

Compal Confidential

Schematics Document

Intel

ARRANDALE with IBEX PEAK-M

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U32T

LA-5793P

2010-01-18

REV:0.1

Security Classification	Compal Secret Data			Title		
Issued Date	2009/6/19	Deciphered Date	2009/12/31	Cover Sheet		
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Fan Control
Page 4

Mobile
Auburndale
Socket-rPGA989
37.5mm*37.5mm
Page 4, 5, 6, 7, 8
+CPU_CORE, +VCCP, +VCC_GFXCORE, +1.5V, +1.8VS

DDR3 1066MHz 1.5V

Dual Channel

DDR3-SO-DIMM X 2
BANK 0, 1, 2, 3
+1.5V, +0.75VS
Page 9, 10

DMI X4

Intel Ixex Peak M

1071pins
25mm*27mm
Page 12, 13, 14, 15, 16, 17
+3VALW, +3VS, +1.05VM, +1.05VS
+VCCP, +1.8VS, +RTCVCC

LCD conn
Page 21

HQE
Page 18, 19, 20

LVDS

CRT
Page 21

HDMI
Page 22

1394 port

Card Reader
O2 OZ888
Page 23

USB3.0
NEC UPD720200
+3V, +1.05V
Page 34

Express Card 54
PCIE X1 + USB X1
Page 32

10/100/1000 LAN
Intel Hansville GbE
PHY
+3VM_LAN, +1.0VM_LAN
Page 26

RJ45 CONN

WLAN Card
WLAN + PCIE X1
Page 29

Richo R5C803
Controller
Page 24, 25

PCMCIA

PCI-E BUS

PCI BUS

LPC BUS

ENE KBC 926
+3VALW
page 31

Touch Pad CONN.
Page 31

EC3810
+3VALW
Page 31

SPI ROM
256KB
Page 33

Int.KBD
Page 31

USB2.0

Azalia

SATA

SPI

USB conn x 5
Page 32

BT Conn USB x 1
Page 33

Felica
Page 33

Audio CKT
RT ALC269
Page 27

Audio Jack

SATA ODD Connector
Page 30

2.5" SATA HDD Connector
Page 30

ESATA
Page 33

SPI ROM
4/8MB
Page 12

XDP Conn.
Page 4

CK505
Clock Generator
ICS9LPRS397
+3VS, +1.05VS
Page 11

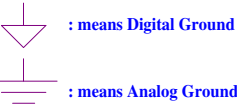
DC/DC Interface CKT.
Page 37

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Voltage Rails (O MEANS ON X MEANS OFF)

power plane State	+RTCVCC	+B +3VL	+5VALW +3VALW	+1.05VM_LAN	+3VM +1.05VM	+1.5V +1.05V +3V	+5VS +3VS +1.5VS +VCC_GFXCORE +VCCP +CPU_CORE +1.05VS +1.8VS +0.75VS +1.2VS
S0	O	O	O	O	O	O	O
S3 / DC	O	O	O	O	X	O	X
S3 / AC	O	O	O	O	O	O	X
S3 / S4 / S5 WoLAN	O	O	O	O	X	X	X
S5 S4/AC	O	O	O	O	O	X	X
S5 S4/ Battery only	O	O	X	X	X	X	X
S5 S4/AC & Battery don't exist	O	X	X	X	X	X	X

Symbol Note :



@ : means just reserve , no build
CONN@ : means ME part.

Install below 45 level BOM structure for ver. 0.1

45@ : means just put it in the BOM of 45 level.

Install below 43 level BOM structure for ver. 0.2

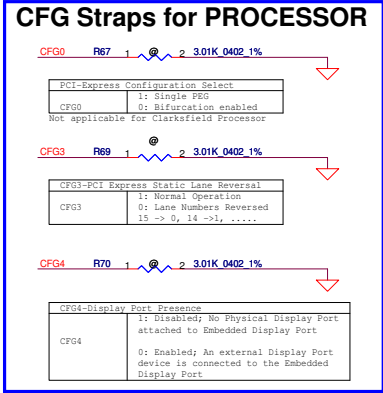
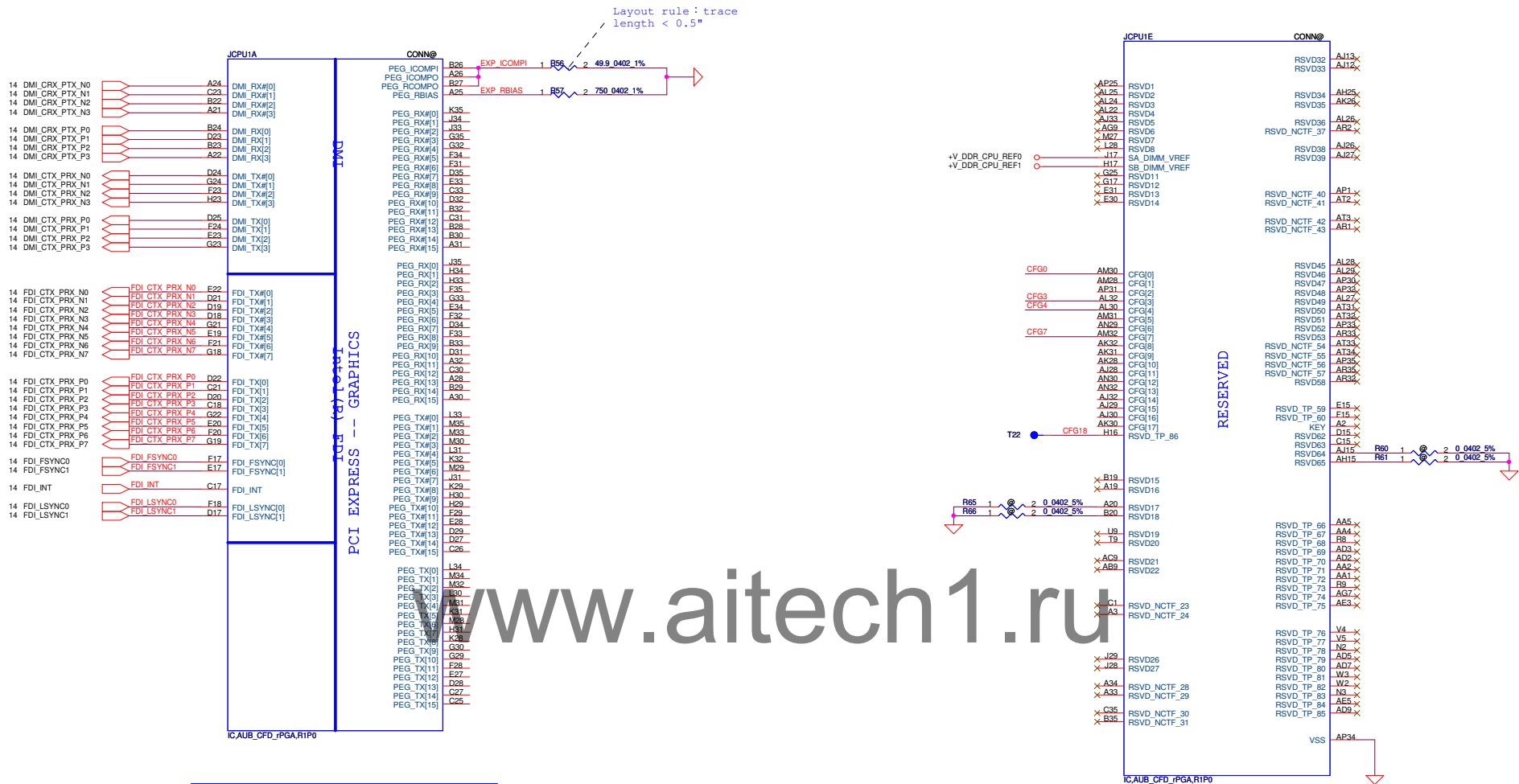
LV: LV@+FEL@+LC@+HQE@+USB3@
VA: VA@+LC@+SW@+LVDS@+USB2@
VE: VA@+VE@+FEL@+LVDS@+USB2@
LV WO/HQE USB3: LV@+FEL@+LC@+LVDS@+USB2@
LV W/HQE WO/USB3: LV@+FEL@+LC@+HQE@+USB2@
LV WO/HQE W/USB3: LV@+FEL@+LC@+LVDS@+USB3@
U32T WO/HQE W/USB3: LV@+LC@+LVDS@+USB3@+U32T@

SMBUS Control Table

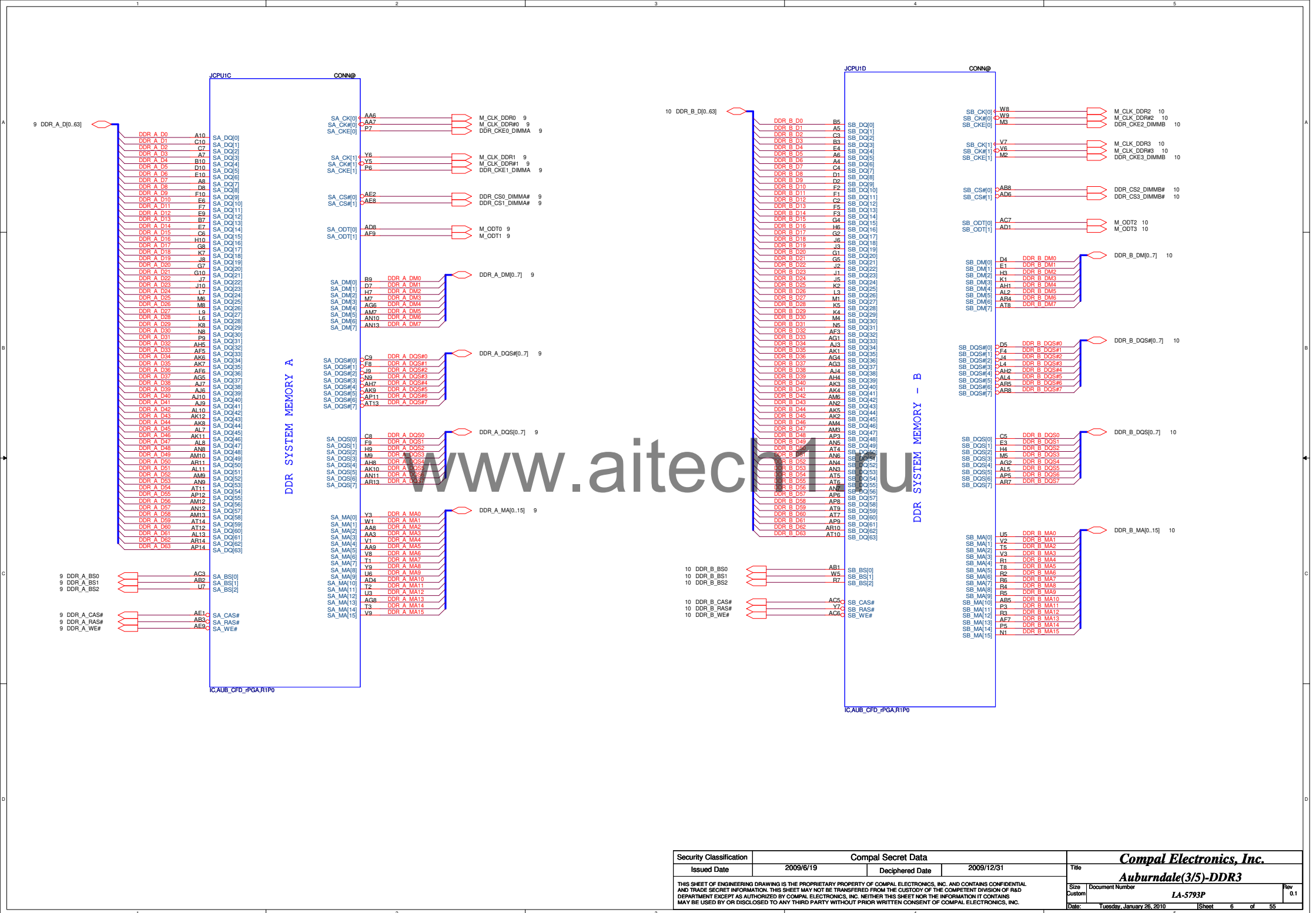
	SOURCE	BATT	XDP	SODIMM	CLK CHIP	MINI CARD	DOCK	NIC	THERMAL SENSOR	G-SENSOR
SMB_EC_CK1 SMB_EC_DA1	SMSC1098	V	X	X	X	X	X	X	X	X
SMBCLK SMBDATA	Calpella	X	V	V	V	V	V	X	X	V
SML0CLK SML0DATA	Calpella	X	X	X	X	X	X	V	X	X
SML1CLK SML1DATA	Calpella	X	X	X	X	X	X	X	V	X

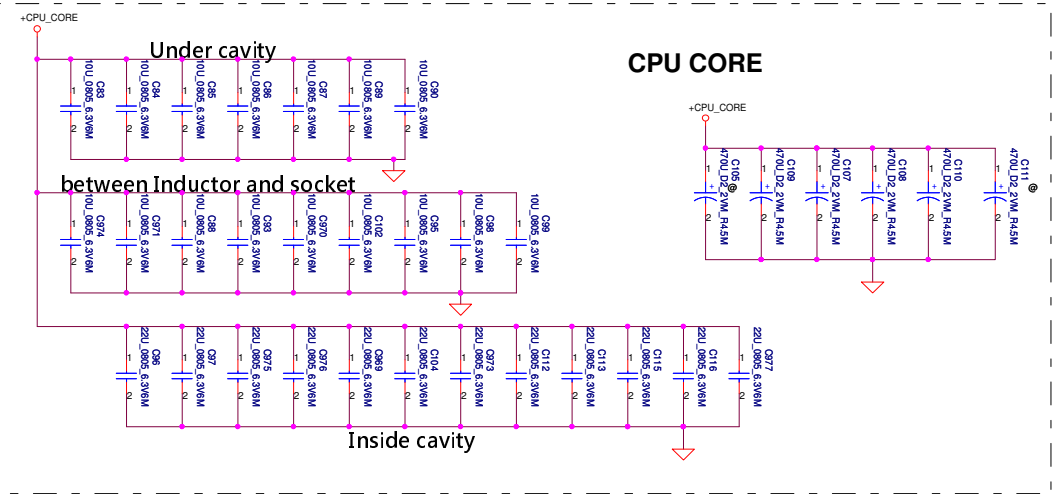
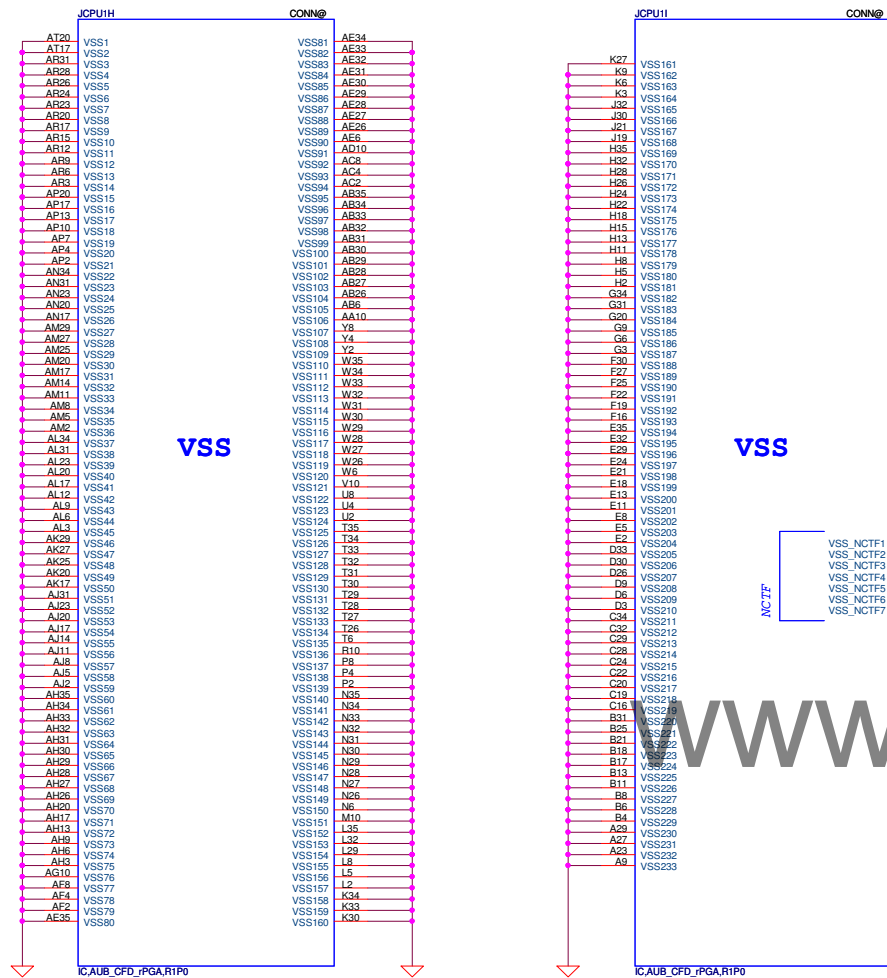
Board ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra / Rc	100K +/- 5%			
Board ID	Rb / Rd	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

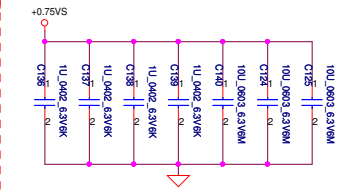
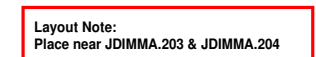
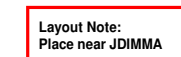


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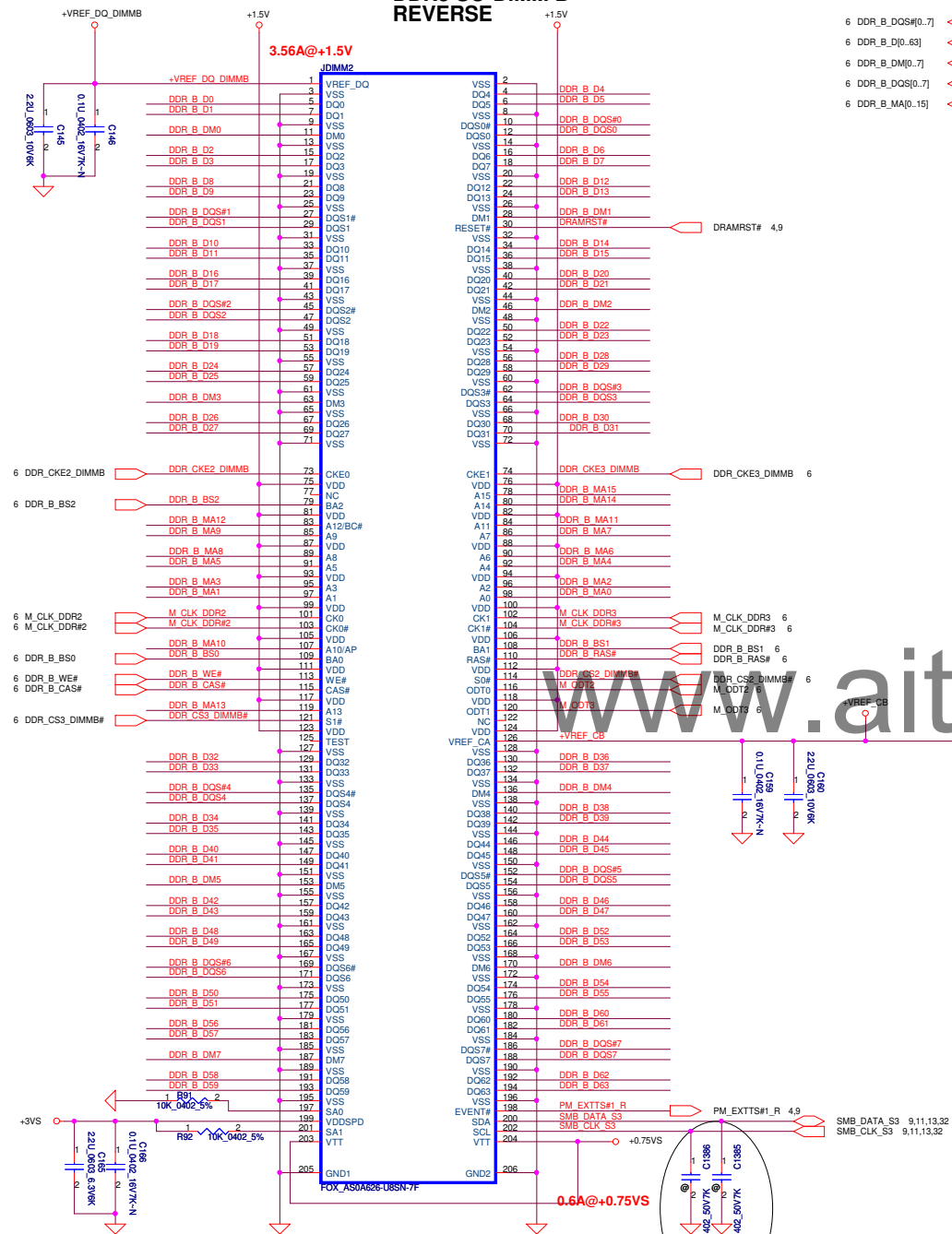


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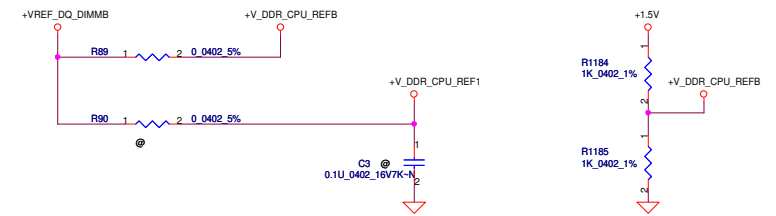


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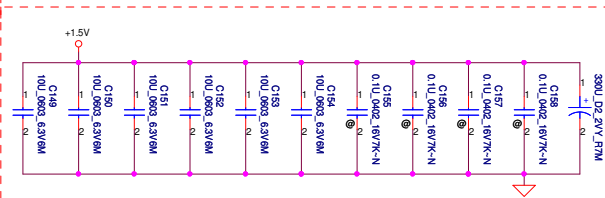
DDR3 SO-DIMM B
REVERSE +1.5V



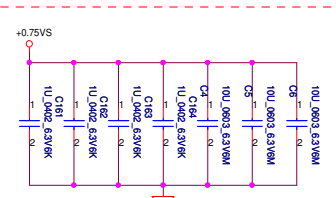
BOT SLOT



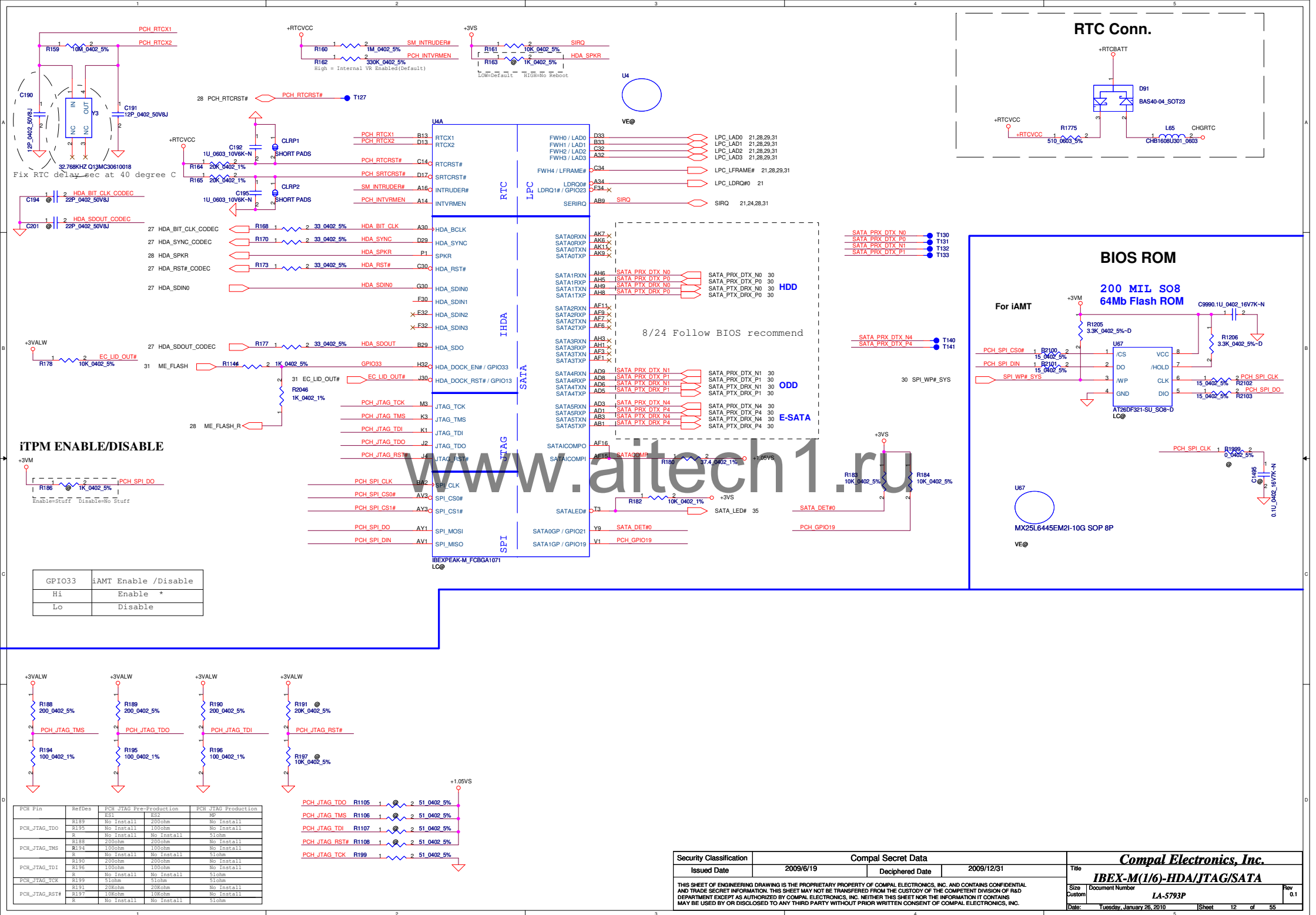
Layout Note:
Place near JDIMMB

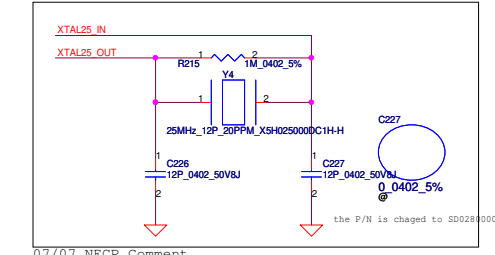
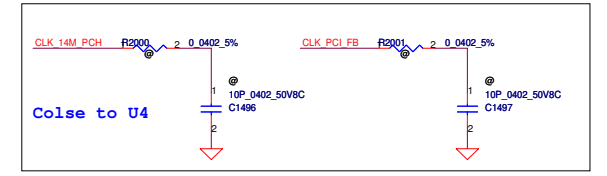
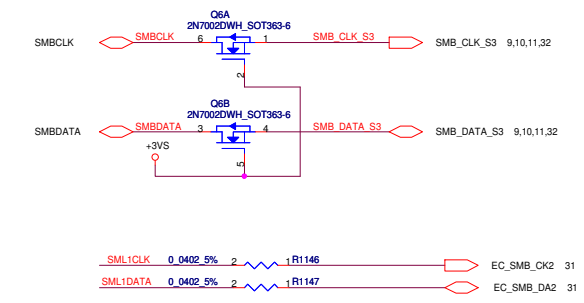
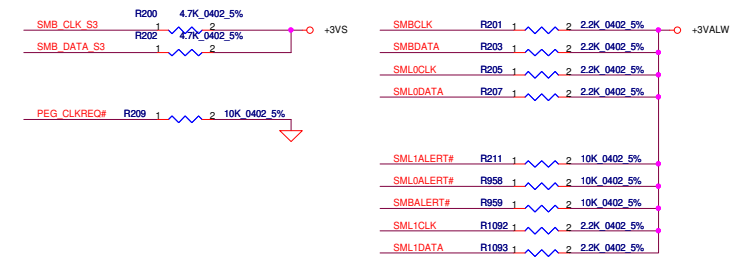
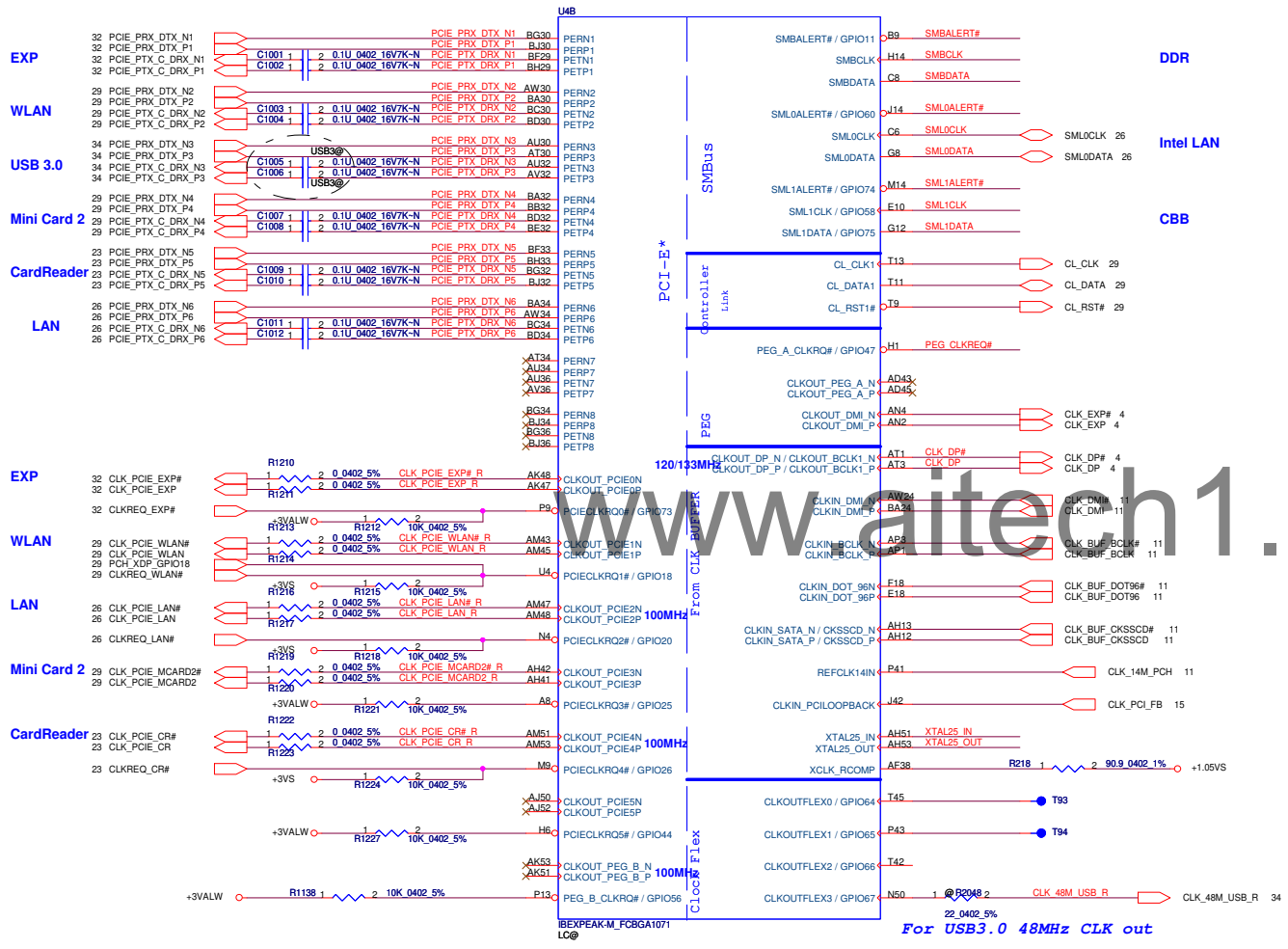


Layout Note:
Place near JDIMMB.203 & JDIMMB.204



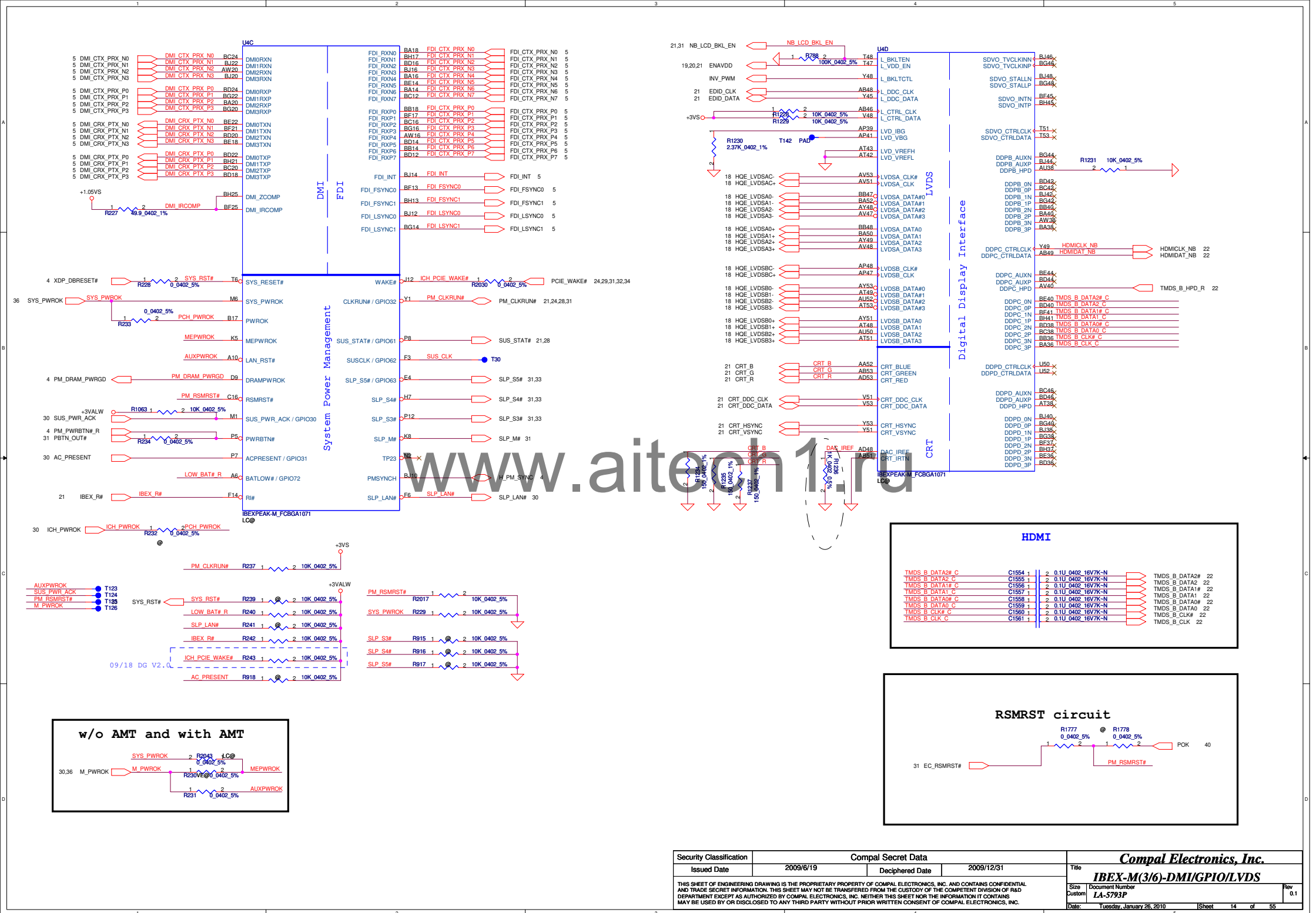
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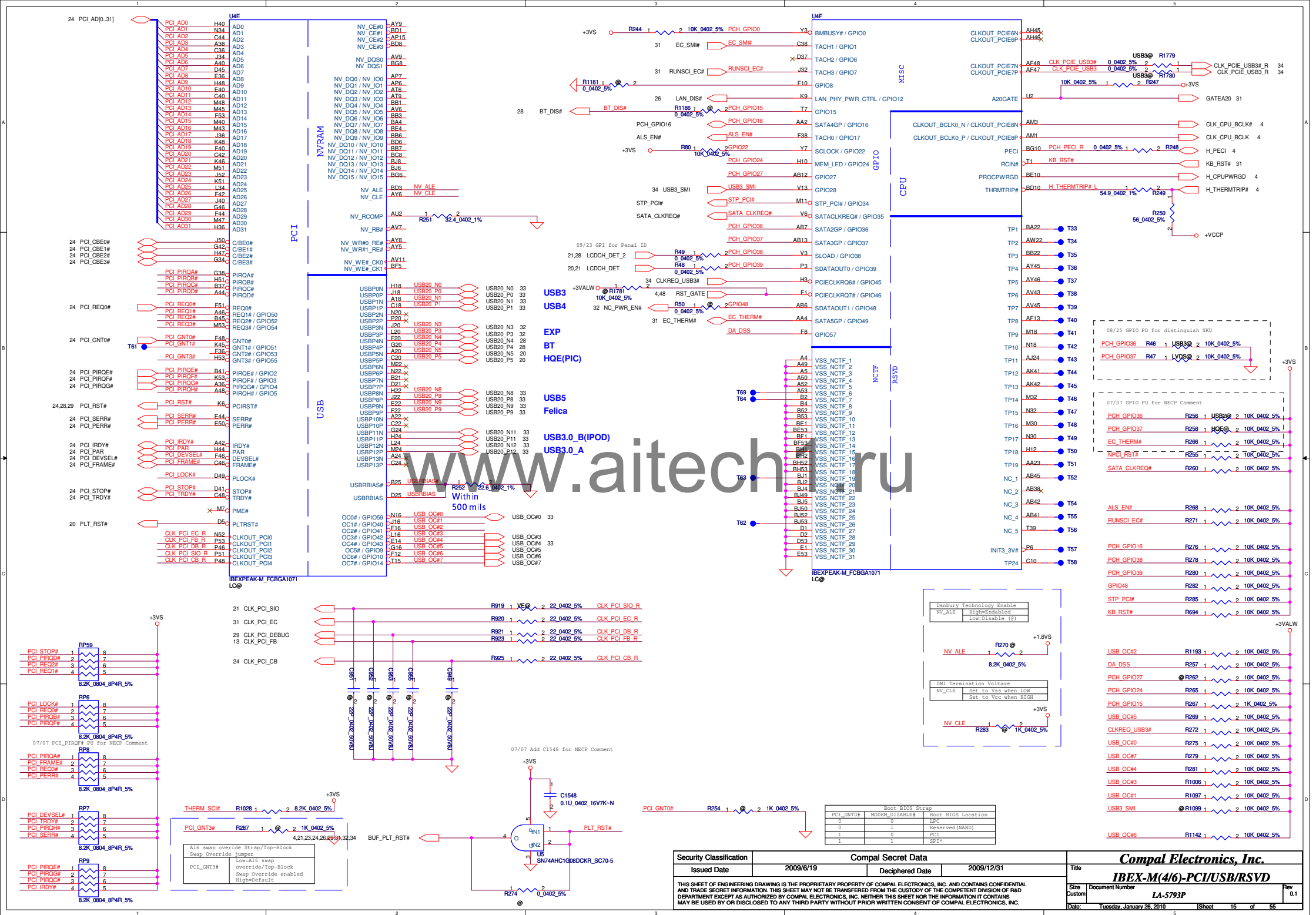




For USB3.0 48MHz CLK out

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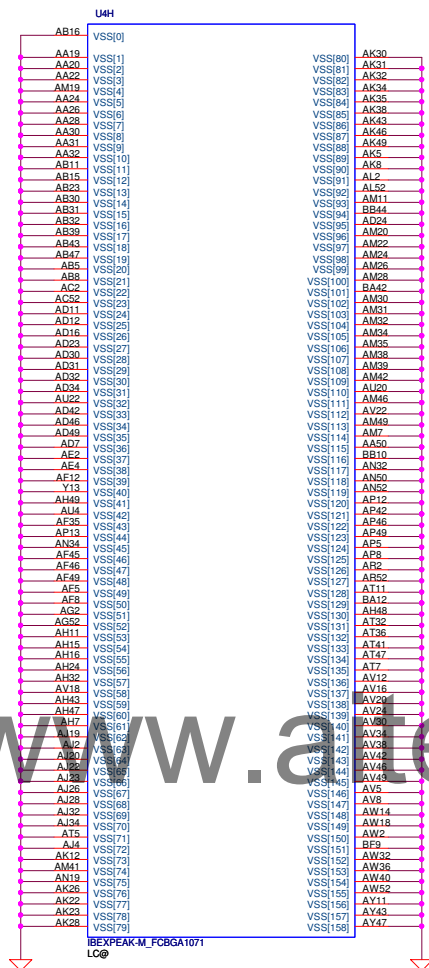
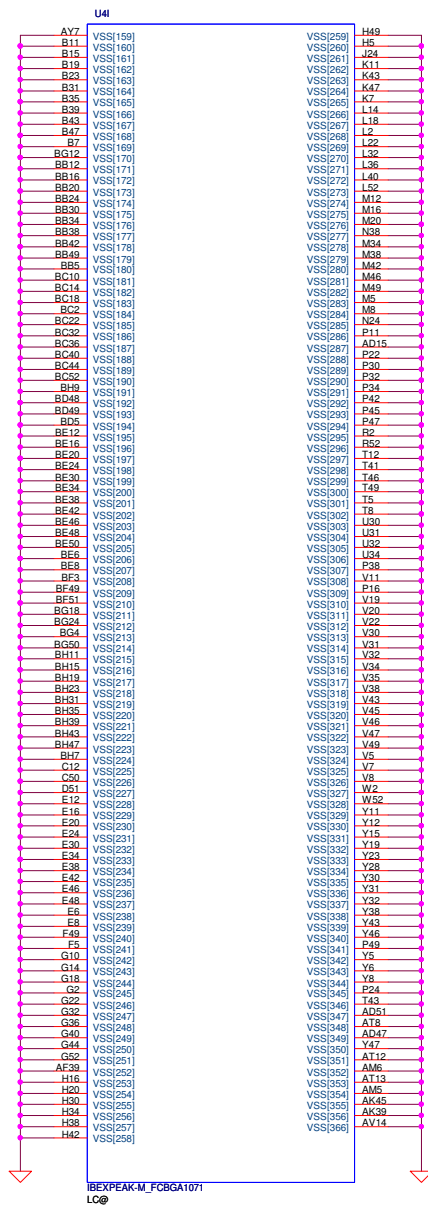


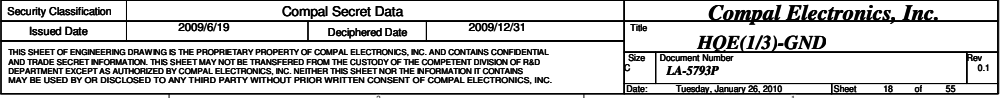


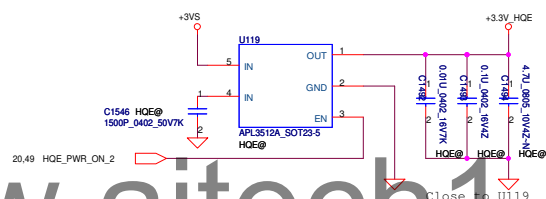
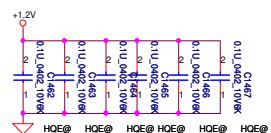
09/18 DG V2.0



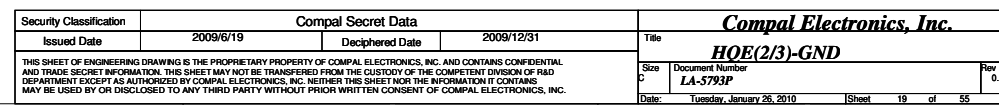
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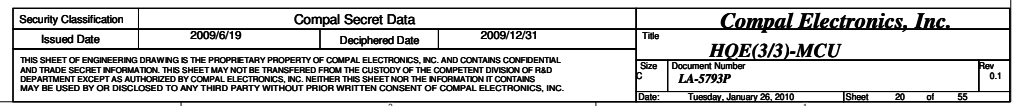




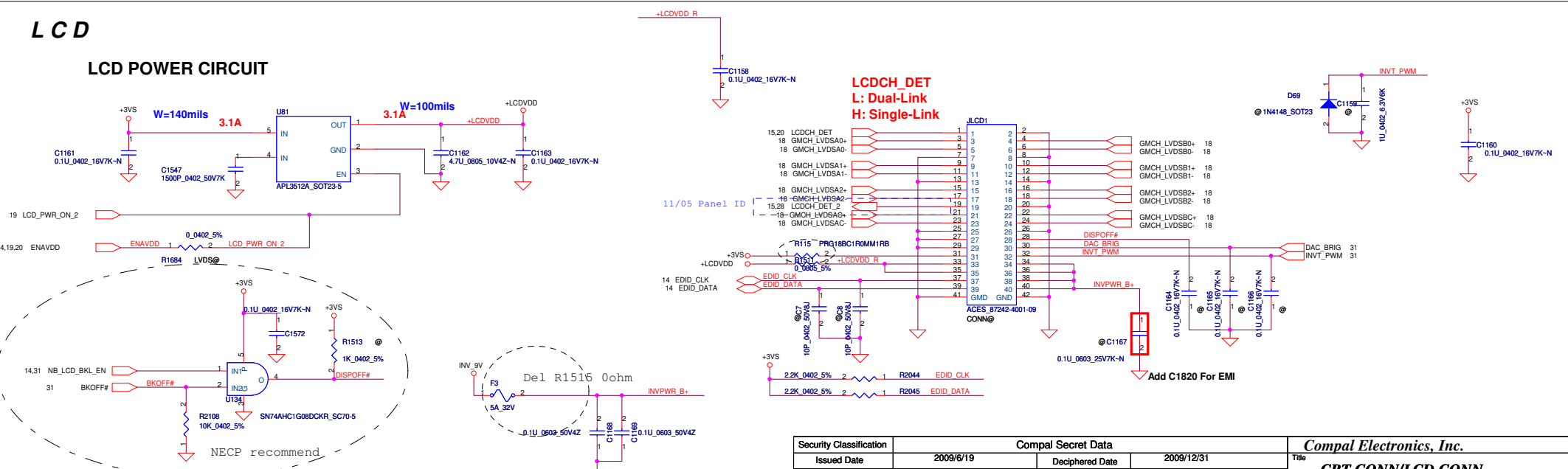


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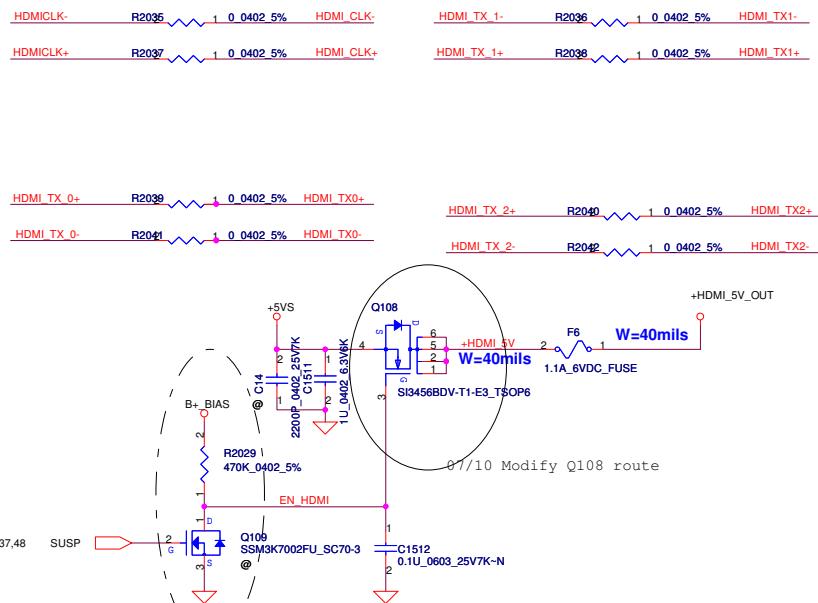
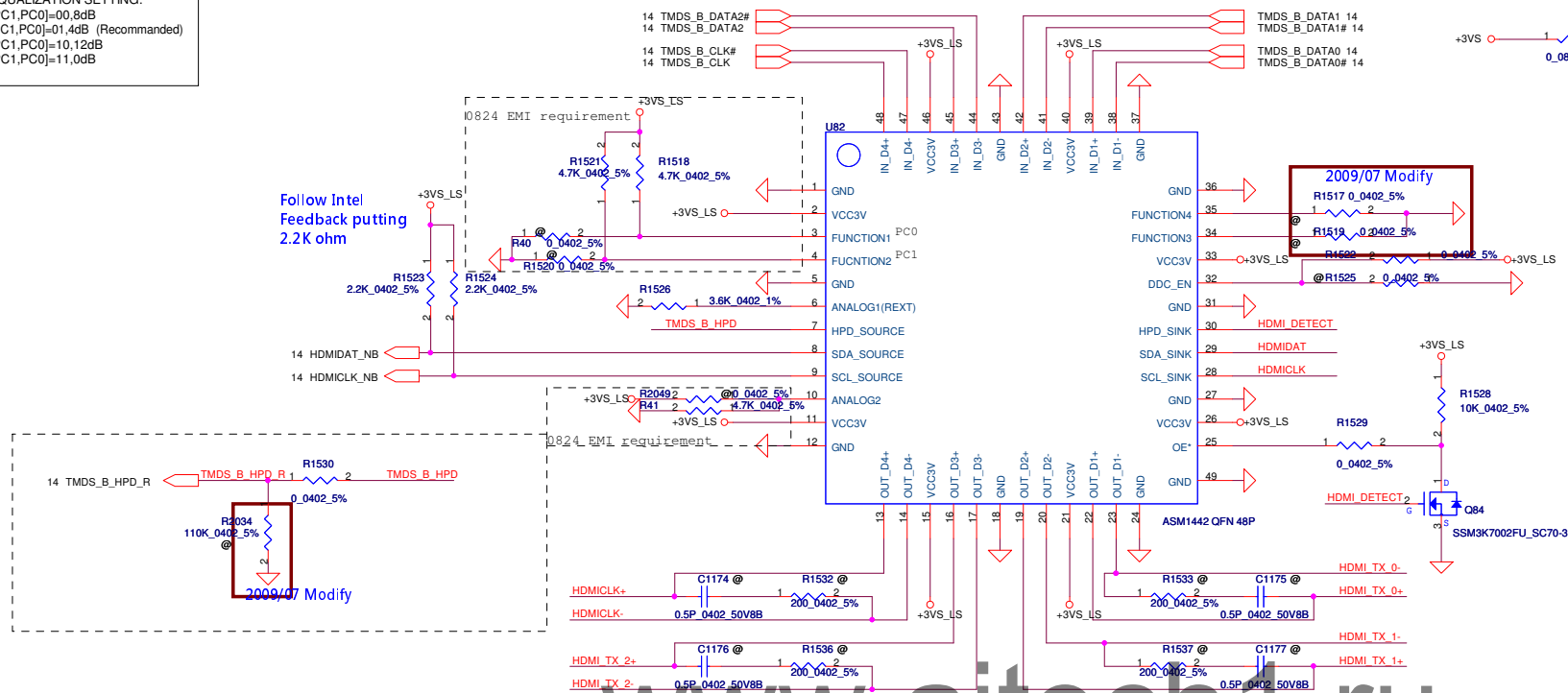


LCD

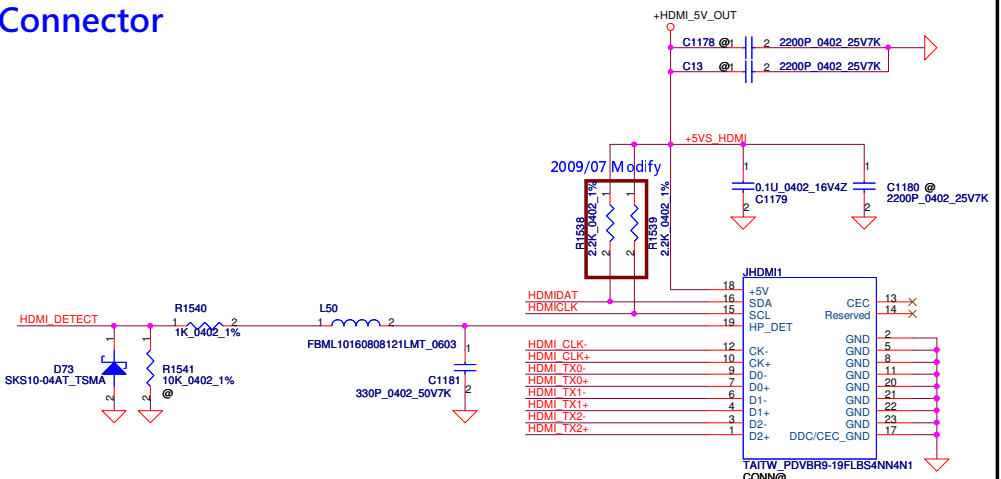


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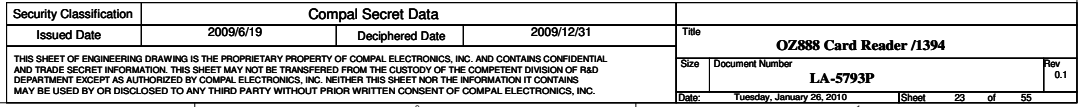
EQUALIZATION SETTING:
[PC1,PC0]=00,8dB
[PC1,PC0]=01,4dB (Recommended)
[PC1,PC0]=10,12dB
[PC1,PC0]=11,0dB

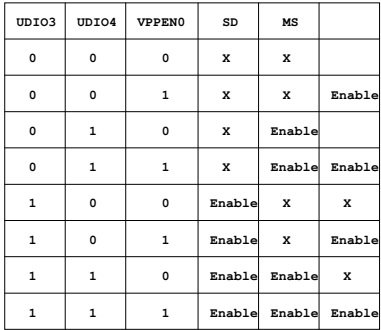


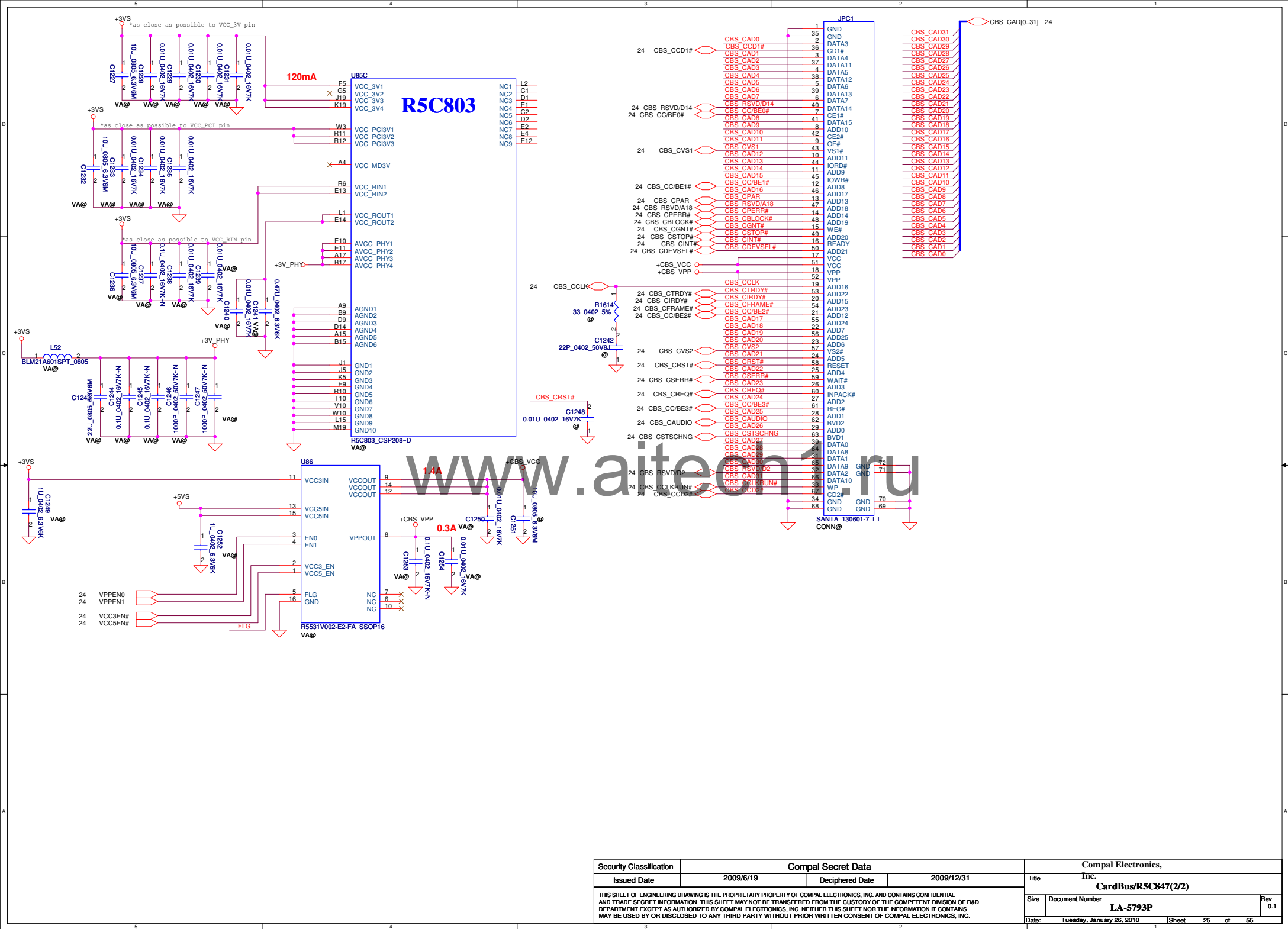
HDMI Connector



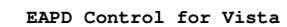
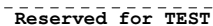
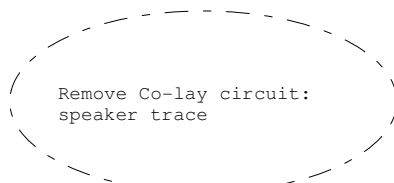
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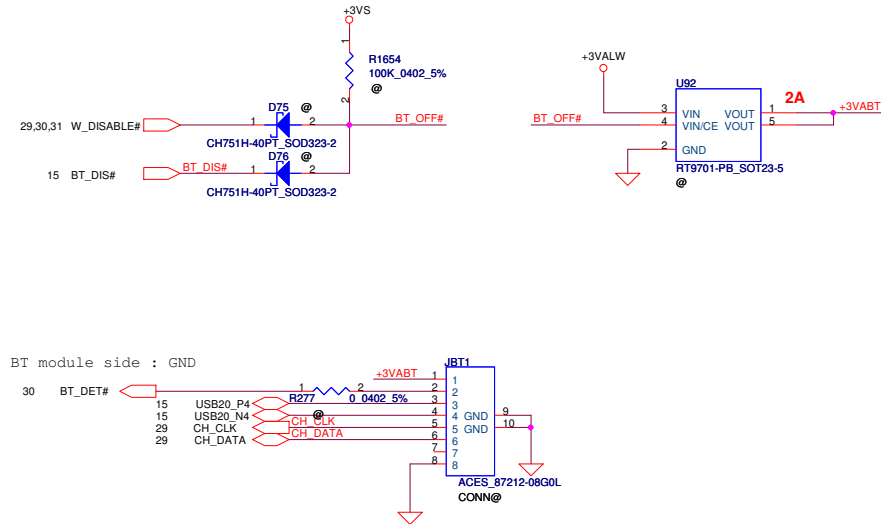


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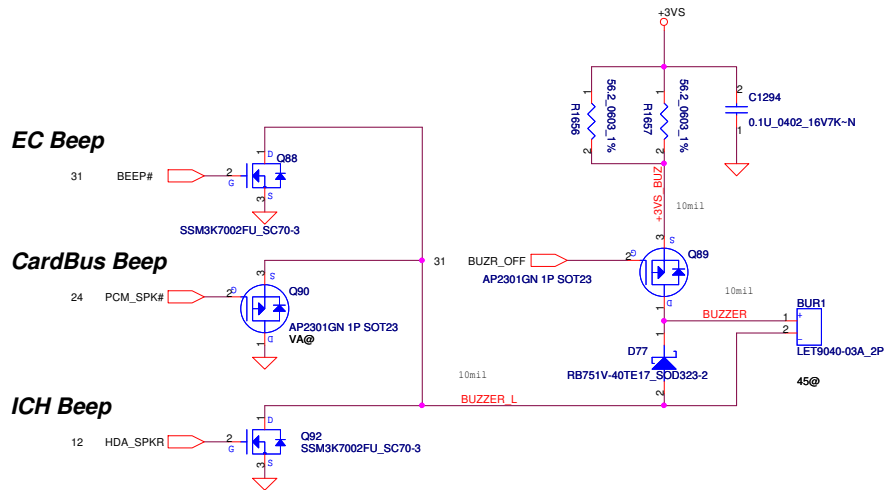
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Bluetooth

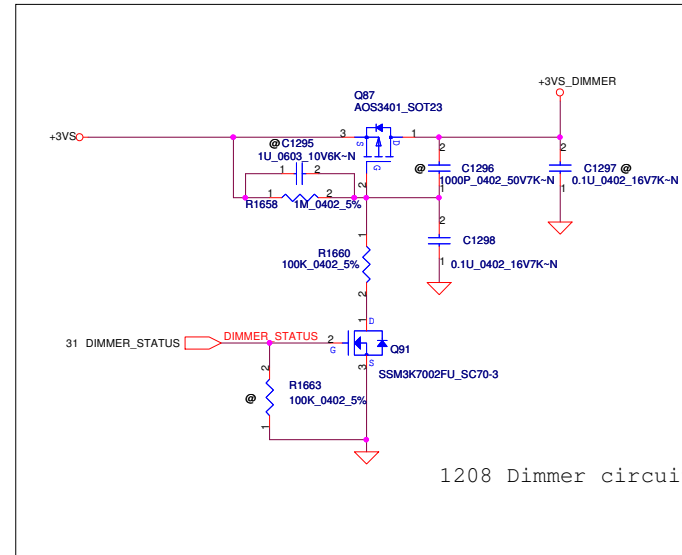
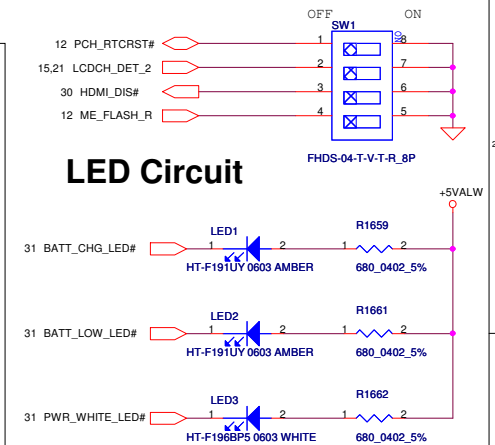


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BUZZER



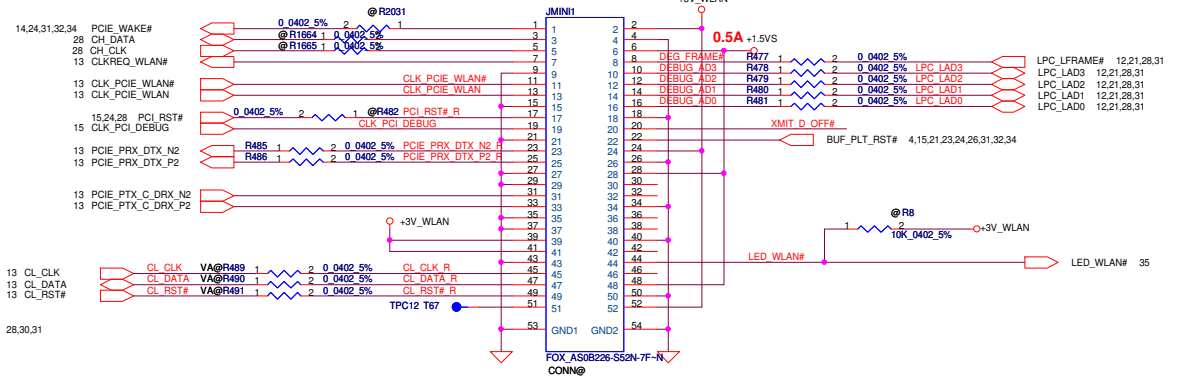
LED Circuit



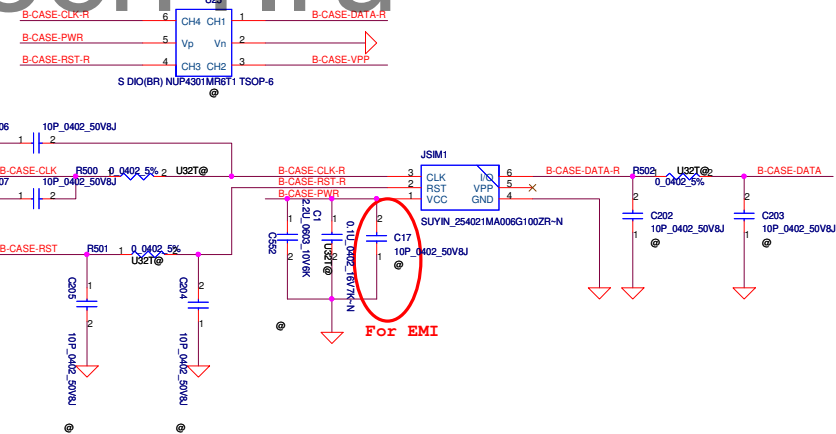
1208 Dimmer circuit

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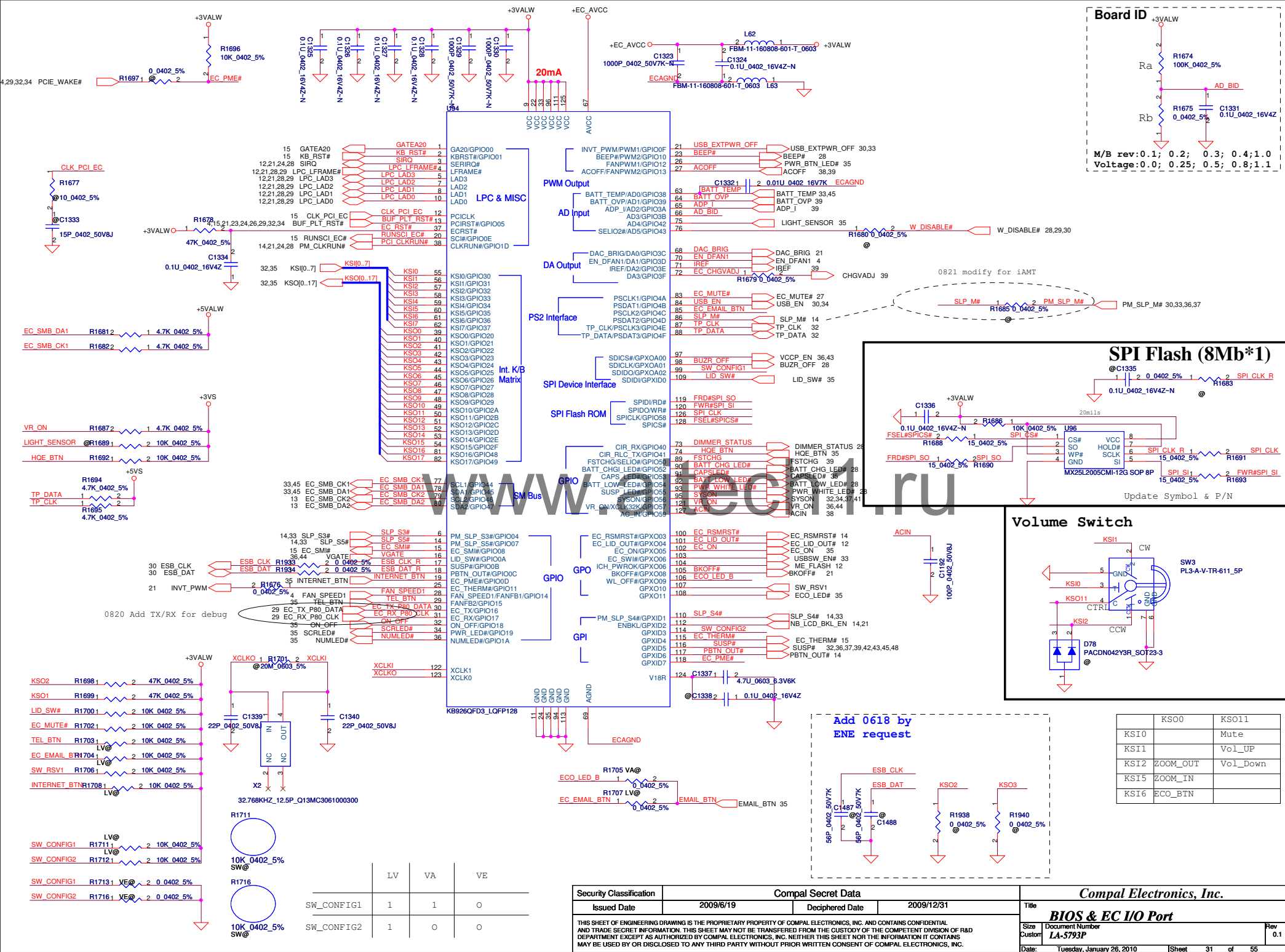
Reserve for port80 card use for FCS in factory side. 10/17



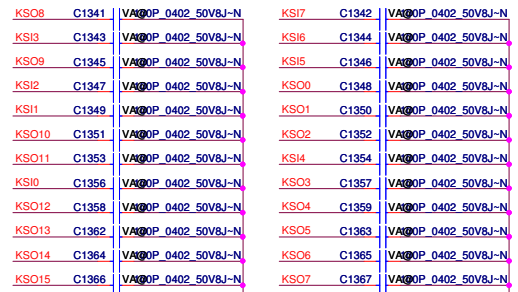
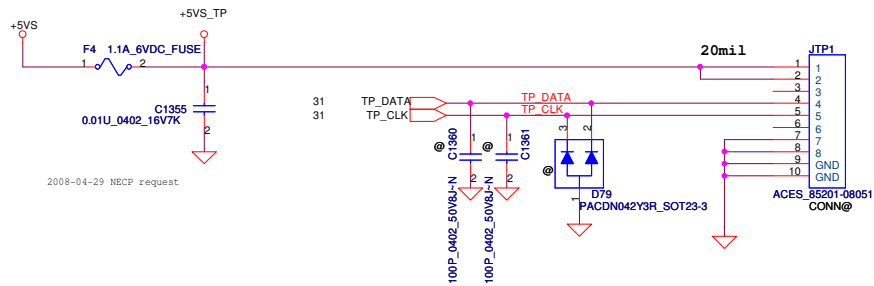
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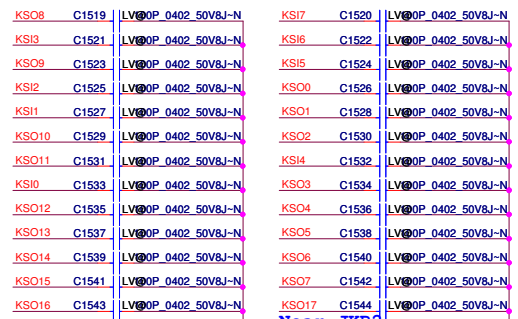
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TouchPad

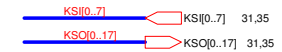
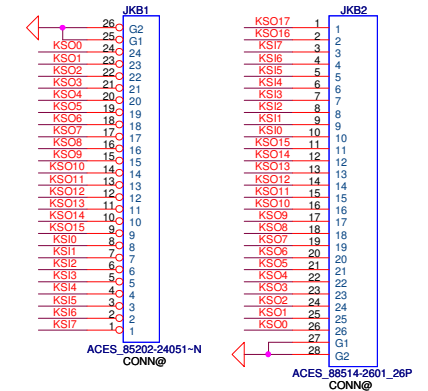


Near JKB1

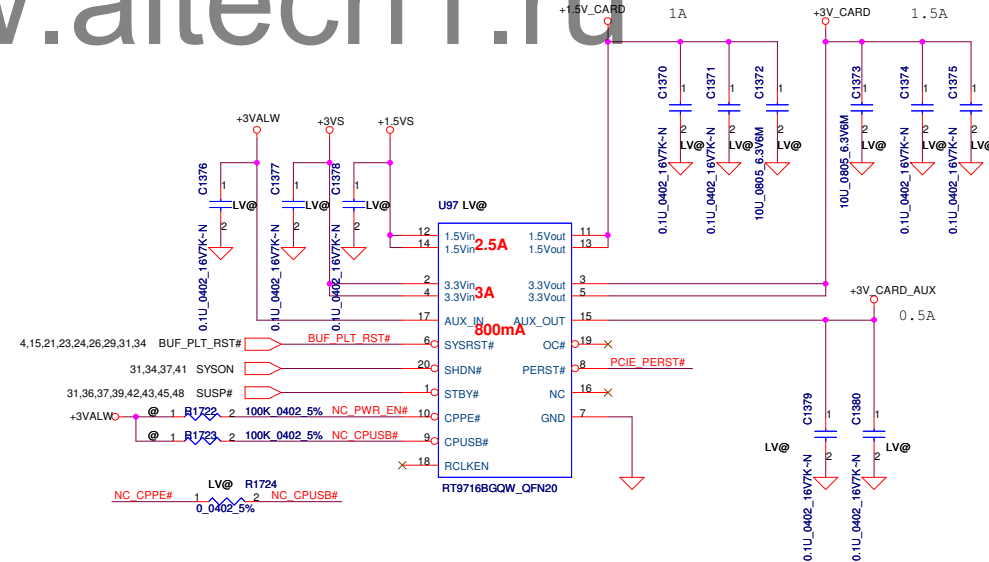
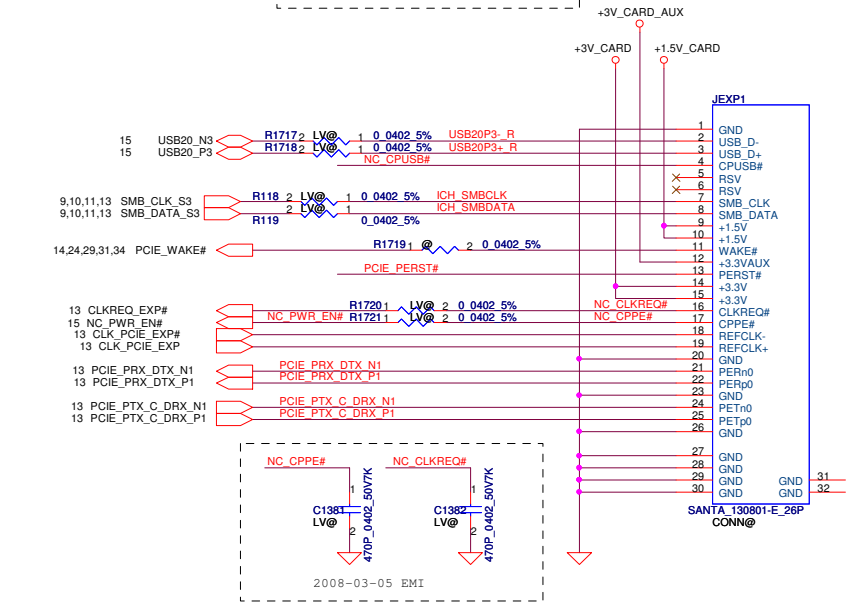
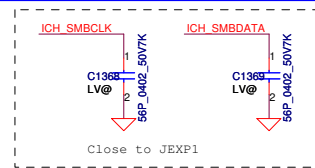


Near JKB2

INT_KBD CONN.



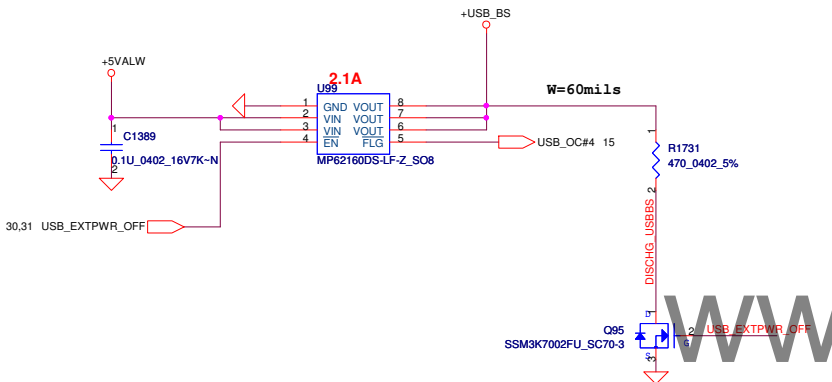
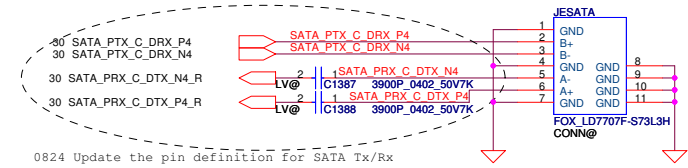
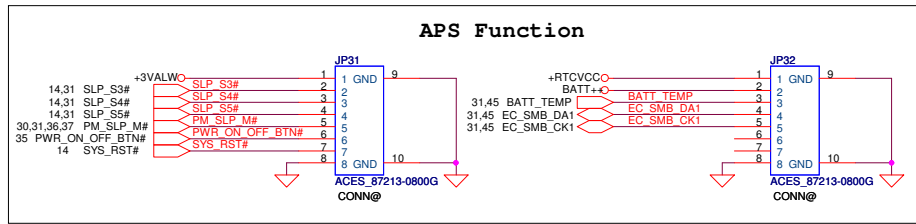
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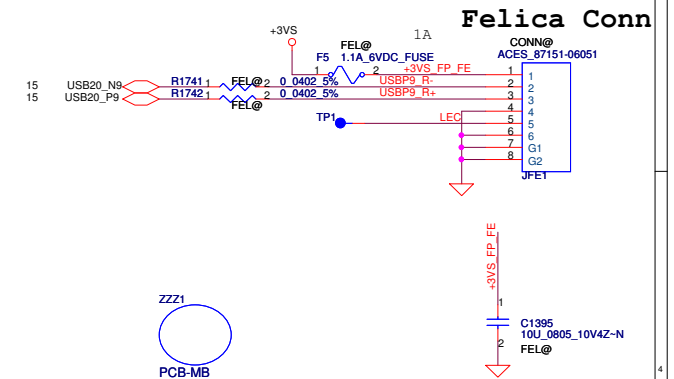
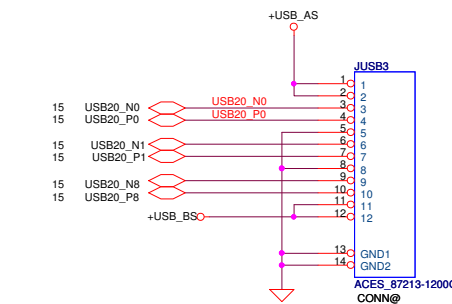
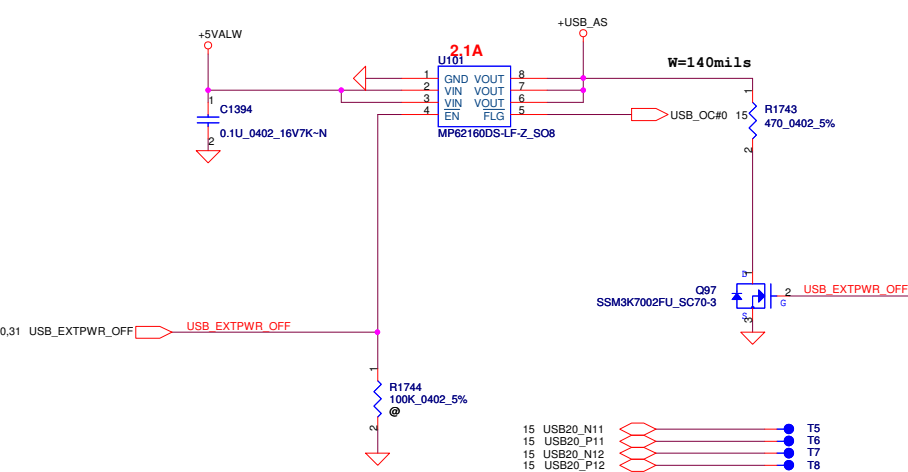
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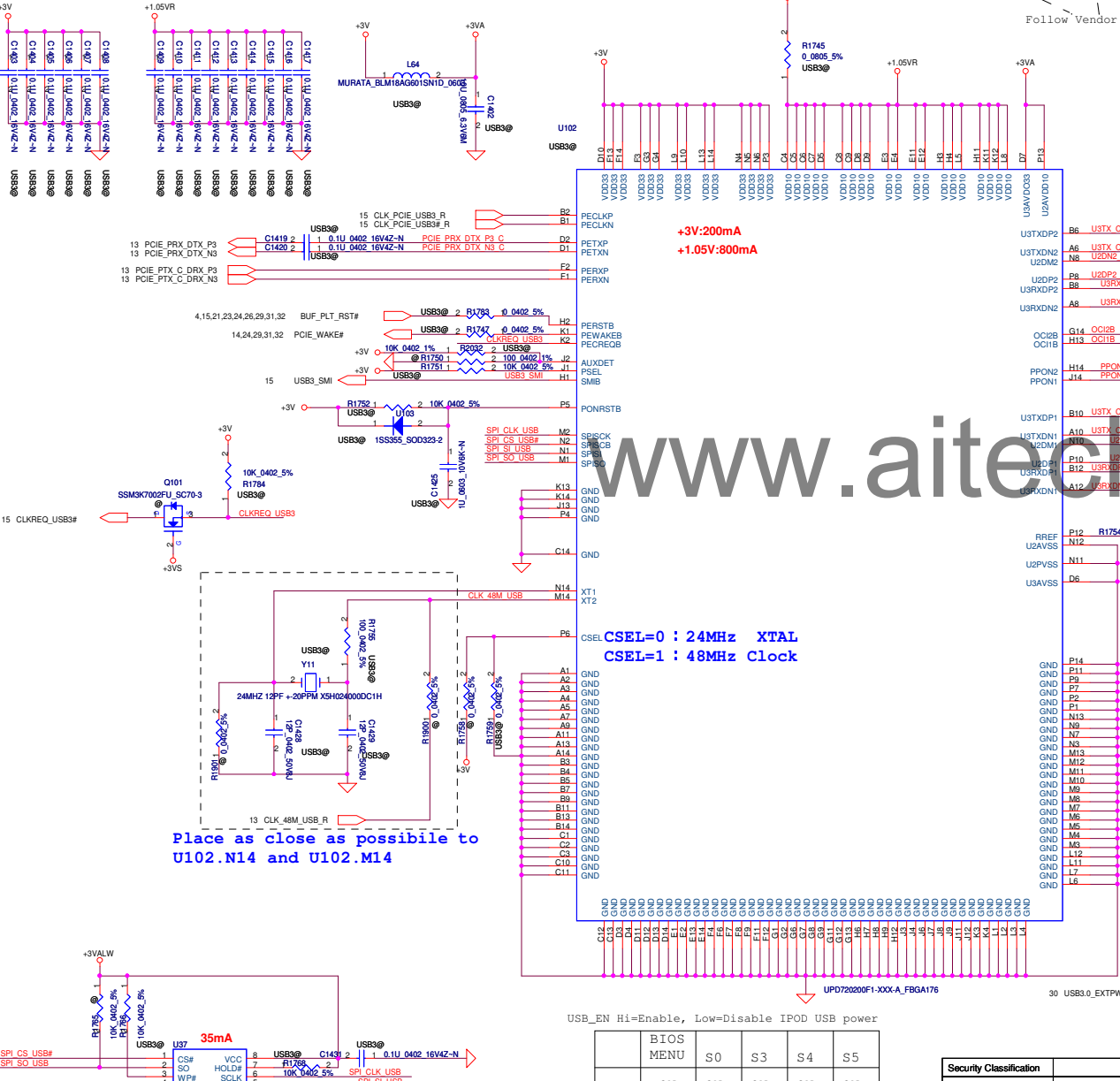
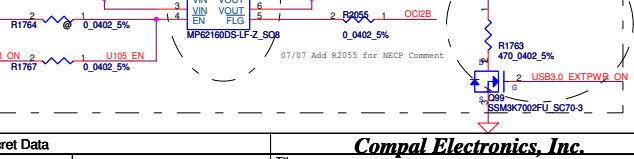
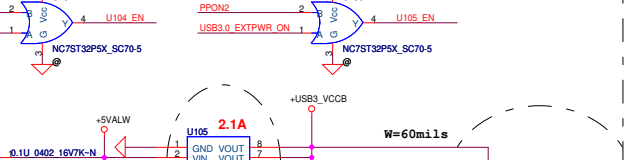
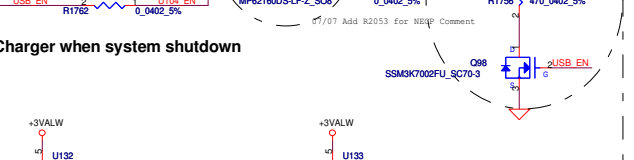
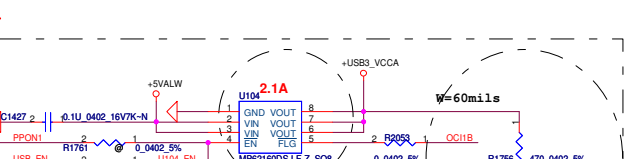
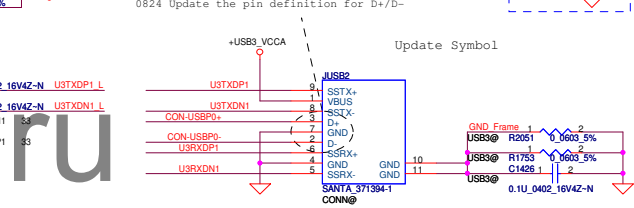
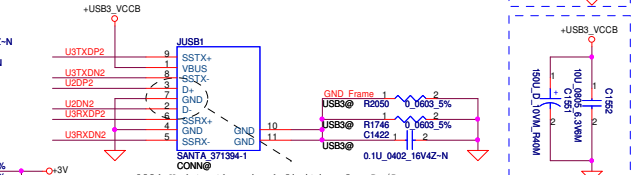
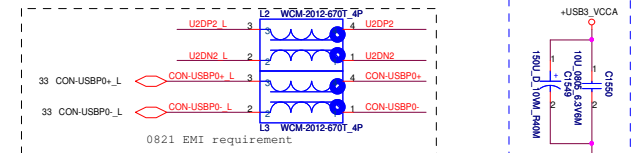
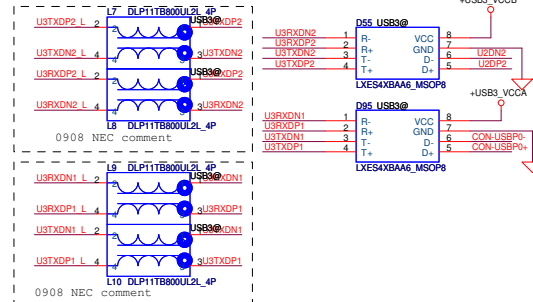
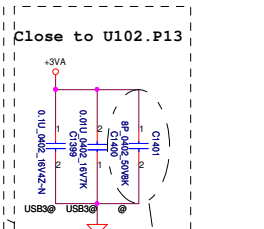
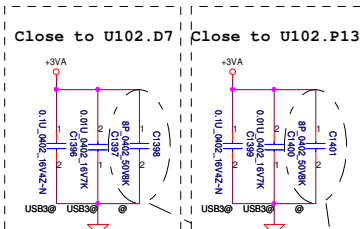
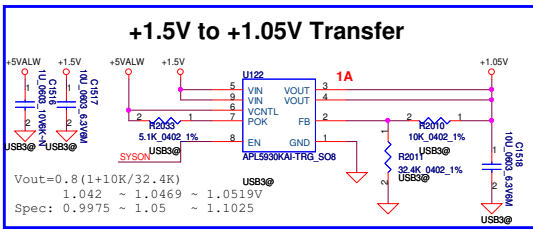
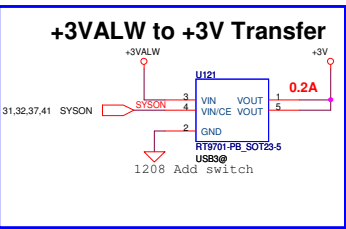
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USB Sub Board CONN.



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						Size	Document Number			Rev	
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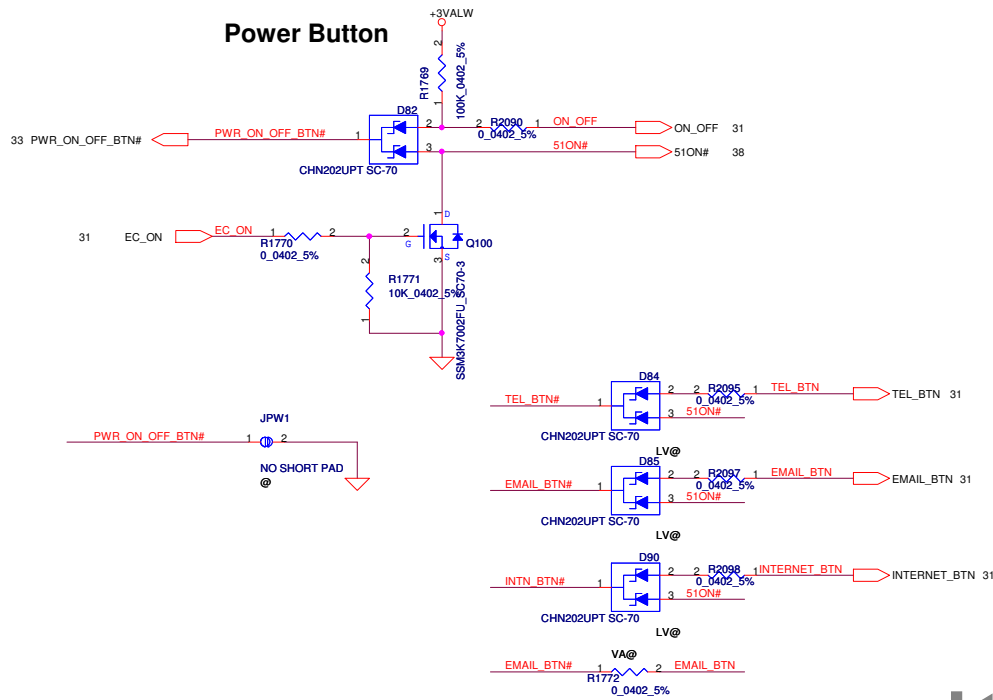


	BIOS MENU	S0	S3	S4	S5
AC /DC	ON	ON	ON	ON	ON
	OFF	ON	OFF	OFF	OFF

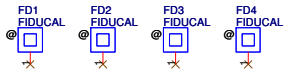
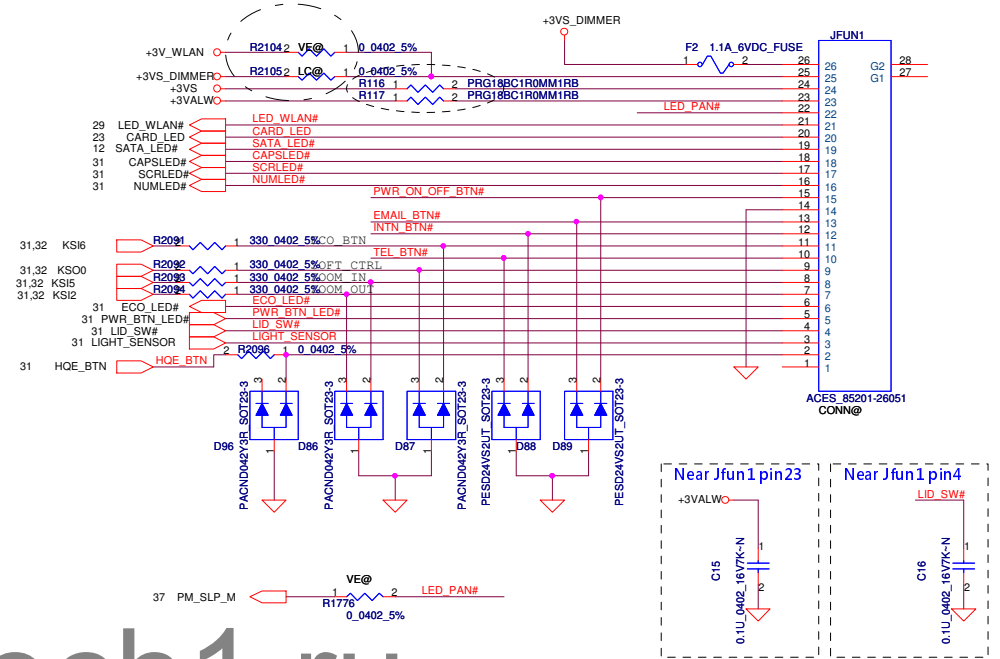
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Title USB3.0			
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Power Button



Function/B CONN.



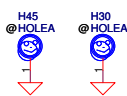
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H_3P1

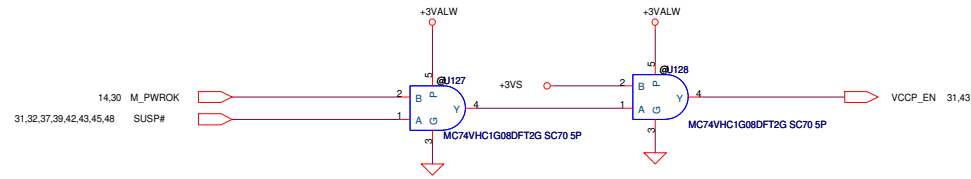


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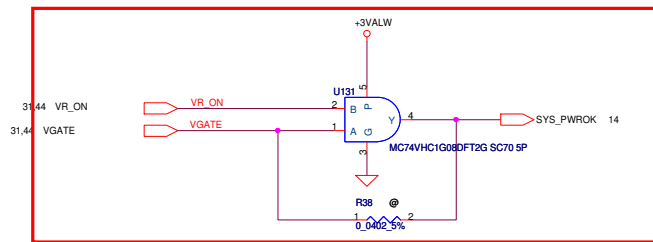
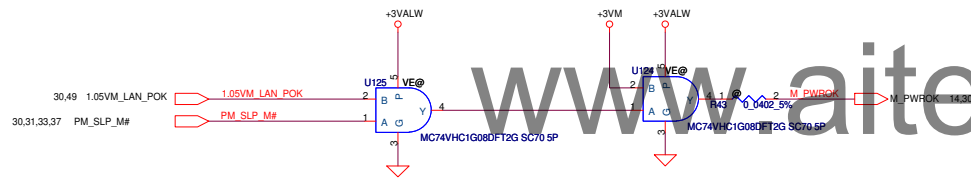


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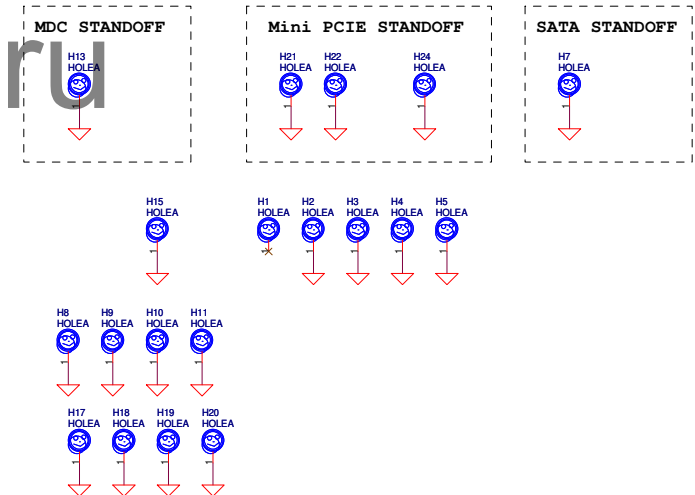
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						Size		Document Number		Rev 0.1	
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Update Symbol

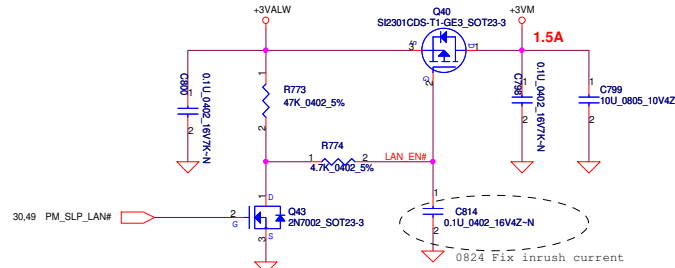


09/01 Add for tune vgate falling-time

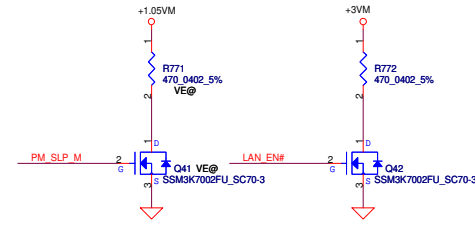


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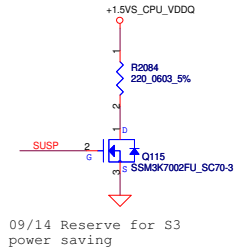
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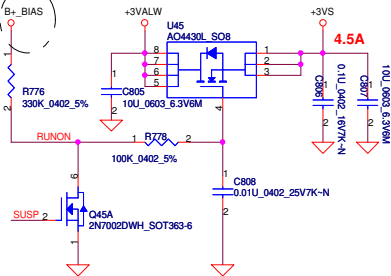
Discharge circuit-2 for V-M



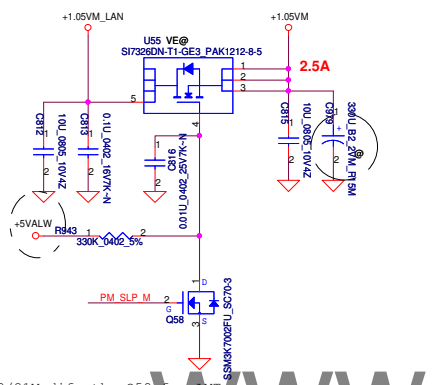
+1.5VS_VDDQ_PP discharge



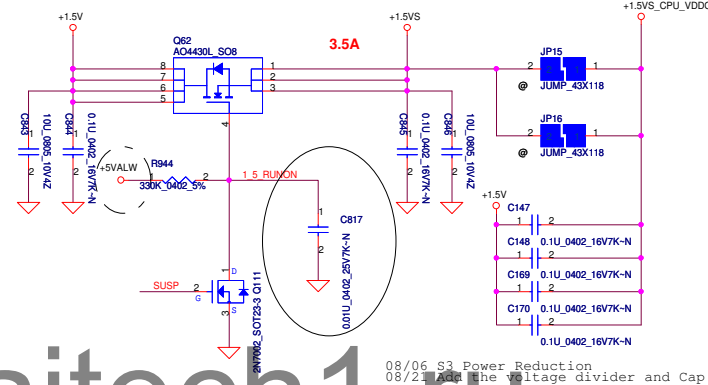
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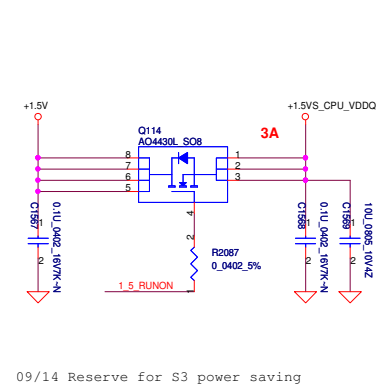
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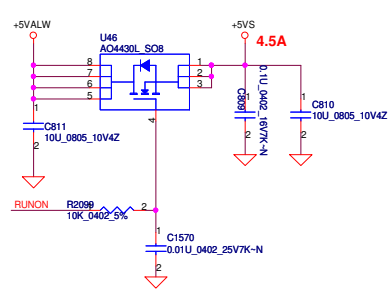
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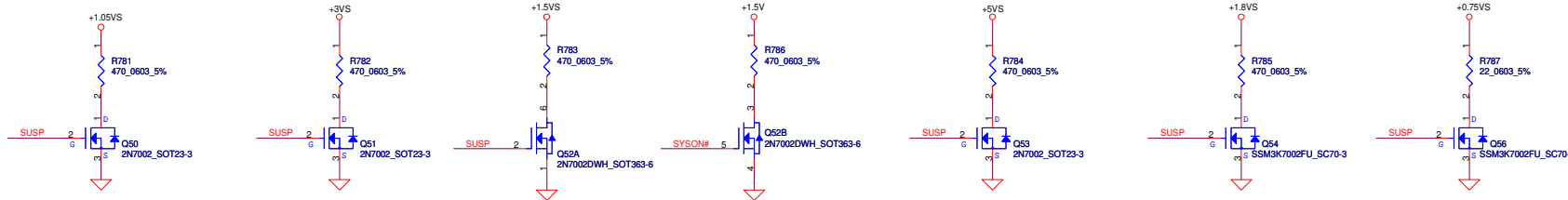
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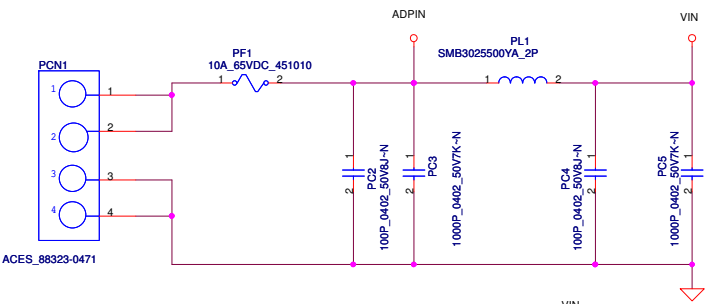
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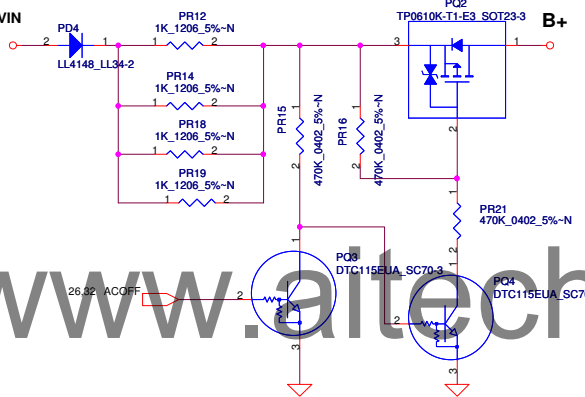
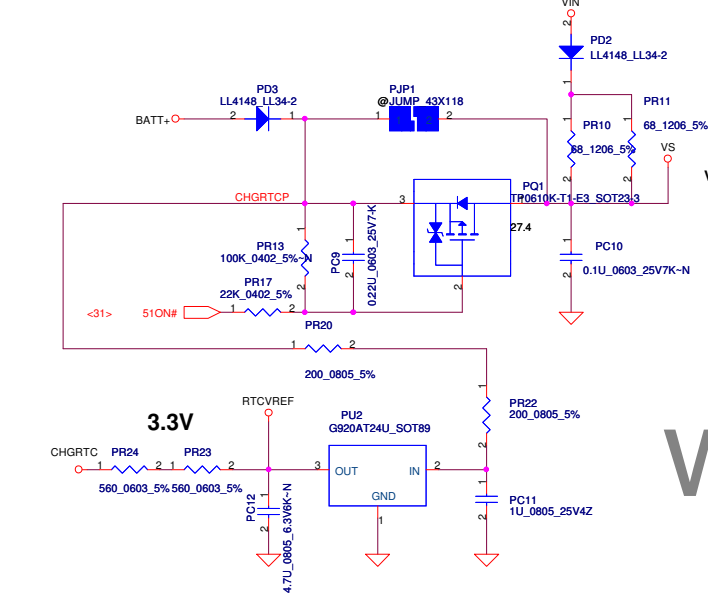
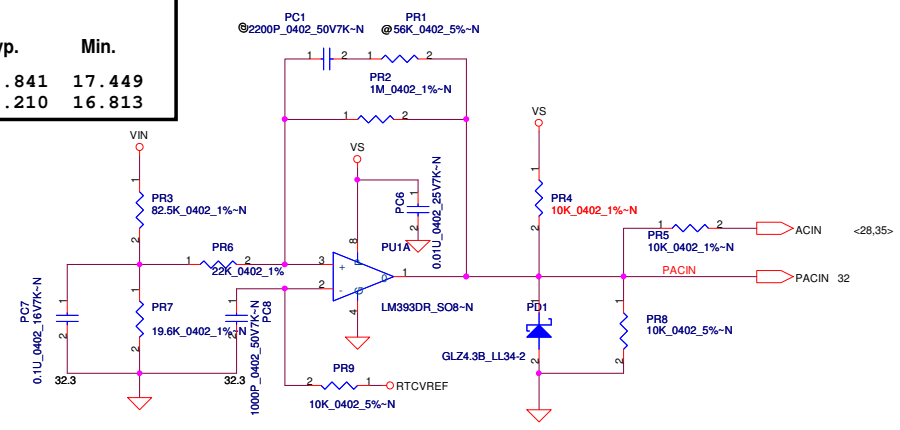
Discharge circuit-1



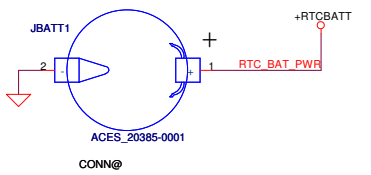
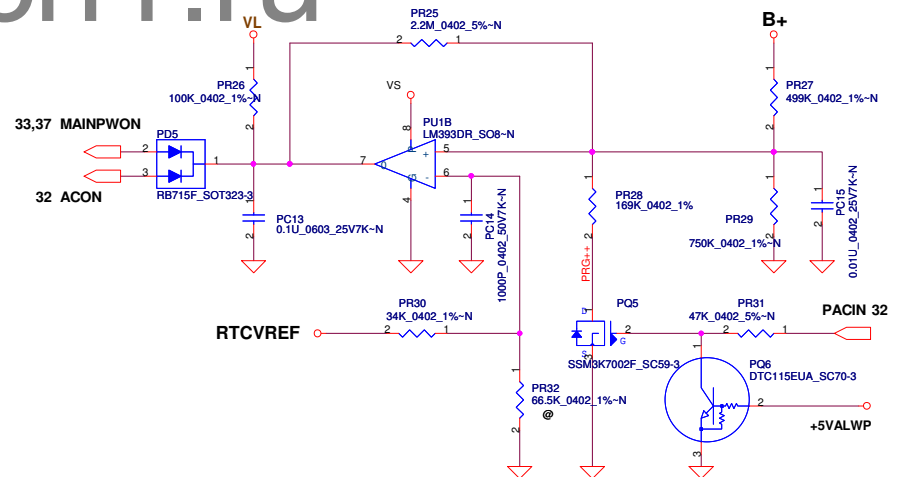
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Vin Detector			
	Max.	typ.	Min.
H-->L	18.234	17.841	17.449
L-->H	17.597	17.210	16.813

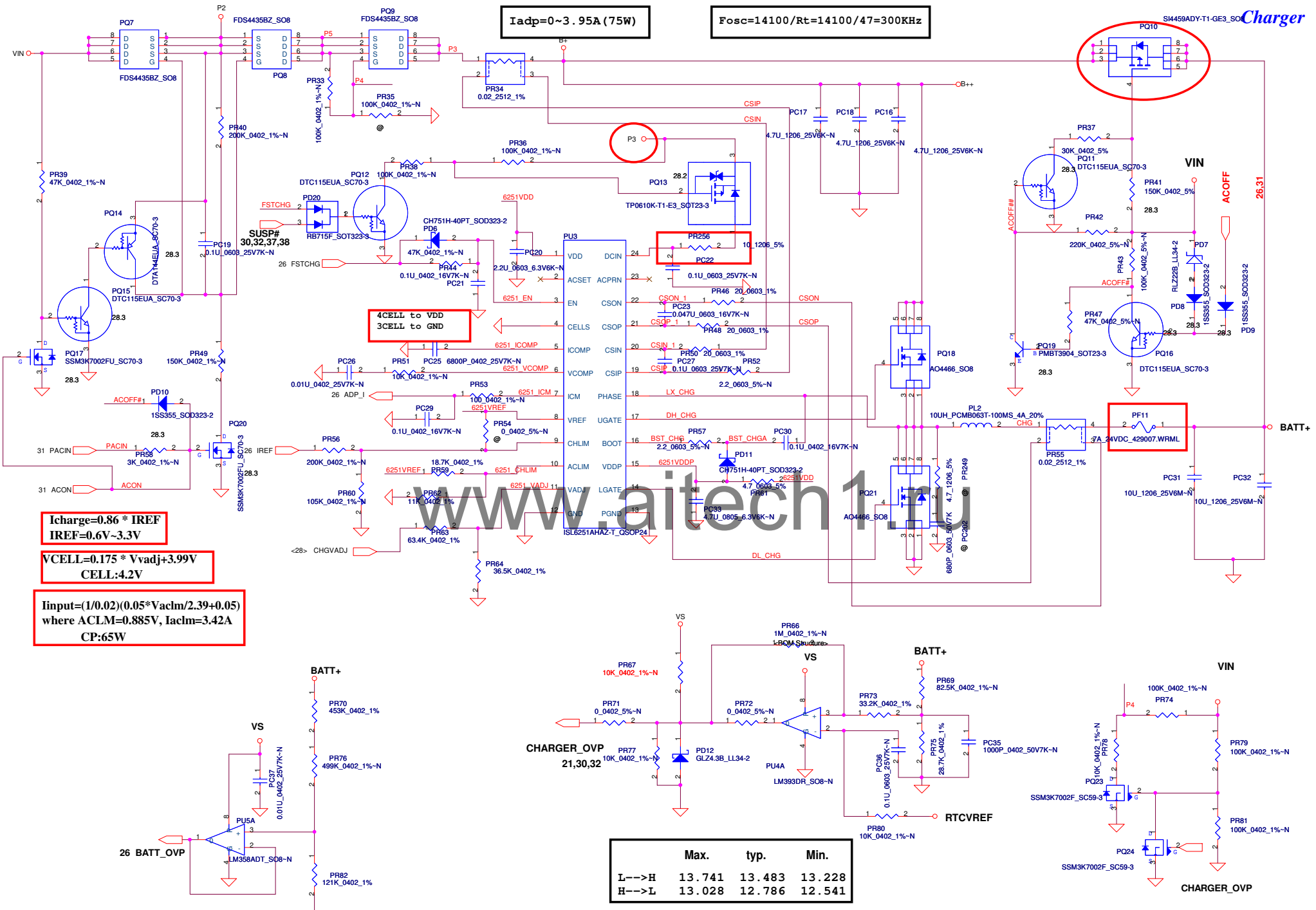


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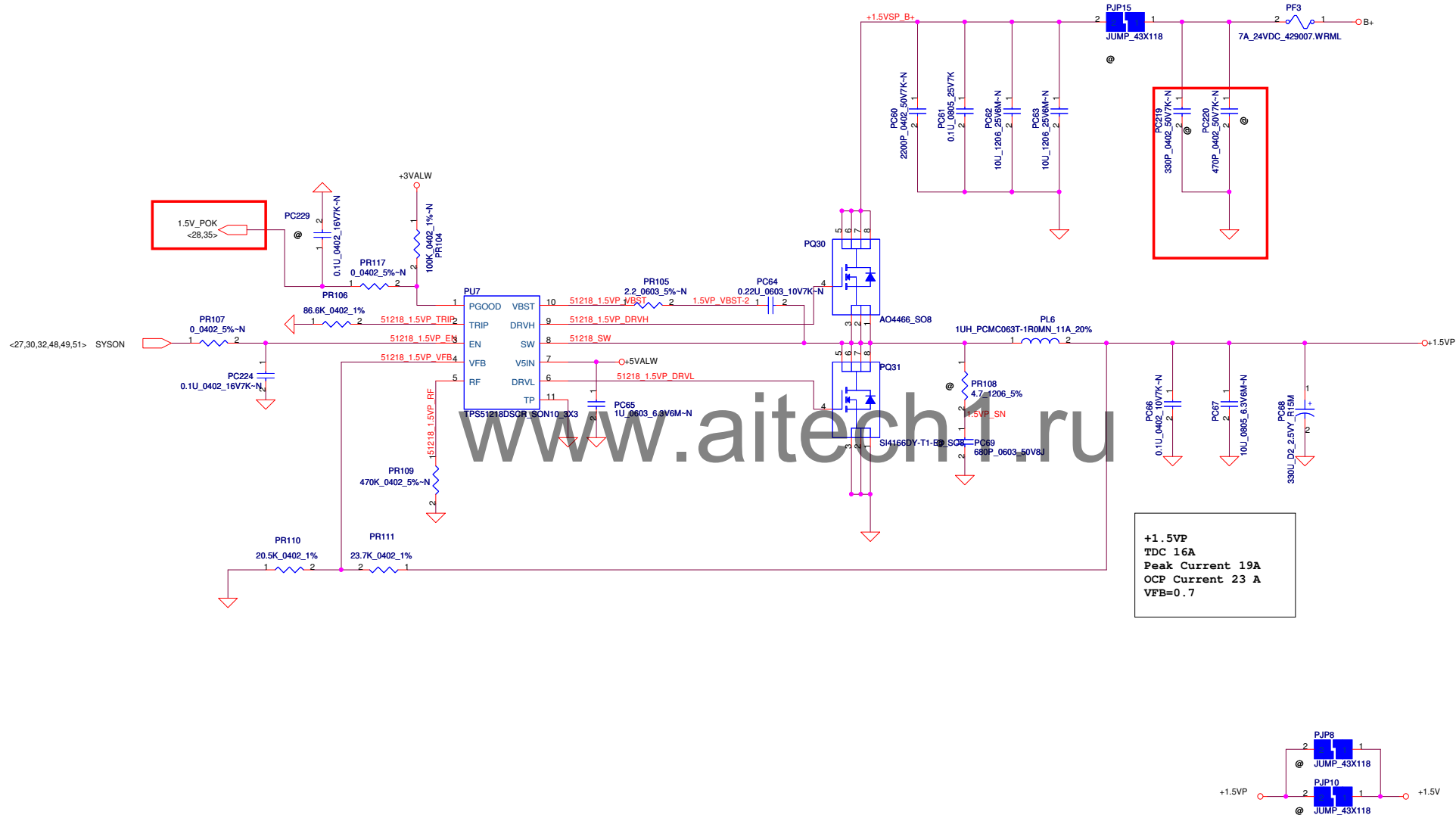
ACIN			
Precharge detector			
	Min.	typ.	Max.
H-->L	14.589V	14.84V	15.243V
L-->H	15.562V	15.97V	16.388V

BATT ONLY			
Precharge detector			
	Min.	typ.	Max.
H-->L	4.92V	5.1V	5.25V
L-->H	6.062V	6.244V	6.43V

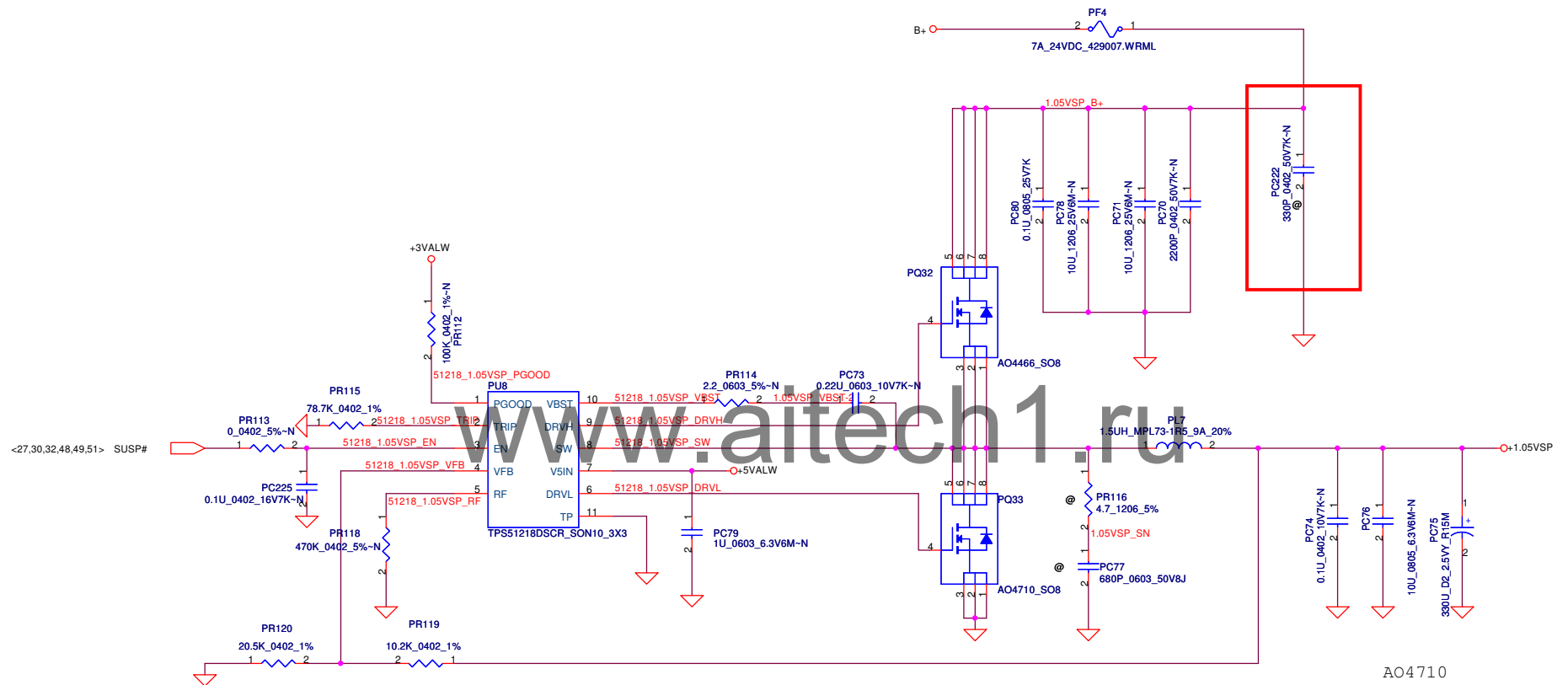


I_{charge}=0.86 * I_{REF}
I_{REF}=0.6V~3.3V
V_{CELL}=0.175 * V_{adj}+3.99V
CELL:4.2V
I_{input}=(1/0.02)(0.05*V_{acim}/2.39+0.05)
where ACLM=0.885V, I_{acim}=3.42A
CP:65W

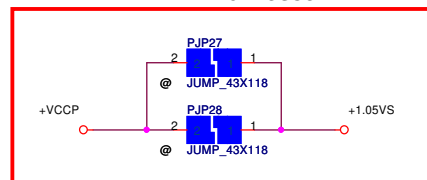
LI-4S : 18V----BATT-OVP=1.498V



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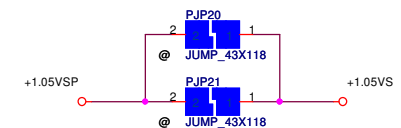


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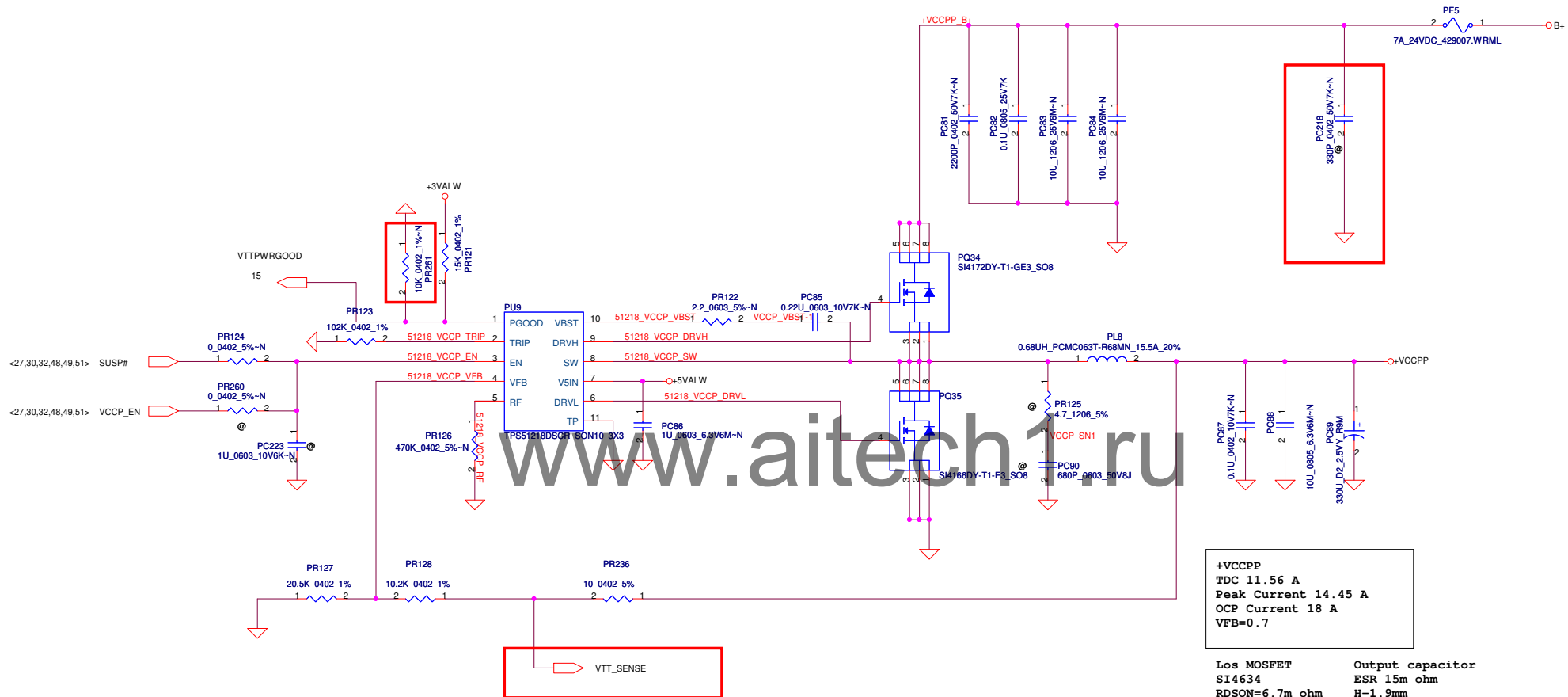


AO4710
Rds(on)=14.2 mohm

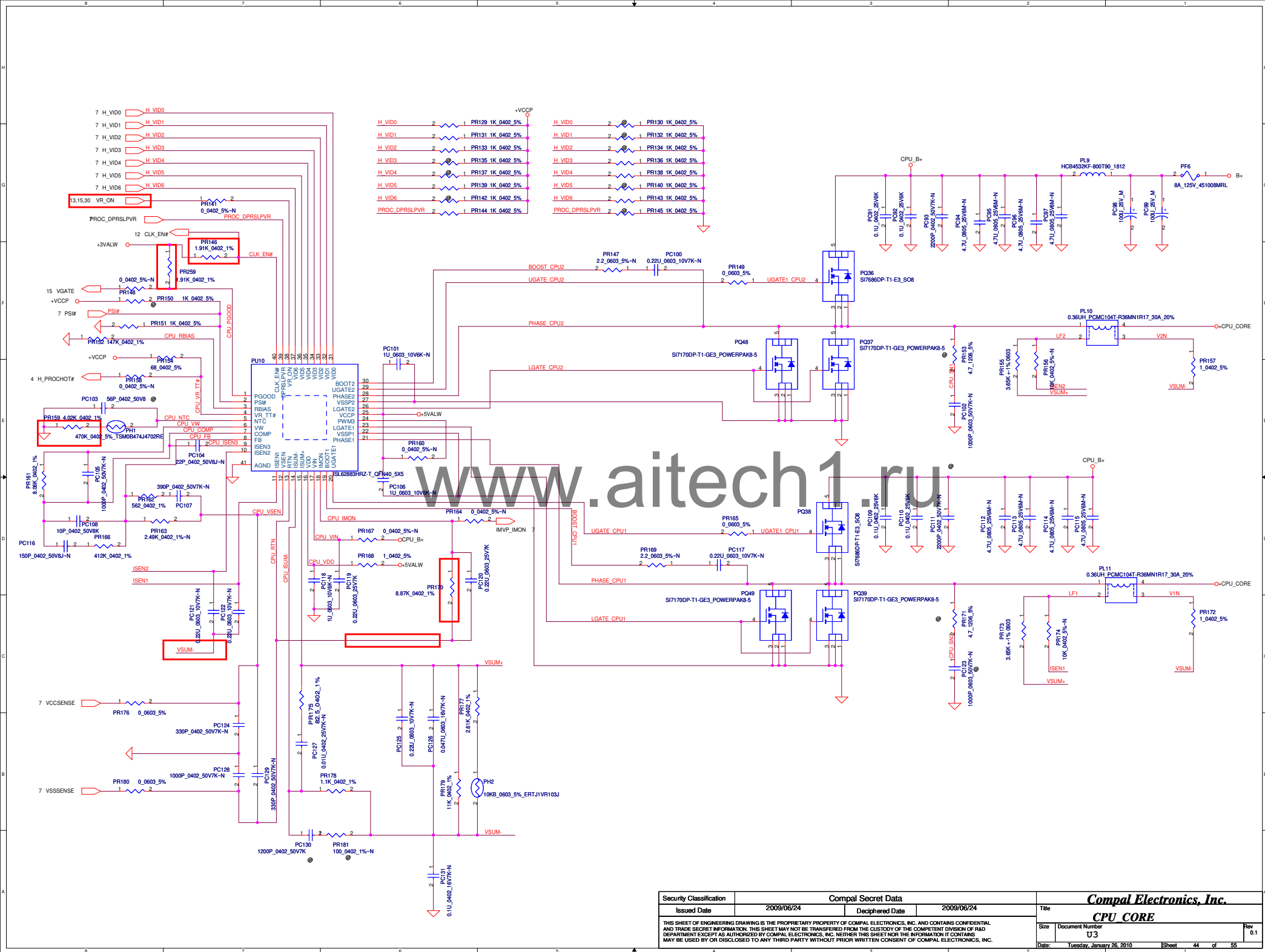
+1.05VSP
TDC 4.37A
Peak Current 5.46 A
OCF Current 6.83 A



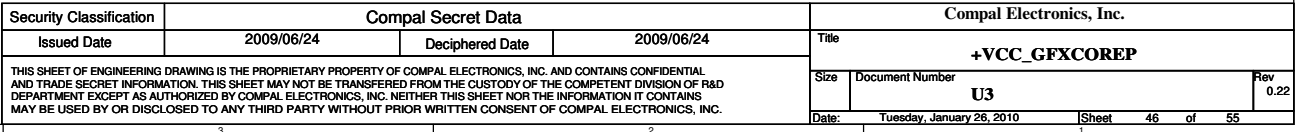
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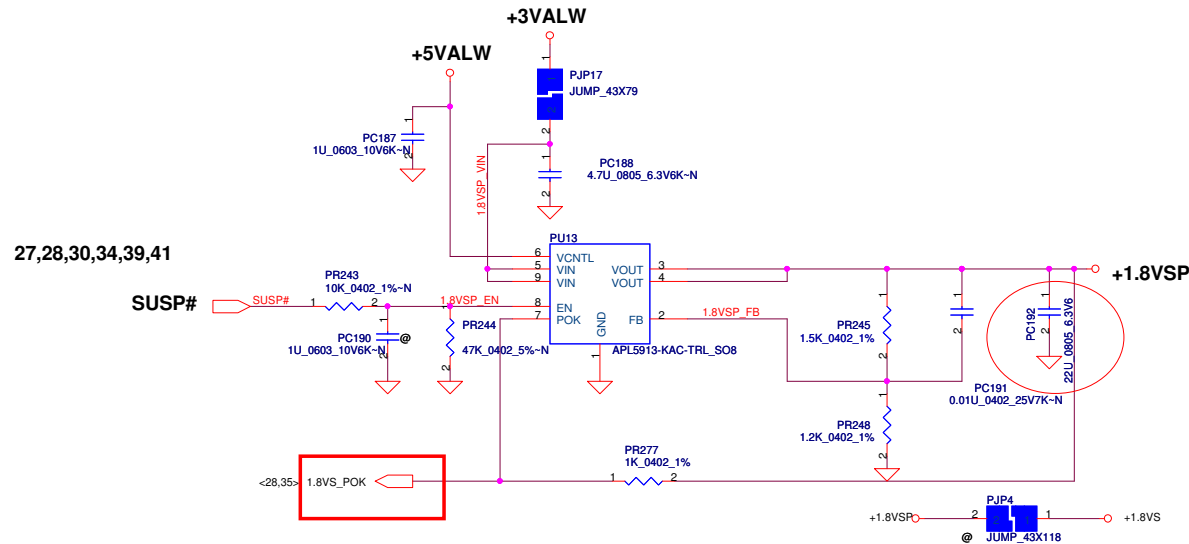


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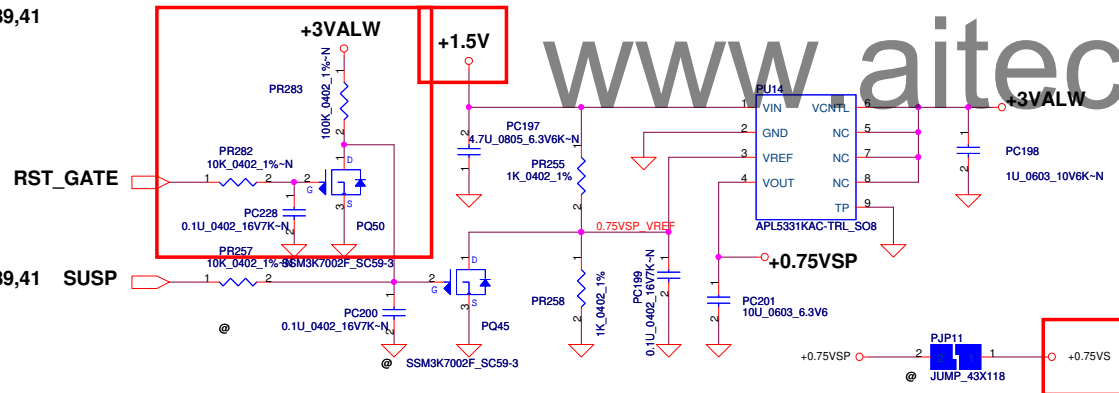
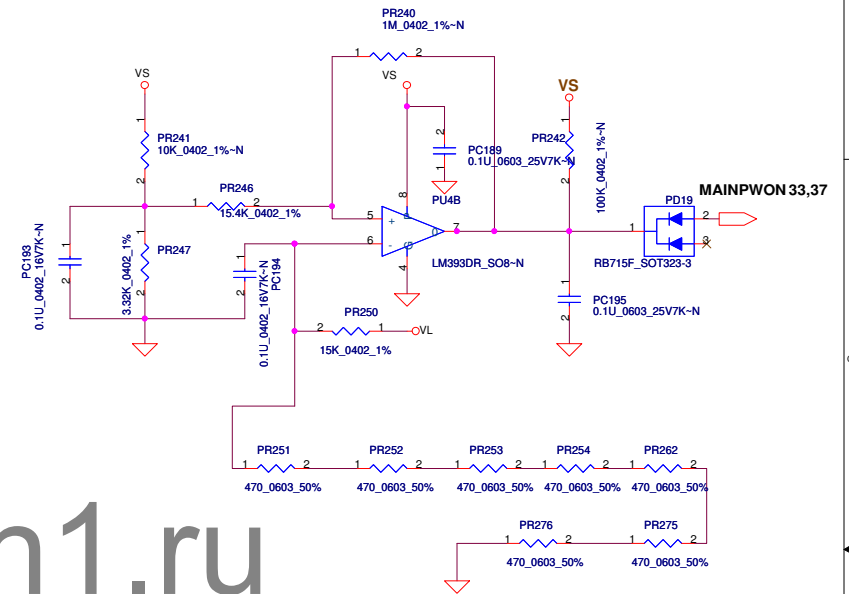


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1	44	PWR-CPU_CORE	2009/08/04	COMPAL	Change the CPU current gaing meet Arrandale CPU	DEL(SD028100180 S RES 1/16W 1K +-5% 0402) Location :PR135 PR140 ADD(SD028100180 S RES 1/16W 1K +-5% 0402) Location :PR136 PR139		0.1
2	44	PWR-CPU_CORE	2009/08/04	COMPAL	Change the resiter value to same with common circuitry	Change (SD028470280 S RES 1/16W 47K +-5% 0402) to (SD000009080 S RES 1/16W 1.91K +-1% 0402) Location :PR146		
3	41~49	PWR-1.5VP, 1.05VSP, VCCPP, 1.05VM	2009/08/04	COMPAL	Change the output capacity to same with common circuitry	Change (SGN00000500 S NBO CAP 330U 2.5V M Y NOJ H2.0) to (SGA19331360 S POLY C 330U 6.3V M D3L ESR25M TPE H2.8) Location :PC68 PC75 PC89 PC211		
4	39	PWR-Charger	2009/08/04	COMPAL	Change the schematic to same with common circuitry	Change (SB000009610 S TR SSM3K7002FU 1N SC70-3) to (SB301150000 S TR DTC115EUA NPN (UMT3)) Location :PQ12 ADD (SCSB715F000 S SCH DIO RB715F UMD3) Location:PD20		
5	39	PWR-1.5VSP VCCPP	2009/08/04	COMPAL	Change the MOSFET to meet NECP rule	Change (SB000000DA00 S TR SI4634DY-T1-E3 1N SO8) to (SB000000LC00 S TR SI4166DY-T1-GE3 1N SO8) Location :PQ31 PQ35		
6	44	PWR-CPU_CORE	2009/08/04	COMPAL	Change the schematic to same with common circuitry	Change (SD028470280 S RES 1/16W 47K +-5% 0402) to (SD000009080 S RES 1/16W 1.91K +-1% 0402) Location :PR146		
7	46	PWR-VCC_GFXCOREP	2009/08/04	COMPAL	FOR INTESIL suggest to add 0 ohm resister	ADD (SD013000080 S RES 1/10W 0 +-5% 0603) Location :PR280 281		
8	48	PWR-0.75VSP/1.8VP	2009/08/04	COMPAL	ADD two posester for HW request	ADD(SL200000S00 S THERM_ 470 +-50% PRF18BA471Q5RB 0603) Location :PR278 PR279		
9	46	PWR-VCC_GFXCOREP	2009/09/30	COMPAL	FOR HW POWER BUDGUT	Change (SB000000G00 S TR AQ466 1N SO8) to (SB0000008L80 S TR SI7686DP-T1-E3 1N POWERPAK SO8) Location :PQ41		
10	48	PWR-0.75VSP/1.8VP	2009/09/30	COMPAL	For HW power saving enable request	ADD(SB000009080 S TR SSM3K7002F 1N SC59-3) Location :PQ50		
11	46	PWR-VCC_GFXCOREP	2009/09/30	COMPAL	FOR HW POWER BUDGUT	Change (SB000000DA00 S TR SI4634DY-T1-E3 1N SO8) to (SB000000F000 S TR SI7170DP-T1-GE3 1N POWERPAK SO8) Location :PQ44		
12	47	PWR-INV_9VP	2009/09/30	COMPAL	For customer adjust current limit	Change (SD021180D80 S RES 1W .018 +-1% 2512) to (SD021120D80 S RES 1W .012 +-1% 2512) Location :PR204		
13	48	PWR-0.75VSP/1.8VP	2009/09/30	COMPAL	For HW power saving enable request	ADD(SD034100280 S RES 1/16W 10K +-1% 0402) Location :PR282		
14	48	PWR-0.75VSP/1.8VP	2009/09/30	COMPAL	For HW power saving enable request	ADD(SD034100380 S RES 1/16W 100K +-1% 0402) Location :PR283		
15	39	PWR-Charger	2009/09/30	COMPAL	Change the CP point to 65W	Change (SD034100280 S RES 1/16W 10K +-1% 0402) to (SD034110280 S RES 1/16W 11K +-1% 0402) Location :PR62		
16	48	PWR-0.75VSP/1.8VP	2009/09/30	COMPAL	For HW power saving enable request	ADD(SE076104KN0 S CER CAP .1U 16V K X7R 0402) Location :PC228		

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1	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	ADD(SB000009080 S TR SSM3K7002F 1N SC59-3) Location :PQ50		0.1
2	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	ADD(SD034100280 S RES 1/16W 10K +-1% 0402) Location :PR282		
3	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	ADD(SD034100380 S RES 1/16W 100K +-1% 0402) Location :PR283		
4	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	ADD(SE076104KN0 S CER CAP .1U 16V K X7R 0402) Location :PC228		
5	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	DEL(SE076104KN0 S CER CAP .1U 16V K X7R 0402) Location :PC200		
7	48	PWR-0.75VSP/1.8VP	2009/09/30	NEC	For HW power saving enable request	DEL(SD034100280 S RES 1/16W 10K +-1% 0402) Location :PR257		

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1	29		01/18	Compal	Debug Port request	Change LPC_LAD[0-3] to JMINI1 from JMINI2	0.1
2	21		01/18	Compal	U32t don't need LPC of CRT/B	Remove R120~R124 from JCRT1	0.1
3	29		01/18	Compal	No SSD function	Del SATA Port2 signals & DA_DSS, SSD_DET	0.1
4	29		01/18	Compal	TV function	Change PICE port4 to JMINI2 from JMINI3	0.1
5	29		01/18	Compal	B-Cas card	Add JSIM1 & B-CASE-PWR,B-CASE-DATA,B-CASE-CLR,B-CASE-RST,B-CASE-VPP	0.1
6	29		01/18	COMPAL	No GUTS CARD function	Remove JMINI3 & USB20_N10 & USB20_P10	0.1
7	28		01/18	Compal	No TPM function	Remove JTPM1	0.1
8	29		01/18	Compal	TV CARD SPEC	Add JMINI2.39, 41 to +3VS & JMINI2.43, 7 to GND	0.1
9	29		01/18	Compal	TV CARD SPEC	Reserve R17 for +1.5VS	0.1
10	36		01/20	Compal		Remove H23	0.1
11	29		01/20	Compal	EMI request	Reserve C17 ,C18 for EMI	0.1
12	29		01/21	Compal	Measure PW consumption	Reserve JP12 for measure PW consumption	0.1
13	16		01/21	Compal		Remove reserved L20	0.1
14	29		01/21	NEC		Remove the B-CASE-VPP line	0.1
15	29		01/21	NEC	B-Cas card	C552 change to 2.2U & un-mount	0.1
16	29		01/22	NEC	B-Cas card	Add Filter circuits for B-Cas card(C202-C207 & R500-R502)	0.1
17	21		01/25	NEC		Remove LPC_LDRO#0,BUF_PLT_RST#,IBEX_R#,PM_CLKRUN#,CLK_SUPIO,SIRQ,SUS_STAT#,CLK_PCI_SIO	0.1
18	15		01/25	NEC		R1186 un-mount	0.1
19	29		01/25	NEC		Add R51 for JMINI2.24 & R80 for J4.47	0.1
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