

Compal Confidential

Model Name :PILP1
File Name : LA-6921P

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LA-6921 Edge Schematics Document

Intel Sandy Bridge Processor with DDRIII + Cougar Point PCH + Whistler 128bit with BACO

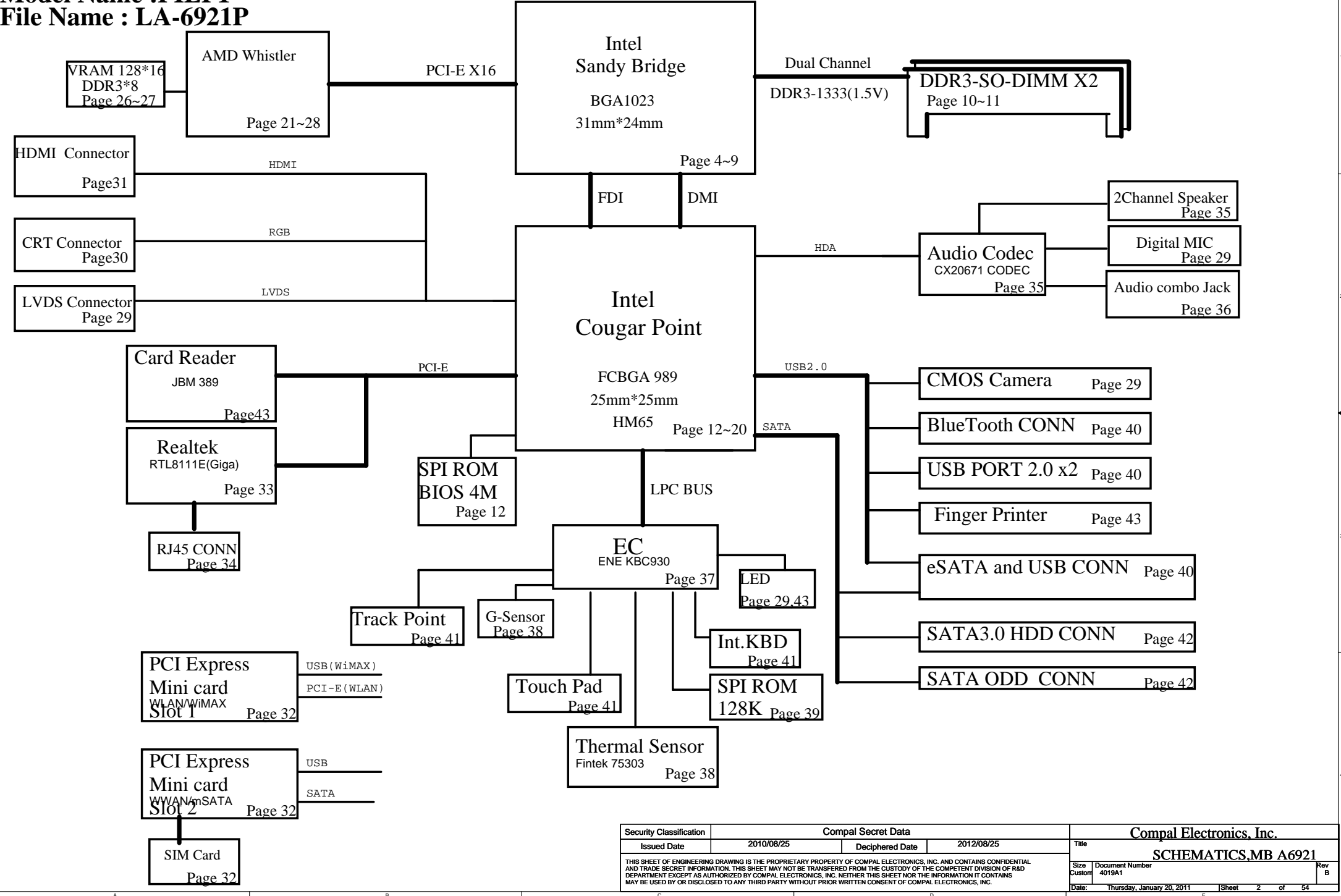
2010-11-30

REV:1.0

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Voltage Rails				
power plane				
State	+B	+5VALW +3VALW	+1.5V	+5VS +3VS +1.8VS +1.5VS +1.05VS +VGFX_CORE +CPU_CORE +0.75VS +1.5VS_DISVGA +1.0VS +NVVDD +3VS_DISVGA +1.8VS_DISVGA
S0	O	O	O	O
S3	O	O	O	X
S5 S4/AC	O	O	X	X
S5 S4/ Battery only	O	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X

STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	
S3 (Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	
S4 (Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	
S5 (Soft OFF)	LOW	LOW	LOW	ON	OFF	OFF	

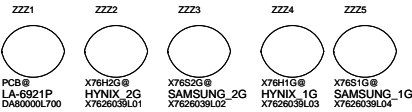
BOARD ID Table	
Board ID	PCB Revision
0	0.1
1	0.2
2	0.3
3	
4	
5	
6	
7	

USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB_COMBO
		1	USB_PORT
	UHCI1	2	NO USE
		3	NO USE
	UHCI2	4	WWAN
		5	CAMERA
EHCI2	UHCI3	6	HM65 not support
		7	HM65 not support
	UHCI4	8	WLAN
		9	USB_CHARGER
	UHCI5	10	NO USE
		11	NO USE
	UHCI6	12	FINGER-PRINTER
		13	BLUETOOTH

Structure	Function
CPU1@	CPU type
PX@	PX4.0 SKU
UMA@	UMA SKU
3G@	3G Sim card
X76H1G@	VRAM
PCB@	M/B

Vcc	3.3V +/- 5%				
R613	100K +/- 5%				
Board ID	R682	VAD_BID min	VAD_BID typ	VAD_BID max	
0	0K +/- 5%	0 V	0 V	0 V	SDV1
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V	SDV2
2	18K +/- 5%	0.436 V	0.503 V	0.538 V	FVT
3	33K +/- 5%	0.712 V	0.819 V	0.875 V	SIT
4	56K +/- 5%	1.036 V	1.185 V	1.264 V	SVT

PCH_GPIO69	PCH_GPIO70	PCH_GPIO71	Function
0	0	0	UMA
1	1	0	PX4.0



EC SM Bus1 address

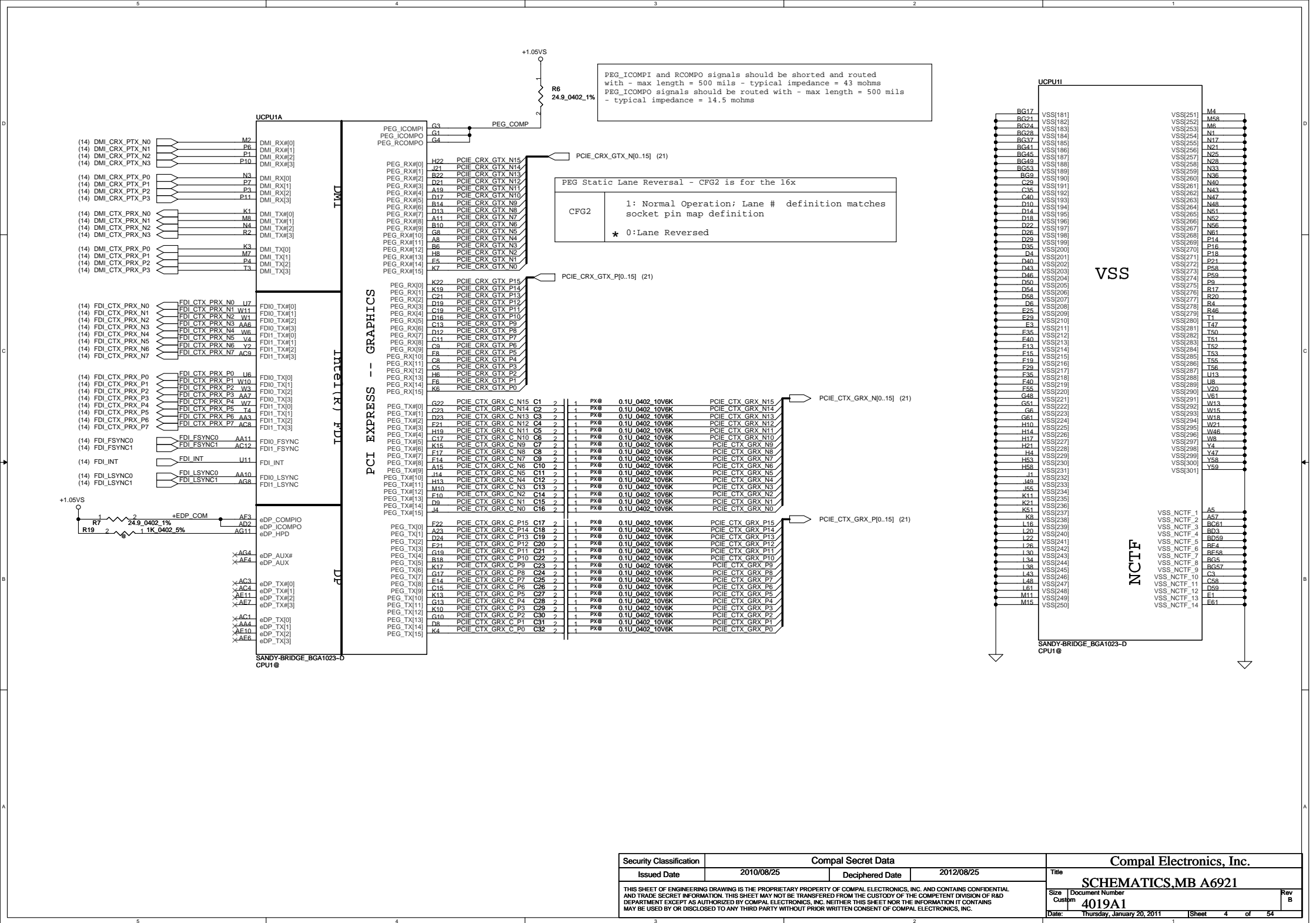
Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

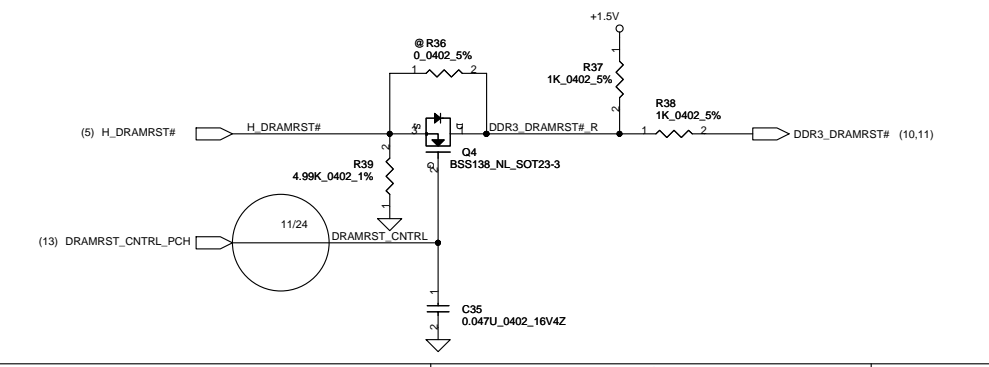
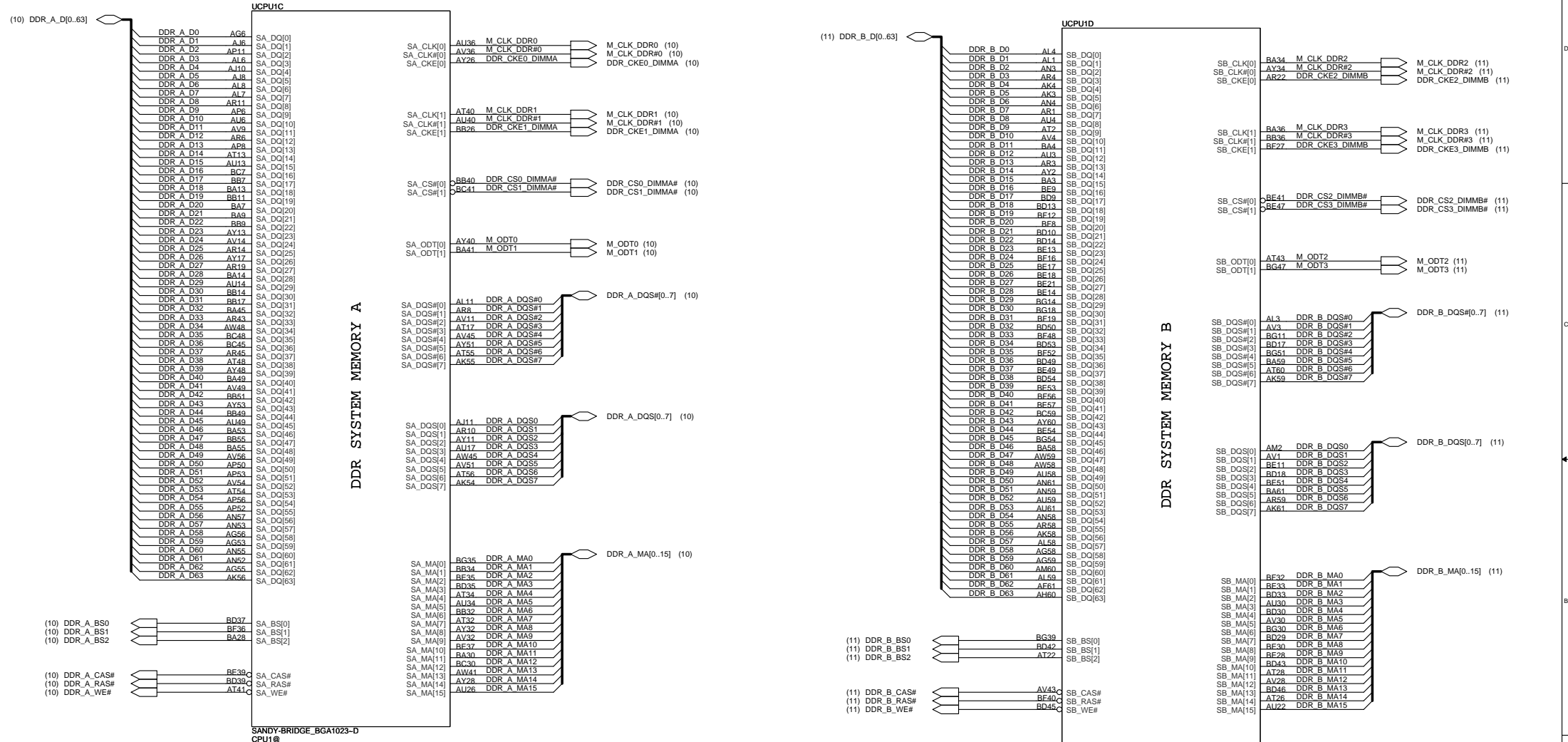
Device	Address
PCH	1001 0110 b
Thermal sensor(U30)	1001 101x b
GPU(U9)	1000_0010 b

PCH SM Bus address

Device	Address
DDR DIMM0	1010 000xb
DDR DIMM2	1010 010xb
EEPROM(U32)	1010 100xb

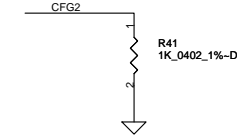
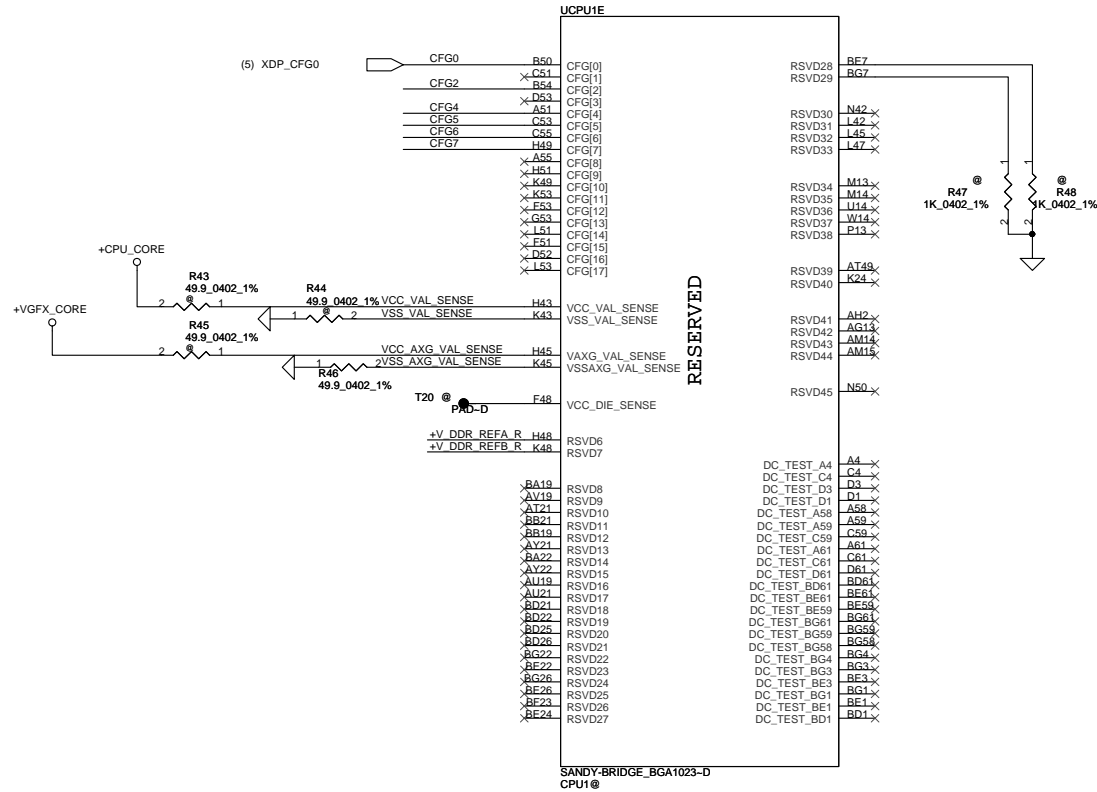


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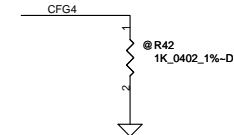


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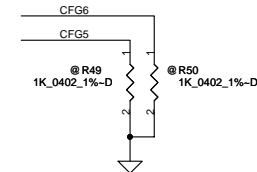
CFG Straps for Processor



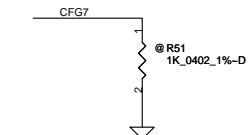
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1:(Default) Normal Operation; Lane # definition matches socket pin map definition *0:Lane Reversed



Display Port Presence Strap	
CFG4	<p>* 1 : Disabled; No Physical Display Port attached to Embedded Display Port</p> <p>0 : Enabled; An external Display Port device is connected to the Embedded Display Port</p>

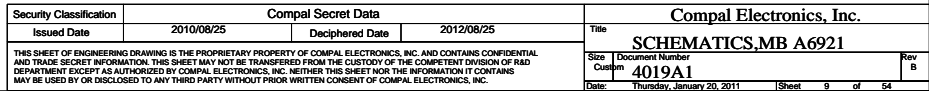


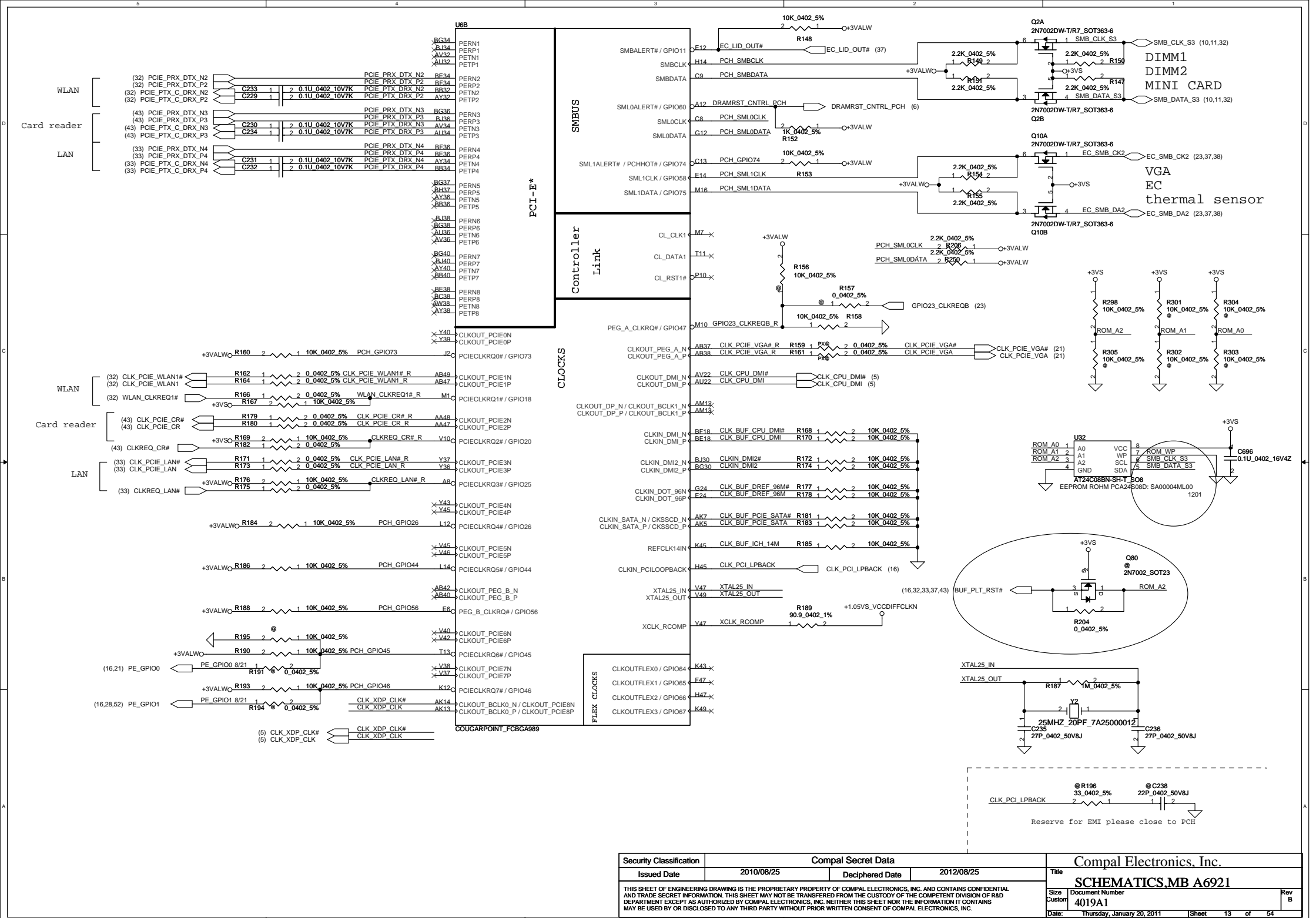
PCIe Port Bifurcation Straps	
CFG[6:5]	*11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

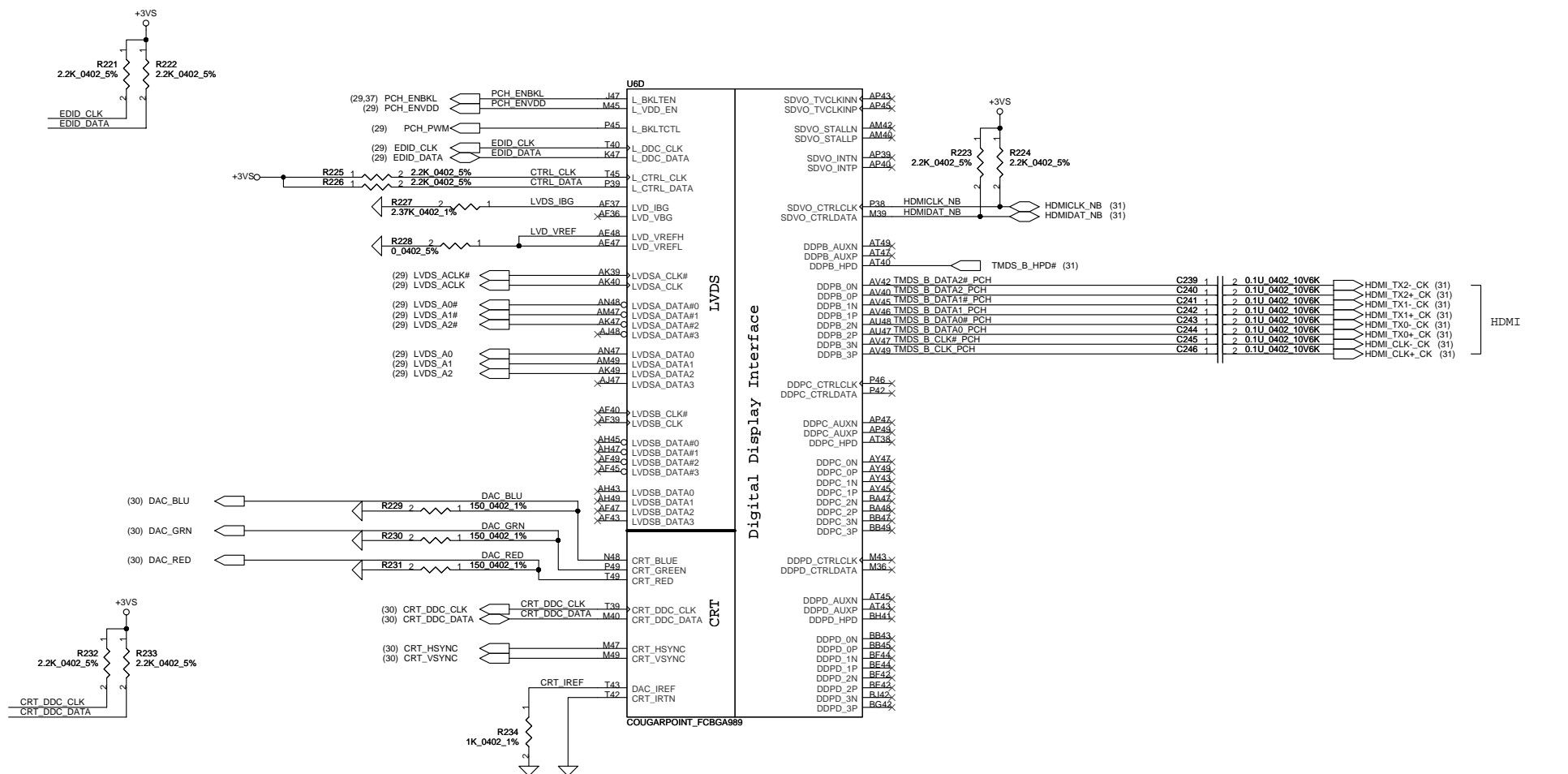


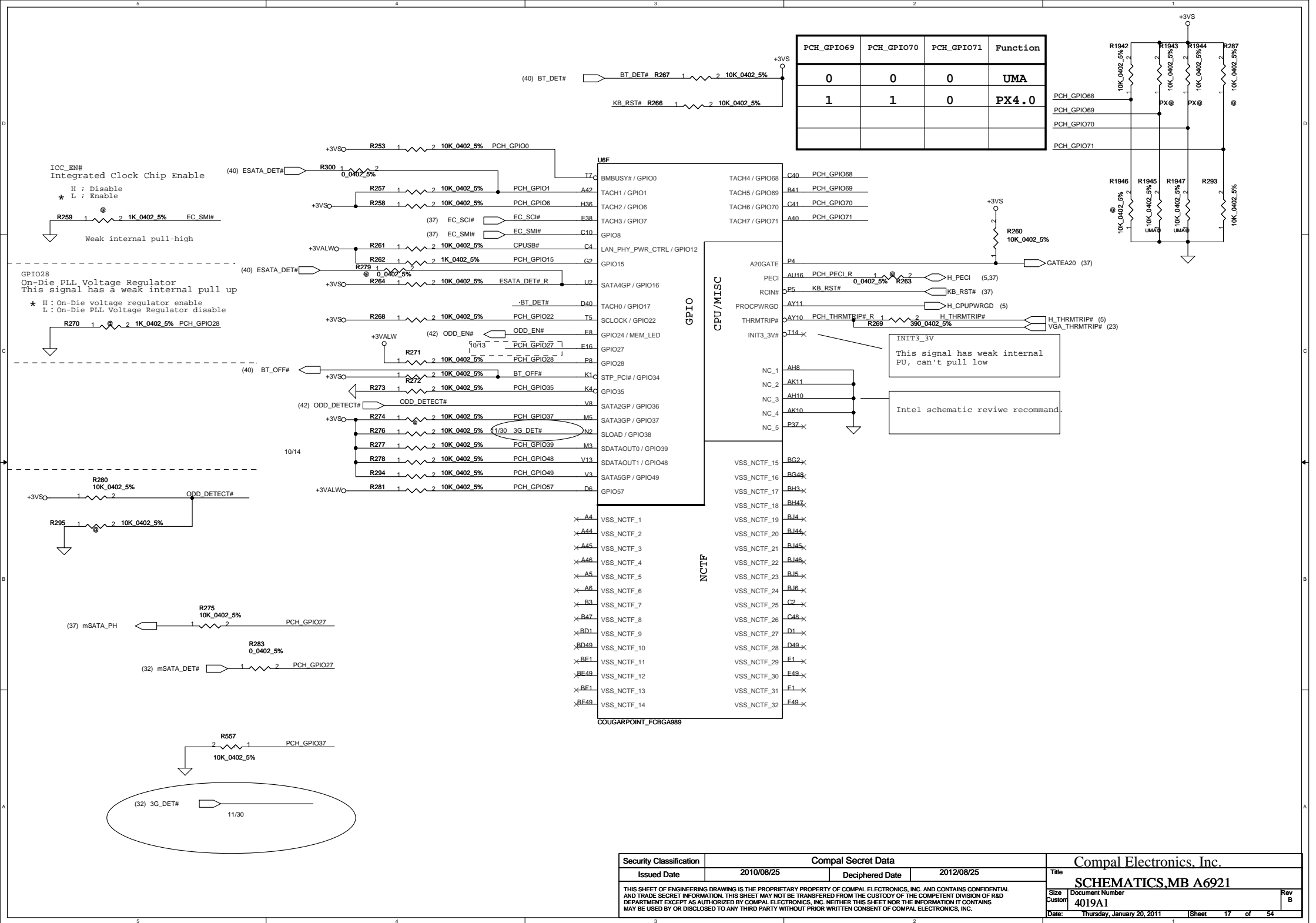
PEG DEFER TRAINING	
CFG7	*1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

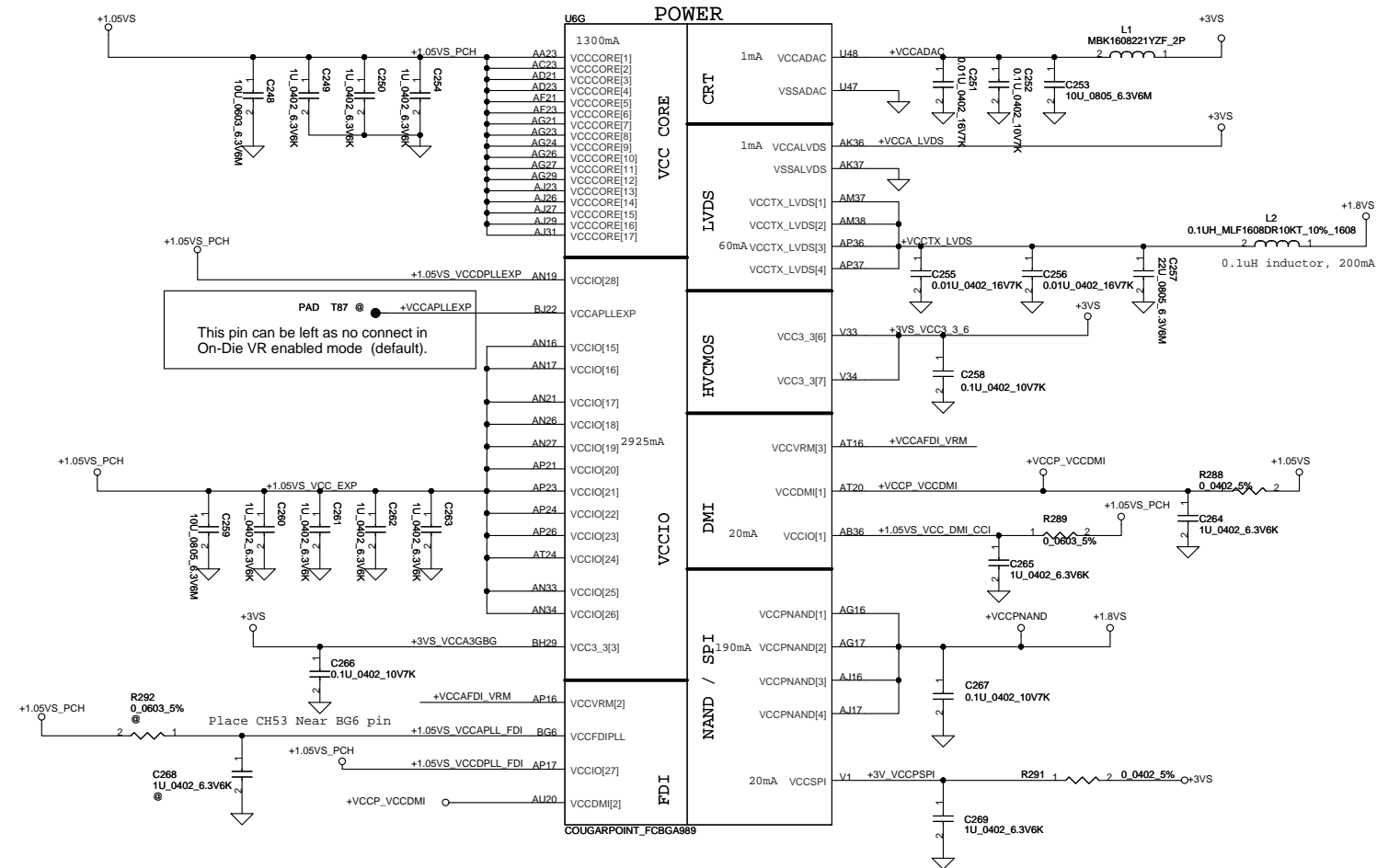
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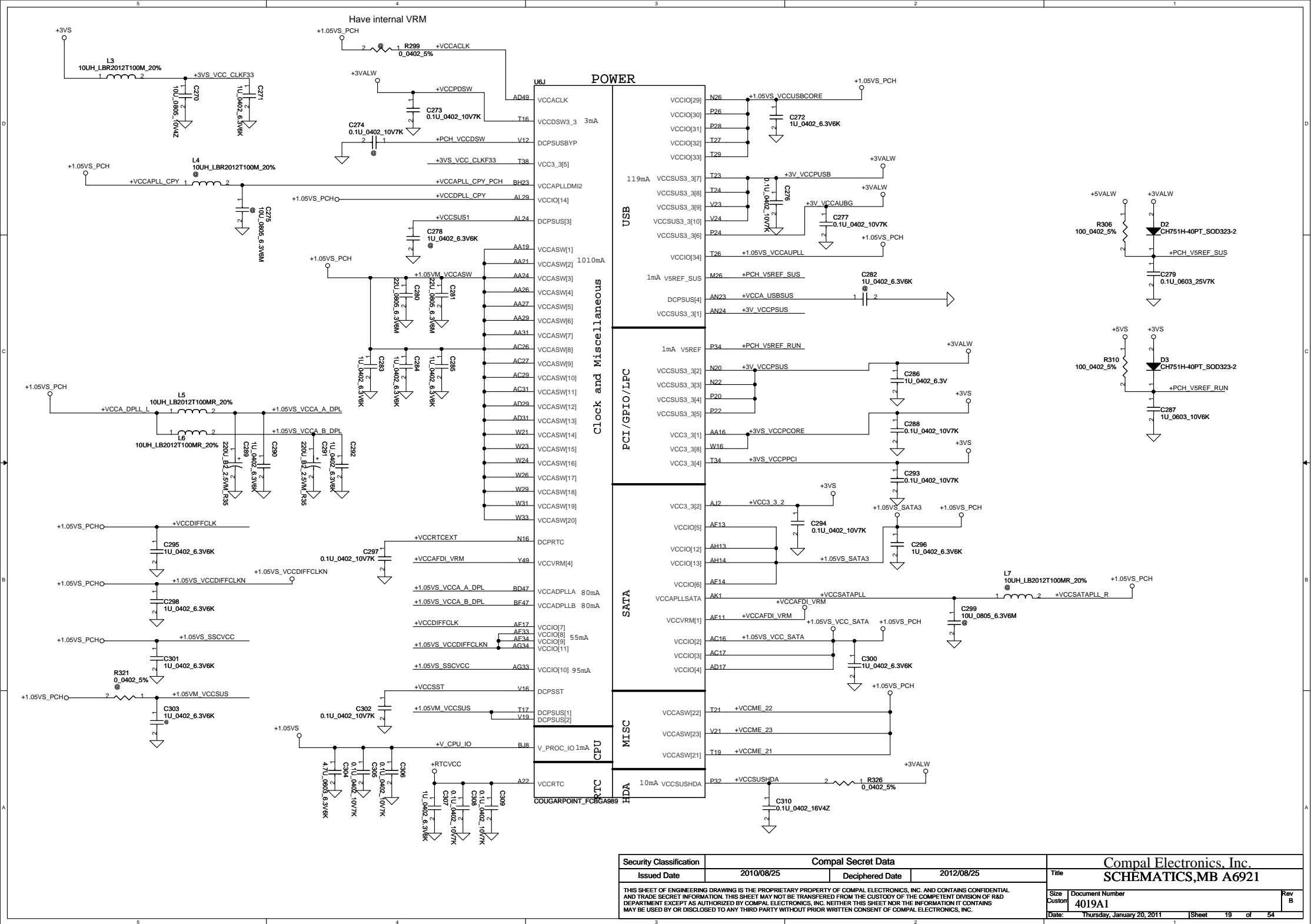


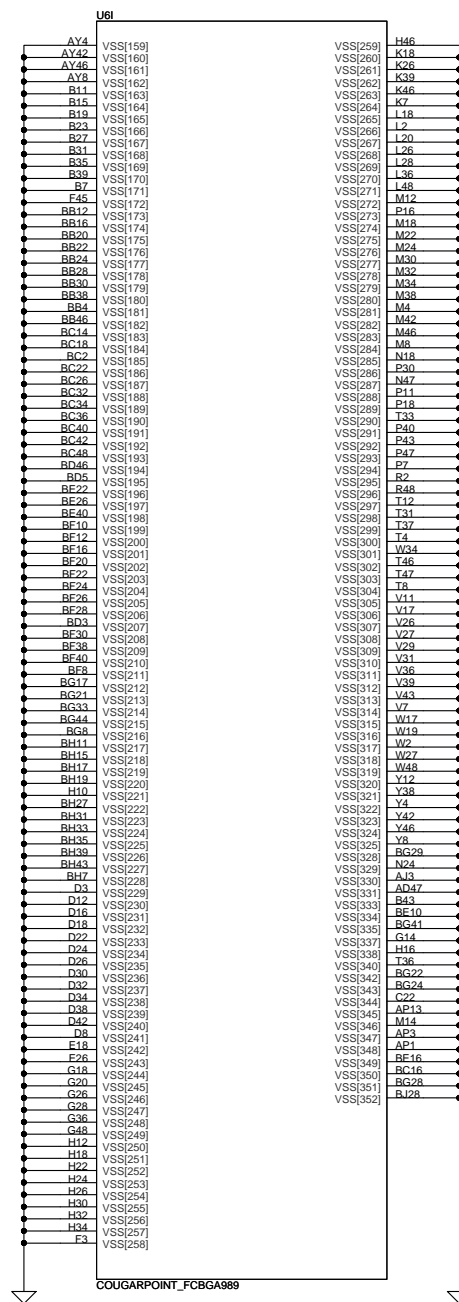
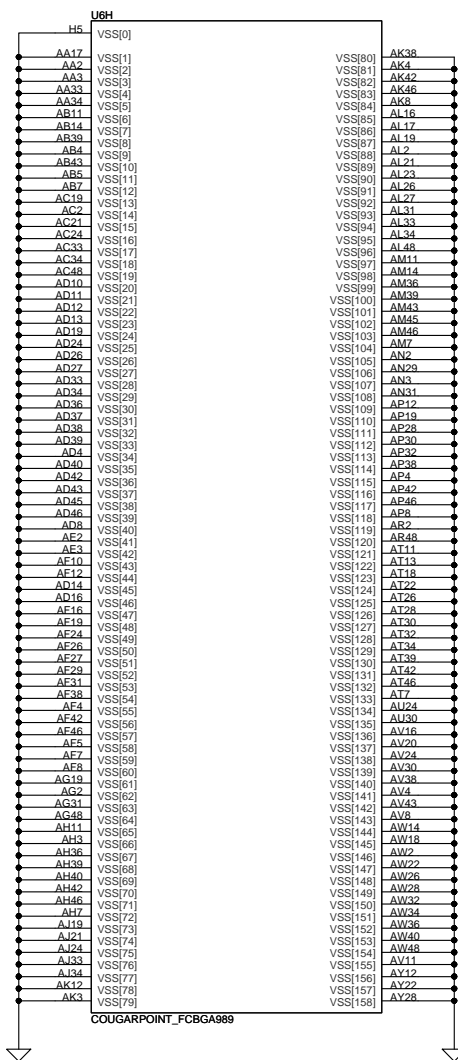






PCH Power Rail Table		
Voltage Rail	Voltage	50 Iccmax Current (A)
V_PROC_IO	1.05	0.001
V5REF	5	0.001
V5REF_Sus	5	0.001
Vcc3_3	3.3	0.266
VccADAC	3.3	0.001
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.05	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.02
VccDSW	3.3	0.003
VccpNAND	1.8	0.19
VccRTC	3.3	6 uA
VccSus3_3	3.3	0.119
VccSusHDA	3.3 / 1.5	0.01
VccVRM	1.8 / 1.5	0.16
VccCLKDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	0.001
VccTX_LVDS	1.8	0.06

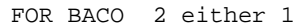
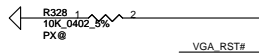




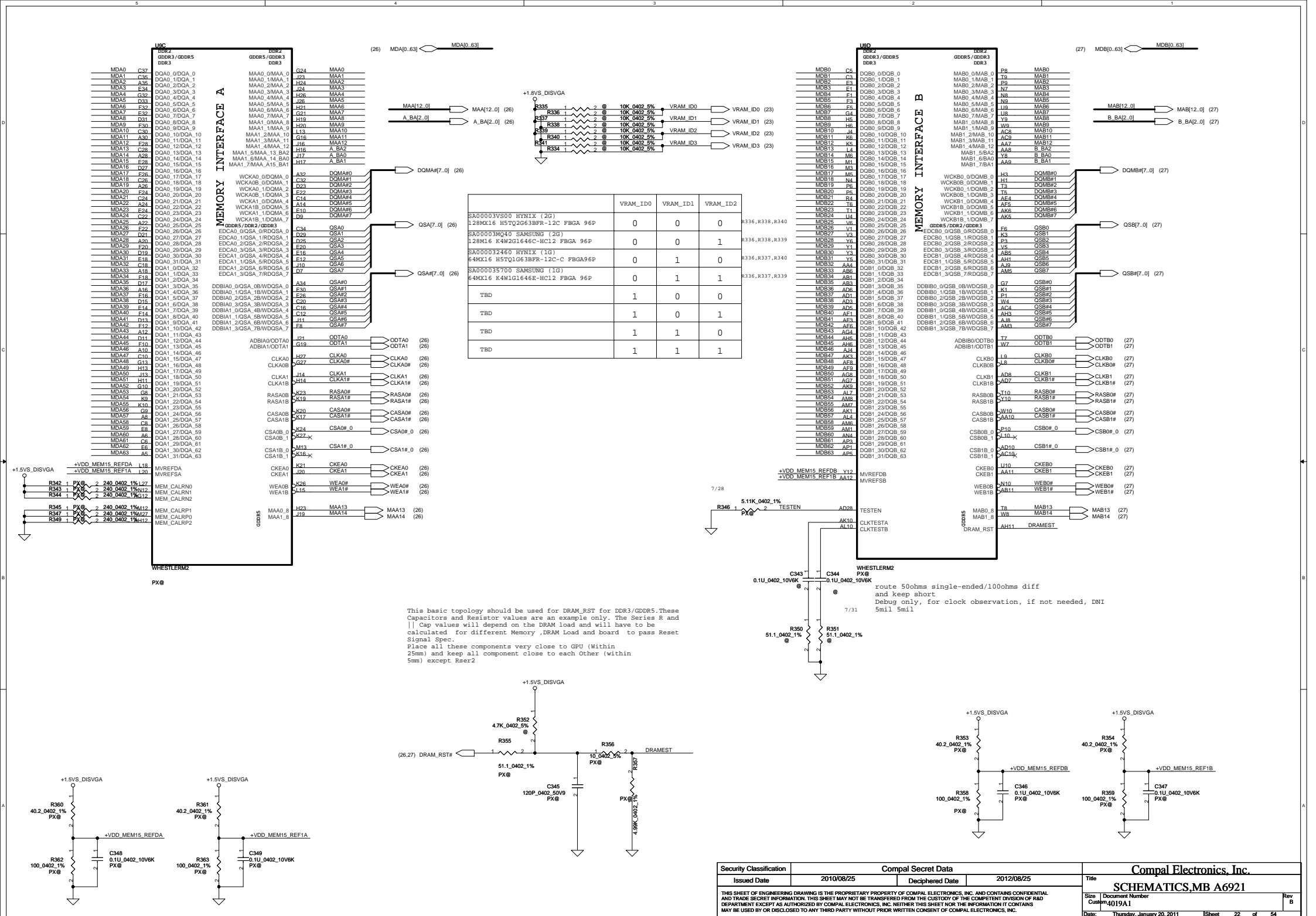
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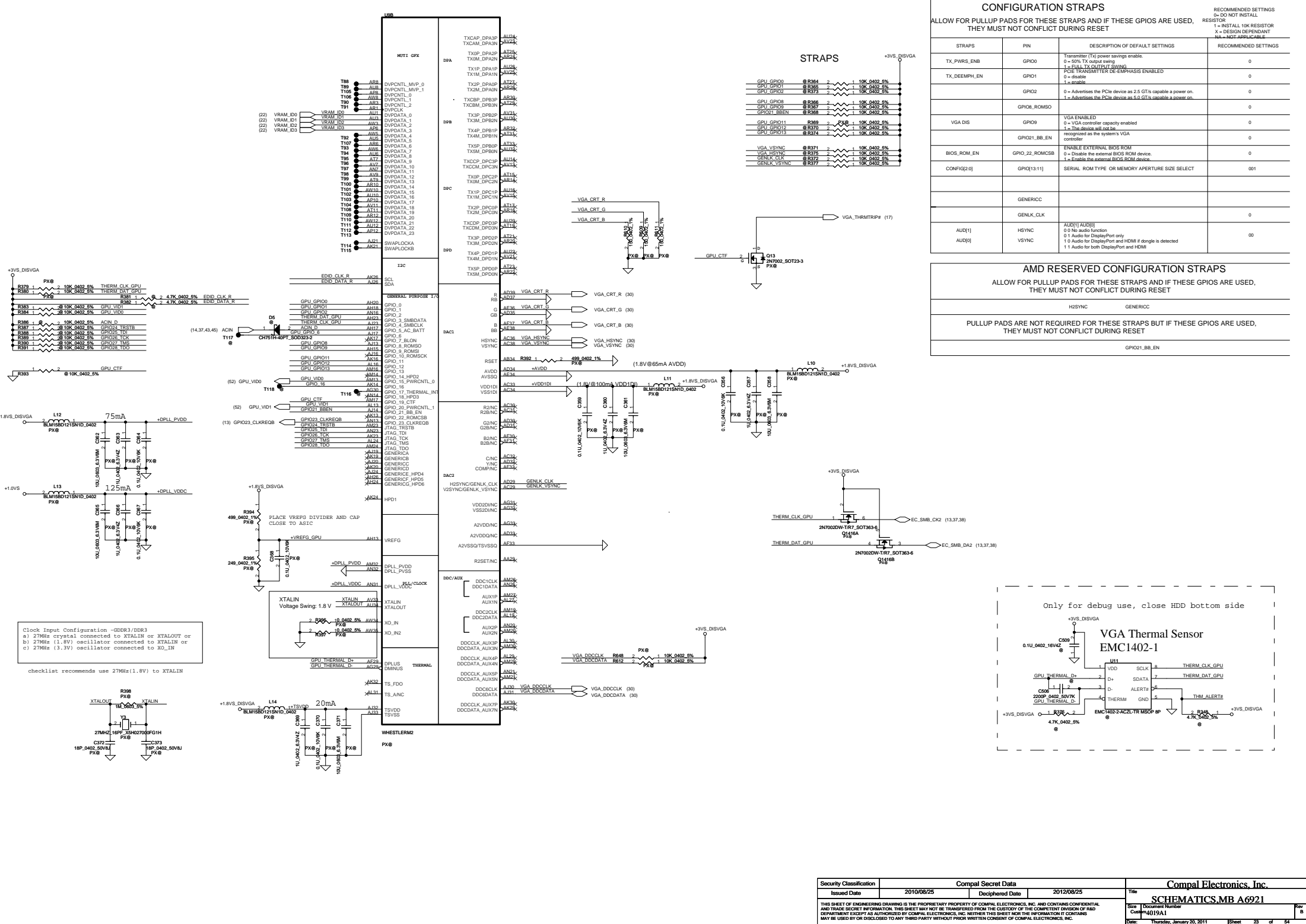
~~PCI EXPRESS INTERFACE~~

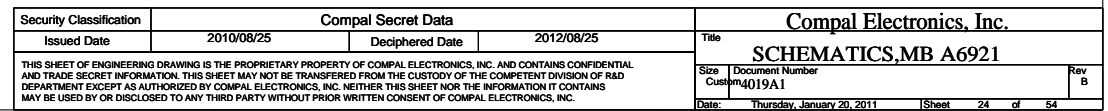
URG		
LVDS CONTROL	VARY_BLDIGON	AK27 AJ24
	TXCLK_UP_DPFP3	AK35
	TXCLK_UN_DPF3N	AL36
	TXOUT_U0P_DPFP2	AJ39
	TXOUT_U0N_DPF2N	AK37
	TXOUT_U1P_DPFP1	AH35
	TXOUT_U1N_DPF1N	AJ36
	TXOUT_U2P_DPFP0	AG38
	TXOUT_U2N_DPF0N	AH37
	TXOUT_U3P	AF35
	TXOUT_U3N	AG36
LVTMDP		
	TXCLK_LP_DPE3P	AP34
	TXCLK_LN_DPE3N	AR34
	TXOUT_L0P_DPE2P	AW37
	TXOUT_L0N_DPE2N	AU35
	TXOUT_L1P_DPE1P	AR37
	TXOUT_L1N_DPE1N	AL39
	TXOUT_L2P_DPE0P	AP35
	TXOUT_L2N_DPE0N	AR35
	TXOUT_L3P	AN36
	TXOUT_L3N	AP37
WHESTERLM2 PX@		

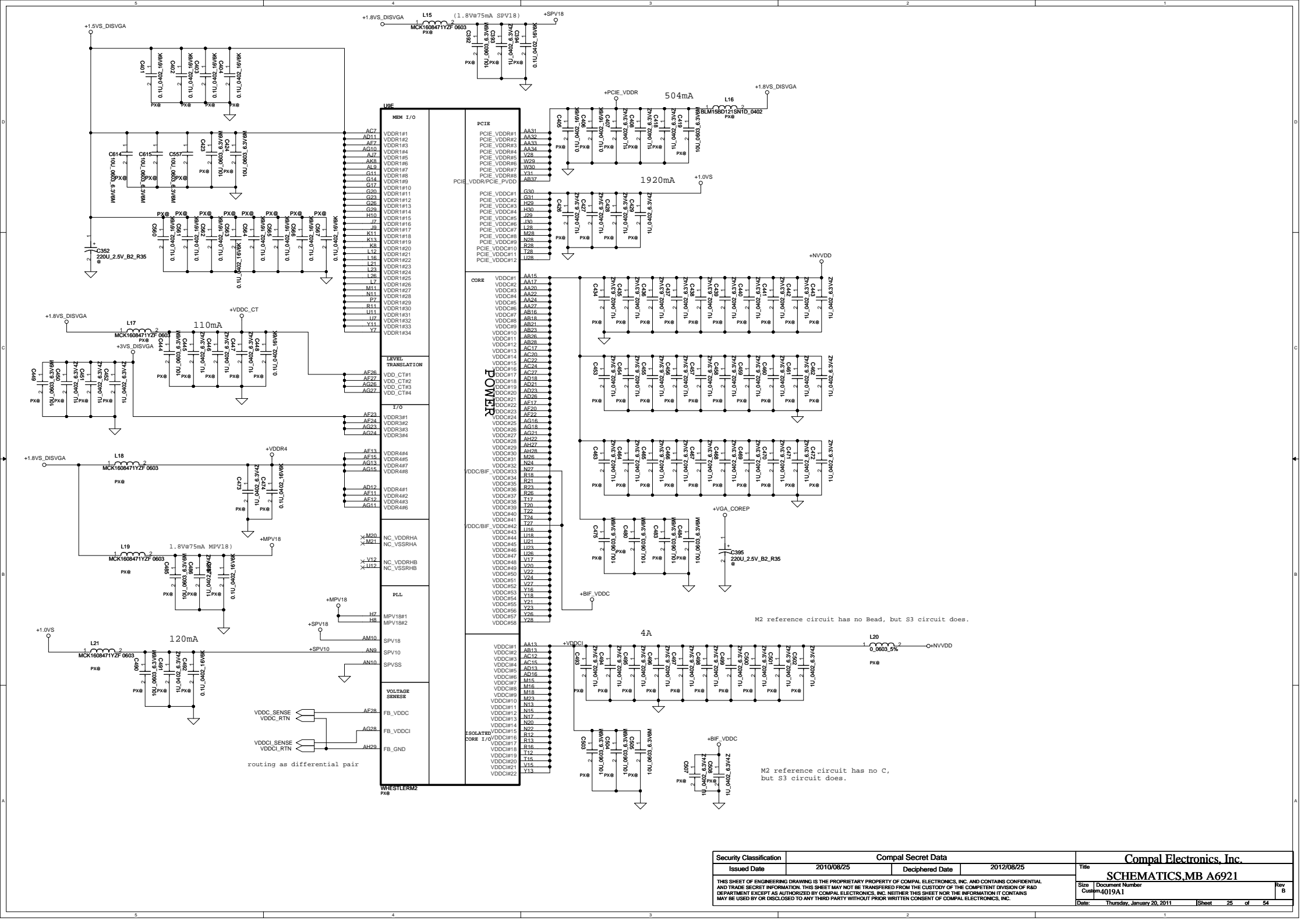


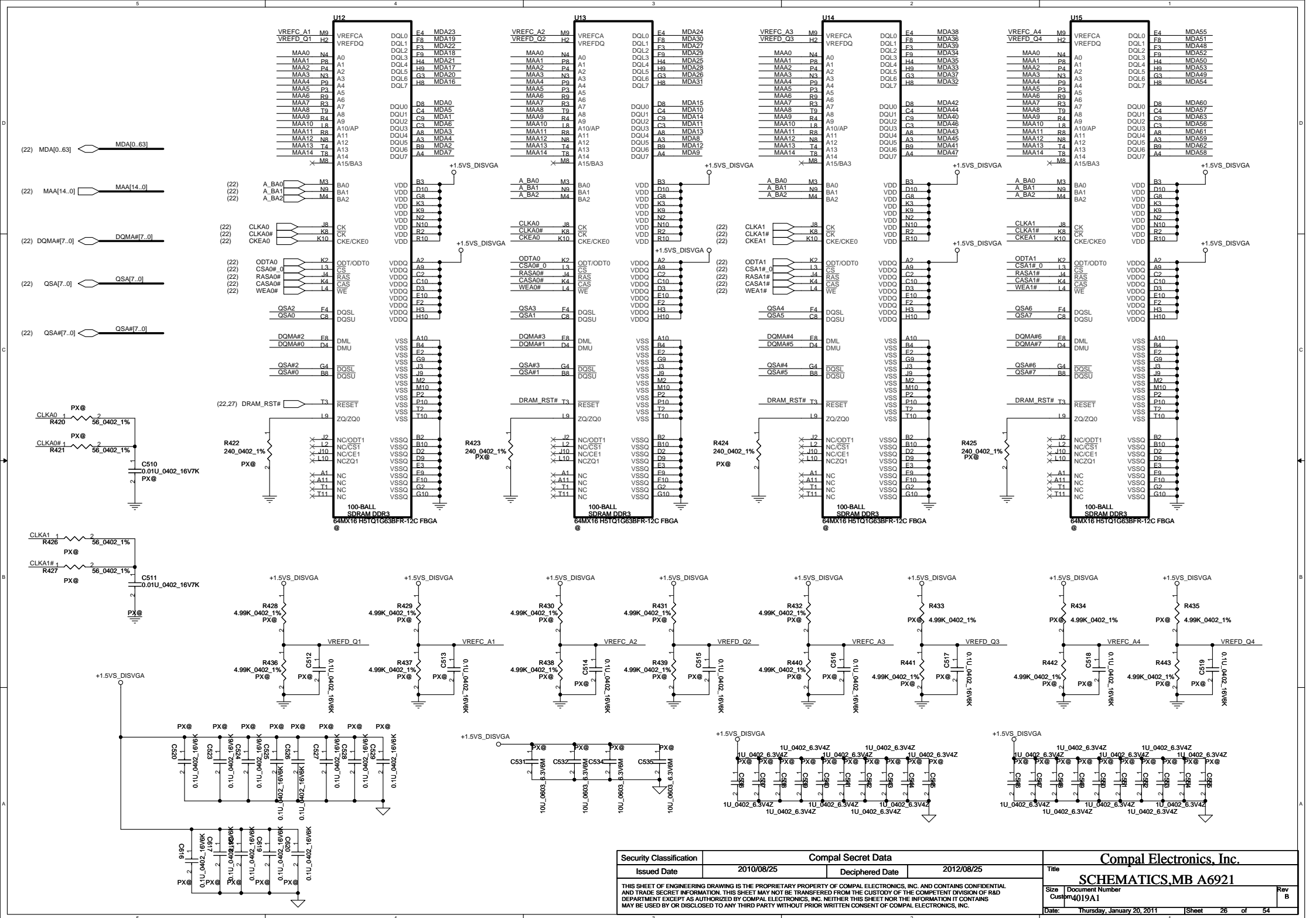
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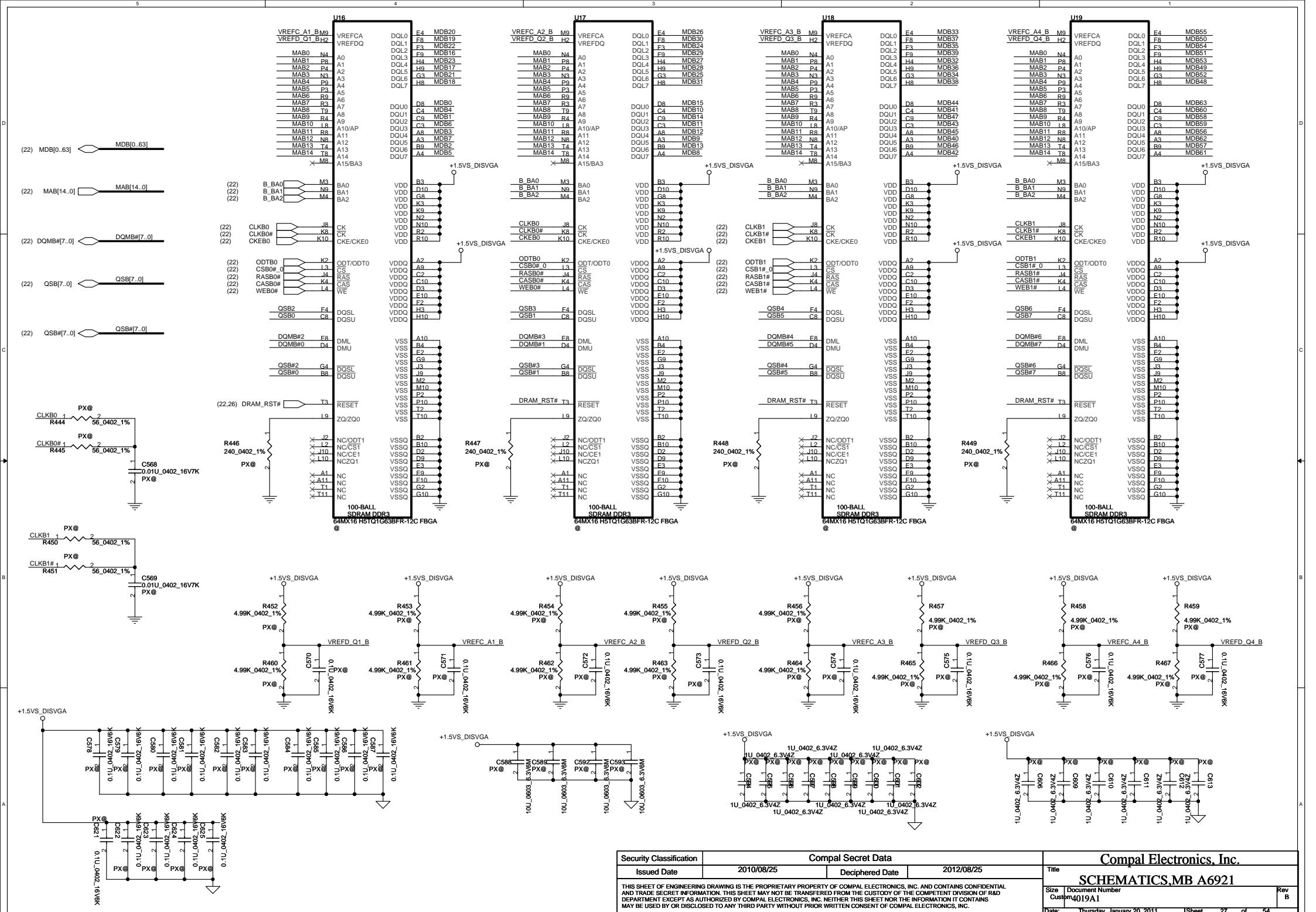






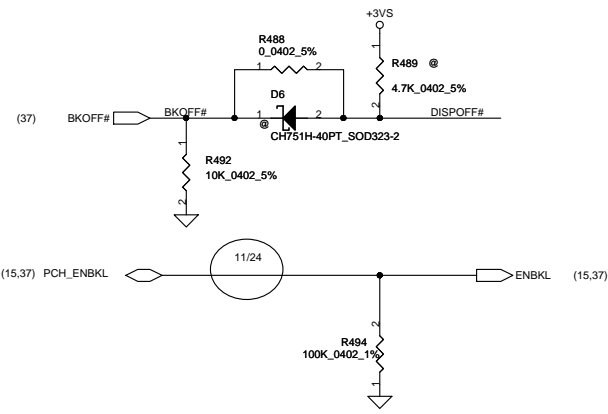
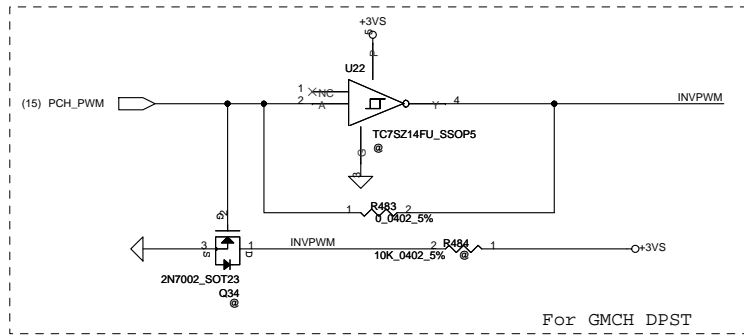
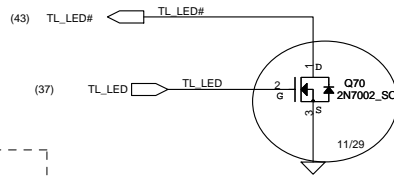
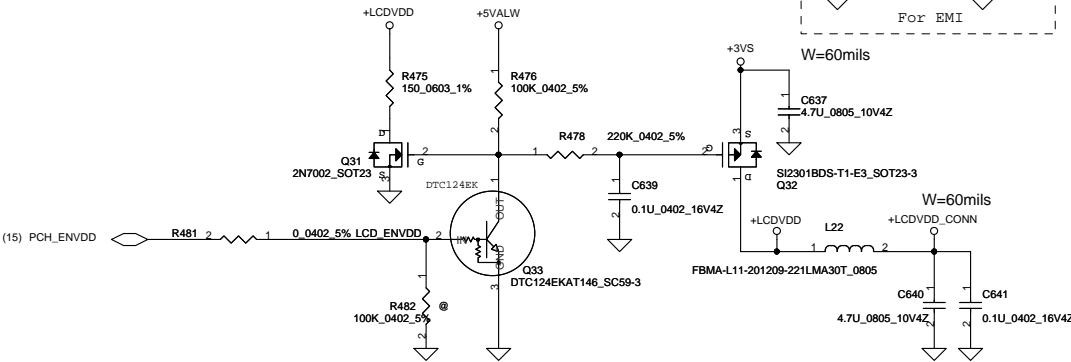




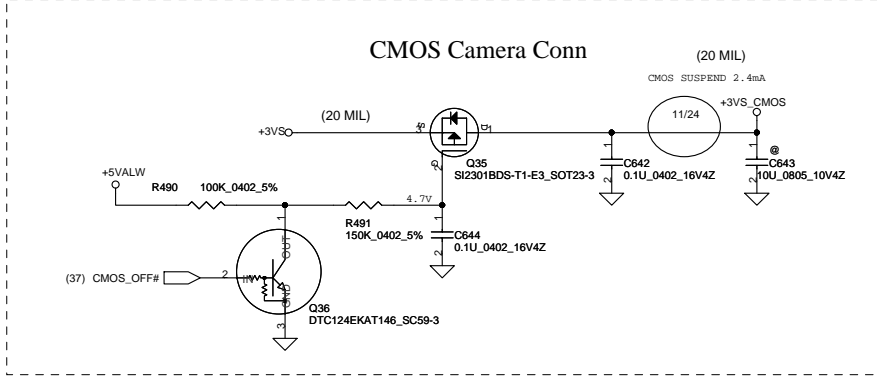
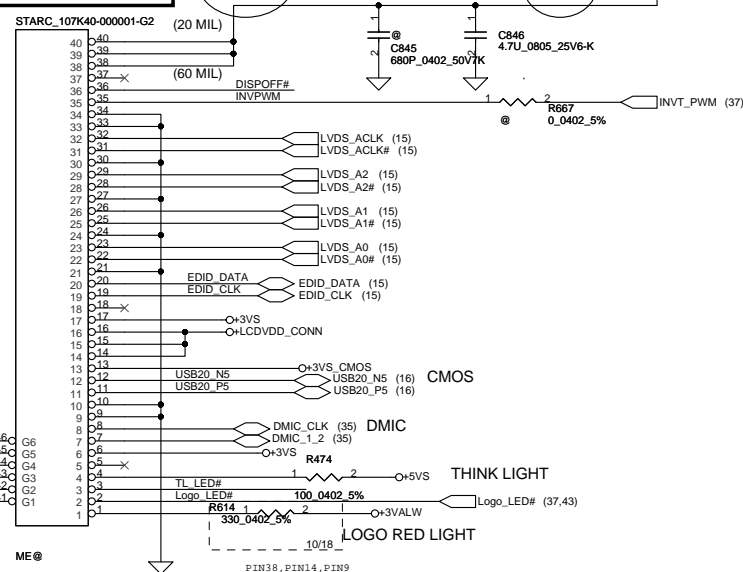


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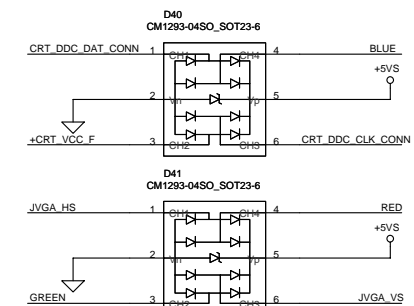
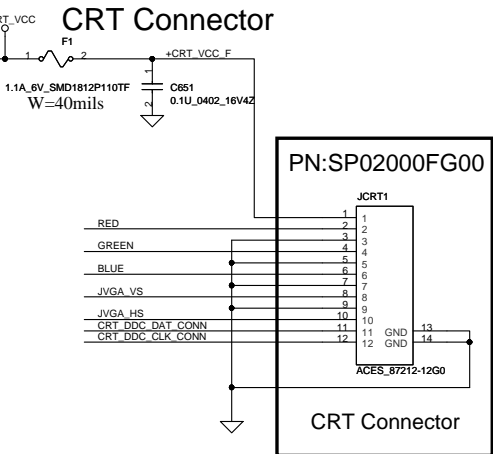
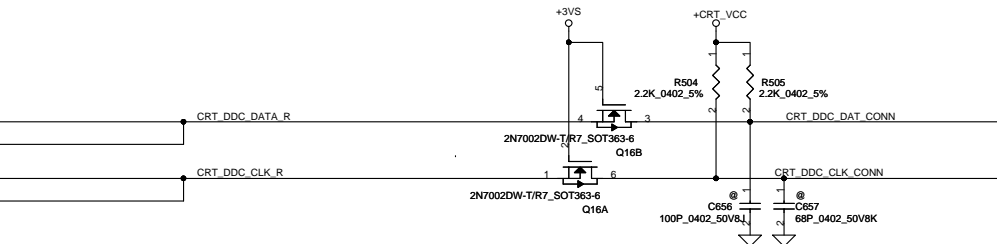
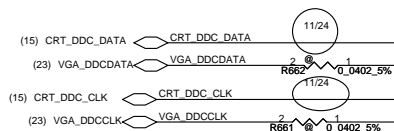
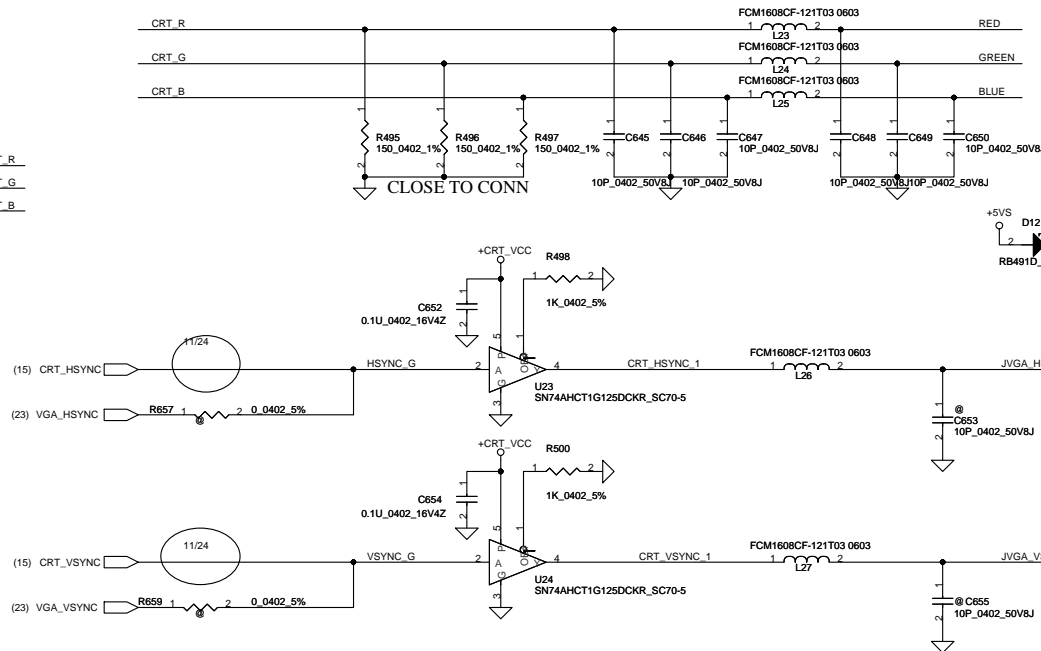
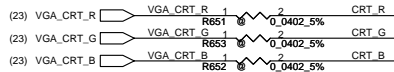
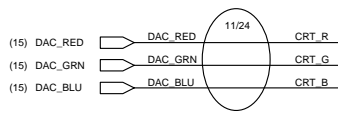
LCD POWER CIRCUIT

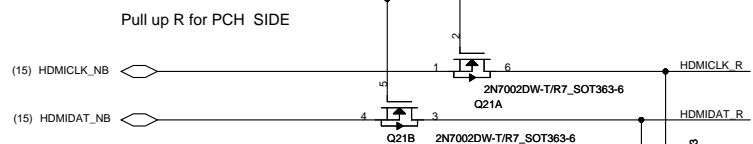
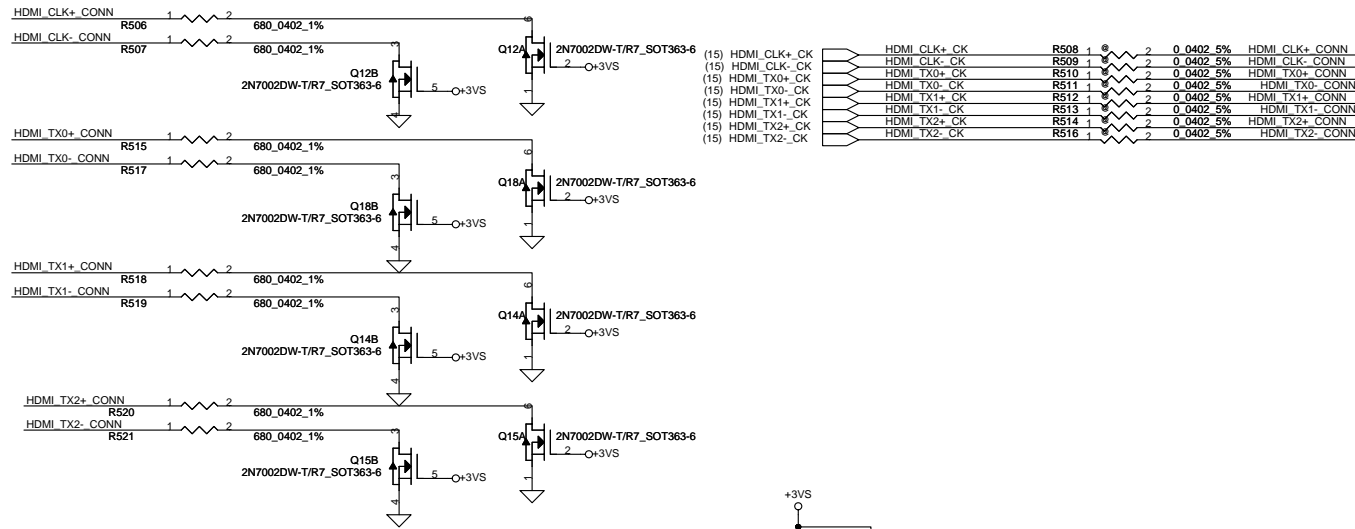


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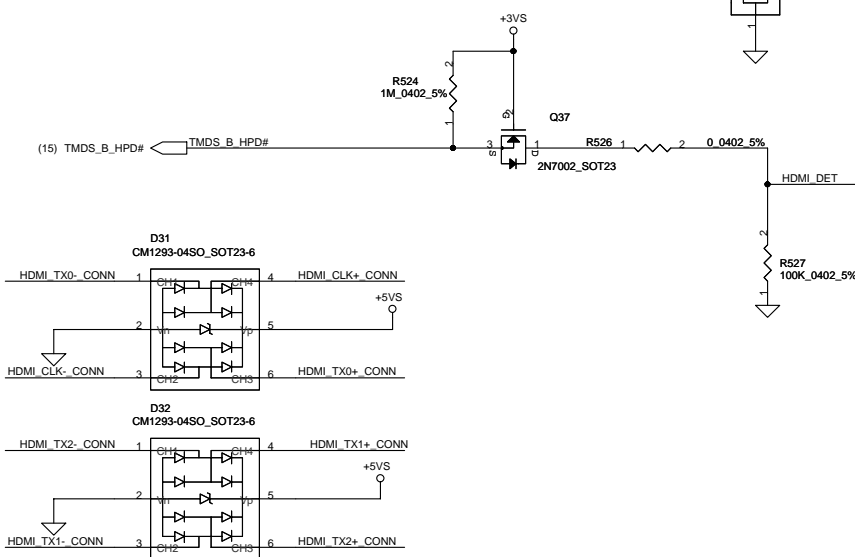


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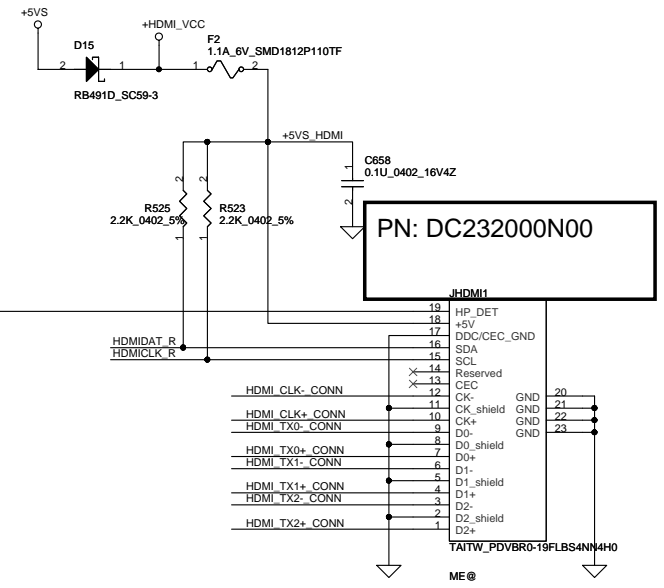
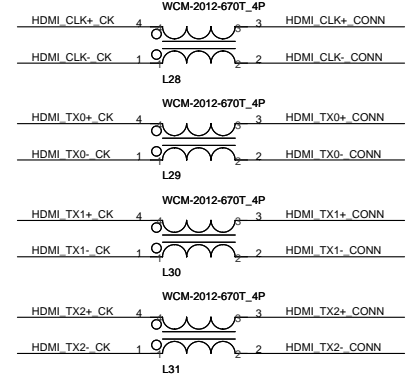


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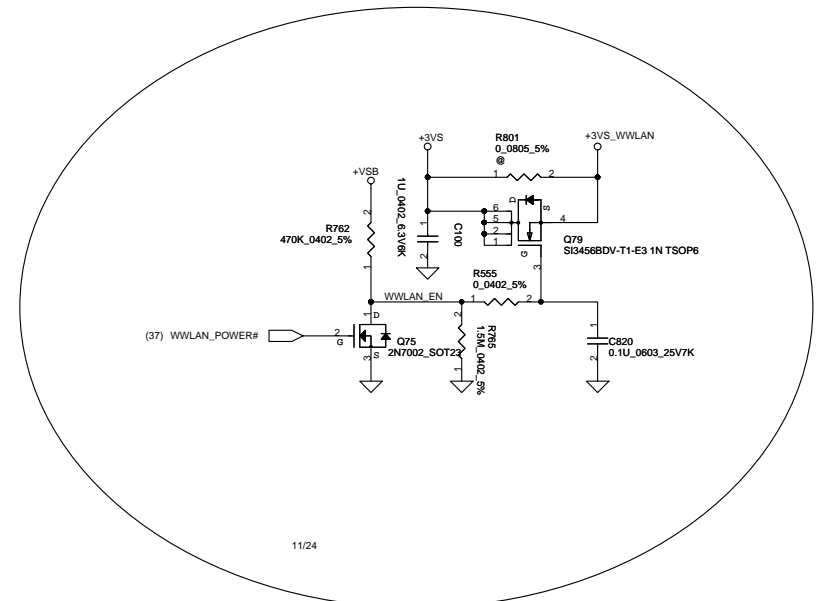
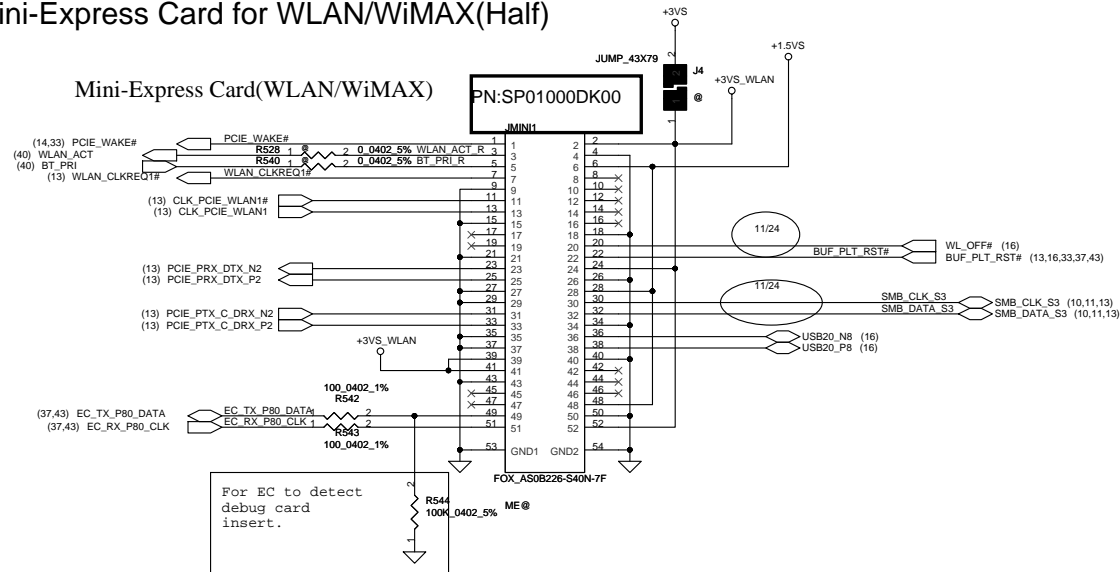
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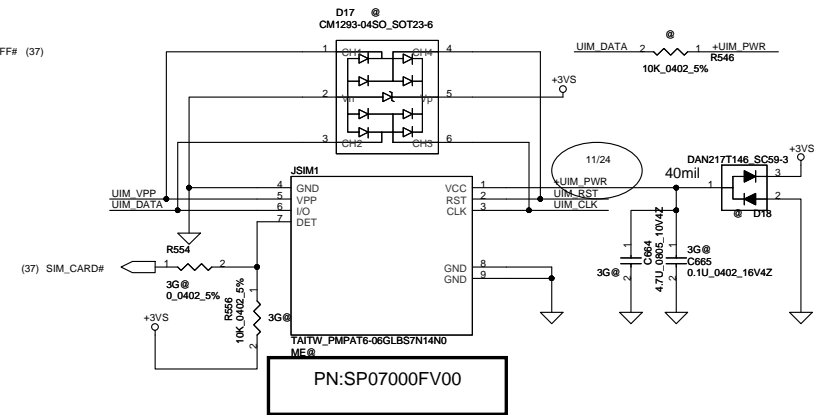
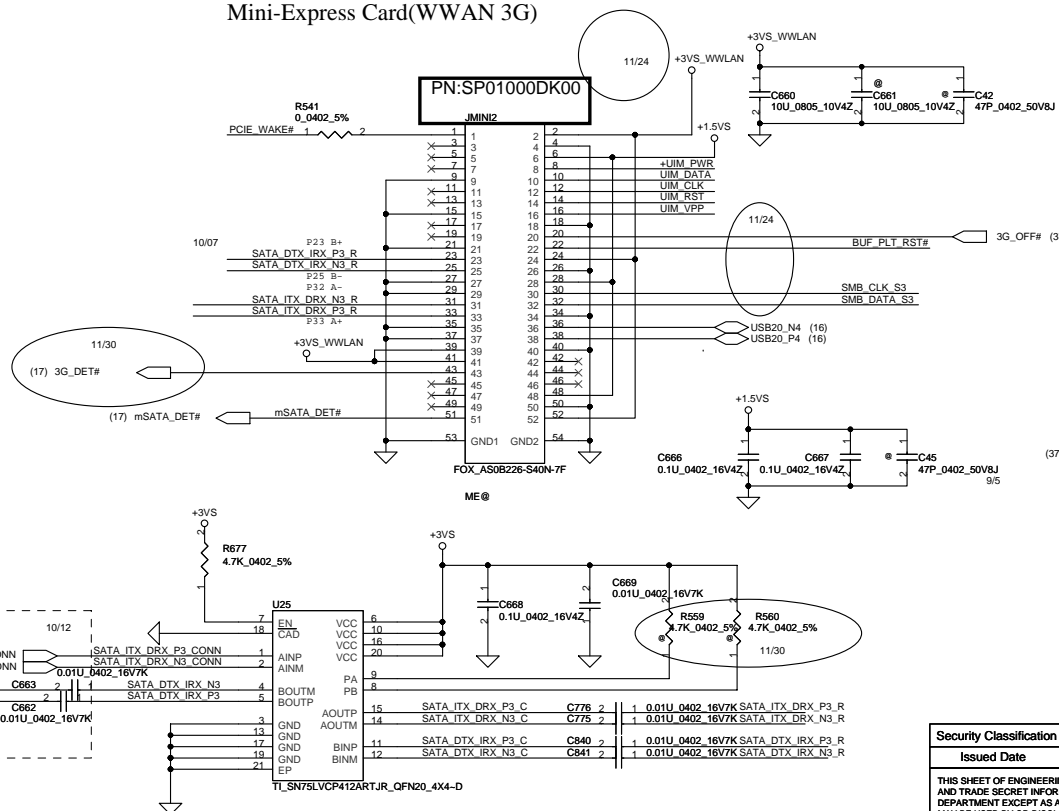
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Mini-Express Card for WLAN/WiMAX(Half)

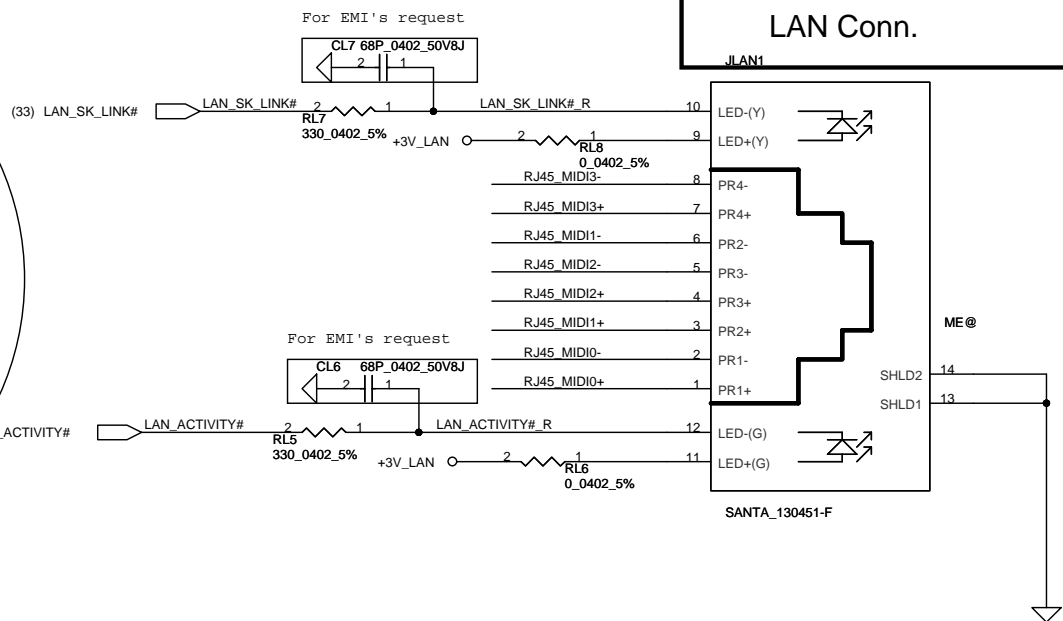
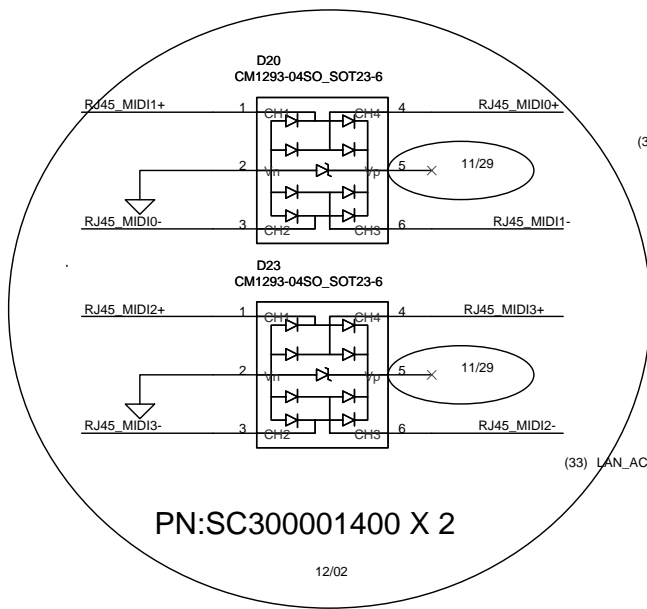
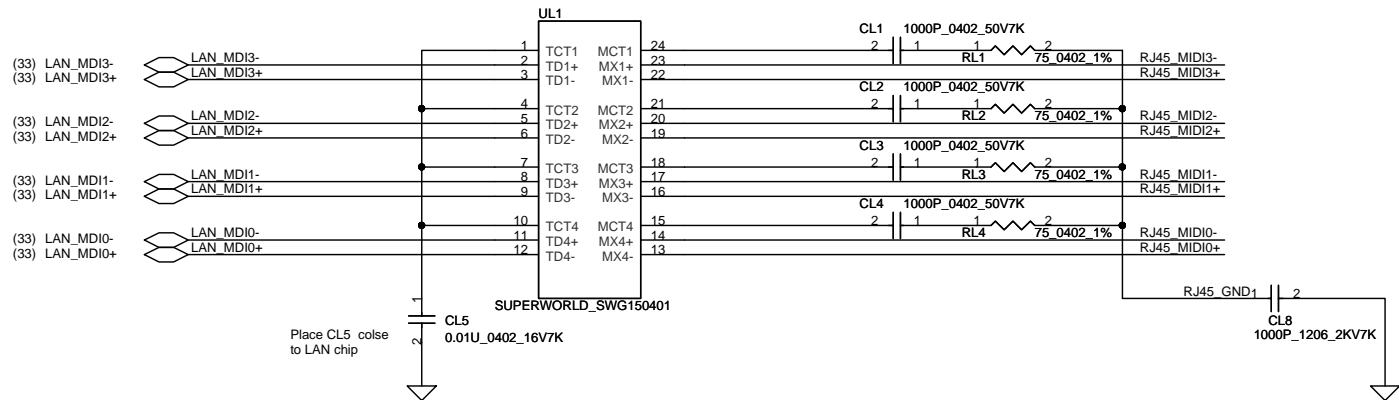


Mini-Express Card for WWAN/mSATA(Full)

Mini-Express Card(WWAN 3G)

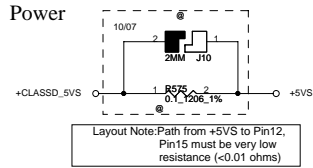


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				Document Number	4019A1
				Date: Thursday, January 20, 2011	Sheet 32 of 54

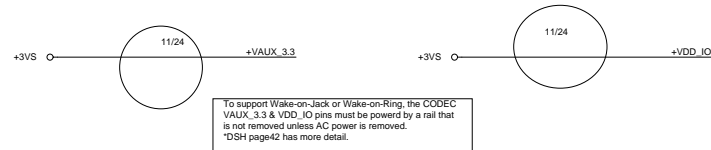


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				Size Custom	Document Number 4019A1
Date: Thursday, January 20, 2011		Sheet 34 of 54		Rev B	

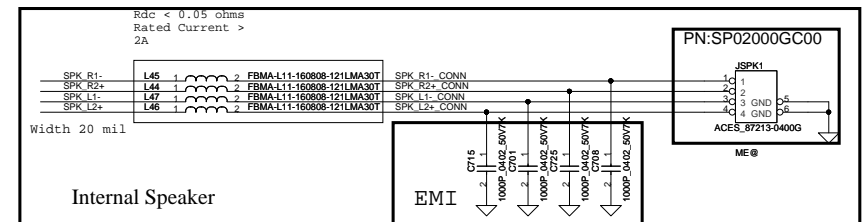
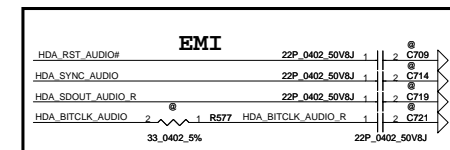
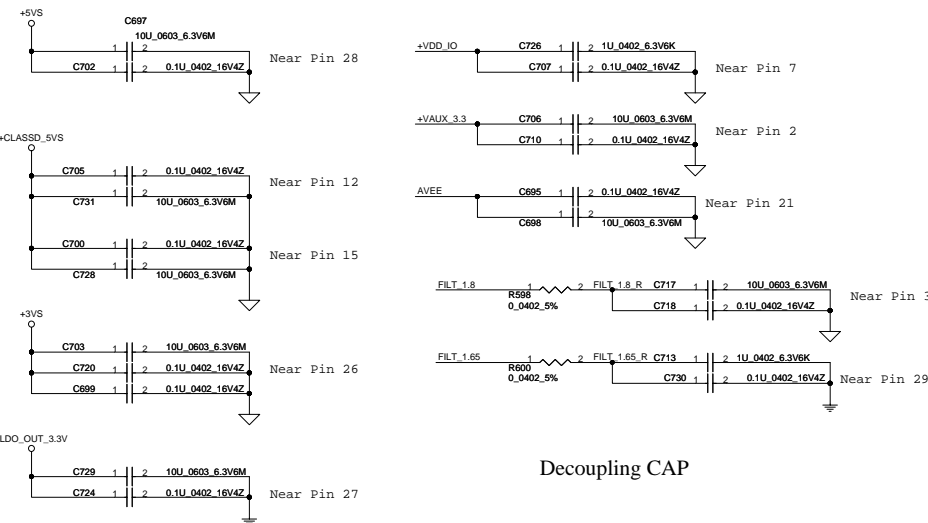
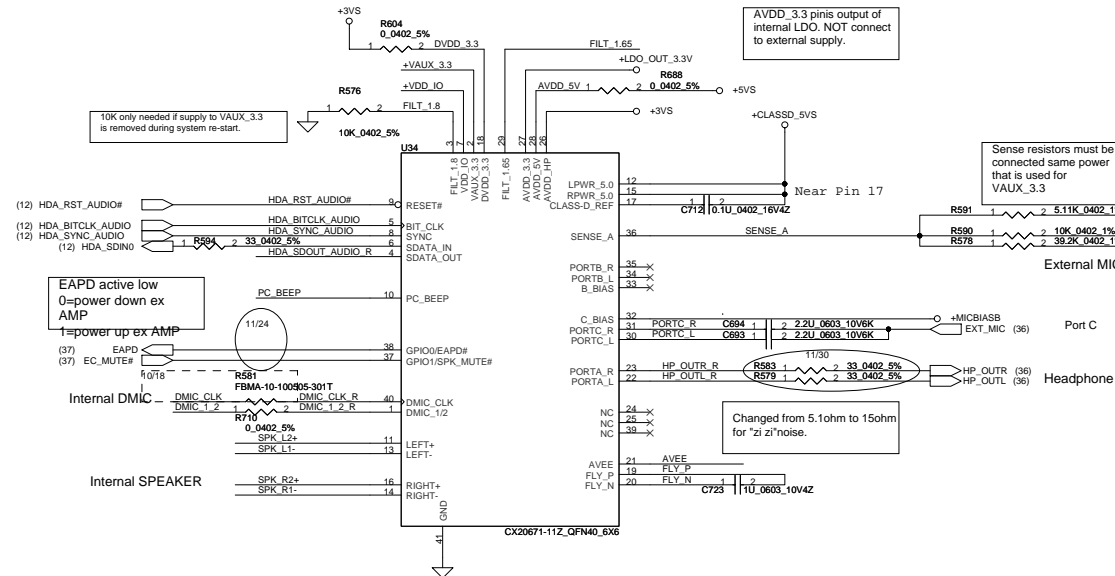
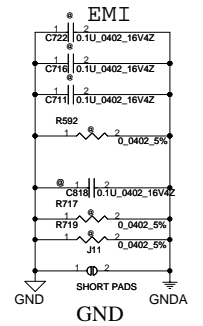
An integrated 3.3 V to 1.8V Low-dropout voltage regulator (LDO).



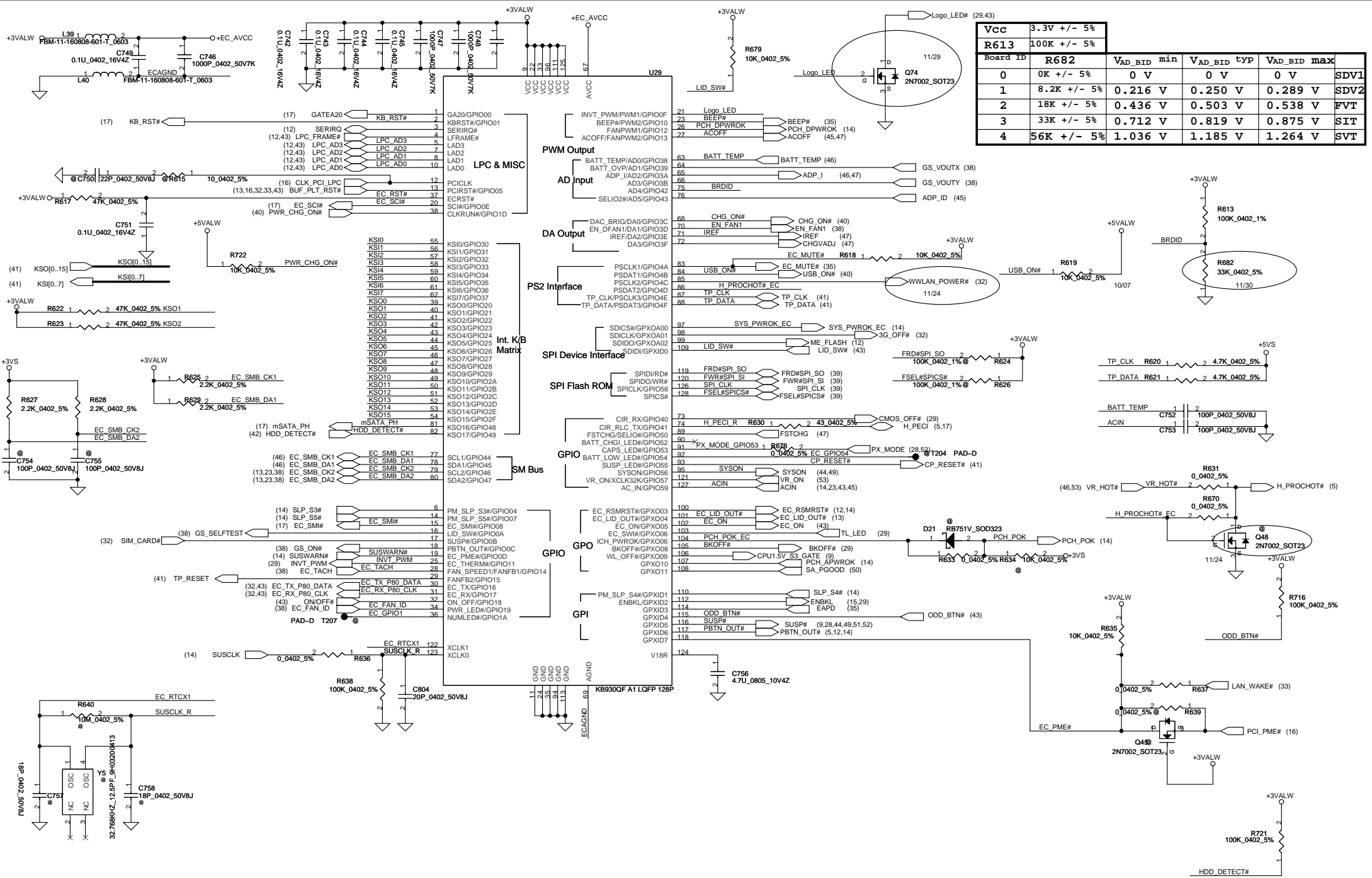
Layout Note: Path from +5VS to Pin12, Pin15 must be very low resistance (<0.01 ohms)



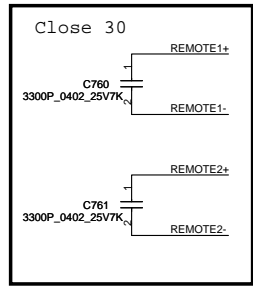
To support Wake-on-Jack or Wake-on-Ring, the CODEC VAUX_3.3 & VDD_IO pins must be powered by a rail that is not removed unless AC power is removed.
*DSH page42 has more detail.



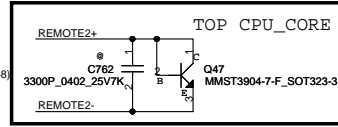
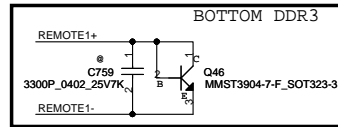
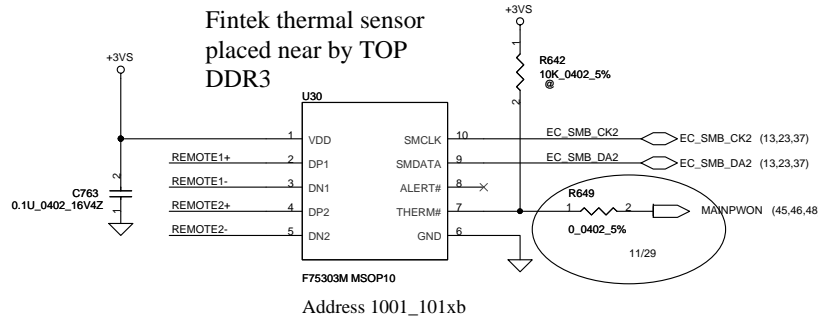
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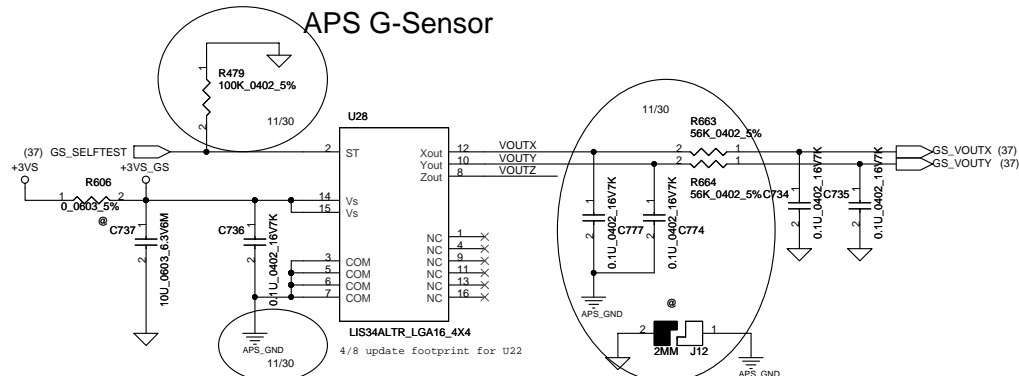
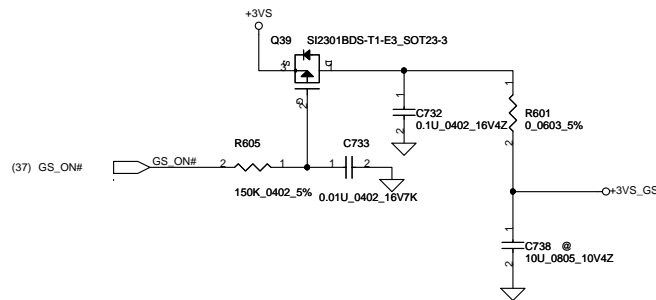
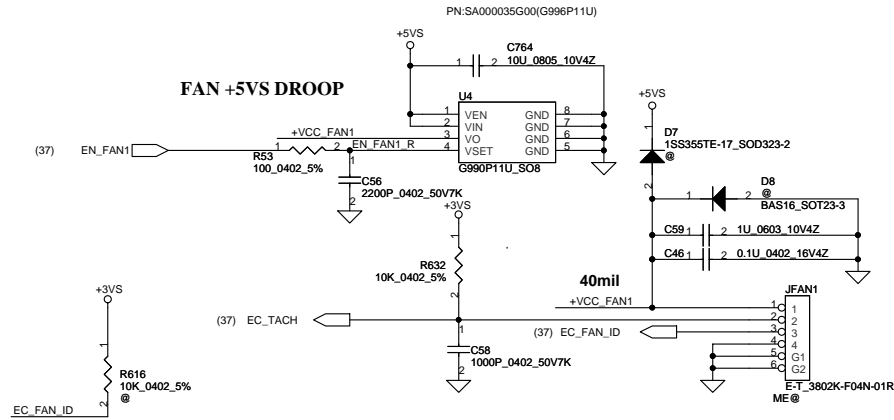
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Fintek thermal sensor
placed near by TOP
DDR3

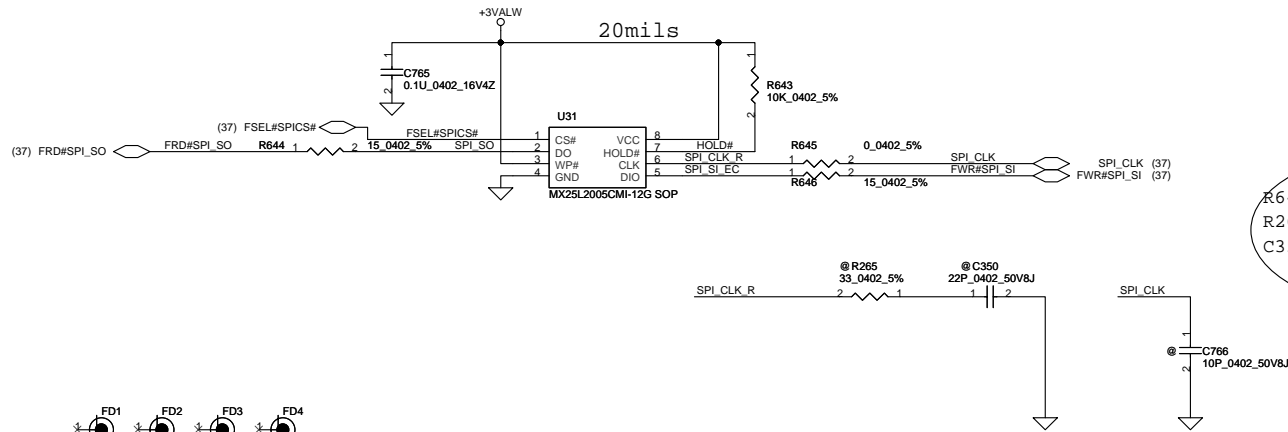


REMOTE1,2+/-:
Trace width/space:10/10 mil
Trace length:<8"

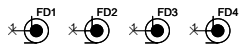


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				Date: Thursday, January 20, 2011	Sheet 38 of 54

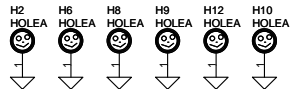
FOR EC 128KB SPI ROM
(150mil PACKAGE)
PN:SA00002C100



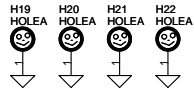
R645: BEAD 100 OHM, SM01000DI00 (SIT)
R265: 33 OHM (SIT)
C350: 22pf (SIT)



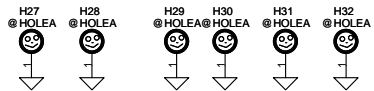
A TYPE H_2.8P8



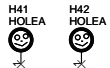
B TYPE H_3.2P6



C TYPE H_4P5.4



D TYPE H_2P8x4P8N



E TYPE H_2.5



F TYPE H_2P3



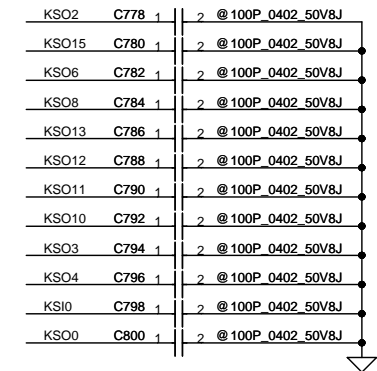
G TYPE H_3.8P8



H TYPE H_2.3



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IPD_LEFT	C814	1	2	@ 100P_0402 50V8J
IPD_MIDDLE	C819	1	2	@ 100P_0402 50V8J
IPD_RIGHT	C805	1	2	@ 100P_0402 50V8J
KSO1	C779	1	2	@ 100P_0402 50V8J
KSO7	C781	1	2	@ 100P_0402 50V8J
KSI2	C783	1	2	@ 100P_0402 50V8J
KSO5	C785	1	2	@ 100P_0402 50V8J
KSI3	C787	1	2	@ 100P_0402 50V8J
KSO14	C789	1	2	@ 100P_0402 50V8J
KSI7	C791	1	2	@ 100P_0402 50V8J
KSI6	C793	1	2	@ 100P_0402 50V8J
KSI5	C795	1	2	@ 100P_0402 50V8J
KSI4	C797	1	2	@ 100P_0402 50V8J
KSO9	C799	1	2	@ 100P_0402 50V8J
KSI1	C801	1	2	@ 100P_0402 50V8J

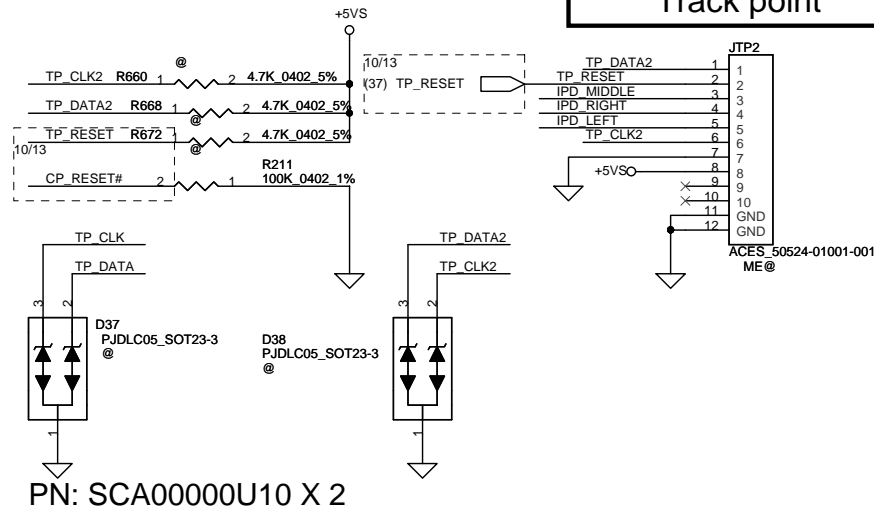
PN:SP011009012

JKB1

Pin	Function
1	KS11
2	KS17
3	KS16
4	KS09
5	KS14
6	KS15
7	KS00
8	KS12
9	KS13
10	KS05
11	KS01
12	KS10
13	KS02
14	KS04
15	KS07
16	KS08
17	KS06
18	KS03
19	KS012
20	KS013
21	KS014
22	KS011
23	KS010
24	KS015
25	
26	IPD LEFT
27	IPD MDL
28	IPD RIGHT
29	ME @
30	

ACES_50692-03041-001

ME @

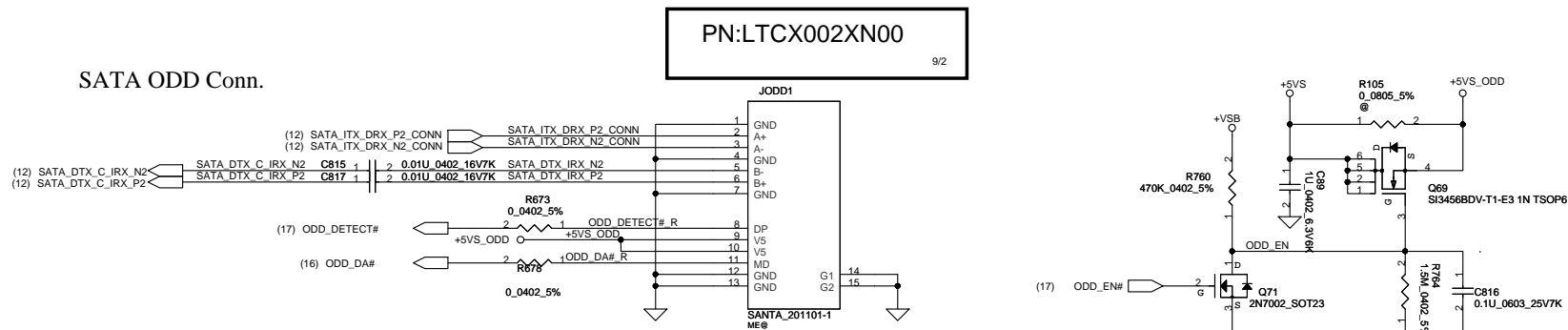
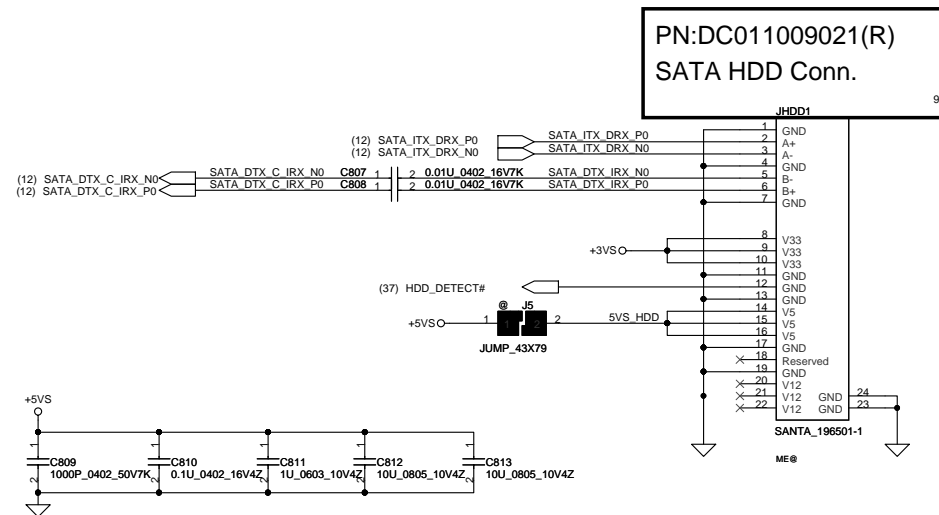


TP_DATA2 1
 TP_RESET 2
 IPD_MIDDLE 3
 IPD_RIGHT 4
 IPD_LEFT 5
 TP_CLK2 6
 +5VSO 7
 GND 8
 GND 9
 GND 10
 GND 11
 GND 12

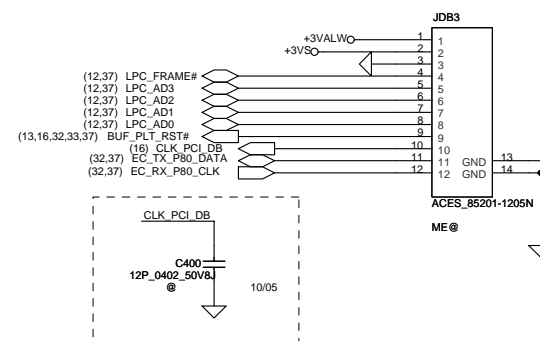
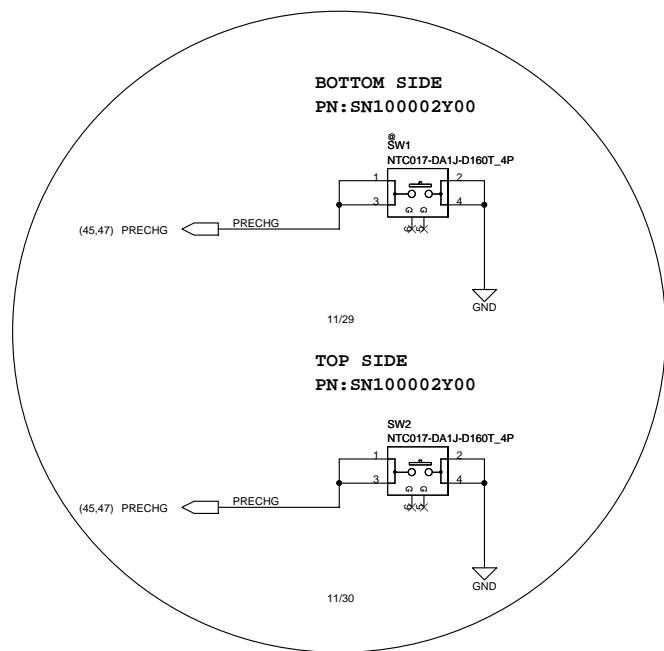
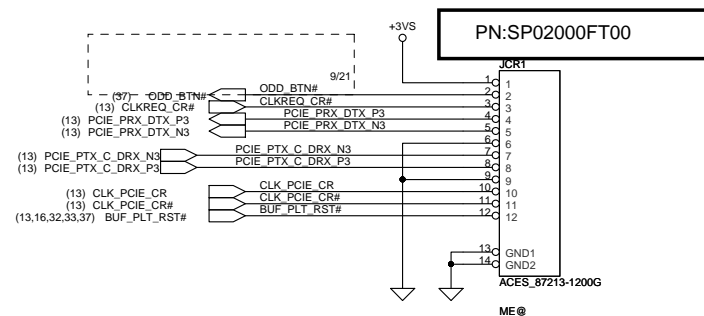
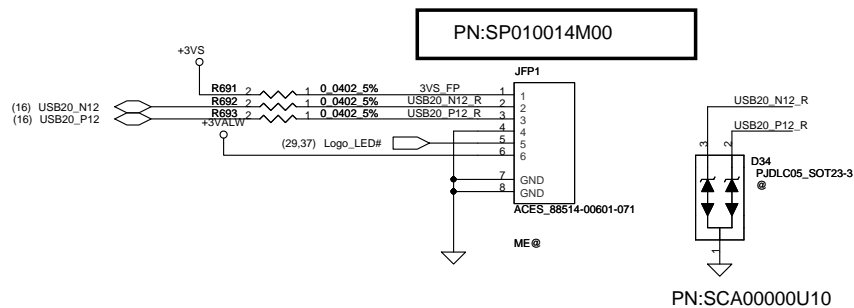
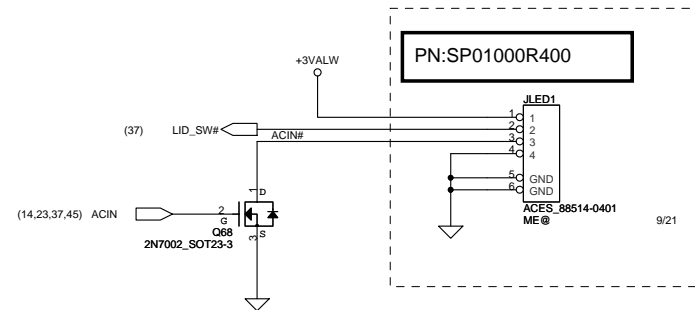
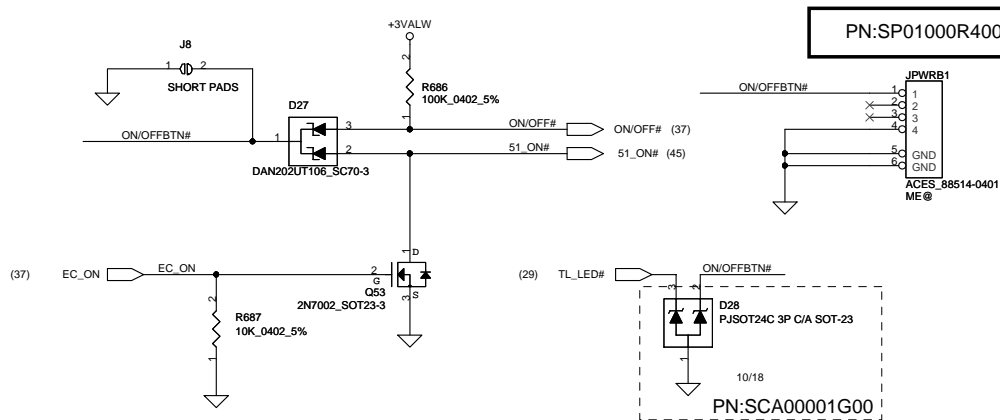
JTP2

ACES_50524-01001-001
 ME@

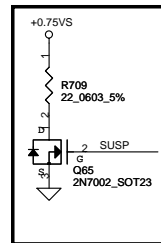
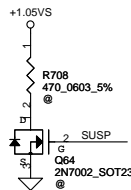
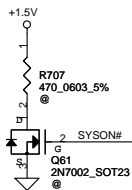
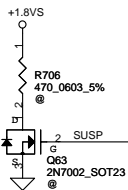
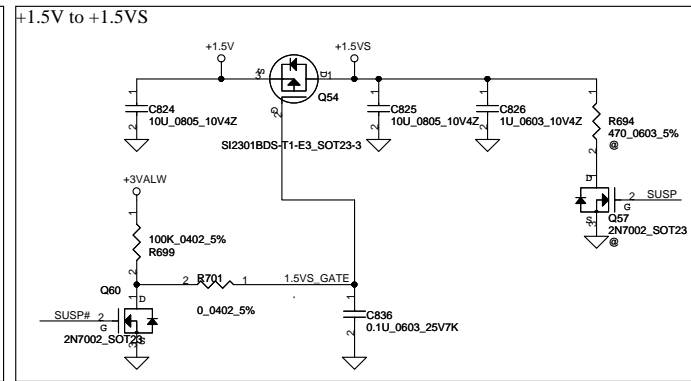
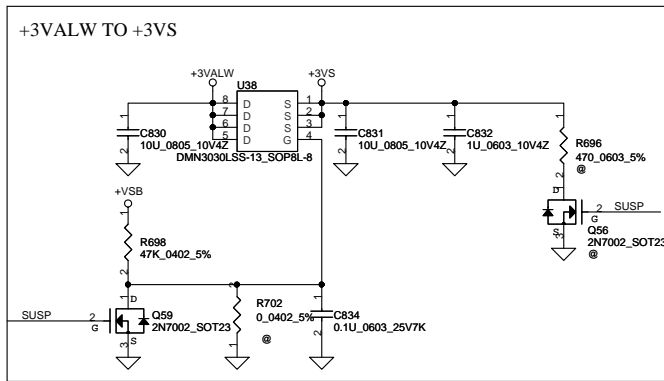
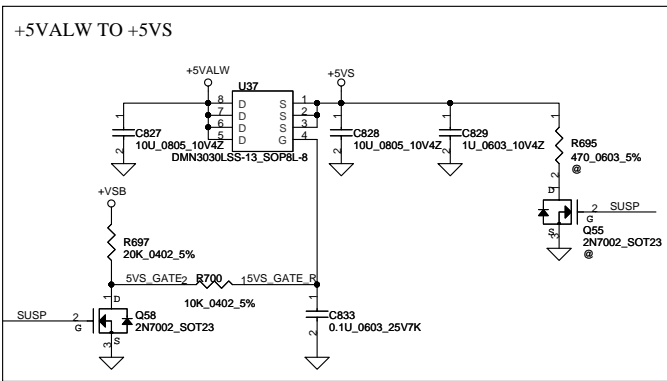
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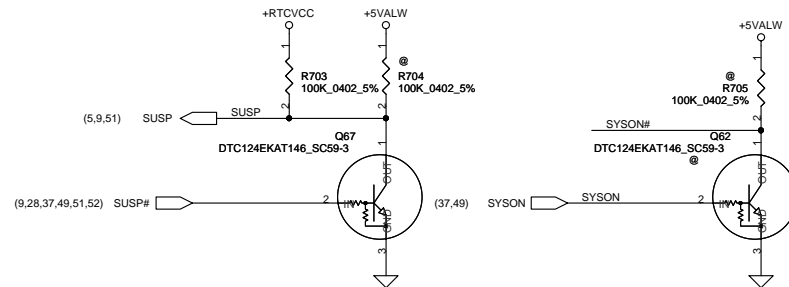
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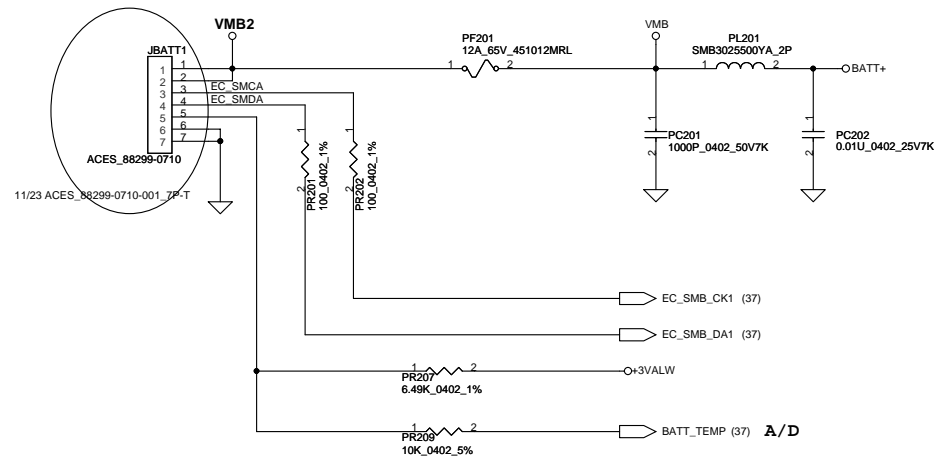
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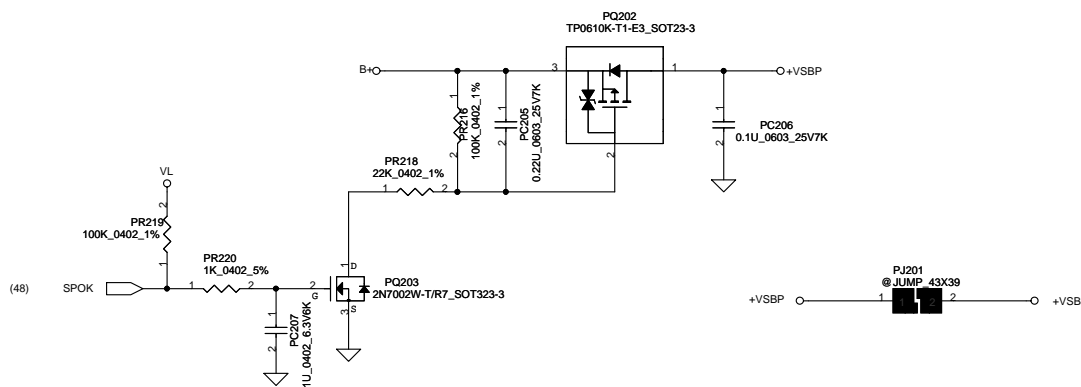
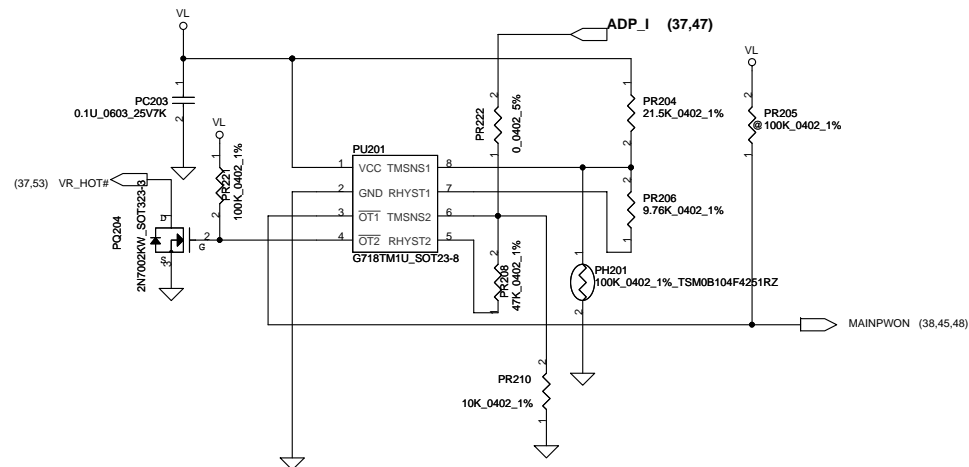
For Intel S3 Power Reduction.



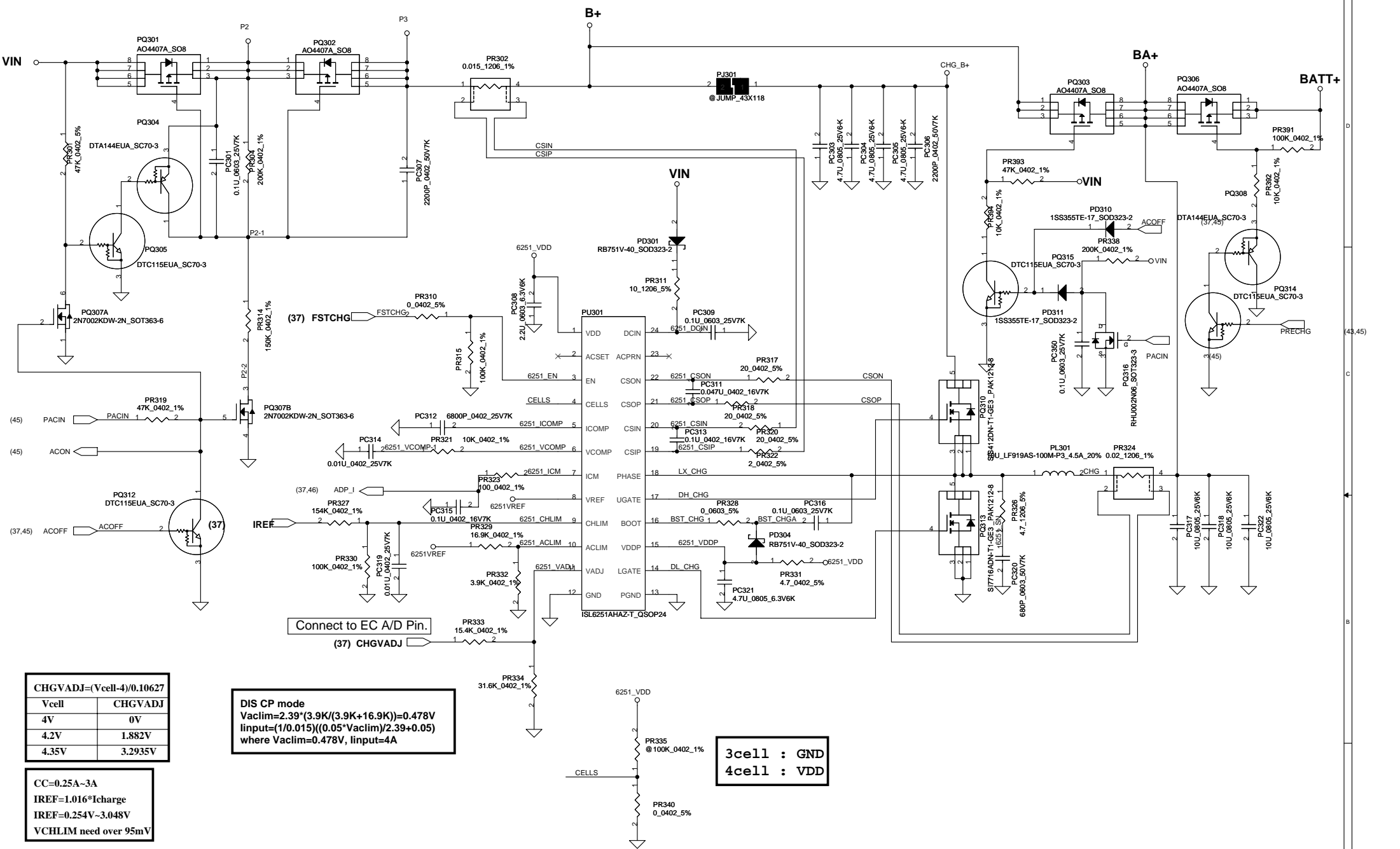
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PH201 under CPU botten side :
CPU thermal protection at 92 degree C
Recovery at 56 degree C



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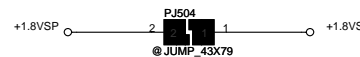
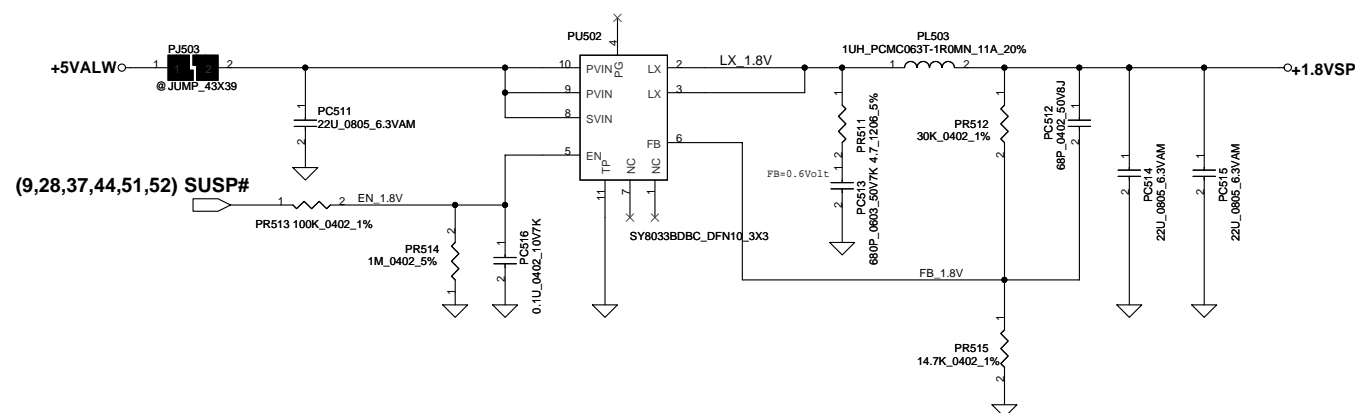
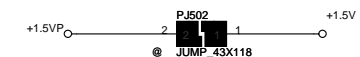
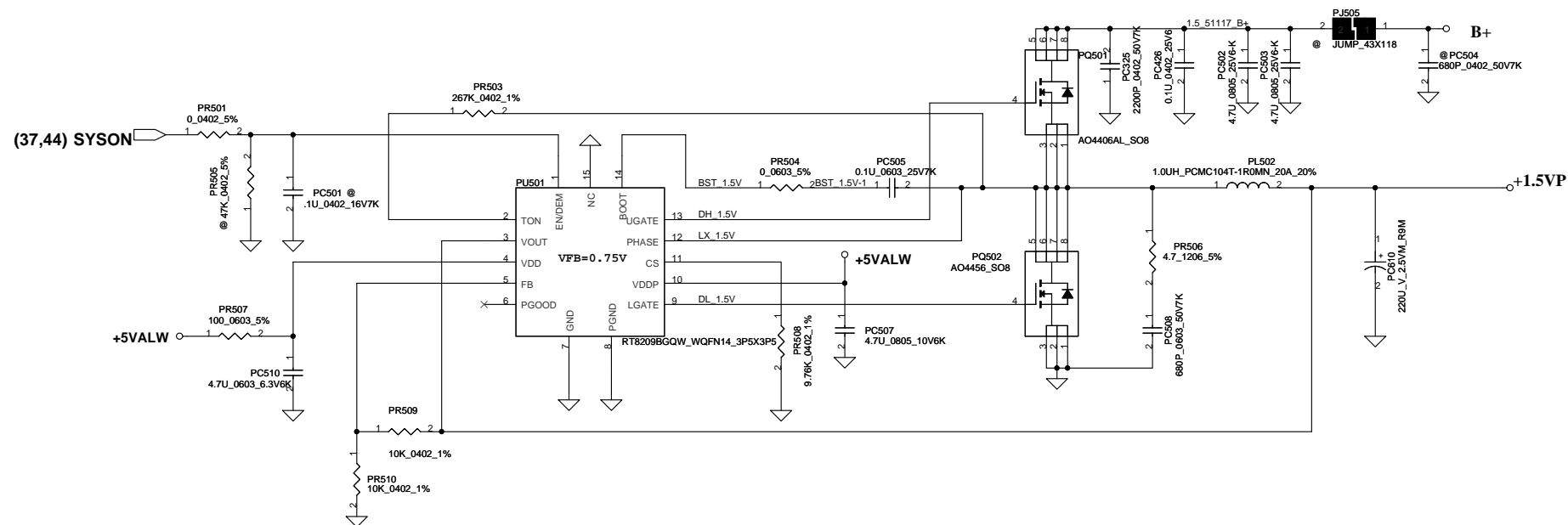
CHGVADJ=(Vcell-4)/0.10627	
Vcell	CHGVADJ
4V	0V
4.2V	1.882V
4.35V	3.2935V

CC=0.25A~3A
IREF=1.016*Icharge
IREF=0.254V~3.048V
VCHLIM need over 95mV

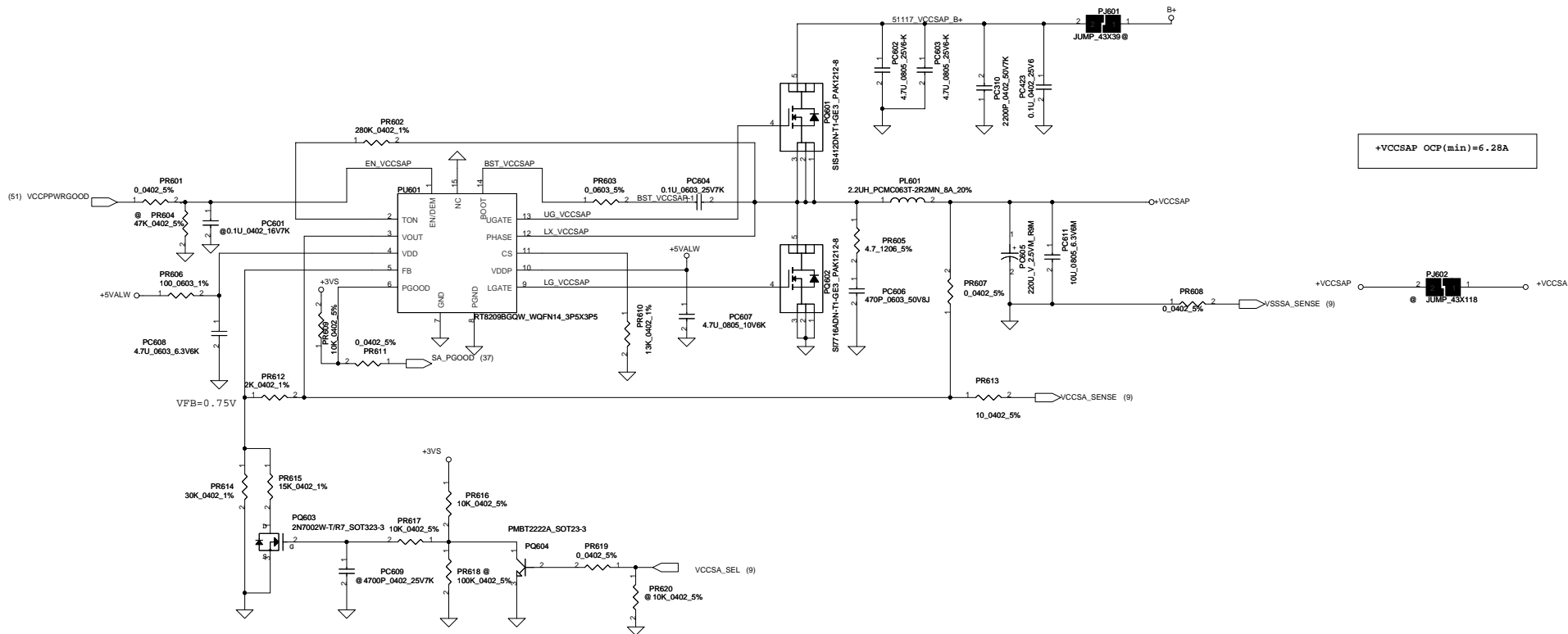
DIS CP mode
 $V_{acim}=2.39 \times (3.9K / (3.9K + 16.9K)) = 0.478V$
 $I_{input} = (1 / 0.015) \times ((0.05 \times V_{acim}) / 2.39 + 0.05)$
where $V_{acim}=0.478V$, $I_{input}=4A$

3cell : GND
4cell : VDD

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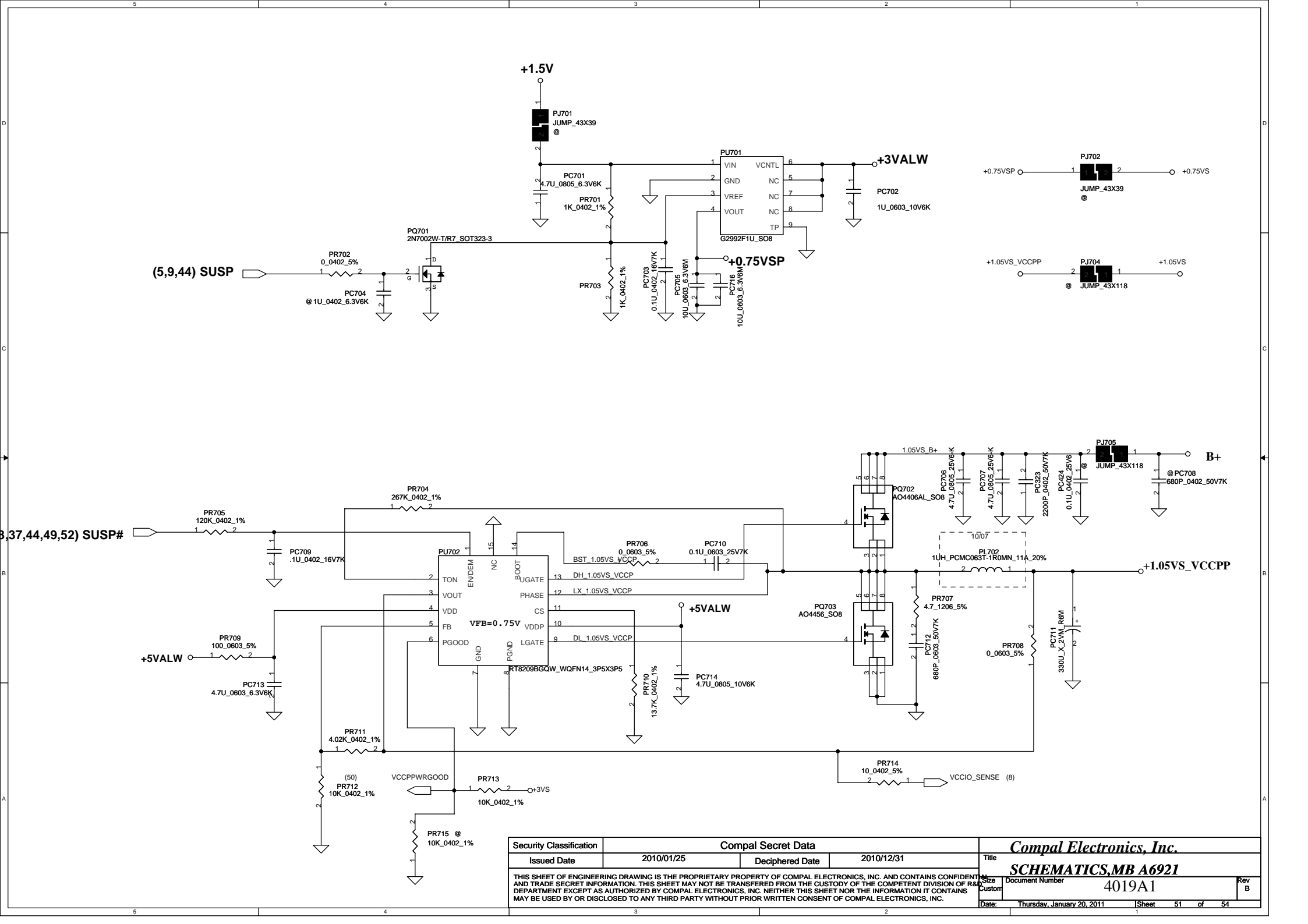


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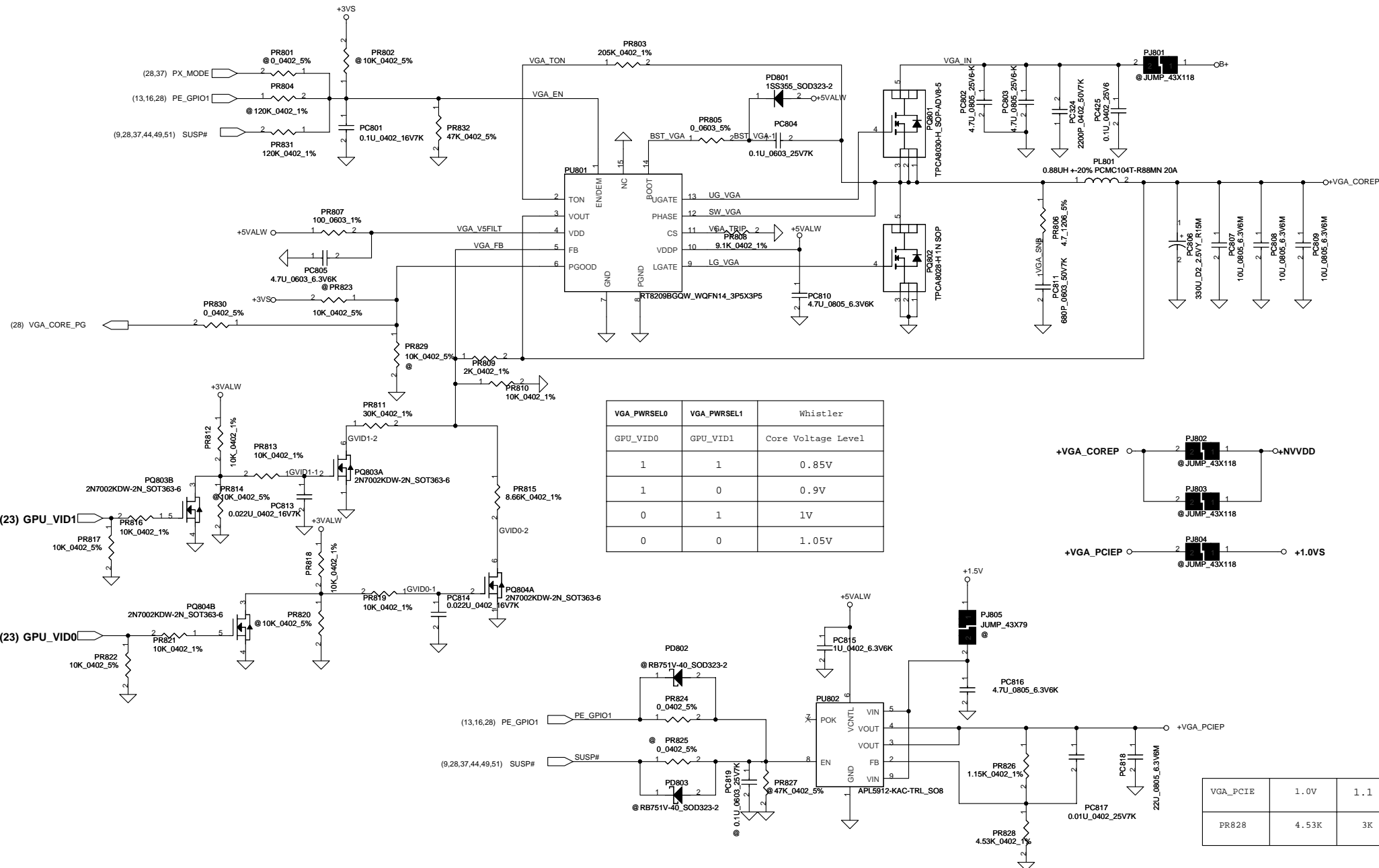


VID[0]	VID[1]	VCCSA Vout	Require on 2011/ 2012 Required
0	0	0.9 V	Yes/Yes
0	1	0.8 V	Yes/Yes
1	1	0.75V	No/Yes
1	1	0.65V	No/Yes

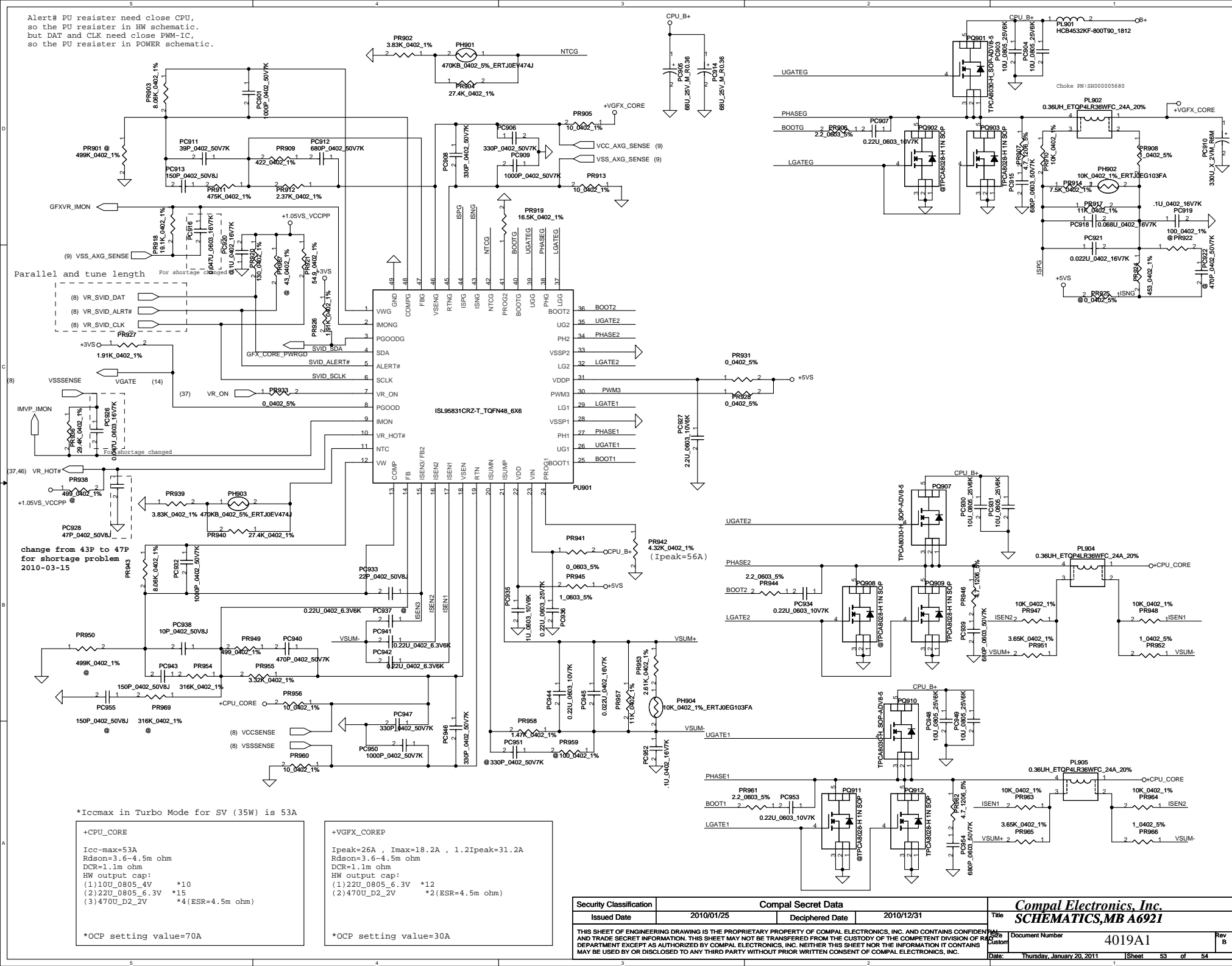
Note: Use VCCSA_SEL to switch High & Low Level for VID[1]
(ie. VCCSA_SEL) due to the VID[0] is don't care for this setting.



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Alert# PU resistor need close CPU,
so the PU resistor in HW schematic.
but DAT and CLK need close PWM-IC,
so the PU resistor in POWER schematic.



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Item	Reason for change	PG#	Modify List	Date	Phase
1					
2					
3					
4					
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