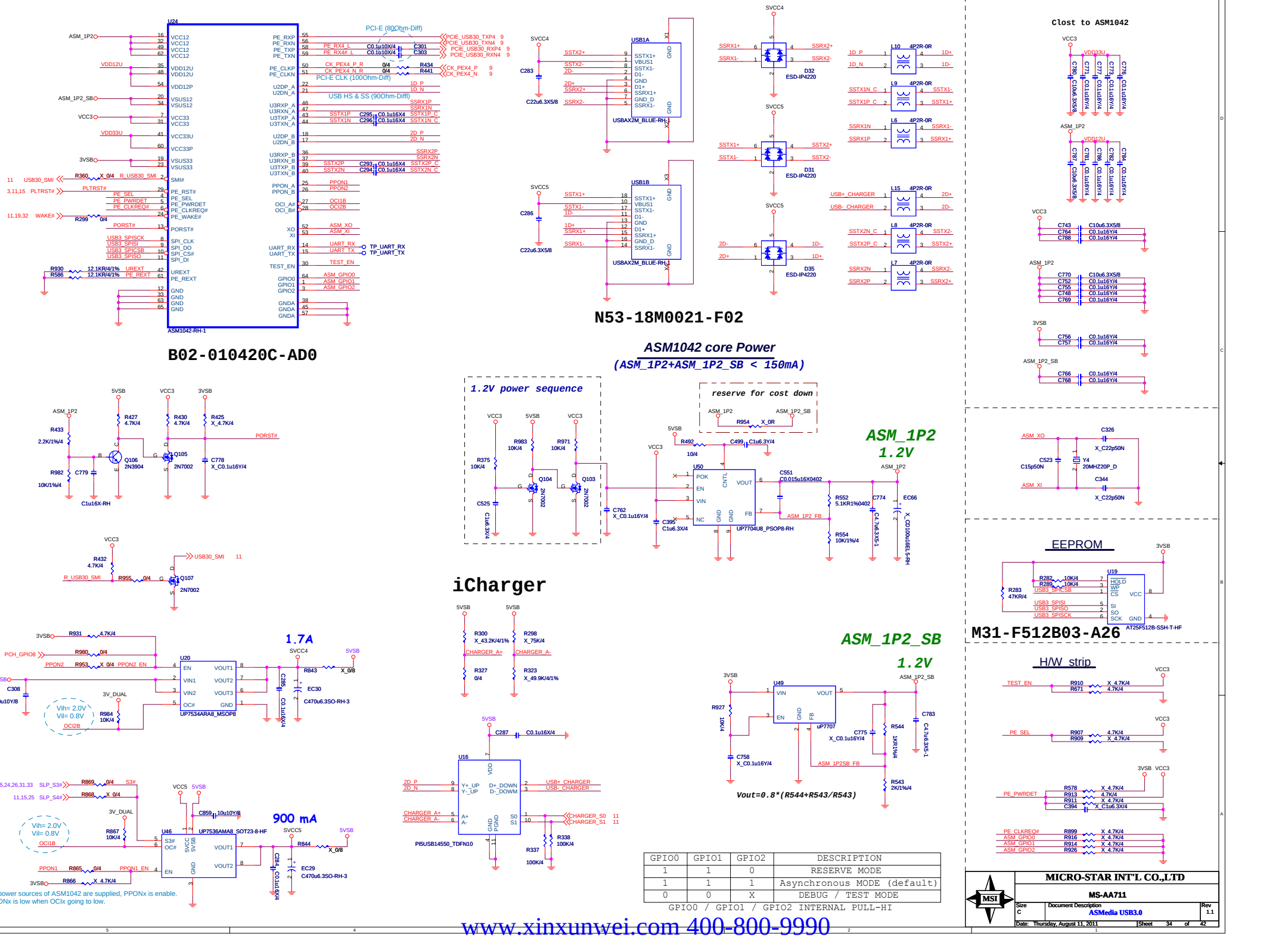

GPIO0	GPIO1	GPIO2	DESCRIPTION
1	1	0	RESERVE MODE
1	1	1	Asynchronous MODE (default)
0	0	X	DEBUG / TEST MODE

GPIO0 / GPIO1 / GPIO2 INTERNAL PULL-HI

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MS-AA711

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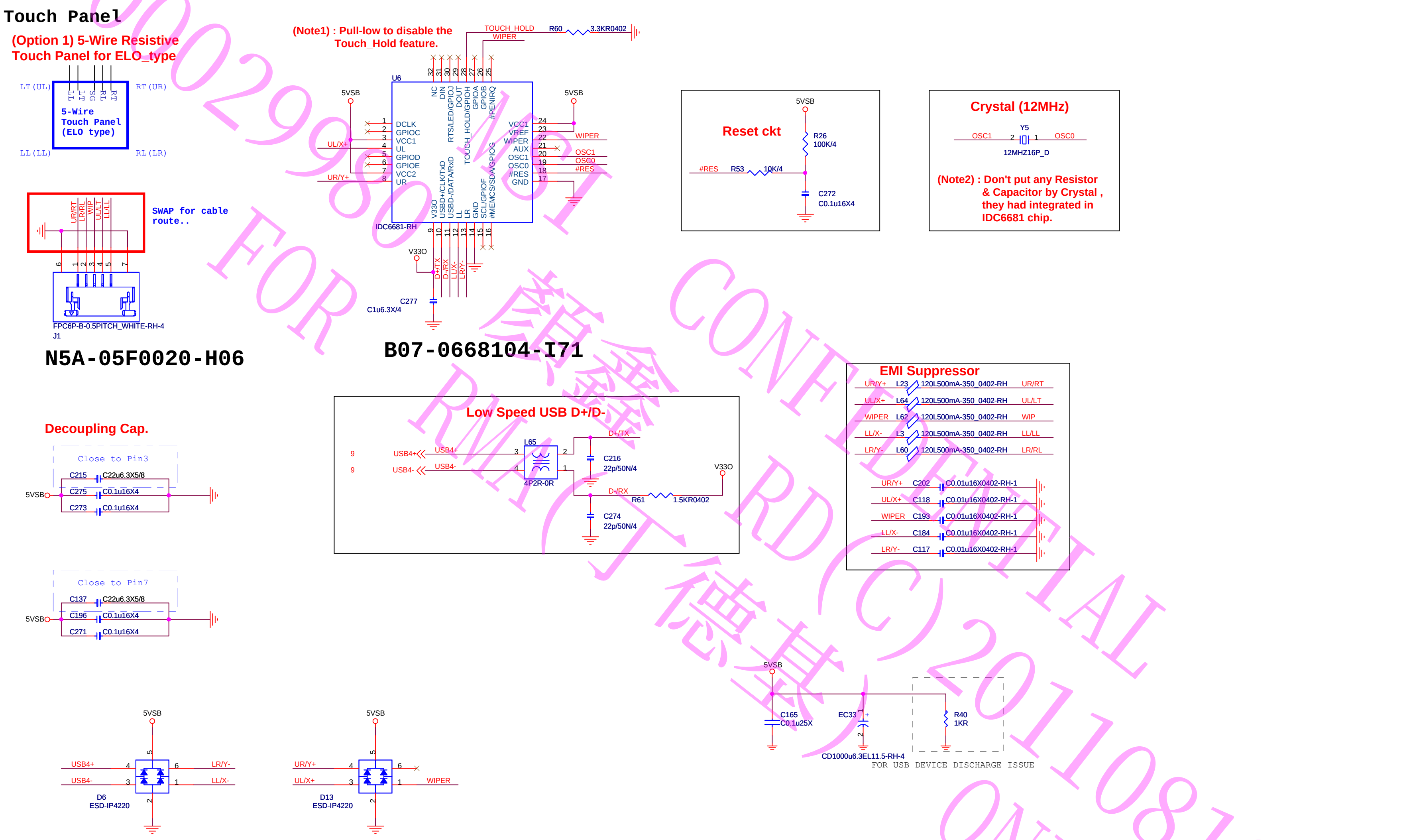

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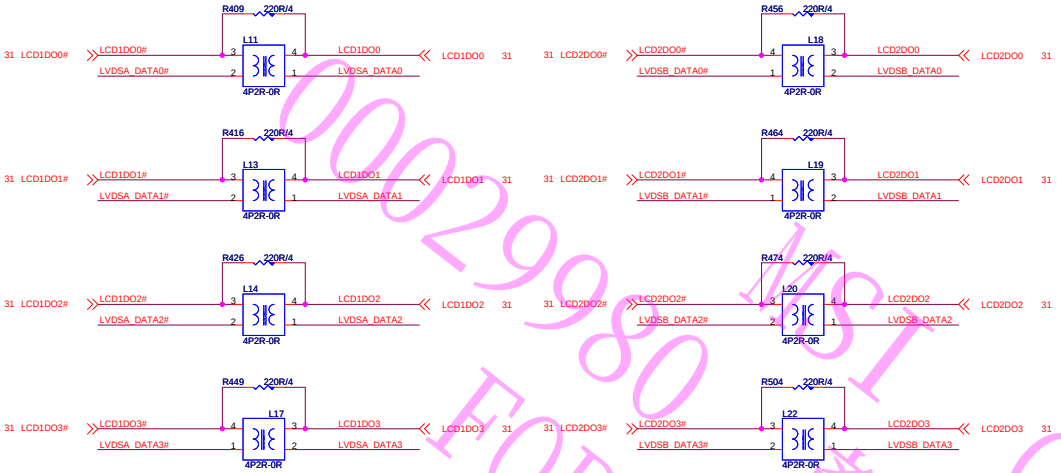
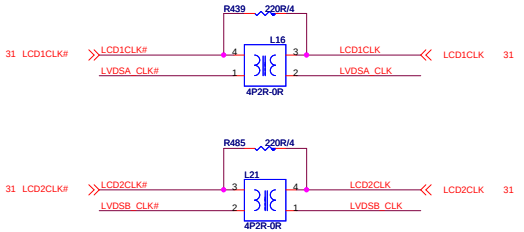
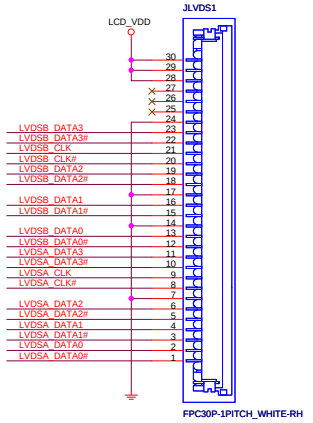
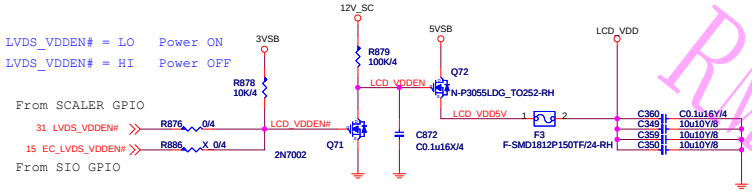
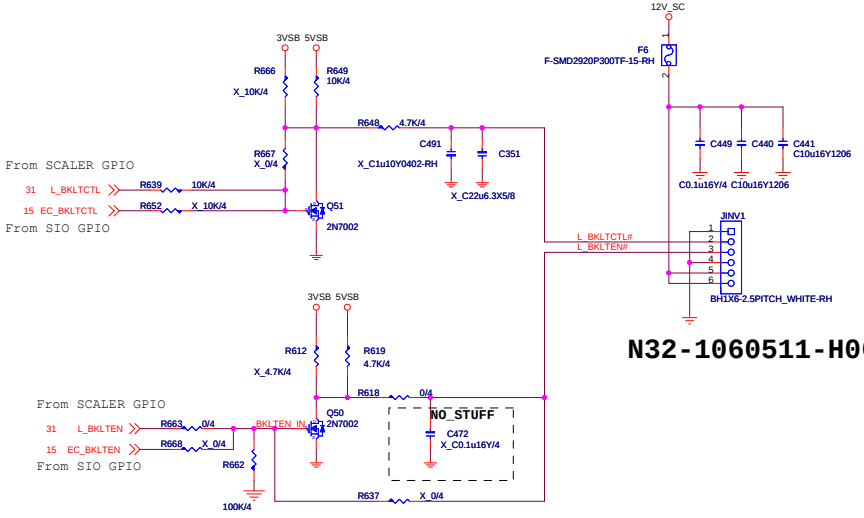






N5A-30F0120-H06





N32-1060511-H06

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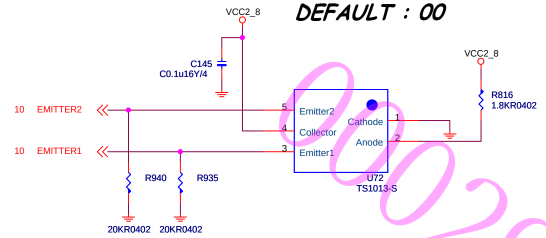
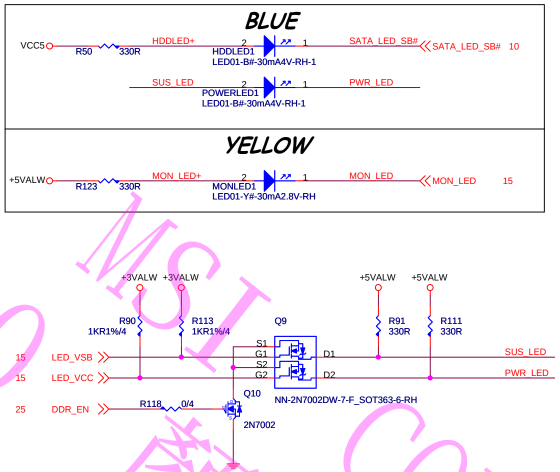
DEFAULT : 00



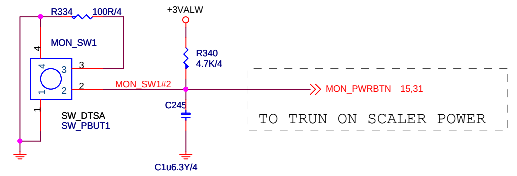
Detecting Rotation Characteristics

	E1	E2
E2 LED E1	0	1
E1 E2 LED	0	0
E1 LED E2	1	0
LED E2 E1	1	1

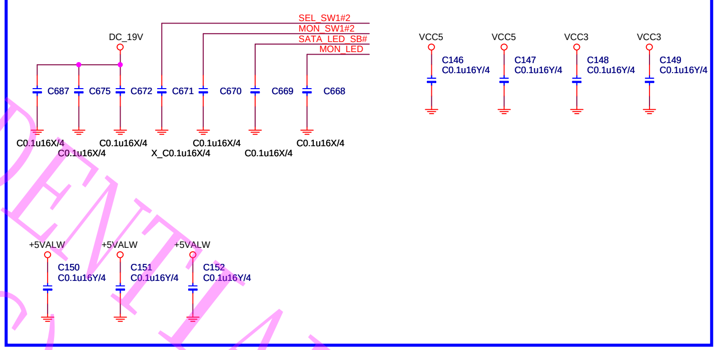
LED



MONITOR ON/OFF BUTTON

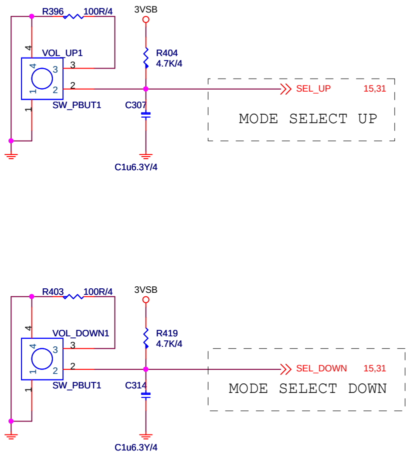


FOR EMI

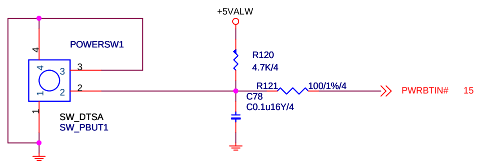


SYSTEM RESET

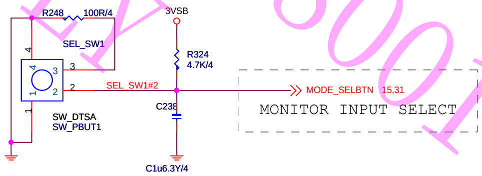
MODE SELECT CONTROL



POWER ON/OFF BUTTON



MODE SELECT BUTTON



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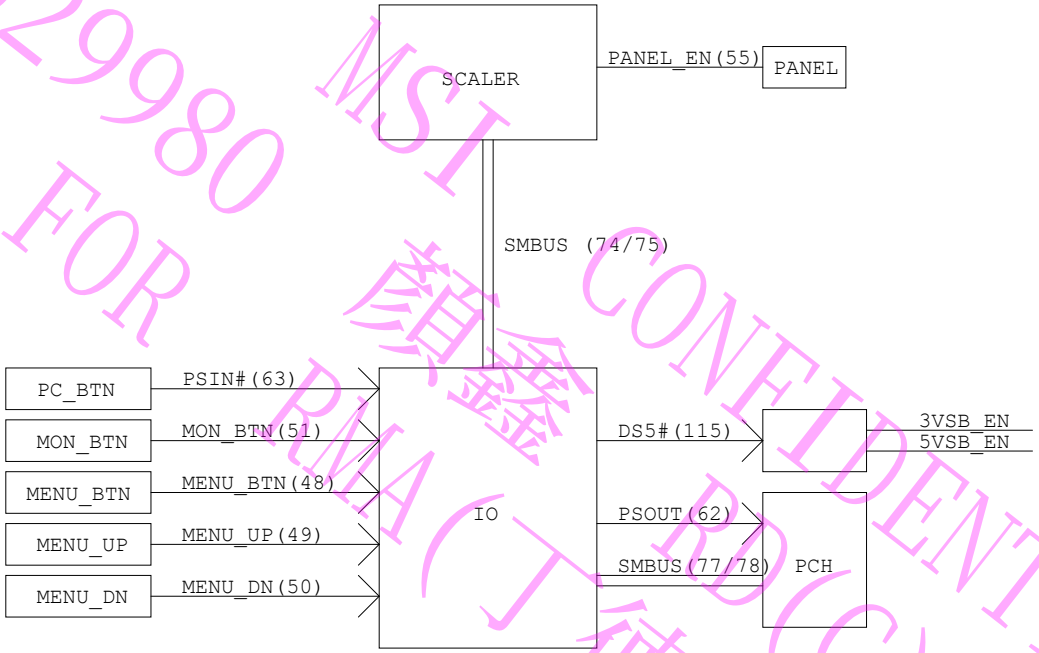

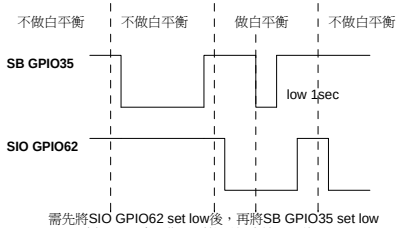

需先將SIO GPIO62 set low後，再將SB GPIO35 set low
1sec要求scalar白平衡，要離開程式前，再將SIO
GPIO62 set high

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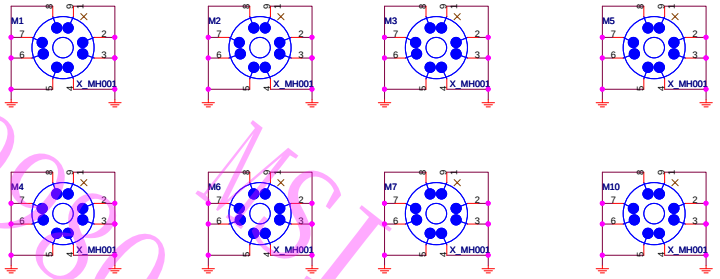
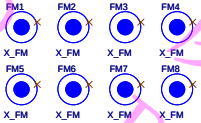
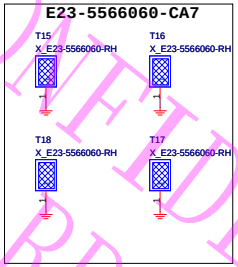
Mounting Holes

E31-0405500-A87

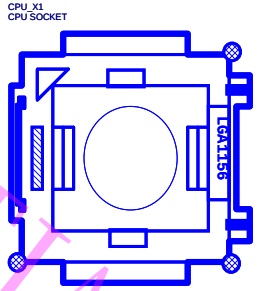


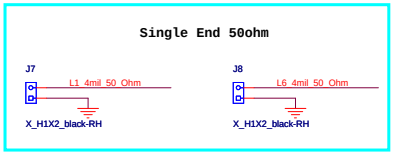
Optical Fiducial Marks-120

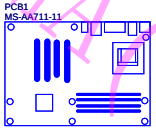


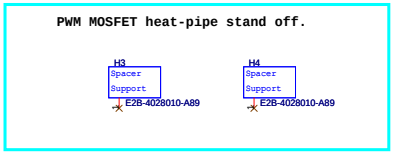


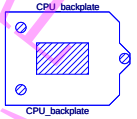
CPU SOCKET











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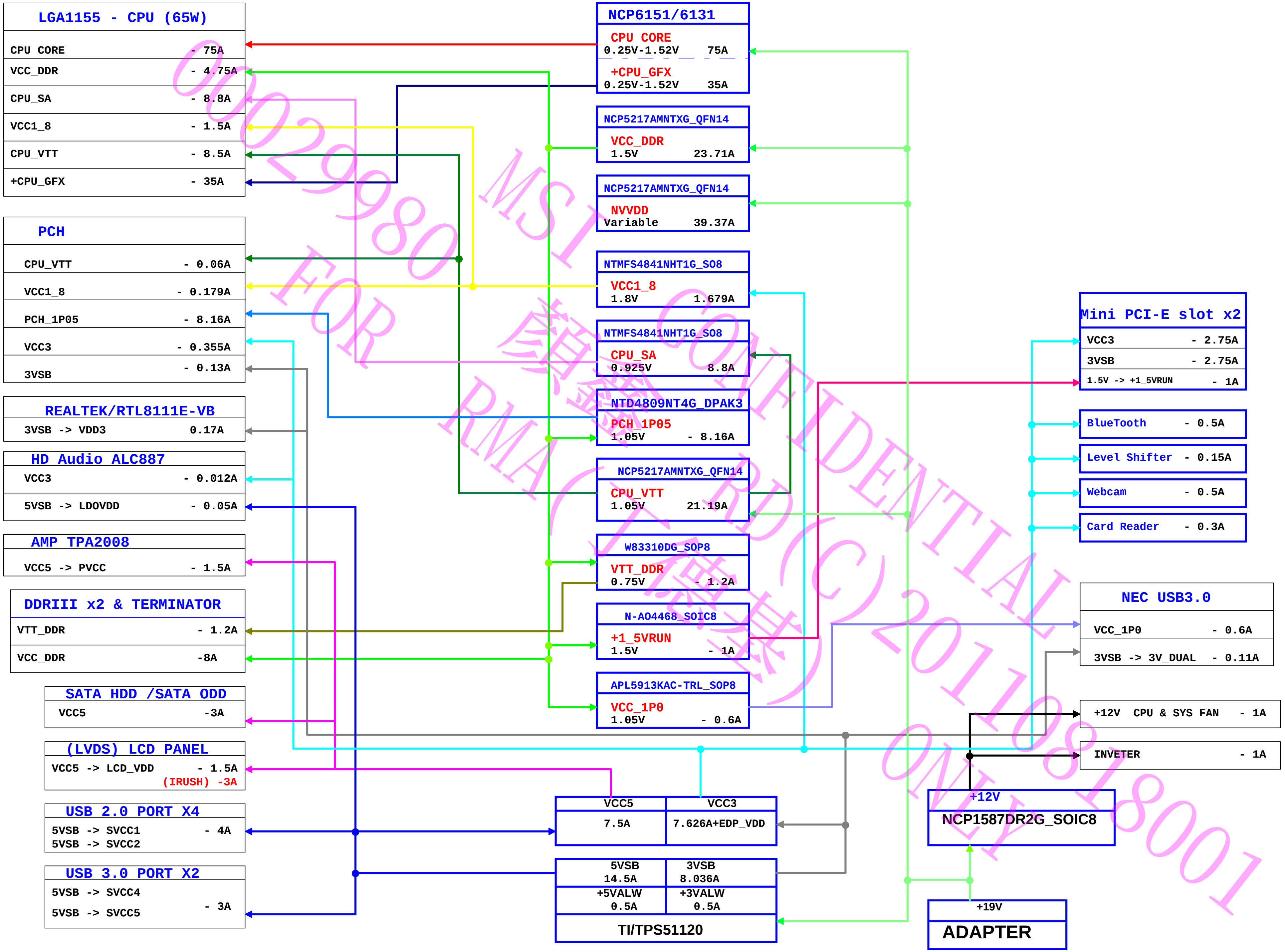

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0A change to 1.0

1. RN16 & RN17 Footprint error :
   RN16 & RN17 change to RN0603 P/N.

2. DIMM2 memory sizing fail :
   remove R698/R691 and stuff 10kohm 0402 on R690/R702 for DIMM2 address set to 010.

3. Scaler latch Hi/Lo event need 100ms:
   Remove HOT key de-bounce circuit.

4. System can't boot.
   Stuff 499ohm 1% 0402 on R965 for DPWROK.

5. Deep S5 will auto wake on:
   HDMI0_CABLE_DET pull-hi resistor R373 change to +3VALW.

6. POWERLED1 color oppsite
   exchange PWR_LED and SUS_LED signal

7. need to support TPM module
   JLPC1 change to rightangle header.

8. Monitor LED color spec change to yellow.
   Monitor LED change to D0C-010C201-K09.

9. Modify power team suggestion.
   VCCIO Modify: C199: 220P
   CPU Modify: R68: 5.9K / R69: 143K / R55: 205K / R71: 28K
   AXG Modify:R75: 5.9K / ADD EC43 470uF SPCap
   remove EC49.

10. LAN speed LED color oppsite
    pin.L1 connec to LINK100# , pin.L2 connec to LINK1000#

11. Add super charger function.
    Add 14550 (I98-145500C-P22) switch and uP7534 (I36-7534A02-U33) 1.7A for port USB1A(SVCC4).

12. intel H61 steping update
    chipset change to B01-00H6115-I06 B3 step.

13. DC_JACK solder pin too short
    DC_JACK change to N92-03M0131-H06.

14. Spec change
    remove Dual ROM circuit.

15. Spec change
    Add COM2.

16. Spec change
    remove JVGA1.

17. VRM thermal out of spec
    VRM change hi-side*2 and lo-side*2.

18. Add MB and panel differentiate.
    Add MB ID and SC ID.

19. Spec change.
    Add Tensor IC for AA71 and A951.

20. reserved gpio select for IR and COMA.

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1.0 change to 1.1

1. Modify power team suggestion.
   Vcore Modify: R69 32.4Kohm
   AXG Modify: R80 110Kohm / R96 60.4Kohm / C61 2.2nF

2. 水波紋solution
   Remove R342, R343, R344
   R295, R286, R322 change to 37.4 ohm 1%
   R951, R952 change to 220 ohm bead@100MHz
   CP1change to 80 ohm bead@100MHz
   Add a 10uF/X6S cap for +3.3V_DAC
   Add a 470uF/6.3v cap for VCC3

3. RTC fail.
   C221/C222 change to 12pf.

4. i-charger need to re-plug.
   i-charger enable pin change to PCH gpio8.

5. RTL amplifier ALC107 had noise.
   amplifier change to Ti TPA2008.

6. spec change : need to support CCFL panel.
   reserved a 0805 cap for L_BKLTCTL#.

7. JIR1 無吸件面
   JIR1 change to N32-1030870-H06.

8. AC76 will lost device with mini PCI-e wifi 785H.Reset signal level only 2.2V(wifi card had a pull down 10K on reset pin)
   reset pull high R change to 1K 0402

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