

VFKAA

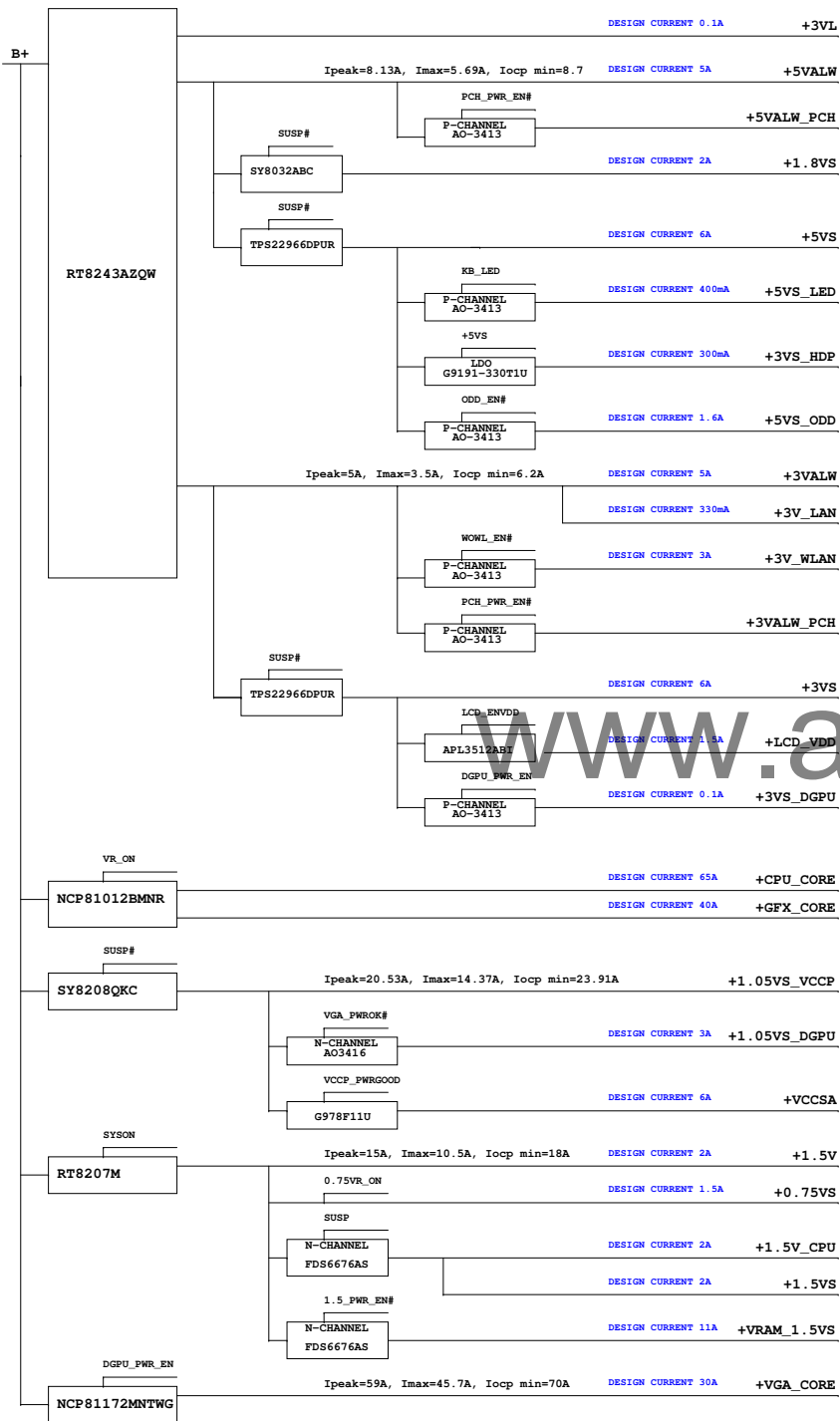
Rosetta 10FG

www.aitech1.ru
LA-9863P REV 1.0 Schematics

Intel Processor (Ivy Bridge / Sandy Bridge)
PCH (Panther Point)

2013-01-14 Rev 1.0

Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title		
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				Cover Page		
				Size	Document Number	Rev
				Custom	VFKAA	02
Date	Monday, March 11, 2013	Sheet	1	of	58	



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title	Power Tree
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					Rev 0.2
Date	Monday, March 11 2013	Sheet	3	of	56

Voltage Rails

(O MEANS ON X MEANS OFF)

power plane State	+RTCVCC	B+	+5VL +3VL	+5VALW +3VALW	+1.5V	+5VS +3VS +1.8VS +1.5VS +1.05VS +0.75VS +CPU_CORE +VGA_CORE +GFX_CORE +VTT +VRAM_1.5VS +3VS_DGPU +1.05VS_DGPU
S0	O	O	O	O	O	O
S1	O	O	O	O	O	O
S3	O	O	O	O	O	X
S5 S4/AC	O	O	O	O	X	X
S5 S4/ Battery only	O	O	O	X	X	X
S5 S4/AC & Battery don't exist	O	X	X	X	X	X

PCH SM Bus Address

Power	Device	HEX	Address
+3VS	DDR SO-DIMM 0	A0 H	1010 0000 b
+3VS	DDR SO-DIMM 1	A4 H	1010 0100 b
+3VS	WLAN/WIMAX		
+3VS	Touch Pad	2C H	0010 1100 b

EC SM Bus1 Address

EC SM Bus2 Address

Power	Device	HEX	Address	Power	Device	HEX	Address
+3VL	Smart Battery	16 H	0001 0110 b	+3VS	PCH	96 H	1001 0110 b
+3VL	Smart Charger	12 H	0001 0010 b	+3VS	NVIDIA GPU	9E H	1001 1010 b
+3VL	USB S&C 14640	35 H	0011 0101 b	+3VS	G-Sensor	40 H	0100 0000 b

BTO Option Table

Function	SKU	PCH		GPU		VRAM	EC		ISPD
description	Optimus	Panther Point		N14M-GL	N14P-GV2	Dual Rank	EC		HDMI Logo
explain	Optimus	HM76	HM70	N14M-GL	N14P-GV2	Dual Rank	KB9012	NPCE885N	HDMI Logo
BTO	OPT@	HM76R1@	HM70R1@	N14MGL@	N14PGV2@	DRANK@	9012@	885@	HDMI45@
		HM76R3@	HM70R3@	N14MGLR1@	N14PGV2R1@				
				N14MGLR3@	N14PGV2R3@				

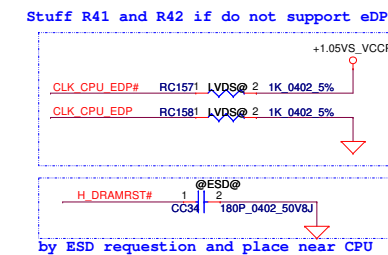
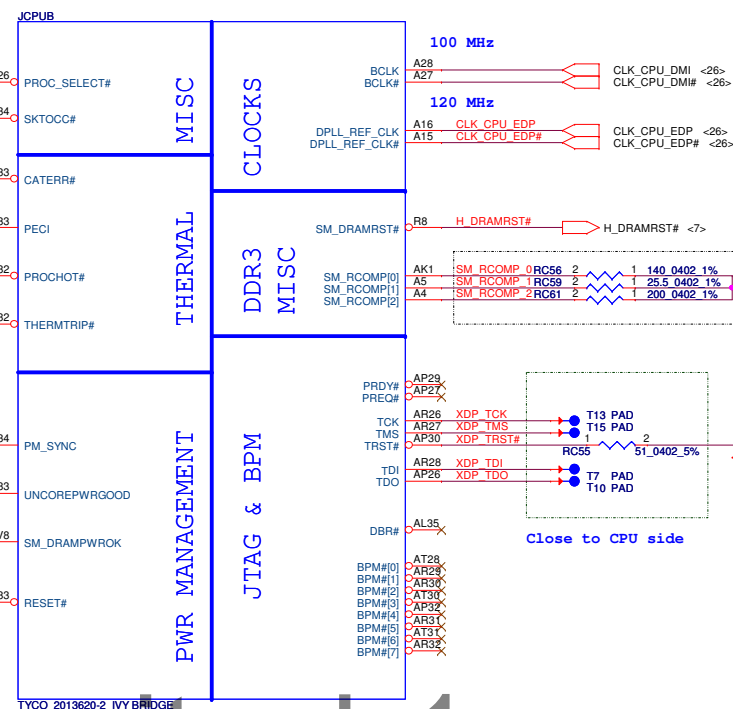
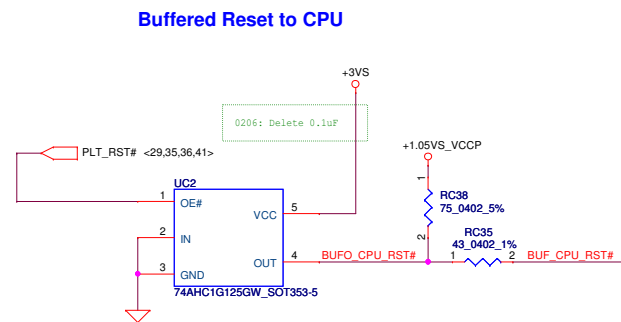
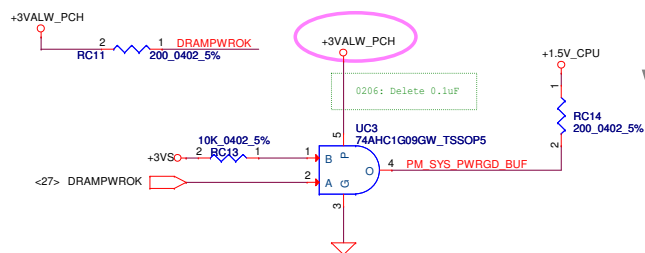
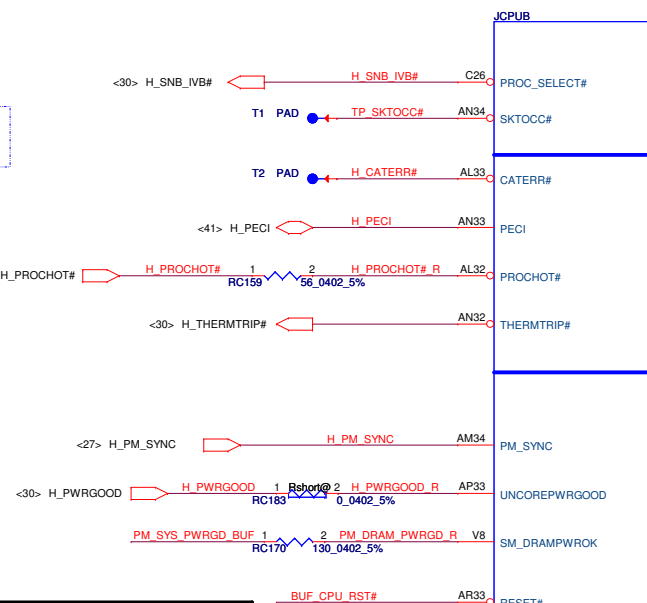
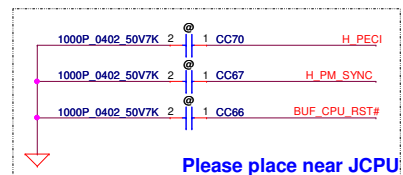
Function	LVDS-eDP		Camera & Mic	USB S&C		CRT		Touch Screen
description	LVDS-eDP		Camera & Mic	14640	14641	CRT		Touch Screen
explain	LVDS	eDP	Camera & Mic	14640	14641	w/ CRT		Touch Screen
BTO	LVDS@	IEDP@	CAM_EMI@	14640@	14641@	CRT@	CRT_EMI@	TOUCH_EMI@

Function	WOWL		G-SENSOR	ZPODD		GCLK		VRAM SKU for GV2	
description	WOWL		G-SENSOR	ZPODD		GCLK	non-GCLK	Single Rank	Dual Rank
explain	w/	w/o	G-SENSOR	w/	w/o	GCLK	non-GCLK	Single Rank	Dual Rank
BTO	WOWL@	NOWOWL@	GSENSOR@	ZPODD@	NONZP@	GCLK@	NOGCLK@	GVSR@	GVDR@

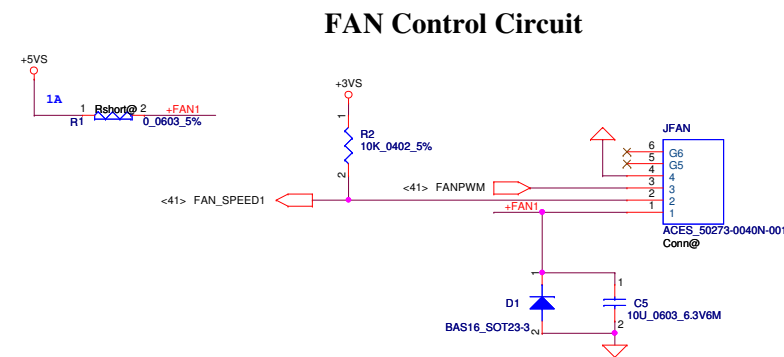
Function	Sleep & Music		KB Light	EMI/ESD part	
description	Sleep & Music		KB Light	EMI/ESD part	
explain	w/ S&M	w/o S&M	KB Light	EMI/ESD part	
BTO	269@	259@	KBL@	EMI@	ESD@

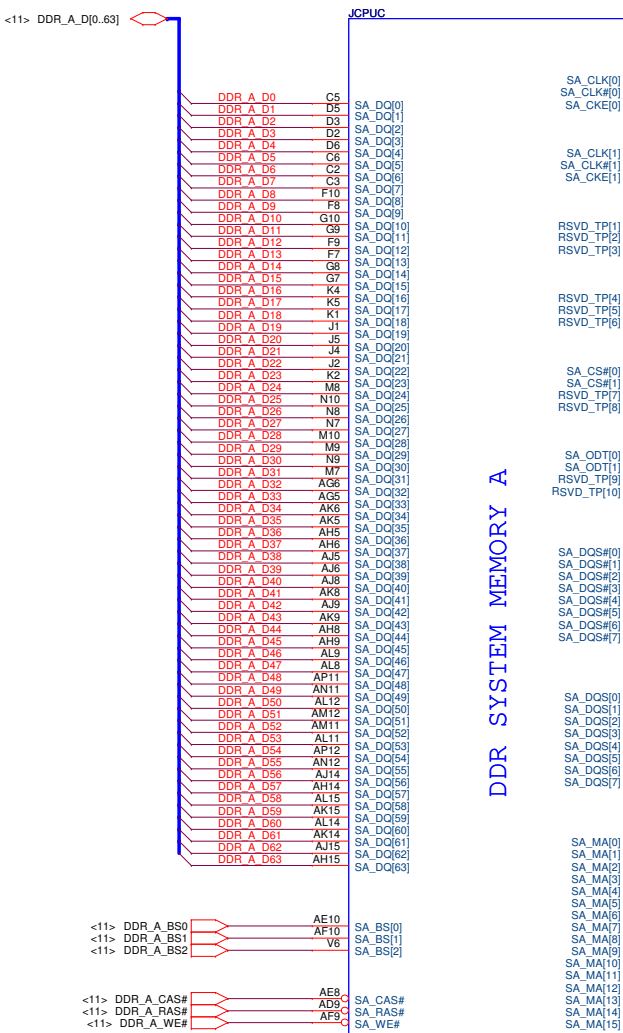
STATE	SIGNAL		
	SLP_S3#	SLP_S4#	SLP_S5#
Full ON	HIGH	HIGH	HIGH
S1 (Power On Suspend)	HIGH	HIGH	HIGH
S3 (Suspend to RAM)	LOW	HIGH	HIGH
S4 (Suspend to Disk)	LOW	LOW	HIGH
S5 (Soft OFF)	LOW	LOW	LOW
G3	LOW	LOW	LOW

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF FIRST CUSTOMER TO ANY OTHER DIVISION OR TO ANY OTHER PERSON WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	VFKAA	Rev 0.2
				Date	Monday, March 11, 2013	Sheet 4 of 56

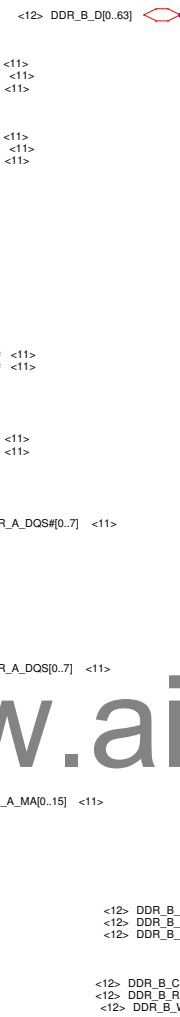


DDR3 Compensation Signals
Layout Note: Place these
resistors near Processor





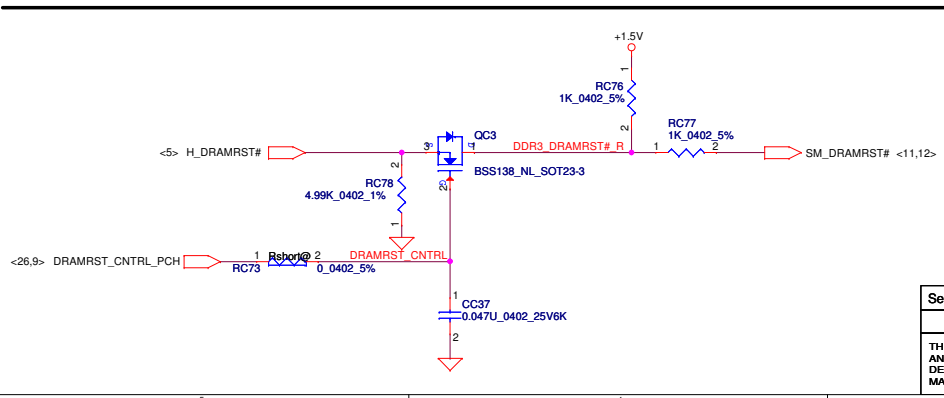
DDR SYSTEM MEMORY A



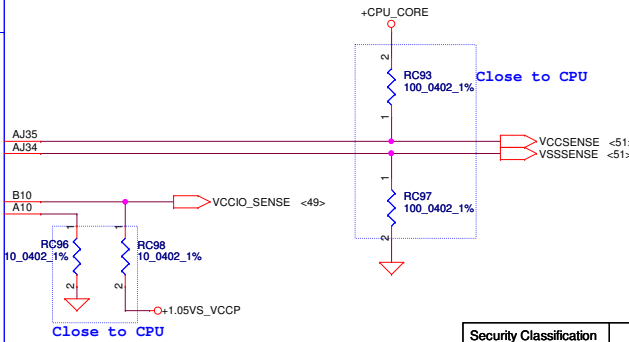
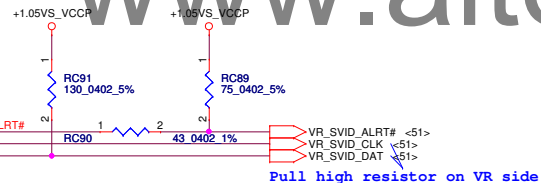
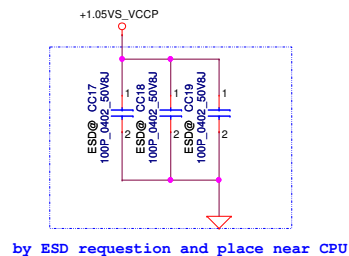
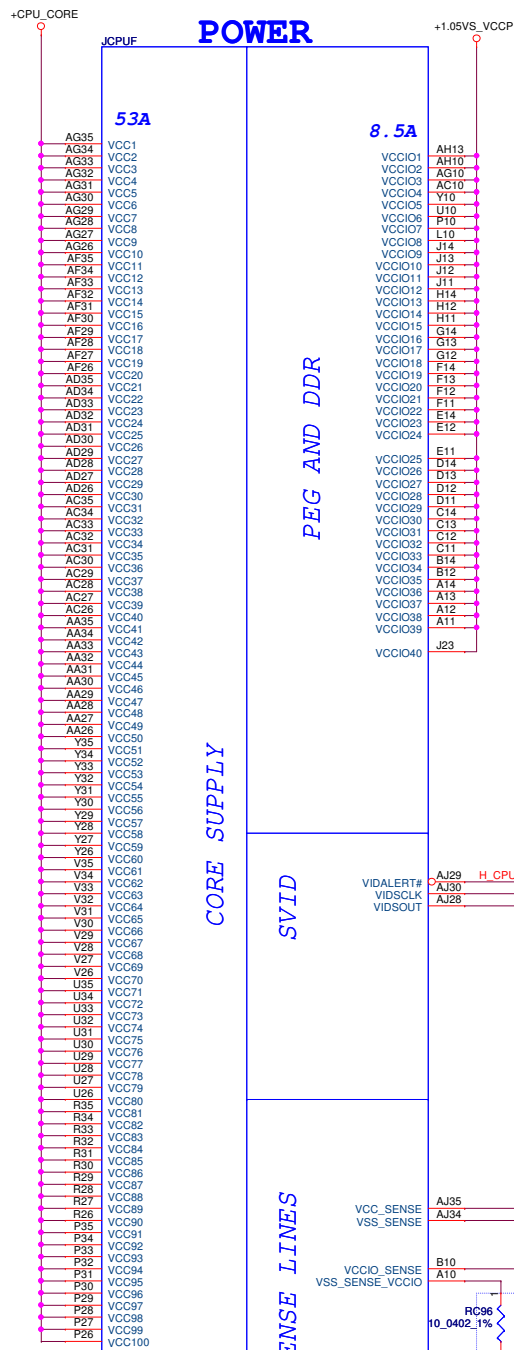
DDR SYSTEM MEMORY B

TYCO_2013620-2_IVY BRIDGE Conn@

TYCO_2013620-2_IVY BRIDGE Conn@

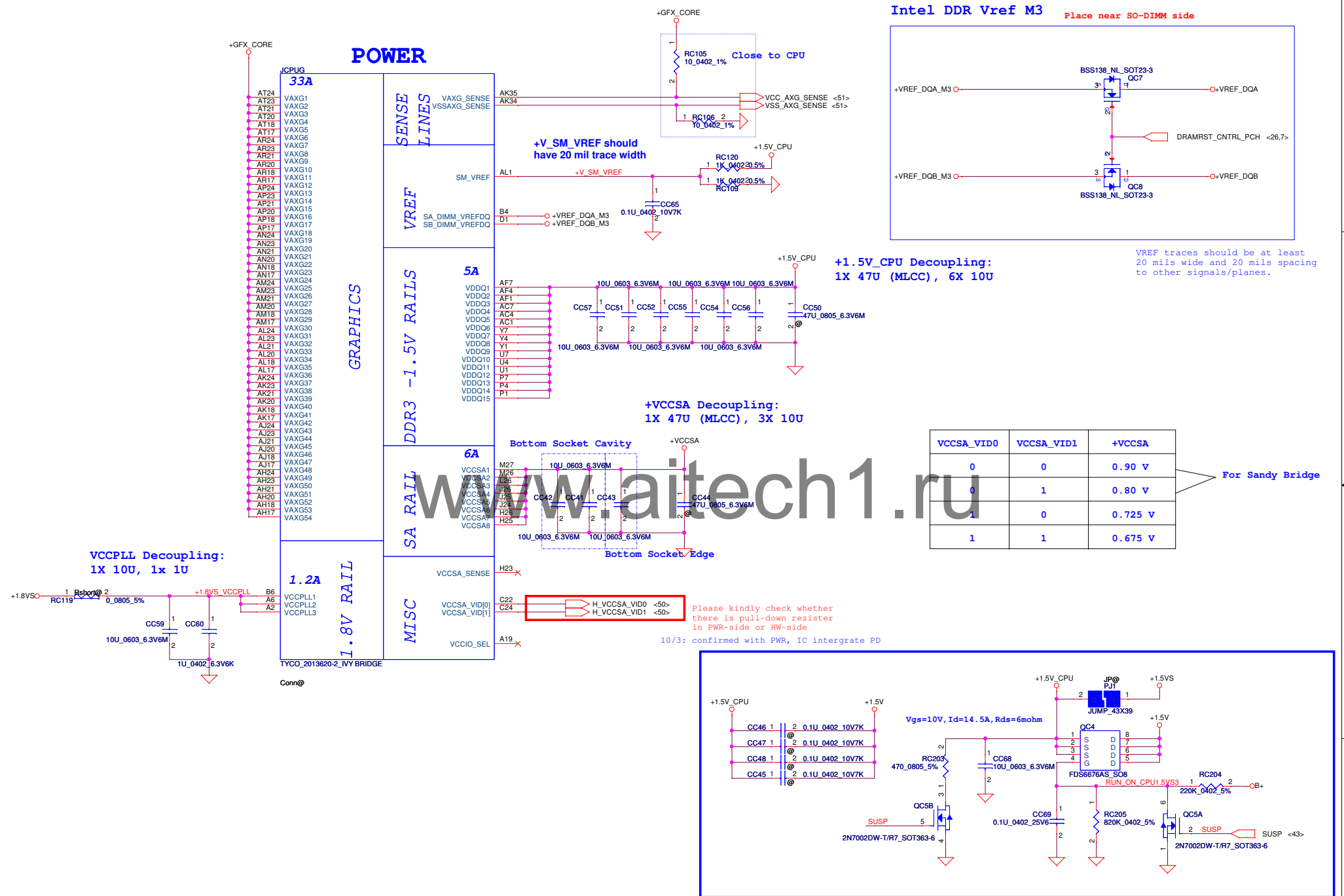


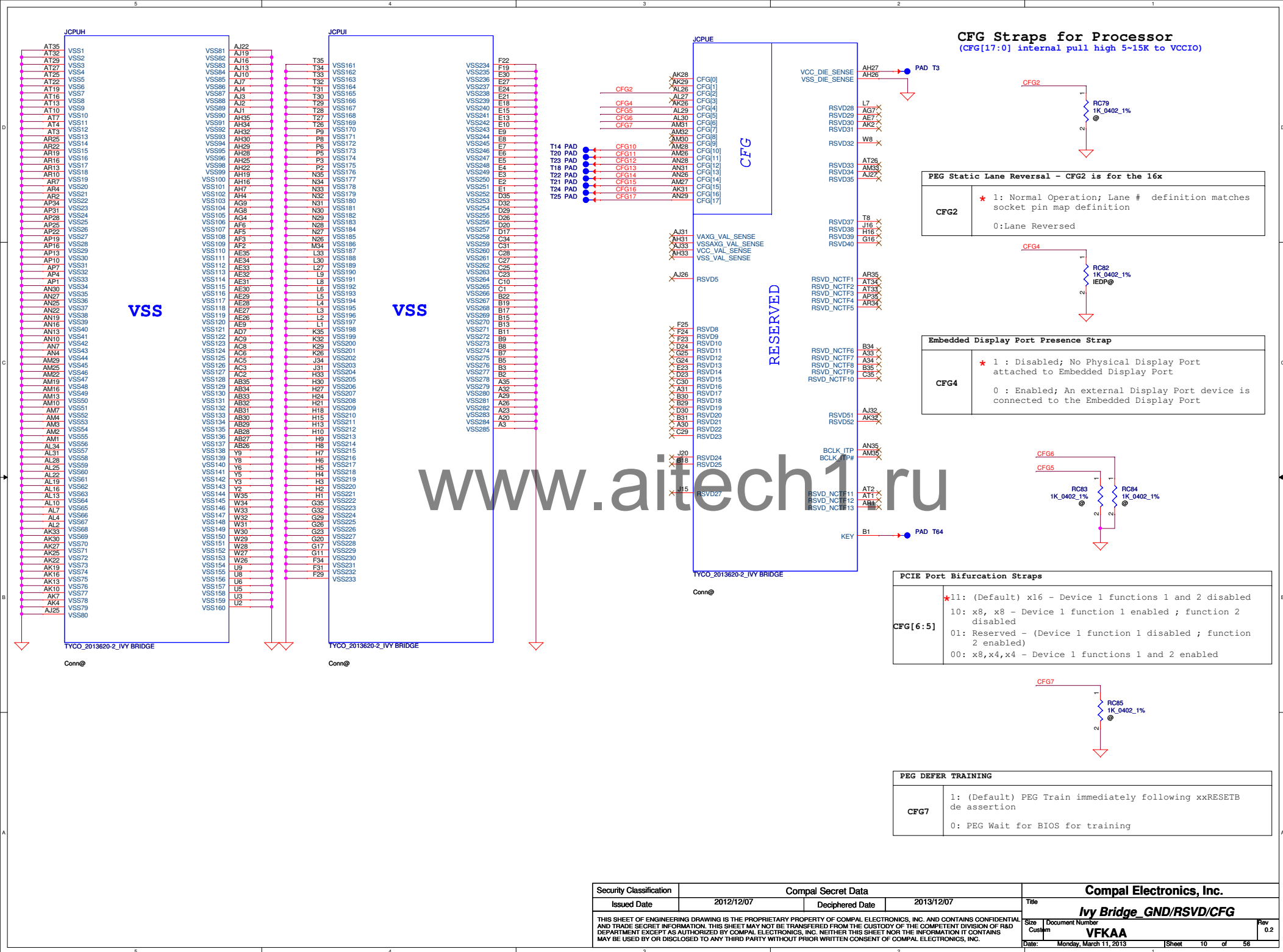
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF PRODUCT DEVELOPMENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				VFKAA	0.2
				Date: Monday, March 11, 2013	Sheet 7 of 56

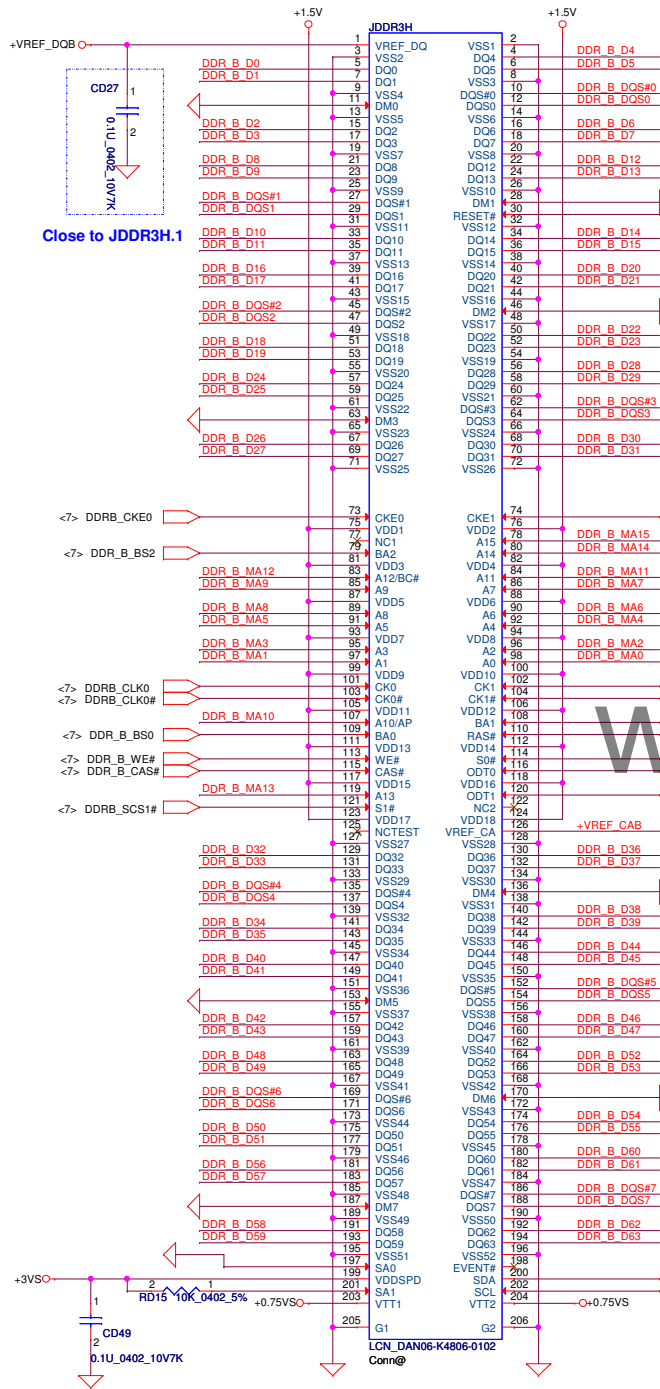


Compal_2013620-2_IVY BRIDGE

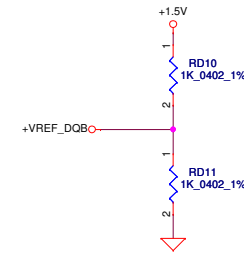
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2012/12/07				Title			
				Deciphered Date				Ivy Bridge_POWER-1			
								Document Number			
								VFKAA			
								Rev			
								0.2			
								Date			
								Monday, March 11, 2013			
								Sheet			
								8 of 56			







DDR_B_DQS#0[0..7] <7>
 DDR_B_DQS#1[0..7] <7>
 DDR_B_DQS#2[0..7] <7>
 DDR_B_DQS#3[0..7] <7>

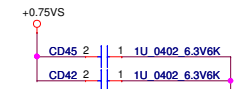
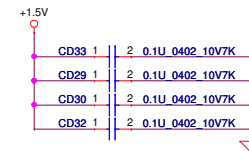
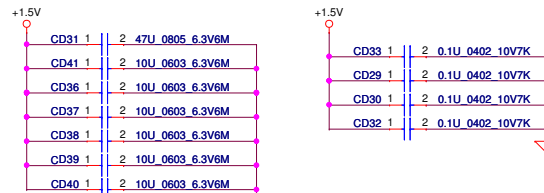


Close to JDDR3H.126

Layout Note:
Place near JDDR3H

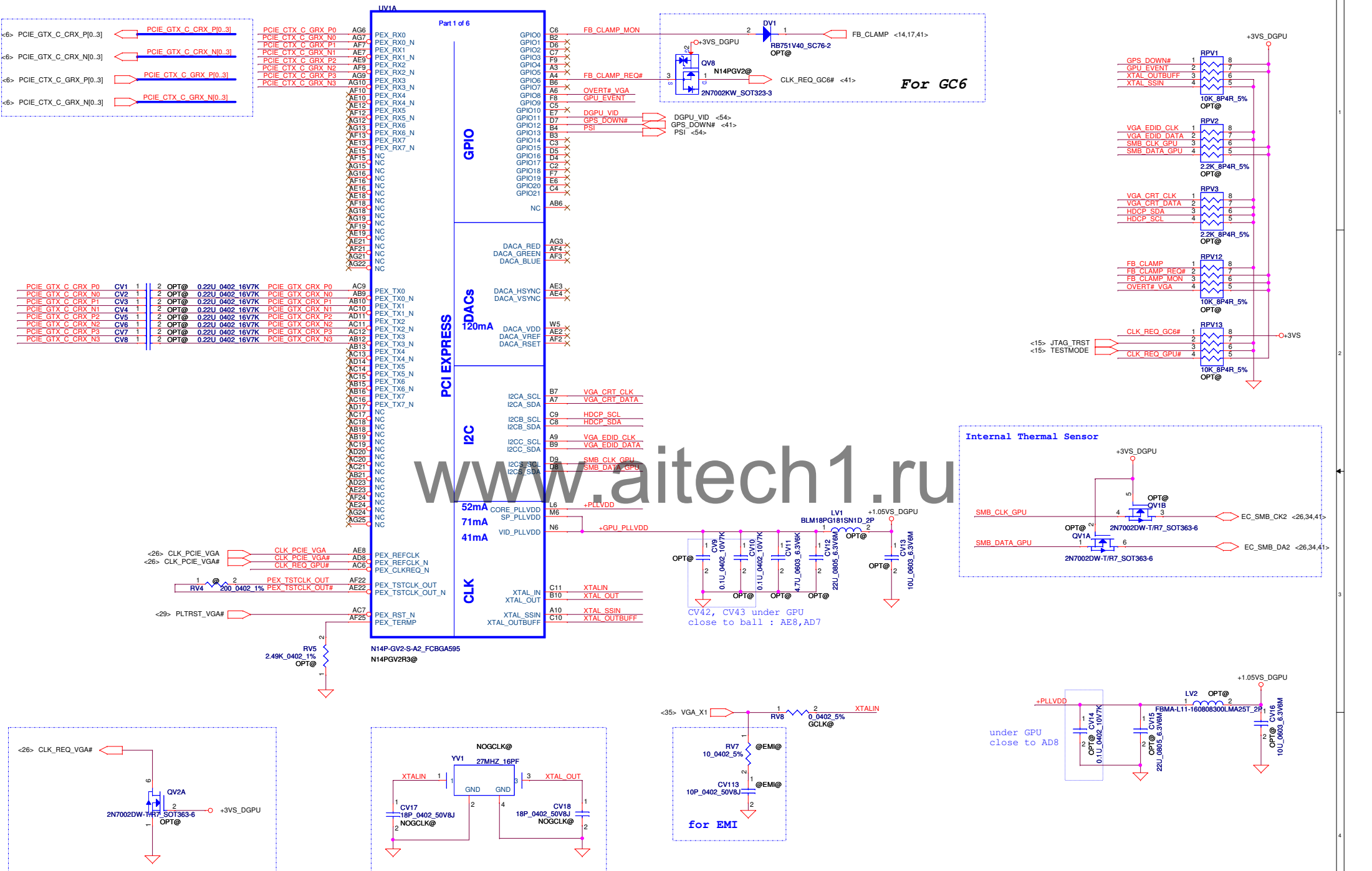
Layout Note: Place these 4 Caps near
Command and Control signals of DIMMB

Layout Note:
Place near JDDR3H.203 and 204

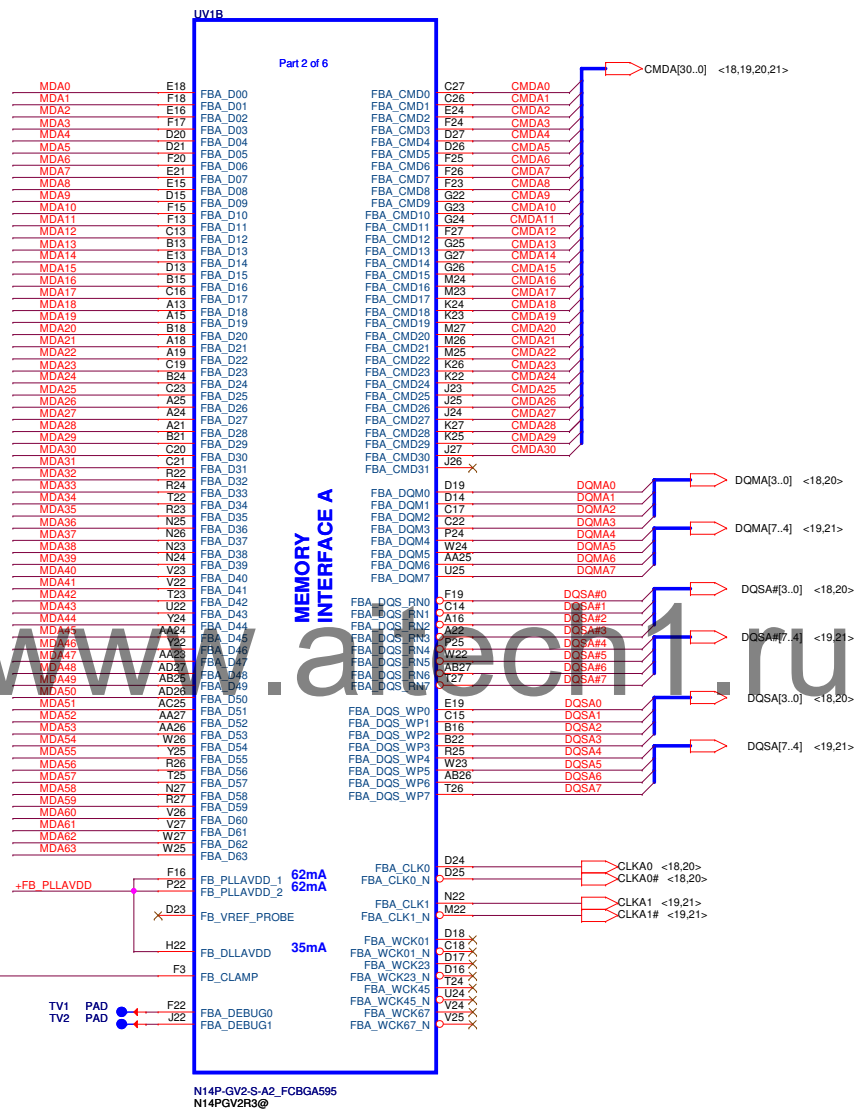
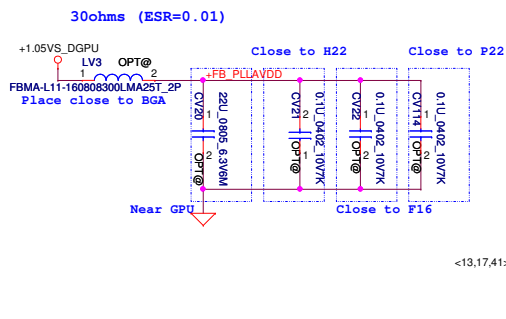
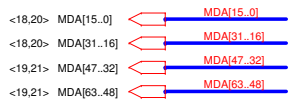


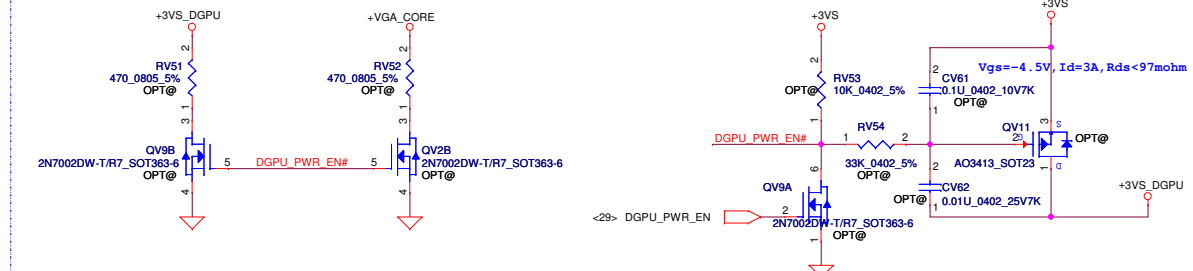
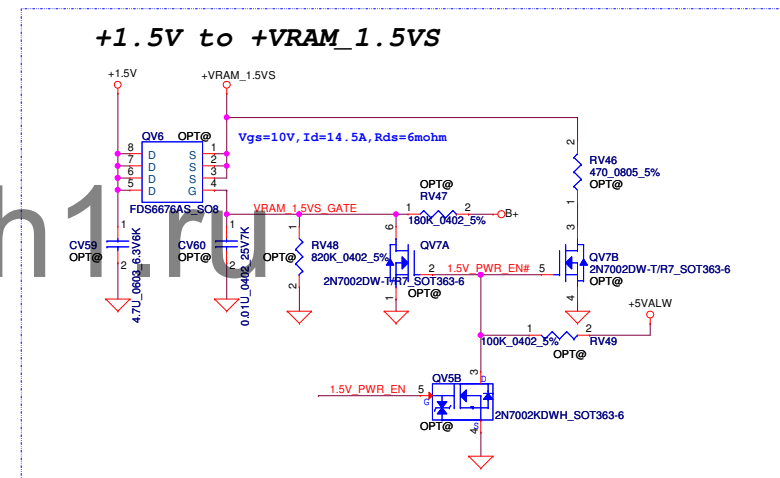
SPD setting (SA0, SA1)
 PU/PD by Channel A/B
 ->Channel A 00
 ->Channel B 01

Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2012/12/07				Title			
Deciphered Date				2013/12/07				Document Number			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF FACTORY DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Rev				VFKAA			
Date				Monday, March 11, 2013				Sheet 12 of 56			



VRAM Interface



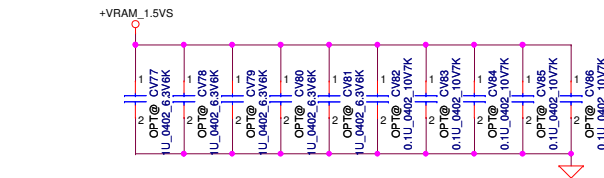
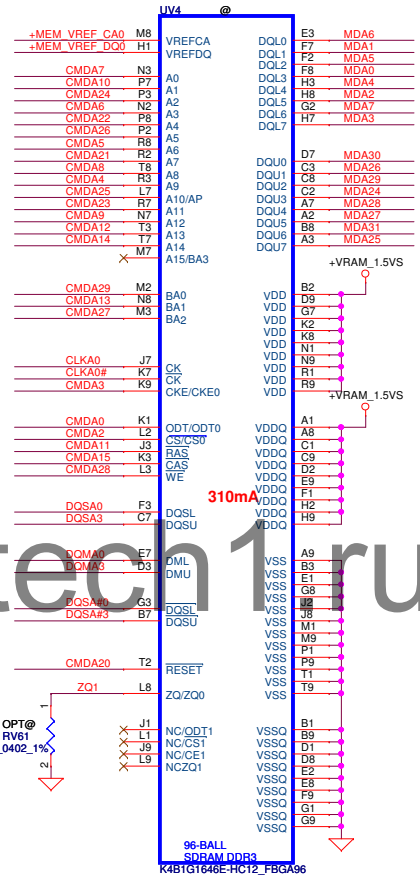
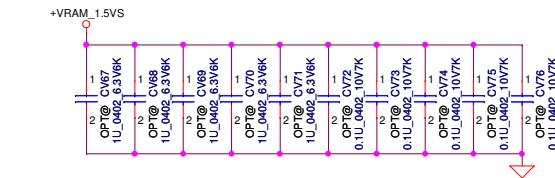
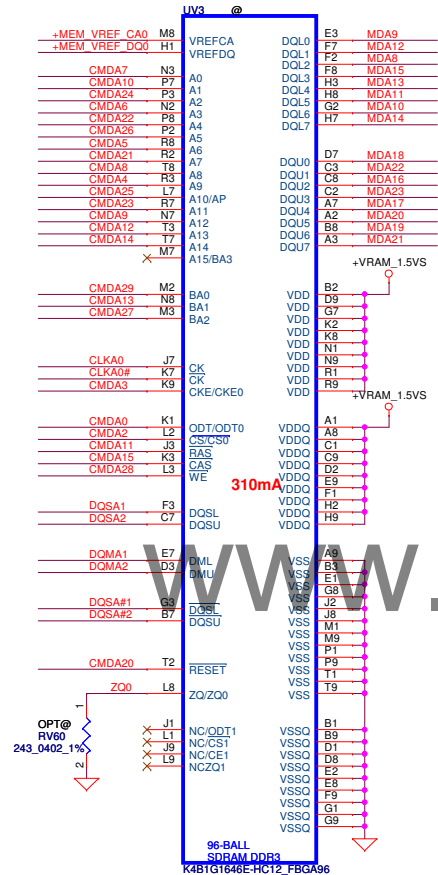
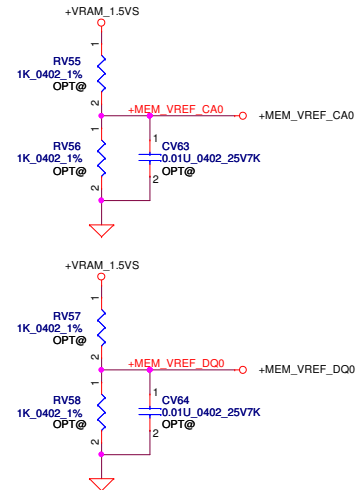


THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

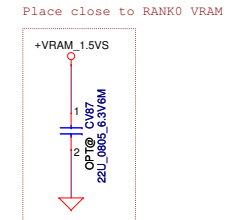
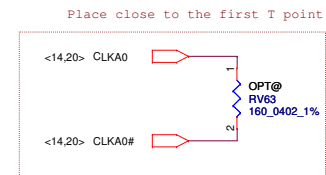
VGA N14X POWER & GND
 Date: Monday, March 11, 2013 Sheet 17 of 56 Rev 0.2

RANK 0 [31...0] VRAM DDR3 Chips

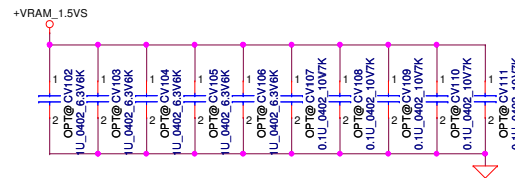
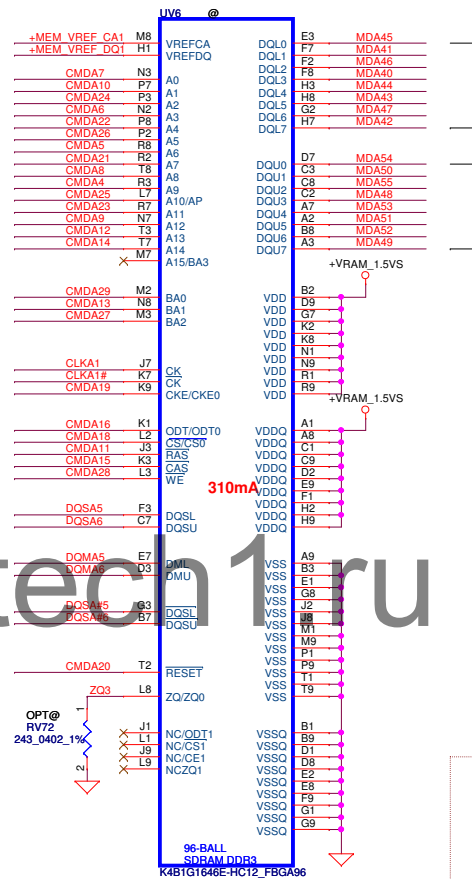
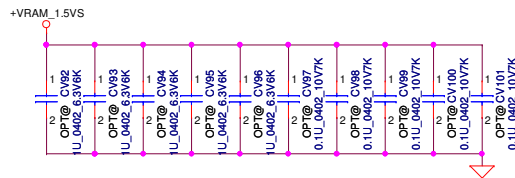
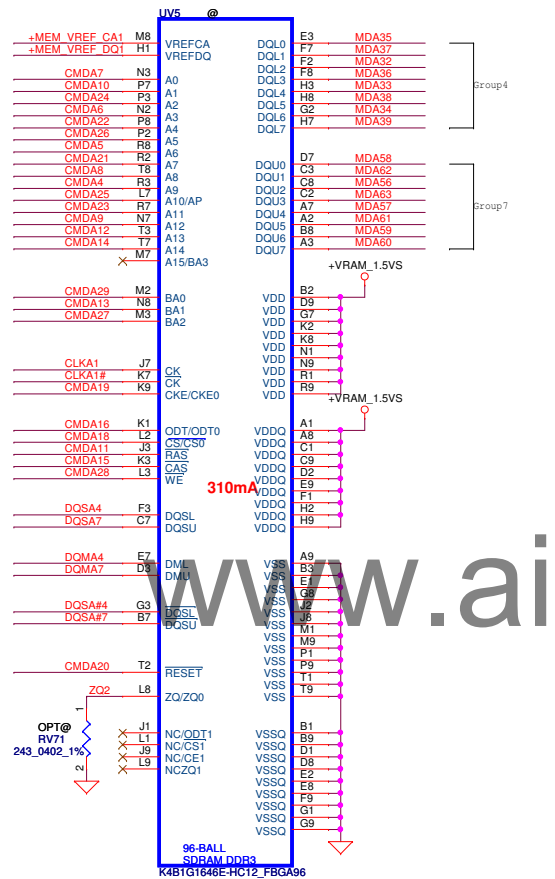
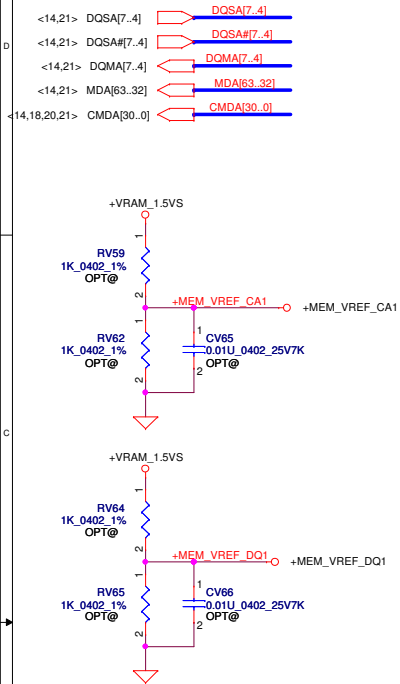
<14,20> DQSA[3..0] → DQSA#1[3..0]
<14,20> DQSA#1[3..0] → DQSA#1[3..0]
<14,20> DQMA[3..0] → DQMA#1[3..0]
<14,20> MDA[31..0] → MDA#1[31..0]
19,20,21> CMDA[30..0] → CMDA#1[30..0]



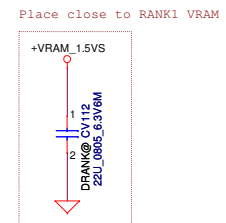
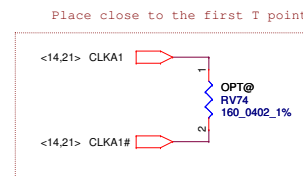
Mode E Address	Rank 0		Rank 1	
	0..31	32..63	0..31	32..63
CMD0	ODT		ODT	
CMD1			CS1#	
CMD2	CS0#			
CMD3	CKE		CKE	
CMD4	A9	A9	A11	A11
CMD5	A6	A6	A7	A7
CMD6	A3	A3	BA1	BA1
CMD7	A0	A0	A12	A12
CMD8	A8	A8	A8	A8
CMD9	A12	A12	A0	A0
CMD10	A1	A1	A2	A2
CMD11	RAS#	RAS#	RAS#	RAS#
CMD12	A13	A13	A14	A14
CMD13	BA1	BA1	A3	A3
CMD14	A14	A14	A13	A13
CMD15	CAS#	CAS#	CAS#	CAS#
CMD16		ODT		ODT
CMD17			CS1#	
CMD18		CS0#		
CMD19		CKE		CKE
CMD20	RST	RST	RST	RST
CMD21	A7	A7	A6	A6
CMD22	A4	A4	A5	A5
CMD23	A11	A11	A9	A9
CMD24	A2	A2	A1	A1
CMD25	A10	A10	WE#	WE#
CMD26	A5	A5	A4	A4
CMD27	BA2	BA2		
CMD28	WE#	WE#	A10	A10
CMD29	BA0	BA0	BA0	BA0
CMD30			BA2	BA2



RANK 0 [63...32]

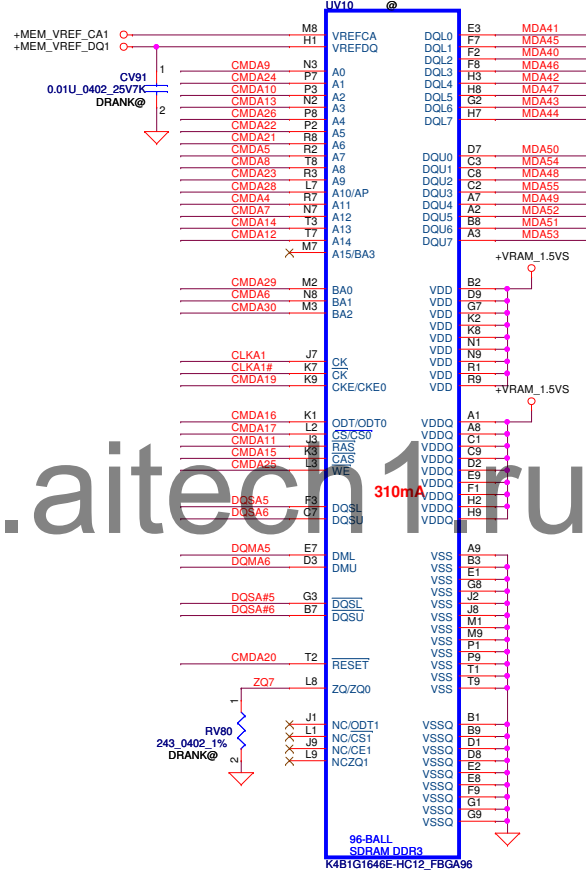
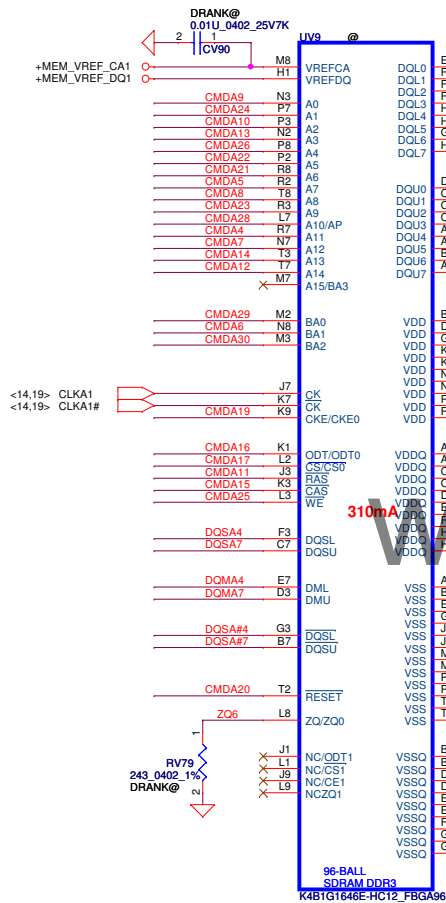
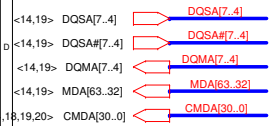


Mode E Address	Rank 0		Rank 1	
	0..31	32..63	0..31	32..63
CMD0	ODT		ODT	
CMD1			CS1#	
CMD2	CS0#			
CMD3	CKE		CKE	
CMD4	A9	A9	A11	A11
CMD5	A6	A6	A7	A7
CMD6	A3	A3	BA1	BA1
CMD7	A0	A0	A12	A12
CMD8	A8	A8	A8	A8
CMD9	A12	A12	A0	A0
CMD10	A1	A1	A2	A2
CMD11	RAS#	RAS#	RAS#	RAS#
CMD12	A13	A13	A14	A14
CMD13	BA1	BA1	A3	A3
CMD14	A14	A14	A13	A13
CMD15	CAS#	CAS#	CAS#	CAS#
CMD16		ODT		ODT
CMD17				CS1#
CMD18		CS0#		
CMD19		CKE		CKE
CMD20	RST	RST	RST	RST
CMD21	A7	A7	A6	A6
CMD22	A4	A4	A5	A5
CMD23	A11	A11	A9	A9
CMD24	A2	A2	A1	A1
CMD25	A10	A10	WE#	WE#
CMD26	A5	A5	A4	A4
CMD27	BA2	BA2		
CMD28	WE#	WE#	A10	A10
CMD29	BA0	BA0	BA0	BA0
CMD30			BA2	BA2



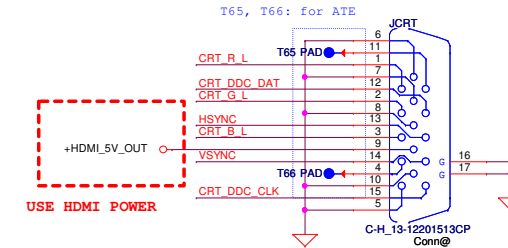
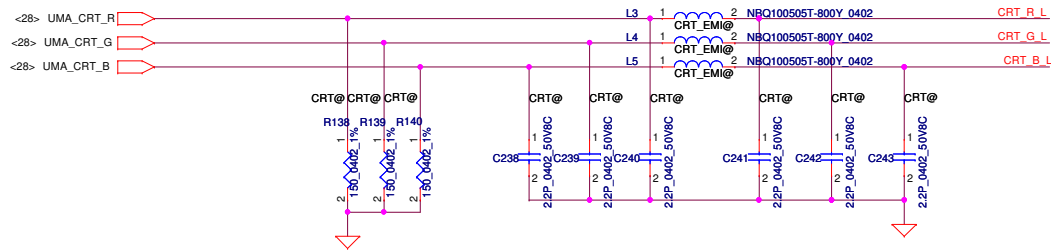
Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title	VGA N14x VRAM RANK 0H	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF FIRST DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Doc. No.	Document Number	Rev 0.2
				Cust.	Customer	
				Date:	Monday, March 11, 2013	Sheet 19 of 56

RANK 1 [63...32]

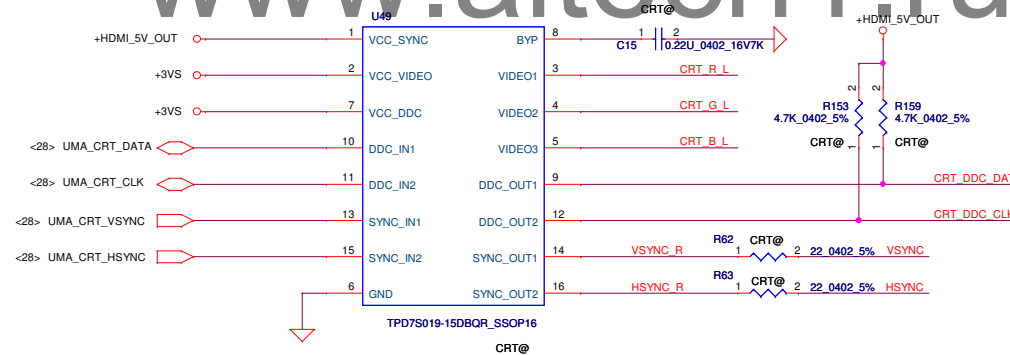


Mode E Address	Rank 0		Rank 1	
	0..31	32..63	0..31	32..63
CMD0	ODT		ODT	
CMD1			CS1#	
CMD2	CS0#			
CMD3	CKE		CKE	
CMD4	A9	A9	A11	A11
CMD5	A6	A6	A7	A7
CMD6	A3	A3	BA1	BA1
CMD7	A0	A0	A12	A12
CMD8	A8	A8	A8	A8
CMD9	A12	A12	A0	A0
CMD10	A1	A1	A2	A2
CMD11	RAS#	RAS#	RAS#	RAS#
CMD12	A13	A13	A14	A14
CMD13	BA1	BA1	A3	A3
CMD14	A14	A14	A13	A13
CMD15	CAS#	CAS#	CAS#	CAS#
CMD16		ODT		ODT
CMD17				CS1#
CMD18		CS0#		
CMD19		CKE		CKE
CMD20	RST	RST	RST	RST
CMD21	A7	A7	A6	A6
CMD22	A4	A4	A5	A5
CMD23	A11	A11	A9	A9
CMD24	A2	A2	A1	A1
CMD25	A10	A10	WE#	WE#
CMD26	A5	A5	A4	A4
CMD27	BA2	BA2		
CMD28	WE#	WE#	A10	A10
CMD29	BA0	BA0	BA0	BA0
CMD30			BA2	BA2

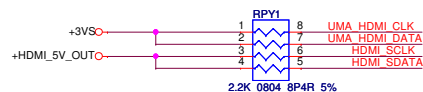
CRT CONNECTOR



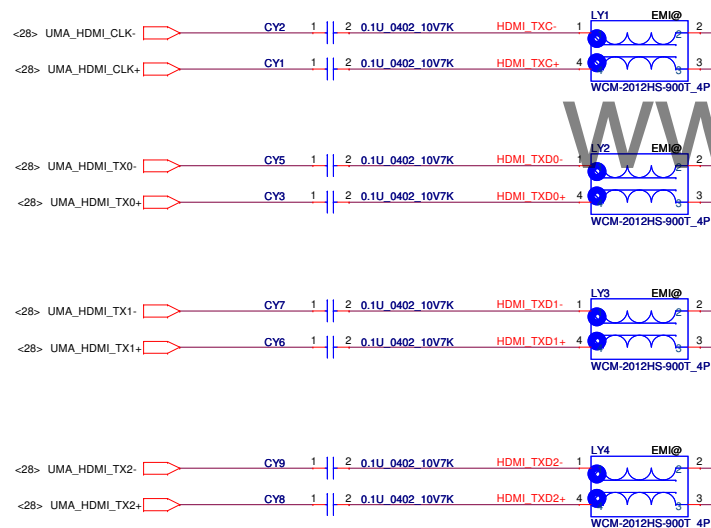
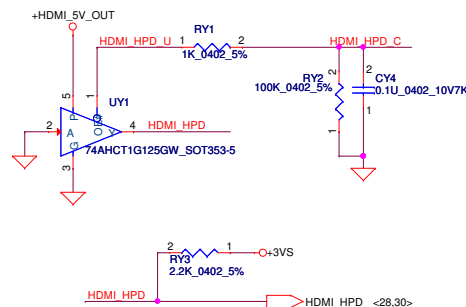
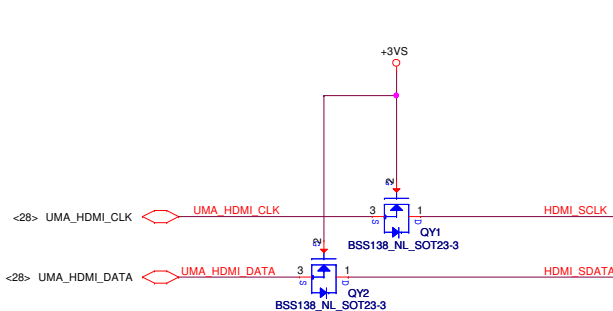
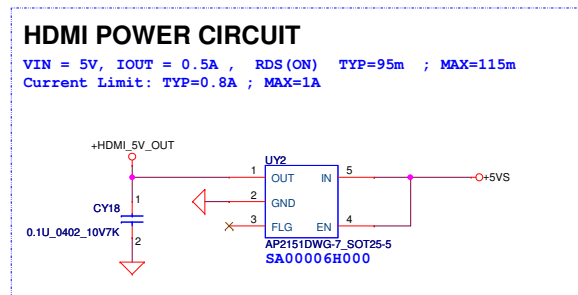
www.aitech1.ru



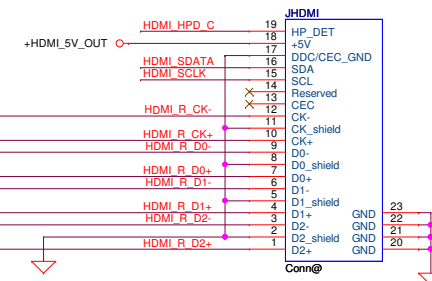
Security Classification		Compal Secret Data				Compal Electronics, Inc.							
Issued Date		2012/12/07		Deciphered Date		2013/12/07		Title					
<p>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</p>								CRT					
								Document Number		VFKAA		Rev 0.2	
								Date		Monday, March 11, 2013		Sheet 23 of 56	



OE#	A	Y
L	L	L
L	H	H
H	X	Z



HDMI Connector



HDMI Royalty

ZZZ HDMI45@

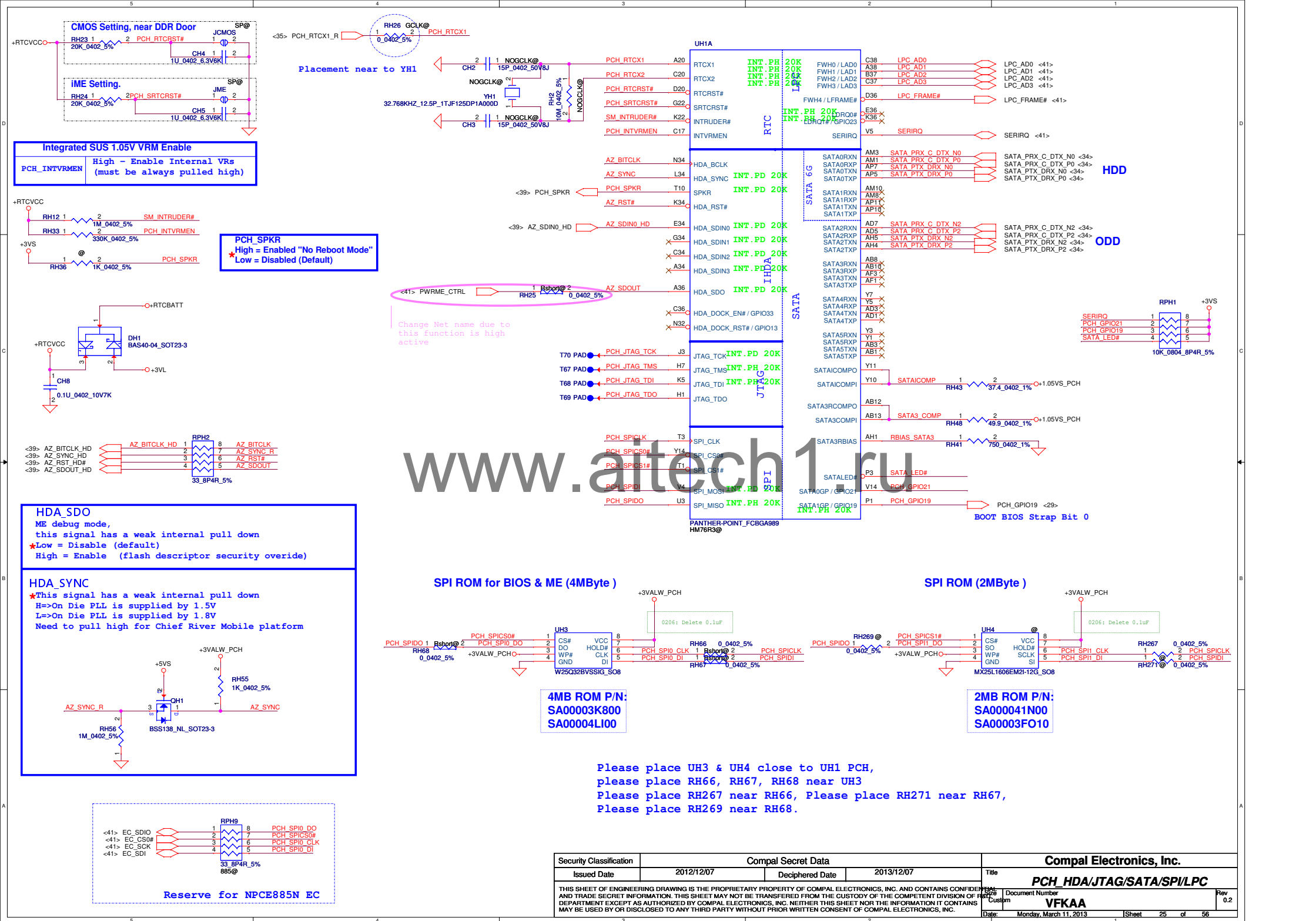
RO0000003HM

HDMI W/Logo + HDCP

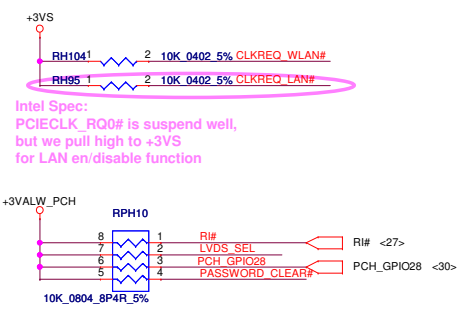
HDMI W/O Logo: RO0000001HM
HDMI W/Logo: RO0000002HM
HDMI W/Logo + HDCP: RO0000003HM

please manually load
this virtual material to 45@ BOM

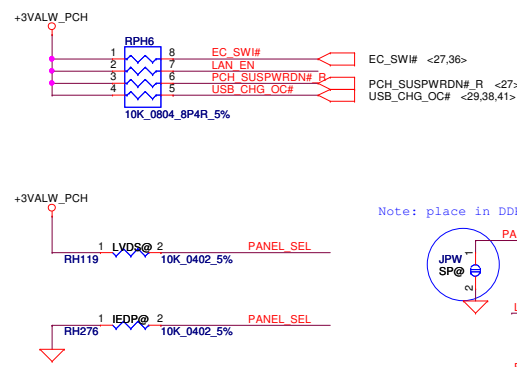
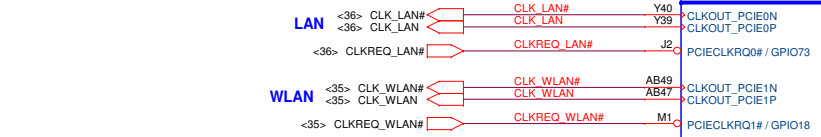
Security Classification	Compal Secret Data		Title	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Document Number
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Rev 0.2
Date: Monday, March 11, 2013				Sheet 24 of 56



LAN
WLAN



Intel Spec:
PCIECLK_RQ0# is suspend well,
but we pull high to +3VS
for LAN en/disable function



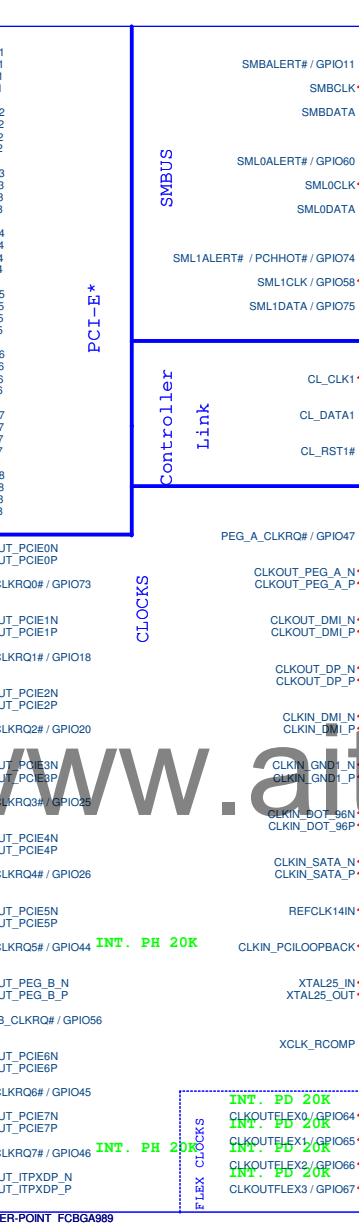
Note: place in DDR area



LVDS_SEL		
LVDS_SEL	H	L
Channel	Single (Default)	Dual

PANEL_SEL		
PANEL_SEL	H	L
Channel	LVDS	EDP

U1B



PCI-E*

Controller Link

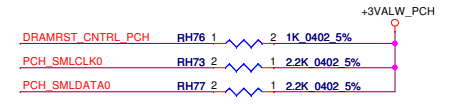
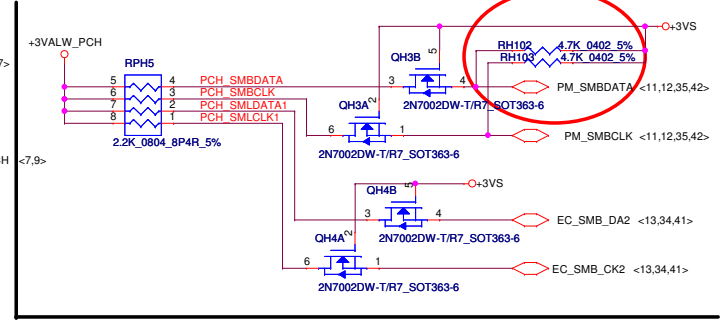
CLOCKS

FLEX CLOCKS

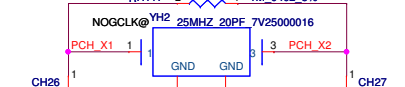
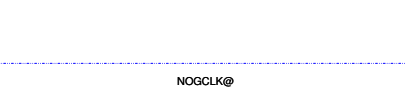
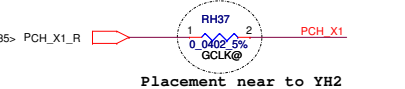
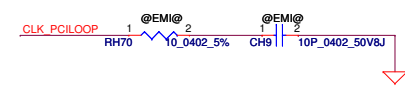
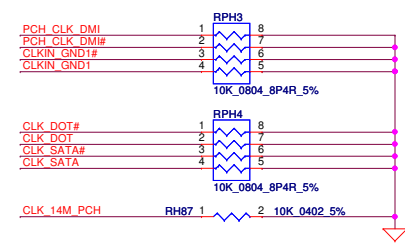
INT. PD 20K
INT. PD 20K
INT. PD 20K
INT. PD 20K
INT. PD 20K

www.aitech1.ru
From Clock Gen.

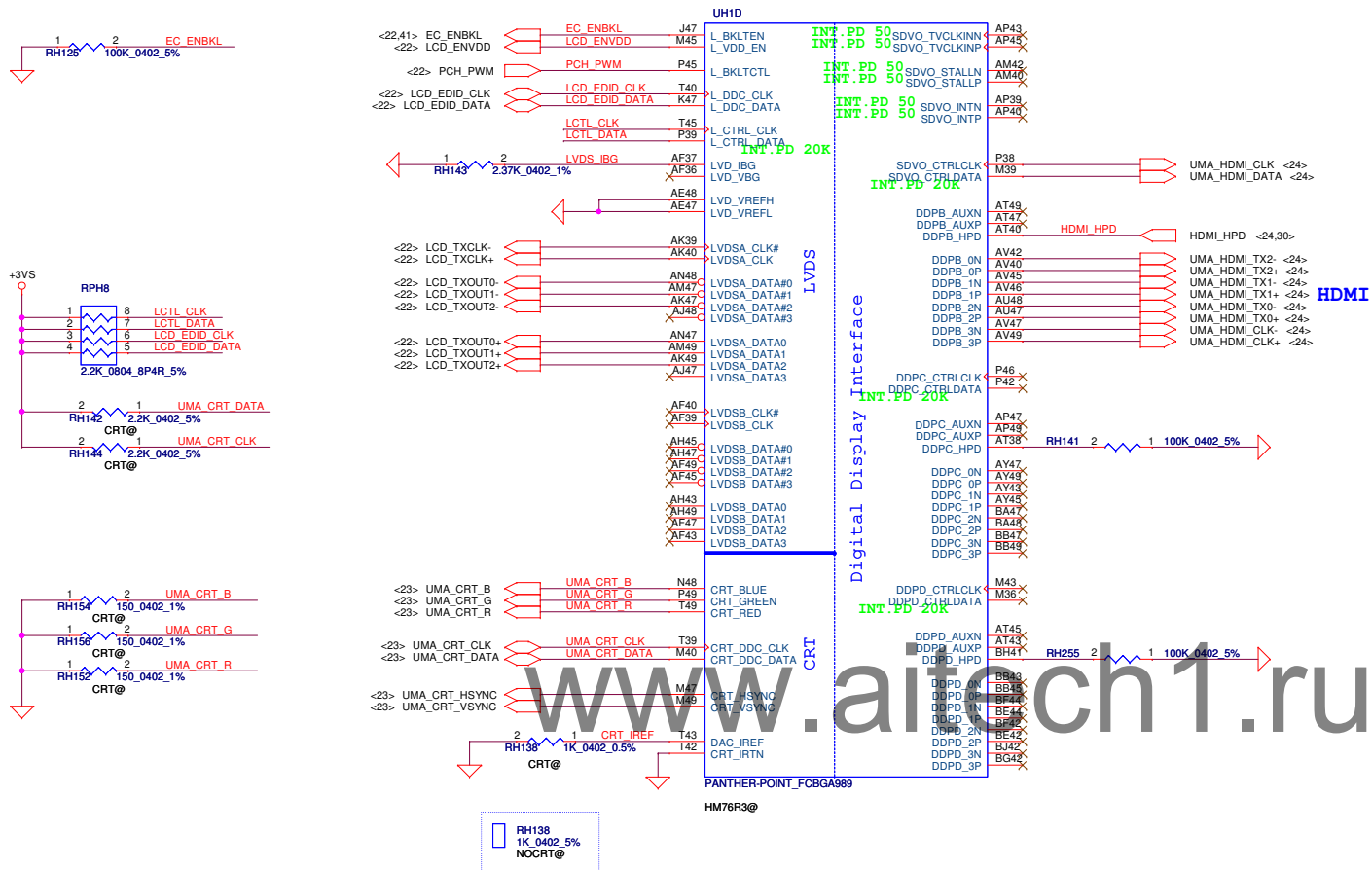
DGPU_PRNT#		
DGPU_PRNT#	H	L
M/B SKU	UMA	DIS/OPT



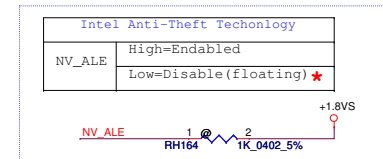
Need to check dGPU



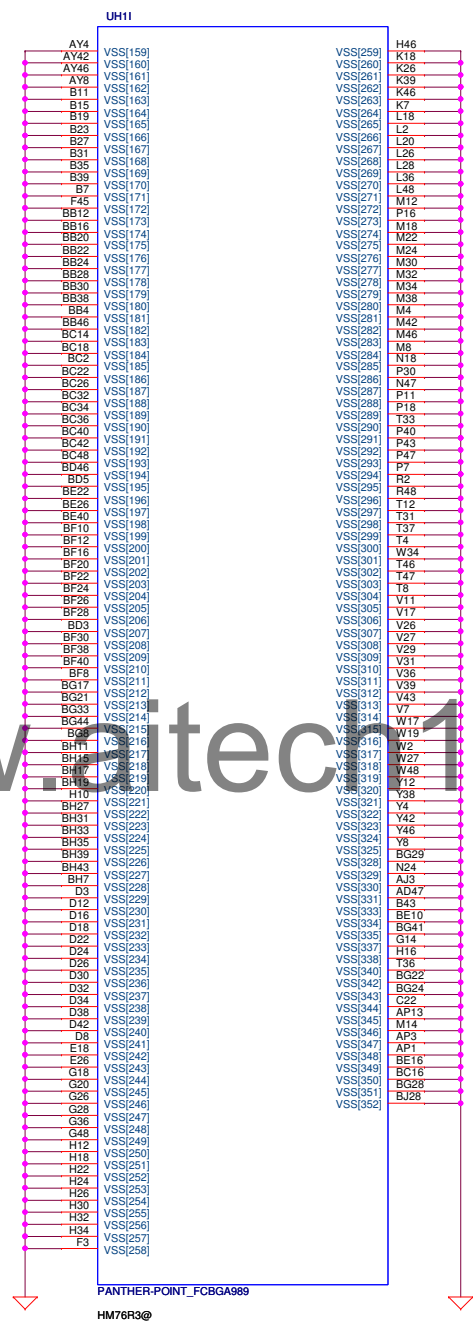
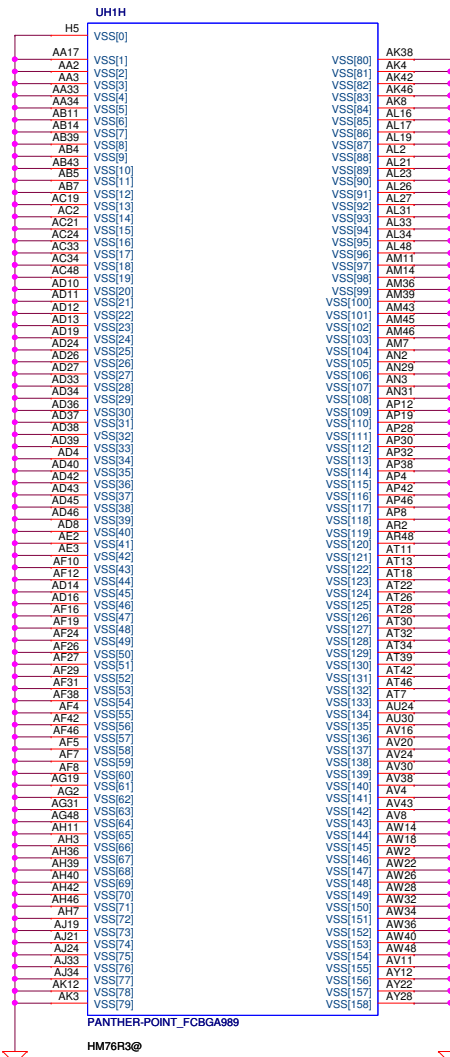
Compal common design SW request to add DGPU_Present on this GPIO67



Security Classification		Compal Secret Data				Compal Electronics, Inc.									
Issued Date		2012/12/07		Deciphered Date		2013/12/07		Title							
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF PRODUCT CUSTOMER SERVICE TO ANY OTHER DIVISION OF COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.								PCH_CRT/LVDS/HDMI							
								Doc No		Document Number		Rev		0.2	
								Custom		VFKAA					
								Date		Monday, March 11, 2013		Sheet		28 of 56	



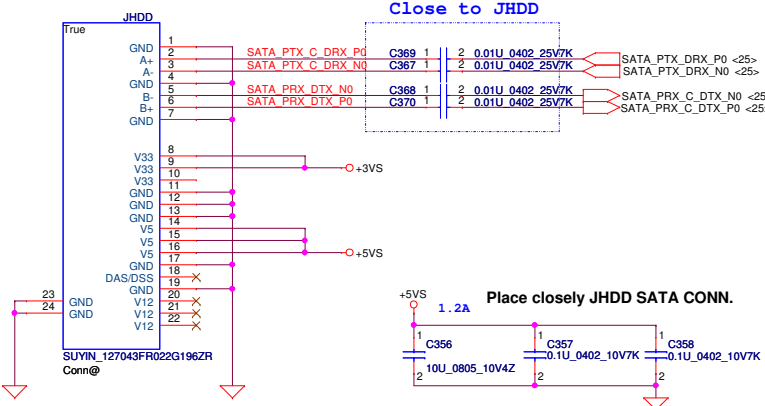
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date		2012/12/07	Deciphered Date		2013/12/07	Title
						PCH_PCI/USB/NAND
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.						Document Number
						Custom
Date: Monday, March 11, 2013						Sheet 29 of 56



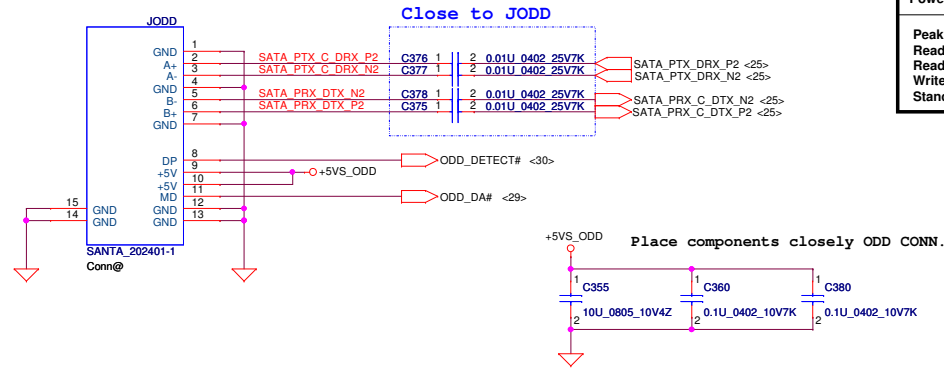
www.itec1.ru

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title	PCH_GND
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	VFKAA
				Date	Monday, March 11, 2013
				Sheet	33 of 56

SATA HDD Conn.

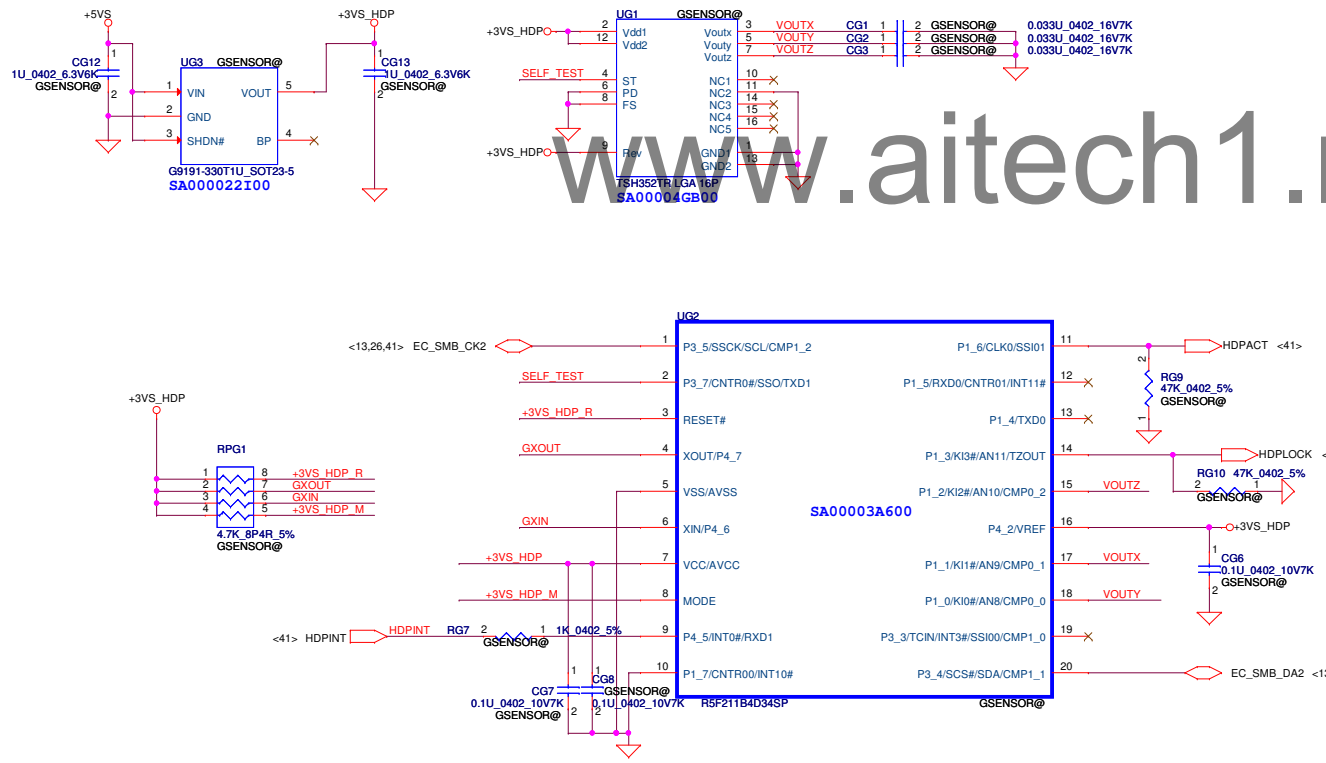


SATA ODD Conn

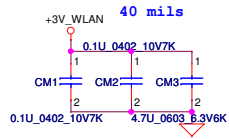


Power Consumption	
Peak	1800 mA
Read (CD)	1100 mA
Read (DVD)	950 mA
Write	1300 mA
Standby	20mA

G-Sensor



Slot 1 Half PCIe Mini Card-WLAN



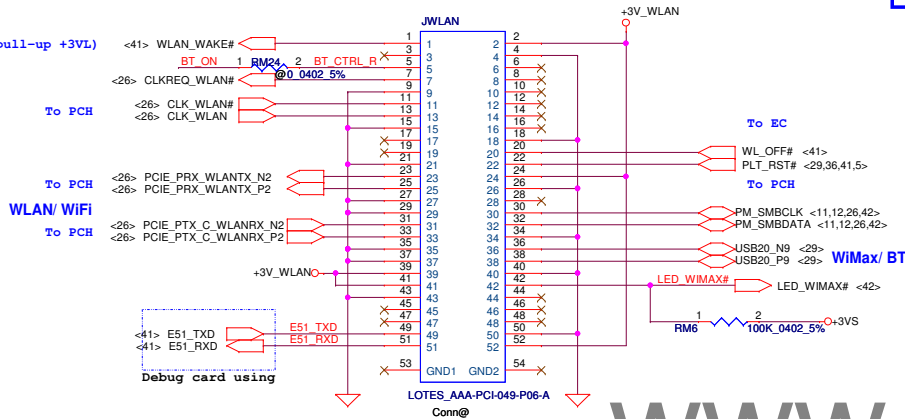
WLAN&BT Combo module circuits

	BT on module	BT on module
	Enable	Disable
BT_ON	H	L

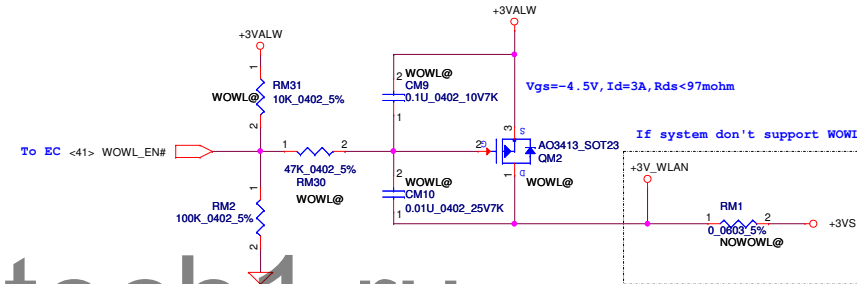
From EC



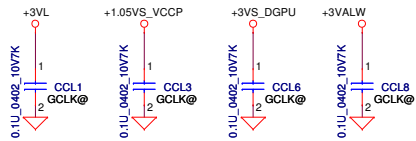
For isolate BT_ON and Compal Debug Card.



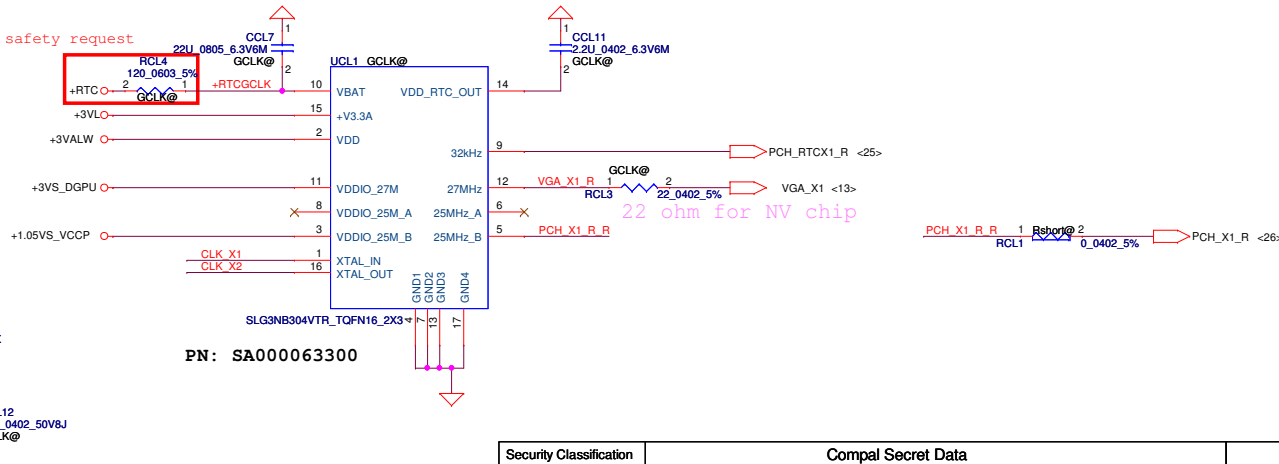
+3VALW TO +3V_WLAN for WOWL



www.aitech1.ru

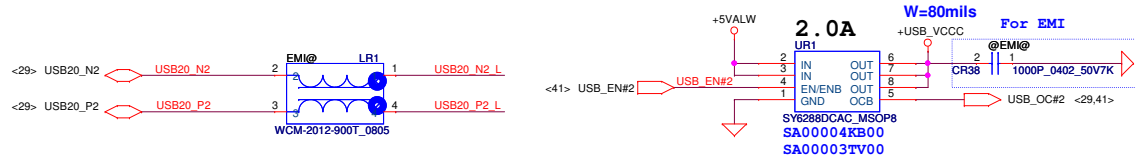


for safety request

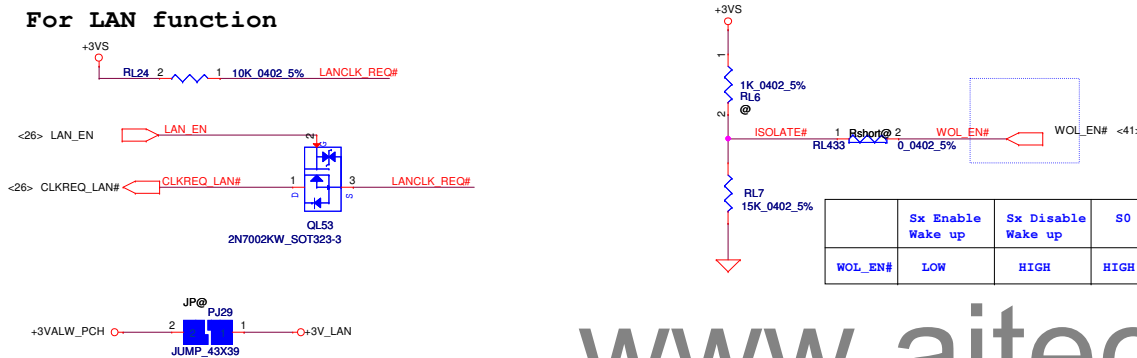


Security Classification		Compal Secret Data		Title	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	WLAN/GCLK	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				VFKAA	0.2
				Date	Monday, March 11, 2013
				Sheet	35 of 56

Left USB 2.0 x 1



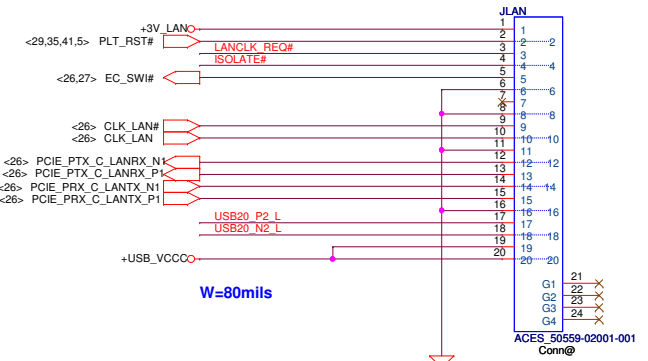
For LAN function



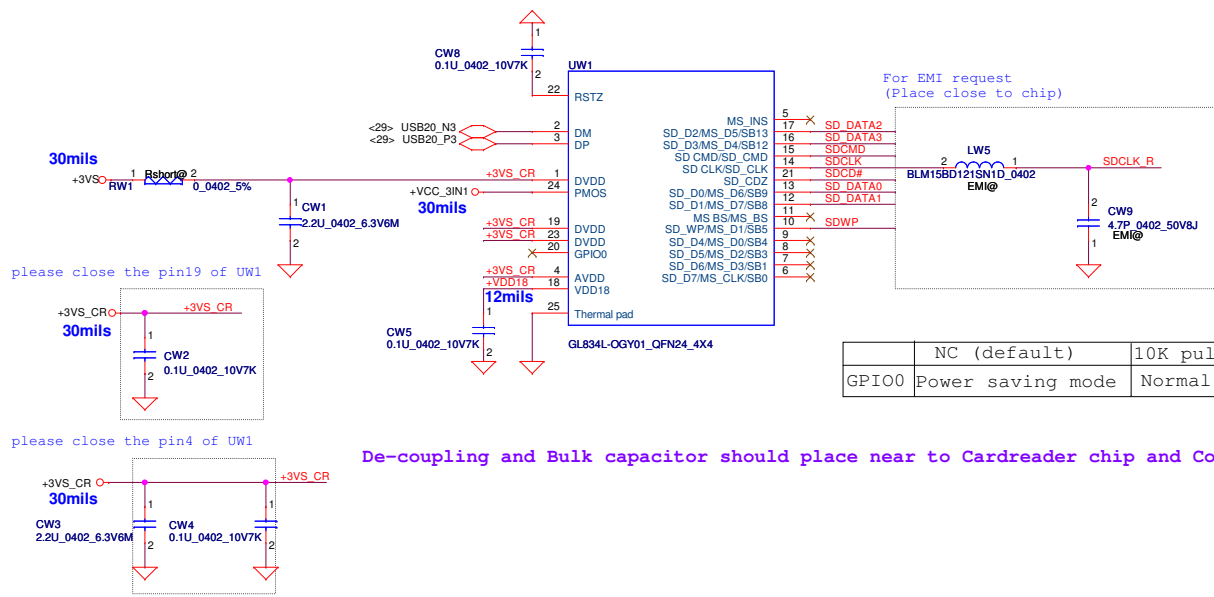
+3V_LAN rising time (10%~90%) need > 1ms and <100ms.

LAN	WOL	LAN_EN		ISOLATEB	
		S0	Sx	S0	Sx
0	0	0	0	1	1
0	1	0	0	1	1
1	0	1	1	1	1
1	1	1	1	1	0*

*
S3: after SUSP# assert low over 100ms
S4/S5: after SYSON assert low over 100ms

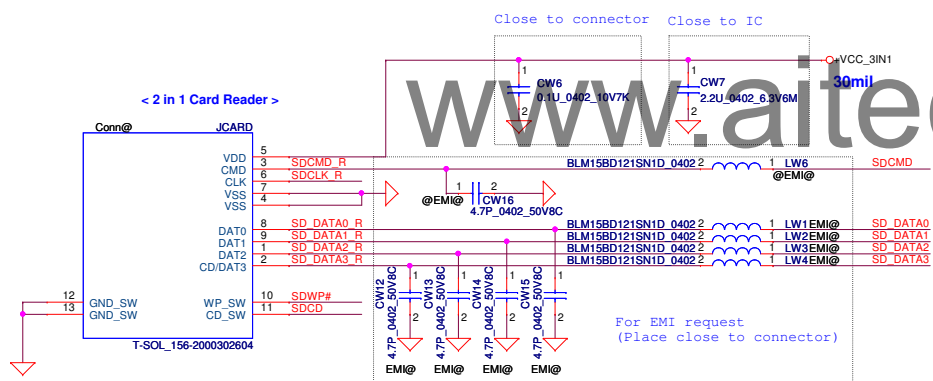


www.aitech1.ru



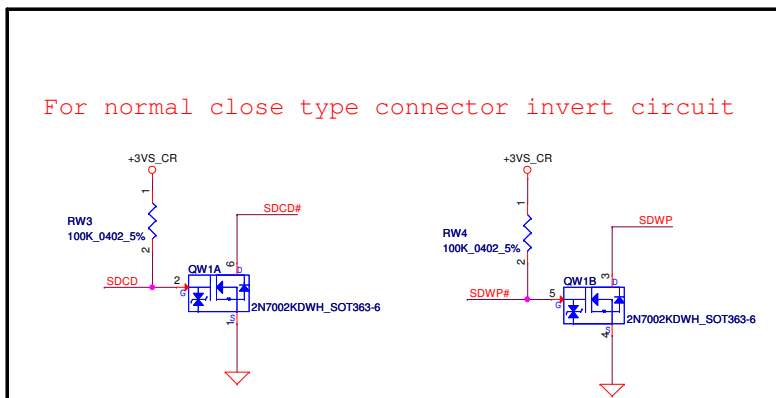
	NC (default)	10K pull down
GPI00	Power saving mode	Normal mode

De-coupling and Bulk capacitor should place near to Cardreader chip and Combo Socket



"Normal Close" type connector

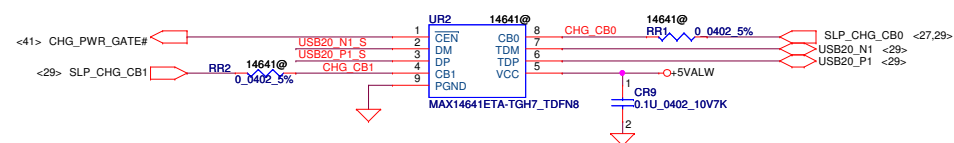
	CD_SW	WP_SW	
Card Uninsertion	Close	Protect disable	Protect Enable
		Close	Close
Card Insertion	Open	Open	Close



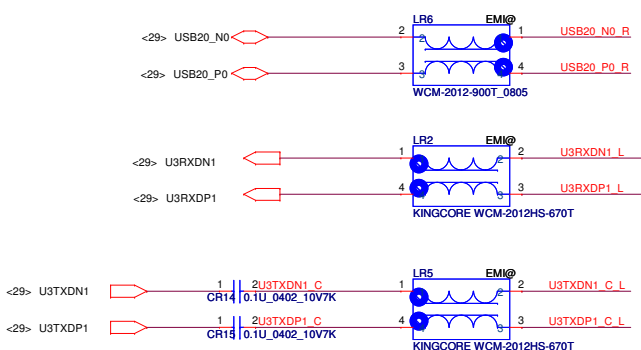
For normal close type connector invert circuit

USB Sleep & Charge

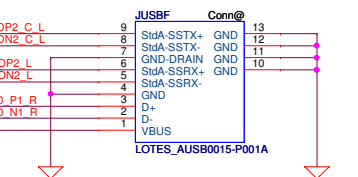
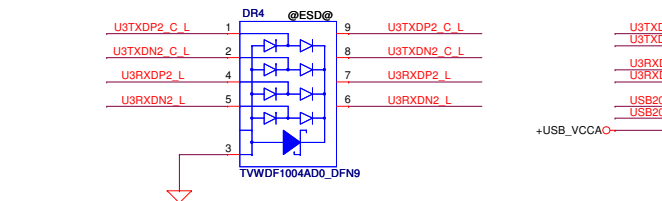
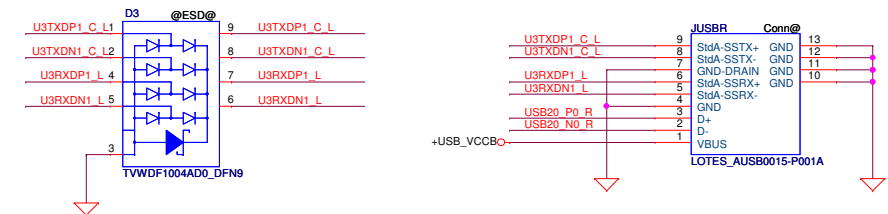
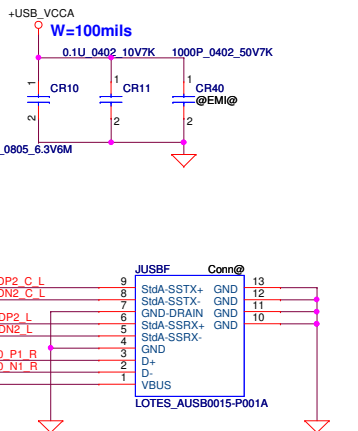
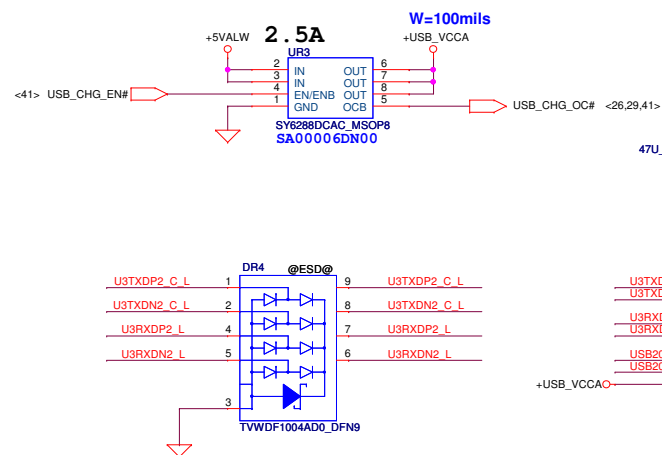
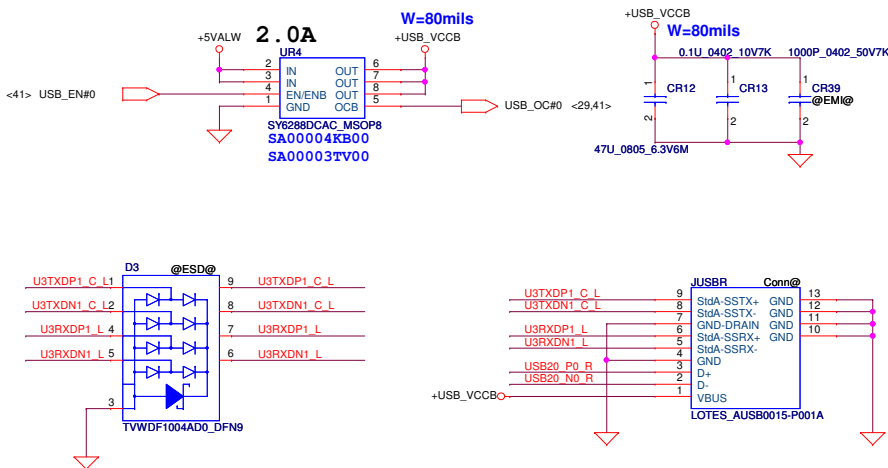
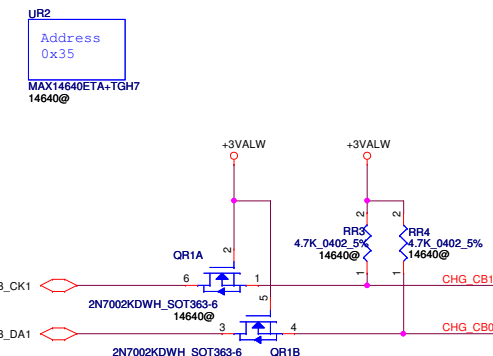
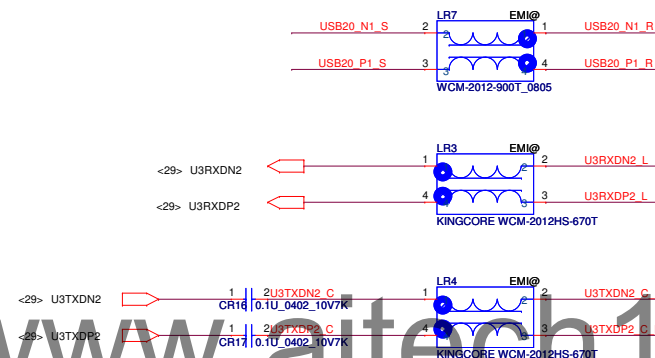
State table for MAX14641			
CB0	CB1	Mode	STATUS
0	0	AM2	2A auto-detection charger mode for Apple device. Resistor dividers are connected to DP/DM. Including DCP
0	1	AP1	Forced 1A charger mode for Apple devices. Resistor dividers are connected to DP/DM.
1	0	PM	USB pass-through mode. DP/DM are connected to TDP/TDM
1	1	CM	USB pass-through mode with CDP emulation. Auto connects DP/DM to TDP/TDM depending on CDP detection status.



Right rear USB3.0 Conn.



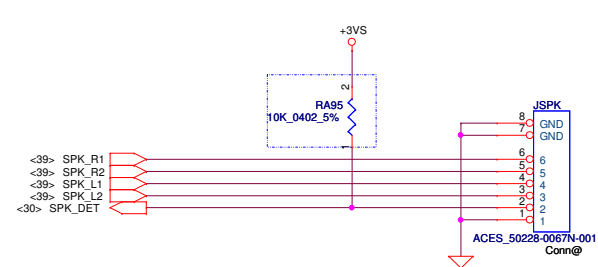
Right front USB3.0 Conn. (Support S&C function)



Security Classification		Compal Secret Data		Title	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Compal Electronics, Inc.	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF PRODUCT DEVELOPMENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev 0.2
				VFKAA	
				Date: Monday, March 11, 2013	Sheet 38 of 56

SPK Conn.

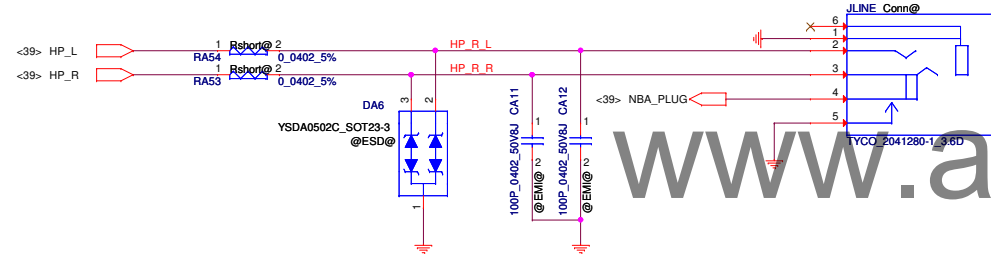
For common design,
pull-high resistor should be placed at connector side.



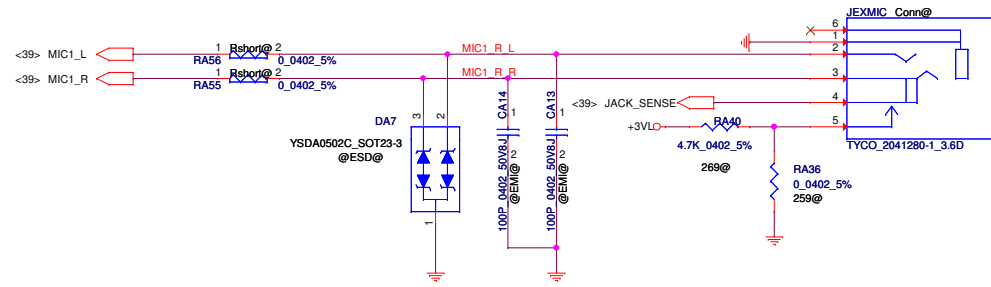
SM_DET (GPIO48)	BIOS setup	Speaker Type	BOM
1	S&M option	Harman/Kardon	269@
0		Non Harman	259@

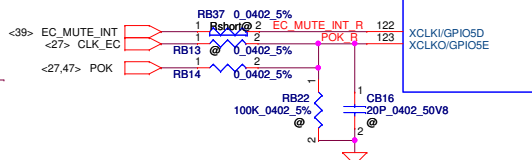
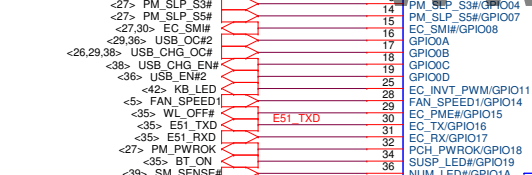
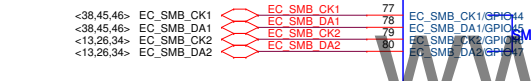
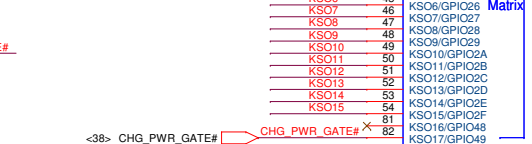
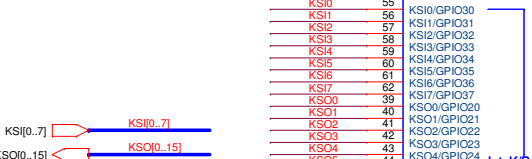
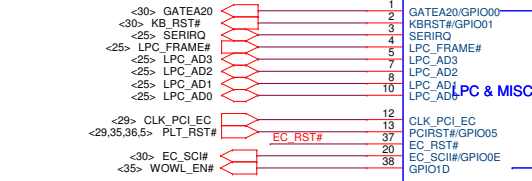
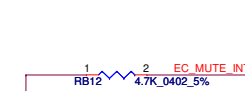
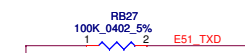
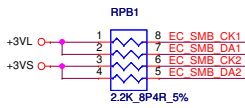
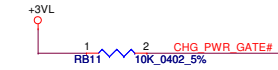
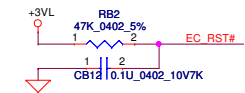
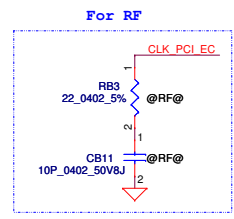
Non-Harman detection		
SPK_DET (GPIO70)	0	ONKYO
	1	Non-Brand

HeadPhone/LINE Out JACK



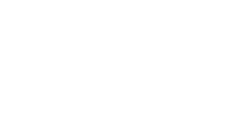
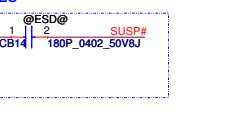
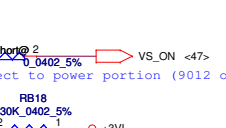
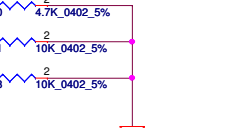
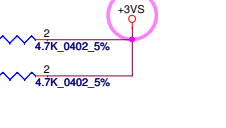
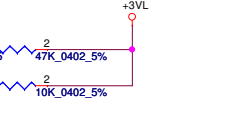
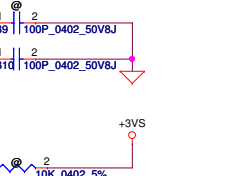
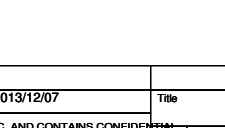
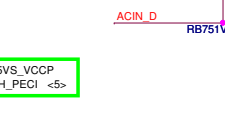
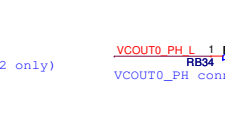
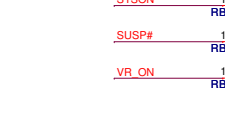
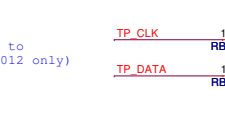
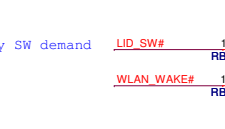
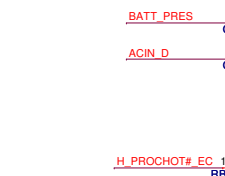
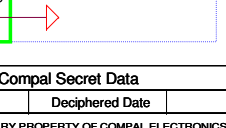
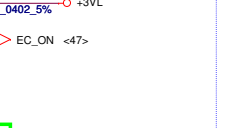
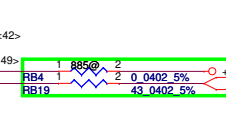
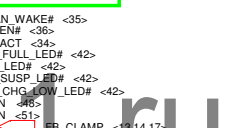
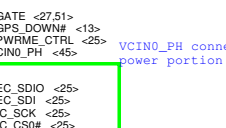
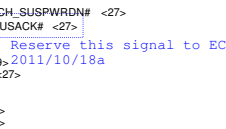
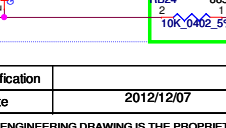
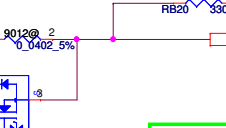
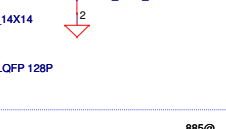
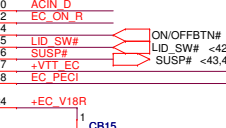
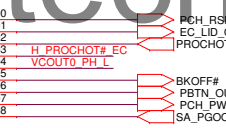
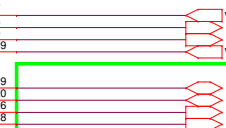
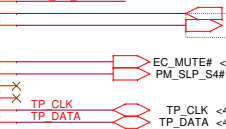
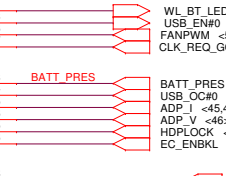
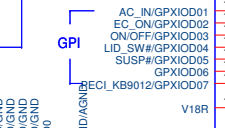
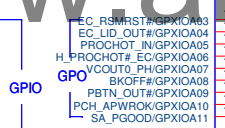
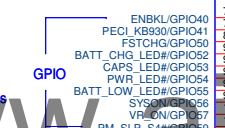
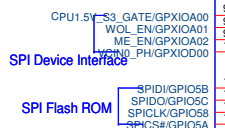
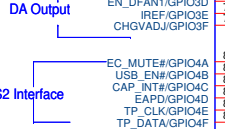
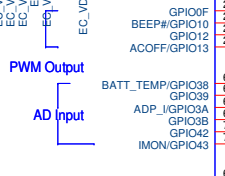
MIC/LINE IN JACK



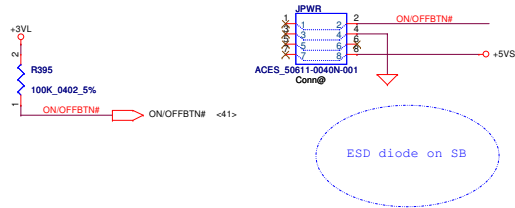


Voltage Comparator Pins FOR 9012 A3

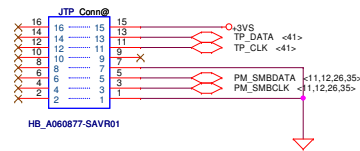
VCIN0 pin109	>1.2V	<1.2V
VCOUT0 pin104	HIGH (default)	LOW
VCOUT1 pin103	HIGH	LOW (default)



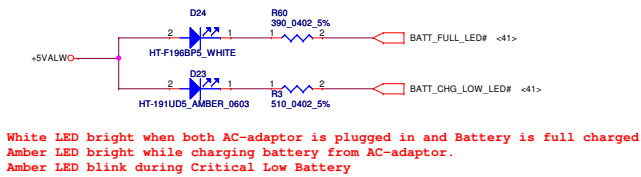
Power Button Conn.



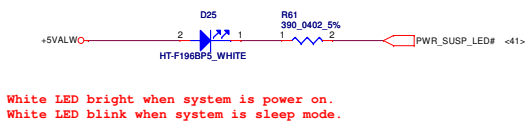
Touchpad Connector



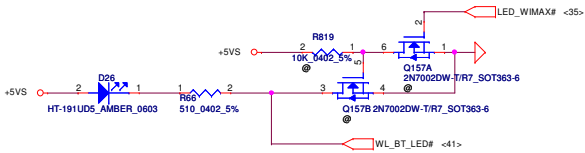
BATT CHARGE /FULL LED



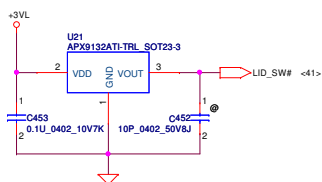
POWER LED



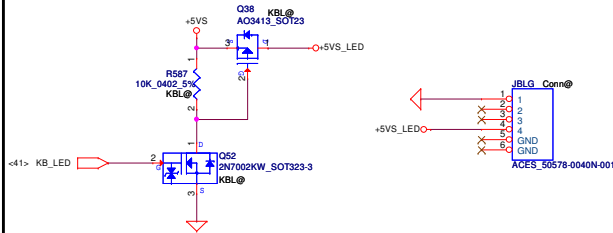
WLAN/WiMAX LED



Lid SW



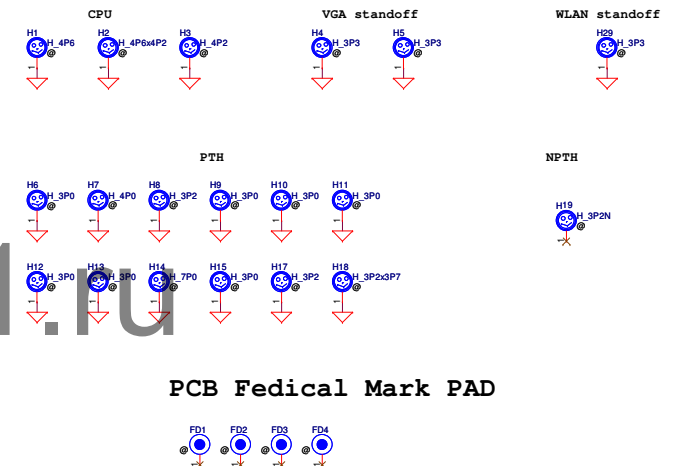
Keyboard LED



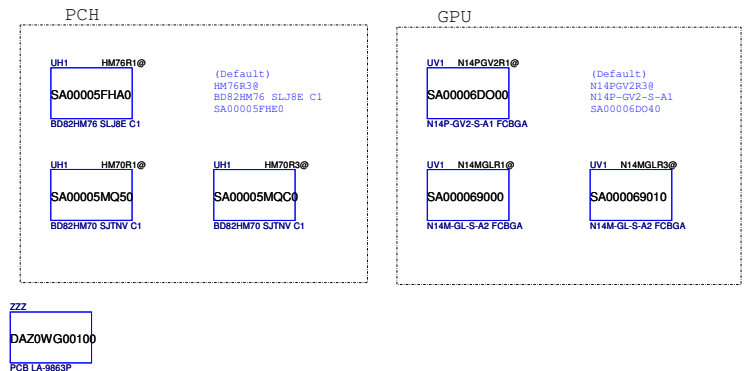
KEYBOARD CONN.



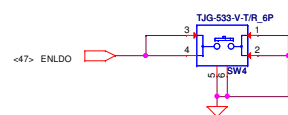
Screw Hole



ISPD

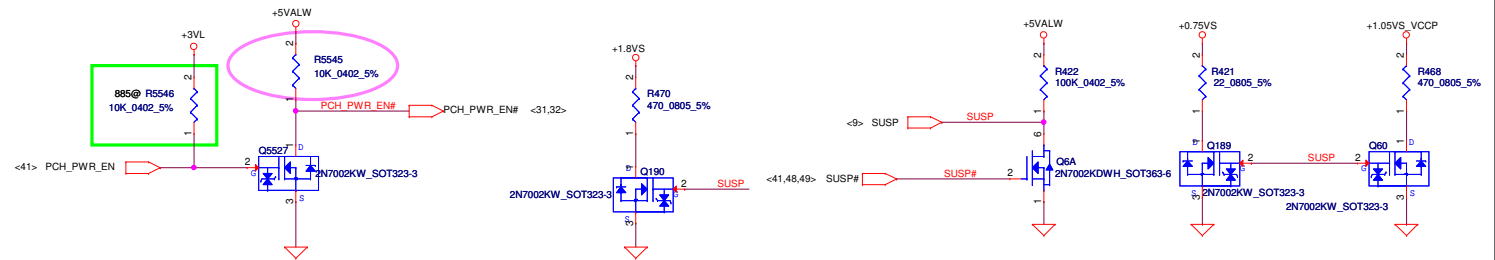
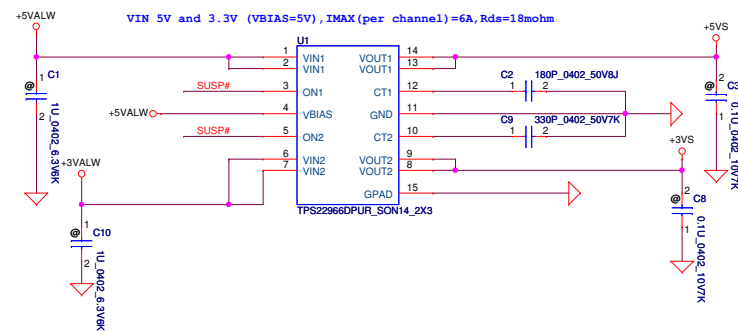


EC Reset

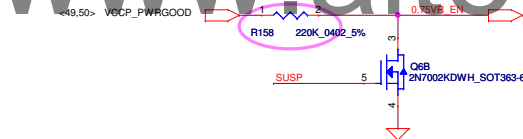


Security Classification	Compal Secret Data		Title	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Rev 0.2
Date: Monday, March 11, 2013				Sheet 42 of 56

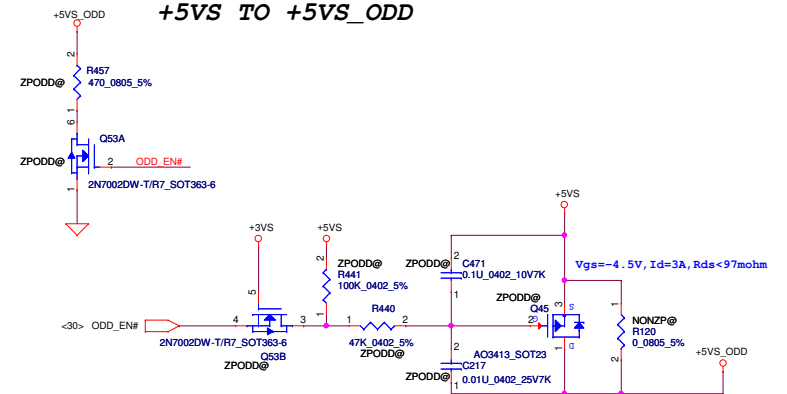
+5VALW TO +5VS
+3VALW TO +3VS
Load switch



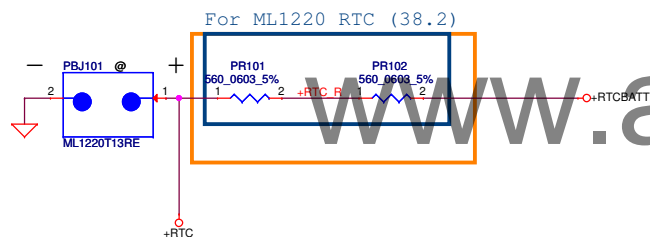
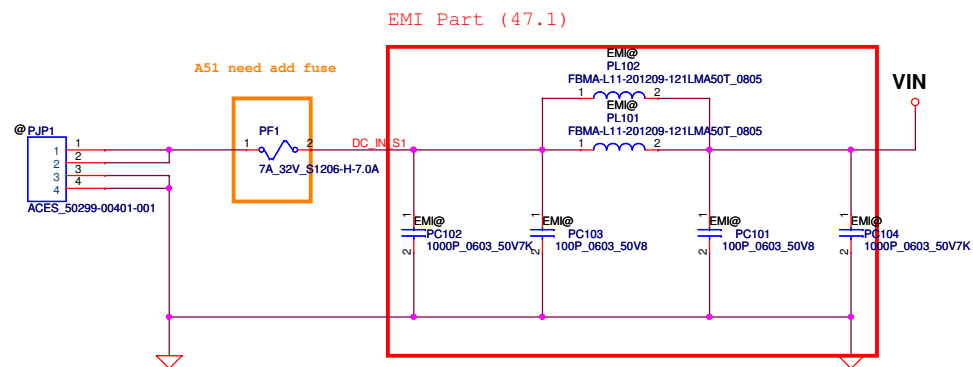
For S3 CPU Power Saving



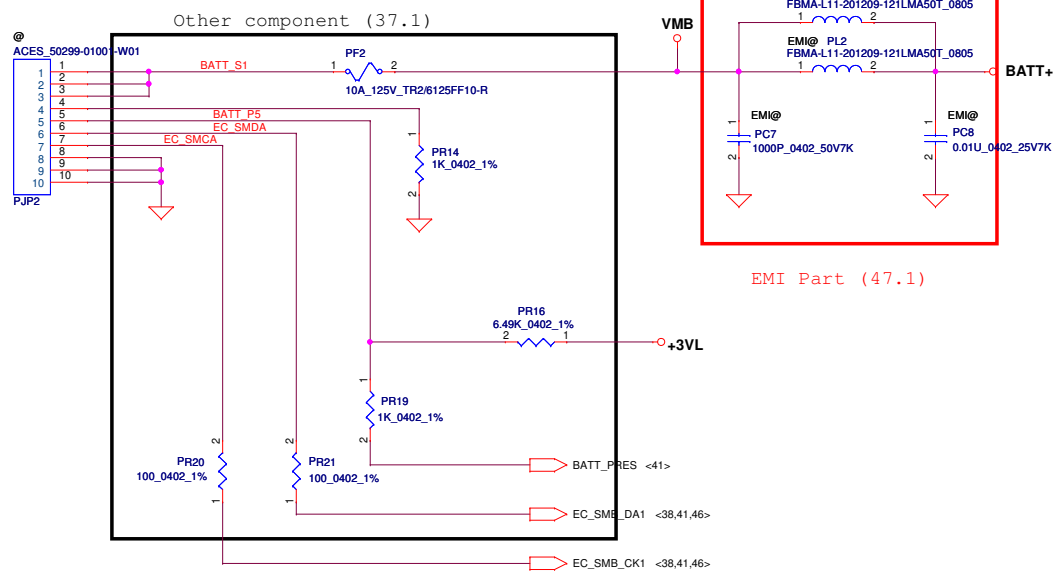
+5VS TO +5VS_ODD



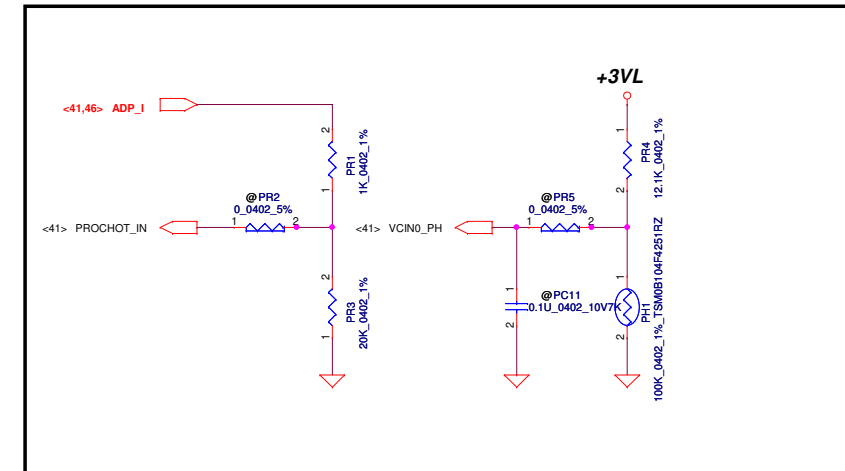
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/12/07	Deciphered Date	2013/12/07	Title	DC-DC INTERFACE
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	VFKAA
				Date	Monday, March 11, 2013
				Sheet	43 of 56



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	DCIN/PRECHARGE
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	VFKAA
				Rev	0.1
				Date:	Sheet 44 of 55



OTP (39.7)



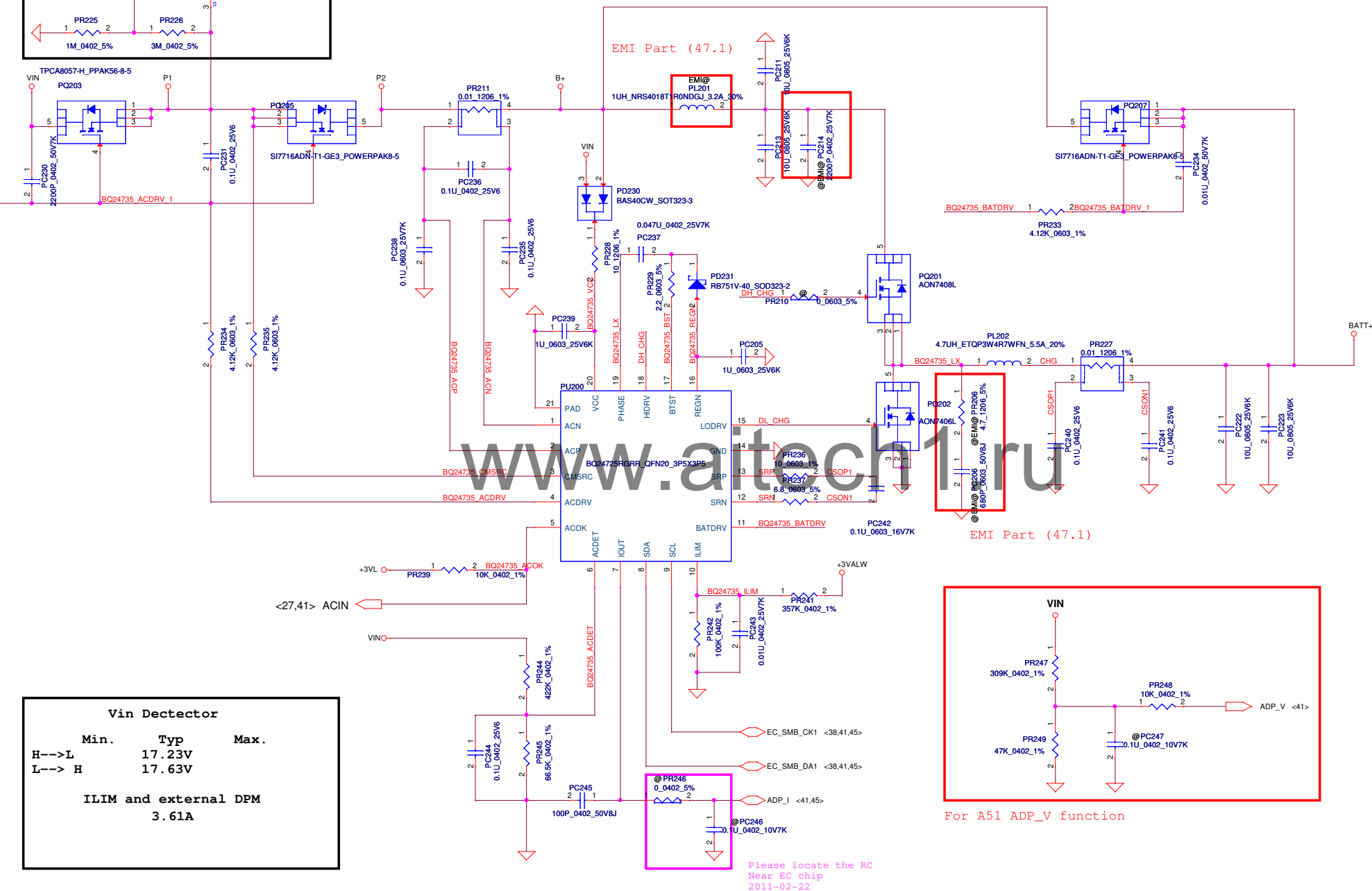
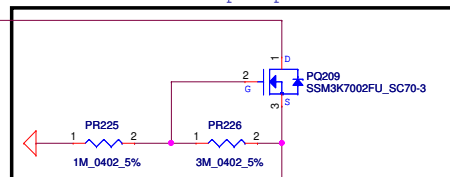
PH1 under CPU bottom side :
CPU thermal protection at 93 \pm 3 degree C
Recovery at 56 \pm 3 degree C

	Initial	Protect	Recovery
65W	0.75V	0.752V	0.626V
75W	0.9V	0.902V	0.722V

	Initial	Protect	Recovery
CPU OTP	65W	93 C	56 C

www.aitech1.ru

Charger controller (40.1), Support component (40.2)



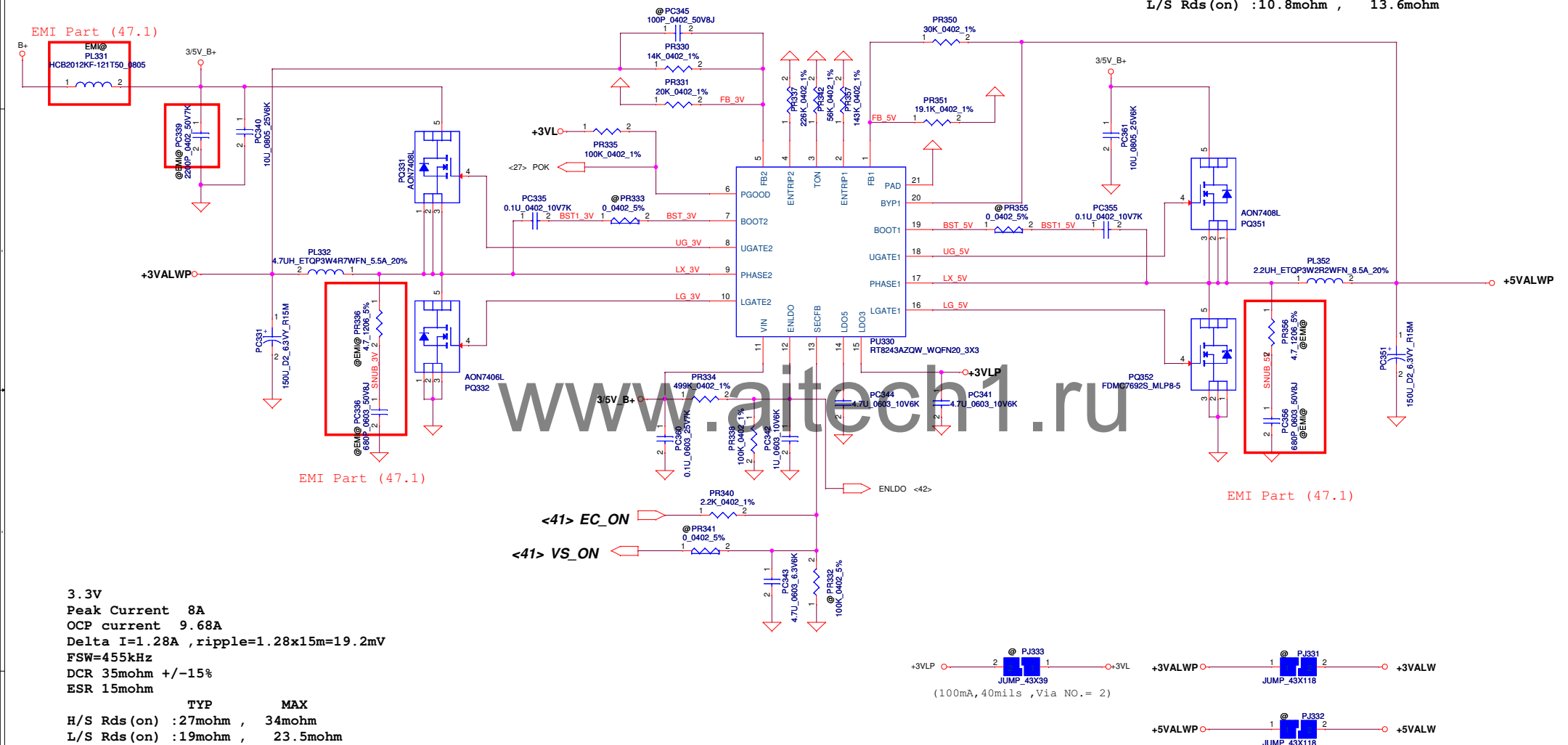
ILIM and external DPM
3.61A

For A51 ADP_V function

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	CHARGER	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number	Rev
				Custom	VFKAA	0
Date:				Sheet	46	of 56

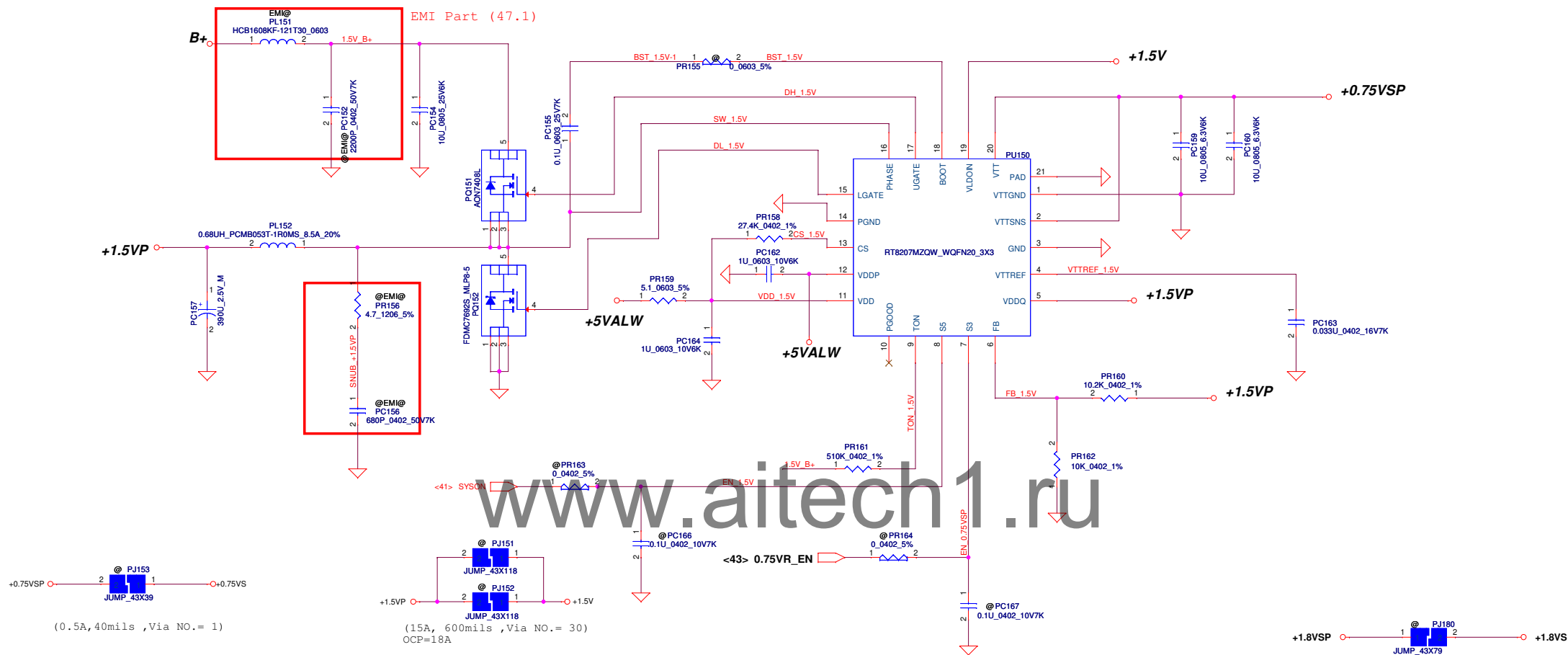
5V
Peak Current 10A
OCP current 12.03A
FSW=390kHz
Delta I=4.29A, ripple=4.29*17m=72.93mV
DCR 15.5mohm+/-15%
ESR 17mohm

	TYP	MAX
H/S Rds(on)	:27mohm	34mohm
L/S Rds(on)	:10.8mohm	13.6mohm



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	3VALW/5VALW
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Rev
				Document Number	0.1
Date: _____				Sheet	47 of 56

DDR controller (35.3), Support component (35.4)

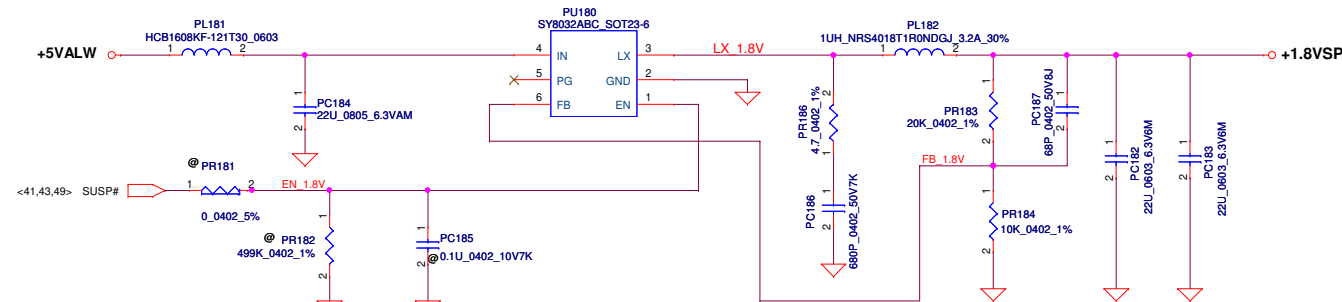


1.5V	
Peak Current	16.8A
OCF current	20 A
FSW=495kHz	
DCR 13mohm	
ESR 9mohm	
	TYP
H/S Rds (on)	:27mohm ,
L/S Rds (on)	:10.8mohm ,
	MAX
	34mohm
	13.6mohm

STATE	S3	S5	1.5VP	VTT_REFP	0.75VSP
S0	Hi	Hi	On	On	On
S3	Lo	Hi	On	On	Off (Hi-Z)
S4/S5	Lo	Lo	Off (Discharge)	Off (Discharge)	Off (Discharge)

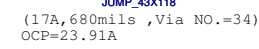
Note: S3 - sleep ; S5 - power off

1.8VS controller (35.15), Support component (35.16)

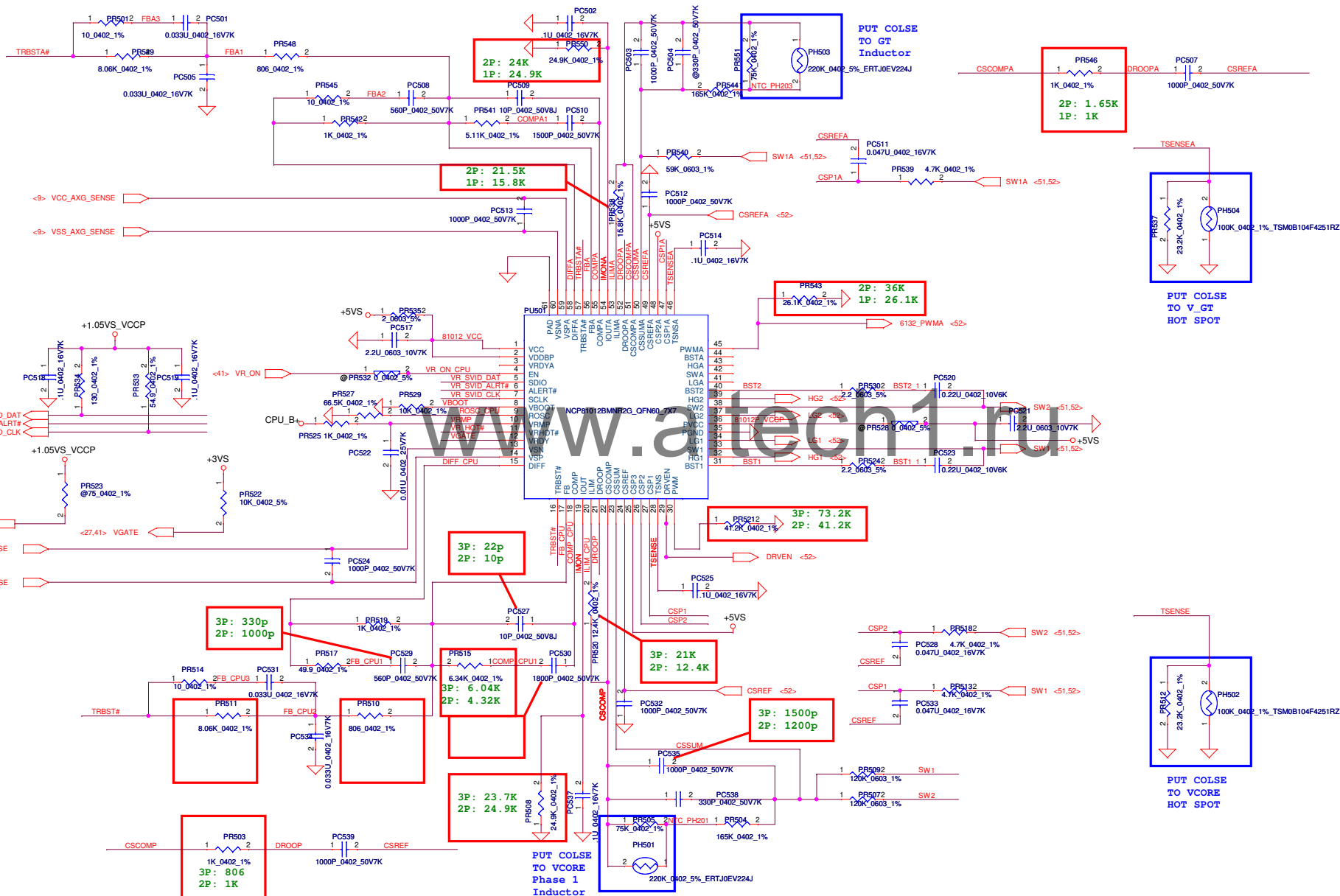


Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	1.5VP/0.75VSP/1.8VSP	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number	Rev
				Custom	VFKAA	0.
Date:	Sheet		48	of	56	

www.aitech1.com

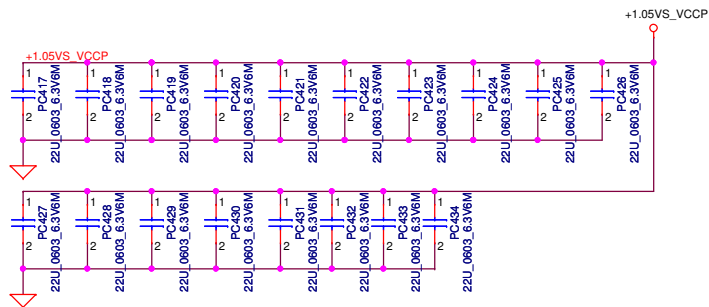
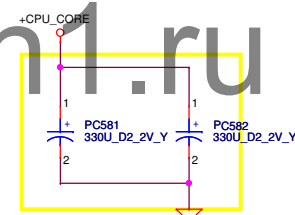
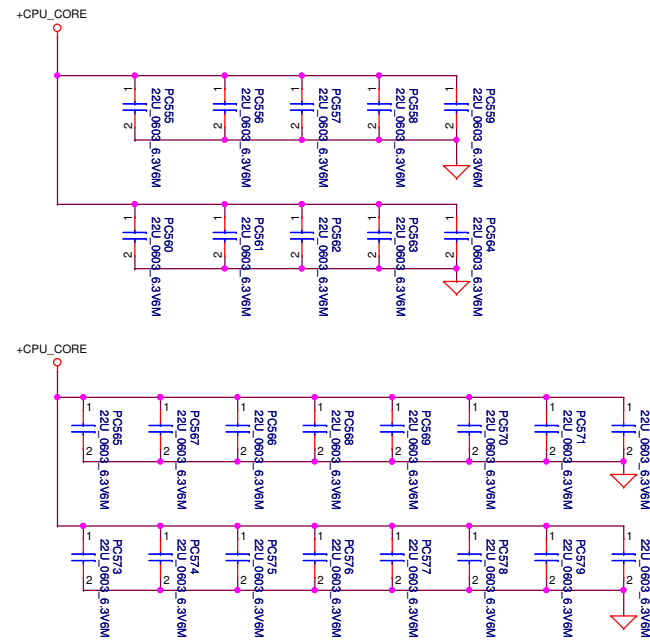
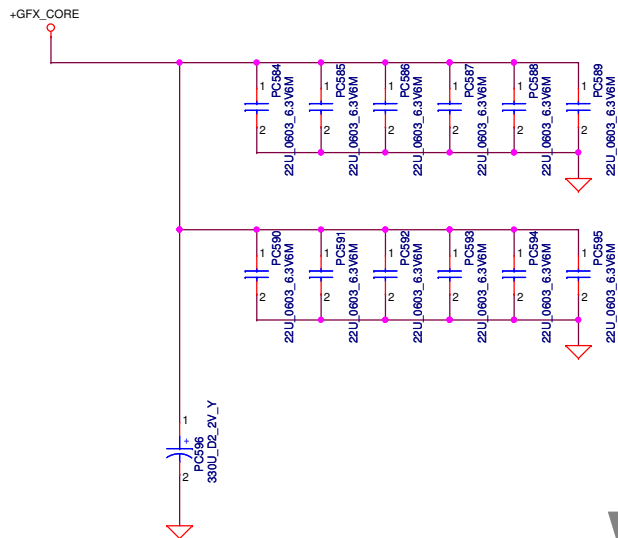


Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	+1.05VS VCCP	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number	Rev
					VFKAA	0.1
				Date:	Monday, March 11, 2013	Sheet 49 of 56



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	PWR-CPU_CORE	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Docuement Number	VFKAA	Rev 0.1
				Date:	Sheet 51 of 56	

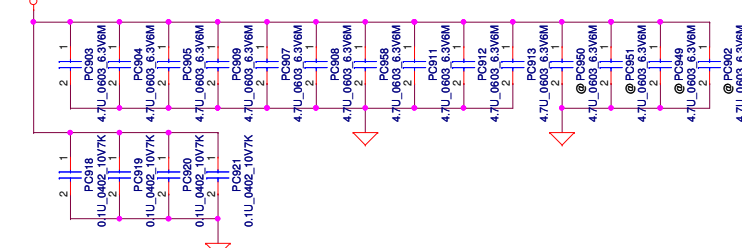
CPU_CORE output cap (36.4)
 GFX_CORE output cap (36.5)
 VCCP output cap (36.6)



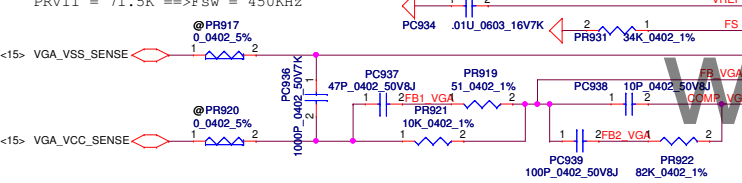
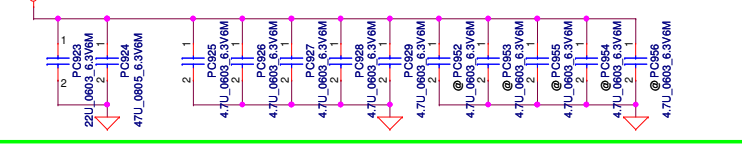
www.aitech1.ru

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/09/24	Deciphered Date	2013/09/24	Title	CPU CORE CAP
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	VFKAA
				Date	Monday, March 11, 2013
				Sheet	53 of 56
				Rev	0.1

+VGA_CORE Under VGA Core GB4-128 package



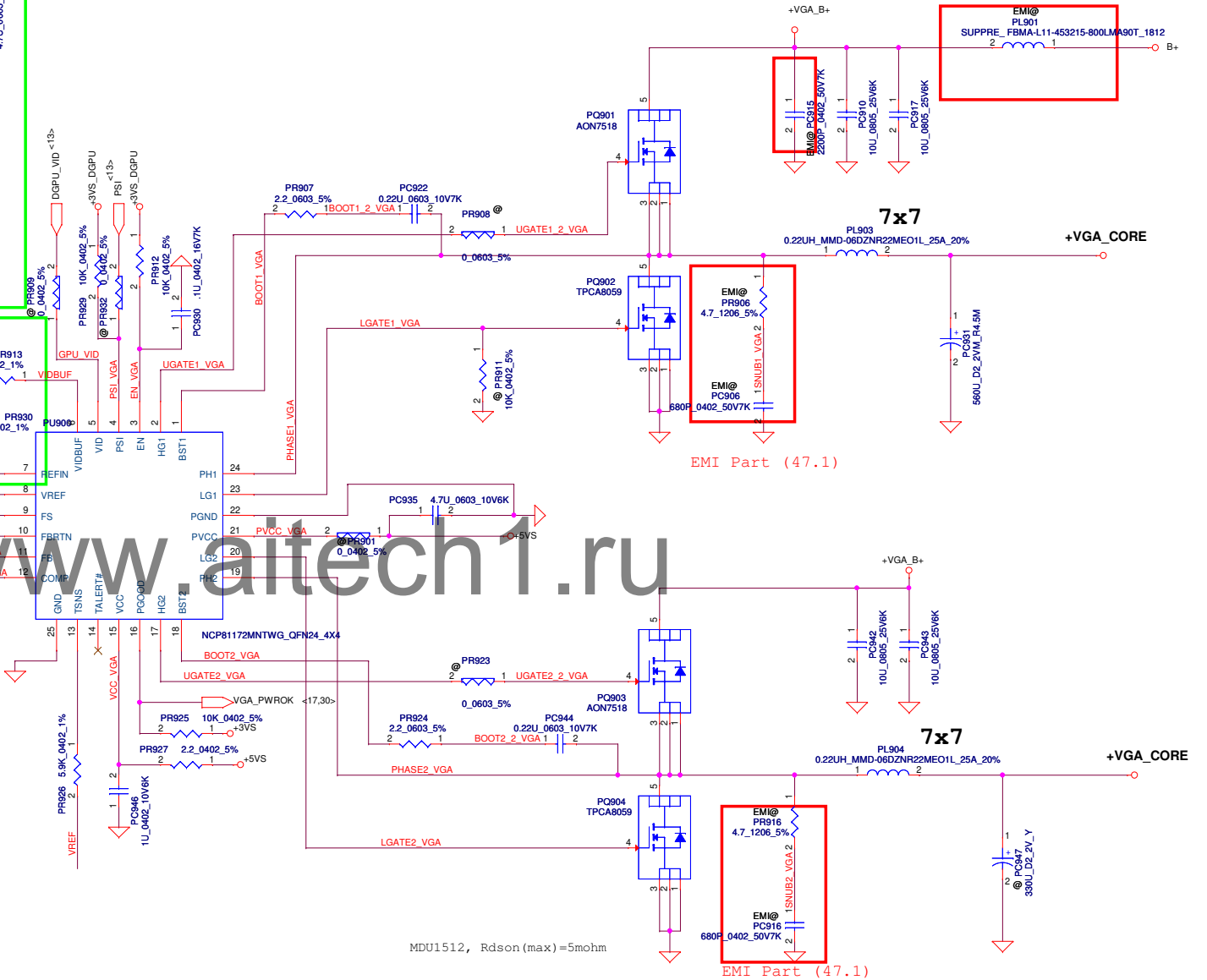
+VGA_CORE Near VGA Core



	N14P-GV2	N14M-GL
R1 PR913	20 Kohm	39 Kohm
R2 PR915	20 Kohm	30 Kohm
R3 PR930	2 Kohm	3 Kohm
R4 PR914	18 Kohm	27 Kohm
C PC940	2.7 nF	1.8 nF

- GL@ PR913 39K_0402_1%
- GL@ PR915 30K_0402_1%
- GL@ PR930 3K_0402_1%
- GL@ PR914 27K_0402_1%
- GL@ PC940 1800P_0402_50V7K

VGA_CORE controller (43.1), Support component (43.2)



EMI Part (47.1)

7x7

EMI Part (47.1)

7x7

EMI Part (47.1)

MDU1512, Rdson(max)=5mohm

Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2012/09/24				Deciphered Date			
2012/09/24				2013/09/24				Title			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				+VGA_COREP				Rev			
Date:				Sheet				54 of 56			

www.aitech1.ru

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/10/26	Deciphered Date	2013/10/26	Title	Power PIR	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Doc Number	QFKAA	Rev 0.1
				Date: Monday, March 11, 2013	Sheet 55 of 56	

HW PIR (Product Improve Record)

VFKAA LA-9863P SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.1 to 0.2
GERBER-OUT DATE: 2012/12/06

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1.	11/20	06	Mount CC37	To solve S3 shutdown issue
2.	11/20	29	Change USB port 10 to NC	No support NFC
3.	11/20	42	Delete JNFC	No support NFC
4.	11/20	37	Add QW1, RW3, RW4; change JCARD.10 to SDWP# and JCARD.11 to SDCD	To solve card reader no function issue
5.	11/27	40	Change JSPK to ACES_50228-0067N-001_6P	For SPK recognize design
6.	11/28	08	Mount CC17, CC18, CC19	For ESD request
7.	11/28	29	Mount CB13	For ESD request
8.	11/28	05	Mount CC63	For ESD request
9.	12/03	38	Add S&C 14640/14641 co-layout circuit	Reserved for S&C SPEC update

VFKAA LA-9863P SCHEMATIC CHANGE LIST
REVISION CHANGE: 0.2 to 0.3
GERBER-OUT DATE: 2013/01/23

NO	DATE	PAGE	MODIFICATION LIST	PURPOSE
1.	12/19	41	Change CB13 to SE071101J80 (100pF)	ESD request
2.	12/26	17	Change RV43 to 270K, RV53 to 10K, RV54 to 33K	For VGA power sequence
3.	01/16	41	Add RB12, RB37, connect EC_MUTE_INT from codec to EC	To solve audio "bo" sound issue
4.	01/16	42	Modify JTP pin define	For ME drawing update
5.	01/16	13	Connect GPIO12 as GPS_DOWN# to EC	For GPS function
6.	01/16	26	Mount RH38	For EMI request
7.	01/16	22	Reserve R266, R267	For EMI request

www.aitech1.ru