

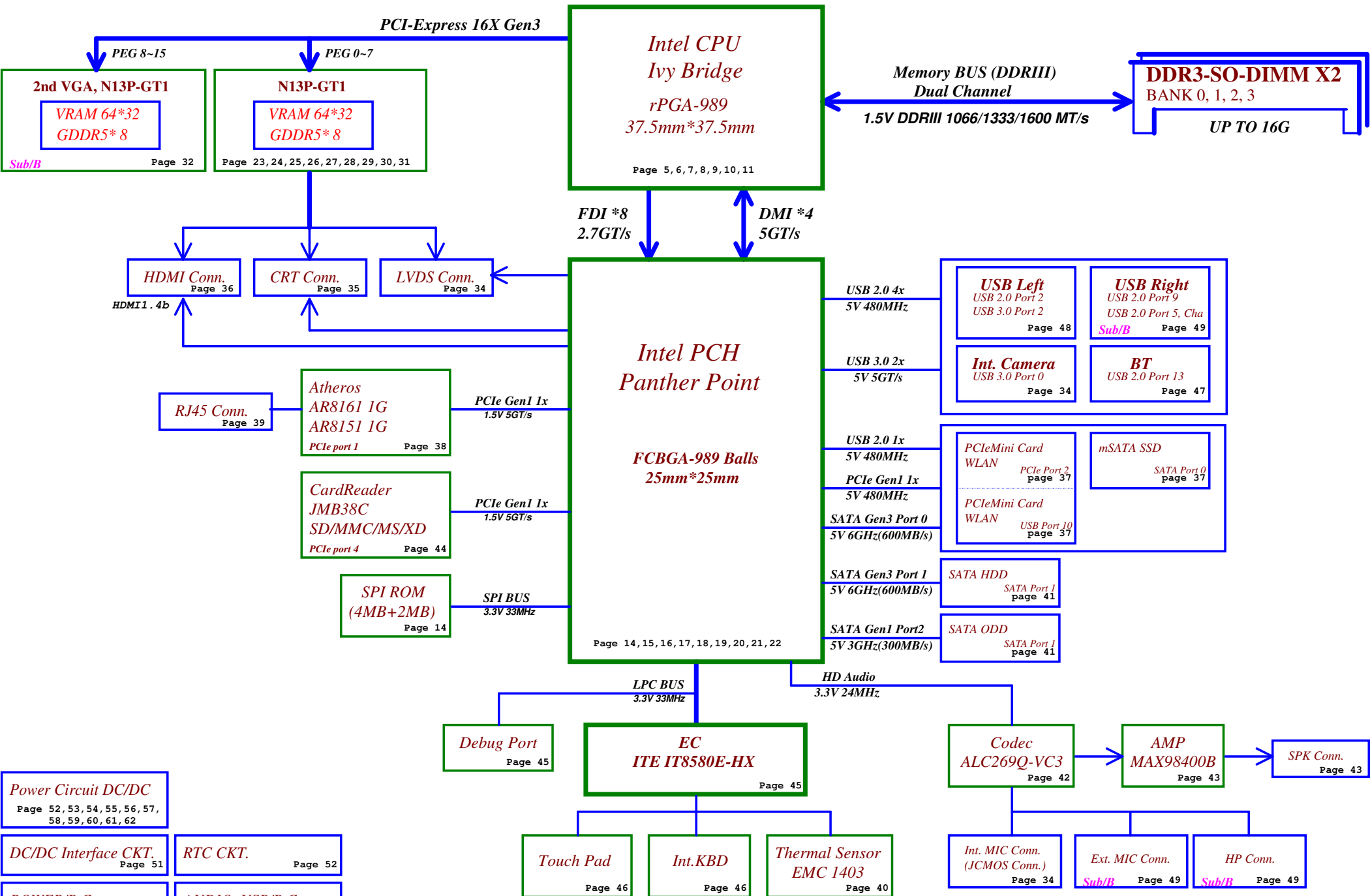
# *QIQY5*

## *Whisky3.0 (Y400)*

### *LA-8691P Rev0.3 Schematic*

*Intel IVY Bridge Processor with DDRIII + Panther Point PCH  
nVIDIA N13P GT1-A2 + 2nd VGA N13P GT1-A2  
2012-05-10 Rev0.3*

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Voltage Rails ( O --> Means ON , X --> Means OFF )

Power Plane / State	B+	+3VALW	+1.5V	+5VS +3VS +1.5VS +VCCSA +V1.5S_VCCP +CPU_CORE +VGA_CORE +GFX_CORE +1.8VS +1.05VS +0.75VS +3.3VS_VGA +1.5VS_VGA +1.05VS_VGA
S0	O	O	O	O
S3	O	O	O	X
S5 S4/AC Only	O	O	X	X
S5 S4 Battery only	O	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X

STATE \ SIGNAL	SLP_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

USB Port Table

USB 2.0	USB 3.0	Port	4 External USB Port
	XHCI 1	0	Camera
		1	
		2	USB Port (Left Side)
		3	
		4	
		5	USB Port (Right Side)
		6	
		7	
	EHCI 2	8	
		9	USB Port (Right Side)
		10	Mini Card(WLAN)
		11	
		12	
		13	Blue Tooth

BOM Structure Table

BOM Structure	BTO Item
HDMI@	HDMI part
CHG@	USB charger part
NOCHG@	No USB charger part
CMOS@	CMOS Camera part
8161@	AR8161 LAN part
8151@	AR8151 LAN part
8161S@	AR8161 LAN surge part
8151S@	AR8151 LAN surge part
SURGE@	AR8151&8161 LAN surge part
61@	X76 P/N for AR8161
51@	X76 P/N for AR8151
X76@	X76 Level part for VRAM
GC6@	NV CG6 support part
NOGC6@	NV no CG6 support part
AOAC@	AOAC support part
KBL@	K/B Light part
ME@	ME part
OPT@	For optimus function part
SLI@	For SLI function part
DS3@	Deep S3 support part
S3@	For S3 function part
GT@	NV chip part
@	Unpop

SMBUS Control Table

	SOURCE	Main VGA	2nd VGA	BATT	IT8580E	SODIMM	WLAN WiMAX	Thermal Sensor	PCH	TP Module
EC_SMB_CK1 EC_SMB_DA1	IT8580E +3VALW	X	X	V +3VALW	X	X	X	X	X	X
EC_SMB_CK2 EC_SMB_DA2	IT8580E +3VS	V +3VS	V +3VS	X	X	X	X	V +3VS	V +3V_PCH	X
SMB_CLK_S3 SMB_DATA_S3	PCH +3VS	X	X	X	X	V +3VS	V +3VS	X	V +3V_PCH	V +3VS

PCIE PORT LIST

Port	Device
1	LAN
2	WLAN
3	
4	Card Reader
5	
6	
7	
8	

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address
Thermal Sensor EMC1403-2	1001_101xb
Master VGA	0x9E
Slave VGA	0x9C

PCH SM Bus address

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



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Hot plug detect for IFP link E

VGA and GDDR5 Voltage Rails (N13Px GPIO)

GPIO	I/O	ACTIVE	Function Description
GPIO0	OUT	-	GPU VID4
GPIO1	OUT	-	GPU VID3
GPIO2	OUT	-	VGA_BL_PWM
GPIO3	OUT	-	VGA_ENVDD
GPIO4	OUT	-	VGA_ENBKL
GPIO5	OUT	-	GPU VID1
GPIO6	OUT	-	GPU VID2
GPIO7	OUT	-	DPRSLPVR_VGA
GPIO8	I/O	-	Thermal Catastrophic Over Temperature
GPIO9	OUT	-	GPIO9
GPIO10	OUT	-	Memory VREF Control
GPIO11	OUT	-	GPU VID0
GPIO12	IN		AC Power Detect Input (10K pull High)
GPIO13	OUT	-	GPU VID5
GPIO14	OUT	-	FB_CLAMP_TOGGLE_REQ#
GPIO15	IN	N/A	(100K pull low)
GPIO16	OUT	-	FRMLCK#
GPIO17	IN	N/A	
GPIO18	IN	-	dGPU_HDMI_HPD
GPIO19	IN	-	HPD_IRQ

Performance Mode P0 TDP at Tj = 102 C\* (GDDR5)

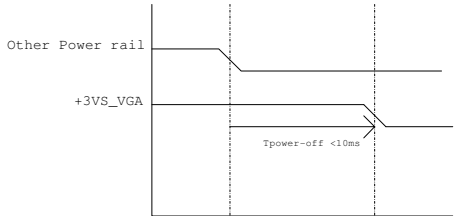
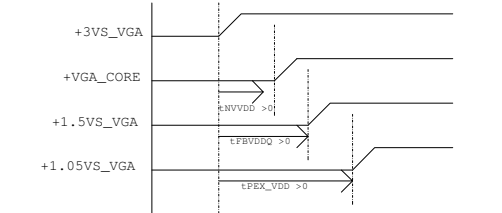
	GPU (4)	Mem (1,5)	NVCLK /MCLK	NVVDD			FBVDD (1.35V)		FBVDDQ (GPU+Mem) (1.35V)		PCI Express (1.05V) (6)		I/O and PLLVDD (1.8V)		I/O and PLLVDD (1.05V)		Other (3.3V)	
Products	(W)	(W)	(MHz)	(V)	(A)	(W)	(A)	(W)	(A)	(W)	(mA)	(W)	(mA)	(W)	(mA)	(W)	(mA)	(W)
N13X 128bit 1GB GDDR5	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
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]
ROM_SO	+3VS_VGA	FB[1]	FB[0]	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	+3VS_VGA	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	+3VS_VGA	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
STRAP2	+3VS_VGA	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	+3VS_VGA	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	+3VS_VGA	RESERVED	PCIE_SPEED_CHANGE_GEN3	PCIE_MAX_SPEED	DP_PLL_VDD33V

	Device ID		setting	I2C Slave addresses ID
N13P-GT (28nm)	0x0FDB	SMB_ALT_ADDR (ROM_SO Bit 1)	0	0x9E
			1	0x9C

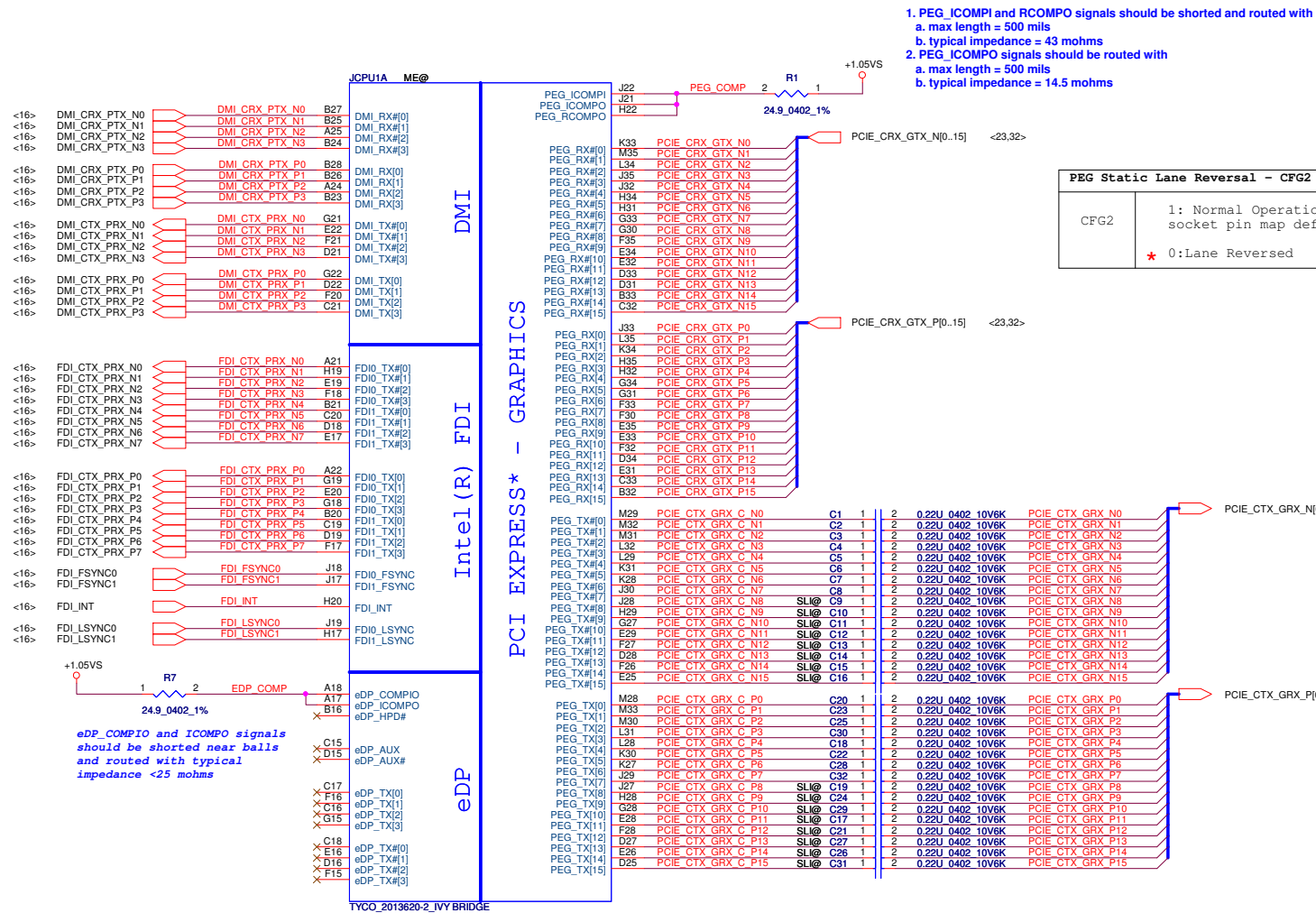
GPU	ROM_SO	ROM_SCLK	STRAP0	STRAP1	STRAP2	STRAP3	STRAP4	
N13P-GT1 28nm	PU 10K	PU 25K	PU 45K	PD 35K	PD 10K	PU 5K	PD 10K	Master
	PU 20K	PU 25K	PU 45K	PD 35K	PD 10K	PD 5K	PD 10K	Slave

GPU		N13P-GT		
FB Memory (GDDR5)		ROM_SI		
Samsung 2500MHz	K4G10325FG-HC04			
	32Mx32	PD 45K		
Hynix 2500MHz	H5GQ1H24BFR-T2C			
	32Mx32	PD 35K		
Samsung 2500MHz	K4G20325FD-FC04			
	64Mx32	PD 30K		
Hynix 2500MHz	H5GQ2H24MFR-T2C			
	64Mx32	PD 25K		

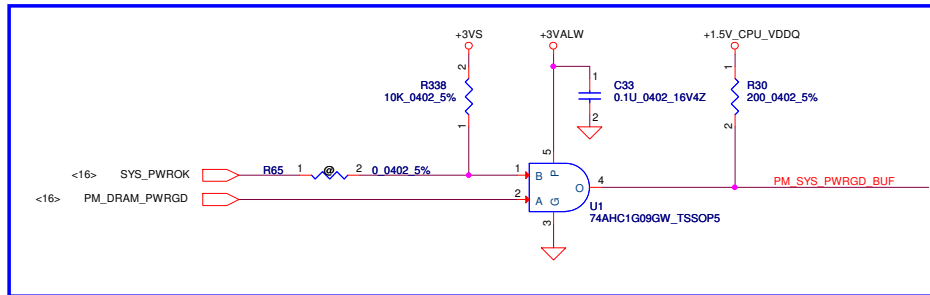
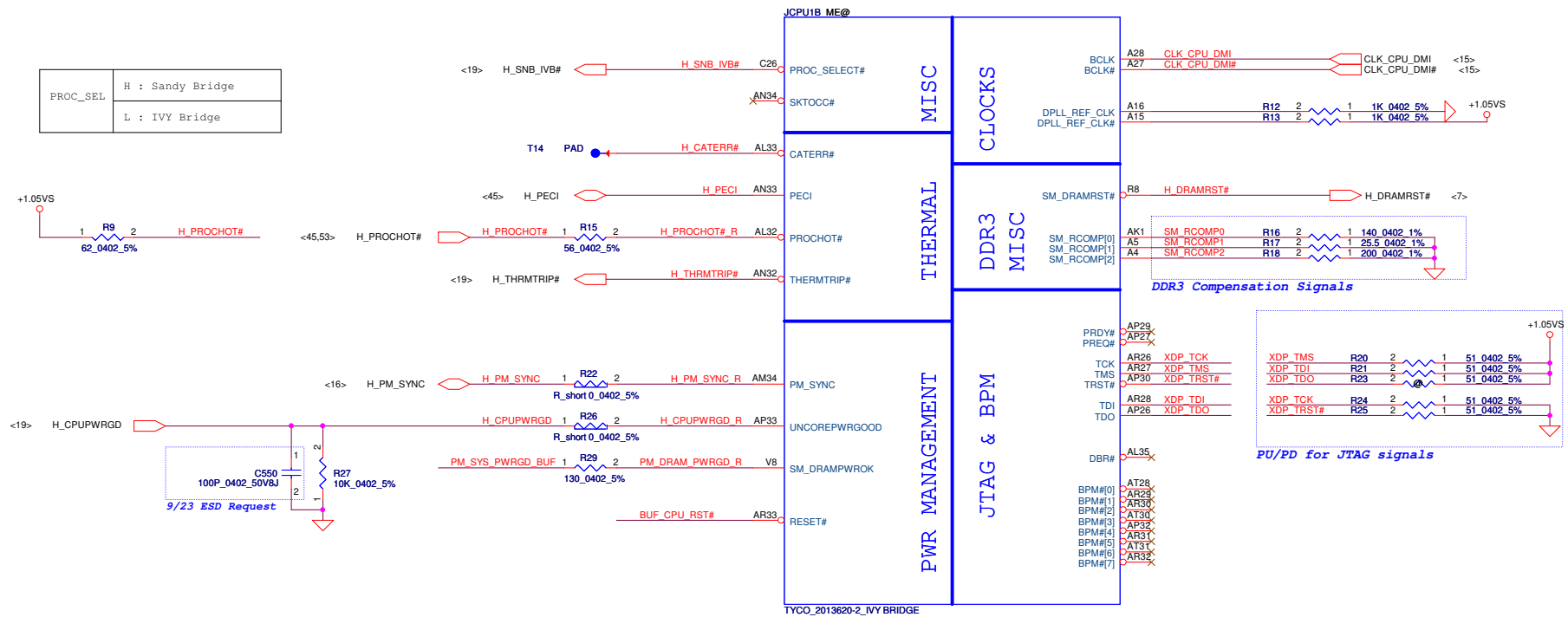


1. all GPU power rails should be turned off within 10ms  
2. Optimus system VDD33 avoids drop down earlier than NVDD and FBVDDQ

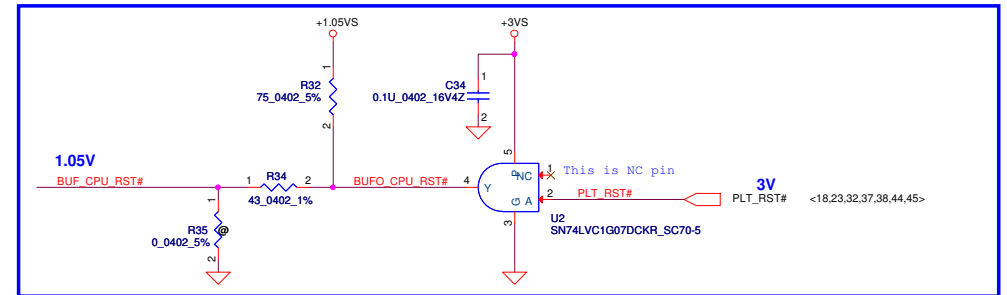
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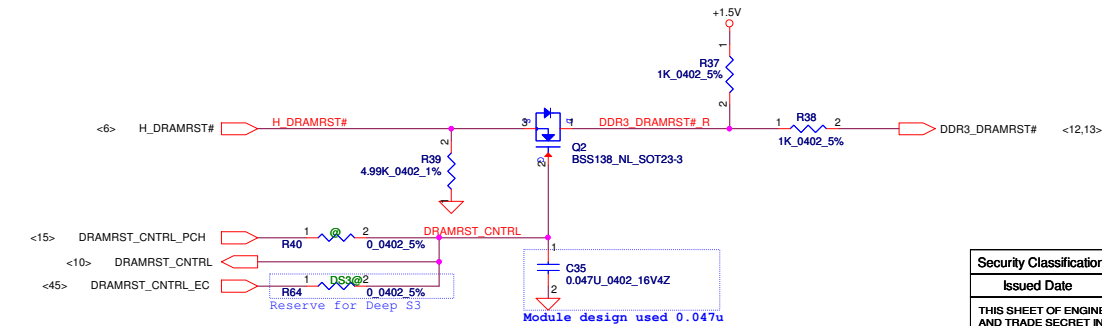
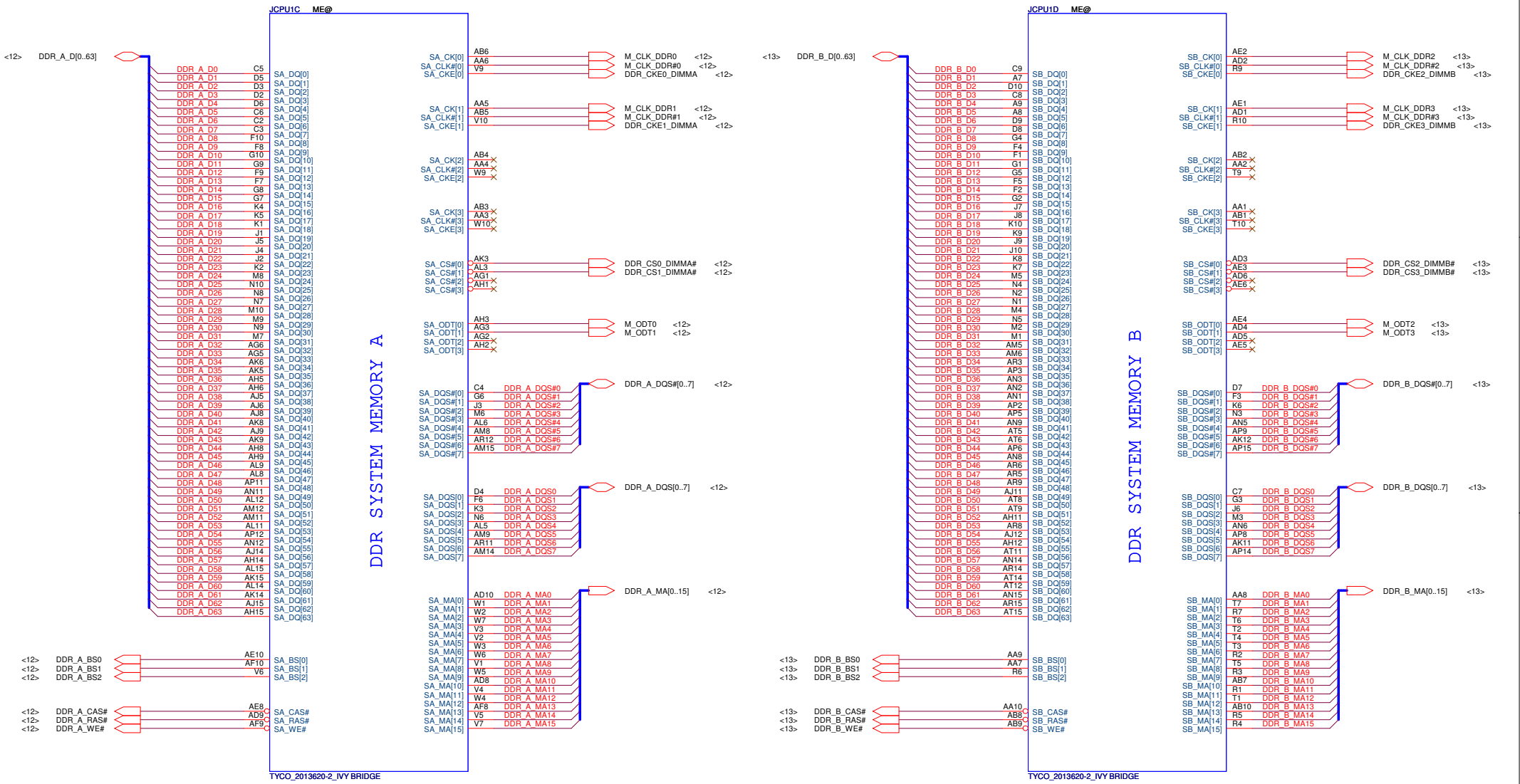
PROC_SEL	H : Sandy Bridge
	L : IVY Bridge



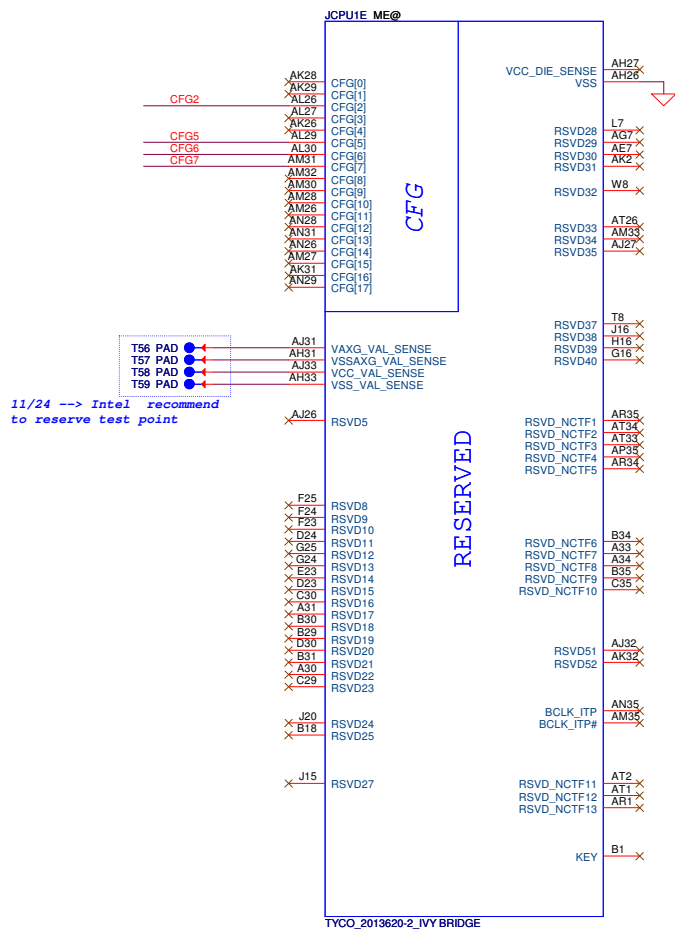
Buffered Reset to CPU



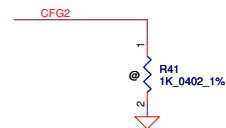
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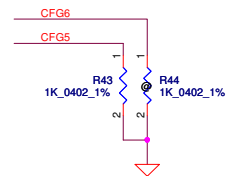


## CFG Straps for Processor

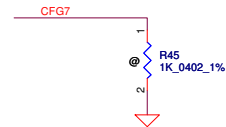


PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	<p>★ 1: Normal Operation; Lane # definition matches socket pin map definition</p> <p>0: Lane Reversed</p>

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



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

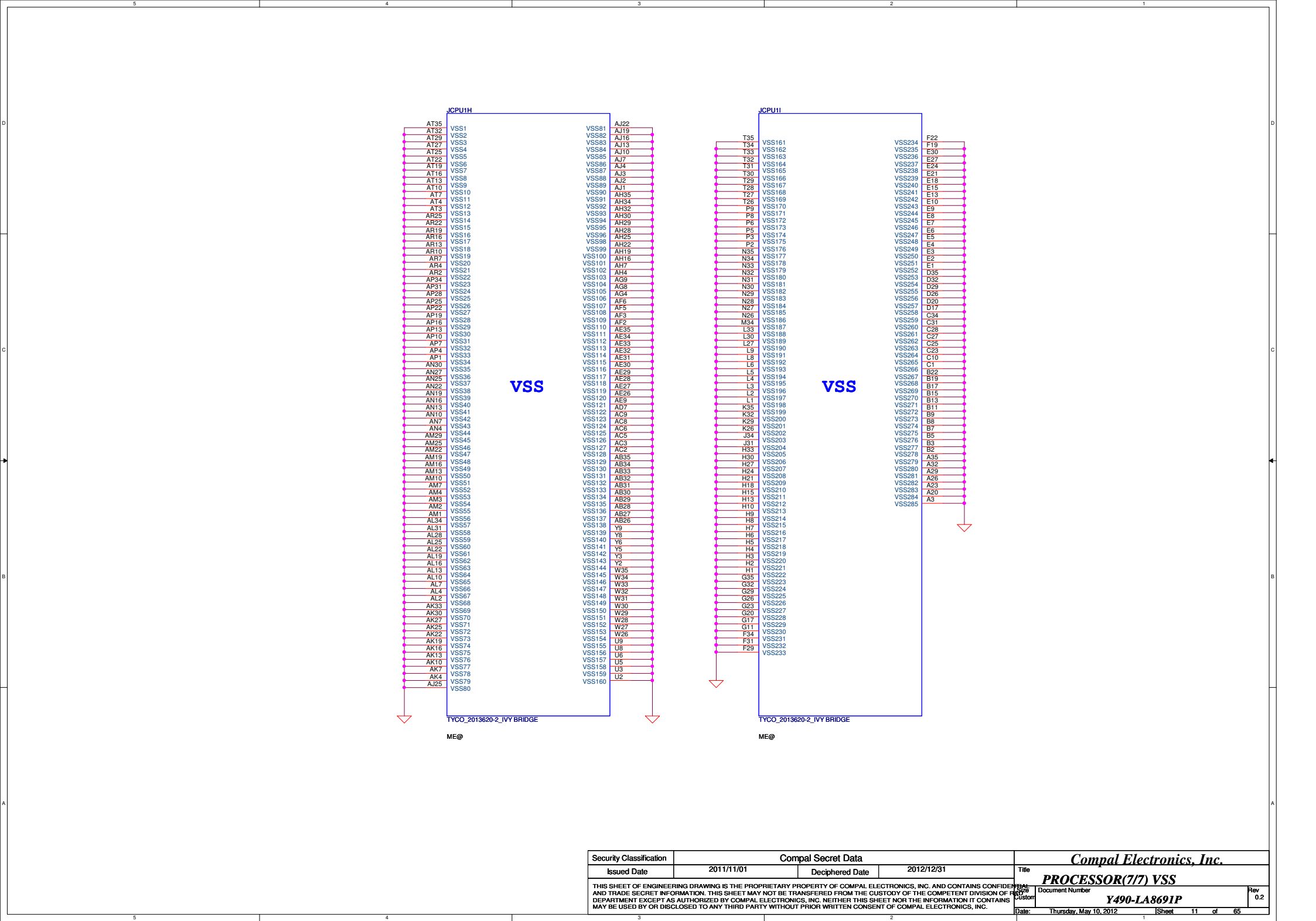


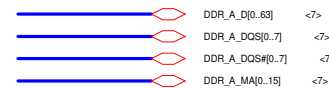
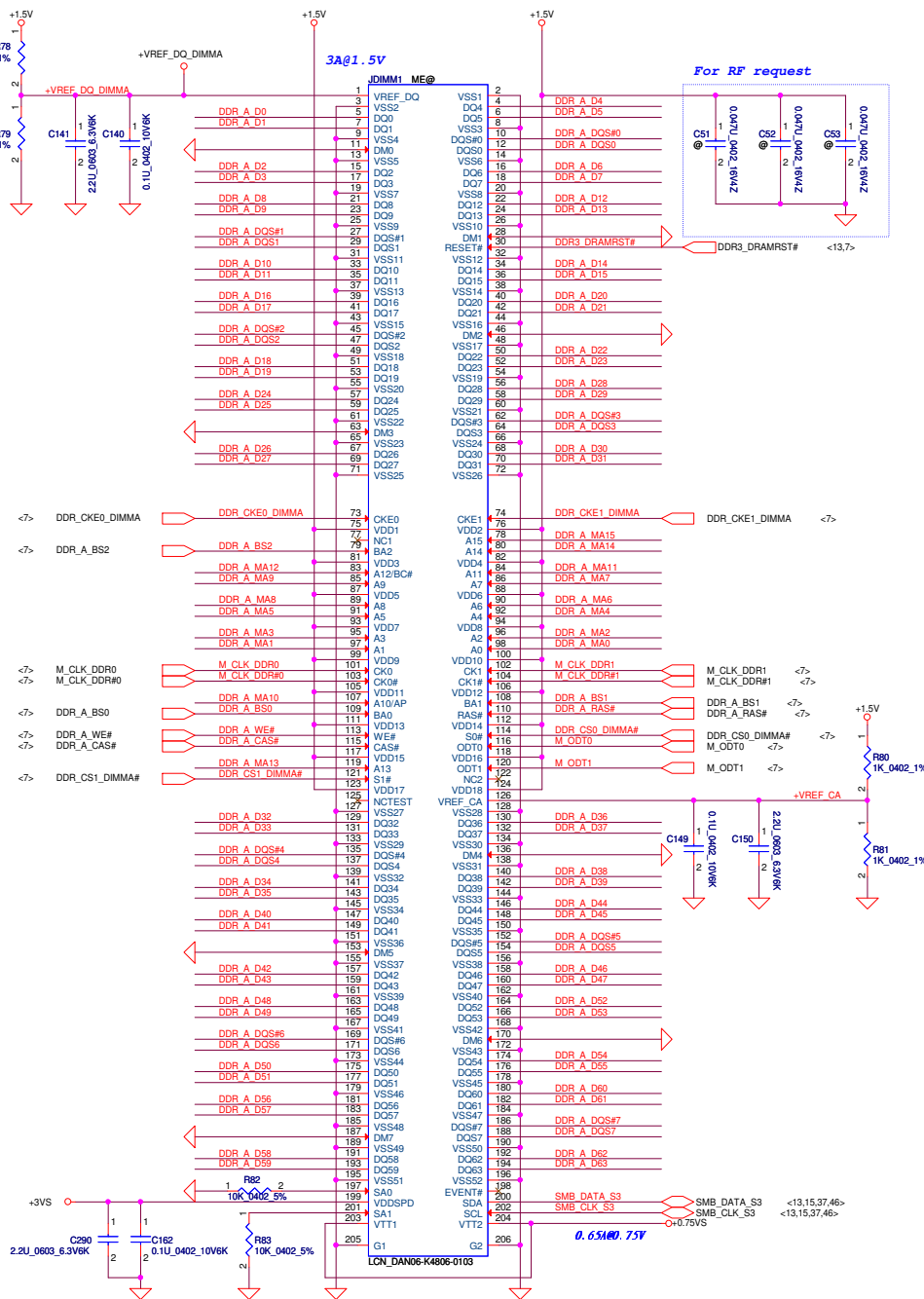
PEG DEFER TRAINING	
CFG7	<p>1: (Default) PEG Train immediately following xxRESETB de assertion</p> <p>0: PEG Wait for BIOS for training</p>







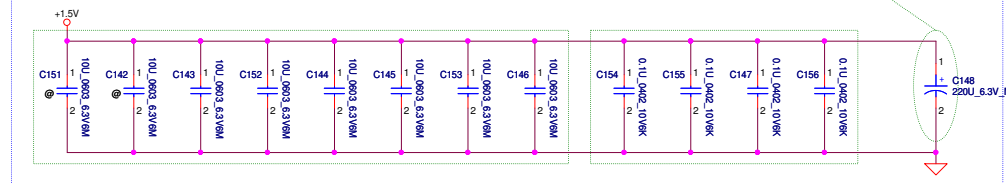


**DDR3 SO-DIMM A**

```
> DDR_A_D[0..63]      <7>
> DDR_A_DQS[0..7]     <7>
> DDR_A_DQS#[0..7]    <7>
> DDR_A_MA[0..15]     <7>
```

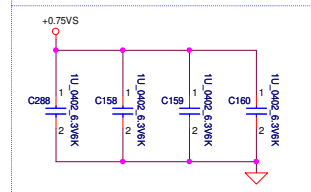
Layout Note:  
Place near DIMM

```
OSCON (220uF_6.3V_4.2L_ESR17m)*1=(SF000002Y00)
(10uF_0603_6.3V)*8
(0.1uF_402_10V)*4
```



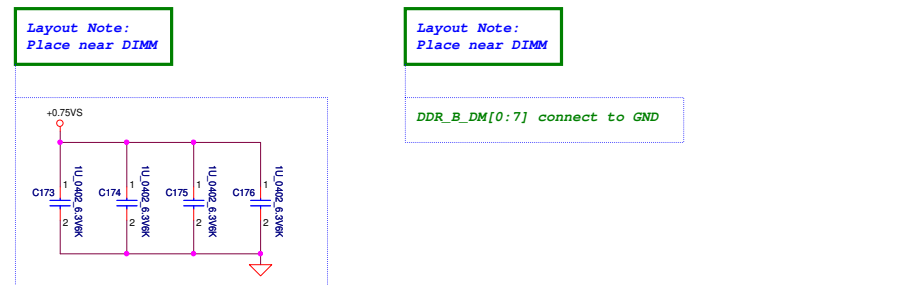
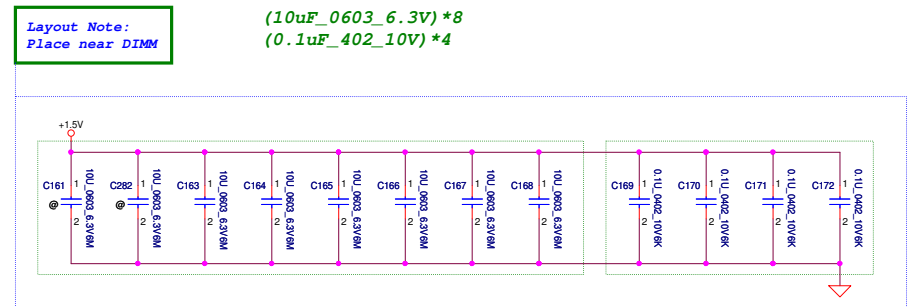
Layout Note:  
Place near DIMM

Layout Note:  
Place near DIMM

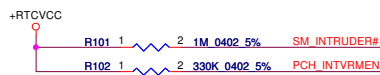
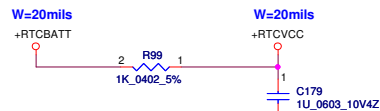


DDR\_A\_DM[0:7] connect to GND

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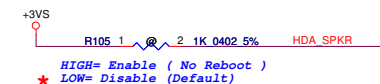
[illegible]

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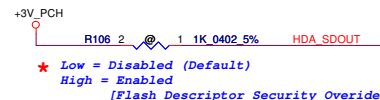


### INTVRMEN

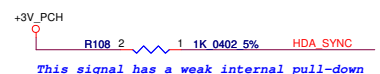
\* H : Integrated VRM enable (Default)  
L : Integrated VRM disable  
(INTVRMEN should always be pull high.)



HIGH= Enable ( No Reboot )  
\* LOW= Disable (Default)



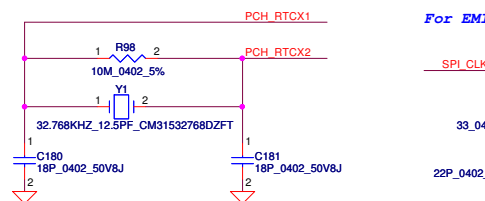
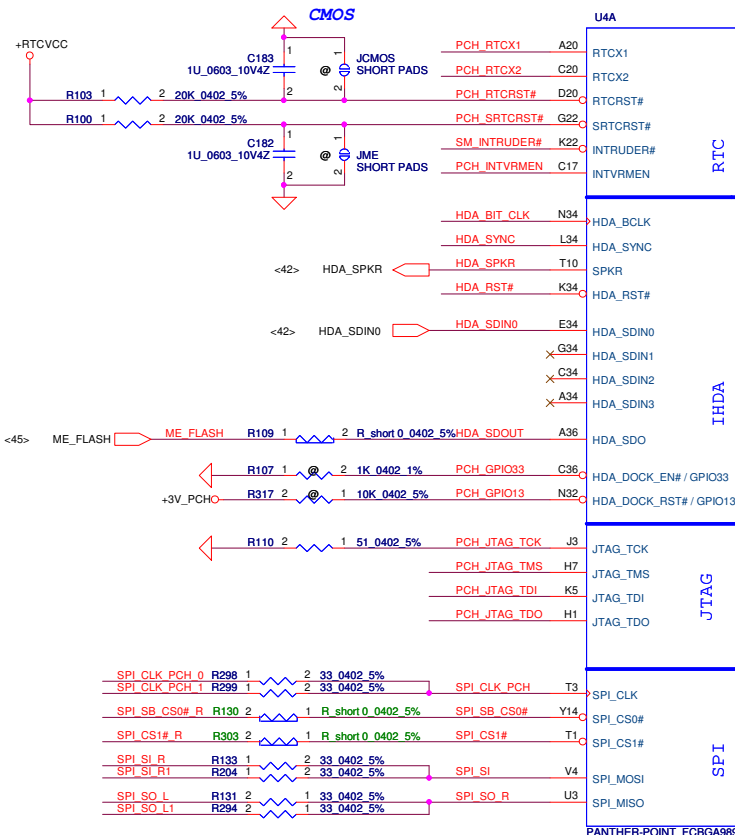
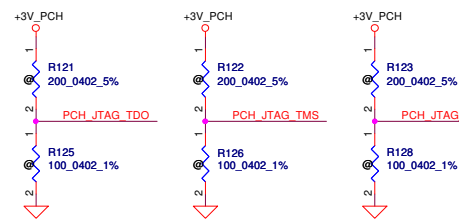
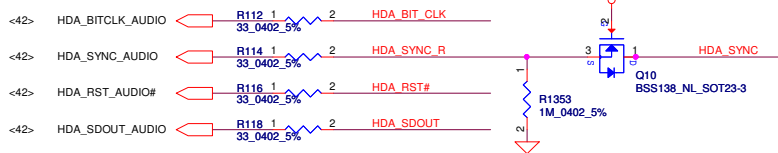
\* Low = Disabled (Default)  
High = Enabled  
[Flash Descriptor Security Override]



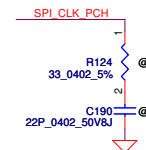
This signal has a weak internal pull-down

On Die PLL VR Select is supplied by  
1.5V when sampled high (Default)  
1.8V when sampled low  
Needs to be pulled High for Chief River platform

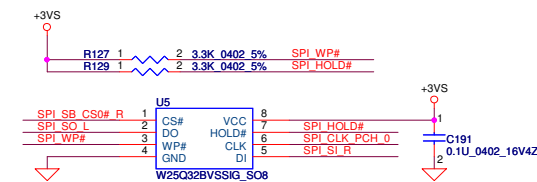
### HDA AUDIO



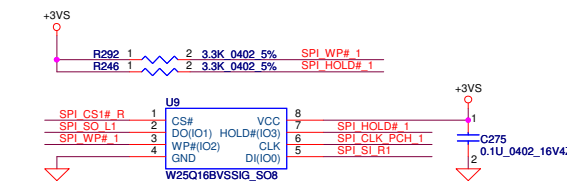
For EMI



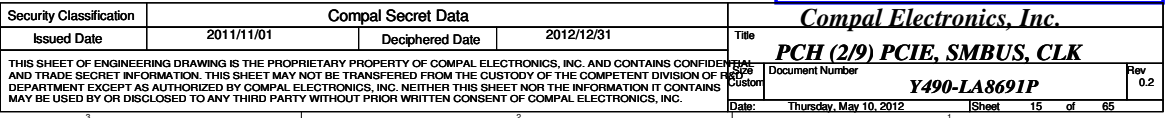
### 4MB P/N : SA00003K800



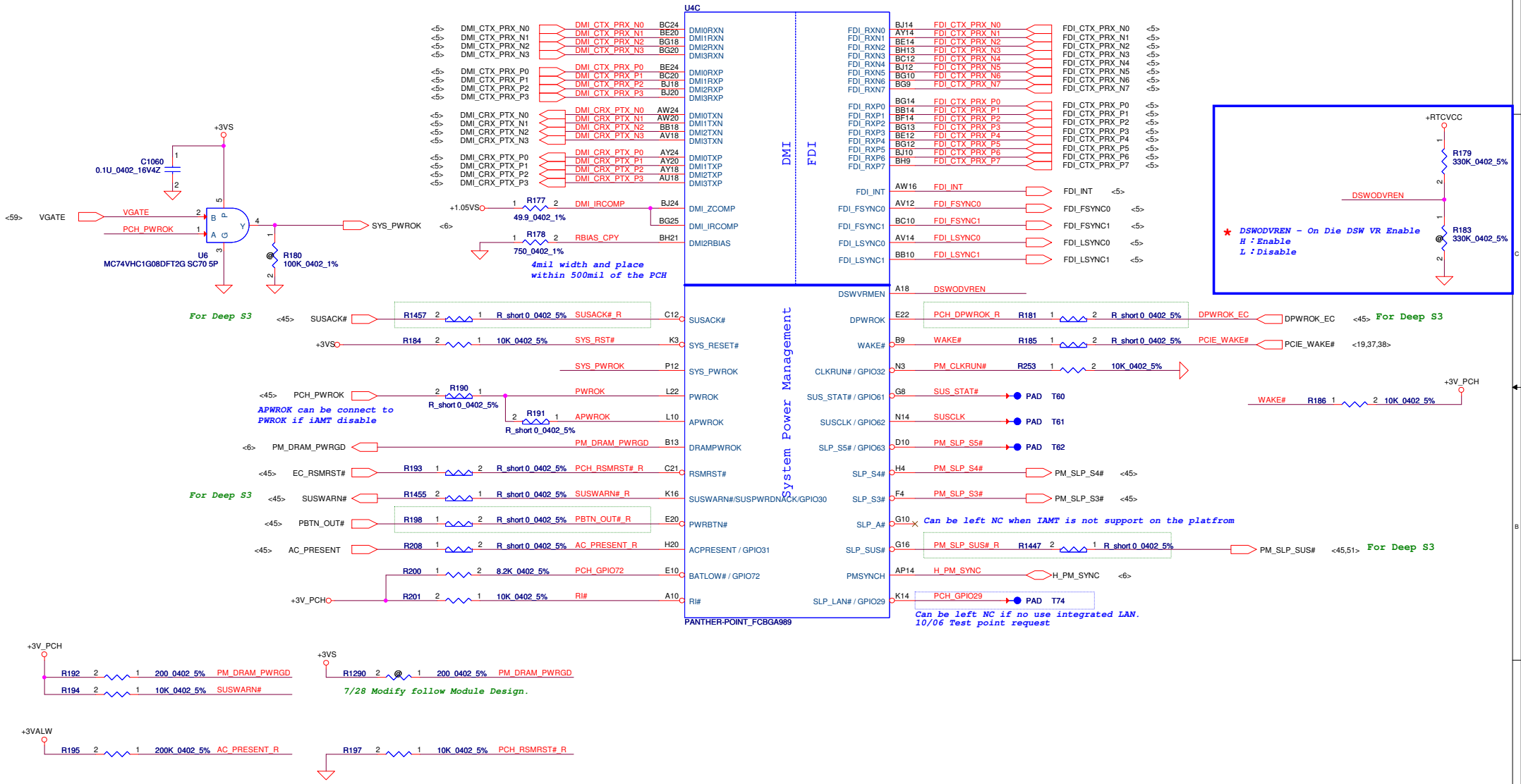
### 2MB P/N : SA00003FO10



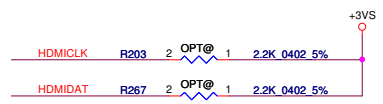
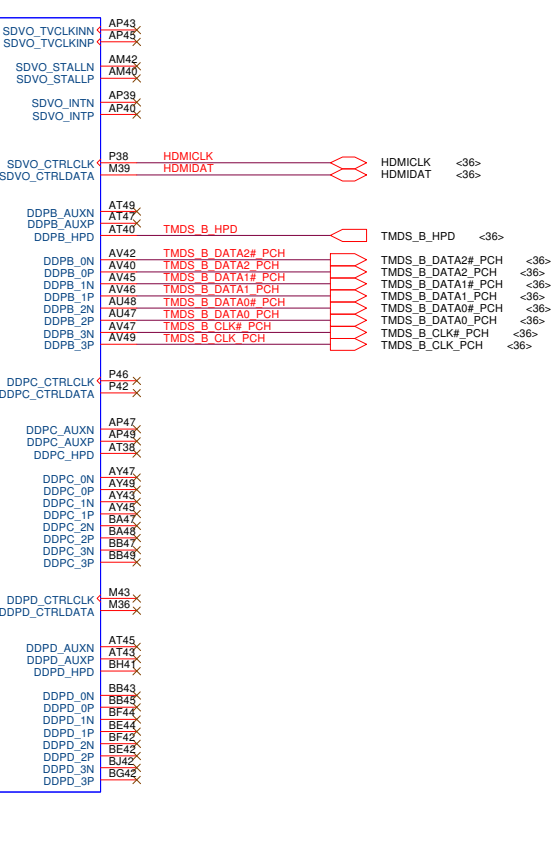
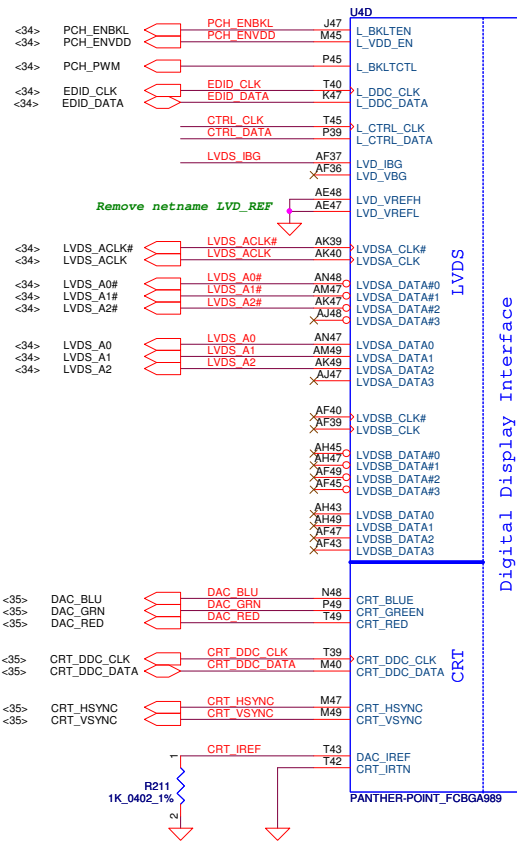
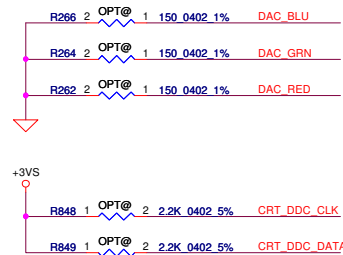
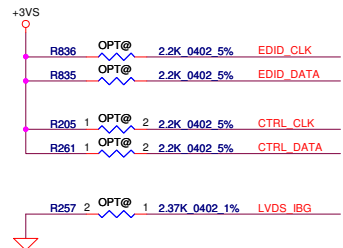
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				PCH (I/9) SATA,HDA,SPI, LPC, XDP	
				Document Number	
				Y490-LA8691P	
				Rev	
				0.2	
				Date: Thursday, May 10, 2012	
Sheet 14 of 65					







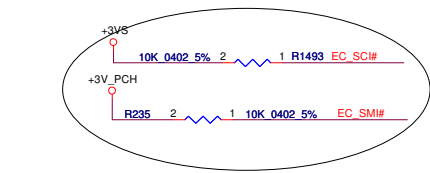




Security Classification		Compal Secret Data		Title	
Issued Date	2011/11/01	Deciphered Date	2012/12/31	PCH (4/9) LVDS,CRT,DP,HDMI	
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				Y490-LA8691P	0.2
				Date: Thursday, May 10, 2012	Sheet 17 of 65

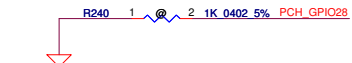


Function	PCH_GPIO38	PCH_GPIO67	PCH_GPIO70
Optimus	0	0	X
Reserve	0	1	X
DIS (SLI)	1	0	X
Reserve	1	1	X
14"	X	X	0
15"	X	X	1

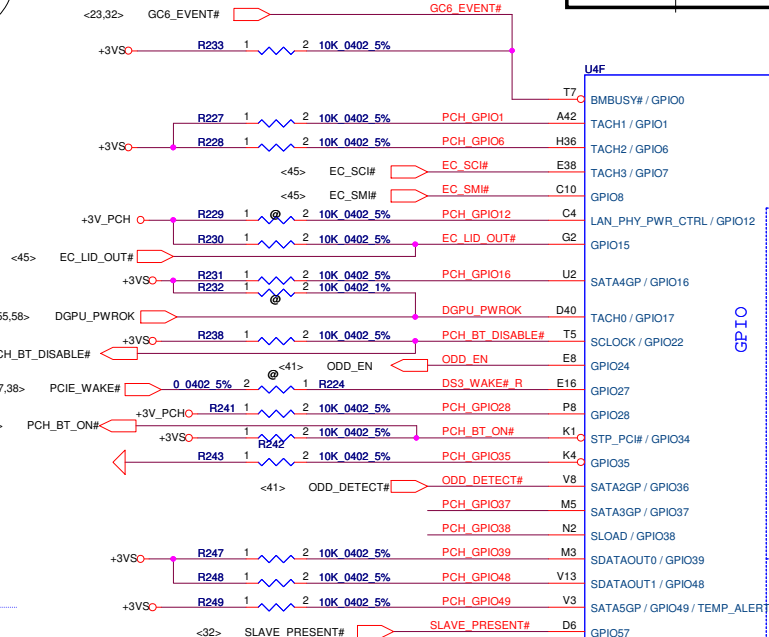
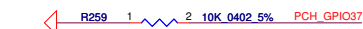
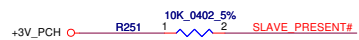
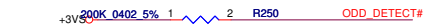
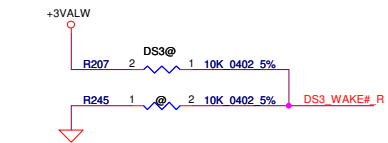


GPIO28  
On-Die PLL Voltage Regulator  
This signal has a weak internal pull up

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

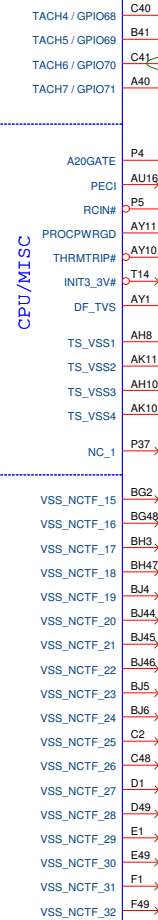


\* PCH\_GPIO27 (Have internal Pull-High)  
High: VCCVRM VR Enable  
Low: VCCVRM VR Disable



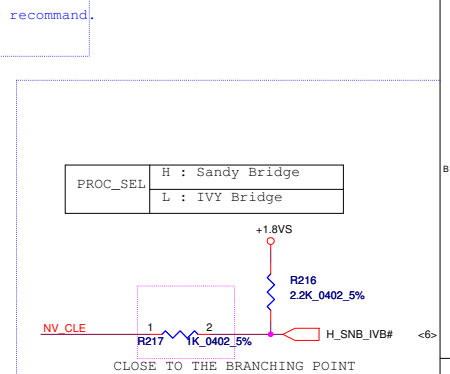
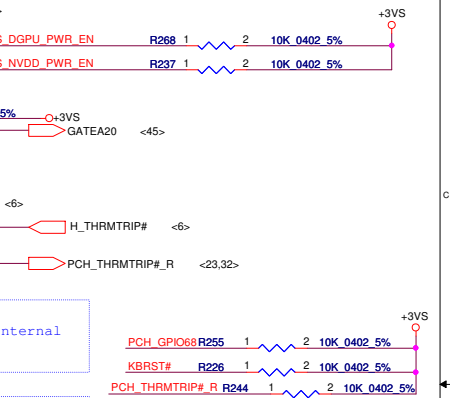
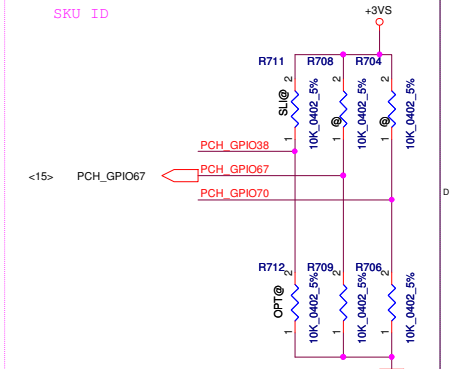
GPIO

NCTF



CPU/MISC

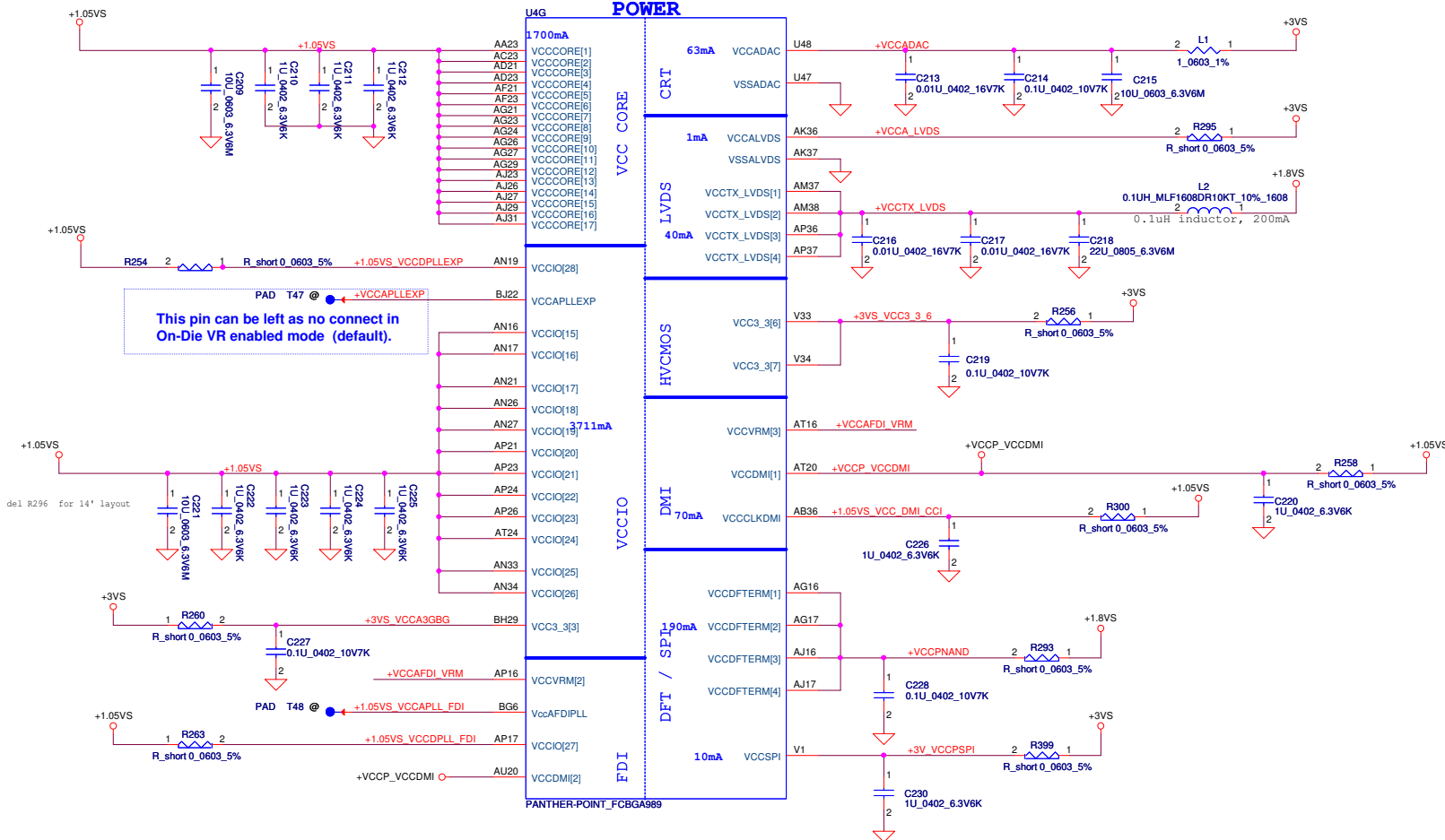
NCTF



CLOSE TO THE BRANCHING POINT



L1 change to 1 ohm P/N  
S RES 1/10W 1 +-1% 0603

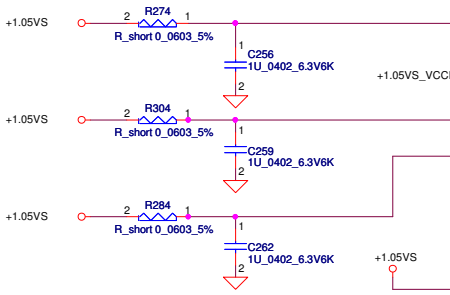


This pin can be left as no connect in On-Die VR enabled mode (default).

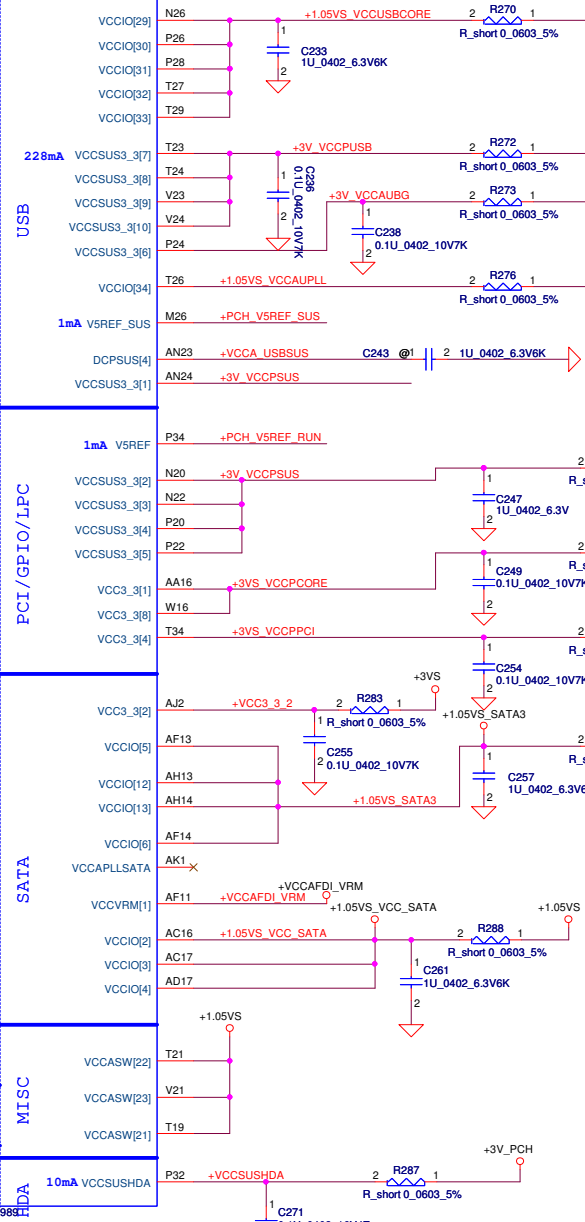
Intel recommend VCCVRM==>1.5V FOR MOBILE  
stuff R265 and unstuff R266 VCCVRM==>1.8V FOR DESKTOP  
VCCVRM = 160mA detal waiting for newest spec

PCH Power Rail Table  
Refer to CPU EDS R1.5

Voltage Rail	Voltage	S0 Iccmax Current (A)
V_PROC_IO	1.05	0.001
V5REF	5	0.001
V5REF_Sus	5	0.001
Vcc3_3	3.3	0.228
VccADAC	3.3	0.063
VccADPLLA	1.05	0.08
VccADPLLB	1.05	0.08
VccCore	1.05	1.7
VccDMI	1.05	0.047
VccIO	1.05	3.711
VccASW	1.05	0.903
VccSPI	3.3	0.01
VccDSW	3.3	0.001
VccDFTERM	1.8	0.002
VccRTC	3.3	6 uA
VccSus3_3	3.3	0.095
VccSusHDA	3.3 / 1.5	0.01
VccVRM	1.8 / 1.5	0.167
VccCLKDMI	1.05	0.07
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	0.001
VccTX_LVDS	1.8	0.04



## POWER

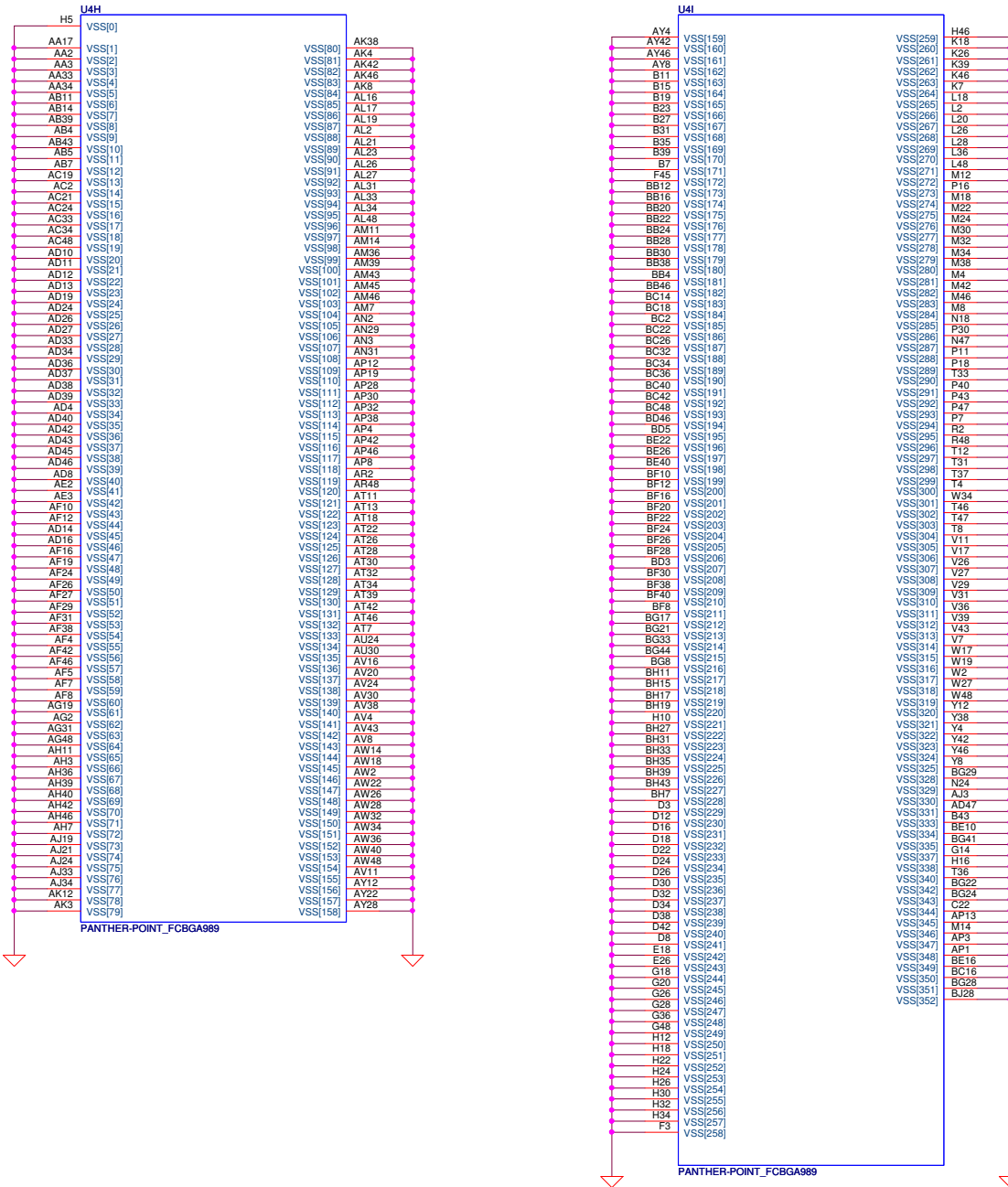


```
VCC3_3 = 266mA detal waiting for newest spec
VCCDMI = 42mA detal waiting for newest spec
```

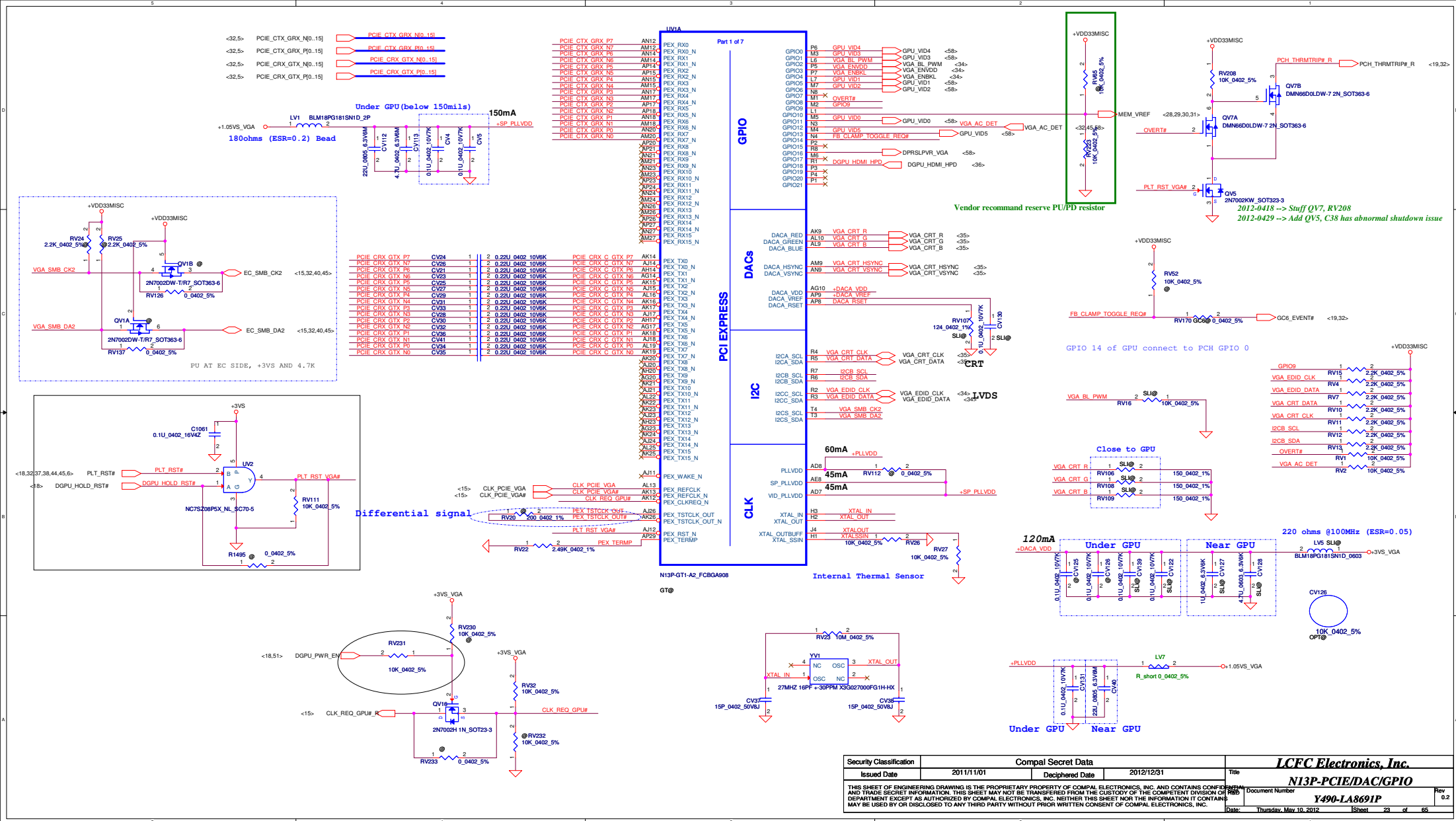
```
On-Die PLL Voltage Regulator
H : On-Die PLL voltage regulator enable

VCCFDIPLL, VCCAPILLEXP, VCCAPLLDMI2
, VCCAPLLSATA
```

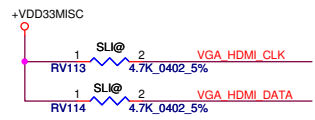
Security Classification	Compal Secret Data			<i>Compal Electronics, Inc.</i> <b>PCH (8/9) PWR</b>		
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title		
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				Date: Thursday, May 10, 2012	Sheet 21 of 65	



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				Document Number		Rev
				Y490-LA8691P		0.2
Date:				Thursday, May 10, 2012		Sheet 22 of 65

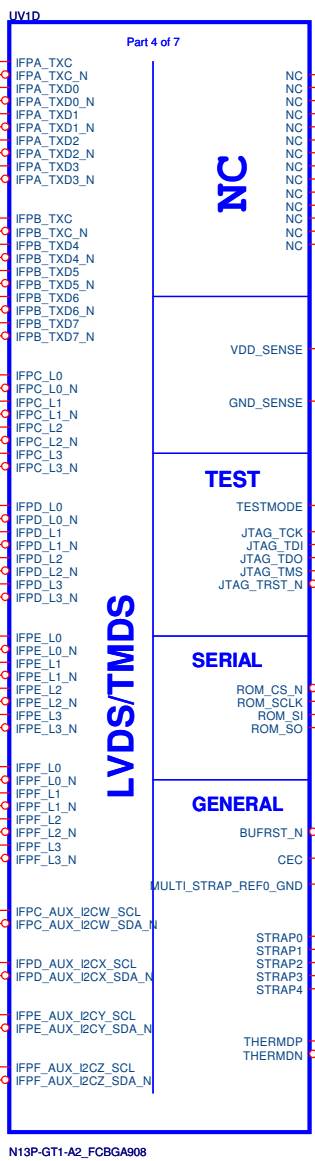
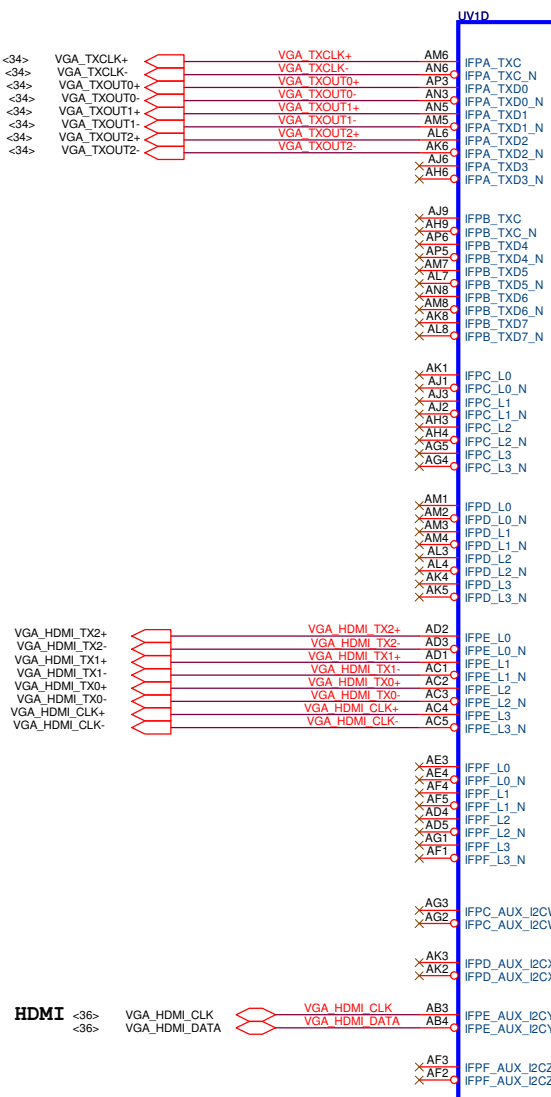






HDMI <36> VGA\_HDMI\_CLK  
<36> VGA\_HDMI\_DATA

for 15" dual channel



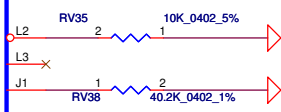
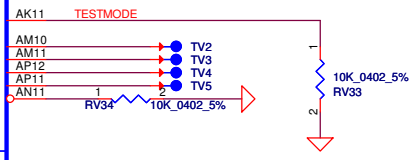
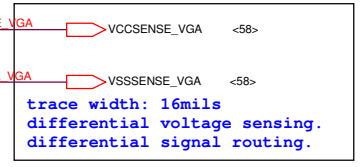
LVDS/TMDS

NC

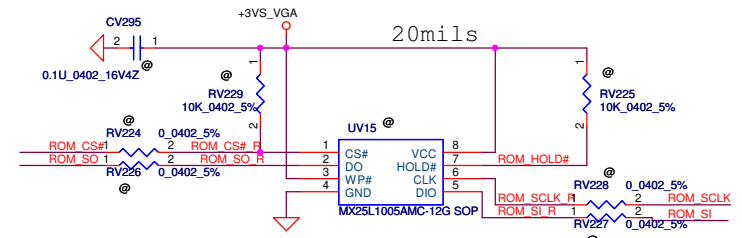
TEST

SERIAL

GENERAL

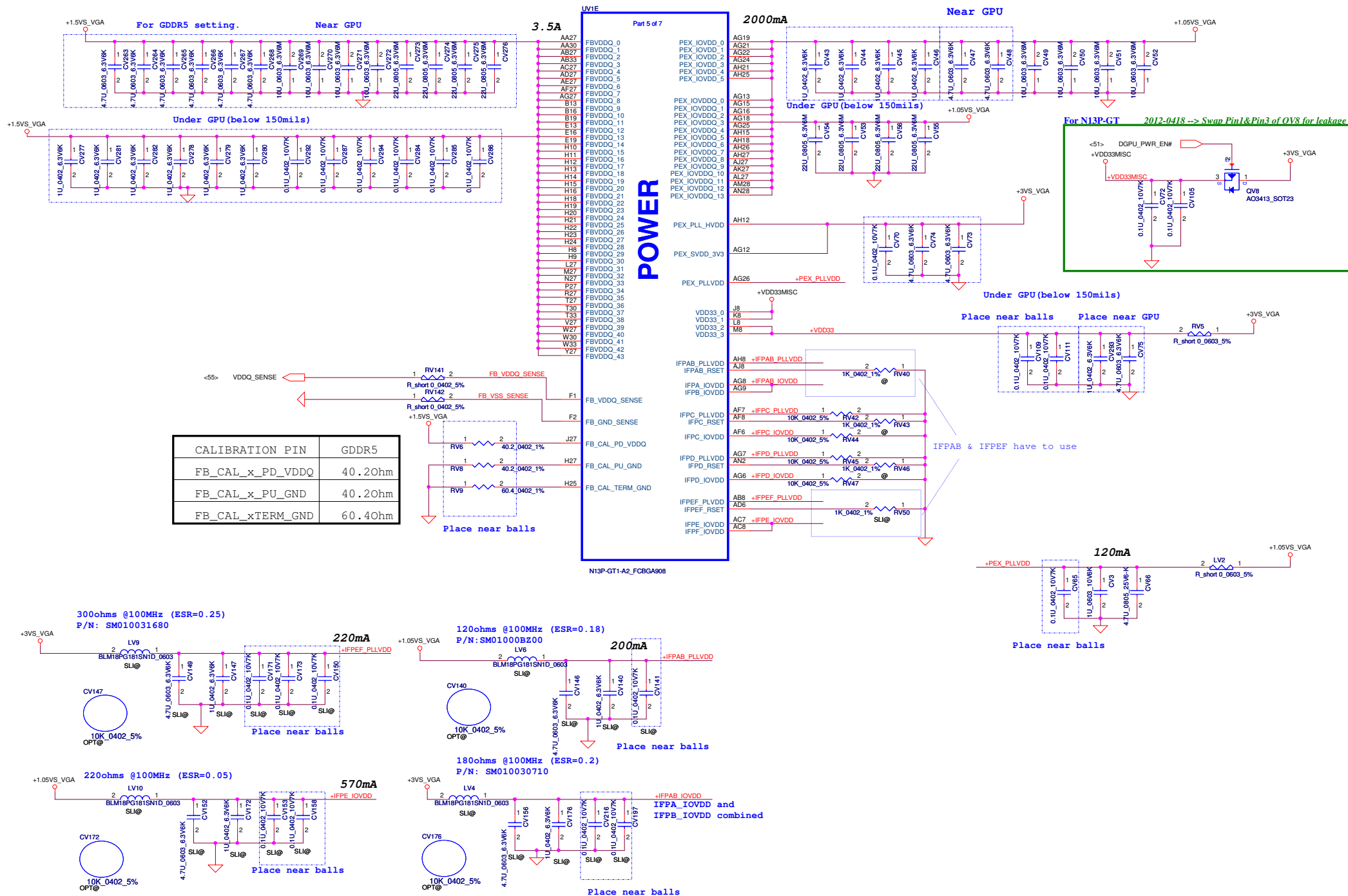


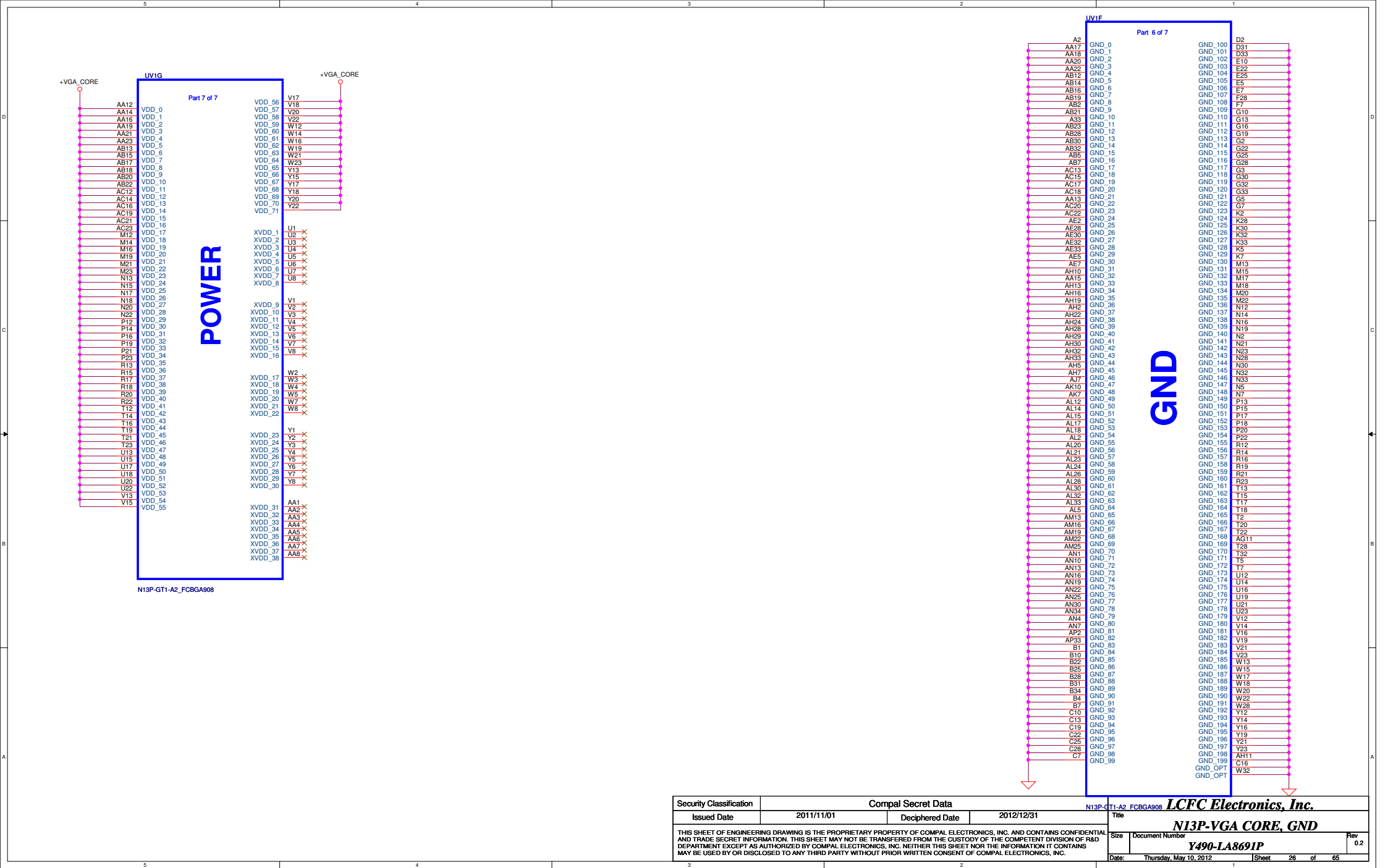
1MB SPI ROM FOR VBIOS ROM (SLI)



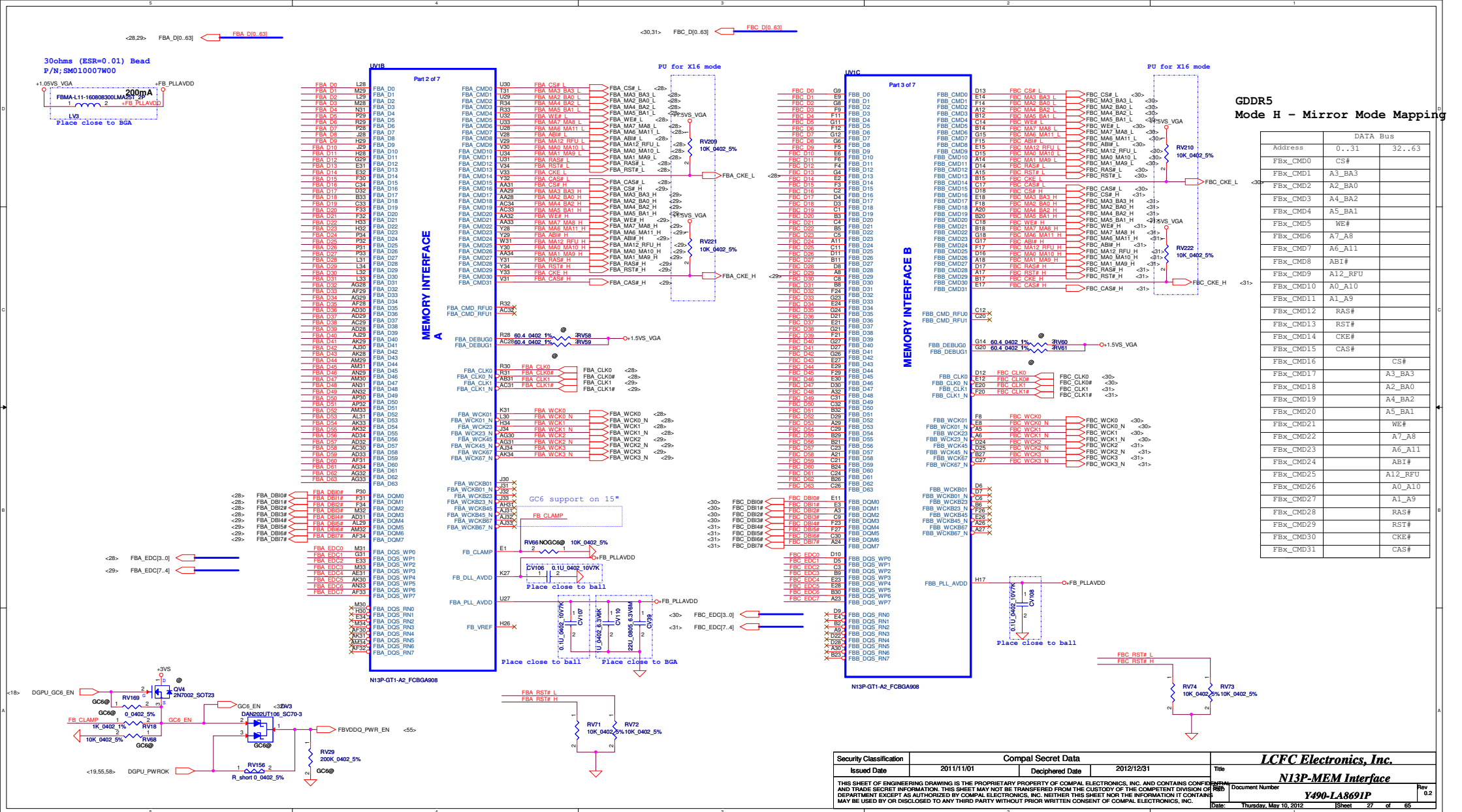
Security Classification		Compal Secret Data		LCFC Electronics, Inc.	
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	
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				Size	Document Number
				Y490-LA8691P	
				Date	Thursday, May 10, 2012
				Sheet	24 of 65



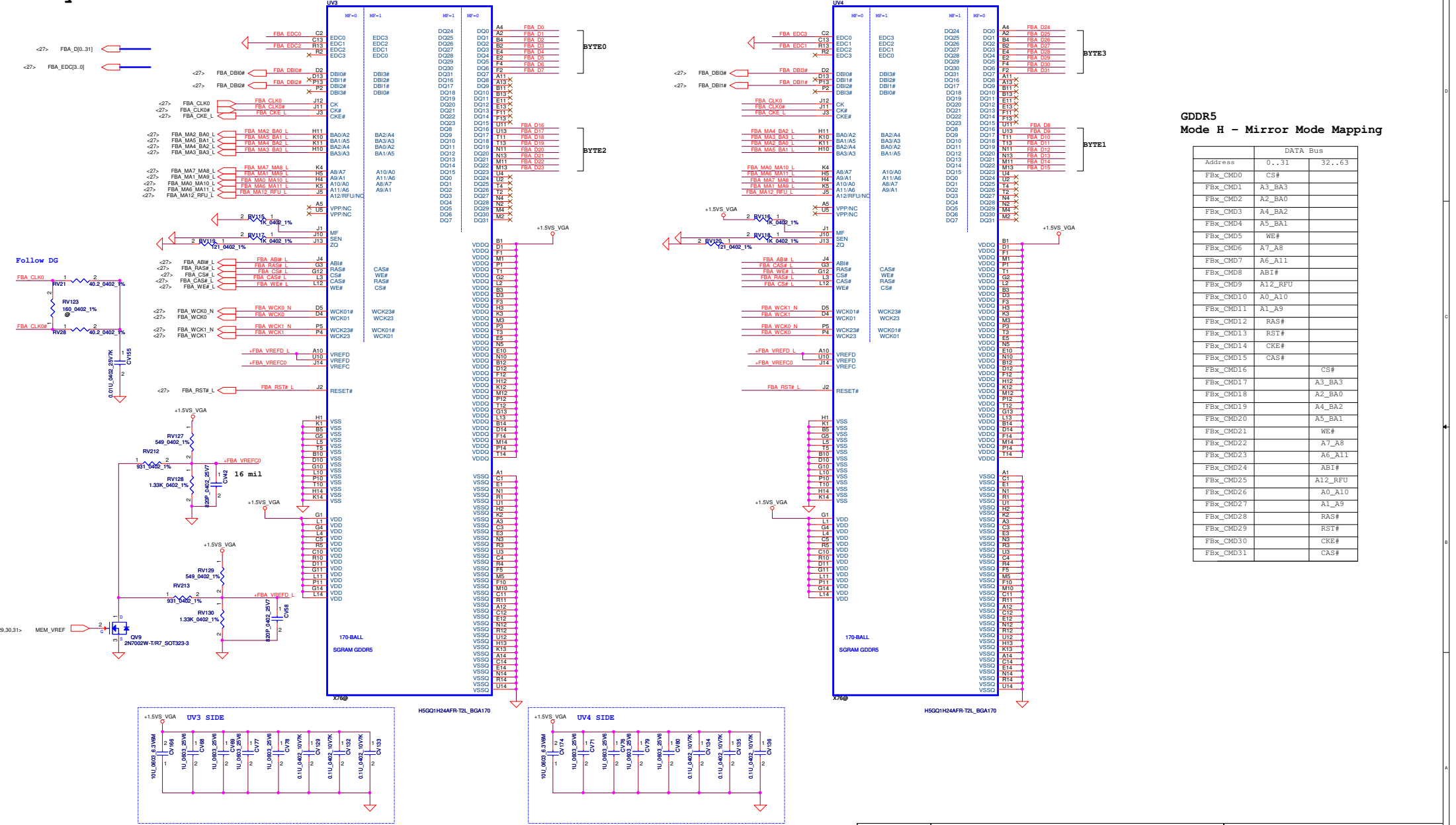




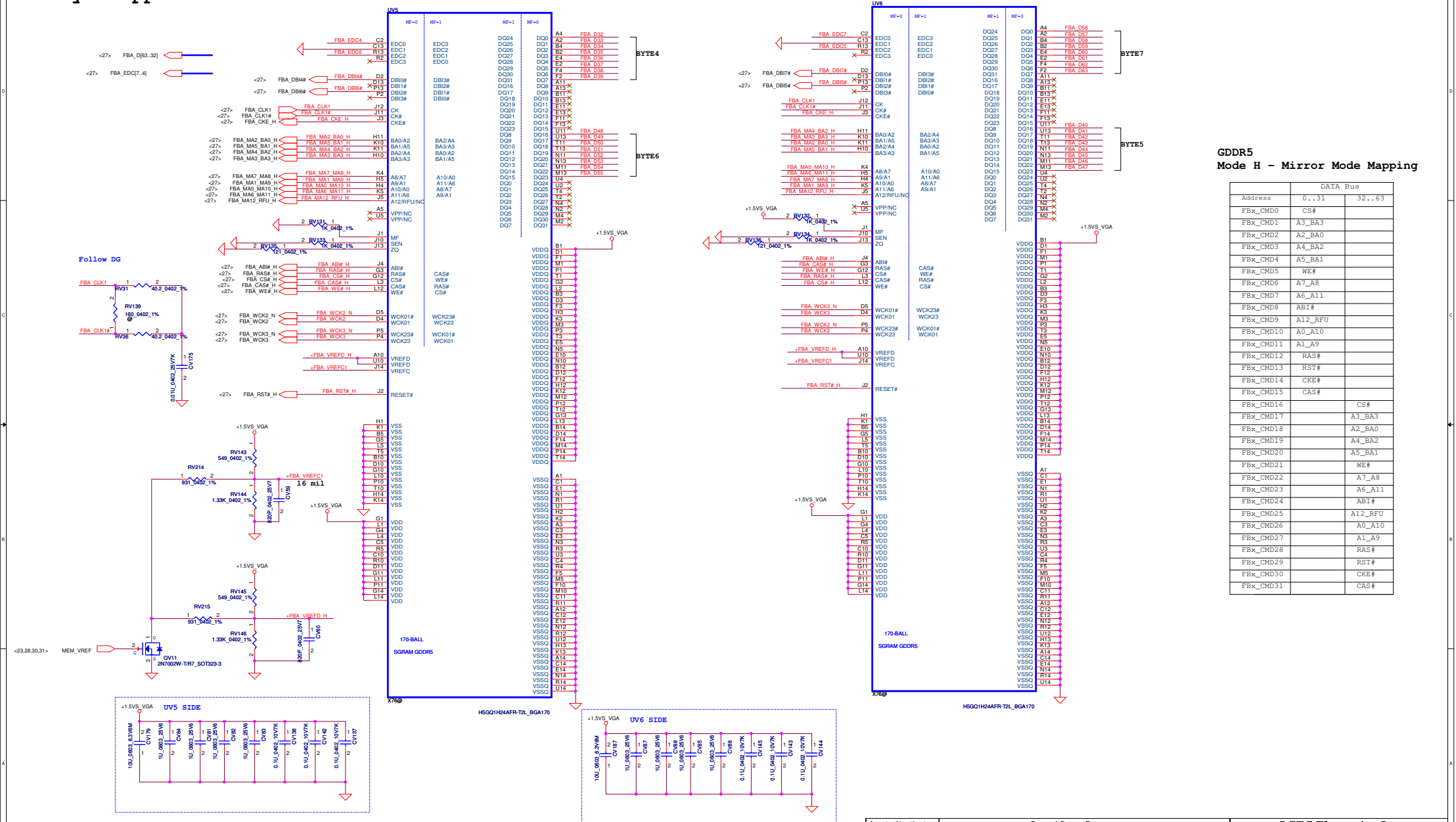
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Issued Date		Deciphered Date		Title		N13P-VGA CORE, GND	
2011/11/01		2012/12/31		Size		Document Number	
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				Date:		Thursday, May 10, 2012	
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Memory - Lower 32 bits



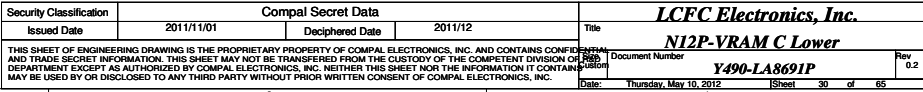
### Memory - Upper 32 bits



	DATA Bus	
Address	0..31	32..63
FBX_CMD0	CS#	
FBx_CMD1	A3_BA3	
FBx_CMD2	A2_BA0	
FBx_CMD3	A4_BA2	
FBx_CMD4	A5_BA1	
FBx_CMD5	WE#	
FBx_CMD6	A7_A8	
FBx_CMD7	A6_A11	
FBx_CMD8	AB1#	
FBx_CMD9	A12_RFU	
FBx_CMD10	A0_A10	
FBx_CMD11	A1_A9	
FBx_CMD12	RAS#	
FBx_CMD13	RST#	
FBx_CMD14	CKE#	
FBx_CMD15	CAS#	
FBx_CMD16		CS#
FBx_CMD17		A3_BA3
FBx_CMD18		A2_BA0
FBx_CMD19		A4_BA2
FBx_CMD20		A5_BA1
FBx_CMD21		WE#
FBx_CMD22		A7_A8
FBx_CMD23		A6_A11
FBx_CMD24		AB1#
FBx_CMD25		A12_RFU
FBx_CMD26		A0_A10
FBx_CMD27		A1_A9
FBx_CMD28		RAS#
FBx_CMD29		RST#
FBx_CMD30		CKE#
FBx_CMD31		CAS#

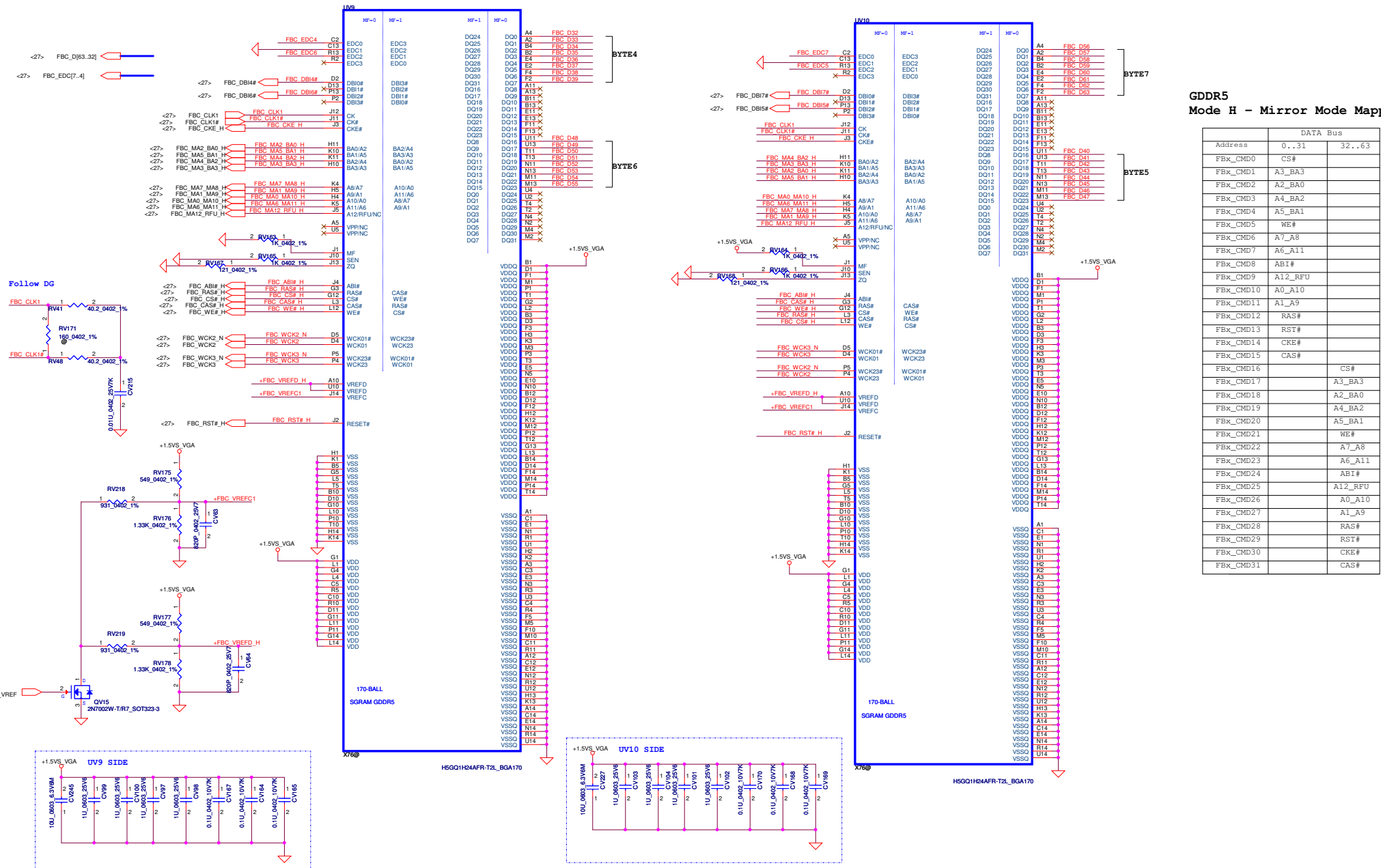
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					<div> <div>NES37-VRAM A Upper</div> <div>Y490-LA8691P</div> </div>
				Date:	Thursday, May 16, 2012
				Sheet	29 of 65

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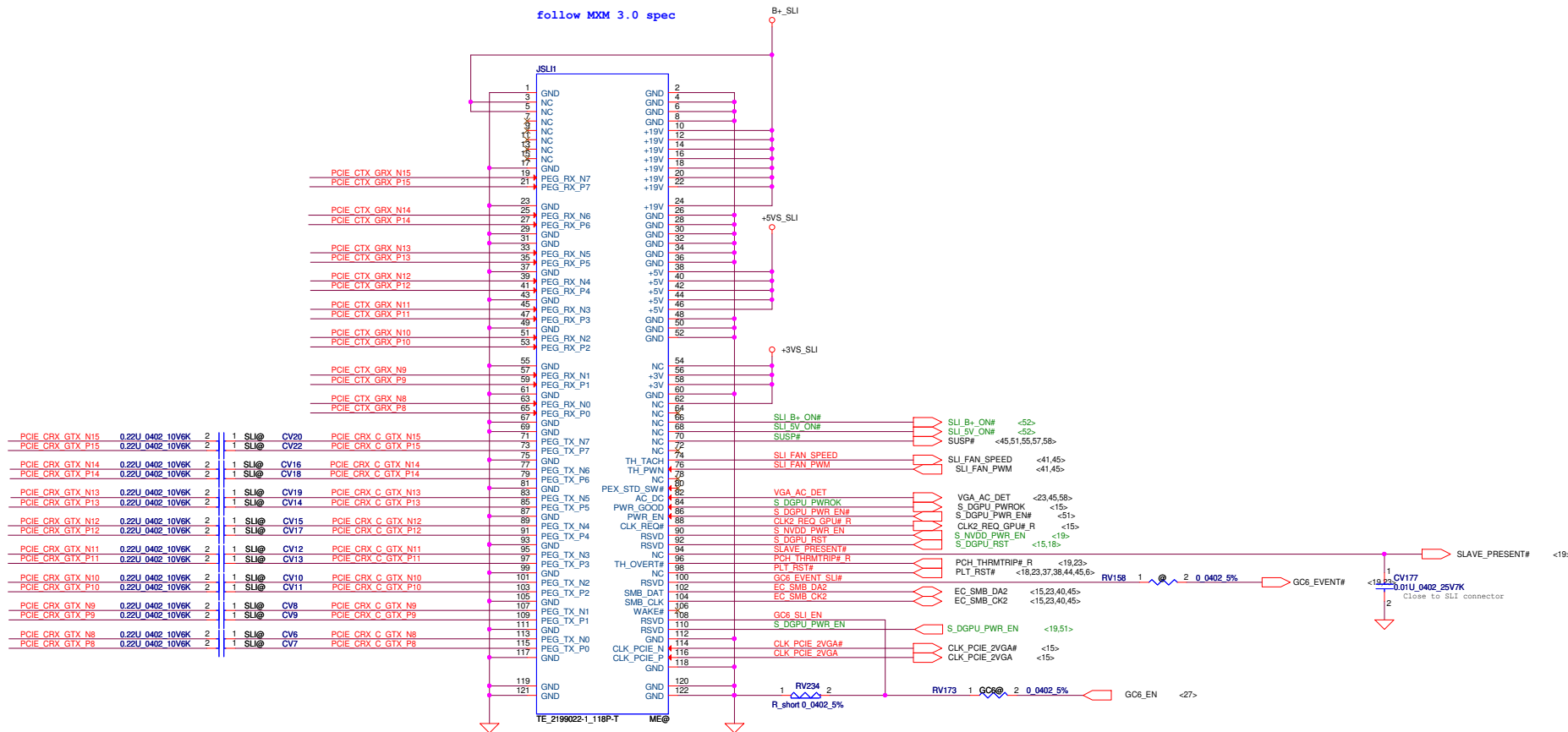


### Memory Partition C - Upper 32 bits



Address	DATA Bus	
	0..31	32..63
FBX_CMD0	CS#	
FBX_CMD1	A3_BA3	
FBX_CMD2	A2_BA0	
FBX_CMD3	A4_BA2	
FBX_CMD4	A5_BA1	
FBX_CMD5	WE#	
FBX_CMD6	A7_A8	
FBX_CMD7	A6_A11	
FBX_CMD8	AB1#	
FBX_CMD9	A12_RFU	
FBX_CMD10	A0_A10	
FBX_CMD11	A1_A9	
FBX_CMD12	RAS#	
FBX_CMD13	RST#	
FBX_CMD14	CKE#	
FBX_CMD15	CAS#	
FBX_CMD16		CS#
FBX_CMD17		A3_BA3
FBX_CMD18		A2_BA0
FBX_CMD19		A4_BA2
FBX_CMD20		A5_BA1
FBX_CMD21		WE#
FBX_CMD22		A7_A8
FBX_CMD23		A6_A11
FBX_CMD24		AB1#
FBX_CMD25		A12_RFU
FBX_CMD26		A0_A10
FBX_CMD27		A1_A9
FBX_CMD28		RAS#
FBX_CMD29		RST#
FBX_CMD30		CKE#
FBX_CMD31		CAS#

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			<b>LCFC Electronics, Inc.</b>	
			<b>N12P-VRAM C Upper</b>	0.2
			<b>Y490 L8691P</b>	
Date:	Thursday, May 10, 2012	Sheet	31	of 68

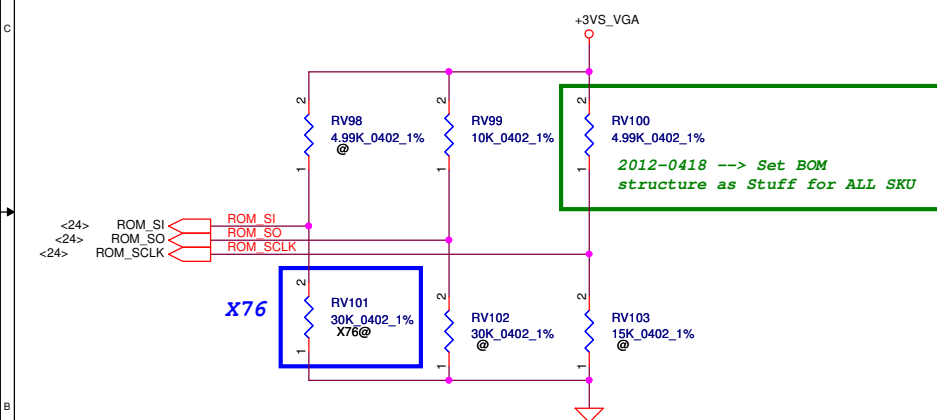
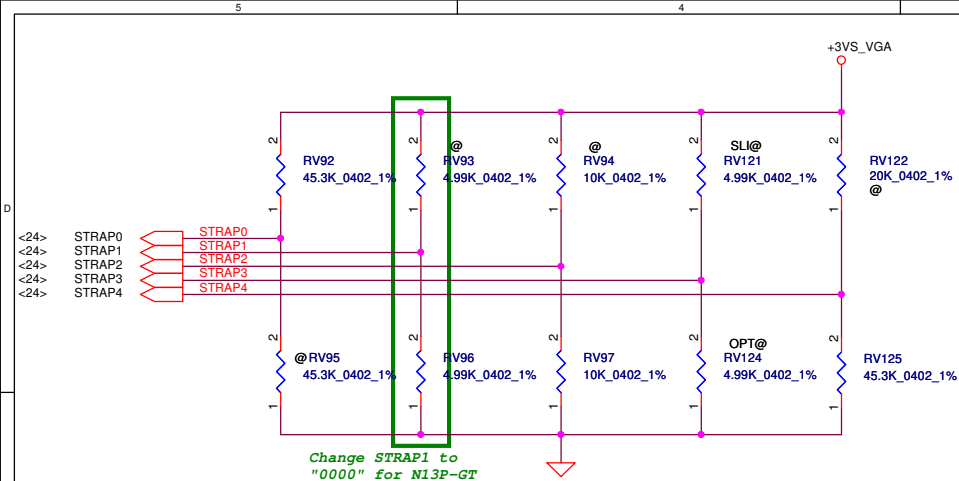


11/11 for 2nd VGA fan  
need to notice EC

<23.5>	PCIE_CTX_GRX_N[0..15]	PCIE_CTX_GRX_N[0..15]
<23.5>	PCIE_CTX_GRX_P[0..15]	PCIE_CTX_GRX_P[0..15]
<23.5>	PCIE_CRX_GTX_N[0..15]	PCIE_CRX_GTX_N[0..15]
<23.5>	PCIE_CRX_GTX_P[0..15]	PCIE_CRX_GTX_P[0..15]

Security Classification		Compal Secret Data		LCFC Electronics, Inc.	
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	DDRIII-SODIMM SLOT1
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				Date: Thursday, May 10, 2012	ISheet 32 of 65





Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
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]
ROM_SO	+3VS_VGA	FB[1]	FB[0]	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	+3VS_VGA	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	+3VS_VGA	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
STRAP2	+3VS_VGA	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	+3VS_VGA	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	+3VS_VGA	RESERVED	PCIE_SPEED_CHANGE_GEN3	PCIE_MAX_SPEED	DP_PLL_VDD33V

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

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

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

3GIO_PADCFG	
3GIO_PADCFG[3:0]	
0000	Notebook Default

XCLK_417	
0	277MHz (Default)
1	Reserved

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

PEX_PLL_EN_TERM	
0	Disable (Default)
1	Enable

PCIE_MAX_SPEED	
0	Limit to PCIE Gen1
1	PCIE Gen 2/3 Capable

FB_0_BAR_SIZE	
0	Reserved
1	Reserved
2	256MB (Default)
3	Reserved

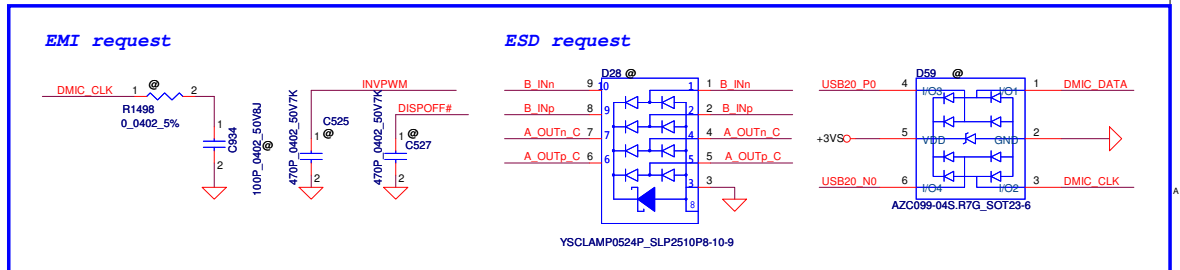
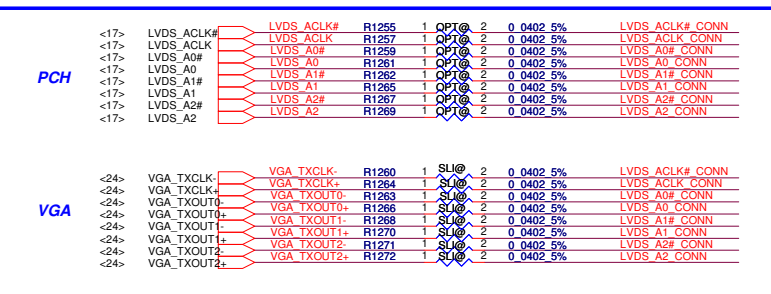
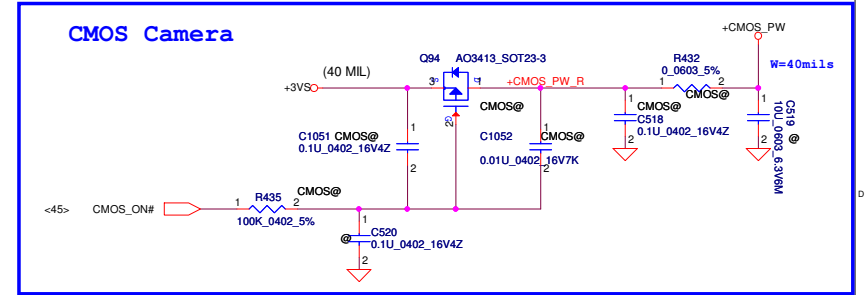
SMBUS_ALT_ADDR	
0	0x9E (Default)
1	0x9C (Multi-GPU usage)

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

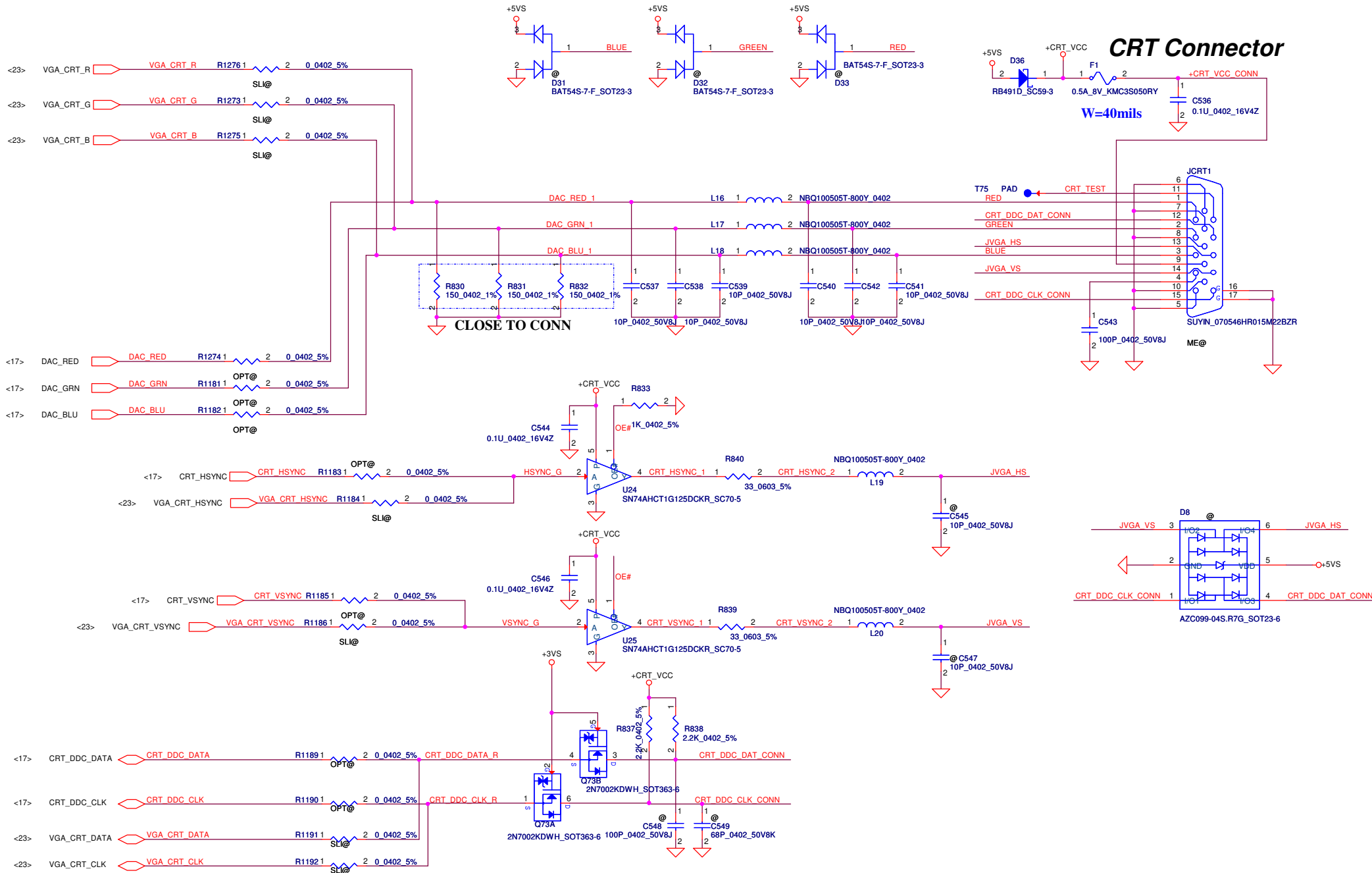
GPU		FB Memory (GDDR5)		ROM_SI	ROM_SO	ROM_SCLK	STRAP0	STRAP1	STRAP2	STRAP3	STRAP4
N13P-GT1 28nm	Samsung	K4G20325FD-FC04 2G 64Mx32		PD 30K	PU 10K	PU 5K (ALL SKU)	PU 45K	PD 5K	PD 10K	PU 5K	PD 10K
		K4G10325FG-HC04 1G 32Mx32		PD 45K							
	Hynix	H5GQ2H24MFR-T2C 2G 64Mx32	EOL	PD 25K							
		H5GQ1H24BFR-T2C 1G 32Mx32		PD 35K							
		H5GQ2H24AFR-T2C 2G 64Mx32		PD 5K							

VRAM	X76	VRAM P/N
Samsung	X76409JVL01 (2G 64Mx32)	SA00005B70J
	X76409JVL51 (1G 32Mx16)	SA00003RS0J
Hynix	X76409JVL02 (2G 64Mx32)	SA00004GD0J EOL
	X76409JVL02 (2G 64Mx32)	SA00004GD1J
	X76409JVL52 (1G 32Mx16)	SA00003WL1J

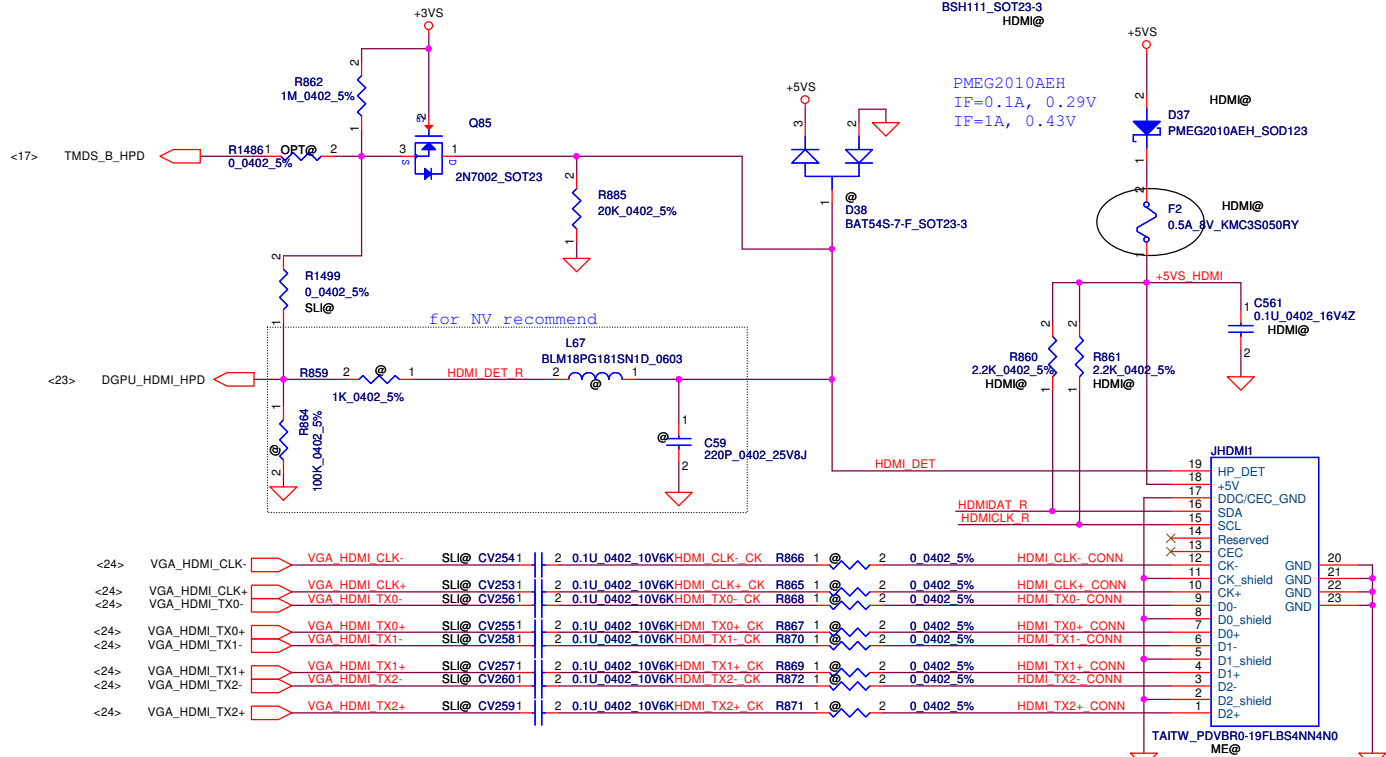
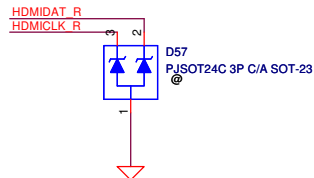
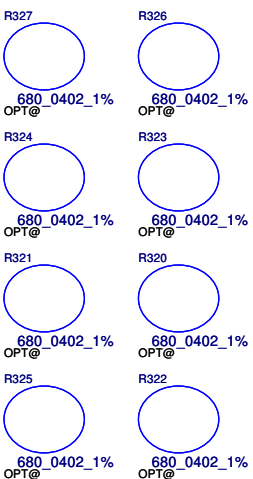
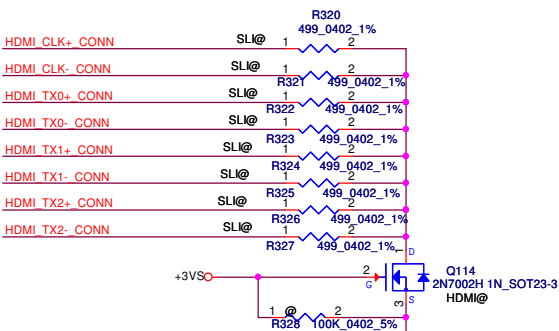
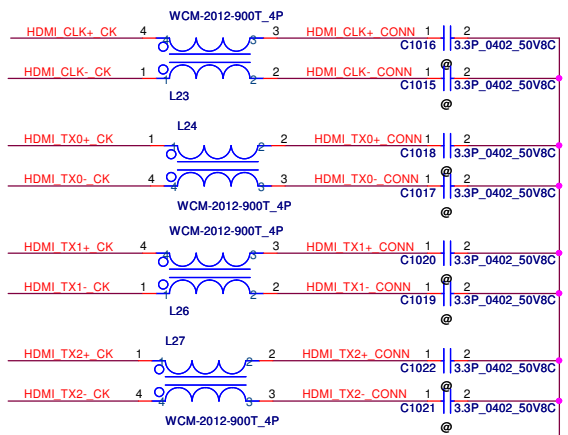
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Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	N13P MISC
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Size	Custom	Document Number	Y490-LA8691P	Rev	0.2
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<17>	TMDS_B_DATA2#_PCH	TMDS_B_DATA2#_PCH	OPT@	C200	1	2	0.1U 0402 10V6K	HDMI TX2- CK
<17>	TMDS_B_DATA2_PCH	TMDS_B_DATA2_PCH	OPT@	C201	1	2	0.1U 0402 10V6K	HDMI TX2+ CK
<17>	TMDS_B_DATA1#_PCH	TMDS_B_DATA1#_PCH	OPT@	C203	1	2	0.1U 0402 10V6K	HDMI TX1- CK
<17>	TMDS_B_DATA1_PCH	TMDS_B_DATA1_PCH	OPT@	C204	1	2	0.1U 0402 10V6K	HDMI TX1+ CK
<17>	TMDS_B_DATA0#_PCH	TMDS_B_DATA0#_PCH	OPT@	C205	1	2	0.1U 0402 10V6K	HDMI TX0- CK
<17>	TMDS_B_DATA0_PCH	TMDS_B_DATA0_PCH	OPT@	C208	1	2	0.1U 0402 10V6K	HDMI TX0+ CK
<17>	TMDS_B_CLK#_PCH	TMDS_B_CLK#_PCH	OPT@	C207	1	2	0.1U 0402 10V6K	HDMI CLK- CK
<17>	TMDS_B_CLK_PCH	TMDS_B_CLK_PCH	OPT@	C209	1	2	0.1U 0402 10V6K	HDMI CLK+ CK

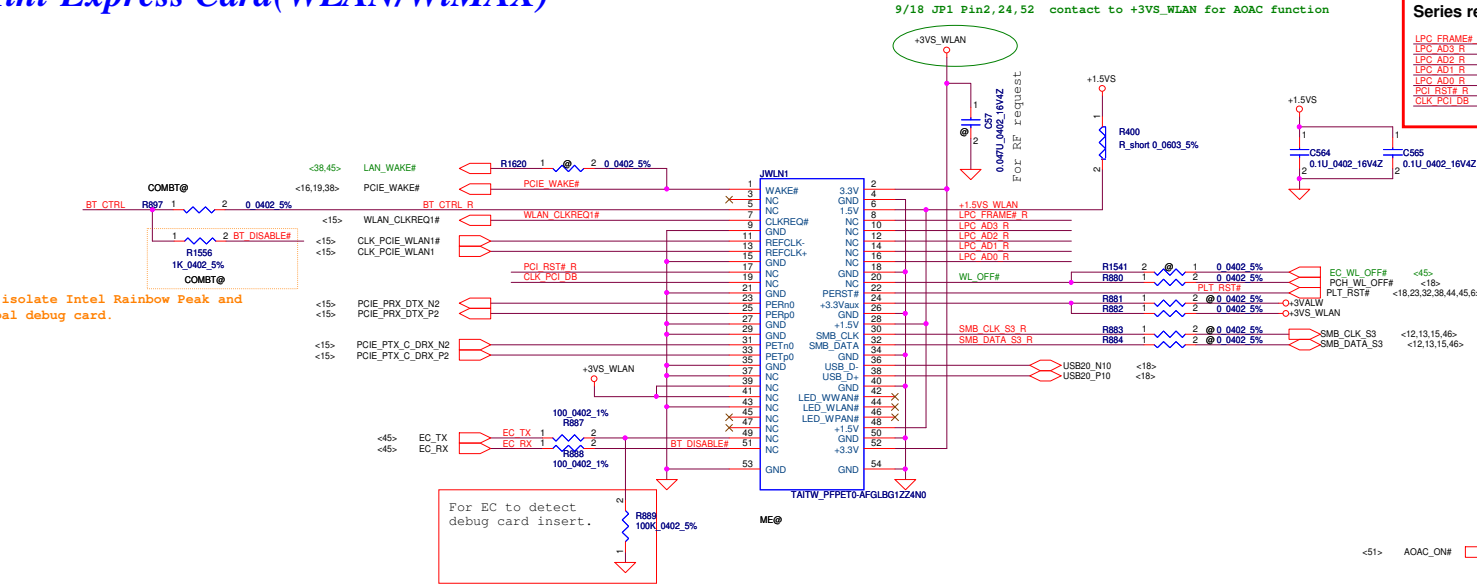


Security Classification		Compal Secret Data		LCFC Electronics, Inc.	
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	
				HDMI CONN	
Size	Custom	Document Number	Y490-LA8691P		Rev
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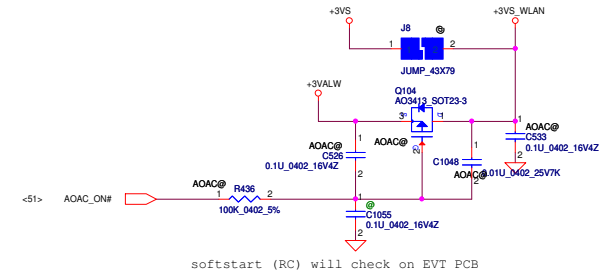
# Mini-Express Card(WLAN/WiMAX)

For isolate Intel Rainbow Peak and Compal debug card.

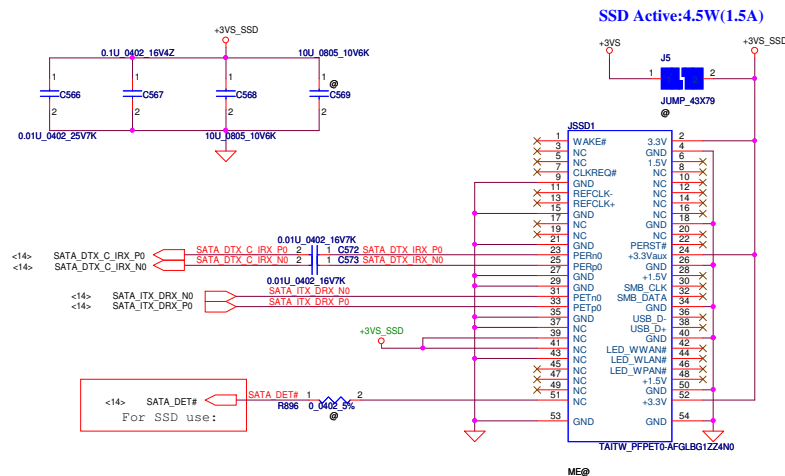


Reserve for SW mini-pcie debug card.  
Series resistors closed to KBC side.

LPC_FRAME# R	R873	1	2	0.0402 5%	LPC_FRAME#	<14,45>
LPC_ADS3 R	R874	1	2	0.0402 5%	LPC_ADS3	<14,45>
LPC_ADS2 R	R875	1	2	0.0402 5%	LPC_ADS2	<14,45>
LPC_ADS1 R	R876	1	2	0.0402 5%	LPC_ADS1	<14,45>
LPC_ADS0 R	R877	1	2	0.0402 5%	LPC_ADS0	<14,45>
LPC_RST# R	R878	1	2	0.0402 5%	LPC_RST#	<18>
CLK_P0T0 R	R879	1	2	0.0402 5%	CLK_P0T0	<18>



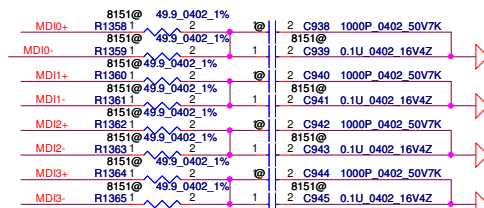
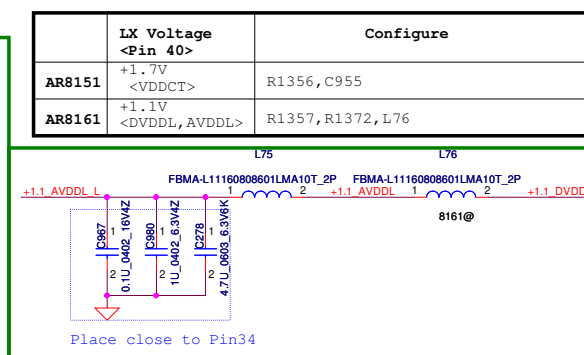
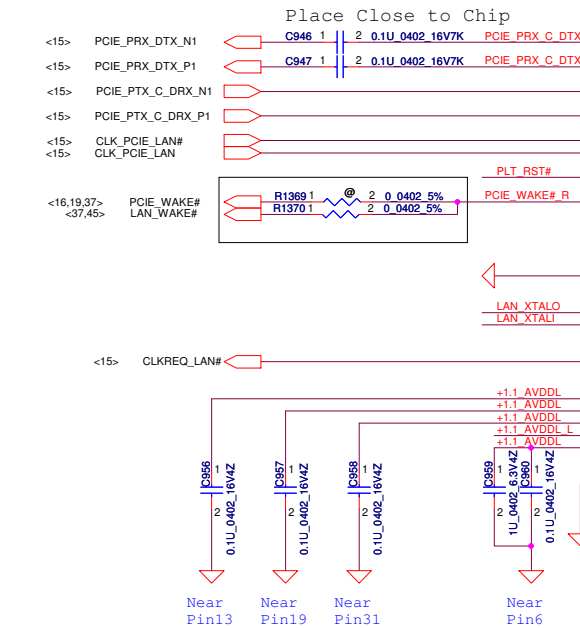
# Mini-Express Card(SSD)



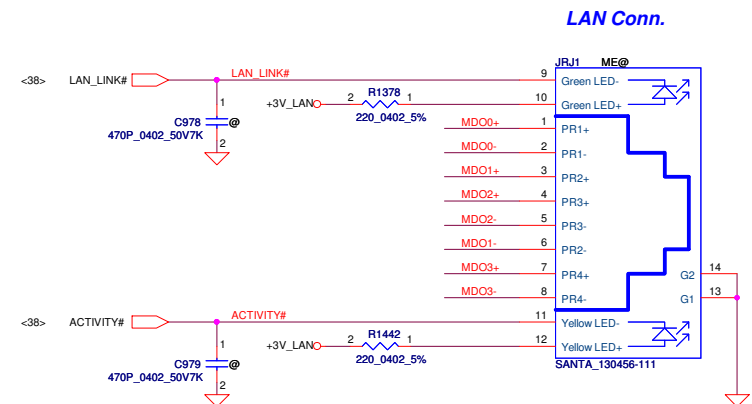
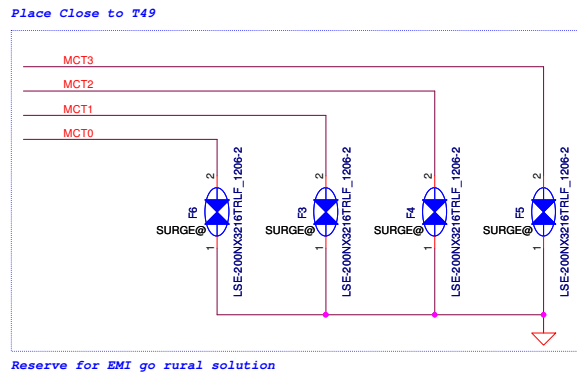
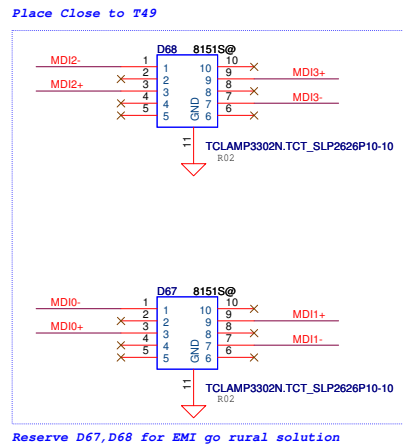
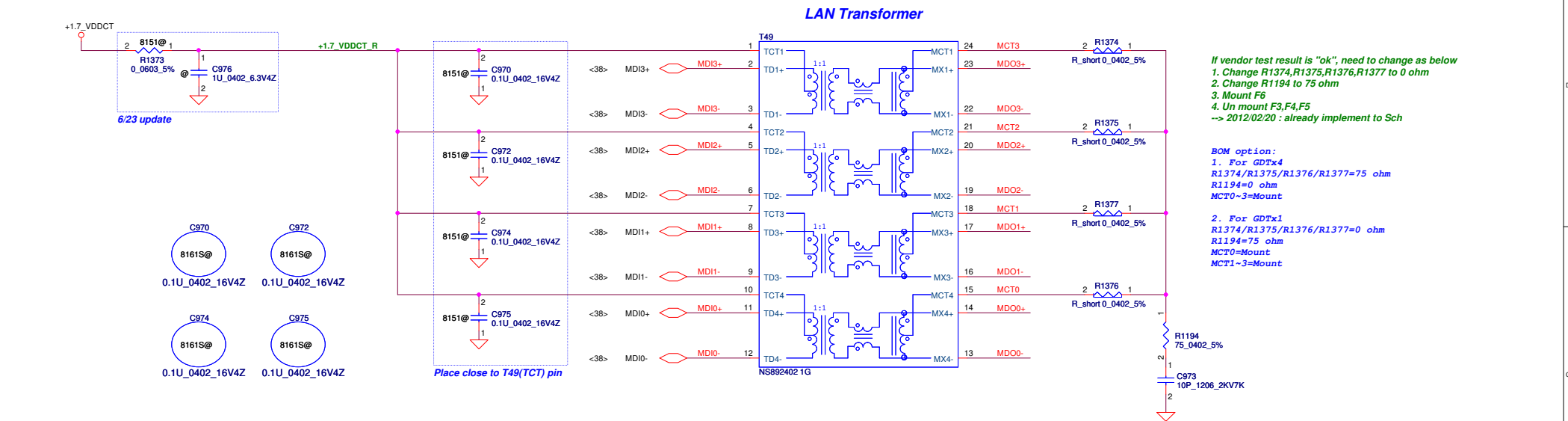
**WWW.AliSaler.Com**

23 32,37,44,45,6>

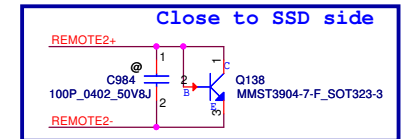
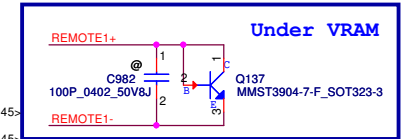
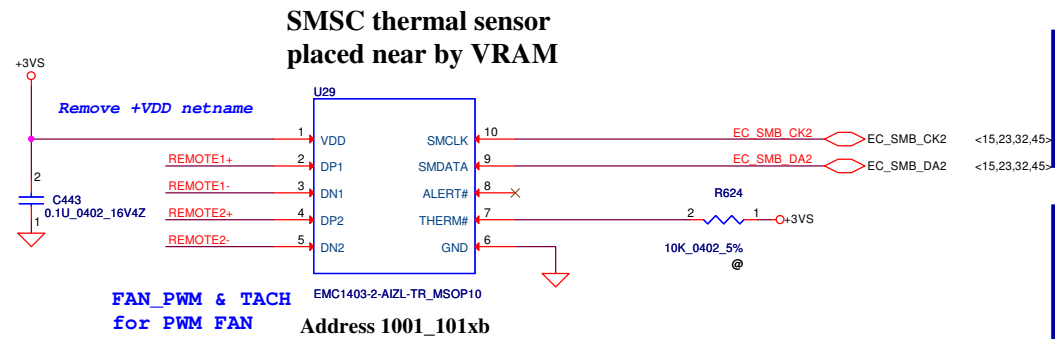
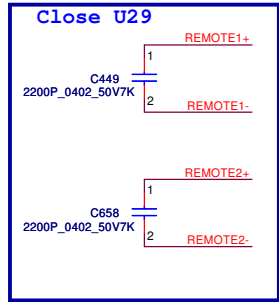
+3V\_LAN R345 1 2 4.7K 0402 5% @ PLT\_RST#

[illegible][illegible]

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				Custom	Y490-LA8691P	0.2	
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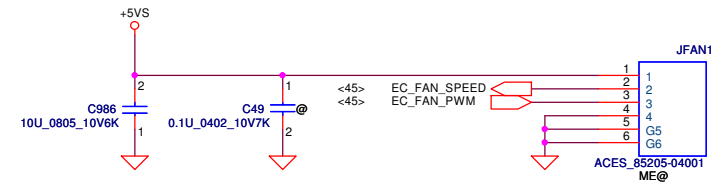
Security Classification				Compal Secret Data				LCFC Electronics, Inc.			
Issued Date				2011/11/01				Title			
Deciphered Date				2012/12/31				LAN Transformer			
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internal pull up 1.2K to 1.5V  
R for initial thermal  
shutdown temp

REMOTE2+/-:  
Trace width/space:10/10 mil  
Trace length:<8"

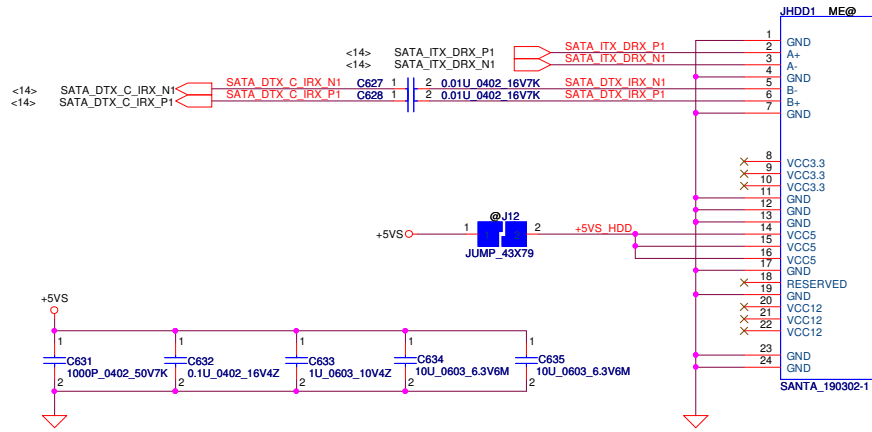
**FAN1 Conn**



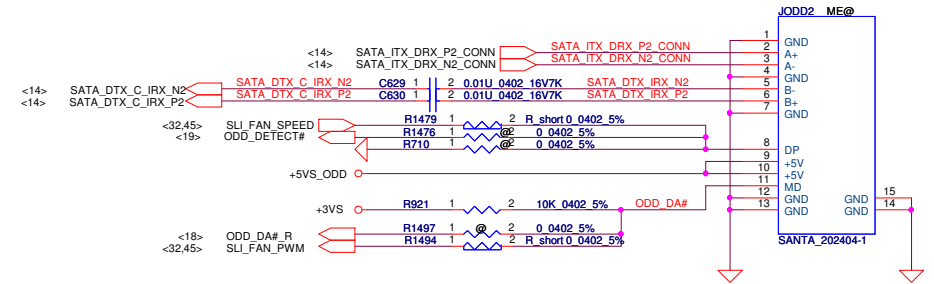
Security Classification		Compal Secret Data		LCFC Electronics, Inc.	
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	EMC1403/2103 Thermal sensor/FAN
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				Date: Thursday, May 10, 2012	Sheet 40 of 65



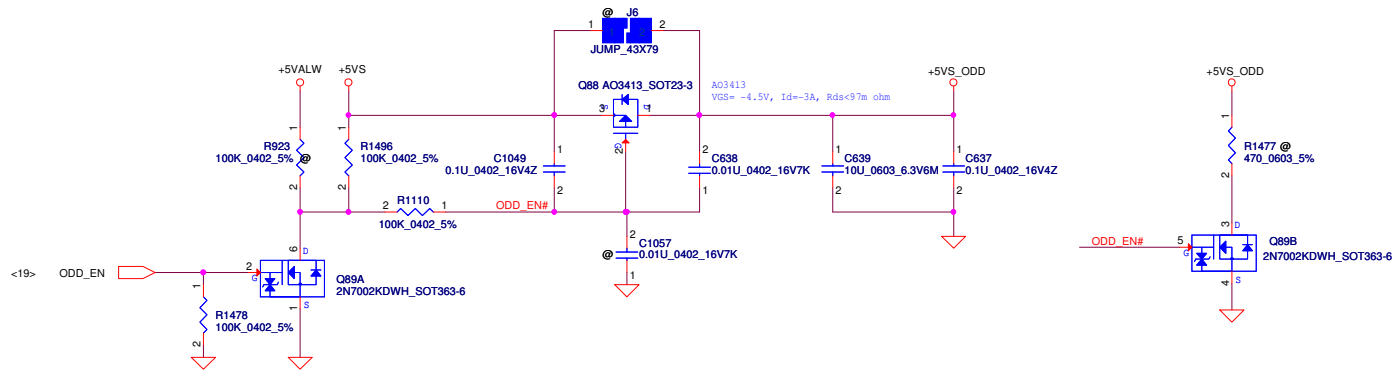
## SATA HDD Conn.



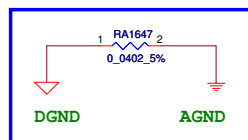
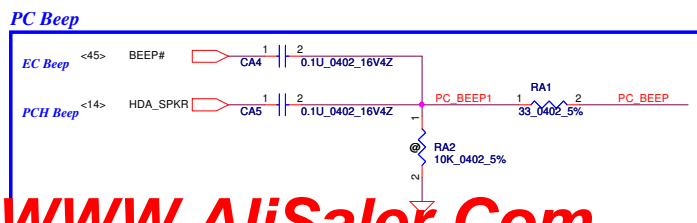
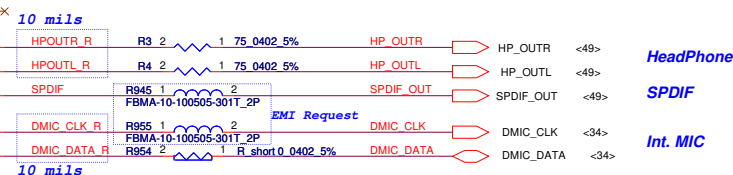
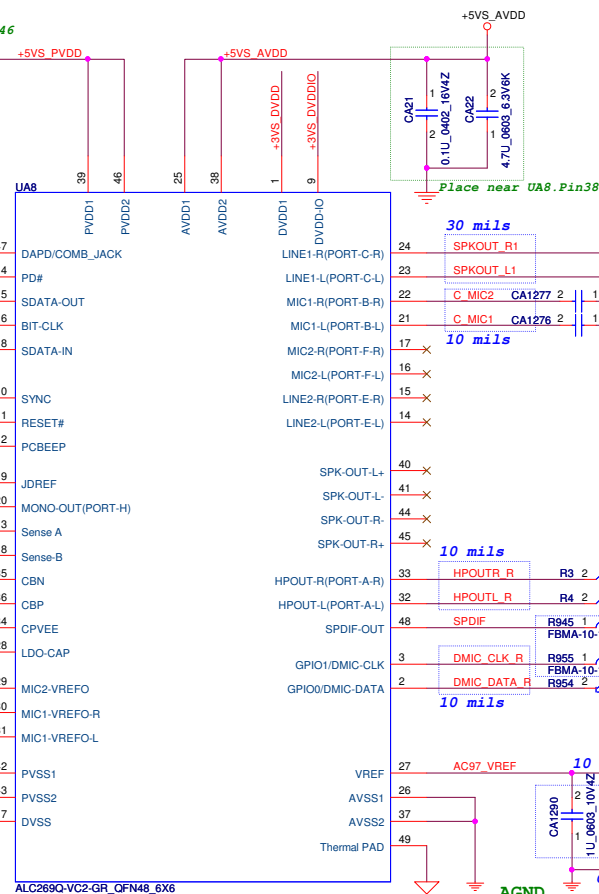
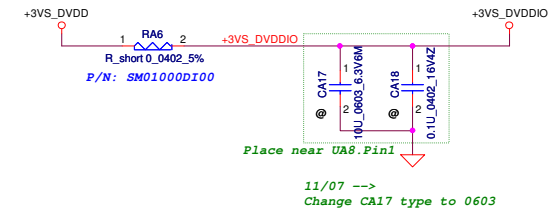
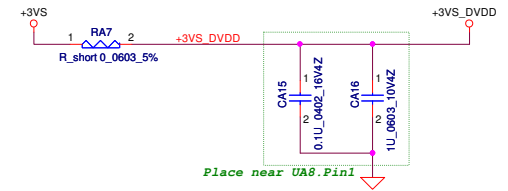
## SATA ODD Conn.



## ODD Power Control

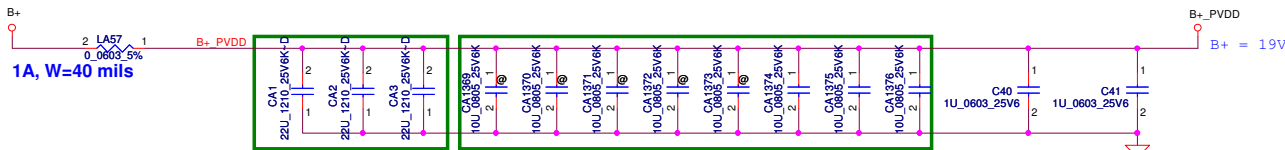


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Issued Date	2011/11/01	Deciphered Date	2012/12/31	HDD/ODD Connector	
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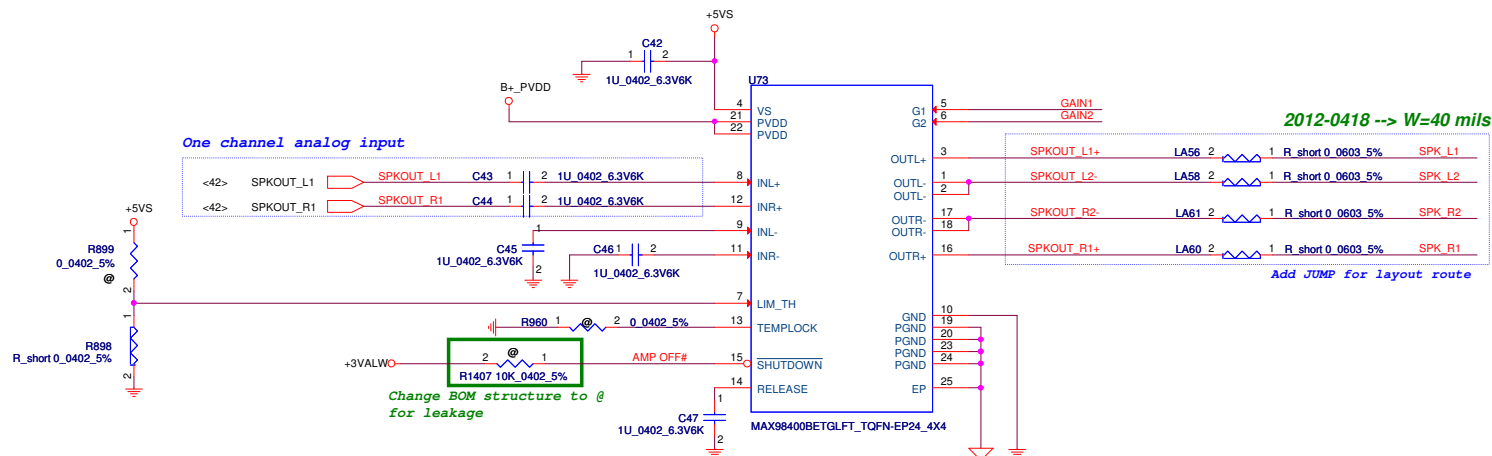


Pin Assignment	Location	Function
SPK-OUT (Pin40/41/44/45)	Internal	Int Speaker
Capless HF-OUT (Pin32/33)	External	Headphone out
MIC1 (Pin21/22)	External	Mic in

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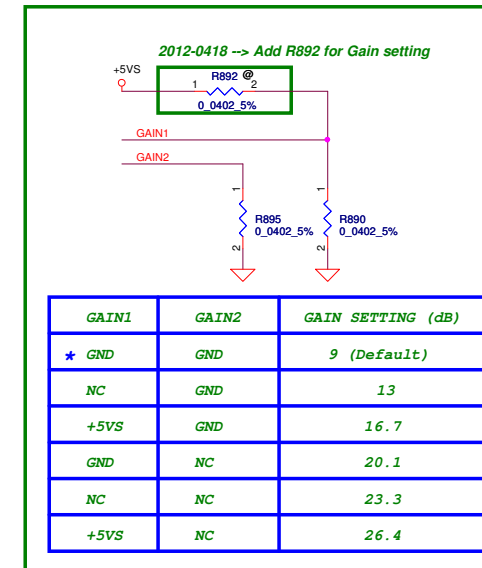


22uf\*3, 10uf\*8 for Damage issue  
Stuff --> CA1, CA2, CA3, CA1374, CA1375 and CA1376

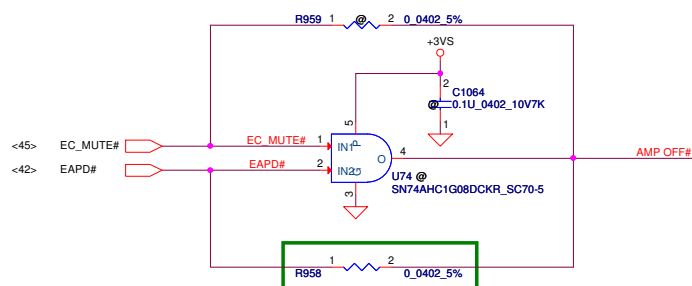


2012-0429 --> Change C42-C47 Cap to X5R type for Vendor suggestion

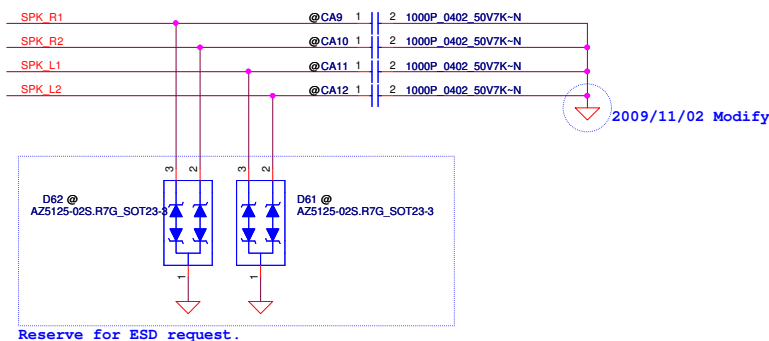
## GAIN SETTING



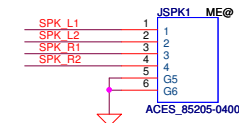
2012-0418 --> Set R890 BOM structure as Stuff

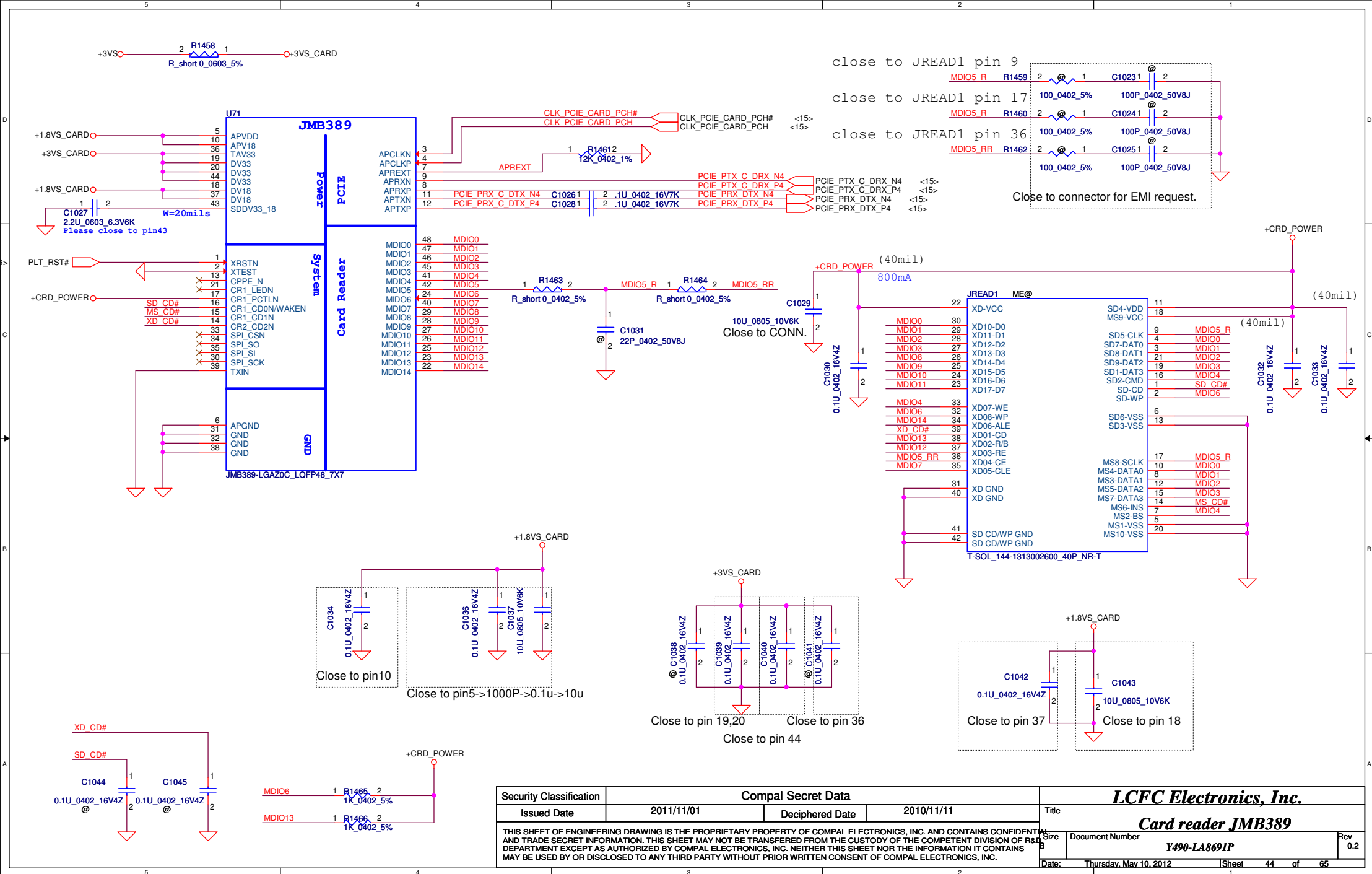


1. R958, --> "Stuff"
2. U74, C1064, R959 --> "@"



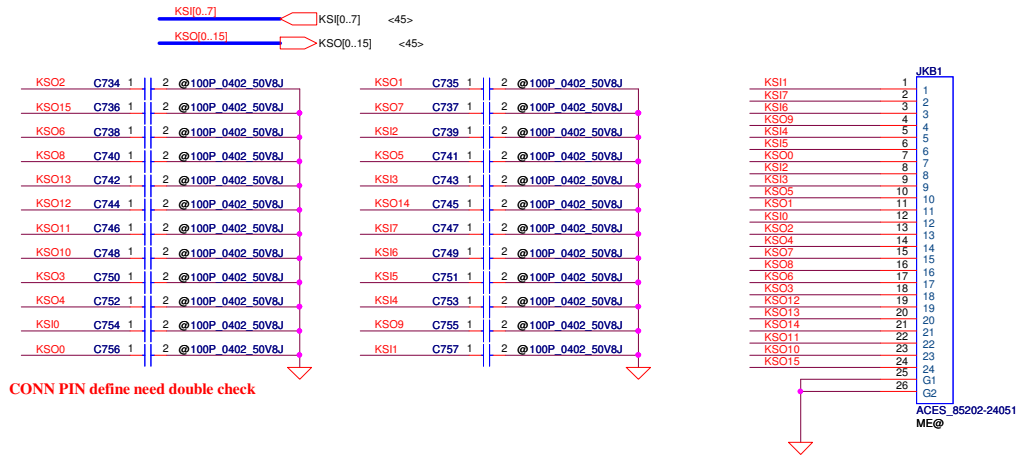
## Speaker Conn.



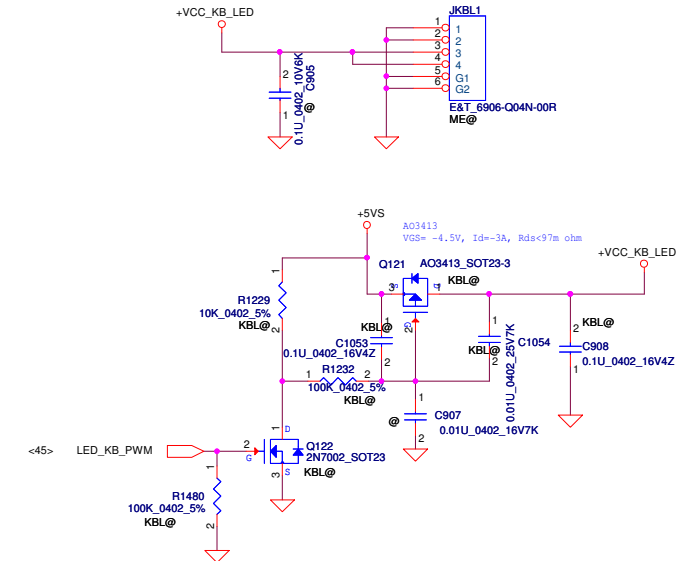




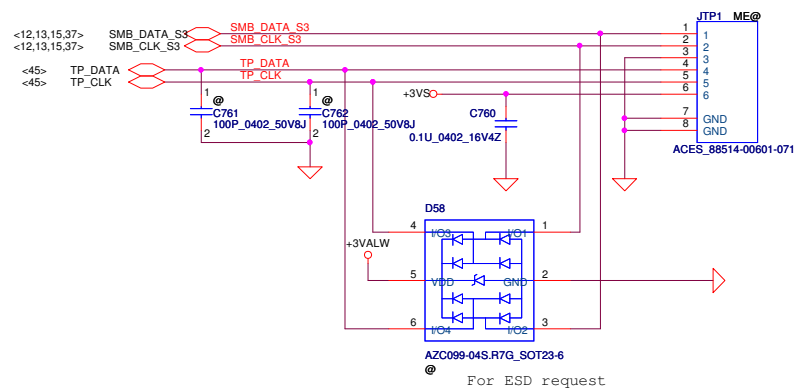
## 14" INT\_KBD Conn.



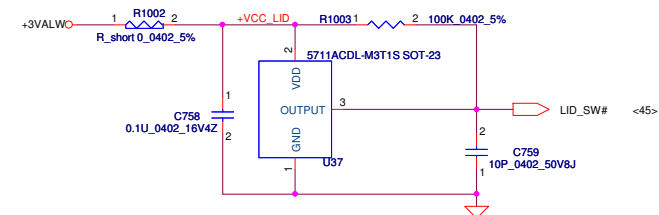
## KB Lighting CONN.4pin



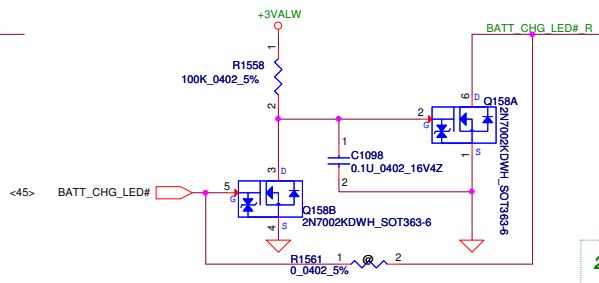
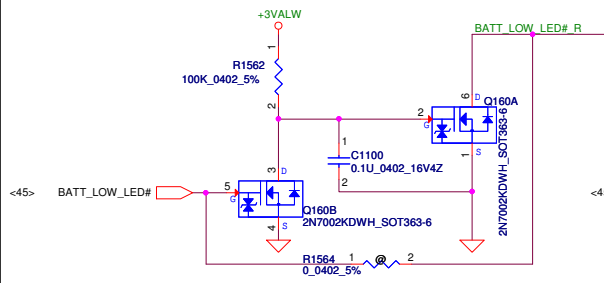
## To TP/B Conn.



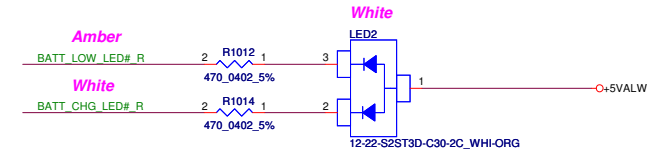
## Lid Switch



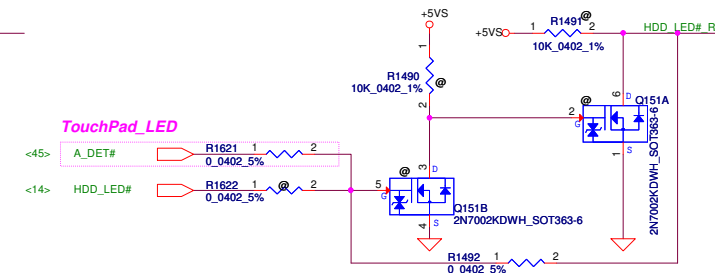
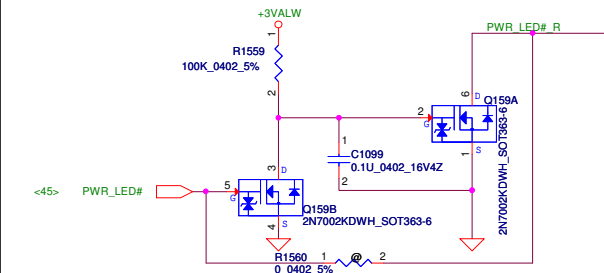
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Date: Thursday, May 10, 2012				Document Number Y490-LA8691P
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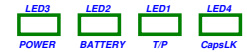
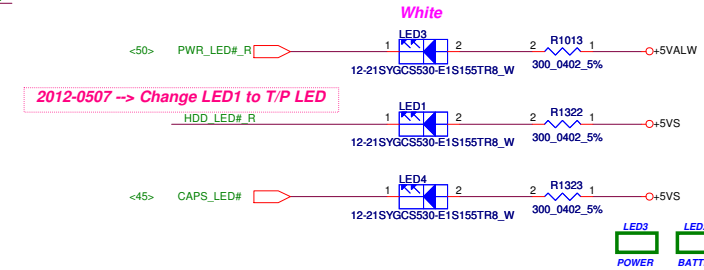
## BATT CHARGE/LOW LED



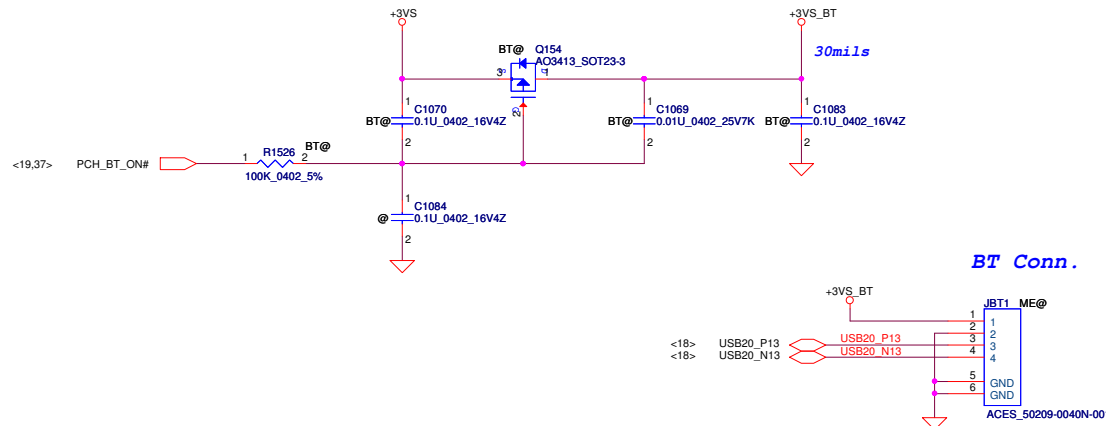
2012-0507 --> Add MOS solution on LED3, 2 to avoid the light blinked.



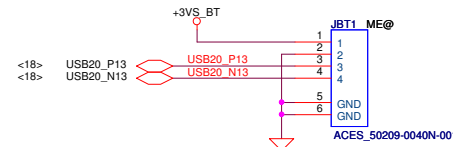
## PWR LED HDD LED CapsLK LED



## BlueTooth DC



## BT Conn.



## PCB Fedcal Mark PAD



## Screw Hole

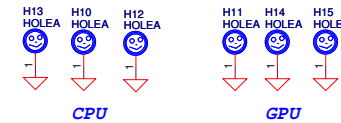
### CPU and GPU: H\_3P8X 6

C: H\_3P8X 3

B: H\_3P8X 3

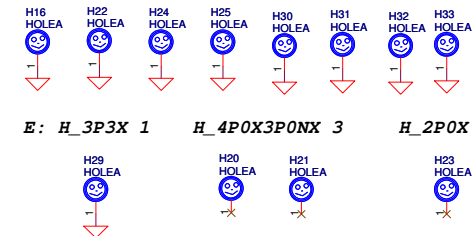
### MIN PCIE: H\_3P3 X 1

E: H\_3P3X 1



### ME: H\_8P0 X 8; H\_3P3X 1; H\_4P0X3P0N X 2; H\_2P0X 1

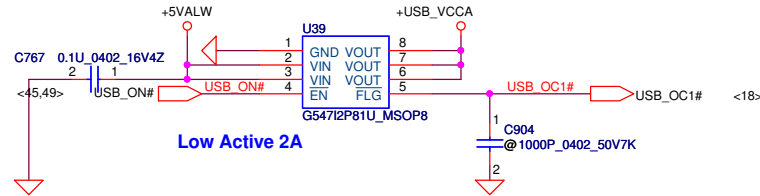
A: H\_2P8X 8



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				Y490-LA8691P	0.2
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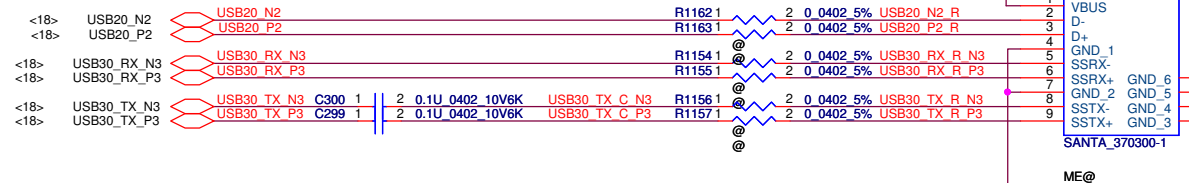
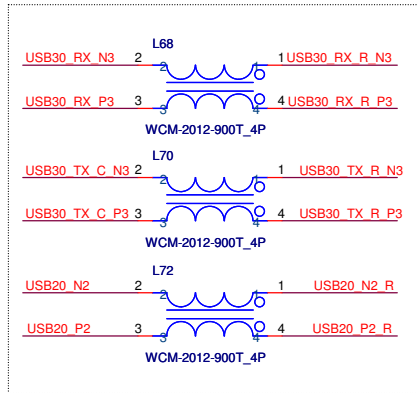


# LEFT SIDE USB3.0 PORT X1

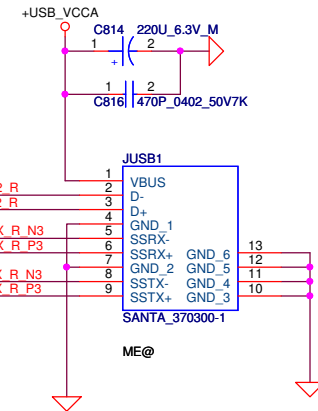
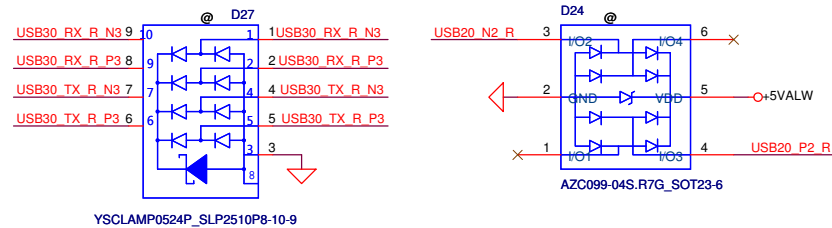


Low Active 2A

For EMI request  
USB2.0 choke --> SM070000I00  
USB3.0 Choke --> SM070001U00

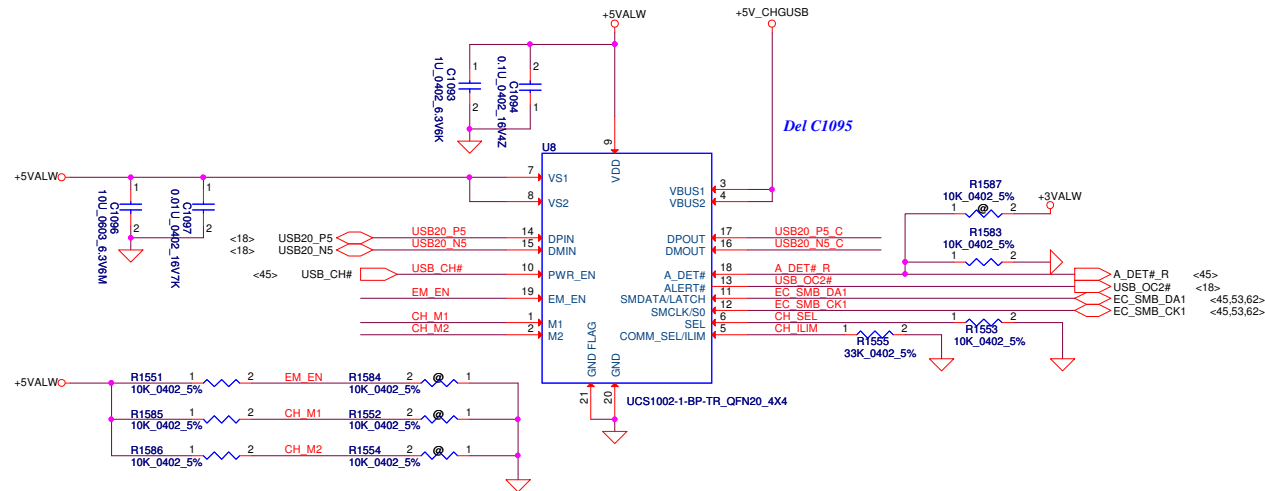


For ESD request



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Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	USB3.0 ports
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## Sleep & Charge Right side USB Charger Port (USB\_Port5, near JMIC1)



2012-0429 --> Set default mode is "BC1.2 CDP" Mode (2.5A on S0) for USB Port5

### Active Mode Selection:

M1	M2	EM_EN	ACTIVE MODE
0	0	1	Dedicated Charger Emulation Cycle
0	1	0	Date Pass-through
0	1	1	BC1.2 DCP
1	0	0	BC1.2 SDP
1	1	0	Dedicated Charger Emulation Cycle
1	1	1	Date Pass-through
★ 1	1	1	BC1.2 CDP

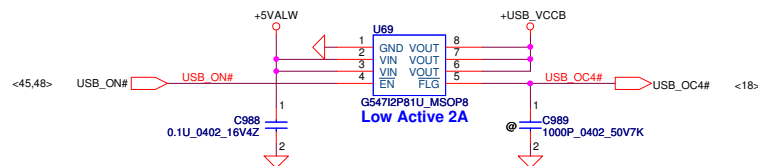
### ILIM SETTING

Pull Low
0R-500mA
10K-900mA
12K-1000mA
15K-1200mA
18K-1500mA
22K-1800mA
27K-2000mA
★ 33K-2500mA

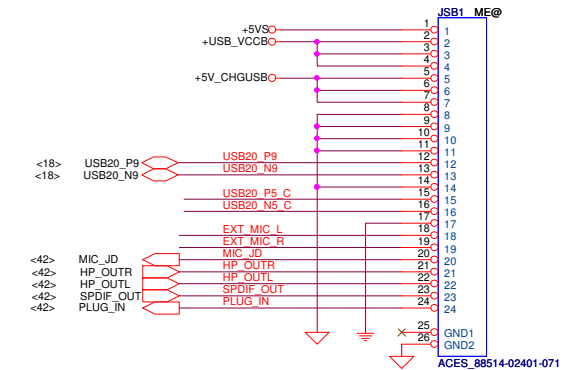
### SEL Pin Decode

Pull Low
0R-1010_000
★ 10K-1010_000
12K-1010_000
15K-1010_000
18K-0110_000
22K-0110_000
27K-0110_000
33K-0110_000

## USB Power (USB20\_P9)

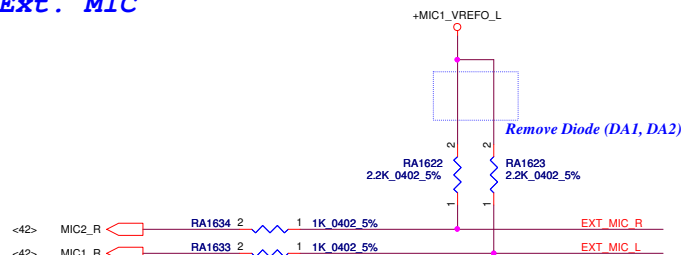


### AUDIO/B Conn.



need change to 銅線材料  
COMPAL : SP010015W1J  
Footprint : 88514-0240N-071

## Ext. MIC



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### ON/OFF switch

The schematic diagram illustrates the ON/OFF switch circuit, showing the power button on the top side and bottom side. The top side includes a power button SW2, a 100K resistor R1116, and a 100K resistor R1117. The bottom side includes a power button SW2, a 100K resistor R1118, and a 100K resistor R1119. The circuit is powered by +3VALW and +3VL. The output signals are ON/OFF, 51\_ON#, and NOVO\_BTN#.

**Power Button/B link  
to Function/B Conn. 10pin**

<47> PWR\_LED#\_R

NOVO\_BTN#

ON/OFFBTN#

C551

100P\_0402\_50V8J

+5VALW

JPWR1 ME@

1 2 3 4 5 6 7 8

GND GND

ACES\_88514-00601-071

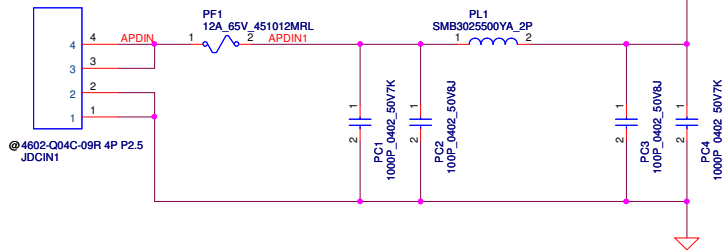
9/23 ESD Request

**EMI REQUEST 1ST = SCA00000E00  
2ST = SCA00000R00**

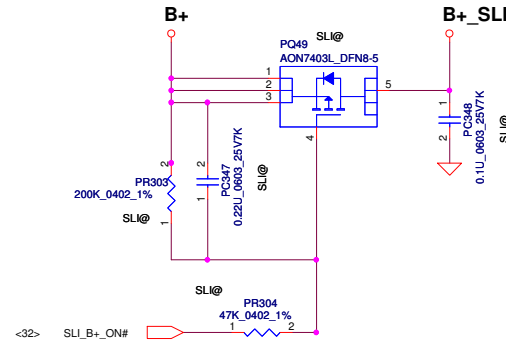
Security Classification	Compal Secret Data			LCFC Electronics, Inc.		
Issued Date	2011/11/01	Deciphered Date	2012/12/31	Title	Other IO connector	
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				Custom	Y490-LA8691P	0.2
				Date: Thursday, May 10, 2012	Sheet 50 of 65	



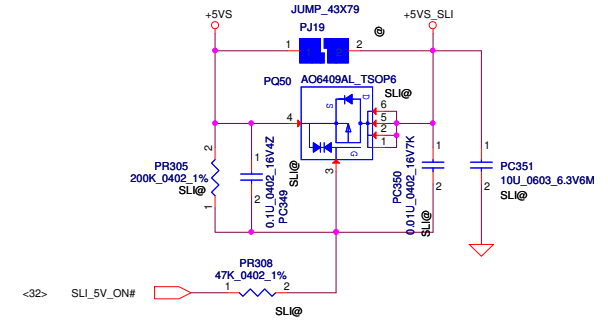
DC030006J00



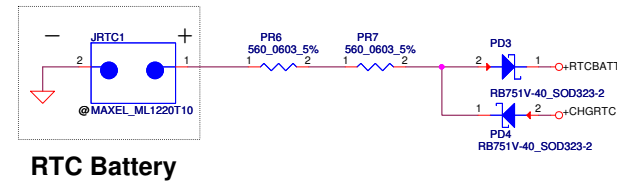
B+ to SLI\_B+



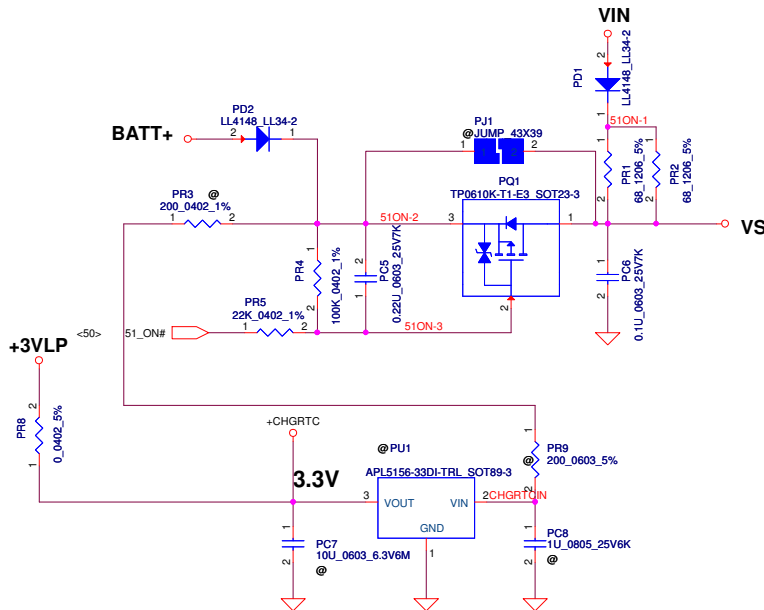
+5VS to +5VS\_SLI



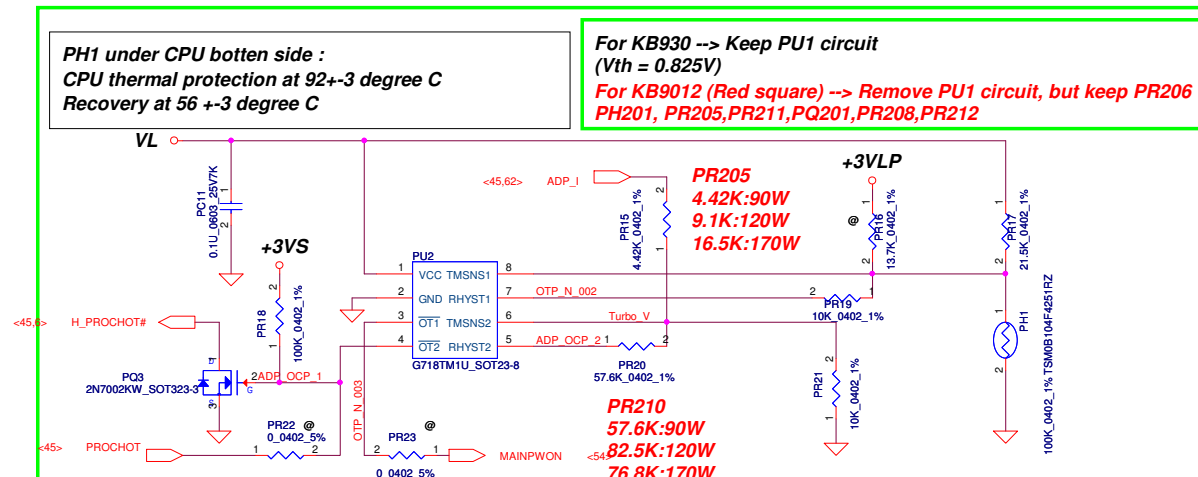
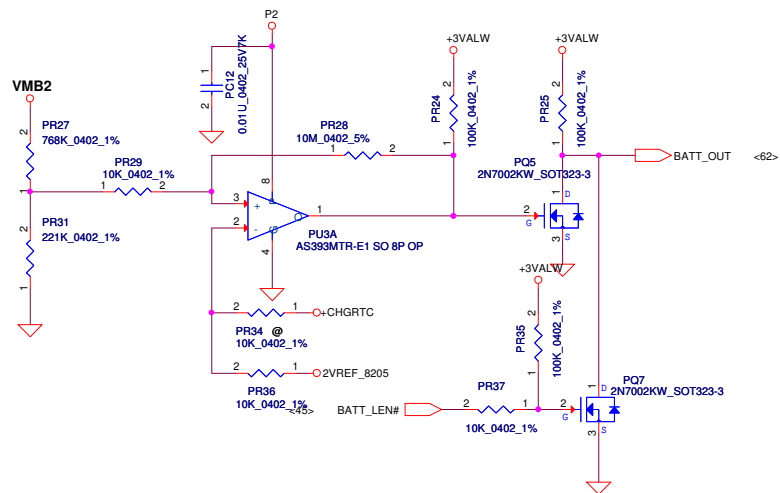
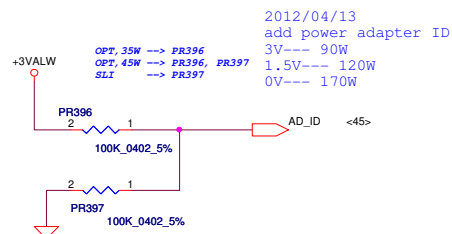
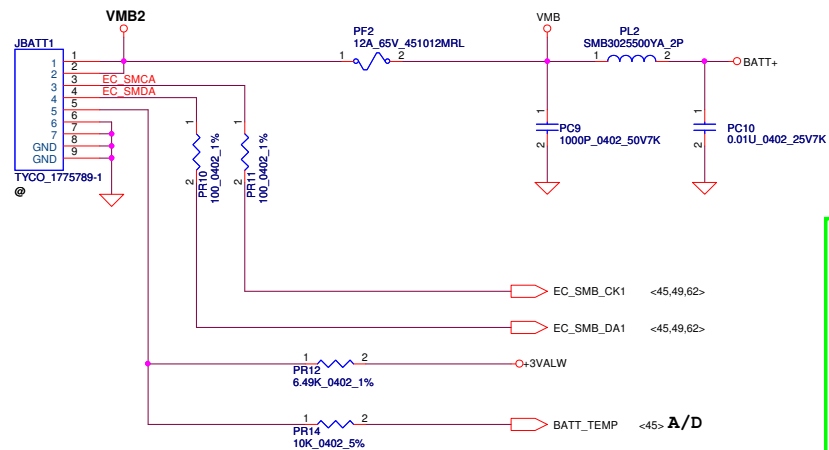
2012/04/13  
add SLI Hot-plug Load-SW solution



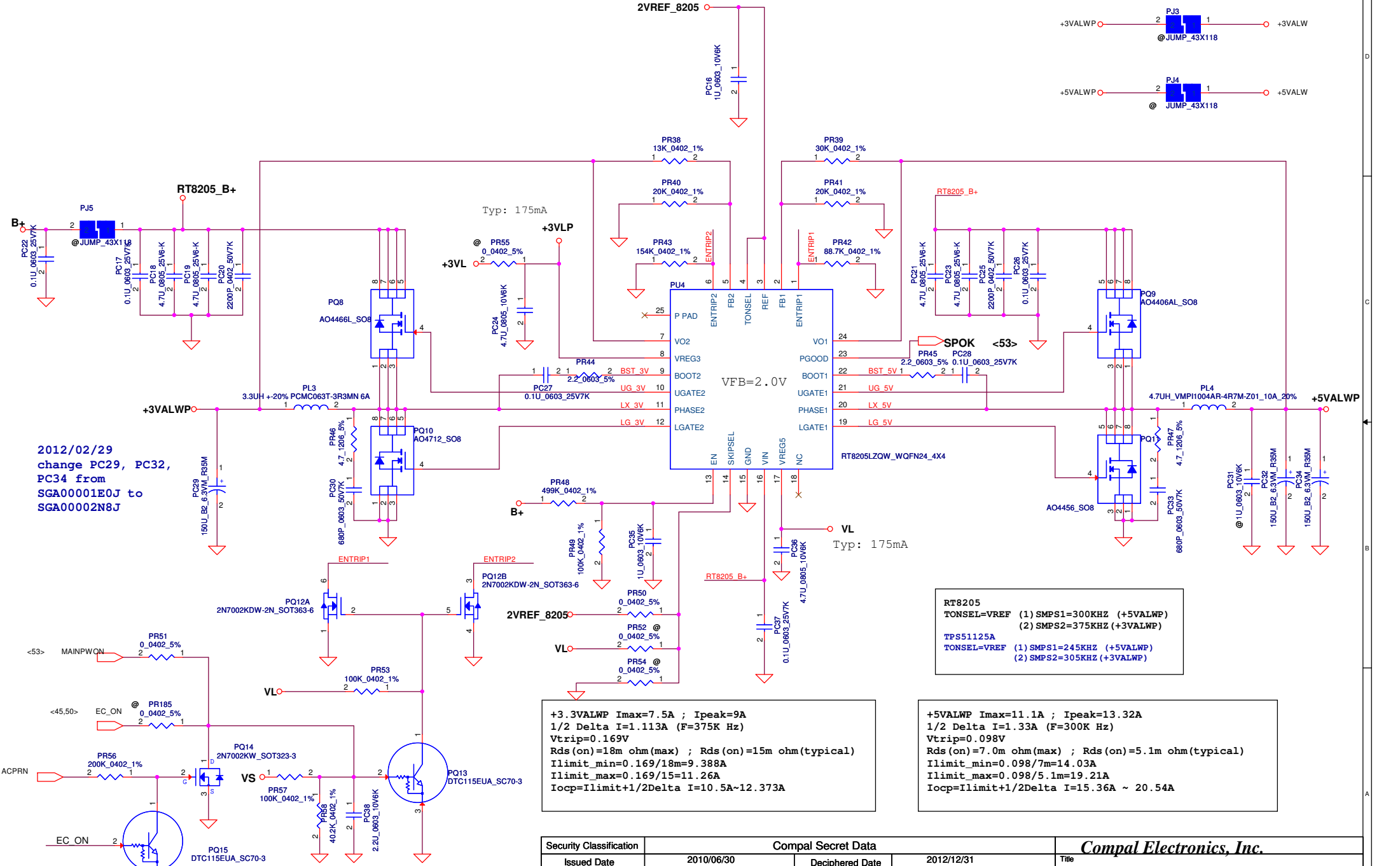
RTC Battery



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				Rev	0.1



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





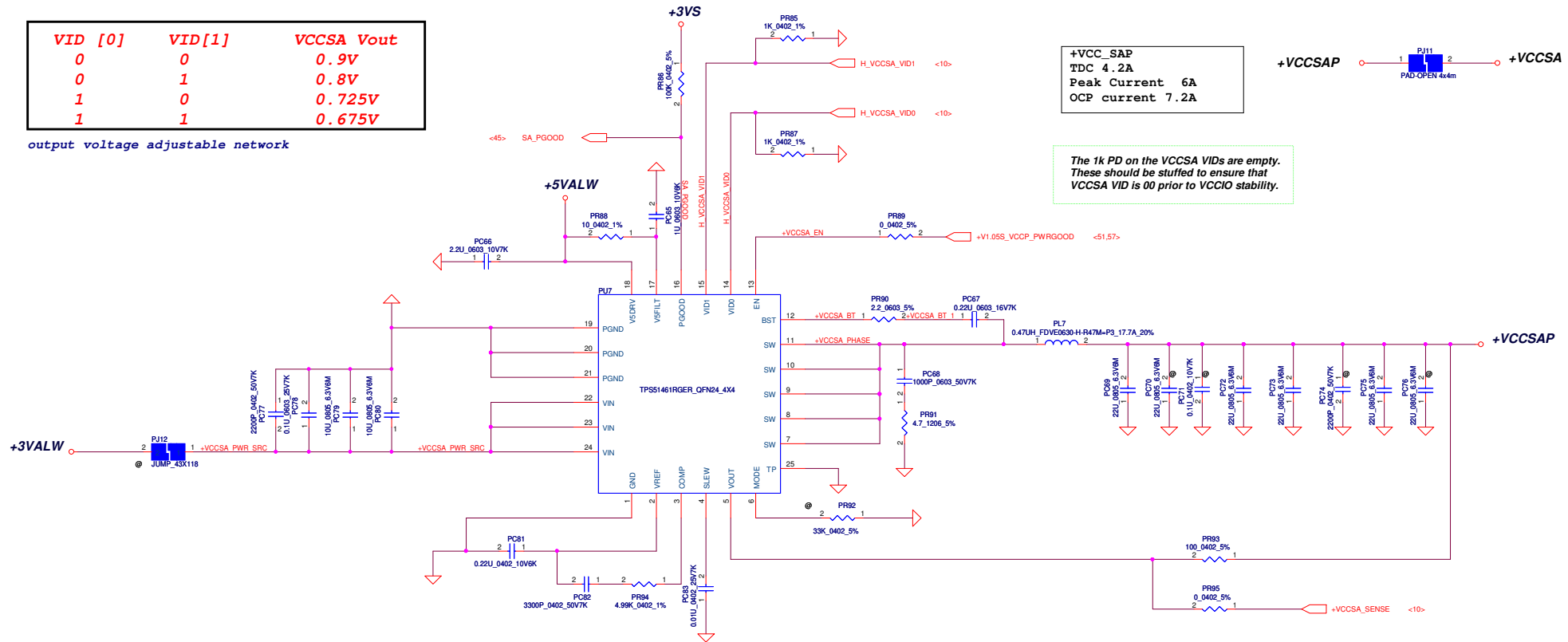
$I_{ocp}=13.58A\sim 23.10A$



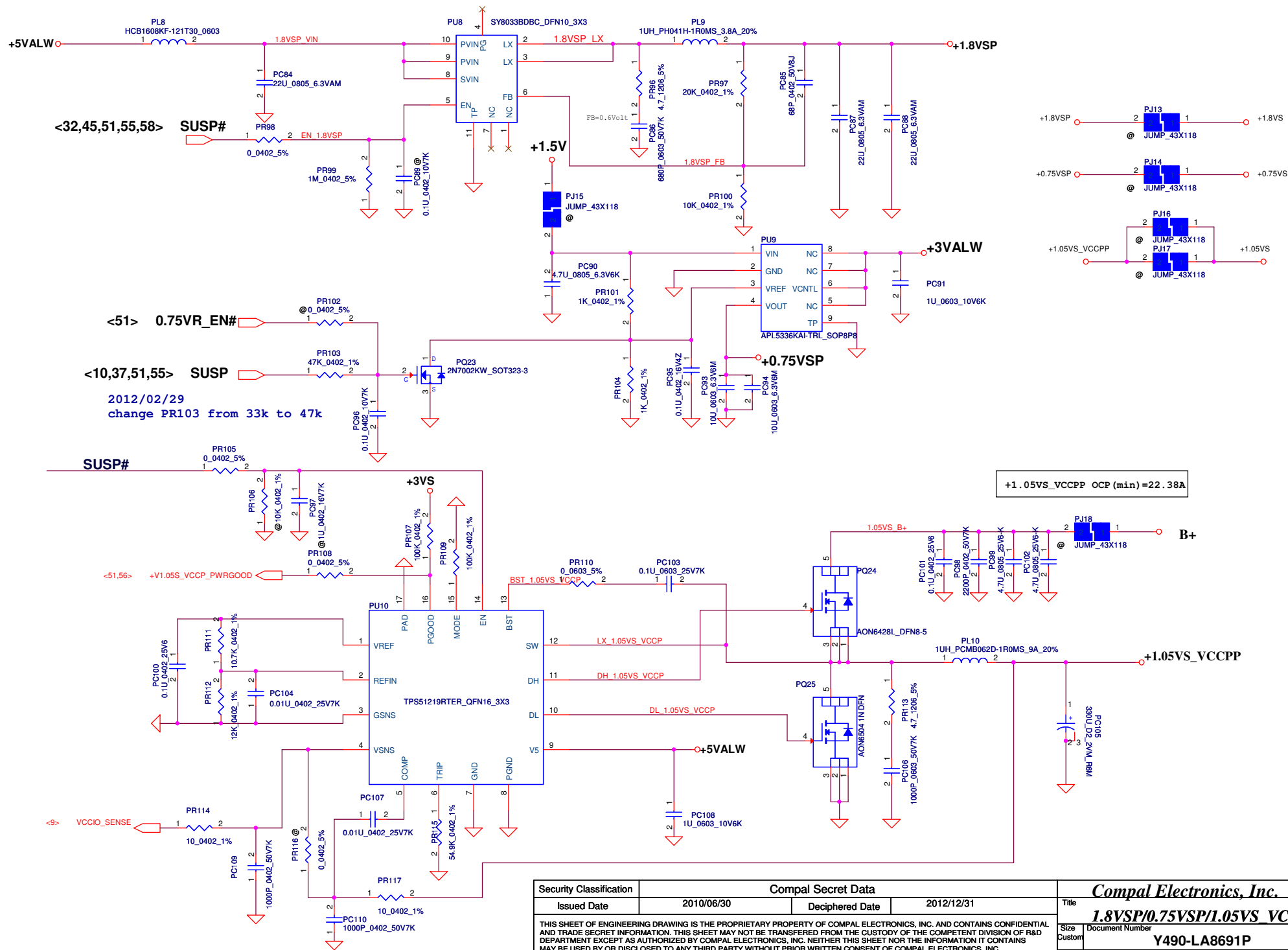
Security Classification		Compal Secret Data		<b>Compal Electronics, Inc.</b> <b>1.5VP/1.5VSP VGA/1.05VSP VGA</b>	
Issued Date	2010/06/30	Deciphered Date	2012/12/31	Title	
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				Date:	Thursdav, May 10, 2012
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VID [0]	VID[1]	VCCSA Vout
0	0	0.9V
0	1	0.8V
1	0	0.725V
1	1	0.675V

output voltage adjustable network



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Issued Date	2010/06/30	Deciphered Date	2012/12/31	Title	1.8VSP/0.75VSP/1.05VS_VCCPP
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				Date: Thursday, May 10, 2012	Rev 0.2
				Sheet 57	of 65

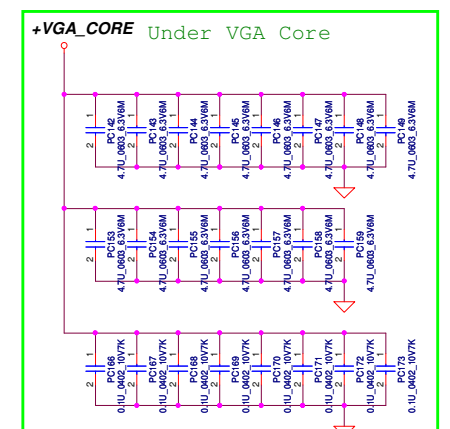
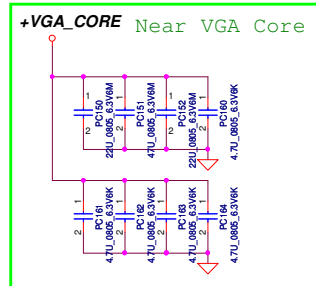
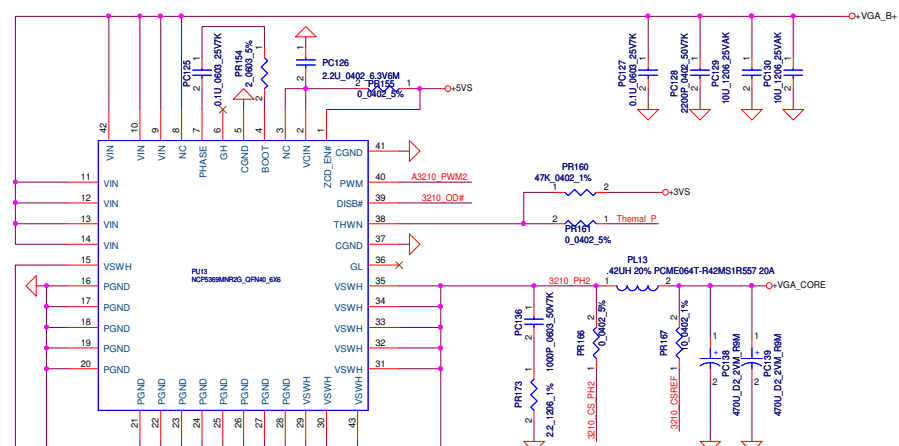
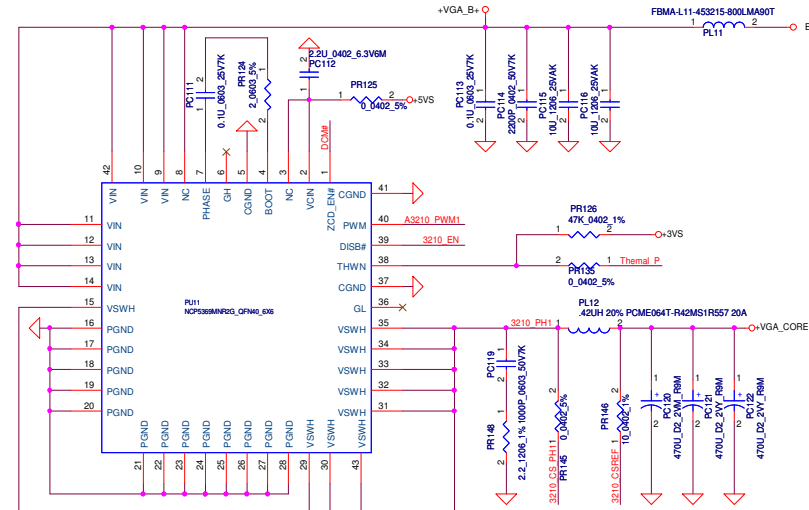
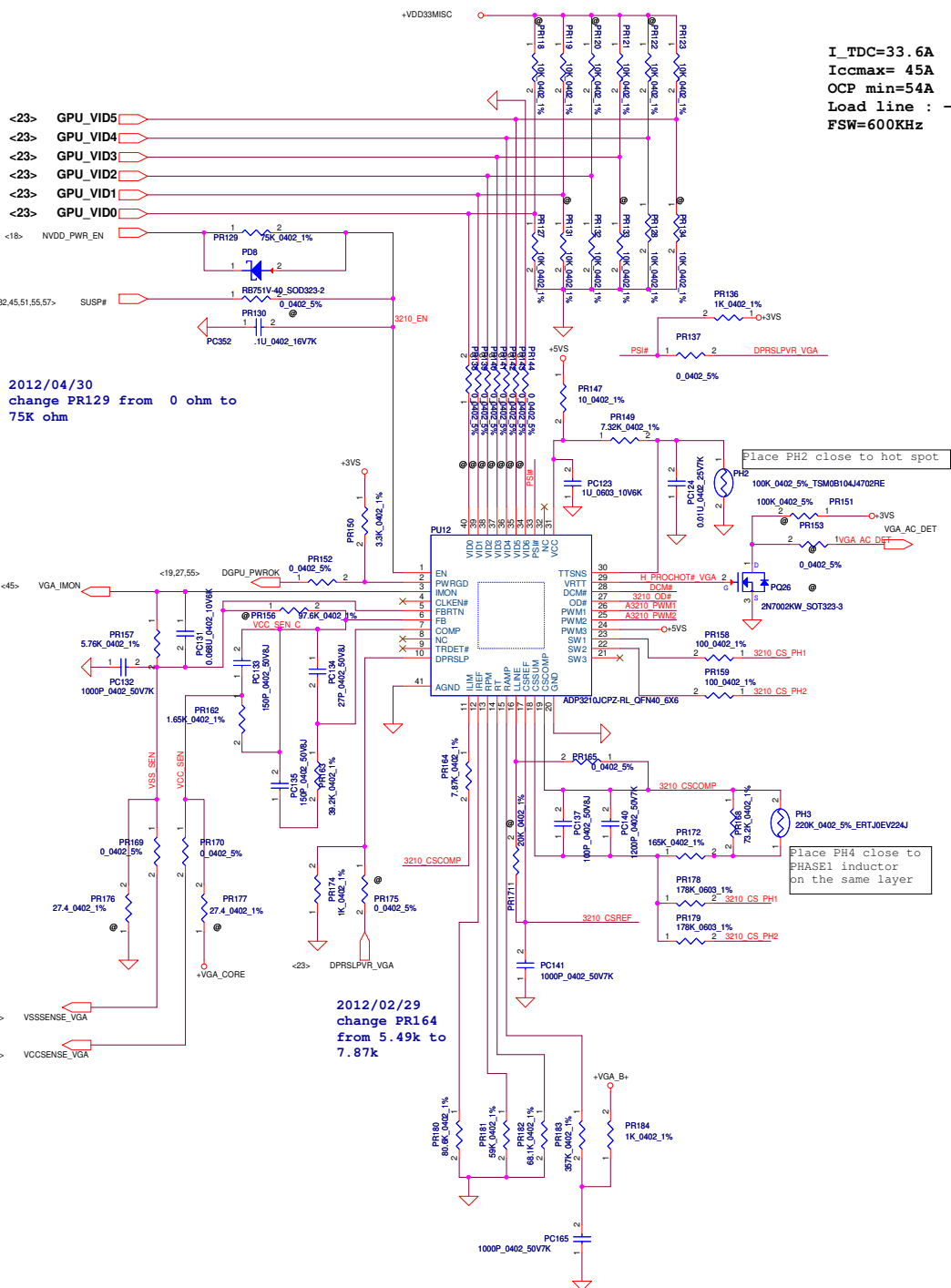
<23> GPU\_VID5  
<23> GPU\_VID4  
<23> GPU\_VID3  
<23> GPU\_VID2  
<23> GPU\_VID1  
<23> GPU\_VID0  
<18> NVDD\_PWR\_EN  
<32,45,51,55,57> SUSP#

2012/04/30  
change PR129 from 0 ohm to  
75K ohm

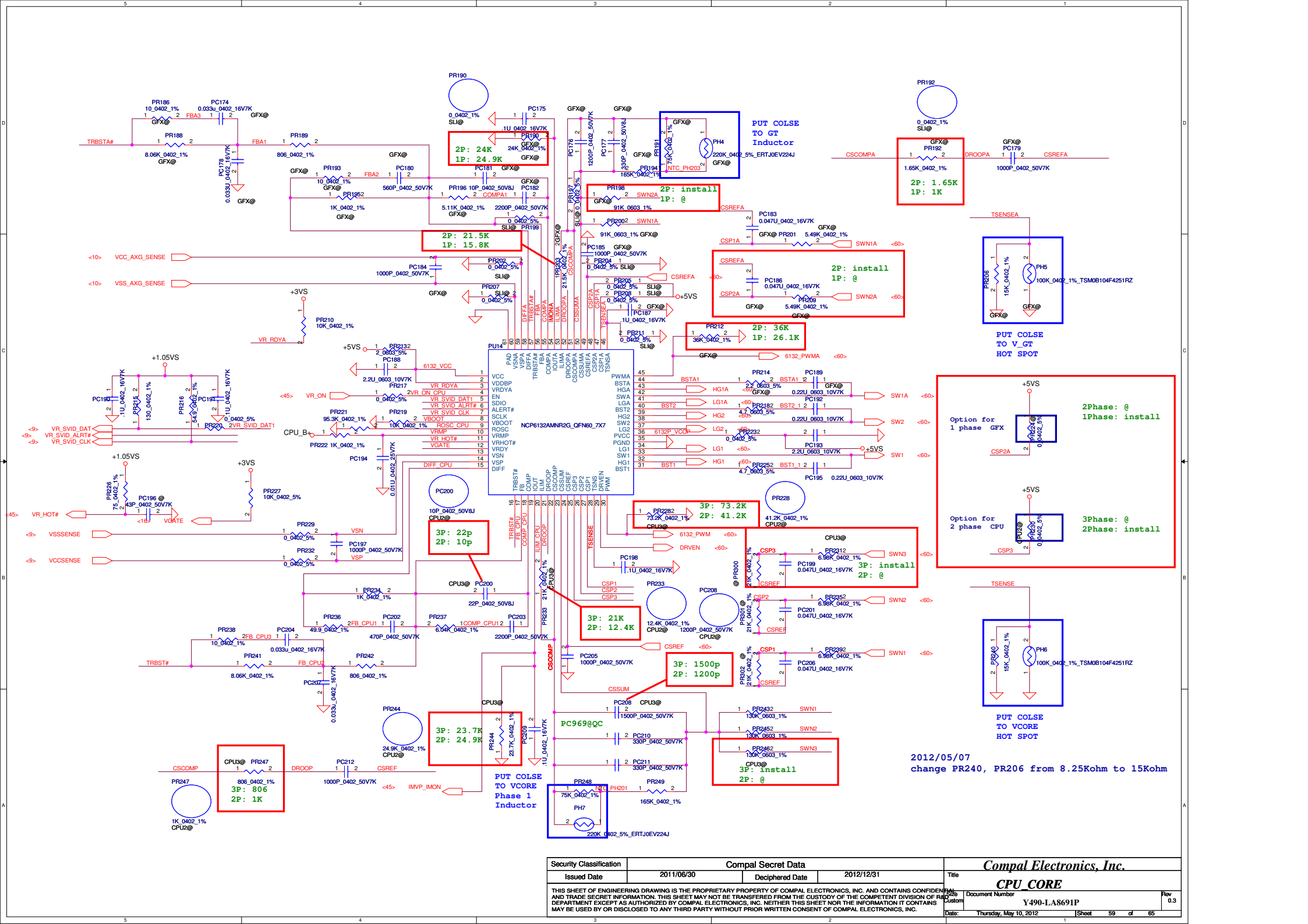
<45> VGA\_IMON  
<19,27,55> DGPU\_PWROK  
<23> VSSSENSE\_VGA  
<24> VCCSENSE\_VGA

2012/02/29  
change PR164 from 5.49K to  
7.87K

I\_TDC=33.6A  
Iccmax= 45A  
OCP min=54A  
Load line : -1.9 mV/A  
FSW=600KHz

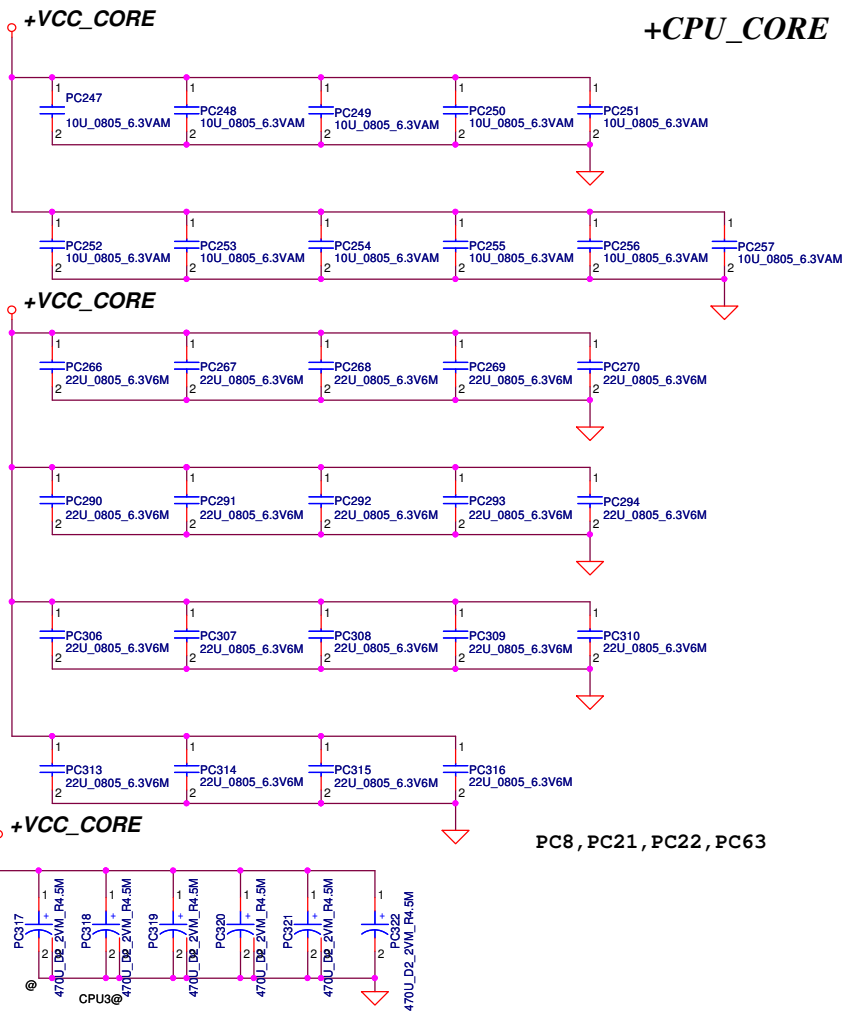


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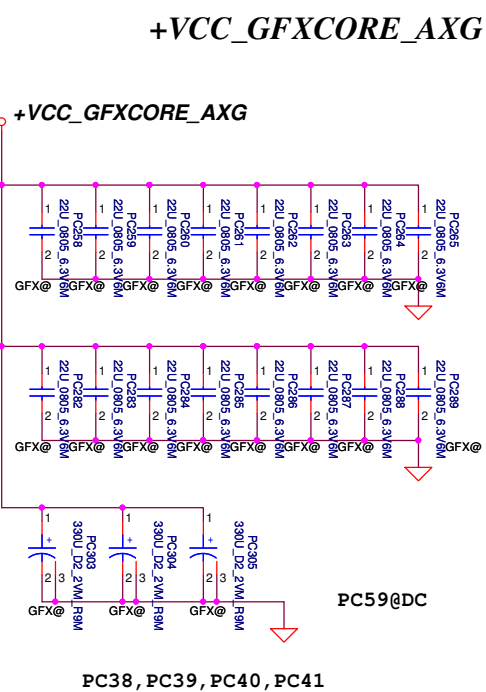
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2011/06/30	Deciphered Date	2012/12/31	Title	CPU CORE
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DC: PC73, PC74, PC75, PC76, PC77, PC78 (330uF/9m)  
 QC: PC76, PC78 (470uF/4.5m), PC73, PC74, PC75 (330uF/9m)

PC8, PC21, PC22, PC63

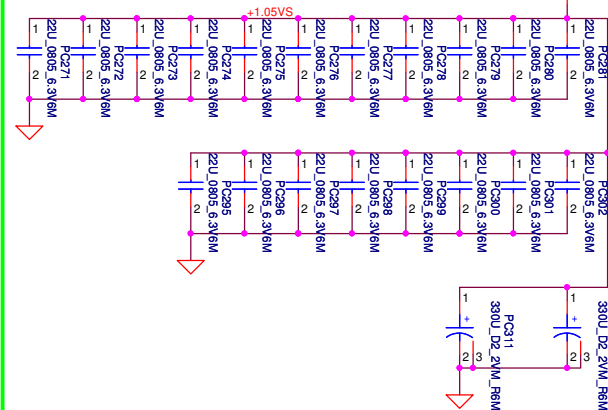


PC38, PC39, PC40, PC41

Below is 458544\_CRV\_PDDG\_0.5 Table 5-8.

Socket Bottom	5 x 22 $\mu$ F (0805) 5 x (0805) no-stuff sites
Socket Top	7 x 22 $\mu$ F (0805) 2 x (0805) no-stuff sites

**+1.05VS**

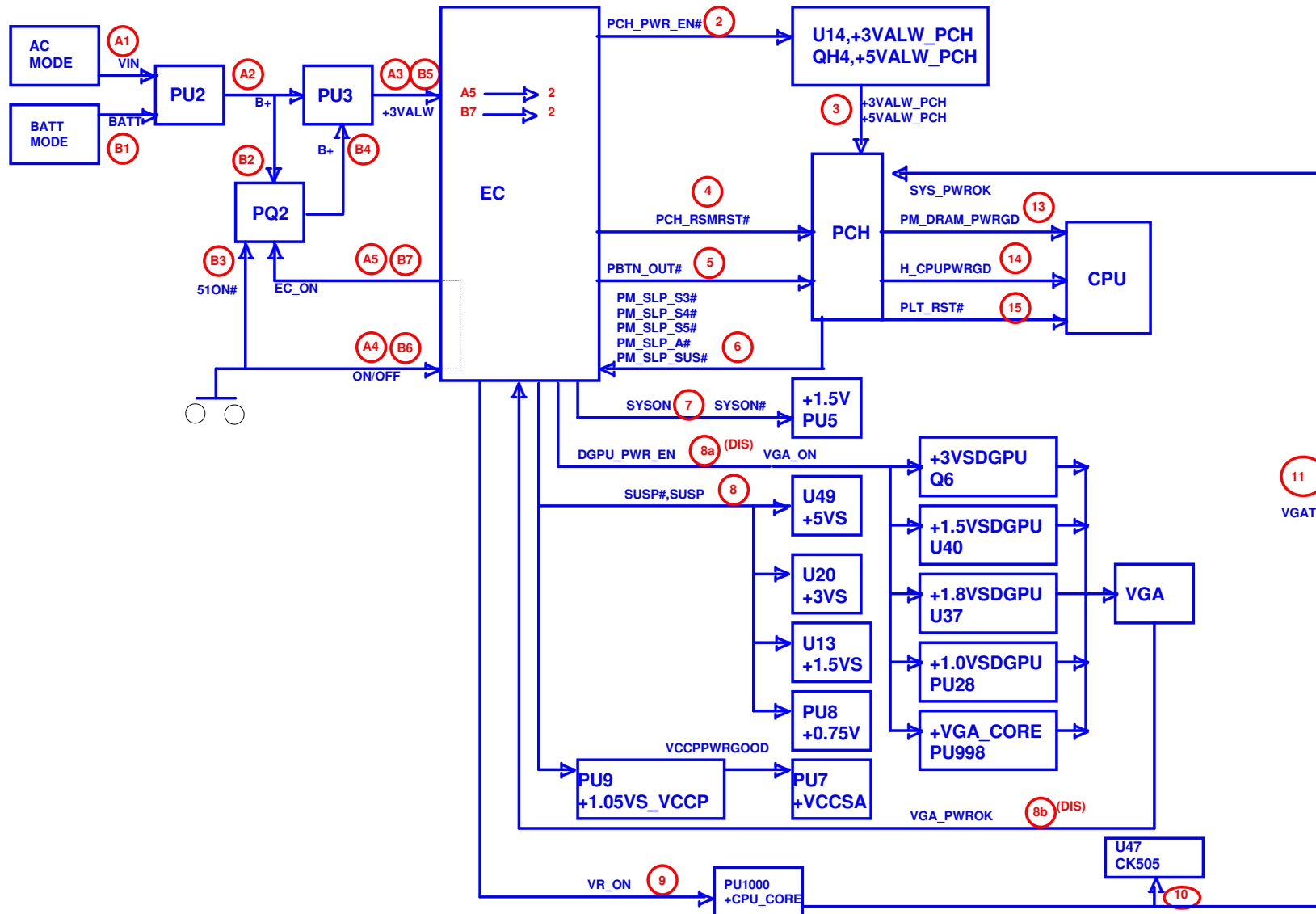


PC32, PC49, PC54, PC55, PC56

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Size	Document Number	Rev		0.1	
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Item	Reason for change	PG#	Modify List	Date	Phase
1	Reserve 0.1uF for Charger IC	51	Reserve PC321	201109/27	B test
2	EMI Request		change PR322,PR407,PR408,PR503,PR511,PR606,PR804,PR827 to 2.2 ohm add PC526,PC527,PC970,PC971(470uF)	201109/27	B test
3	Combine 1.05V	51	Remove one power rail +V1.05S_VCCPP Pop PR722,PR712,PR718	201109/27	B test
4	Discharge for +1.05VS_VGA by NV Request	53	Reserve PR528	201109/27	B test
5	Set VGA_CORE VBOOT voltage	56	unpop PR806 change PR813 to 147K ohm	201109/27	B test
6	For VGA_CORE power saving by NV Request	56	add PR838 0ohm	201109/27	B test
7	for CPU_CORE load line adjust	57	add PC969	201109/27	B test
8	to prevent MOS over temperature	55/58	change PQ702,PQ901,PQ902,PQ905 TPCA8065	201109/27	B test
9	for CPU_CORE test	59	Reserve PC77,PC78	201109/27	B test
10					
11					
12					
13					
14					
15					
16					
17					

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				Size	Document Number
				Custom	Y490-LA8691P
Date: Thursday, May 10, 2012				Sheet	64 of 65

HW PIR (Product Improve Record)

QIQY5 LA-8691P SCHEMATIC CHANGE LIST  
REVISION CHANGE: 0.2  
GERBER-OUT DATE: 2012/03/09

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
01)	03/14	10	R64	Change R64 BOM structure from "a" to "DS3a"
				For Deep S3 Function

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
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		2012/12/31			
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				Document Number	
				Rev 0.1	
				Date: Thursday, May 10, 2012	
				Sheet 65 of 65	