

Compal Confidential

HBQ60 Schematics Document

**Intel Yonah Processor with 945GM/945PM + DDRII + ICH7M
(With nVIDIA G73M/72MV)**

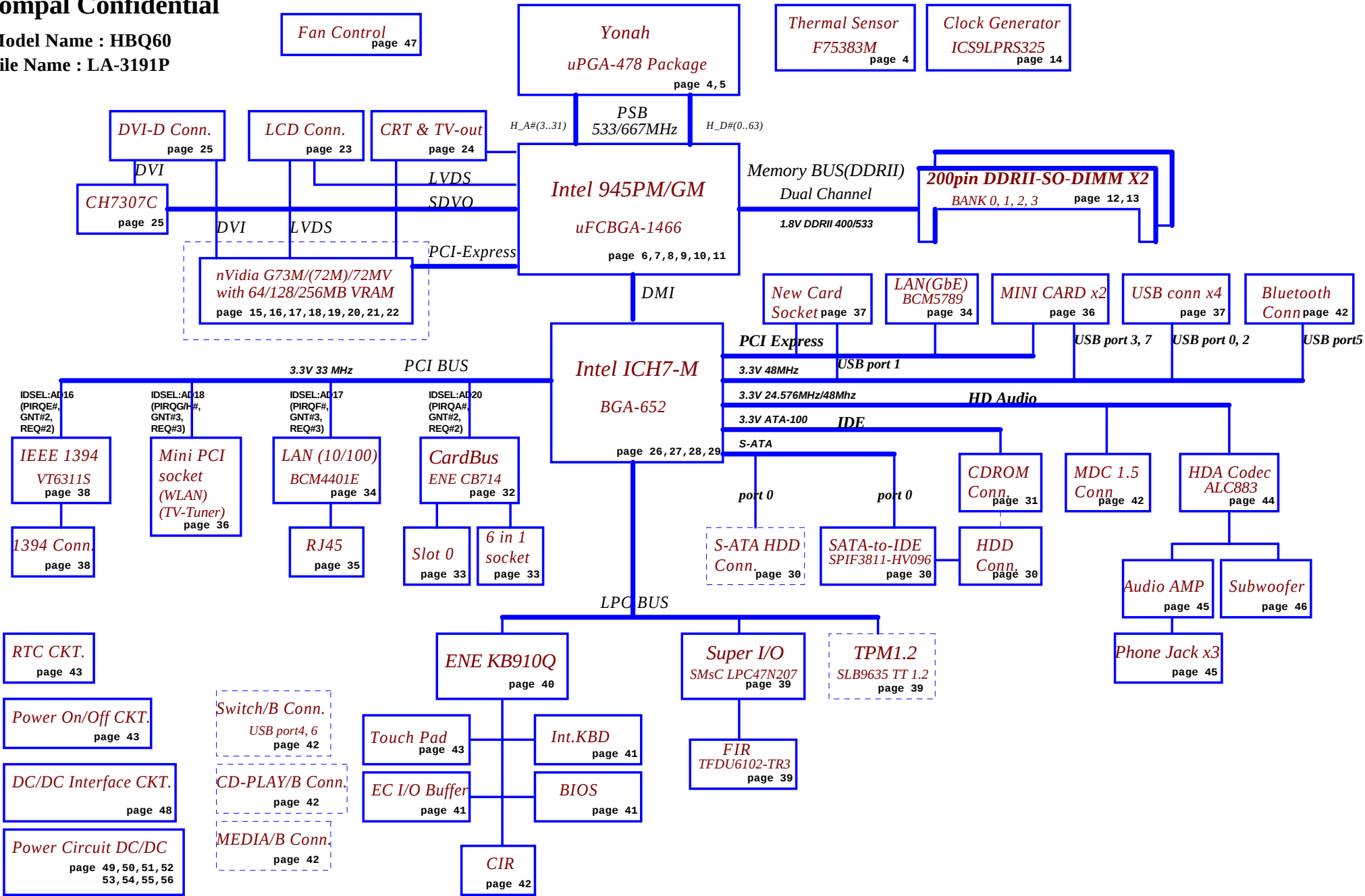
2005-02-11

REV: 1.0

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Model Name : HBQ60
File Name : LA-3191P



Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	NA	NA	NA
B+	AC or battery power rail for power circuit.	NA	NA	NA
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF
+1.05VS	1.05V switched power rail	ON	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VS	5V switched power rail	ON	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

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

External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
CardBus(SD)	AD20	2	PIRQA/PIRQB
1394	AD16	0	PIRQE
LAN(10/100)	AD17	3	PIRQF
Mini-PCI(WLAN/TV-Tuner)	AD18	1	PIRQG/PORQH

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	Fintek F75383M	1001 100X b
EEPROM(24C16/02)	1010 000X b		
GMT G781-1	1001 101X b		

EC SM Bus2 address

ICH7M SM Bus address

Device	Address
Clock Generator (ICS9LPRS325AKLFT_MLF72)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 010Xb

STATE	SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON		HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)		LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)		LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)		LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)		LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 5%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

BOARD ID Table

Board ID	PCB Revision
0	0.1
1	
2	
3	
4	
5	
6	
7	

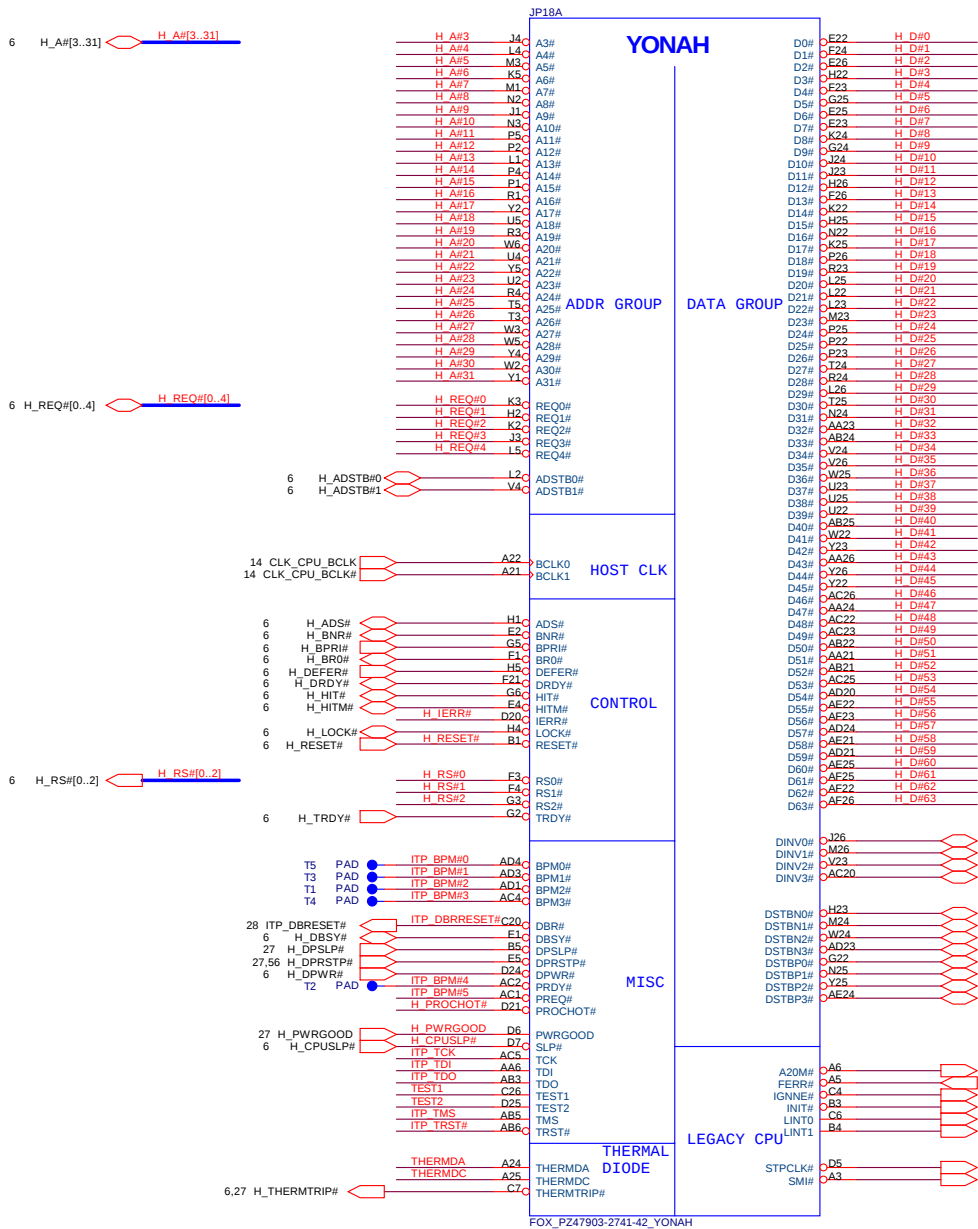
SKU ID Table

SKU ID	SKU
0	PM
1	GM
2	
3	
4	
5	
6	
7	

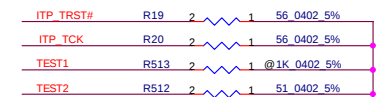
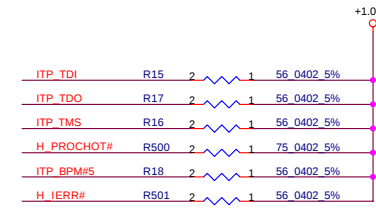
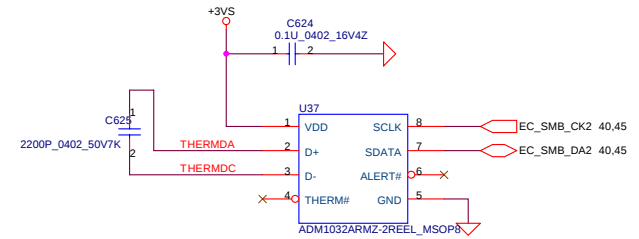
BTO Option Table

BTO Item	BOM Structure
VGA	PM@ + VGA@
UMA	GM@
UMA's DVI	7307@
LAN(10/100)	4401@
LAN(GIGA)	5789@
MINI_CARD1	MINI1@
MINI_CARD2	MINI2@
SATA-to-IDE	8040@
PATA	PATA@
GRAPEVINE	GRA@
672MV Only	G72@
673 Only	G73@
VRAM	X76@
VRAM 64M	64@
VRAM 128M	64@+128@
VRAM 256M	64@+128@+256@
MEDIA/B	MEDIA@
CIR	CIR@
FIR	FIR@
GENEVA	GEN@
Sub-woofer	SUB@
5789&5787	8789@
4401&5789	0189@
VP1020	VP1020@
INTERNAL MIC	INTMIC@
1394	1394@
SATA HDD	SATA@
DVI	DVI@
CardReader	4IN1@
New Card	EXP@

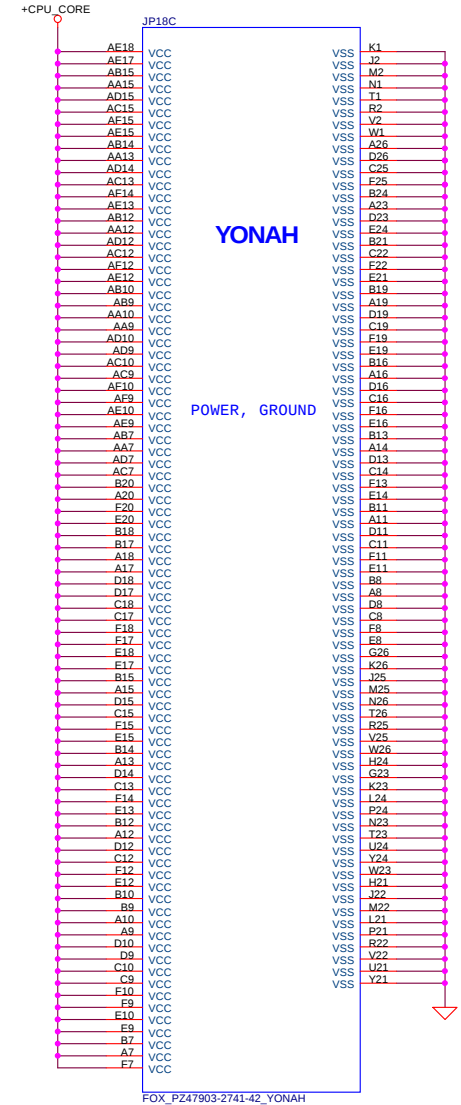
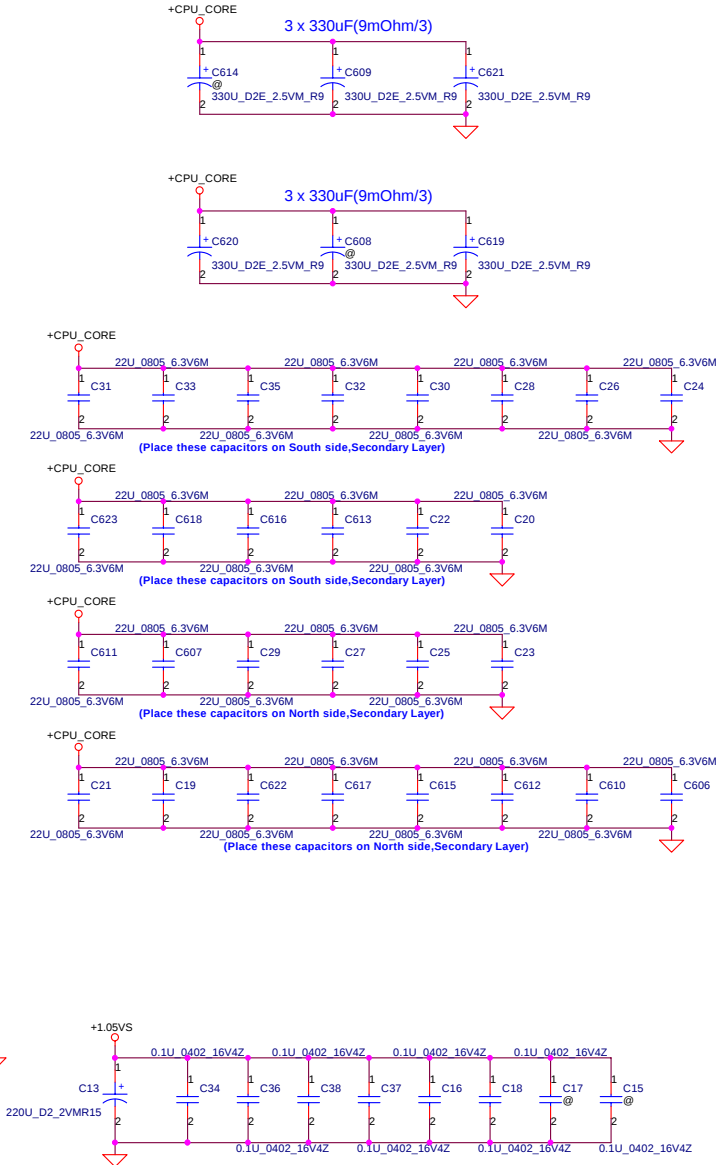
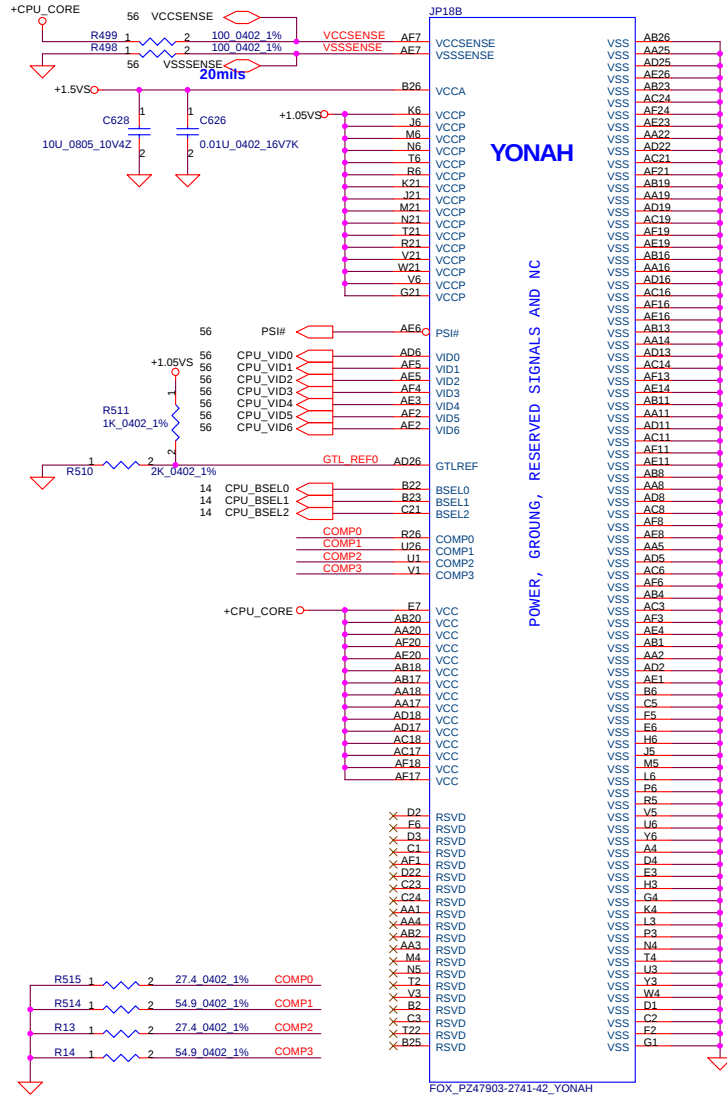
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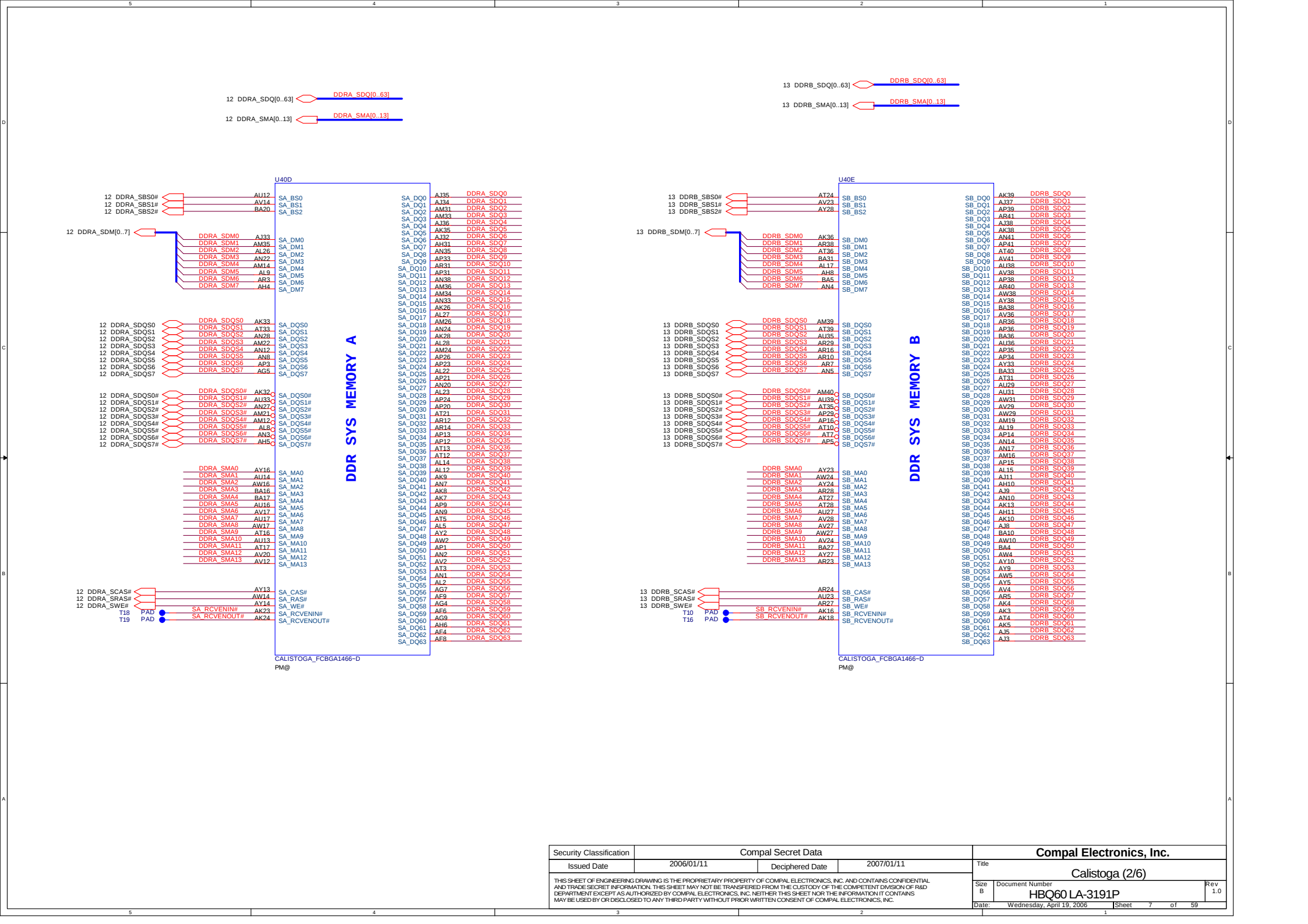
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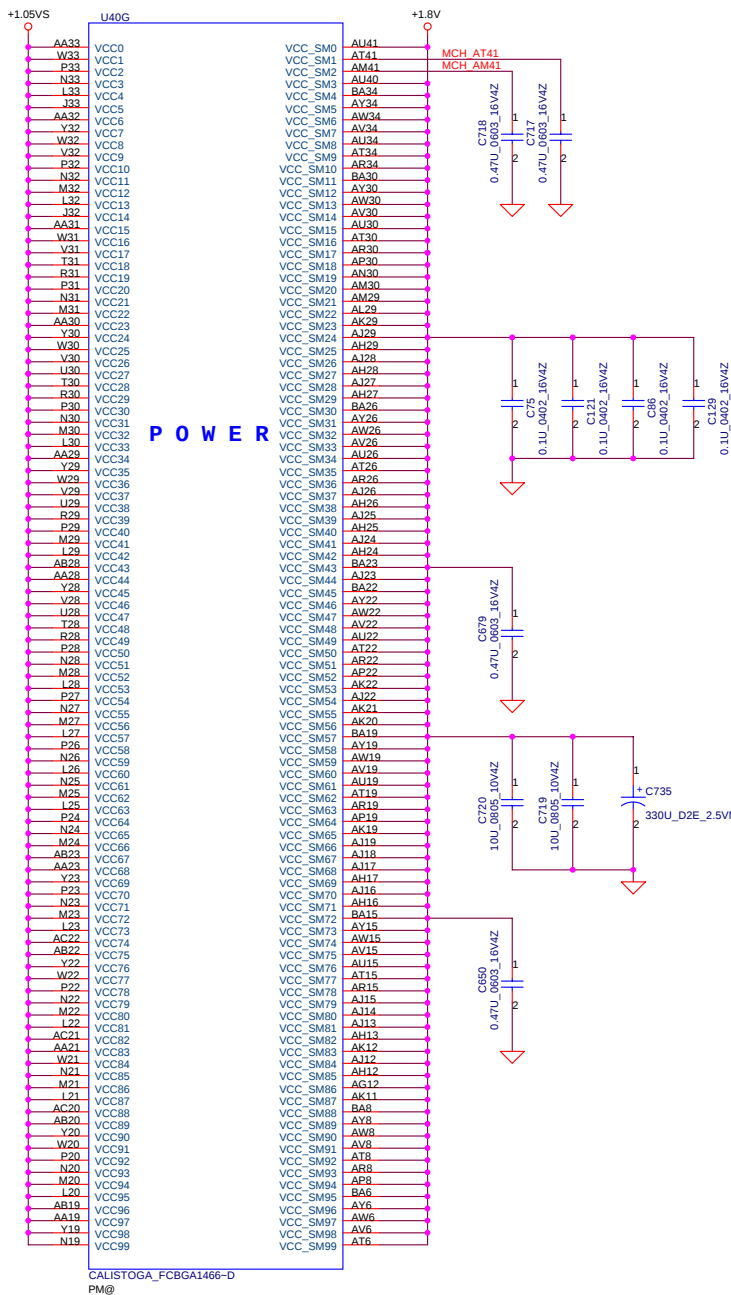
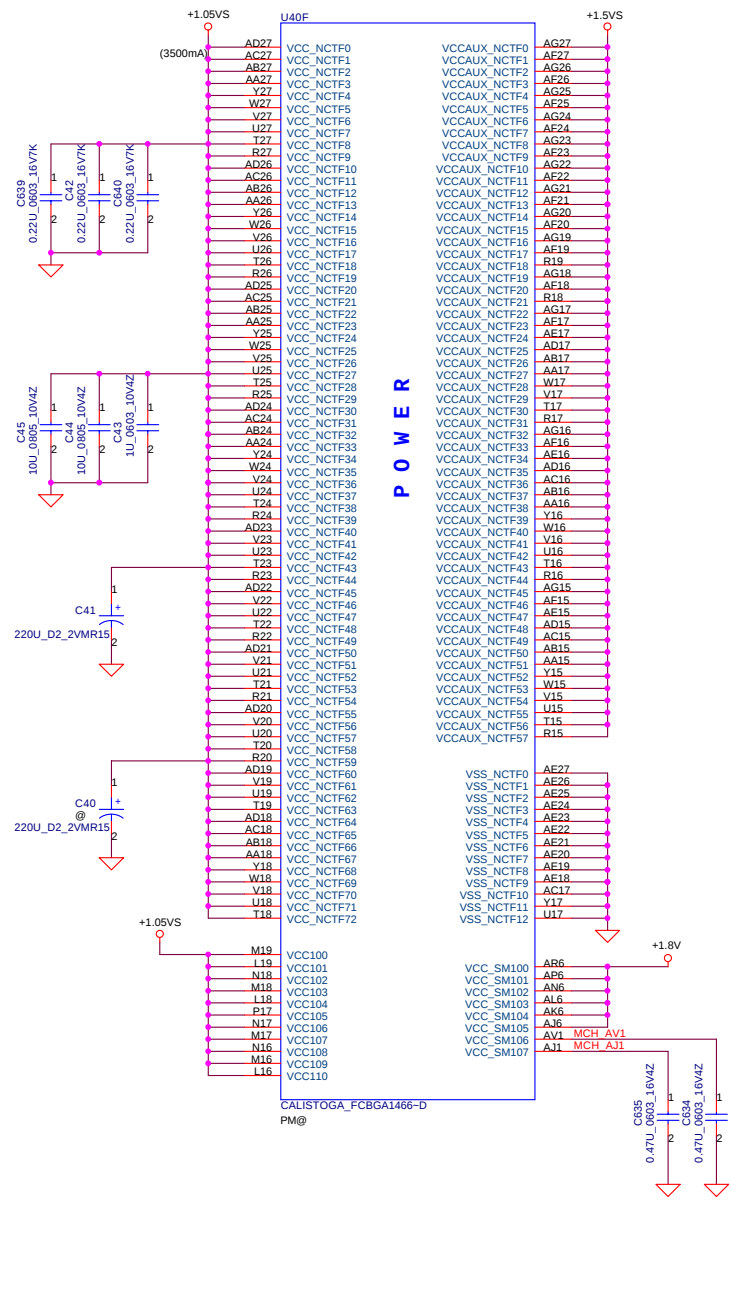
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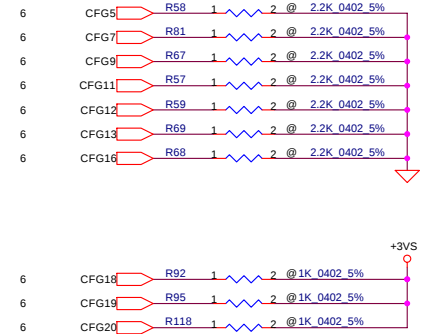
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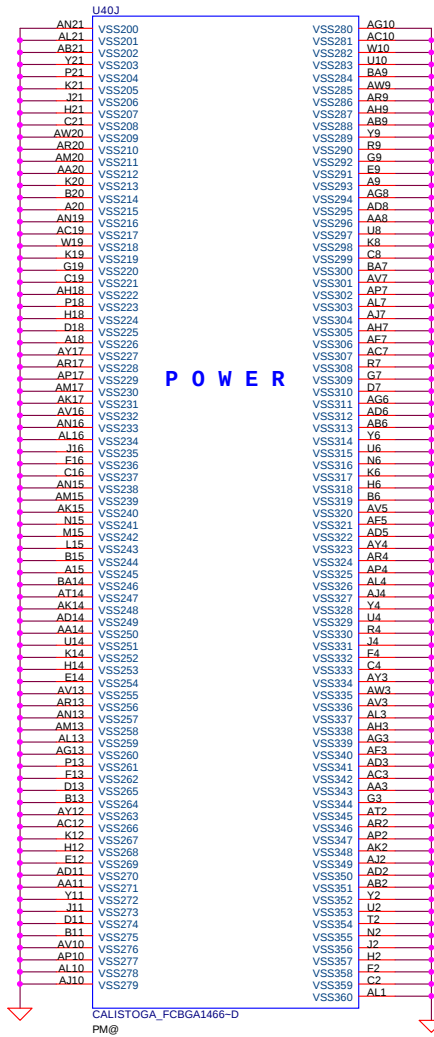
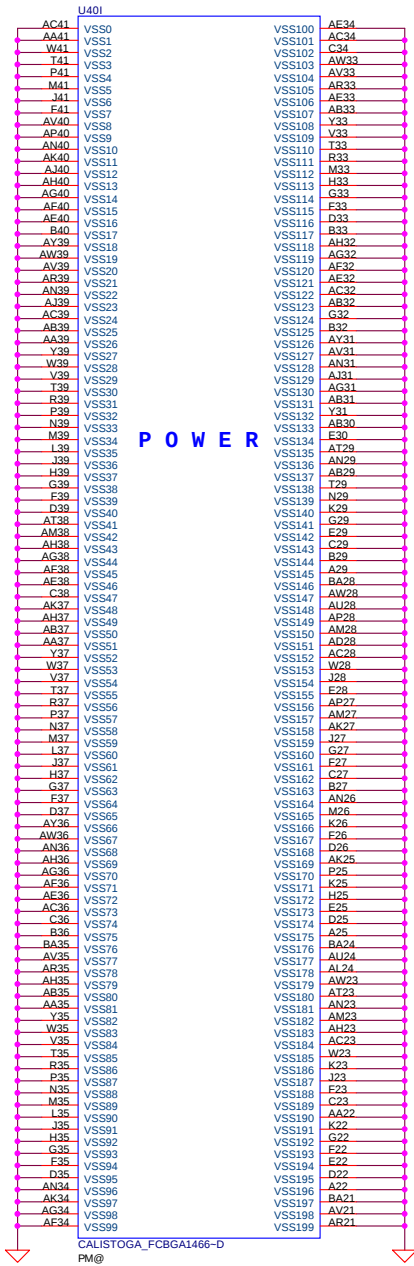


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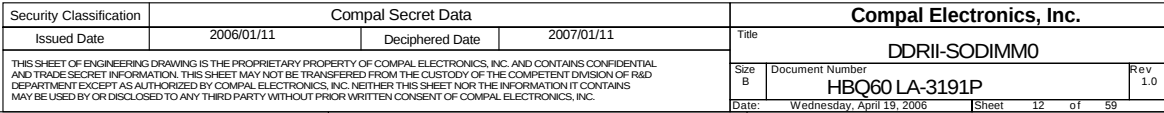


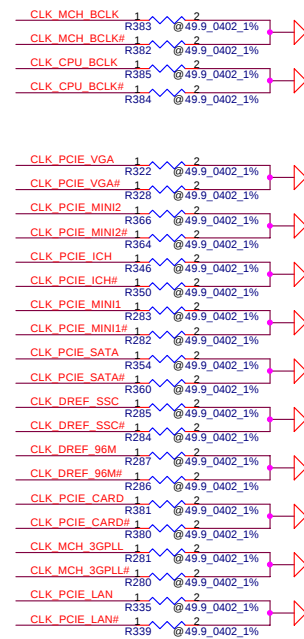
CFG[2:0]	011 = 667MT/s FSB 001 = 533MT/s FSB
CFG5	0 = DMI x 2 1 = DMI x 4 *(Default)
CFG7	0 = Reserved 1 = Mobile Yonah CPU *(Default)
CFG9	0 = Lane Reversal Enable 1 = Normal Operation *(Default)
CFG11	0 = Reserved
PSB 4X CLK Enable	1 = Calistoga *
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation *(Default)
CFG16	0 = Dynamic ODT Disabled 1 = Dynamic ODT Enabled *(Default)
CFG18	0 = 1.95V *(Default) 1 = 1.5V
CFG19	0 = Normal Operation *(Default) 1 = DMI Lane Reversal Enable
SDVO_CTRLDATA	0 = No SDVO Device Present *(Default) 1 = SDVO Device Present
CFG20 (PCIE/SDVO select)	0 = Only PCIE or SDVO is operational. *(Default) 1 = PCIE/SDVO are operating simu.



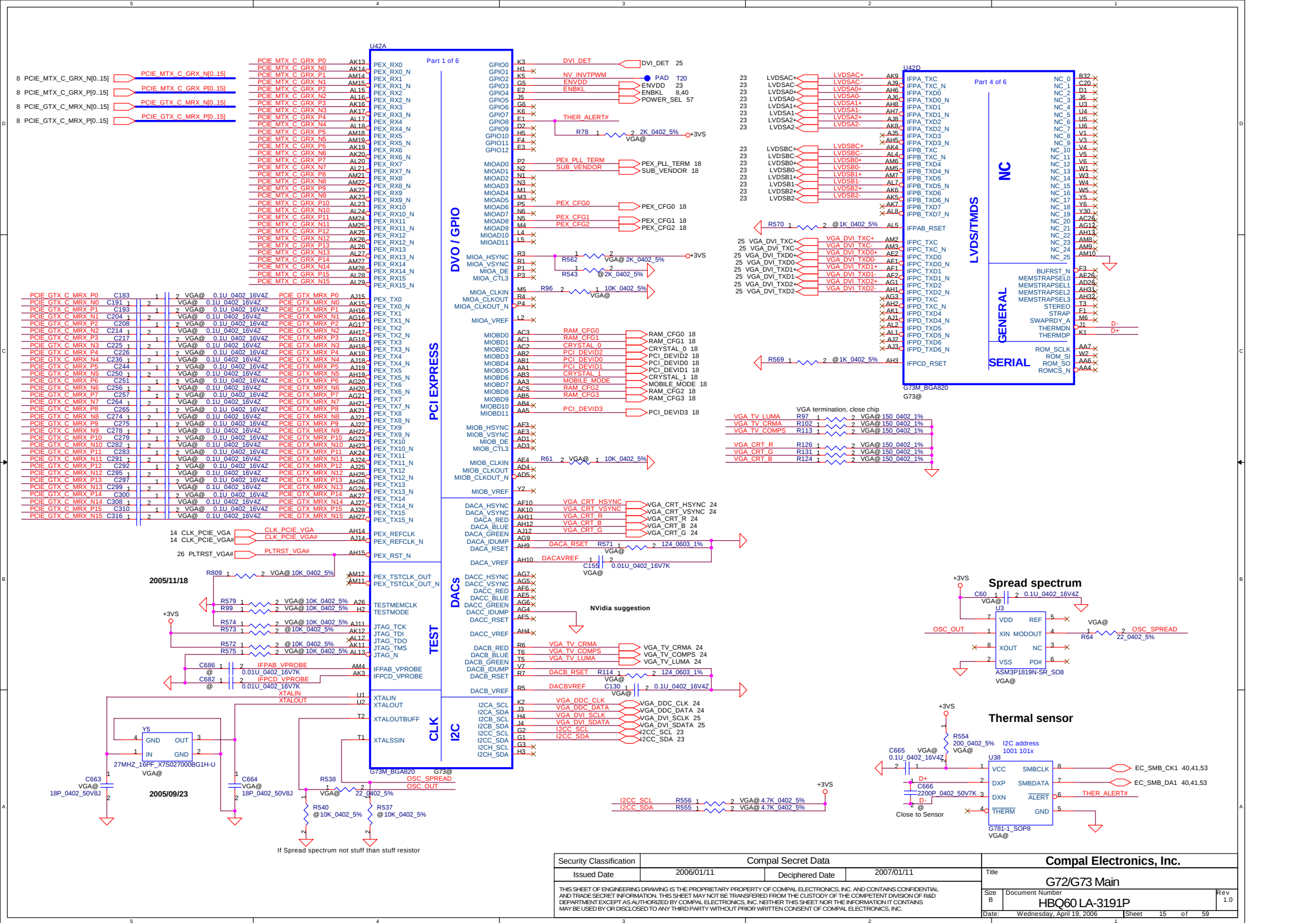


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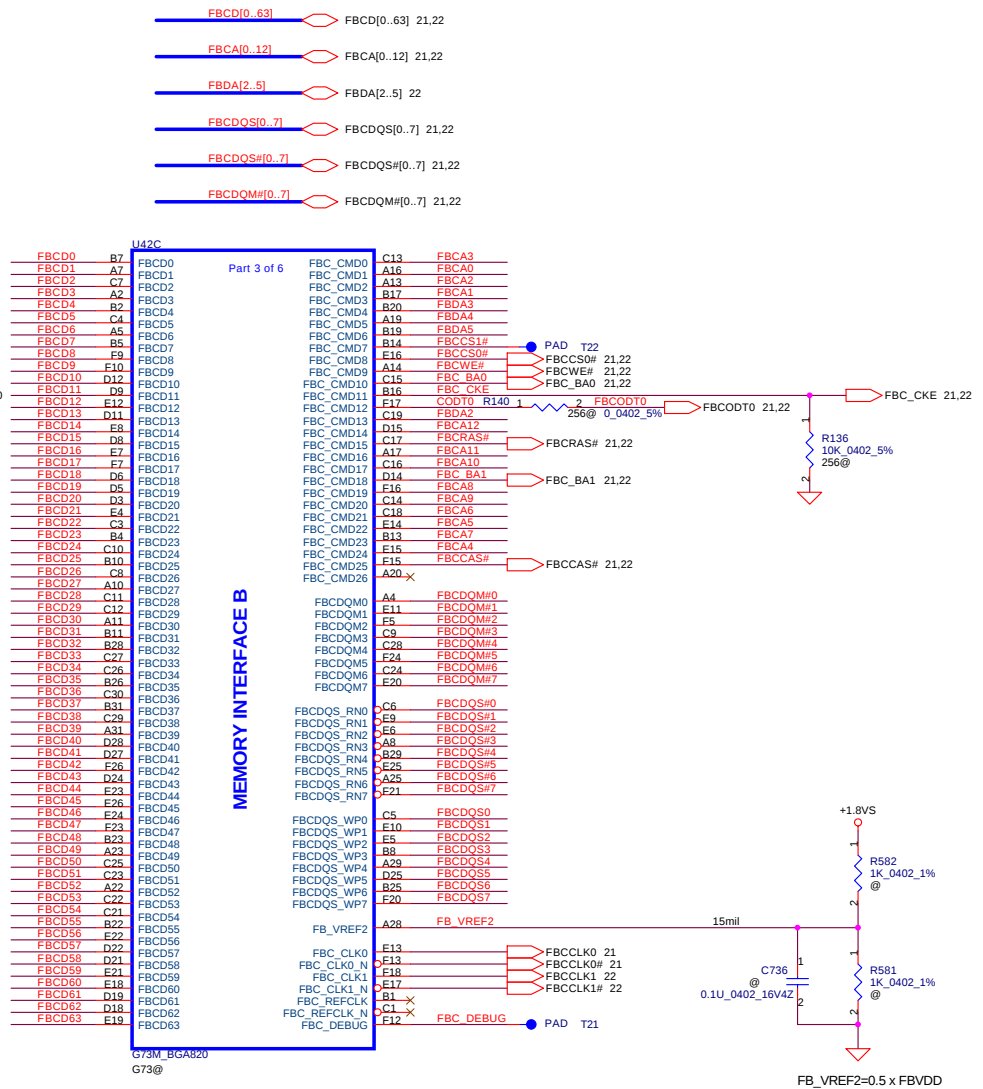
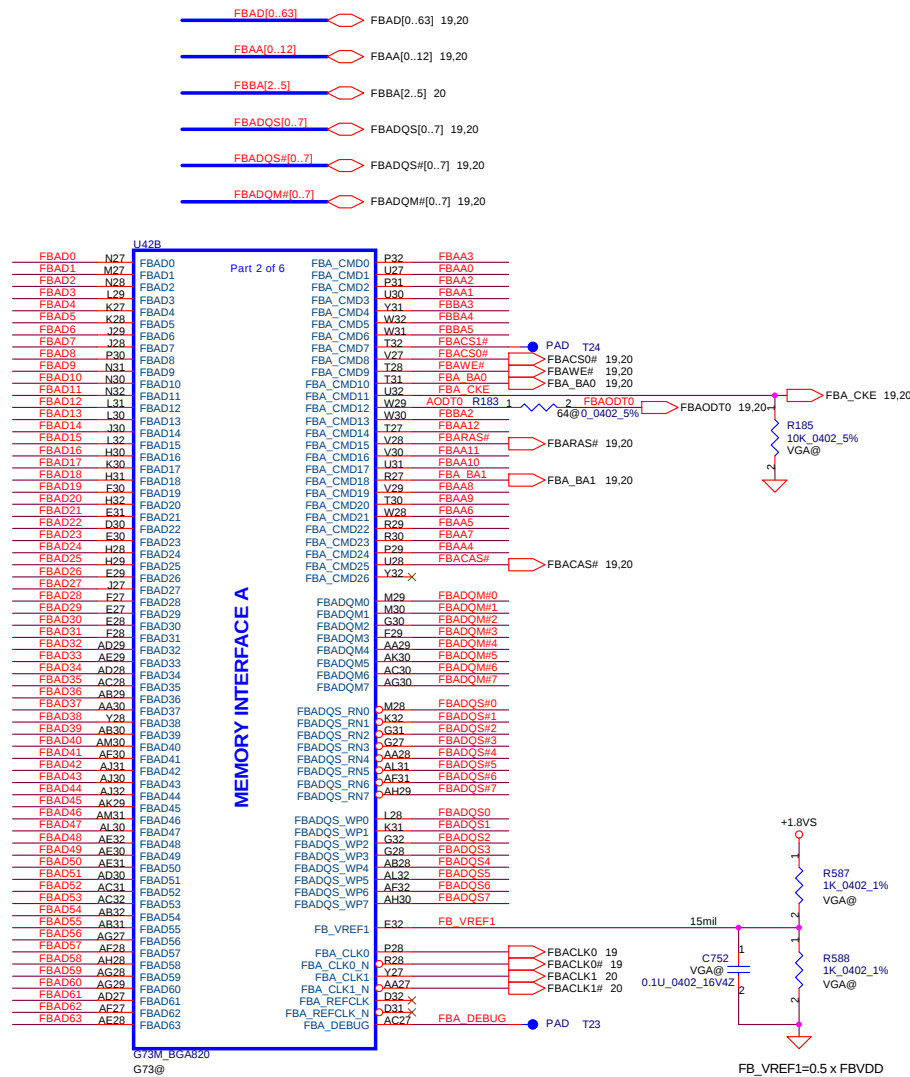




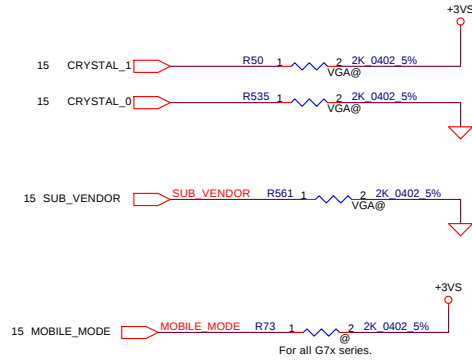
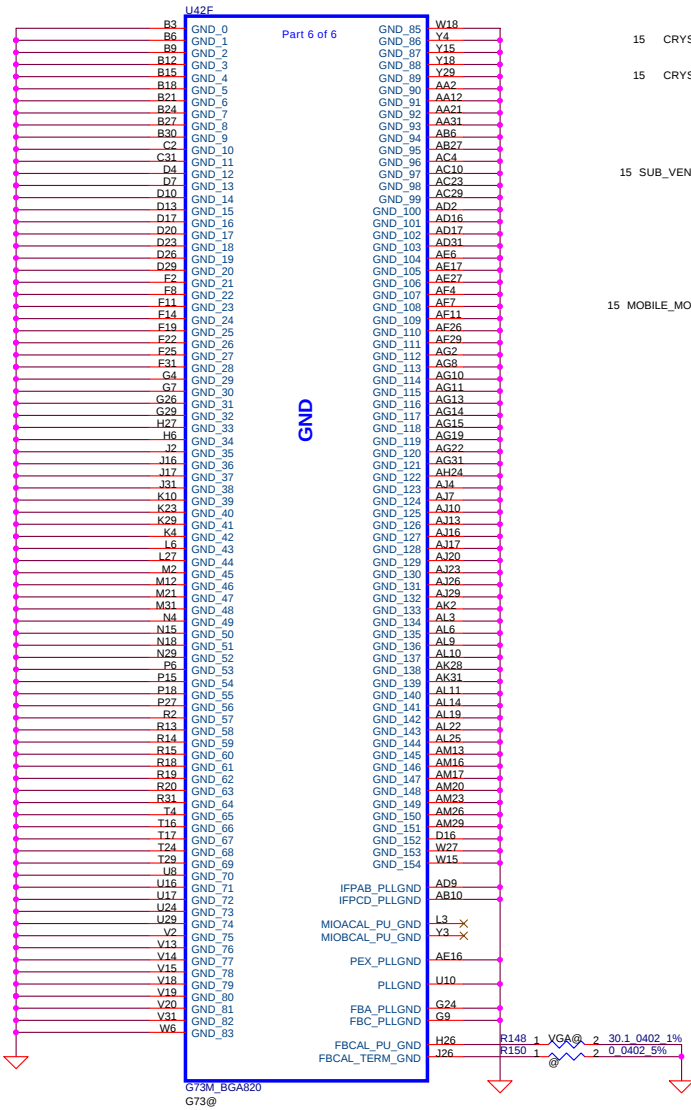
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Title Clock Generator			
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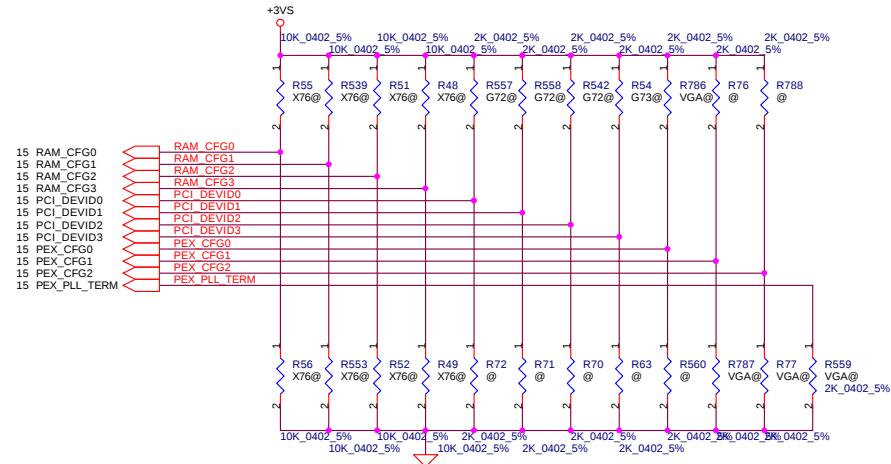
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				G72/G73 Main				
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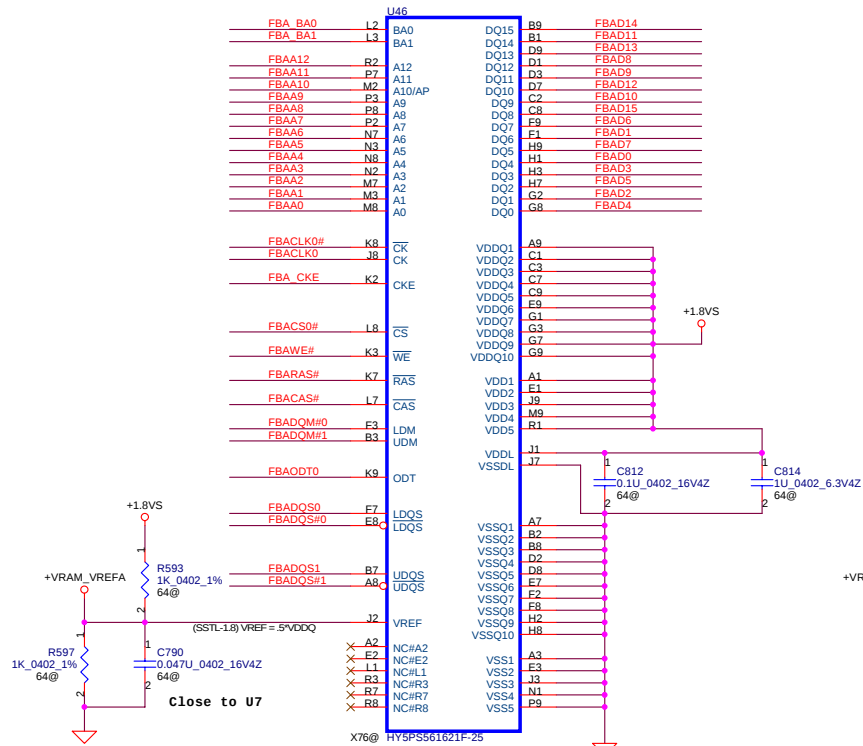
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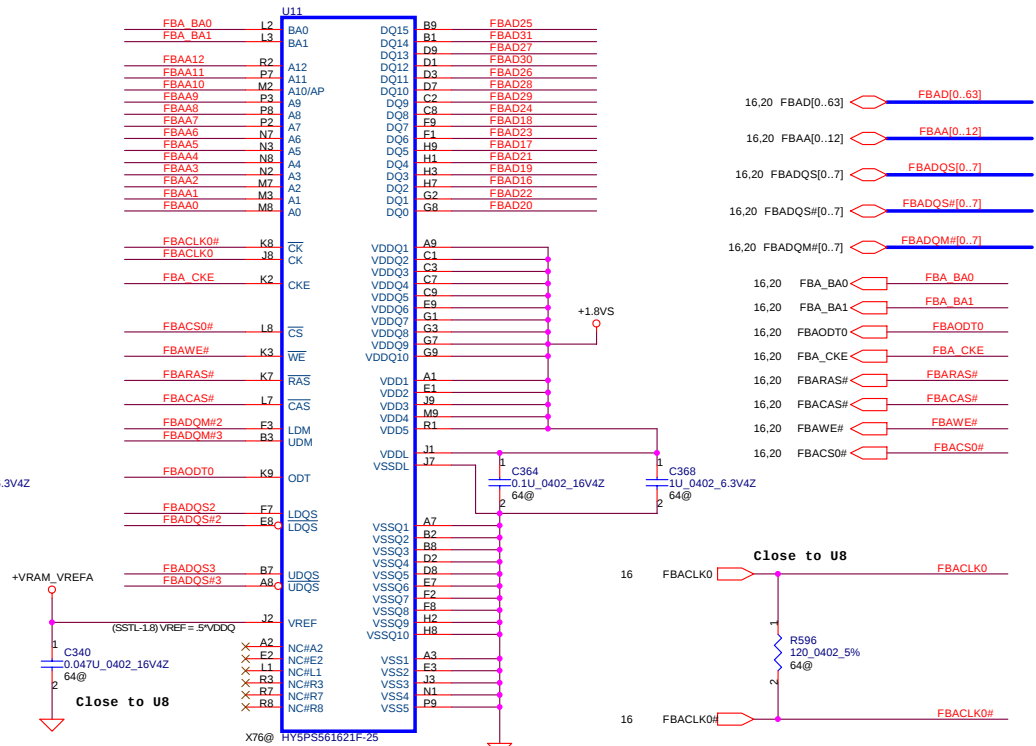
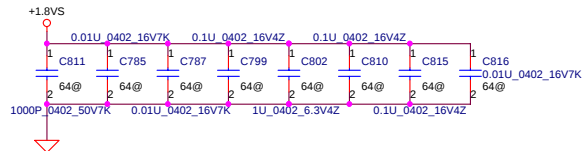
STRAPS	PIN	DESCRIPTION	Value	Value
CRYSTAL[1:0]	MI0BD[6,2]	27MHz=10, 14.318MHz=01, 13.5MHz=00	10	
ROM_TYPE[1:0]	MI0BD[11:10]	Parallel=00, SERIAL M25P10=01, Serial SST45VF=10	01	
SUB_VENDOR	MI0AD1	VBIOS on card (pull high) VBIOS with system BIOS (pull down)	0	
PEX_PLL_TERM	MI0AD0		0	
PEX_CFG[2:0]	MI0AD[9,8,6]	Recommended for G7x	010	
RAM_CFG[3:0]	MI0AD[5:2]	16Mx16x4 1.8V (128bit G73M)	0001	Samsung
		16Mx16x4 1.8V (128bit G73M)	0011	Hynix
		16Mx16x4 1.8V (128bit G73M)	0010	Infineon
		16Mx16x4 1.8V (64bit G73M)	1001	Samsung
		16Mx16x4 1.8V (64bit G73M)	1011	Hynix
		16Mx16x4 1.8V (64bit G73M)	1010	Infineon
		16Mx16x4 1.8V (64bit G72MV)	0001	Samsung
PCI_DEVID[3:0]	VIPD[5:3] MIOA_HSYNC	G73M-xxxx8 G72M-0x01D8	1000	
		G72MV-0x01D7 TBD/TBD	0111	
MOBILE_MODE	MI0BD7	For NV44M/G7x		0



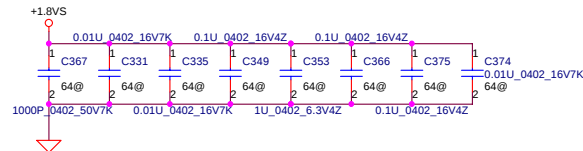
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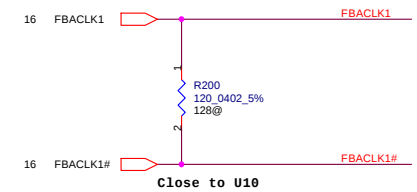
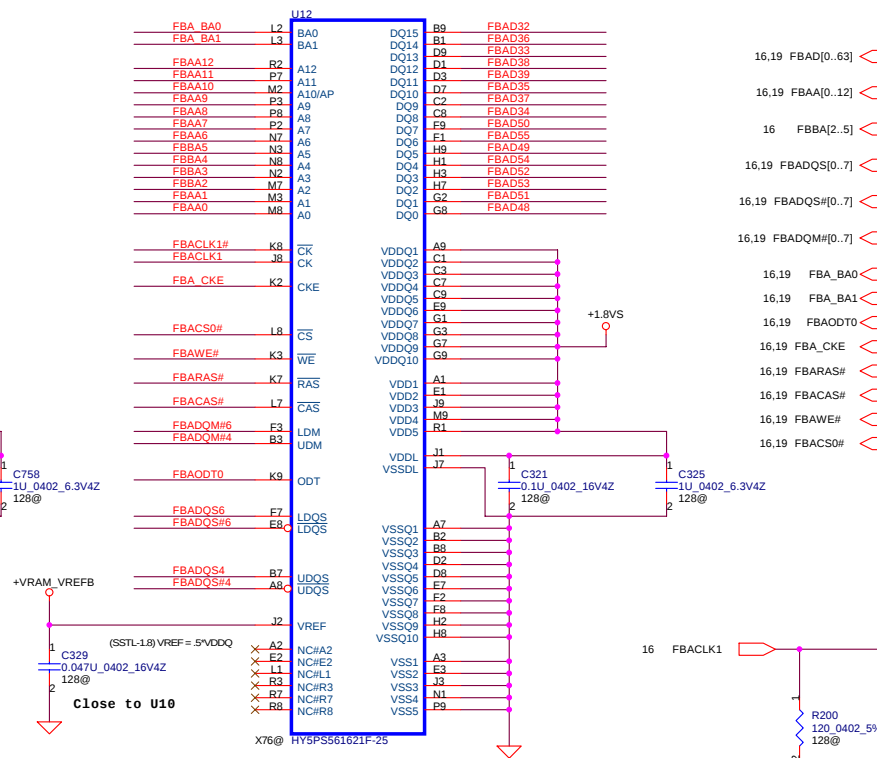
DDR2 BGA MEMORY



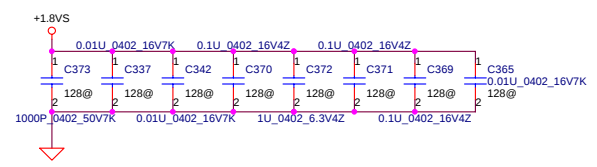
DDR2 BGA MEMORY



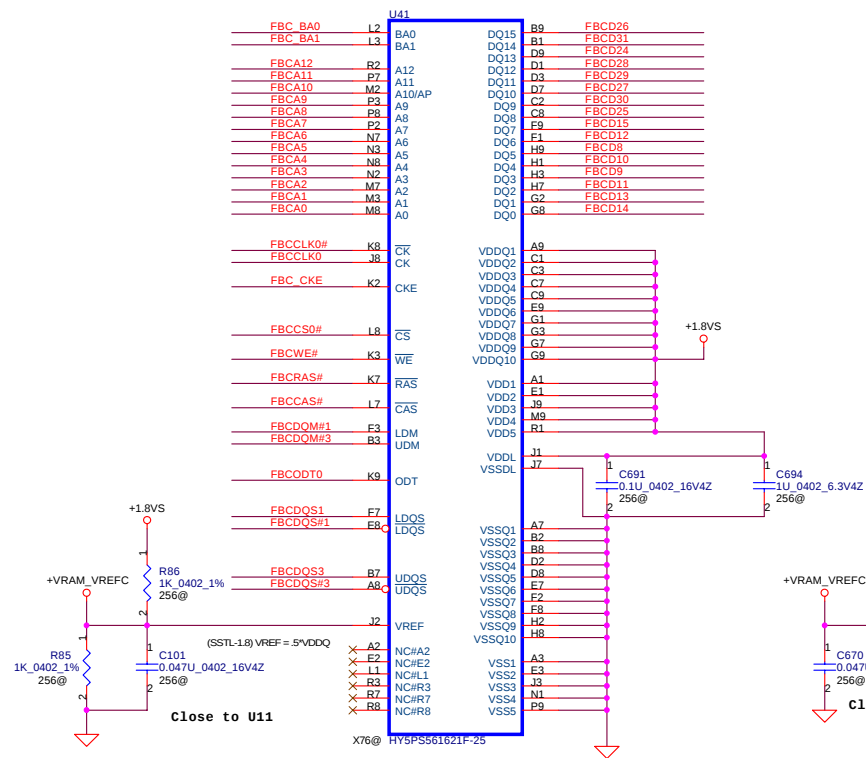
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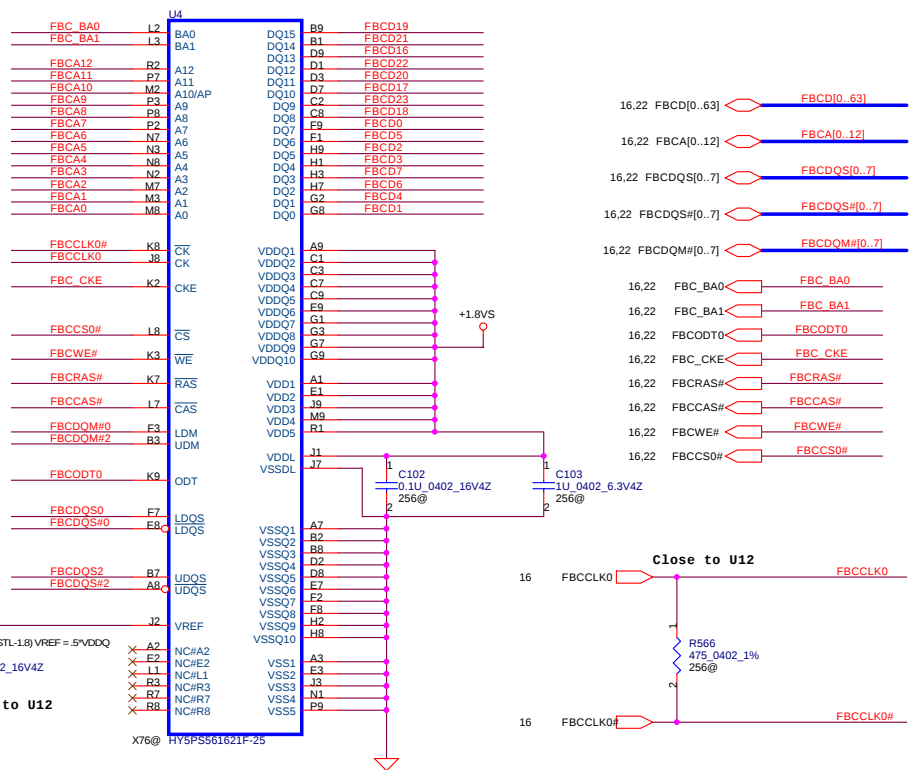
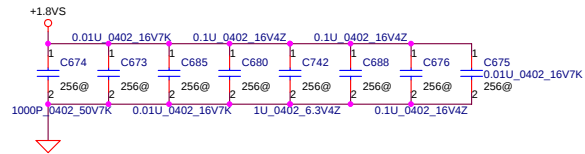
DDR2 BGA MEMORY



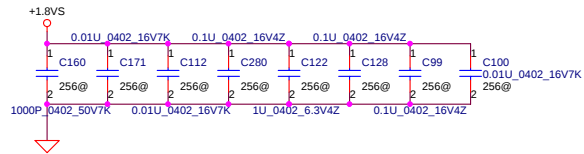
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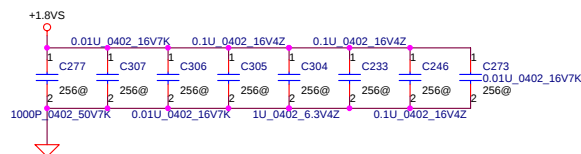
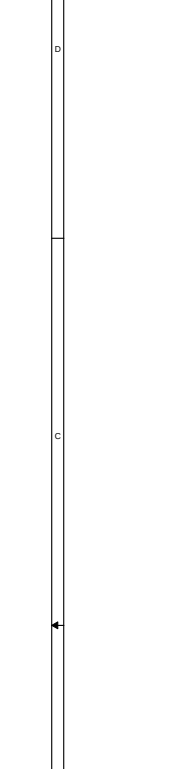
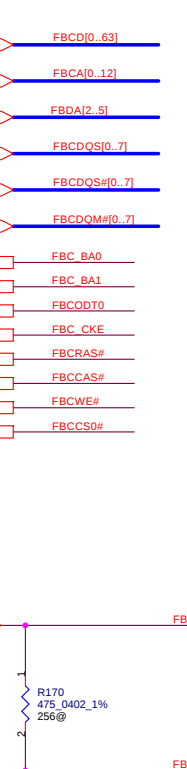
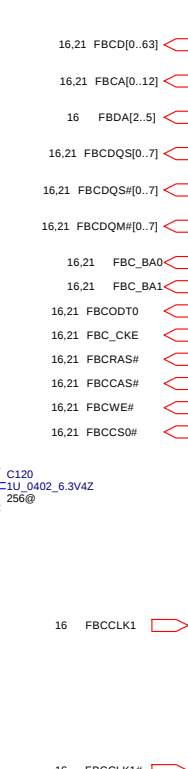
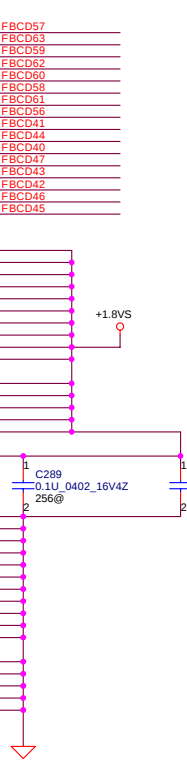
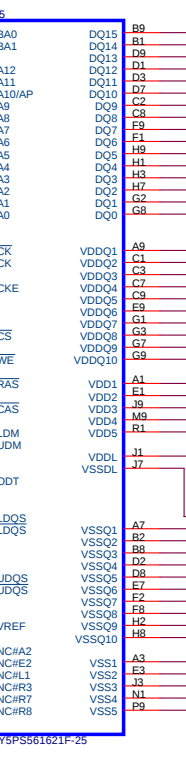
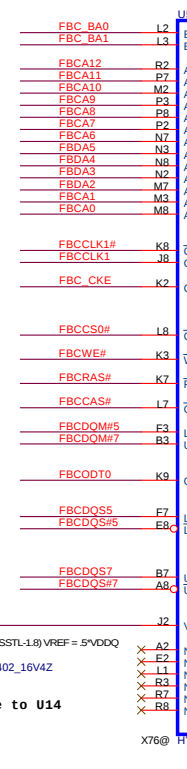
DDR2 BGA MEMORY



DDR2 BGA MEMORY

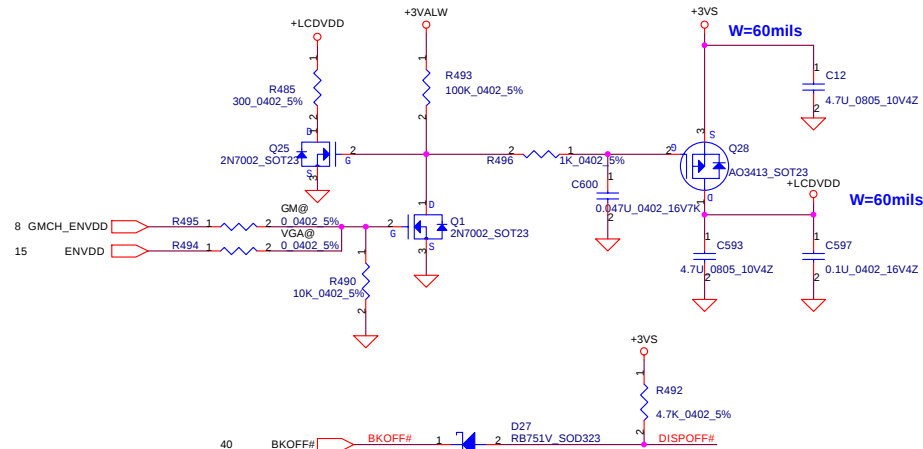


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		Size	Document Number							Rev 1.0
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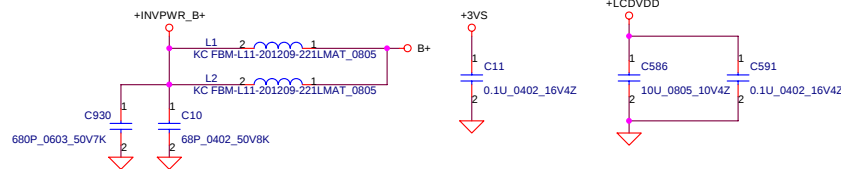
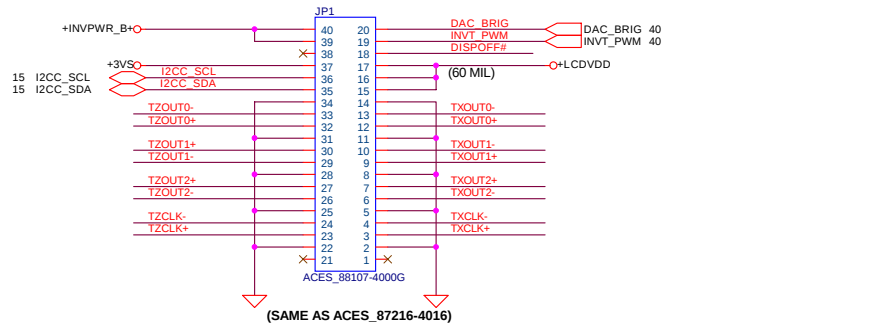


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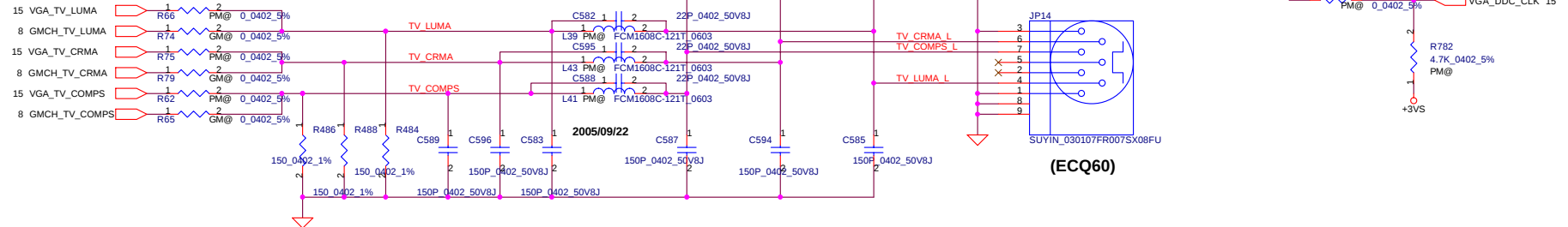
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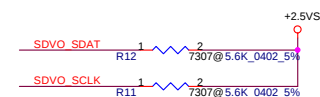
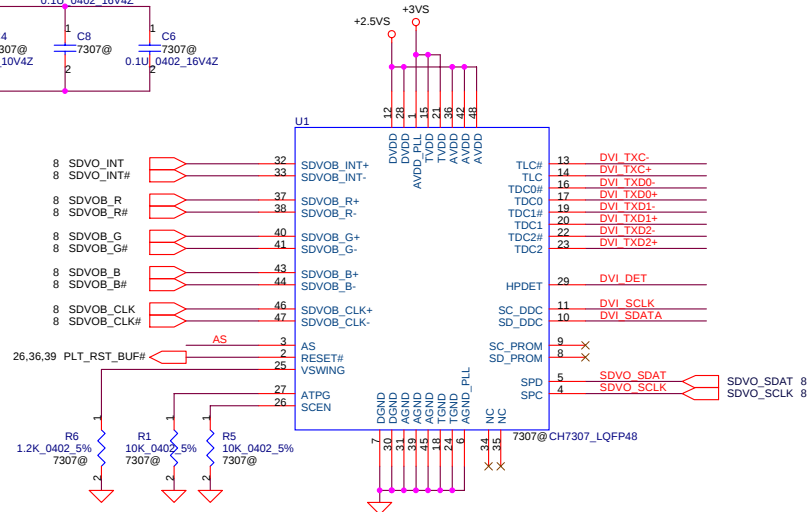
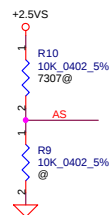
LCD/PANEL BD. Conn.



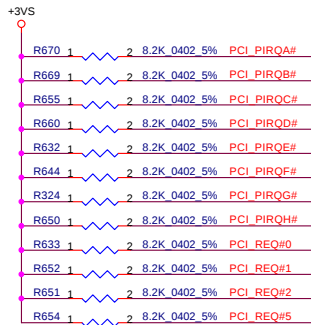
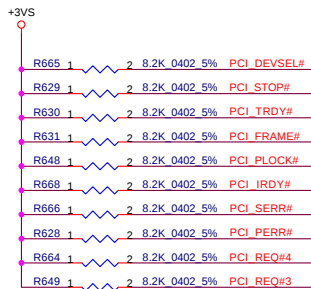
TV-OUT Conn.



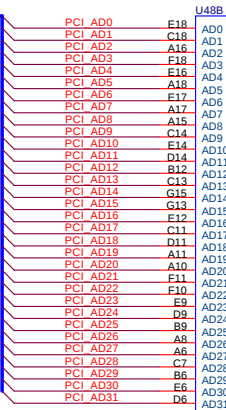
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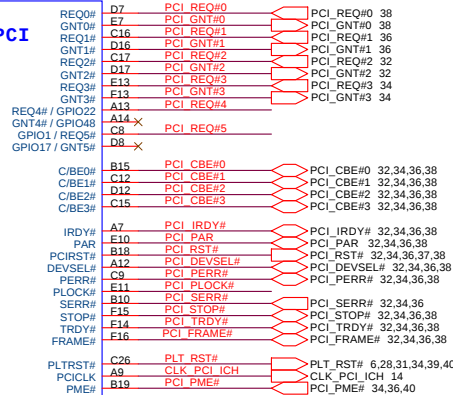
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32,34,36,38 PCI_AD[0..31]



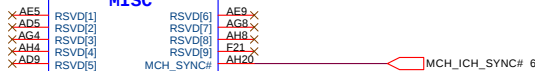
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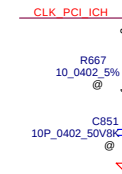
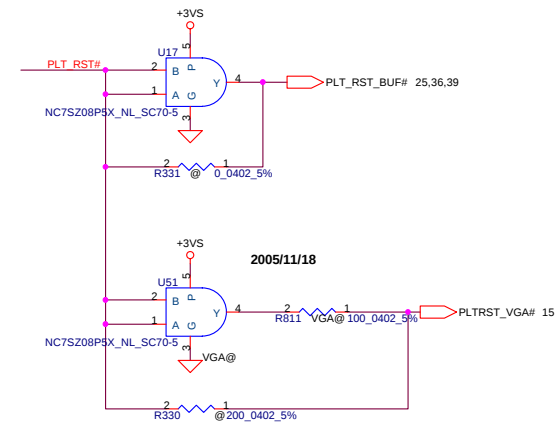
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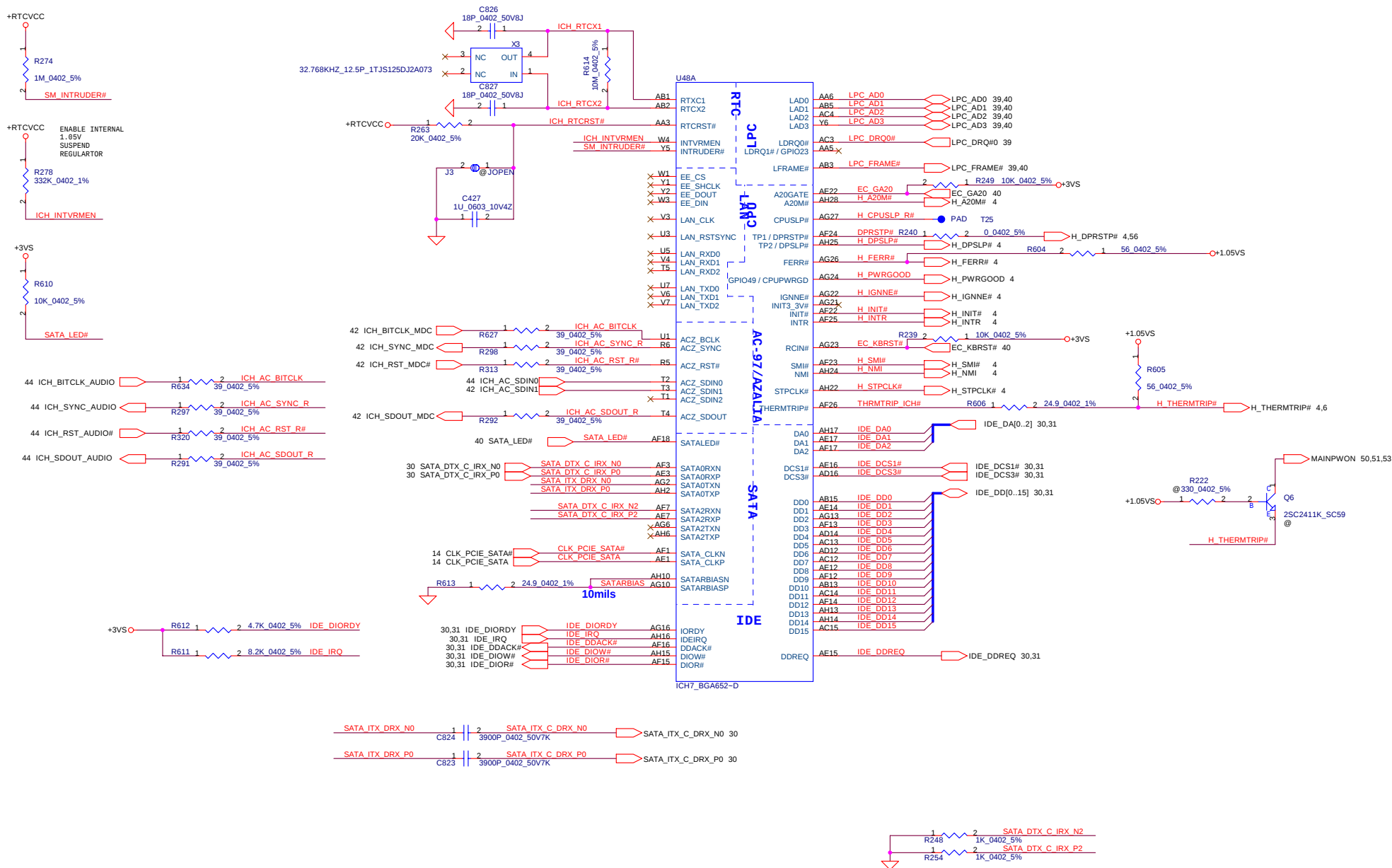
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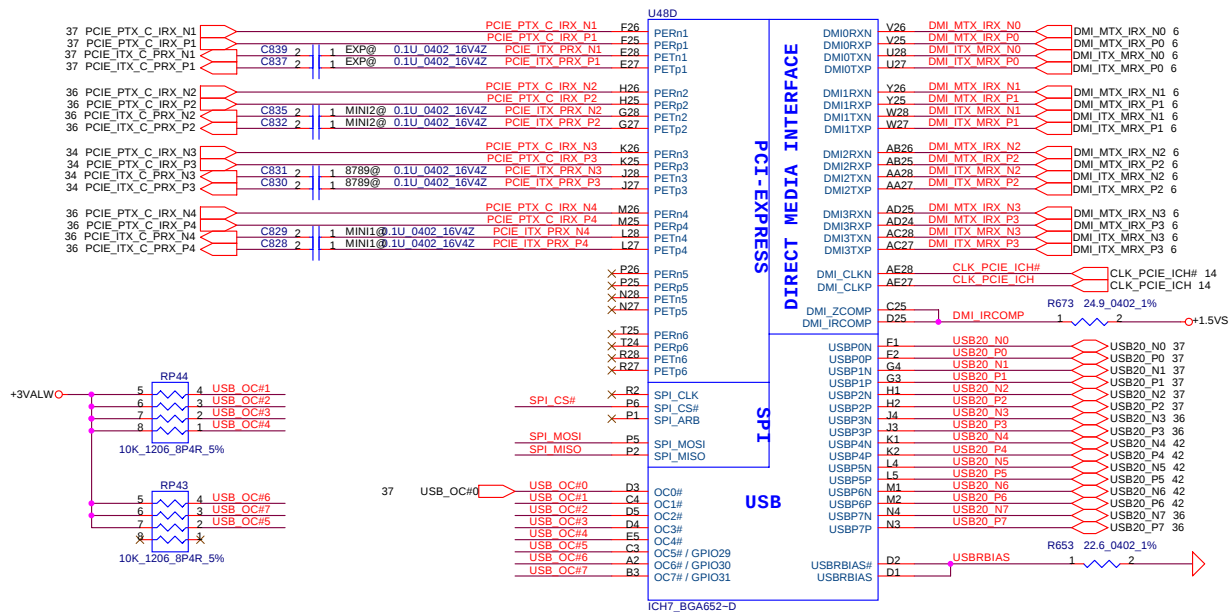
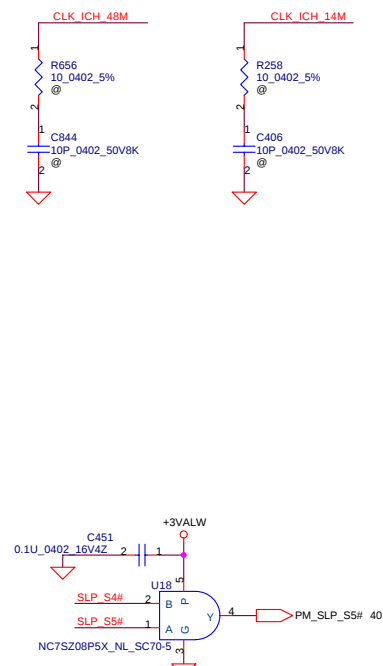
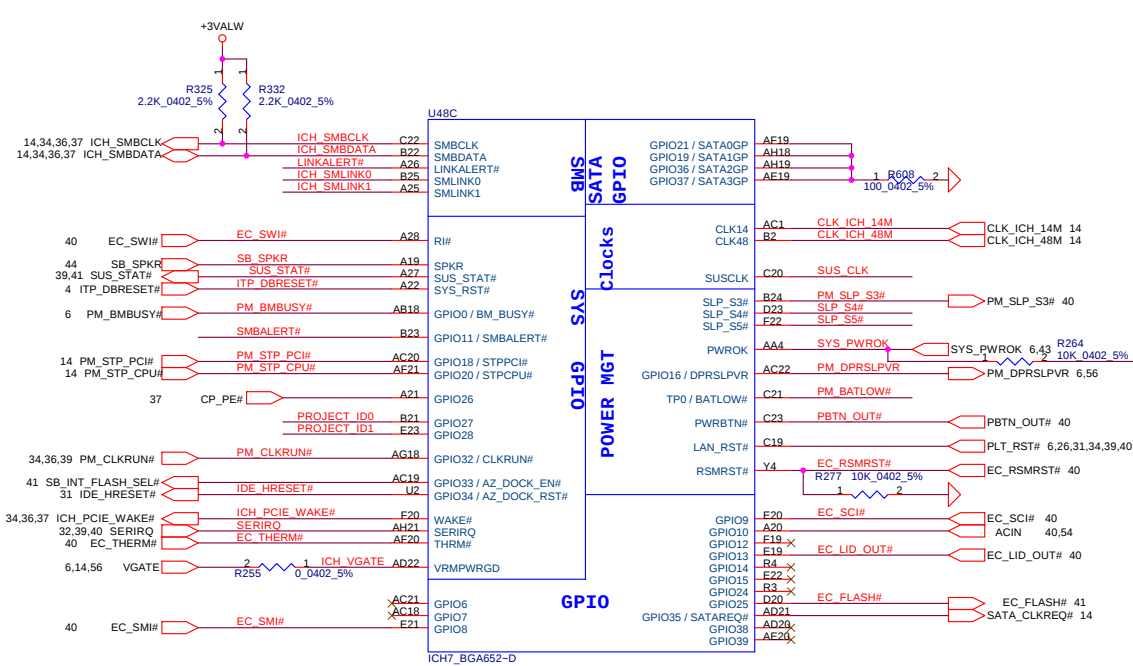
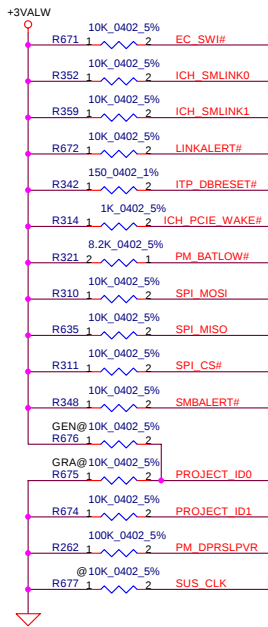
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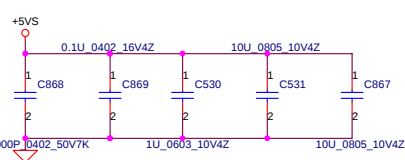
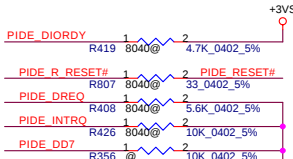
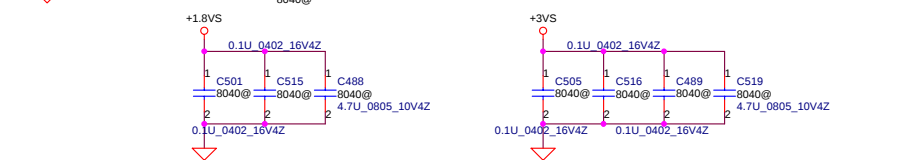
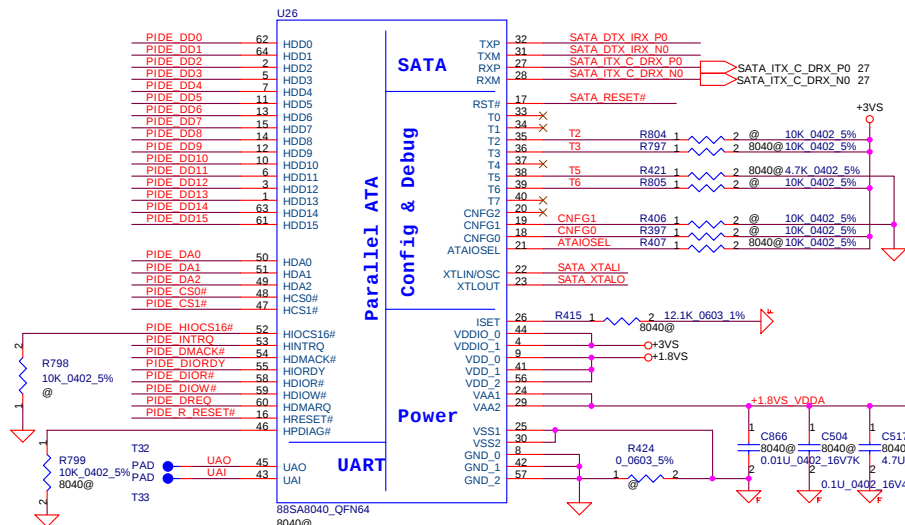
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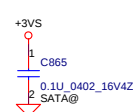
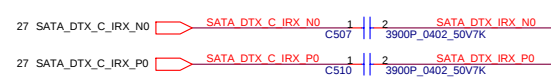
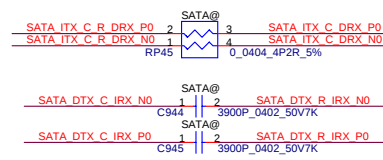
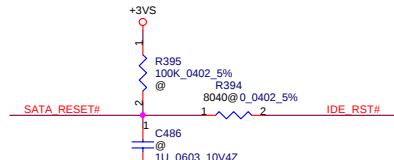
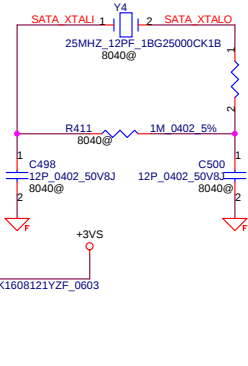
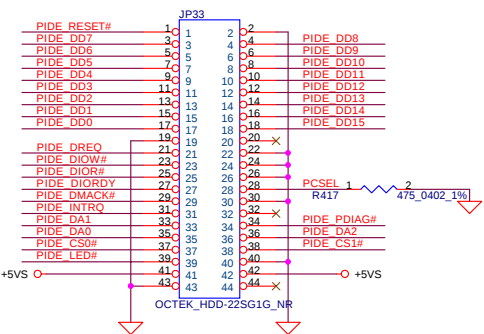
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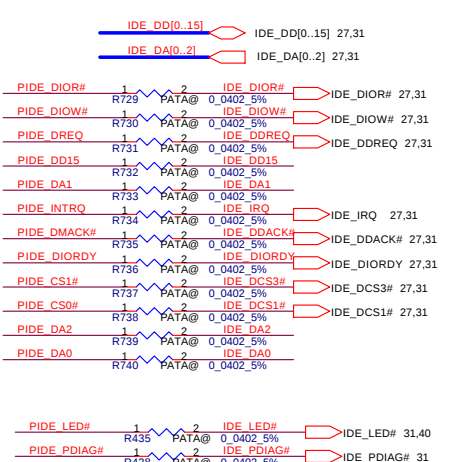
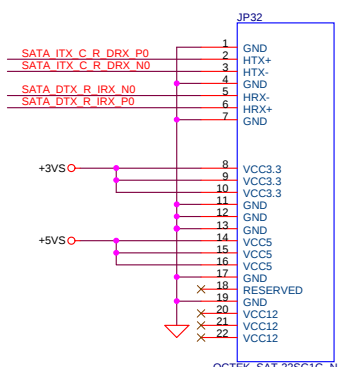
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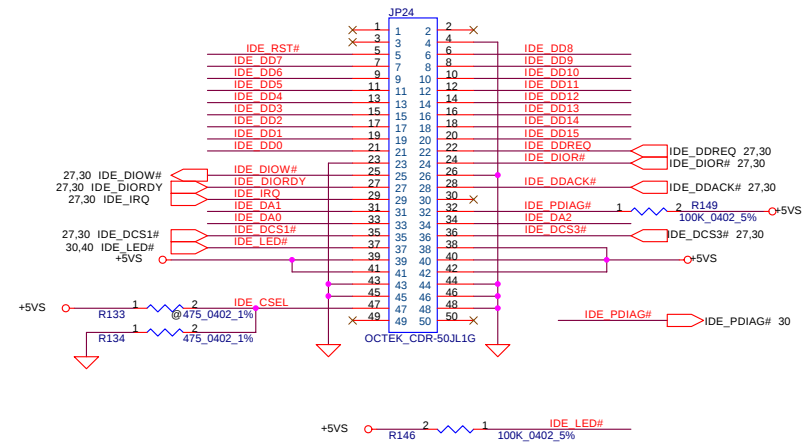
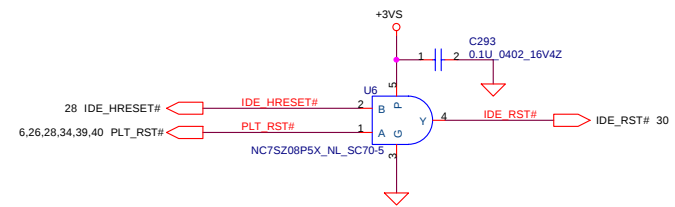
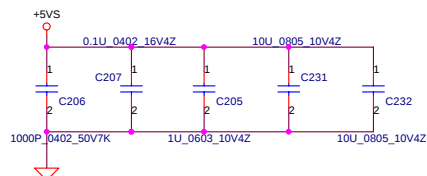
PATA HDD Conn.



SATA HDD Conn.

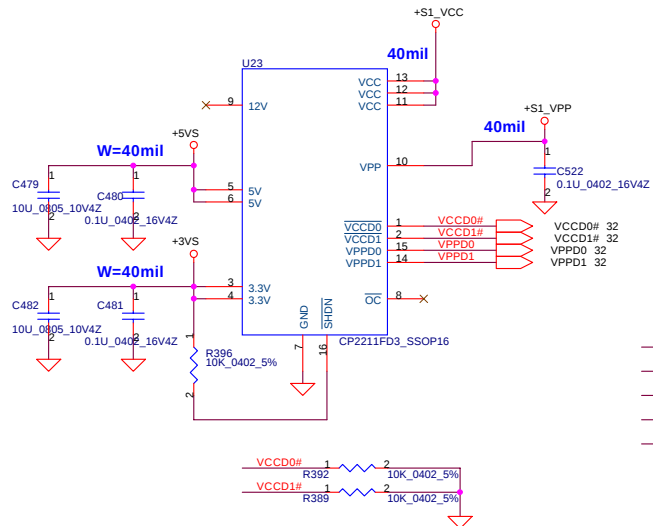


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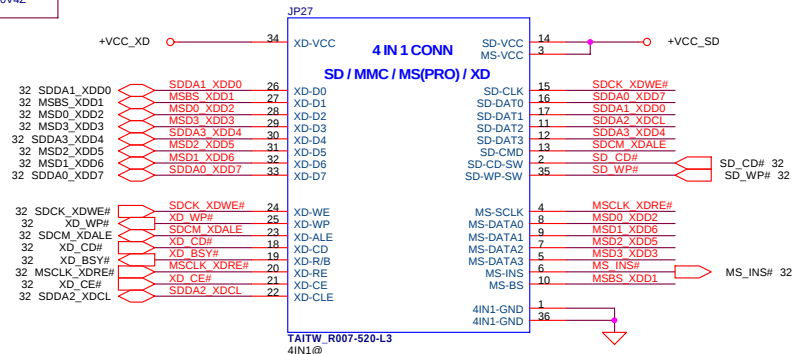
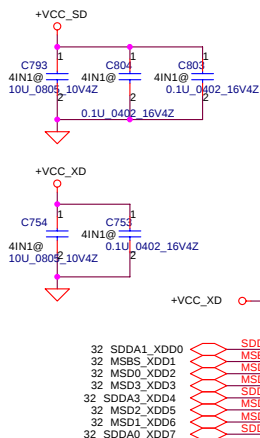
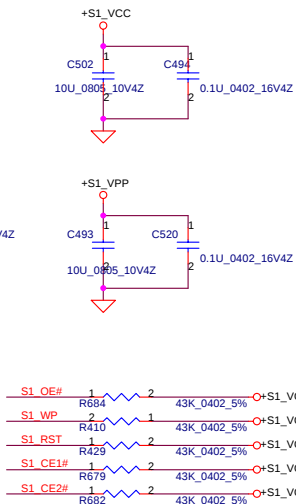
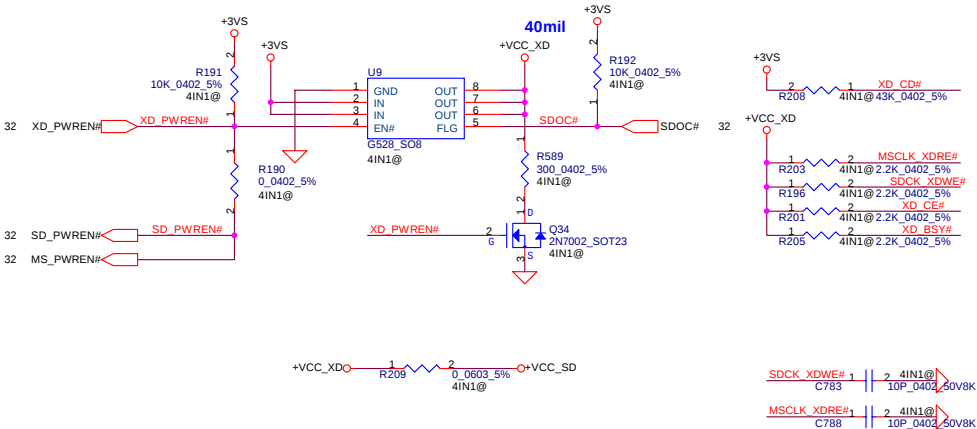


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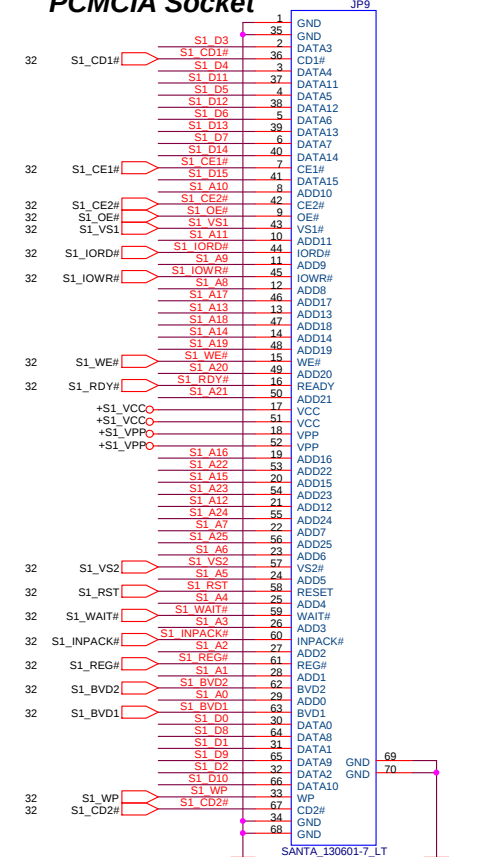
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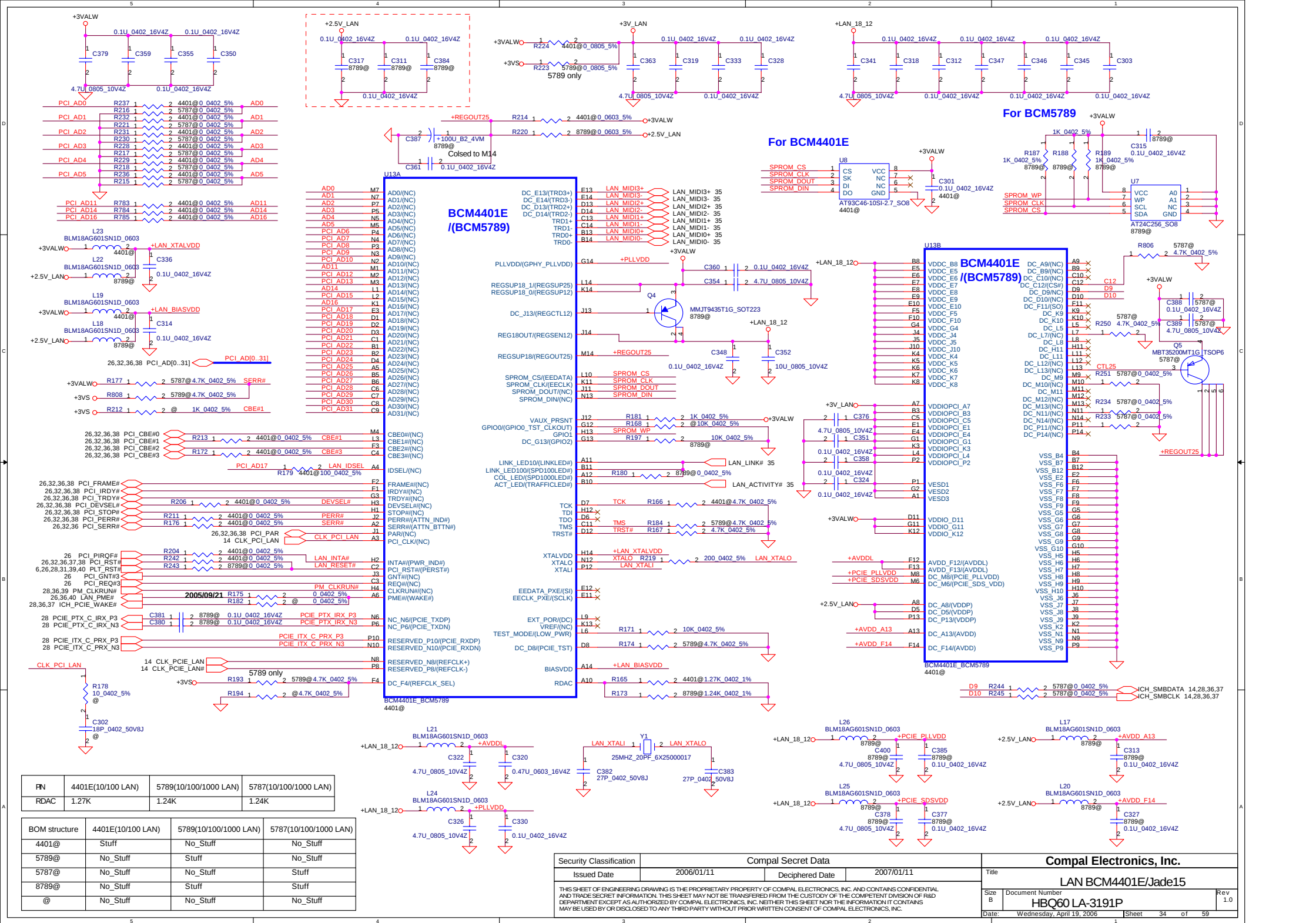
SD/MS Power Control
XD Power Control



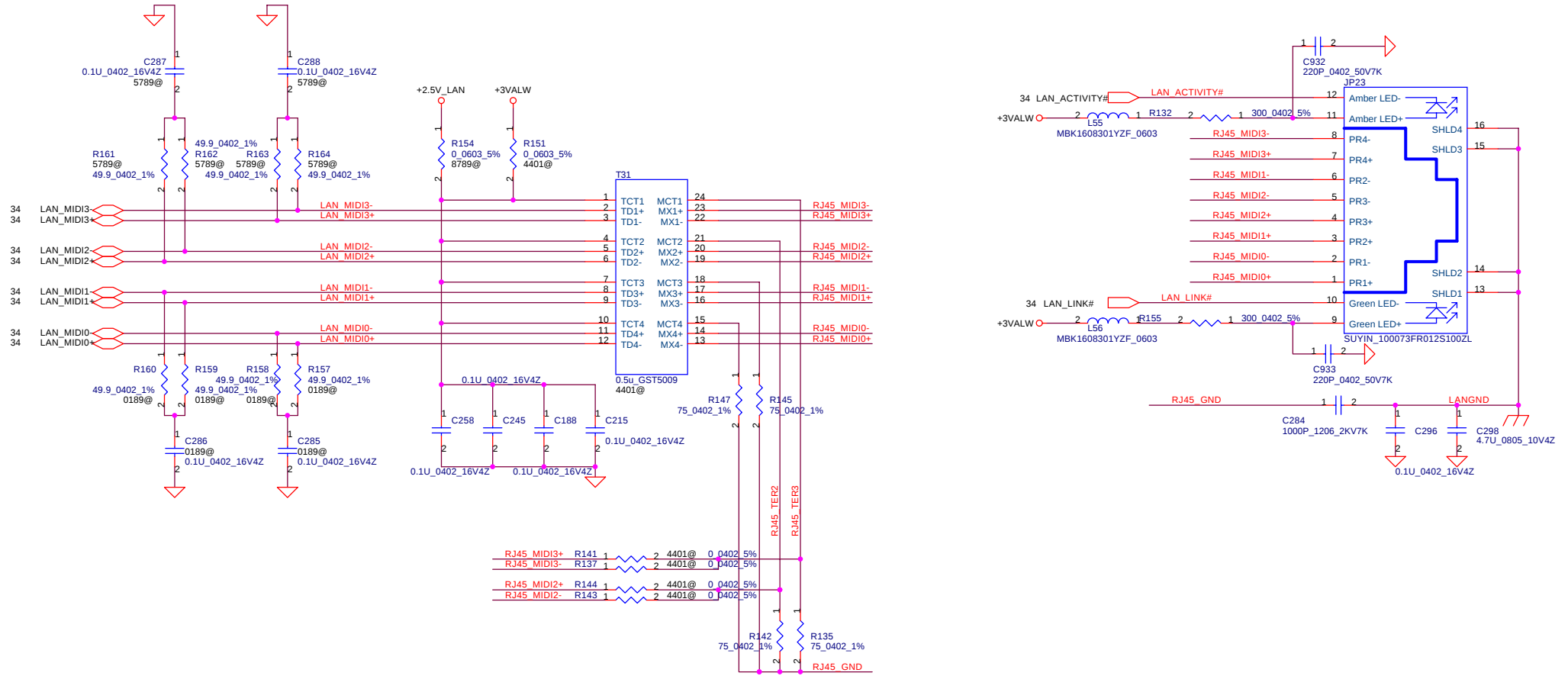
PCMCIA Socket



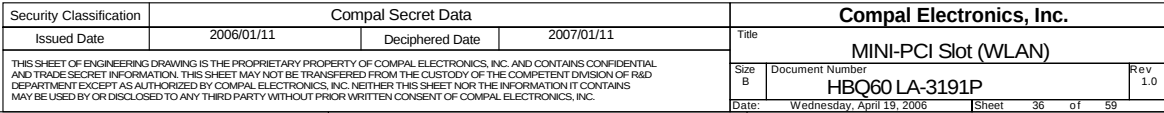
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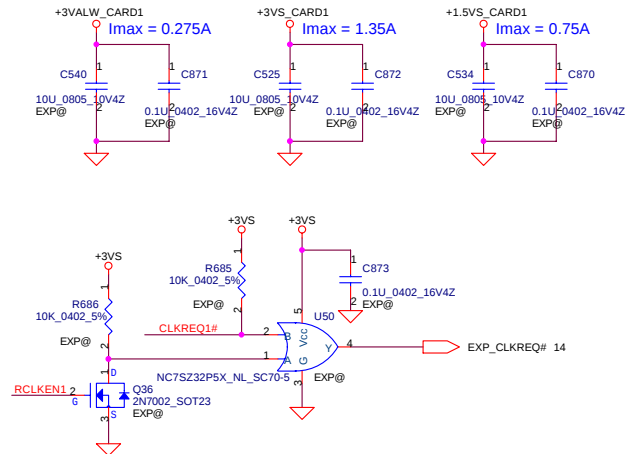
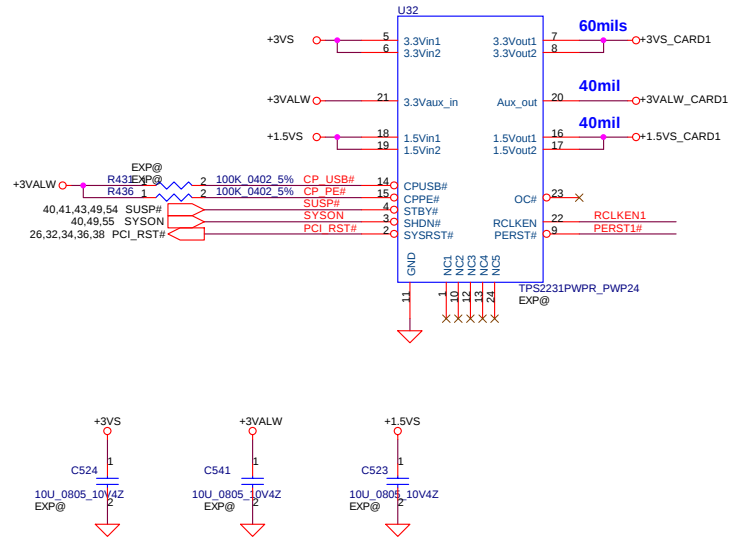
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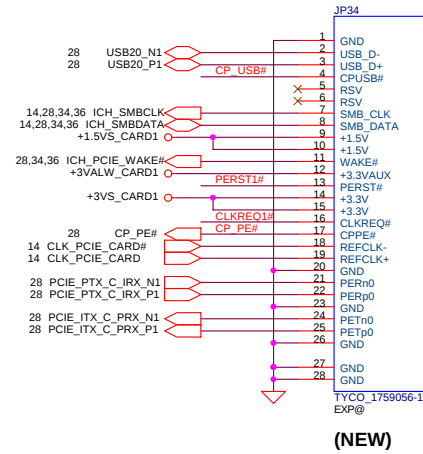
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Size	Document Number	Rev		1.0	
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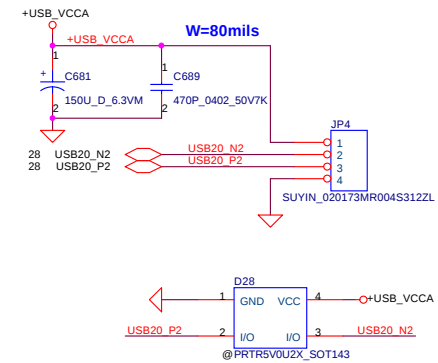
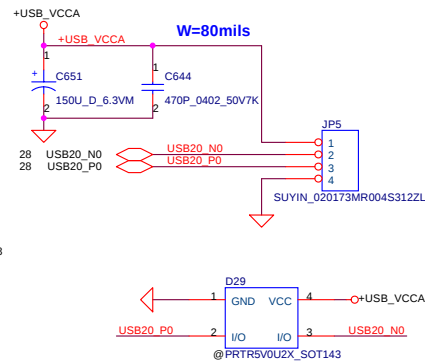
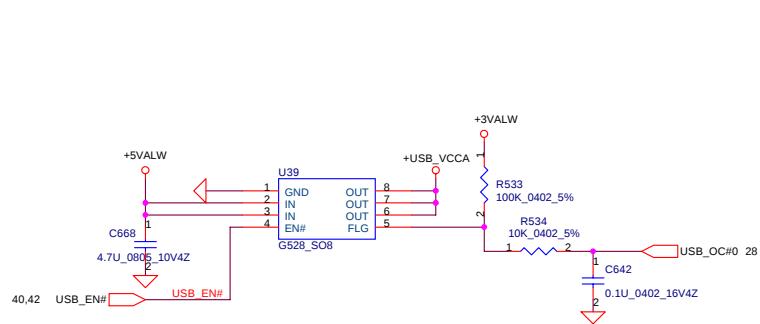
New Card Power Switch



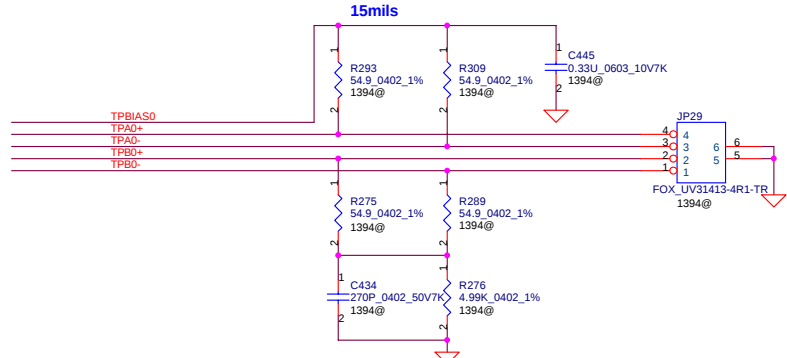
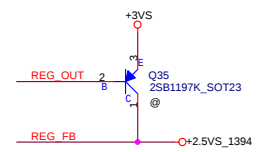
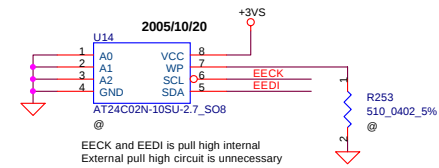
New Card Socket (Left)



USB CONN. 1 & 2

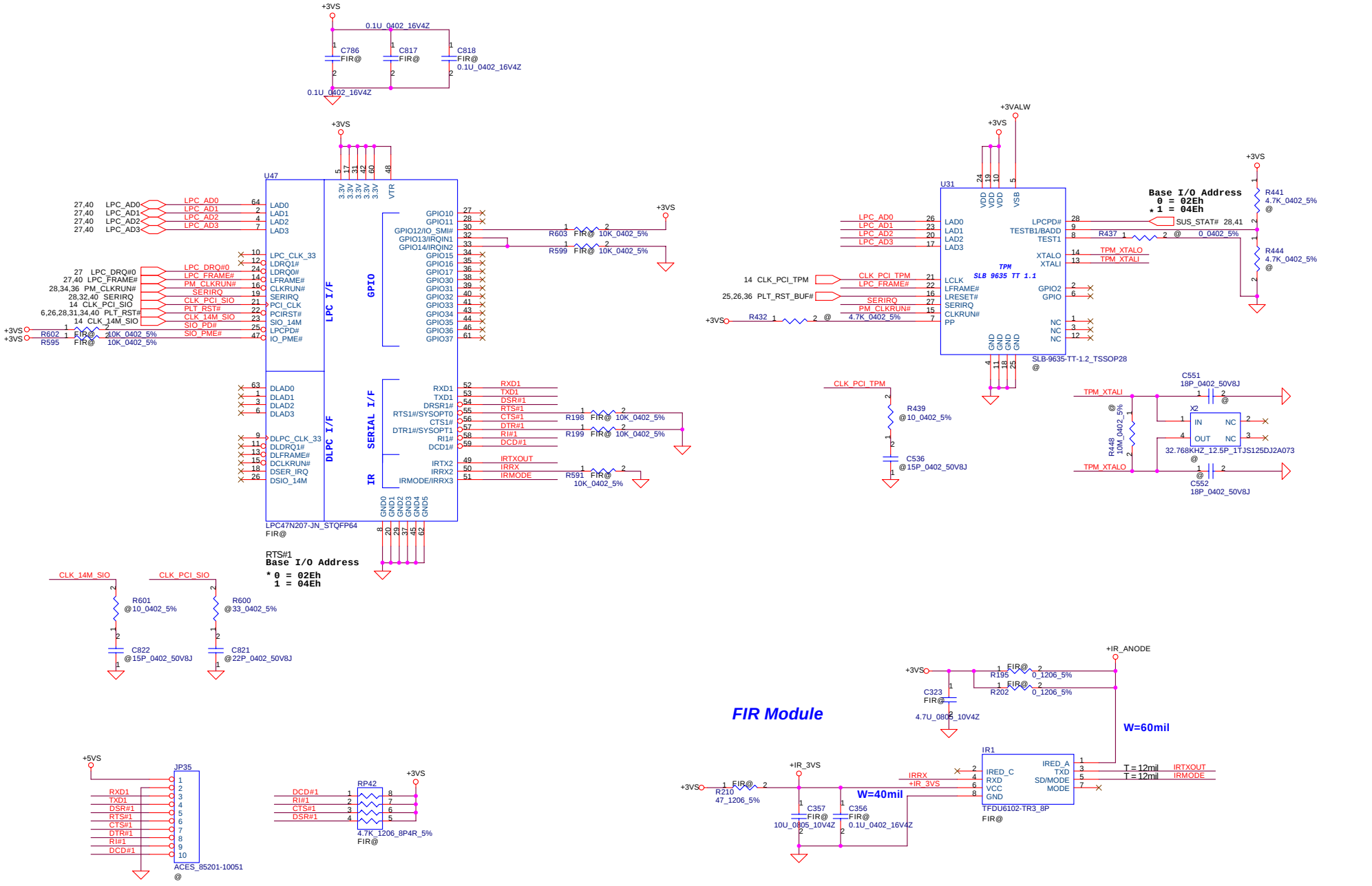


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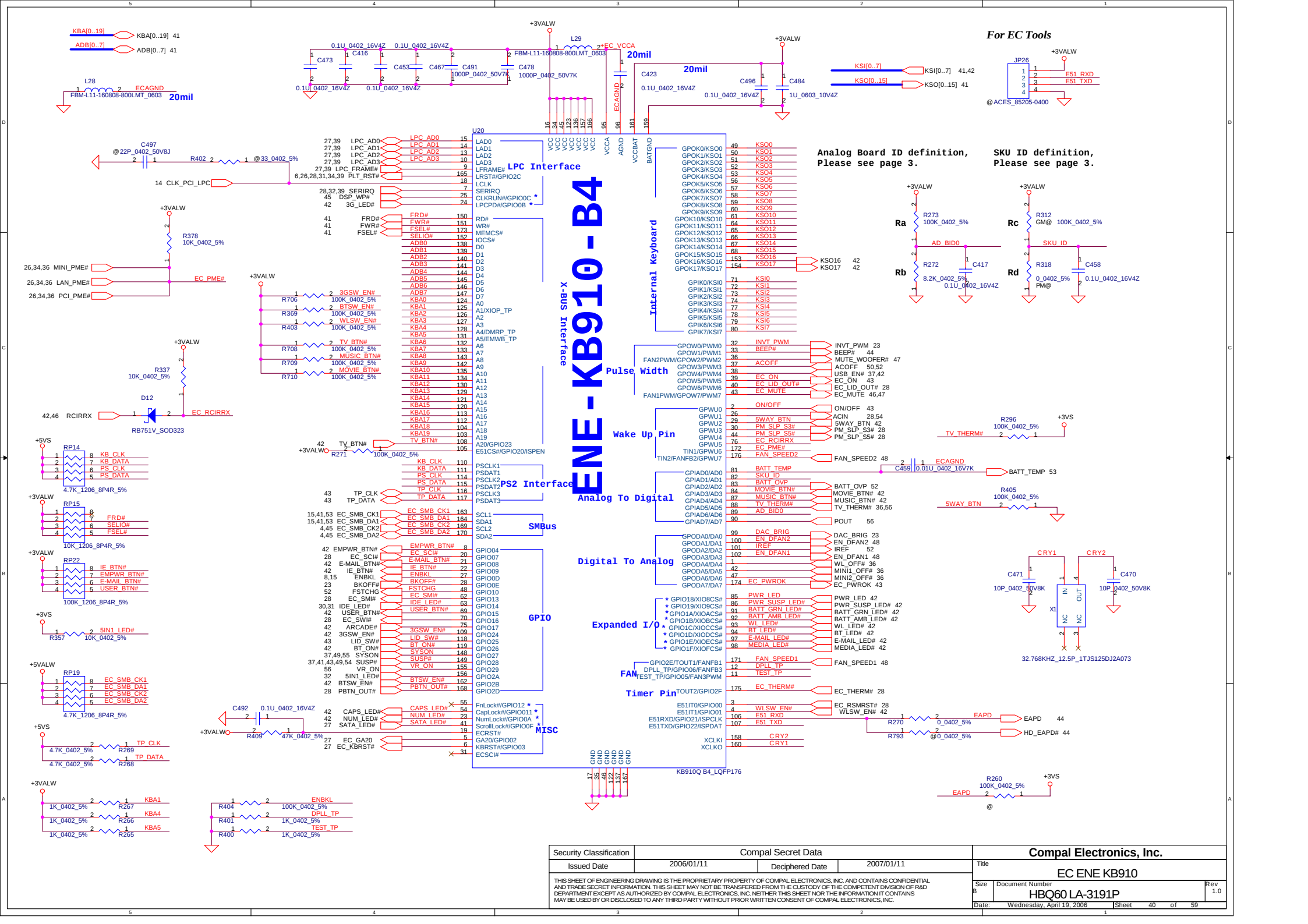


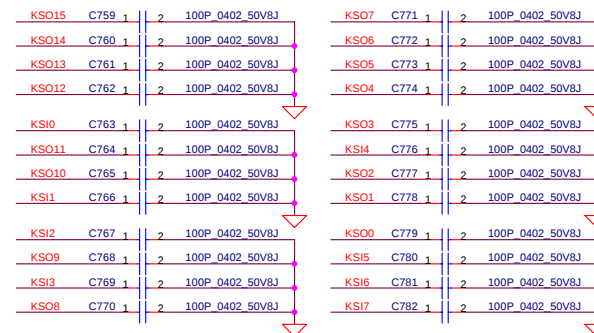
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				Size	Document Number	Rev
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SUPER I/O SMsC LPC47N207

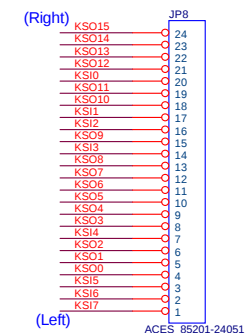


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Issued Date	2006/01/11	Deciphered Date	2007/01/11	Title	SIO1036 & FIR	
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				B	HBQ60 LA-3191P	1.0
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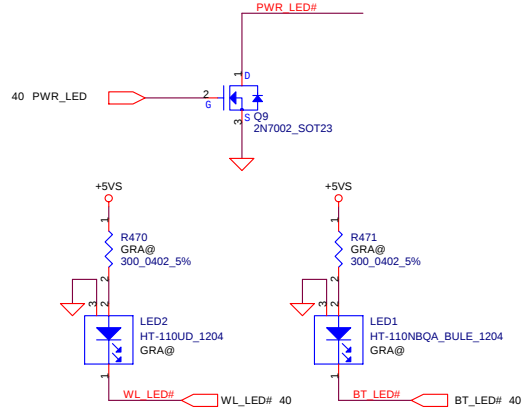
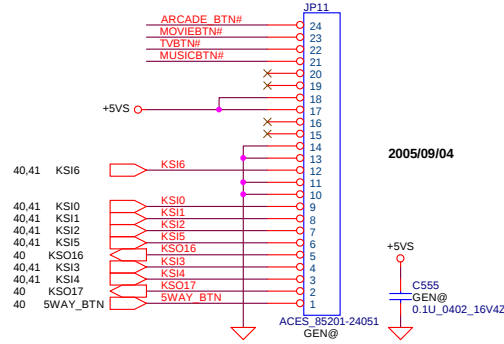


INT_KBD Conn.

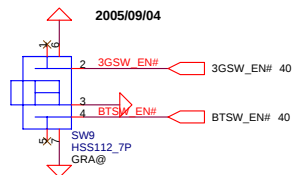


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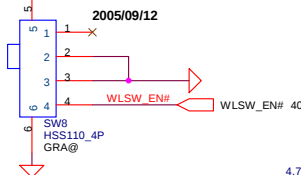
To CD-PLAY/B Conn.



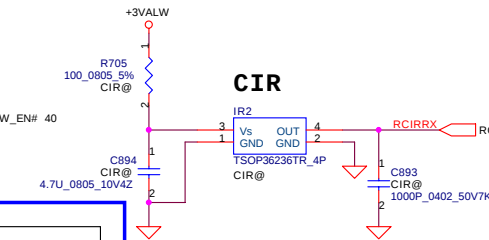
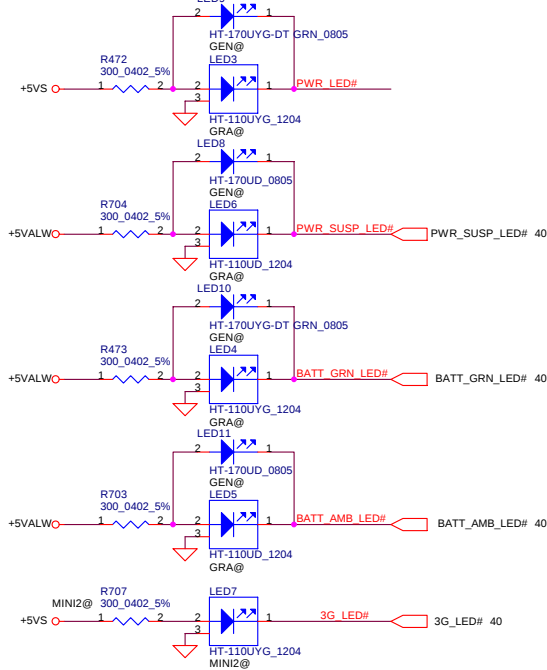
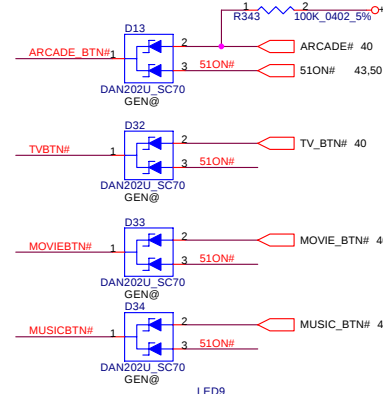
BT_SW & 3G_SW



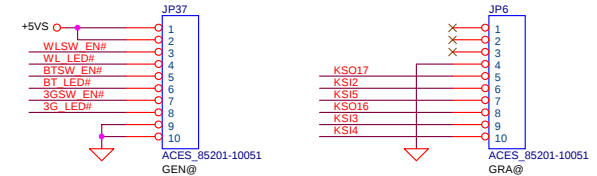
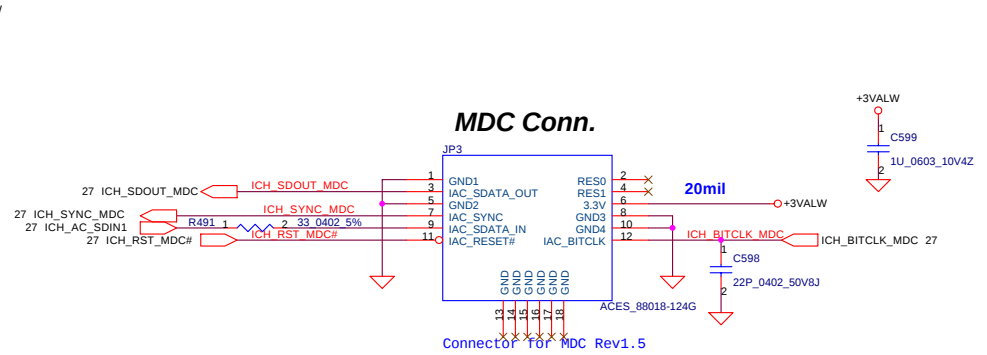
WL_SW



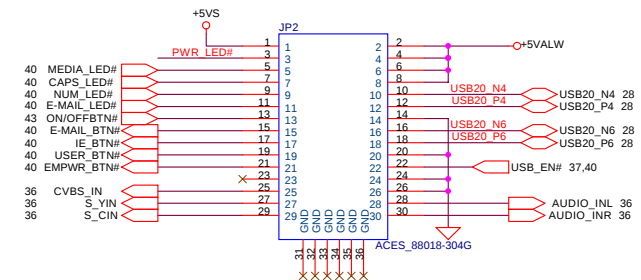
Geneva			Grapevine		
	KSO16	KSO17		KSO16	KSO17
KSI0	VOL_UP	LEFT			
KSI1	RIGHT	VOL_DOWN			
KSI2	PLAY	ENTER	KSI2	PLAY	
KSI3	STOP		KSI3	STOP	VOL_UP
KSI4	NEXT		KSI4	NEXT	VOL_DOWN
KSI5	REV		KSI5	REV	ARCADE_TV
KSI6		RECORD			



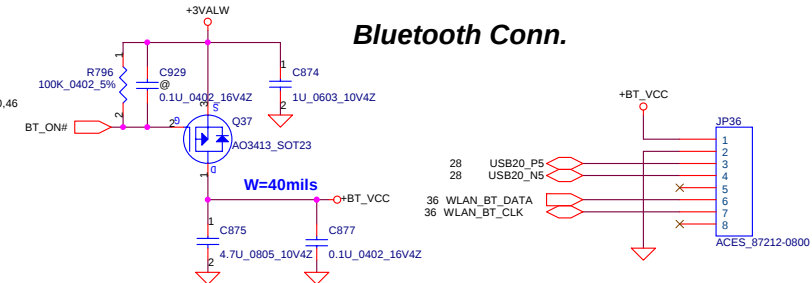
MDC Conn.



To LED/B Conn.

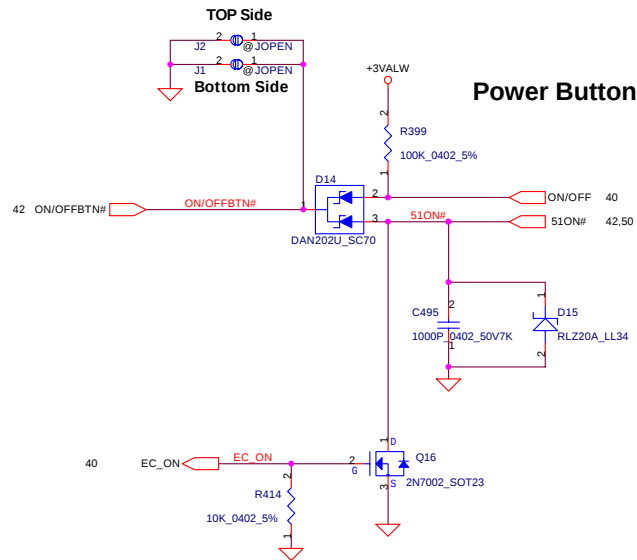


Bluetooth Conn.

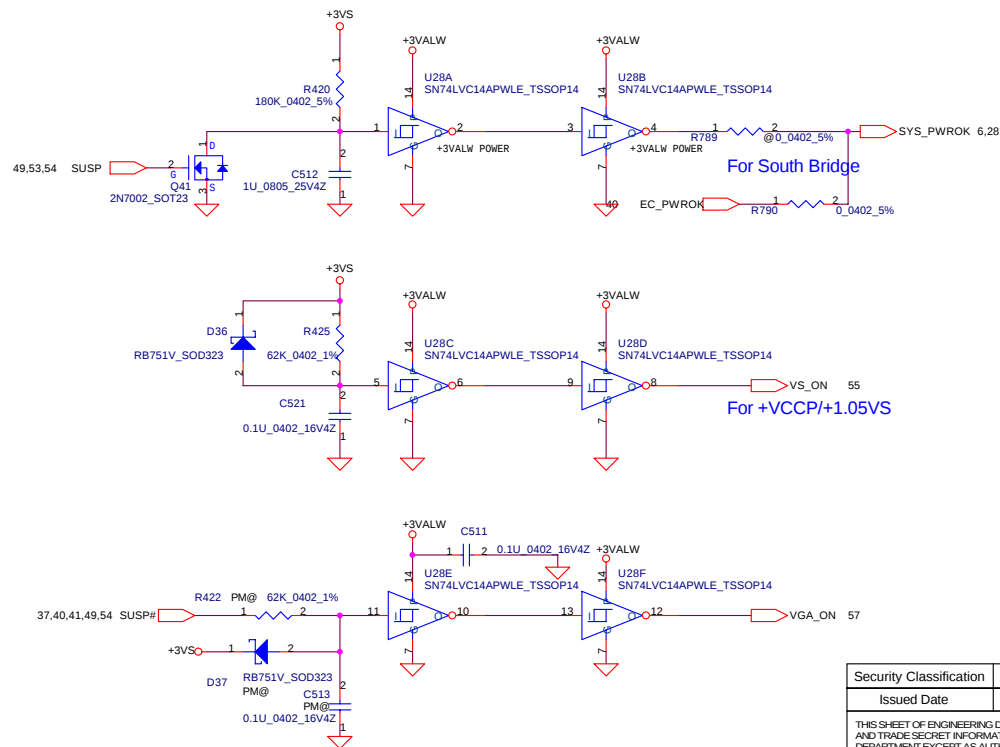


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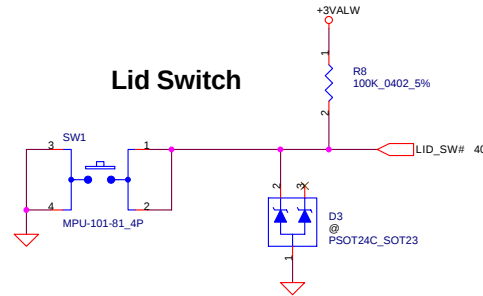
ON/OFF switch



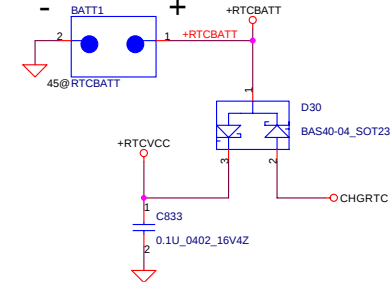
Power ON Circuit



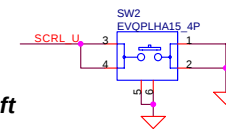
Lid Switch



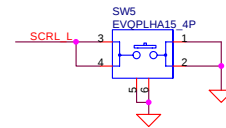
RTC Battery



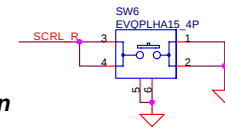
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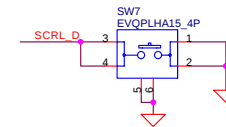
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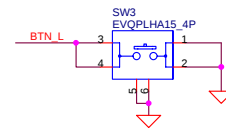
Scroll Right



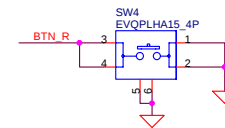
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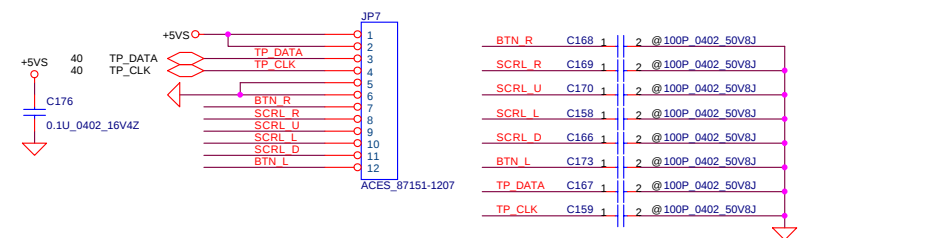
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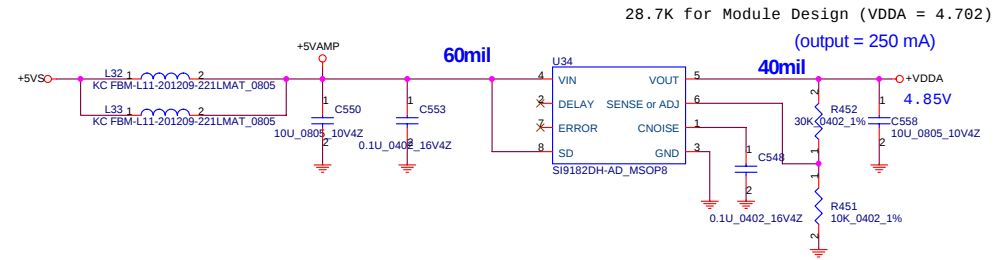
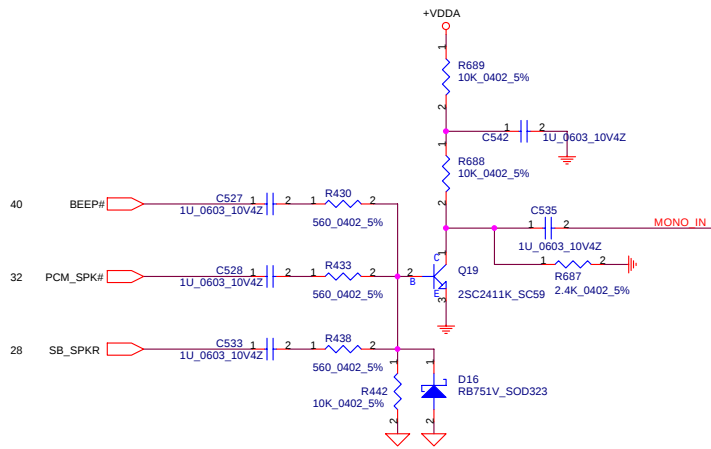
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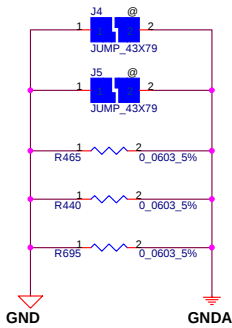
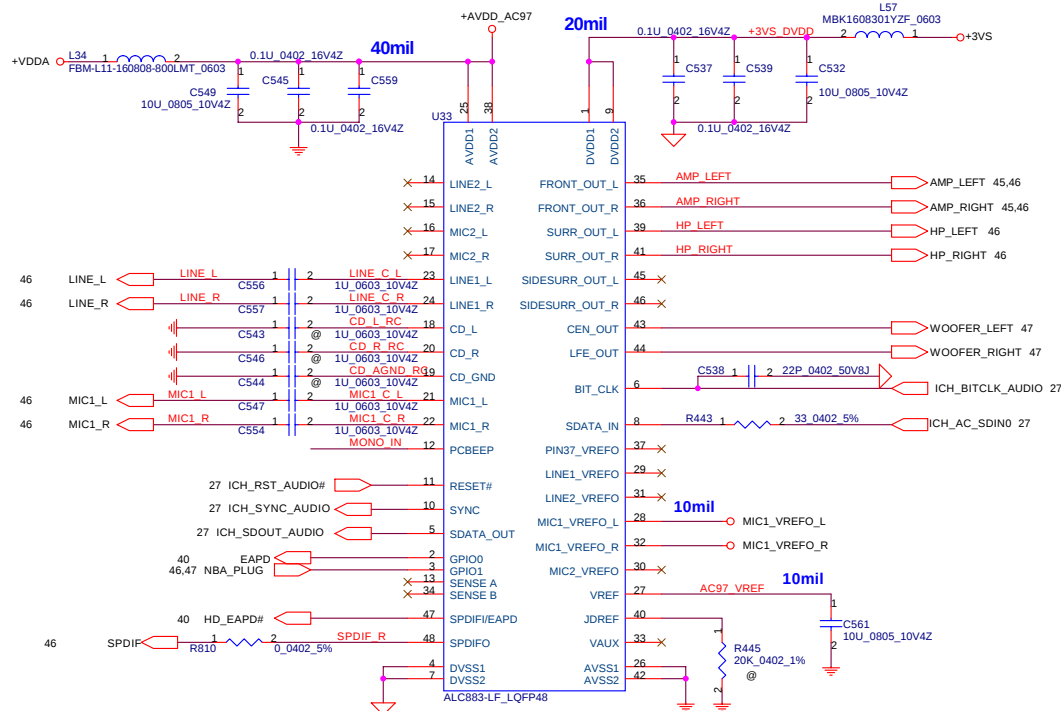
To TP/B Conn.



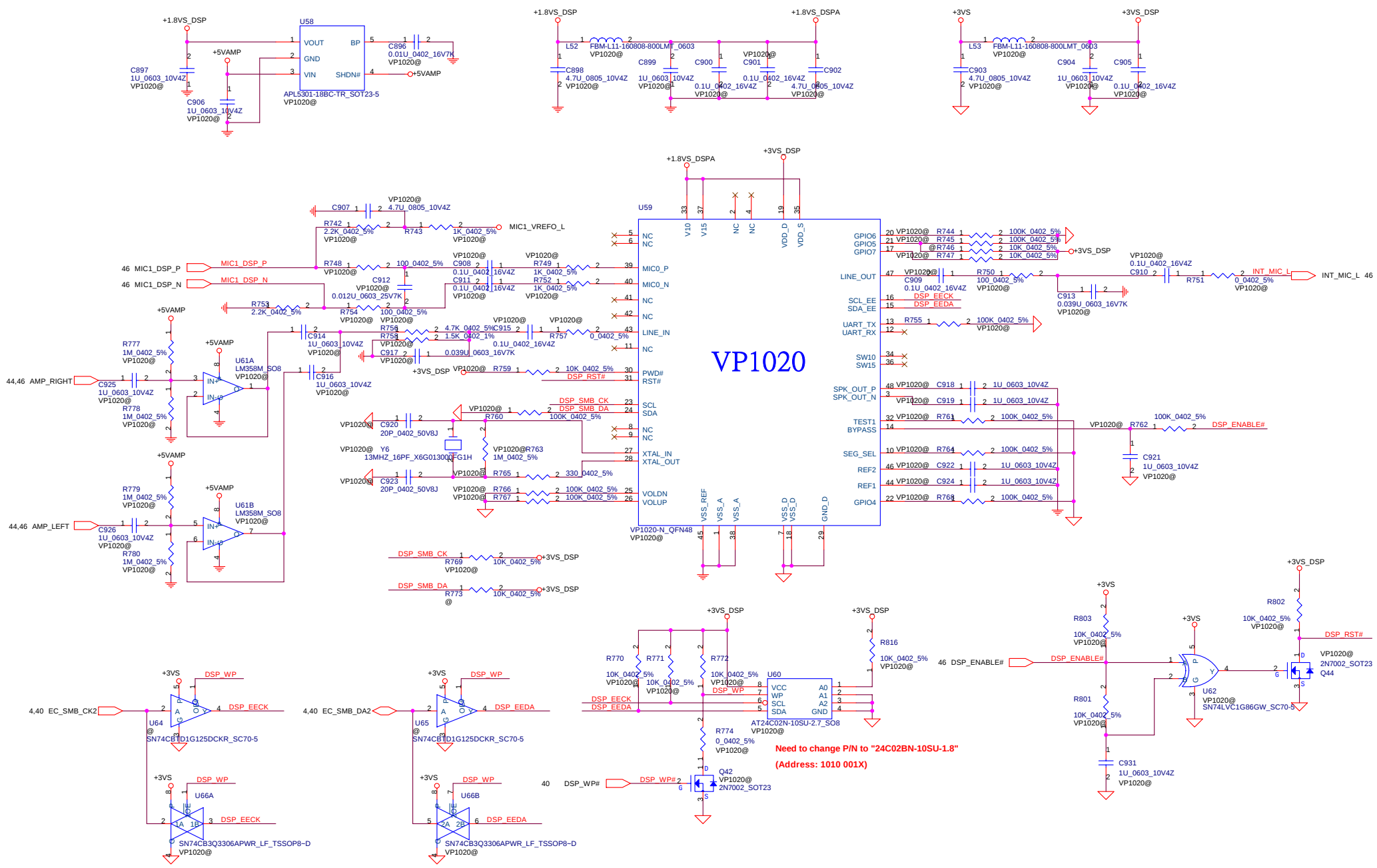
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				Power OK, Reset and RTC Circuit, TP				
				Size B	Document Number		Rev 1.0	
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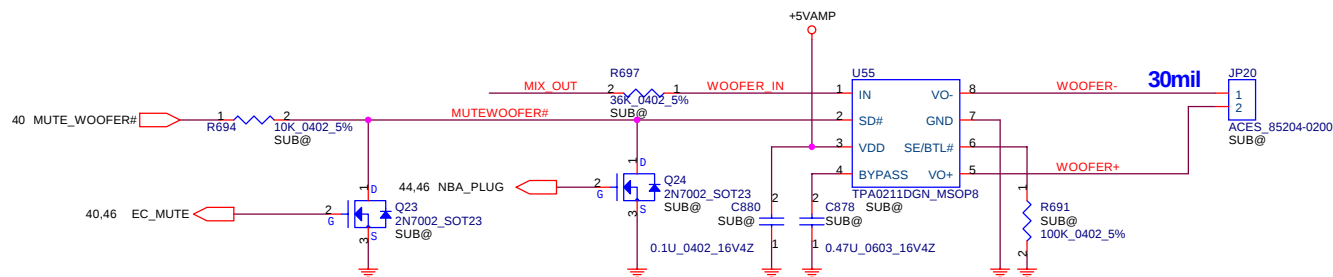
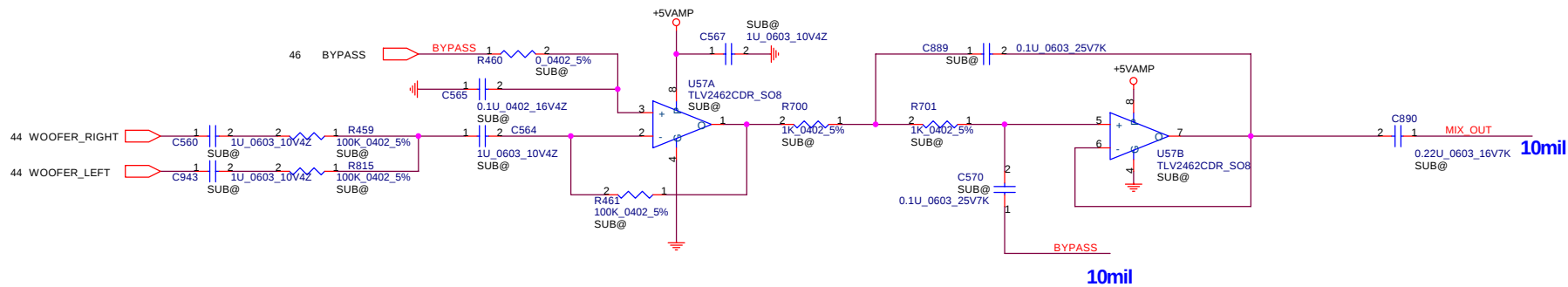
HD Audio Codec



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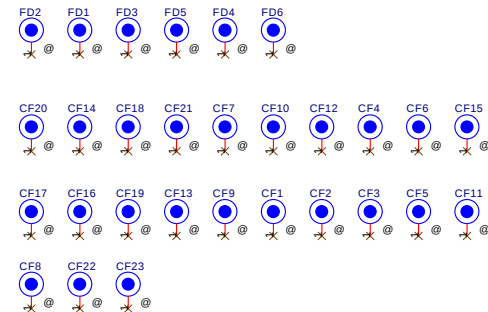
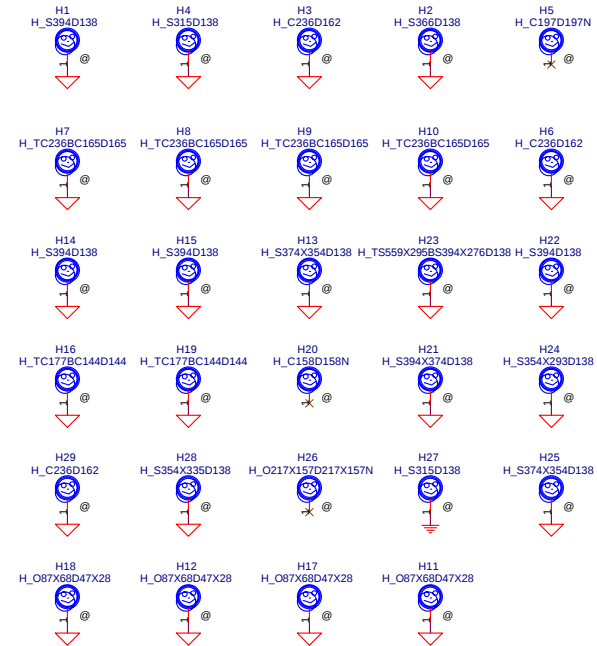
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				Size B	Document Number
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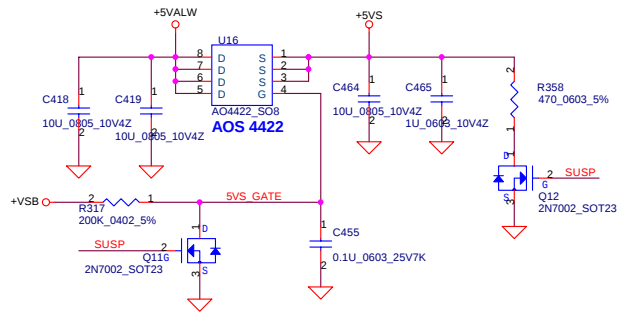
The diagram shows the connection of the motor driver module to the main board. The module includes a 5V regulator, a 3V regulator, and a motor driver IC (G993P1UF_SOP8). The main board provides +VCC_FAN1 and EN_DFAN1 signals. The module's output is connected to FAN_SPEED1 on the main board. The module also includes a 40mil trace and a 40mil pad.

The left diagram shows the connection of the EN_DFN2 signal to the U100 6993P1UF_SOP8 relay driver. The +5VS supply is connected to the VCC pin (pin 1) and the GND pin (pin 8). The EN_DFN2 signal is connected to the V_IN pin (pin 2) and the V_O pin (pin 4). The GND pin (pin 6) is connected to the common ground. The output of the relay driver is connected to the FAN_SPEED2 signal. The right diagram shows the connection of the FAN_SPEED2 signal to the U101 1000P_0402_50V7K relay driver. The +3VS supply is connected to the VCC pin (pin 1) and the GND pin (pin 8). The FAN_SPEED2 signal is connected to the V_IN pin (pin 2) and the V_O pin (pin 4). The GND pin (pin 6) is connected to the common ground. The output of the relay driver is connected to the FAN_SPEED2 signal. Both diagrams include power supply connections (+5VS, +3VS, +VCC_FAN2) and various passive components like capacitors and resistors.

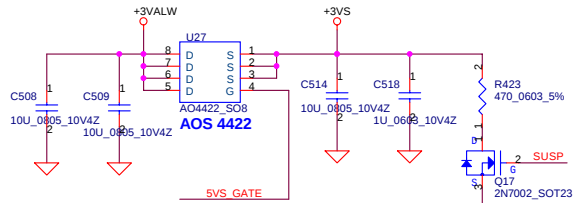


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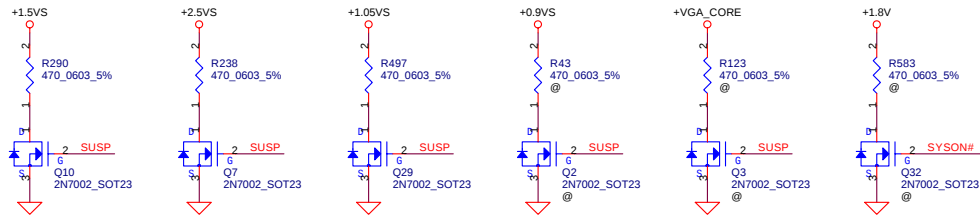
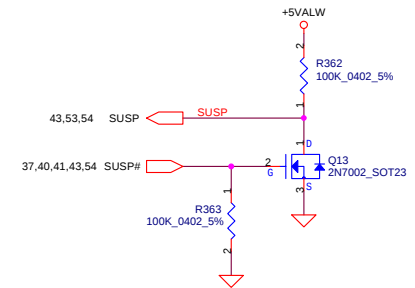
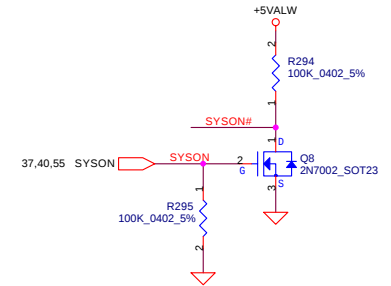
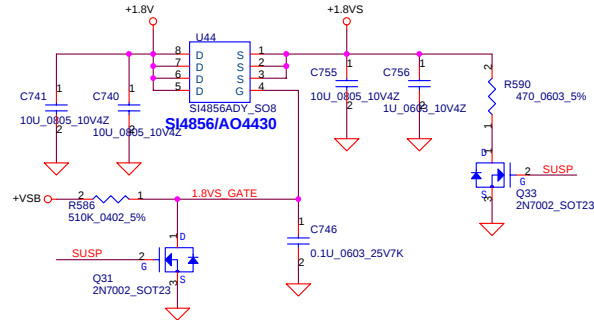
+5VALW TO +5VS



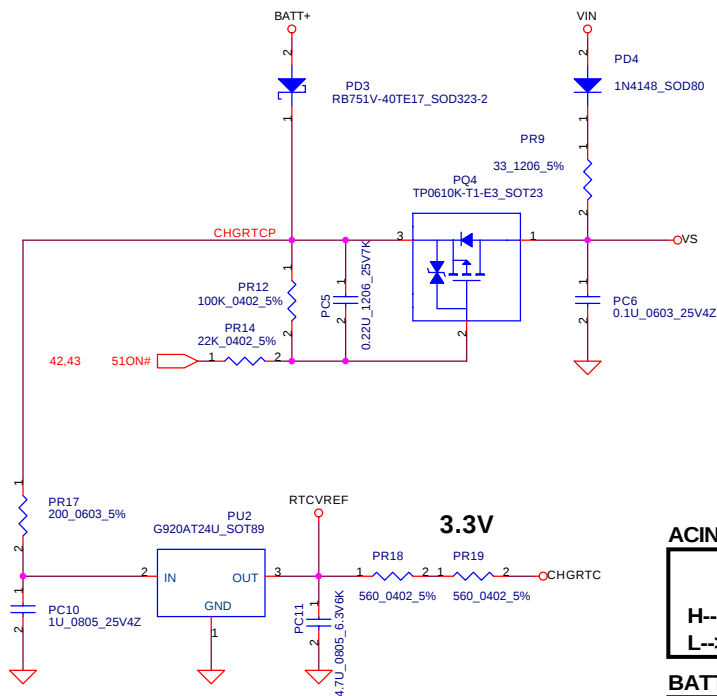
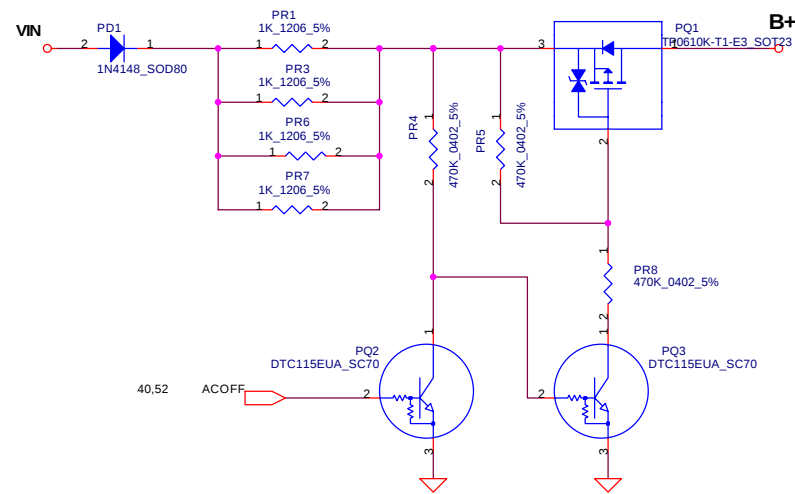
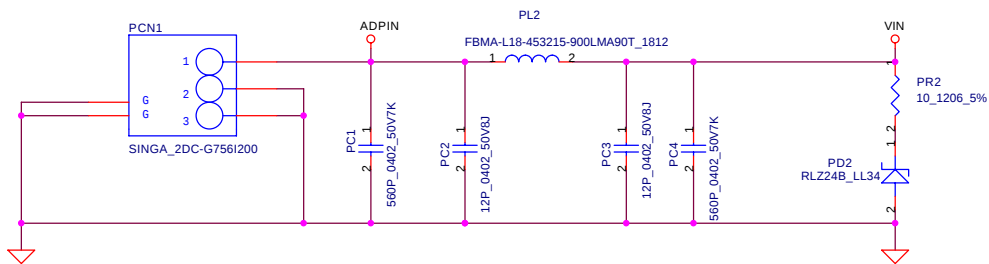
+3VALW TO +3VS



+1.8V to +1.8VS



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ACIN

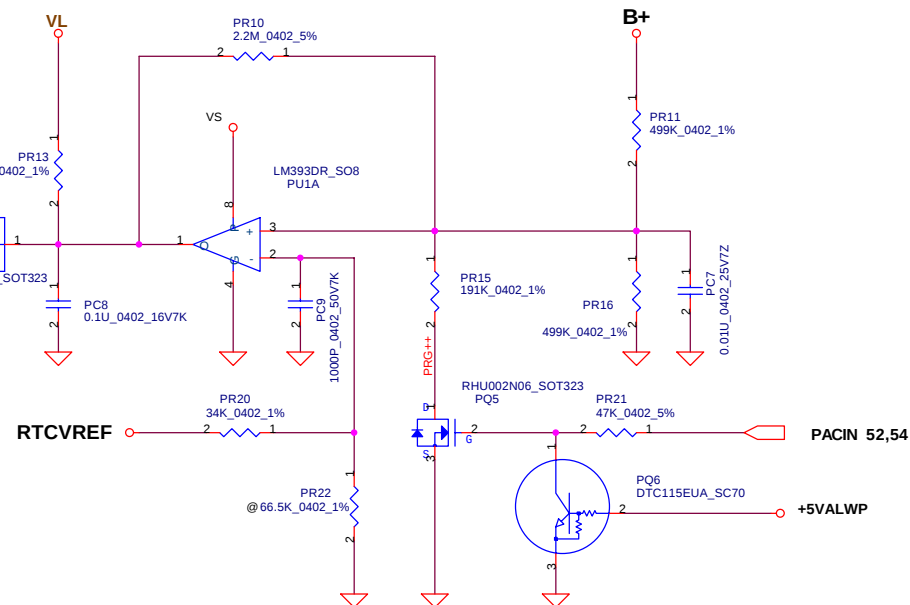
Precharge detector

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

BATT ONLY

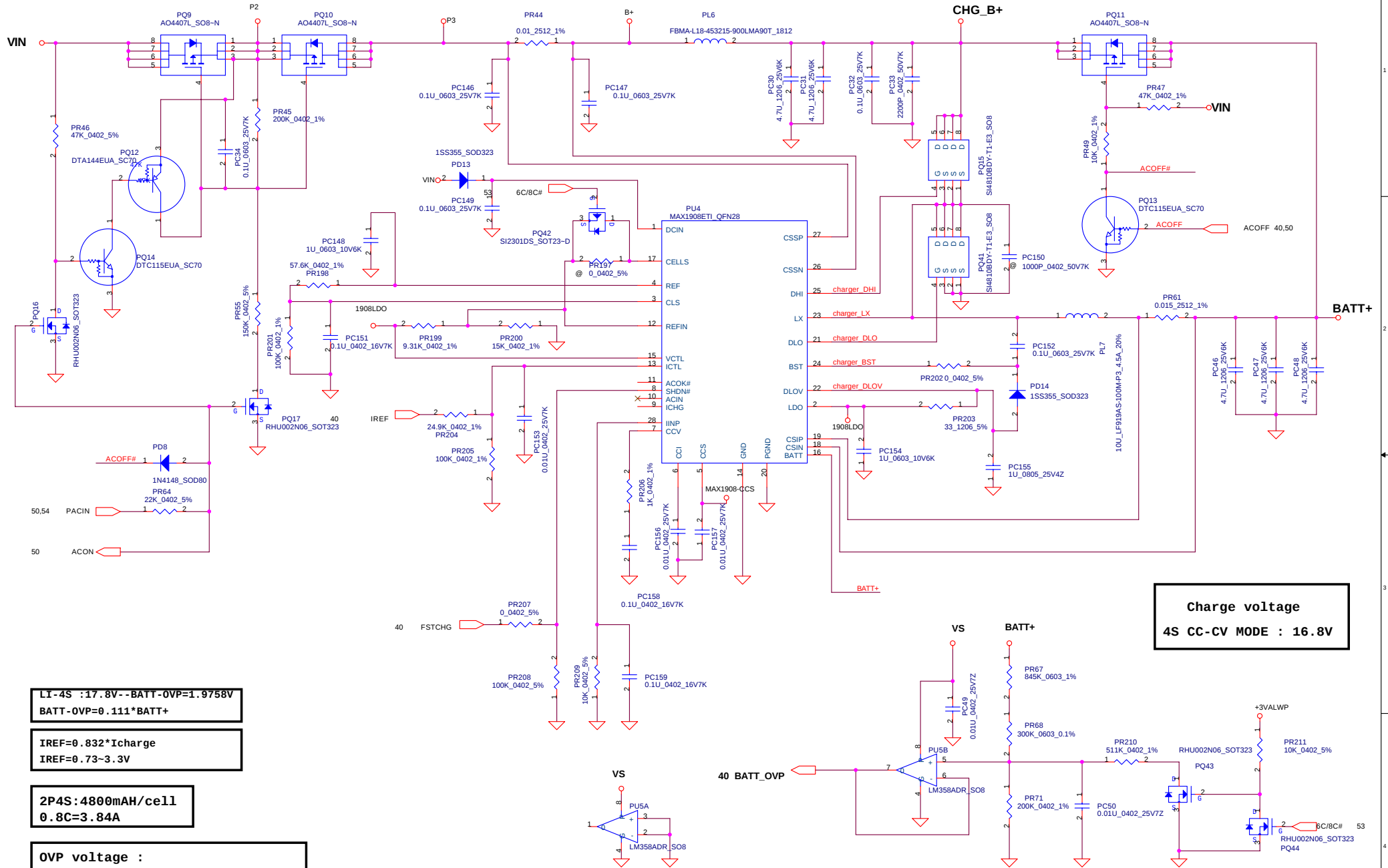
Precharge detector

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

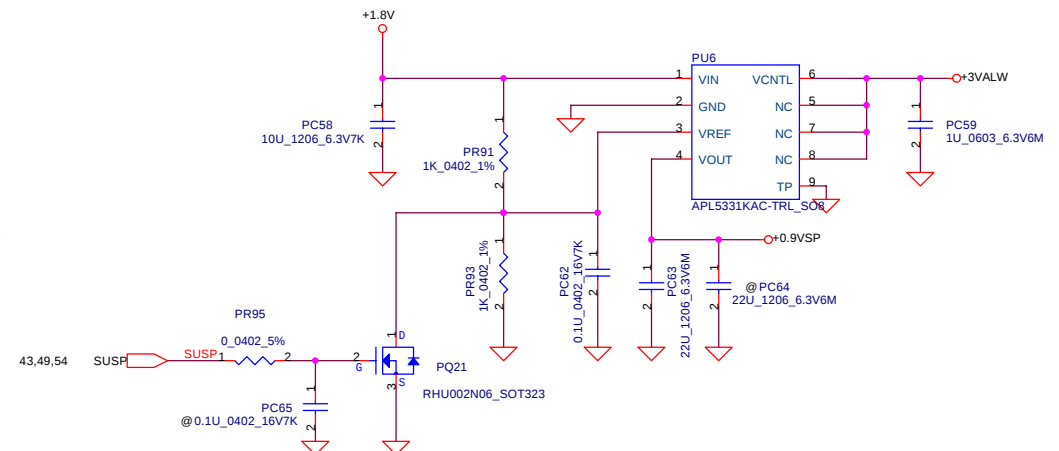
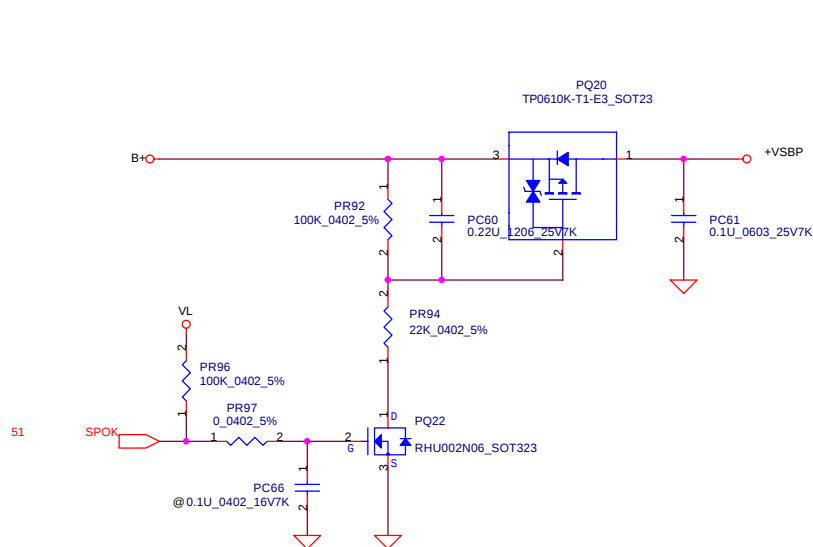
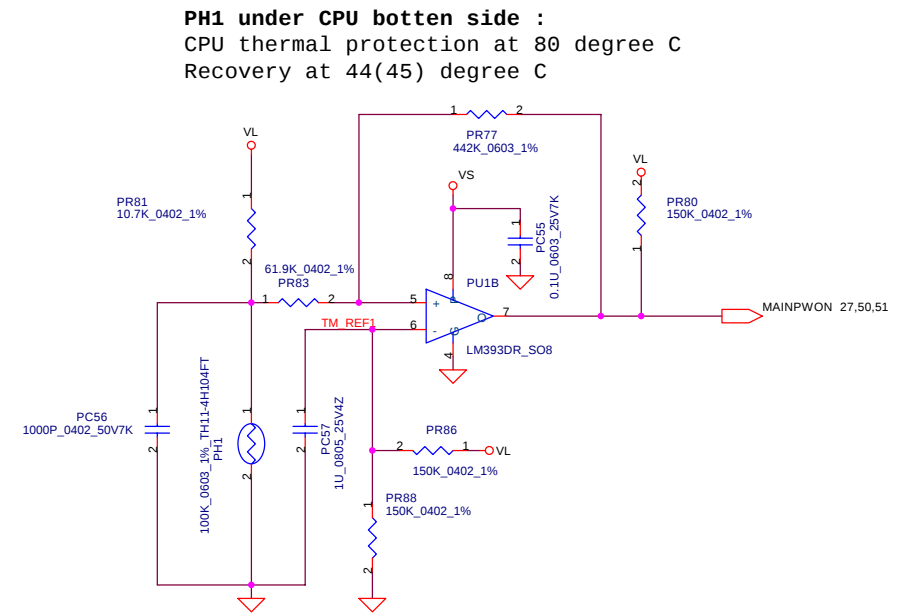
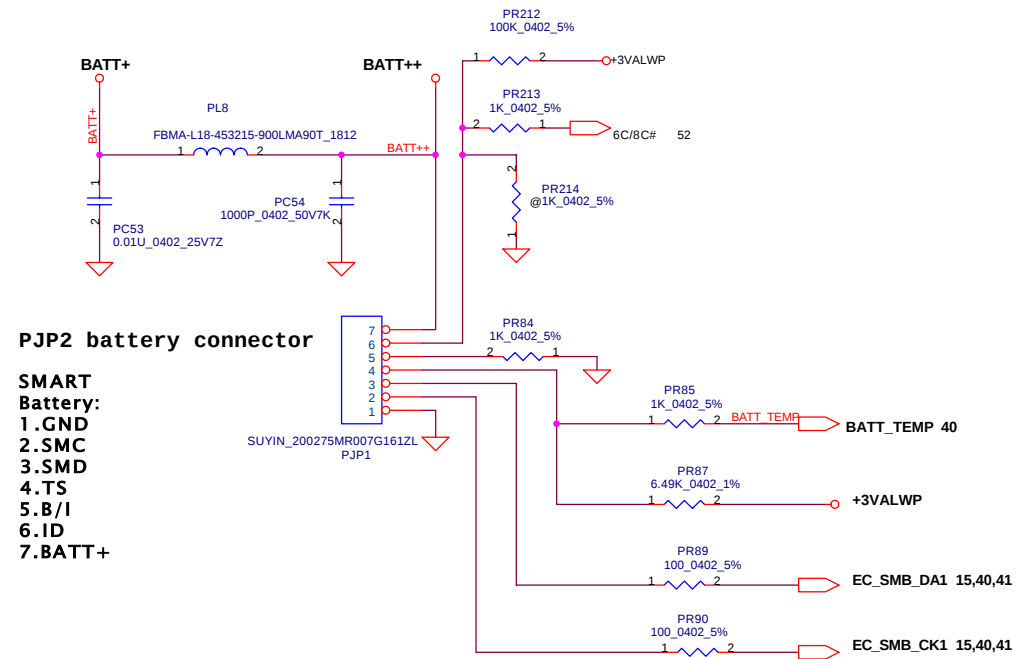


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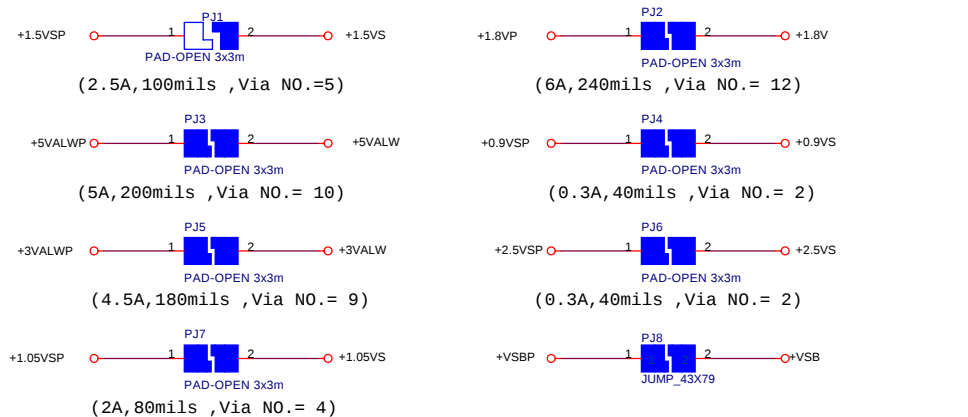


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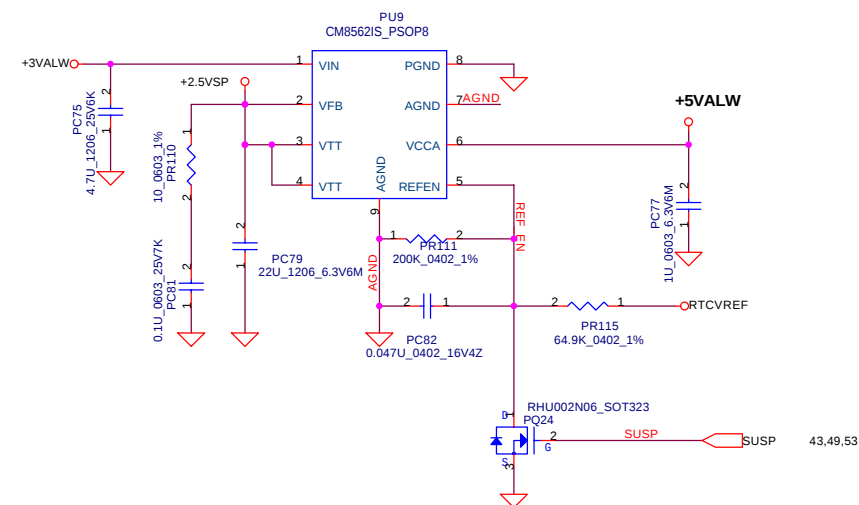
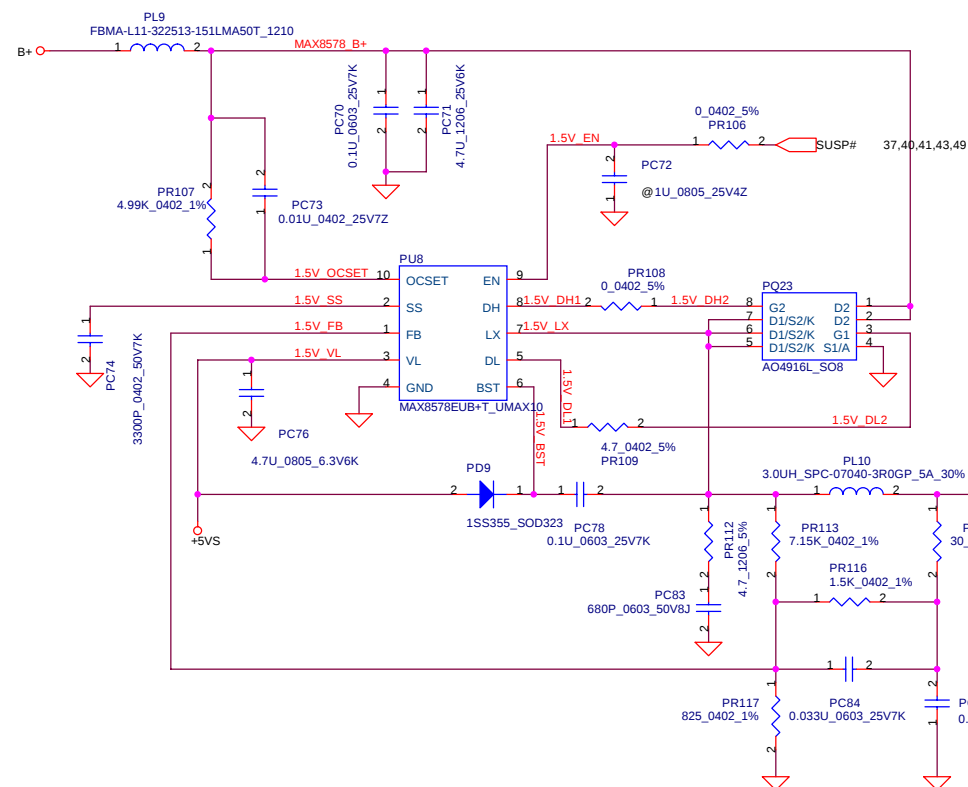
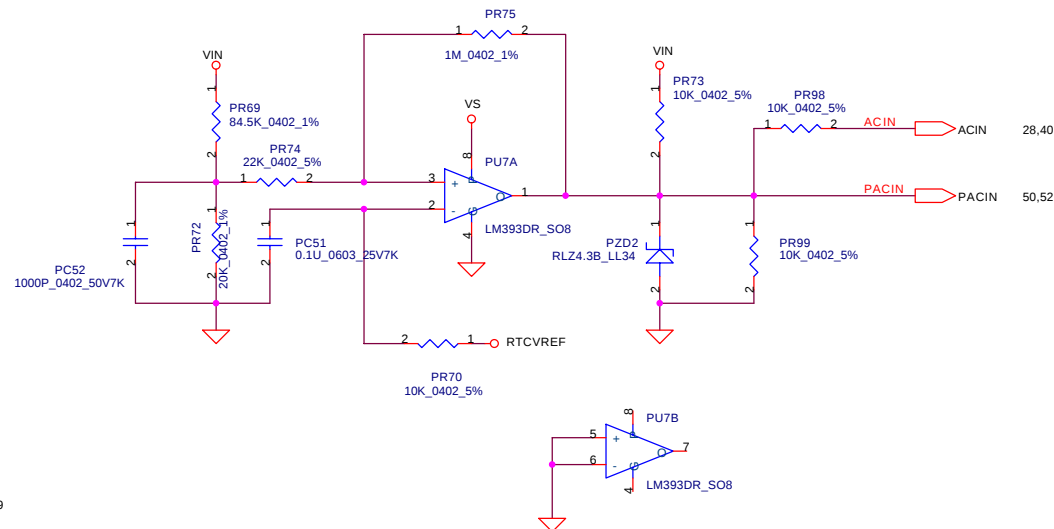


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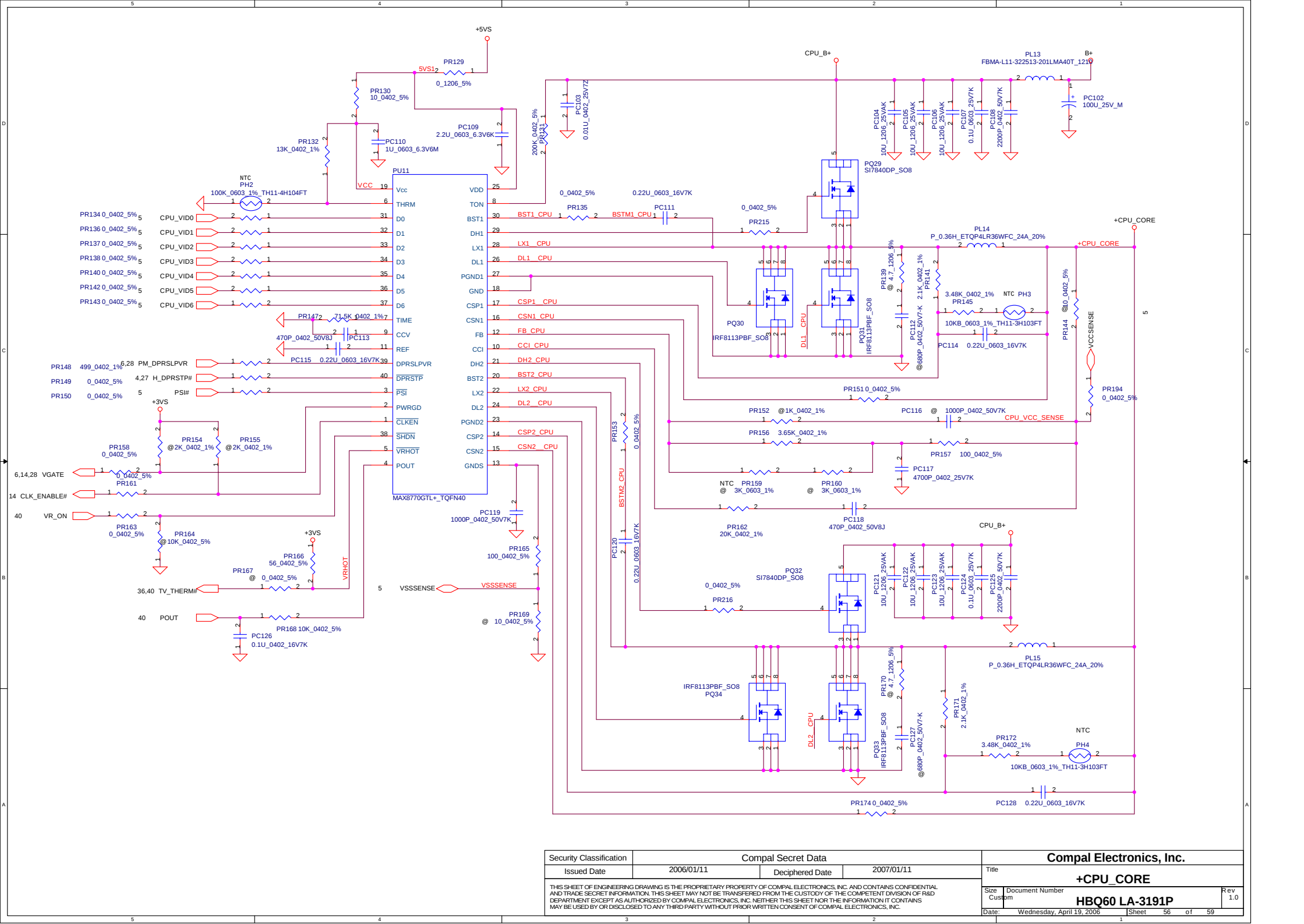
AC Adapter Detector



Vin Detector 17.90V/17.24V

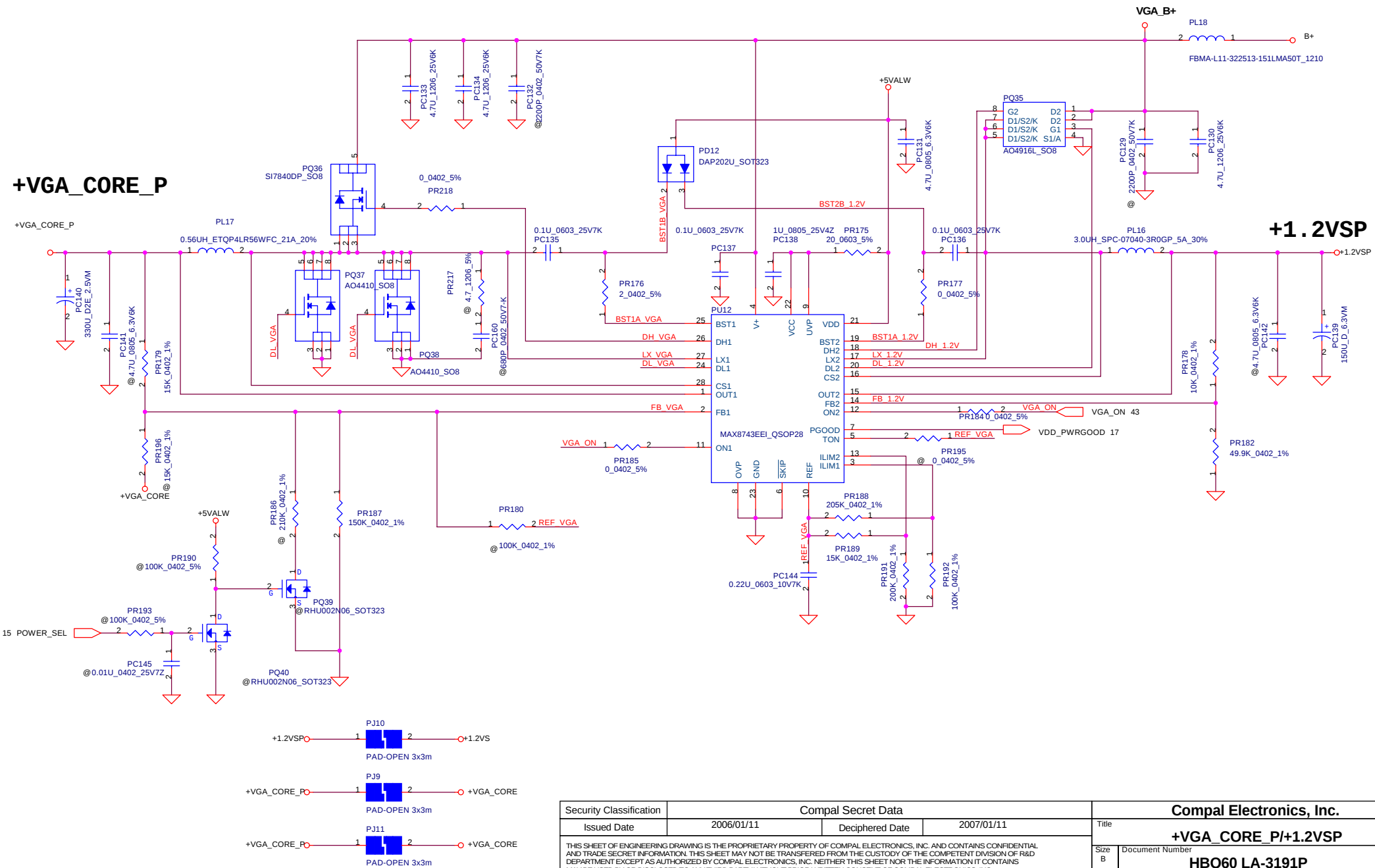


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Custom				1.0
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POWER_SEL	H	L
+VGA_CORE FOR G73.	+0.95V(VGA@+G72@)	+1.025V
+VGA_CORE FOR G72.	+1.1V(VGA@)	



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