

Compal Confidential

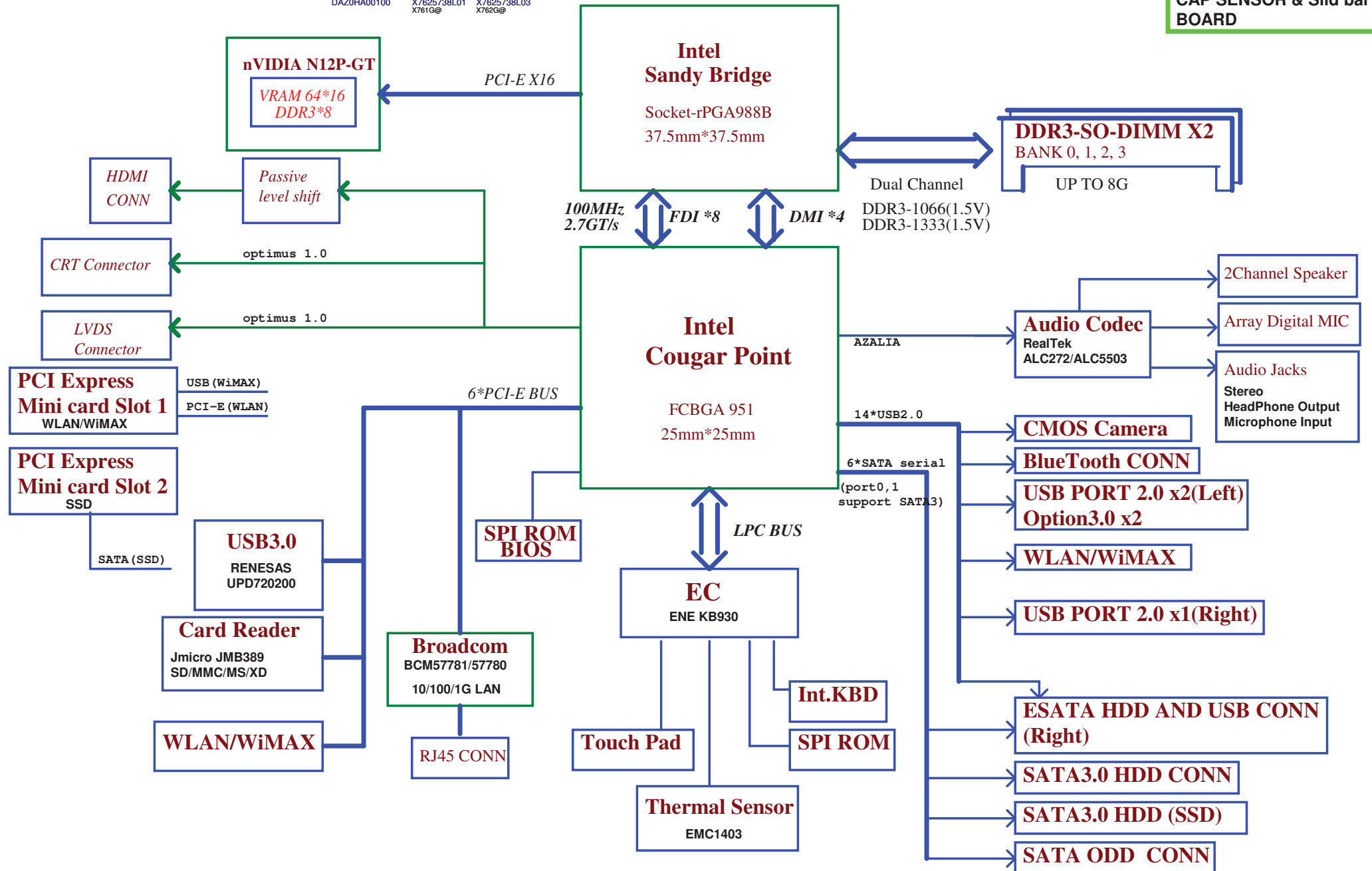
PIQY0 M/B Schematics Document

Intel Sandy Bridge Processor with DDRIII + Cougar Point PCH
nVIDIA N12P-GT

2010-12-30

REV: 1.0

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2010/11/30	Deciphered Date	2011/08	Title	
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				Size Custom	Document Number PIQY0 LA6881P
				Date: Wednesday, January 05, 2011	Rev 1.0
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Security Classification		Compal Secret Data		Compal Electronics, Inc. MB Block Diagram		
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				Custom		

Voltage Rails

power plane	+B	+5VALW	+1.5V	+3VS +1.5VS +VCCP +CPU_CORE +VGA_CORE +GFX_CORE +1.8VS +0.75VS +1.05VS
State		+3VALW		
S0	○	○	○	○
S3	○	○	○	✗
S5 S4/AC	○	○	✗	✗
S5 S4/ Battery only	○	✗	✗	✗
S5 S4/AC & Battery don't exist	✗	✗	✗	✗

SMBUS Control Table

	SOURCE	VGA	BATT	KB930	SODIMM	WLAN WWAN	Thermal Sensor	PCH
SMB_EC_CK1	KB930	✗	✓	✗	✗	✗	✗	✗
SMB_EC_DA1	+3VALW							
SMB_EC_CK2	KB930	✗	✗	✗	✗	✗	✗	✓
SMB_EC_DA2	+3VALW							
SMBCLK	PCH	✗	✗	✗	✓	✓	✗	✗
SMBDATA	+3VALW							
SML0CLK	PCH	✗	✗	✗	✗	✗	✗	✗
SML0DATA	+3VALW							
SML1CLK	PCH	✓	✗	✓	✗	✗	✓	✗
SML1DATA	+3VALW							

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	Thermal Sensor EMC1403-2	1001_101xb

EC SM Bus2 address

PCH SM Bus address

Device	Address
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

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	0.1
1	
2	
3	
4	
5	
6	
7	

BOM Structure Table

BTO Item	BOM Structure
UMA	
UMA Only	UMA_ONLY@
Optimus	OPTI@
VRAM	X76@
HDMI	HDMI@
Blue Tooth	BT@
USB3.0	USB30@
ESATA	ESATA@
USB Charger	USB_CHG@
No USB Charger	NO_CHG@
Unpop	@
Codec ALC272	272@
Codec ALC5503	5503@
LAN 57781	57781@
LAN 57780	57780@
Ventura Feature	VENTURA@
Camera	CMOS@

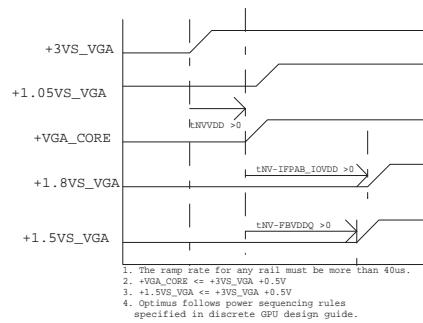
VRAM BOM Config	
X761G@: X7625738L01	Samsung 1GB
Sub: X7625738L02	Hynix 1GB
X762G@: X7625738L03	Samsung 2GB
Sub: X7625738L04	Hynix 2GB

GPU BOM Config	
N12P SKU:	OPTI@
GS SKU:	GS@
GT SKU:	GT@

USB Port Table

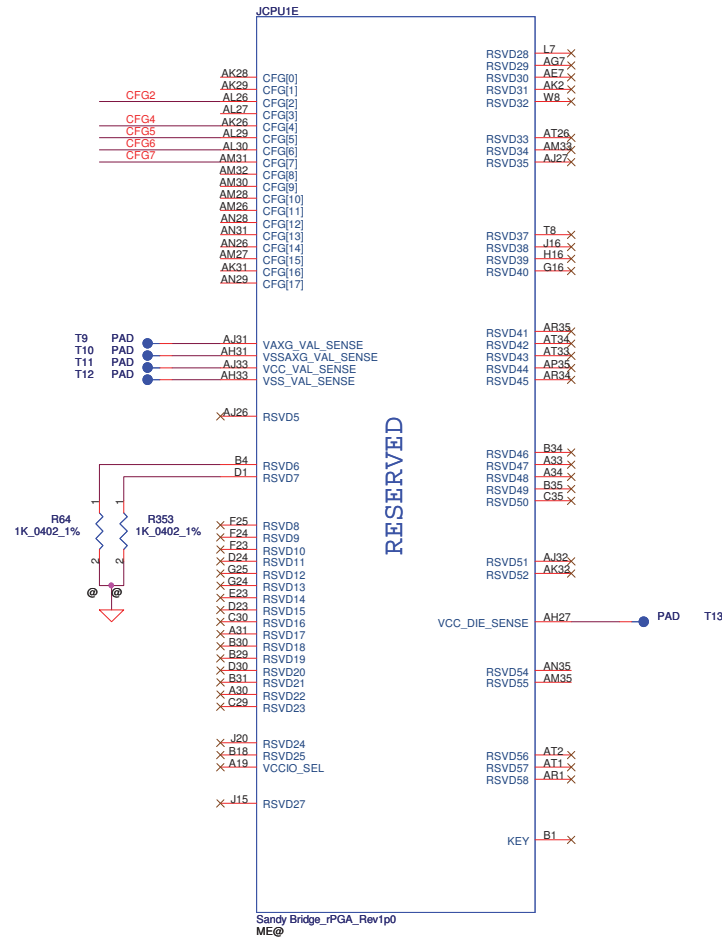
USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB/Cable (Right Side)
		1	USB Port (Right Side COMBO)
	UHCI1	2	USB/B (Left Side)
		3	USB/B (Left Side)
	UHCI2	4	
		5	Camera
EHCI2	UHCI3	6	
		7	
	UHCI4	8	
		9	Mini Card(WLAN)
	UHCI5	10	
		11	
	UHCI6	12	
		13	Blue Tooth

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Size B	Document Number			Rev	
	PIQY0 LA6881P			1.0	
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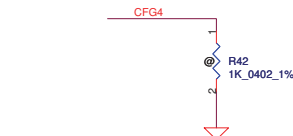


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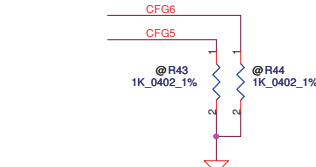
CFG Straps for Processor



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



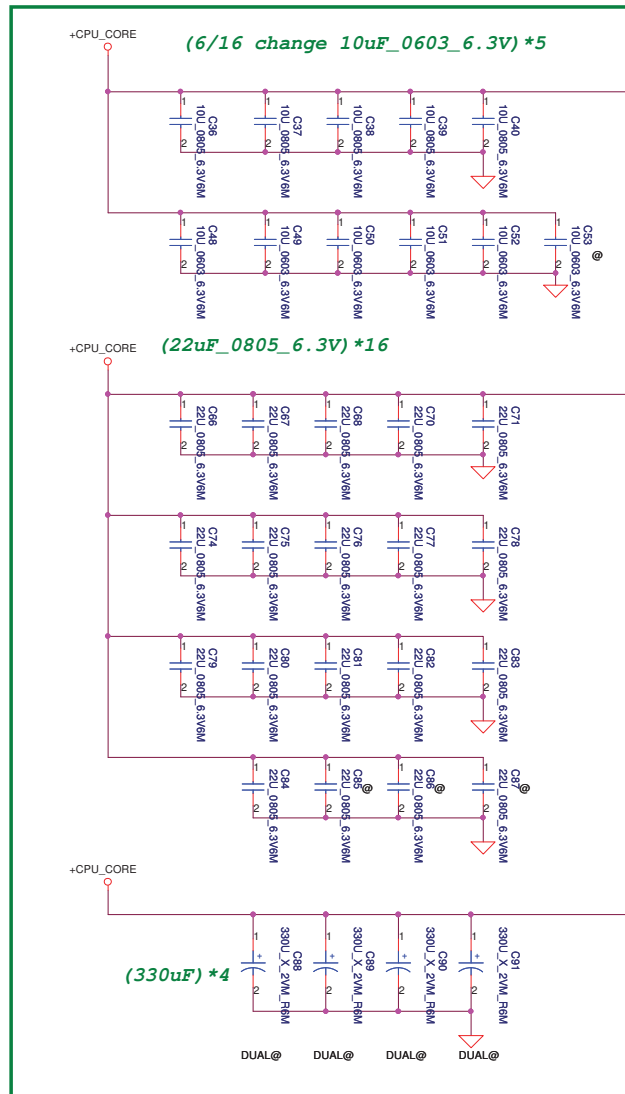
PCIe Port Bifurcation Straps	
CFG[6:5]	* 11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled



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

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					Size	Document Number	Rev
					Custom	PIQY0 LA6881P	1.0
					Date:	Wednesday, January 05, 2011	Sheet
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	63						

POWER



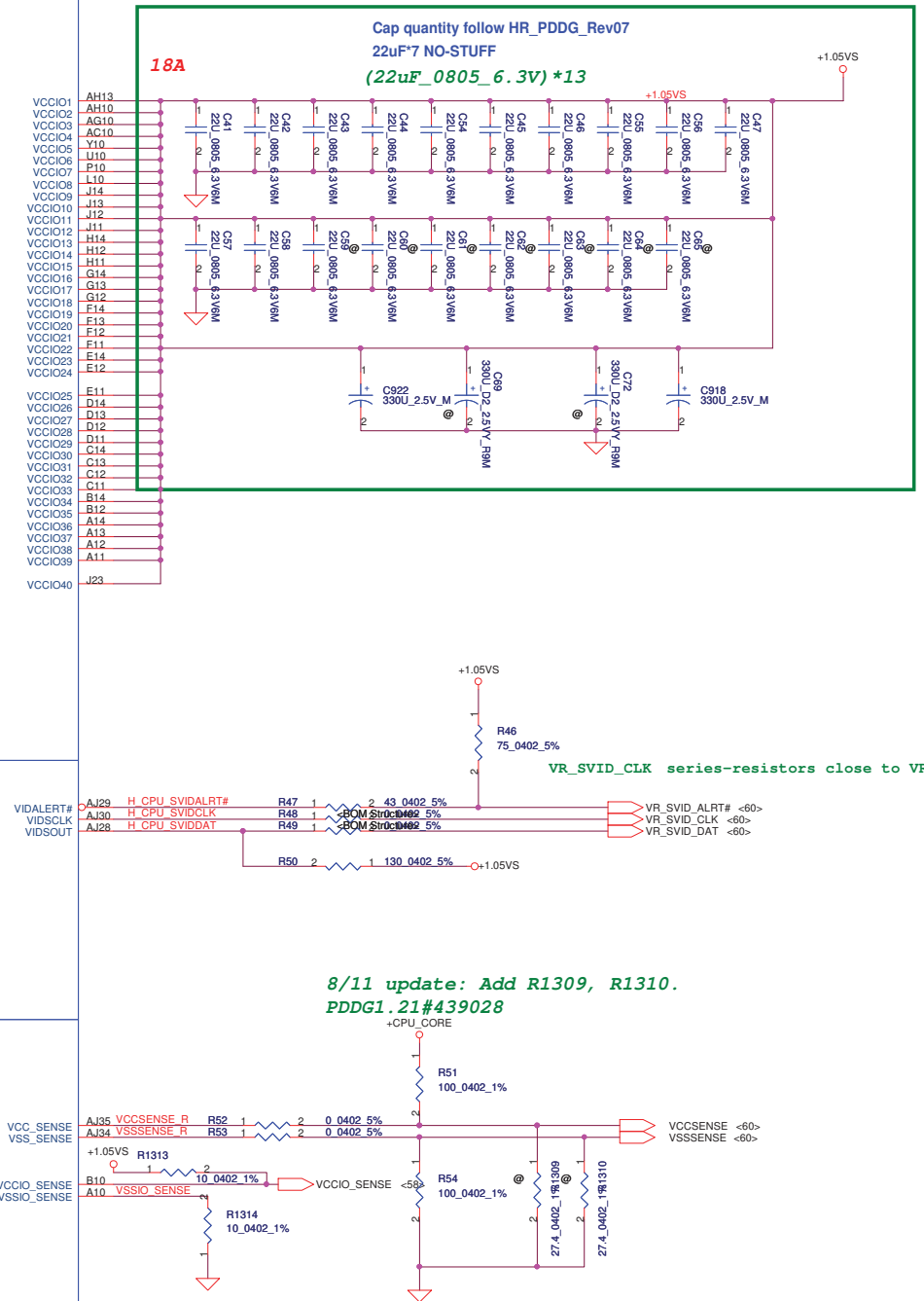
QC=94A
DC=53A

AG35	VCC1
AG34	VCC2
AG33	VCC3
AG32	VCC4
AG31	VCC5
AG30	VCC6
AG29	VCC7
AG28	VCC8
AG27	VCC9
AG26	VCC10
AF35	VCC11
AF34	VCC12
AF33	VCC13
AF32	VCC14
AF31	VCC15
AF30	VCC16
AF29	VCC17
AF28	VCC18
AF27	VCC19
AF26	VCC20
AD35	VCC21
AD34	VCC22
AD33	VCC23
AD32	VCC24
AD31	VCC25
AD30	VCC26
AD29	VCC27
AD28	VCC28
AD27	VCC29
AD26	VCC30
AC35	VCC31
AC34	VCC32
AC33	VCC33
AC32	VCC34
AC31	VCC35
AC30	VCC36
AC29	VCC37
AC28	VCC38
AC27	VCC39
AC26	VCC40
AA35	VCC41
AA34	VCC42
AA33	VCC43
AA32	VCC44
AA31	VCC45
AA30	VCC46
AA29	VCC47
AA28	VCC48
AA27	VCC49
Y35	VCC50
Y34	VCC51
Y33	VCC52
Y32	VCC53
Y31	VCC54
Y30	VCC55
Y29	VCC56
Y28	VCC57
Y27	VCC58
Y26	VCC59
Y25	VCC60
Y24	VCC61
Y23	VCC62
Y22	VCC63
Y21	VCC64
Y20	VCC65
Y19	VCC66
Y18	VCC67
Y17	VCC68
Y16	VCC69
Y15	VCC70
Y14	VCC71
Y13	VCC72
Y12	VCC73
Y11	VCC74
Y10	VCC75
Y09	VCC76
Y08	VCC77
Y07	VCC78
Y06	VCC79
Y05	VCC80
R35	VCC81
R34	VCC82
R33	VCC83
R32	VCC84
R31	VCC85
R30	VCC86
R29	VCC87
R28	VCC88
R27	VCC89
R26	VCC90
P35	VCC91
P34	VCC92
P33	VCC93
P32	VCC94
P31	VCC95
P30	VCC96
P29	VCC97
P28	VCC98
P27	VCC99
P26	VCC100

CORE SUPPLY

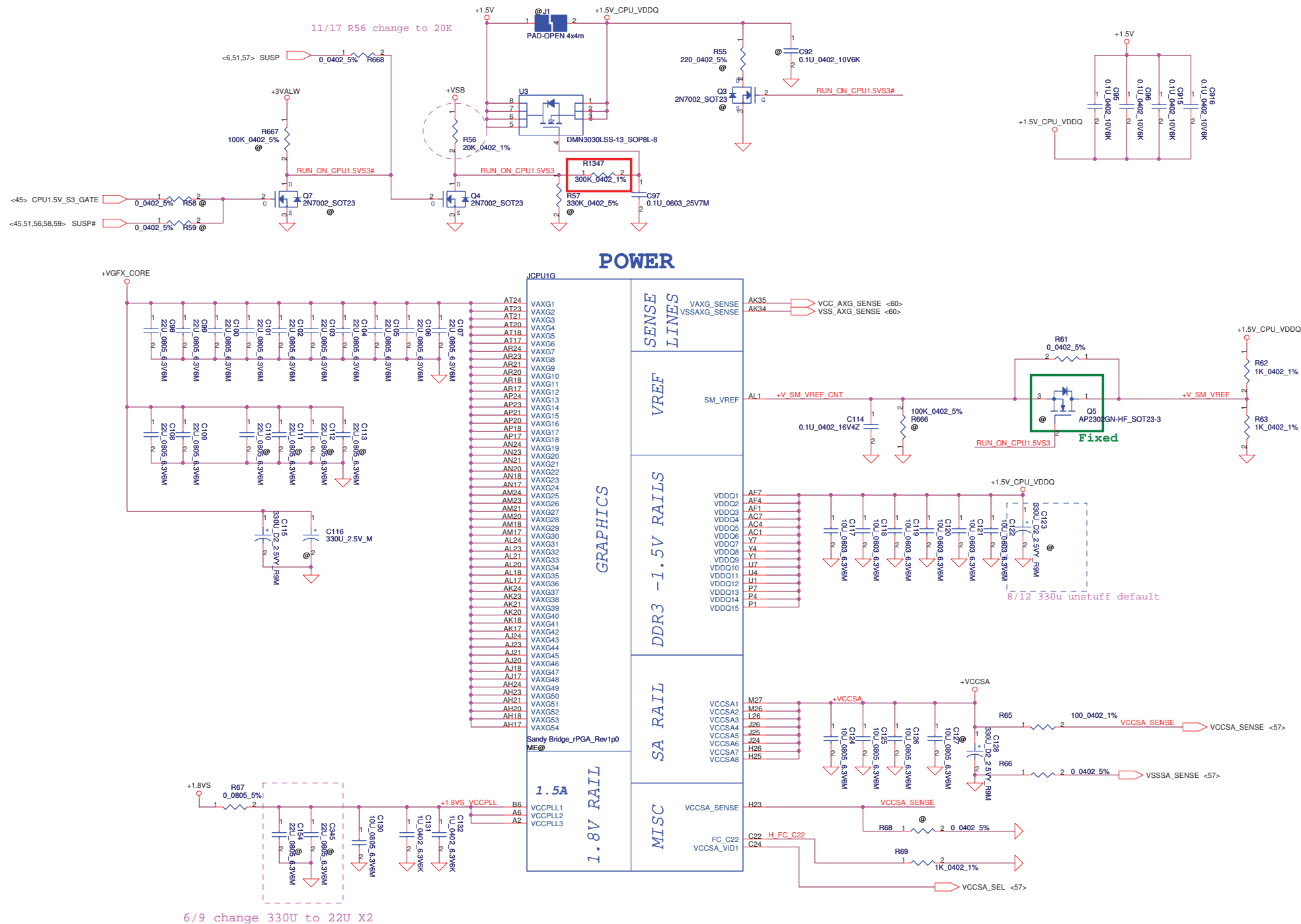
SVID

SENSE LINES



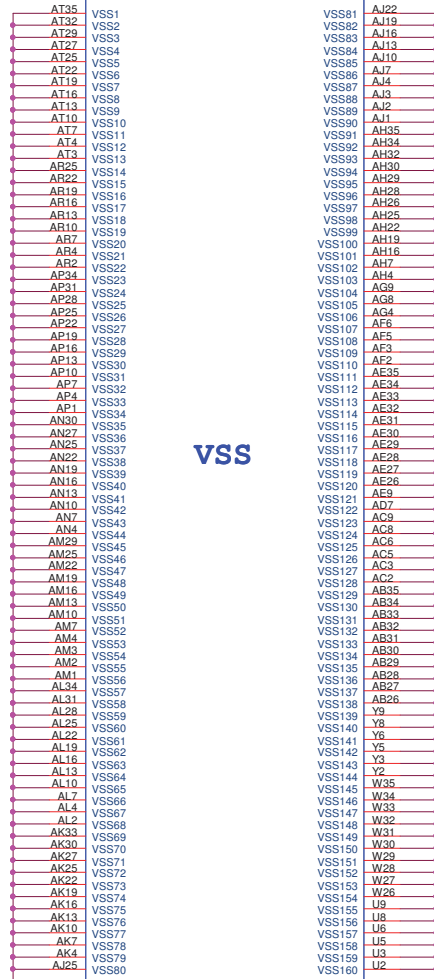
Sandy Bridge_rPGA Rev1.0
ME@

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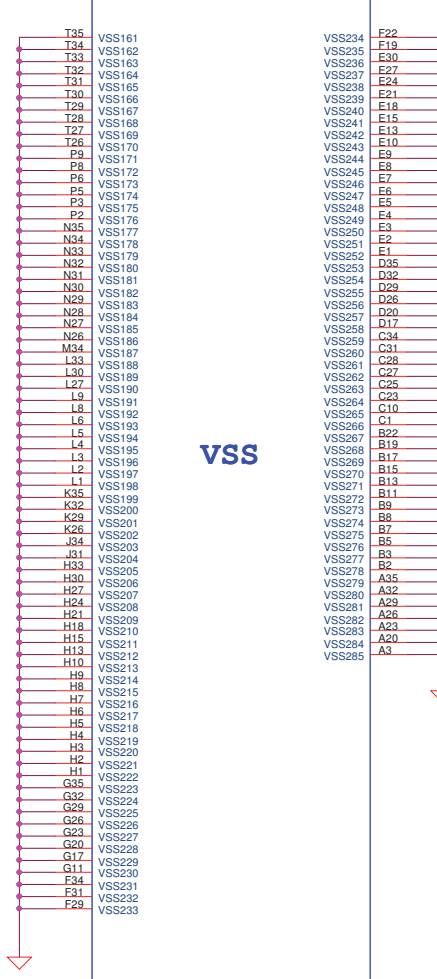
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Issued Date	2010/11/30	Deciphered Date	2011/08	PROCESSOR(6/7) PWR	
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JCPU1H



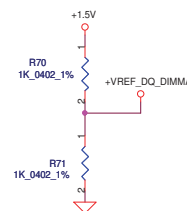
Sandy Bridge_rPGA_Rev1p0
ME@

JCPU1I

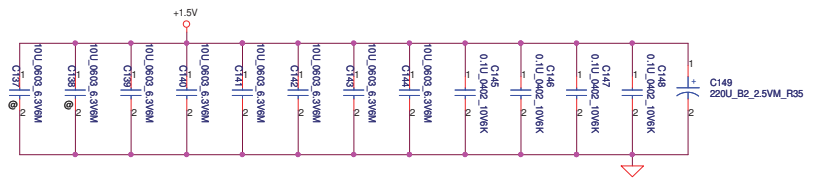


Sandy Bridge_rPGA_Rev1p0
ME@

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Issued Date	2010/11/30	Deciphered Date	2011/08	Title PROCESSOR(7/7) VSS	
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(10uF_0603_6.3V) *8
(0.1uF_402_10V) *4



```

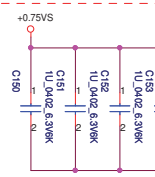
VDDQ (1.5V) =
    3*330uf / 12m ohm (TOTAL FOR 2 SO-DIMMs)
    6*0603 10uf (PER CONNECTOR)

VTT (0.75V) =
    3*0805 10uf 4*0402 1uf

VREF =
    1*0402 0.1uf 1*0402 2.2uf

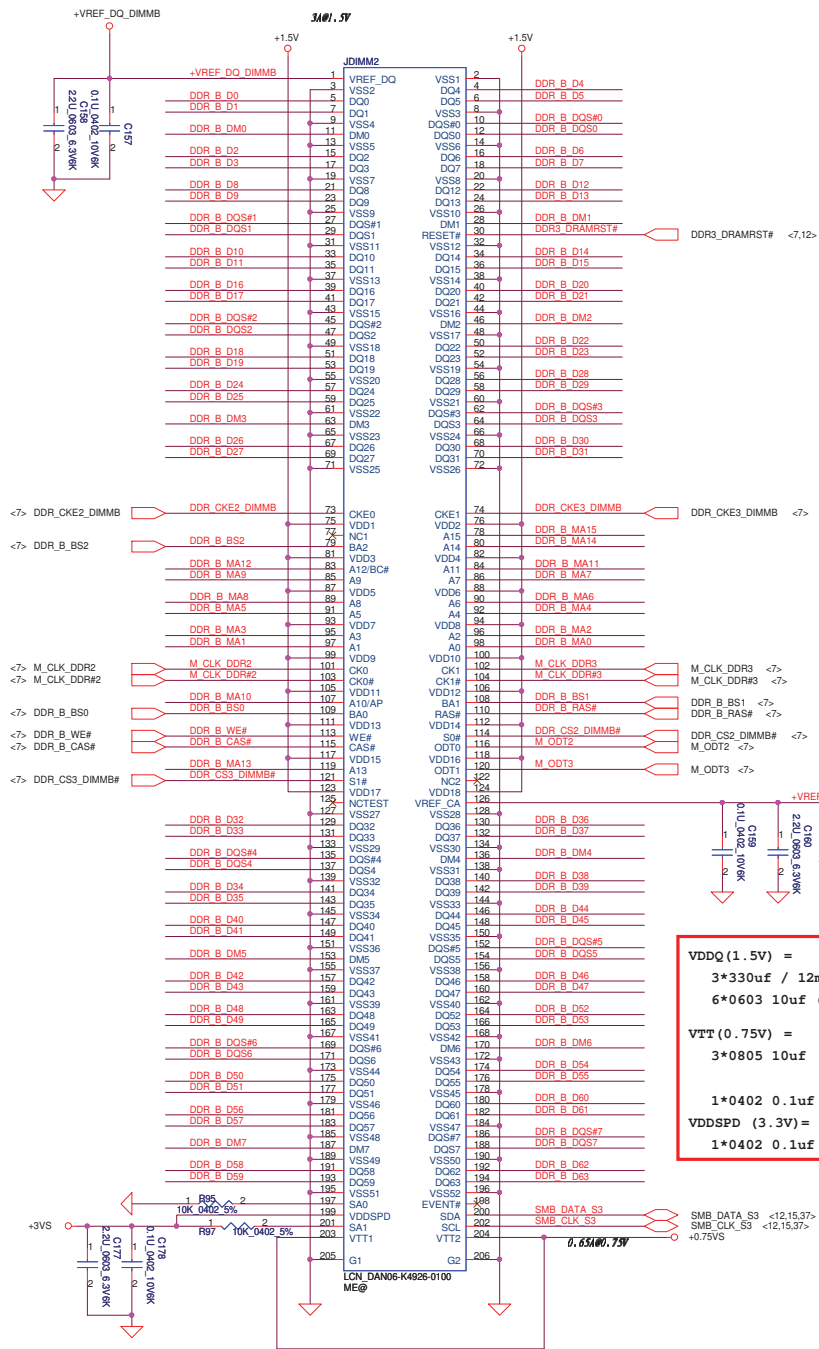
VDDSPD (3.3V)=
    1*0402 0.1uf 1*0402 2.2uf

```

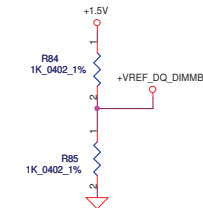


- DDR A DM0
- DDR A DM1
- DDR A DM2
- DDR A DM3
- DDR A DM4
- DDR A DM5
- DDR A DM6
- DDR A DM7

DDR A DM0	
DDR A DM1	
DDR A DM2	
DDR A DM3	
DDR A DM4	
DDR A DM5	
DDR A DM6	
DDR A DM7	



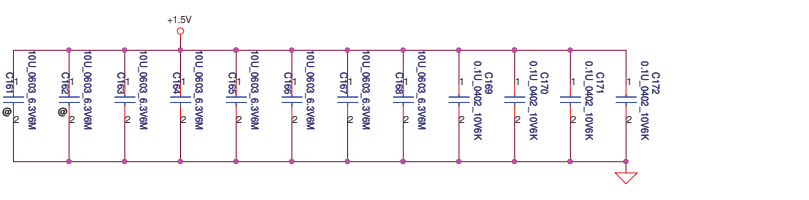
<7> DDR_B_D[0..63]
<7> DDR_B_DQS[0..7]
<7> DDR_B_DQS#0..7
<7> DDR_B_MA[0..15]



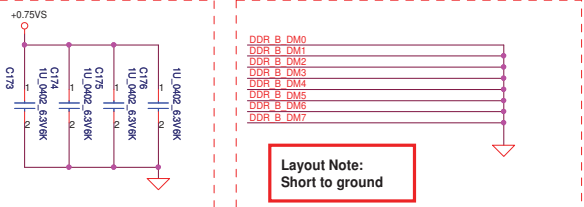
For Arranale only +VREF_DQ_DIMMB supply from a external 1.5V voltage divide circuit.
07/17/2009

Layout Note:
Place near DIMM

(10uF_0603_6.3V)*8
(0.1uF_402_10V)*4



Layout Note:
Place near DIMM

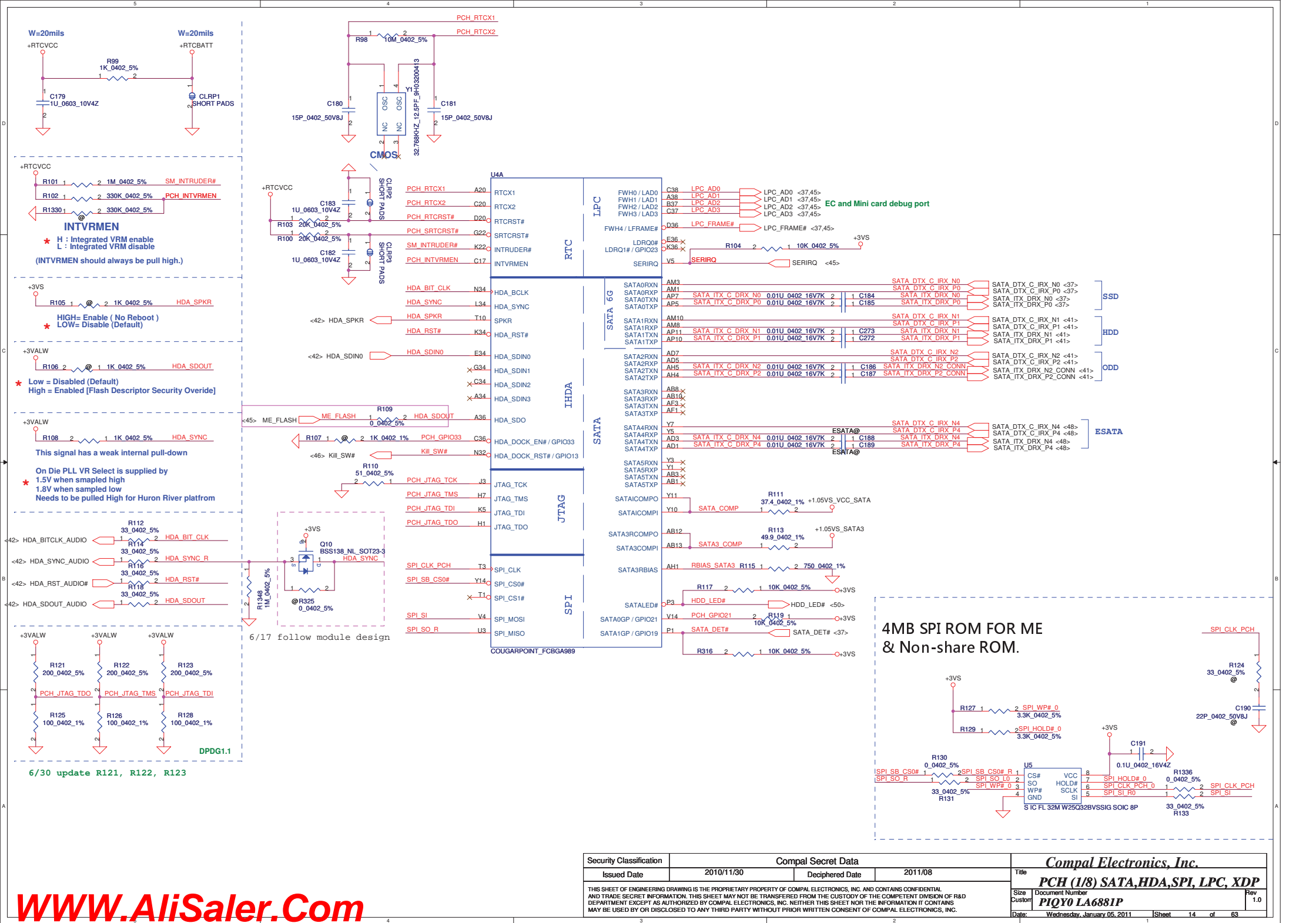


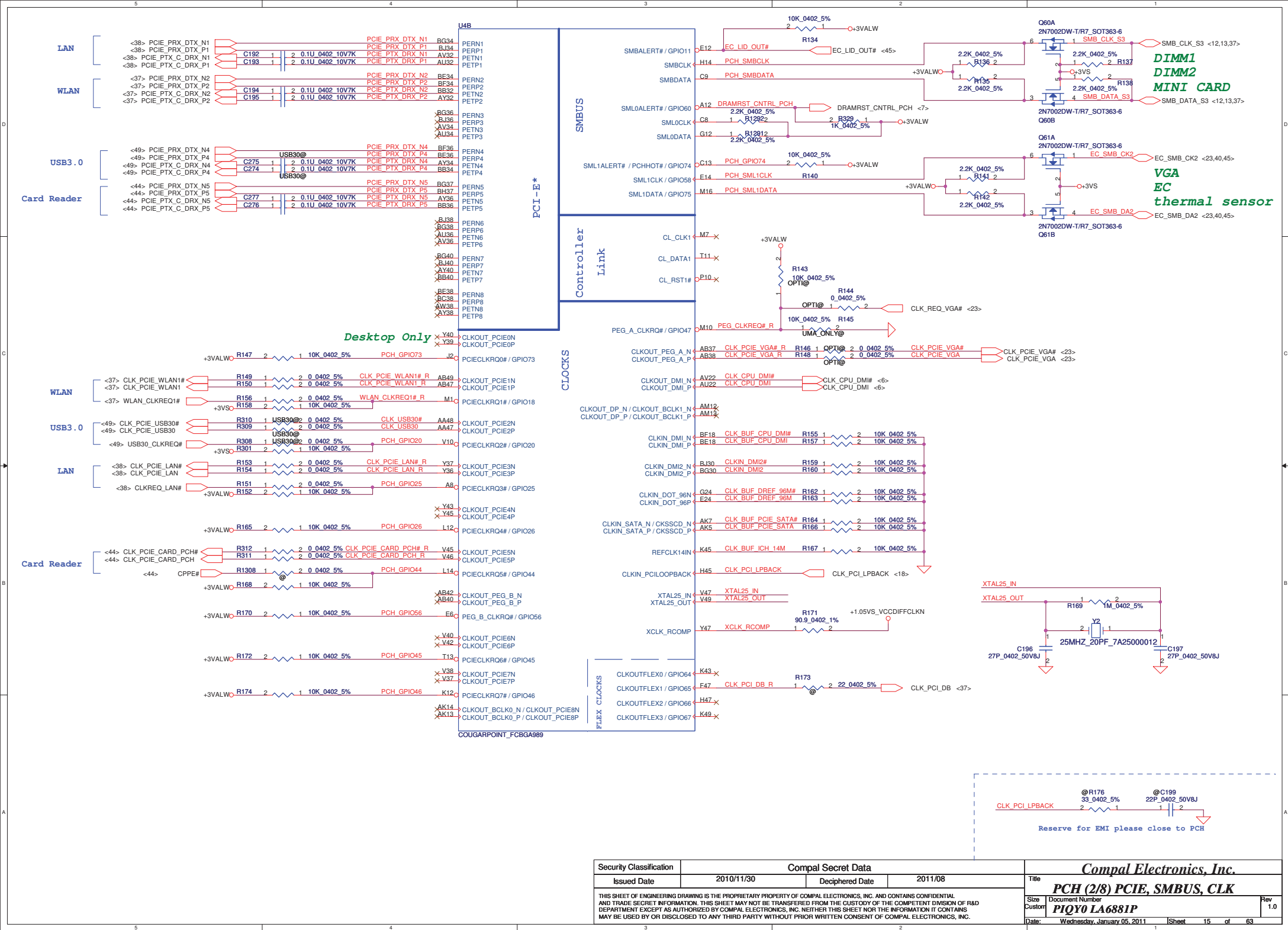
VDDQ (1.5V) =
3*330uF / 12m ohm (TOTAL FOR 2 SO-DIMMS)
6*0603 10uF (PER CONNECTOR)

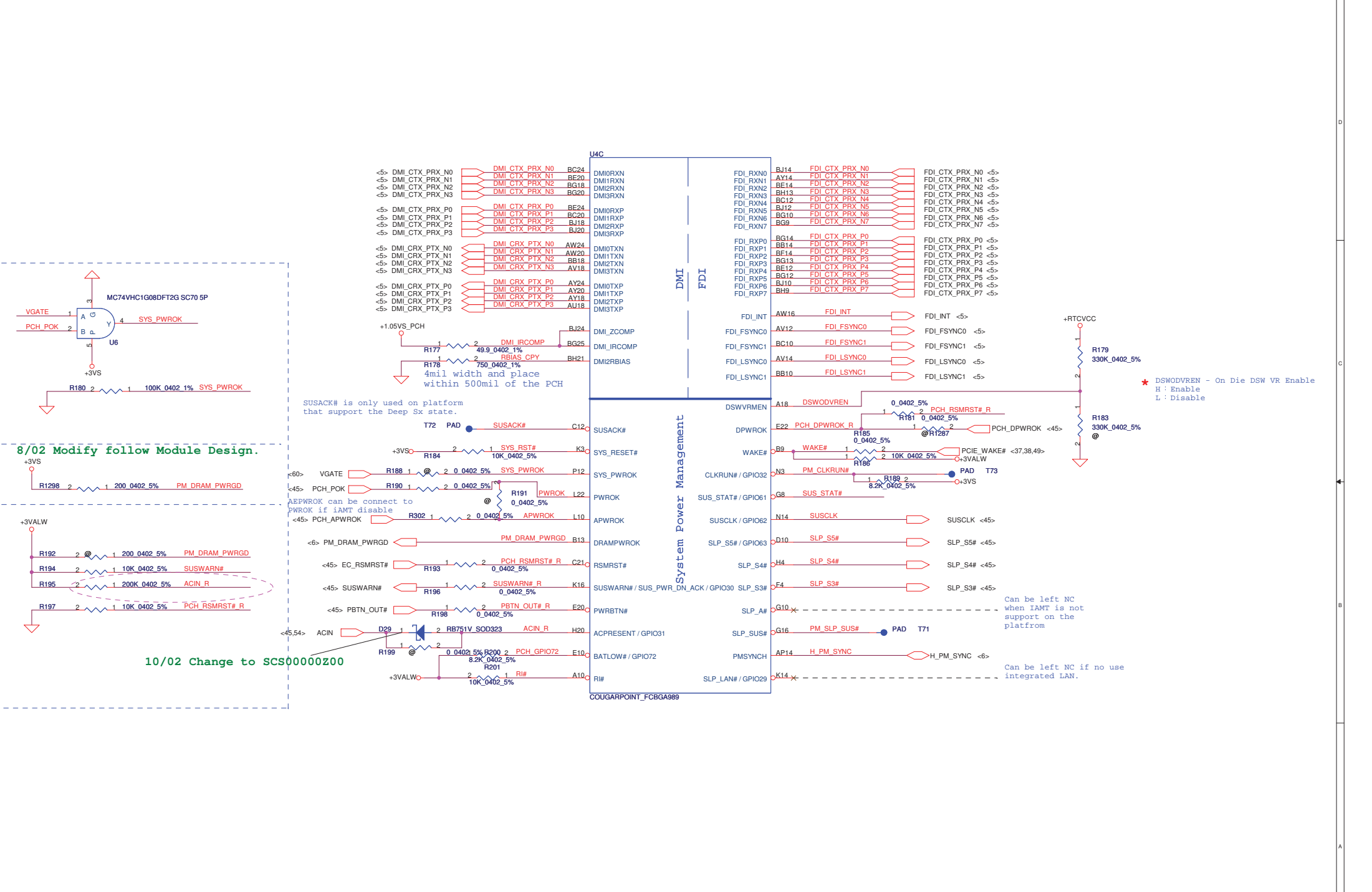
VTT (0.75V) =
3*0805 10uF 4*0402 1uF

VDDSPD (3.3V) =
1*0402 0.1uF 1*0402 2.2uF

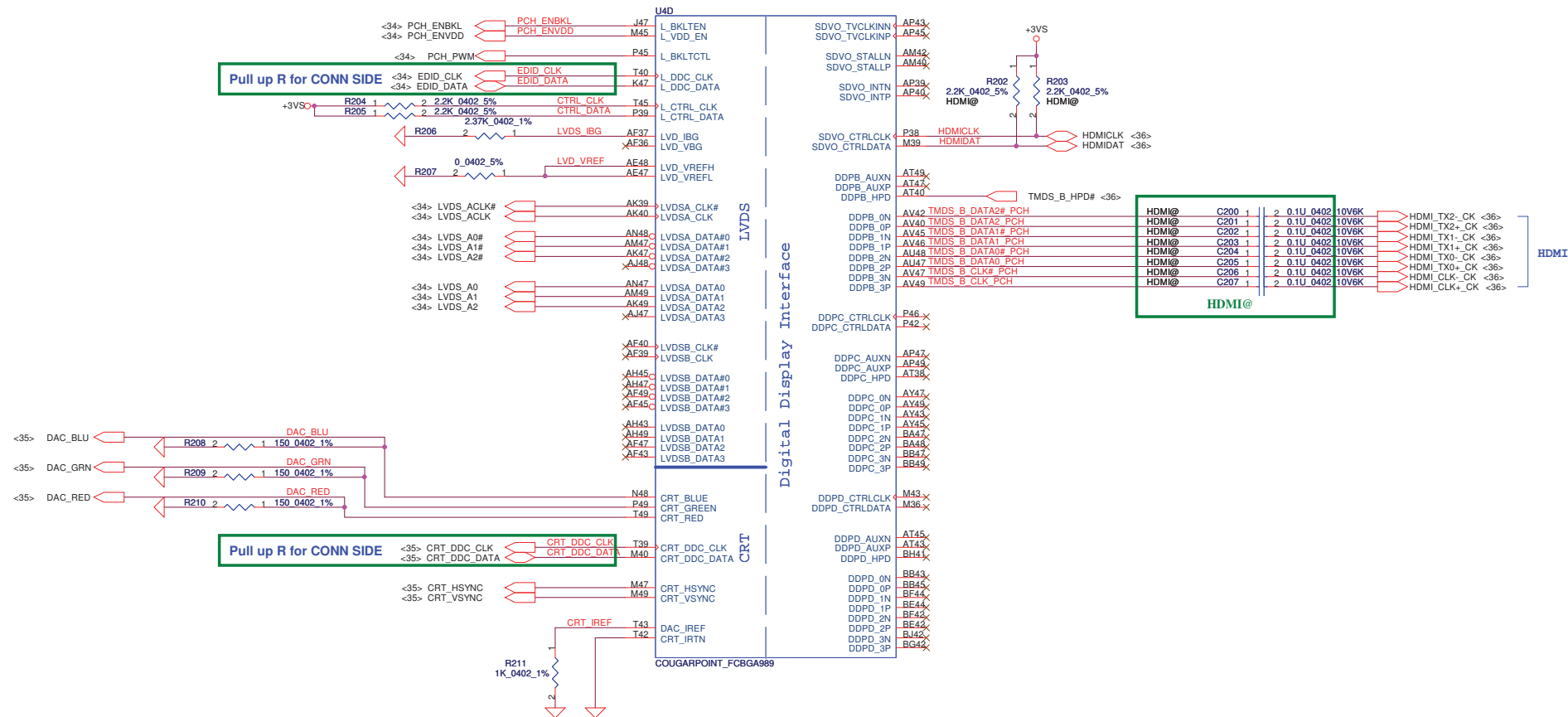
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Issued Date	2010/11/30	Deciphered Date	2011/08	Title	
				DDR3-SODIMM SLOT2	
Size		Document Number		PIQY0 LA6881P	
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								PCH (3/8) DMI, FDI, PM,			
								Size		Document Number	
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6/24 Change to @ follow module design and double check on module design meeting

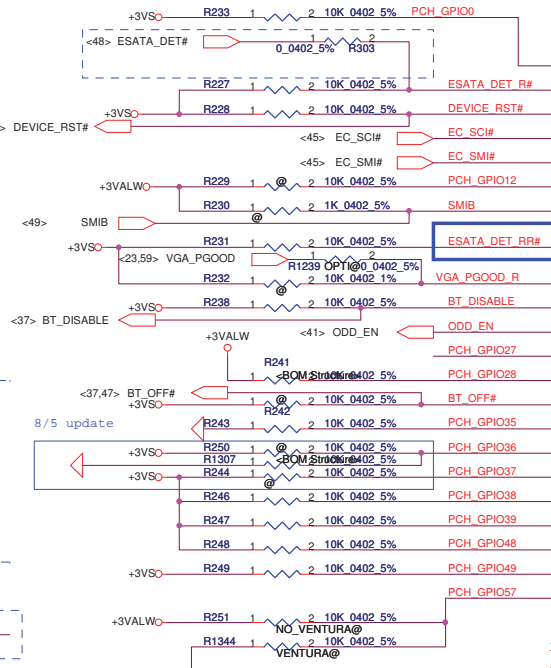
ICC_EN#
Integrated Clock Chip Enable
H : Disable
L : Enable
★
R235 1 @ 2 1K 0402 5% EC_SMI# <37,38,44> DEVICE_RST#
Weak internal pull-high

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
R240 1 @ 2 1K 0402 5% PCH_GPIO28

PCH_GPIO27 (Have internal Pull-High)
★ High: VCCVRM VR Enable
Low: VCCVRM VR Disable
R245 1 @ 2 10K 0402 5% PCH_GPIO27

7/29 update for ESATA detect
0812 Checklist Rev.1.2
When Unused as GPIO or SATA*GP - Use 8.2K-10K pull-down to ground.
R1311 1 BOM Stock 10K 0402 5% PCH_GPIO37

7/29 update for ESATA detect



8/5 update

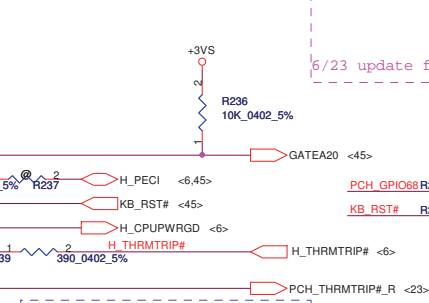
- U4F
- BMBUSY# / GPIO0
 - TACH1 / GPIO1
 - TACH2 / GPIO6
 - TACH3 / GPIO7
 - GPIO8
 - LAN_PHY_PWR_CTRL / GPIO12
 - GPIO15
 - SATA4GP / GPIO16
 - TACH0 / GPIO17
 - SCLOCK / GPIO22
 - GPIO24 / MEM_LED
 - GPIO27
 - STP_PCIF / GPIO34
 - GPIO35
 - SATA2GP / GPIO36
 - SATA3GP / GPIO37
 - SLOAD / GPIO38
 - SDATAOUT0 / GPIO39
 - SDATAOUT1 / GPIO48
 - SATA5GP / GPIO49
 - GPIO57
- GPIO
- CPU/MISC
- NCTF
- VSS_NCTF_1
 - VSS_NCTF_2
 - VSS_NCTF_3
 - VSS_NCTF_4
 - VSS_NCTF_5
 - VSS_NCTF_6
 - VSS_NCTF_7
 - VSS_NCTF_8
 - VSS_NCTF_9
 - VSS_NCTF_10
 - VSS_NCTF_11
 - VSS_NCTF_12
 - VSS_NCTF_13
 - VSS_NCTF_14

COUGARPOINT_FCBGA989

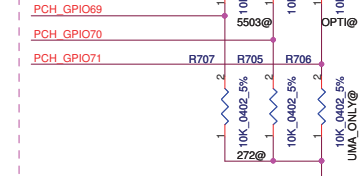
- TACH4 / GPIO68
- TACH5 / GPIO69
- TACH6 / GPIO70
- TACH7 / GPIO71

- A20GATE
- PECI
- RCIN#
- PROCPWRGD
- THRMTrip#
- INIT3_3V
- NC_1
- NC_2
- NC_3
- NC_4
- NC_5

- BG2
- BG48
- BH3
- BH47
- BJ4
- BJ44
- BJ45
- BJ46
- BJ5
- BJ6
- C2
- C48
- D1
- D49
- E1
- E49
- F1
- F49

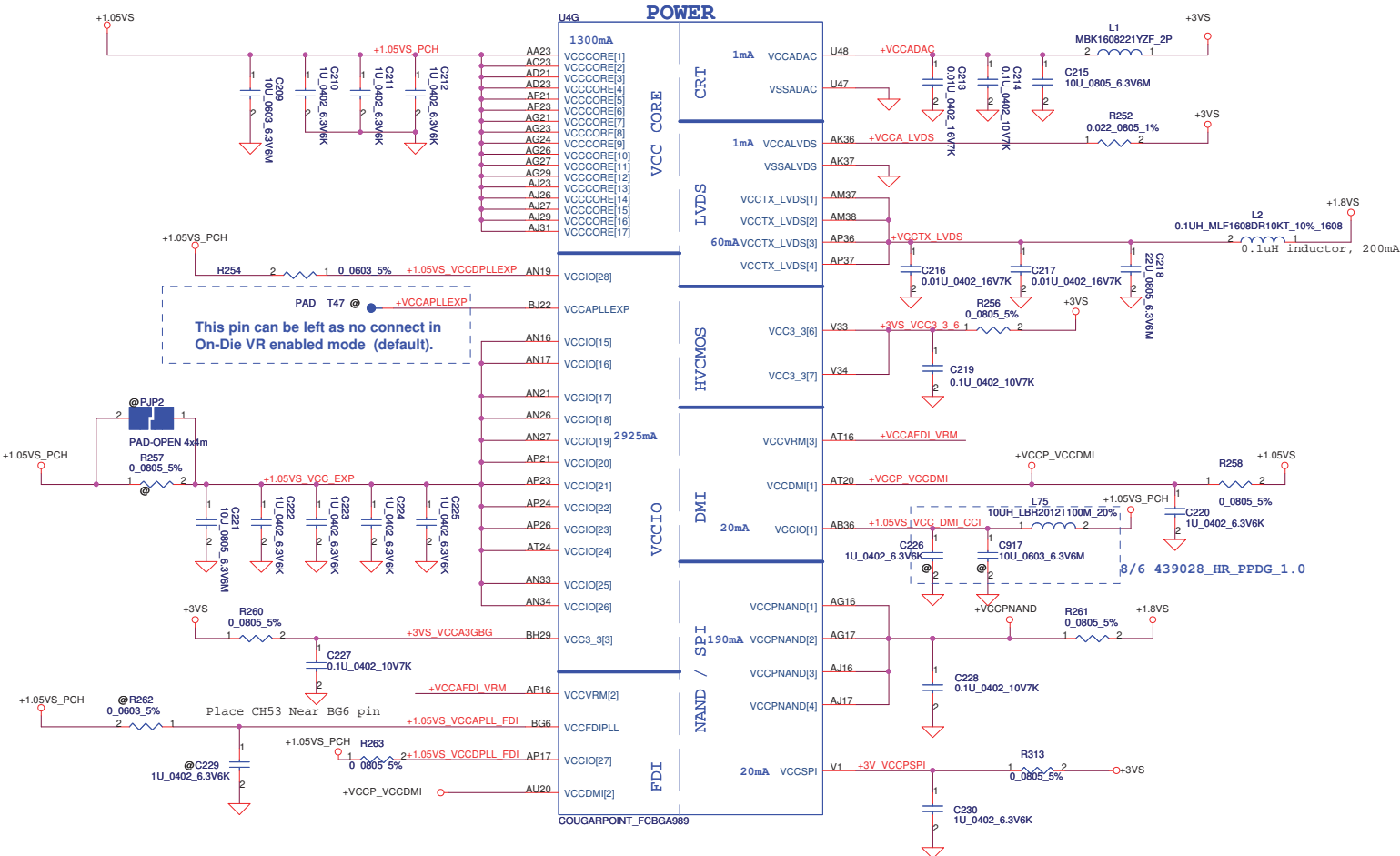


INIT3_3V
This signal has weak internal PU, can't pull-low.
Intel schematic review recommend.



6/23 update for MB ID

Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2010/11/30		Deciphered Date		2011/08		Title	
										PCH (6/9) GPIO, CPU, MISC	
										Document Number	
										PIQY0 LA6881P	
										Rev	
										1.0	
										Date: Wednesday, January 05, 2011	
										Sheet 19 of 63	

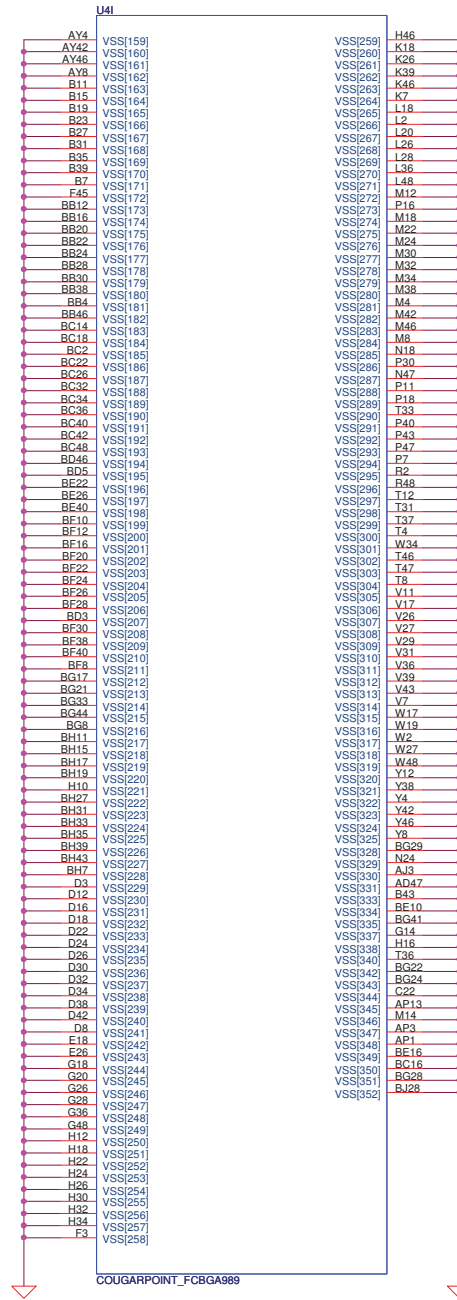
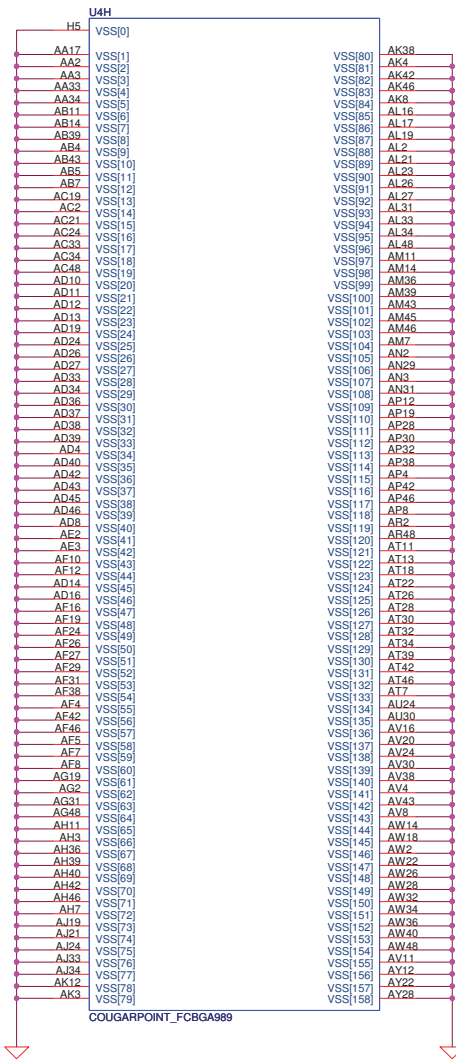


This pin can be left as no connect in On-Die VR enabled mode (default).

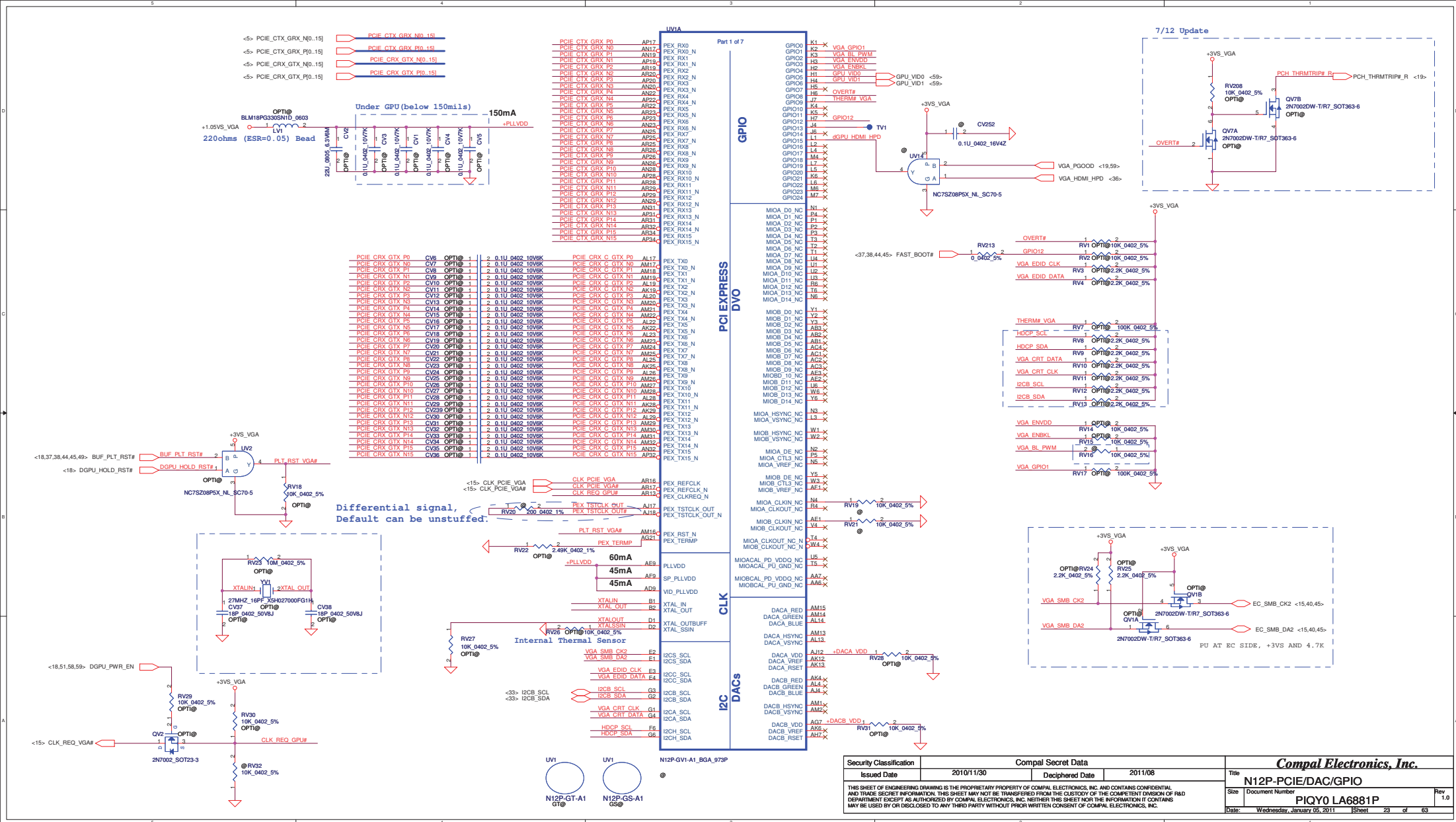
+1.5VS
R265 2 0.0603 5% +VCCAFDI_VRM
Intel HR_PDDG_1.21
1.5S rail. Default is to populate to enable VccVRM.

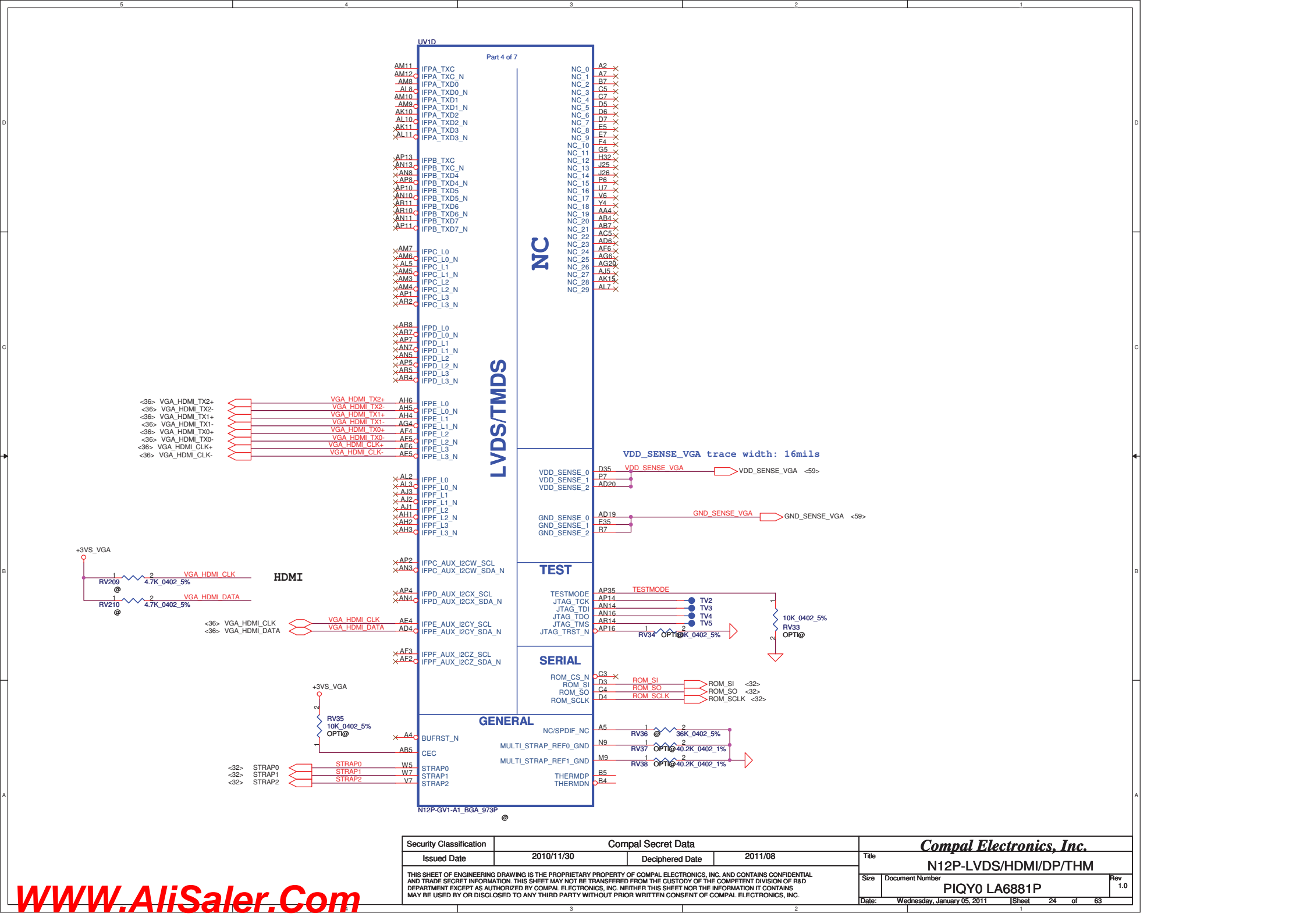
VCCVRM = 160mA detail waiting for newest spec

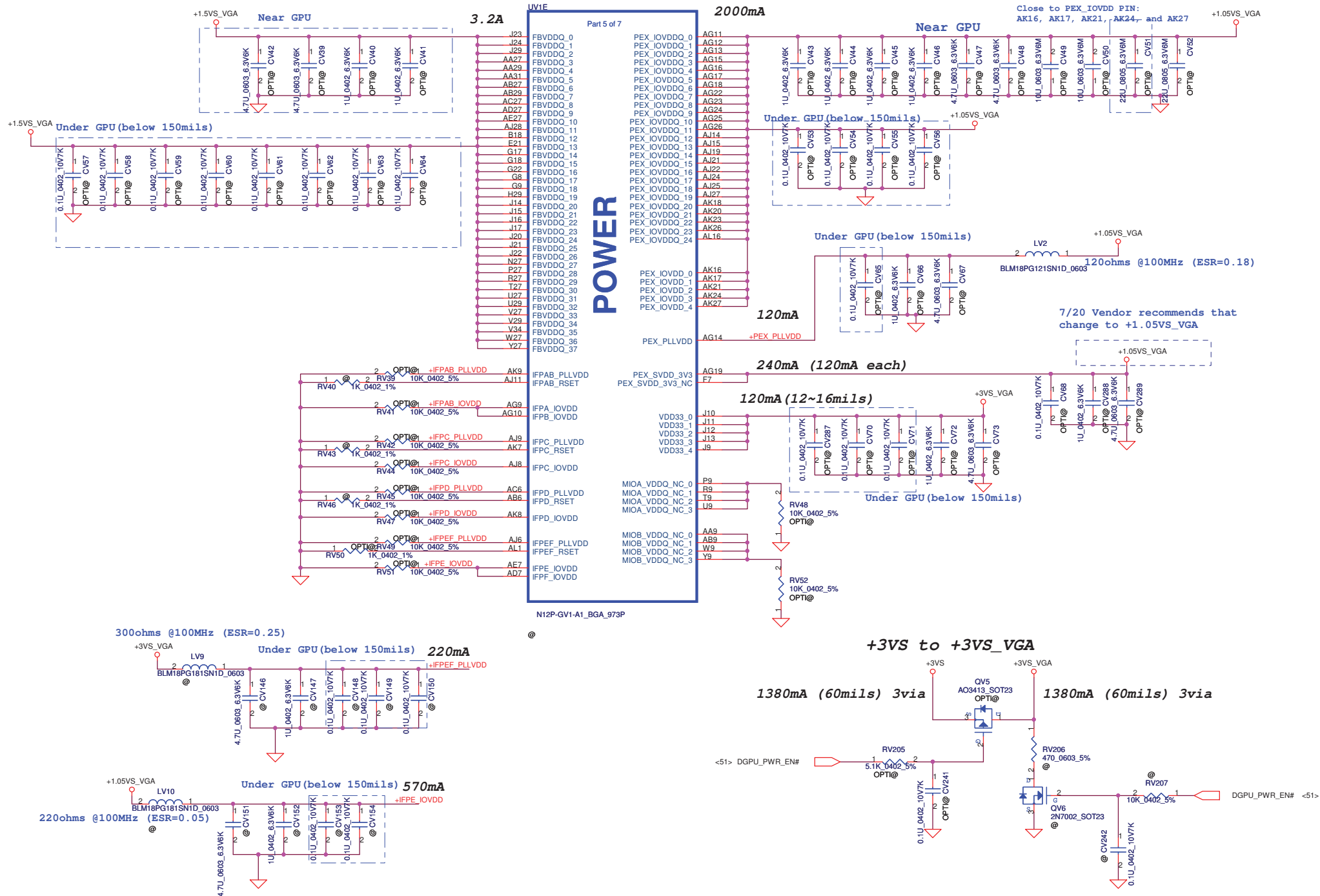
PCH Power Rail Table		
Voltage Rail	Voltage	SO Iccmax Current (A)
V_PROC_IO	1.05	0.001
V5REF	5	0.001
V5REF_Sus	5	0.001
Vcc_3_3	3.3	0.266
VccADAC	3.3	0.001
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.3
VccDMI	1.05	0.042
VccIO	1.05	2.925
VccASW	1.05	1.01
VccSPI	3.3	0.02
VccDSW	3.3	0.003
VccpNAND	1.8	0.19
VccRTC	3.3	6 uA
VccSus_3_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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				Date:	Wednesday, January 05, 2011
				Sheet	22 of 63
				Rev	1.0

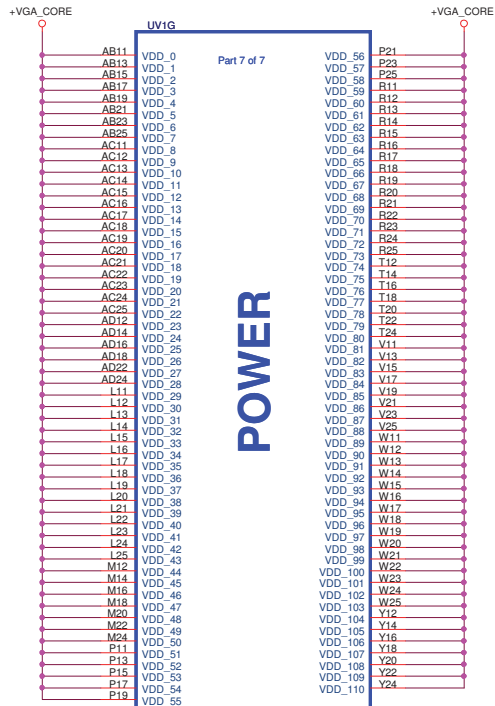






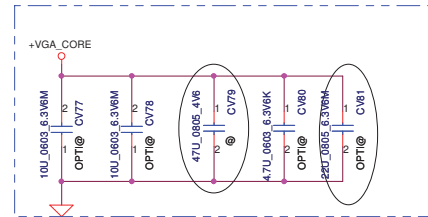
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Issued Date	2010/11/30	Deciphered Date	2011/08		
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				Size Document Number PIQY0 LA6881P	
				Date Wednesday, January 05, 2011	Sheet 25 of 63

30.54A (41.02A Peak)

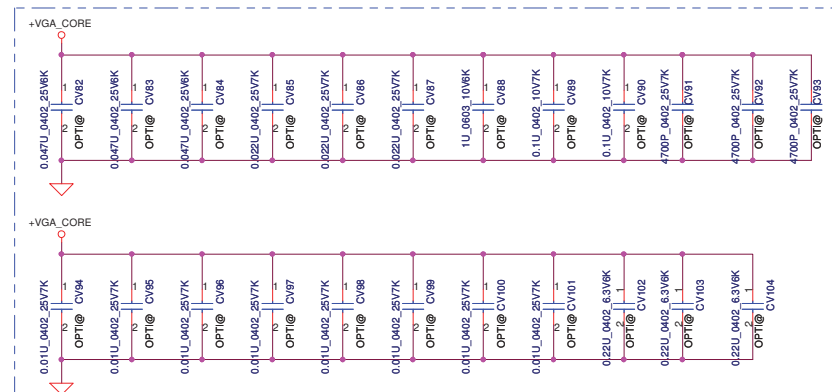


N12P-GV1-A1_BGA_973P

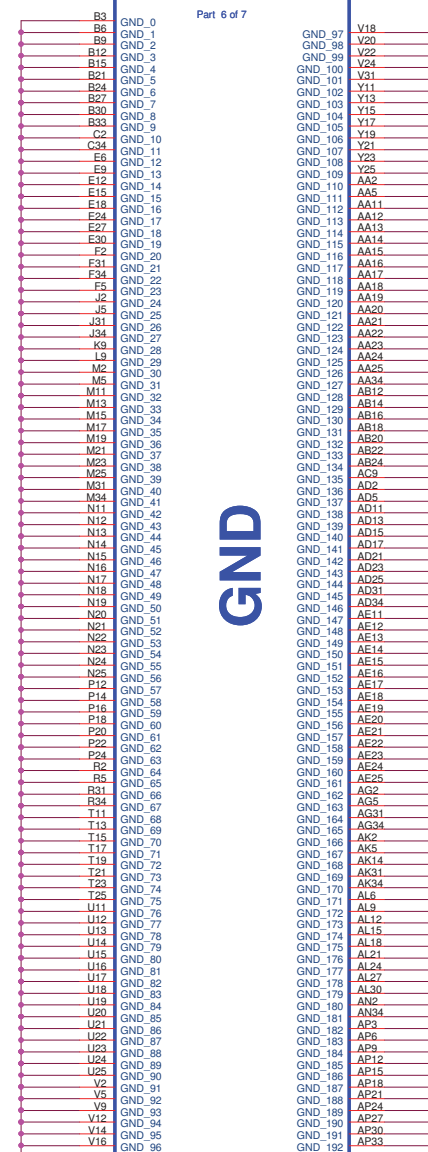
Near GPU



Under GPU

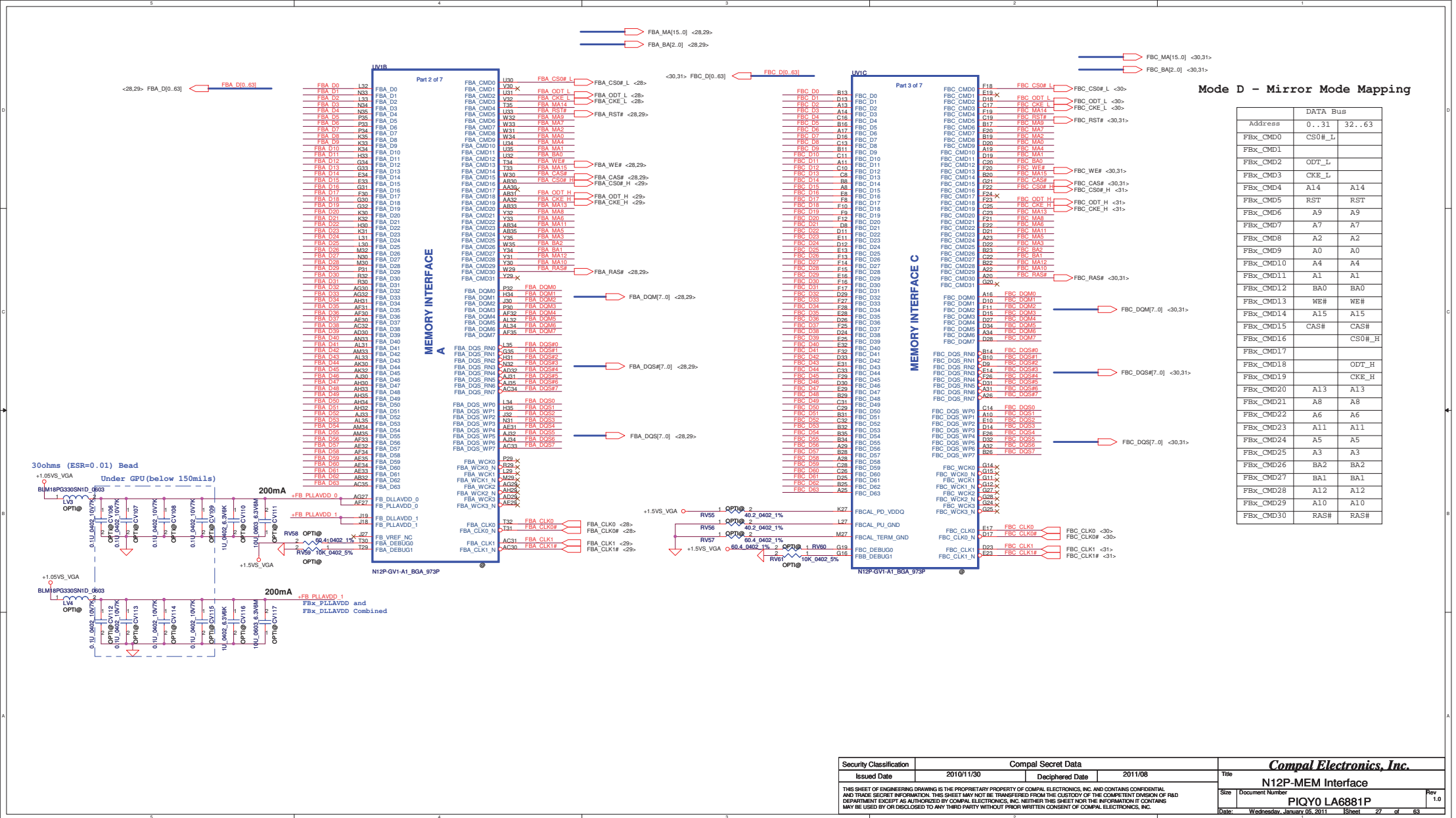


UVIF



N12P-GV1-A1_BGA_973P

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Issued Date	2010/11/30	Deciphered Date	2011/08	N12P-VGA CORE, GND	
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				PIQY0 LA6881P	
				Date:	Wednesday, January 05, 2011
				Sheet	26 of 63

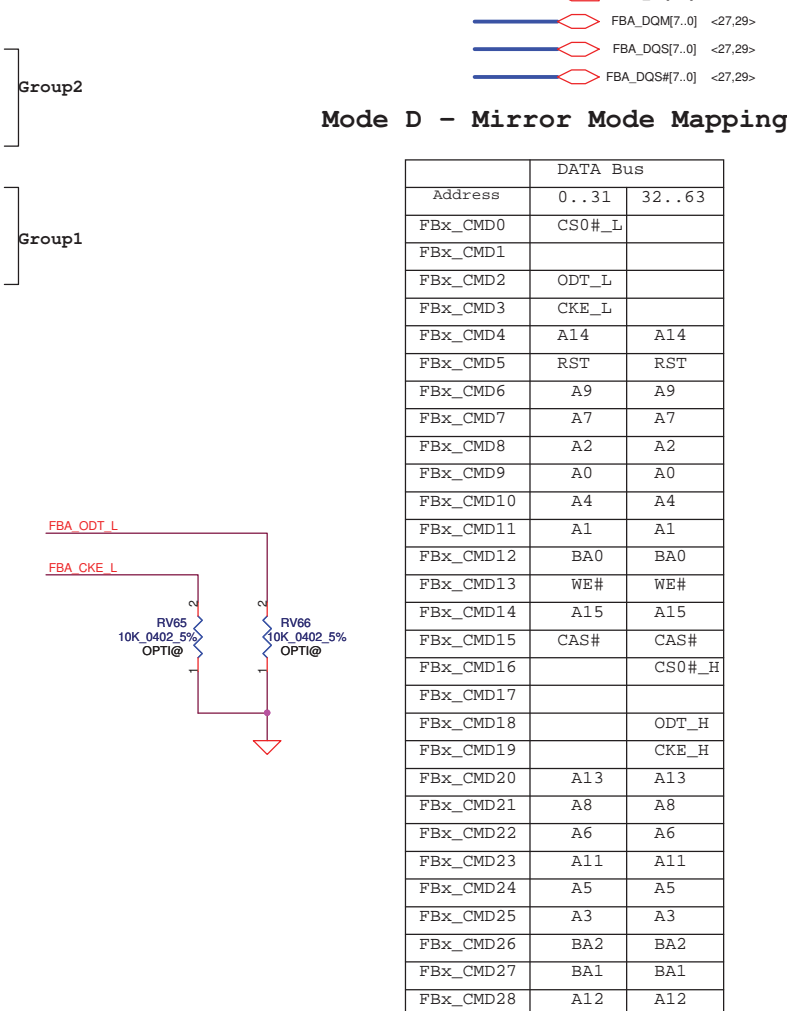
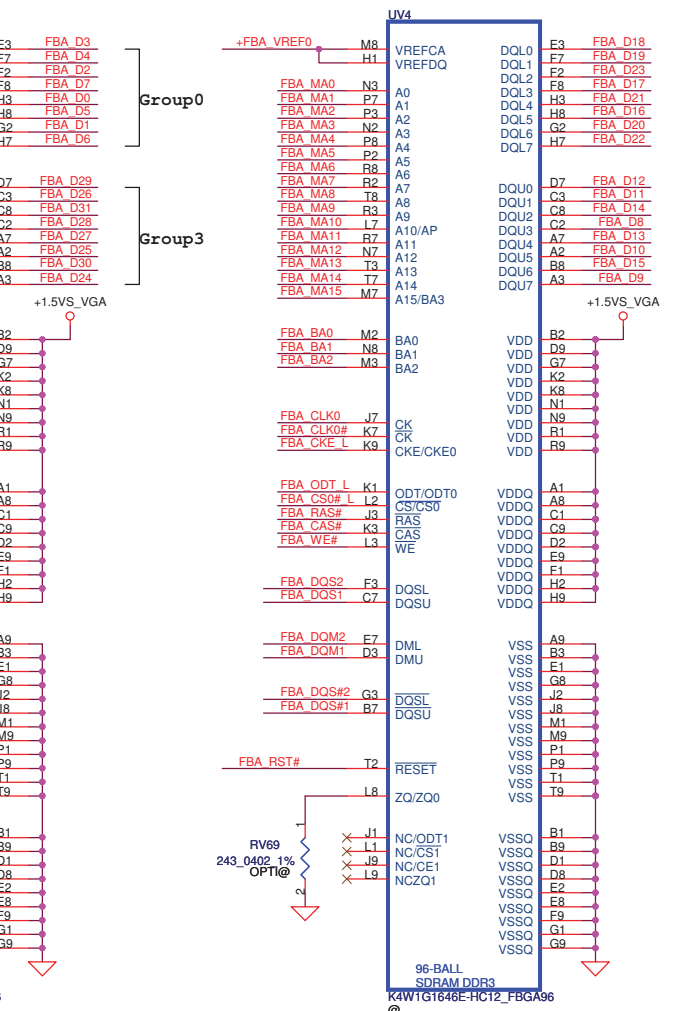


Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0...31	32...63
FbX_CMD0	CS0#_L	
FbX_CMD1		
FbX_CMD2	ODT_L	
FbX_CMD3	CKE_L	
FbX_CMD4	A14	A14
FbX_CMD5	RST	RST
FbX_CMD6	A9	A9
FbX_CMD7	A7	A7
FbX_CMD8	A2	A2
FbX_CMD9	A0	A0
FbX_CMD10	A4	A4
FbX_CMD11	A1	A1
FbX_CMD12	BA0	BA0
FbX_CMD13	WE#	WE#
FbX_CMD14	A15	A15
FbX_CMD15	CAS#	CAS#
FbX_CMD16		CS0#_H
FbX_CMD17		
FbX_CMD18		ODT_H
FbX_CMD19		CKE_H
FbX_CMD20	A13	A13
FbX_CMD21	A8	A8
FbX_CMD22	A6	A6
FbX_CMD23	A11	A11
FbX_CMD24	A5	A5
FbX_CMD25	A3	A3
FbX_CMD26	BA2	BA2
FbX_CMD27	BA1	BA1
FbX_CMD28	A12	A12
FbX_CMD29	A10	A10
FbX_CMD30	RAS#	RAS#

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	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

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PIQY0 LA6881P

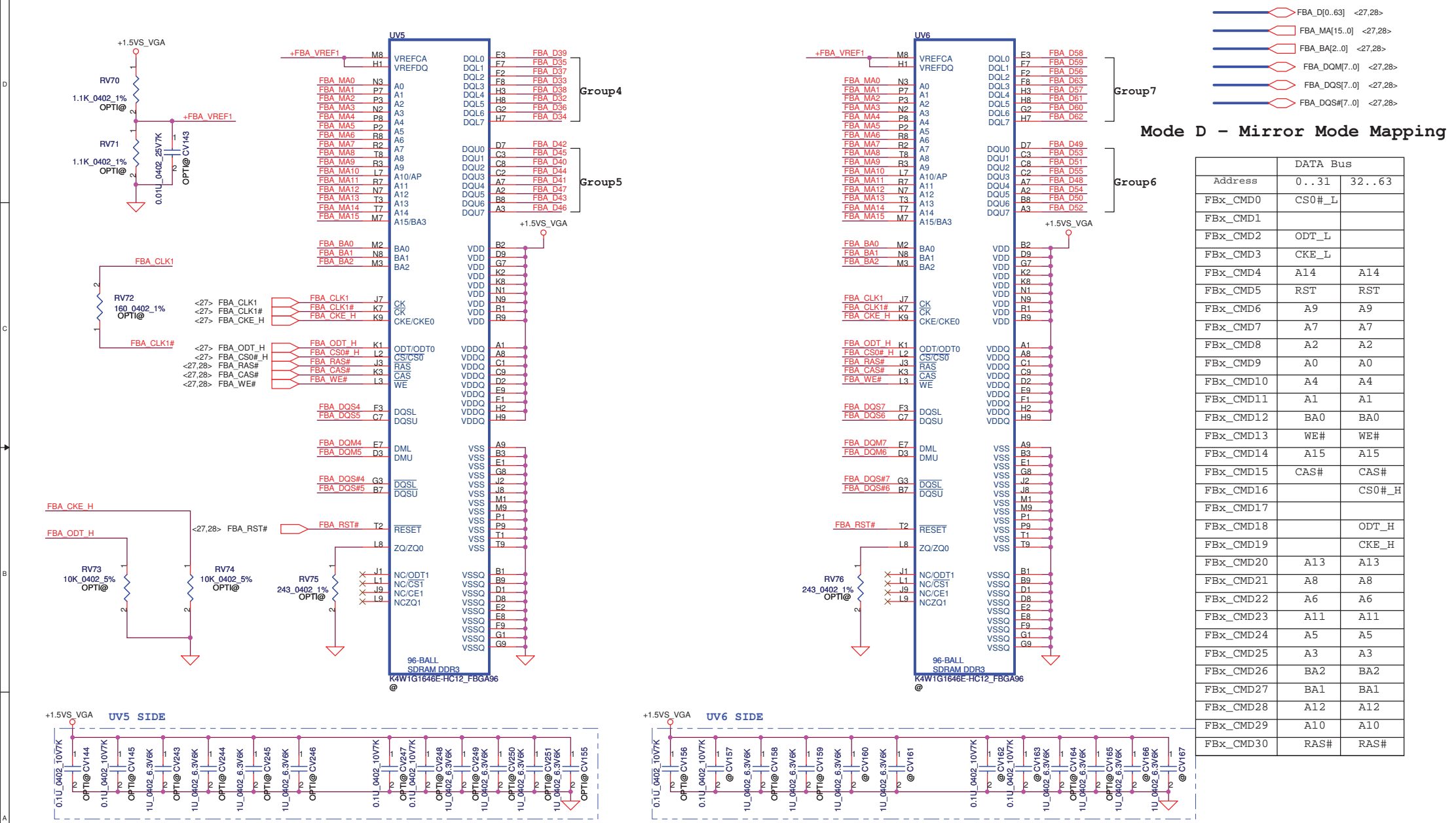
Rev	1
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Issued Date	2010/11/30	Deciphered Date	2011/08
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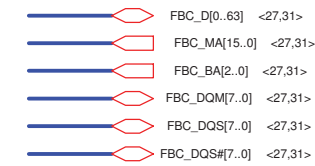
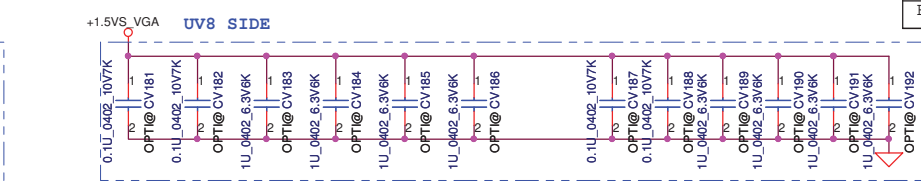
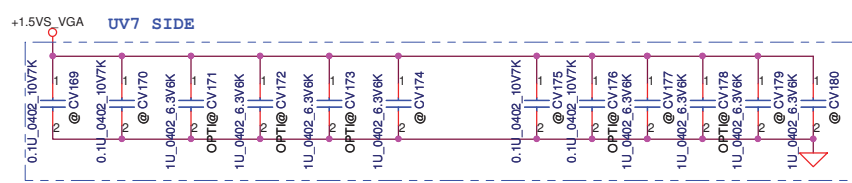
Date: Wednesday, January 05, 2011 Sheet 28 of 63

Memory Partition A - Upper 32 bits



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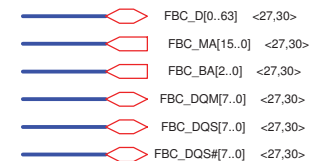
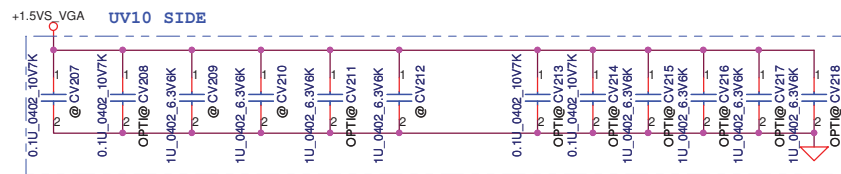
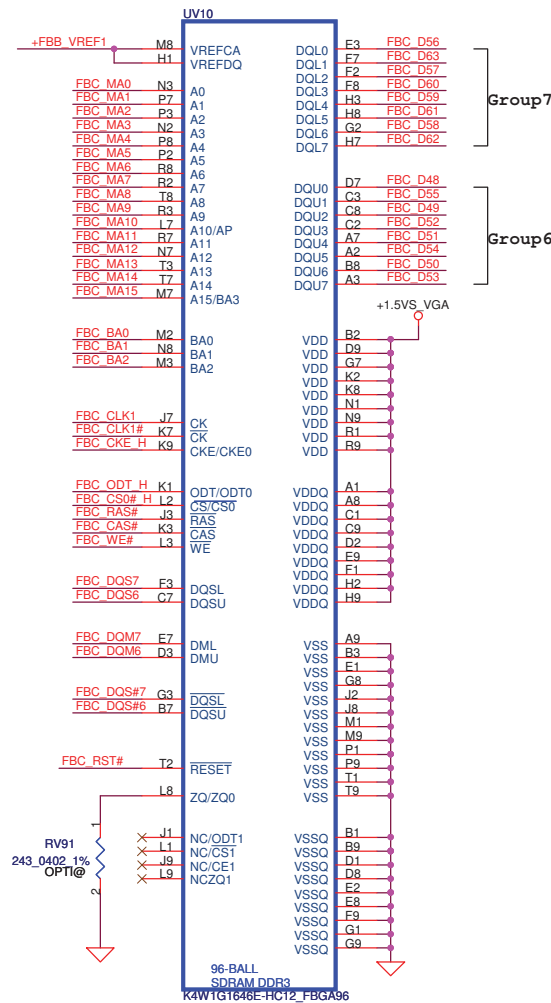
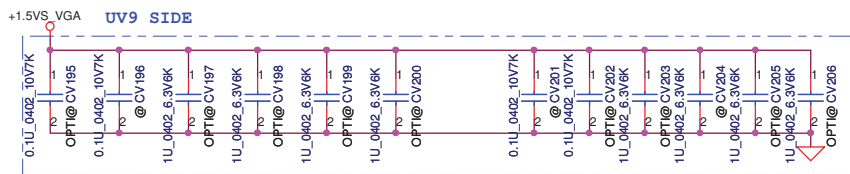
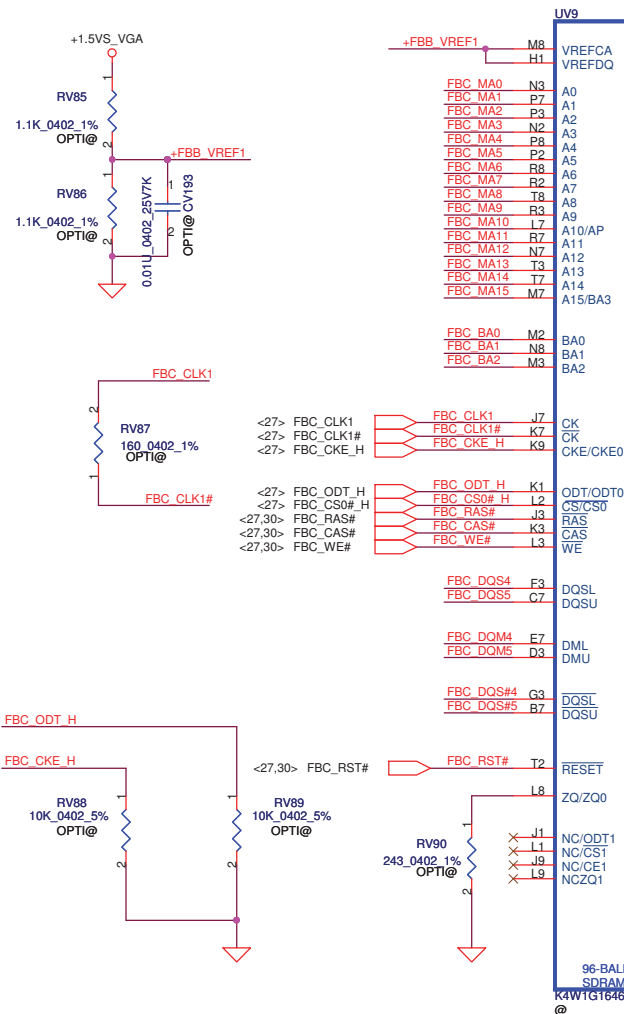
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	DATA Bus	
Address	0..31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#

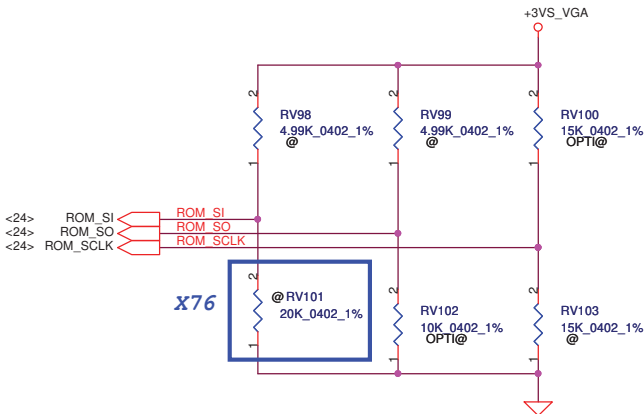
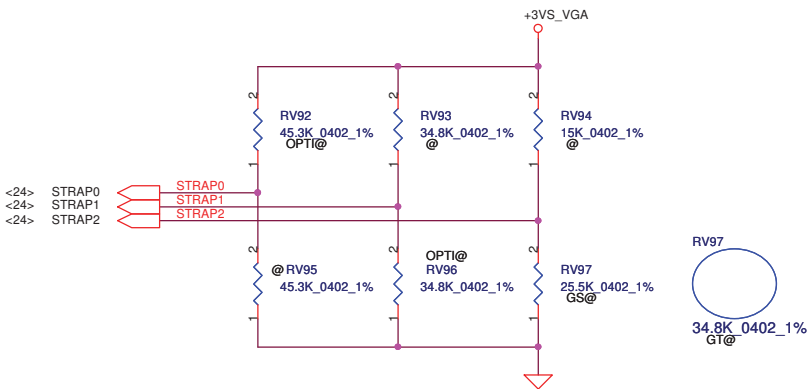
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Issued Date	2010/11/30	Deciphered Date	2011/08	Title	N12P-VRAM C Lower	
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				Custom	PIQY0 LA6881P	1.0
				Date:		Wednesday, January 05, 2011

Memory Partition C - Upper 32 bits



Mode D - Mirror Mode Mapping

	DATA Bus	
Address	0...31	32..63
FBx_CMD0	CS0#_L	
FBx_CMD1		
FBx_CMD2	ODT_L	
FBx_CMD3	CKE_L	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE#	WE#
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16		CS0#_H
FBx_CMD17		
FBx_CMD18		ODT_H
FBx_CMD19		CKE_H
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#



ROM_SO : PD-10K
 ROM_SCLK : PH-15K
 ROM_SI : PD20K (Samsung)
 Strap 2 : N12P-GS, PD-25K,
 N12P-GT, PD35K,
 Strap 1 : PD-35K
 Strap 0 : PH-45K

	DeviceID	ROM_SCLK	STRAP2
N12P-GS	0x0DF4	Pull up 15K	Pull down 25K
N12P-GT	0x0DF6	Pull up 15K	Pull down 35K

Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
ROM_SO	+3VS_VGA	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SCLK	+3VS_VGA	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM
ROM_SI	+3VS_VGA	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]
STRAP2	+3VS_VGA	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP1	+3VS_VGA	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
STRAP0	+3VS_VGA	USER[3]	USER[2]	USER[1]	USER[0]

Resistor Values	Pull-up to +3VS_VGA	Pull-down to Gnd
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

SUB_VENDOR	
0	No VBIOS ROM
1	BIOS ROM is present (Default)

XCLK_417	
0	277MHz (Default)
1	Reserved

FB_0_BAR_SIZE	
0	256MB (Default)
1	Reserved

USER Straps	
User[3:0]	
1000-1100	Customer defined

3GIO_PADCFG	
3GIO_PADCFG[3:0]	
0110	Notebook Default

PEX_PLL_EN_TERM	
0	Disable (Default)
1	Enable

SLOT_CLK_CFG	
0	GPU and MCH don't share a common reference clock
1	GPU and MCH share a common reference clock (Default)

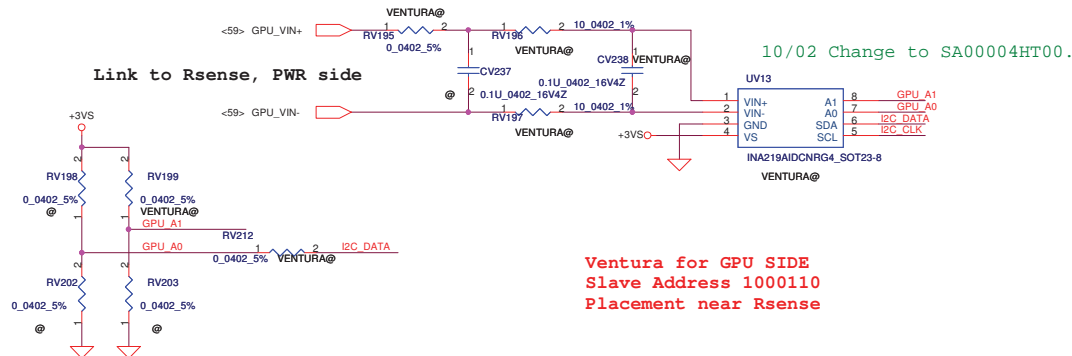
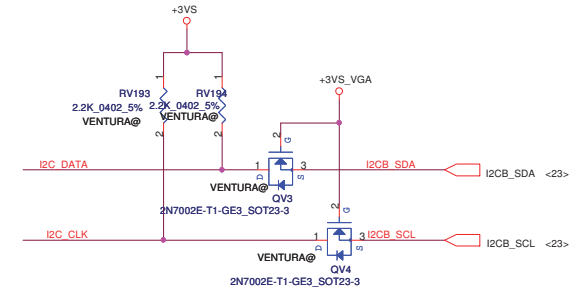
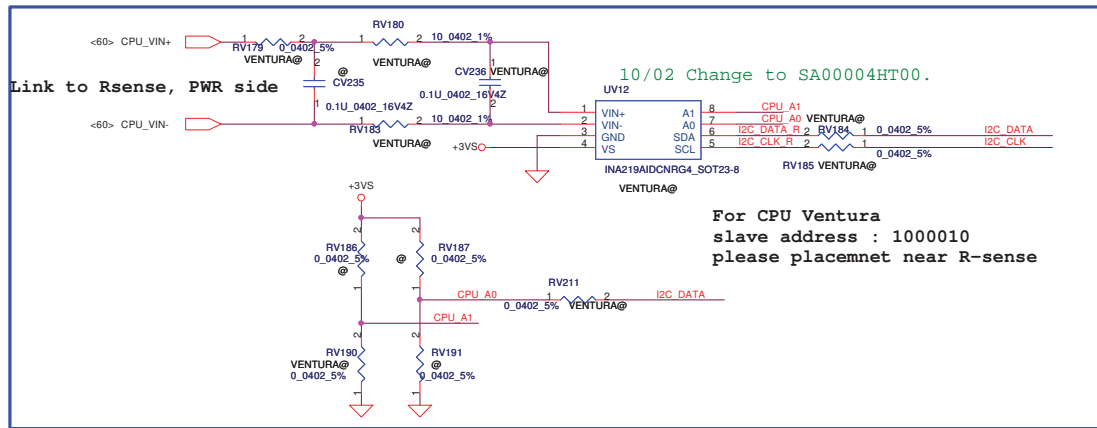
SMBUS_ALT_ADDR	
0	0x9E (Default)
1	0x9C (Multi-GPU usage)

VGA_DEVICE	
0	3D Device (Class Code 302h)
1	VGA Device (Default)

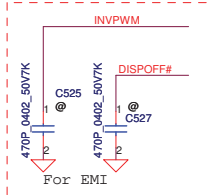
Hynix H5TQ1G63BFR-12C	64Mx16	0010	PD 15K	SA000041S30
	128Mx16	0110	PD 35K	SA00003Y000
Samsung K4W1G1646E-HC12	64Mx16	0011	PD 20K	SA000041T10
	128Mx16	0111	PD 45K	SA000047Q10

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				Size Custom	Document Number	Rev
				PIQY0 LA6881P		1.0
Date:		Wednesday, January 05, 2011		Sheet	32	of 63

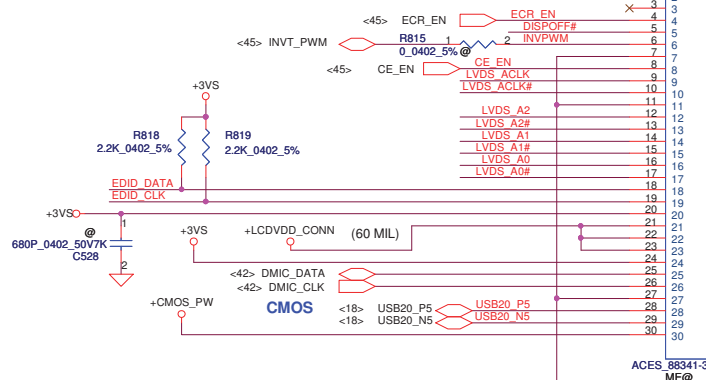
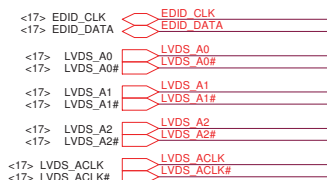
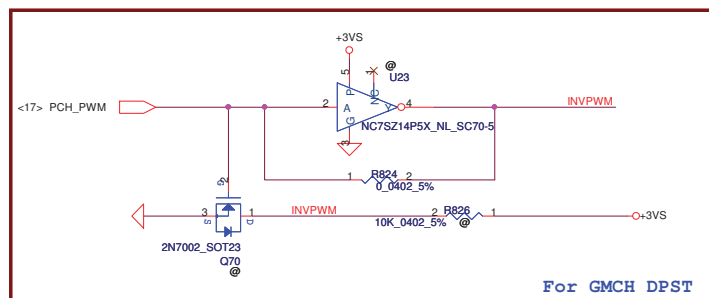
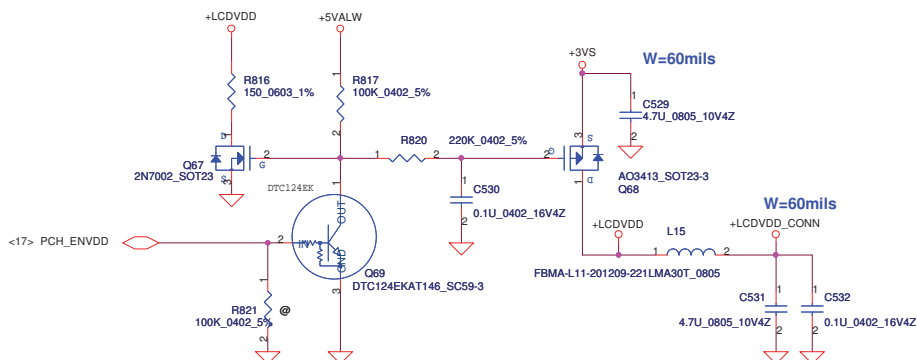
TOP side (under inductor)



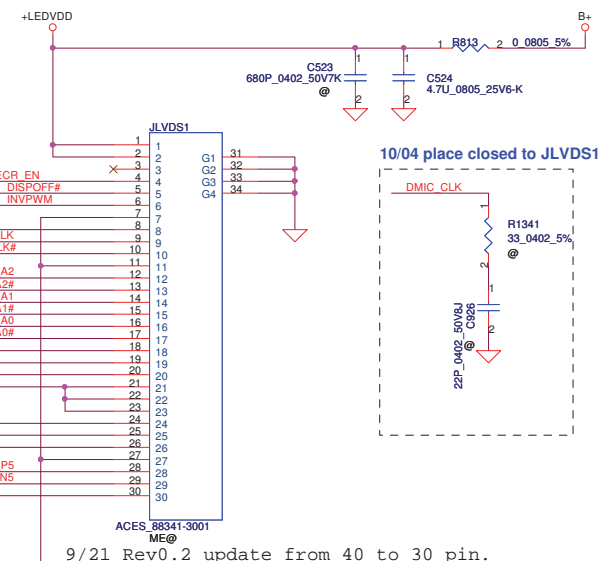
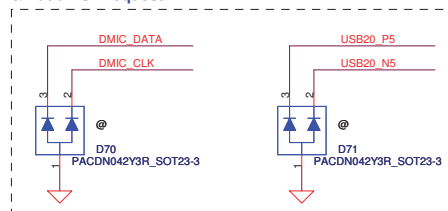
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Issued Date	2010/11/30	Deciphered Date	2011/08	Title		
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				Size	Document Number	Rev
					PIQY0 LA6881P	1.0
				Date:	Wednesday, January 05, 2011	Sheet 33 of 63



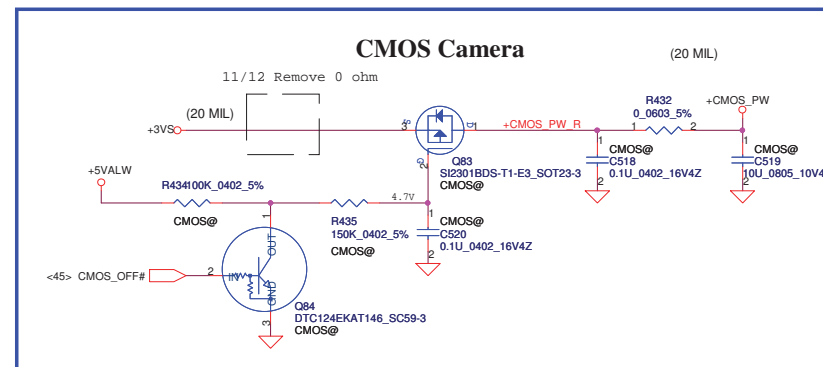
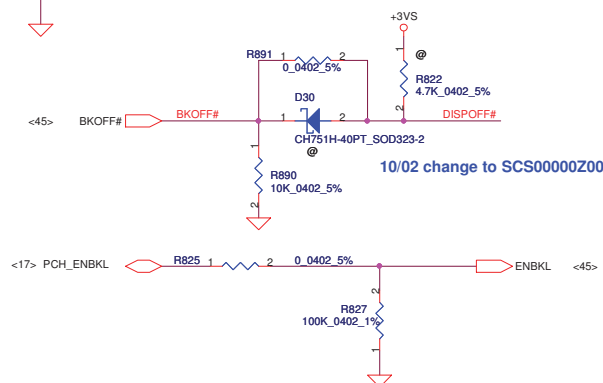
LCD POWER CIRCUIT



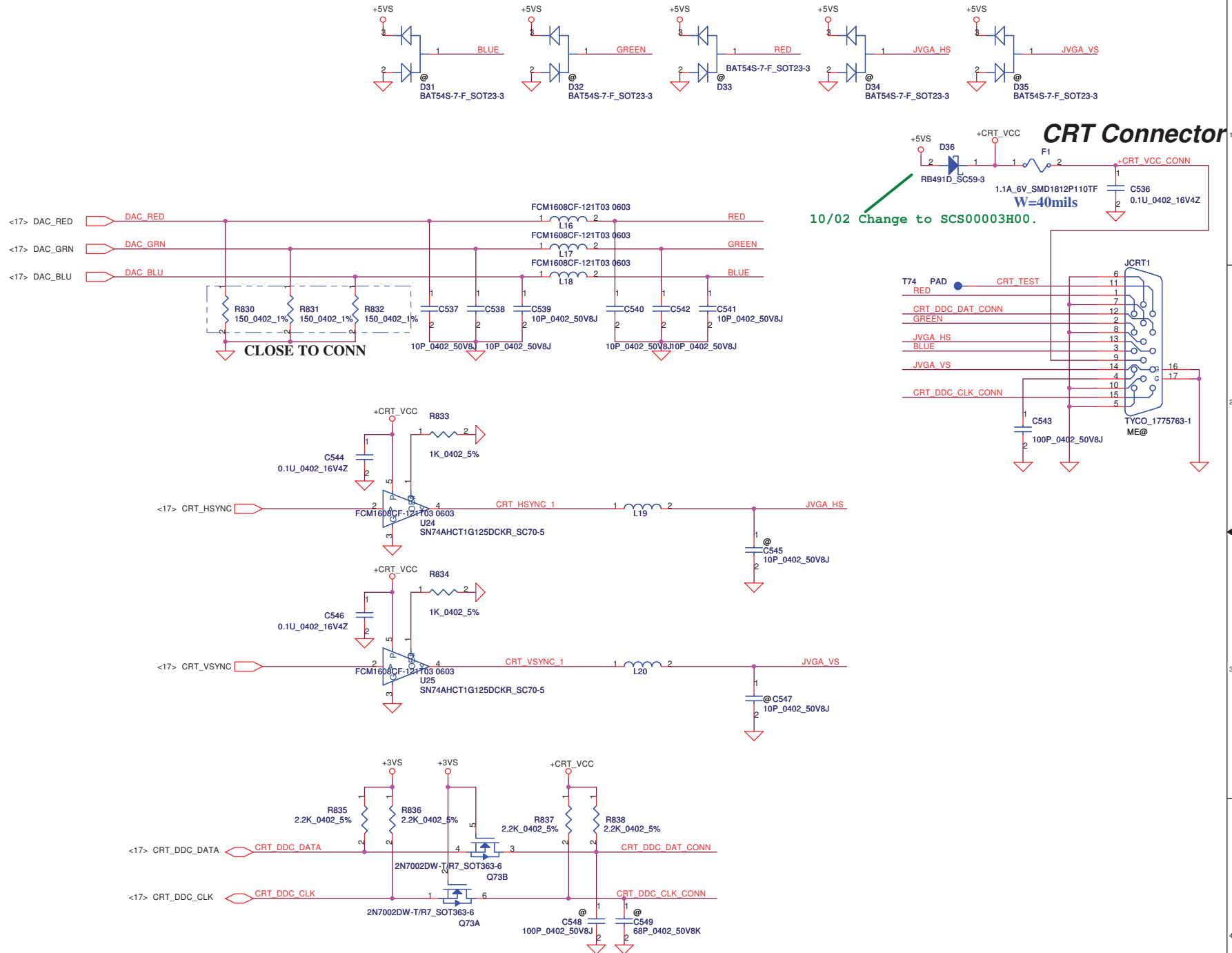
8/4 add ESD request



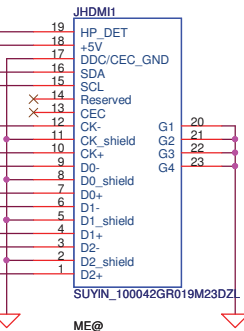
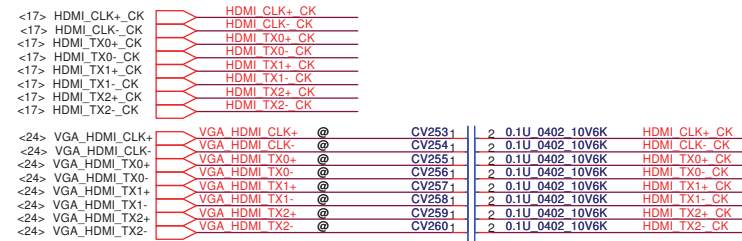
9/21 Rev0.2 update from 40 to 30 pin.



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Issued Date	2010/11/30	Deciphered Date	2011/08	LVDS/CAMERA	
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				Date: Wednesday, January 05, 2011	Rev 1.0
				1 Sheet	34 of 63



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Size	Custom	Document Number	PIQY0 LA6881P	Rev	1.0
Date:	Wednesday, January 05, 2011	Sheet	35	of	63

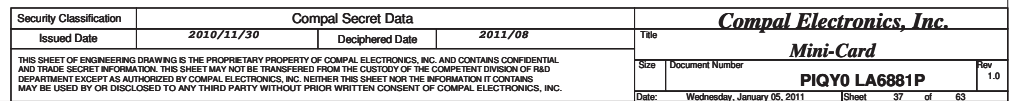


WWW.AliSaler.Com

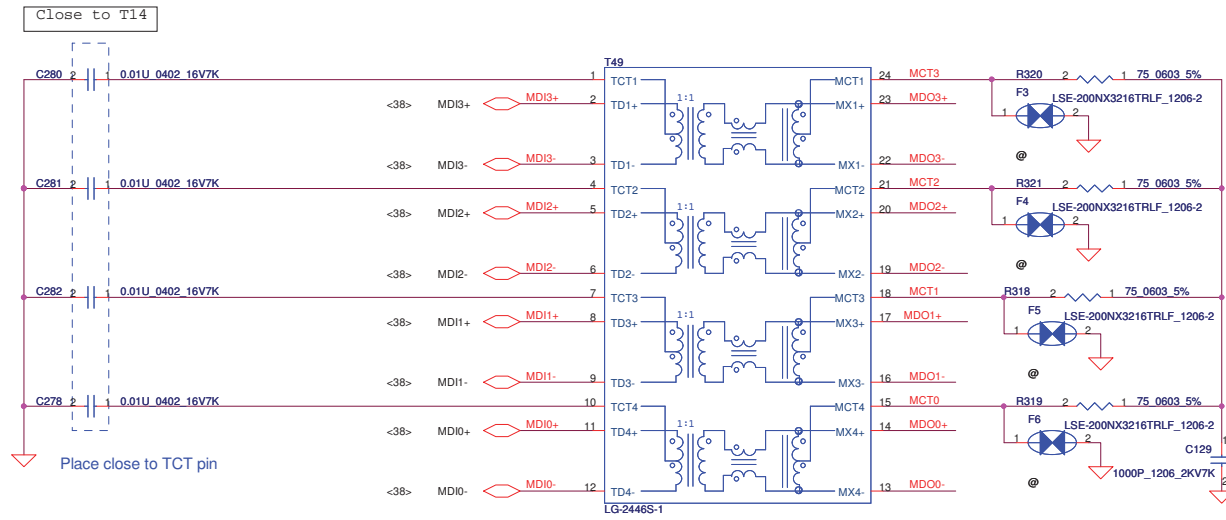
Mini-Express Card(WLAN/WiMAX)



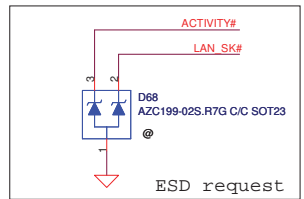
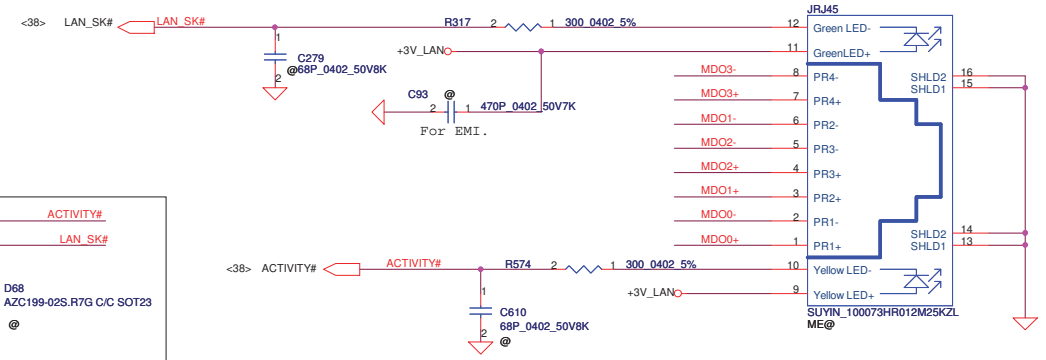
+3VS +3VS_SSD





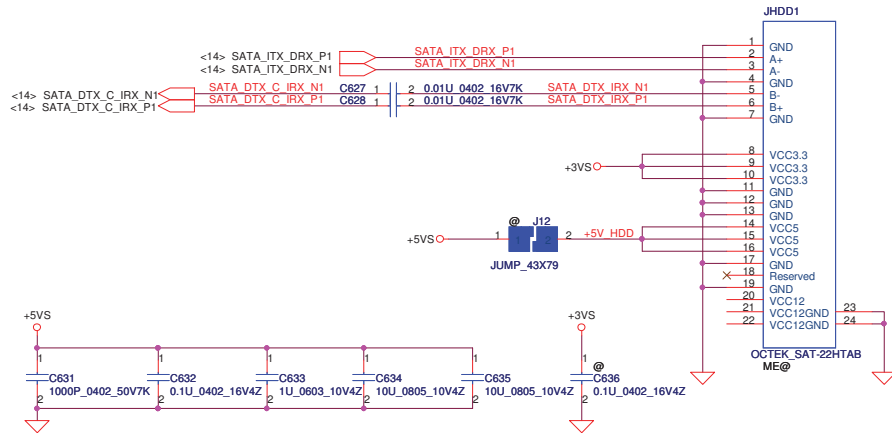


RJ45 Conn.

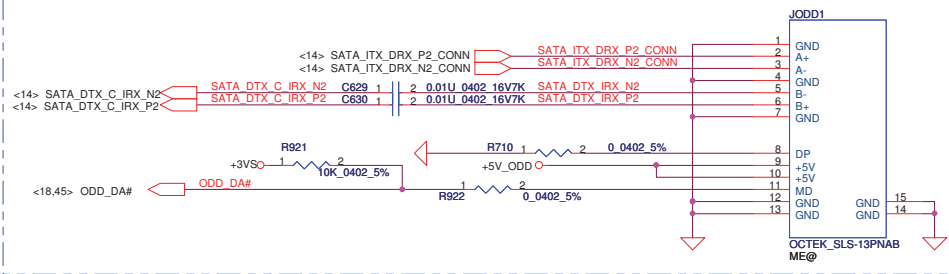


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				Custom	PIQY0 LA6881P
				Date:	Wednesday, January 05, 2011
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				Rev	1.0

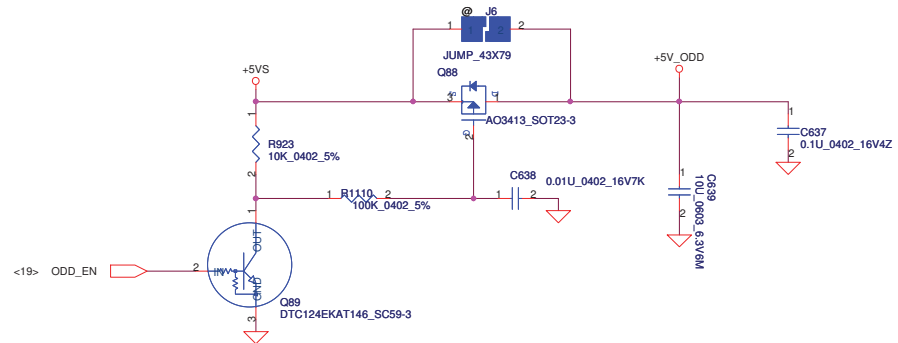
SATA HDD Conn.



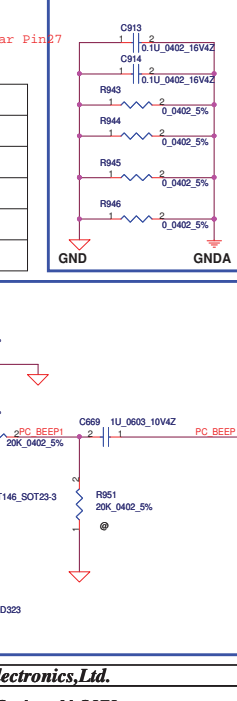
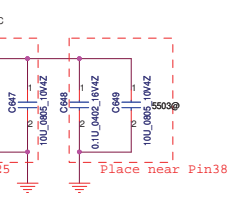
SATA ODD Conn.



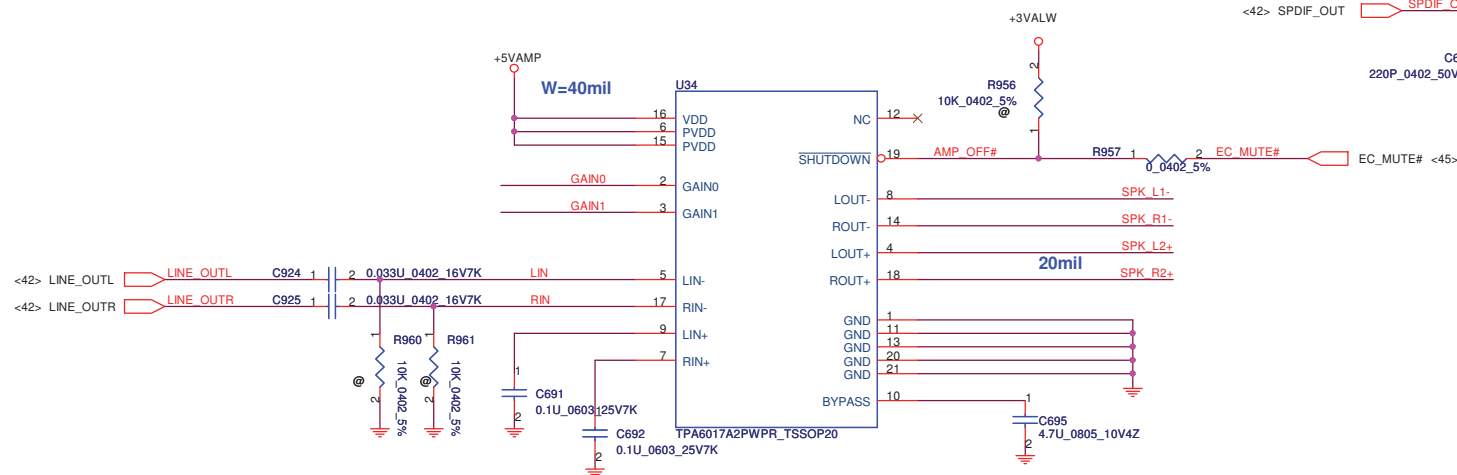
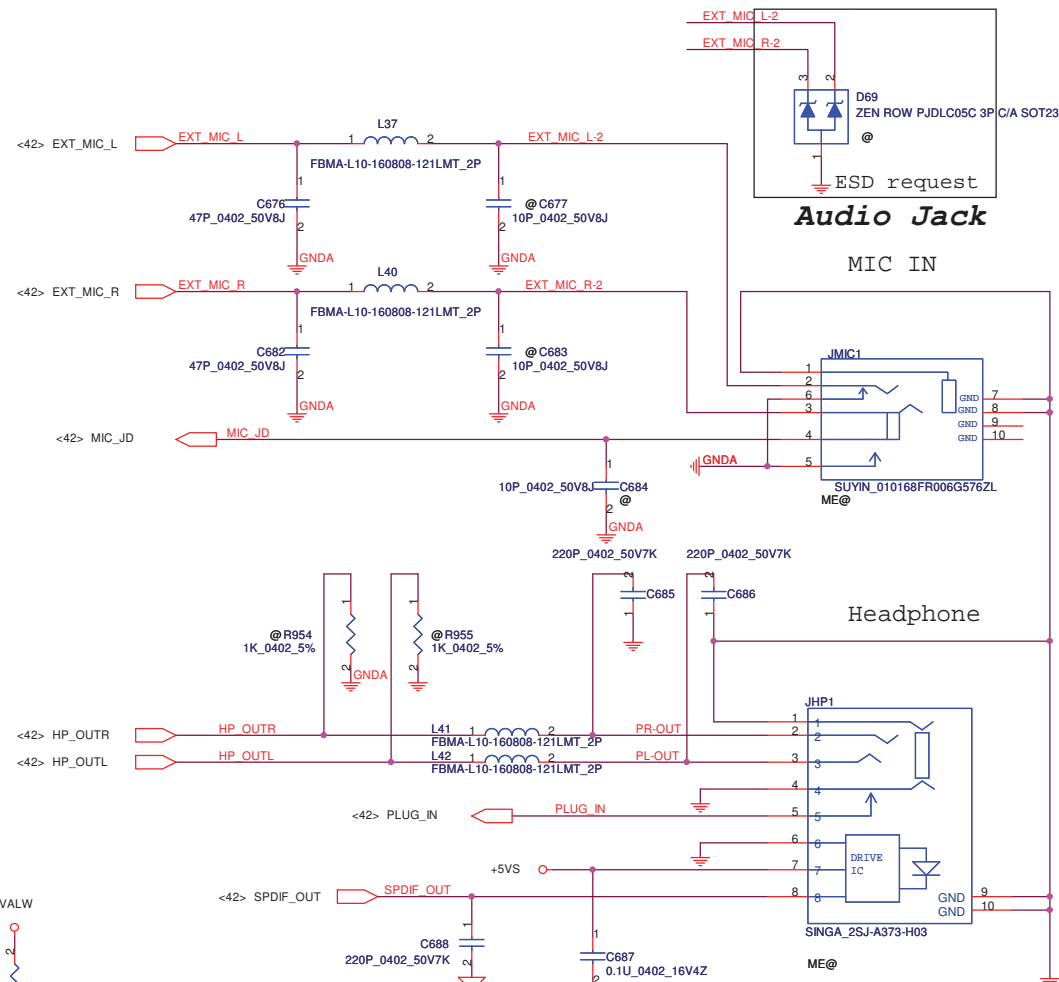
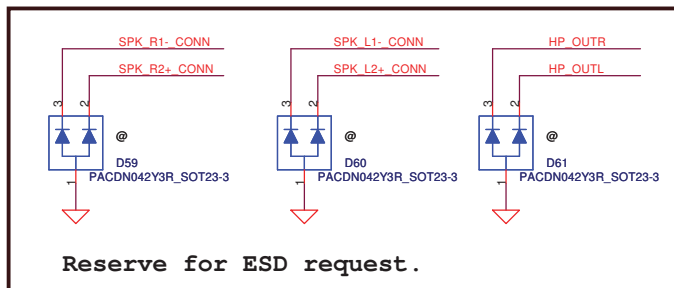
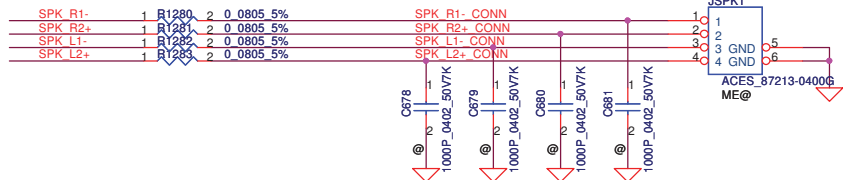
ODD Power Control



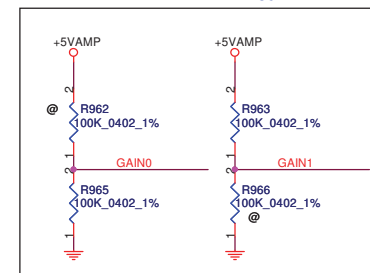
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wide 20MIL

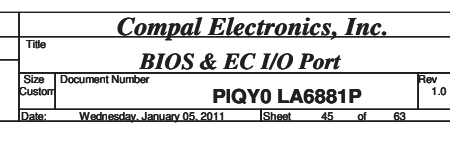
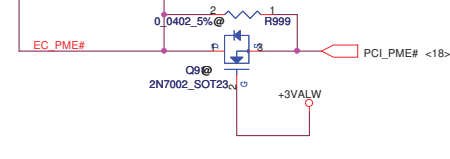
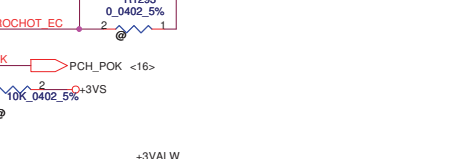
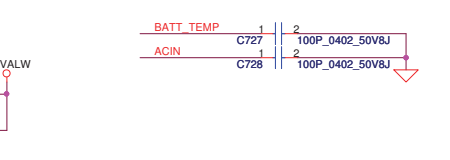
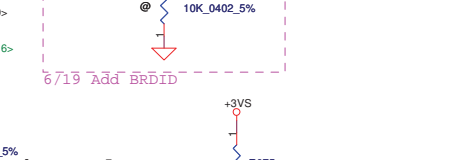
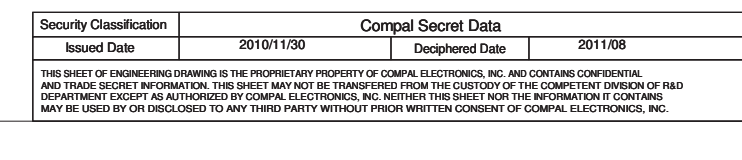
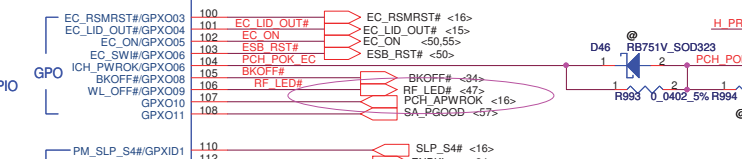
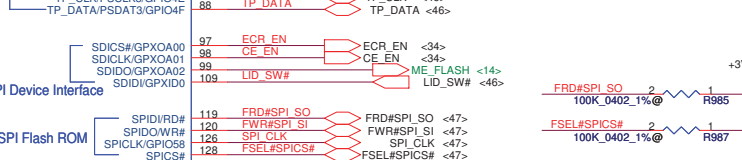
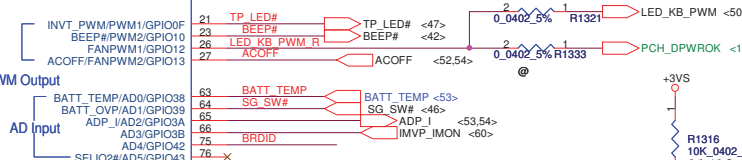
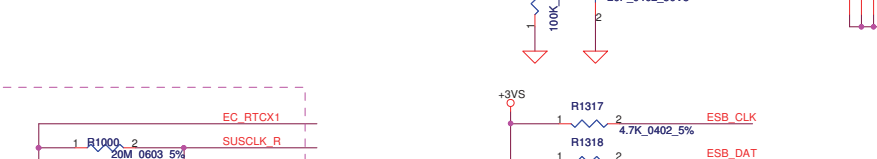
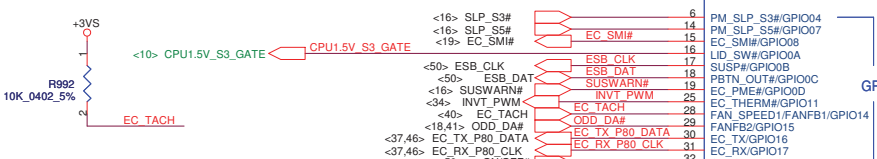
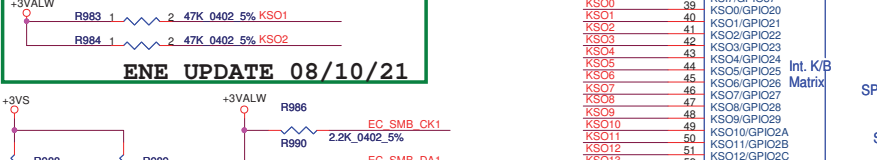
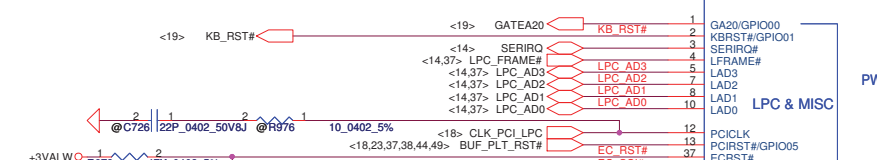


GAIN0	GAIN1	
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB



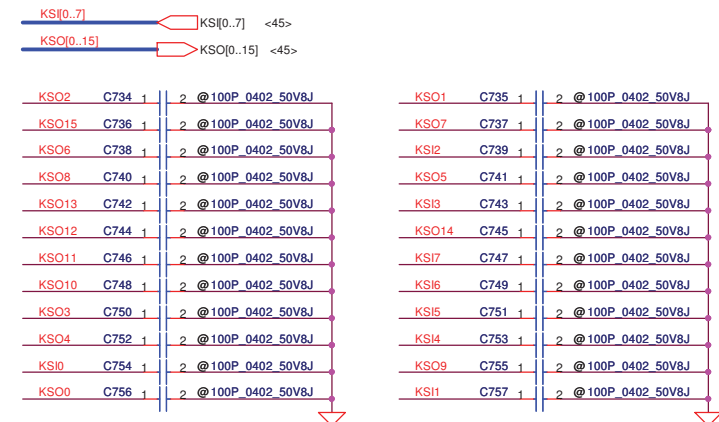
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Issued Date	2010/11/30	Deciphered Date	2011/08	Title	AMP, Audio speaker CONN
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10/02 Change to SM010005500.

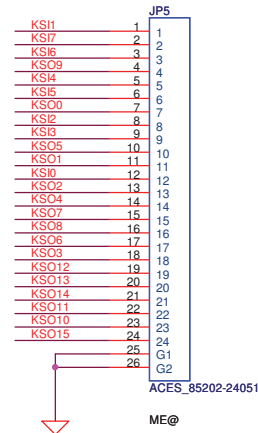


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				Custom	PIQY0 LA6881P	1.0
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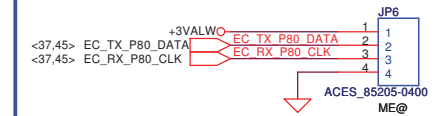
INT_KBD Conn.



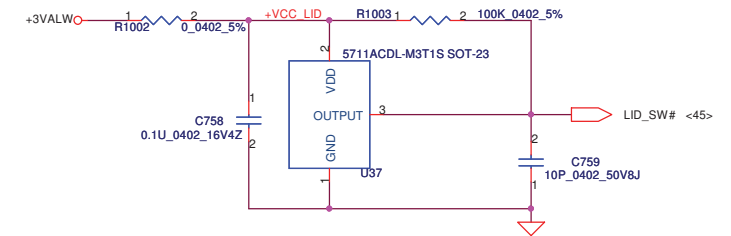
CONN PIN define need double check



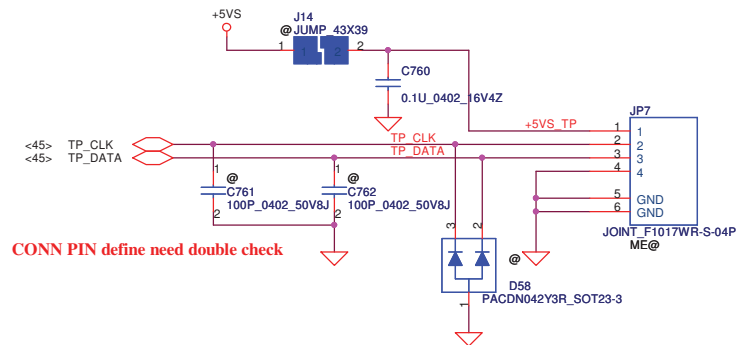
EC DEBUG PORT



Lid Switch

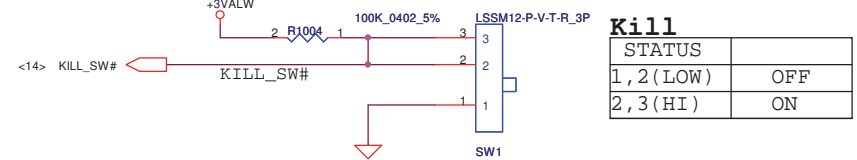


To TP/B Conn.

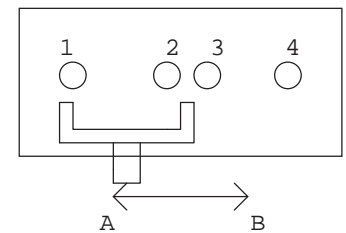
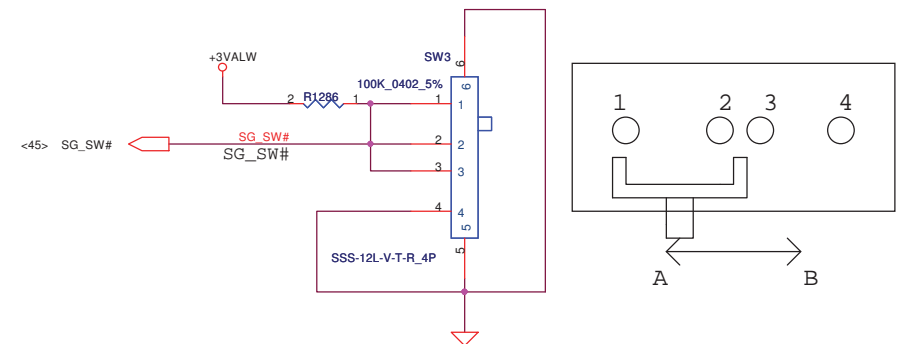


CONN PIN define need double check

Kill Switch

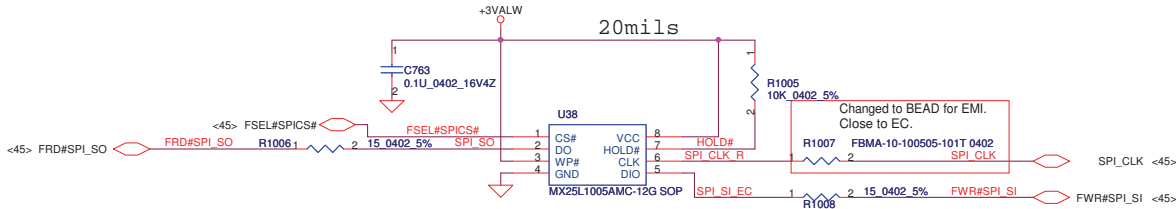


Kill	
STATUS	
1, 2 (LOW)	OFF
2, 3 (HI)	ON

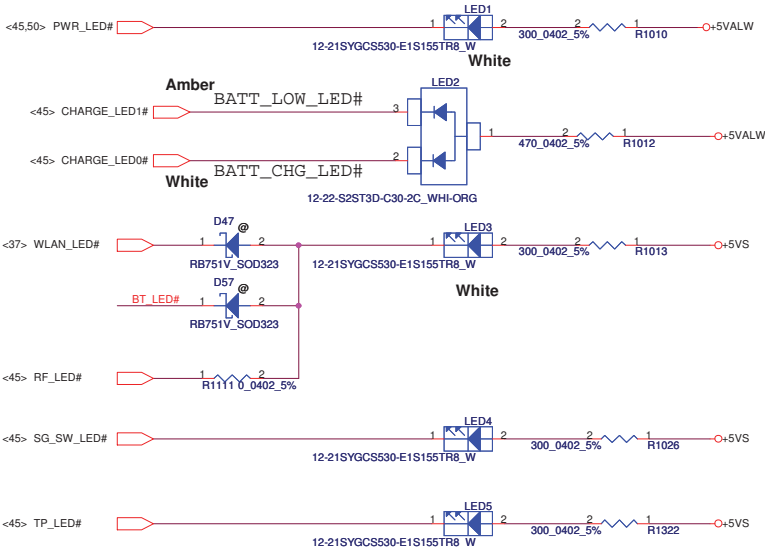


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				PIQY0 LA6881P	
				Date: Wednesday, January 05, 2011	Rev 1.0
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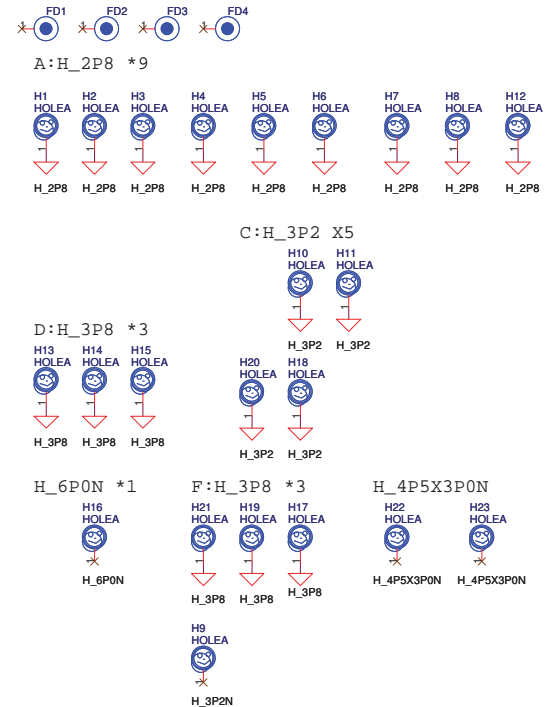
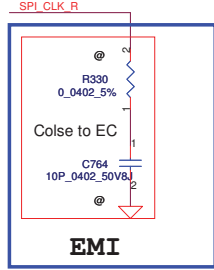
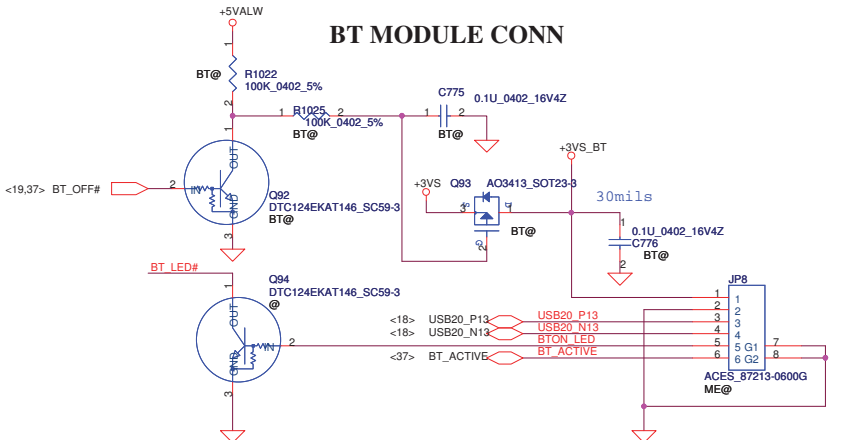
**FOR EC 128KB SPI ROM
(150mil PACKAGE)**



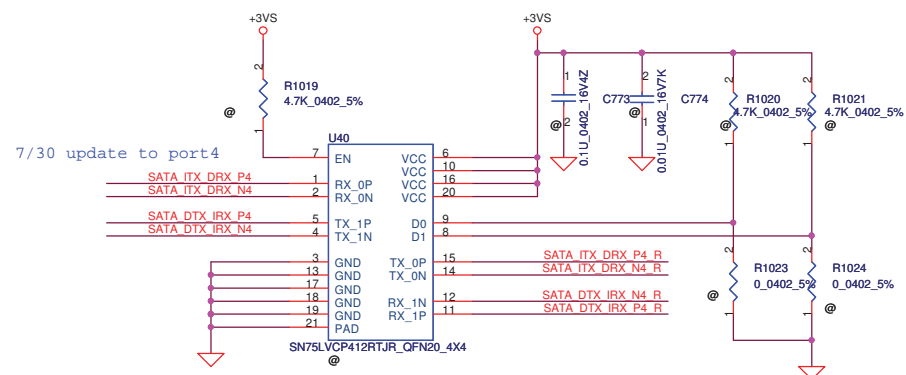
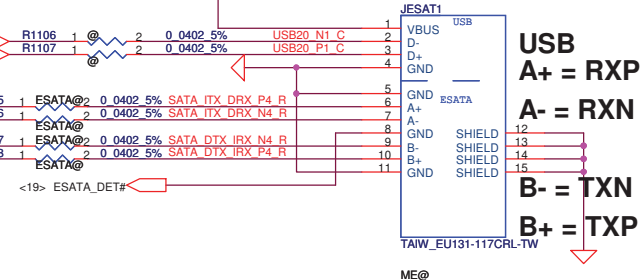
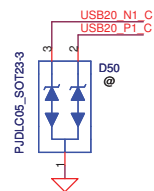
LED



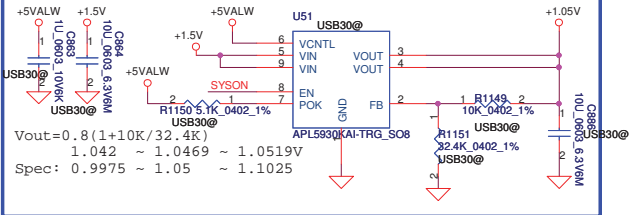
BT MODULE CONN



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Date:				Wednesday, January 05, 2011	1Sheet	47 of 63

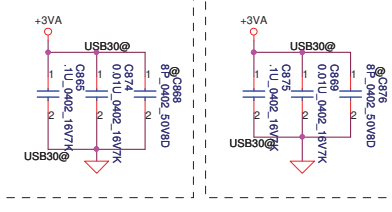


+1.5V to +1.05V Transfer

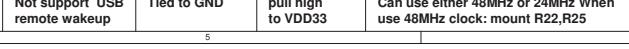
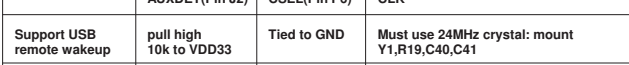
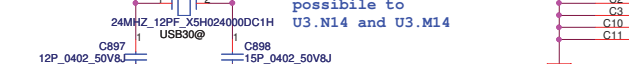
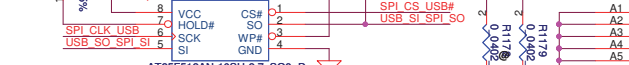
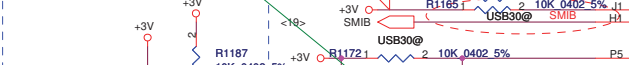
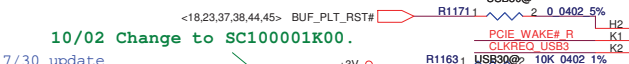
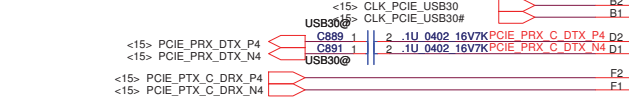
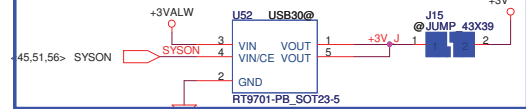


Close to U3.D7

Close to U3.P13



+3VALW to +3V Transfer



SPEC Max: +3V---200mA; +1.05V---800mA
Idle mode: 0.489W;
+3V---43mA; +1.05V---328mA
D3 mode: 0.066W;
+3V---5.4mA; +1.05V---45mA

Can be attach to EC, either.

PCI Express/ExpressCard select signal
 1: others
 0: Express Card or Mini card

As short as possible

09/15 Reserve inverter.

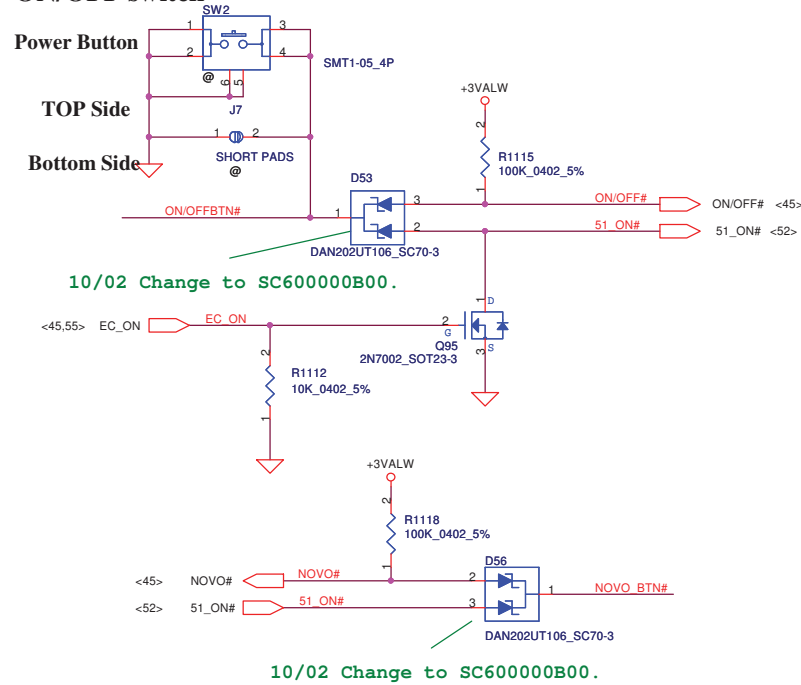
P/N: SA00033W10 (S IC UPD720200F1-DAK-A FBGA 176P USB3.0) MP version

Pin compare table for support USB remote wakeup or not

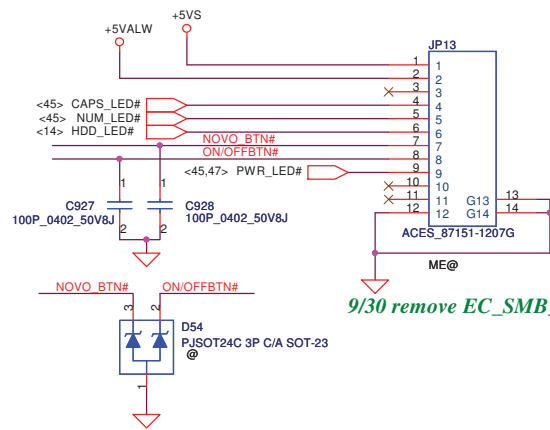
	AUXDET(Pin J2)	CSEL(Pin P6)	CLK
Support USB remote wakeup	pull high 10k to VDD33	Tied to GND	Must use 24MHz crystal: mount Y1,R19,C40,C41
Not support USB remote wakeup	Tied to GND	pull high to VDD33	Can use either 48MHz or 24MHz When use 48MHz clock: mount R22,R25

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				Date	Wednesday, January 05, 2011

ON/OFF switch



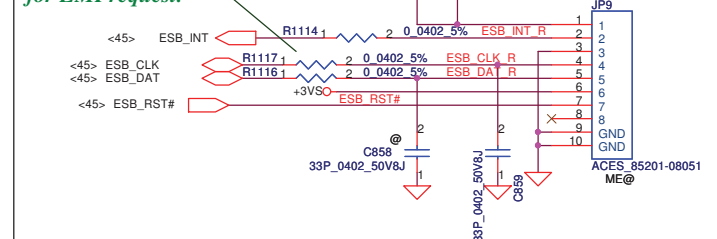
Power Bottom Board Conn. 10pin



EMI REQUEST 1ST = SCA00000E00
2ST = SCA00000R00

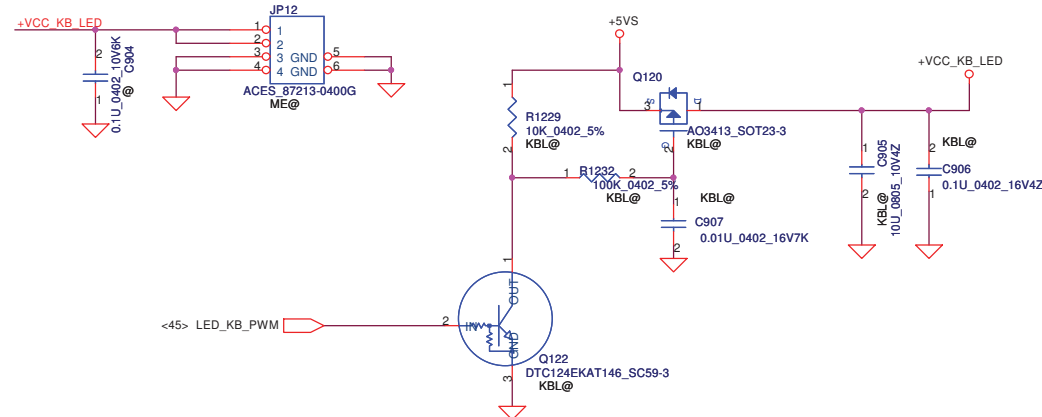
Silder Bar Board Mdule Conn. 6pin

DVT, R1117 change to SM01000CY00
for EMI request.



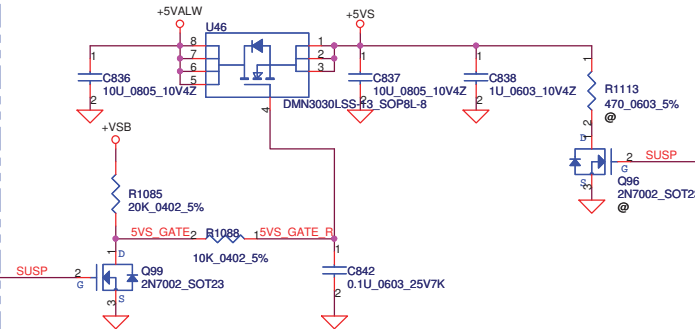
9/30 remove EC_SMB_CK2, EC_SMB_DA2

KB Lighting CONN.4pin

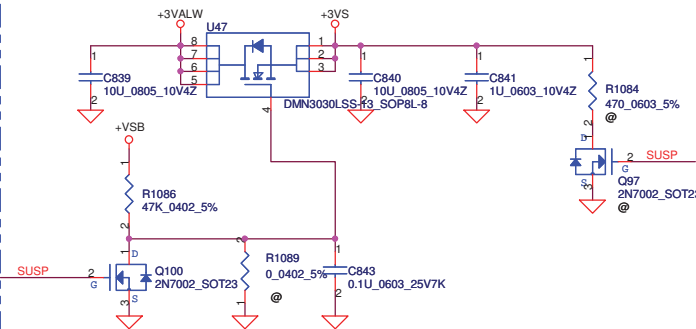


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Size Custom	Document Number	PIQY0 LA6881P		Rev 1.0
Date: Wednesday, January 05, 2011	Sheet	50	of	63

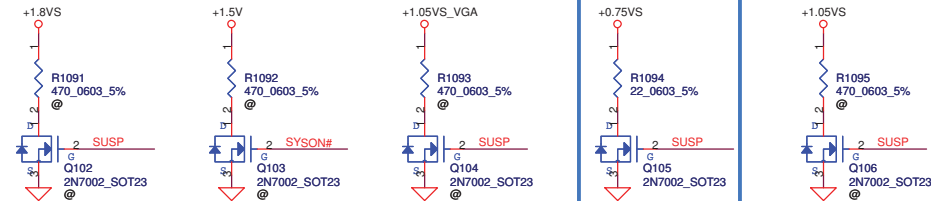
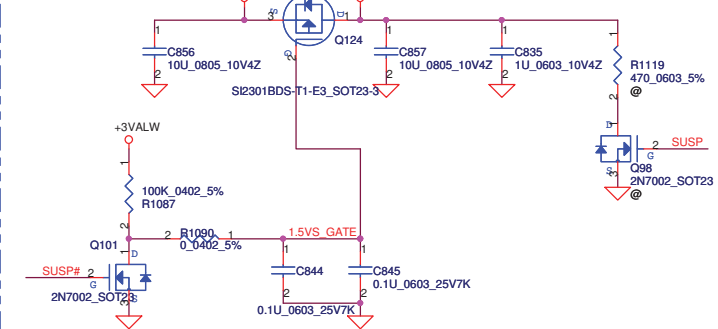
+5VALW TO +5VS



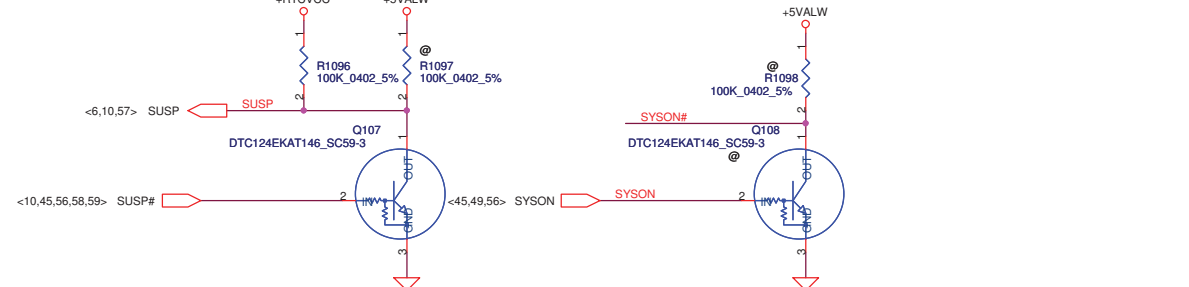
+3VALW TO +3VS



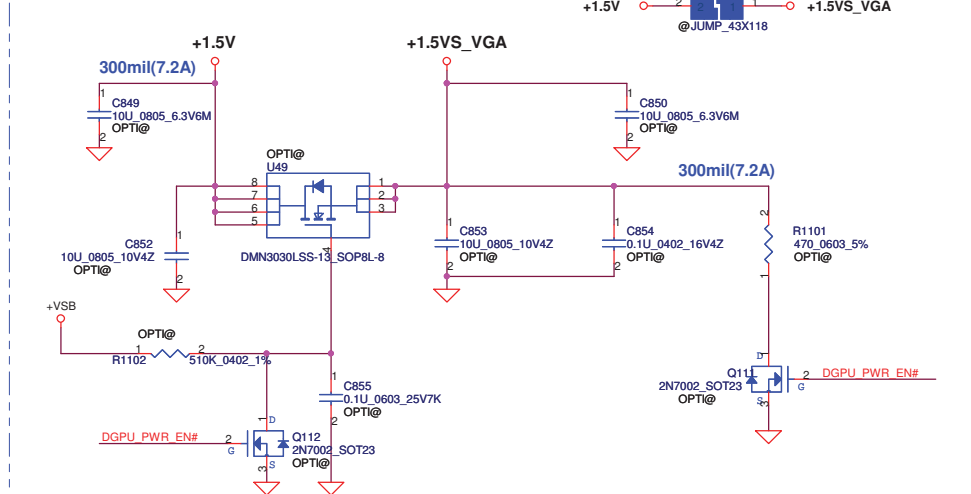
+1.5V to +1.5VS



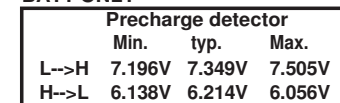
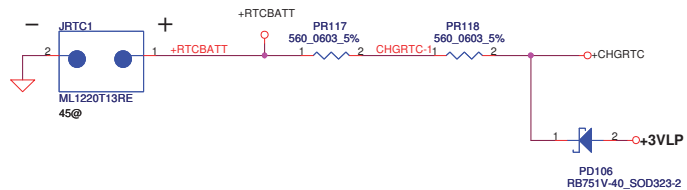
For Intel S3 Power Reduction.



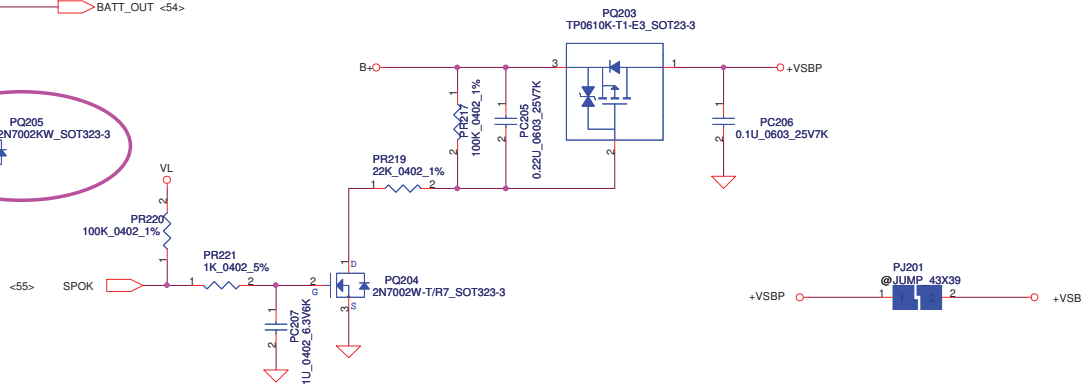
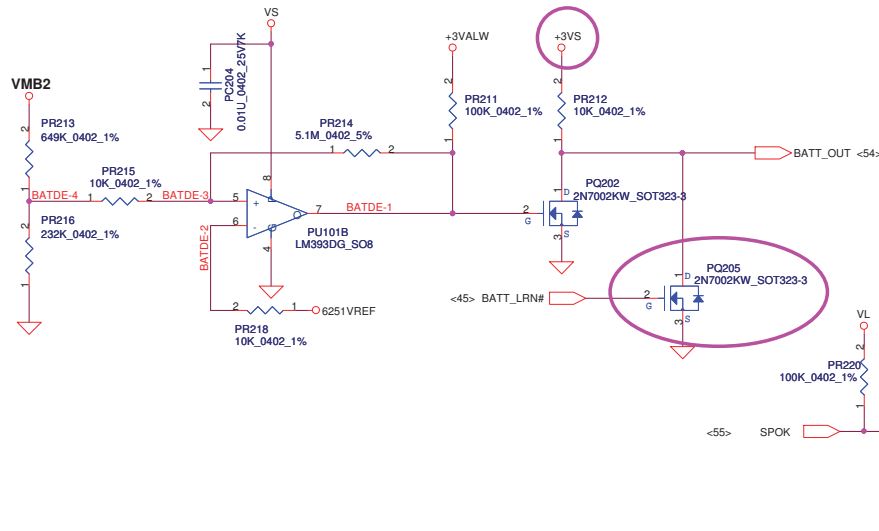
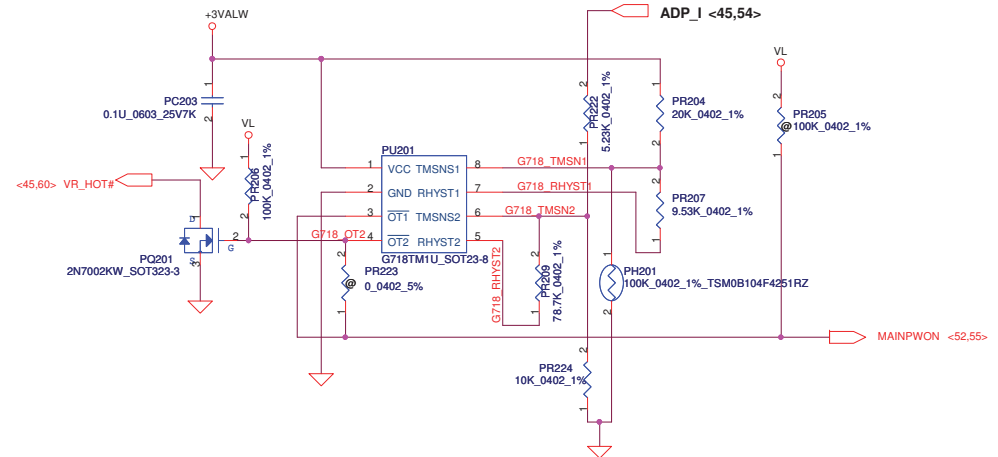
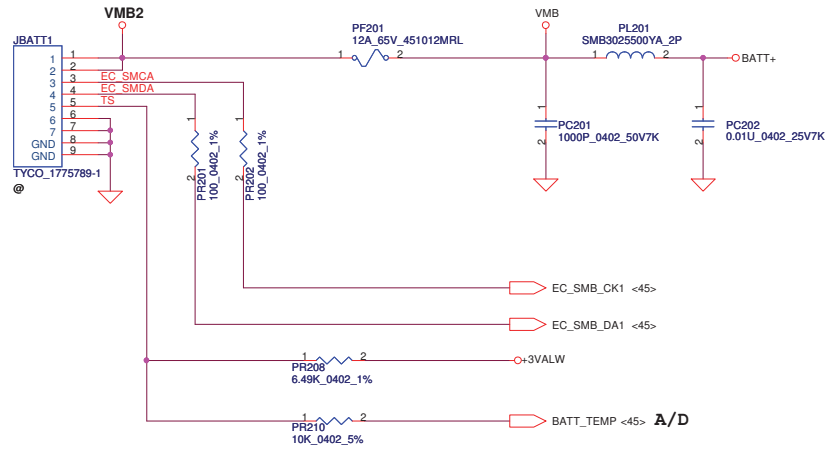
+1.5V to +1.5VS_VGA Transfer



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		Size		Document Number				Rev	
		Custom		PIQY0 LA6881P				1.0	
		Date:		Wednesday, January 05, 2011		Sheet		51 of 63	



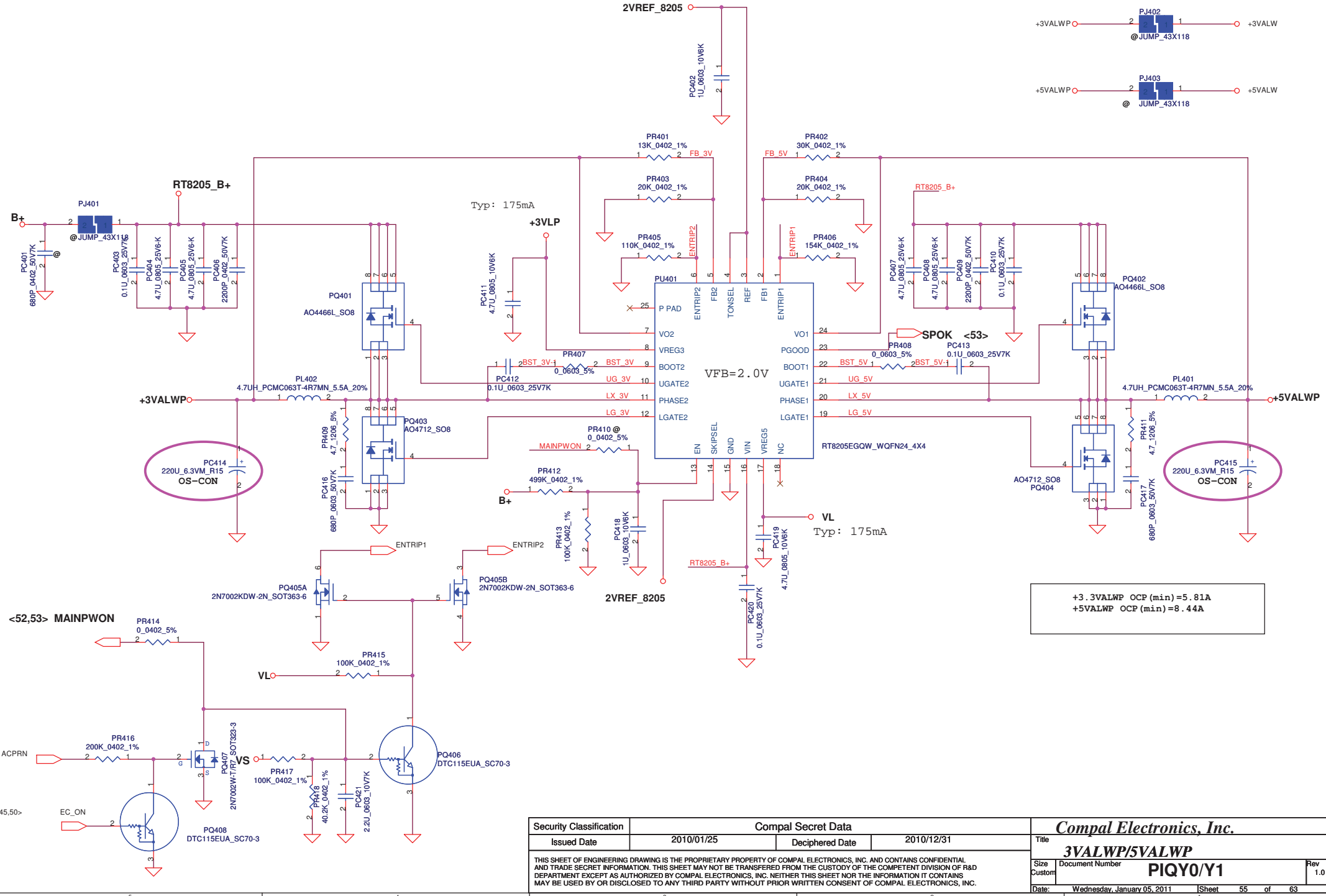
PH201 under CPU botten side :
CPU thermal protection at 95 degree C
Recovery at 56 degree C



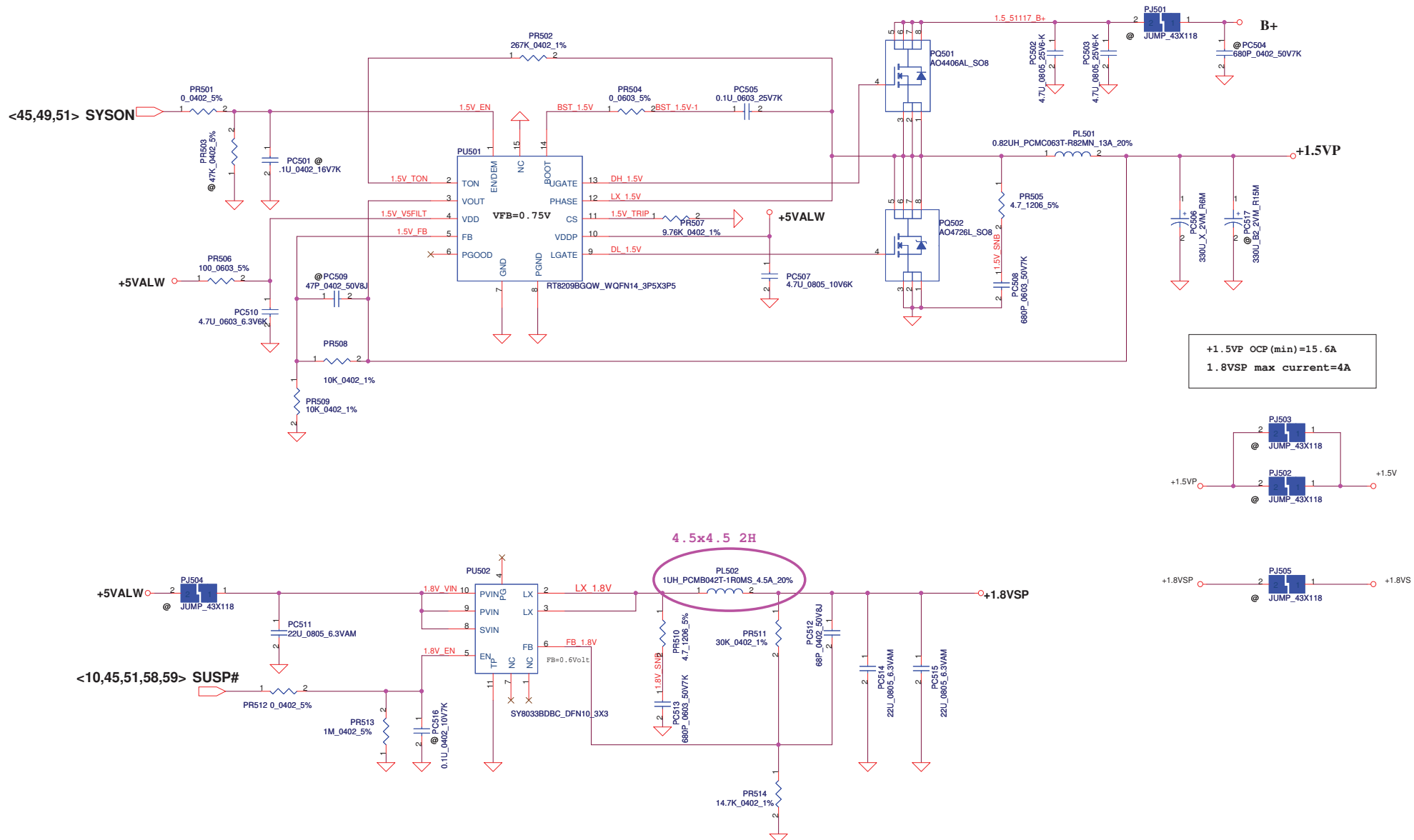
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Size	Custom	Document Number	PIQY0/Y1	Rev	1.0
Date:	Wednesday, January 05, 2011	Sheet	53	of	63



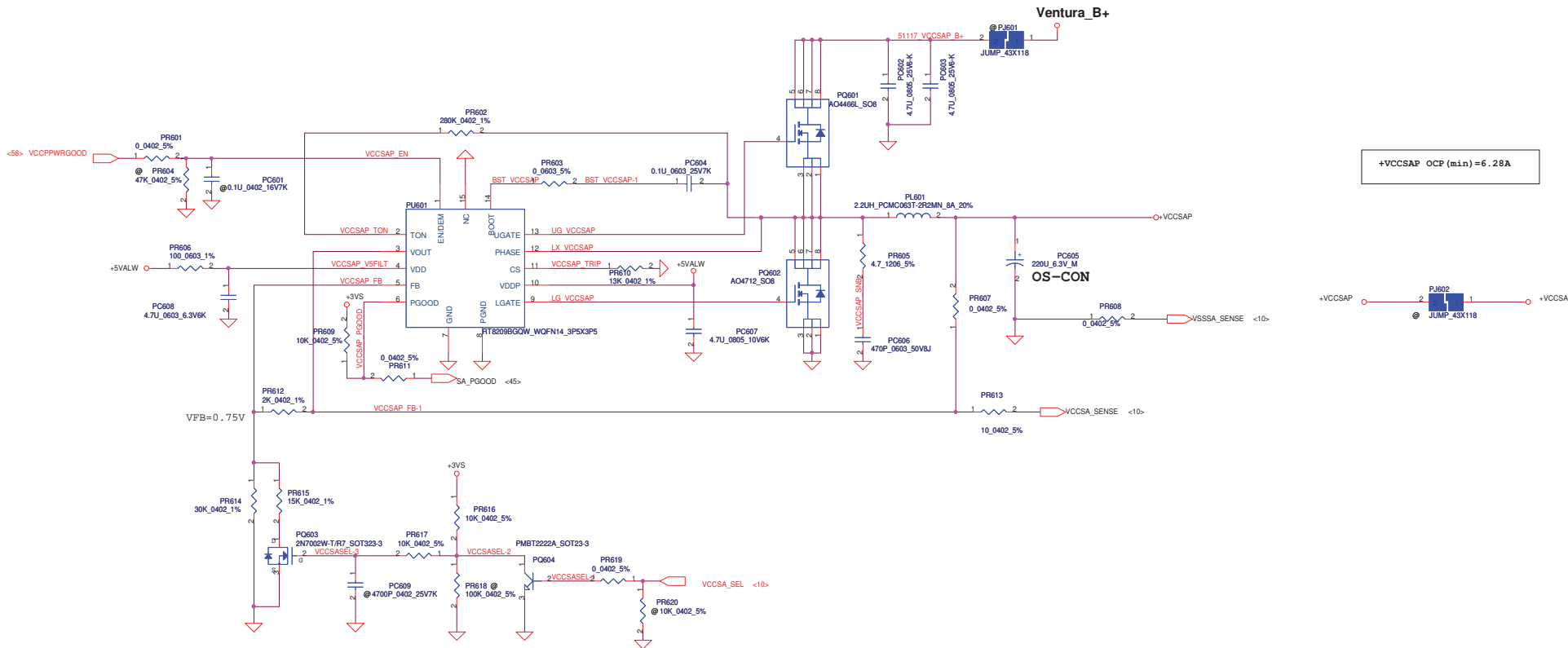
Note:
Use TPS51125 IC can remove RTC refernece LDO
Use TPS51427 IC must keep RTC refernece LDO



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				Date	Wednesday, January 05, 2011
				Sheet	55 of 63

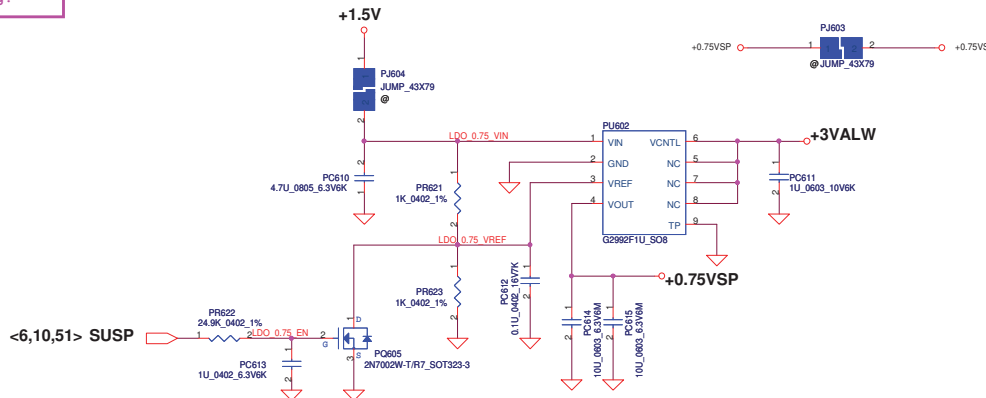


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Issued Date	2010/01/25	Deciphered Date	2010/12/31	Title	PWR-+1.5VP/+1.8VSP
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				Date:	Wednesday, January 05, 2011
				Sheet	56 of 63



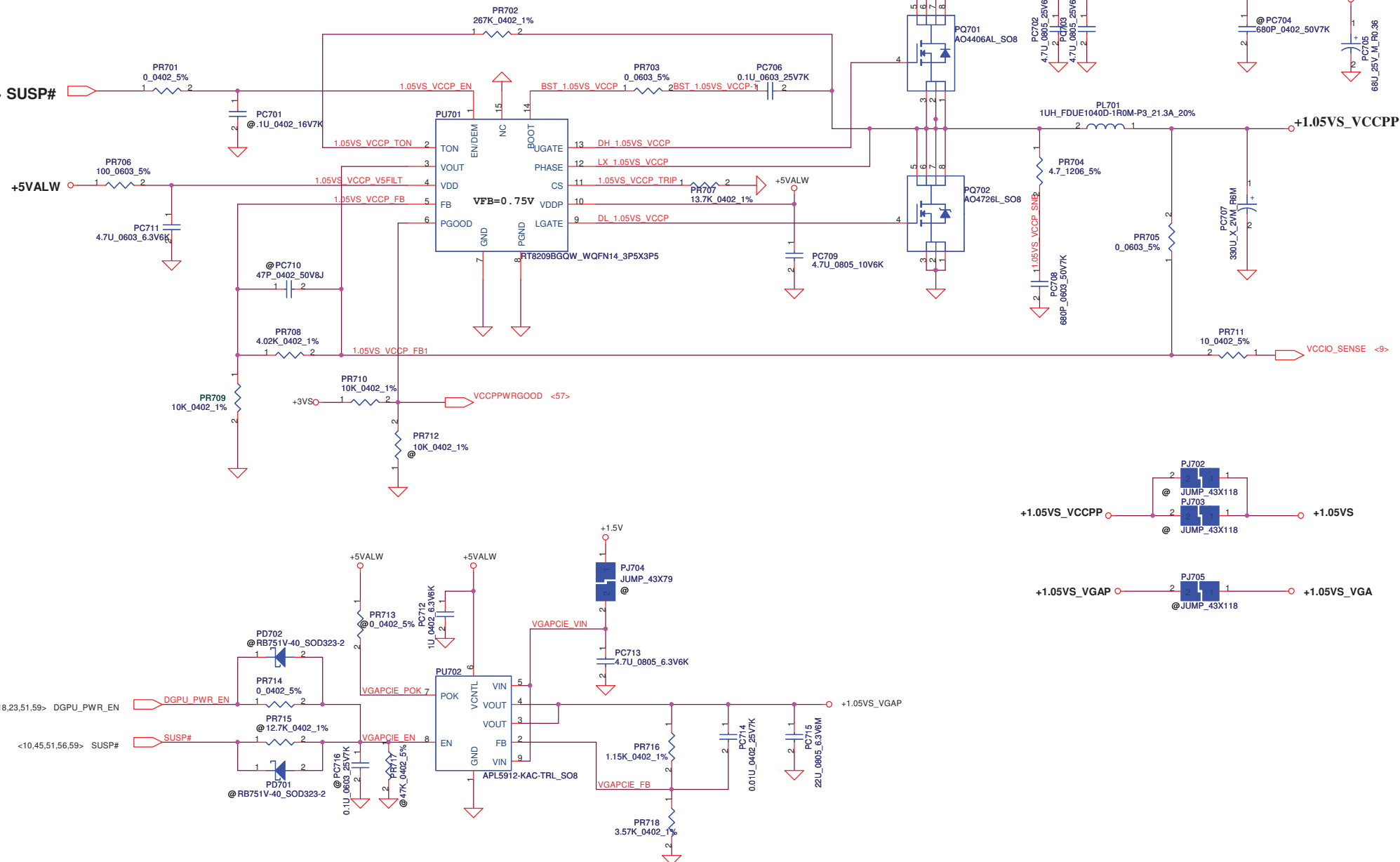
VID[0]	VID[1]	VCCSA Vout	Require on 2011/ 2012 Required
0	0	0.9 V	Yes/Yes
0	1	0.8 V	Yes/Yes
1	1	0.75V	No/Yes
1	1	0.65V	No/Yes

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.



<10,45,51,56,59> SUSP#

+1.05VS_VCCPP OCP (min)=20.75A



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Issued Date	2010/01/25	Deciphered Date	2010/12/31	Title	PWR +1.05VS_VCCPP/1.05VS_VGA
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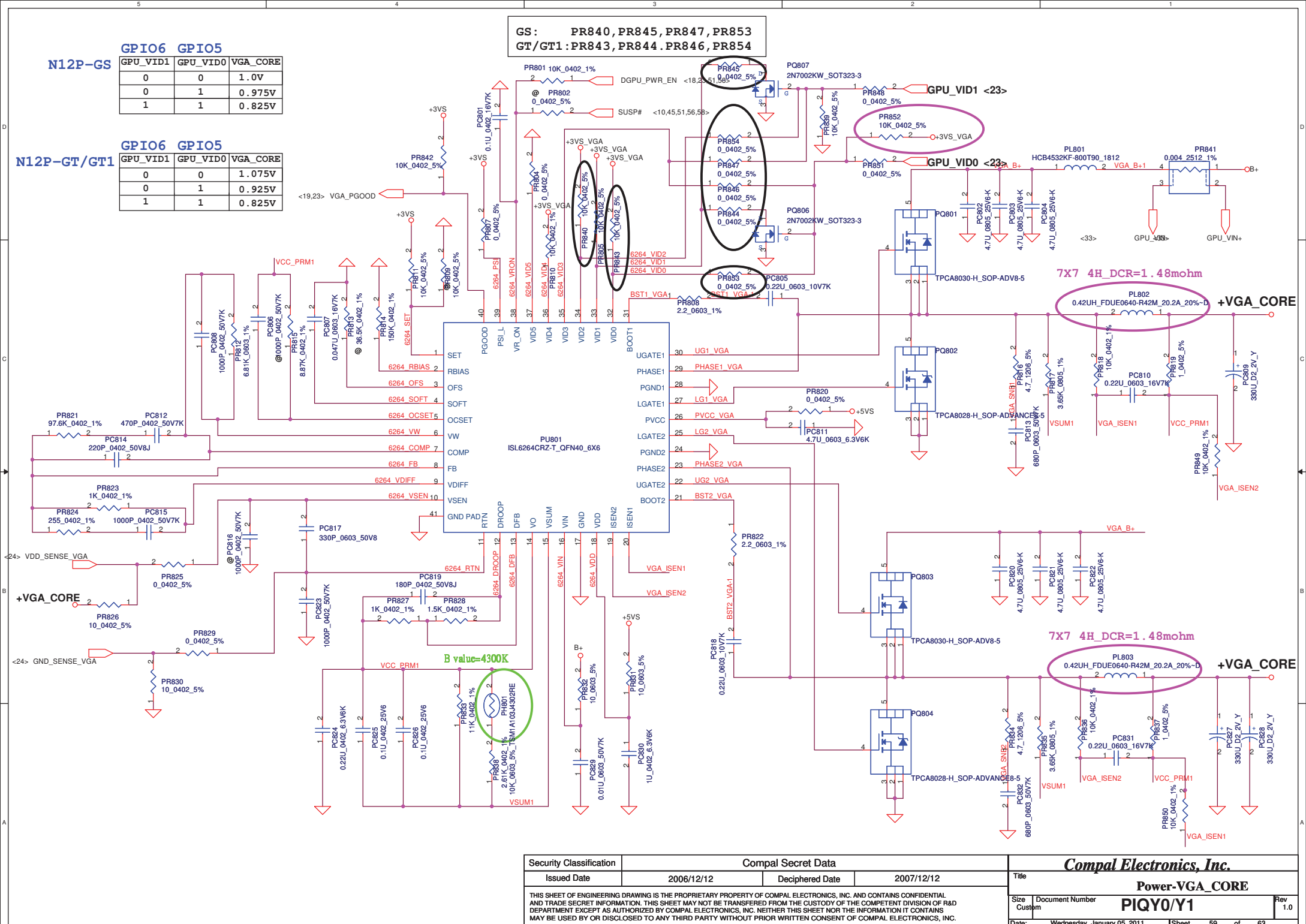
GS: PR840, PR845, PR847, PR853
GT/GT1: PR843, PR844, PR846, PR854

N12P-GS

GPIO6	GPIO5	VGA_CORE
GPU_VID1	GPU_VID0	VGA_CORE
0	0	1.0V
0	1	0.975V
1	1	0.825V

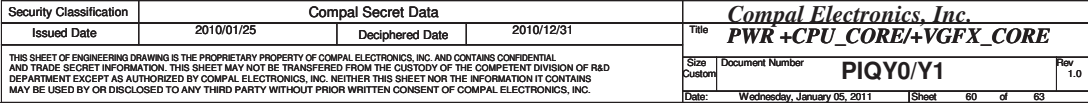
N12P-GT/GT1

GPIO6	GPIO5	VGA_CORE
GPU_VID1	GPU_VID0	VGA_CORE
0	0	1.075V
0	1	0.925V
1	1	0.825V



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
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				Document Number	PIQY0/Y1
				Rev	1.0
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Item	Reason for change	PG#	Modify List	Date	Phase
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

PIQY0 HW PIR List

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
----- EVT TO DVT				
1		P18	Reserve R297	Reserve pull down for PCH GP1053.
2		P18	Exchange SATA port0 & port1	For fast boot function.
3		P50	Change KB light control circuit	Change KB light control from PWM to on/off.
			Delete U55, C908, R1233, R1235, R1236, 1238, R1230, R1231, Q121	
4		P36	Add F2 (poly-fuse)	For HDMI port diode protection.
5		P19	Stuff R303, unstuff R340	Change ESATA_DET# to GP101.
6		P49	Stuff R1068, reserve R1326, Q130	Reserve USB3.0 power swith control inverter circuit.
7		P48	Add R1327	For CHG_ON# pull down.
8		P45	Stuff R996, R139, C815, unstuff R1000, C732, C733, Y5	Change EC CLK from crystal to SUSCLK.
9		P37	Add U60, Q132, C921, R1329, Q133, R1328	Add WLAN power switch circuit
10		P34	Modify JLVDS1	Modify connector from 40pin to 30pin.
11		P09	Add C922	Add C922 to place at CPU sdie.
12		P21	Add R1330	Add for INTVREN control
13		P41	Modify C639	Modify type from 0805 to 0603
14		P45	Modify TP_LED#, PCH_DPWROK and LED_KB_PWM link	Change LED_KB_PWM to U36. pin26 GP1012.
15		P18	Delete EN_CARD_PW#, EN_WOL#	Add FAST_BOOT# to replace EN_CARD_PW# and EN_WOL#
16		P48		Remove USB charger function
17		P42	Change C660, C661 from 3300p to 0.1u	For 100Hz High Pass filter
18		P43	Replace R958, R959 to C924, C925 0.033u	For 100Hz High Pass filter
19		P14	Add one more SPI-ROM circuit	For dual BIOS function
20		P50	Remove EC_SMB_CK2, EC_SMB_DA2 link to JP13	Remove light sensor function
21		P14	Add Q134, R1345, R1346	Add for Fast boot SPI ROM selection by EC.
22		P34	Add R1341, C926	Added for EMI request
23		P37, P44	Add R1342, R1343	Added for WLAN and CARD reader Reset signal.
24		P19	Add R1344	Added for VENTURA detection.
----- DVT TO PVT				
1		P10	Add R1347, Change R56 to 20K,	Modify S3 1.5V reduction sequence.
2		P45	Add Q135	Modify PROCHOT control circuit.
			Modify R980 link to +5VALW	Change USB_ON PU power rail
----- PVT TO SVT				
1		P23, P45	FAST_BOOT#	Link FAST_BOOT# to VGA GP1012
2		P50	Add C929	EMI Request
2		P14	Add R1348	INTEL Design Guide update

