Compal Confidential

Model Name :Q5WV1/Q5WS1
Compal Project Name :
File Name : LA-7912P

Compal Confidential

Q5WV1 M/B Schematics Document

Intel Sandy/Ivy Bridge Processor with DDRIII + Panther Point PCH

Nvidia N13P GS/GL

2011-12-24

REV:0.2

MB PCB

Part Number	Description
DA60000SV00	PCB 0N4 LA-7912P REV0 M/B

ZZZ2 1G@ X76344BOL01

ZZZ3 2G@ X76344BOL02

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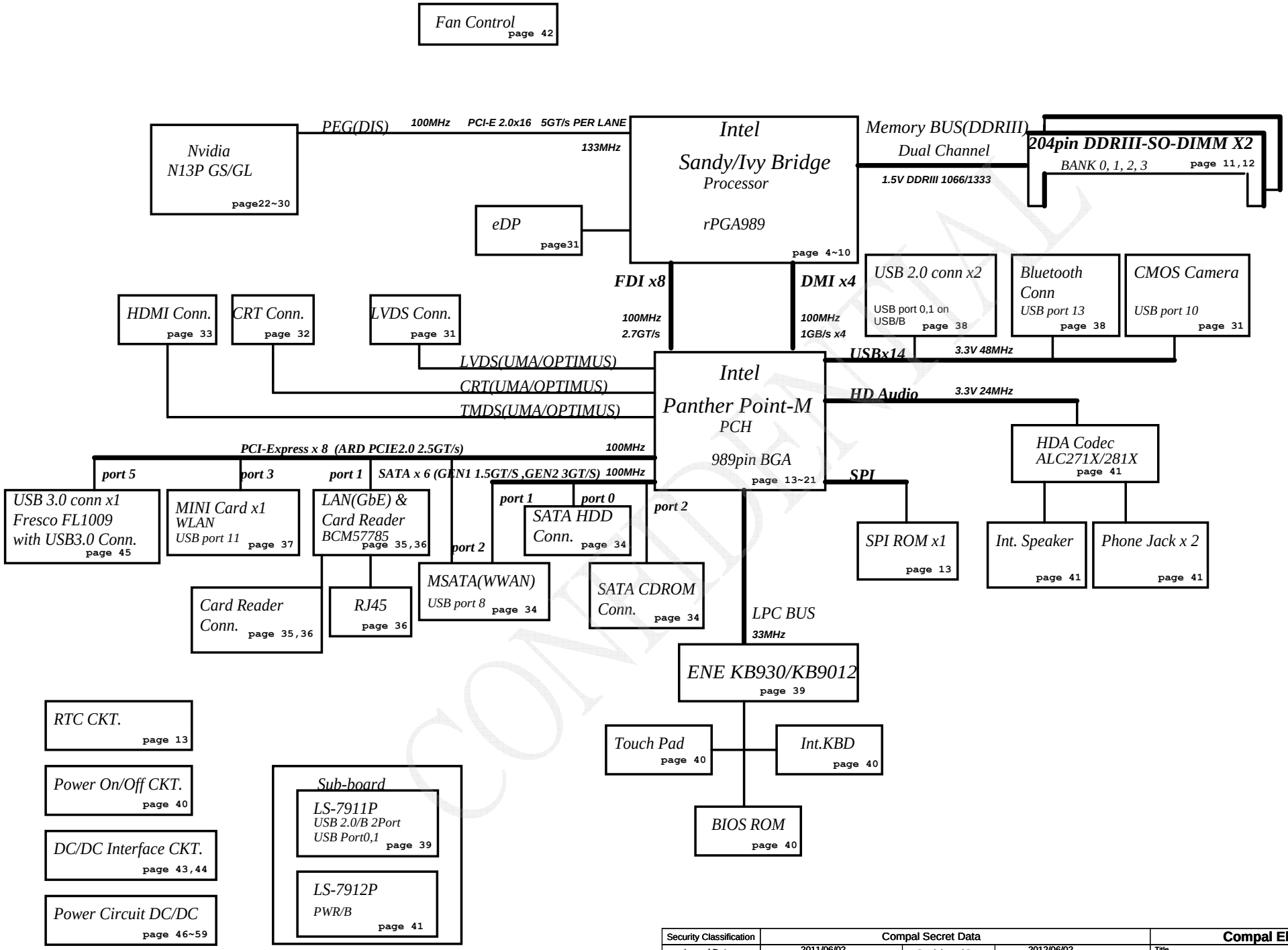

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Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
BATT+	Battery power supply (12.6V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+VGA_CORE	Core voltage for GPU	ON	OFF	OFF
+VGFX_CORE	Core voltage for UMA graphic	ON	OFF	OFF
+0.75VS	+0.75VP to +0.75VS switched power rail for DDR terminator	ON	OFF	OFF
+1.05VSDGPU	+1.0VSPDGPU to +1.0VSDGPU switched power rail for GPU	ON	OFF	OFF
+1.05VS_VTT	+1.05VS_VCCPP to +1.05VS_VCCP switched power rail for CPU	ON	OFF	OFF
+1.05VS_PCH	+1.05VS_VCCP to +1.05VS_PCH power for PCH	ON	OFF	OFF
+1.5V	+1.5VP to +1.5V power rail for DDRIII	ON	ON	OFF
+1.5VS	+1.5V to +1.5VS switched power rail	ON	OFF	OFF
+1.5VSDGPU	+1.5VS to +1.5VSDGPU switched power rail for GPU	ON	OFF	OFF
+1.8VS	(+5VALW or +3VALW) to 1.8V switched power rail to PCH & GPU	ON	OFF	OFF
+1.8VSDGPU	+1.8VS to +1.8VSDGPU switched power rail for GPU	ON	OFF	OFF
+3VALW	+3VALW always on power rail	ON	ON	ON*
+3VALW_EC	+3VALW always to KBC	ON	ON	ON*
+3V_LAN	+3VALW to +3V_LAN power rail for LAN	ON	ON	ON*
+3VALW_PCH	+3VALW to +3VALW_PCH power rail for PCH (Short Jumper)	ON	ON	ON*
+3VS	+3VALW to +3VS power rail	ON	OFF	OFF
+5VALW	+5VALWP to +5VALW power rail	ON	ON	ON*
+5VALW_PCH	+5VALW to +5VALW_PCH power rail for PCH (Short resister)	ON	ON	ON*
+5VS	+5VALW to +5VS switched power rail	ON	OFF	OFF
+VSB	+VSBP to +VSB always on power rail for sequence control	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address

PCH SM Bus address

Device	Address
Clock Generator (9LVS3199AKLFT, RTM890N-631-VB-GRT)	1101 0010b
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

BT & USB30 & USB20 Config

OPTMIUS SKU:DIS@ N13P-GL:GL@ N13P-GS:GS@ N13P-GF108_ES4:GF108@
BT SKU:BT@
internal USB SKU: PUSB@ DIS USB30 SKU:DUSB@
eDP SKU: EDP@
LVDS SKU: LVDS@
EC 930 SKU: 930@ EC 9012 SKU: 9012@
PCH HM65: HM65@ PCH HM76: HM76@
Win8: WIN8@

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%
Ra/Rc/Re	100K +/- 5%

Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

BOARD ID Table

Board ID	PCB Revision
0	
1	
2	
3	0.1
4	0.2
5	0.3
6	0.4
7	

BTO Option Table

BTO Item	BOM Structure
UMA Only	UMAO@
Dis with OPTIMUS	DIS@
Blue Tooth	BT@
Internal USB 3.0	PUSB@
eDP	eDP@
VRAM	X76@
Connector	CONN@
Unpop	@
N13P-GS	GS@
N13P-GL	GL@
Win8	Win8@
Audio ALC271X	271X@
Audio ALC281X	281X@
PCH HM65	HM65@
PCH HM76	HM76@

USB Port Table

USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB3.0 colay USB2.0 Conn
		1	USB/B (Right Side)
	UHCI1	2	USB/B (Right Side)
		3	
	UHCI2	4	
		5	
	UHCI3	6	
		7	
EHCI2	UHCI4	8	Mini Card 1(WLAN)
		9	
	UHCI5	10	Camera
		11	BlueTooth
	UHCI6	12	
		13	

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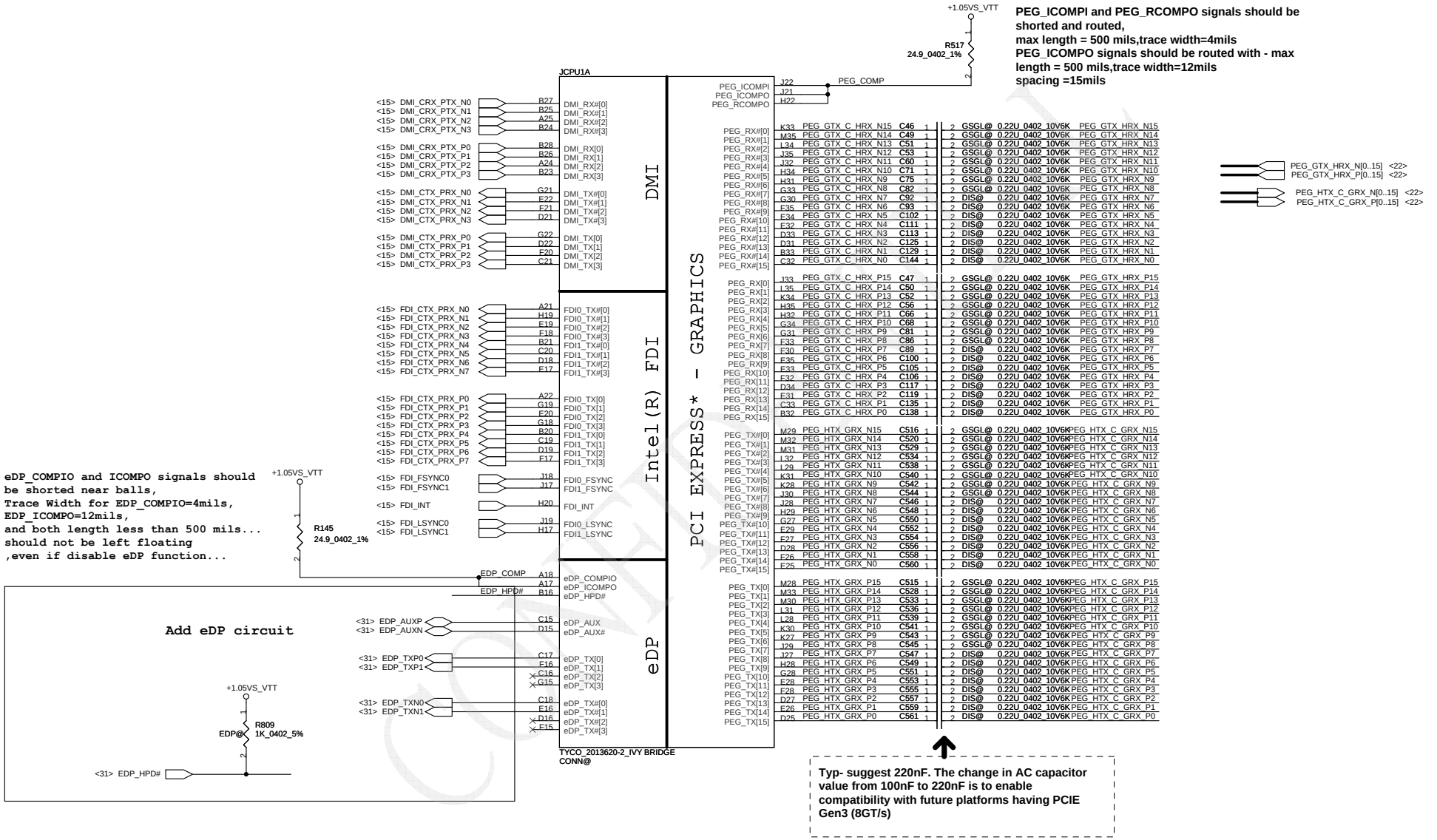

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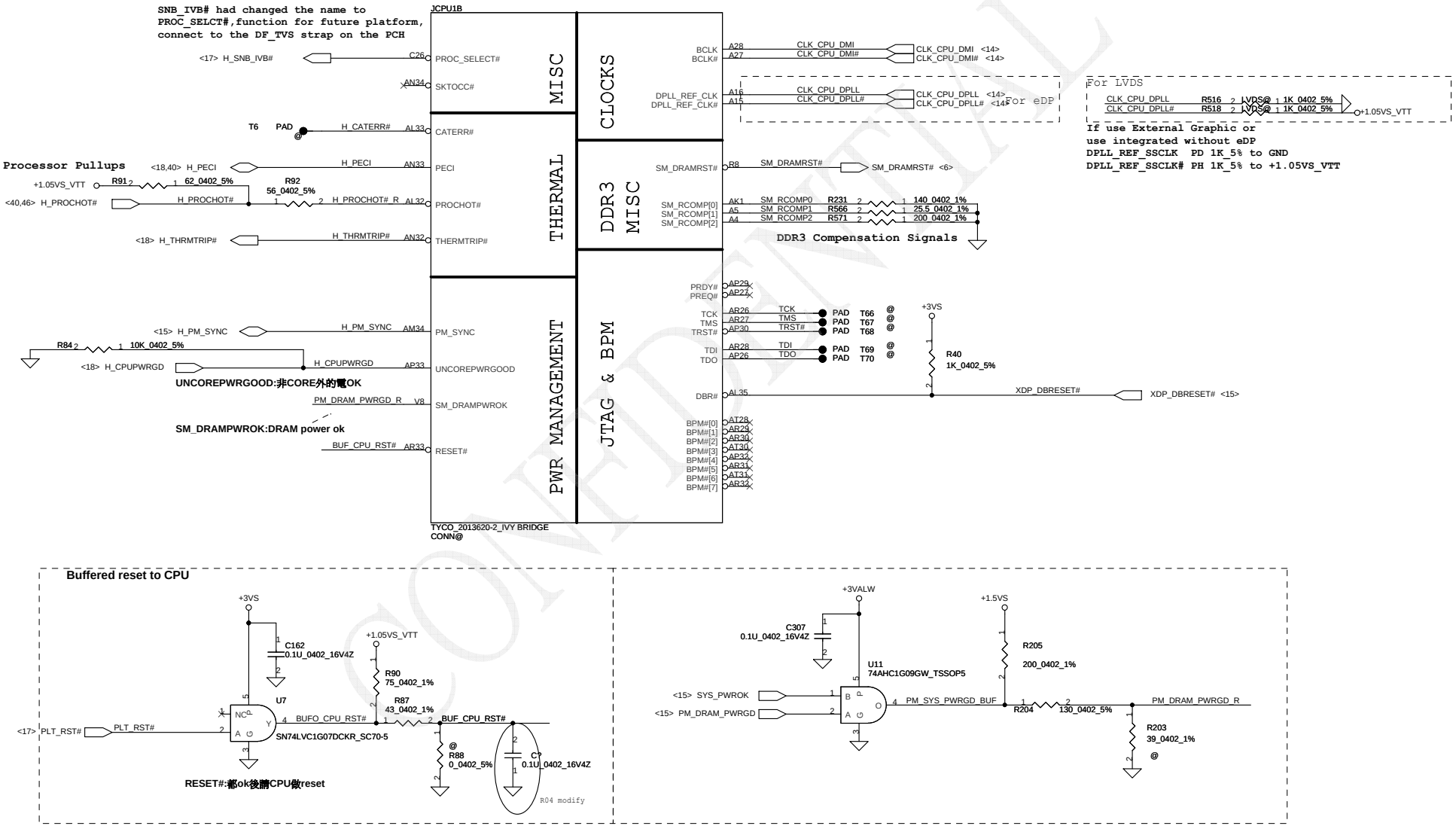

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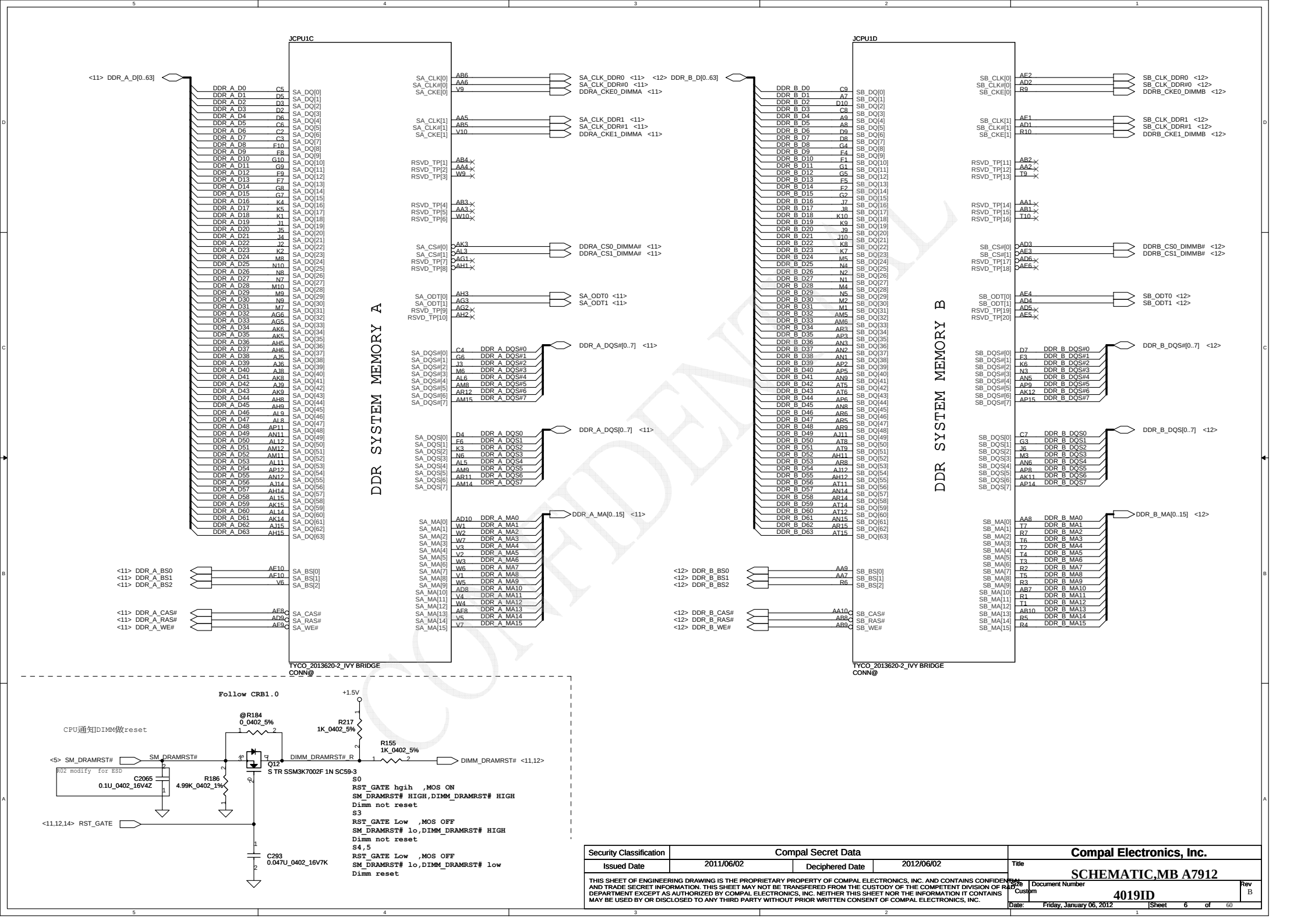

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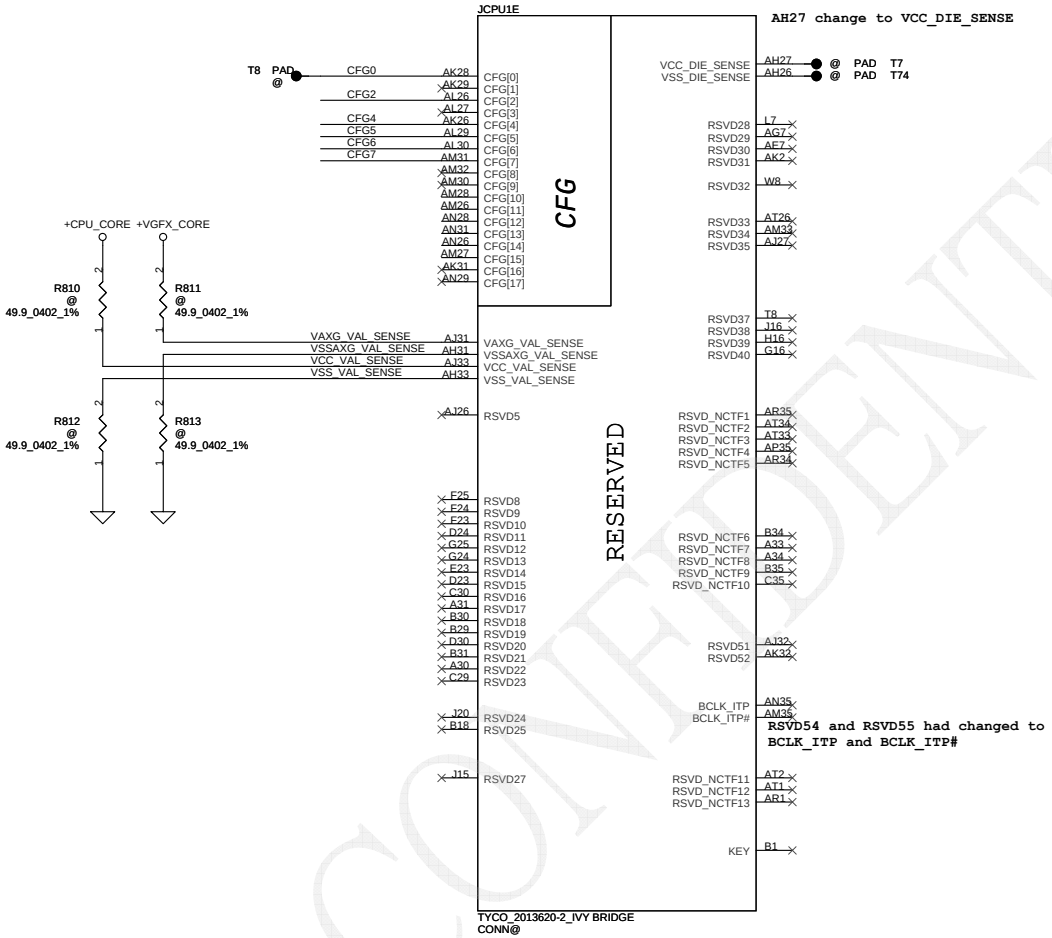
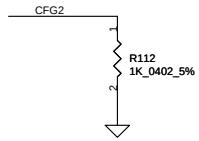
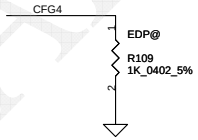
CFG Straps for Processor

AH26	Sandy	Ivy
	GND	VSS_DIE_SENSE

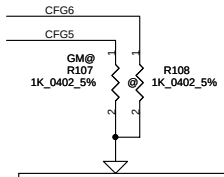




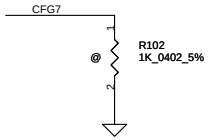
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition * 0:Lane Reversed



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



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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POWER

SV type CPU

QC 53A
DC 53A

JCPU1F

+CPU_CORE

CORE SUPPLY

AG35	VCC1	AF35	VCC10
AG34	VCC2	AF34	VCC11
AG33	VCC3	AF33	VCC12
AG32	VCC4	AF32	VCC13
AG31	VCC5	AF31	VCC14
AG30	VCC6	AF30	VCC15
AG29	VCC7	AF29	VCC16
AG28	VCC8	AF28	VCC17
AG27	VCC9	AF27	VCC18
AG26	VCC10	AF26	VCC19
AF35	VCC11	AF25	VCC20
AF34	VCC12	AD35	VCC21
AF33	VCC13	AD34	VCC22
AF32	VCC14	AD33	VCC23
AF31	VCC15	AD32	VCC24
AF30	VCC16	AD31	VCC25
AF29	VCC17	AD30	VCC26
AF28	VCC18	AD29	VCC27
AF27	VCC19	AD28	VCC28
AF26	VCC20	AD27	VCC29
AD35	VCC21	AD26	VCC30
AD34	VCC22	AC35	VCC31
AD33	VCC23	AC34	VCC32
AD32	VCC24	AC33	VCC33
AD31	VCC25	AC32	VCC34
AD30	VCC26	AC31	VCC35
AD29	VCC27	AC30	VCC36
AD28	VCC28	AC29	VCC37
AD27	VCC29	AC28	VCC38
AD26	VCC30	AC27	VCC39
AC35	VCC31	AC26	VCC40
AC34	VCC32	AA35	VCC41
AC33	VCC33	AA34	VCC42
AC32	VCC34	AA33	VCC43
AC31	VCC35	AA32	VCC44
AC30	VCC36	AA31	VCC45
AC29	VCC37	AA30	VCC46
AC28	VCC38	AA29	VCC47
AC27	VCC39	AA28	VCC48
AC26	VCC40	AA27	VCC49
AA35	VCC41	AA26	VCC50
AA34	VCC42	Y35	VCC51
AA33	VCC43	Y34	VCC52
AA32	VCC44	Y33	VCC53
AA31	VCC45	Y32	VCC54
AA30	VCC46	Y31	VCC55
AA29	VCC47	Y30	VCC56
AA28	VCC48	Y29	VCC57
AA27	VCC49	Y28	VCC58
AA26	VCC50	Y27	VCC59
Y35	VCC51	Y26	VCC60
Y34	VCC52	V35	VCC61
Y33	VCC53	V34	VCC62
Y32	VCC54	V33	VCC63
Y31	VCC55	V32	VCC64
Y30	VCC56	V31	VCC65
Y29	VCC57	V30	VCC66
Y28	VCC58	V29	VCC67
Y27	VCC59	V28	VCC68
Y26	VCC60	V27	VCC69
V35	VCC61	V26	VCC70
V34	VCC62	U35	VCC71
V33	VCC63	U34	VCC72
V32	VCC64	U33	VCC73
V31	VCC65	U32	VCC74
V30	VCC66	U31	VCC75
V29	VCC67	U30	VCC76
V28	VCC68	U29	VCC77
V27	VCC69	U28	VCC78
V26	VCC70	U27	VCC79
U35	VCC71	U26	VCC80
U34	VCC72	R35	VCC81
U33	VCC73	R34	VCC82
U32	VCC74	R33	VCC83
U31	VCC75	R32	VCC84
U30	VCC76	R31	VCC85
U29	VCC77	R30	VCC86
U28	VCC78	R29	VCC87
U27	VCC79	R28	VCC88
U26	VCC80	R27	VCC89
R35	VCC81	R26	VCC90
R34	VCC82	P35	VCC91
R33	VCC83	P34	VCC92
R32	VCC84	P33	VCC93
R31	VCC85	P32	VCC94
R30	VCC86	P31	VCC95
R29	VCC87	P30	VCC96
R28	VCC88	P29	VCC97
R27	VCC89	P28	VCC98
R26	VCC90	P27	VCC99
P35	VCC91	P26	VCC100

PEG AND DDR

8.5A

+1.05VS_VTT

VCCIO1	AH13
VCCIO2	AH10
VCCIO3	AG10
VCCIO4	AC10
VCCIO5	Y10
VCCIO6	U10
VCCIO7	P10
VCCIO8	L10
VCCIO9	J14
VCCIO10	J13
VCCIO11	J12
VCCIO12	J11
VCCIO13	H14
VCCIO14	H12
VCCIO15	H11
VCCIO16	G14
VCCIO17	G13
VCCIO18	G12
VCCIO19	F14
VCCIO20	F13
VCCIO21	F12
VCCIO22	F11
VCCIO23	E14
VCCIO24	E12
VCCIO25	E11
VCCIO26	D14
VCCIO27	D13
VCCIO28	D12
VCCIO29	D11
VCCIO30	C14
VCCIO31	C13
VCCIO32	C12
VCCIO33	C11
VCCIO34	B14
VCCIO35	B12
VCCIO36	A14
VCCIO37	A13
VCCIO38	A12
VCCIO39	A11
VCCIO40	J23

SVID

+1.05VS_VTT

R450 130_0402_1%

+1.05VS_VTT

R447 75_0402_5%

R448 43_0402_1%

VIDALERT#	AJ29	H_CPU_SVIDALRT#		VR_SVID_ALRT# <52>
VIDSCLK	AJ30	H_CPU_SVIDCLK	R446 0_0402_5%	VR_SVID_CLK <52>
VIDSOUT	AJ28	H_CPU_SVIDDAT	R449 0_0402_5%	VR_SVID_DAT <52>

SENSE LINES

Place the PU resistors close to CPU

+CPU_CORE

R445 100_0402_1%

VCC_SENSE	AJ35	VCCSENSE_R	R444 0_0402_5%	VCCSENSE <52>
VSS_SENSE	AJ34	VSSSENSE_R	R443 0_0402_5%	VSSSENSE <52>

R910 10_0402_5% +1.05VS_VTT

VCCIO_SENSE	B10	VCCIO_SENSE	VCCIO_SENSE <50>
VSS_SENSE_VCCIO	A10	VSSIO_SENSE	VSSIO_SENSE <50>

VSSIO_SENSE change to VSS_SENSE_VCCIO

R163 10_0402_5%

R442 100_0402_1%

Should change to connect form power cirucit & layout differential with VCCIO_SENSE.

TYCO_2013620-2_IVY BRIDGE CONN@

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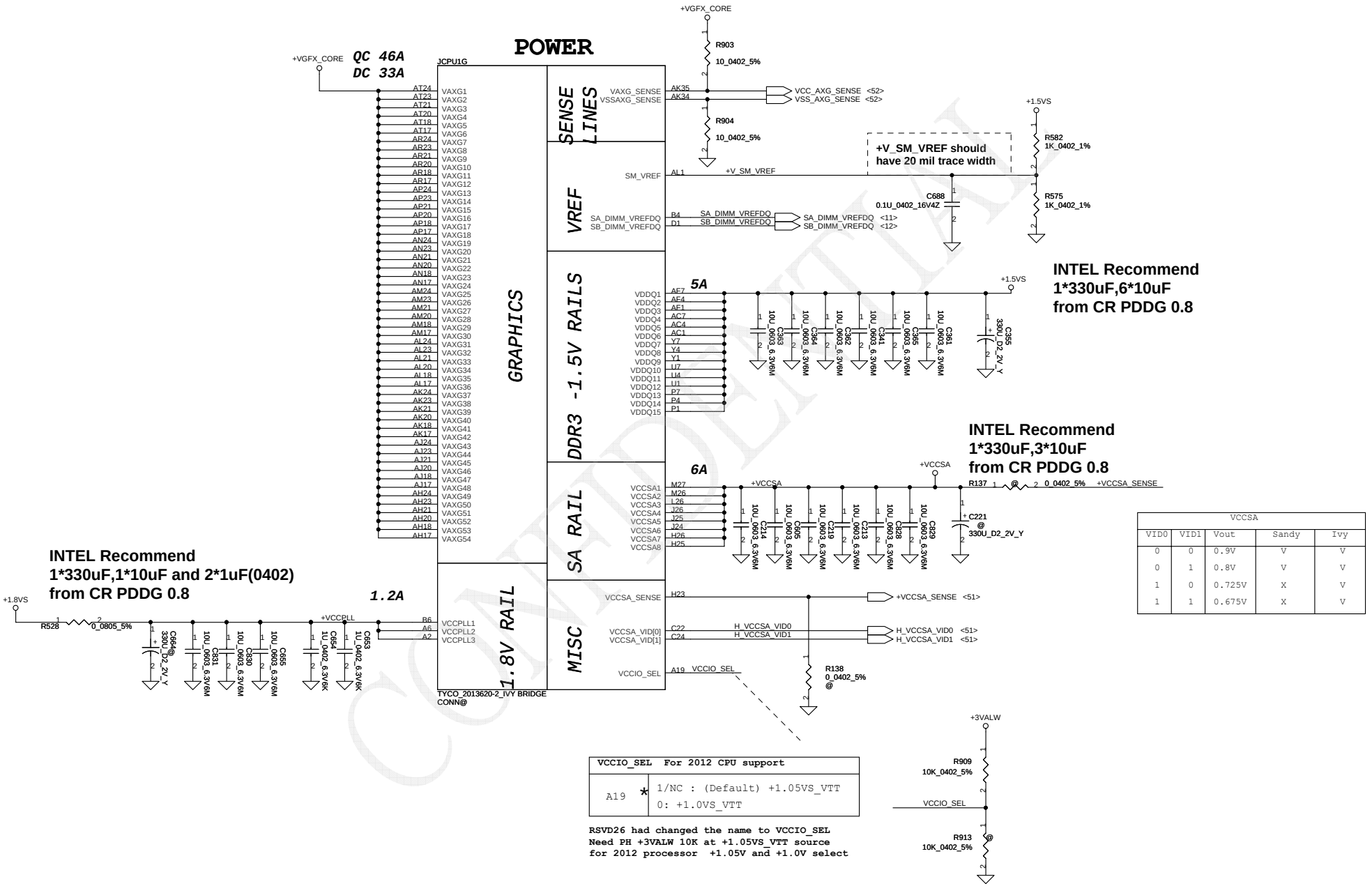

VCCSA				
VID0	VID1	Vout	Sandy	Ivy
0	0	0.9V	V	V
0	1	0.8V	V	V
1	0	0.725V	X	V
1	1	0.675V	X	V

VCCIO_SEL For 2012 CPU support		
A19	*	1/NC : (Default) +1.05VS_VTT 0: +1.0VS_VTT

RSVD26 had changed the name to VCCIO_SEL
Need PH +3VALW 10K at +1.05VS_VTT source
for 2012 processor +1.05V and +1.0V select

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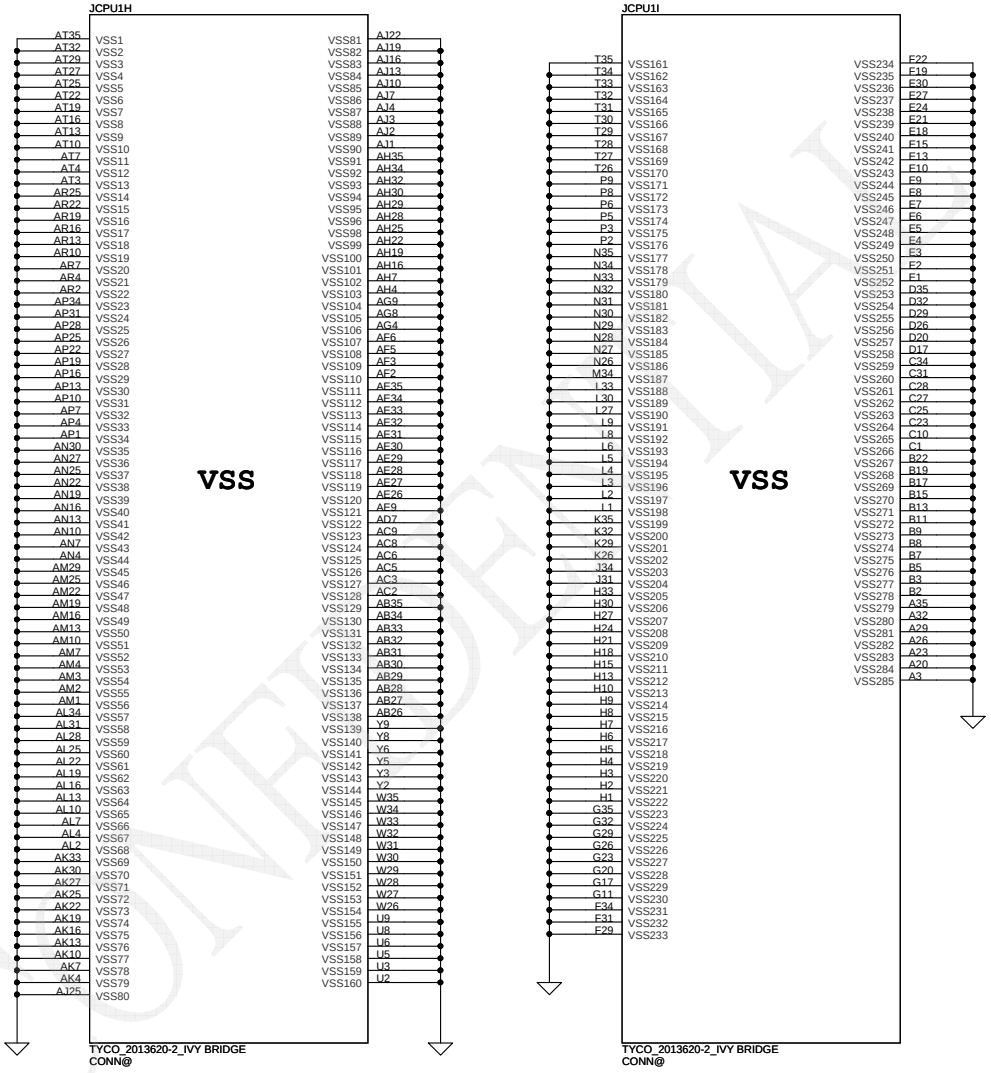

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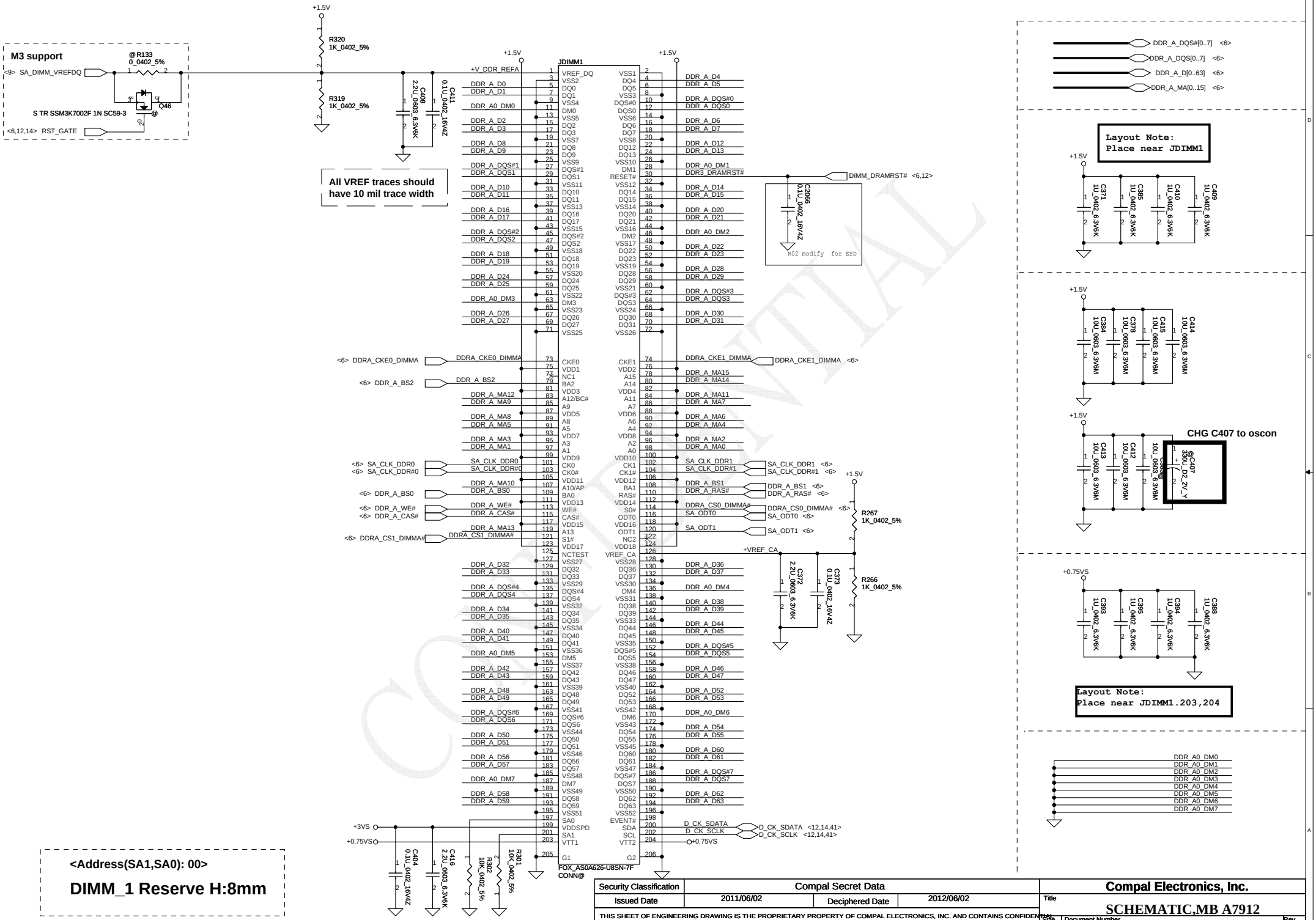

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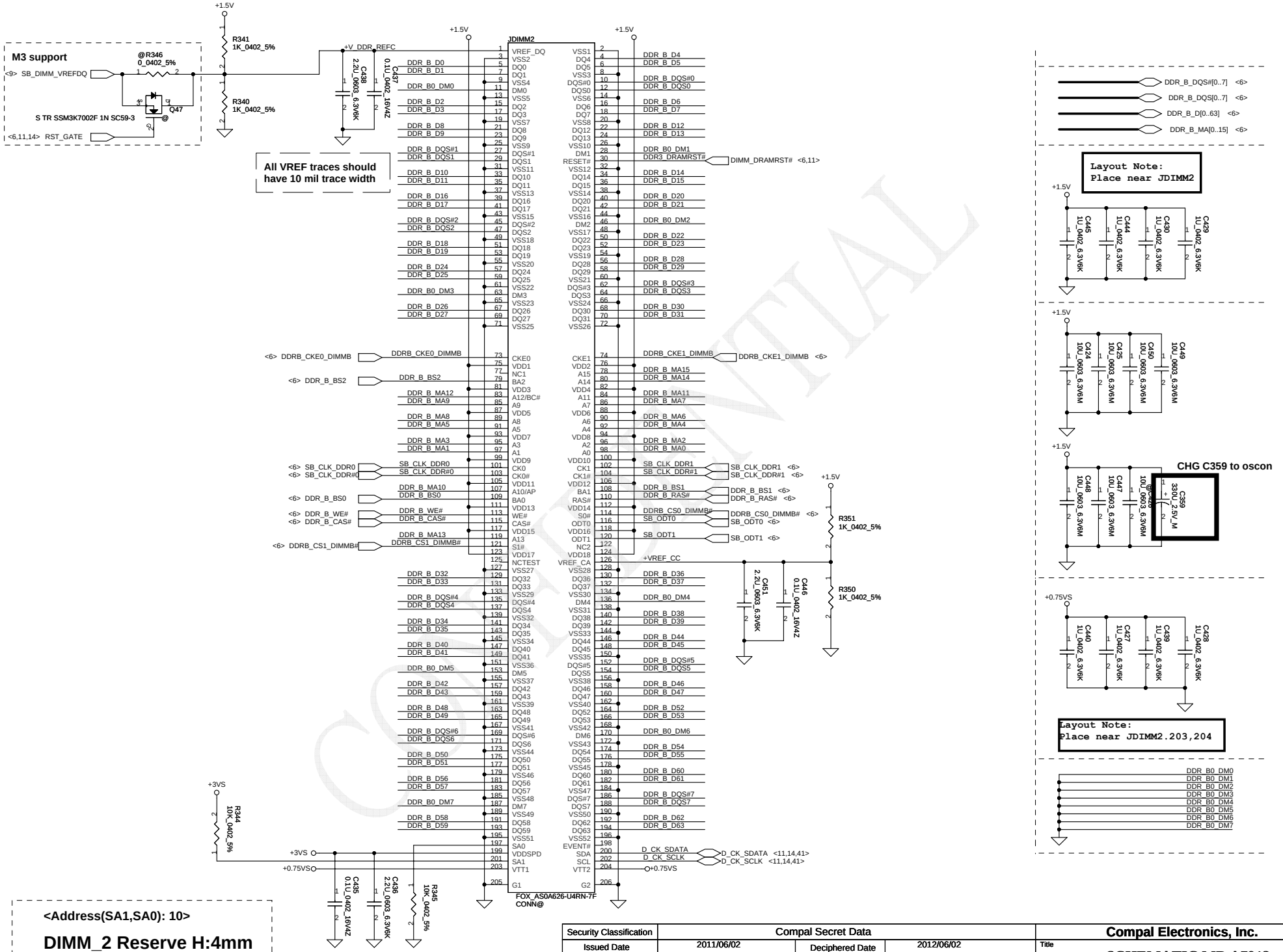

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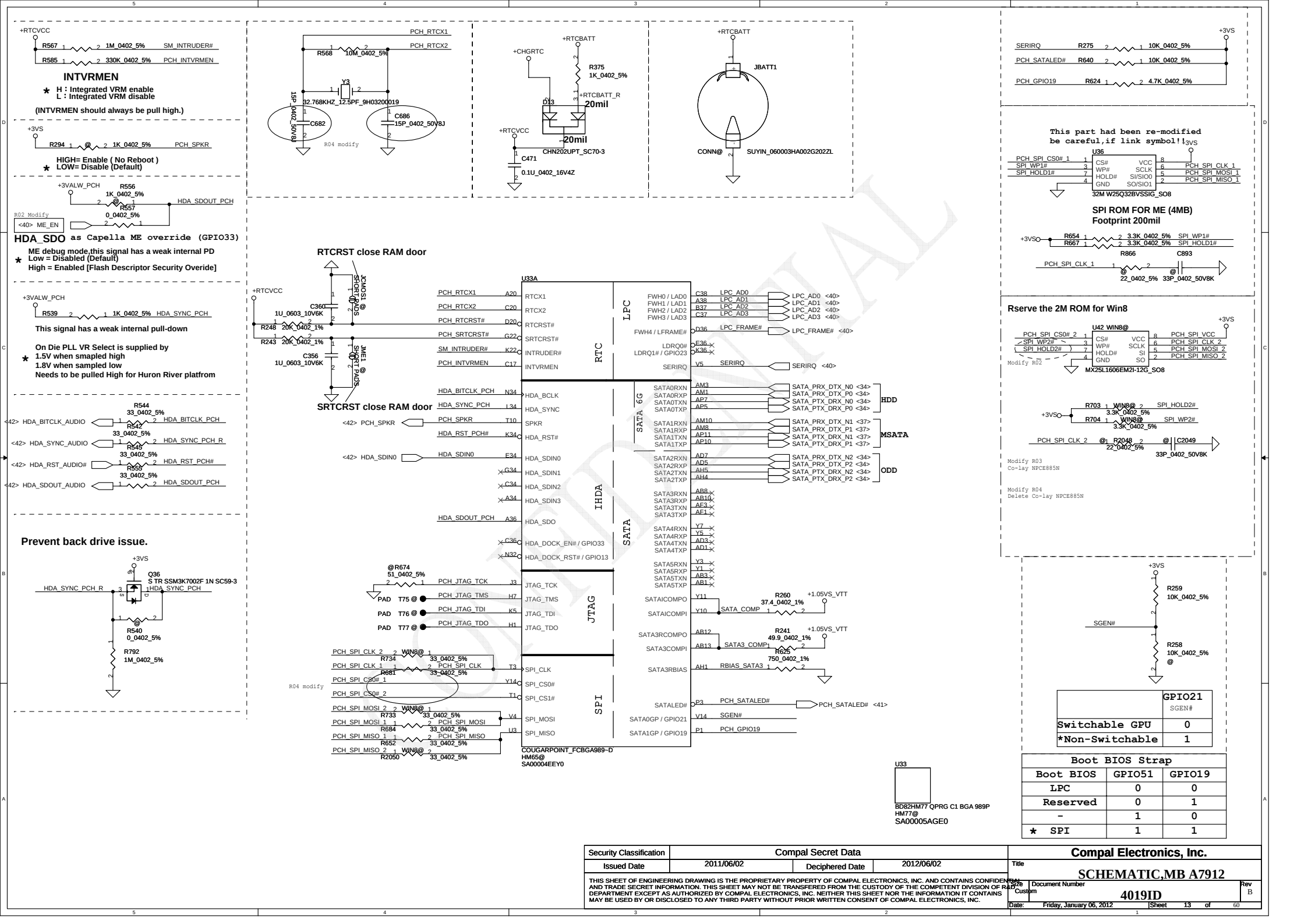

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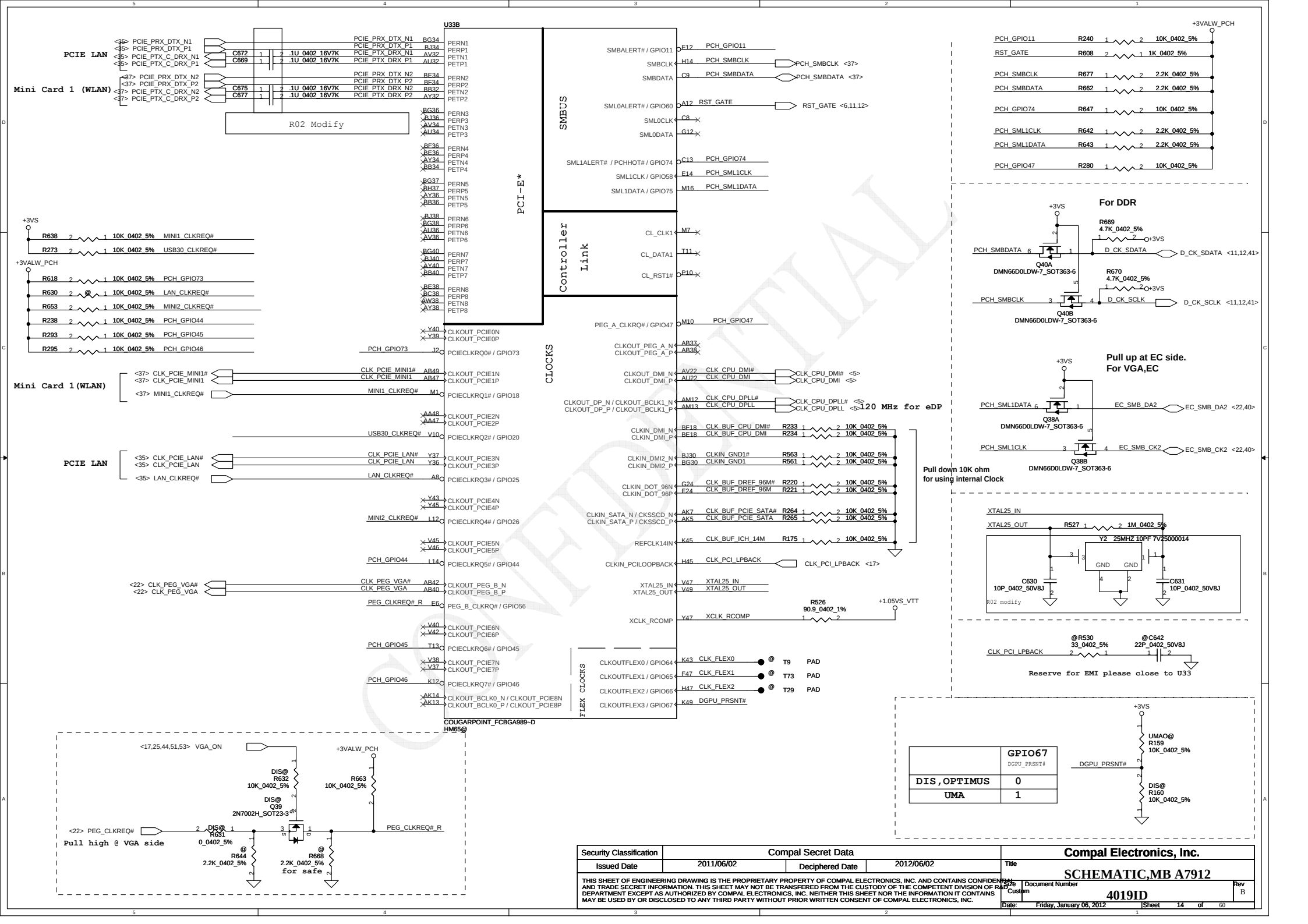

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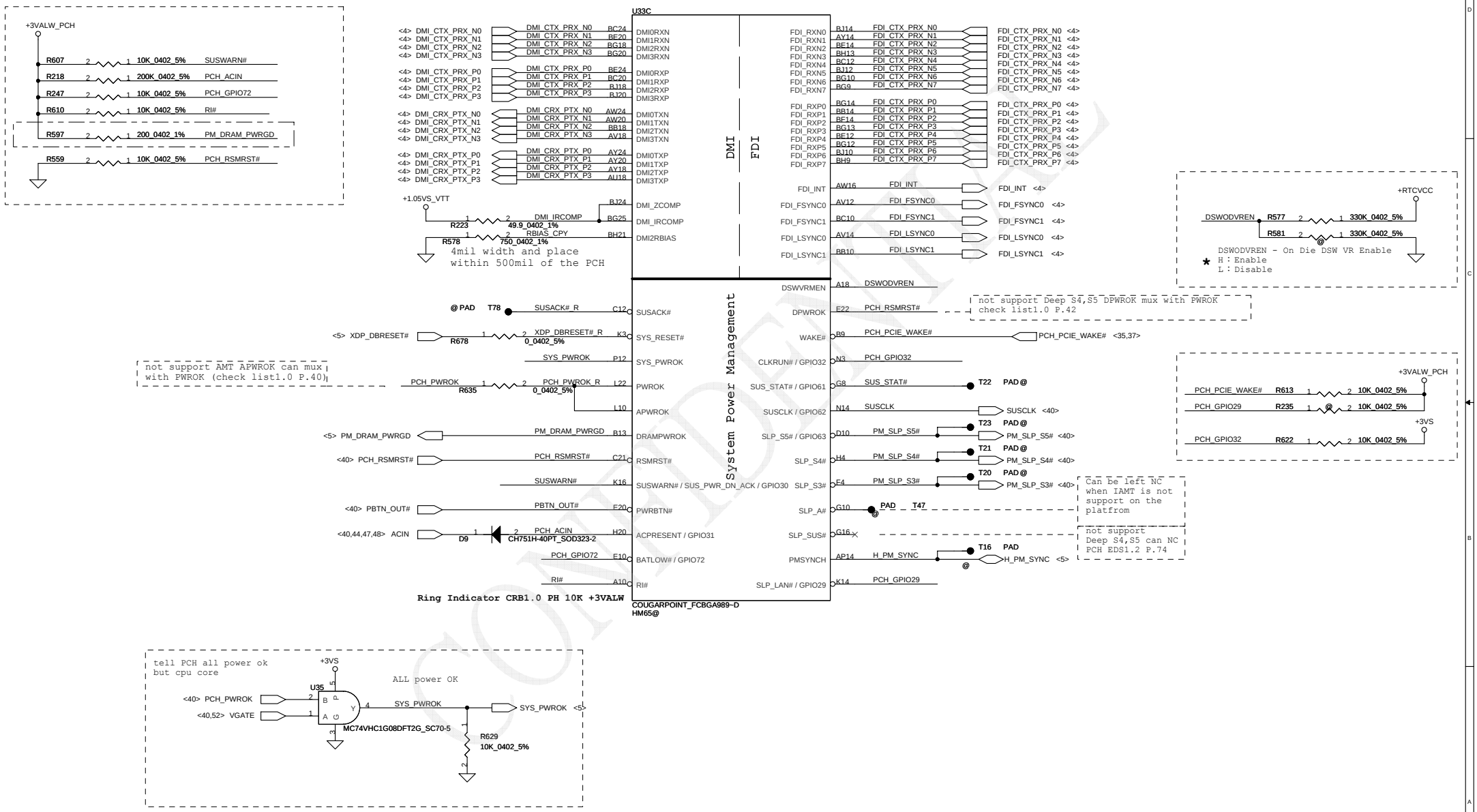

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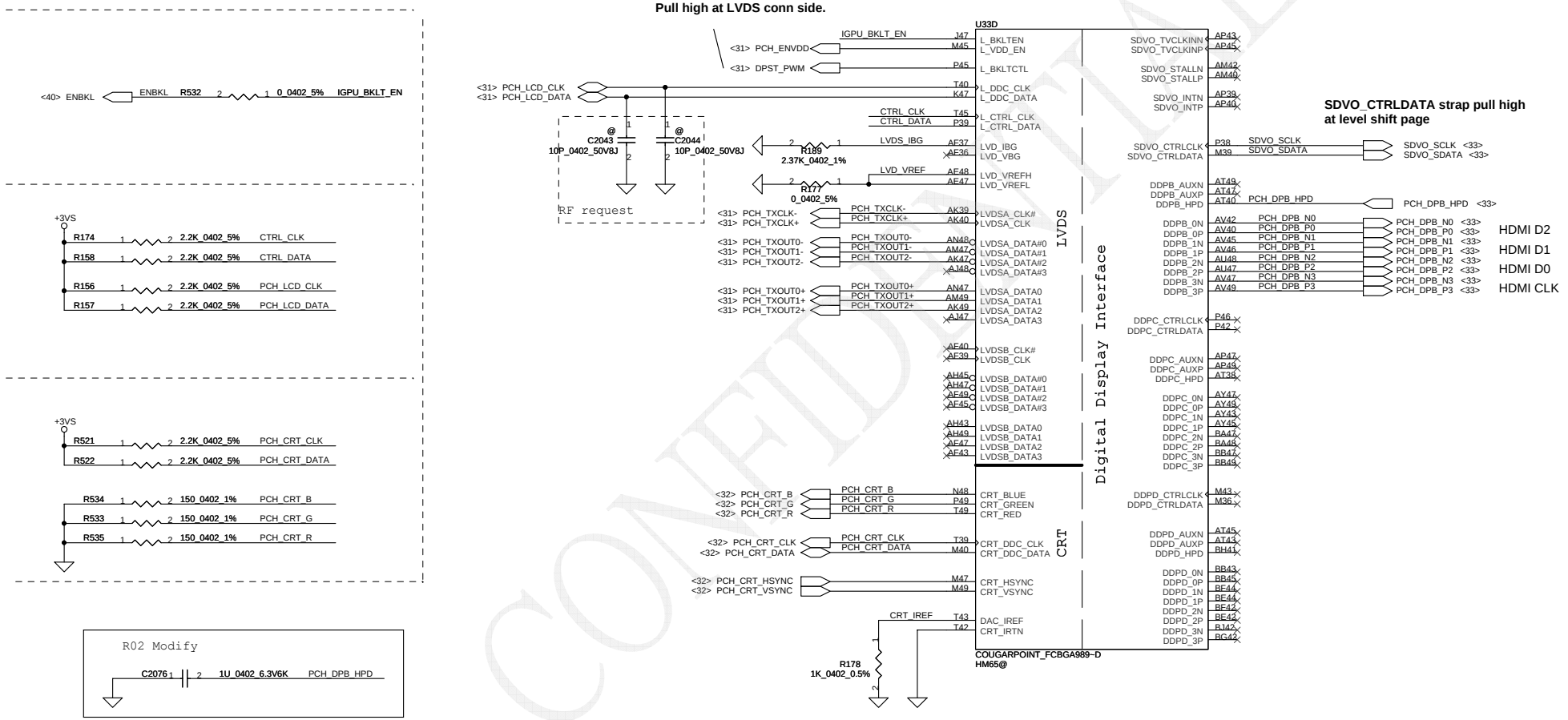

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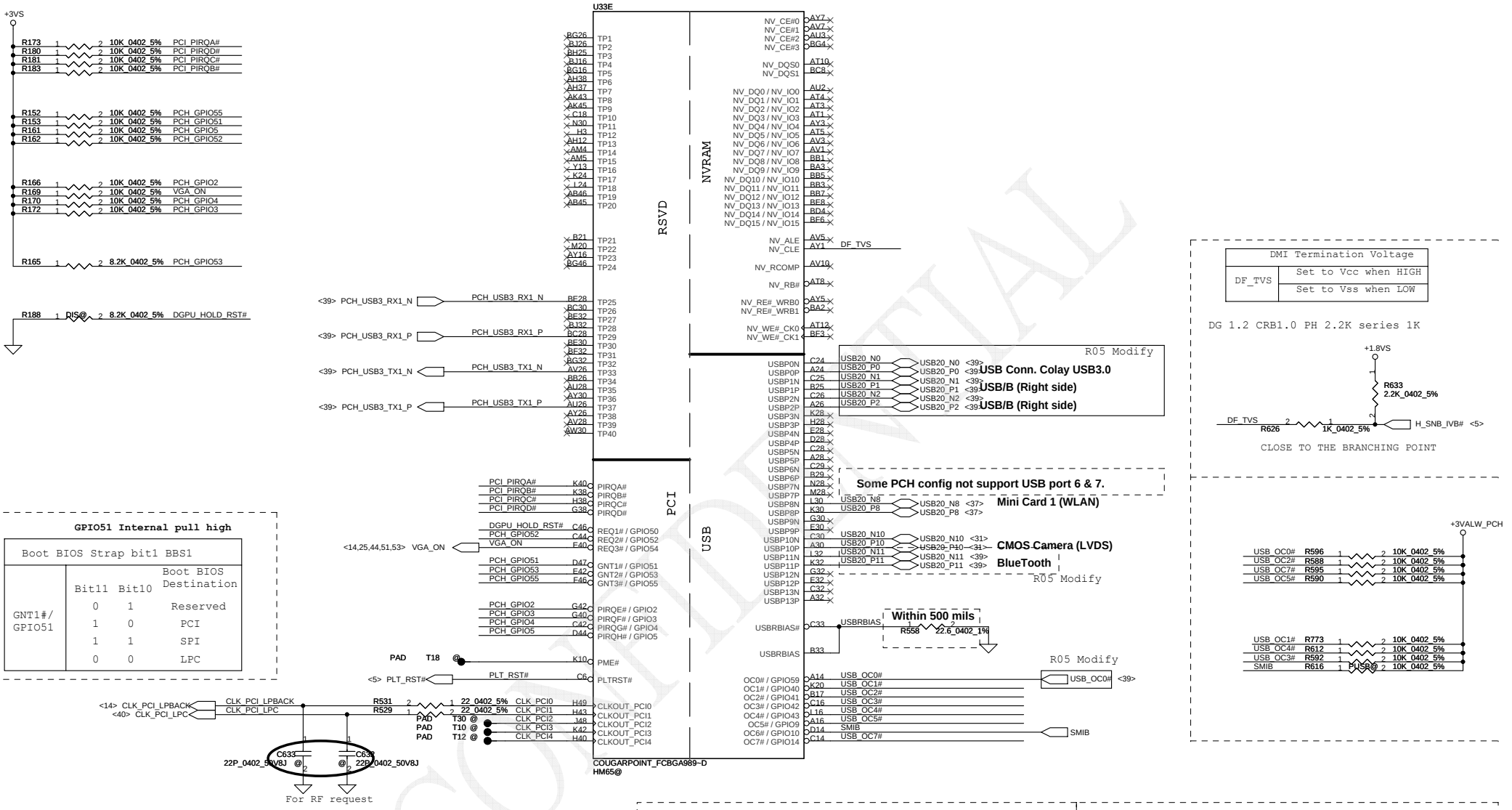

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HDA_SYNC PH(PLL =+1.5VS)

GPIO28
On-Die PLL Voltage Regulator
This signal has a weak internal pull up

* H : On-Die voltage regulator enable
  L : On-Die PLL Voltage Regulator disable

+3VALW_PCH
R768 4.7K_0402_5%
R272 1K_0402_5%
PCH_GPIO28

Deep S4,S5 wake event signal
RTC alarm,Power BTN,GPIO27
PCH_GPIO27 (Have internal Pull-High)
Deep S4,S5 wake event signal
No use PD to GND Check list1.0 P.70

R661 10K_0402_5% PCH_GPIO27

+3VS
R623 @ 10K_0402_5% OPTIMUS_EN#
R639 DIS@ 10K_0402_5%

	GPIO38 OPTIMUS_EN#
* OPTIMUS	0
DIS Only	1

+3VS
R277 @ 200K_0402_5% WWAN_OFF#
R276 10K_0402_5% PCH_GPIO0
R546 10K_0402_5% WL_EN#
R191 10K_0402_5% PCH_GPIO6
R641 10K_0402_5% MSATA_DET#
R290 10K_0402_5% PCH_GPIO22
R649 10K_0402_5% PCH_GPIO39
R291 @ 200K_0402_5% PCH_GPIO36
R619 10K_0402_5% BT_ON#
R292 10K_0402_5% PCH_GPIO48
R274 10K_0402_5% WL_OFF#

+3VALW_PCH
R262 10K_0402_5% PCH_GPIO24
R620 10K_0402_5% PCH_GPIO12
R672 1K_0402_5% EC_LID_OUT#
R263 10K_0402_5% PCH_GPIO57

R911 10K_0402_5% PCH_GPIO36
R912 10K_0402_5% WWAN_OFF#

+3VS
R2053 10K_0402_5%
DGPU_PWROK
+3VSDGPU
DIS@ R2055 10K_0402_5%
DIS@ R2054 10K_0402_5%
Q2001A DIS@ DMN66D0LDW-7_SOT363-6
Q2001B DIS@ DMN66D0LDW-7_SOT363-6
DIS@ C2050 0.1U_0402_16V4Z
DIS@ C2051 1U_0402_6.3V6K

GPIO24 Unmultiplexed
NOTE: GPIO24 configuration register bits are not cleared by CF9h reset event.

CRB1.0 PH10K to +3VALW

GPIO36/GPIO37 is Strap functionality
that requires internal pull down to be sampled at rising PWROK.
When uses as SATA2GP/SATA3GP for mechanical presence detect
-use a external pull up 150K-200K ohm to Vcc3_3
When used as GP input
-ensure GPI is not driven high during strap sampling window
When Unused as GPIO or SATA*GP
-use 8.2K-10K pull-down
check list page 47

U33F

PCH_GPIO0	T7	BMBUSY# / GPIO0		TACH4 / GPIO68	C40 PCH_GPIO68
<39> WL_EN#	A42	TACH1 / GPIO1		TACH5 / GPIO69	B41 PCH_GPIO69
PCH_GPIO6	H36	TACH2 / GPIO6		TACH6 / GPIO70	C41 PCH_GPIO70
<40> EC_SCI#	E38	TACH3 / GPIO7		TACH7 / GPIO71	A40 PCH_GPIO71 <31>
<40> EC_SMI#	C10	GPIO8			
PCH_GPIO12	C4	LAN_PHY_PWR_CTRL / GPIO12			
<40> EC_LID_OUT#	G2	GPIO15		A20GATE	P4 GATEA20 <40>
<37> MSATA_DET#	U2	SATA4GP / GPIO16		PECI	AU16 PCH_PECI_R 0_0402_5%@R239 H_PECI <5,40>
				RCIN#	P5 EC_KBRST# EC_KBRST# <40>
DGPU_PWROK	D40	TACH0 / GPIO17		PROCPWRGD	AY11 H_CPUPWRGD <5>
PCH_GPIO22	T5	SCLOCK / GPIO22		THRMTRIP#	AY10 PCH_THRMTRIP#_R R627 390_0402_5% H_THRMTRIP# H_THRMTRIP# <5>
PCH_GPIO24	E8	GPIO24 / MEM_LED		INIT3_3V#	T14
PCH_GPIO27	E16	GPIO27			
PCH_GPIO28	P8	GPIO28			
<37,39> BT_ON#	K1	STP_PCI# / GPIO34		NC_1	AH8
	K4	GPIO35		NC_2	AK11
PCH_GPIO36	V8	SATA2GP / GPIO36		NC_3	AH10
WWAN_OFF#	M5	SATA3GP / GPIO37		NC_4	AK10
OPTIMUS_EN#	N2	SLOAD / GPIO38		NC_5	P37
PCH_GPIO39	M3	SDATAOUT0 / GPIO39			
PCH_GPIO48	V13	SDATAOUT1 / GPIO48			
<37> WL_OFF#	V3	SATA5GP / GPIO49			
PCH_GPIO57	D6	GPIO57			
	A4	VSS_NCTF_1		VSS_NCTF_15	BG2
	A44	VSS_NCTF_2		VSS_NCTF_16	BG48
	A45	VSS_NCTF_3		VSS_NCTF_17	BH3
	A46	VSS_NCTF_4		VSS_NCTF_18	BH47
	A5	VSS_NCTF_5		VSS_NCTF_19	BJ4
	A6	VSS_NCTF_6		VSS_NCTF_20	BJ44
	B3	VSS_NCTF_7		VSS_NCTF_21	BJ45
	B47	VSS_NCTF_8		VSS_NCTF_22	BJ46
	BD1	VSS_NCTF_9		VSS_NCTF_23	BJ5
	BD49	VSS_NCTF_10		VSS_NCTF_24	BJ6
	BE1	VSS_NCTF_11		VSS_NCTF_25	C2
	BE49	VSS_NCTF_12		VSS_NCTF_26	C48
	BF1	VSS_NCTF_13		VSS_NCTF_27	D1
	BF49	VSS_NCTF_14		VSS_NCTF_28	D49
				VSS_NCTF_29	E1
				VSS_NCTF_30	E49
				VSS_NCTF_31	F1
				VSS_NCTF_32	F49

GPIO | CPU/MISC | NCTF

COUGARPOINT_FCBGA989~D
HM65@

+3VS
PCH_GPIO68 R771 10K_0402_5%
EC_KBRST# R279 10K_0402_5%

+3VS
R278 10K_0402_5%

PECI CPU-EC
CTRL+ALT+DEL
non CPU power ok
130 degree shut sown

INIT3_3V Checklist1.0 P.59
This signal has weak internal PU, can't pull low,leave NC

TS_VSS1~4 PD to GND

+3VS +3VS
R554 10K_0402_5% PCH_GPIO69
R553 10K_0402_5%
R548 10K_0402_5% @ PCH_GPIO70
R549 10K_0402_5%

Project ID	GPIO69	GPIO70
Q5WE0	0	0
Q7YE0	0	0
*Q5Wxx-QC	1	0
x	1	1

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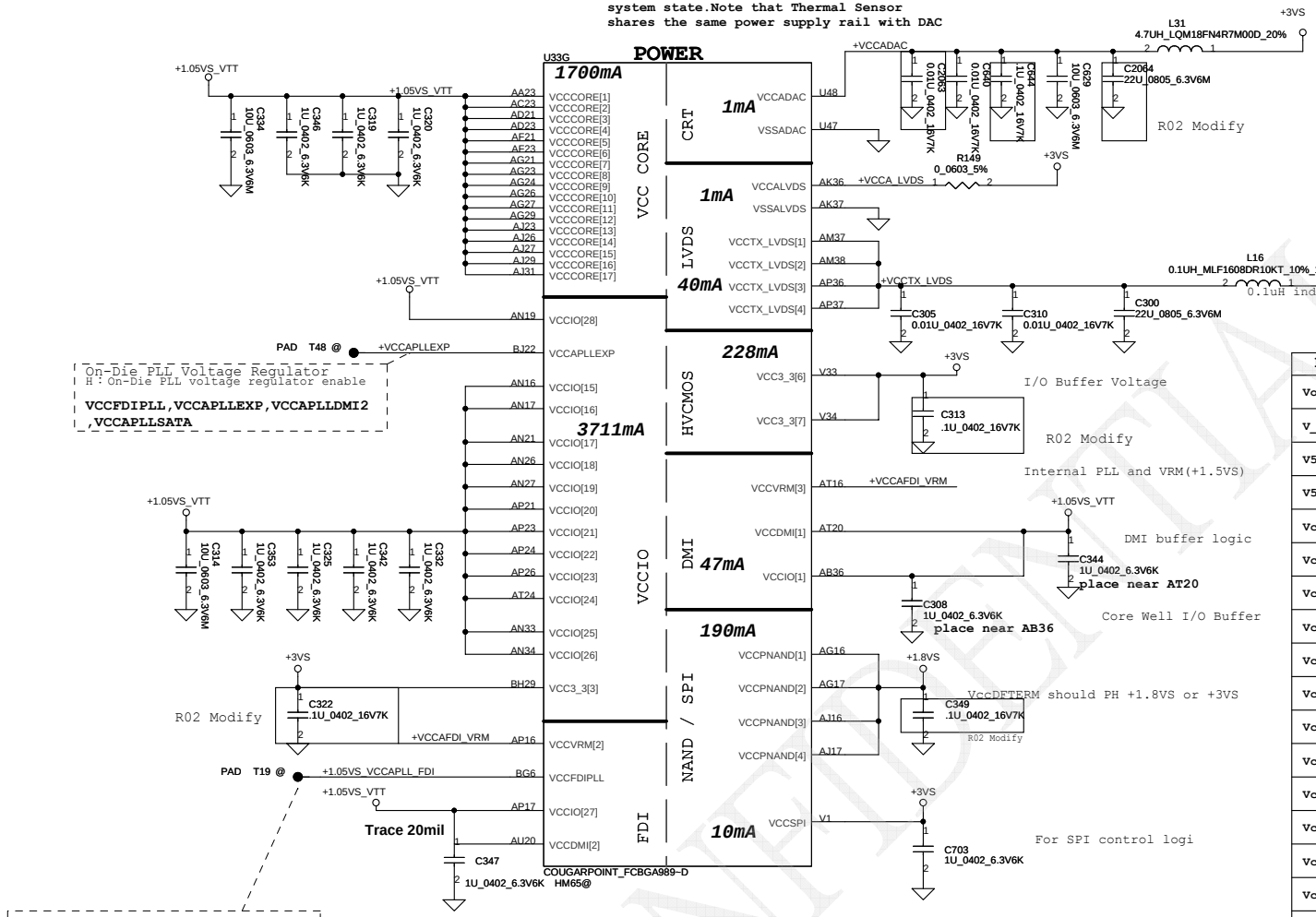

PCH Power Rail Table

Voltage Rail	Voltage	S0 Iccmax Current(A)	
V_PROC_IO	1.05	0.001	Processor I/F
V5REF	5	0.001	PCH Core Well Reference Voltage
V5REF_Sus	5	0.001	Suspend Well Reference Voltag
Vcc3_3	3.3	0.266	I/O Buffer Voltage
VccADAC	3.3	0.001	Display DAC Analog Power. This power is supplied by the core well.
VccADPLLA	1.05	0.08	Display PLL A power
VccADPLLB	1.05	0.08	Display PLL B power
VccCore	1.05	1.3	Internal Logic Voltage
VccDMI	1.05	0.042	DMI Buffer Voltage
VccIO	1.05	2.925	Core Well I/O buffers
VccASW	1.05	1.01	1.05 V Supply for Intel R Management Engine and Integrated LAN
VccSPI	3.3	0.02	3.3 V Supply for SPI Controller Logic
VccDSW	3.3	0.003	3.3v supply for Deep S4/S5 well
VccpNAND	1.8	0.19	1.8V power supply for DF_TVS
VccRTC	3.3	6 uA	Battery Voltage
VccSus3_3	3.3	0.266	Suspend Well I/O Buffer Voltage
VccSusHDA	3.3 / 1.5	0.01	High Definition Audio Controller Suspend Voltage
VccVRM	1.8 / 1.5	0.16	1.8 V Internal PLL and VRMs (1.8 V for Desktop)
VccCLKDMI	1.05	0.02	DMI Clock Buffer Voltage
VccSSC	1.05	0.095	Spread Modulators Power Supply
VccDIFFCLKN	1.05	0.055	Differential Clock Buffers Power Supply
VccALVDS	3.3	0.001	Analog power supply for LVDS (Mobile Only)
VccTX_LVDS	1.8	0.06	Analog power supply for LVDS (Mobile Only)

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VCC3_3 = 266mA detal waiting for newest spec
VCCDMI = 42mA detal waiting for newest spec

+5VALW TO +5VALW_PCH(PCH AUX Power)

POWER

Have internal VRM

U33J

COUGARPOINT_FCBGA989~D
HM65@

Clock and Miscellaneous
USB
PCI/GPIO/LPC
SATA
MISC
CPU
RTC
HDA

1mA
95mA
903mA
1mA
1mA
80mA
80mA
55mA
130mA
1mA
10mA

Not support Deep S4,S5 connect to +3VALW

suppied by internal 1.05V VR must NC

GPIO28
On-Die PLL Voltage Regulator
H : On-Die PLL voltage regulator enable
VCCFDIPLL,VCCAPLLEXP,VCCAPLLDMI2 ,VCCAPLLSATA

SGA00001700
220U 2.5V M B2
ESR 35mohm@100Khz

Need +3VALW and 0.1U close PCH

R03 Modify

R02 Modify

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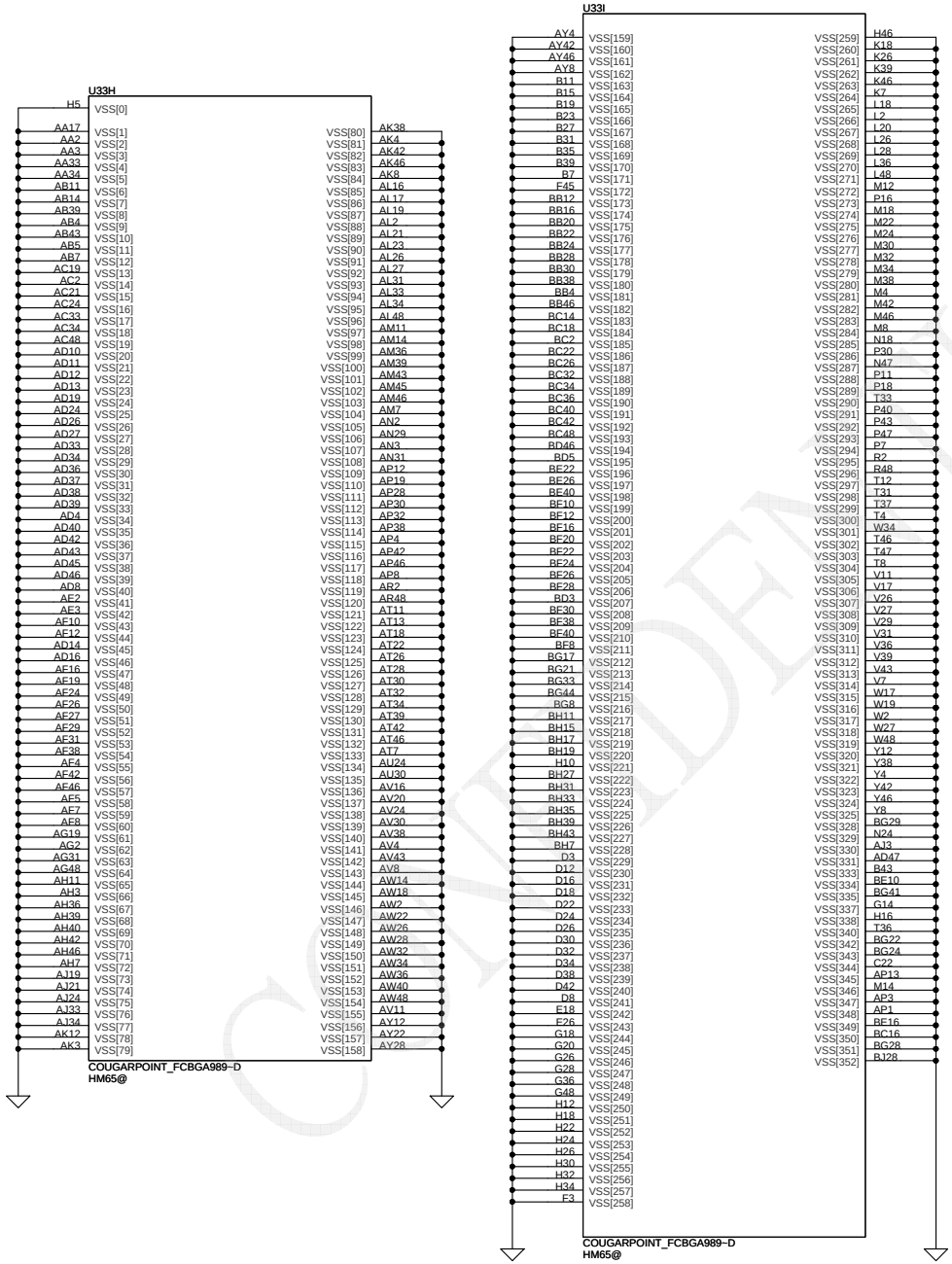

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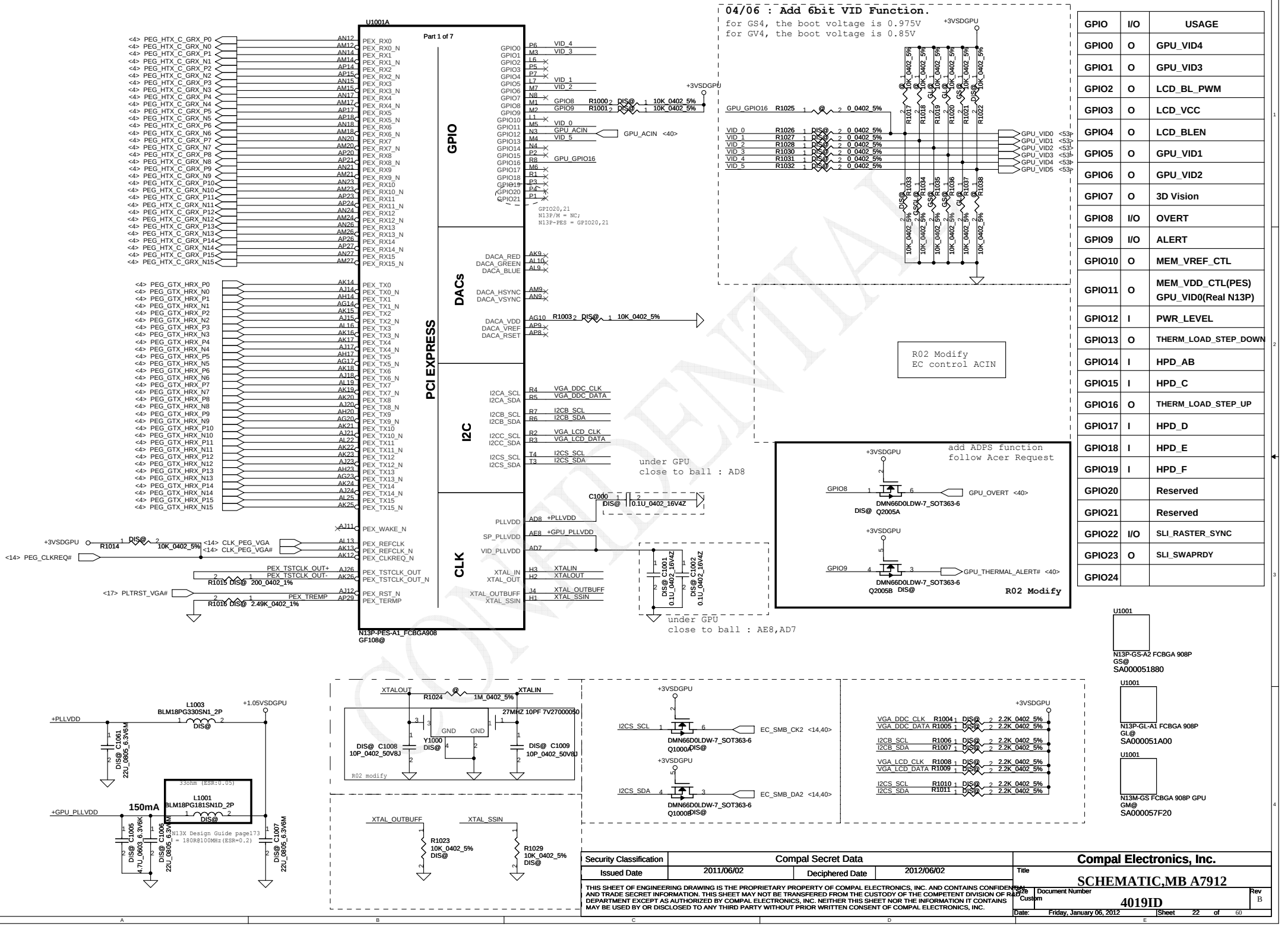

GPIO	I/O	USAGE
GPIO0	O	GPU_VID4
GPIO1	O	GPU_VID3
GPIO2	O	LCD_BL_PWM
GPIO3	O	LCD_VCC
GPIO4	O	LCD_BLEN
GPIO5	O	GPU_VID1
GPIO6	O	GPU_VID2
GPIO7	O	3D Vision
GPIO8	I/O	OVERT
GPIO9	I/O	ALERT
GPIO10	O	MEM_VREF_CTL
GPIO11	O	MEM_VDD_CTL(PES) GPU_VID0(Real N13P)
GPIO12	I	PWR_LEVEL
GPIO13	O	THERM_LOAD_STEP_DOWN
GPIO14	I	HPD_AB
GPIO15	I	HPD_C
GPIO16	O	THERM_LOAD_STEP_UP
GPIO17	I	HPD_D
GPIO18	I	HPD_E
GPIO19	I	HPD_F
GPIO20		Reserved
GPIO21		Reserved
GPIO22	I/O	SLI_RASTER_SYNC
GPIO23	O	SLI_SWAPRDY
GPIO24		

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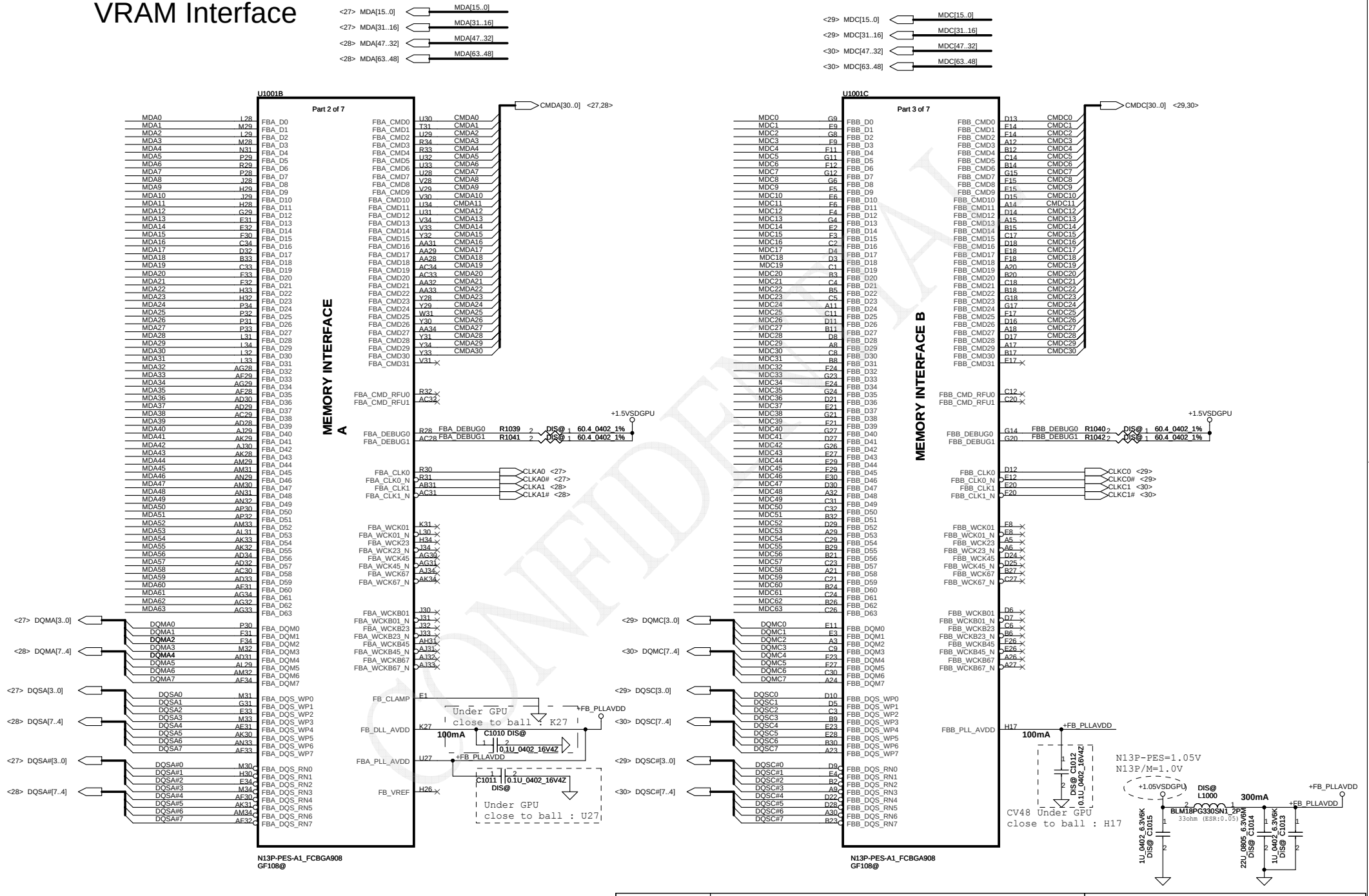
VRAM Interface



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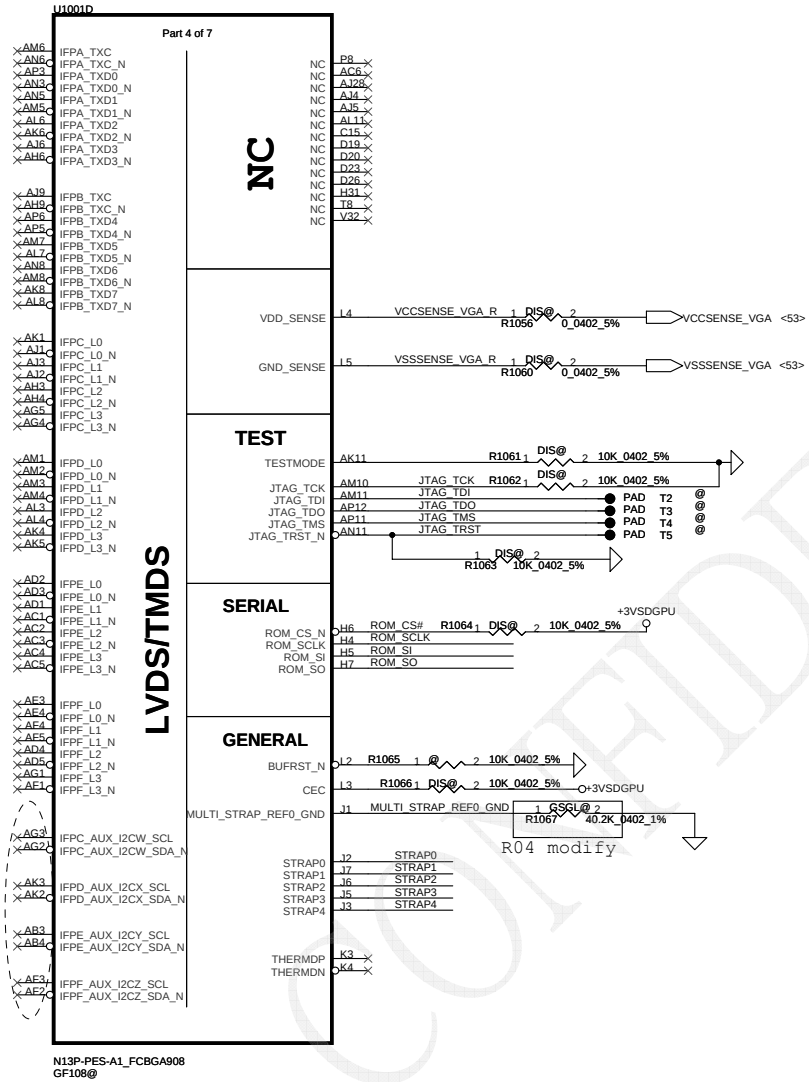

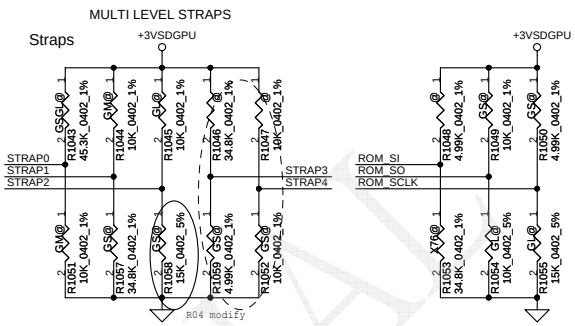

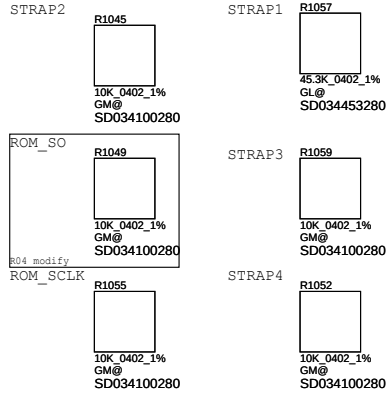

For N13P-GS(ES) strap table

GPU	Frenq.	Memory Size	Memory Config	strap0	strap1	strap2	strap3	strap4	ROM_SI	ROM_SO	ROM_SCLK
N13P-GS	900 MHz	128M* 16* 8 2GB	Hynix SA00003YO20	R PU 45K	R PD 35K	R PD 15K	R PD 5K	R PD 10K	R PD 35K	R PU 10K	R PU 5K
N13P-GS	900 MHz	64M* 16* 8 1GB	Hynix SA000041S40	R PU 45K	R PD 35K	R PD 15K	R PD 5K	R PD 10K	R PD 15K	R PU 10K	R PU 5K

For N13P-GL(QS) strap table

GPU	Frenq.	Memory Size	Memory Config	strap0	strap1	strap2	strap3	strap4	ROM_SI	ROM_SO	ROM_SCLK
N13P-GS	900 MHz	128M* 16* 8 2GB	Hynix SA00003YO20	R PU 45K	R PD 45K	R PU 10K	n/a	n/a	R PD 35K	R PD 10K	R PD 15K
N13P-GS	900 MHz	64M* 16* 8 1GB	Hynix SA000041S40	R PU 45K	R PD 45K	R PU 10K	n/a	n/a	R PD 15K	R PD 10K	R PD 15K

For N13M-GS(QS) strap table

GPU	Frenq.	Memory Size	Memory Config	strap0	strap1	strap2	strap3	strap4	ROM_SI	ROM_SO	ROM_SCLK
N13M-GS	900 MHz	128M* 16* 8 2GB	Hynix SA00003YO20	R PD 10K	R PU 10K	R PU 10K	R PD 10K	R PD 10K	R PD 10K	R PU 10K	R PD 10K

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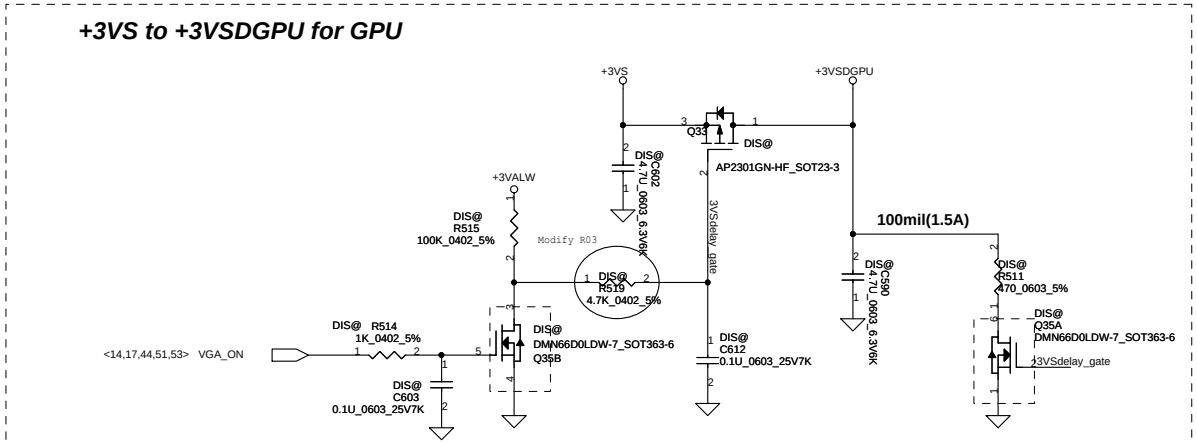
+3VS to +3VSDGPU for GPU



Design guide no define

U1001E

Part 5 of 7

POWER

7200mA

+1.5VSDGPU — Under GPU: C1023, C1024, C1025, C1026, C1027, C1037 (0.1U_0402_16V4Z); C1038, C1039, C1032, C1033, C1040, C1041 (0.1U_0402_16V4Z); Near GPU: C1045, C1046, C1047, C1048

FBVDDQ_0 AA27
FBVDDQ_1 AA30
FBVDDQ_2 AB27
FBVDDQ_3 AB33
FBVDDQ_4 AC27
FBVDDQ_5 AD27
FBVDDQ_6 AE27
FBVDDQ_7 AF27
FBVDDQ_8 AG27
FBVDDQ_9 B13
FBVDDQ_10 B16
FBVDDQ_11 B19
FBVDDQ_12 E13
FBVDDQ_13 E16
FBVDDQ_14 E19
FBVDDQ_15 H10
FBVDDQ_16 H11
FBVDDQ_17 H12
FBVDDQ_18 H13
FBVDDQ_19 H14
FBVDDQ_20 H15
FBVDDQ_21 H16
FBVDDQ_22 H18
FBVDDQ_23 H19
FBVDDQ_24 H20
FBVDDQ_25 H21
FBVDDQ_26 H22
FBVDDQ_27 H23
FBVDDQ_28 H24
FBVDDQ_29 H8
FBVDDQ_30 H9
FBVDDQ_31 L27
FBVDDQ_32 M27
FBVDDQ_33 N27
FBVDDQ_34 P27
FBVDDQ_35 R27
FBVDDQ_36 T27
FBVDDQ_37 T30
FBVDDQ_38 T33
FBVDDQ_39 V27
FBVDDQ_40 W27
FBVDDQ_41 W30
FBVDDQ_42 W33
FBVDDQ_43 Y27

PEX_IOVDD_0 AG19
PEX_IOVDD_1 AG21
PEX_IOVDD_2 AG22
PEX_IOVDD_3 AG24
PEX_IOVDD_4 AH21
PEX_IOVDD_5 AH25

2700 mA
total 2700mA
Design guide page.68

PEX_IOVDD_0 AG13
PEX_IOVDD_1 AG15
PEX_IOVDD_2 AG16
PEX_IOVDD_3 AG18
PEX_IOVDD_4 AG25
PEX_IOVDD_5 AH15
PEX_IOVDD_6 AH18
PEX_IOVDD_7 AH26
PEX_IOVDD_8 AH27
PEX_IOVDD_9 AJ27
PEX_IOVDD_10 AK27
PEX_IOVDD_11 AL27
PEX_IOVDD_12 AM28
PEX_IOVDD_13 AN28

Near GPU: C1016, C1017, C1018, C1019, C1020, C1021, C1022 — +1.05VSDGPU
Under GPU: C1028, C1034, C1029, C1035, C1030, C1031, C1036 — +1.05VSDGPU

PEX_PLL_HVDD AH12 — 150mA — +PEX_PLL_HVDD — C1049 0.1U_0402_16V4Z
PEX_SVDD_3V3 AG12 — C1050 0.1U_0402_16V4Z — +PEX_PLLVDD
PEX_PLLVDD AG26 — 150mA

370mA — Near GPU: C1042, C1043, C1044 — +3VSDGPU

Under GPU: C1051, C1052, C1053 — Near GPU — +1.05VSDGPU
L1002 BLM18PG121SN1D_0603 GL@ N13P
Reference Sch = 300R@100MHz
Design Guide page69 沒定義

L1004 0_0603_5% GM@ SD013000080
L1005 0_0603_5% GS@ SD013000080

VDD33_0 J8
VDD33_1 K8
VDD33_2 L8
VDD33_3 M8
+VDD33 — 120mA
Design guide no define

IFPAB_PLLVDD AH8 — +IFPAB_PLLVDD — R1130 DIS@ 10K_0402_5% — R1069 @ 1K_0402_5%
IFPAB_RSET AJ8
IFPA_IOVDD AG8 — +IFPAB_IOVDD — R1131 DIS@ 10K_0402_5%
IFPB_IOVDD AG9
IFPC_PLLVDD AF7 — +IFPC_PLLVDD — R1071 DIS@ 10K_0402_5% — R1073 @ 1K_0402_5%
IFPC_RSET AF8
IFPC_IOVDD AF6 — +IFPC_IOVDD — R1074 DIS@ 10K_0402_5%
IFPD_PLLVDD AG7 — +IFPD_PLLVDD — R1076 DIS@ 10K_0402_5% — R1078 @ 1K_0402_5%
IFPD_RSET AN2
IFPD_IOVDD AG6 — +IFPD_IOVDD — R1079 DIS@ 10K_0402_5%
IFPEF_PLVDD AB8 — +IFPEF_PLLVDD — R1081 DIS@ 10K_0402_5% — R1082 @ 1K_0402_5%
IFPEF_RSET AD6
IFPE_IOVDD AC7 — +IFPEF_IOVDD — R1083 DIS@ 10K_0402_5%
IFPF_IOVDD AC8

+1.5VSDGPU
R1070 DIS@ 10_0402_5% — FB_VDDQ_SENSE F1
R1072 DIS@ 10_0402_5% — FB_GND_SENSE F2
R1075 DIS@ 40.2_0402_1% — FB_CAL_PD_VDDQ J27
R1077 DIS@ 42.2_0402_1% — FB_CAL_PU_GND H27
R1080 DIS@ 51.1_0402_1% — FB_CAL_TERM_GND H25

Under GPU (one per pin): C1054, C1055, C1056, C1057 (0.1U_0402_16V4Z); C1058, C1059 (1U_0402_6.3V6K); C1060 (4.7U_0603_6.3V6K)
+3VSDGPU — DIS@ R1068 0_0603_5%

N13P-PES-A1_FCBGA908
GF108@

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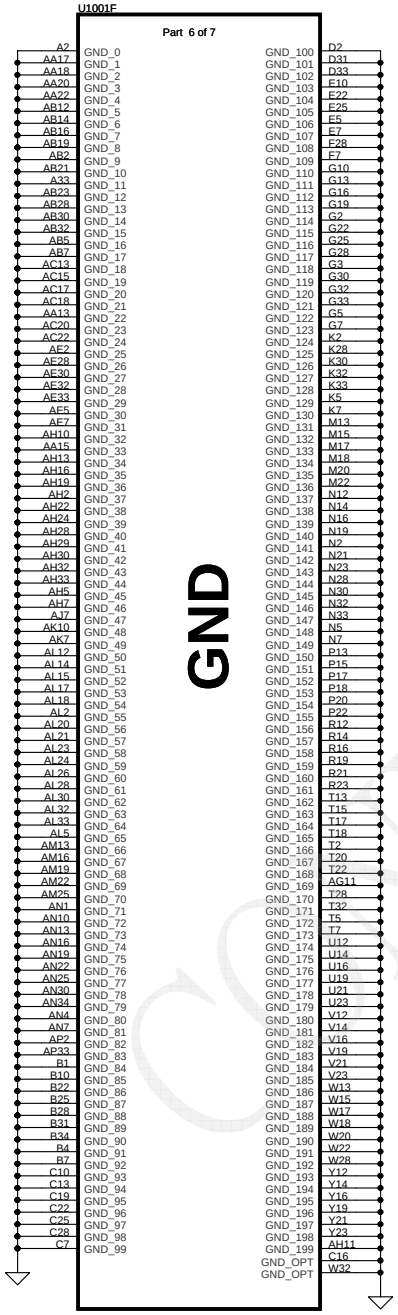

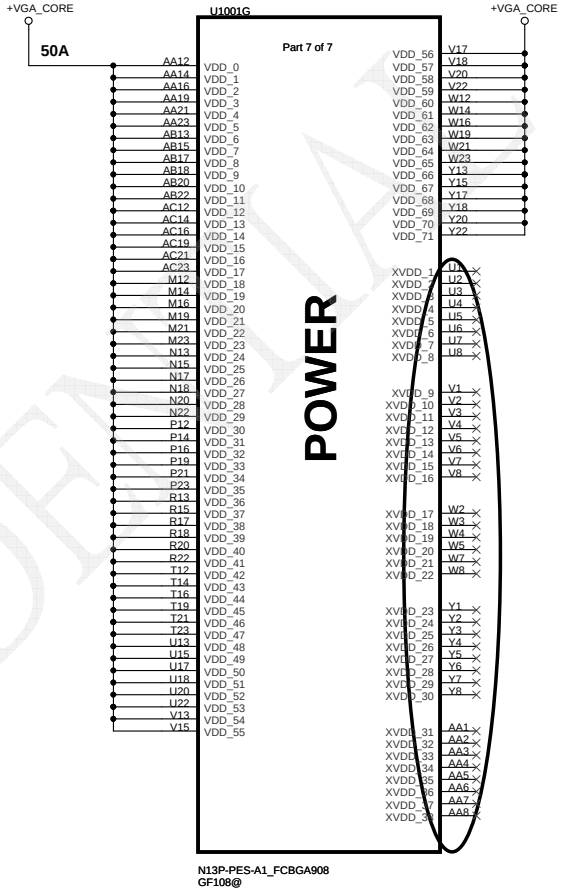

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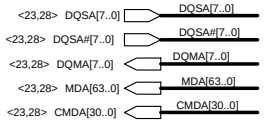
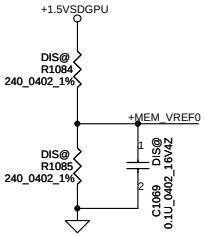
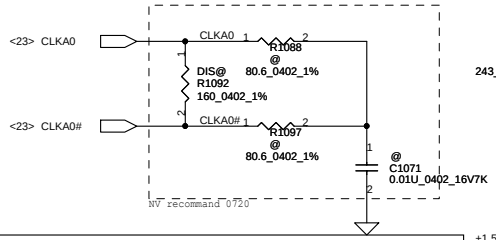
VRAM DDR3 chips (1GB)

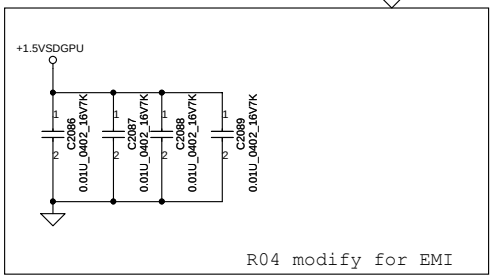
64Mx16 DDR3 *8==>1GB
128Mx16 DDR3 *8==>2GB

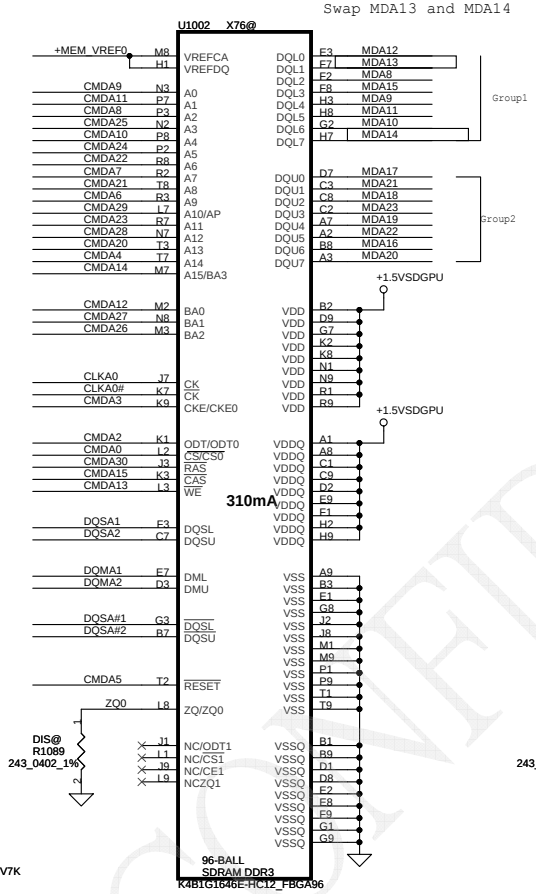
R02 modify
Swap MDA13 and MDA14

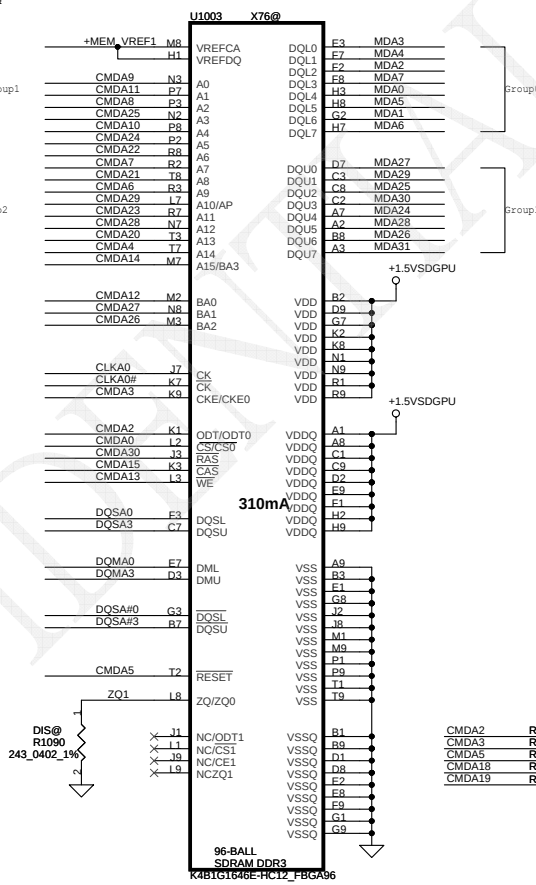


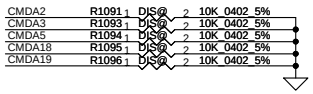


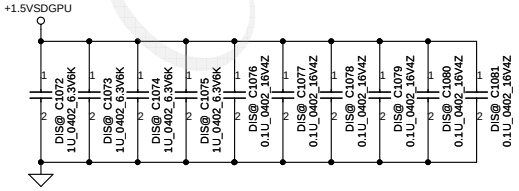


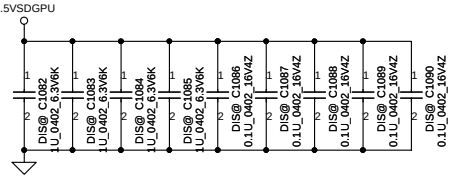












Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22	A6	A6
CMD23	A11	A11
CMD24	A5	A5
CMD25	A3	A3
CMD26	BA2	BA2
CMD27	BA1	BA1
CMD28	A12	A12
CMD29	A10	A10
CMD30	RAS*	RAS*
Not Available		
	LOW	HIGH

	Command Bit	Default Pull-down
DDR3	ODTx	10k
	CKEx	10k
	RST	10k
	CS*	No Termination

Samsung : SA000035700 (S IC D3 64MX16 K4W1G1646E-HC12 FBGA 96P)
Hynix : SA000032400 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA 1.5V)

Security Classification	Compal Secret Data		
Issued Date	2011/06/02	Deciphered Date	2012/06/02

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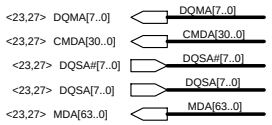
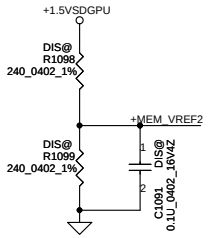
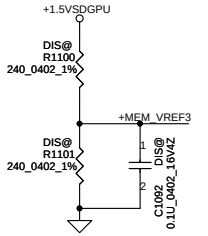
VRAM DDR3 chips (1GB)

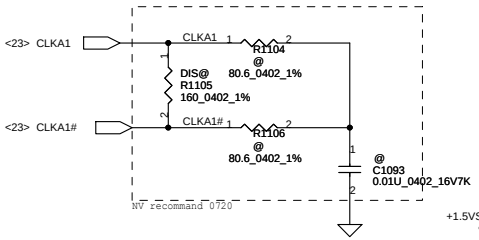
64Mx16 DDR3 *8==>1GB

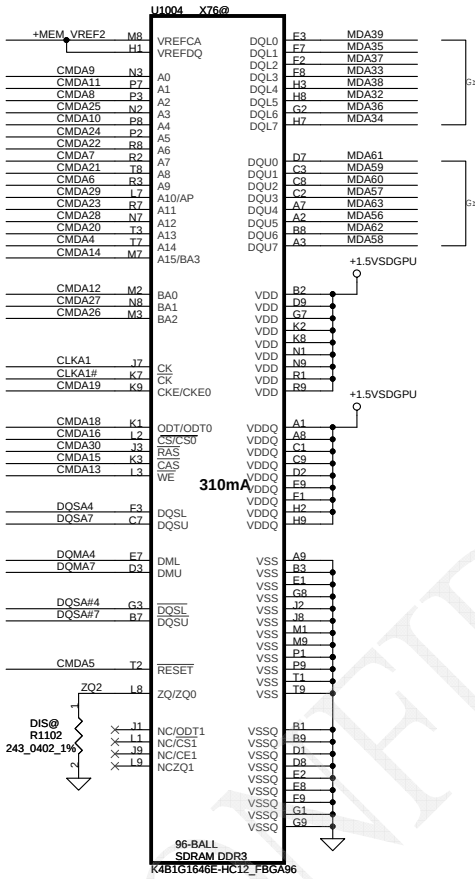
128Mx16 DDR3 *8==>2GB

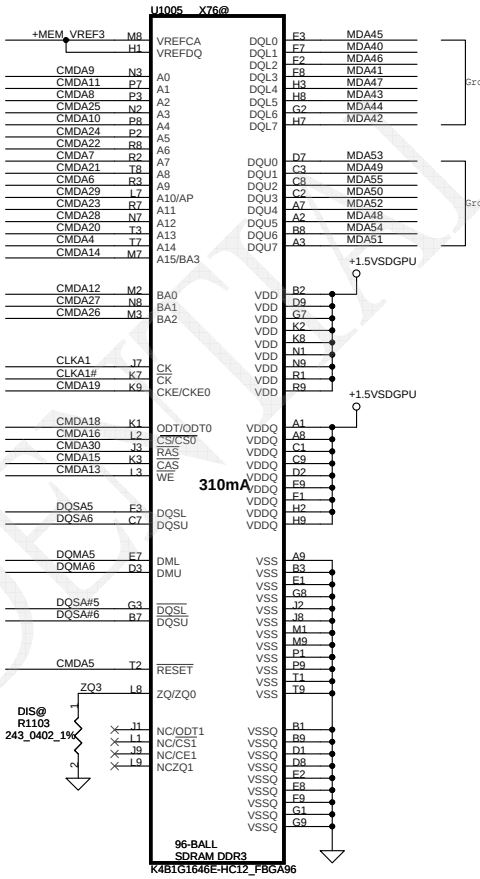


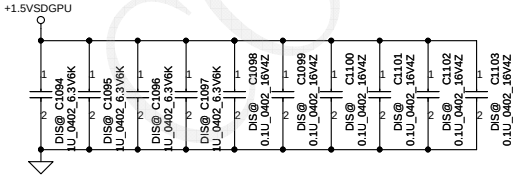


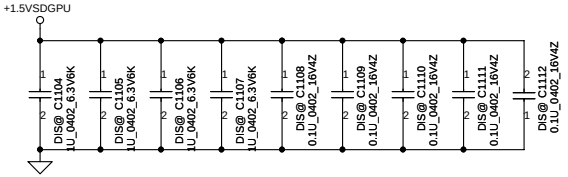












Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22	A6	A6
CMD23	A11	A11
CMD24	A5	A5
CMD25	A3	A3
CMD26	BA2	BA2
CMD27	BA1	BA1
CMD28	A12	A12
CMD29	A10	A10
CMD30	RAS*	RAS*
Not Available		
	LOW	HIGH

Security Classification	Compal Secret Data		
Issued Date	2011/06/02	Deciphered Date	2012/06/02

Compal Electronics, Inc.

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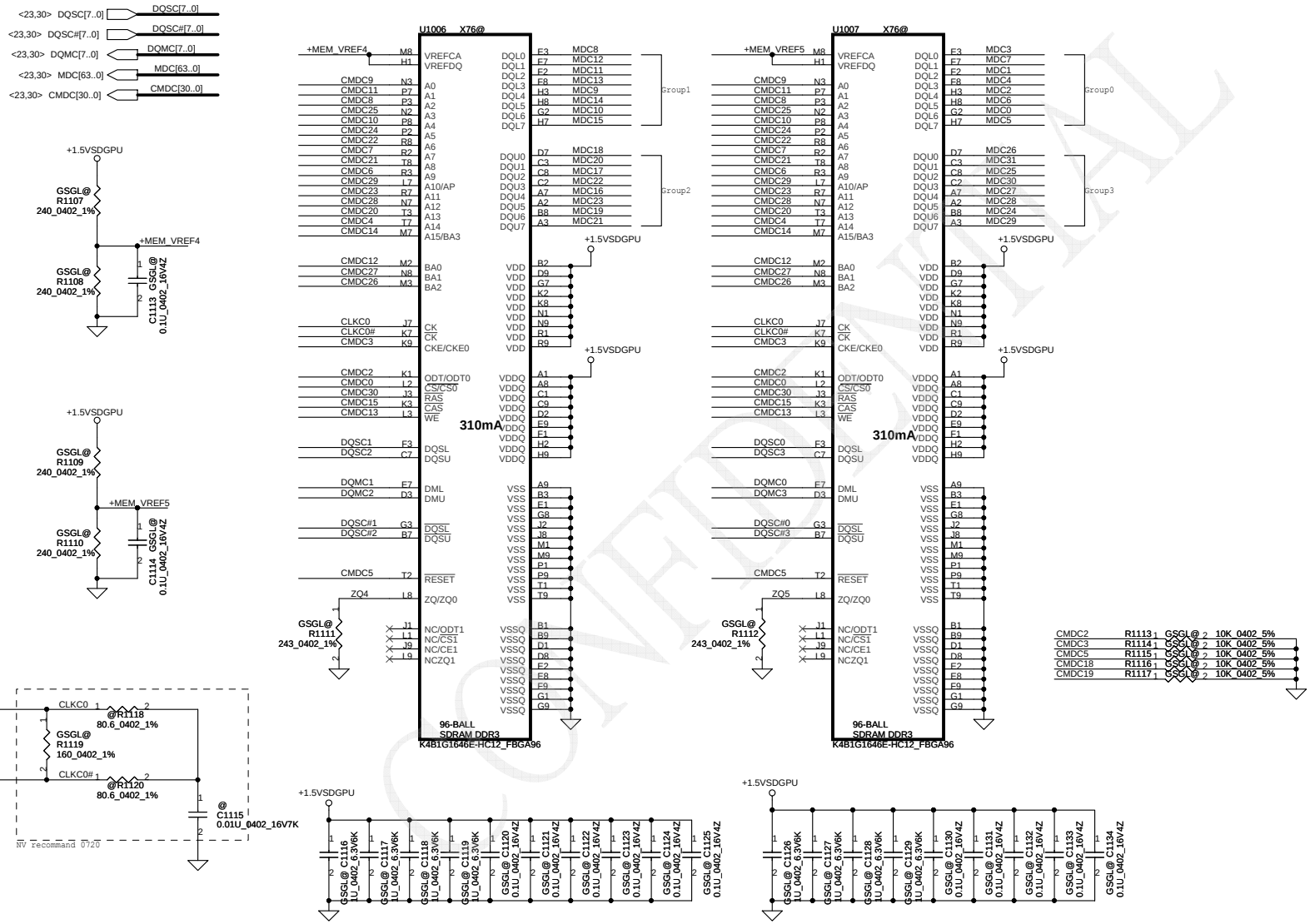
VRAM DDR3 chips (1GB)

64Mx16 DDR3 *8==>1GB
128Mx16 DDR3 *8==>2GB



Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22	A6	A6
CMD23	A11	A11
CMD24	A5	A5
CMD25	A3	A3
CMD26	BA2	BA2
CMD27	BA1	BA1
CMD28	A12	A12
CMD29	A10	A10
CMD30	RAS*	RAS*
Not Available		
	LOW	HIGH

	Command Bit	Default Pull-down
DDR3	ODTx	10k
	CKEx	10k
	RST	10k
	CS*	No Termination

Security Classification	Compal Secret Data		
Issued Date	2011/06/02	Deciphered Date	2012/06/02

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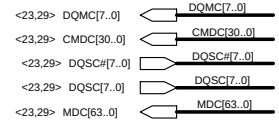
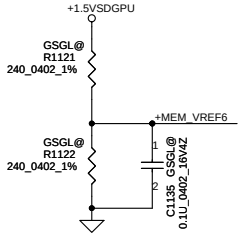
VRAM DDR3 chips (1GB)

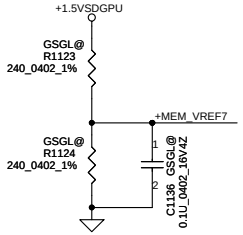
64Mx16 DDR3 *8==>1GB

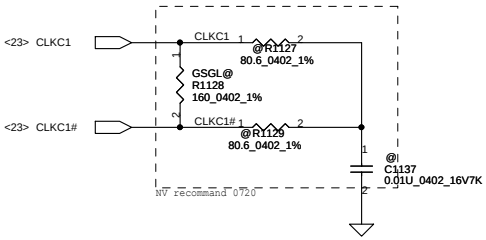
128Mx16 DDR3 *8==>2GB

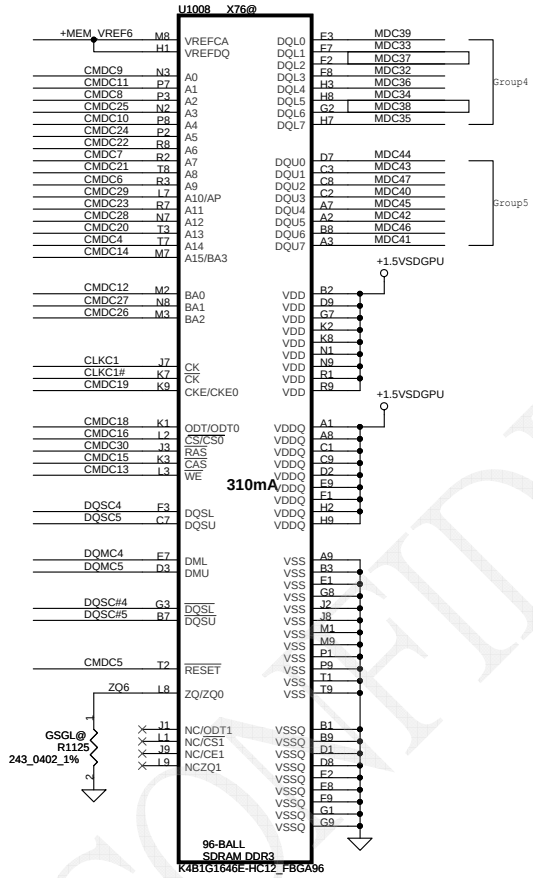
R02 modify
Swap MDC37 and MDC38

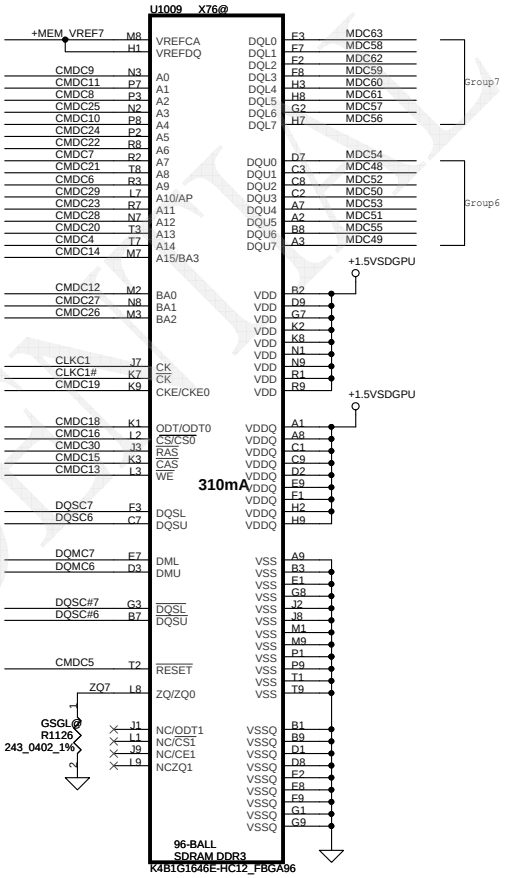


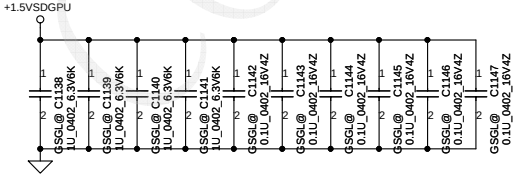


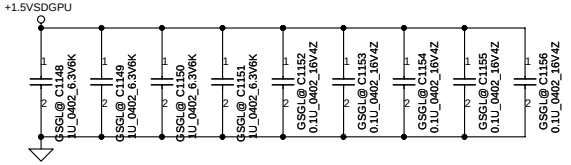












Mode D Address	0..31	32..63
CMD0	CS0_L#	
CMD1		
CMD2	ODT_L	
CMD3	CKE	
CMD4	A14	A14
CMD5	RST	RST
CMD6	A9	A9
CMD7	A7	A7
CMD8	A2	A2
CMD9	A0	A0
CMD10	A4	A4
CMD11	A1	A1
CMD12	BA0	BA0
CMD13	WE*	WE*
CMD14	A15	A15
CMD15	CAS*	CAS*
CMD16		CS0_H#
CMD17		
CMD18		ODT_H
CMD19		CKE_H
CMD20	A13	A13
CMD21	A8	A8
CMD22	A6	A6
CMD23	A11	A11
CMD24	A5	A5
CMD25	A3	A3
CMD26	BA2	BA2
CMD27	BA1	BA1
CMD28	A12	A12
CMD29	A10	A10
CMD30	RAS*	RAS*
Not Available		
	LOW	HIGH

Security Classification	Compal Secret Data		
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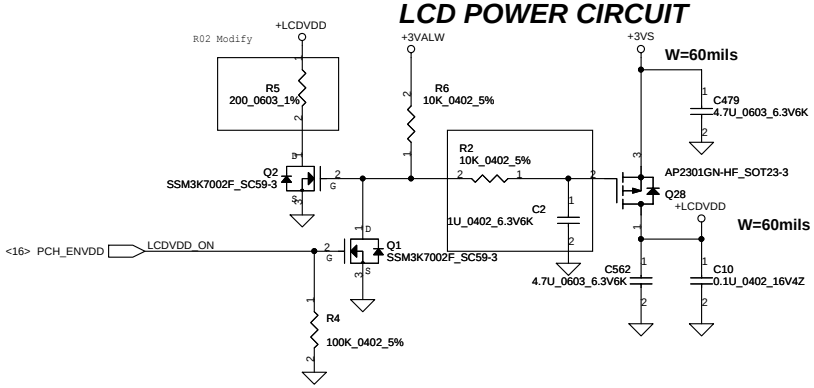
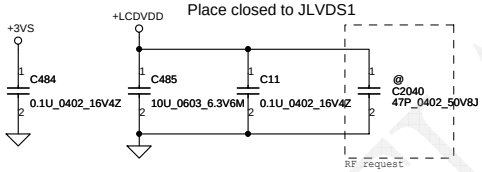
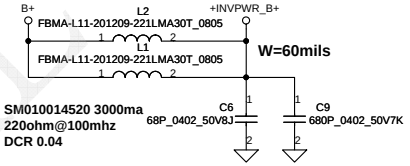
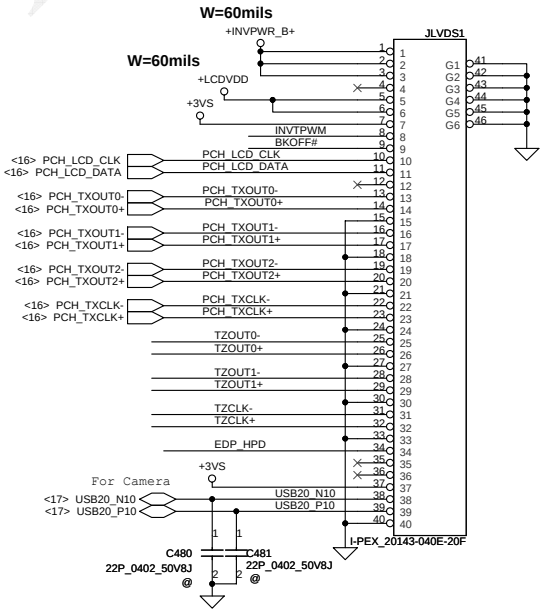
LCD POWER CIRCUIT

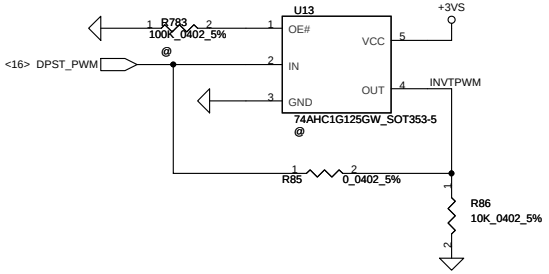


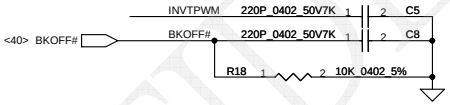




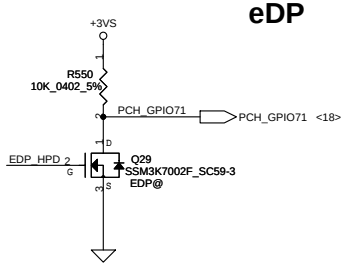
LCD/LED PANEL Conn.

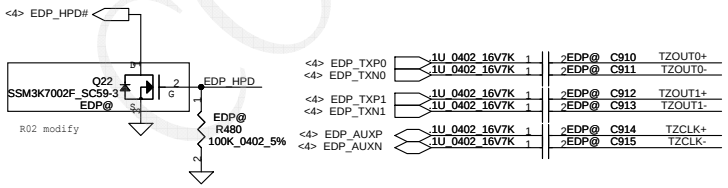




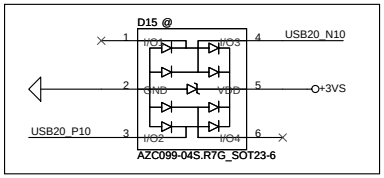


eDP





	GPIO71 PCH_GPIO71
eDP	0
LVDS	1



Modify R02

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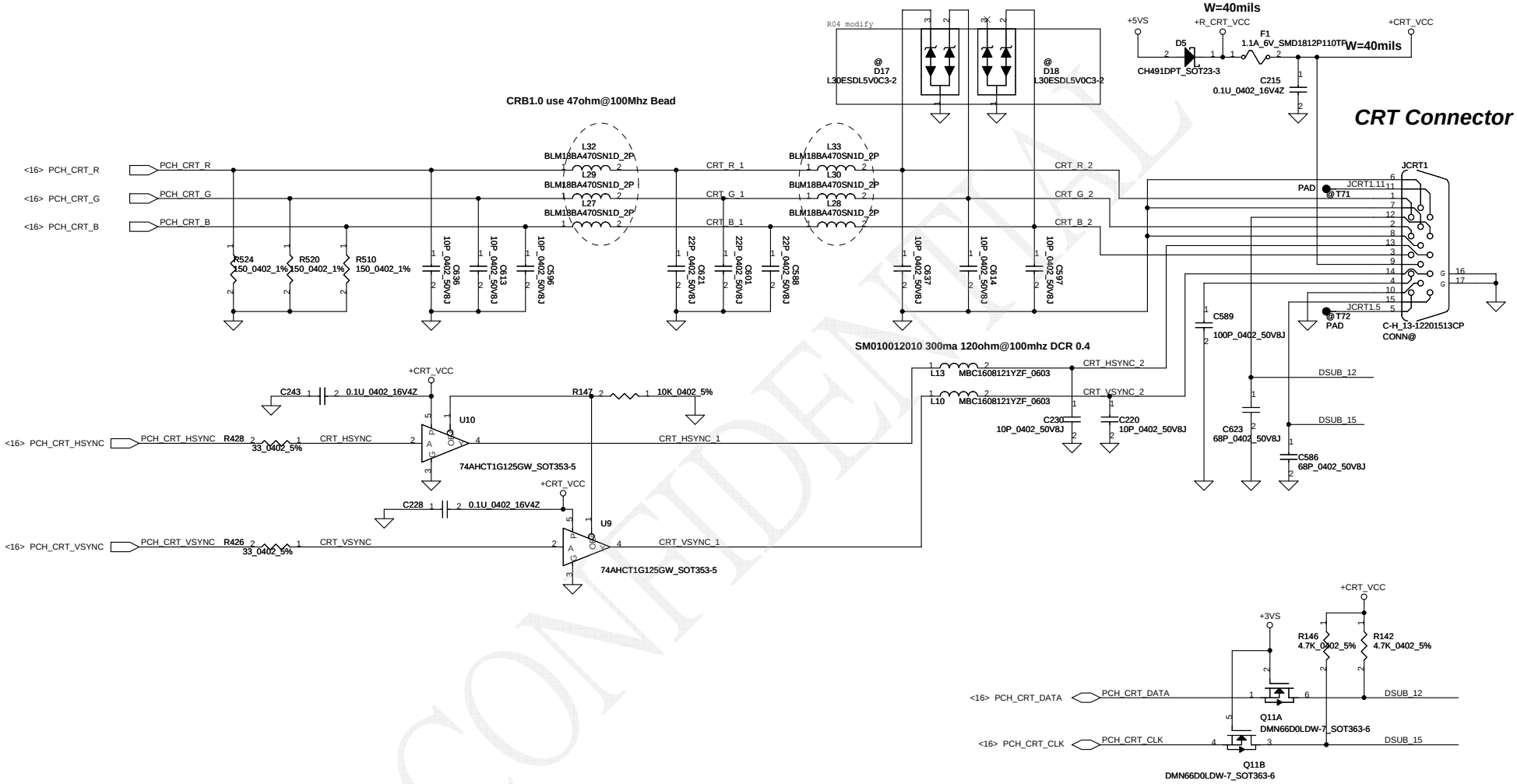

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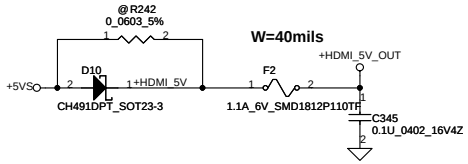
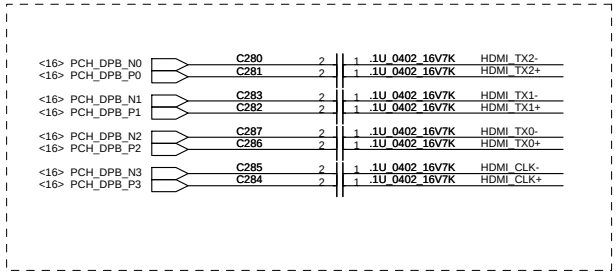
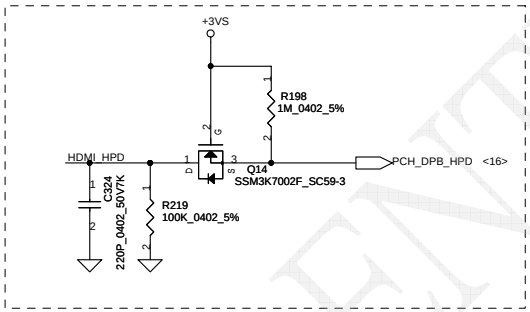
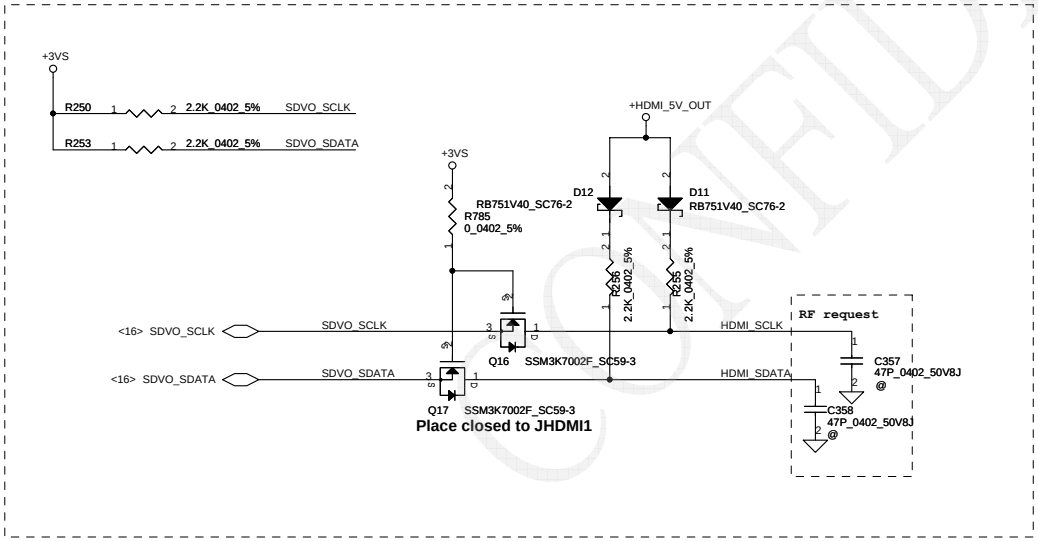
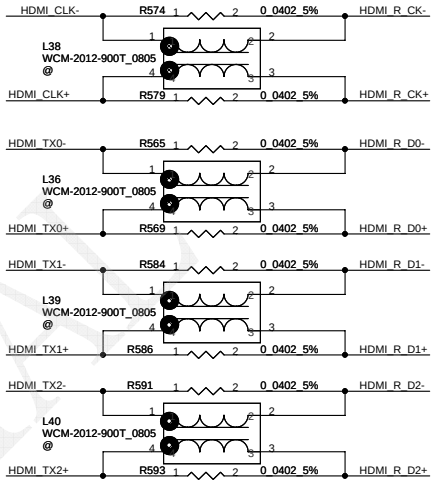


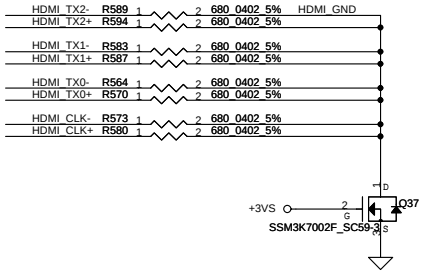


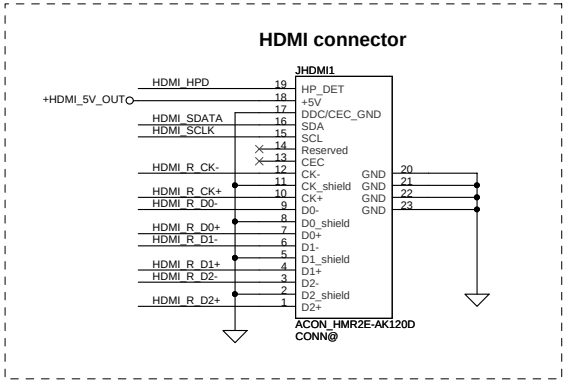




SM070001310 400ma 90ohm@100mhz DCR 0.3







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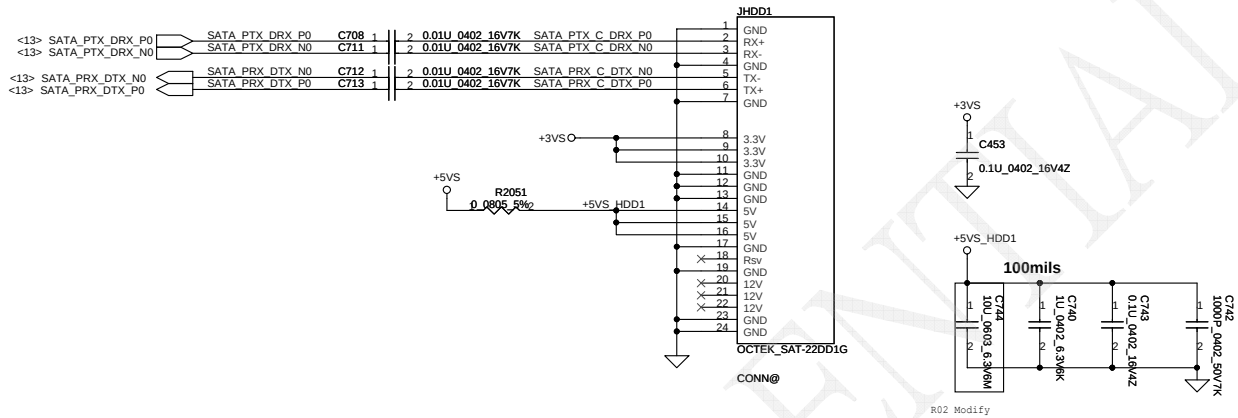
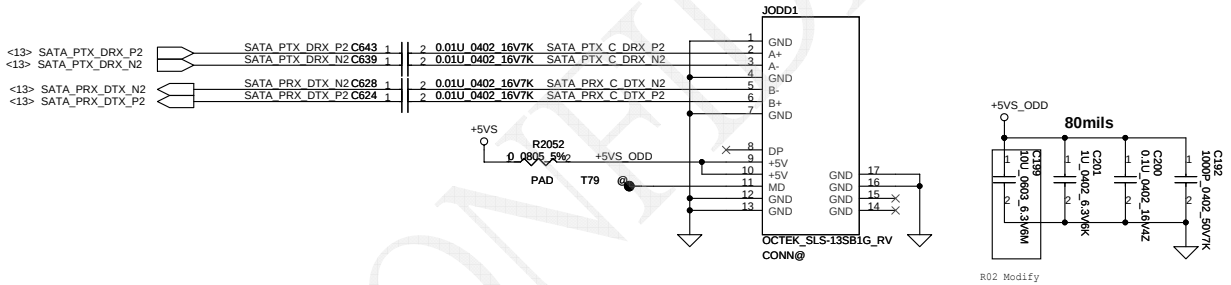
SATA HDD1 Conn.

CL 4.0 mm



SATA ODD Conn.



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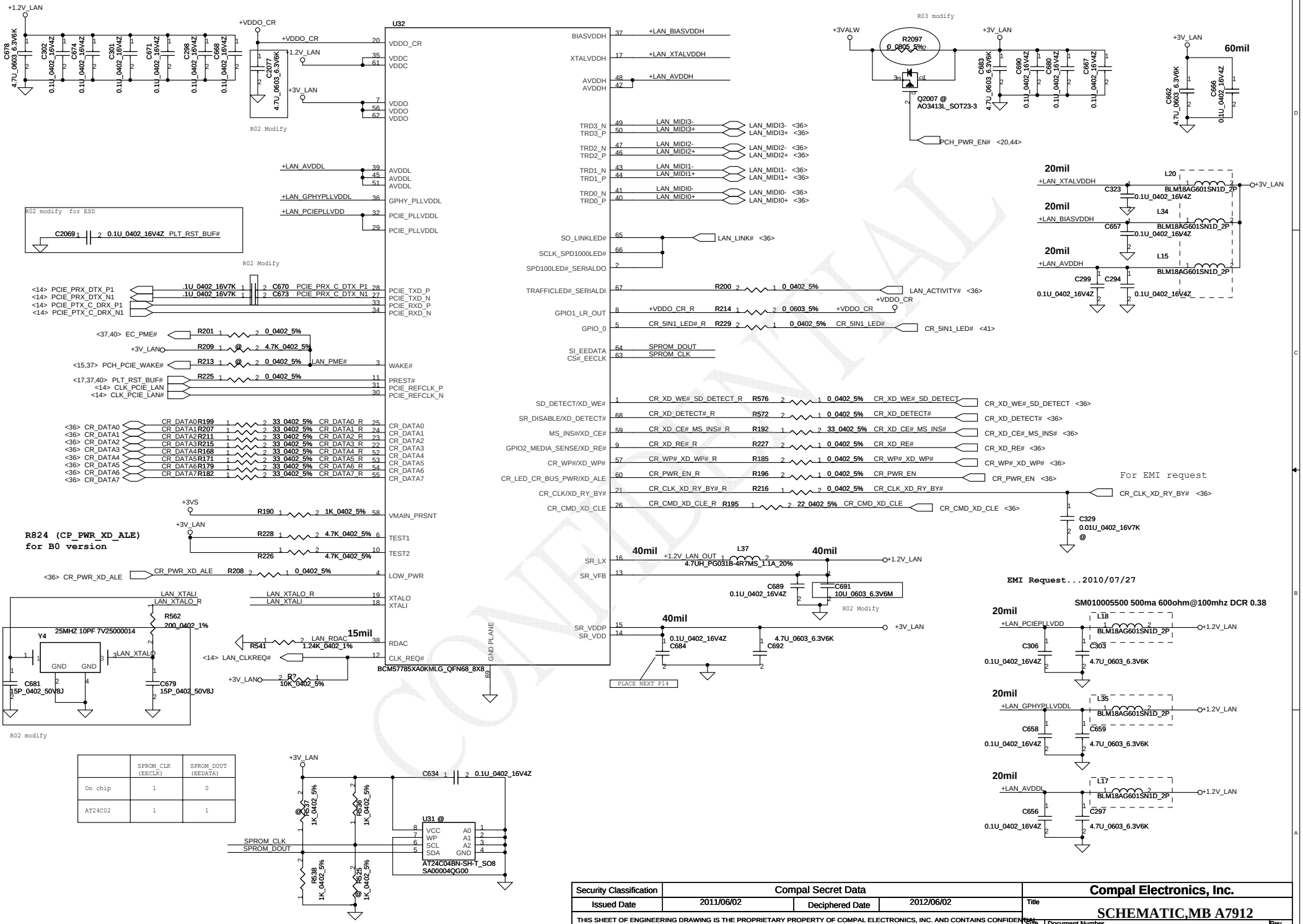
U32
BCM57785XA0KMLG_QFN68_8X8
+1.2V_LAN
+VDDO_CR
+3V_LAN
+3VALW
+LAN_AVDDL
+LAN_GPHYPLLVDDL
+LAN_PCIEPLLVDD
+LAN_XTALVDDH
+LAN_BIASVDDH
+LAN_AVDDH
R03 modify
R02 Modify
R02 modify for ESD
R02 modify
C2069 0.1U_0402_16V4Z PLT_RST_BUF#
R2097 0_0805_5%
Q2007 @ AO3413L_SOT23-3
PCH_PWR_EN# <20,44>
60mil
20mil
L20 BLM18AG601SN1D_2P
L34 BLM18AG601SN1D_2P
L15 BLM18AG601SN1D_2P
L37 4.7UH_PG031B-4R7MS_1.1A_20%
40mil
C689 0.1U_0402_16V4Z
C691 10U_0603_6.3V6M
C684 0.1U_0402_16V4Z
C692 4.7U_0603_6.3V6K
PLACE NEXT P14
LAN_MIDI3- <36>
LAN_MIDI3+ <36>
LAN_MIDI2- <36>
LAN_MIDI2+ <36>
LAN_MIDI1- <36>
LAN_MIDI1+ <36>
LAN_MIDI0- <36>
LAN_MIDI0+ <36>
LAN_LINK# <36>
LAN_ACTIVITY# <36>
CR_5IN1_LED# <41>
SPROM_DOUT
SPROM_CLK
R200 0_0402_5%
R214 0_0603_5%
R229 0_0402_5%
R576 0_0402_5%
R572 0_0402_5%
R192 33_0402_5%
R227 0_0402_5%
R185 0_0402_5%
R196 0_0402_5%
R216 0_0402_5%
R195 22_0402_5%
CR_XD_WE#_SD_DETECT
CR_XD_DETECT#
CR_XD_CE#_MS_INS#
CR_XD_RE#
CR_WP#_XD_WP#
CR_PWR_EN
CR_CLK_XD_RY_BY#
CR_CMD_XD_CLE
For EMI request
C329 0.01U_0402_16V7K @
EMI Request...2010/07/27
SM010005500 500ma 600ohm@100mhz DCR 0.38
L18 BLM18AG601SN1D_2P
L35 BLM18AG601SN1D_2P
L17 BLM18AG601SN1D_2P
C306 0.1U_0402_16V4Z
C303 4.7U_0603_6.3V6K
C658 0.1U_0402_16V4Z
C659 4.7U_0603_6.3V6K
C656 0.1U_0402_16V4Z
C297 4.7U_0603_6.3V6K
R824 (CP_PWR_XD_ALE) for B0 version
R201 0_0402_5%
R209 4.7K_0402_5%
R213 0_0402_5%
R225 0_0402_5%
R199 33_0402_5%
R207 33_0402_5%
R211 33_0402_5%
R215 33_0402_5%
R168 33_0402_5%
R171 33_0402_5%
R179 33_0402_5%
R182 33_0402_5%
R190 1K_0402_5%
R228 4.7K_0402_5%
R226 4.7K_0402_5%
R208 0_0402_5%
R562 200_0402_1%
Y4 25MHZ 10PF 7V25000014
C681 15P_0402_50V8J
C679 15P_0402_50V8J
R541 1.24K_0402_1%
R3 10K_0402_5%
15mil
C634 0.1U_0402_16V4Z
U31 @ AT24C04BN-SH-T_SO8
SA00004QG00
R537 1K_0402_5%
R536 1K_0402_5%
R538 1K_0402_5%
R525 1K_0402_5%
SPROM_CLK (EECLK) SPROM_DOUT (EEDATA)
On chip 1 0
AT24C02 1 1
GND PLANE
Security Classification Compal Secret Data
Issued Date 2011/06/02 Deciphered Date 2012/06/02
Compal Electronics, Inc.
SCHEMATIC,MB A7912
4019ID
Rev B
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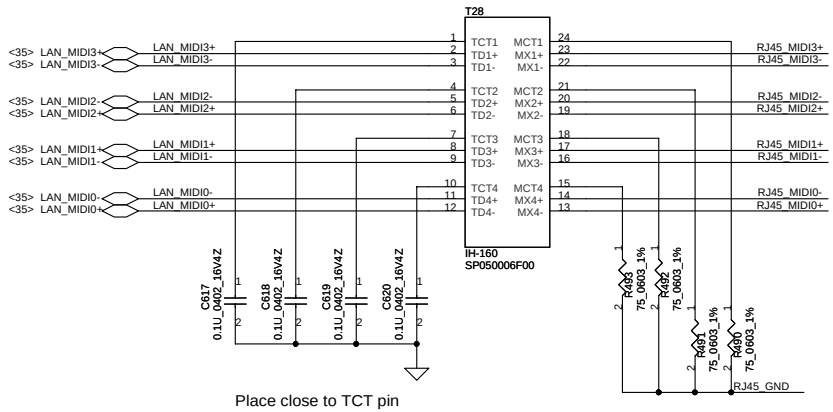
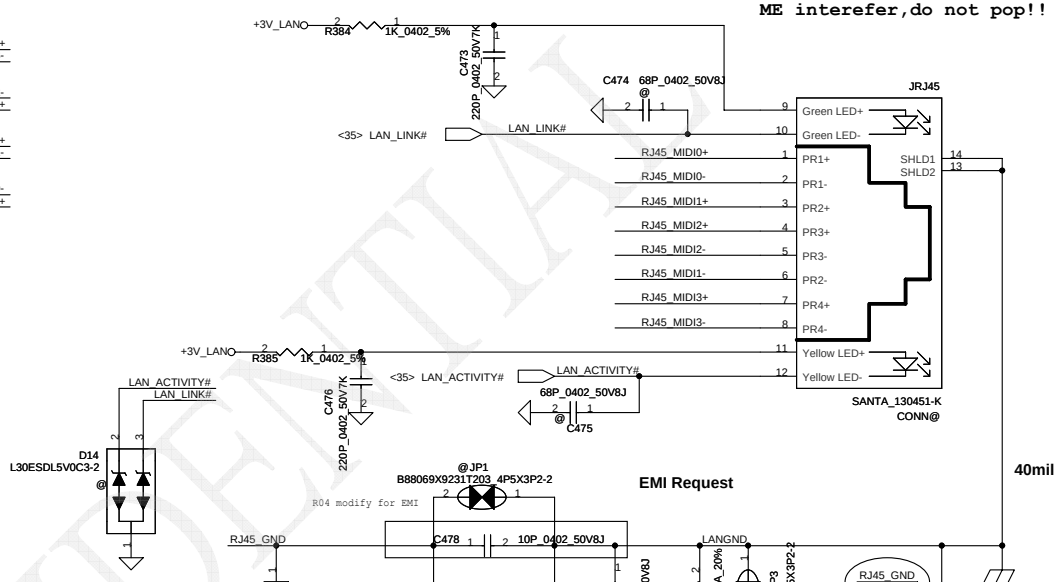


Place close to TCT pin

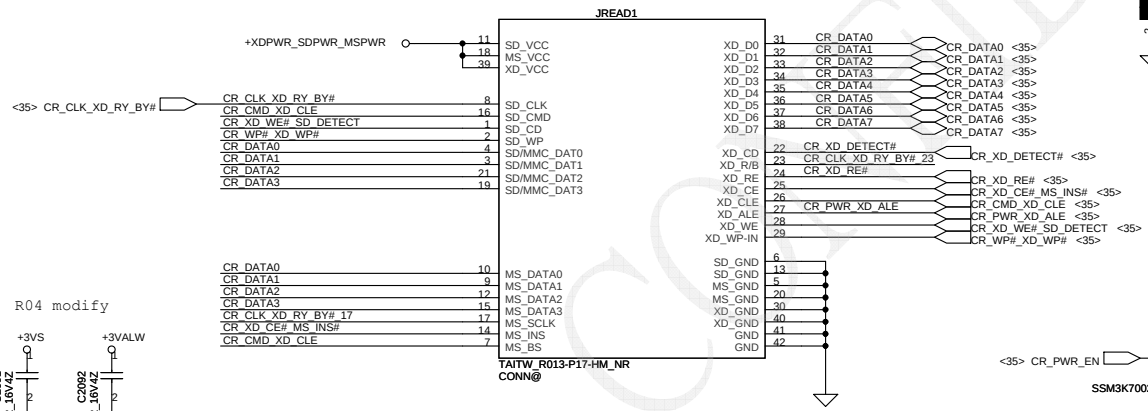
BOTHHAND: S X'FORM_ GST5009-D LF LAN, SP050006B00
TIMAG:S X'FORM_ IH-160 LAN , SP050006F00

LAN Connector

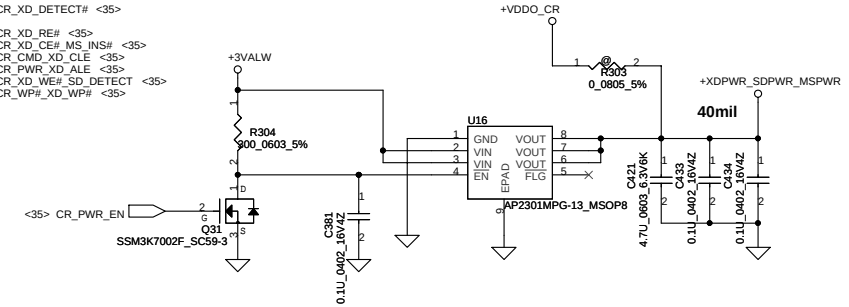
C474,C475 and D14
ME interefer,do not pop!!



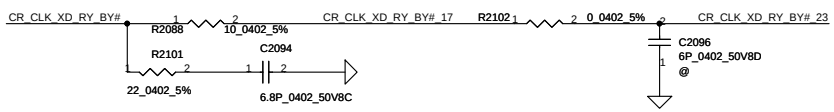
Card Reader Connector



R04 modify



R02 modify for SD3.0 issue



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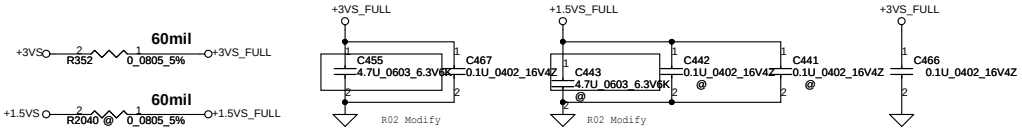
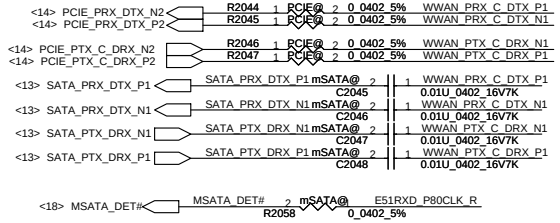
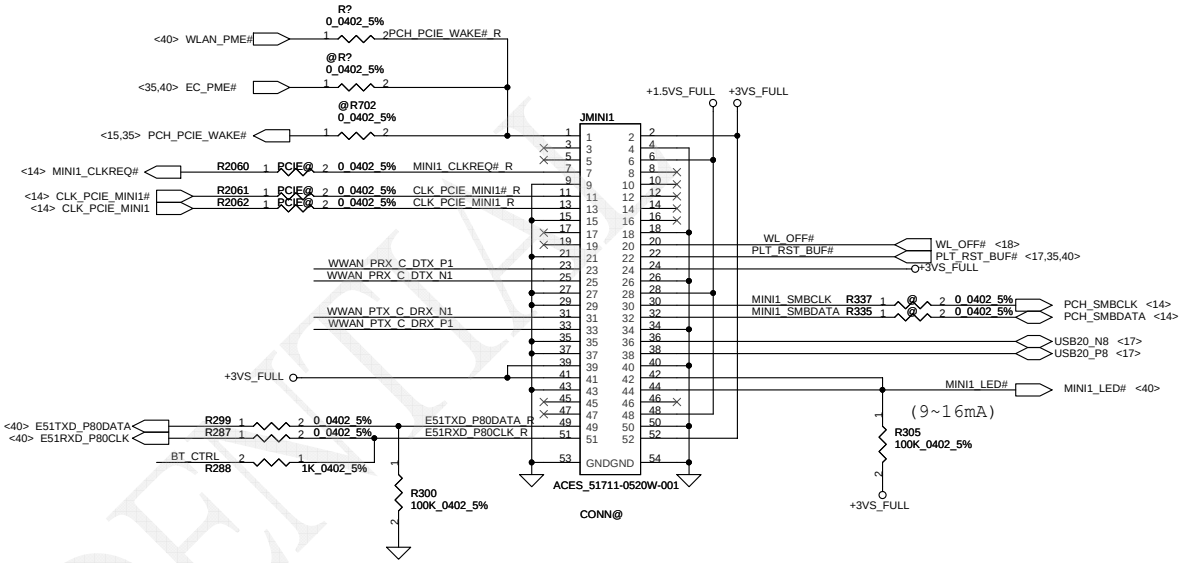
For Wireless LAN or MSATA

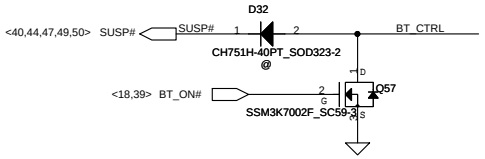


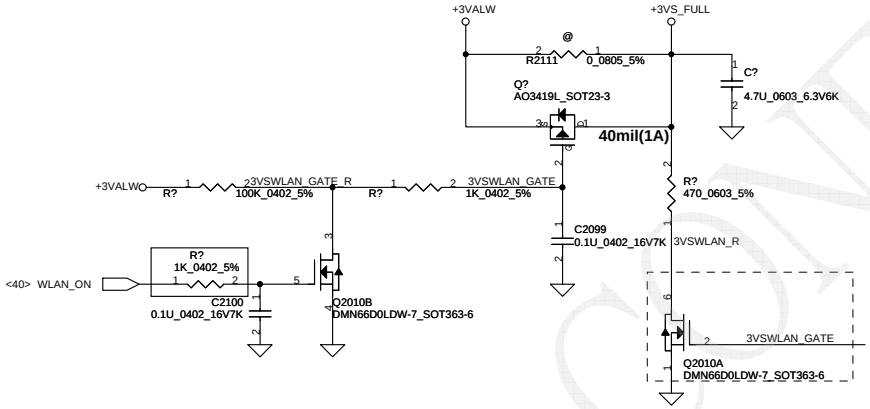




WLAN&BT Combo module circuits

	BT on module Enable	BT on module Disable
BT_CTRL	H	L
BT_ON#	L	H





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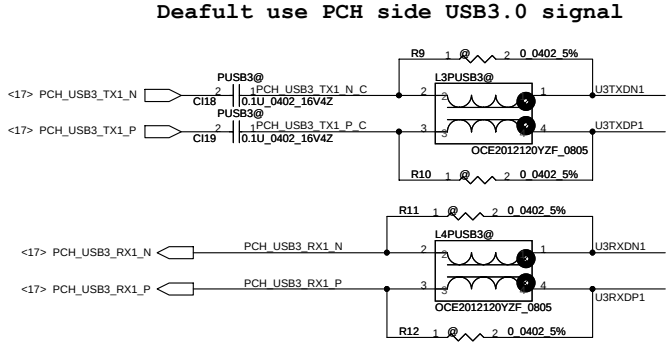
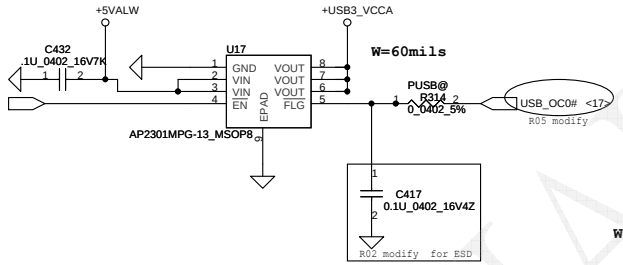
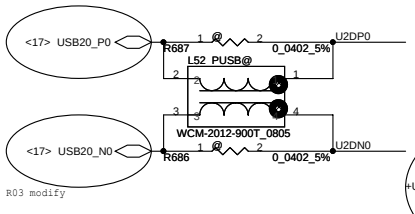
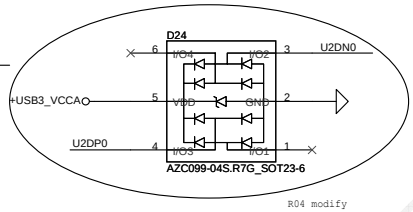
Deafult use PCH side USB3.0 signal

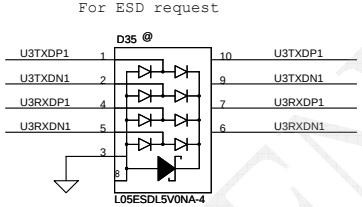
For USB2.0 ESD request

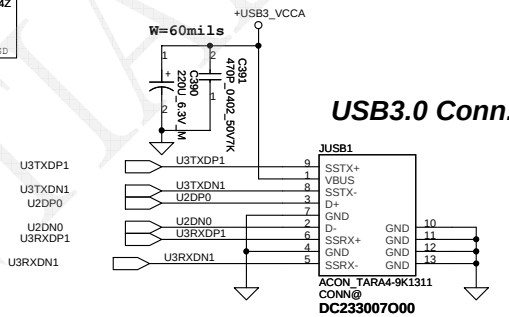


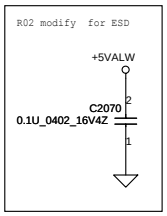


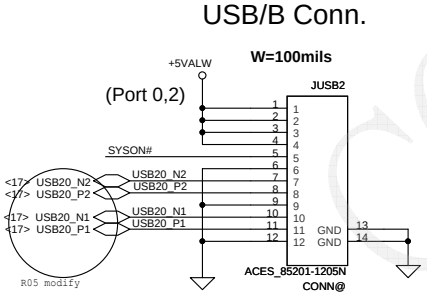


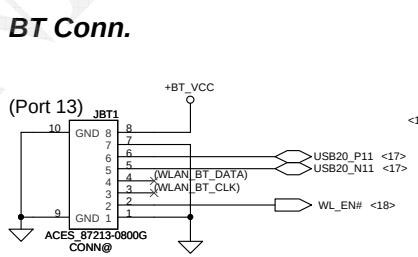


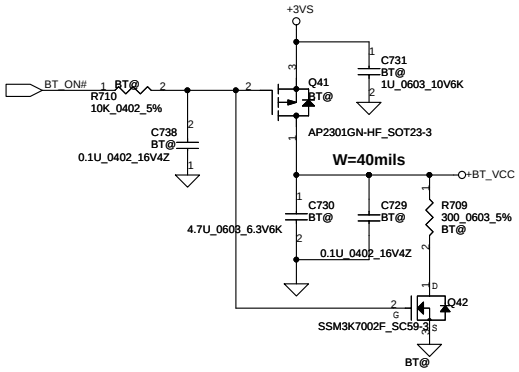












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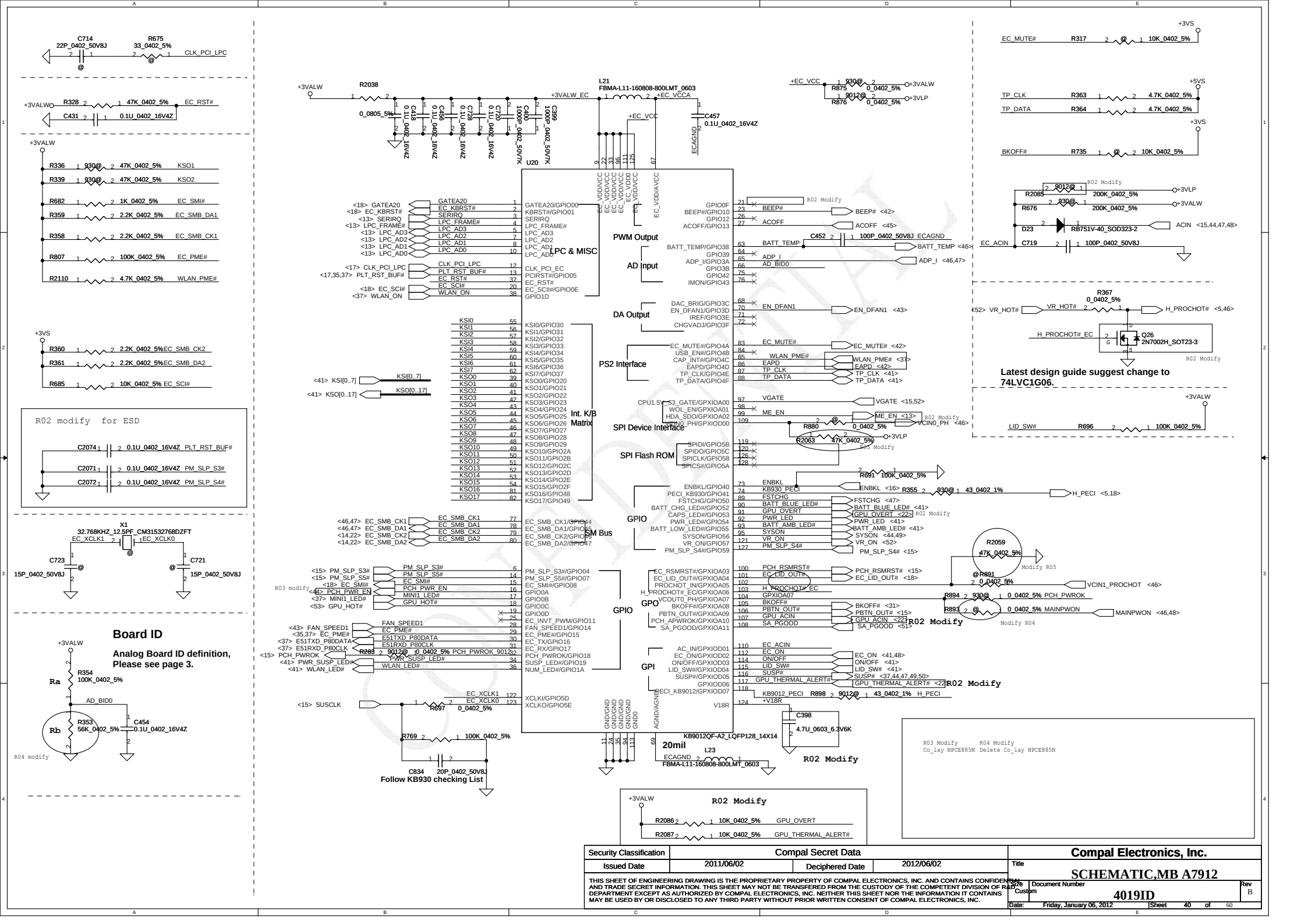

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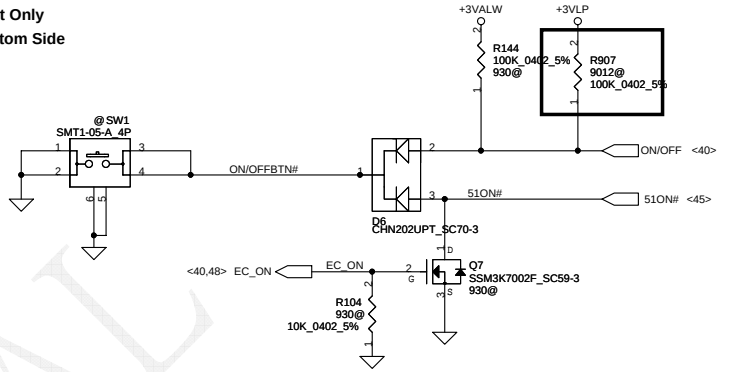
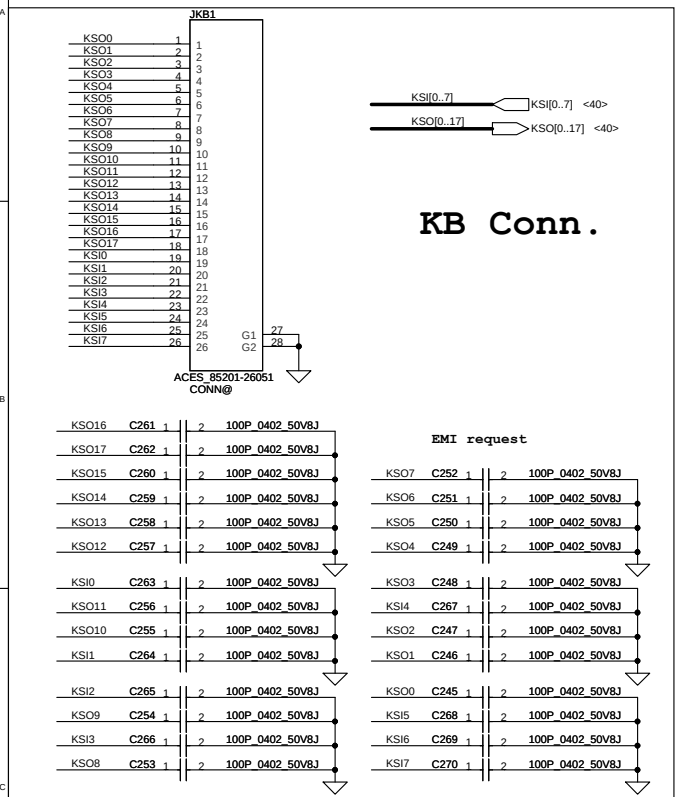
ON/OFF BTN

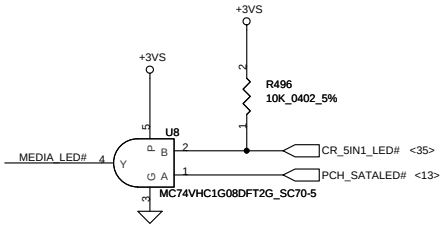
Test Only

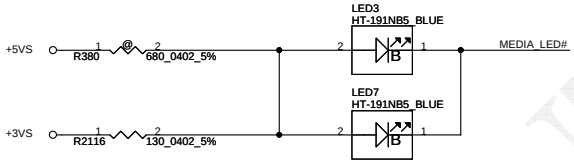
Bottom Side

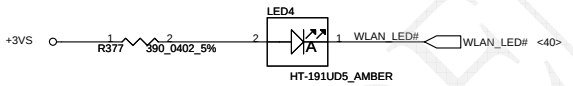


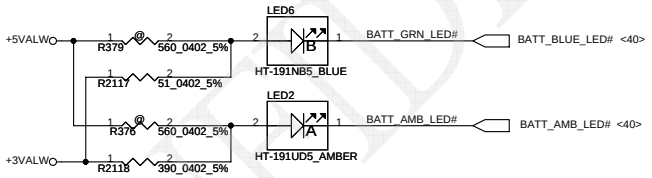
KB Conn.

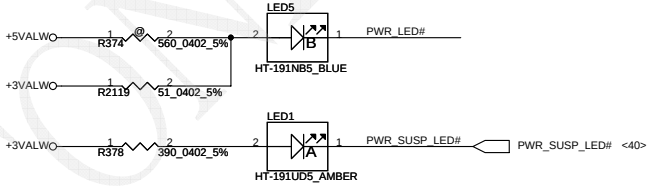


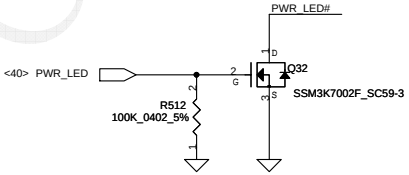




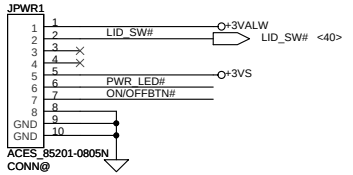




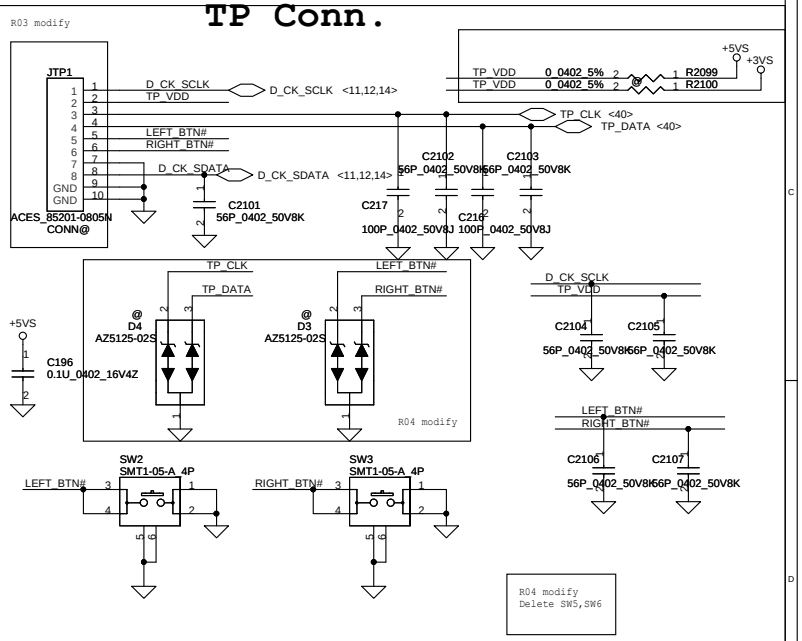




PWR/B



TP Conn.



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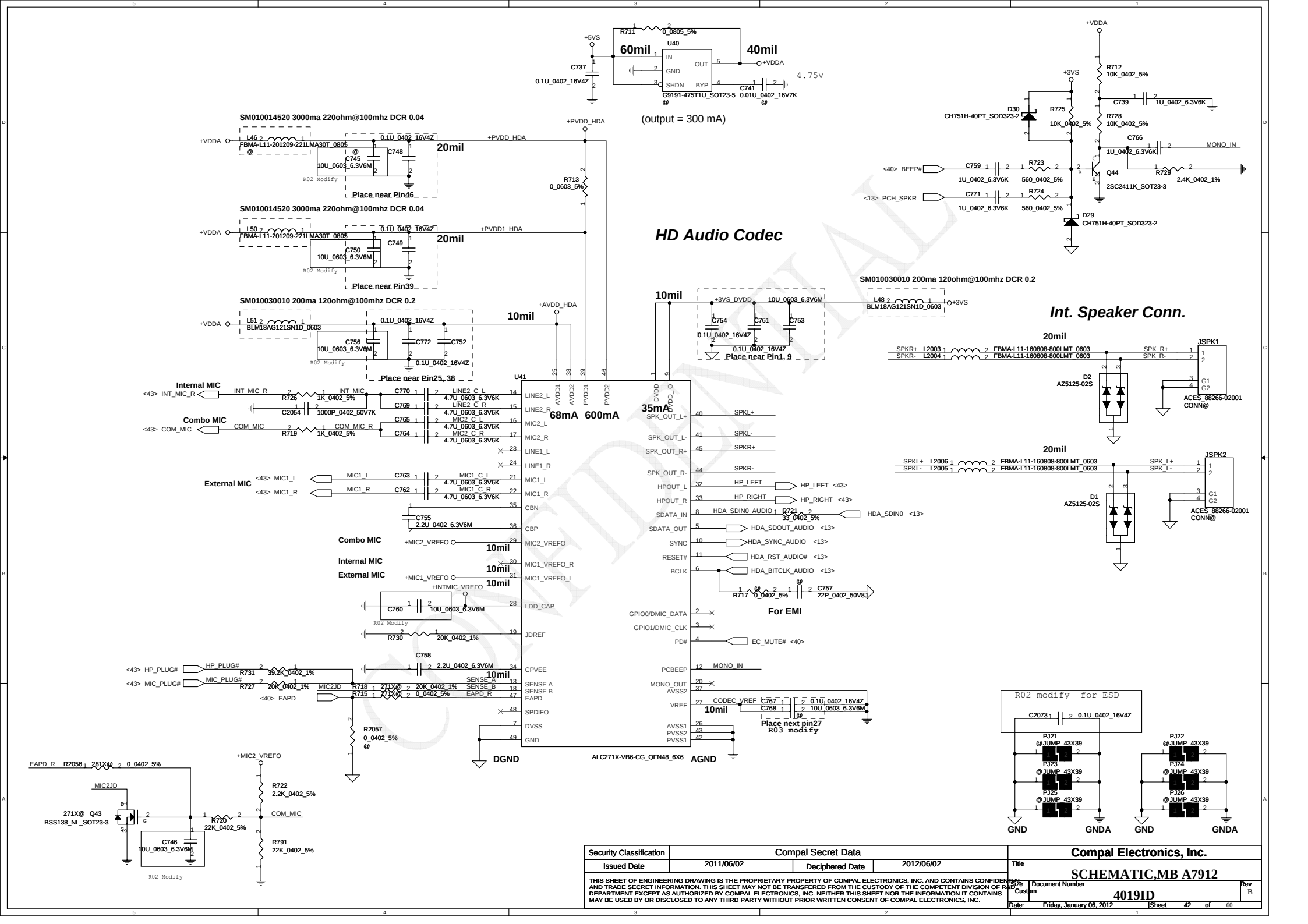
+5VS
R711 0_0805_5%
60mil
U40
40mil
+VDDA
C737 0.1U_0402_16V4Z
IN
OUT
GND
SHDN
BYP
G9191-475T1U_SOT23-5
C741 0.01U_0402_16V7K
4.75V
(output = 300 mA)
SM010014520 3000ma 220ohm@100mhz DCR 0.04
+VDDA
L46 FBMA-L11-201209-221LMA30T_0805
0.1U_0402_16V4Z
C745 10U_0603_6.3V6M
C748
20mil
+PVDD_HDA
R02 Modify
Place near Pin46
R713 0_0603_5%
SM010014520 3000ma 220ohm@100mhz DCR 0.04
L50 FBMA-L11-201209-221LMA30T_0805
C749
C750 10U_0603_6.3V6M
20mil
+PVDD1_HDA
Place near Pin39
SM010030010 200ma 120ohm@100mhz DCR 0.2
L51 BLM18AG121SN1D_0603
C756 10U_0603_6.3V6M
C772
C752
0.1U_0402_16V4Z
10mil
+AVDD_HDA
Place near Pin25, 38
HD Audio Codec
U41
ALC271X-VB6-CG_QFN48_6X6
68mA 600mA
35mA
DGND
AGND
Internal MIC
Combo MIC
External MIC
For EMI
SM010030010 200ma 120ohm@100mhz DCR 0.2
L48 BLM18AG121SN1D_0603
+3VS_DVDD
10U_0603_6.3V6M
C754
C761
C753
Place near Pin1, 9
Int. Speaker Conn.
JSPK1
JSPK2
D2 AZ5125-02S
D1 AZ5125-02S
ACES_88266-02001
CONN@
FBMA-L11-160808-800LMT_0603
R02 modify for ESD
PJ21
PJ22
PJ23
PJ24
PJ25
PJ26
@JUMP_43X39
GND
GNDA
+VDDA
R712 10K_0402_5%
C739 1U_0402_6.3V6K
D30 CH751H-40PT_SOD323-2
R725 10K_0402_5%
R728 10K_0402_5%
C766 1U_0402_6.3V6K
MONO_IN
<40> BEEP#
C759 1U_0402_6.3V6K
R723 560_0402_5%
Q44 2SC2411K_SOT23-3
R729 2.4K_0402_1%
<13> PCH_SPKR
C771 1U_0402_6.3V6K
R724 560_0402_5%
D29 CH751H-40PT_SOD323-2
EAPD_R R2056 281X@ 0_0402_5%
MIC2JD
271X@ Q43 BSS138_NL_SOT23-3
R720 22K_0402_5%
C746 10U_0603_6.3V6M
R722 2.2K_0402_5%
R791 22K_0402_5%
COM_MIC
R02 Modify
R2057 0_0402_5%
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2011/06/02
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2012/06/02
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4019ID
Rev B
Date: Friday, January 06, 2012
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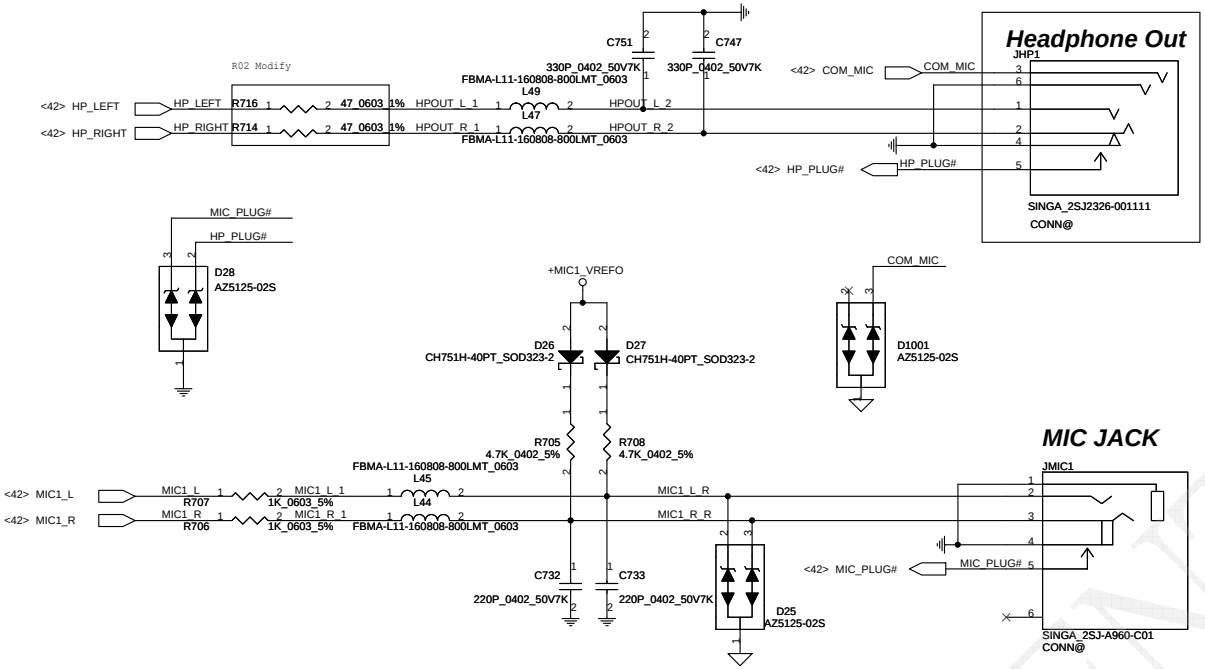

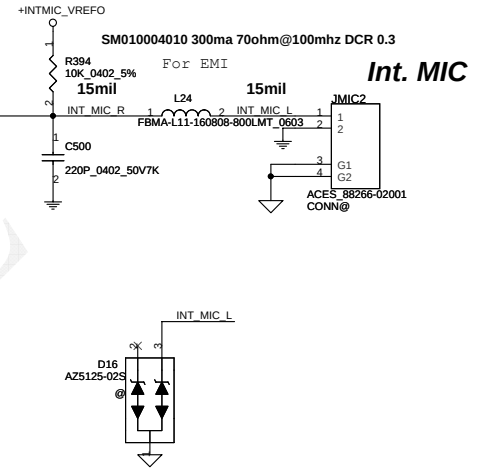

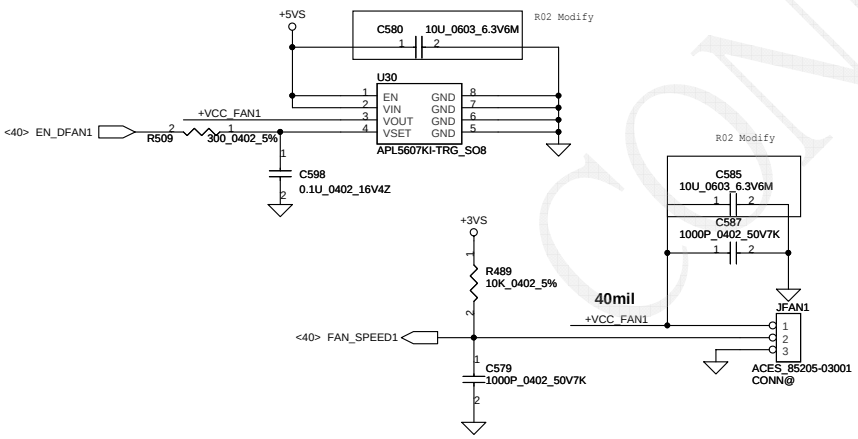

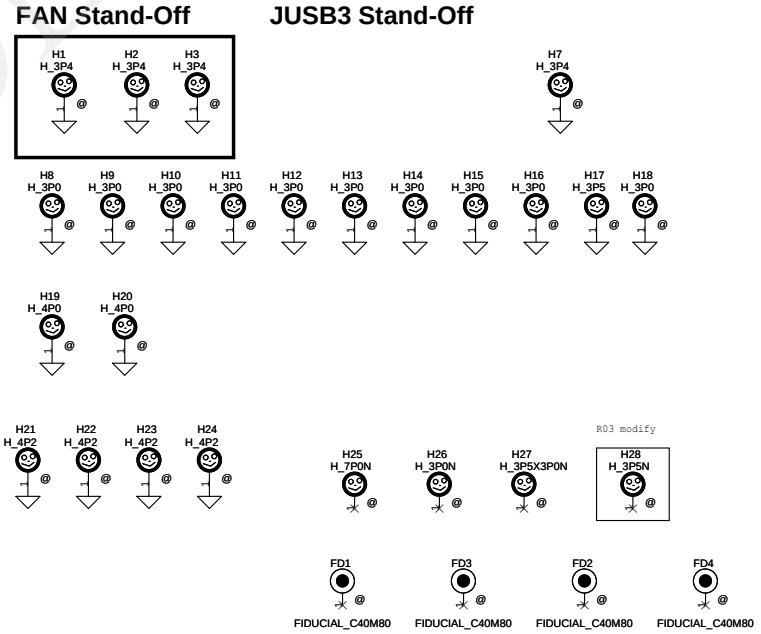

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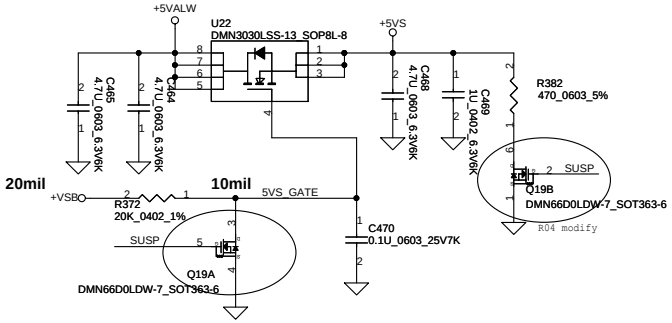
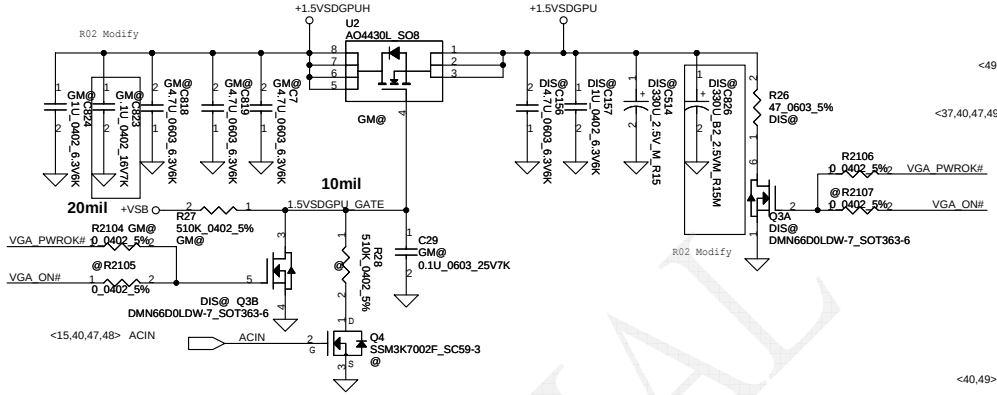
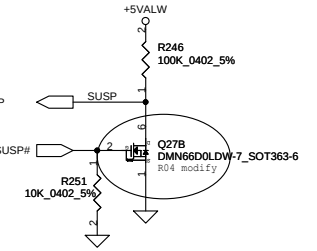
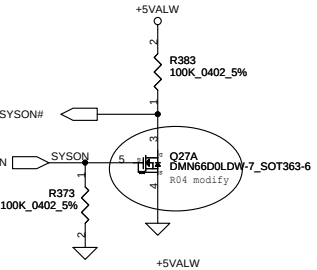
+5VALW TO +5VS



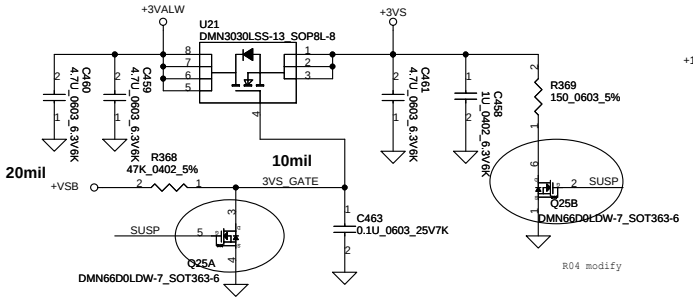
+1.5VSDGPUH to +1.5VSDGPU for GPU

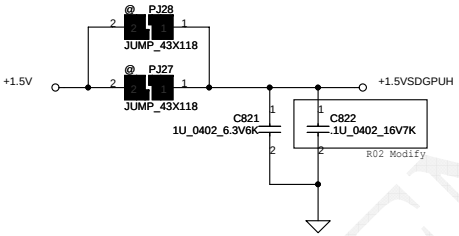


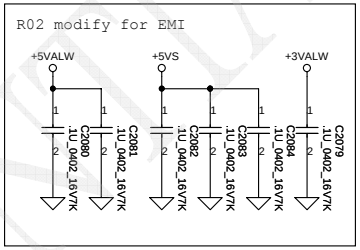


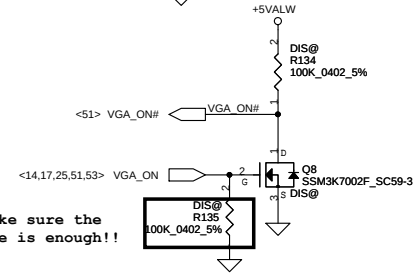


+3VALW TO +3VS



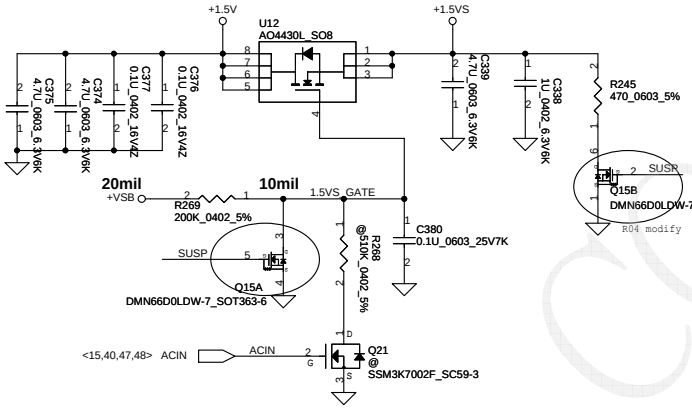




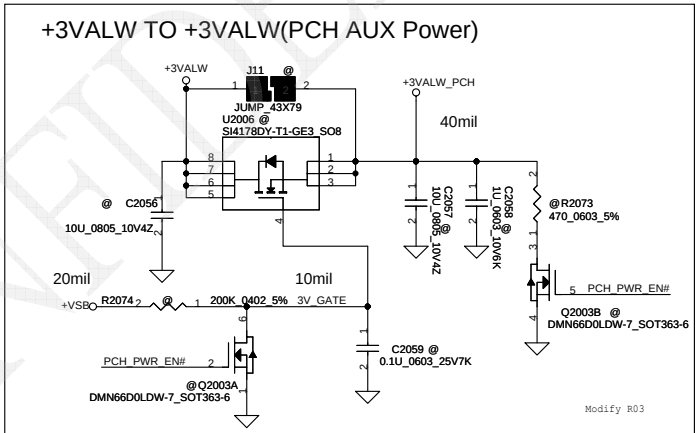


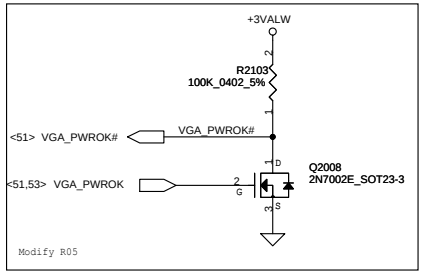
Use 100k to make sure the divided voltage is enough!!

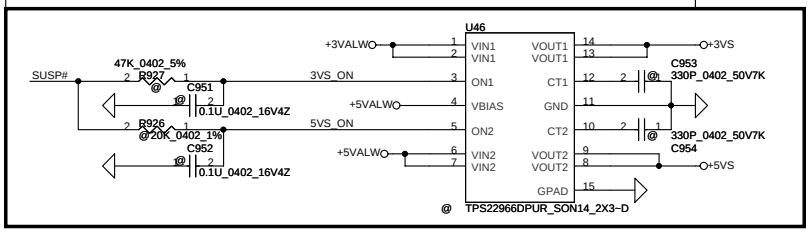
+1.5V to +1.5VS

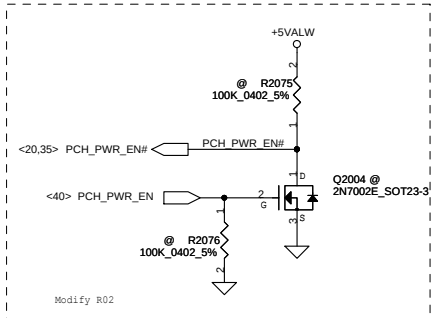


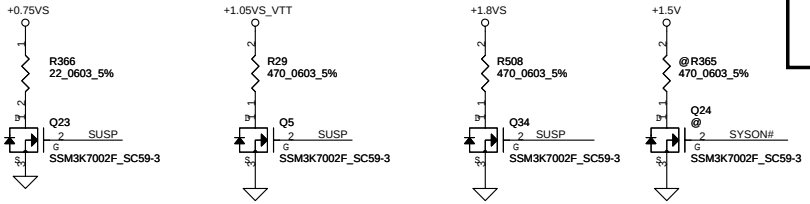
+3VALW TO +3VALW(PCH AUX Power)











Reserved

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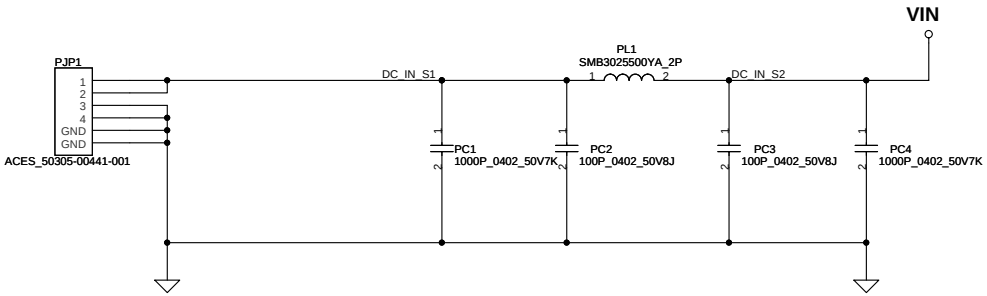

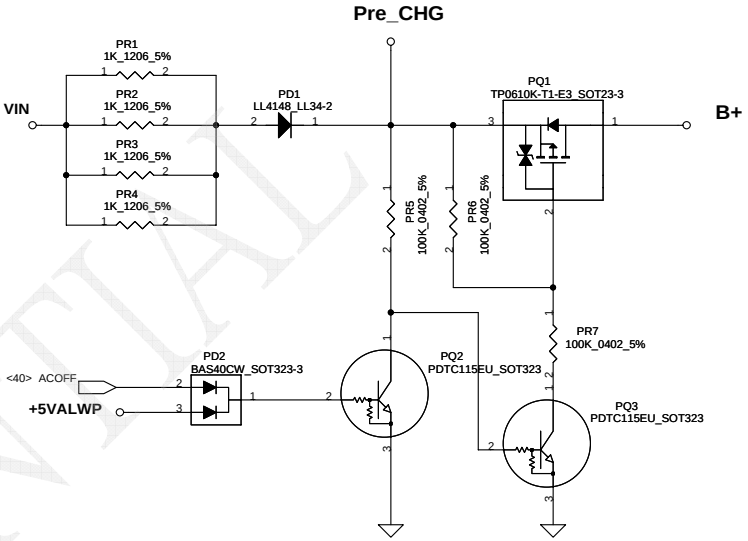

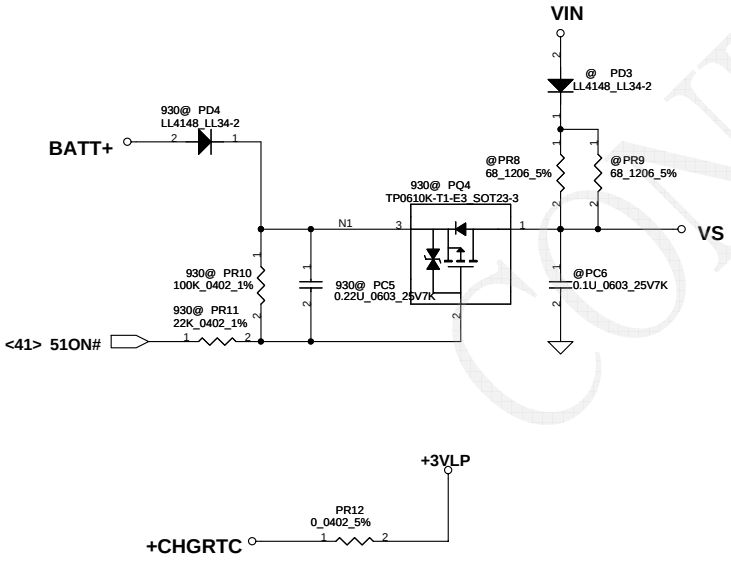

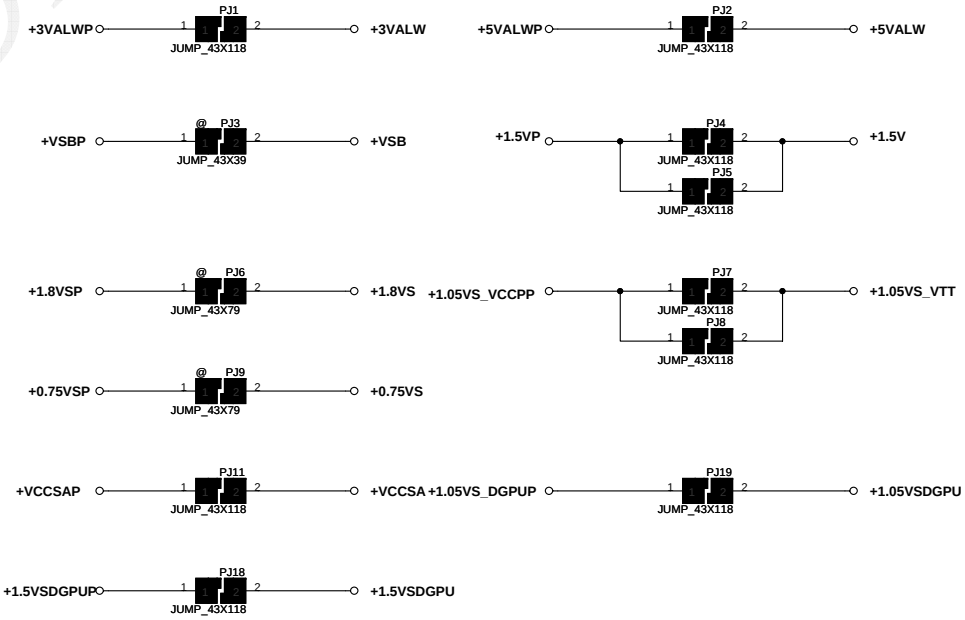

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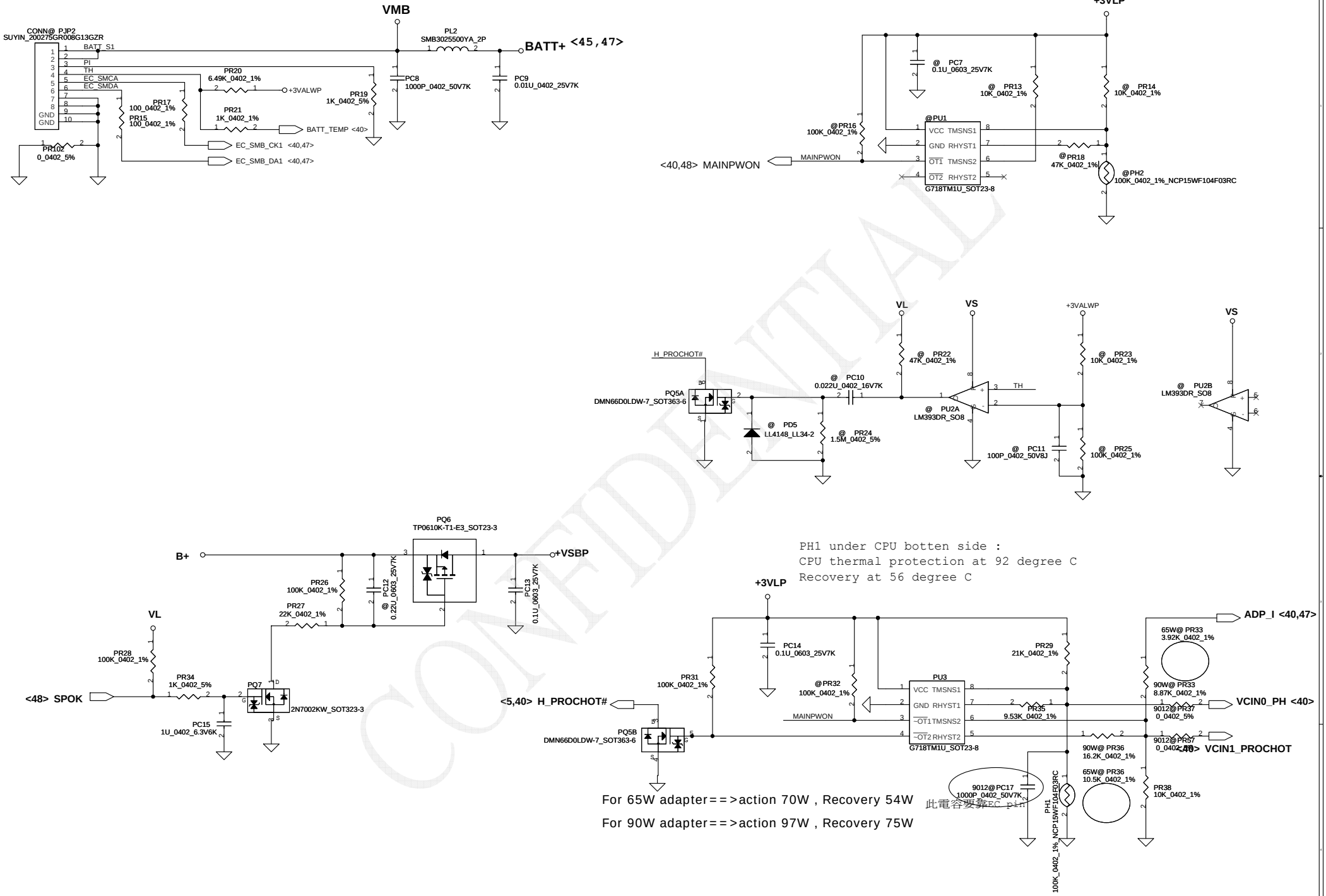

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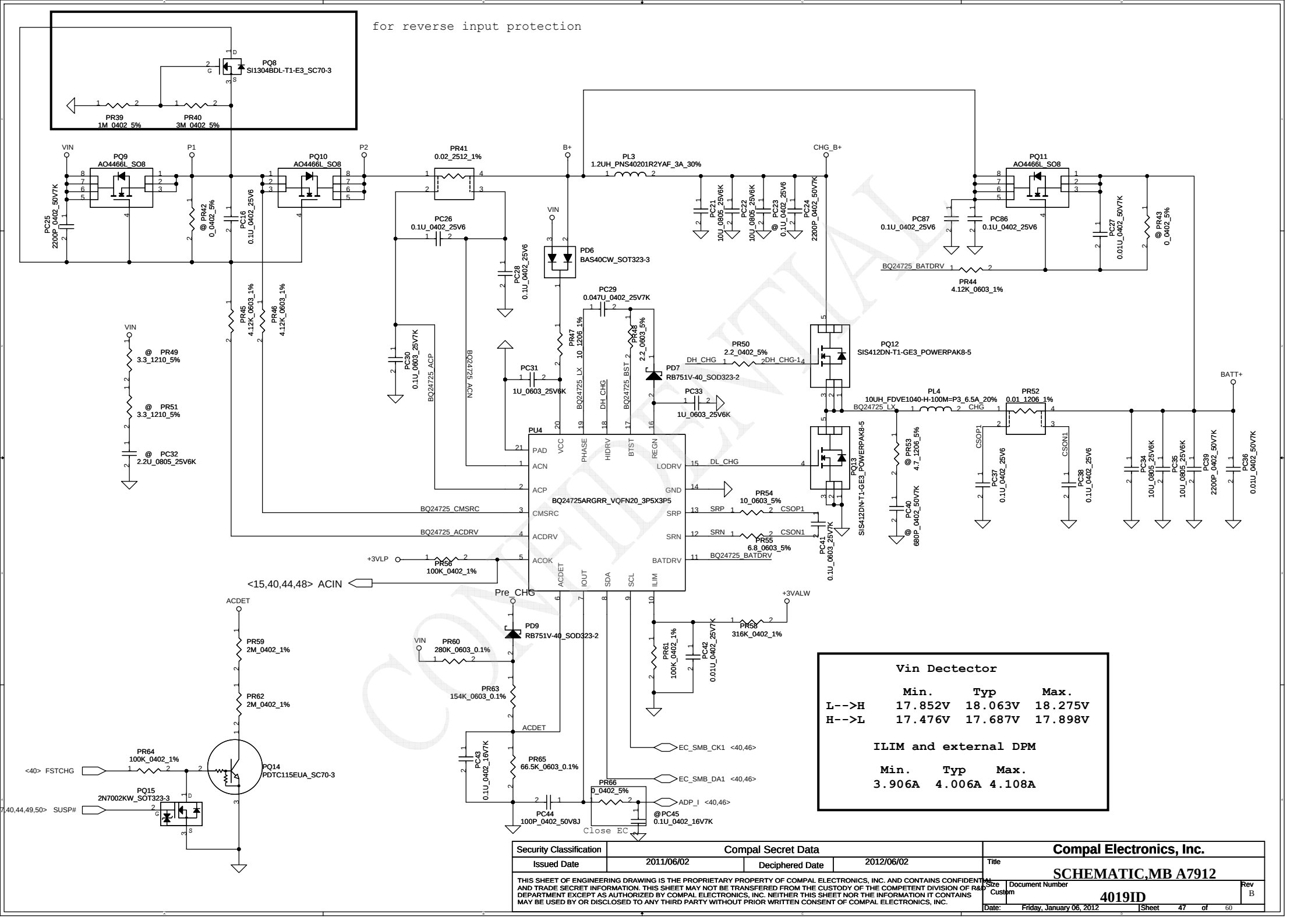

Vin Dectector

	Min.	Typ	Max.
L-->H	17.852V	18.063V	18.275V
H-->L	17.476V	17.687V	17.898V

ILIM and external DPM

Min.	Typ	Max.
3.906A	4.006A	4.108A

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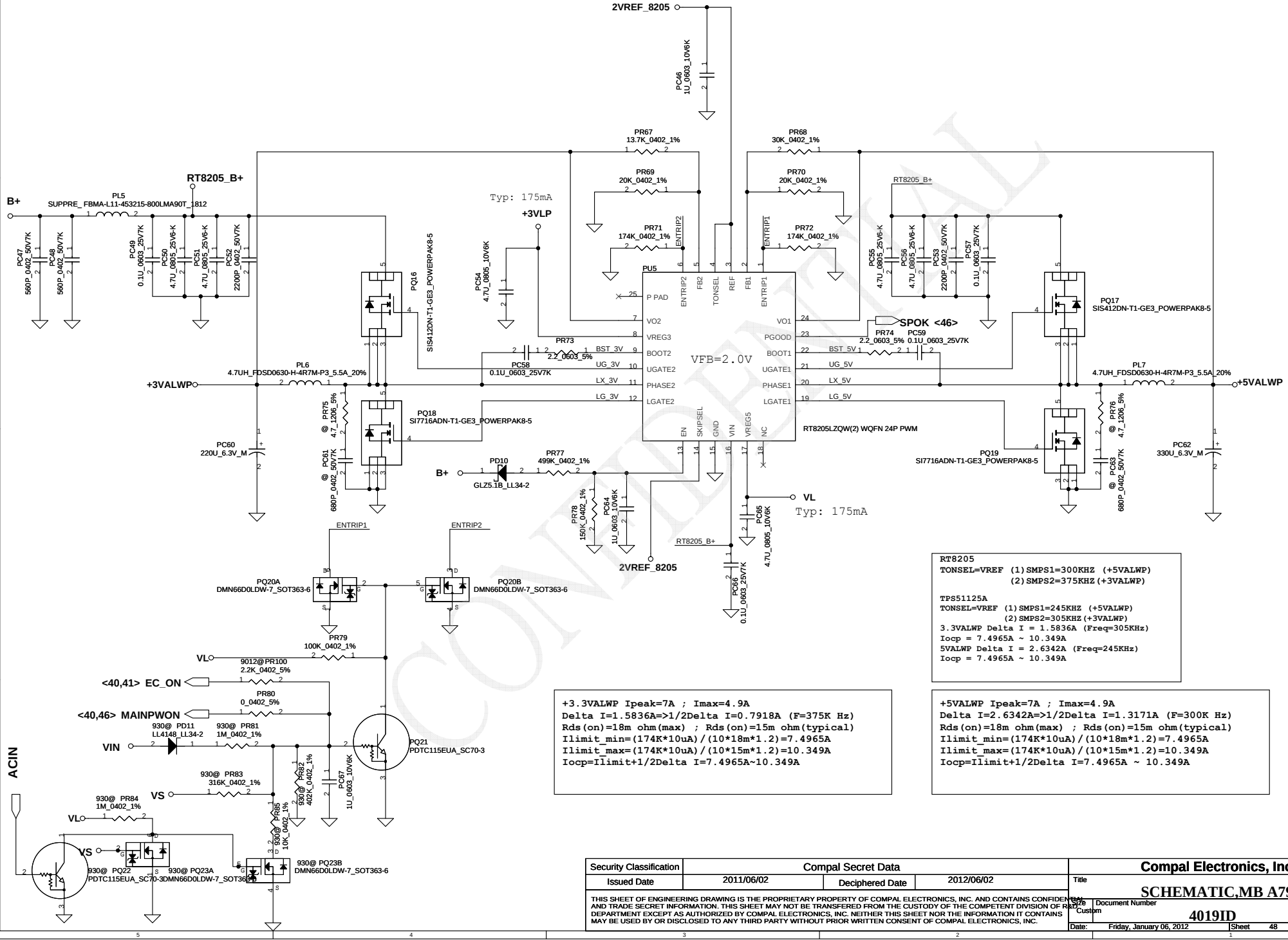
Note:
Use TPS51125 IC can remove RTC refernece LDO
Use TPS51427 IC must keep RTC refernece LDO



RT8205
TONSEL=VREF (1)SMPS1=300KHZ (+5VALWP)
(2)SMPS2=375KHZ(+3VALWP)

TPS51125A
TONSEL=VREF (1)SMPS1=245KHZ (+5VALWP)
(2)SMPS2=305KHZ(+3VALWP)
3.3VALWP Delta I = 1.5836A (Freq=305KHz)
Iocp = 7.4965A ~ 10.349A
5VALWP Delta I = 2.6342A (Freq=245KHz)
Iocp = 7.4965A ~ 10.349A

+3.3VALWP Ipeak=7A ; Imax=4.9A
Delta I=1.5836A=>1/2Delta I=0.7918A (F=375K Hz)
Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)
Ilimit_min=(174K*10uA)/(10*18m*1.2)=7.4965A
Ilimit_max=(174K*10uA)/(10*15m*1.2)=10.349A
Iocp=Ilimit+1/2Delta I=7.4965A~10.349A

+5VALWP Ipeak=7A ; Imax=4.9A
Delta I=2.6342A=>1/2Delta I=1.3171A (F=300K Hz)
Rds(on)=18m ohm(max) ; Rds(on)=15m ohm(typical)
Ilimit_min=(174K*10uA)/(10*18m*1.2)=7.4965A
Ilimit_max=(174K*10uA)/(10*15m*1.2)=10.349A
Iocp=Ilimit+1/2Delta I=7.4965A ~ 10.349A

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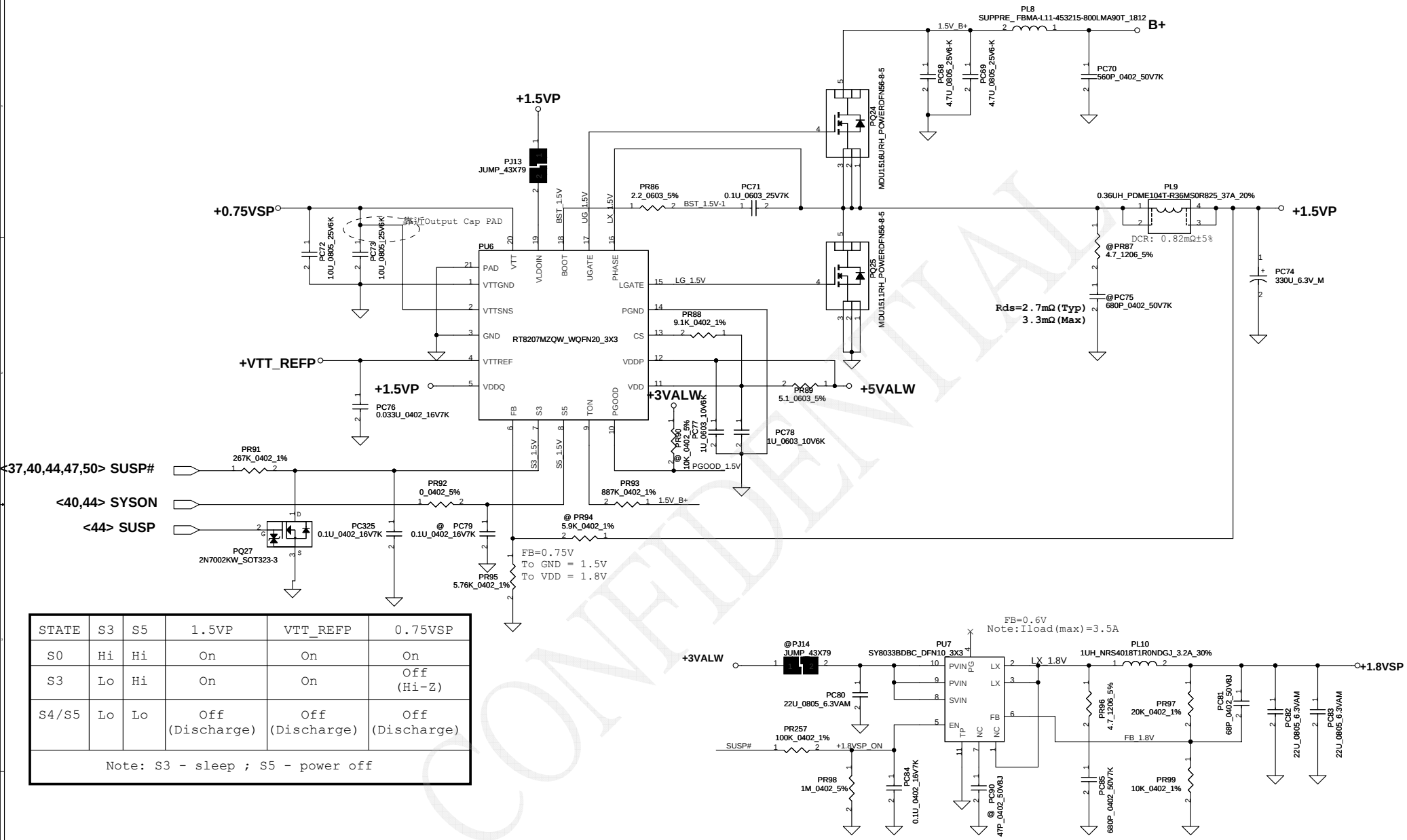

STATE	S3	S5	1.5VP	VTT_REFP	0.75VSP
S0	Hi	Hi	On	On	On
S3	Lo	Hi	On	On	Off (Hi-Z)
S4/S5	Lo	Lo	Off (Discharge)	Off (Discharge)	Off (Discharge)
Note: S3 - sleep ; S5 - power off					

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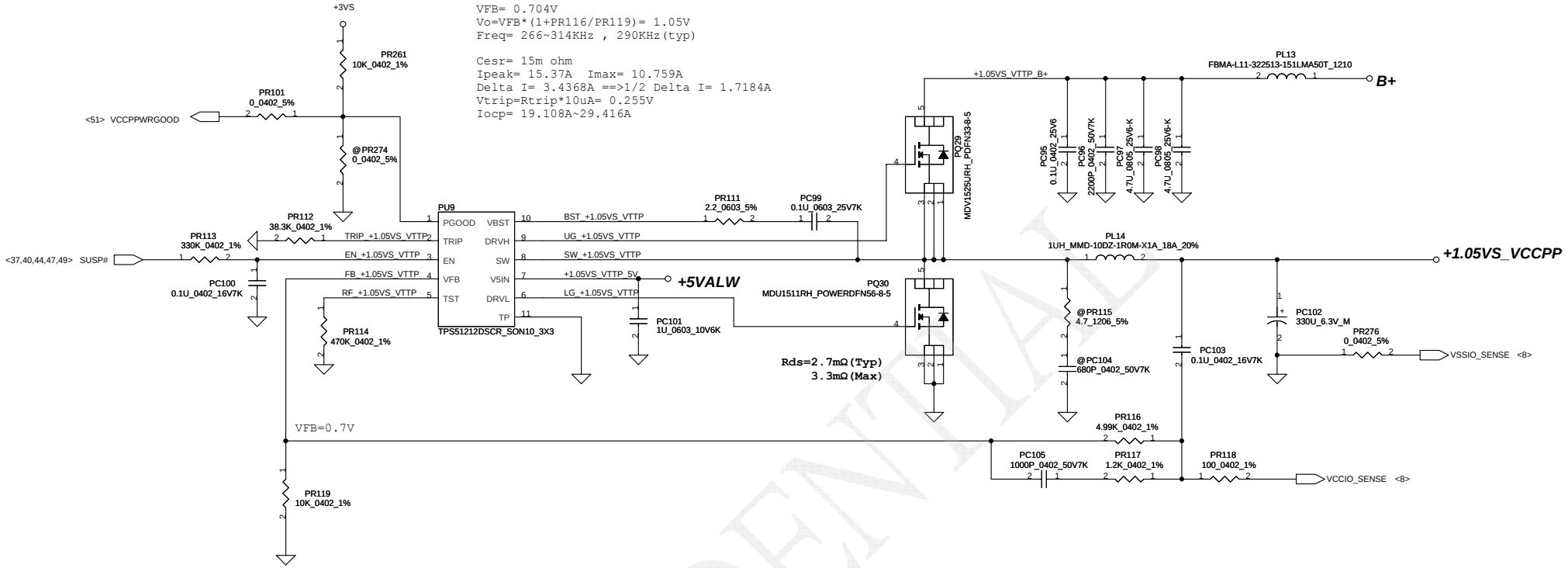

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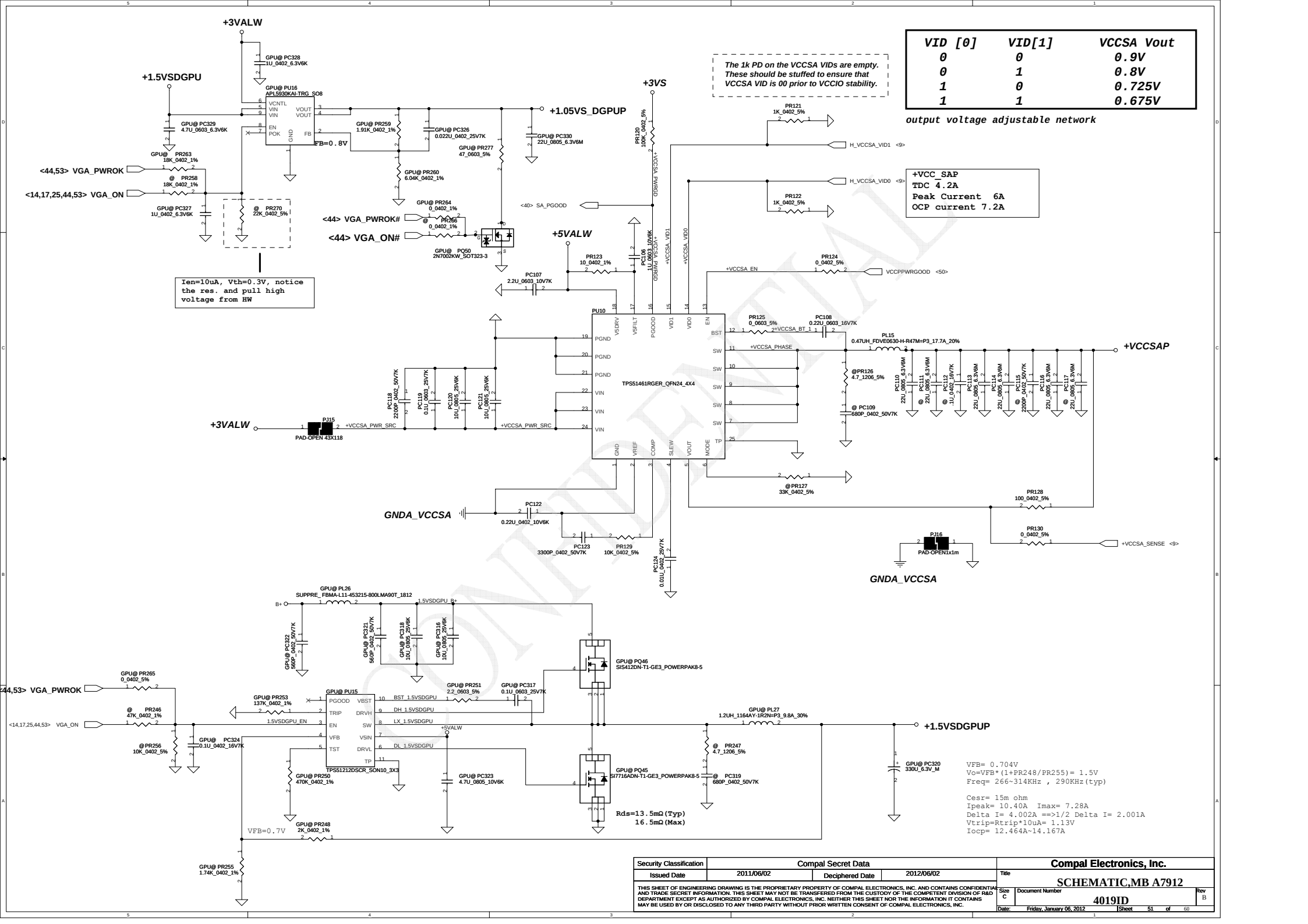

VID [0]	VID[1]	VCCSA Vout
0	0	0.9V
0	1	0.8V
1	0	0.725V
1	1	0.675V

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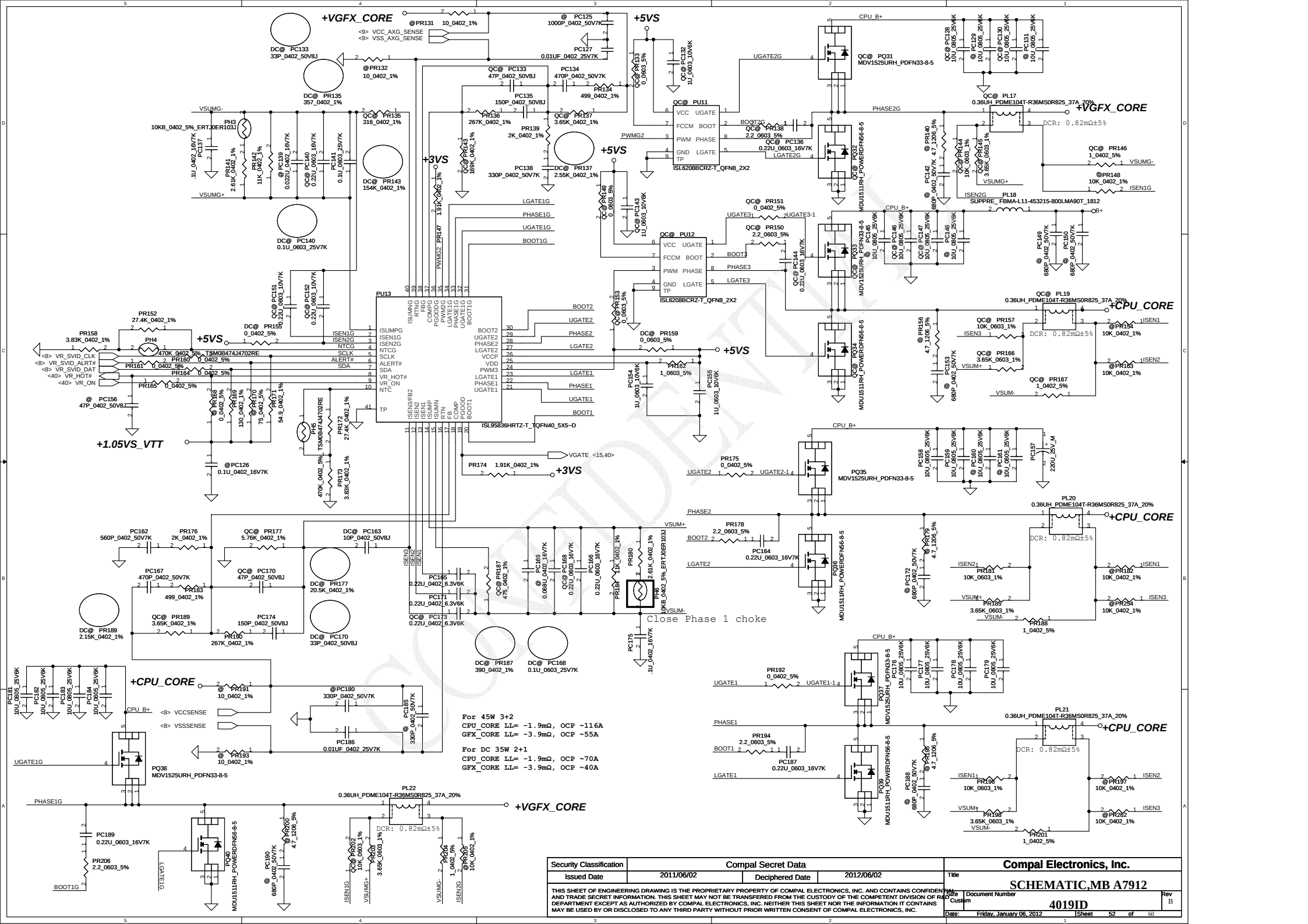

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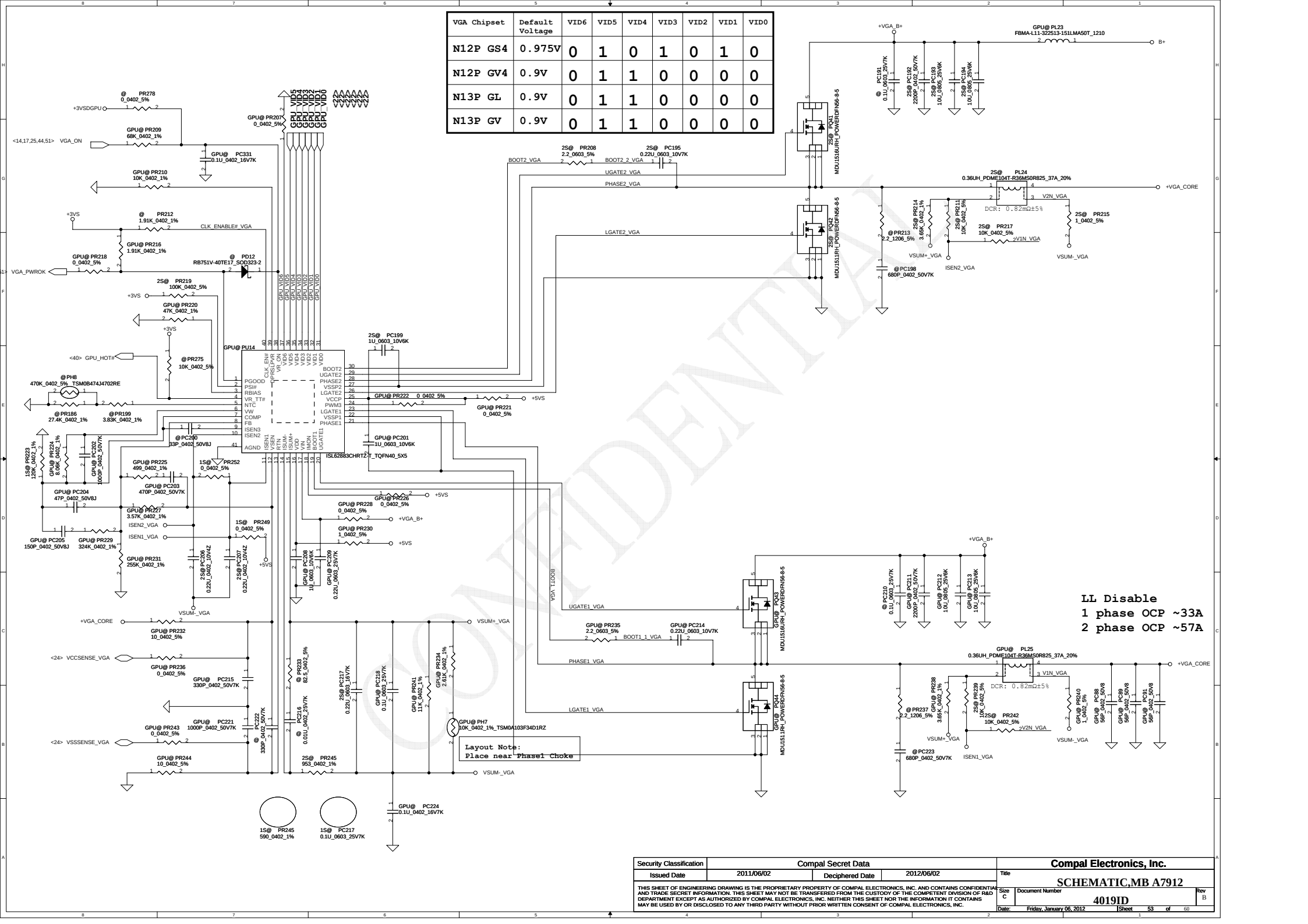
VGA Chipset	Default Voltage	VID6	VID5	VID4	VID3	VID2	VID1	VID0
N12P GS4	0.975V	0	1	0	1	0	1	0
N12P GV4	0.9V	0	1	1	0	0	0	0
N13P GL	0.9V	0	1	1	0	0	0	0
N13P GV	0.9V	0	1	1	0	0	0	0



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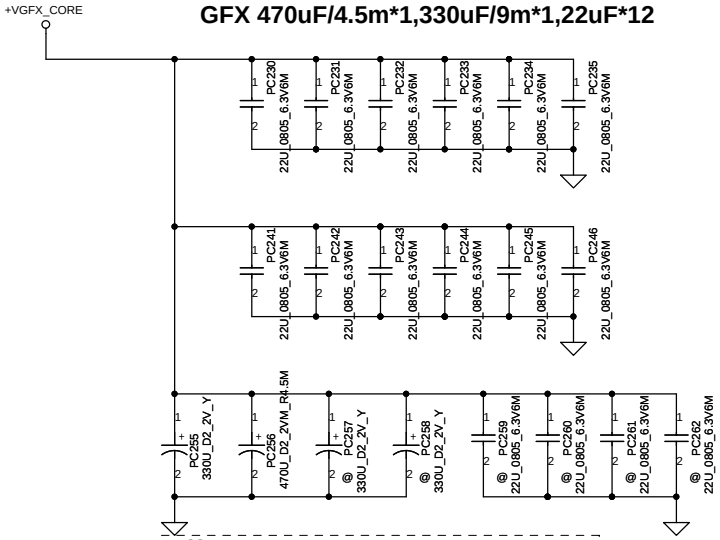
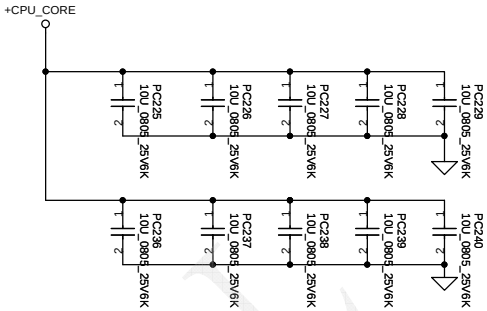
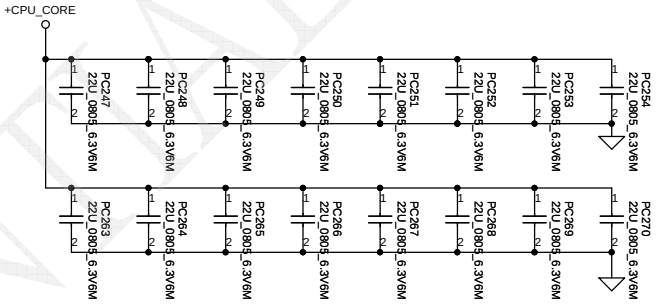
PWR Rule
CPU 330uF/9m *5,22uF *16,10uF*10
GFX 470uF/4.5m*1,330uF/9m*1,22uF*12

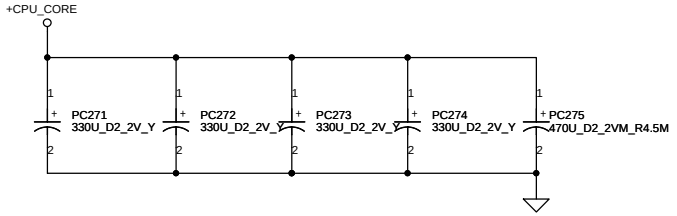


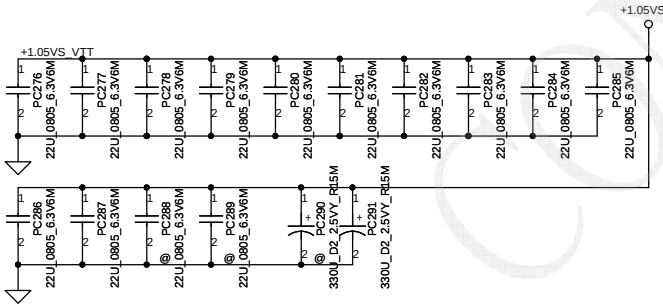
Vaxg

- **Can connect to GND if motherboard only supports external graphics and if GFX VR is not stuffed in a common motherboard design,**
- **VAXG can be left floating in a common motherboard design (Gfx VR keeps VAXG from floating) if the VR is stuffed**









INTEL Recommend
3*330uF(1 in other page),12*22uF, 5 no stuff
from PDDG 1.0

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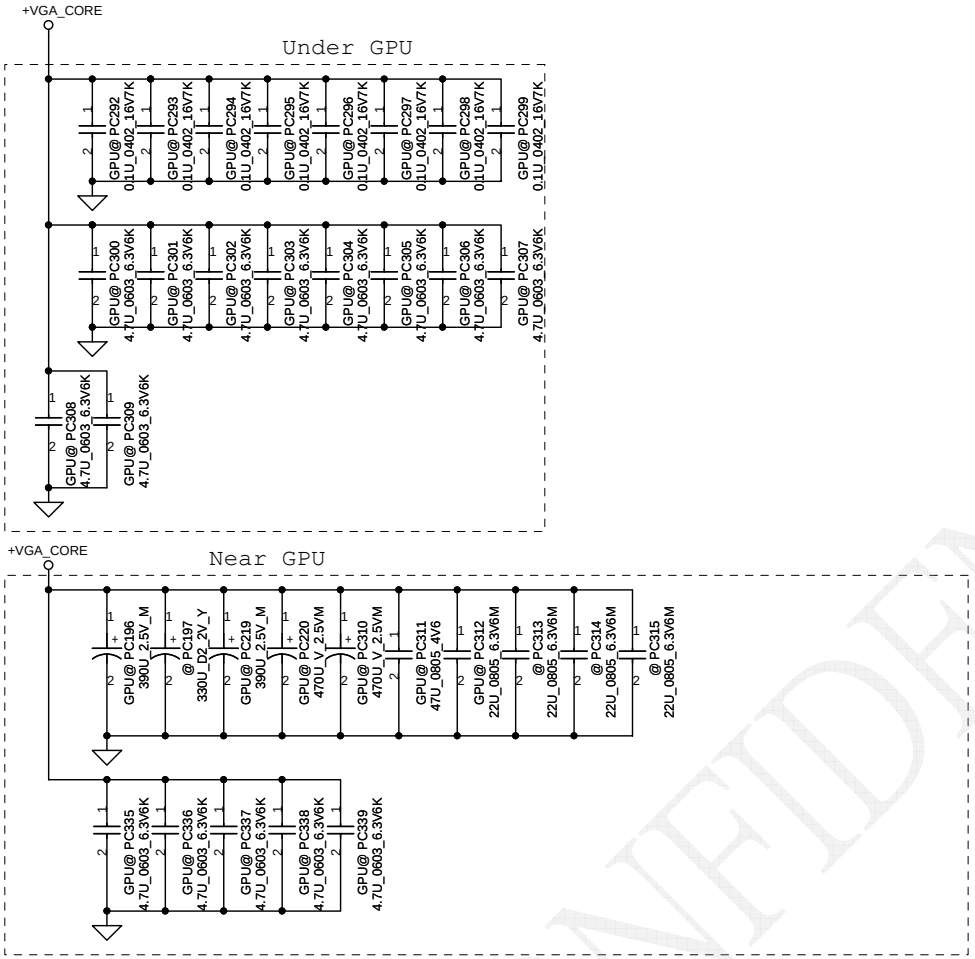

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Version change list (P.I.R. List)

for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	S3 sequence @ DC	Meet Intel sequence SPEC		49	Change RP91 to 267K	2011 1208	DVT
2	1.5VSDGPU lose	Improve FB pin anit-noise		51	Change RP248 to 2K, PR255 to 1.74K, PR253 to 137K	2011 1208	DVT
3	Cut-in SMT memo			52	Add PC182, PC184	2011 1208	DVT
4		Standard design			Change PR138, PR150, PR178, PR194, RP205 , PR235 to 2.2		
5	Vth has risk			51	Change PU16 from G971 to APL5930	2011 1212	DVT
6		Enable select		51	Add PR266	2011 1217	DVT
7	Cut-in EMI solution			53	Add PC88, PC89, PC91	2011 1221	DVT
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							

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Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

Version Change List (P. I. R. List) Page 1

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	P.40.13		9/7	EC	Change th HDA_SDO to ME_EN		0.2
2	P.40		9/7	HW	Add R2085 ,change the EC_ACIN pull high to +3VLP		0.2
3	P.37		9/7	HW	Add fl1009 USB3.0 TX coupling capacitor (c2060,c2061)		0.2
4	P.38.39.40		9/7	HW	~~Add USB chargaer schematic(C2060.C2061.R2077~R2084,R2065~R2072)~~		0.2
5	P.22.40		9/7	HW	Follow ABO request,add ADPS function(Q2005),R2086.R2087)		0.2
6	P.20		9/7	HW	~~Add +5VALW TO +5VALW_PCH schematic(Q2006.C2062.R2088)~~		0.2
7	P.44		9/7	HW	~~Add +3VALW TO +3VALW_PCH schematic(U2006,R2073~R2076,C2056~C2059,Q2003,Q2004)~~		0.2
8	P.43		9/7	HW	For FSOV spec,Chang R714,R716 from 75ohm to 47ohm.		0.2
9	P.13		9/7	HW	For WIN8,Change R681.R651.R684.R652 to 33ohm		0.2
10	P.44		9/7	HW	Delete C817,Change C826 from D2 size to B2 size		0.2
11	P.17.37		9/7	HW	Follow chief river common design, please chang Mini-Card 2(port 11) to port 9		0.2
12	P.38		9/7	HW	Delete +1.5V to +1.05V_V128 Transfer(U2002.R2002.R2003.R2005.C2002.C2003.C2005.R2082)		0.2
13	P.38		9/7	HW	Delete USB3.0 EEPROM(U2004.R2035.R2034.C2039)		0.2
14	P.37		9/7	HW	Reserve Mini-Card 2		0.2
15	P.19		9/7	HW	F2 flick issue on projector P5202 D-sub Add C2063.C2064		0.2
16	P.22.40		9/8	HW	Change VGA GPIO12 of dGPU connection to EC controlled for the power limited usage Add EC pin 107-->GPU_ACIN		0.2
17	P41		9/14	HW	Add SW5.SW6 for EG project.		0.2
18	P27.30		9/14	HW	Swap MDC37 and MDC38 Swap MDA13 and MDA14		0.2
19	P06.11.17.35. P39.40.42		9/14	HW	For ESD request Add C2065~C2075		0.2
20	P16		9/16	HW	For HDMI PCH_DPB_HPD noise Add C2076		0.2
21	P31		9/16	HW	For LVDS power sequence Change R5 from 300 to 200 ohm Change R2 from 1k to 10k ohm change C2 from 0.047uF to 1uF		0.2
22	P18		9/16	HW	Delete PCH test ponit(T31~T46,T49~T61,T63~T65)		0.2
23	P21,40		9/19	HW	Change Q22,Q26 from SB000008J10 to SB000009080		0.2
24	P14,22,35,38		9/19	HW	For Crystal Change Y2 ,Y4 from SJ10000DJ00 to SJ10000E800 Change Y1000 from SJ10000DK00 to SJ100009700 Change C630,C631,C2019,C2028,C1008,C1009 to 10pF Change C681,C679 to 15pF		0.2

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Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
25	P.44		9/20	EMI	For EMI request (Add C2079~C2084)		0.2
26	P.36		9/20	HW	For SD3.0 issue (Add R2088.R2089)		0.2
27	P.20		10/17	HW	Add +5VALW TO +5VALW_PCH schematic(Q2006.C2062.R2090)		0.3
28	P.44		10/17	HW	Add +3VALW TO +3VALW_PCH schematic(U2006,R2073~R2076,C2056~C2059,Q2003,Q2004)		0.3
29	P.40		10/17	HW	Board ID error. Add R353.		0.3
30	P.40		10/17	HW	Board ID 0.3. Change R353 to 18K		0.3
31	P.17,39		10/17	HW	Follow Intel's suggestion; Change USB3.0 from port 2 to port 1 Change USB2.0 from port 0,1 to port 2,9		0.3
32	P.18		10/18	HW	Support eDP GPIO71-->0 (eDP) GPIO71-->1 (LVDS)		0.3
33	P.13.40		10/25	HW	Co_lay NPCE885N Delete U38,C722,R690,R695,C727 Add C2085,R2091~R2096		0.3

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Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
43	P.41		11/16	ME		Delete SW5,SW6, Pop SW2,SW3	0.4
44	P.05		11/16	HW	BUF_CPU_RST# noise	Add C2090	0.4
45	P.35		11/17	HW	LAN SPROM on Chip	De-pop U31,R537 Pop R538	0.4
46	P.36		11/17	EMI		Change C478 to 10P_50V	0.4
47	P.13		11/17	HW	RTC issue	Change C682,C686 to 15P	0.4
48	P.31,32,41		11/17	ESD		De-pop D3,D4,D17,D18,D15 Pop D24,D36	0.4
49	P.40		11/17	HW		De-pop R891,R893	0.4
50	P.24		11/21	HW		N13P_GS Change strap2 to PD 15k Change strap4 to PD 10k	0.4
51	P.13		11/21	HW		Chip Select Change R651,R2049 to 0ohm	0.4
52	P.13,40		11/21	HW		Delete NPCE885N (R2091.R2092.R2094.R2095.R2096,R698, R699,R692,C2085)	0.4
53	P.45		11/22	HW		Change +1.05VSDGPU JUMP size PJ19 change to 43x118	0.4
55	P.35,36		11/23	HW		Card Reader Change R216 to 22 ohm Change R2088 to 47ohm Change R2089 to 22 ohm Add C2091~C2093 Change R525,R536,R537,R538 to 1k	0.4
56	P.13		11/23	HW		Delete R2093,R2049,R651(0ohm)	0.4
57	P.13		11/23	HW		Change N13P-GS to SA000051880 Change U33 to SA00005AG00	0.4
58	P.35, P36		11/23	HW		Del C2093, R222, R2089, net(CR_CLK_XD_RY_BY#_23) Add R2101, C2094	0.4
59	P.36		11/24	HW		ADD R2102, C2096 for EMI ISSUE	0.4

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