Model Name : P7YE0/P7YH0/P7YS0
File Name : LA-6911P
BOM P/N:43

Compal Confidential

P7YE0/P7YH0/P7YS0 M/B Schematics Document

Intel Sandy Bridge Processor with DDRIII + Cougar Point PCH
ATI Seymour/Whistler/Granville

2010-11-01

REV:0.3

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

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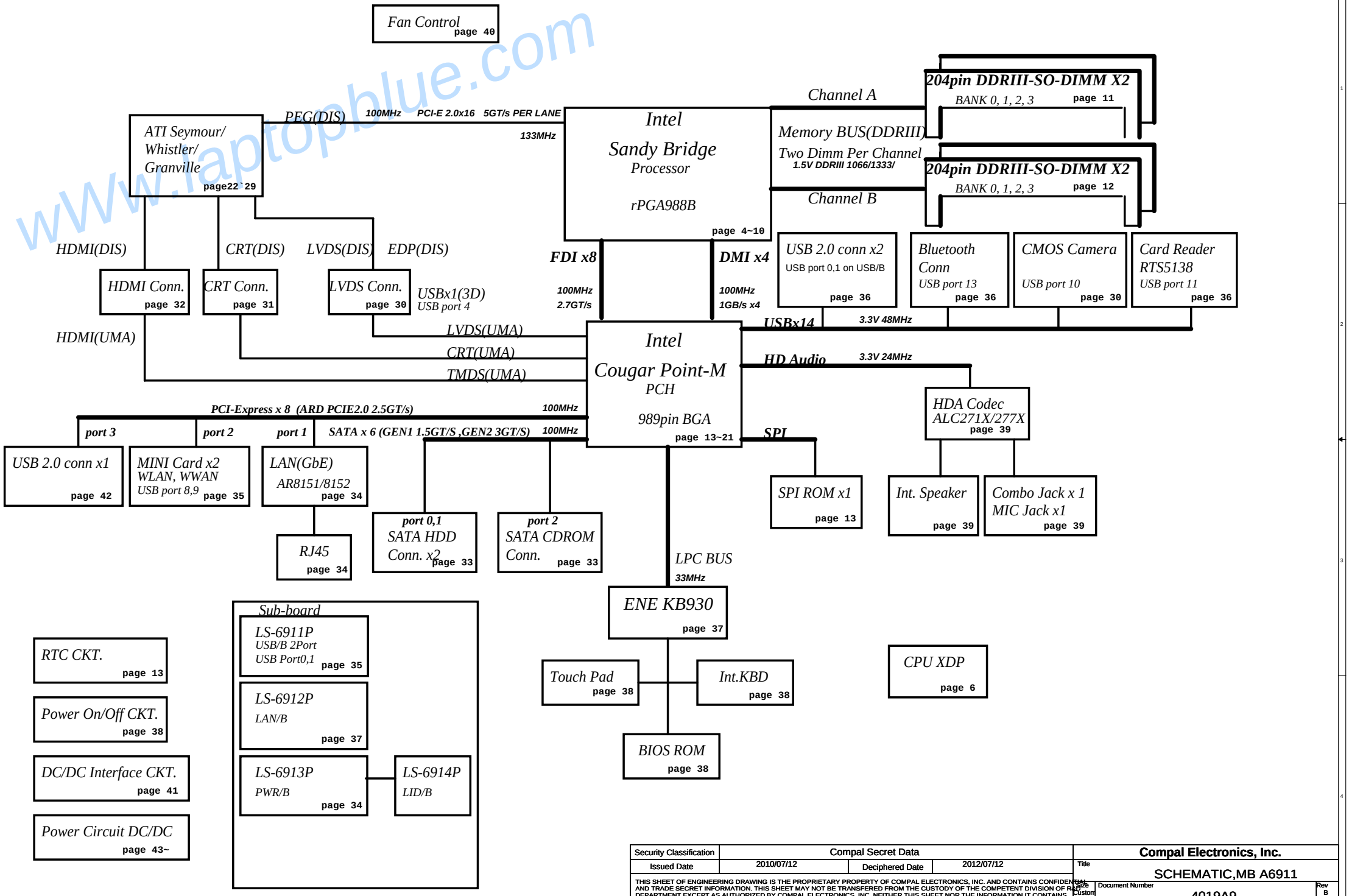
Title	SCHEMATIC,MB A6911	
Size: Custom	Document Number: 4019A9	Rev: B
Date: Tuesday, November 09, 2010	Sheet 1 of 60	



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Size: Custom	Document Number: 4019A9	Rev: B
Date: Tuesday, November 09, 2010	Sheet 2 of 60	

Voltage Rails

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

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

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	0.2
2	0.3
3	1.0
4	
5	
6	
7	

BTO Option Table

BTO Item	BOM Structure	
UMA Only	UMAO@	P9,P19,P23,P30-32,P59
Muxless/UMA	UMA@	P4,P14
DIS Only	DISO@	
Muxless/DIS	DIS@	
Muxless/DIS	VGA@	P.22-28
BACO mode	BACO@	P.26 ,P.29
nonBACO mode	NOBACO@	
VRAM	X76@	P.27,28
128bit VRAM	128@	P.27
Granville GPU	GRAN@	P.23,P.59
Whistler GPU	WHIS@	P.59
Seymour GPU	SEYM@	P.22-26
non Granville GPU	NOGRAN@	P.23,P.25
Blue Tooth	BT@	P.35
Connector	CONN@	
Unpop	@	
DIS eDP	DEDP@	P.30,59
UMA LVDS	ULVDS@	P.30
DIS LVDS	DLVDS@	
Muxless	MUXL@	P.18,P.32
non Muxless	NOMUXL@	P.18
USB2.0 Conn	USB2@	P.41
USB3.0 Conn	USB3@	P.41
4 Dimm	4DIMM@	P.11-12

USB Port Table

USB 2.0	USB 1.1	Port	3 External USB Port
EHCI1	UHCI0	0	USB/B(Right side 2.0 option)
		1	USB/B(Right side 2.0 option)
	UHCI1	2	USB port(left side 2.0)
		3	USB/B(Right side 3.0 option)
	UHCI2	4	
		5	
	UHCI3	6	
		7	
EHCI2	UHCI4	8	Mini Card(WLAN)
		9	Mini Card
	UHCI5	10	Camera
		11	Card Reader
	UHCI6	12	
		13	Blue Tooth

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

EC SM Bus2 address

Device	Address

PCH SM Bus address

Device			Address	
ChannelA	DIMM0	A0	1010 000X	JDIMM1
	DIMM1	A2	1010 001X	JDIMM3
ChannelB	DIMM0	A4	1010 010X	JDIMM2
	DIMM1	A6	1010 011X	JDIMM4

VRAM P/N

SAM	64*16	900M	SA00004GS10(S IC D3 64M16 K4W1G1646G-BC11 FBGA ABO!)
SAM	64*16	800M	SA000035720(S IC D3 64MX16 K4W1G1646E-HC12 FBGA ABO!)
SAM	128*16	800M	SA00003MQ60 (S IC D3 128M16 K4W2G1646C-HC12 FBGA ABO!)
HYN	64*16	900M	SA000041S40(S IC D3 64MX16 H5TQ1G63DFR-11C FBGA ABO!)
HYN	64*16	800M	SA000032420 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA ABO!)
HYN	128*16	800M	SA00003VS10 (S IC D3 128M16 H5TQ2G63BFR-12C FBGA ABO!)
HYN	64*16	800M	SA0000324G0(S IC D3 64M16 H5TQ1G63DFR-12C FBGA ABO!)

BT Config
BT SKU: BT@
4DIMM config
4 DIMM: 4DIMM@
LVDS/eDP config
UMA LVDS: ULVDS@
DIS LVDS: DLVDS@
DIS eDP: DEDP@

GPU config
Whistler: WHIS@
Seymour: SEYM@
Granville: GRAN@
Granville config
Granville: GRAN@ (VDDCI)
nonGranville: NOGRAN@ (VGA_CORE)
GPU Frame config
128bit: 128@ (WHIS,GRAN)

BACO config
BACO: BACO@
nonBACO: NOBACO@
Muxless config
Muxless: MUXL@
nonMuxless: NOMUXL@ (DISO,UMAO)

VRAM BOM Config

X76264BOL01:	64Mx16x4 Seymour	512M HYN NEW
X76264BOL02:	64Mx16x4 Seymour	512M HYN OLD
X76264BOL03:	64Mx16x8 Whistler/Granville	1G HYN NEW
X76264BOL04:	64Mx16x8 Whistler/Granville	1G HYN OLD
X76264BOL05:	128Mx16x8 Whistler/Granville	2G HYN
X76264BOL06:	128Mx16x8 Whistler/Granville	2G SAM
X76264BOL07:	128Mx16x4 Seymour	1G SAM
X76264BOL08:	128Mx16x4 Seymour	1G HYN

BOM Config

* UMA Only LVDS Panel:	BT@/UMAO@/UMA@/ULVDS@/NOMUXL@		+DIMM,USB option
* DIS Only LVDS Panel:	BT@/DIS@/VGA@/DISO@/DLVDS@/NOMUXL@	+X76+GPU	+DIMM,USB option
DIS Only EDP Panel:	BT@/DIS@/VGA@/DISO@/DEDP@/NOMUXL@	+X76+GPU	+DIMM,USB option
* Muxless BACO LVDS Panel:	BT@/UMA@/DIS@/VGA@/ULVDS@/BACO@/MUXL@	+X76+GPU(S,W)	+DIMM,USB option
Muxless nonBACO LVDS Panel:	BT@/UMA@/DIS@/VGA@/ULVDS@/NOBACO@/MUXL@	+X76+GPU(G)	+DIMM,USB option

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Size: Custom	Document Number: 4019A9		Rev: B
Date: Tuesday, November 09, 2010	Sheet 3 of 60		

PEG_ICOMPI and RCOMPO signals should be shorted and routed
with - max length = 500 mils - typical impedance = 43 mohms
PEG_ICOMPO signals should be routed with - max length = 500 mils
- typical impedance = 14.5 mohms

PEG_GTX_HRX_N[0..15] 22
PEG_GTX_HRX_P[0..15] 22
PEG_HTX_C_GRX_N[0..15] 22
PEG_HTX_C_GRX_P[0..15] 22

+1.05VS_VTT
R532 24.9_0402_1%
PEG_COMP

JCPU1A

PEG_ICOMPI J22
PEG_ICOMPO J21
PEG_RCOMPO H22

DMI
15 DMI_CRX_PTX_N0 B27 DMI_RX#[0]
15 DMI_CRX_PTX_N1 B25 DMI_RX#[1]
15 DMI_CRX_PTX_N2 A25 DMI_RX#[2]
15 DMI_CRX_PTX_N3 B24 DMI_RX#[3]
15 DMI_CRX_PTX_P0 B28 DMI_RX[0]
15 DMI_CRX_PTX_P1 B26 DMI_RX[1]
15 DMI_CRX_PTX_P2 A24 DMI_RX[2]
15 DMI_CRX_PTX_P3 B23 DMI_RX[3]
15 DMI_CTX_PRX_N0 G21 DMI_TX#[0]
15 DMI_CTX_PRX_N1 F22 DMI_TX#[1]
15 DMI_CTX_PRX_N2 F21 DMI_TX#[2]
15 DMI_CTX_PRX_N3 D21 DMI_TX#[3]
15 DMI_CTX_PRX_P0 G22 DMI_TX[0]
15 DMI_CTX_PRX_P1 D22 DMI_TX[1]
15 DMI_CTX_PRX_P2 F20 DMI_TX[2]
15 DMI_CTX_PRX_P3 C21 DMI_TX[3]

Intel(R) FDI
15 FDI_CTX_PRX_N0 A21 FDI0_TX#[0]
15 FDI_CTX_PRX_N1 H19 FDI0_TX#[1]
15 FDI_CTX_PRX_N2 E19 FDI0_TX#[2]
15 FDI_CTX_PRX_N3 F18 FDI0_TX#[3]
15 FDI_CTX_PRX_N4 B21 FDI1_TX#[0]
15 FDI_CTX_PRX_N5 C20 FDI1_TX#[1]
15 FDI_CTX_PRX_N6 D18 FDI1_TX#[2]
15 FDI_CTX_PRX_N7 E17 FDI1_TX#[3]
15 FDI_CTX_PRX_P0 A22 FDI0_TX[0]
15 FDI_CTX_PRX_P1 G19 FDI0_TX[1]
15 FDI_CTX_PRX_P2 E20 FDI0_TX[2]
15 FDI_CTX_PRX_P3 G18 FDI0_TX[3]
15 FDI_CTX_PRX_P4 B20 FDI1_TX[0]
15 FDI_CTX_PRX_P5 C19 FDI1_TX[1]
15 FDI_CTX_PRX_P6 D19 FDI1_TX[2]
15 FDI_CTX_PRX_P7 E17 FDI1_TX[3]
15 FDI_FSYNC0 J18 FDI0_FSYNC
15 FDI_FSYNC1 J17 FDI1_FSYNC
15 FDI_INT H20 FDI_INT
15 FDI_LSYNC0 J19 FDI0_LSYNC
15 FDI_LSYNC1 H17 FDI1_LSYNC

eDP
EDP_COMP A18 eDP_COMPIO
A17 eDP_ICOMPO
B16 eDP_HPD
C15 eDP_AUX
D15 eDP_AUX#
C17 eDP_TX[0]
F16 eDP_TX[1]
C16 eDP_TX[2]
G15 eDP_TX[3]
C18 eDP_TX[0]
F16 eDP_TX#[1]
D16 eDP_TX#[2]
F15 eDP_TX#[3]

PCI EXPRESS* - GRAPHICS

PEG_RX#[0] K33 PEG_GTX_C_HRX_N15 C320 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N15
PEG_RX#[1] M35 PEG_GTX_C_HRX_N14 C316 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N14
PEG_RX#[2] L34 PEG_GTX_C_HRX_N13 C313 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N13
PEG_RX#[3] J35 PEG_GTX_C_HRX_N12 C308 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N12
PEG_RX#[4] J32 PEG_GTX_C_HRX_N11 C300 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N11
PEG_RX#[5] H34 PEG_GTX_C_HRX_N10 C297 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N10
PEG_RX#[6] H31 PEG_GTX_C_HRX_N9 C287 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N9
PEG_RX#[7] G33 PEG_GTX_C_HRX_N8 C275 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N8
PEG_RX#[8] G30 PEG_GTX_C_HRX_N7 C262 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N7
PEG_RX#[9] F35 PEG_GTX_C_HRX_N6 C249 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N6
PEG_RX[10] F34 PEG_GTX_C_HRX_N5 C244 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N5
PEG_RX#[11] E32 PEG_GTX_C_HRX_N4 C233 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N4
PEG_RX#[12] D33 PEG_GTX_C_HRX_N3 C224 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N3
PEG_RX#[13] D31 PEG_GTX_C_HRX_N2 C207 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N2
PEG_RX#[14] B33 PEG_GTX_C_HRX_N1 C206 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N1
PEG_RX#[15] C32 PEG_GTX_C_HRX_N0 C194 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_N0

PEG_RX[0] J33 PEG_GTX_C_HRX_P15 C318 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P15
PEG_RX[1] L35 PEG_GTX_C_HRX_P14 C314 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P14
PEG_RX[2] K34 PEG_GTX_C_HRX_P13 C309 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P13
PEG_RX[3] H35 PEG_GTX_C_HRX_P12 C303 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P12
PEG_RX[4] H32 PEG_GTX_C_HRX_P11 C298 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P11
PEG_RX[5] G34 PEG_GTX_C_HRX_P10 C288 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P10
PEG_RX[6] G31 PEG_GTX_C_HRX_P9 C278 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P9
PEG_RX[7] F33 PEG_GTX_C_HRX_P8 C265 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P8
PEG_RX[8] F30 PEG_GTX_C_HRX_P7 C255 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P7
PEG_RX[9] E35 PEG_GTX_C_HRX_P6 C246 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P6
PEG_RX[10] E33 PEG_GTX_C_HRX_P5 C235 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P5
PEG_RX[11] E32 PEG_GTX_C_HRX_P4 C225 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P4
PEG_RX[12] D34 PEG_GTX_C_HRX_P3 C214 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P3
PEG_RX[13] E31 PEG_GTX_C_HRX_P2 C210 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P2
PEG_RX[14] C33 PEG_GTX_C_HRX_P1 C196 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P1
PEG_RX[15] B32 PEG_GTX_C_HRX_P0 C190 1 2 DIS@ 0.22U_0402_6.3V6K PEG_GTX_HRX_P0

PEG_TX#[0] M29 PEG_HTX_GRX_N15 C685 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N15
PEG_TX#[1] M32 PEG_HTX_GRX_N14 C683 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N14
PEG_TX#[2] M31 PEG_HTX_GRX_N13 C680 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N13
PEG_TX#[3] L32 PEG_HTX_GRX_N12 C676 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N12
PEG_TX#[4] L29 PEG_HTX_GRX_N11 C673 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N11
PEG_TX#[5] K31 PEG_HTX_GRX_N10 C671 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N10
PEG_TX#[6] K28 PEG_HTX_GRX_N9 C667 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N9
PEG_TX#[7] J30 PEG_HTX_GRX_N8 C663 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N8
PEG_TX#[8] J28 PEG_HTX_GRX_N7 C661 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N7
PEG_TX#[9] H29 PEG_HTX_GRX_N6 C659 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N6
PEG_TX#[10] G27 PEG_HTX_GRX_N5 C654 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N5
PEG_TX#[11] E29 PEG_HTX_GRX_N4 C648 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N4
PEG_TX#[12] F27 PEG_HTX_GRX_N3 C644 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N3
PEG_TX#[13] D28 PEG_HTX_GRX_N2 C640 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N2
PEG_TX#[14] F26 PEG_HTX_GRX_N1 C637 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N1
PEG_TX#[15] F25 PEG_HTX_GRX_N0 C631 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_N0

PEG_TX[0] M28 PEG_HTX_GRX_P15 C684 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P15
PEG_TX[1] M33 PEG_HTX_GRX_P14 C681 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P14
PEG_TX[2] M30 PEG_HTX_GRX_P13 C677 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P13
PEG_TX[3] L31 PEG_HTX_GRX_P12 C674 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P12
PEG_TX[4] L28 PEG_HTX_GRX_P11 C670 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P11
PEG_TX[5] K30 PEG_HTX_GRX_P10 C668 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P10
PEG_TX[6] K27 PEG_HTX_GRX_P9 C664 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P9
PEG_TX[7] J29 PEG_HTX_GRX_P8 C662 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P8
PEG_TX[8] J27 PEG_HTX_GRX_P7 C658 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P7
PEG_TX[9] H28 PEG_HTX_GRX_P6 C657 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P6
PEG_TX[10] G28 PEG_HTX_GRX_P5 C650 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P5
PEG_TX[11] F28 PEG_HTX_GRX_P4 C645 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P4
PEG_TX[12] F28 PEG_HTX_GRX_P3 C641 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P3
PEG_TX[13] D27 PEG_HTX_GRX_P2 C636 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P2
PEG_TX[14] F26 PEG_HTX_GRX_P1 C635 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P1
PEG_TX[15] D25 PEG_HTX_GRX_P0 C626 1 2 DIS@ 0.22U_0402_6.3V6K PEG_HTX_C_GRX_P0

Sandy Bridge_rPGA_Rev0p61
CONN@

Typ- suggest 220nF. The change in AC capacitor value from 100nF to 220nF is to enable compatibility with future platforms having PCIE Gen3 (8GT/s)

eDP_COMPIO and ICOMPO signals should be shorted near balls and routed with typical impedance <25 mohms
should not be left floating ,even if disable eDP function...

+1.05VS_VTT
R118 24.9_0402_1%
EDP_COMP

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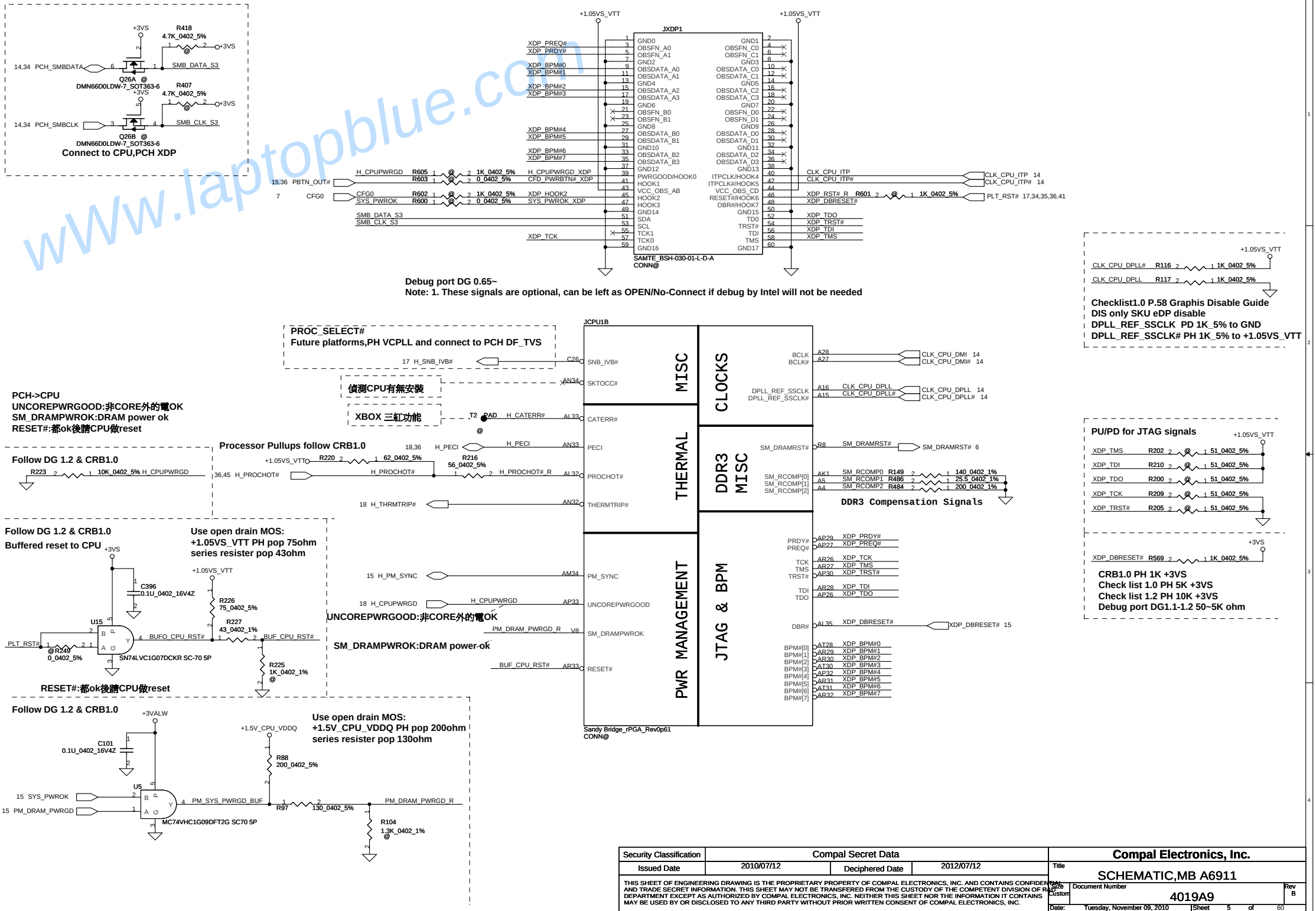
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 4 of 60



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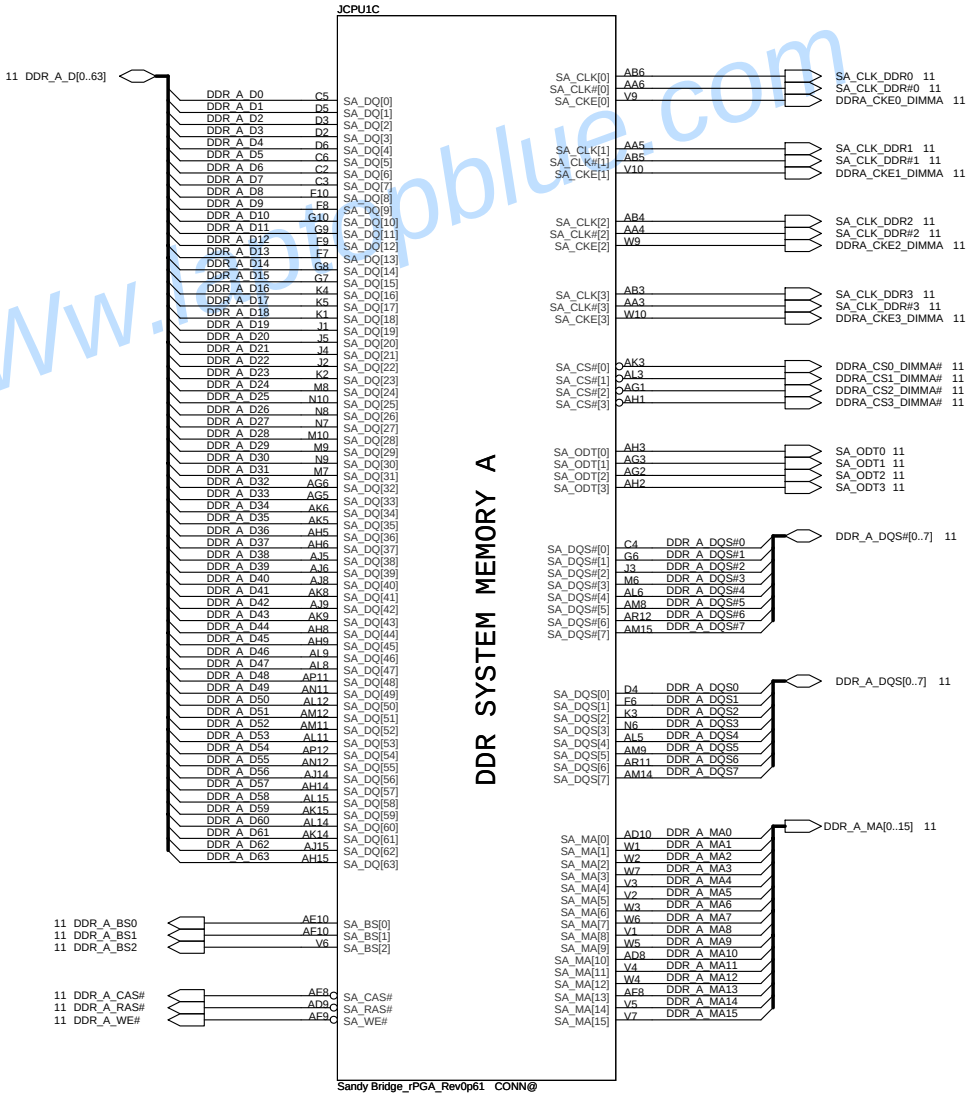
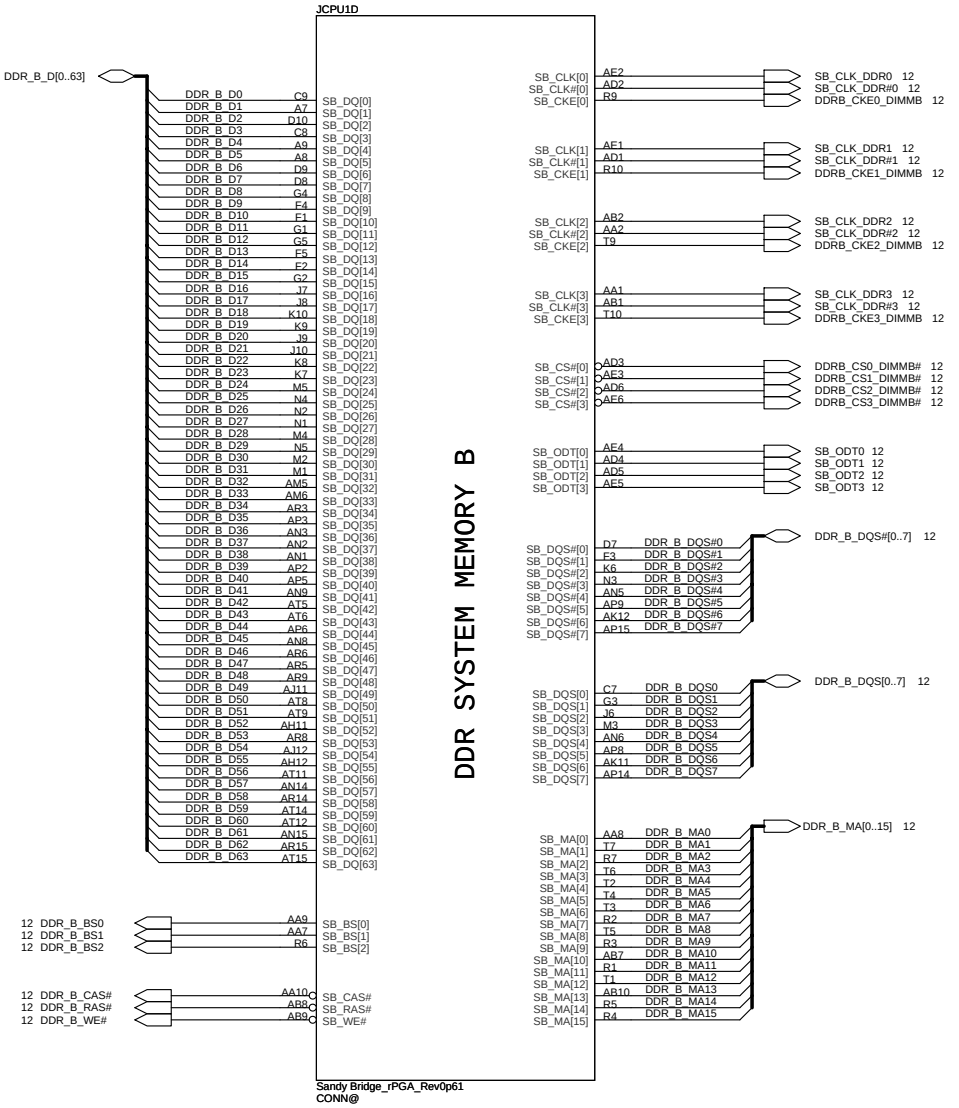
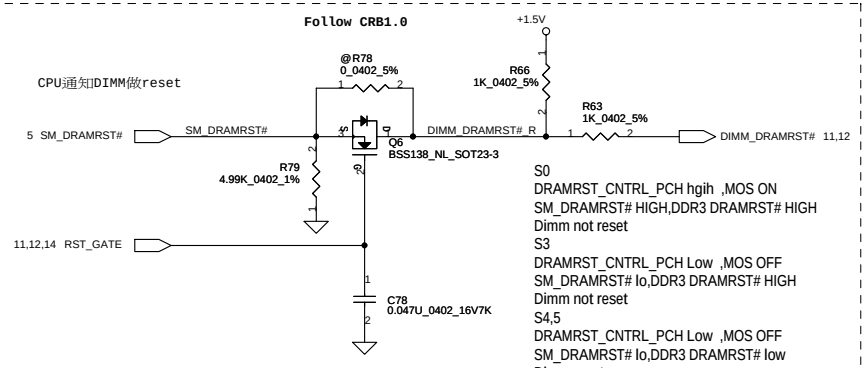
Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 5 of 60



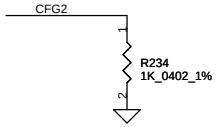




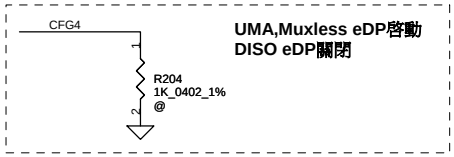
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 6 of 60

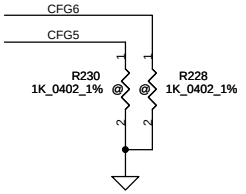
CFG Straps for Processor



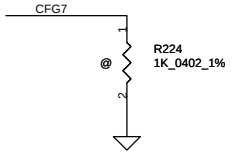
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: Normal Operation; Lane # definition matches socket pin map definition * 0:Lane Reversed



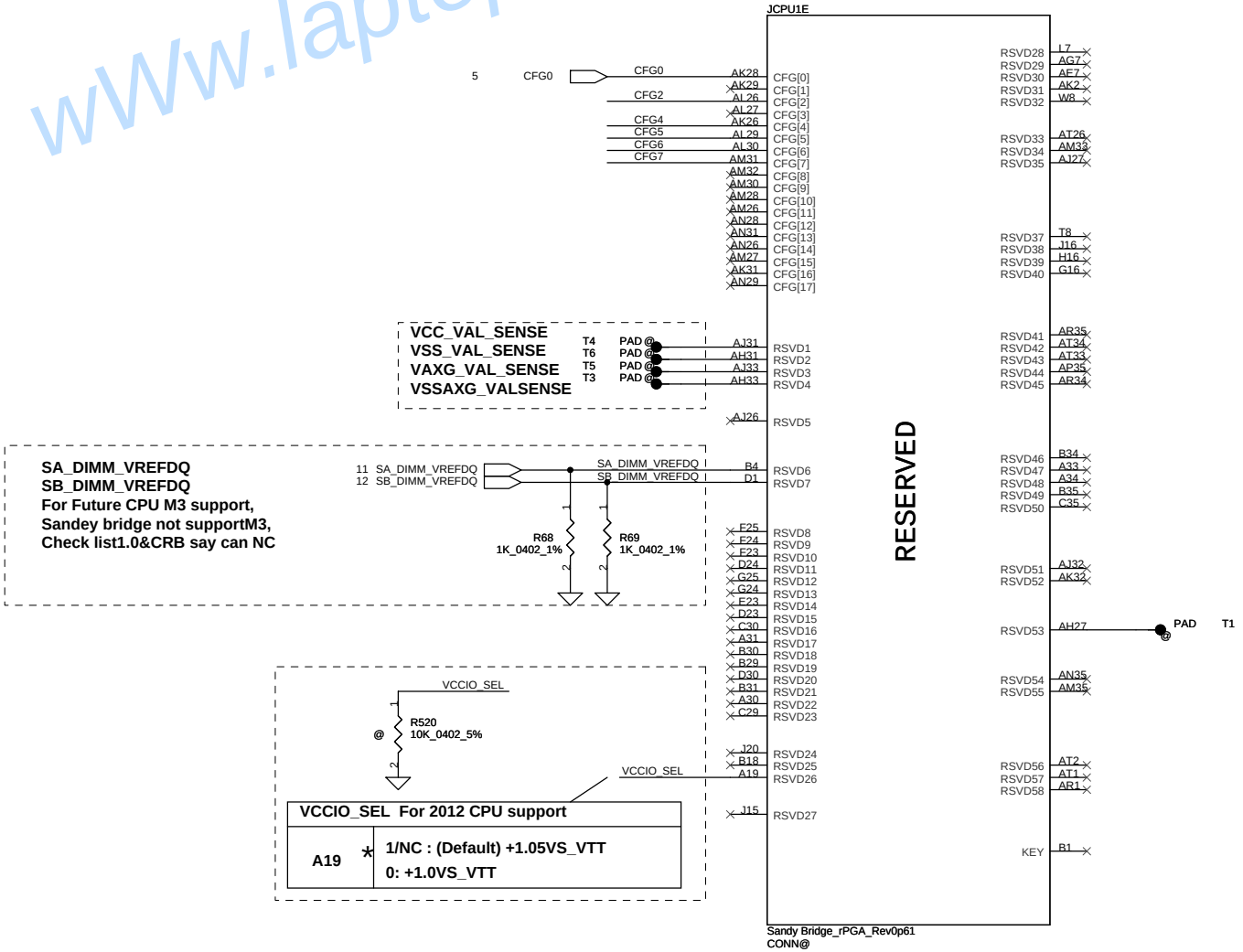
eDP enable	
CFG4	* 1:Disable 0:Enable



PCIE Port Bifurcation Straps	
CFG[6:5]	*11: (Default) 1x16 PCI Express 10: 2x8 PCI Express 01: Reserved 00: 1x8,2x4 PCI Express



PEG DEFER TRAINING	CRB1.0 P.12
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 7 of 60

POWER

SV type CPU

QC 94A
DC 53A

JCPU1F

CORE SUPPLY

PEG AND DDR

SVID

SENSE LINES

+CPU_CORE

Place BOT IN Socket

C277 10U_0805_6.3V6M
C627 10U_0805_6.3V6M
C656 10U_0805_6.3V6M
C293 10U_0805_6.3V6M
C669 10U_0805_6.3V6M
C638 10U_0805_6.3V6M
C634 10U_0805_6.3V6M
C666 10U_0805_6.3V6M
C660 10U_0805_6.3V6M
C649 10U_0805_6.3V6M

+CPU_CORE

Place TOP IN Socket

C325 22U_0805_6.3V6M
C296 22U_0805_6.3V6M
C272 22U_0805_6.3V6M
C346 22U_0805_6.3V6M
C342 22U_0805_6.3V6M
C335 22U_0805_6.3V6M
C333 22U_0805_6.3V6M
C256 22U_0805_6.3V6M

Place TOP Out Socket

C245 22U_0805_6.3V6M
C232 22U_0805_6.3V6M
C283 22U_0805_6.3V6M
C305 22U_0805_6.3V6M
C312 22U_0805_6.3V6M
C259 22U_0805_6.3V6M
C247 22U_0805_6.3V6M
C282 22U_0805_6.3V6M

INTEL Recommend
4*470uF,16*22uF and 10*10uF
from PDDG 1.0

+CPU_CORE

C242 470U 2V M D2 LESR4M
C653 470U 2V M D2 LESR4M
C332 330U_X_2VM_R6M
C354 330U_X_2VM_R6M
C678 330U_X_2VM_R6M

SGA00004V00
change footprint to
2 pin
(C_X)

Place BOT
Out Socket

SGA00001Q80 S POLY C 330U
2V M X LESR6M SX H1.9
change footprint to 2 pin
(C_X)

Place BOT
Out Socket

5x TOP in,7x BOT in

8.5A

Place TOP IN Conn

Place BOT IN Conn

+1.05VS_VTT

C619 22U_0805_6.3V6M
C106 22U_0805_6.3V6M
C248 22U_0805_6.3V6M
C109 22U_0805_6.3V6M
C180 22U_0805_6.3V6M
C192 22U_0805_6.3V6M
C652 22U_0805_6.3V6M
C151 22U_0805_6.3V6M
C624 22U_0805_6.3V6M
C185 22U_0805_6.3V6M

C642 22U_0805_6.3V6M
C639 22U_0805_6.3V6M
C632 22U_0805_6.3V6M
C625 22U_0805_6.3V6M
C594
C601 330U_6.3V_R15M
330U_6.3V_R15M

Place TOP
IN Conn

change to SF000002080
OS-CON 330U 6.3V ESR 15mohm H6

INTEL Recommend
2*330uF,12*22uF
from PDDG 1.0

+1.05VS_VTT

R574 130_0402_5%
R580 75_0402_5%
R576 43_0402_1%
R577 0_0402_5%
R578 0_0402_5%

VIDALERT# AJ29 H_CPU_SVIDALRT#
VIDSCLK AJ30 H_CPU_SVIDCLK
VIDSOUT AJ28 H_CPU_SVIDDAT

VR_SVID_ALRT# 52
VR_SVID_CLK 52
VR_SVID_DAT 52

Place the PU
resistors close to VR

+CPU_CORE

Place the PU
resistors close to CPU

R588 100_0402_1%
R589 100_0402_1%
R579 0_0402_5%
R581 0_0402_5%

VCC_SENSE AJ35 VCCSENSE_R
VSS_SENSE AJ34 VSSSENSE_R

VCCSENSE 52
VSSSENSE 52

VCCIO_SENSE B10
VSSIO_SENSE A10

VCCIO_SENSE 48

R105 10_0402_5%

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

CONN@

Sandy Bridge rPGA Rev0p61

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

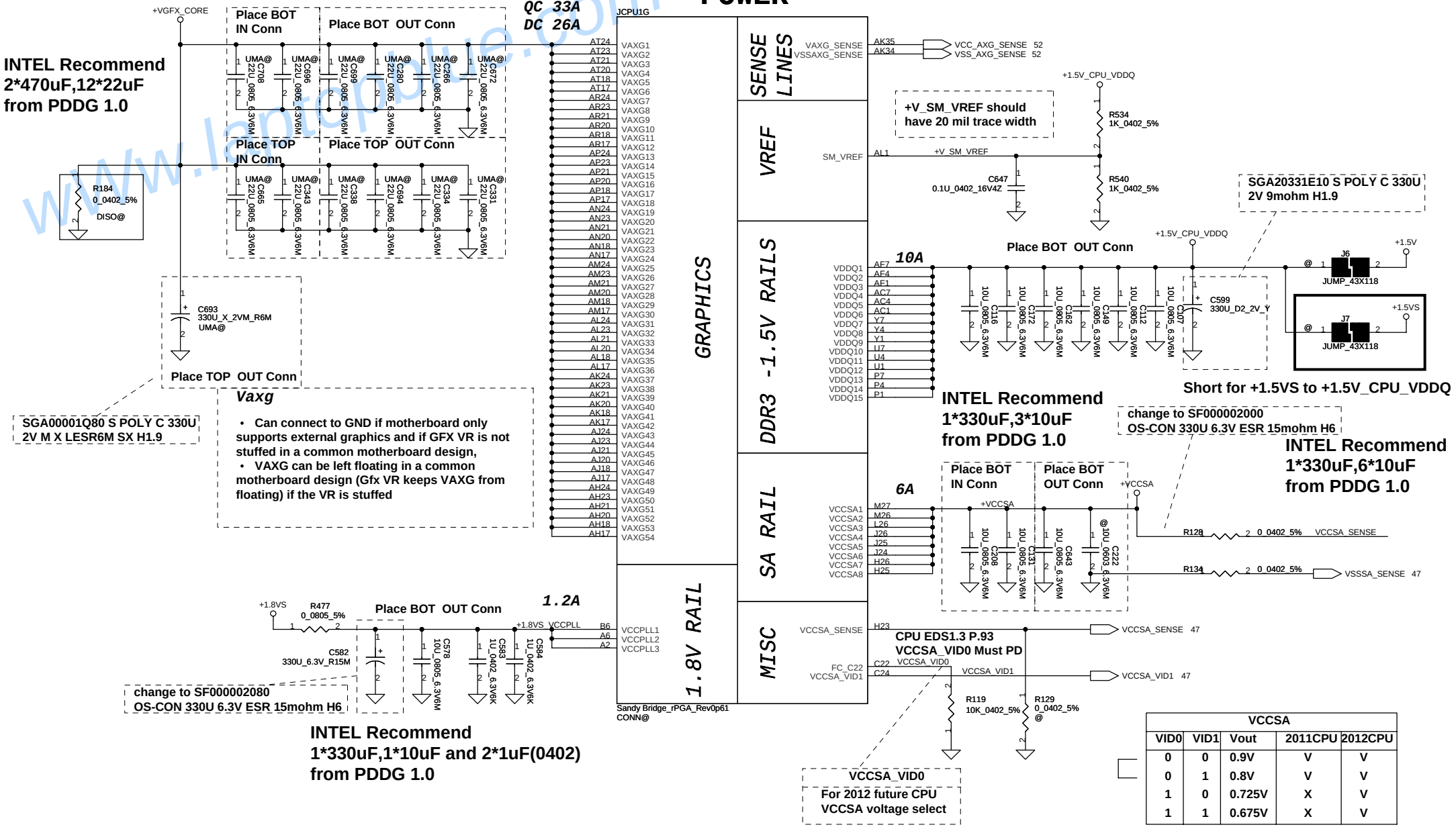
Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 8 of 60

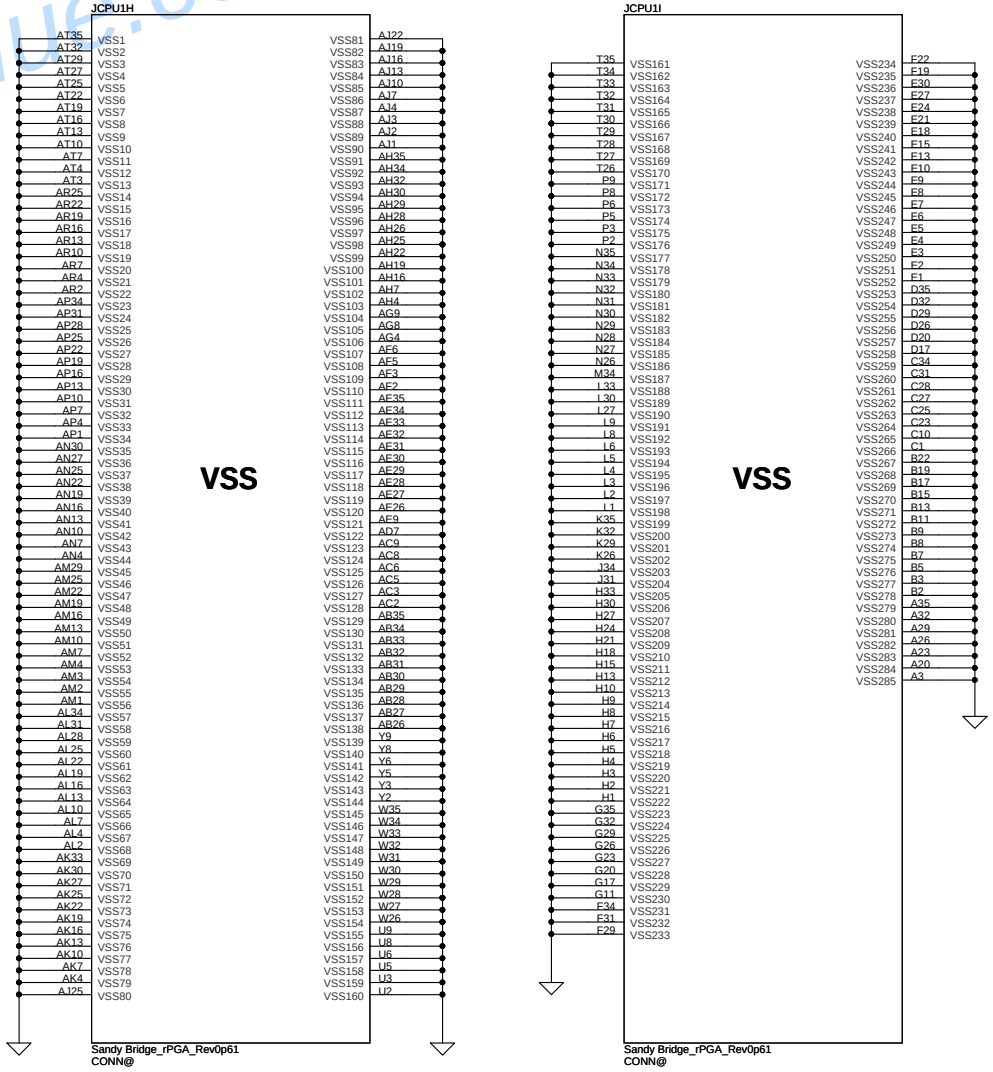
POWER



VCCSA				
VID0	VID1	Vout	2011CPU	2012CPU
0	0	0.9V	V	V
0	1	0.8V	V	V
1	0	0.725V	X	V
1	1	0.675V	X	V

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 9 of 60



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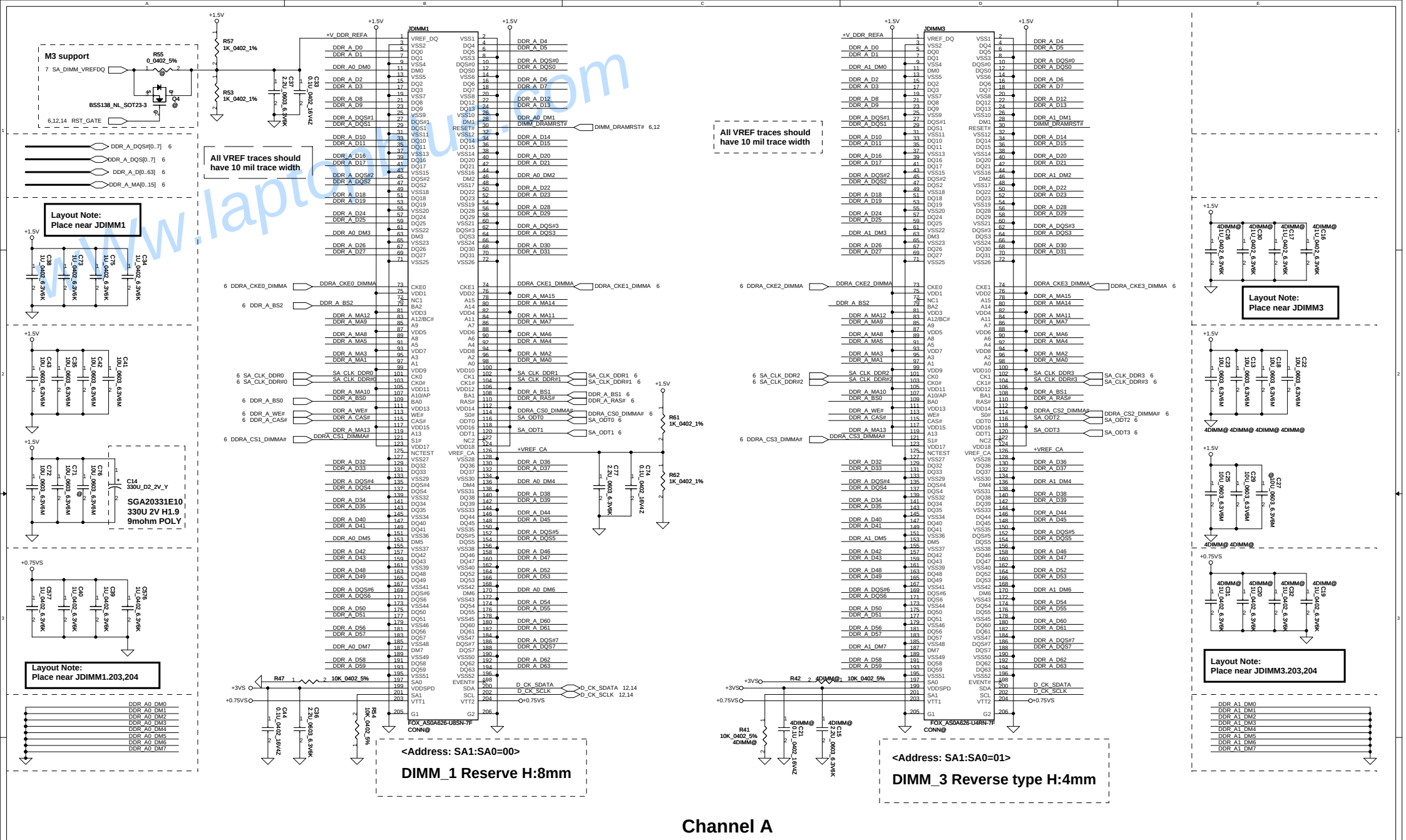
Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 10 of 60



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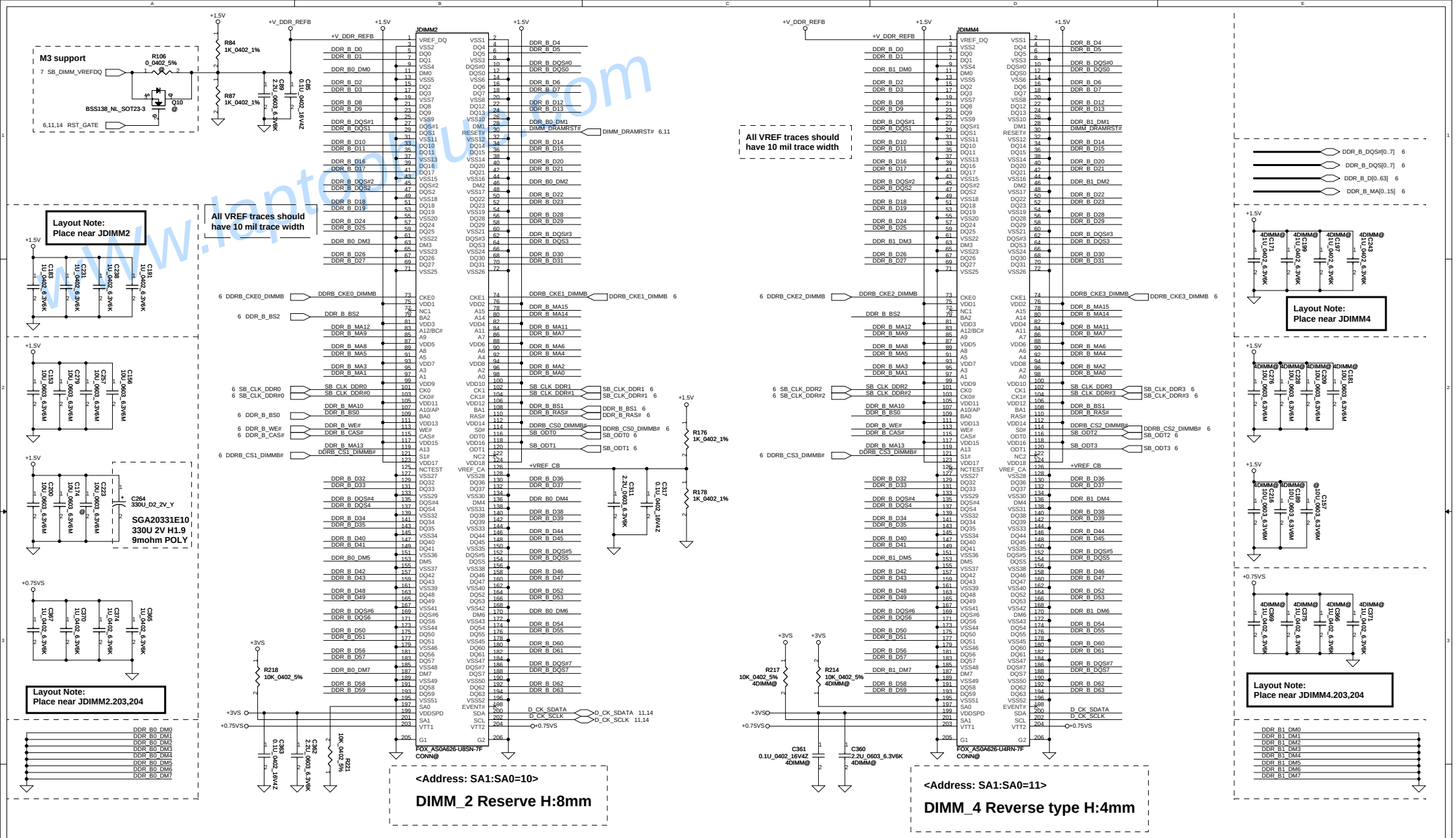
Title	SCHEMATIC,MB A6911		
Size: Custom	Document Number: 4019A9		Rev: B
Date: Tuesday, November 09, 2010	Sheet 11 of 60		



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Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 12 of 60

RTCRST close RAM door J1

SRTCRST close RAM door J2

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

HIGH= Enable (No Reboot)Disable TCO timer system reboot feature
* LOW= Disable (Default internal PD)

HDA_SDO
ME debug mode,this signal has a weak internal PD
* Low = Disabled (Default)
High = Enabled [Flash Descriptor Security Overide]

This signal has a weak internal pull-down

On Die PLL VR Select is supplied by
*1.5V when smapled high
1.8V when sampled low
Needs to be pulled High for Huron River platfrom

Prevent back drive issue.

No use PH 10K +3VS
GPIO19 has internal Pull up

SPI ROM FOR ME (4MB)
Footprint 200mil

Debug Port DG 1.2 PH 4.7K +3VS

Switchable Graph	
	GPIO21
Switchable	0
* Non SG	1

Boot BIOS Strap		
Boot BIOS	GPIO51	GPIO19
LPC	0	0
Reserved	0	1
-	1	0
* SPI	1	1

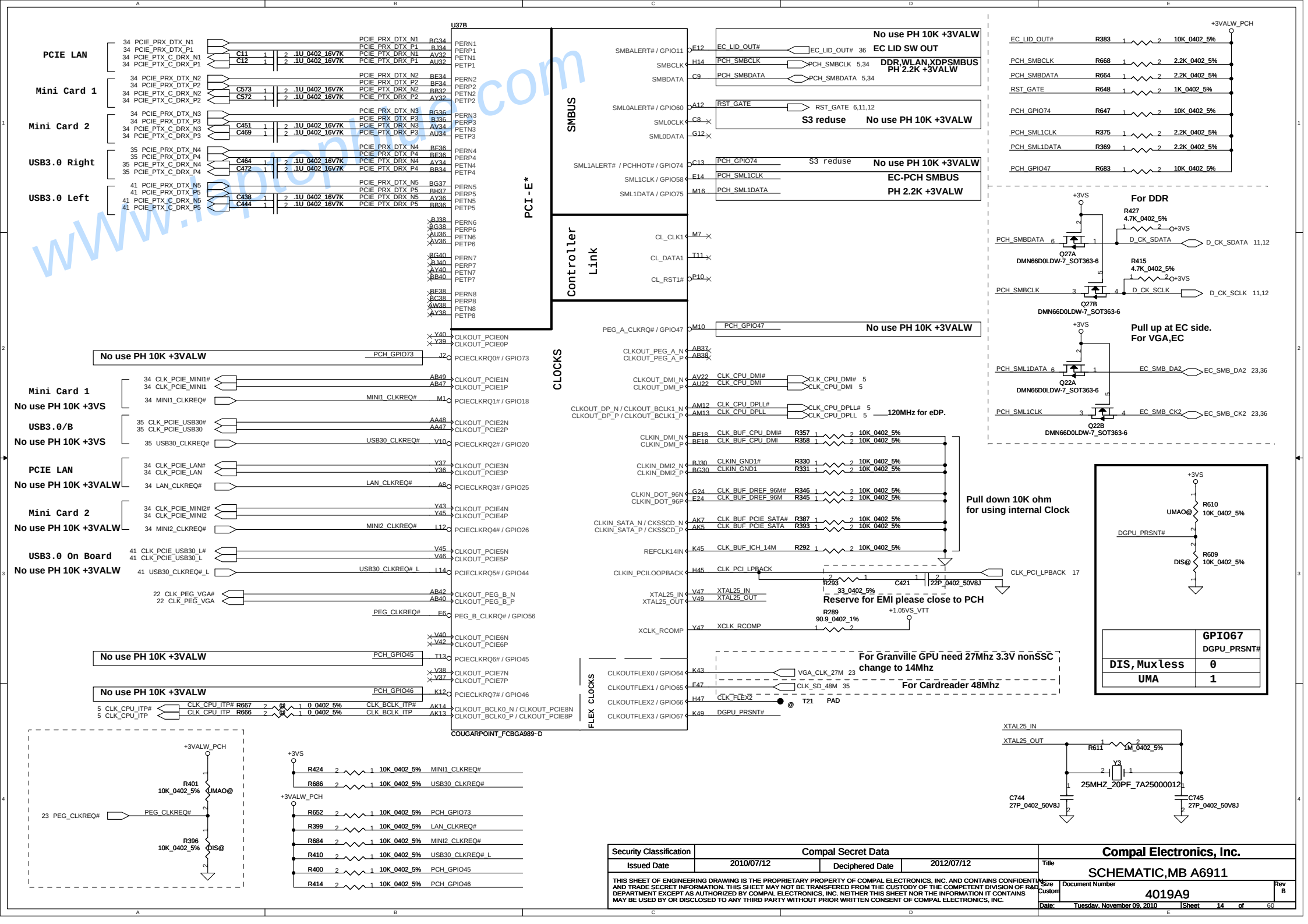
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 13 of 60



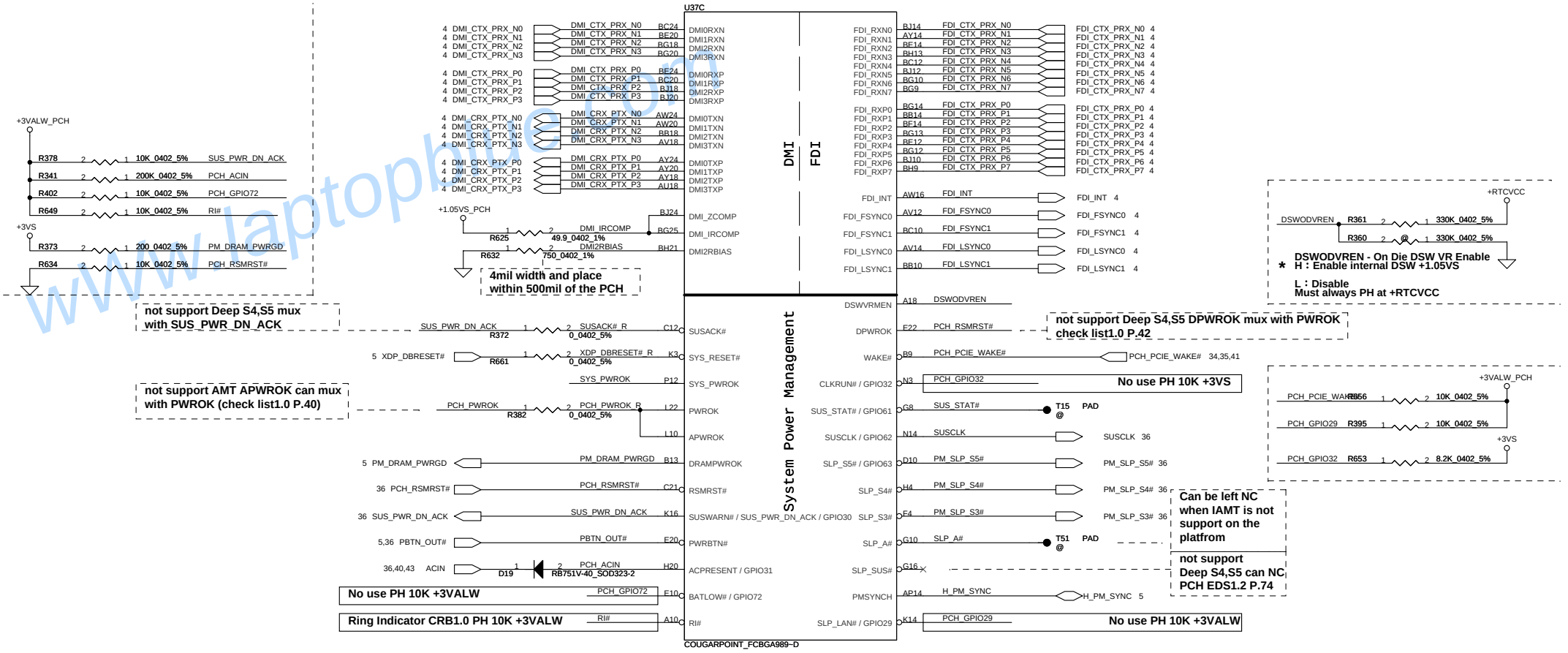
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 14 of 60



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.			
Title	SCHEMATIC,MB A6911		
Size: Custom	Document Number: 4019A9		Rev: B
Date: Tuesday, November 09, 2010	Sheet 15 of 60		

UMA Panel Backlight ON/OFF

23,36 ENBKL — ENBKL — R612 2 — UMA@ — 1 0_0402_5% IGPU_BKLT_EN

PD 100K at EC side

UMA LVDS DDC

+3VS

R259 1 — UMA@ — 2 2.2K_0402_5% CTRL_CLK

R260 1 — UMA@ — 2 2.2K_0402_5% CTRL_DATA

UMA CRT DDC

+3VS

R268 1 — UMA@ — 2 2.2K_0402_5% PCH_CRT_CLK

R269 1 — UMA@ — 2 2.2K_0402_5% PCH_CRT_DATA

UMA CRT RGB

R606 1 — UMA@ — 2 150_0402_1% PCH_CRT_B

R607 1 — UMA@ — 2 150_0402_1% PCH_CRT_G

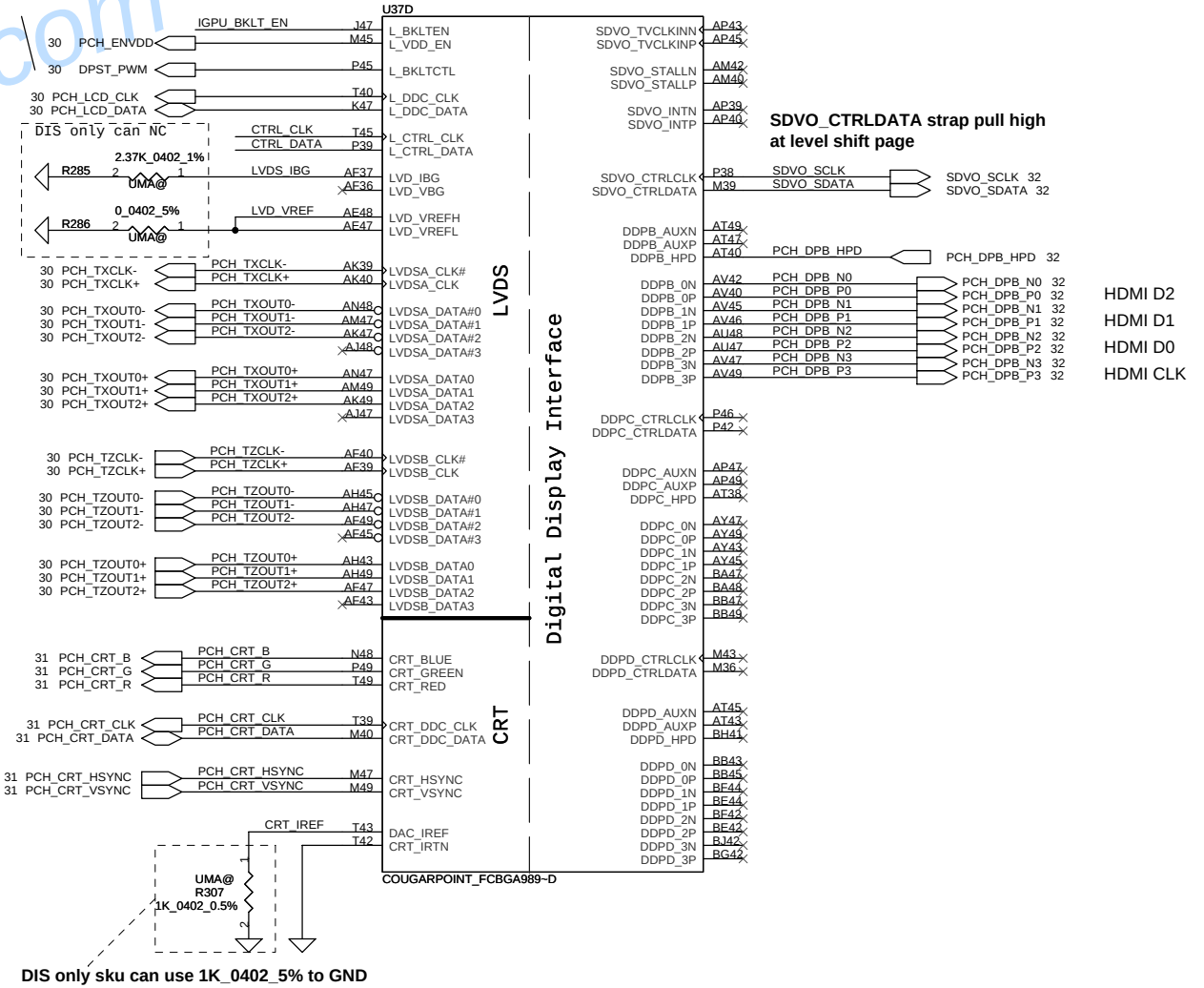
R608 1 — UMA@ — 2 150_0402_1% PCH_CRT_R

Check list1.0 P.55 disable Graphics
ALL Can NC
but DAC_IREF still need PD

LVDS disable:
DATA/Clock/Control an NC
VCC_TX_LVDS,VCCA_LVDS PD to GND

CRT disable:
DATA/Clock/Control an NC
VCCADAC connect to +3VS

Pull high at LVDS conn side.



SDVO_CTRLDATA strap pull high at level shift page

HDMI D2
HDMI D1
HDMI D0
HDMI CLK

DIS only sku can use 1K_0402_5% to GND

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 16 of 60

+3VS

R262 8.2K_1206_8P4R_5%
PCI_PIRQC#
PCI_PIRQB#
PCI_PIRQA#
PCI_PIRQD#

R276 8.2K_1206_8P4R_5%
PCH_GPIO55
PCH_GPIO53
PCH_GPIO52
PCH_GPIO5

可以不用PH,如做GPIO使用PH+3VS

R256 8.2K_1206_8P4R_5%
PCH_GPIO51
PCH_GPIO2
ODD_DA#
PCH_GPIO4

R267 @ 10K_0402_5%
DGPU_PWR_EN

R310 8.2K_0402_5%
DGPU_HOLD_RST#

Boot BIOS Strap

	GPIO19 Bit11	GPIO51 Bit10	Boot BIOS Destination
GNT1#/ GPIO51	0	1	Reserved
	1	0	PCI
Internal PH	1	1	SPI *
	0	0	LPC

Only GPIO function

只剩GPIO的功能沒有strap function
不做GPIO要PH +3VS,如做GPIO PH +3VS

只剩GPIO的功能沒有strap function
無須PH(Internal PH),如做GPIO PH +3VS

U37E

RSVD: TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24 TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33 TP34 TP35 TP36 TP37 TP38 TP39 TP40

NVRAM:
NV_CE#0 NV_CE#1 NV_CE#2 NV_CE#3
NV_DQS0 NV_DQS1
NV_DQ0 / NV_IO0 … NV_DQ15 / NV_IO15
NV_ALE NV_CLE (DF_TVS)
NV_RCOMP
NV_RB#
NV_RE#_WRB0 NV_RE#_WRB1
NV_WE#_CK0 NV_WE#_CK1

PCI:
PCI_PIRQA# PCI_PIRQB# PCI_PIRQC# PCI_PIRQD#
PIRQA# PIRQB# PIRQC# PIRQD#
DGPU_HOLD_RST# DGPU_PWR_EN PCH_GPIO52 PCH_GPIO51 PCH_GPIO53 PCH_GPIO55 PCH_GPIO2 ODD_DA# PCH_GPIO4 PCH_GPIO5
REQ1# / GPIO50 REQ2# / GPIO52 REQ3# / GPIO54 GNT1# / GPIO51 GNT2# / GPIO53 GNT3# / GPIO55 PIRQE# / GPIO2 PIRQF# / GPIO3 PIRQG# / GPIO4 PIRQH# / GPIO5
PME# PLTRST# CLKOUT_PCI0 CLKOUT_PCI1 CLKOUT_PCI2 CLKOUT_PCI3 CLKOUT_PCI4

USB:
USBP0N USBP0P USBP1N USBP1P USBP2N USBP2P USBP3N USBP3P USBP4N USBP4P USBP5N USBP5P USBP6N USBP6P USBP7N USBP7P USBP8N USBP8P USBP9N USBP9P USBP10N USBP10P USBP11N USBP11P USBP12N USBP12P USBP13N USBP13P
USBRBIAS# USBRBIAS
OC0# / GPIO59 OC1# / GPIO40 OC2# / GPIO41 OC3# / GPIO42 OC4# / GPIO43 OC5# / GPIO9 OC6# / GPIO10 OC7# / GPIO14
USB_OC0# USB_OC1# USB_OC2# USB_OC3# USB_OC4# USB_OC5# USB_OC6# USB_OC7#

COUGARPOINT_FCBGA989~D

PCI Interrupt Requests

23,29,40,50,51 DGPU_PWR_EN
33 ODD_DA#
PAD T13 @
5,34,35,36,41 PLT_RST#
14 CLK_PCI_LPBACK
36 CLK_PCI_LPC
R604 22_0402_5%
R316 22_0402_5%
PAD T20 @
PAD T7 @
PAD T8 @

USB20_N0 … USB20_N13 / USB20_P0 … USB20_P13

USB2/B (Right side)
USB2/B (Right side)
USB Port (Left side)
USB3/B (right side)
3D Panel
EHCI 1

Some PCH config not support USB port 6 & 7.

Mini Card (WLAN)
Mini Card (WWAN)
CMOS Camera (LVDS)
Card Reader
Mini Card (SIM card)
Bluetooth
EHCI 2

Within 500 mils
R620 22.6_0402_1%

USB_OC2# 41

DMI,FDI Termination Voltage	
DF_TVS	Set to Vcc when HIGH
	Set to Vss when LOW

DG1.2 CRB1.0 PH 2.2K series 1K
For 2012 support

+1.8VS
R651 2.2K_0402_5%
DF_TVS R654 1K_0402_5%
H_SNB_IVB# 5

CLOSE TO THE BRANCHING POINT

+3VALW_PCH
USB_OC0# R384 10K_0402_5%
USB_OC7# R374 10K_0402_5%
USB_OC5# R379 10K_0402_5%

+3VALW_PCH
R396 10K_1206_8P4R_5%
USB_OC1#
USB_OC4#
USB_OC3#
USB_OC6#

R371 0_0402_5% @
+3VS
U26 MC74VHC1G08DFT2G_SC70-5
PLT_RST# → PLT_RST_BUF# 34
R376 100K_0402_5%
+3VS
U24 MC74VHC1G08DFT2G_SC70-5
DGPU_HOLD_RST#
R364 100_0402_5% DIS@ → PLTRST_VGA# 22
R365 100K_0402_5% DIS@

Security Classification	Compal Secret Data		
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Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 17 of 60

HDA_SYNC PH(PLL =+1.5VS)

GPIO28

On-Die PLL Voltage Regulator

This signal has a weak internal pull up

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

+3VALW_PCH
R422 4.7K_0402_5%
PCH_GPIO28
R417 1K_0402_5%
Debug Port DG 1.2 PH 4.7K +3VALW_PCH

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

R362 10K_0402_5% PCH_GPIO27

+3VS
R413 200K_0402_5% ODD_DETECT#
R370 200K_0402_5% WWAN_OFF#

SATA2GP/GPIO36 & SATA3GP/GPIO37
Sampled at Rising edge of PWROK.
Weak internal pull-down.
(weak internal pull-down is disabled after PLTRST# de-asserts)
NOTE: This signal should NOT be pulled high when strap is sampled

+3VS
R406 10K_0402_5% PCH_GPIO0
R614 10K_0402_5% WL_EN#
R326 10K_0402_5% DGPU_HPD_INT#
R663 10K_0402_5% PCH_GPIO16
R305 10K_0402_5% DGPU_PWROK
R412 10K_0402_5% PCH_GPIO22
R428 10K_0402_5% PCH_GPIO39
R675 10K_0402_5% BT_ON#
R679 10K_0402_5% PCH_GPIO48
R404 10K_0402_5% WL_OFF#

+3VALW_PCH
R398 10K_0402_5% PCH_GPIO24
R657 10K_0402_5% PCH_GPIO12
R391 1K_0402_5% SMIB
R397 10K_0402_5% PCH_GPIO57

+3VS
R429 NOMUXL@ 10K_0402_5% OPTIMUS_EN#
R430 MUXL@ 10K_0402_5%

	GPIO38 OPTIMUS_EN#
* Muxless	0
nonMuxless	1

GPIO24 Unmultiplexed
NOTE: GPIO24 configuration register bits are not cleared by CF9h reset event.
CRB1.0 PH10K to +3VALW

+3VS
R324 10K_0402_5%
ODD_EN#

+3VS
@R615 10K_0402_5% PCH_GPIO71
@R616 10K_0402_5% PCH_GPIO69
@R617 10K_0402_5% PCH_GPIO70
R618 10K_0402_5%
R619 10K_0402_5%
R621 10K_0402_5%

Fan Tachometer Inputs
TACH1~7 only on server
can insted to GPIO

Project ID	GPIO69	GPIO70	GPIO71
* P7YE0	0	0	0
x	0	0	1
x	0	1	0
x	0	1	1
x	1	0	0
x	0	0	1
x	0	1	0
x	0	1	1
x	1	0	0
x	1	0	1
x	1	1	0
x	1	1	1

U37F

No use PH 10K +3VS — PCH_GPIO0 — T7 — BMBUSY# / GPIO0
No use PH 10K +3VS — 35 WL_EN# — WL_EN# — A42 — TACH1 / GPIO1
No use PH 10K +3VS — 32 DGPU_HPD_INT# — DGPU_HPD_INT# — H36 — TACH2 / GPIO6
36 EC_SCI# — EC_SCI# — E38 — TACH3 / GPIO7
36 EC_SMI# — EC_SMI# — C10 — GPIO8
No use PH +3VALW — PCH_GPIO12 — C4 — LAN_PHY_PWR_CTRL / GPIO12
USB3.0 System management Interrupt signal "SMI#". — 35,41 SMIB — SMIB — G2 — GPIO15
No use PH +3VS — PCH_GPIO16 — U2 — SATA4GP / GPIO16
29,49 VGA_PWROK — R304 0_0402_5% — DGPU_PWROK — D40 — TACH0 / GPIO17
No use PH 10K +3VS — PCH_GPIO22 — T5 — SCLOCK / GPIO22
CRB1.0 PH 10K +3VALW — PCH_GPIO24 — F8 — GPIO24 / MEM_LED
No use PD 10K to GND — PCH_GPIO27 — E16 — GPIO27
No use PH 10K +3VALW — PCH_GPIO28 — P8 — GPIO28
No use PH 10K +3VS BT ON/OFF — 34,35 BT_ON# — BT_ON# — K1 — STP_PCI# / GPIO34
No use can NC — PAD T16 @ — PCH_GPIO35 — K4 — GPIO35
Can't PH — 33 ODD_DETECT# — ODD_DETECT# — V8 — SATA2GP / GPIO36
Can't PH — 34 WWAN_OFF# — WWAN_OFF# — M5 — SATA3GP / GPIO37
No use PH 10K +3VS Optimus(L)/ non optimus(H) — OPTIMUS_EN# — N2 — SLOAD / GPIO38
No use PH 10K +3VS — PCH_GPIO39 — M3 — SDATAOUT0 / GPIO39
No use PH 10K +3VS — PCH_GPIO48 — V13 — SDATAOUT1 / GPIO48
SATA5GP&TEMP_ALERT# CRB PH 10K +3VS — WL_OFF# — WL_OFF# — V3 — SATA5GP / GPIO49
No use PH +3VALW or PD to GND — PCH_GPIO57 — D6 — GPIO57

GPIO

TACH4 / GPIO68 — C40 — ODD_EN# — ODD_EN# 33
TACH5 / GPIO69 — B41 — PCH_GPIO69
TACH6 / GPIO70 — C41 — PCH_GPIO70
TACH7 / GPIO71 — A40 — PCH_GPIO71

+3VS
R419 10K_0402_5%

CPU/MISC

A20GATE — P4 — GATEA20 36
PECI — AU16 — IPCH_PECI_R 0_0402_5% R248 — H_PECI 5,36
RCIN# — P5 — EC_KBRST# — EC_KBRST# 36
PROCPWRGD — AY11 — H_CPUPWRGD 5
THRMTRIP# — AY10 — PCH_THRMTRIP#_R R385 390_0402_5% — H_THRMTRIP# — H_THRMTRIP# 5
INIT3_3V# — T14

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

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

+3VS
EC_KBRST# R420 10K_0402_5%

NC_1 — AH8
NC_2 — AK11
NC_3 — AH10
NC_4 — AK10
NC_5 — P37

TS_VSS1~4
PD to GND

NCTF

PAD T47 @ — A4 — VSS_NCTF_1
PAD T30 @ — A44 — VSS_NCTF_2
PAD T28 @ — A45 — VSS_NCTF_3
PAD T27 @ — A46 — VSS_NCTF_4
PAD T49 @ — A5 — VSS_NCTF_5
PAD T46 @ — A6 — VSS_NCTF_6
PAD T50 @ — B3 — VSS_NCTF_7
PAD T26 @ — B47 — VSS_NCTF_8
PAD T43 @ — BD1 — VSS_NCTF_9
PAD T17 @ — BD49 — VSS_NCTF_10
PAD T44 @ — BE1 — VSS_NCTF_11
PAD T23 @ — BE49 — VSS_NCTF_12
PAD T45 @ — BE1 — VSS_NCTF_13
PAD T18 @ — BE49 — VSS_NCTF_14

VSS_NCTF_15 — BG2 — @T38 PAD
VSS_NCTF_16 — BG48 — @T24 PAD
VSS_NCTF_17 — BH3 — @T37 PAD
VSS_NCTF_18 — BH47 — @T19 PAD
VSS_NCTF_19 — BJ4 — @T36 PAD
VSS_NCTF_20 — BJ44 — @T31 PAD
VSS_NCTF_21 — BJ45 — @T29 PAD
VSS_NCTF_22 — BJ46 — @T25 PAD
VSS_NCTF_23 — BJ5 — @T35 PAD
VSS_NCTF_24 — BJ6 — @T34 PAD
VSS_NCTF_25 — C2 — @T39 PAD
VSS_NCTF_26 — C48
VSS_NCTF_27 — D1 — @T40 PAD
VSS_NCTF_28 — D49 — @T22 PAD
VSS_NCTF_29 — E1 — @T41 PAD
VSS_NCTF_30 — E49
VSS_NCTF_31 — F1 — @T42 PAD
VSS_NCTF_32 — F49

COUGARPOINT_FCBGA989~D

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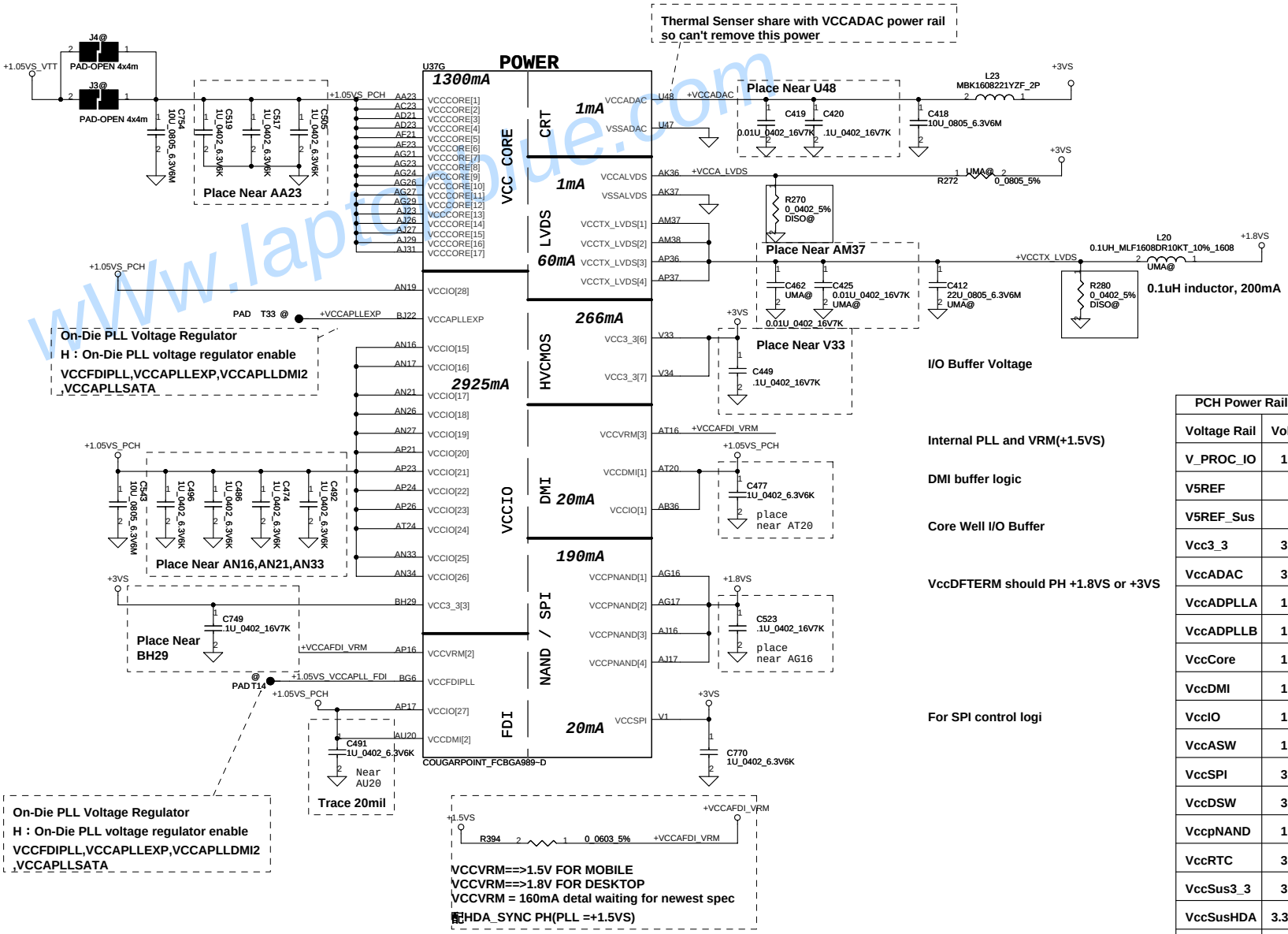
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 18 of 60



PCH Power Rail Table

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

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Issued Date	2010/07/12	Deciphered Date	2012/07/12

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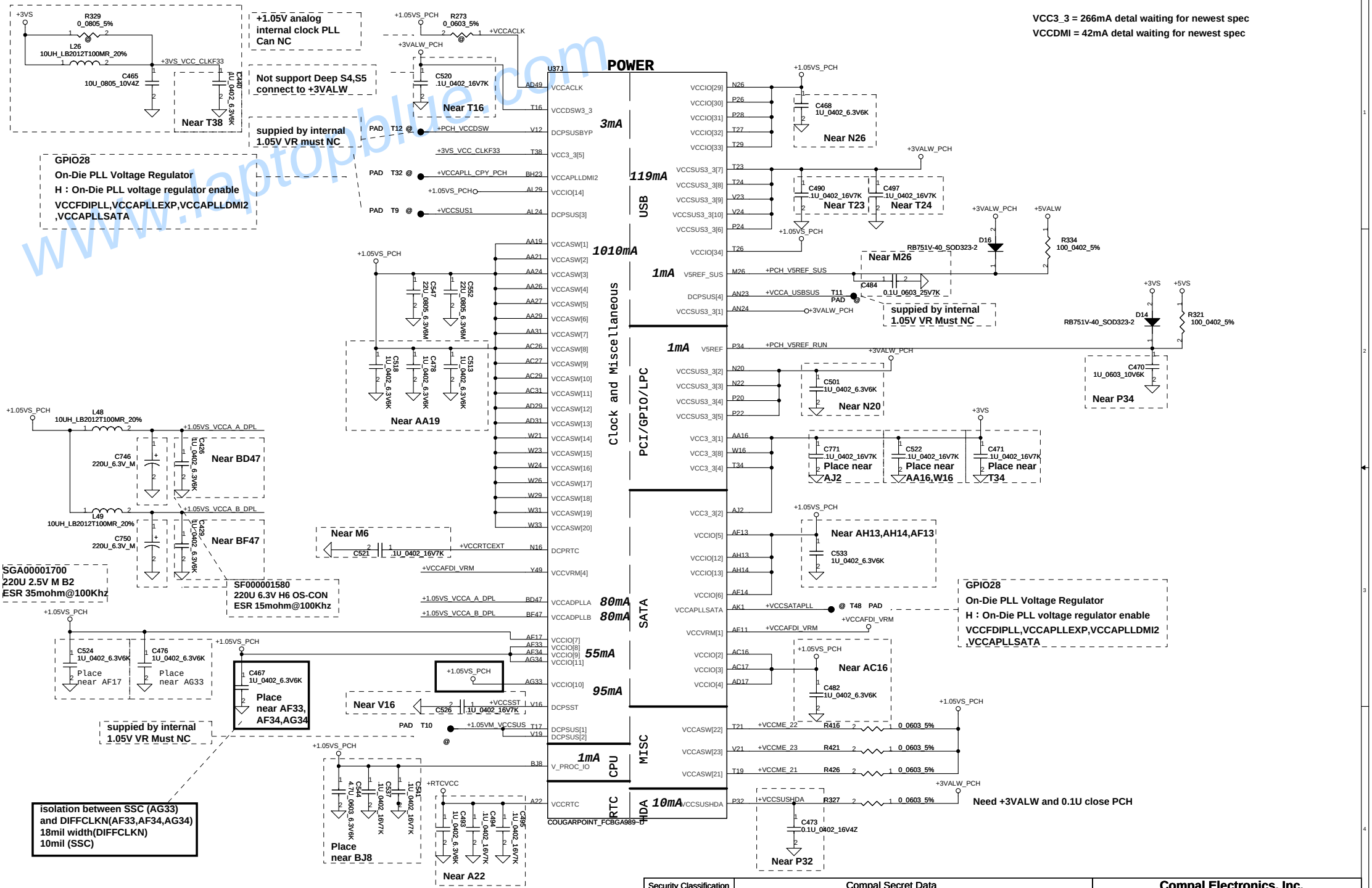
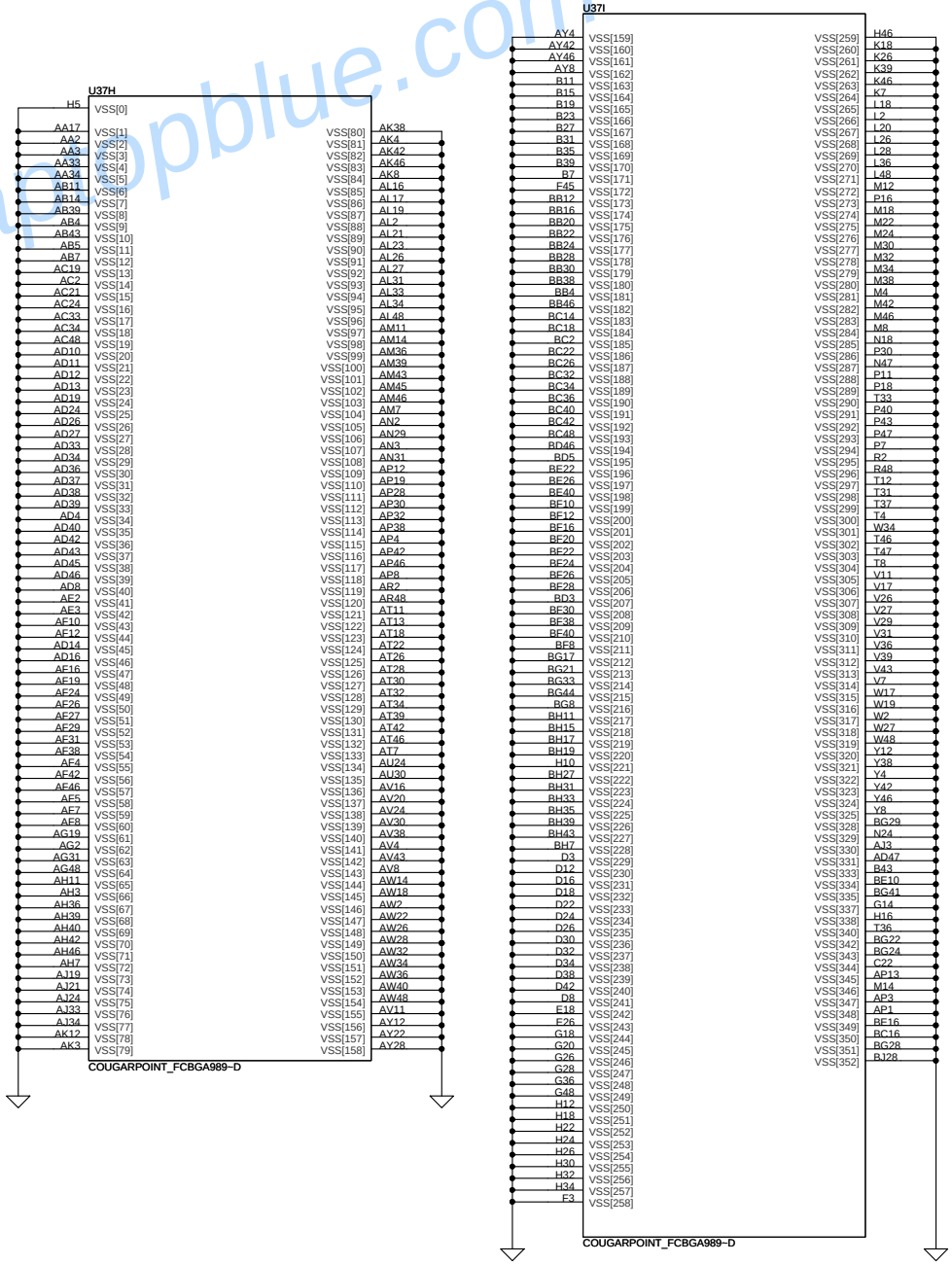
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 19 of 60





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Issued Date	2010/07/12	Deciphered Date	2012/07/12

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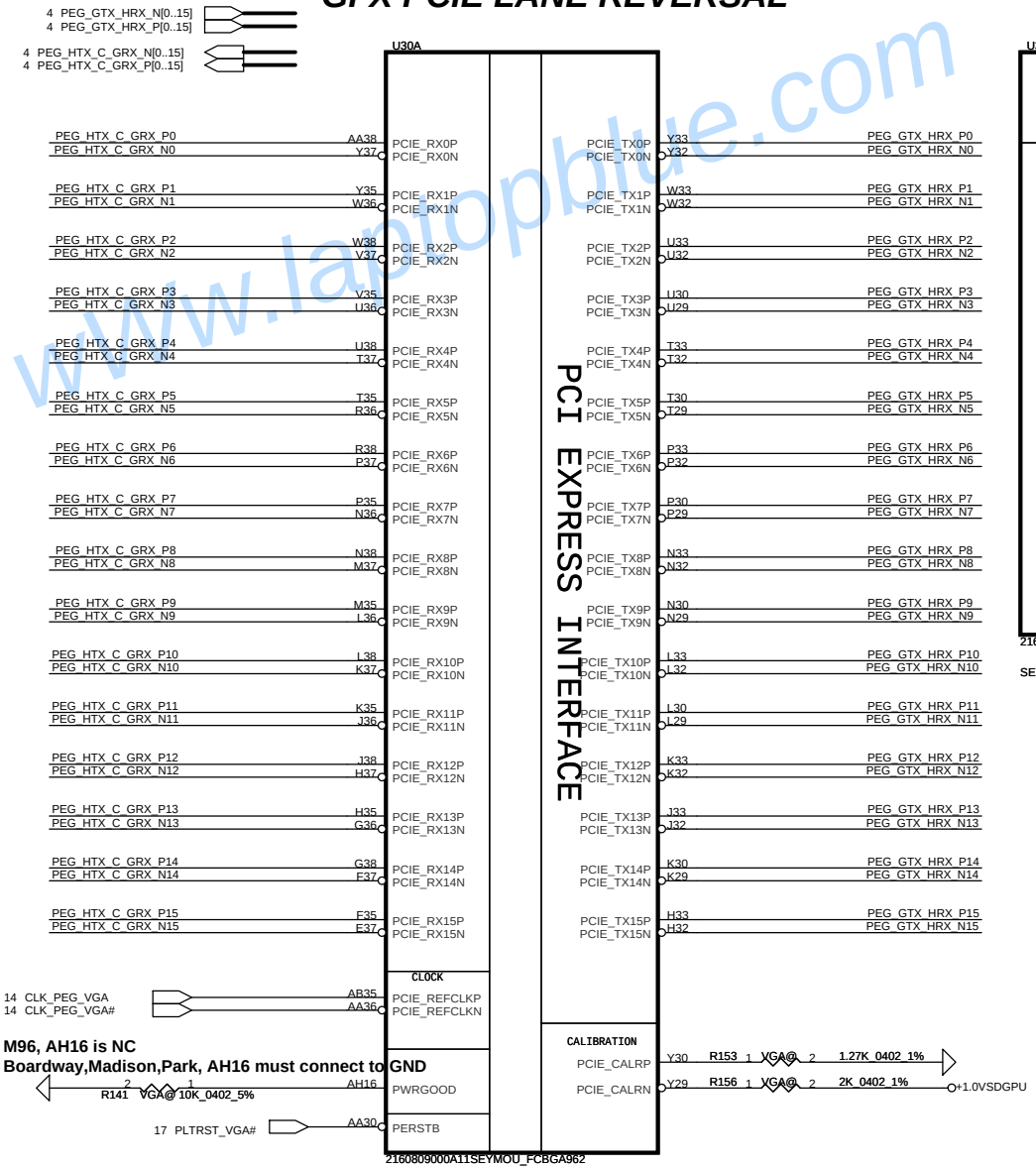
Title: SCHEMATIC,MB A6911

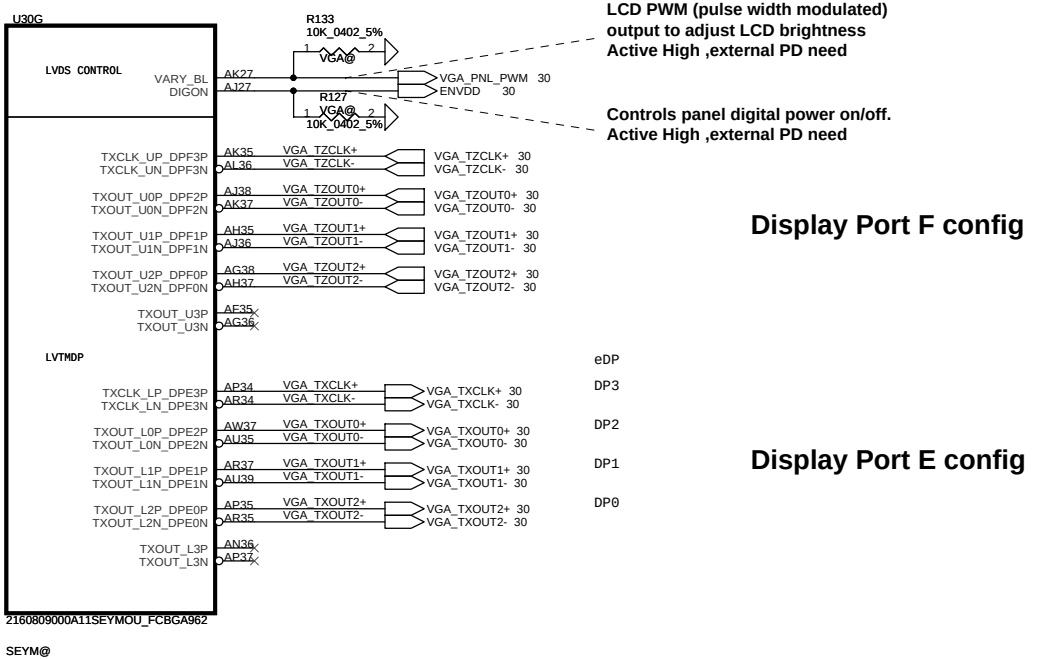
Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 21 of 60

GFX PCIE LANE REVERSAL



For M96, AH16 is NC
For Boardway,Madison,Park, AH16 must connect to GND



LCD PWM (pulse width modulated) output to adjust LCD brightness Active High ,external PD need

Controls panel digital power on/off. Active High ,external PD need

Display Port F config

Display Port E config

Park XT P/N : SA00003M570 (S IC 216-0774009 A11 PARK XT S3 631P C38)
Madision Pro P/N : SA00003M360 (S IC 216-0772000 MADISON PRO FCBGA 0FA)
Seymour XT P/N: SA000047H00 (S IC 216-0809000 A11 SEYMOUR XT M2 0FH)

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title	SCHEMATIC,MB A6911		
Size: Custom	Document Number: 4019A9		Rev: B
Date: Tuesday, November 09, 2010	Sheet 22 of 60		

Strap Name		Pin Straps description <all internal PD>	Setting
VIP_DEVICE_EN	V2SYNC (GENLK_VSYNC)	VIP Device Strap Enable indicates to the software driver (Internal PD) 0: Driver would ignore the value sampled on VHAD_0 during reset 1: VHAD_0 to determine whether or not a VIP slave device	0
VGA_DIS	GPIO9	VGA Disable determines (Internal PD) 0: VGA Controller capacity enabled 1: The device will not be recognized as the system's VGA controller	0
TX_PWRS_ENB	GPIO0	Transmitter Power Saving Enable (Internal PD) 0: 50% Tx output swing 1: full Tx output swing	1
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable (Internal PD) 0: Tx de-emphasis diabled 1: Tx de-emphasis enabled	1
CONFIG[2] CONFIG[1] CONFIG[0]	GPIO13 GPIO12 GPIO11	GPIO13,12,11 (config 2,1,0) : (Internal PD) memory apertures a) If BIOS_ROM_EN = 1, then Config[2:0] defines the ROM type. 128 MB 000 b) If BIOS_ROM_EN = 0, then Config[2:0] defines the primary memory aperture size. 256 MB 001 * 64 MB 010	001
BIOS_ROM_EN	GPIO22	Enable external BIOS ROM device (Internal PD) 0: Diable, 1: Enable	0
AUD[1] AUD(0)	HSYNC VSYNC	00: No audio function; 10: Audio for DisplayPort only; 01: Audio for DisplayPort and HDMI if adapter is detected; 11: Audio for both DisplayPort and HDMI	11
BIF_GEN2_EN	GPIO2	0= Advertises the PCI-E device as 2.5 GT/s capable at power-on 1= Advertises the PCI-E device as 5.0 GT/s capable at power-on	0
RESERVED	H2SYNC (GENLK_CLK) GPIO8 GPIO21	5.0 GT/s capability will be controlled by software Internal use only. THIS PAD HAS AN INTERNAL PULL-DOWN AND MUST BE 0 V AT RESET. The pad may be left unconnected	DNI

Don't have this strap on Whistler and Seymour

NC on Park, Robson and Seymour
NC on Park, Robson

NC on Park, Robson and Seymour

Global Swap Lock on Multiple GPUs

Move to DDCCLK_AUX3P,DDCDATA_AUX3P

GPIO0 Power-state indicator.
GPIO1 PCIE transmitter deemphasis enable.
GPIO2 Advertises the PCIe 0:2.5G 1:5G
GPIO3,4 SMBus data/CLK

GPIO5 fast-power reduction:
HW control will cause display disturb
should use SW method control

GPIO6 voltage control signal ,No use can NC

GPIO7 Controls backlight on/off.
Active High ,need external PD

If GPIO22 High ,GPIO 11-13->CFG[0:2]
Config ROM type ,GPU has internal PD

GPIO6,15,16,20
Voltage control signal
GPIO6,15 no use can NC
Thermal monitor interrupt

Critical temperature fault

Reserved

External BIOS device
ON(1)/OFF(0) inter PD

Internal Debug
no use can floating
ON(1)/OFF(0)

Stereo Sync
no use can NC

For ATI Cross fire
no use can NC

Park NC pins

Not share via for other GND

NC on Whistler and Seymour

In Whistler and Seymour, change to GENLK_CLK, GENLK_VSYNC for Global Swap Lock on multiple GPUs

Granville can NC when no use

Back compatibility(Manhattan)

Whistler and Seymour Except A2VSSQ change to TSVSSQ, others are NC

NC on Park, Robson and Seymour

CRT

NC on Park, Robson and Seymour

Future ASIC call MLPS.
OLD ASIC is Fan PWM

PD 100K at EC side

DISCRETE ONLY

HSYN:VSYNC
11: Audio for both DisplayPort and HDMI

AUD Strap

CRT,HDMI DDC

GPIO8 Serial-ROM output from ROM.
GPIO9 Serial-ROM input to ROM.
GPIO10 Serial-ROM clock to ROM.
GPIO22 external BIOS-ROM enable

GPIO8,GPIO9,GPIO10 no use can NC
GPIO22
Enable need 3K PH ,no use must NC

If GPIO22 High ,GPIO 11-13->CFG[0:2]
Config ROM type ,GPU has internal PD
if GPIO22 Low ,GPIO 11-13->CFG[0:2]
Config Primary memory-aperture size
CFG[3:0]
128MB 000
256MB 001 *
64MB 010

Seymour XT

ID3-0	Vender	Size	Freq	P/N	Description	
* 0000	SAM	64*16	800M	SA000035720(S IC D3 64MX16 K4W1G1646E-HC12 FBGA ABO		X769
0001						
* 0010	SAM	64*16	900M	SA00004GS10(S IC D3 64M16 K4W1G1646G-BC11 FBGA ABO		X7611
* 0011	HYN	64*16	900M	SA000041S40(S IC D3 64MX16 H5TQ1G63DFR-11C FBGA AB		X7610
0100						
0101	SAM	128*16	800M	SA00003MQ60 (S IC D3 128M16 K4W2G1646C-HC12 FBGA AB		X767
0110						
0111						
1000						
1001						
1010						
1011						
1100	HYN	64*16	800M	SA000032420 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA ABO		X762
1101	HYN	128*16	800M	SA00003VS10 (S IC D3 128M16 H5TQ2G63BFR-12C FBGA ABO		X768
1110	HYN	64*16	800M	SA0000324G0(S IC D3 64M16 H5TQ1G63DFR-12C FBGA ABO		X761
1111						

Whistler/Granville(PRO)

ID3-0	Vender	Size	Freq	P/N	Description	
* 0000	SAM	64*16	800M	SA0000035720(S IC D3 64MX16 K4W1G1646E-HC12 FBGA AB		X7612
0001	SAM	128*16	800M	SA00003MQ60 (S IC D3 128M16 K4W2G1646C-HC12 FBGA AB		X766
* 0010	SAM	64*16	900M	SA00004GS10(S IC D3 64M16 K4W1G1646G-BC11 FBGA ABO		X7614
* 0011	HYN	64*16	900M	SA000041S40(S IC D3 64MX16 H5TQ1G63DFR-11C FBGA AB		X7613
0100						
0101						
0110						
0111						
1000	HYN	64*16	800M	SA0000324G0 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA ABO		X764
1001	HYN	128*16	800M	SA00003VS10 (S IC D3 128M16 H5TQ2G63BFR-12C FBGA ABO		X765
1010	HYN	64*16	800M	SA0000324G0(S IC D3 64M16 H5TQ1G63DFR-12C FBGA ABO		X763
1011						
1100						
1101						
1110						
1111						

External 27MHZ 3.3V CLK

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

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Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 23 of 60

U30C
DDR2 GDDR3/GDDR5 DDR3
MEMORY INTERFACE A
GDDR5/DDR2/GDDR3
2160809000A11SEYMOU_FCBGA962
SEYM@

U30D
DDR2 GDDR3/GDDR5 DDR3
MEMORY INTERFACE B
GDDR5/DDR2/GDDR3
2160809000A11SEYMOU_FCBGA962
SEYM@

+1.5VSDGPU
20mil
MVREFDA
MVREFSA
MVREFDB
MVREFSB

2009/09/18
change R64 PD change
to +3VSDGPU

If use M96 upper resistor will change to 100ohm for MVREFDA/B and MVREFSA/B

In M97, Medison and Park, AF28 is FB_VDDC, AG28 is FB_VDDCI, AH29 is FB_GND. GCORE_SEN and FB_GND should route as differential pair Same as VDDCI_SEN and FB_GND

AL31 Manhatann/Vancouver NC Boardway ADC input(0-1V) use measure regulator current or temperature

AG28: VDDCI_SEN feedback path to regulator no use can NC
AF28:VDDC_SEN feedback path to regulator no use can NC

M96 use 4.7K to PD directly.

Place all these components very close to GPU (Within 25mm) and keep all component close to each Other (within5mm) except Rser2

Seymour is single channel for memory (channel B only)

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Issued Date	2010/07/12	Deciphered Date	2012/07/12

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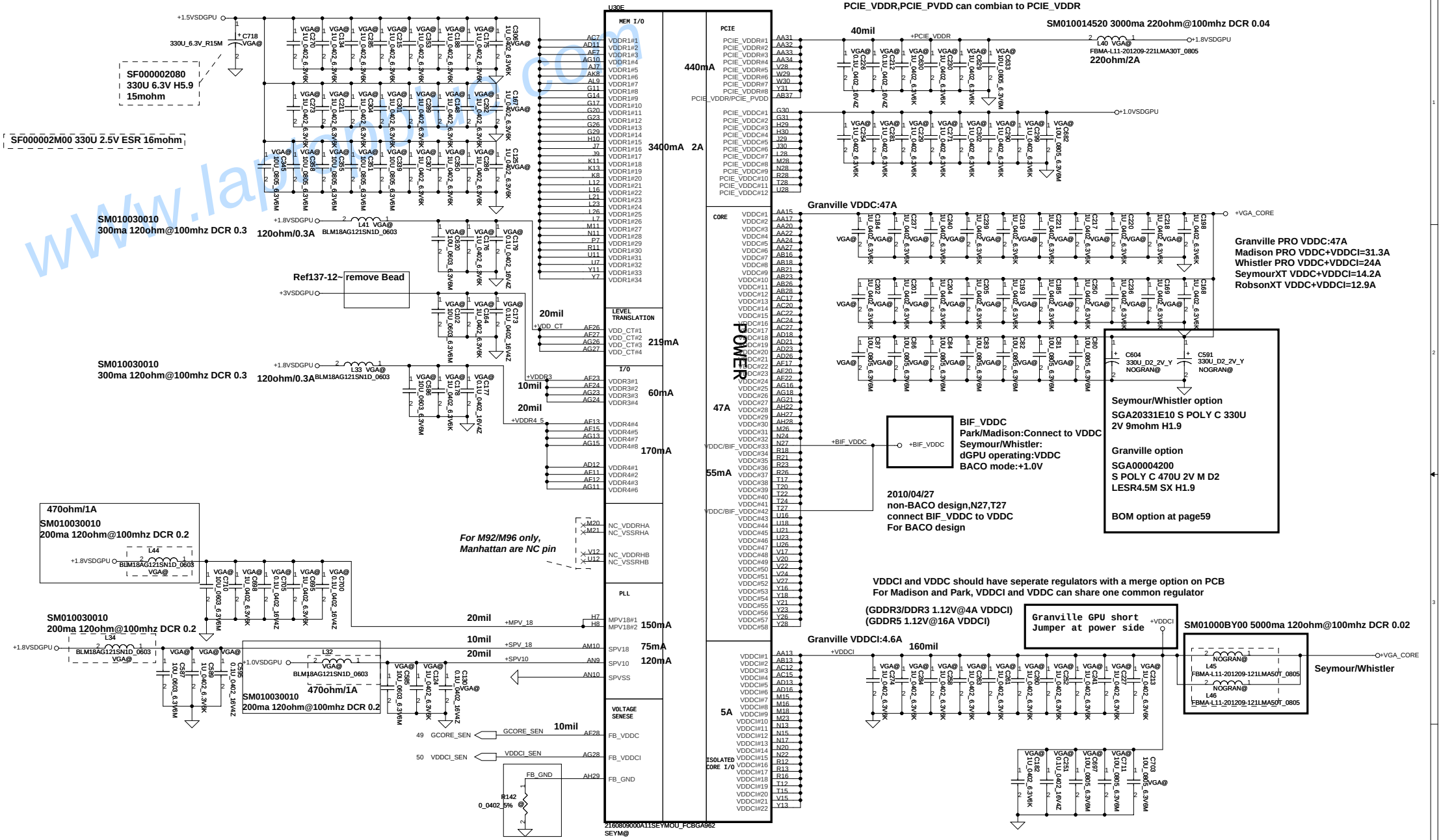
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 24 of 60



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Issued Date	2010/07/12	Deciphered Date	2012/07/12

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Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 25 of 60

U30F

GND

2160809000A11SEYMOU_FCBGA962
SEYM@

REF137-13 update

DPA_VDD18,DPA_PVDD,DPB_VDD18,DPB_PVDD can combian to DPAB_VDD18
DPC_VDD18,DPC_PVDD,DPD_VDD18,DPD_PVDD can combian to DPCD_VDD18
(DPD_VDD18,DPD_PVDD not applicable on Robson/Park)
DPE_VDD18,DPE_PVDD,DPF_VDD18,DPF_PVDD can combian to DPEF_VDD18

DPx-VSSR,DPx_PVSS can combian to DP_VSSR
(Manhatann should have individual GND)
where x is A,B,C,D,E,F

Seymour/Whistler：
DPA_VDD10,DPB_VDD10 can combian to DPAB_VDD10
DPC_VDD10,DPD_VDD10 can combian to DPCD_VDD10
DPE_VDD10,DPD_VDD10 can combian to DPEF_VDD10

U30H

2160809000A11SEYMOU_FCBGA962
SEYM@

Manhatann:300mA
Seymour:150mA

Manhatann:220mA
Seymour:110mA

DP mode:300mA
LVDS mode:440mA

DP mode:220mA
LVDS mode:240mA

SM01000AX00
550ma 220ohm@100mhz DCR 0.3

SM01000BL00
1000ma 470ohm@100mhz DCR 0.2

PX_EN:
SBIOS will control VGA power on/off.
High :BACO mode enable
LOWLBACO disable

Park/Madison :AL21left NC

Seymour/Whistler:
AL21:PX_EN
use to control discreate GPU regulators
for power express BACO mode
Support BACO:
output High3.3V:turn off regulators (BACO mode on)
output Low0V:turn on regulators (BACO mode off)
need PD resistor
No support BACO:
left NC

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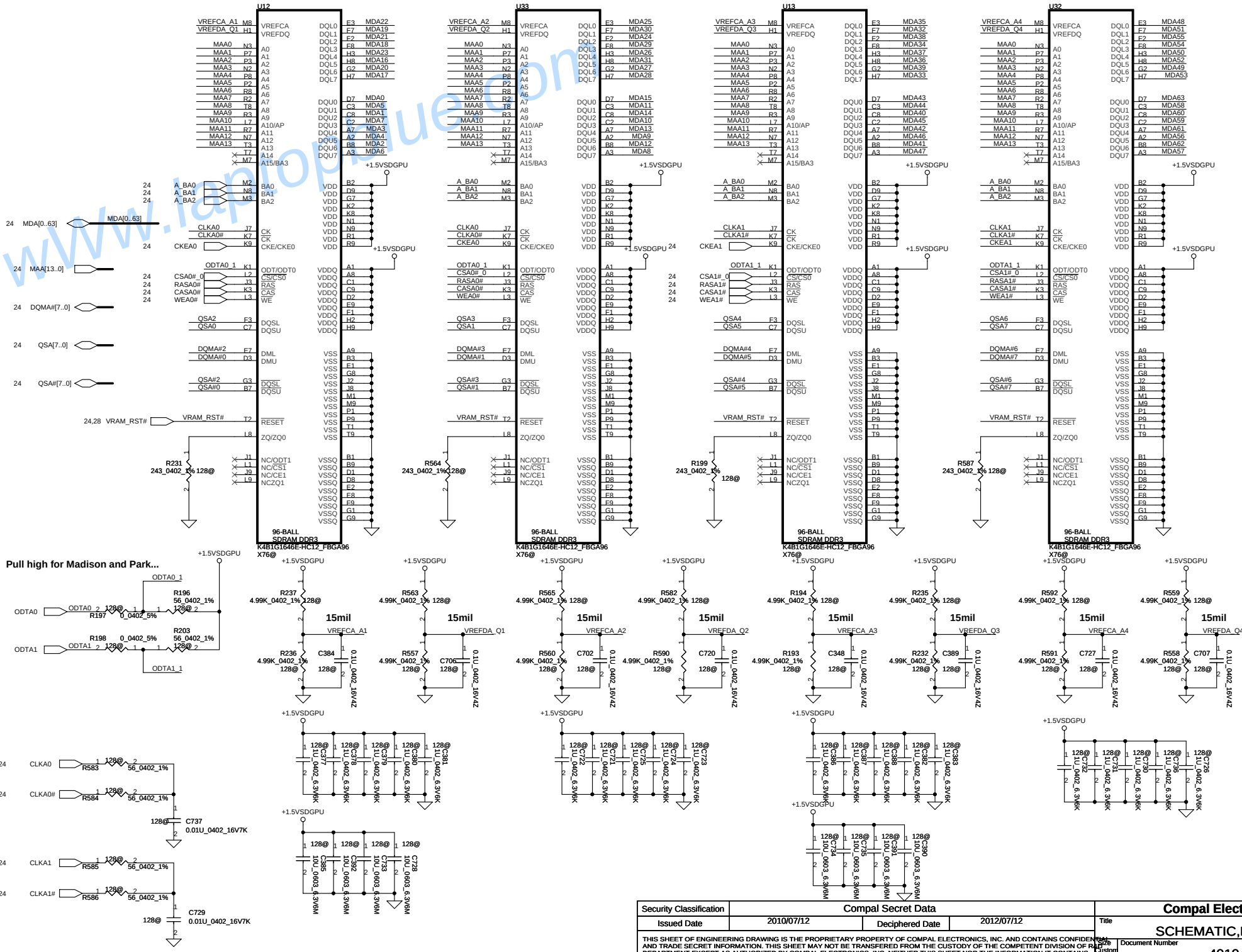
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 26 of 60



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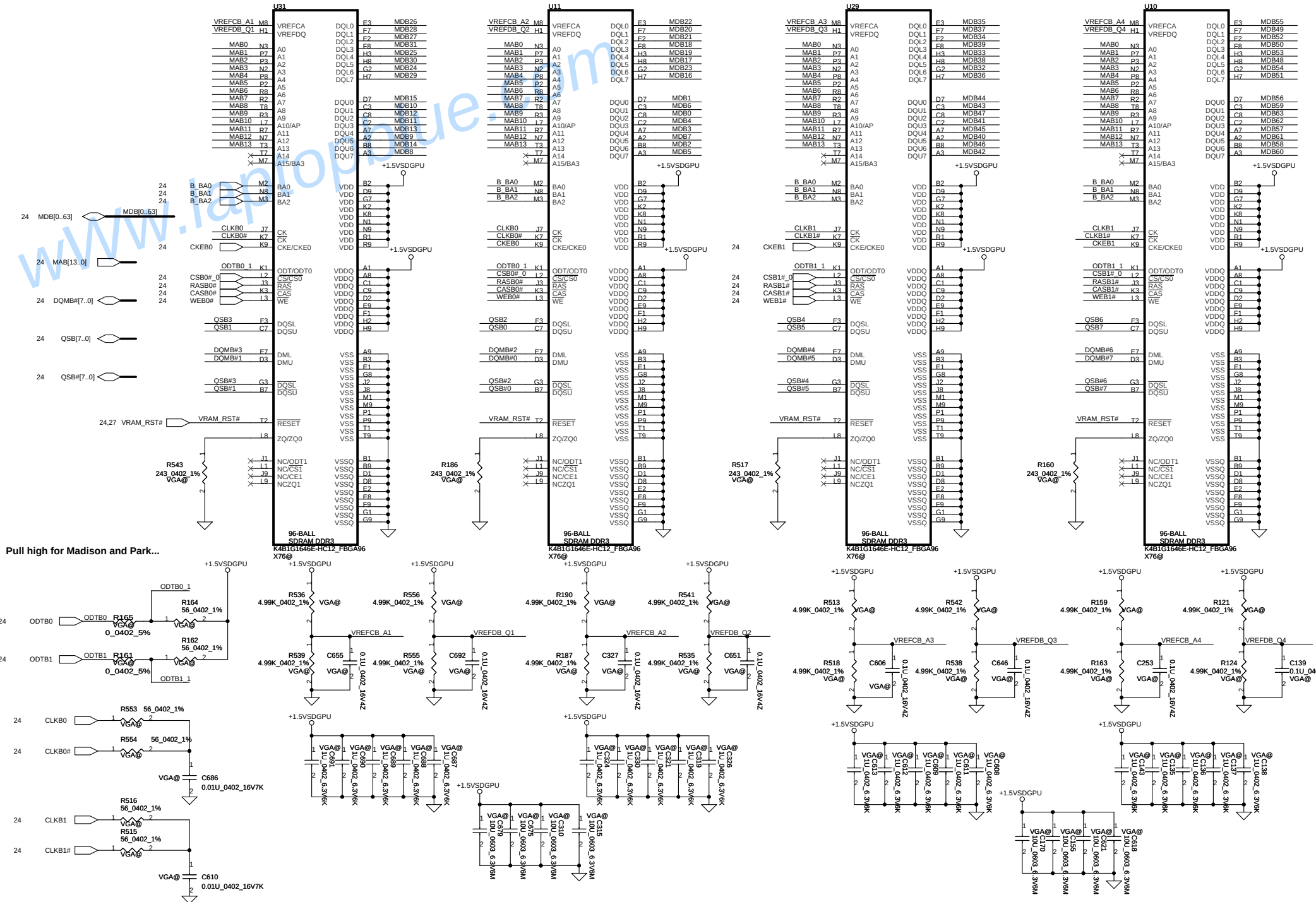
Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 27 of 60



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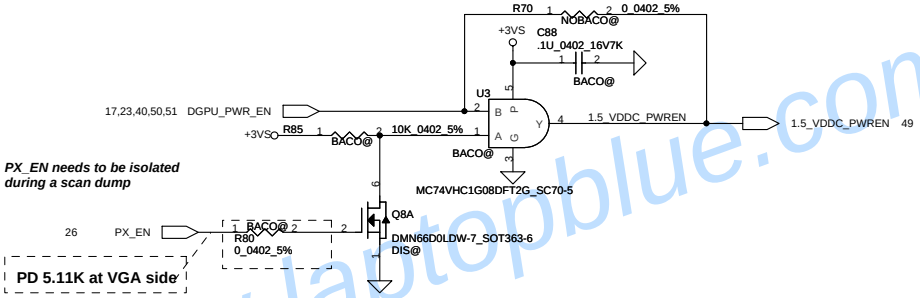
Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

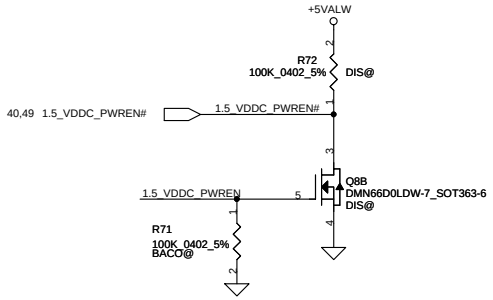
Date: Tuesday, November 09, 2010 | Sheet 28 of 60



PX_EN needs to be isolated during a scan dump

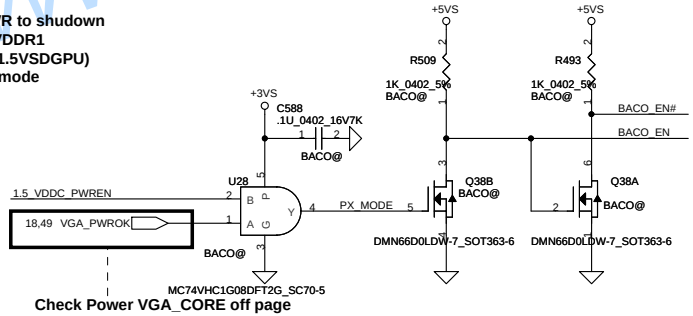
PX_EN = 1, For BACO Mode
PX_EN = 0, For Normal Mode

PX_EN:
Connect to PWR to shudown VDDC/VDDCI/VDDR1 (VGA_CORE,+1.5VSDGPU) High in BACO mode



BACO_EN/BACO_EN#:
0: BACO Mode->BACO_EN High->
BIF_VDDC=+1.0VSDGPU(N-MOS),VGA_CORE(P-MOS)

1: Normal mode->BACO_EN# High->
BIF_VDDC=+VGA_CORE(N-MOS),VGA_CORE(N-MOS)



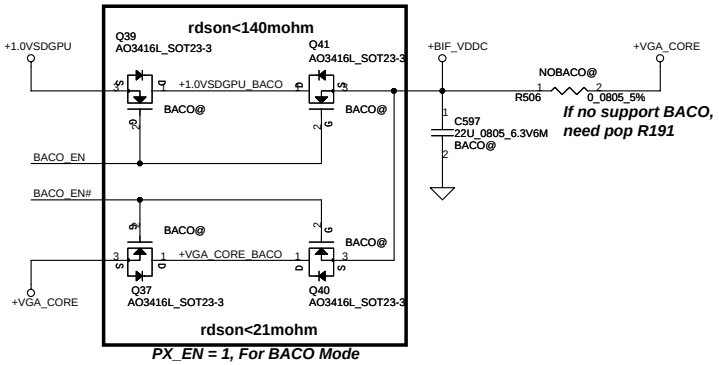
BACO_EN#=1 (BACO mode)
BACO_EN#=0 (Normal mode)

BACO_EN=0 (BACO mode)
BACO_EN=1 (Normal mode)

Check Power VGA_CORE off page

VGA Status Mapping table		
	Normal mode	BACO mode
PX_EN	0	1
1.5_VDDC_PWREN	1	0
BACO_EN#	1	0
BACO_EN	0	1
+3VSDGPU	ON	ON
+1.8VSDGPU	ON	ON
+1.0VSDGPU	ON	ON
+VGA_CORE	ON	OFF
+1.5VSDGPU	ON	OFF
+BIF_VDDC	+VGA_CORE	+1.0VSDGPU

VGA Power Enable Signal Mapping table		
	Graville	Whistler and Seymour
+3VSDGPU	DGPU_PWR_EN	SUSP#
+1.8VSDGPU	DGPU_PWR_EN	DGPU_PWR_EN
+1.0VSDGPU	DGPU_PWR_EN	DGPU_PWR_EN
+VDDCI	DGPU_PWR_EN	Combine with +VGA_CORE
+VGA_CORE	DGPU_PWR_EN	1.5_VDDC_PWREN
+1.5VSDGPU	DGPU_PWR_EN	1.5_VDDC_PWREN

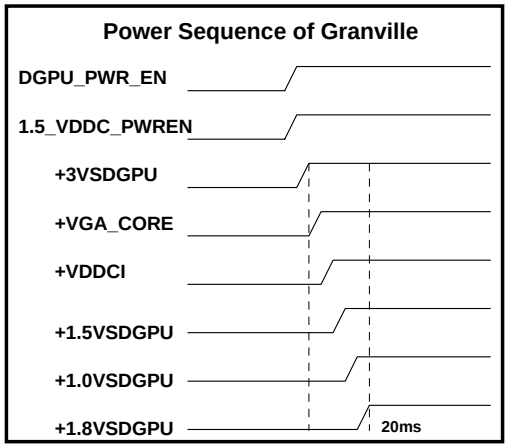


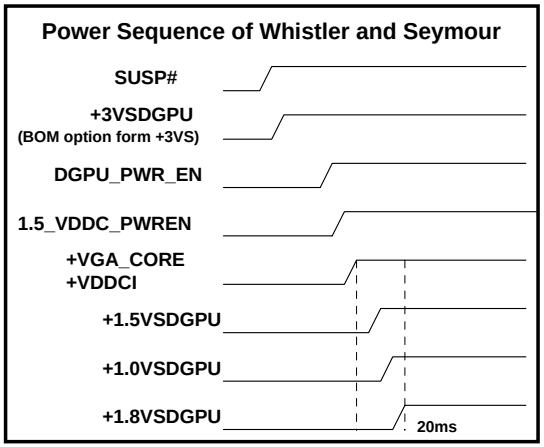
If no support BACO, need pop R191

PX_EN = 1, For BACO Mode
BACO_EN=0
BACO_EN#=1(5V)==> BIF_VDDC=+1.0VSDGPU
PX_EN = 0, For Normal Mode
BACO_EN=1(5V) ==> BIF_VDDC=VGA_CORE
BACO_EN#=0

For the MOSFETs on the path of delivering PCIE_VDDC(+1.0VSDGPU) to BIF_VDDC Rdson of 140 mOhms or less is required.

For the MOSFETs on the path of delivering VGA_CORE to BIF_VDDC, Rdson of 21 mOhms or less is required.





Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

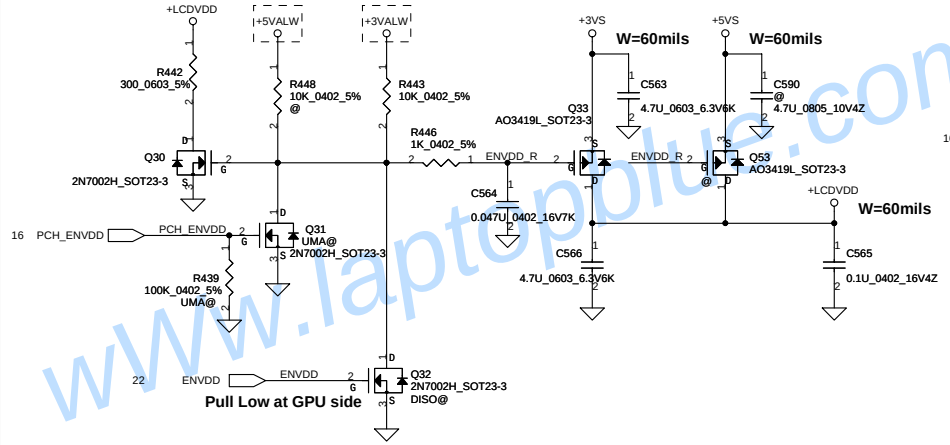
Title: SCHEMATIC,MB A6911

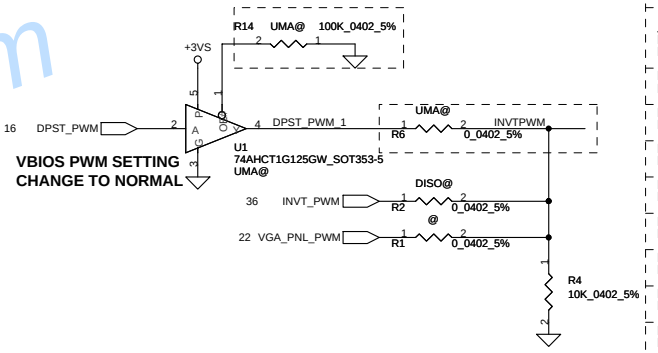
Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 29 of 60

100505 change to +3VALW
101029 add +5VALW

LCD POWER CIRCUIT

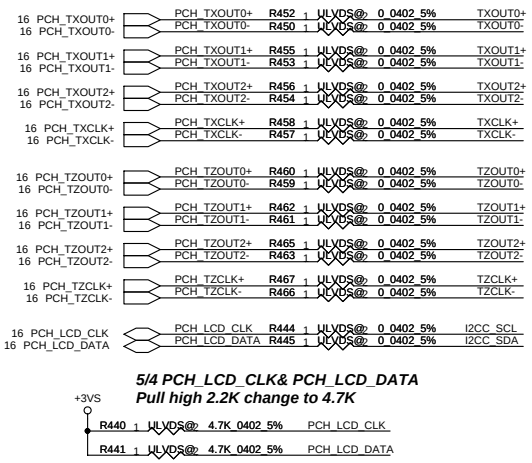




UMA/DIS LVDS/eDP Mapping table

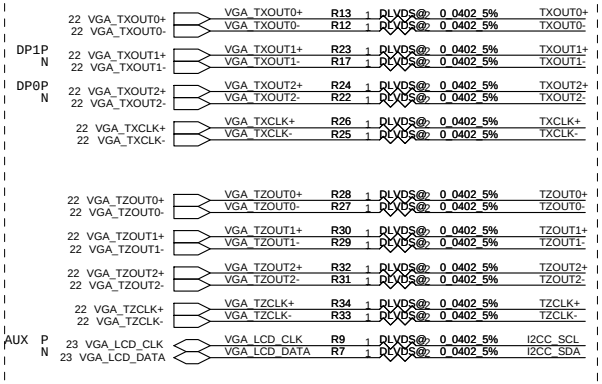
UMA		DIS		Panel
LVDS	eDP	LVDS	eDP	Conn.
PCH_TXOUT0+ PCH_TXOUT0-		VGA_TXOUT0+ VGA_TXOUT0-		TXOUT0+ TXOUT0-
PCH_TXOUT1+ PCH_TXOUT1-	EDP_TXP1 EDP_TXN1	VGA_TXOUT1+ VGA_TXOUT1-	DP1P DP1N	TXOUT1+ TXOUT1-
PCH_TXOUT2+ PCH_TXOUT2-	EDP_TXP0 EDP_TXN0	VGA_TXOUT2+ VGA_TXOUT2-	DP0P DP0N	TXOUT2+ TXOUT2-
PCH_TXCLK+ PCH_TXCLK-		VGA_TXCLK+ VGA_TXCLK-		TXCLK+ TXCLK-
PCH_TZOUT0+ PCH_TZOUT0-		VGA_TZOUT0+ VGA_TZOUT0-		TZOUT0+ TZOUT0-
PCH_TZOUT1+ PCH_TZOUT1-		VGA_TZOUT1+ VGA_TZOUT1-		TZOUT1+ TZOUT1-
PCH_TZOUT2+ PCH_TZOUT2-		VGA_TZOUT2+ VGA_TZOUT2-		TZOUT2+ TZOUT2-
PCH_TZCLK+ PCH_TZCLK-		VGA_TZCLK+ VGA_TZCLK-		TZCLK+ TZCLK-
PCH_TZCLK+ PCH_TZCLK-	EDP_AUXP EDP_AUXN	VGA_LCD_CLK VGA_LCD_DATA	AUXP AUXN	I2CC_SCL I2CC_SDA

UMA ONLY/Muxless

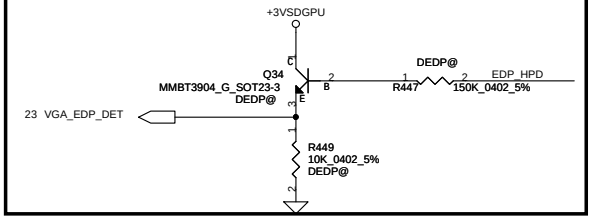


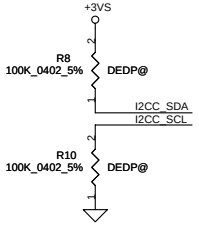
5/4 PCH_LCD_CLK& PCH_LCD_DATA
Pull high 2.2K change to 4.7K

Discrete ONLY



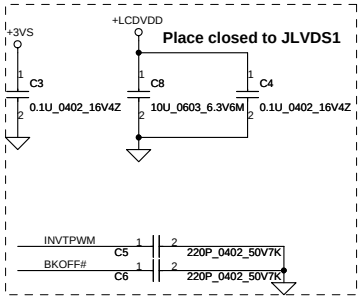
BOM option for Discrete eDP

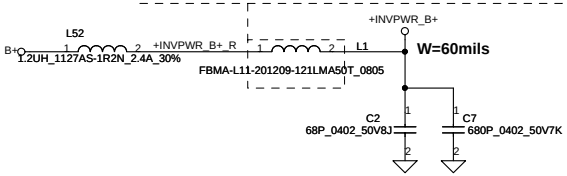


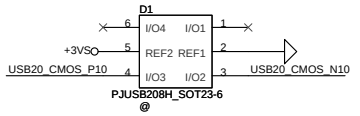


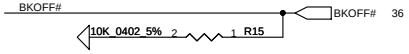
SM010014520 3000ma 220ohm@100mhz DCR 0.04

SM01000BY00 5000ma 120ohm@100mhz DCR 0.02

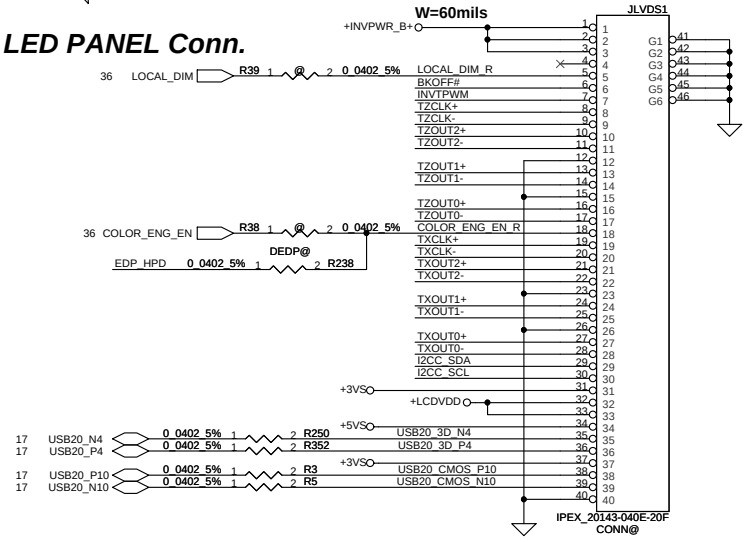








LED PANEL Conn.



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

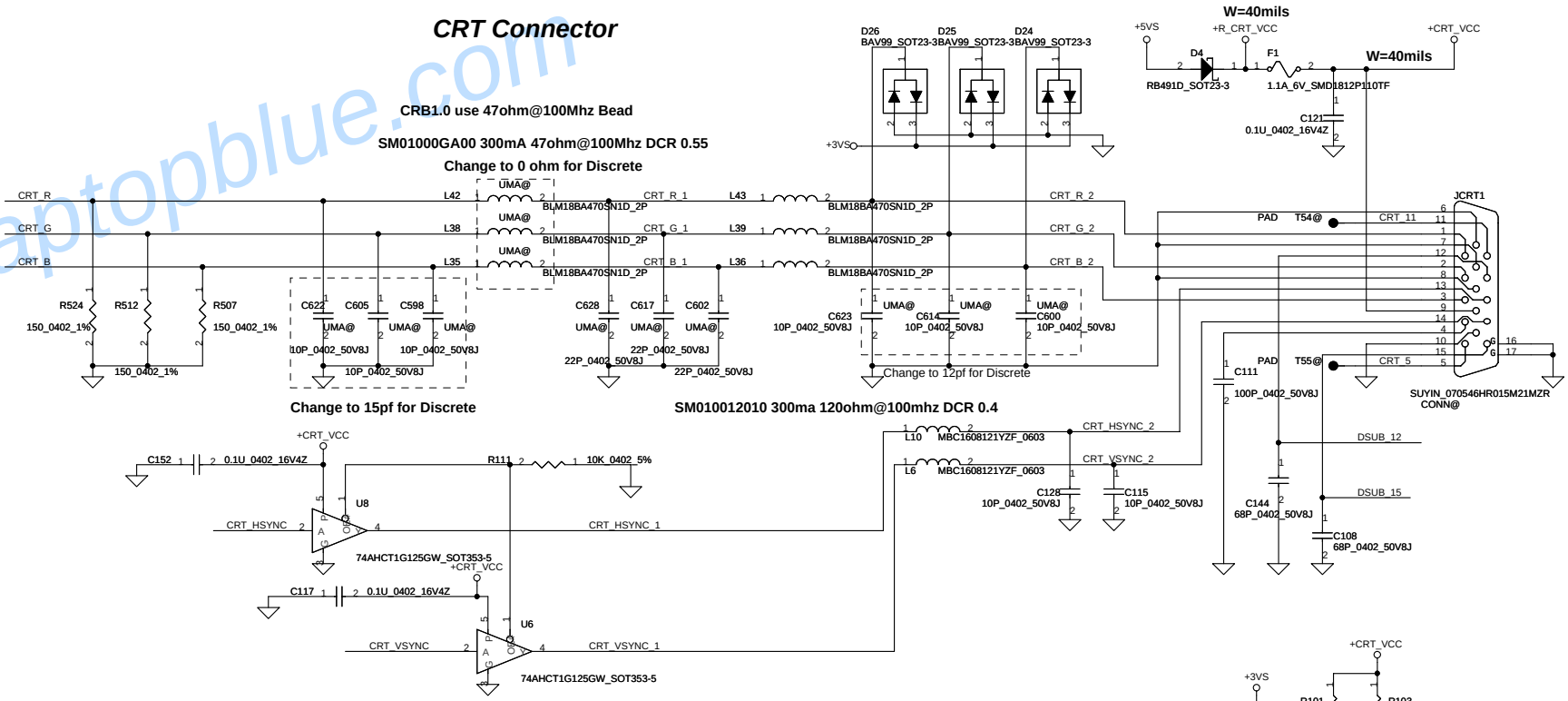
Date: Tuesday, November 09, 2010 | Sheet 30 of 60

CRT Connector

CRB1.0 use 47ohm@100Mhz Bead

SM01000GA00 300mA 47ohm@100Mhz DCR 0.55

Change to 0 ohm for Discrete



UMA only/Muxless

16 PCH_CRT_R	PCH_CRT_R	R529	UMA@	0_0402_5%	CRT_R
16 PCH_CRT_G	PCH_CRT_G	R519	UMA@	0_0402_5%	CRT_G
16 PCH_CRT_B	PCH_CRT_B	R511	UMA@	0_0402_5%	CRT_B
16 PCH_CRT_HSYNC	PCH_CRT_HSYNC	R137	UMA@	33_0402_5%	CRT_HSYNC
16 PCH_CRT_VSYNC	PCH_CRT_VSYNC	R110	UMA@	33_0402_5%	CRT_VSYNC
16 PCH_CRT_CLK	PCH_CRT_CLK	R102	UMA@	0_0402_5%	CRT_DDC_CLK
16 PCH_CRT_DATA	PCH_CRT_DATA	R89	UMA@	0_0402_5%	CRT_DDC_DATA

PCH DDC PU 2.2K on Page 17

Discrete only

23 VGA_CRT_R	VGA_CRT_R	R527	DISC@	0_0402_5%	CRT_R
23 VGA_CRT_G	VGA_CRT_G	R514	DISC@	0_0402_5%	CRT_G
23 VGA_CRT_B	VGA_CRT_B	R510	DISC@	0_0402_5%	CRT_B
23 VGA_CRT_HSYNC	VGA_CRT_HSYNC	R131	DISC@	0_0402_5%	CRT_HSYNC
23 VGA_CRT_VSYNC	VGA_CRT_VSYNC	R107	DISC@	0_0402_5%	CRT_VSYNC
23 VGA_DDC_CLK	VGA_DDC_CLK	R98	DISC@	0_0402_5%	CRT_DDC_CLK
23 VGA_DDC_DATA	VGA_DDC_DATA	R86	DISC@	0_0402_5%	CRT_DDC_DATA

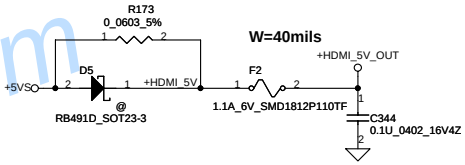
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

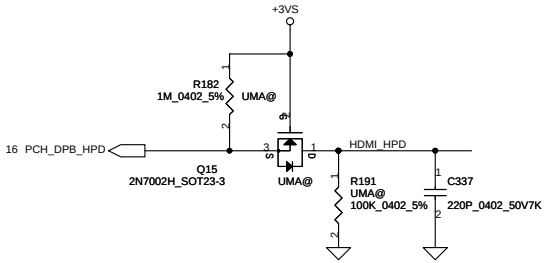
Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

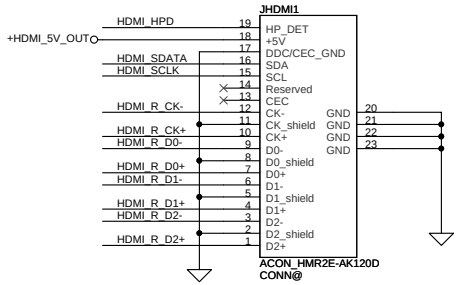
Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 31 of 60

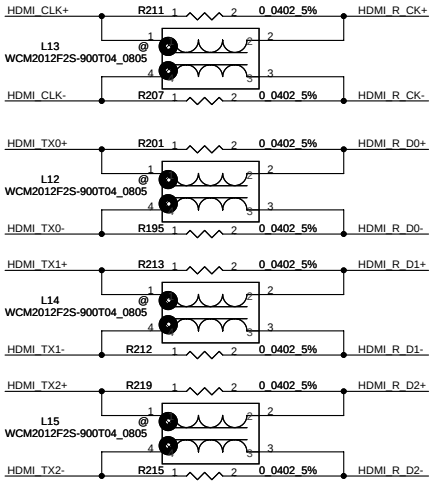


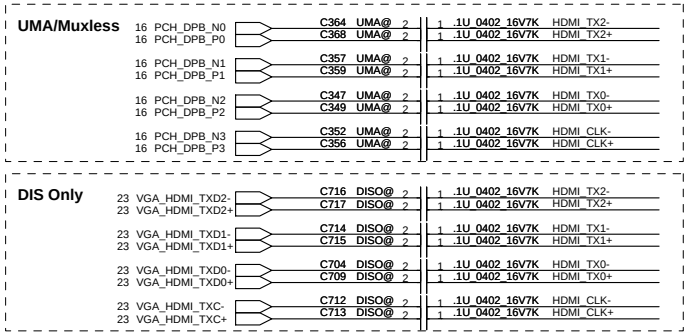


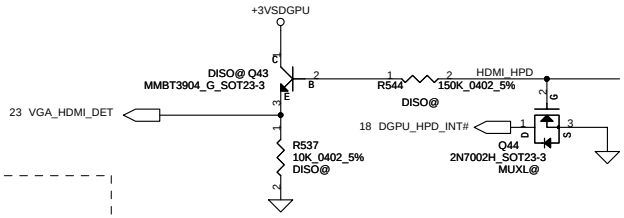
HDMI connector

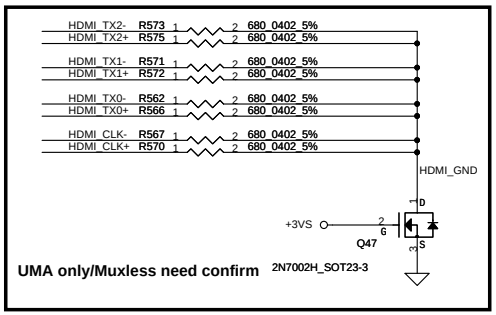


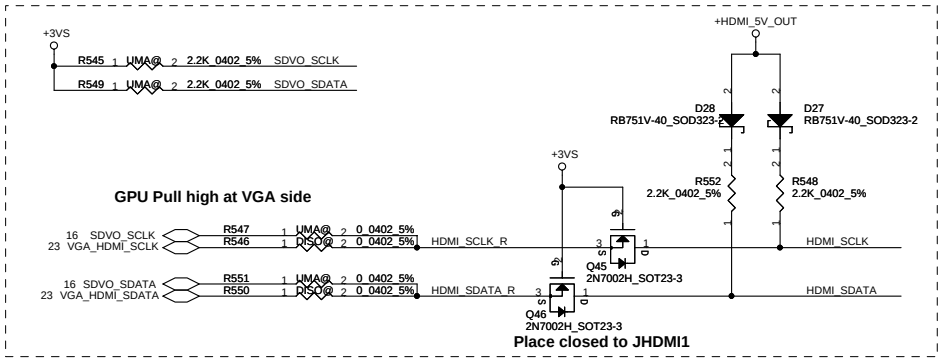
SM070001310 400ma 90ohm@100mhz DCR 0.3











Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

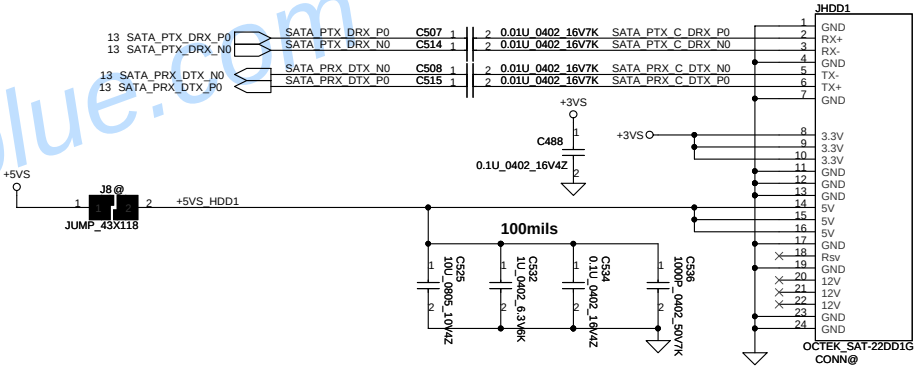
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 32 of 60

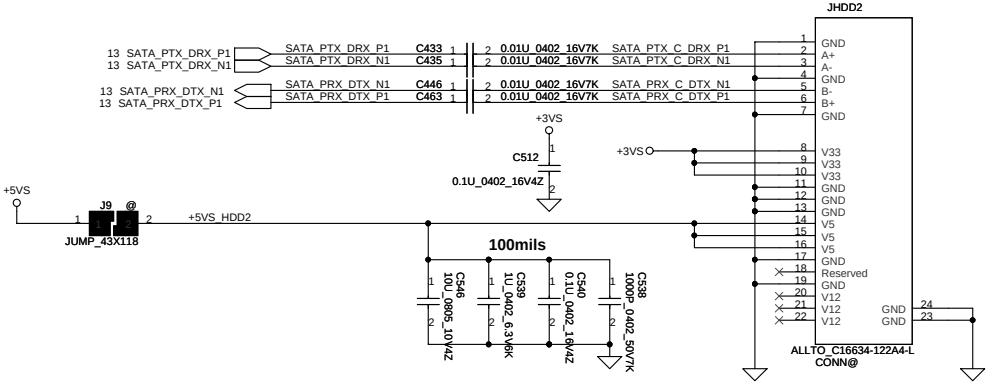
SATA HDD1 Conn.

CL 2.9 mm

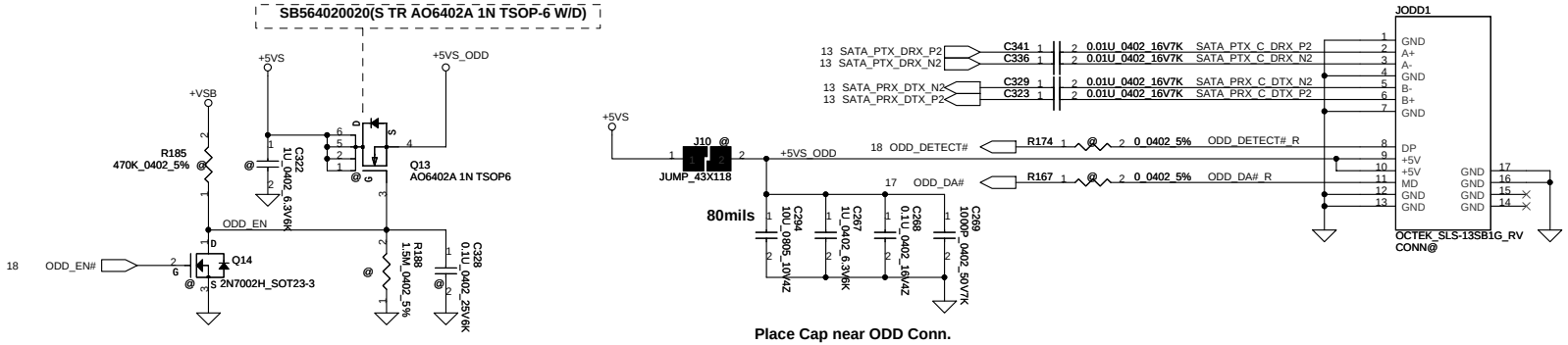


SATA HDD2 Conn.

CL 4.4 mm



SATA ODD Conn.



Place Cap near ODD Conn.

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

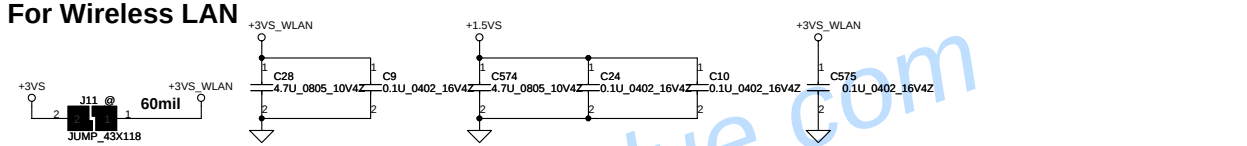
Compal Electronics, Inc.

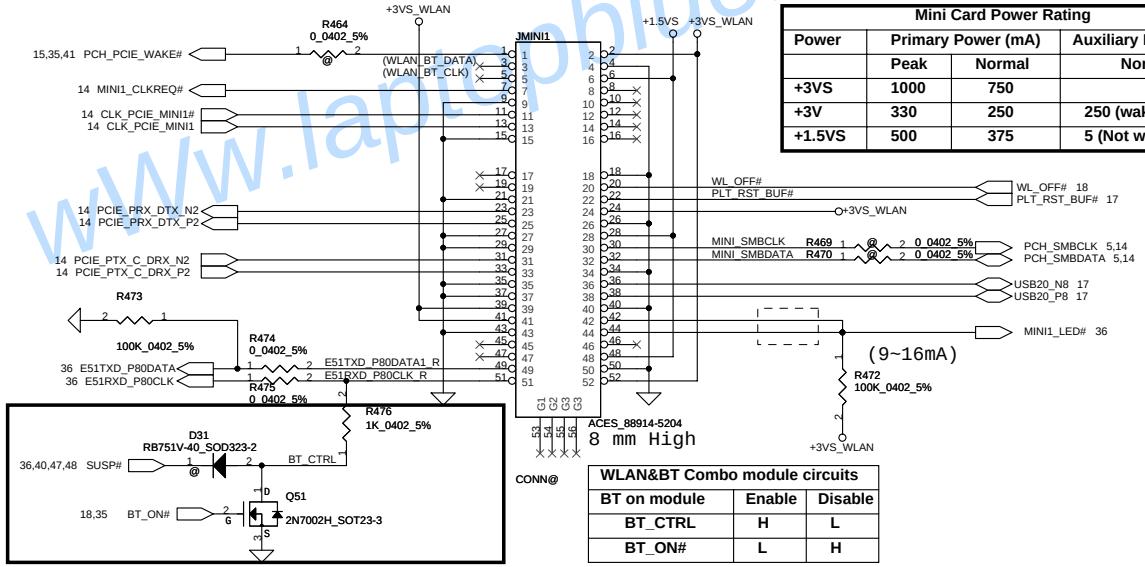
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 33 of 60

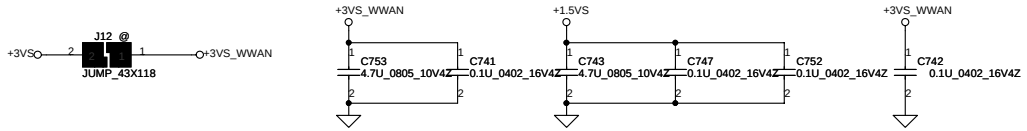
For Wireless LAN

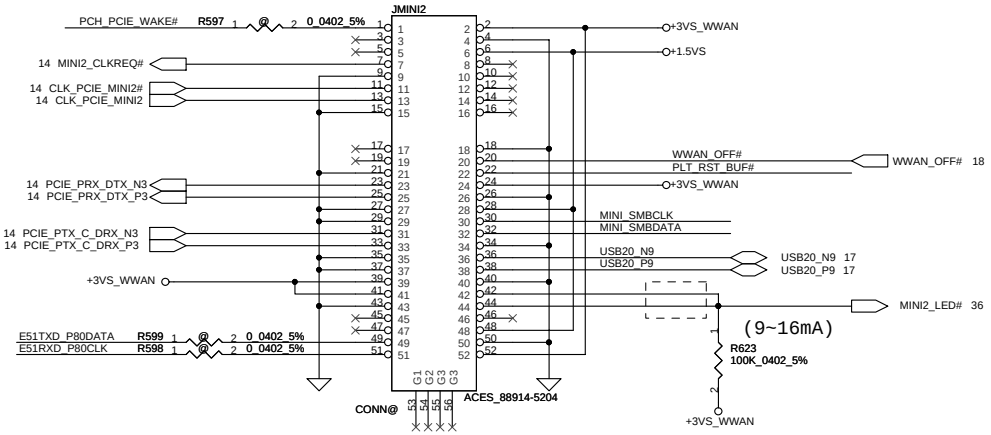




Mini Card Power Rating			
Power	Primary Power (mA)		Auxiliary Power (mA)
	Peak	Normal	Normal
+3VS	1000	750	
+3V	330	250	250 (wake enable)
+1.5VS	500	375	5 (Not wake enable)

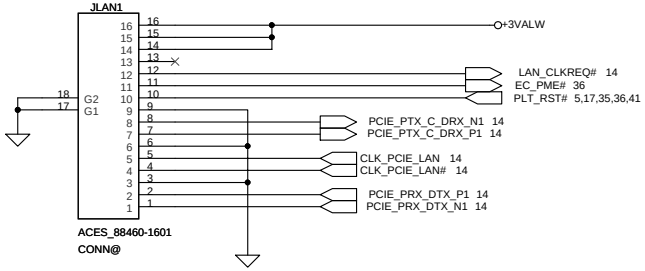
WLAN&BT Combo module circuits		
BT on module	Enable	Disable
BT_CTRL	H	L
BT_ON#	L	H





8 mm High

LAN CONN. *LS-6912P*



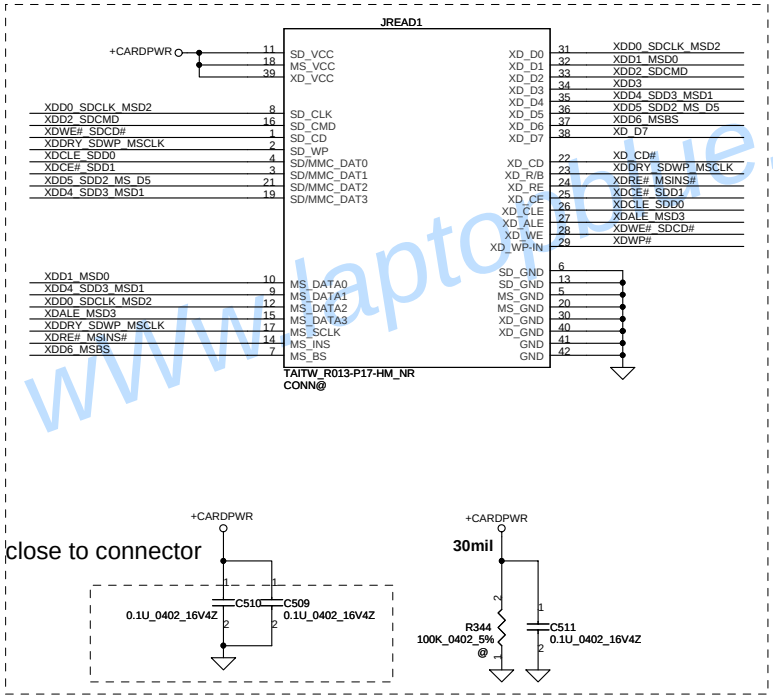
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

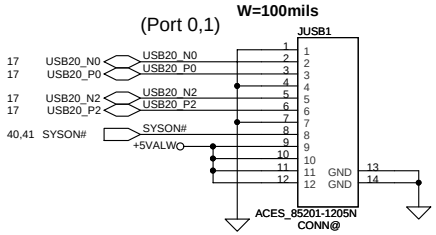
Date: Tuesday, November 09, 2010 | Sheet 34 of 60



close to connector

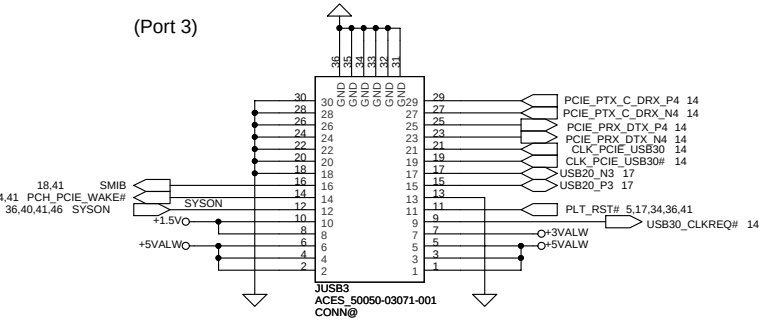
LS-6911P
USB/B Conn. (USB2.0 SKU)

(Port 0,1)



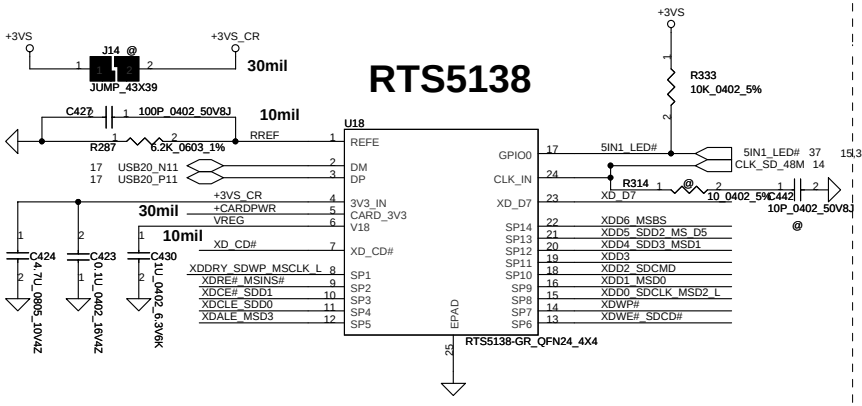
USB/B USB3.0 Conn.(USB3.0 SKU)

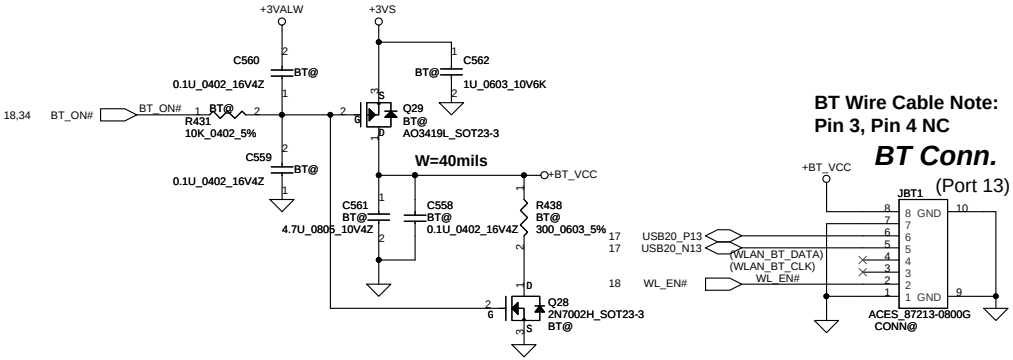
(Port 3)



Pull high @ USB3.0/B side

RTS5138

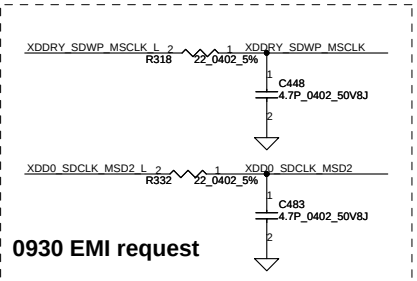




BT Wire Cable Note:
Pin 3, Pin 4 NC

BT Conn.

(Port 13)



0930 EMI request

	XD	SD	MS
	XD_CD#		
SP1	XD_RDY	SD_WP	MS_CLK
SP2	XD_RE#		MS_INS#
SP3	XD_CE#	SD_D1	
SP4	XD_CLE	SD_D0	
SP5	XD_ALE		MS_D3
SP6	XD_WE#	SD_CD#	
SP7	XD_WP		
SP8	XD_D0	SD_CLK	MS_D2
SP9	XD_D1		MS_D0
SP10	XD_D2	SD_CMD	
SP11	XD_D3		
SP12	XD_D4	SD_D3	MS_D1
SP13	XD_D5	SD_D2	
SP14	XD_D6		MS_BS
	XD_D7		

Share Pin

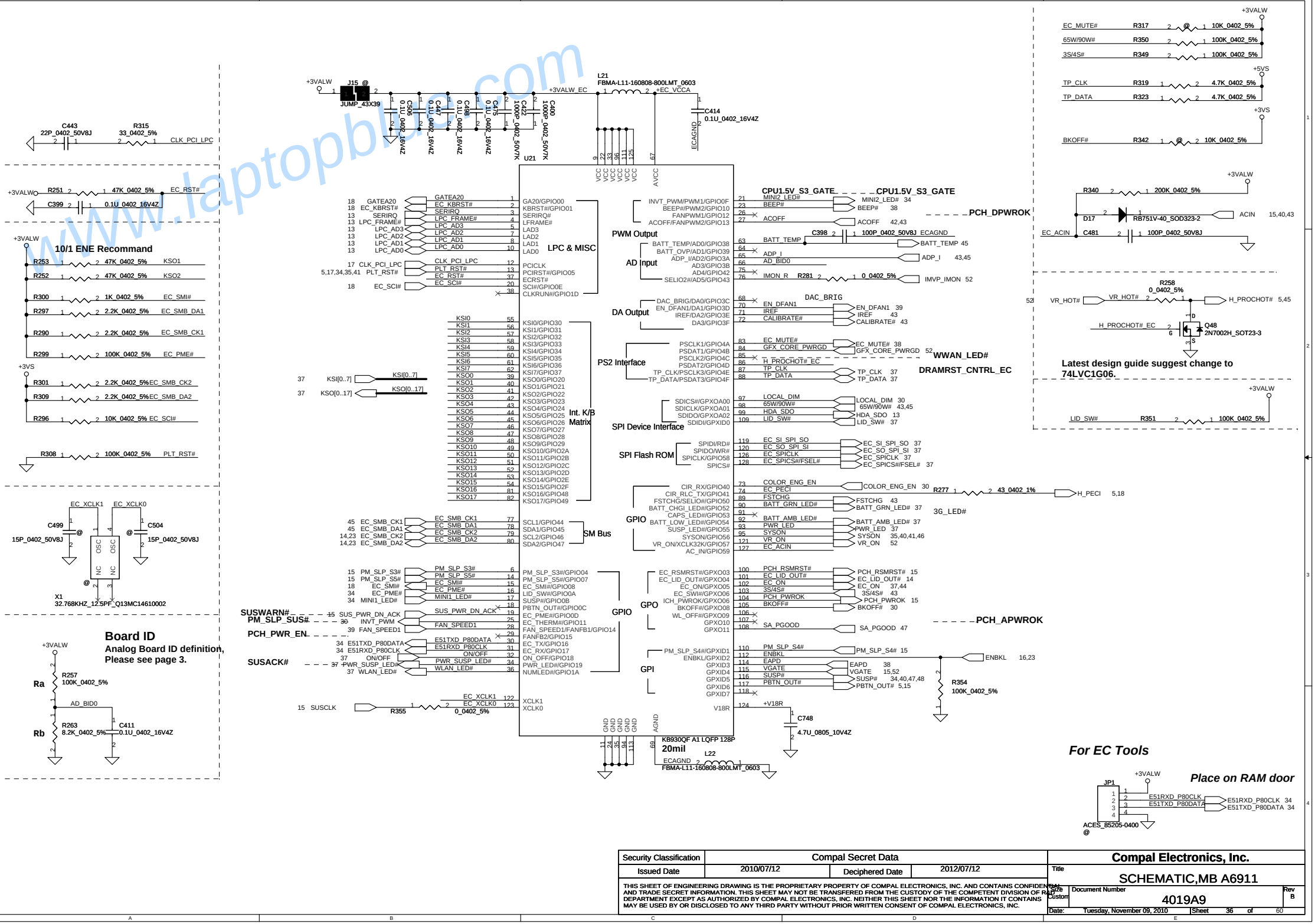
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 35 of 60



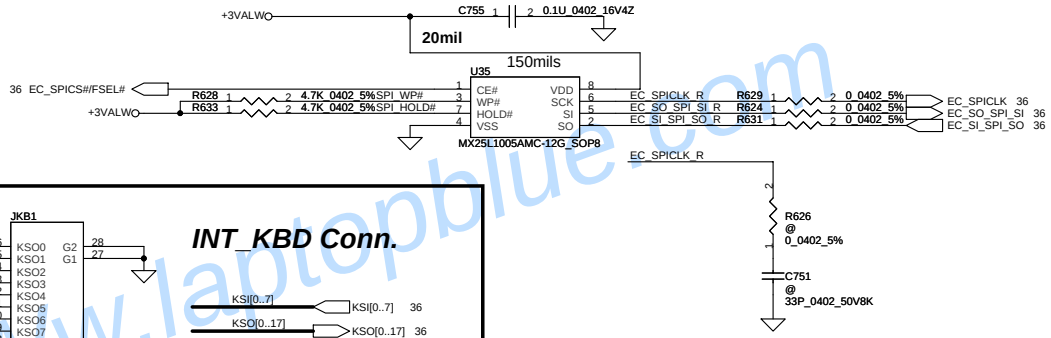
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

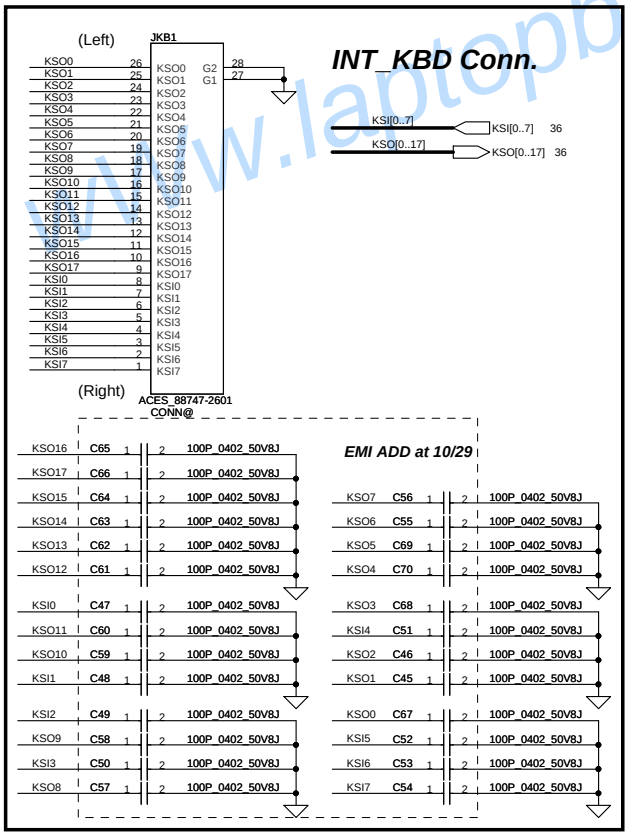
Compal Electronics, Inc.

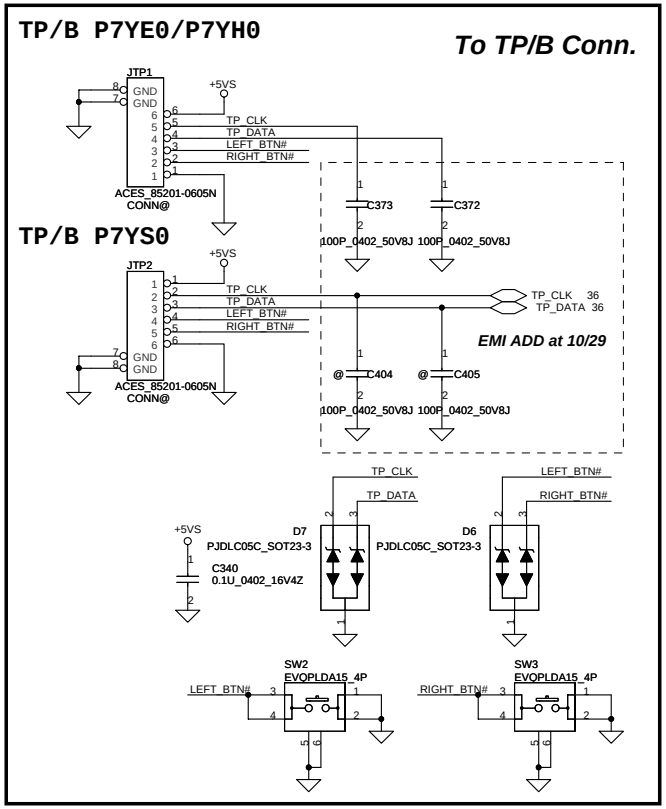
Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

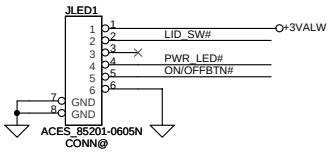
Date: Tuesday, November 09, 2010 | Sheet 36 of 60



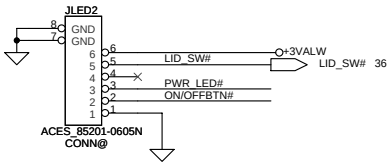




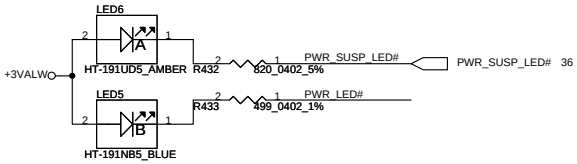
LED/B P7YE0/P7YH0 LS-6913P

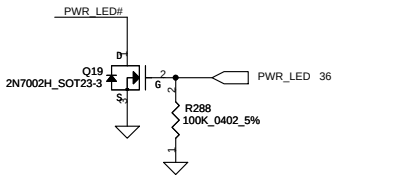


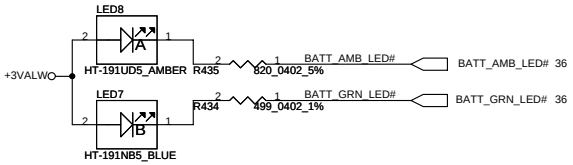
LED/B P7YS0 LS-6913P

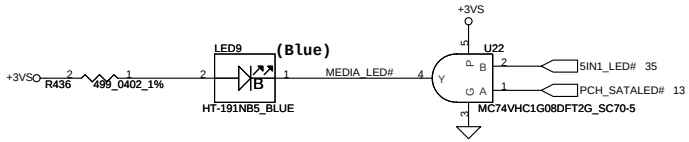


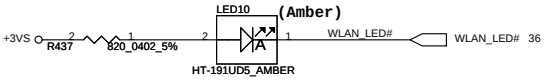
LED Status	Power/SUS		Battery		3G/WLAN		BlueTooth	ACIN
	ON	SUS	Full	Charge	3G	WLAN		
NEW70/80/90	Blue	Amber	Blue		Blue	Amber		





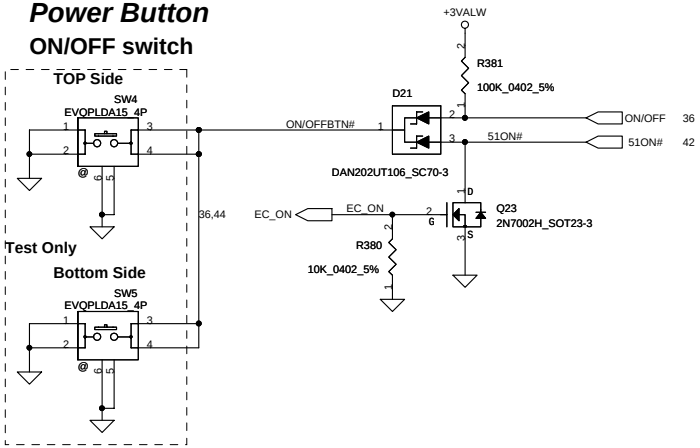






Power Button

ON/OFF switch



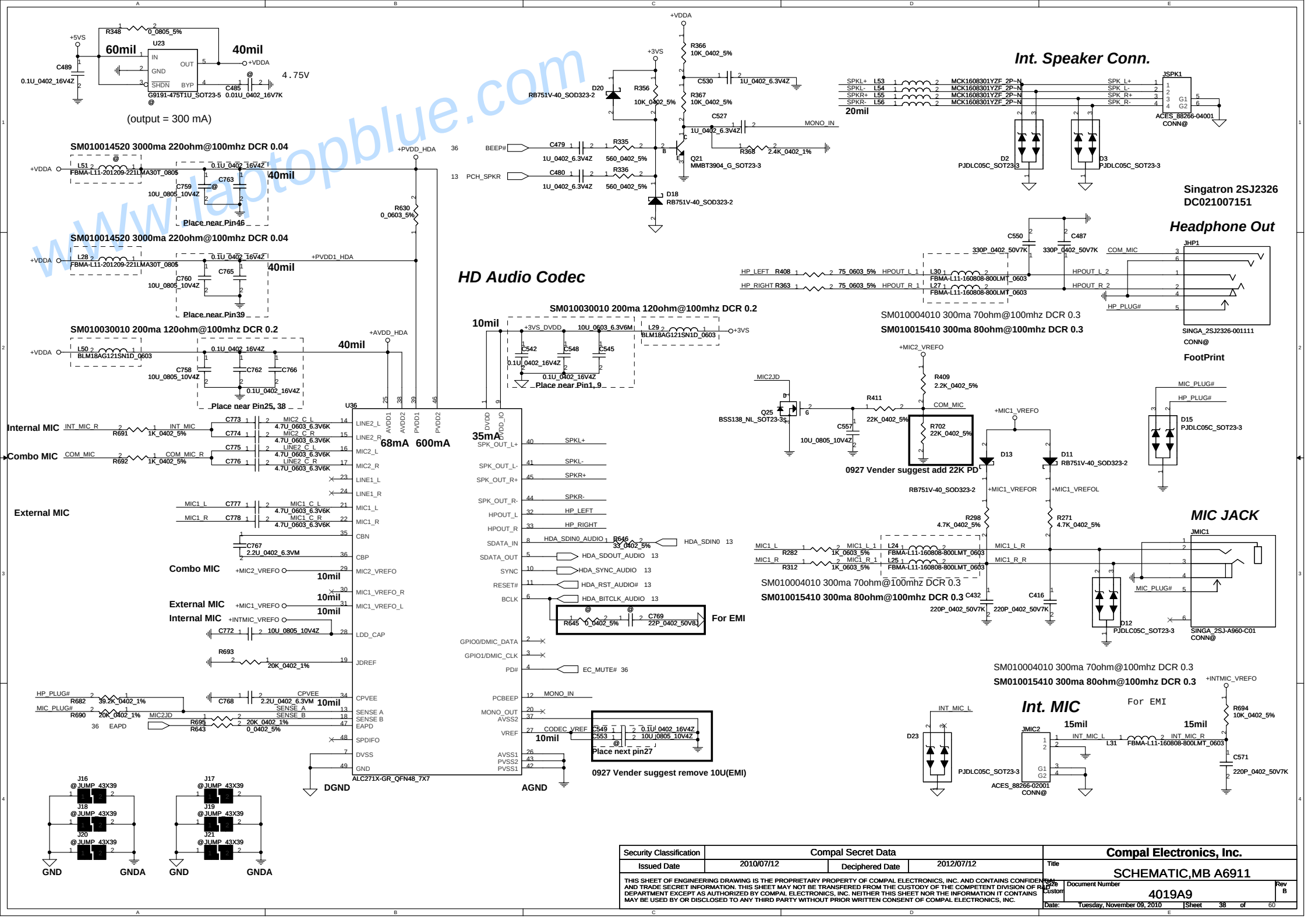
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

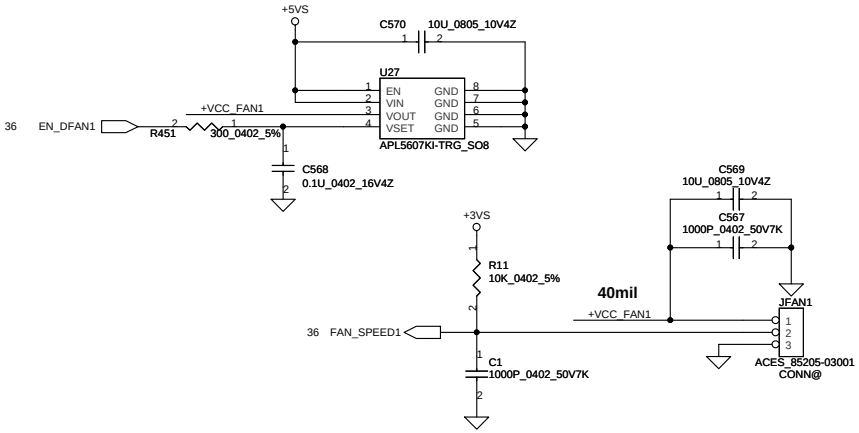
Date: Tuesday, November 09, 2010 | Sheet 37 of 60

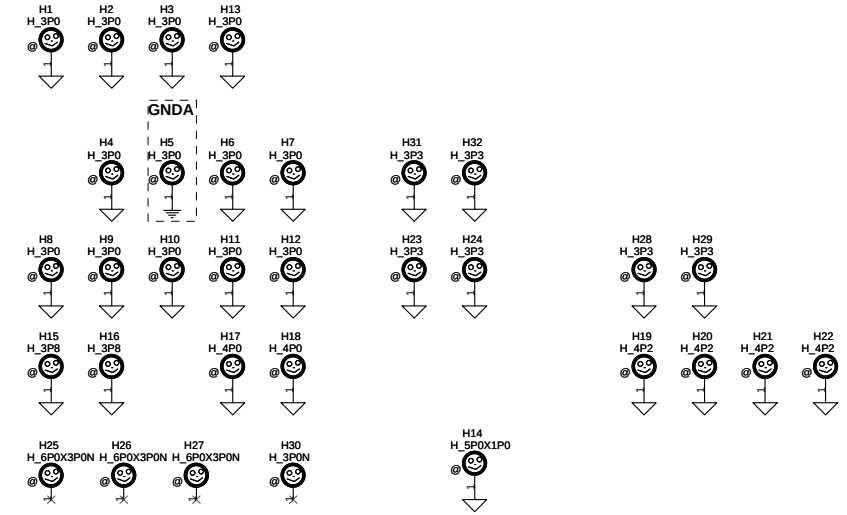


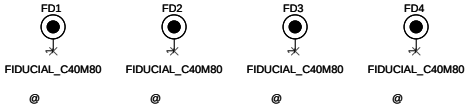
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 38 of 60

FAN1 Conn







Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

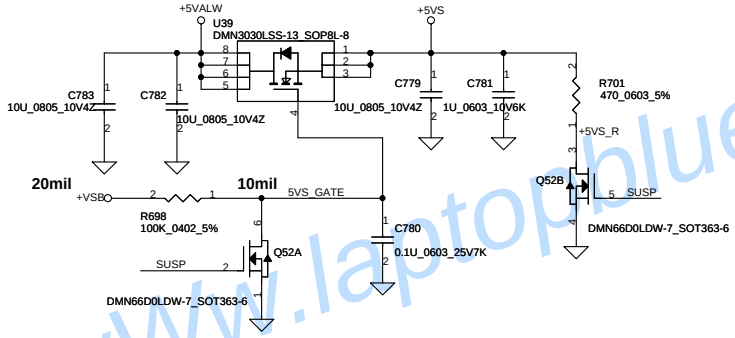
Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

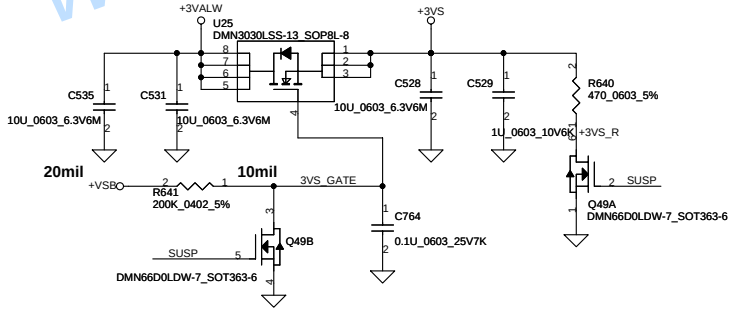
Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 39 of 60

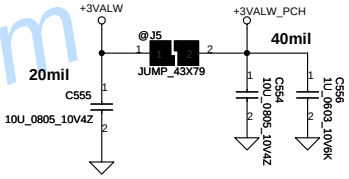
+5VALW TO +5VS



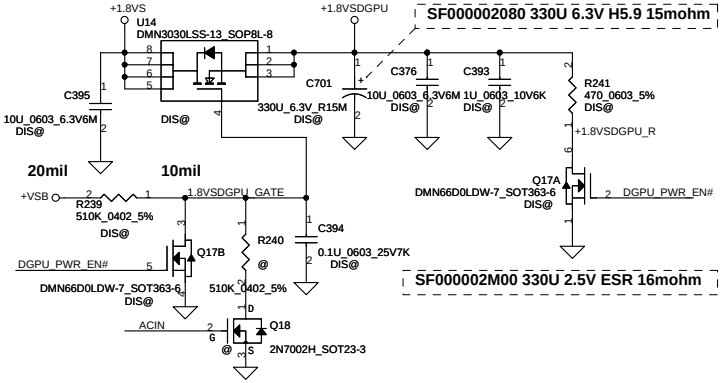
+3VALW TO +3VS



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

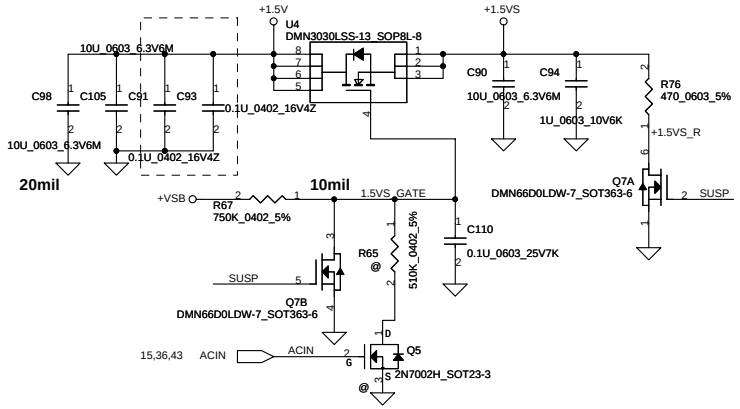


+1.8VS to +1.8VSDGPU for GPU

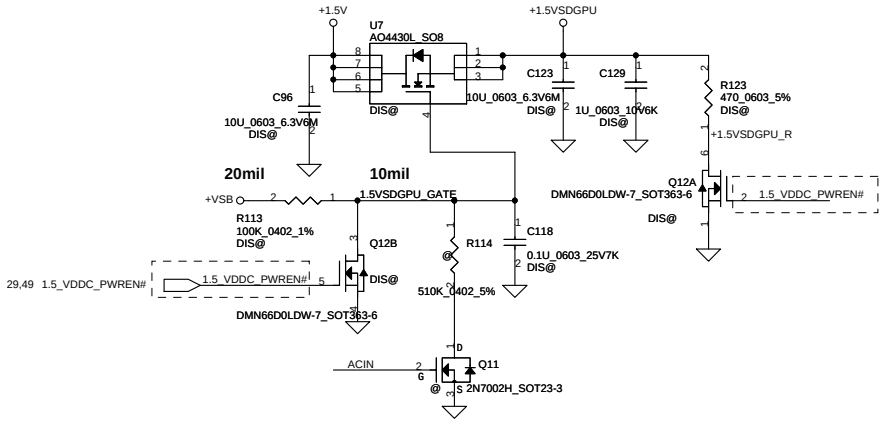


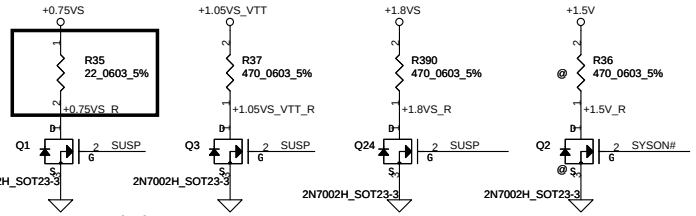
1211 EMI ADD 0.1U close PJ5

+1.5V to +1.5VS

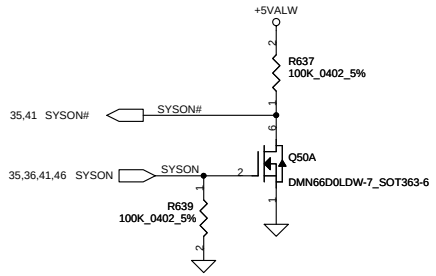


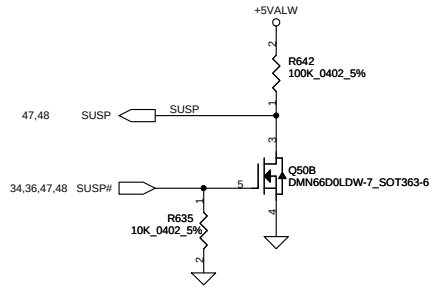
+1.5V to +1.5VSDGPU for GPU

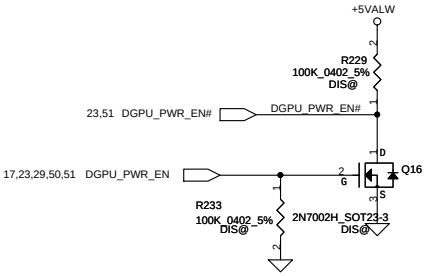




2009/08/14
CP_S3PowerReduction
WhitePaper_Rev0.9
0.75VS speed up discharge







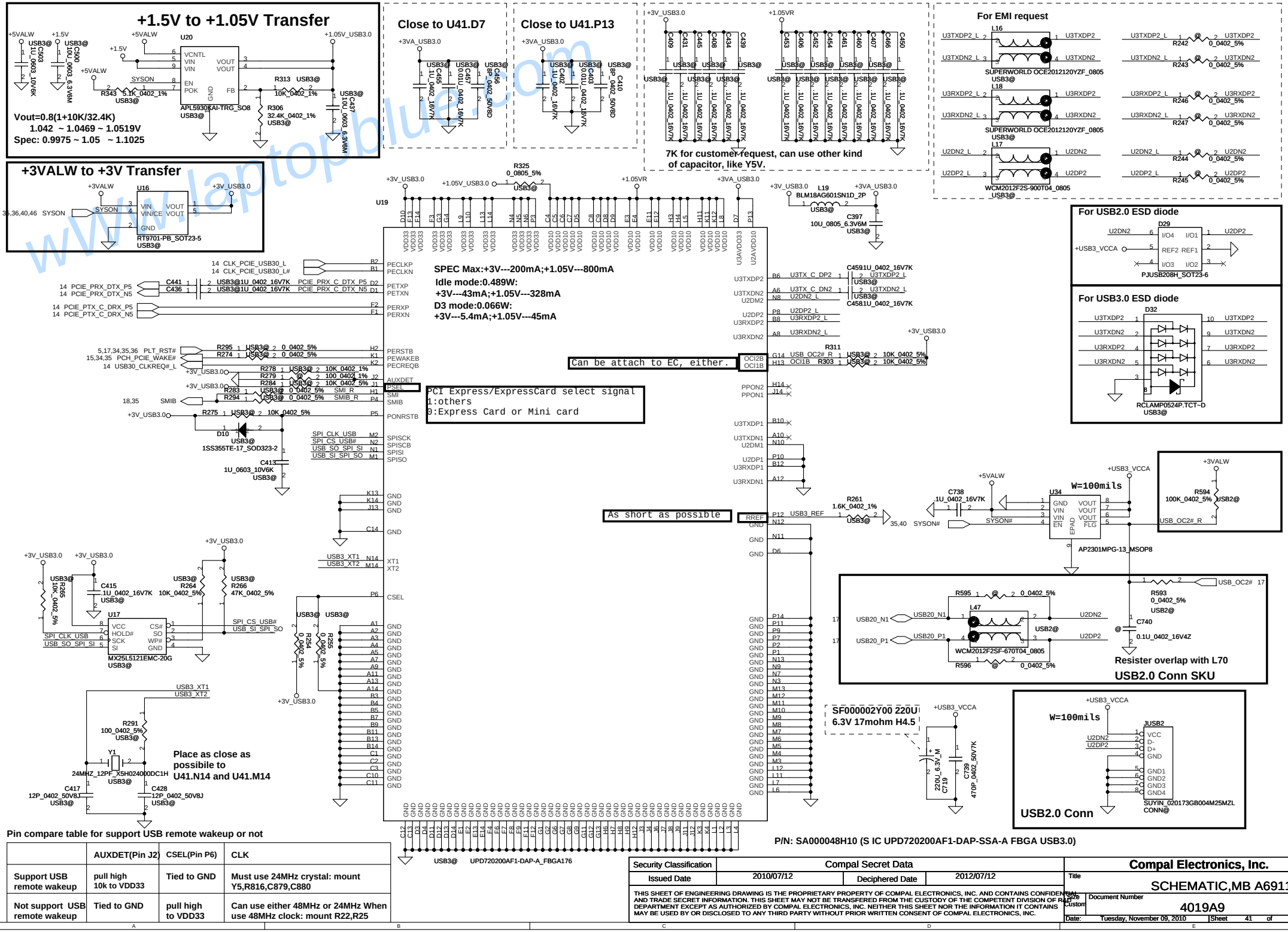
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 40 of 60

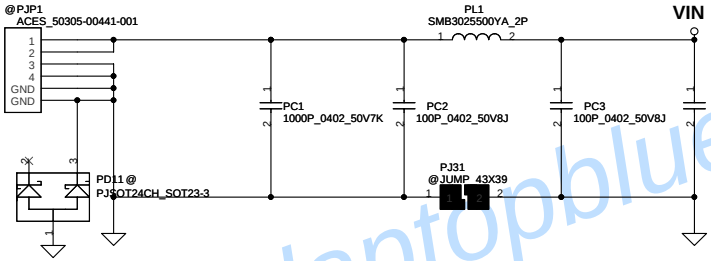


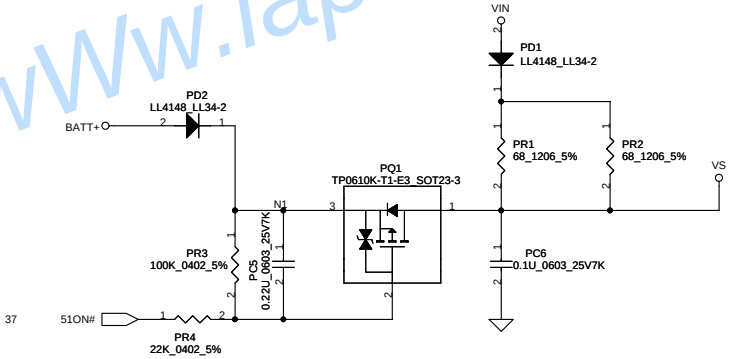
Pin compare table for support USB remote wakeup or not

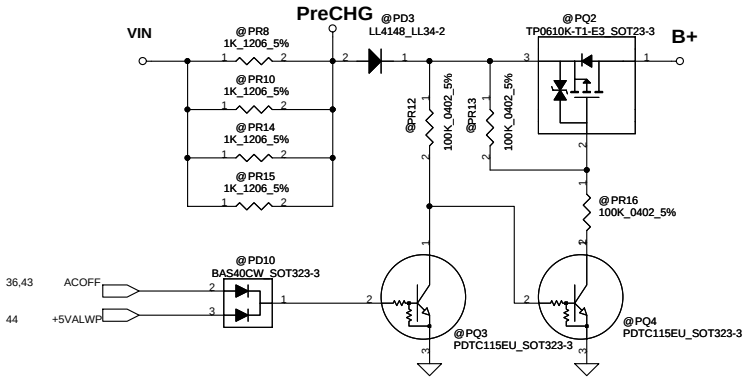
	AUXDET(Pin J2)	CSEL(Pin P6)	CLK
Support USB remote wakeup	pull high 10k to VDD33	Tied to GND	Must use 24MHz crystal: mount Y5,R816,C879,C880
Not support USB remote wakeup	Tied to GND	pull high to VDD33	Can use either 48MHz or 24MHz When use 48MHz clock: mount R22,R25

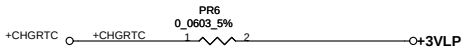
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

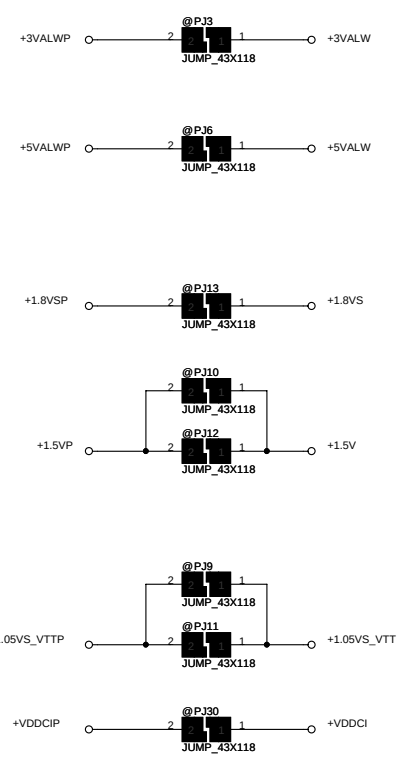
Compal Electronics, Inc.	
Title	SCHEMATIC,MB A6911
Size: Custom	Document Number: 4019A9
Rev	B
Date: Tuesday, November 09, 2010	Sheet 41 of 60

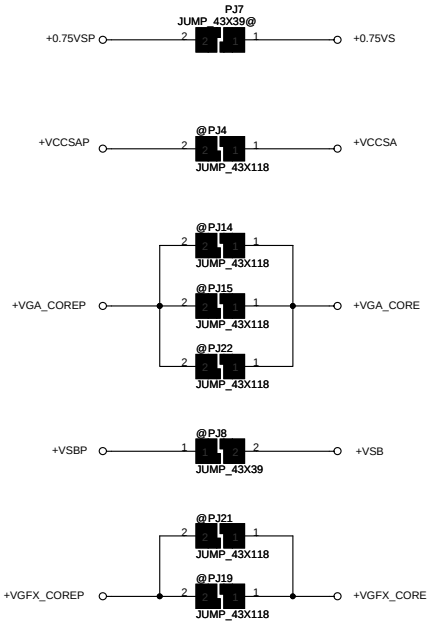












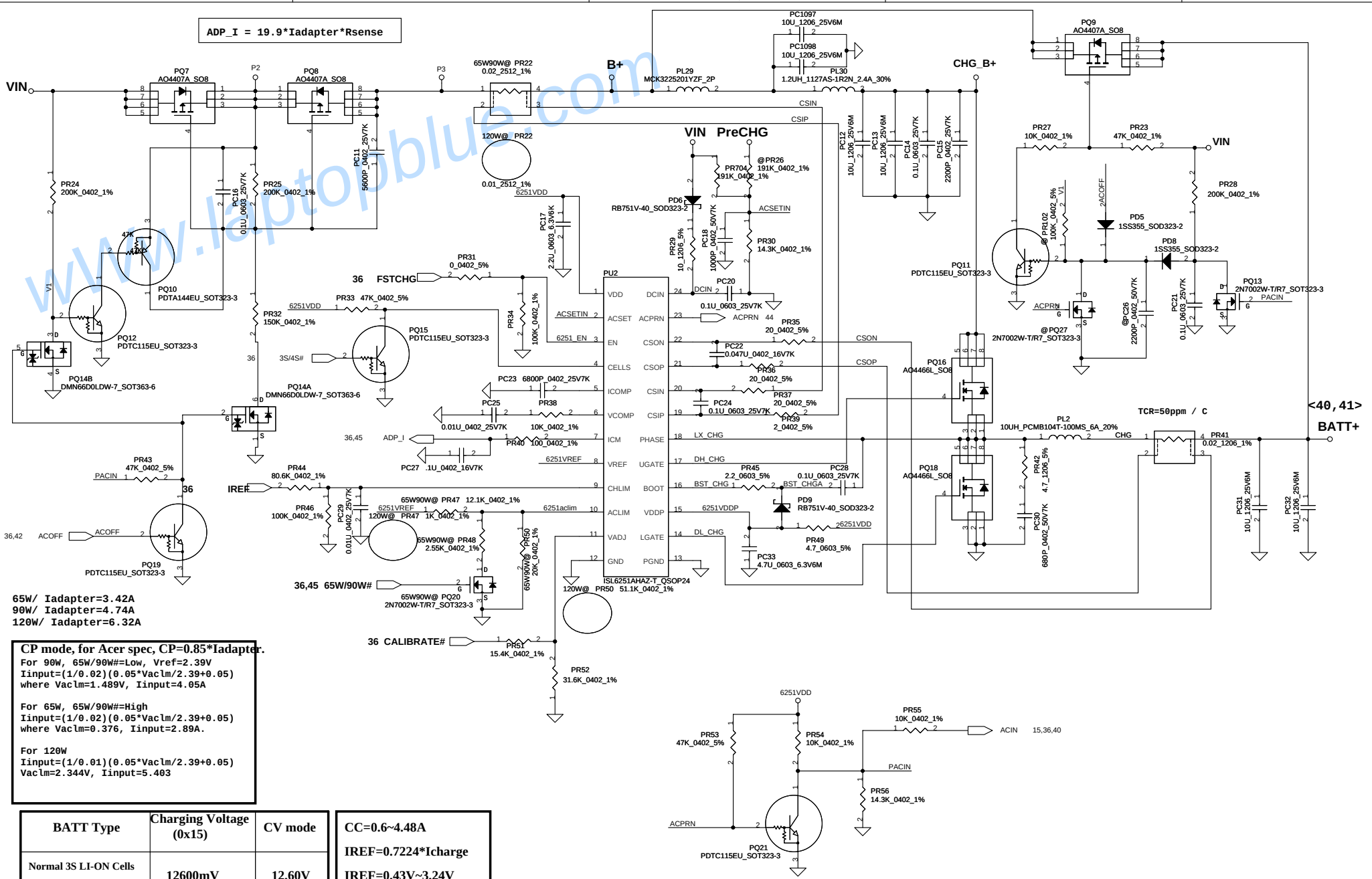
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

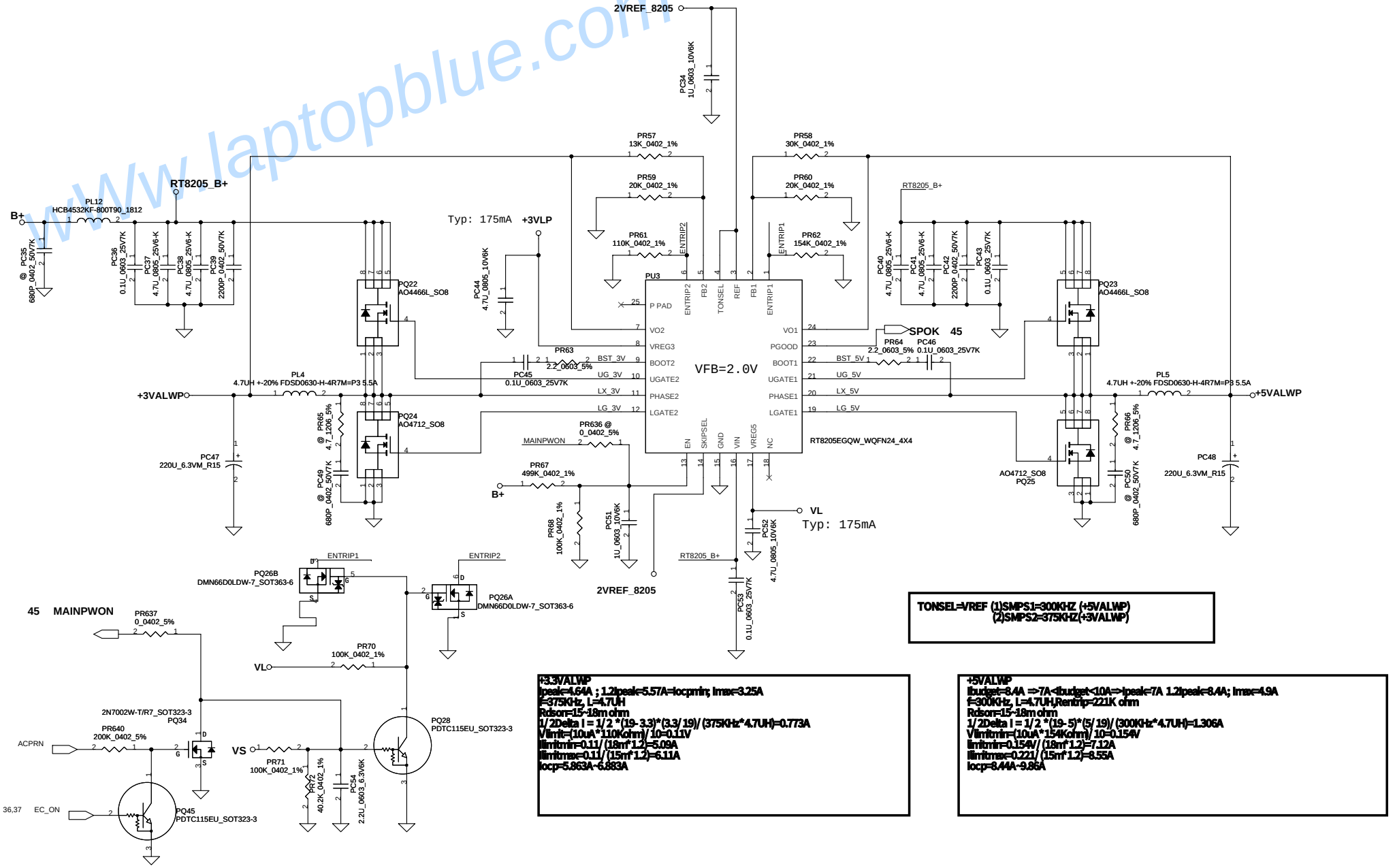
Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 42 of 60





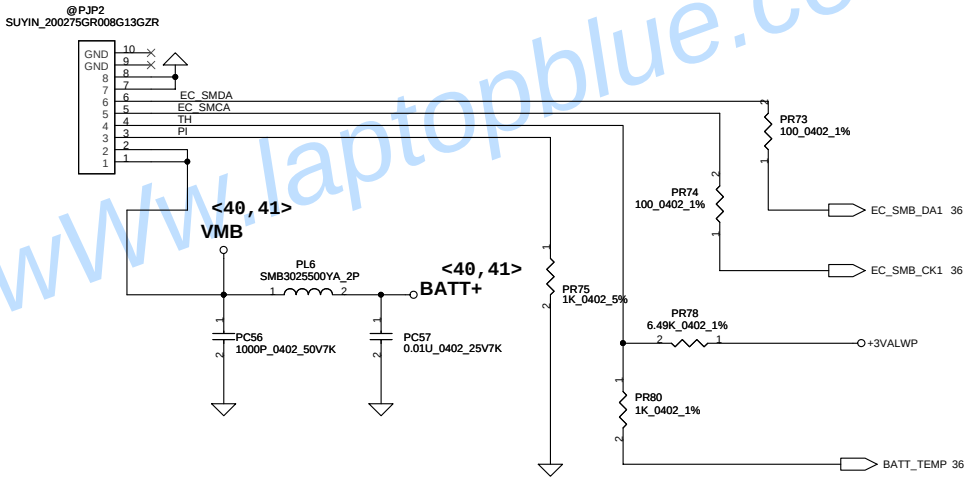
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

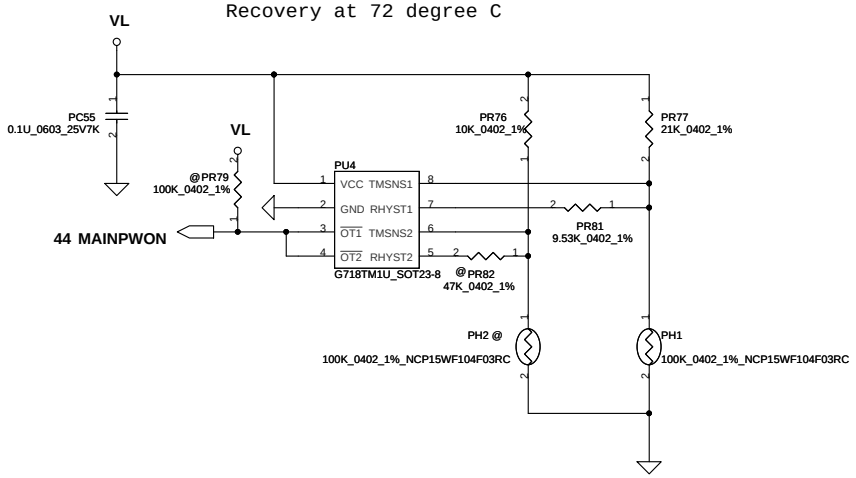
Title: SCHEMATIC,MB A6911

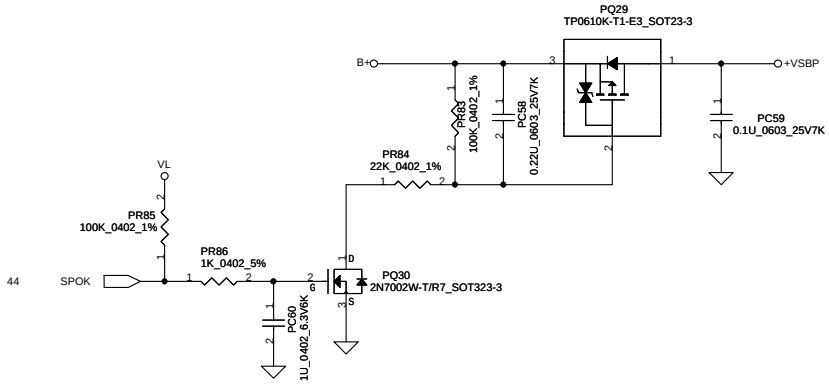
Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 44 of 60

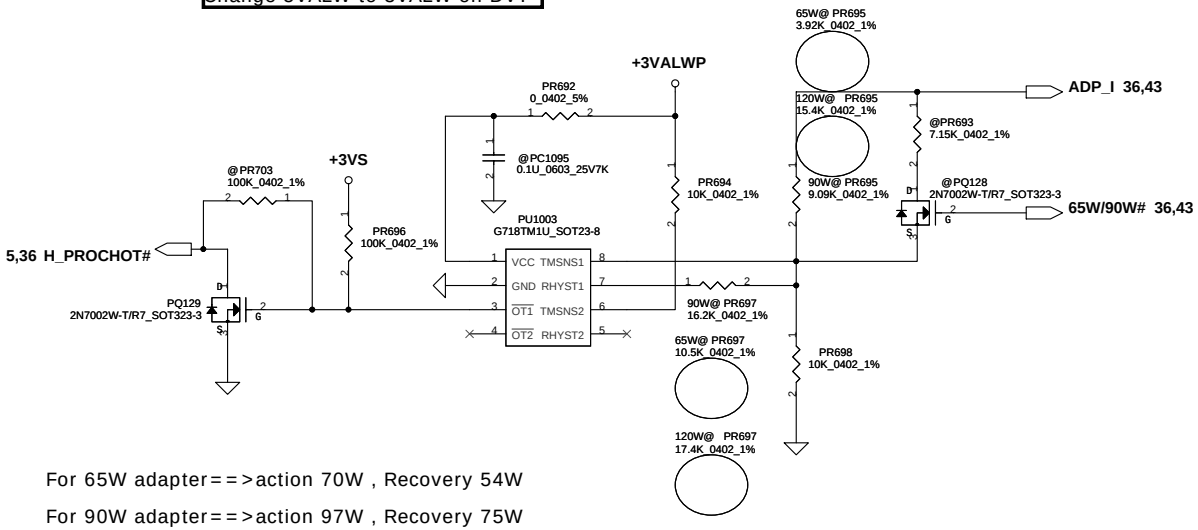


PH1 under CPU botten side :
CPU thermal protection at 92 degree C
Recovery at 72 degree C





Change 5VALW to 3VALW on DVT



For 65W adapter==>action 70W , Recovery 54W

For 90W adapter==>action 97W , Recovery 75W

For 120W adapter==>action 135W , Recovery 100W

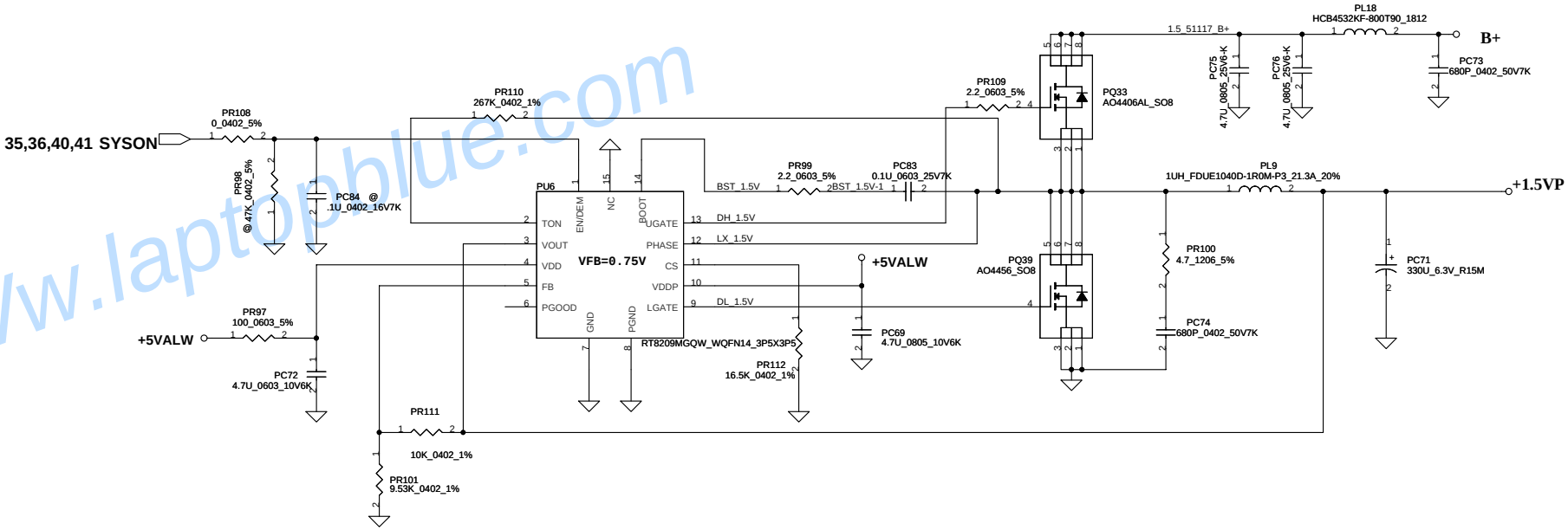
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 45 of 60



+1.5VP
Ipeak=21.56A;1.2Ipeak=25.87A ;Imax=15.09A
Rton=267K, Fsw=298KHz ,Rdson=4.5~5.6mohm
Rtrip=16.5K
Iocp=25.97A~42.41A

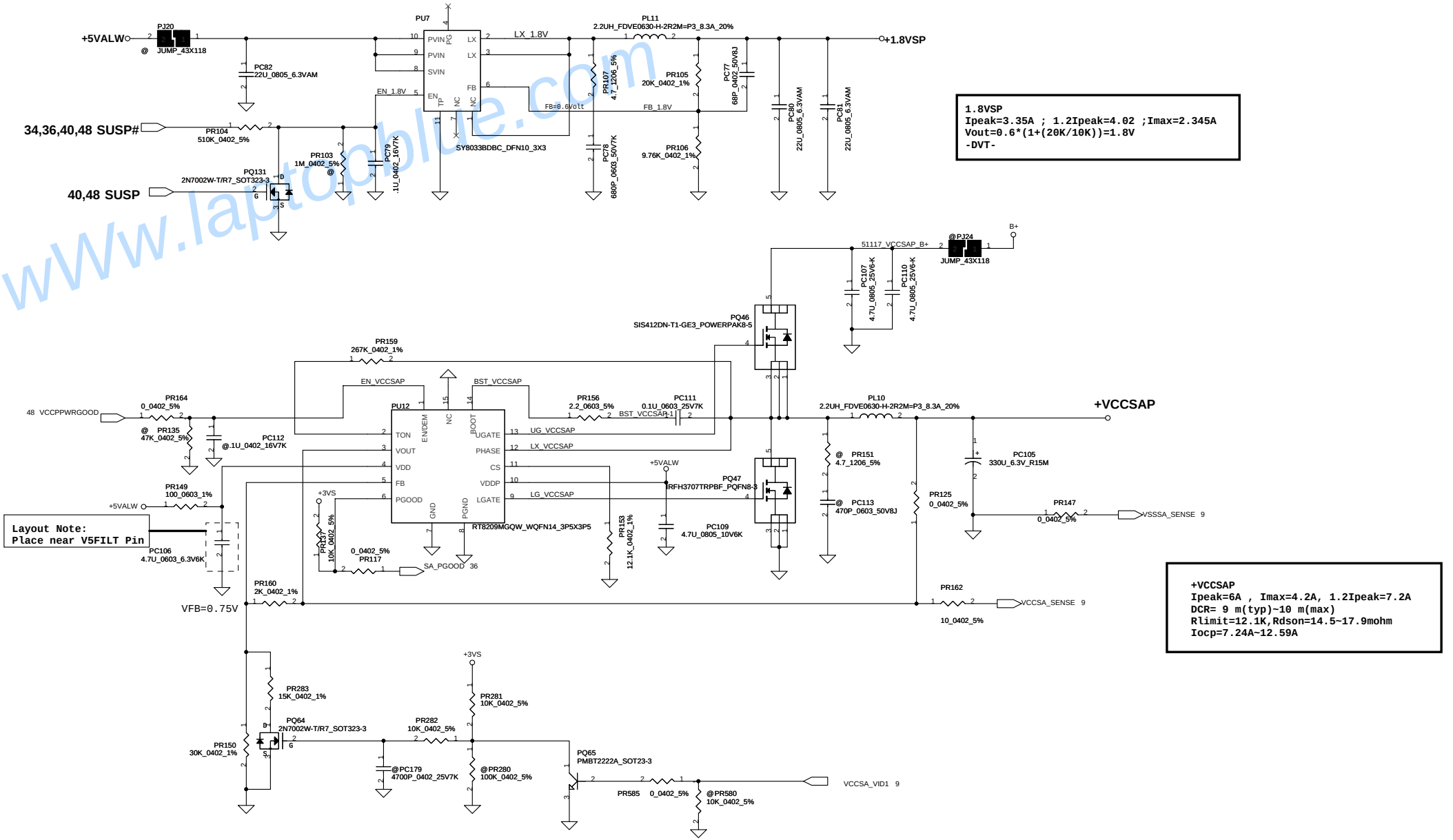
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 46 of 60



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]

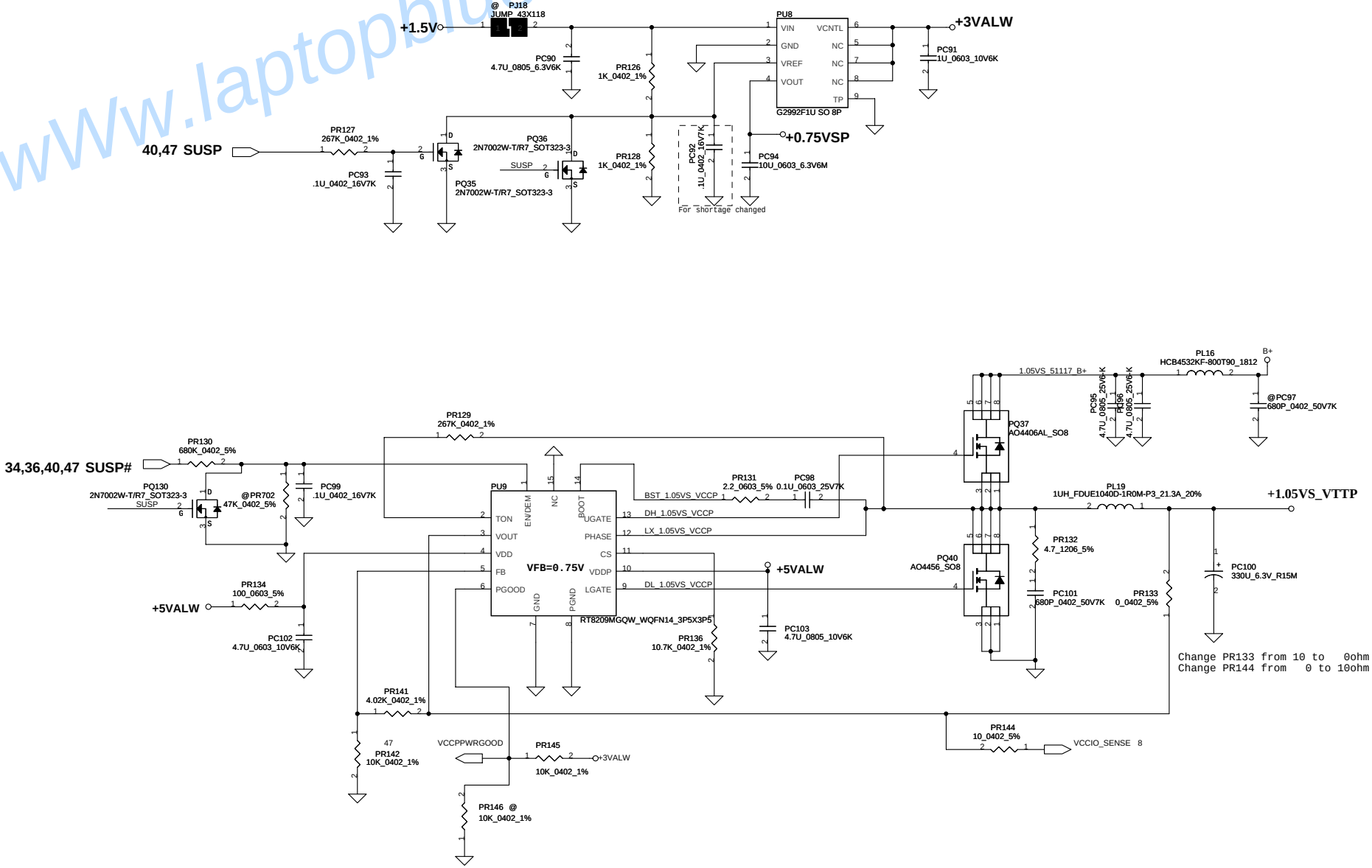
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 47 of 60



+1.05VS_VTTP:
Ipeak=14.05A;Imax=9.84A;1.2Ipeak=16.86A
Rdson=4.5~5.6m ohm ; Freq=298KHz
Rtrip=10.7Kohm,Vtrip<200mV
Iocp=16.99A~27.73A

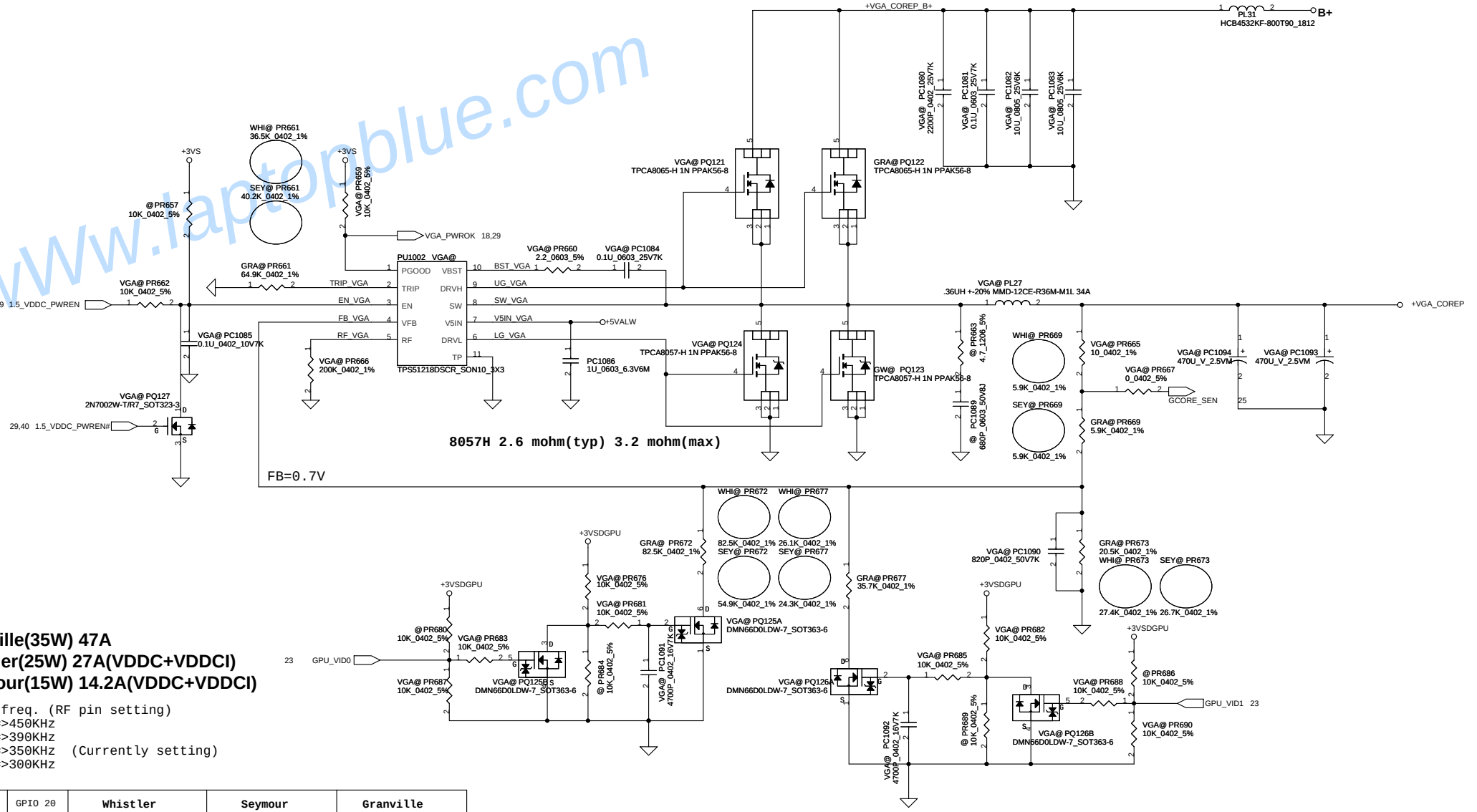
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 48 of 60



Ipeak
Granville(35W) 47A
Whistler(25W) 27A(VDDC+VDDCI)
Seymour(15W) 14.2A(VDDC+VDDCI)

Switch freq. (RF pin setting)
47K ==>450KHz
100K ==>390KHz
200K ==>350KHz (Currently setting)
470K ==>300KHz

GPIO 15	GPIO 20	Whistler	Seymour	Granville
GPU_VID0	GPU_VID1	Core Voltage Level	Core Voltage Level	Core Voltage Level
1	1	0.85V	0.85V(0.855V)	0.90V
0	1	0.9V	0.9V(0.930V)	0.95V
1	0	1.00V	1.00V(1.025V)	1.00V
0	0		1.1V(1.100V)	1.05V

For Granville
1/2Delta I=4.05A
Vtrip=Rtrip*Itrip=64.9K*10uA=0.649V
Iocpmin=(Vtrip/8*Rdson)+1/2Delta
=(0.649V/(8*1.6m ohm))+4.502A
=50.7A+4.05A=54.75A

For Seymour
1/2Delta I=4.31A
Vtrip=40.2K*10uA=0.402V
Iocp=0.402V/(8*3.2m)+1/2Delta I
=15.70A+4.31A=20.01A

For Whistler
1/2Delta I=4.05A
Vtrip=36.5K*10uA=0.365V
Iocpmin=0.365V/(8*1.6m)+1/2Delta I=28.51A+4.05A
=32.56A

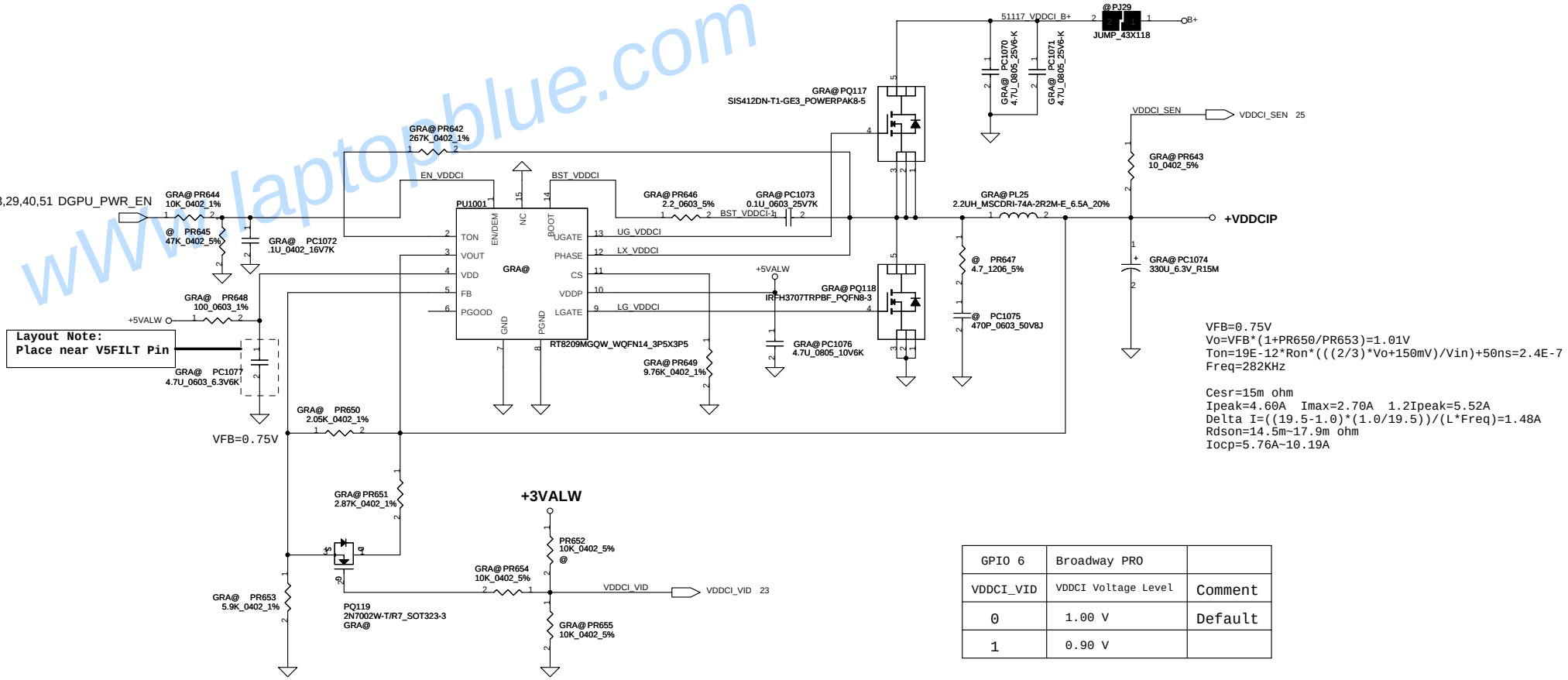
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 Sheet 49 of 60



VFB=0.75V
Vo=VFB*(1+PR650/PR653)=1.01V
Ton=19E-12*Ron*(((2/3)*Vo+150mV)/Vin)+50ns=2.4E-7
Freq=282KHz

Cesr=15m ohm
Ipeak=4.60A Imax=2.70A 1.2Ipeak=5.52A
Delta I=((19.5-1.0)*(1.0/19.5))/(L*Freq)=1.48A
Rdson=14.5m~17.9m ohm
Iocp=5.76A~10.19A

GPIO 6	Broadway PRO	
VDDCI_VID	VDDCI Voltage Level	Comment
0	1.00 V	Default
1	0.90 V	

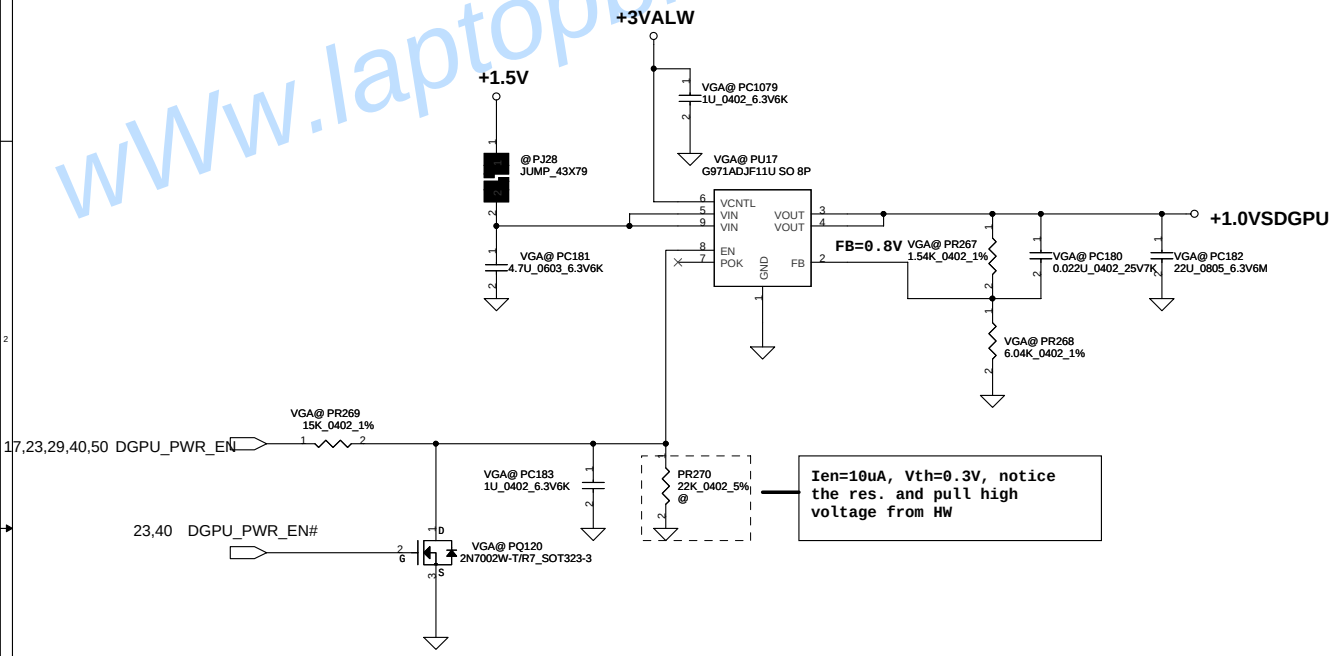
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 50 of 60



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 51 of 60

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

DEL off page GFXVR_IMON

Parallel and tune length

For shortage changed

VSS_AXG_SENSE

8 VR_SVID_DAT
8 VR_SVID_ALRT#
8 VR_SVID_CLK

ISL95831CRZ-T_TQFN48_6X6

PU1000

change from 43P to 47P
for shortage problem
2010-03-15

*Iccmax in Turbo Mode for SV (35W) is 53A

+CPU_CORE

Icc-max=53A
Rdson=3.6~4.5m ohm
DCR=1.1m ohm
HW output cap:
(1)10U_0805_4V *10
(2)22U_0805_6.3V *15
(3)470U_D2_2V *4(ESR=4.5m ohm)

*Dual Core OCP setting value=70A
*Qual Core OCP setting value=120A

+VGFX_COREP

Ipeak=26A , Imax=18.2A , 1.2Ipeak=31.2A
Rdson=3.6~4.5m ohm
DCR=1.1m ohm
HW output cap:
(1)22U_0805_6.3V *12
(2)470U_D2_2V *2(ESR=4.5m ohm)

*OCP setting value=40A

Rdroop is PR615
Ri is PR618

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

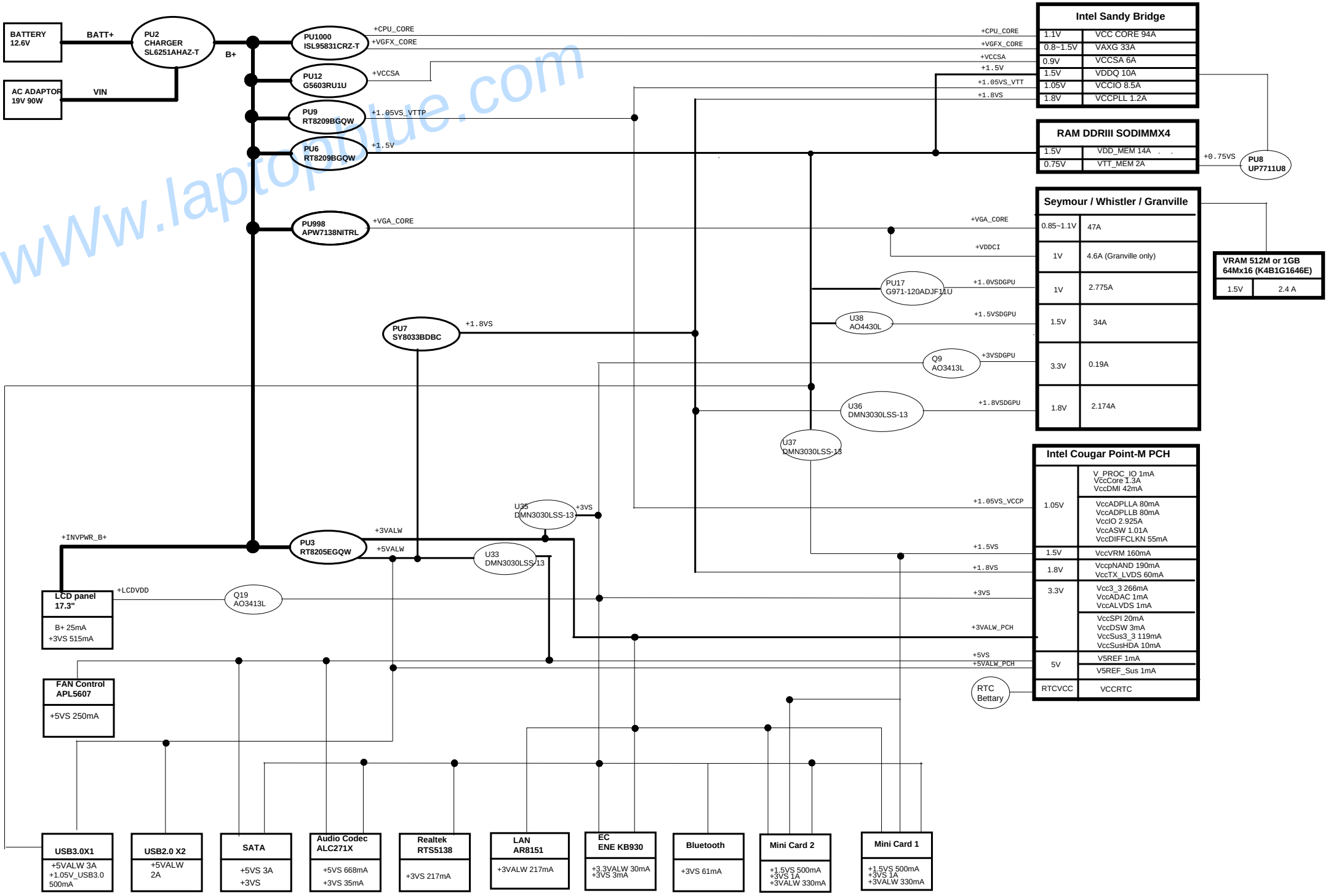
Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 52 of 60

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

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	HW increase 1.8V voltage.	HW need to increase 1.8V voltage.	0.1	47	Change PR106 from SD034100280 to SD034976180.	2010/09/23	DVT
2	VGA Granville OVP issue.	Because VGA has happened OVP issue in Granville SKU, that is caused by outptut capacitor too small. change PC1094 to SGA00004200 to solve it. PC1088 must remove.	0.1	49	Add PC1094 to SGA00004200 and delete PC1088 SF000002O00.	2010/09/23	DVT
3	1.8V Power sequence adjust.	HW adjust 1.8V power sequence.	0.1	47	change PR104 from SD028100380 to SD028150380.	2010/09/23	DVT
4	0.75V Power sequence adjust.	HW adjust 0.75V power sequence.	0.1	48	Change PR127 from SD028150380 to SD034267380.	2010/09/23	DVT
5	adjust +1.05VS_VTT power sequence	HW adjust +1.05VS_VTT power sequence	0.1	48	Change PC99 from SE107475K80 to SE076104K80.	2010/09/23	DVT
6	adjust +VDDCI power sequence	HW adjust +VDDCI power sequence	0.1	50	Change PR644 from SD034301380 to SD034100280.	2010/09/23	DVT
7	HW request to delete PR103.	HW request to delete PR103.	0.2	47	Delete PR103 SD028100480.	2010/09/28	DVT
8	PR104 BOM error.	PR104 BOM error for power sequence.	0.2	47	Change PR104 from SD034150380 to SD034510380.	2010/09/28	DVT
9	PR669 BOM error for Seymour only.	PR669 BOM error for Seymour only.	0.2	49	Chnage PR669 from SD034681180 to SD034590180.	2010/09/28	DVT
10	To same as P5WE0 VCCSAP choke.	To same as P5WE0 VCCSAP choke.	0.2	47	Change PL10 from SH000009Q00 to SH00000M700.	2010/09/28	DVT
11	HW request to add PQ130 and PQ131 to speed up to 放電.	HW request to add PQ130 and PQ131 to speed up to 放電.	0.3	47 48	Add PQ130 and PQ131 SB000006800.	2010/10/05	DVT
12	Remove chargable RTC battery.	We reserve chargeable RTC battery to prevent over heat issue, Thermal team result is pass, so remove chargeable RTC battery.	0.3	42	Delete PR691 SD013000080 CHange PR6 from SD013560080 to SD013000080.	2010/10/05	DVT
13	Chnage PL4 and PL5 to TOKO new part.	Chnage PL4 and PL5 to TOKO new part.	0.3	44	Change PL4 and PL5 from SH000006J80 to SH00000MB00	2010/10/05	DVT
14	for ISN issue.	for ISN issue.	0.3	43	Add PL30 SH000009Q00. Delete PL28 SM010018210	2010/10/05	DVT
15	to same as P5WE0 choke.	to same as P5WE0 choke.	0.3	47	Change PL10 and PL11 from SH000009Q00 to SH00000F800	2010/10/05	DVT
16	for QC+25WGPU and QC+35W GPU change CP point.	Becasue Acer deine QC with 25W/35W GPU to be 120W SKU, change CP point to meet Acer request.	0.3	43	Delete PQ20 SB000006800. Delete PR48 SD034255180 Change PR22 from SD000001F00 to SD021100D80.	2010/10/05	DVT
17	for QC+25WGPU and QC+35W GPU change CP point.	Becasue Acer deine QC with 25W/35W GPU to be 120W SKU, change CP point to meet Acer request.	0.3	43	Change PR47 from SD034121280 to SD034100180 Change PR50 from SD034200280 to SD034511280	2010/10/05	DVT
18	Modify adapter throttling at turbo mode setting point.	Modify adapter throttling at turbo mode setting point.	0.3	45	Add PR695 SD034154280 Add PR697 SD034174280	2010/10/05	DVT
19	CPU Transient responds issue.	Change CPU transient reponds RC time constant.	0.4	52	Add PC1052 SE000003J80. Add PC1096 SE071471J80. Add PR700 SD034200180.	2010/10/07	DVT
20	for ISN issue.	for ISN issue.	0.4	43	Change PL30 from SH000009Q00 to SH00000M700.	2010/10/07	DVT
21	Make BOM same as P5WE0.	Make BOM same as P5WE0.	0.4	52	Change PL21,PL23,PL24 from SH000005680 to SH00000HK00.	2010/10/07	DVT
22	BOM loss.	Because BOM Config loss 65@ and 90W@, so miss PR695 and PR697.	0.5	45	Add PR695 SD034909180 9.09K_0402_1% ADD PR697 SD034162280 16.2K_0402_1%	2010/10/26	PVT
23	Modify CPU OCP.	Becuase original design is for 3 phase DC, now change to 2 phase DC, so modify OCP.	0.5	52	Chnage PR618 from SD034698080 to SD000009480	2010/10/26	PVT
24	Modify DC LL.	Because DC OCP was modified, must also update LL of DC.	0.5	52	Chnage PR615 from SD034215180 to SD034332180	2010/10/26	PVT



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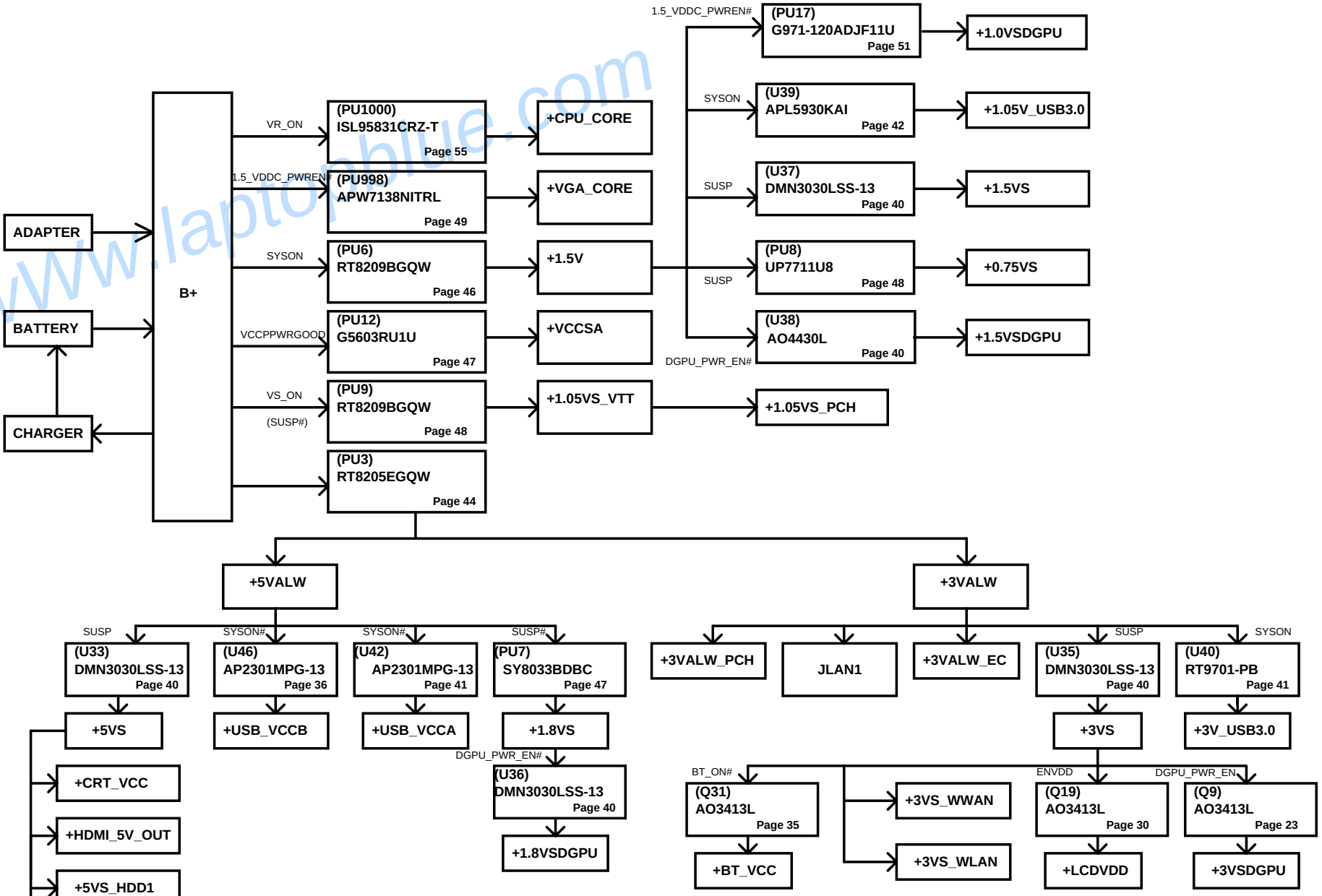
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 Sheet 54 of 60



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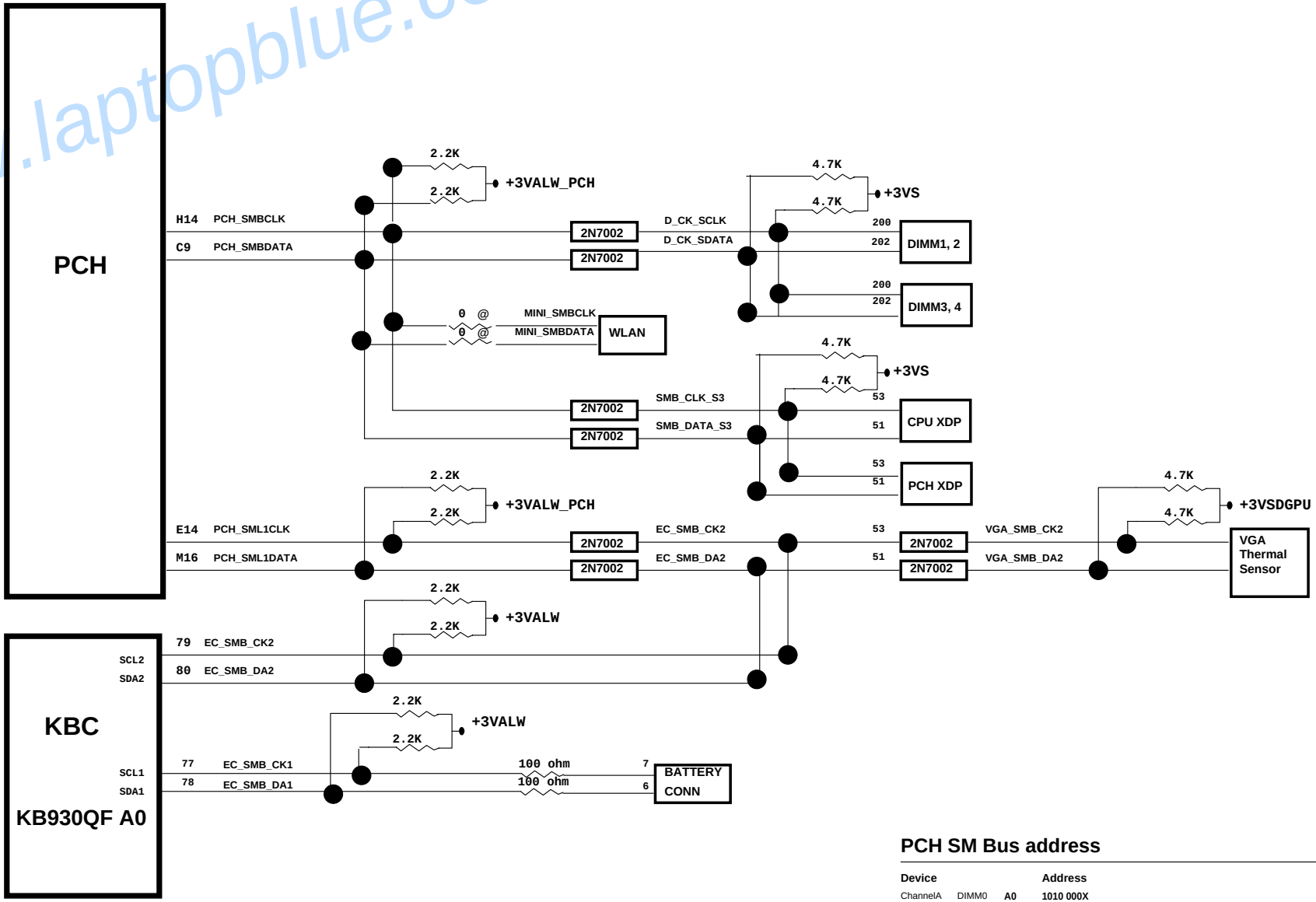
Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 55 of 60



PCH SM Bus address

Device			Address
ChannelA	DIMM0	A0	1010 000X
	DIMM1	A2	1010 001X
ChannelB	DIMM0	A4	1010 010X
	DIMM1	A6	1010 011X

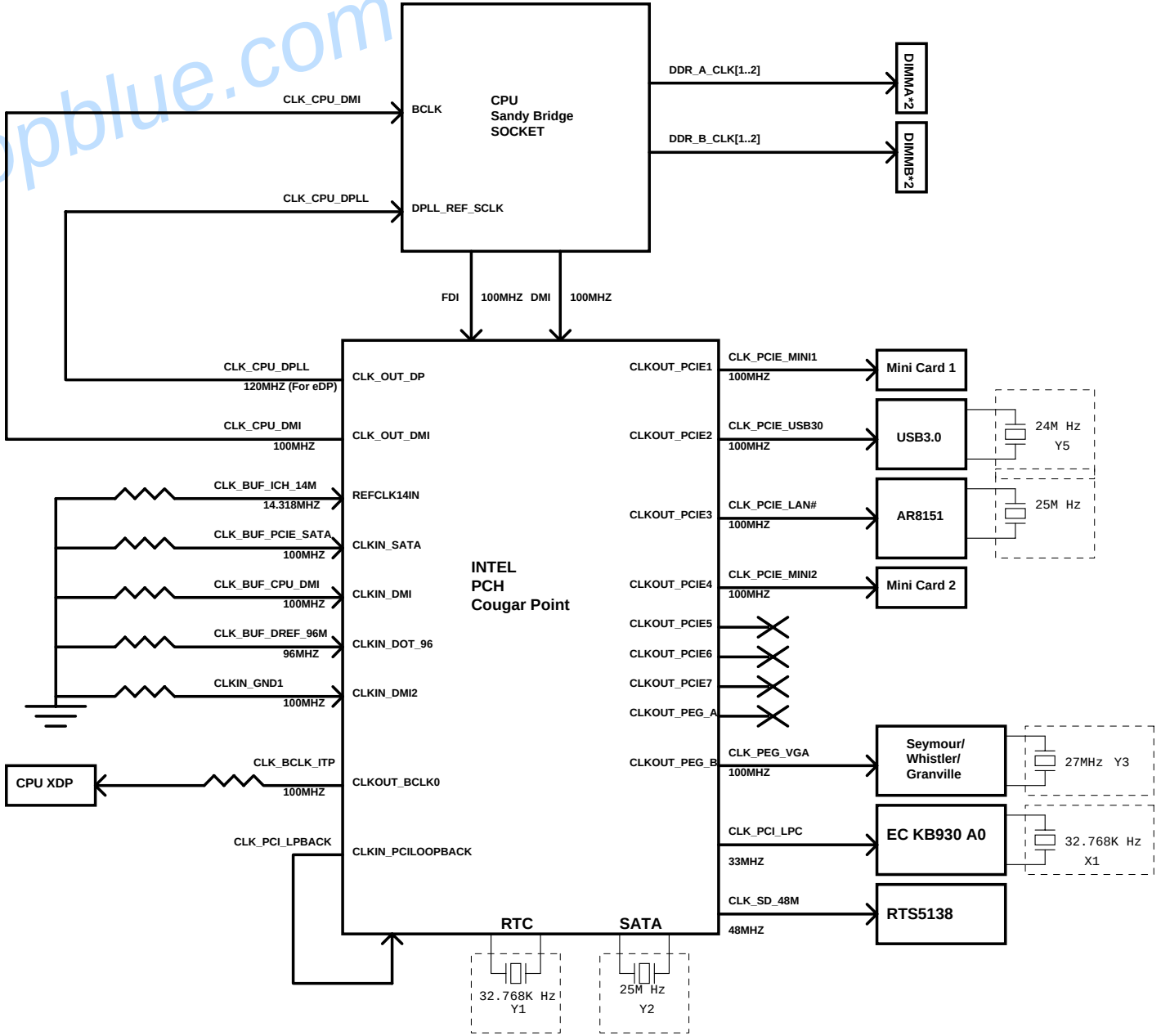
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 56 of 60



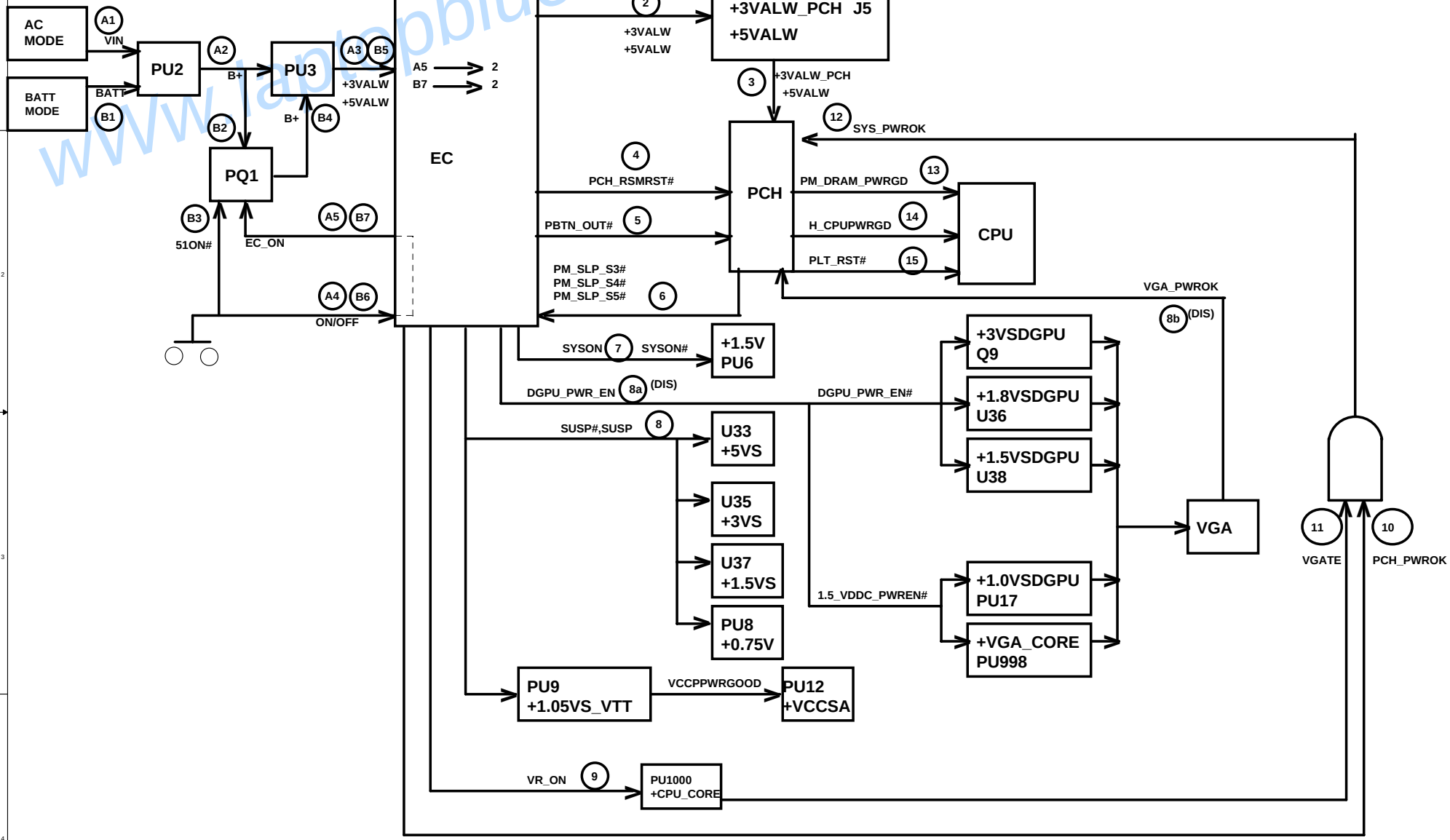
Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 57 of 60



Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 58 of 60

PCB

ZZZ

LA-6911P MB Rev0: DA80000LC00
LA-6911P MB Rev1: DA80000LC10
LA-6911P MB with Small Board Rev1: DAZ

LA-69111P REV0 M/B

VGA

U30
GRAN@
216-0769024 A12

Granville PRO M2 A12:
SA00004C820(S IC 216-0769024 A12 GRANVILLE PRO ABO!)

U30
WHIS@
216-0810005 A11

WHISTLER PRO M2 A11:
SA00004C720(S IC 216-0810005 A11 WHISTLER PRO FCBGA 962P ABO !)

X76

ZZZ X76264BOL01
X761@
X76264BOL01

X76264BOL01 VRAM 512M SAM P7YE0
Samsung : SA000035720 (S IC D3 64MX16 K4W1G1646E-HC12 FBGA ABO!)
64Mx16x4 Seymour

ZZZ X76264BOL02
X762@
X76264BOL02

X76264BOL02 VRAM 512M HYN P7YE0
Hynix : SA000032420 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA ABO!)
64Mx16x4 Seymour

ZZZ X76264BOL03
X763@
X76264BOL03

X76264BOL03 VRAM 1G SAM P7YE0
Samsung : SA000035720 (S IC D3 64MX16 K4W1G1646E-HC12 FBGA ABO!)
64Mx16x8 Whistler/Granville

ZZZ X76264BOL04
X764@
X76264BOL04

X76264BOL04 VRAM 1G HYN P7YE0
Hynix : SA000032420 (S IC D3 64MX16 H5TQ1G63BFR-12C FBGA ABO!)
64Mx16x8 Whistler/Granville

ZZZ X76264BOL05
X765@
X76264BOL05

X76264BOL05 VRAM 2G HYN P7YE0
Hynix : SA00003VS10 (S IC D3 128M16 H5TQ2G63BFR-12C FBGA ABO!)
128Mx16x8 Whistler/Granville

ZZZ X76264BOL06
X766@
X76264BOL06

X76264BOL06 VRAM 2G SAM P7YE0
Samsung : SA00003MQ60 (S IC D3 128M16 K4W2G1646C-HC12 FBGA ABO!)
128Mx16x8 Whistler/Granville

ZZZ X76264BOL07
X767@
X76264BOL07

X76264BOL07 VRAM 1G SAM P7YE0
Samsung : SA00003MQ60 (S IC D3 128M16 K4W2G1646C-HC12 FBGA ABO!)
128Mx16x4 Seymour

ZZZ X76264BOL08
X768@
X76264BOL08

X76264BOL08 VRAM 1G HYN P7YE0
Hynix : SA00003VS10 (S IC D3 128M16 H5TQ2G63BFR-12C FBGA ABO!)
128Mx16x4 Seymour

CRT Option Components

C622 C605 C598
DISO@ DISO@ DISO@
15P_0402_50V8J
15P_0402_50V8J 15P_0402_50V8J

C623 C614 C600
DISO@ DISO@ DISO@
12P_0402_50V8J
12P_0402_50V8J 12P_0402_50V8J

15P_0402_50V8J: SE071150J80
12P_0402_50V8J: SE071120J80

L42 DISO@ 0_0805_5%
L38 DISO@ 0_0805_5%
L35 DISO@ 0_0805_5%

0_0805_5%: SD002000080

R307 DISO@ 1K_0402_5%

DIS only PCH DAC_IREF
can use 1K_0402_5% PD to GND

DIS EDP Option Components

R23 DEDP@ .1U_0402_16V7K TXOUT_2P = DP0P
R17 DEDP@ .1U_0402_16V7K TXOUT_2N = DP0N

R24 DEDP@ .1U_0402_16V7K TXOUT_1P = DP1P
R22 DEDP@ .1U_0402_16V7K TXOUT_1N = DP1N

R9 DEDP@ .1U_0402_16V7K I2CC_SCL = AUXP
R7 DEDP@ .1U_0402_16V7K I2CC_SDA = AUXN

Granville VGA_CORE CAP Option

C591 GRAN@ 470U_X_2VY_R9M
C604 GRAN@ 470U_X_2VY_R9M

SGA00003N00
S POLY C 470U 2V Y X
LESR9M S H1.9

EC susclk/crystal Option Components

C504
100K_0402_5%

Security Classification	Compal Secret Data		
Issued Date	2010/07/12	Deciphered Date	2012/07/12

Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size: Custom | Document Number: 4019A9 | Rev: B

Date: Tuesday, November 09, 2010 | Sheet 60 of 60

0923:
rework
ADD Q8 DMN66D0LDW-7(SB00000DH00) & change BOM structure to DIS@(DIS@ Granville can't power on issue)
R72 100K_0402_5%(SD028100380)change BOM structure to DIS@(DIS@ Granville can't power on issue)
R674 4.7K PH change BOM structure to @(+3VS GPIO19 leakage)
D31 change BOM structure to @(EC debug CLK leakage)
R531,R530 change BOM structure to DIS0@(HSYN:VSYNC 11: Audio for both DisplayPort and HDMI)
ADD C591 C604 BOM option
(Seymour/Whistler option NOGRAN@ SGA20331E10 S POLY C 330U 2V 9mohm H1.9)
(Granville option GRAN@ SGA00004200 S POLY C 470U 2V M D2 LESR4.5M SX H1.9)
C746,C750 change from SF000001500 to SF000001580

Power sequence:
1. BOT (adjust +5VS power sequence)
  R698 change from 200K to 100K_0402_5% (SD028100380)
2. BOT (adjust +1.8VS power sequence)
  PR104 change from 100K to 510K_0402_5%(SD028510380)
  remove PR103 1M_0402_5%
3. TOP (adjust +1.5VS power sequence)
  R67   change from 510K_0402_5% to 750K_0402_5%(SD028750380)
4. TOP (adjust +0.75VS power sequence)
  PR127 change from 150K_0402_5% to 267K_0402_1%(SD034267380)
5. TOP (adjust +1.05VS_VTT power sequence)
  PC99 change from 4.7U to .1U_0402_16V7K (SE076104K80)
6. TOP (adjust +1.5VSDGPU power sequence)
R113 510K change to 100K_0402_1% (SD034100380)
7. BOT (adjust +VDDCI power sequence)
PR644 301K change to 10K_0402_1% (SD034100280)

Power:
PR101 change from 10K to 9.53K (adjust +1.5V power)
PR106 change from 10K to 9.76K (adjust +1.8VS power)
Layout:
D21 channge to SC600000B00 (for sourcer 2nd source)
DEL C590,C603 (DEL colay Cap)
L24,25,27,30,31 change from SM010004010 to SM010015410
BATT Blue light place at front side
H1 change H3P0 to H4P6
DEL LED1,LED2,LED3,LED4

0924:
Q37,Q39,Q40,Q41, change from SB00000FG00 to SB00000FG10
U7 change from SB000007O00 to SB000007O10
USB3.0 schmetic change to unpop
XDP change to unpop
U19 A10,N10,P10,B12 connect to GND

0925:
R249 change from U15.2 to U15.1(footprint issue)
R105 change form 10K to 10_0402_5%(SD028100A80)
R422 change BOM structure to @(crystal issue debug port1.2)
R422 change +3VS to +3VALW_PCH (GPIO28)
R674 change BOM structure to @(leakage issue debug port1.2)
R674 change +3VALW_PCH to +3VS (GPIO19)
ADD LED11 pop WLAN_LED#(SC500007700),LED12 @ MEDIA_LED#(SC591NB5A30)
LED10 WLAN_LED#(SC500007700) change BOM structure to @
DEL D9,D10 USB3.0 old ESD diode
ADD D32 new USB3.0 ESD diode (SC300001D00)
DEL R238,R250,C401 USB3.0 conn PD resister & CAP
EMI request:
R595,R596 change to @ L47 change to POP(USB2.0 common mode choke)

0927:
Audio vender suggest:
C913 change BOM structure to @
ADD C702 22K_0402_5%(SD028220280)
change USB conn to USB2.0(SUYIN_020133GB004M25MZL_4P-T)
modify Debug port note(GPIO19 PH +3VS GPIO28 PH +3VALW_PCH)
R667,R666 change BOM structure to @(XDP CLK source)
change SW4,SW5 BOM structure to @ (debug PWRBTN)
change R432,R435,R437 from 1K_0402_5% to 300_0402_5%(orange LED resister)
change USB3.0 schmetic BOM structure back to USB3@
C746,C750 change from SF000001500 to SF000001580
D4,D5 change from SCSH491D010(S SCH DIO CH491DPT SOT-23) to SCS00002000(S SCH DIO RB491D SOT-23 PANJIT)
Q29,Q33,Q36 change from SB934130020(S TR AO3413L 1P SOT23-3) to SB000006R10(S TR AO3419L 1P SOT23-3)

0928:
DEL R468
JMINI1.24 change power source from +3VS to +3VS_WLAN
DEL R613
JMINI2.24change power source from +3VS to +3VS_WWAN
DEL R352
change power source from +XDPWR_SDPWR_MSPWR to +CARDPWR
Q21 change from SB324110080(2SC2411K) to SB039040020(MMBT3904)
Change JUSB2 footprint to "SUYIN_020173GB004M25MZL_4P"
ADD R613 1M PD to GND(HDA_SYNC_PCH_R)
ADD SLP_A#   at U37.G10 test point(for DFT request)
ADD JTAG_TDI at U30.AN23 test point(for DFT request)
ADD JTAG_TDO at U30.AM24 test point(for DFT request)
JREAD1 change conn from TAITW_R013-P12-HM_44P_NR to TAITW_R013-P17-HM_40P_NR

0929:
DEL Rechargerable RTC schematic D21,R425,C551

0930:
R534,R540 change from 100_0402_1% to 1K_0402_5%(SD028100180)(DG1.5 change save cost)
C744,C745 change from 18P_0402_50V8J to 27P_0402_50V8J(SE071270J80)(25Mhz Crystal modify)
R357,R358,R330,R331,R345,R346,R387,R393,R292 change BOM structure to @ (10K_0402_5%)PD to GND(DG1.5 unuse CLK NC)
R666,R667 change BOM structure to @(XDP unuse)
R573,R575,R571,R572,R562,R566,R567,R570 DEL option 499_0402_1% leave 680_0402_5%
R318,R332 change from 0ohm to 22_0402_5%(SD028220A80)
C448,C483 change to 4.7P_0402_50V8J(SE07147AC80)
L47 change to 67ohm common mode choke CHENG HANN WCM2012F2SF-670T04(SM070000S80)

1025:
R370,R413 change from SD028100380(100K_0402_5%) to SD028200380(200K_0402_5%)
PCH_GPIO1 change net to WL_EN#
LVDS
Add +5VS (Pin34) & USB20_N4/P4 (Pin35, 36)
change EDP_HPD to Pin18
PCH side add USB20_N4/P4 (Pin35, 36)

For eDP interface AUX channel, please request Layout routing as differential signal to follow eDP Layout Guide.
(VGA_LCD_CLK & VGA_LCD_DATA / I2CC_SCL & I2CC_SDA)

DEL DDR DM
R50,R58,R59,R48,R56,R51,R60,R49 DIMMA
R39,R52,R44,R43,R46,R38,R45,R40 DIMMA
R77,R73,R109,R112,R180,R181,R192,R206 DIMMB
R64,R83,R108,R115,R179,R183,R189,R208 DIMMB

1026:
C604,C591 change from SGA00004200(470 4.5mohm)to SGA00003N00(470 9mohm)
Pop R257(SD028100380 100K_0402_5%),R622(SD028820180 8.2K_0402_5%) Board ID
R443 change from 100K_0402_5% to 10K_0402_5% (SD028100280)

remove R471,R622(JMINI1,JMINI2 Pin42 0ohm series resister)
J1,J2 change location to J6,J7
remove R222 0ohm_0402 (H_CPUPWRGD_R)
remove R423,0ohm_0402 (MINI1_CLKREQ#_R)
remove R392 0ohm_0402 (LAN_CLKREQ#_R)
remove R685 0ohm_0402 (MINI2_CLKREQ#_R)
remove R655 0ohm_0402 (WAKE#)
remove R636 0ohm_0402 (PCH_RSMRST#)
remove R377 0ohm_0402 (SUS_PWR_DN_ACK)
remove R339 0ohm_0402 (PBTN_OUT#)
remove R359 0ohm_0402 (DGPU_HOLD_RST#)
remove R16 0ohm_0402 (BKOFF#)
remove R448 0ohm_0402 (VGA_EDP_DET)
remove R533 0ohm_0402 (VGA_HDMI_DET)
remove R627 0ohm_0603 (+SPI_VCC)

ADD R39 0ohm_0402 LOCAL_DIM
ADD R38 0ohm_0402 COLOR_ENG_EN

C242,C653,C332,C354,C678 change footprint to C_X(2pin)

Security Classification	Compal Secret Data		
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Compal Electronics, Inc.

Title: SCHEMATIC,MB A6911

Size	Document Number	Rev
Custom	4019A9	B

Date: Tuesday, November 09, 2010 | Sheet 59 of 60