

IGT30

Schematics Document

Mobile Merom uFCPGA with Intel
Crestline_GM/PM+ICH8-M core logic

Monday, December 25, 2006

REV:0.1

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LEFT SWITCH Board

LEDs Board

LVDS
Connector

Nvidia N8M

Mobile Merom
uFCPGA-478 CPU

page4,5,6

H_A#(3..35)
H_D#(0..63)

FSB

667/800MHz

Clock Gen.
ICS9LPRS355
page15

PCI-E X16

Intel Crestline GMCH

PCBGA 1299

page7,8,9,10,11,12

DDR2 -667

Dual Channel

DDR2-SO-DIMM X2
BANK 0, 1, 2, 3
page 13,14

CRT & TV OUT

page17

LVDS I/F

LVDS
Connector

page16

DMI

C-Line

PCI-E BUS

Intel ICH8-M

mBGA-676

page19,20,21,22

AZALIA

USB2.0

SATA

ATA100

3.3V/33MHz PCI BUS

PCI Express
Mini card Slot
page28

BCM5906 BCM5787
10/100/1G LAN
page27

1394+Card Reader
RICOH R5C832
page26

RJ45 CONN
page27

1394 Conn
page26

Card reader(XD/SD
MMC/MS/MS-Pro
HD SD)
page26

SUB Board
page32,36

*RJ45 CONN
*RJ11 CONN
*MIC IN JACK
*HP OUT JACK
*LED
*SWITCH

*1394 CONN
*DC JACK
*TVOUT CONN
*USB CONN
*SWITCH

LPC BUS

EC
ENE KB925/KB926
page33

Touch Pad
page32

Int.KBD
page32

BIOS
page34

MODEM
Ver 1.5
page 28

AMP&Audio Jack
page30

Audio Codec
ALC 262H
page29

Finger printer
page36

CMOS Camera
page36

BlueTooth Conn
page28

USB conn X4
page31

USB 3G
page31

SATA HDD
Connector
page23

PATA CDROM
Connector
page23

USB Board

TP Board

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Compal Electronics, Inc.

Block Diagram

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Voltage Rails

O MEANS ON X MEANS OFF

power plane State	+B LDO3 LDO5	+5VALW +3VALW	+1.8V +5V +0.9V	+5VS +3VS +2.5VS +1.8VS +1.5VS +1.25VS +VGA_CORE +CPU_CORE +VCCP	CLOCK
S0	O	O	O	O	O
S3	O	O	O	X	O
S5 S4/AC	O	O	X	X	O
S5 S4/ Battery only	O	X	X	X	X
S5 S4/AC & Battery don't exist	X	X	X	X	X

O MEANS ON
X MEANS OFF

S3 : STR
S4 : STD
S5 : SOFT OFF

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
1394	AD22	0	PIRQG/H

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 100X b
EEPROM(24C16/02)	1010 000X b		

EC SM Bus2 address

ICH8 SM Bus address

Device	Address
Clock Generator (ICS954226)	1101 001Xb
DDRII DIMM0	1010 000Xb
DDRII DIMM1	1010 010Xb

SKU ID Table

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

BOM Structure

MARK	FUNCTION
@	NC FOR ALL
GIGA@	BCM5787
100@	BCM5906
UMA@	Internal 965GM
VGA@	965PM + Ext VGA

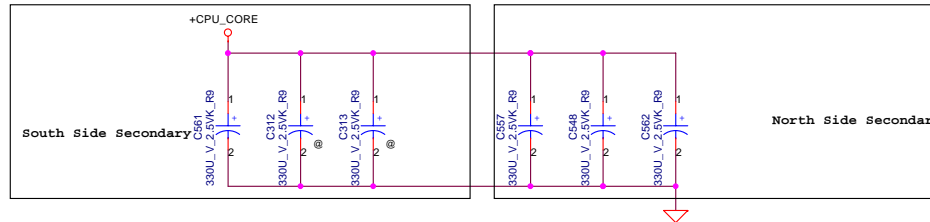
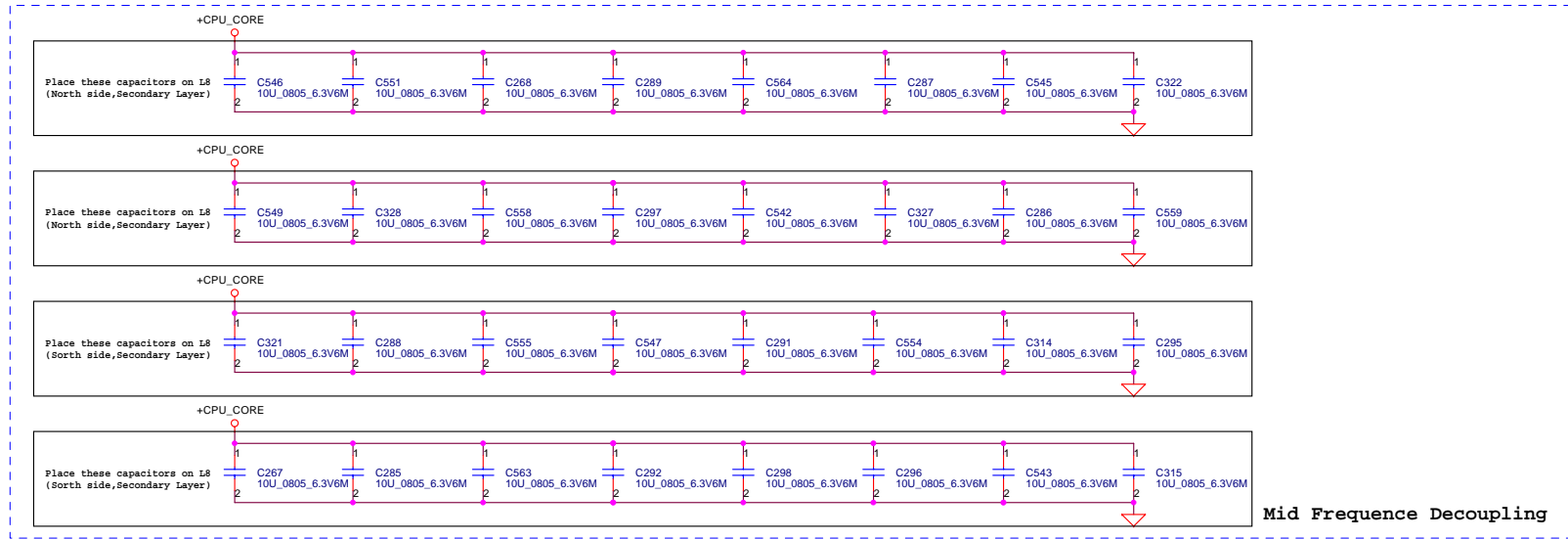
Address

USB PORT LIST

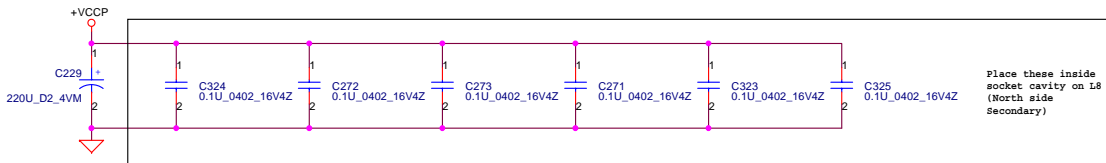
PORT	DEVICE
0	LEFT SIDE
1	WIRELESS
2	RIGHT SIDE
3	CMOS
4	RIGHT SIDE
5	NEW CARD
6	
7	BT (HDL20)
8	
9	3G

JP1D		
A4	VSS[001]	P6
A8	VSS[002]	P21
A11	VSS[003]	P24
A14	VSS[004]	R2
A16	VSS[005]	R5
A19	VSS[006]	R22
A23	VSS[007]	R25
B6	VSS[008]	T1
B8	VSS[009]	T4
B11	VSS[010]	T23
B13	VSS[011]	T26
B16	VSS[012]	U3
B19	VSS[013]	U8
B21	VSS[014]	U21
B24	VSS[015]	U24
C5	VSS[016]	V2
C8	VSS[017]	V5
C11	VSS[018]	V22
C14	VSS[019]	V25
C16	VSS[020]	W1
C19	VSS[021]	W2
C2	VSS[022]	W23
C22	VSS[023]	W26
C25	VSS[024]	Y3
D1	VSS[025]	Y6
D4	VSS[026]	Y21
D8	VSS[027]	Y24
D11	VSS[028]	Y27
D13	VSS[029]	AA2
D16	VSS[030]	AA5
D19	VSS[031]	AA8
D23	VSS[032]	AA11
D26	VSS[033]	AA14
E3	VSS[034]	AA16
E6	VSS[035]	AA19
E8	VSS[036]	AA22
E11	VSS[037]	AA25
E14	VSS[038]	AB1
E16	VSS[039]	AB4
E19	VSS[040]	AB8
E21	VSS[041]	AB11
E24	VSS[042]	AB13
F5	VSS[043]	AB16
F8	VSS[044]	AB19
F11	VSS[045]	AB23
F13	VSS[046]	AB26
F16	VSS[047]	AC3
F19	VSS[048]	AC6
F2	VSS[049]	AC8
F22	VSS[050]	AC11
F25	VSS[051]	AC14
G4	VSS[052]	AC16
G1	VSS[053]	AC19
G23	VSS[054]	AC21
G26	VSS[055]	AC24
H3	VSS[056]	AD2
H6	VSS[057]	AD5
H21	VSS[058]	AD8
H24	VSS[059]	AD11
J2	VSS[060]	AD13
J5	VSS[061]	AD16
J22	VSS[062]	AD19
J25	VSS[063]	AD22
K1	VSS[064]	AD25
K23	VSS[065]	AE1
K26	VSS[066]	AE4
L3	VSS[067]	AE8
L6	VSS[068]	AE11
L21	VSS[069]	AE14
L24	VSS[070]	AE16
M2	VSS[071]	AE19
M5	VSS[072]	AE23
M22	VSS[073]	AE26
M25	VSS[074]	A2
N1	VSS[075]	AF6
N4	VSS[076]	AF9
N23	VSS[077]	AF11
N26	VSS[078]	AF13
P3	VSS[079]	AF16
	VSS[080]	AF19
	VSS[081]	AF21
	VSS[082]	A25
	VSS[083]	AF25

Merom Ball-out Rev 1a



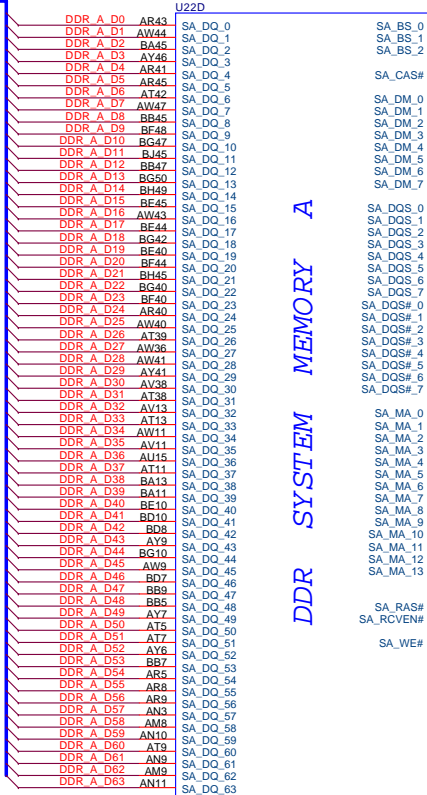
ESR <= 1.5m ohm
Capacitor > 1980uF



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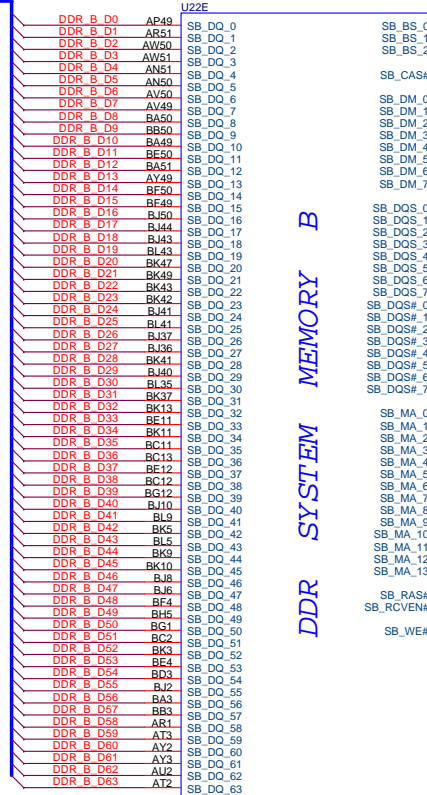
13 DDR_A_D[0..63]



CRESTLINE_1p0

DDR SYSTEM MEMORY A

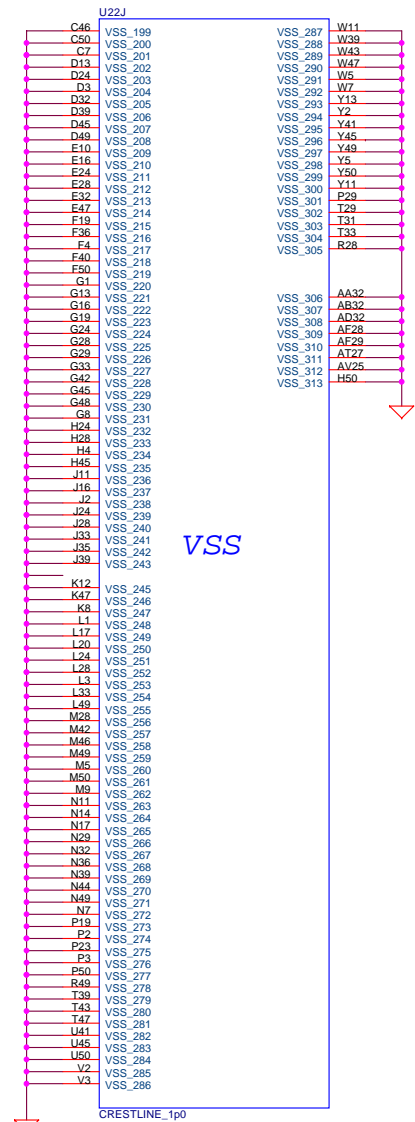
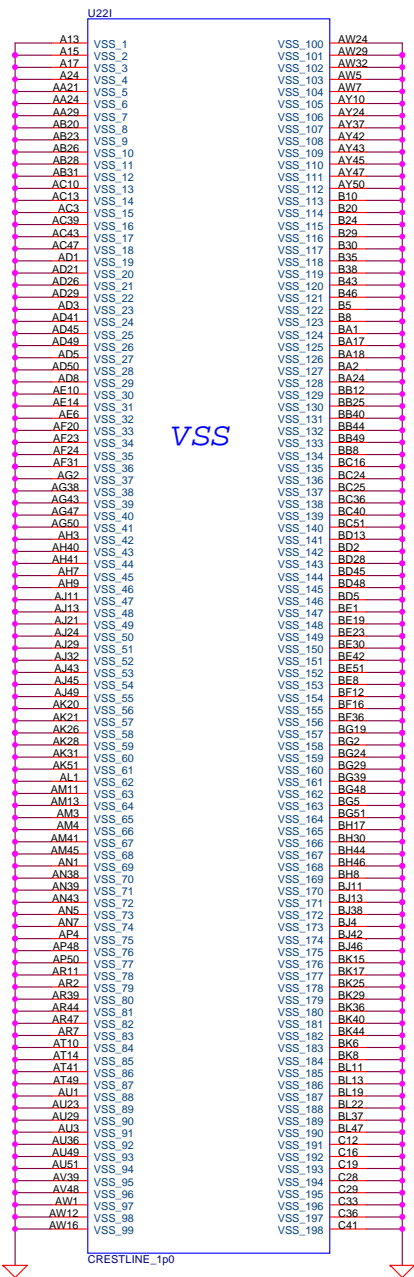
14 DDR_B_D[0..63]



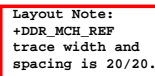
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DDR SYSTEM MEMORY B

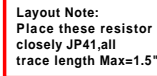
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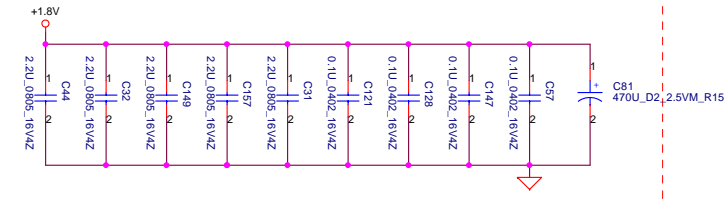
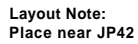
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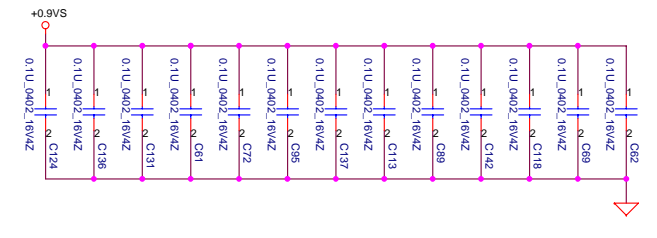
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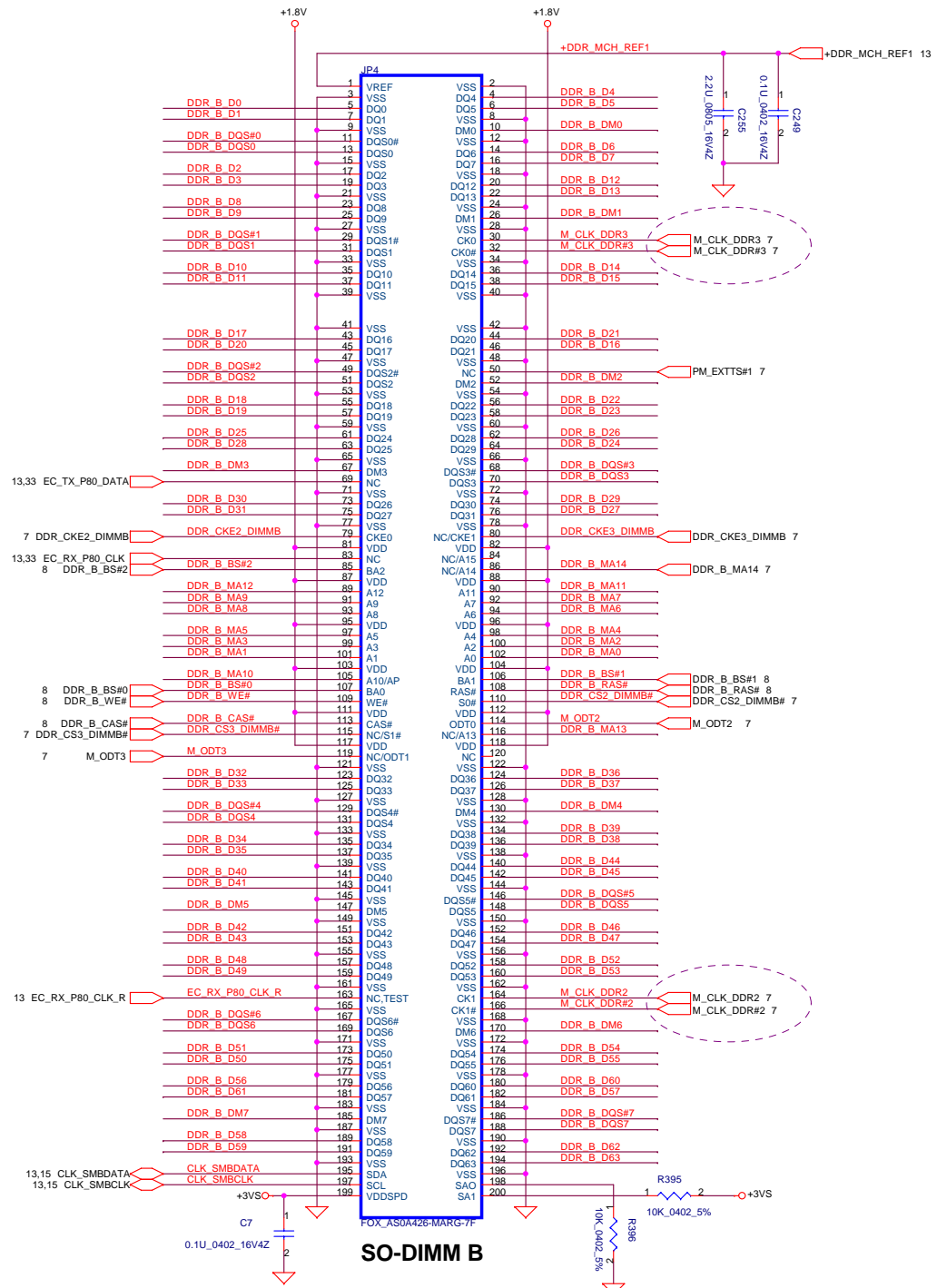
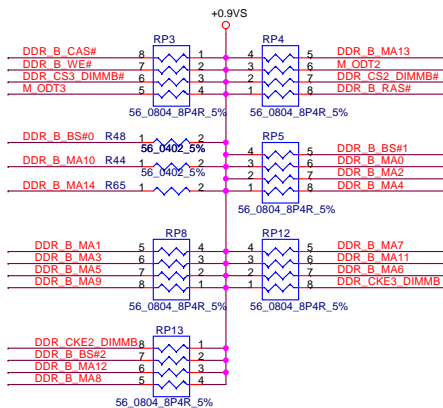
WWW.AliSaler.Com



Layout Note:
Place one cap close to every 2 pullup resistors terminated to +0.9VS



Layout Note:
Place these resistor
closely JP42,all
trace length Max=1.5"



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Routing the trace at least 10mil

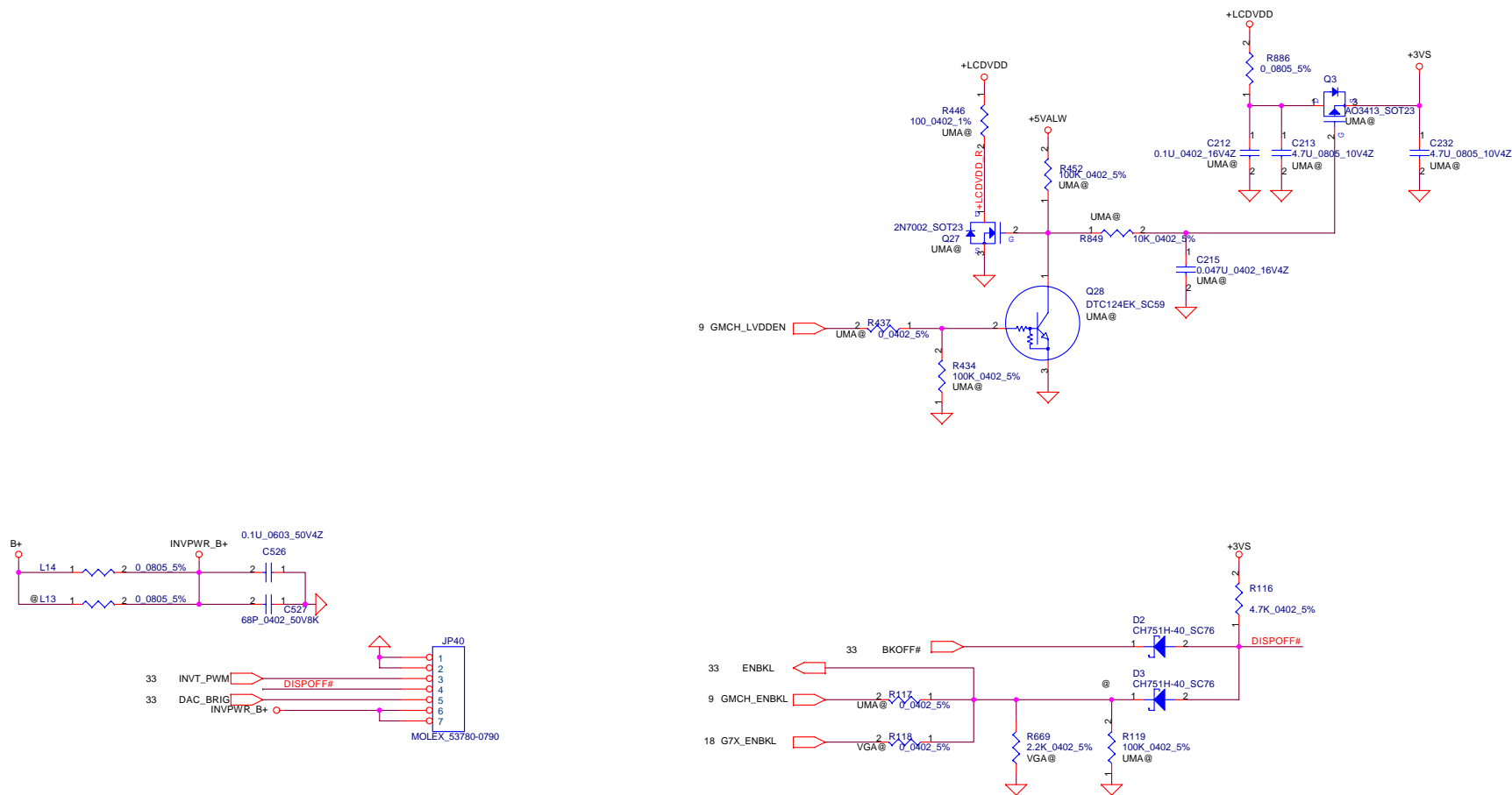
Routing the trace at least 10mil

Routing the trace at least 10mil

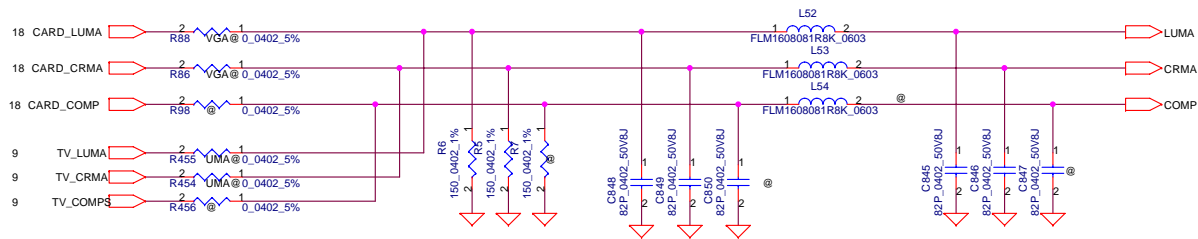


Routing the trace at least 10mil

Routing the trace at least 10mil

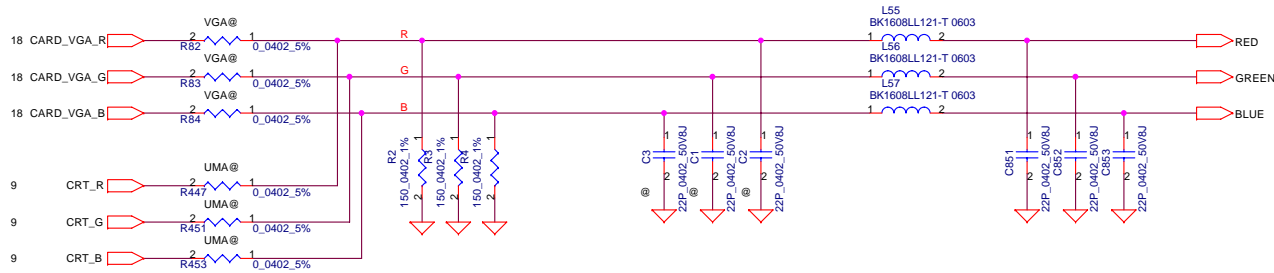


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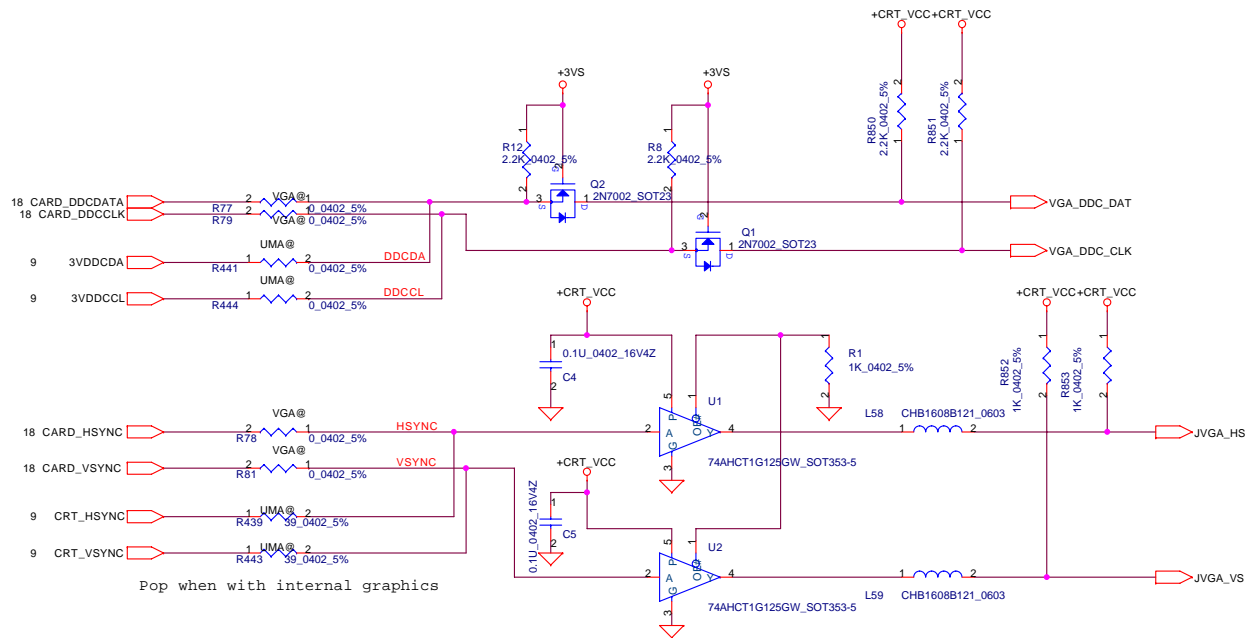


Pop when with internal graphics

CRT Conn.



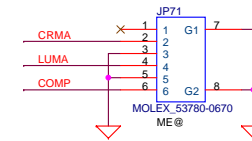
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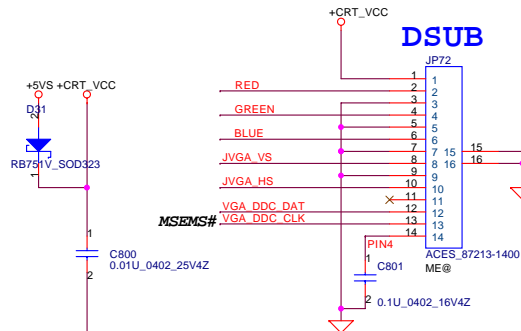
Pop when with internal graphics

VGA I/O PORT Connector

S-VIDEO



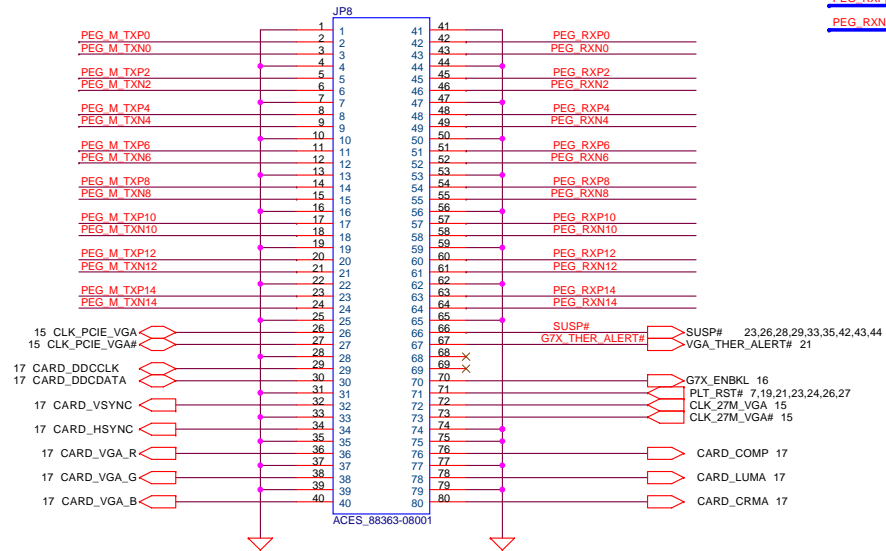
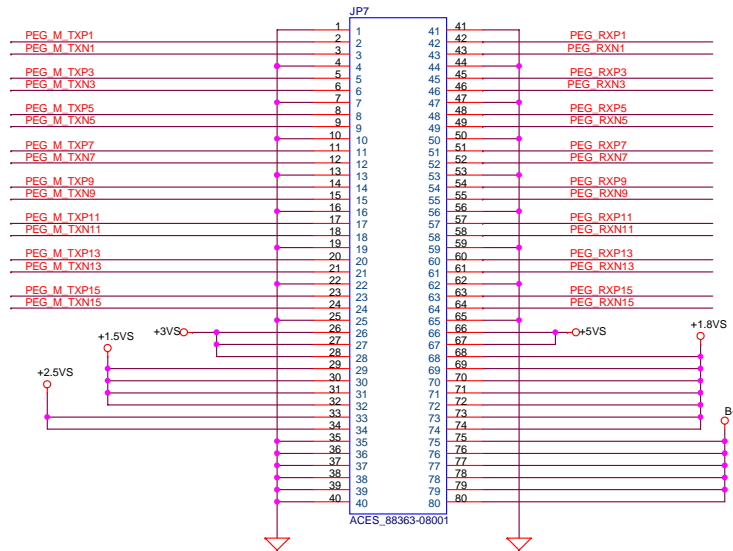
DSUB



PIN ASSIGMENT

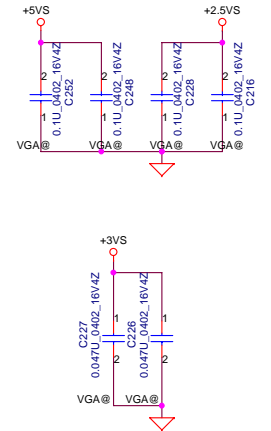
PIN	D-SUB	FUNCTION	PIN	SVIDEO	FUNCTION
1	9	+CART_VCC	1	1	NC
2	1	RED	2	4	CRMA
3	6	GND	3	2	GND
4	2	GREEN	4	3	LUMA
5	7	GND	5	5	GND
6	3	BLUE	6	6	CVBS
7	8	GND			
8	14	VSYNC			
9	10	GND			
10	13	HSYNC			
11	11	SENSE			
12	12	SM_DAT			
13	15	SM_CLK			
14	4	PIN4			

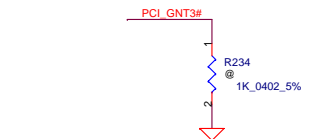
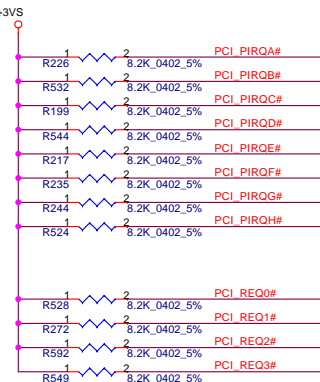
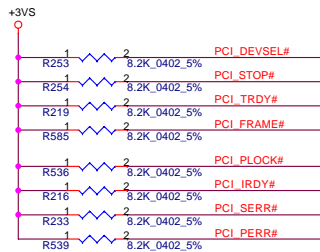
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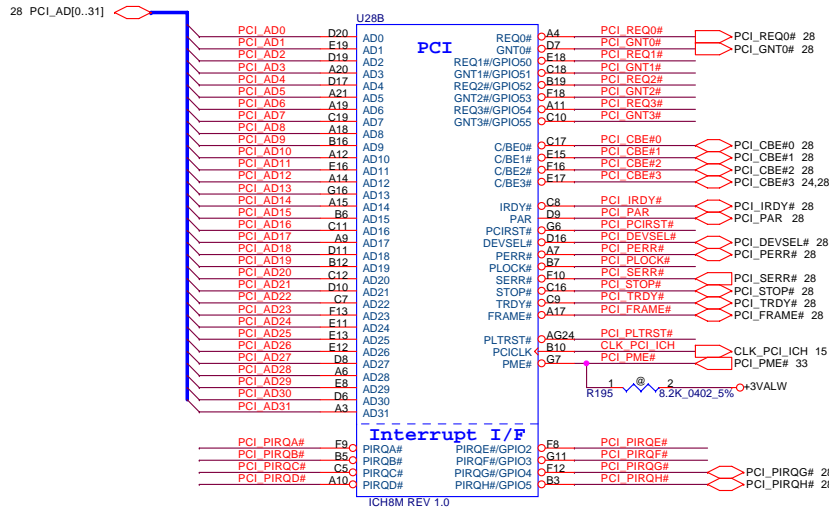
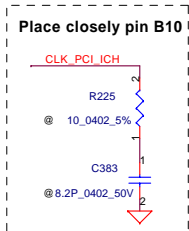
MAX. 4.06A @ 1.8V
MAX. 130mA @ 2.5V
MAX. 655mA @ 3.3V

PEG M TXP[0..15] PEG_M_TXP[0..15] 9
PEG M TXN[0..15] PEG_M_TXN[0..15] 9
PEG RXP[0..15] PEG_RXP[0..15] 9
PEG RXN[0..15] PEG_RXN[0..15] 9

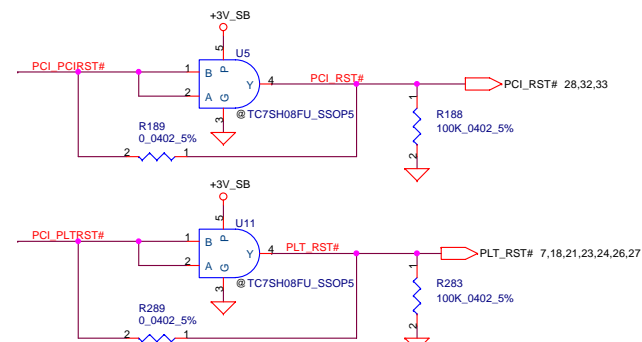




A16 swap override Strap	
PCI_GNT3#	Low= A16 swap override Enble High= Default *

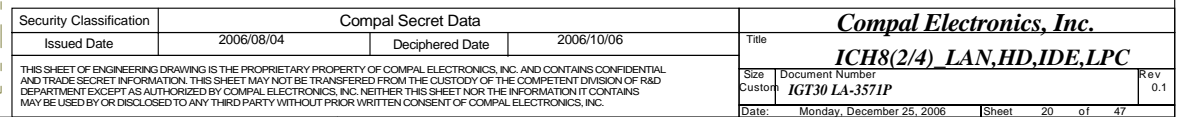


Boot BIOS Strap		
PCI_GNT0#	SPI_CS#1	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC *



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LAN100_SLP	Low = Internal VR Disabled High = Internal VR Enabled(Default)
ICH_INTVRMEN	

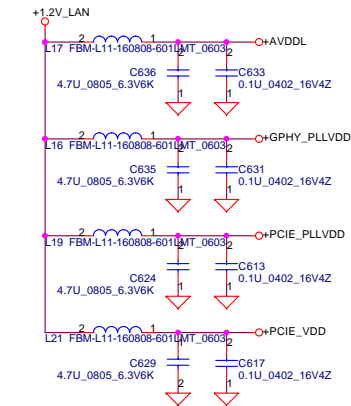
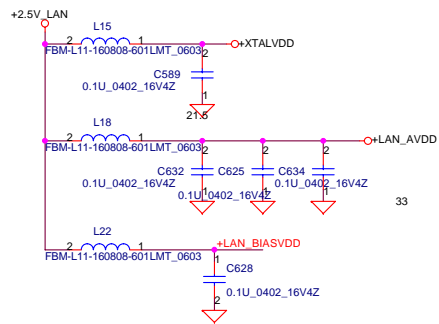




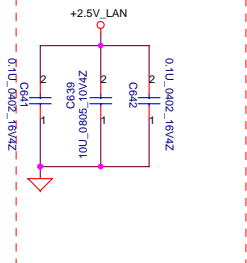


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Title			
ICH8(4/4) POWER&GND			
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Custom	IGT30 LA-3571P		0.1
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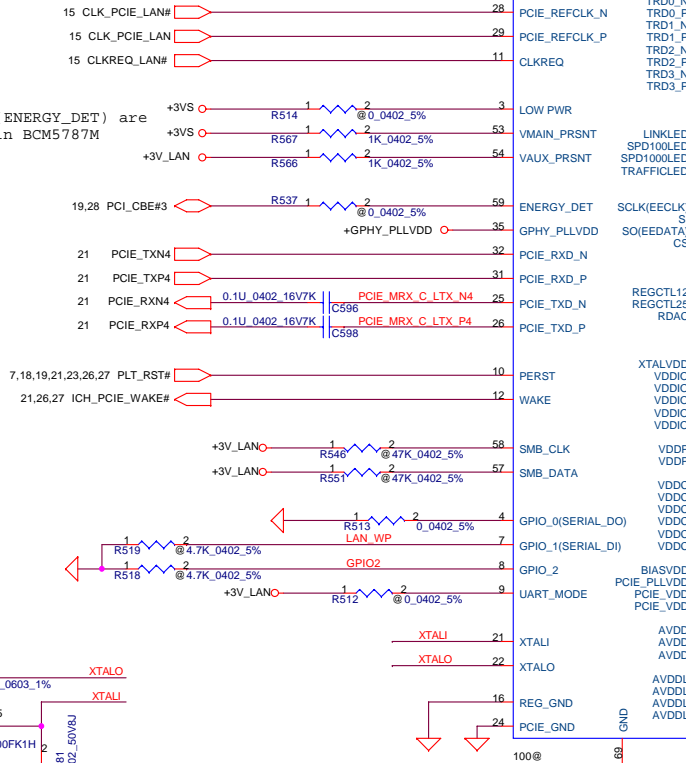
Layout Notice : Filter place as close chip as possible.



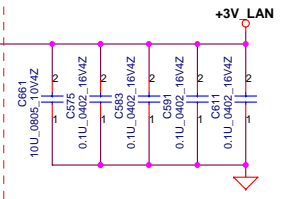
Layout Notice : Place as close chip as possible.



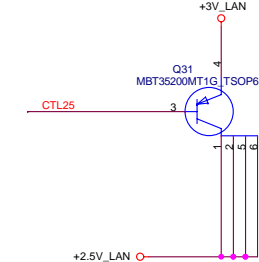
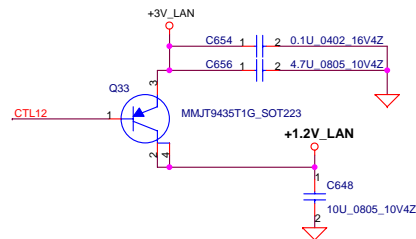
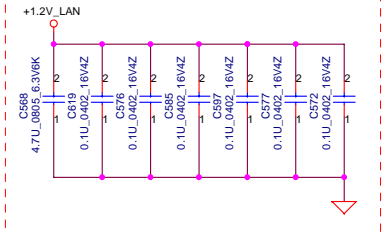
(CLKREQ#) and (ENERGY_DET) are only supported in BCM5787M



Layout Notice : Place as close chip as possible.

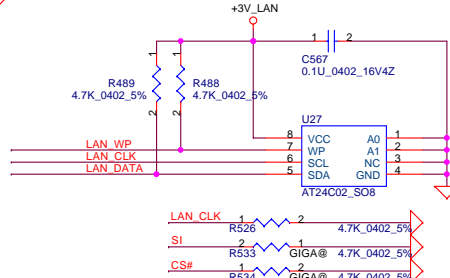


Layout Notice : 1.2V filter. Place as close chip as possible.

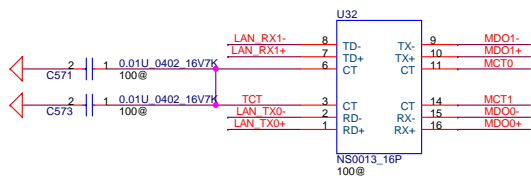


Notice : 4.7u 6.3V capacitor Thickness 1.25mm

Layout Notice : Filter place as close chip as possible.



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				Date	Monday, December 25, 2006
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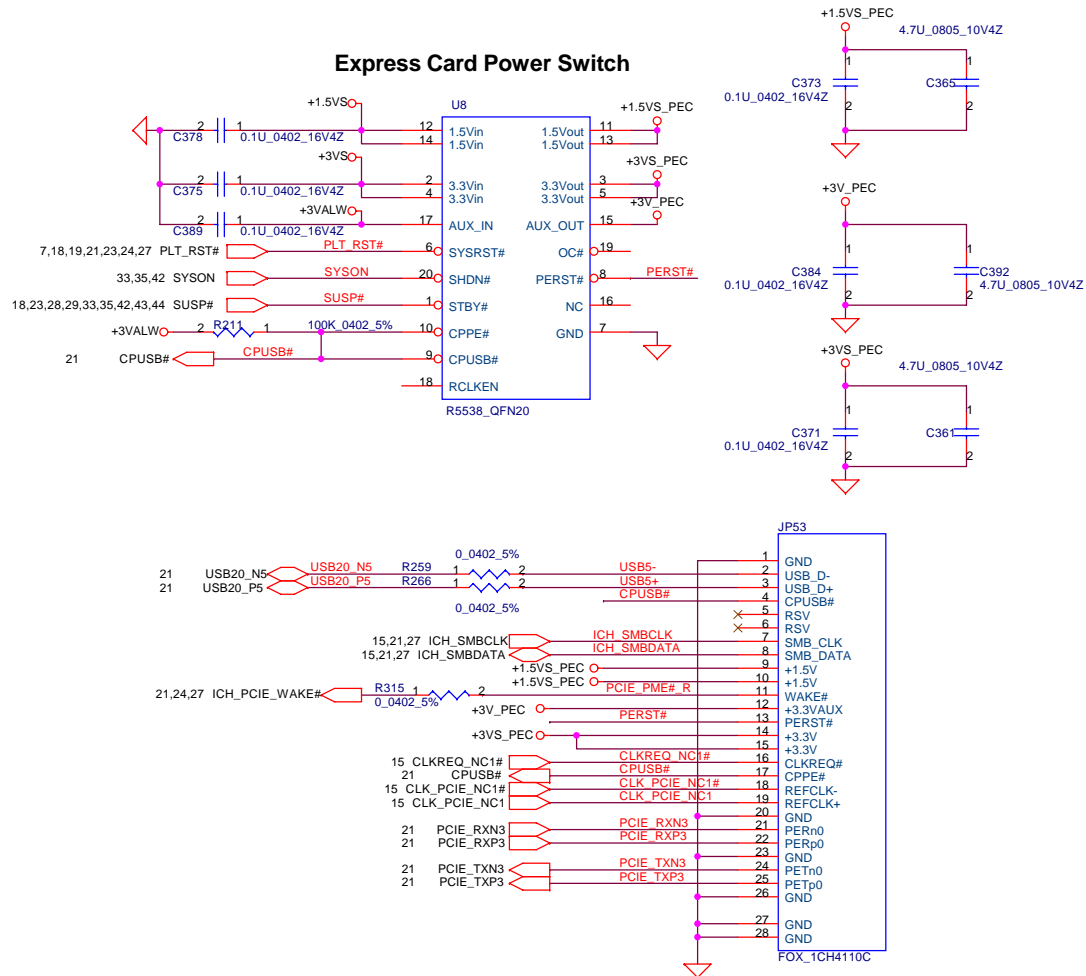


The schematic diagram illustrates the internal connections of the RJ45 module. It features three main input sections: LAN, MDO, and RJ45.

- LAN Section:** The +3V_LAN input is connected to pin 24 (LINKED#) through a 220pF capacitor (C882). The +3V_LAN input is also connected to pin 13 (VDD) through a 330Ω resistor (R910).
- MDO Section:** The MDO0+ through MDO3- inputs are connected to pins 1 through 8. The MDO0+ input is connected to pin 1 (TX1+), MDO0- to pin 2 (TX1-), MDO1+ to pin 3 (RX1+), MDO1- to pin 4 (TX2-), MDO2+ to pin 5 (TX2-), MDO2- to pin 6 (RX1-), MDO3+ to pin 7 (RX2+), and MDO3- to pin 8 (RX2-).
- RJ45 Section:** The RJ45_PR input is connected to pin 15 (SGND1) through a 1000pF capacitor (C803). The RJ45_PR input is also connected to pin 16 (SGND2) through a 1000pF capacitor (C804). The RJ45_PR input is also connected to pin 17 (ALLTO_C100B6-110A4-L) through a 1000pF capacitor (C802).
- Other Connections:** The +3V_LAN input is connected to pin 14 (ACTIVITY#) through a 330Ω resistor (R909). The +3V_LAN input is also connected to pin 13 (VDD) through a 330Ω resistor (R909).

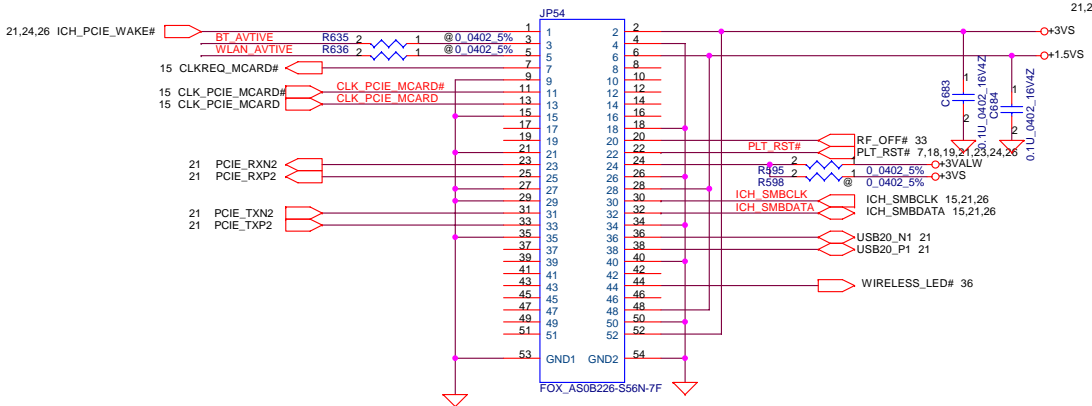
WWW.AliSaler.Com

Express Card Power Switch

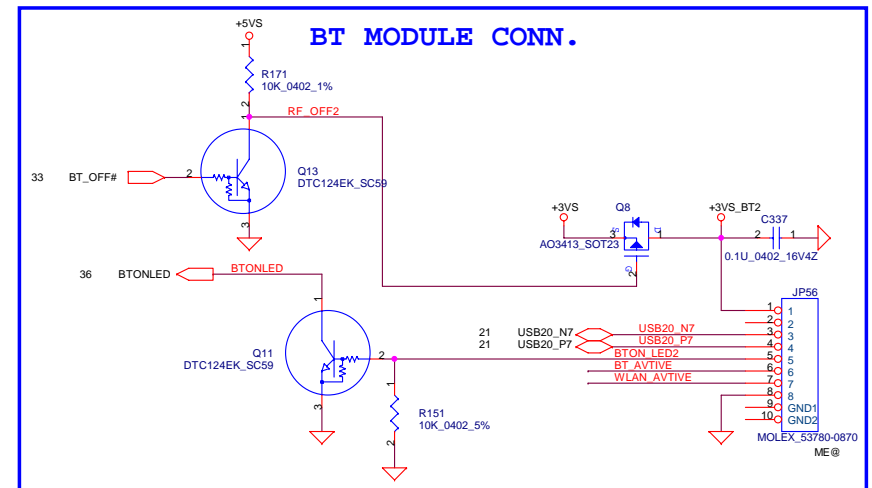
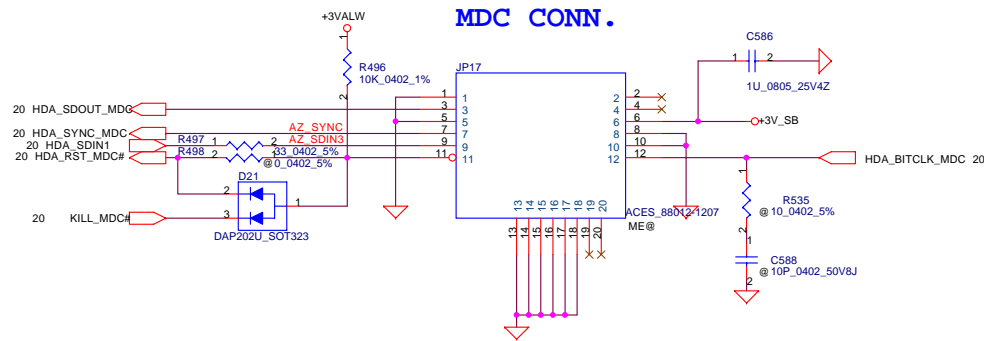
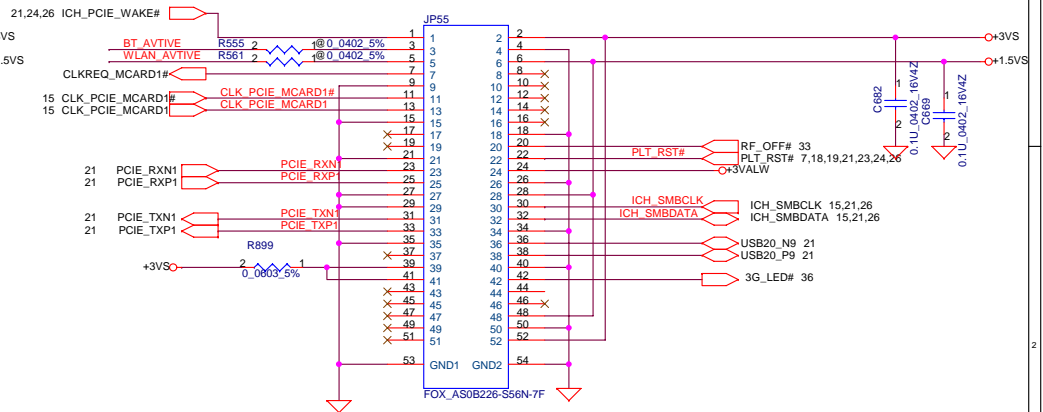


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						Size		Document Number		Rev	
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Date:						Monday, December 25, 2006		Sheet 26 of 47			

Mini-Express Card(Slot 1-WLAN)



Mini-Express Card(Slot 2-3G)

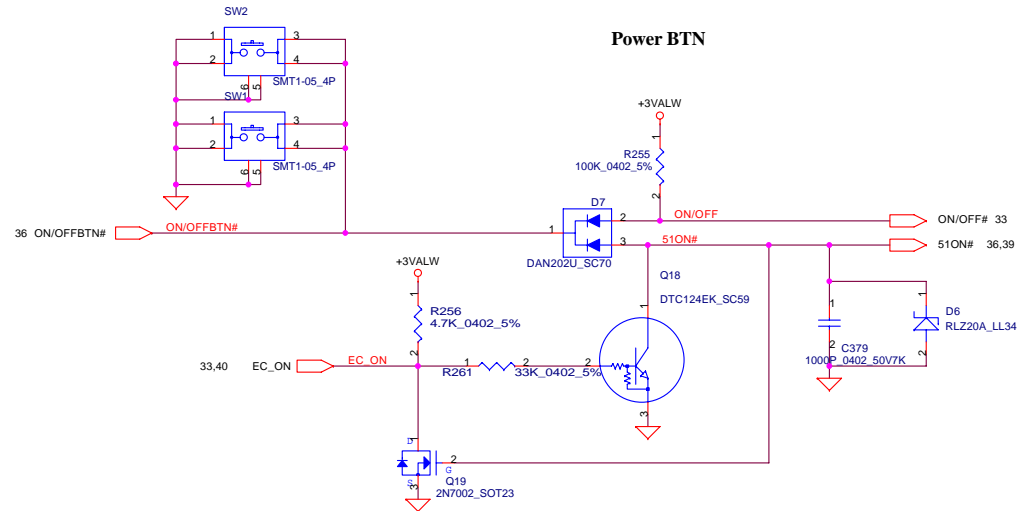
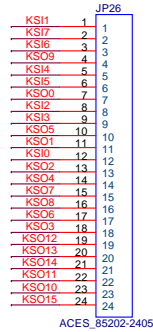


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Issued Date	2006/08/04	Deciphered Date	2006/10/06	Mini Card / MDC CONN	
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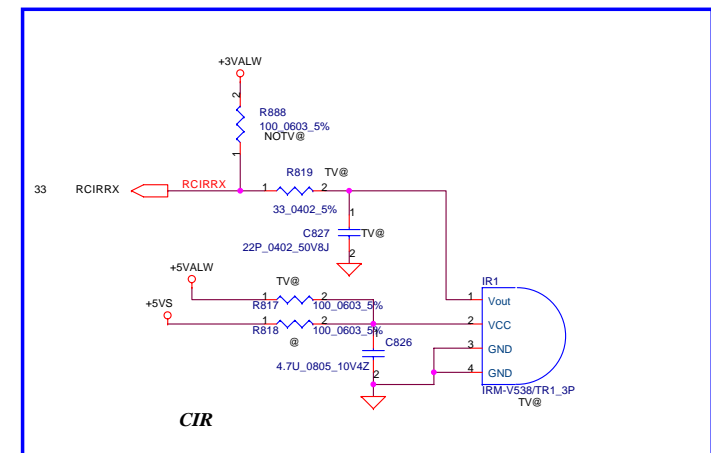
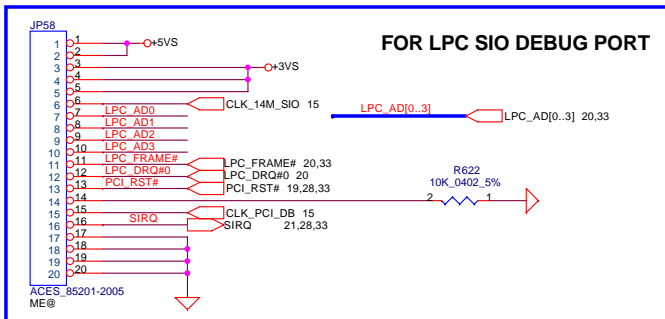
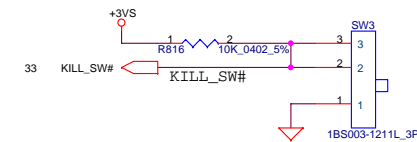


INT_KBD CONN.(TYPE "D" KB)

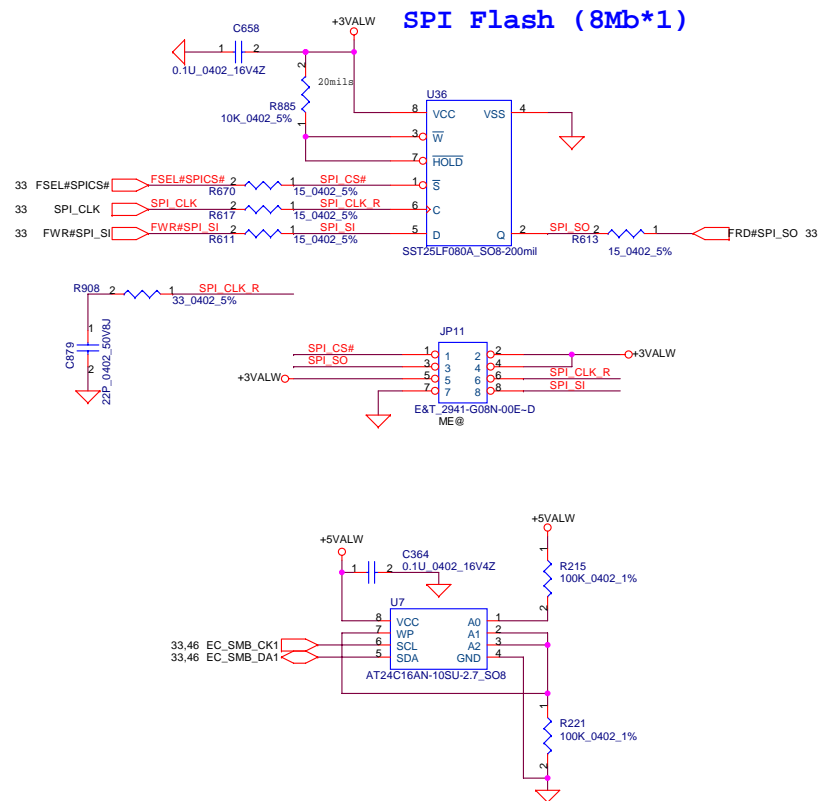
KSJ[0..7] 33,36
KSO[0..15] 33



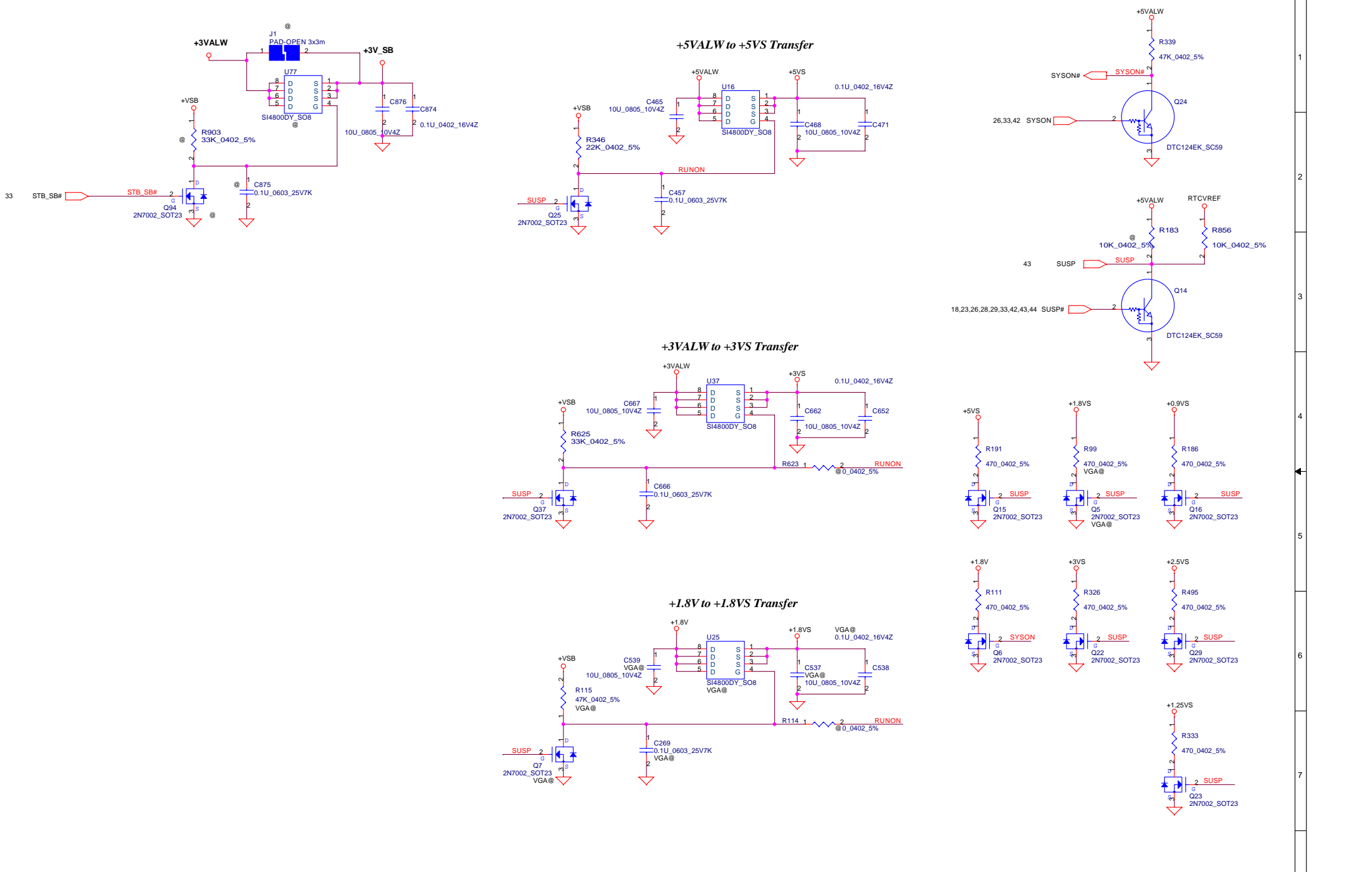
Kill Switch



Security Classification		Compal Secret Data		Title	
Issued Date	2006/08/04	Deciphered Date	2006/10/06	KBD,ON/OFF,T/P,LED/B,DEBUG	
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LED Indicator ON M/B

3 2 1

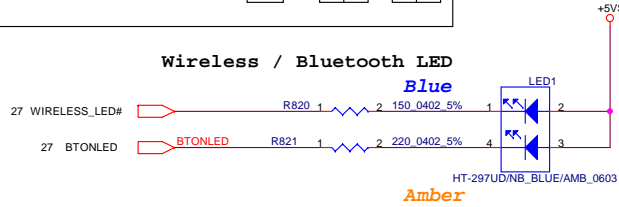
B

B	A
---	---

B	A
---	---

Wireless / Bluetooth LED

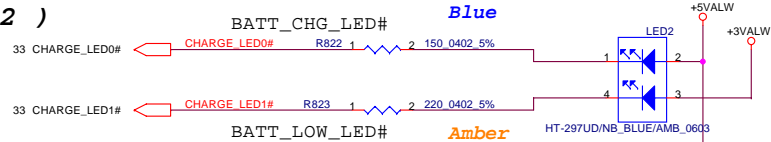
Blue



STATUS	
AC	BLUE
Chargin	Blinking Blue
Low BATT	Amber

(2)

BATT CHG LED# Blue



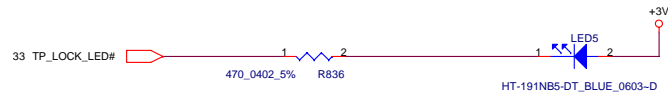
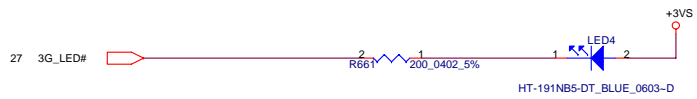
BATT_LOW_LED#

Amber

(3)

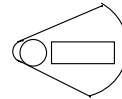
33 PWR_LED# PWR_LED# R824 1 2 150_0402_5% 1 LED3 2

Blue : Power On, HT-191NB5-DT_BLUE_0603-D
Blinking Blue : Suspend



STATUS	
AC	BLUE
Chargin	Blinking Blue
Low BATT	Amber

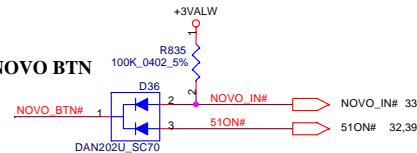
Dial Wheel



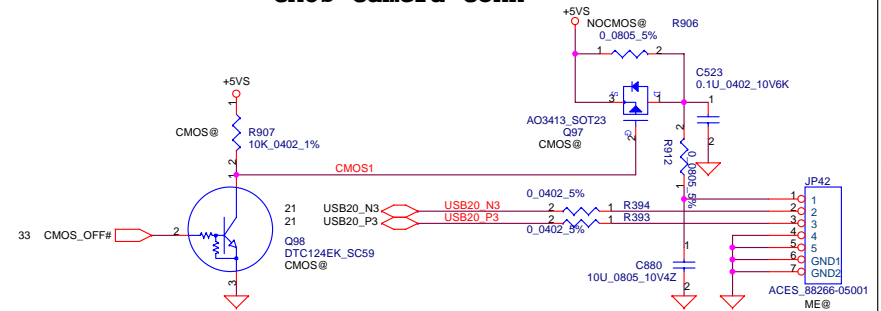
Function

KEY Matrix	K016	K017
KSI0	DW-UP	DW-DOWN
KSI1	DW-ENTER	MUTE

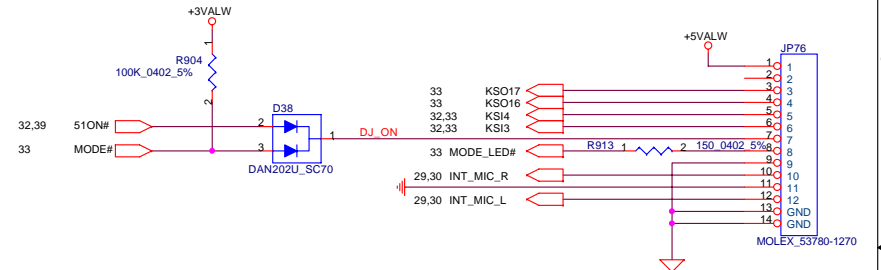
NOVO BTN



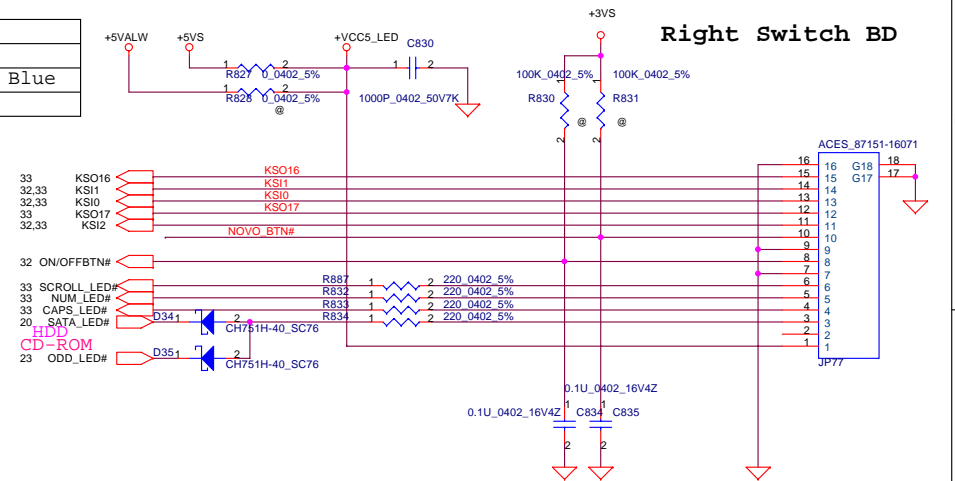
CMOS Camera Conn



Left Switch BD(AUDIO DJ)



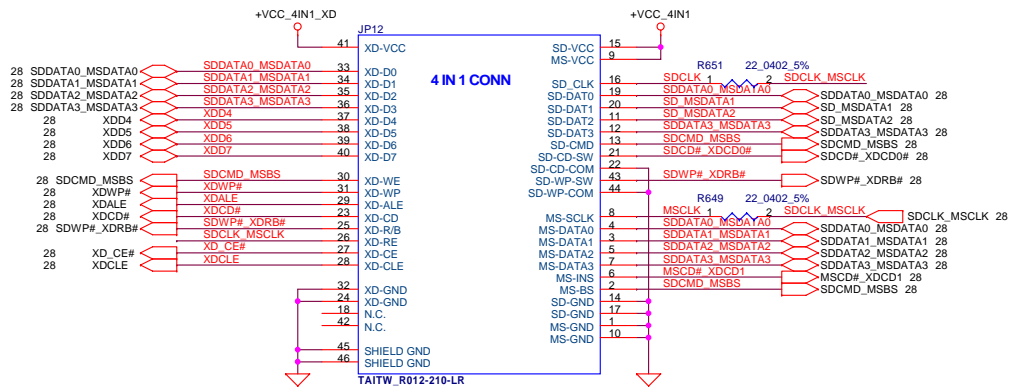
Right Switch BD



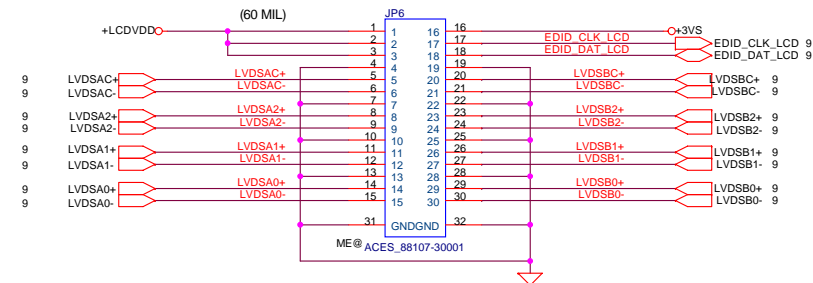
C839, C841, C842 For EMI Solution

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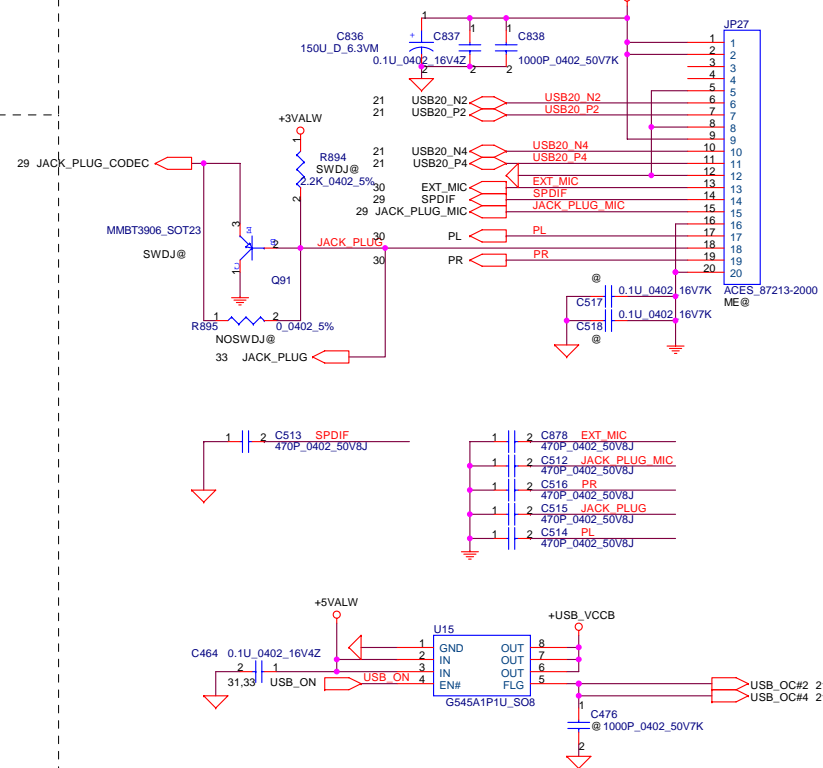
4 in 1 Card Reader



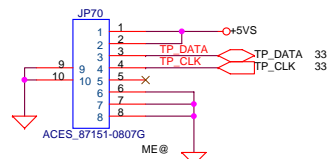
UMA LCD/PANEL Conn.



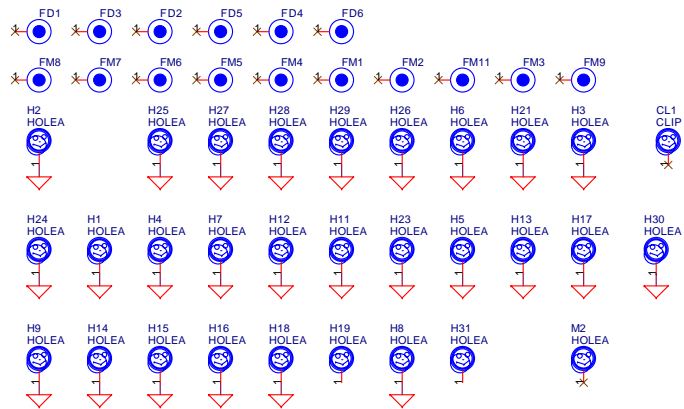
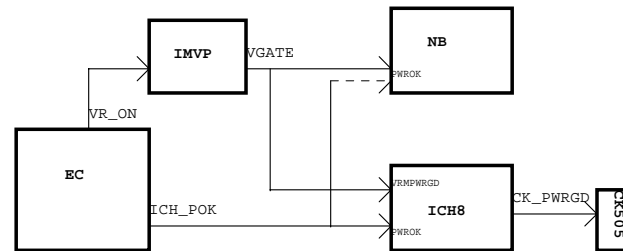
Audio Jack/USB Conn.



T/P Board



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ACIN

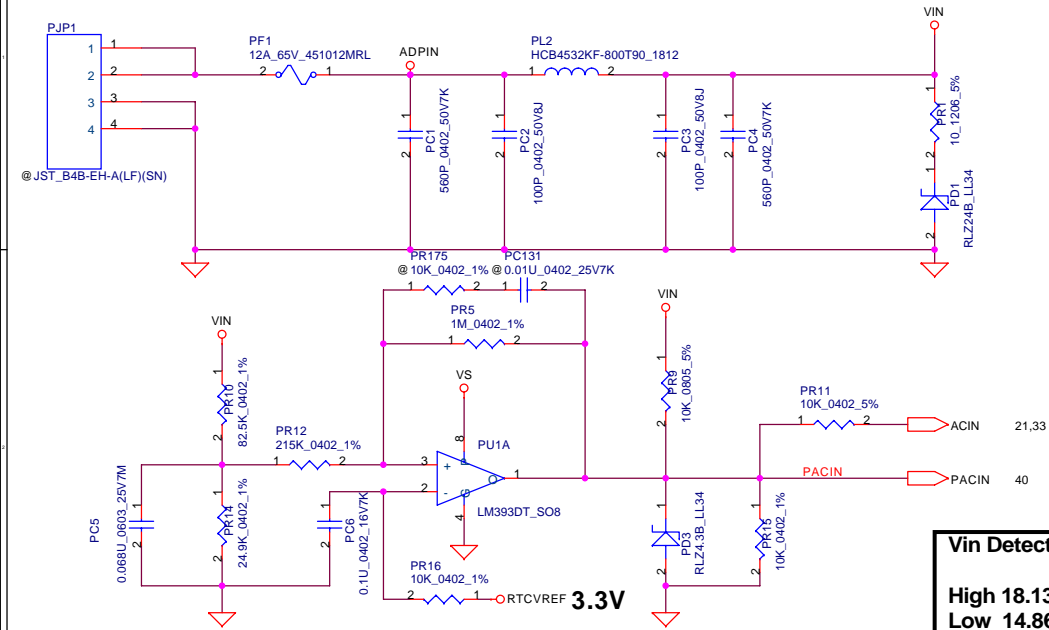
Precharge detector

	Min.	typ.	Max.
H-->L	13.843V	14.247V	14.636V
L-->H	14.936V	15.381V	15.814V

BATT ONLY

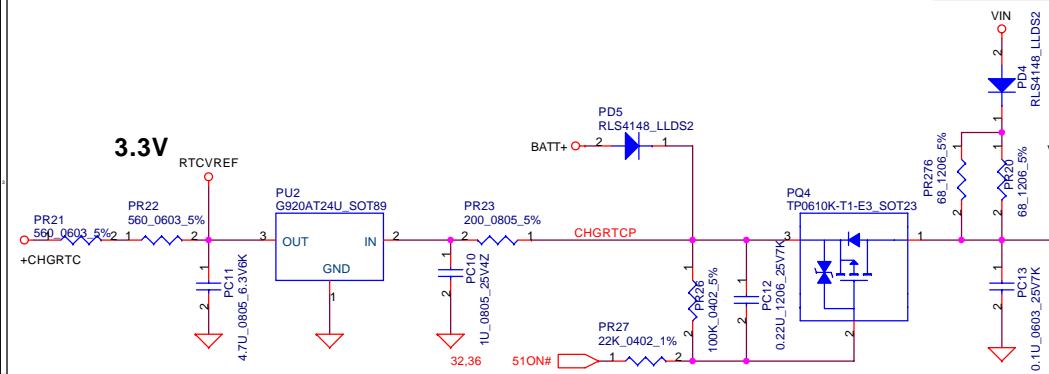
Precharge detector

	Min.	typ.	Max.
H-->L	6.138V	6.214V	6.359V
L-->H	7.196V	7.349V	7.505V

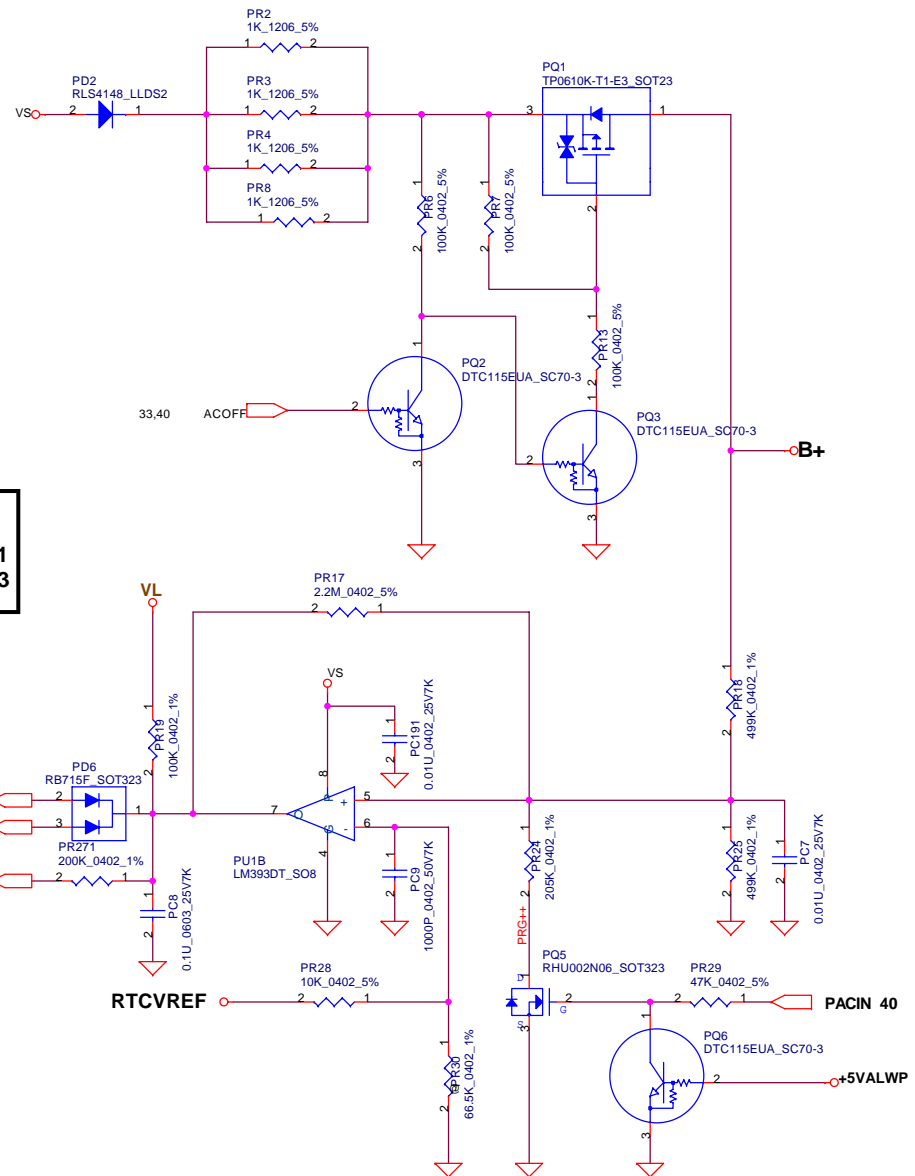


Vin Detector

High	18.135	17.566	17.011
Low	14.866	14.355	14.063

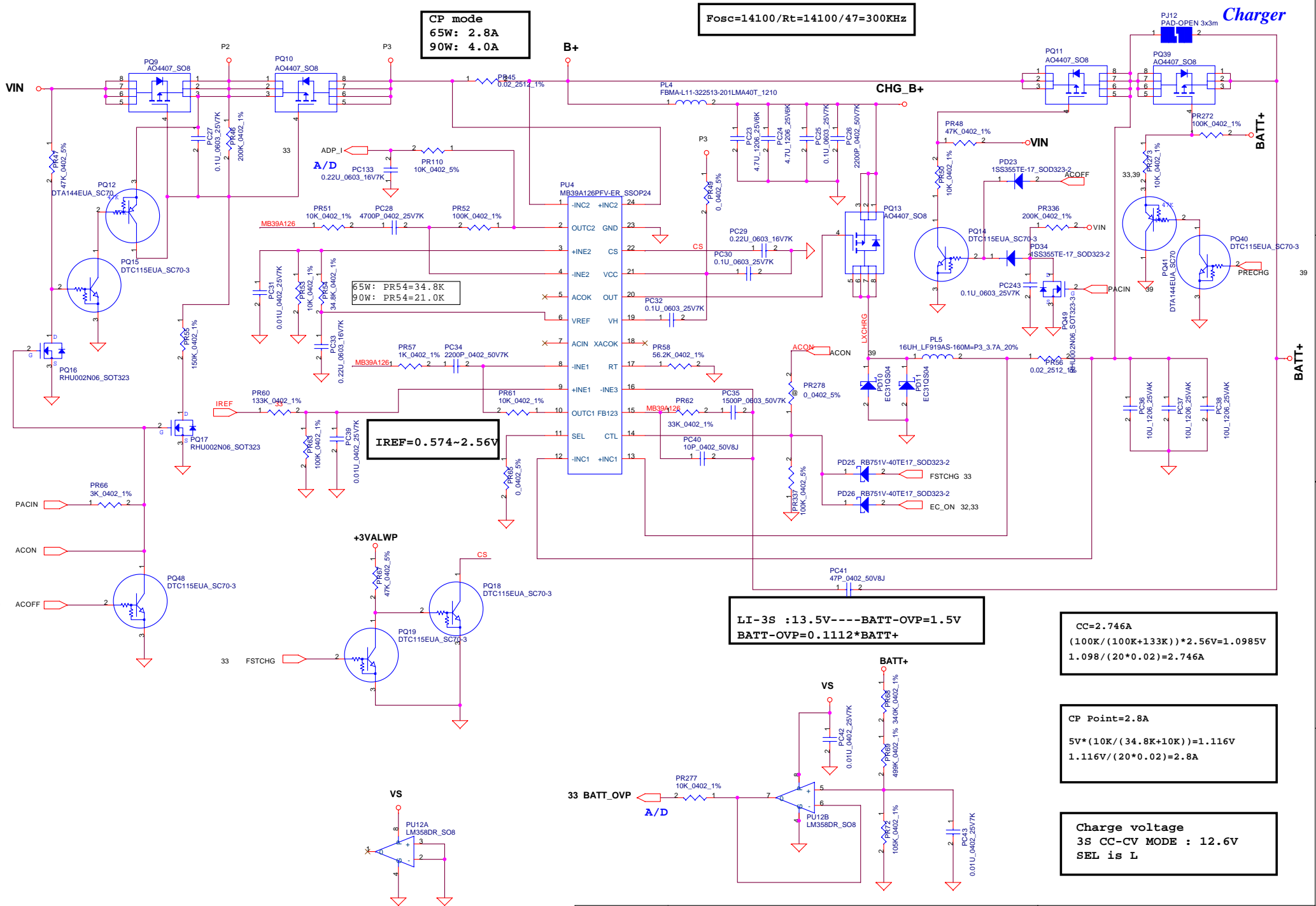


41,46 MAINPWON
40 ACON
40 PRECHG

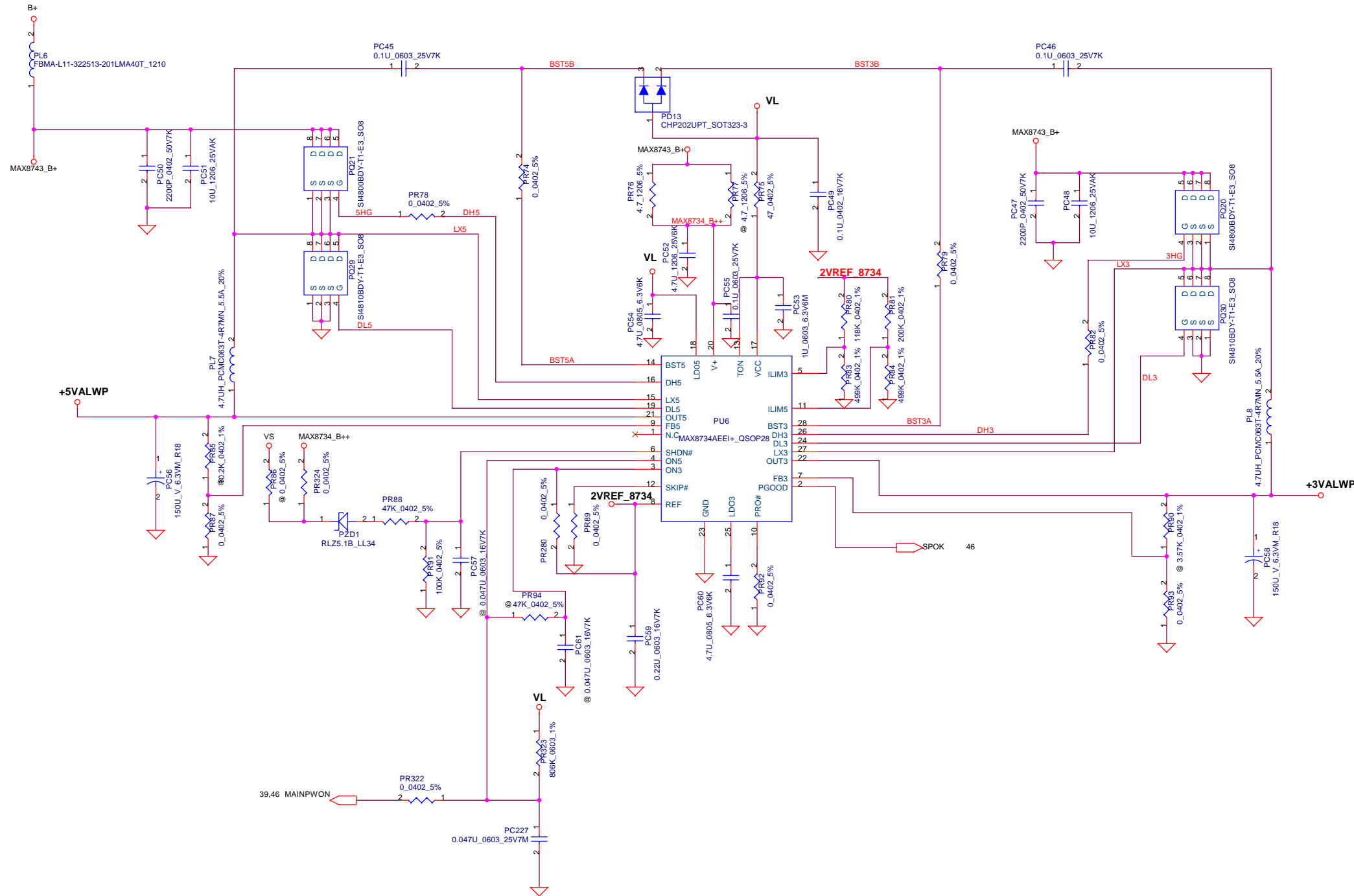


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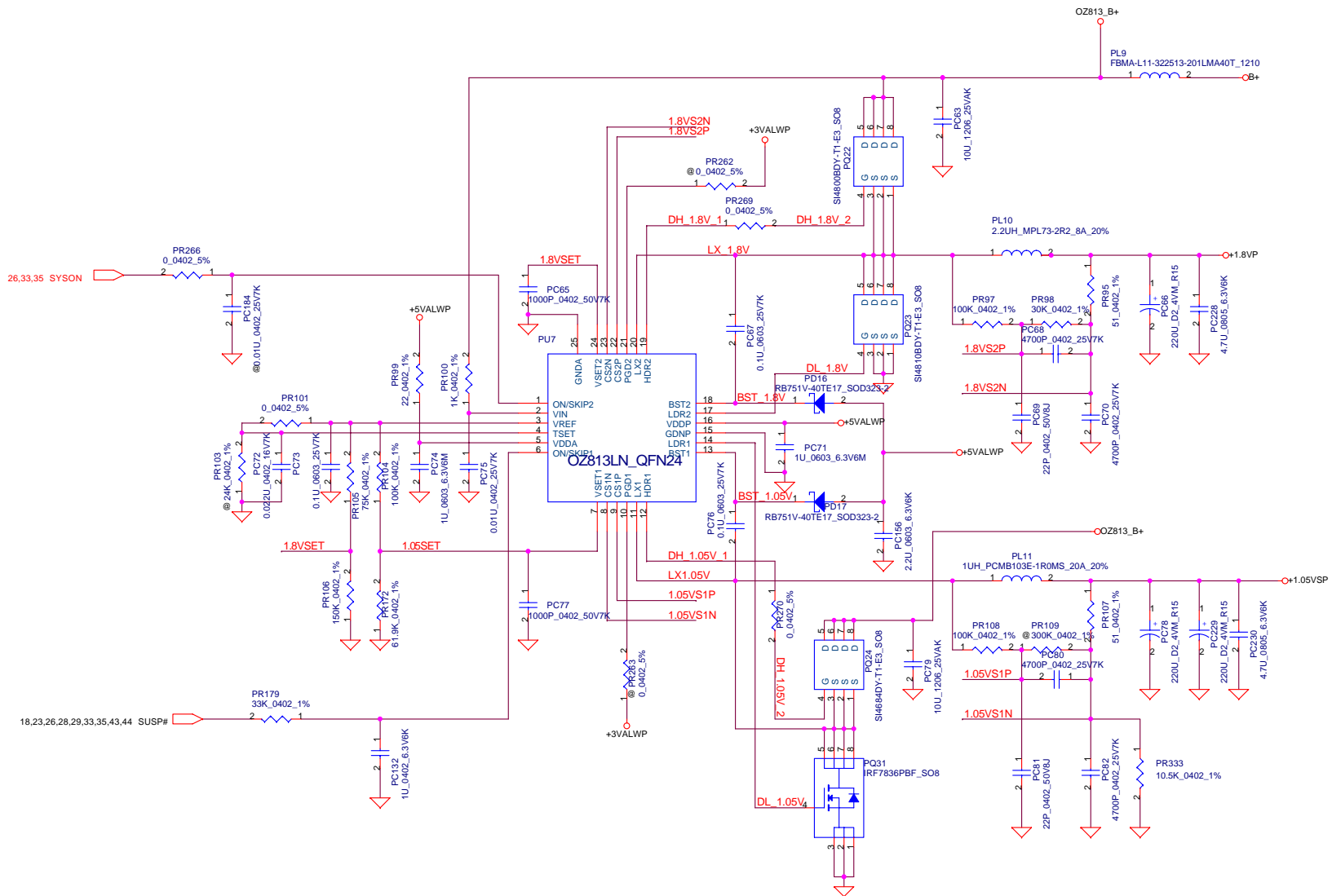
Rev 0.1



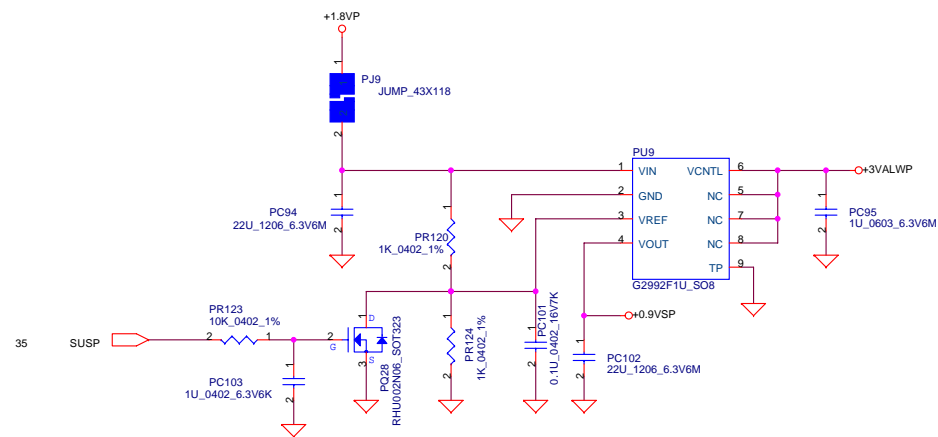
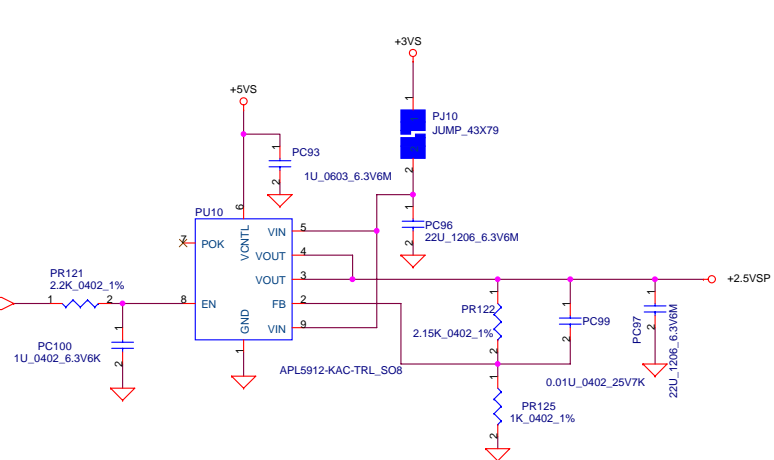
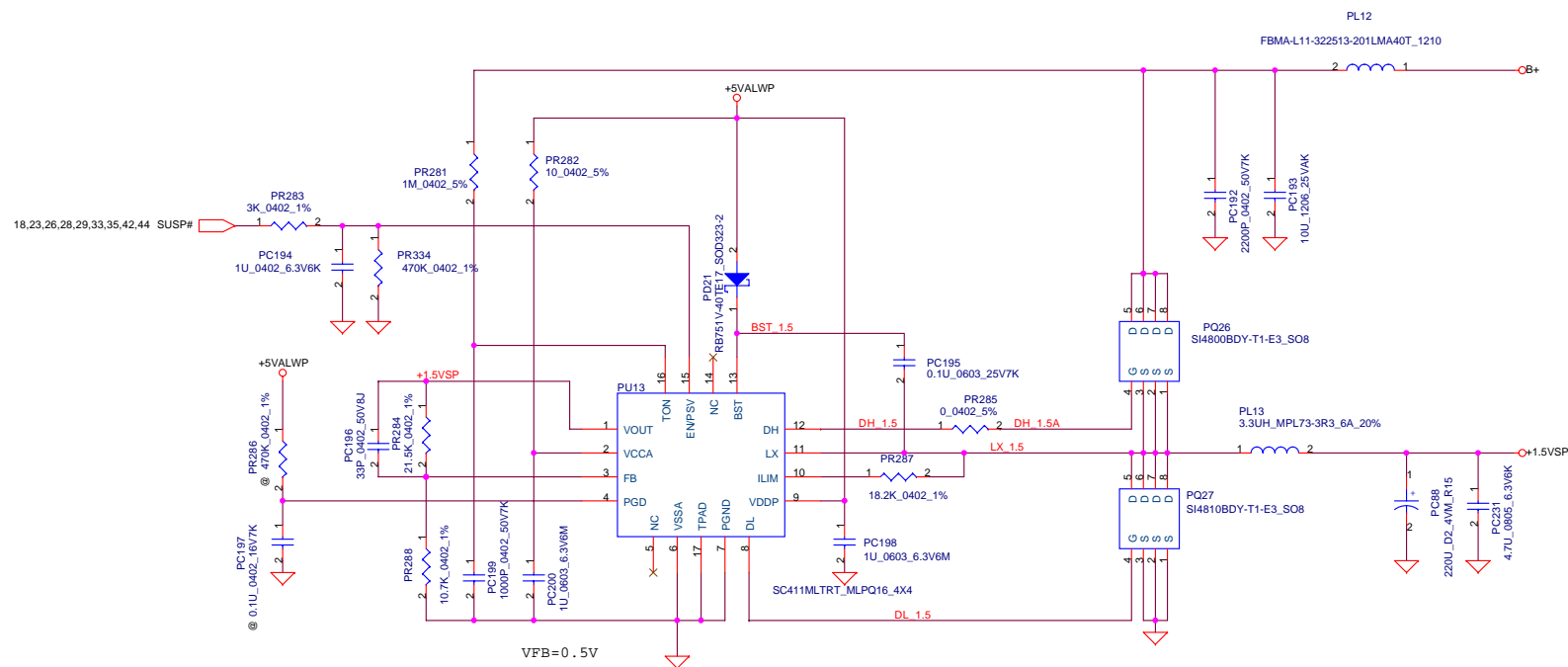
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				Date	Monday, December 25, 2006
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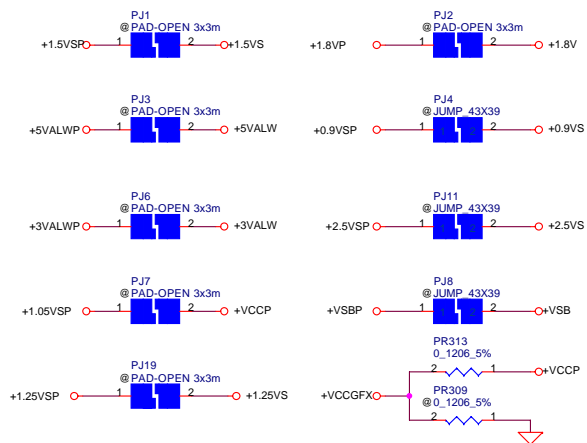
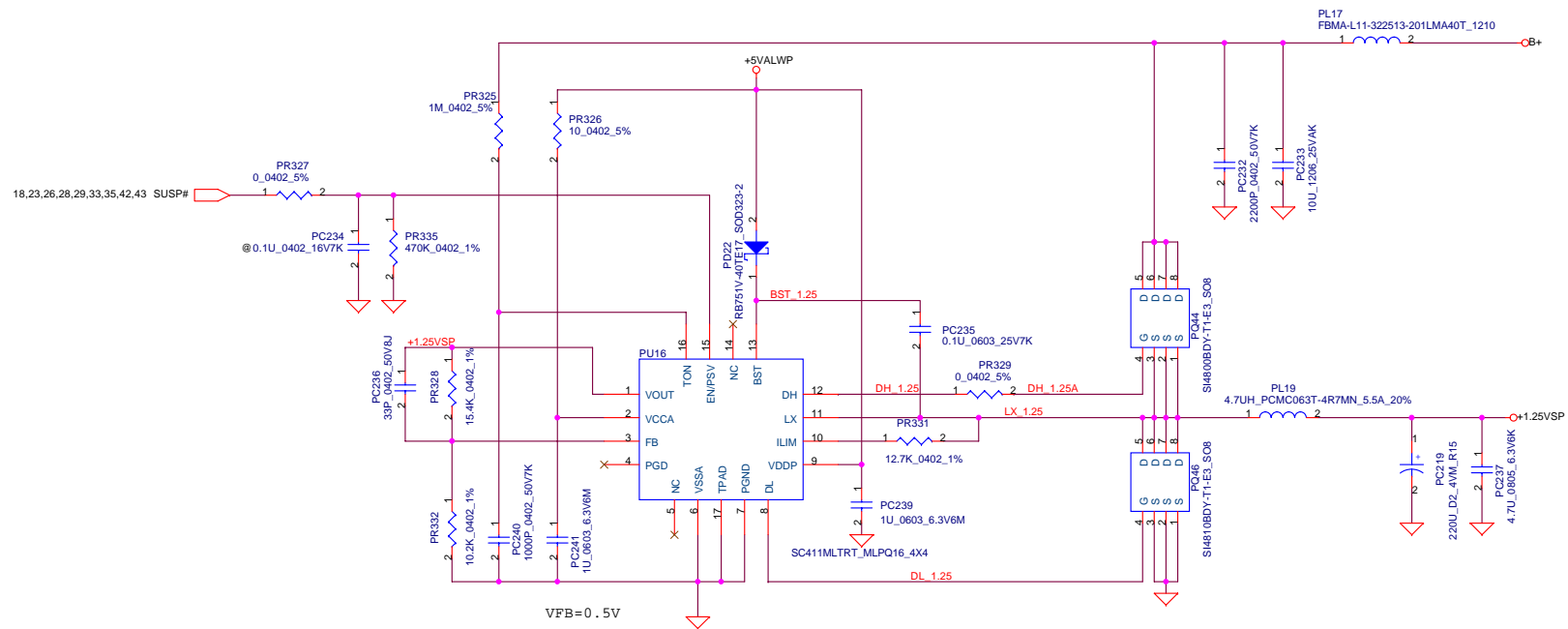
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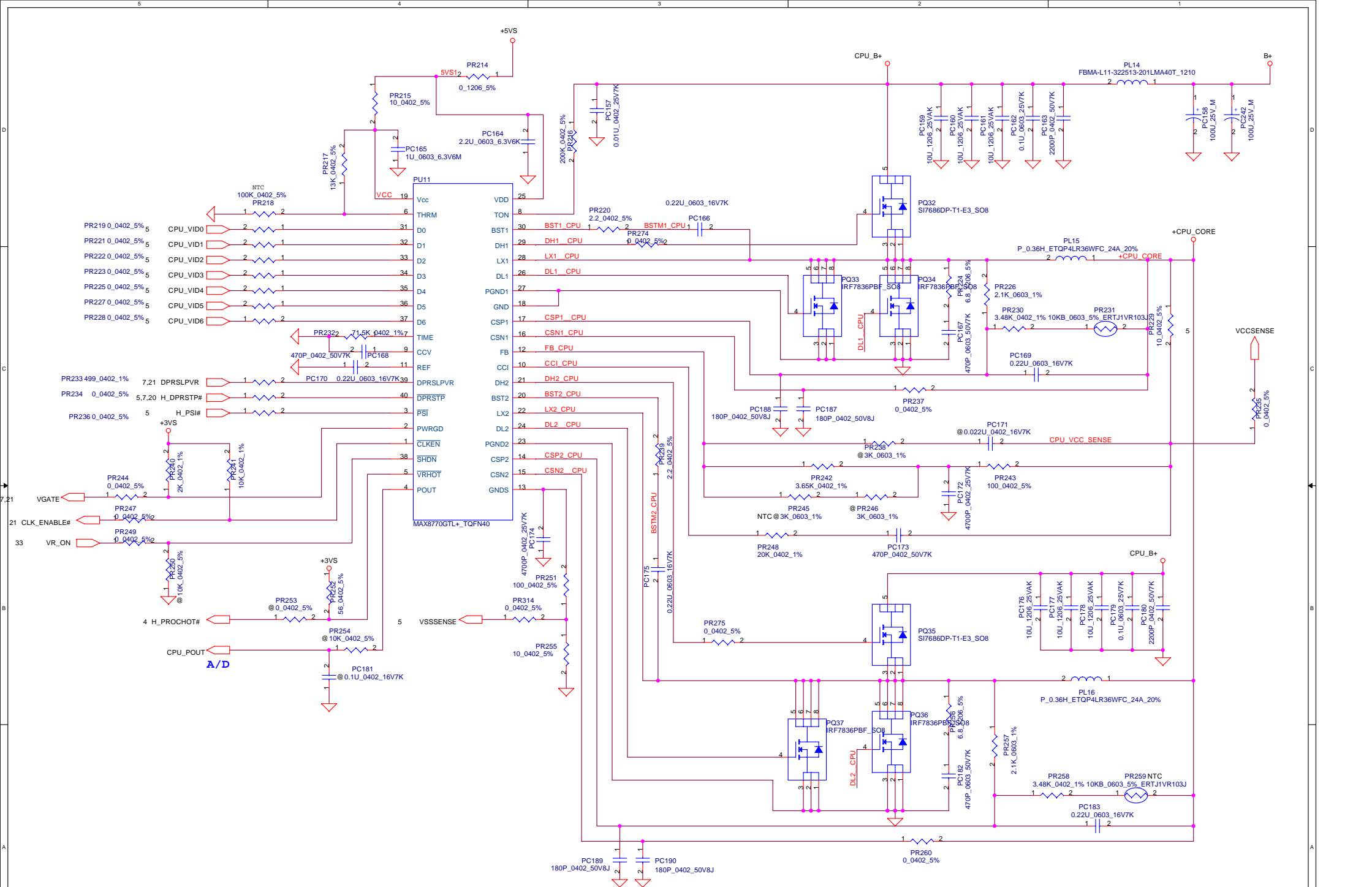
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Issued Date	2006/08/04	Deciphered Date	2006/10/06	Title	+1.5VSP/+0.9VSP/+2.5VSP	
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