

Compal Confidential

HBQ60 Schematics Document

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

2005-11-30

REV: 0.1

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Model Name : HBQ60

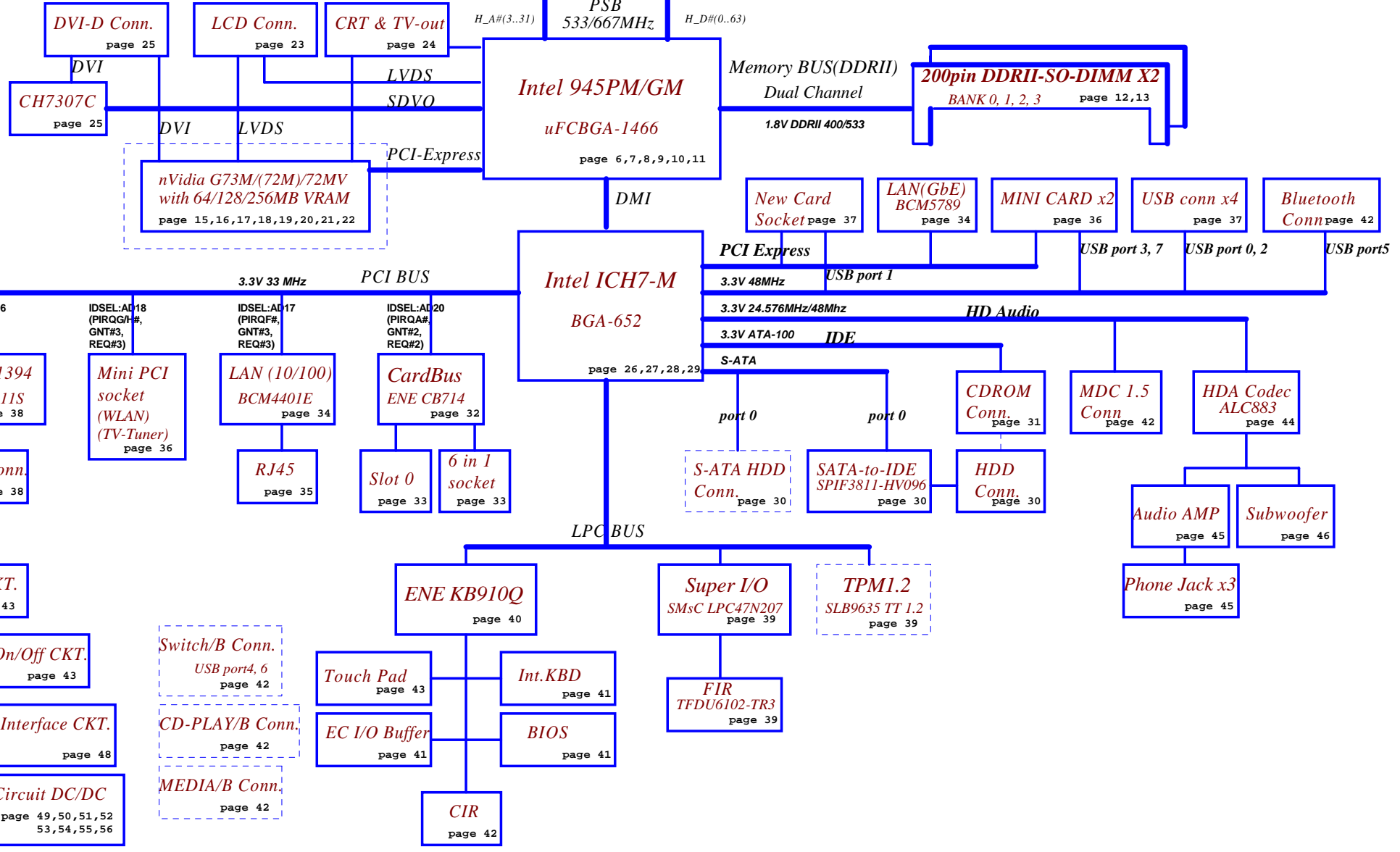
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Fan Control
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uPGA-478 Package
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Thermal Sensor
F75383M
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Clock Generator
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Power On/Off CKT.
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Block Diagrams		
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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

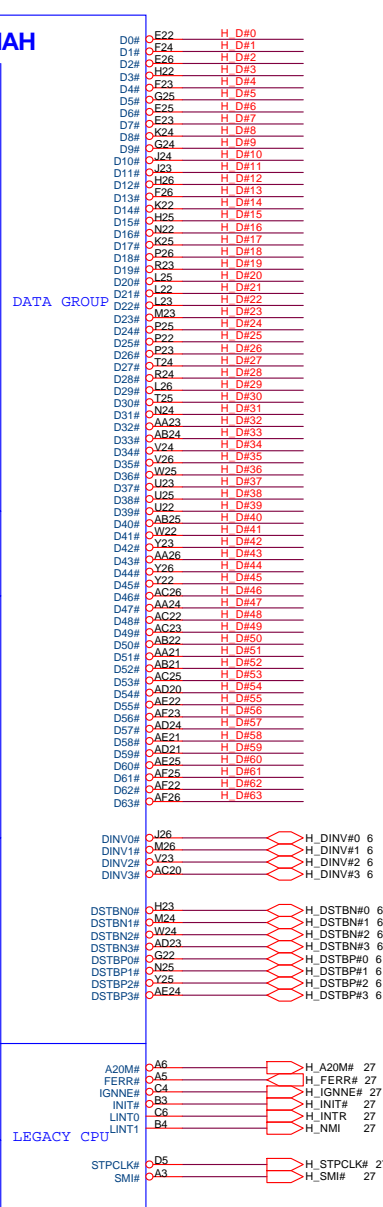
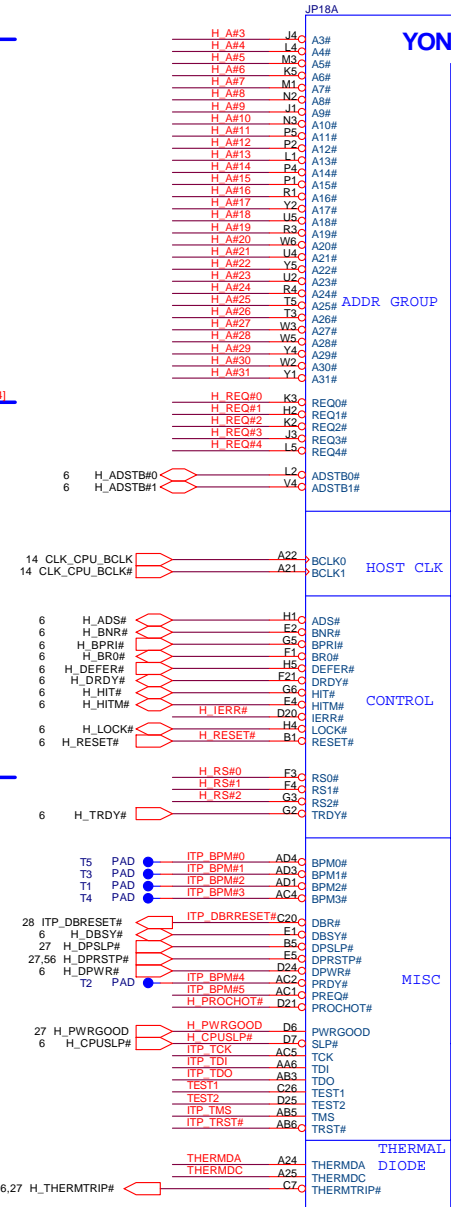
BTO Item	BOM Structure
VGA	PM@ + VGA@
UMA	GM@
UMA's DVI	7307@
LAN(10/100)	4401@
LAN(GIGA)	5789@
MINI CARD1	MINI1@
MINI CARD2	MINI2@
SATA-to-IDE	8040@
PATA	PATA@
GRAPEVINE	GRA@
G72MV Only	G72@
G73 Only	G73@
VRAM	X76@
VRAM 64M	64@
VRAM 128M	64@+128@
VRAM 256M	64@+128@+256@
MEDIA/B	MEDIA@
CIR	CIR@
FIR	FIR@
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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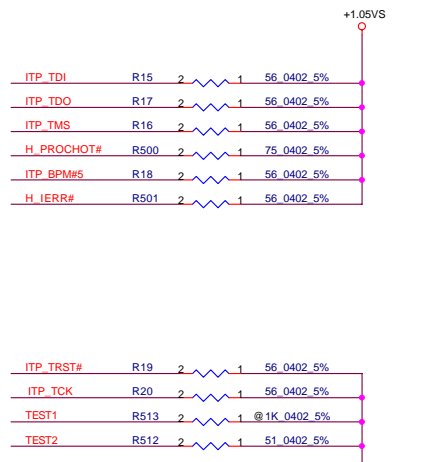
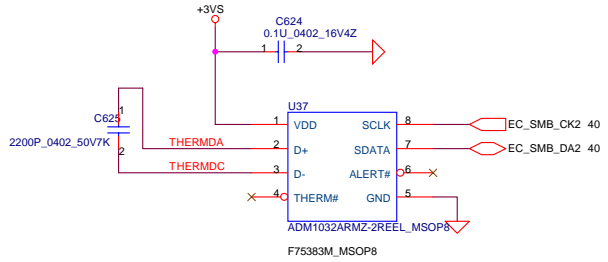
6 H_A#[3..31] \leftrightarrow H_A#[3..31]

6 H_REQ#[0..4] \leftrightarrow H_REQ#[0..4]

6 H_RS#[0..2] \leftrightarrow H_RS#[0..2]



H_D#[0..63] \leftrightarrow H_D#[0..63]

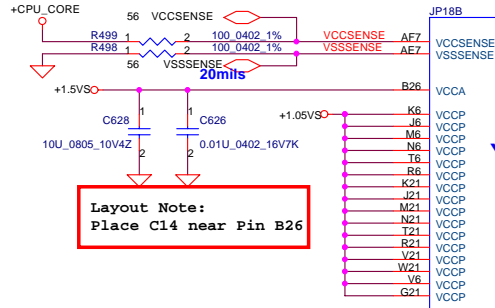


Layout Note:
THERMDA & THERMDC Trace / Space = 10 / 10 mil

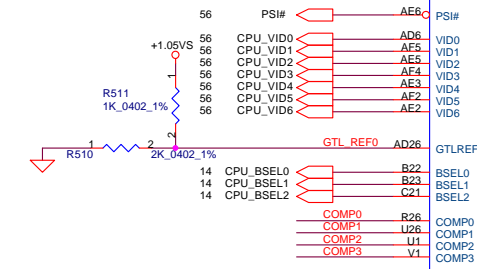
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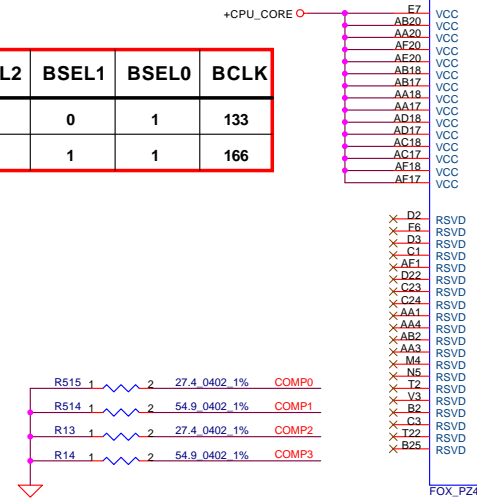
Layout Note:
Route VCCSENSE and VSSSENSE traces at 27.4ohms with 50 mil spacing.
Place PU and PD within 1 inch of CPU.



Layout Note:
Place C14 near Pin B26



BSEL2	BSEL1	BSEL0	BCLK
0	0	1	133
0	1	1	166



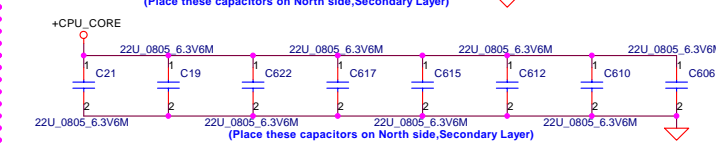
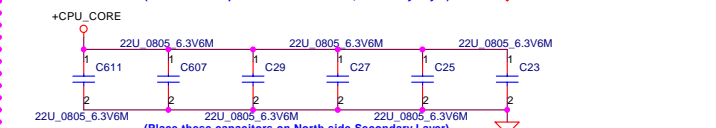
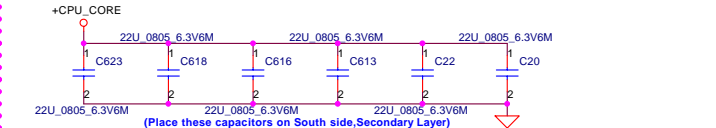
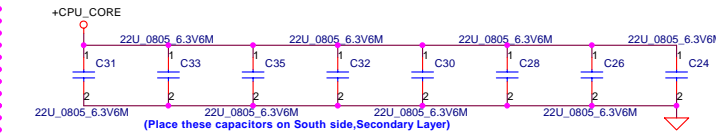
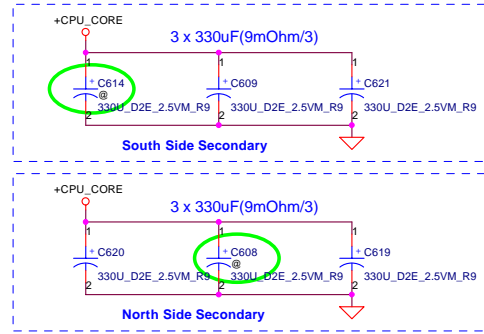
TRACE CLOSELY CPU < 0.5'

COMP0, COMP2 layout : Width 18mils and Space 25mils (27.4ohms)
COMP1, COMP3 layout : Space 25mils (55ohms)

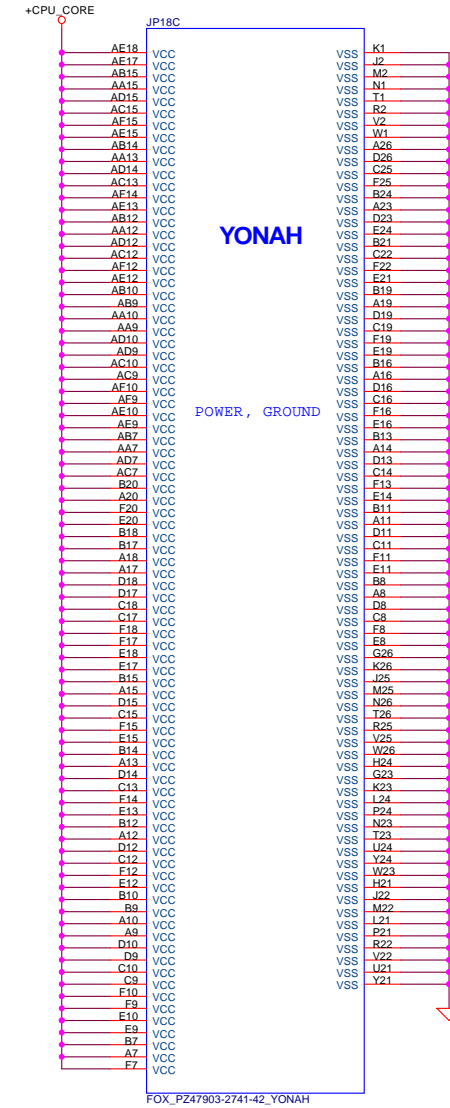
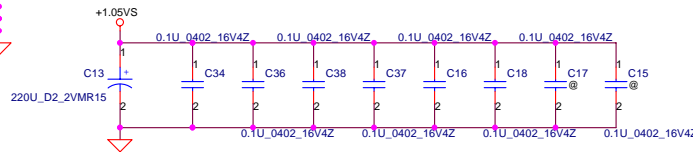
YONAH

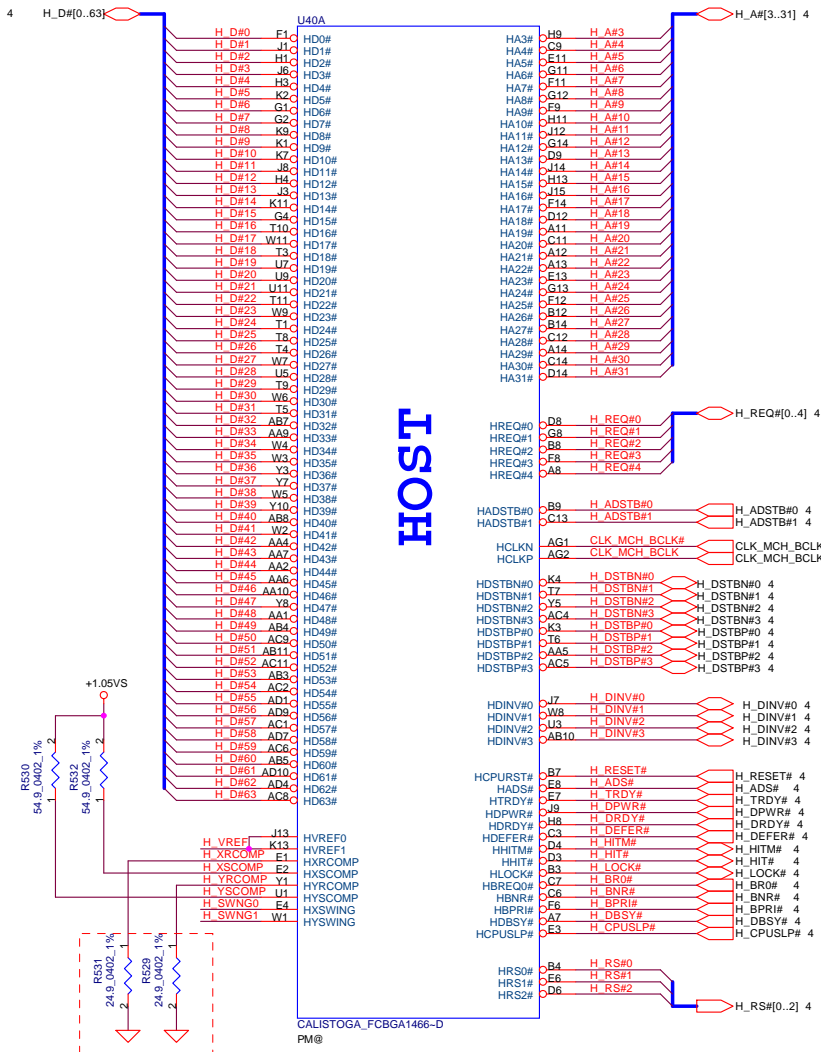
POWER, GROUND, RESERVED SIGNALS AND NC

FOX_PZ47903-2741-42_YONAH

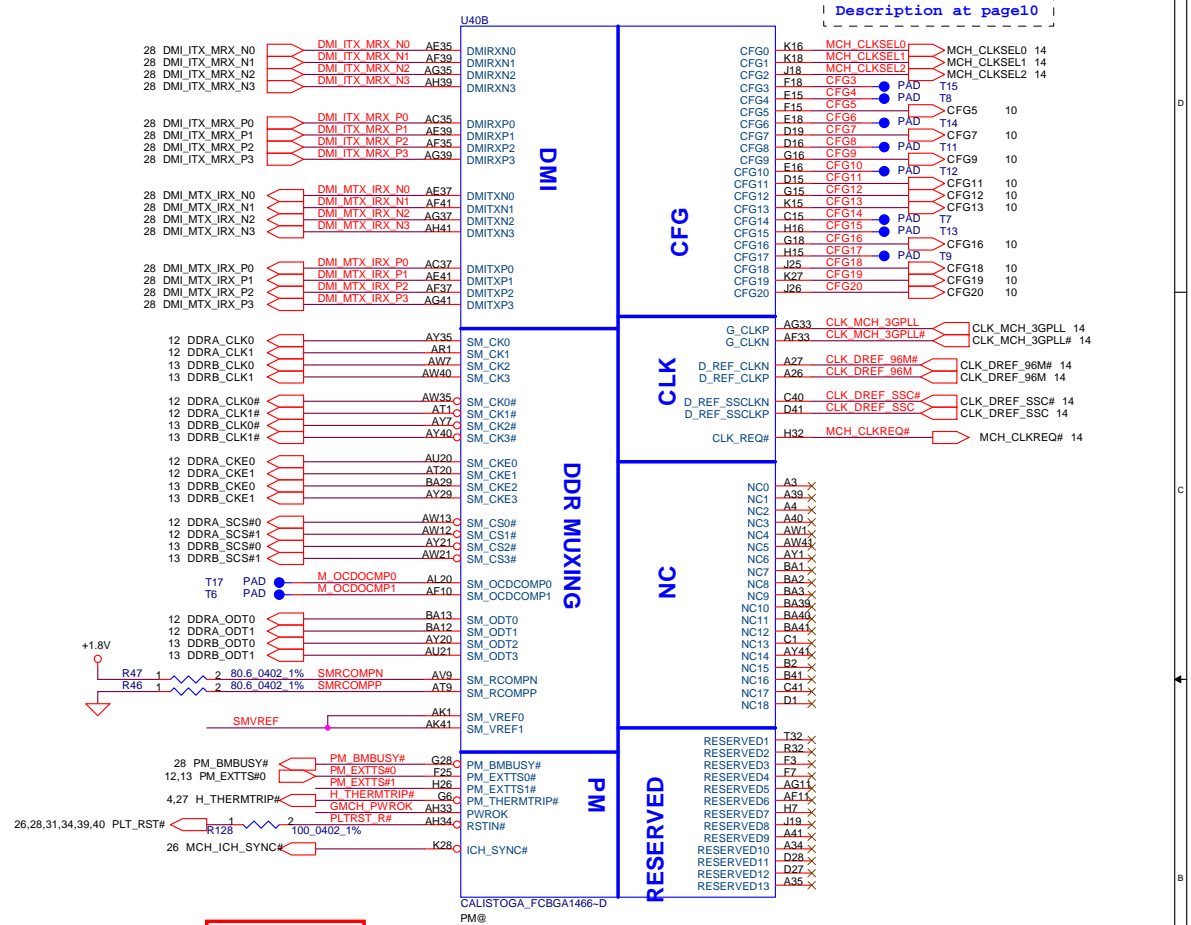
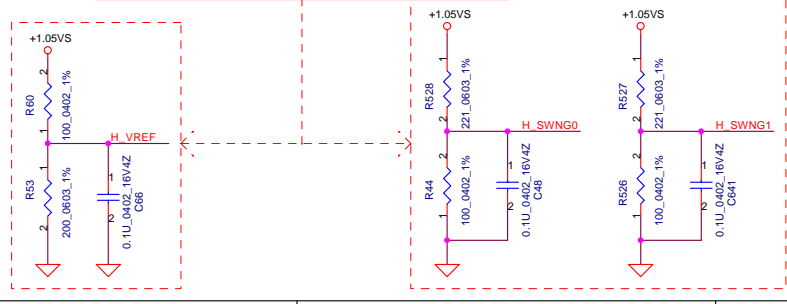


+CPU-CORE Decoupling	C,uF	ESR, mohm	ESL,nH
SPCAP, Polymer	6X330uF	9m ohm/6	1.8nH/6
MLCC 0805 X5R	32X22uF	3m ohm/32	0.6nH/32

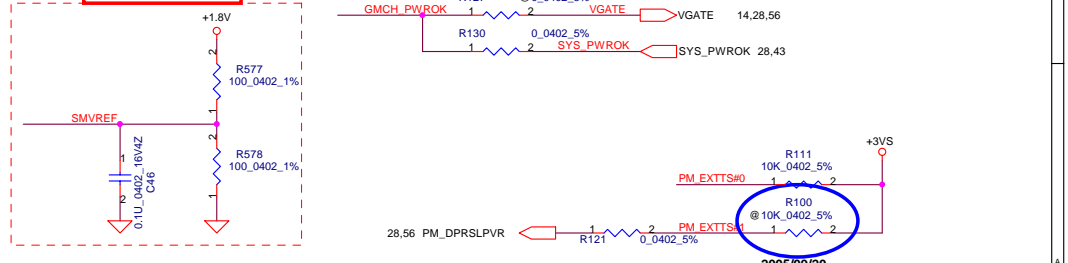




Layout Note:
 H_XRCOMP / H_YRCOMP / H_VREF / H_SWNG0 /
 H_SWNG1 trace width and spacing is 10/20.



Layout Note:
 SMVREF trace
 width and spacing
 is 20/20.

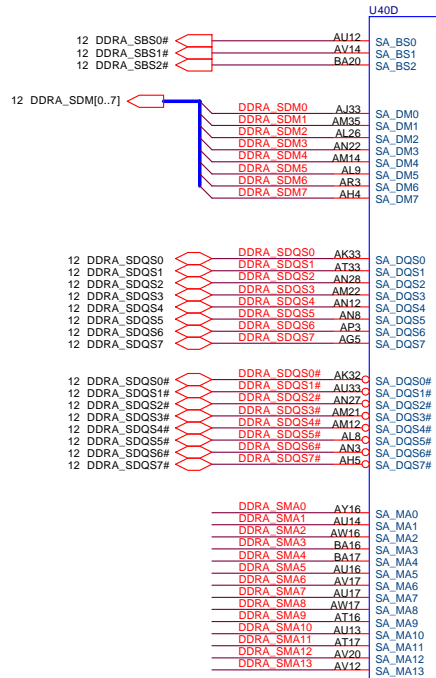
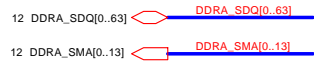


Description at page 10

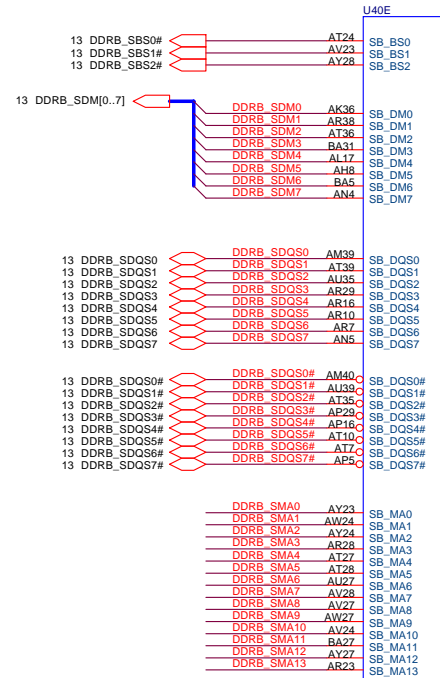
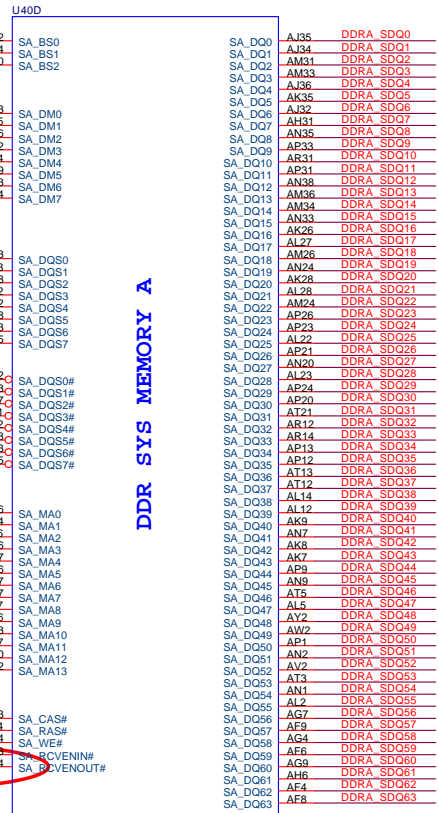
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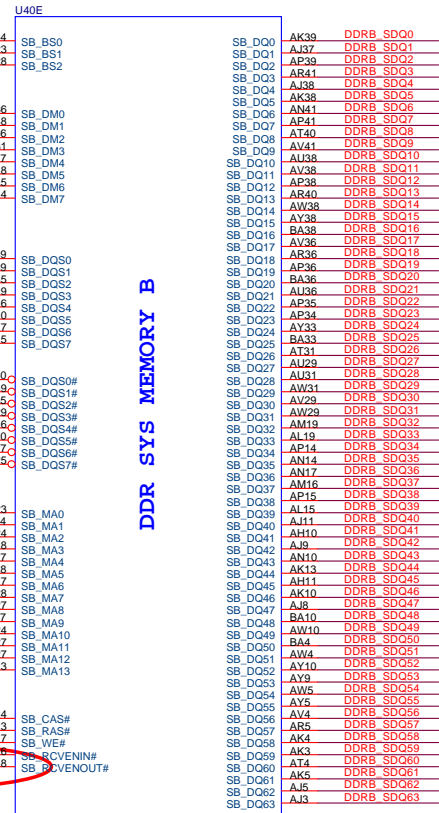
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DDR SYS MEMORY A



DDR SYS MEMORY B



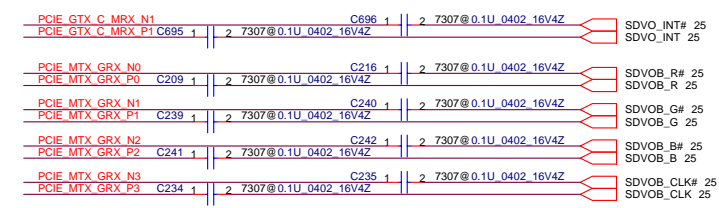
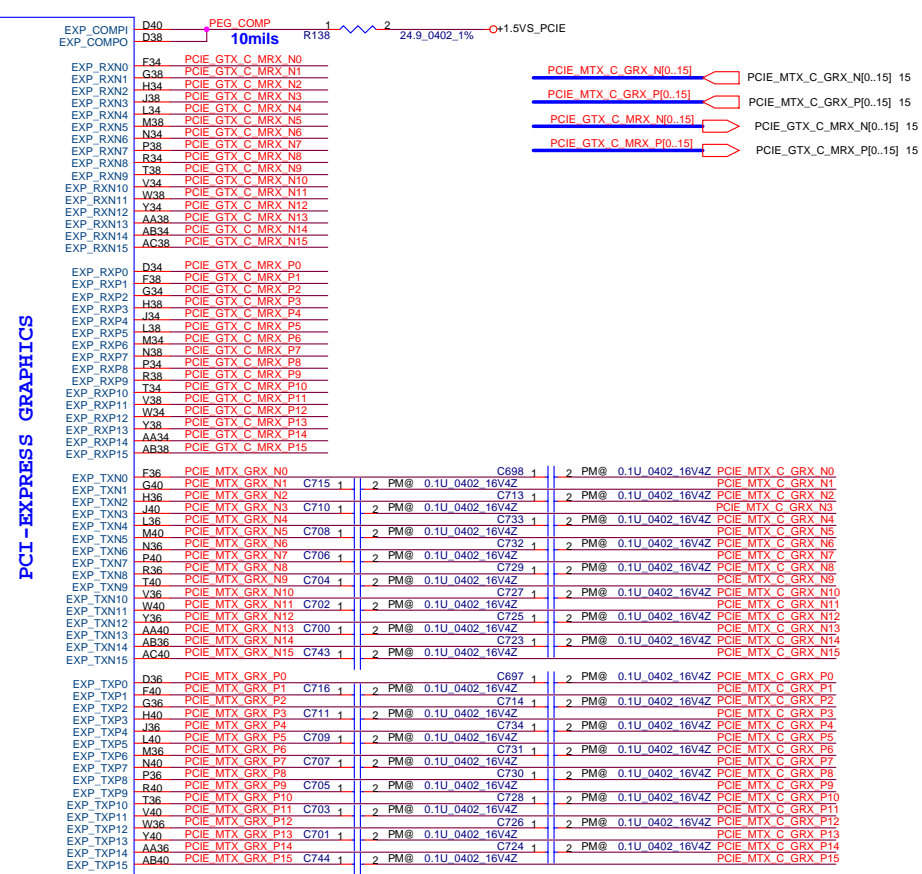
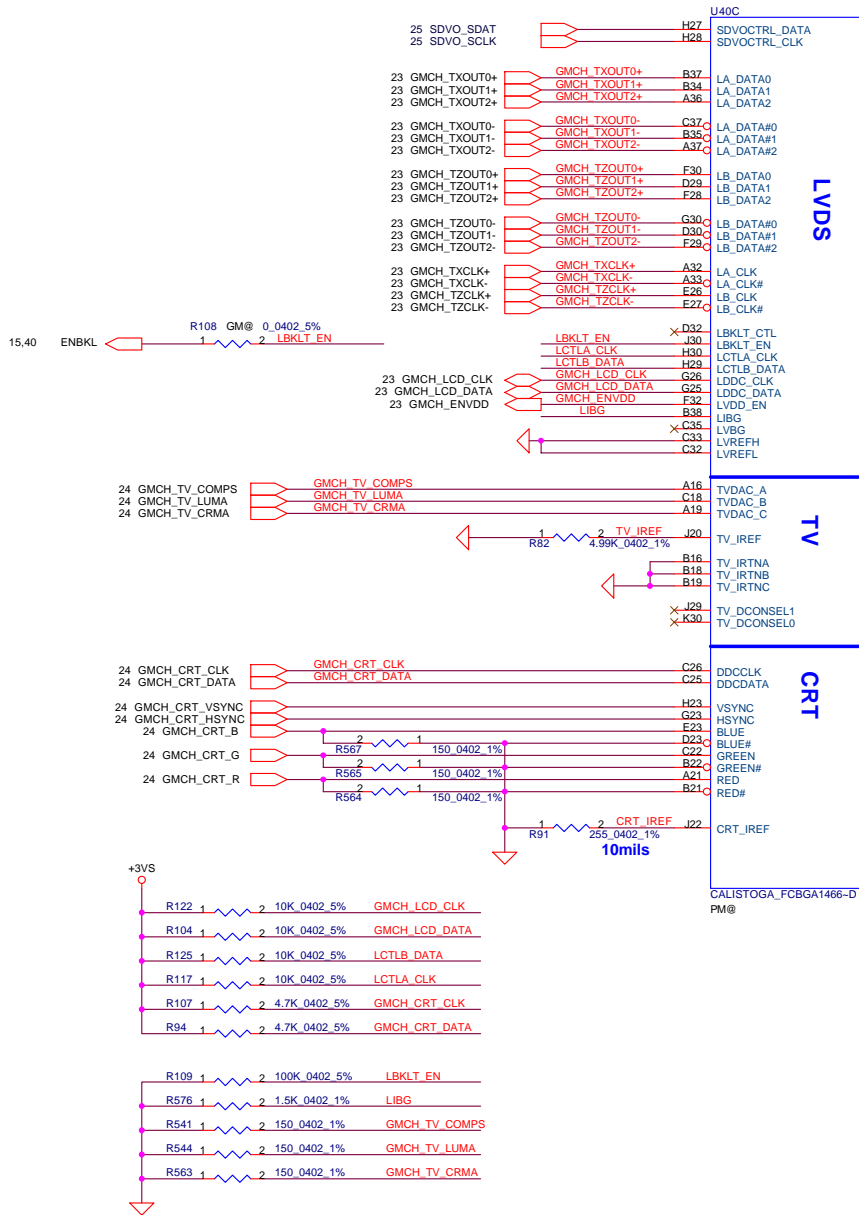
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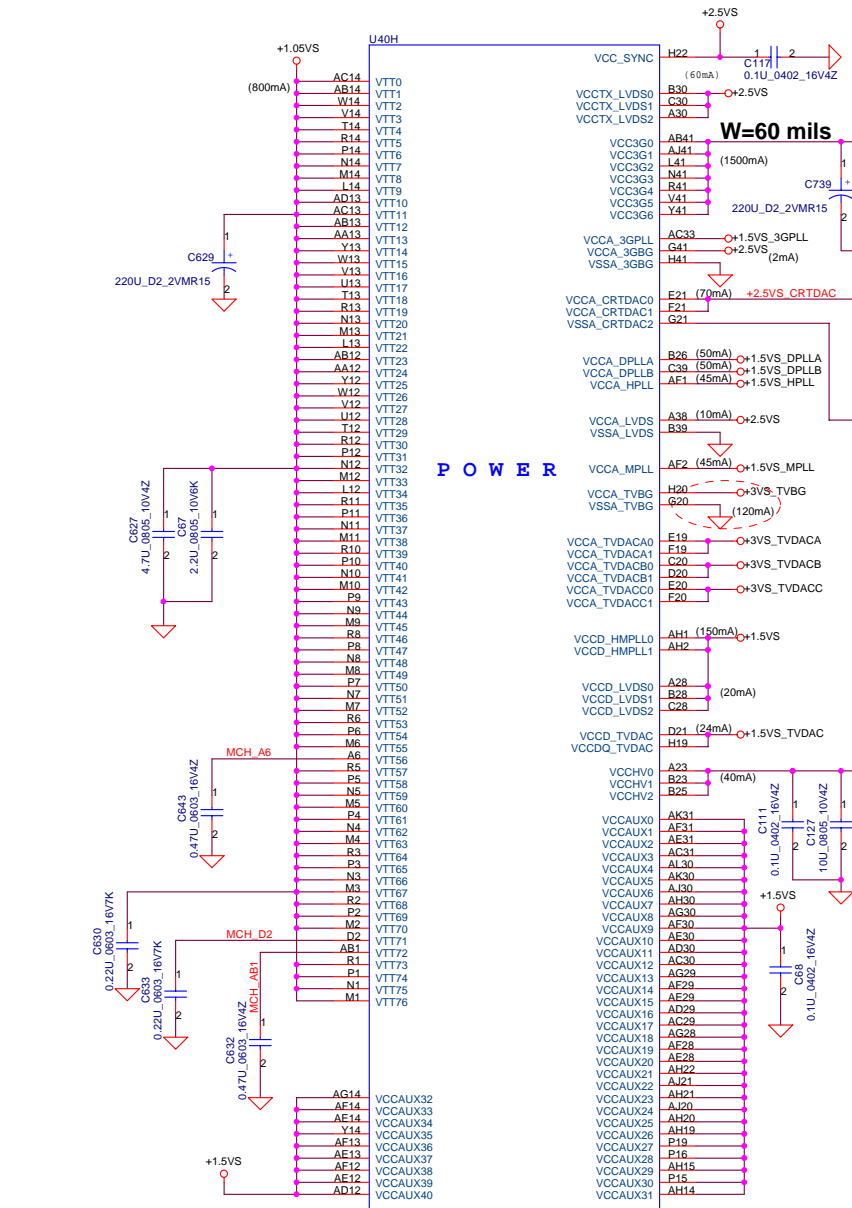
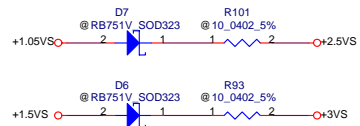
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PM@

CALISTOGA_FCBGA1466-D
PM@

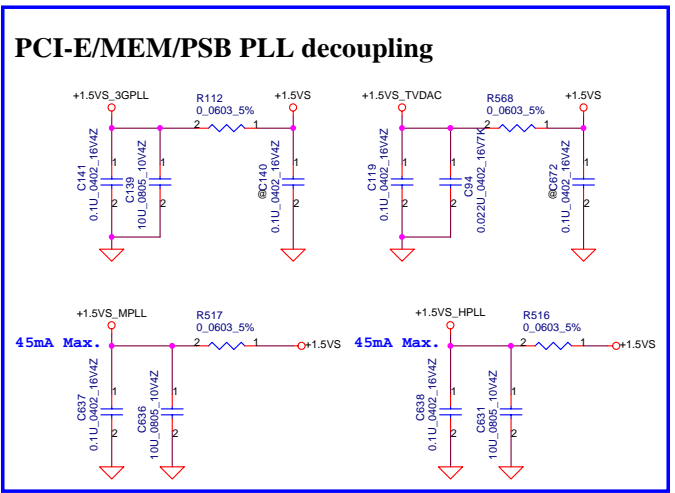
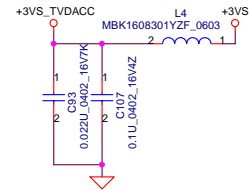
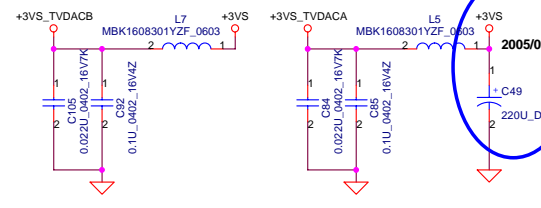
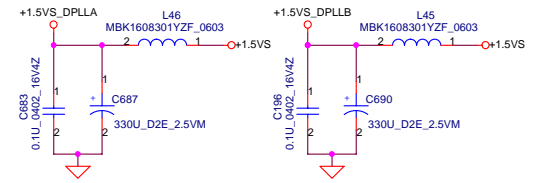
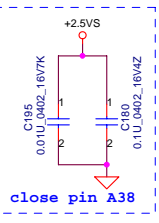
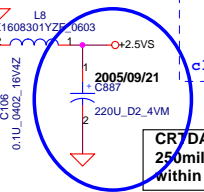
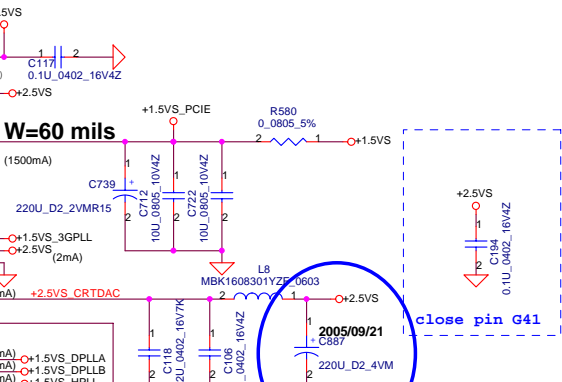
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POWER



CR/DAC: Route caps within 25mil of Alviso. Route FB within 3" of Calistoga

2005/09/19

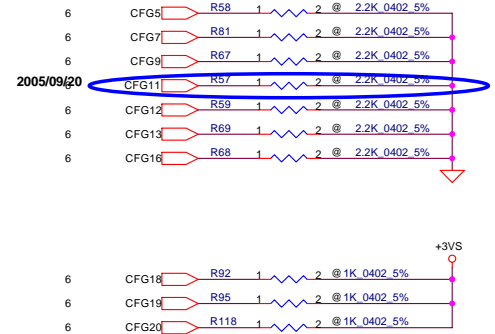
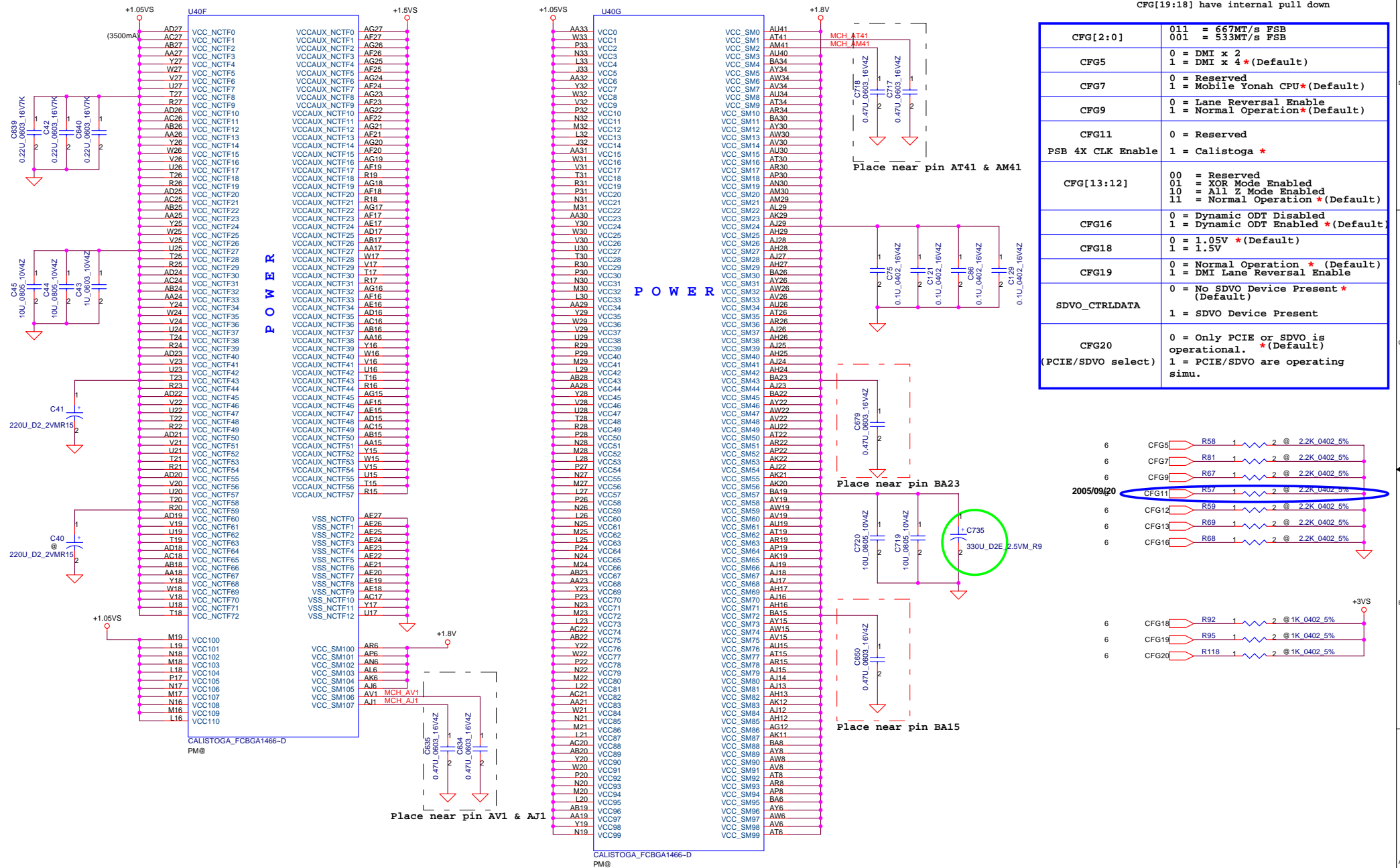
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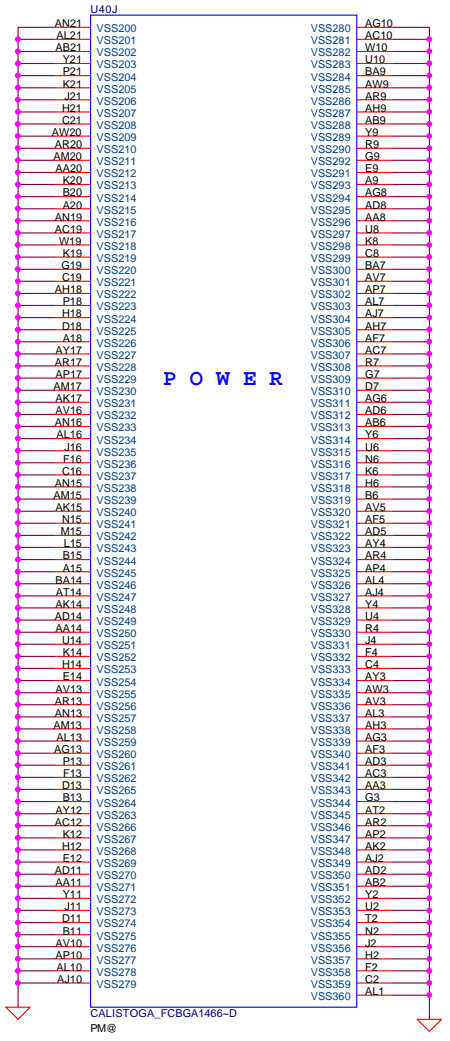
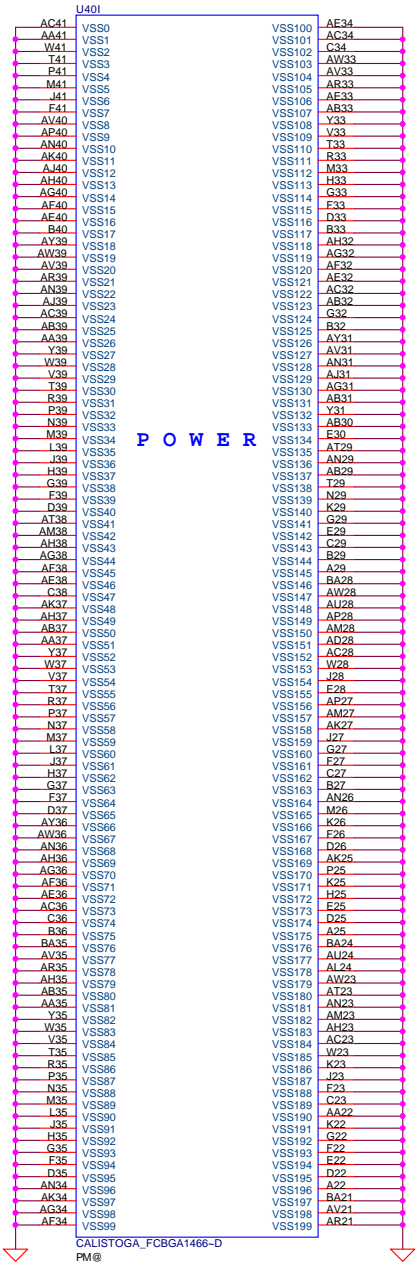
Strap Pin Table

CFG[3:17] have internal pull up
CFG[19:18] have internal pull down

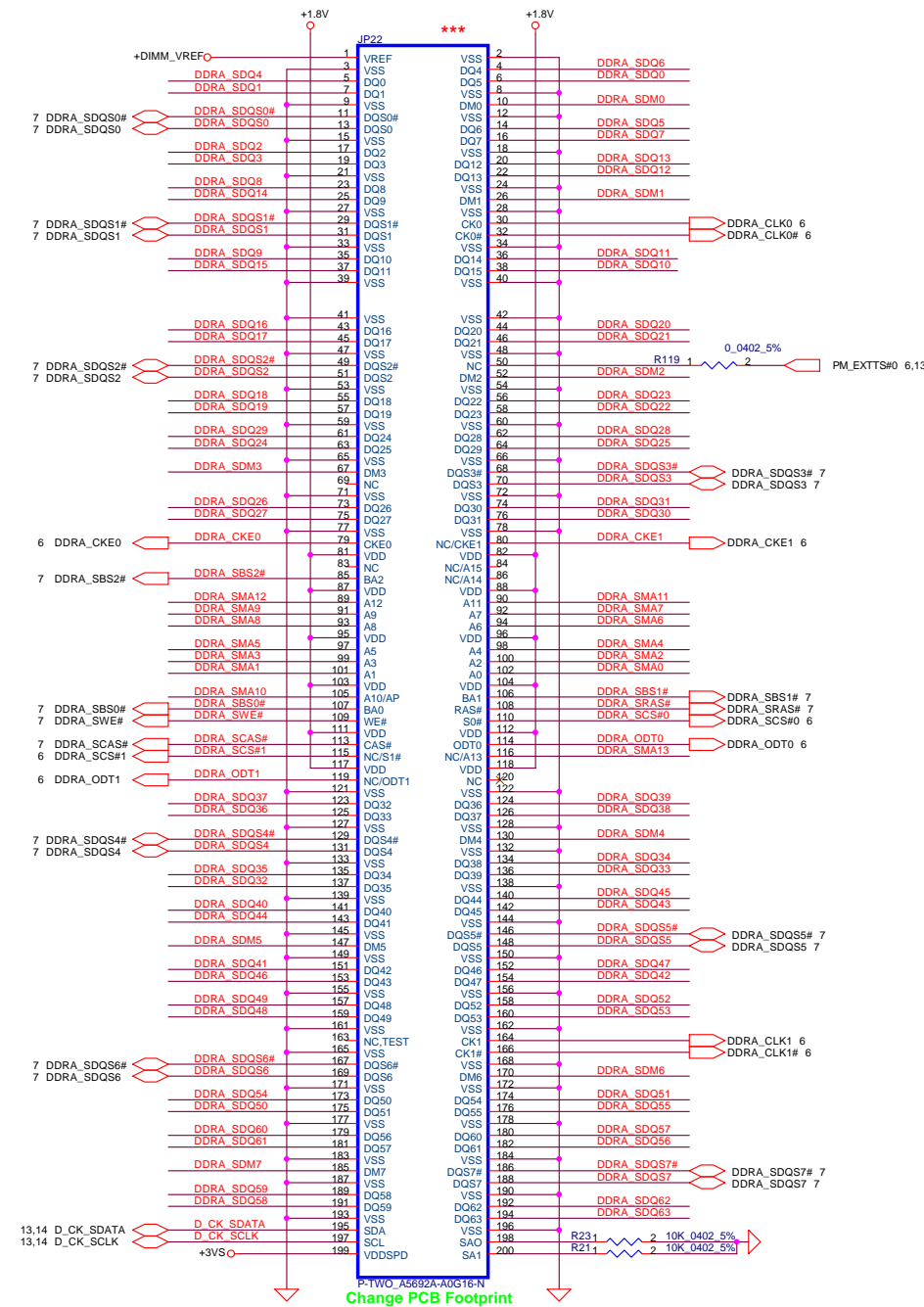
CFG[2:0]	011 = 667MT/s FSB 001 = 533MT/s FSB
CFG5	0 = DMI x 2 1 = DMI x 4 *(Default)
CFG7	0 = Reserved 1 = Mobile Yonah CPU*(Default)
CFG9	0 = Lane Reversal Enable 1 = Normal Operation*(Default)
CFG11	0 = Reserved
PSB 4X CLK Enable	1 = Calistoga *
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation *(Default)
CFG6	0 = Dynamic ODT Disabled 1 = Dynamic ODT Enabled *(Default)
CFG18	0 = 1.05V *(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.



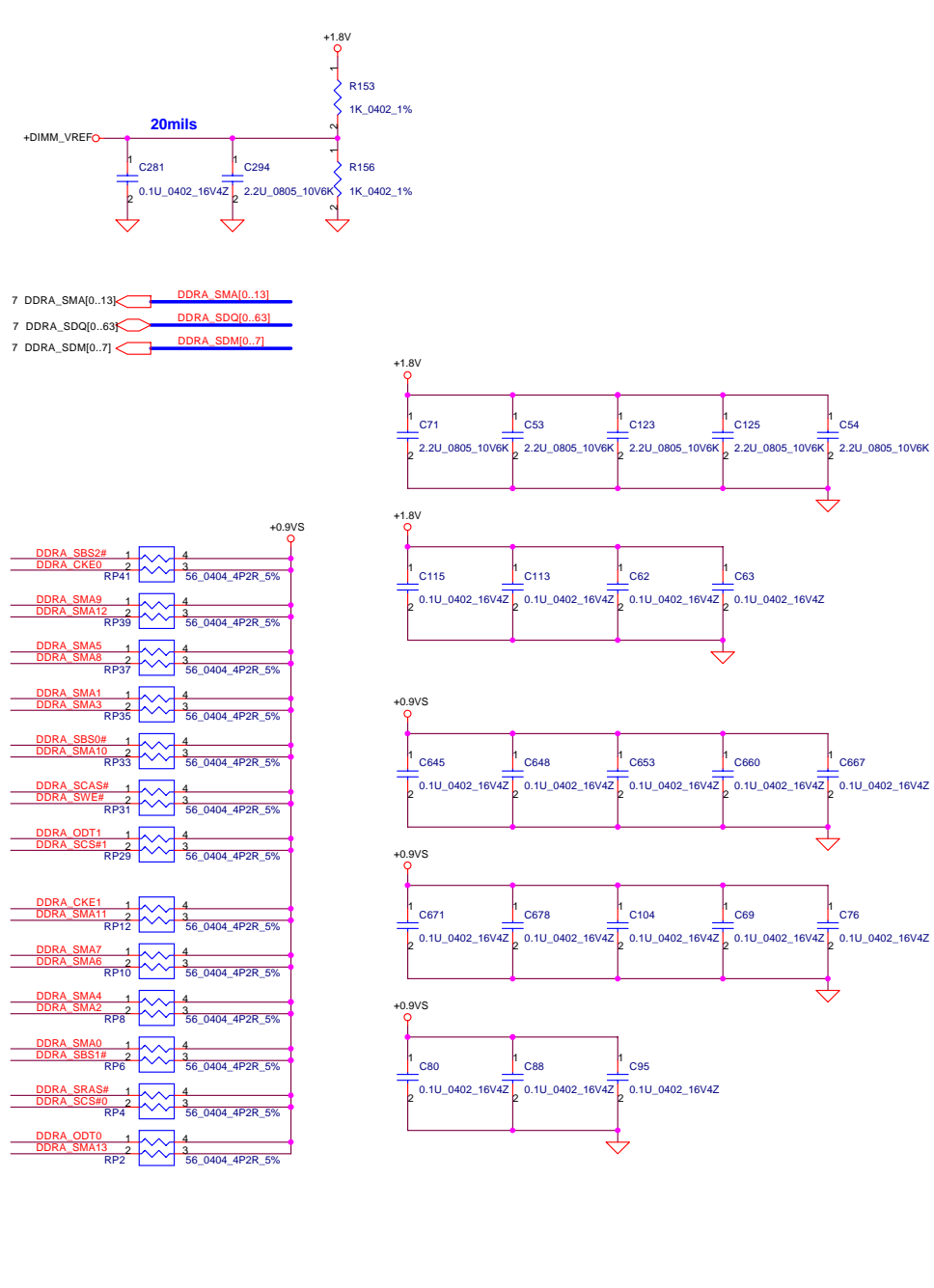
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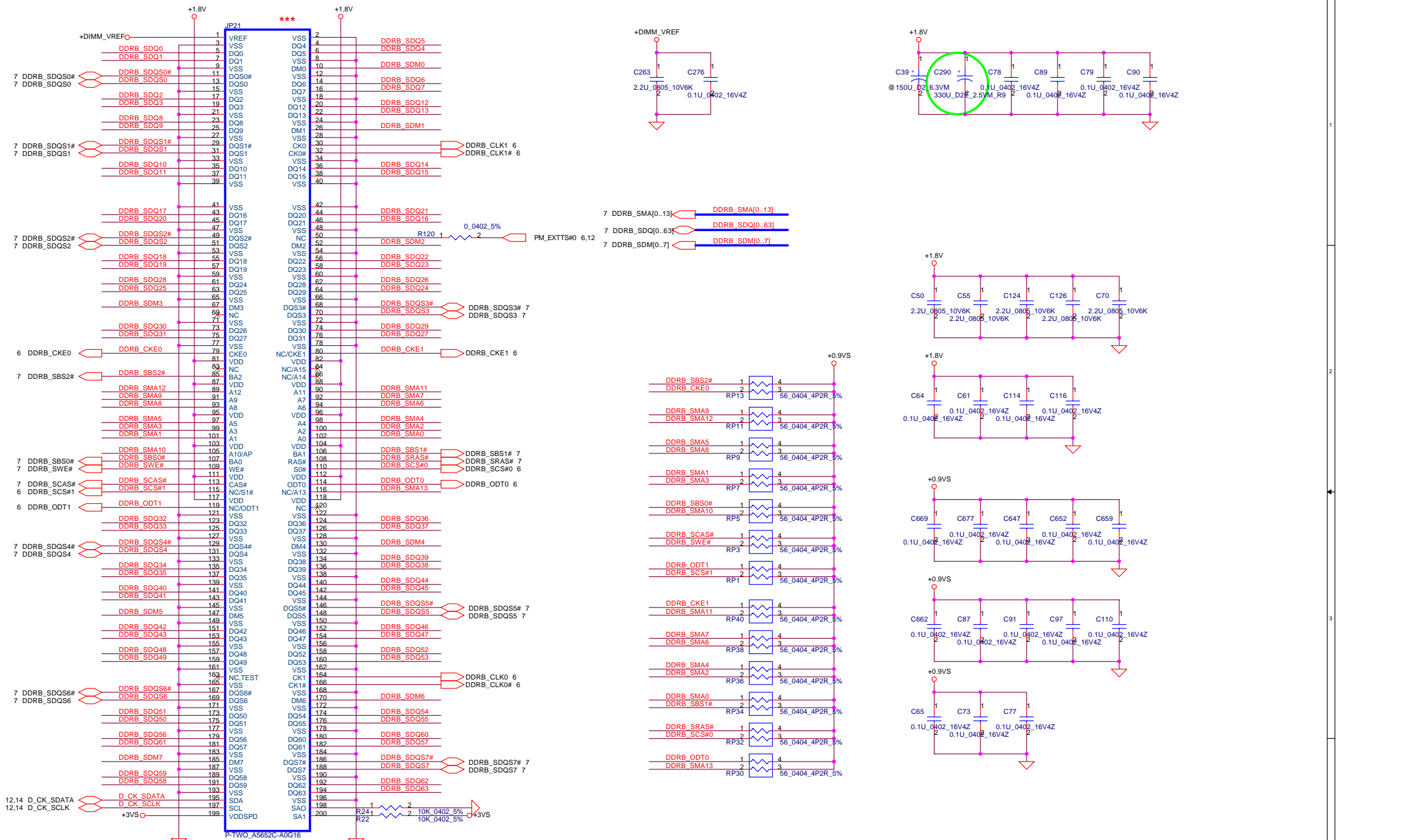
Security Classification	Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	Compal Electronics, Inc.
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				Rev 0.1



DIMM0 STD H:9.2mm (BOT)



Security Classification		Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	DDRII-SODIMMO	
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DIMM1 STD H:5.2mm (BOT)

Security Classification		Compal Secret Data		Compal Secret Data	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	Title	DDR II-SODIMM1
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Size	Document Number	Date		Sheet	Rev
B	HBQ60 LA-3191P	Wednesday, November 30, 2005		13	0.1
				of	59

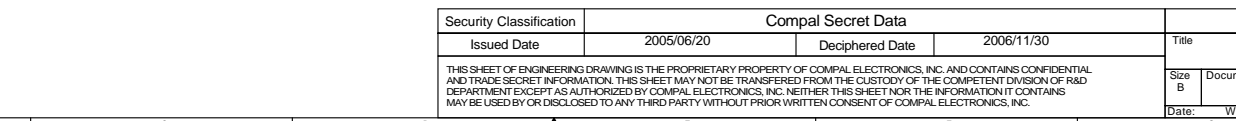
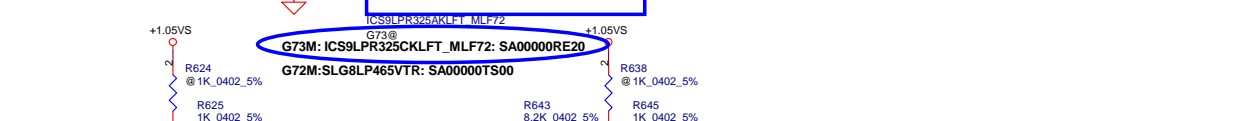
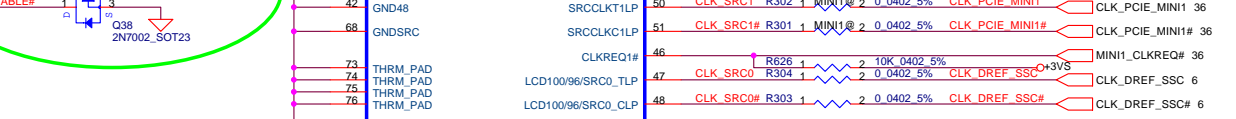
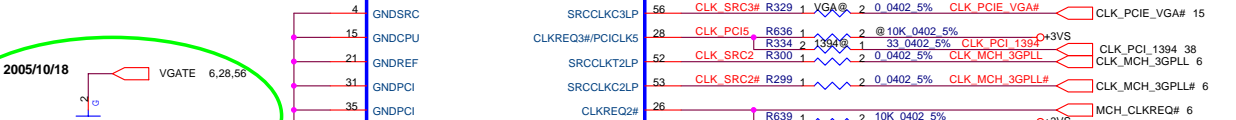
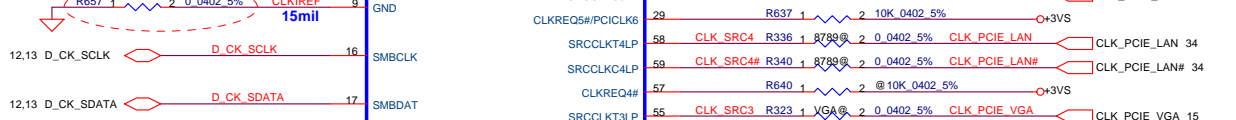
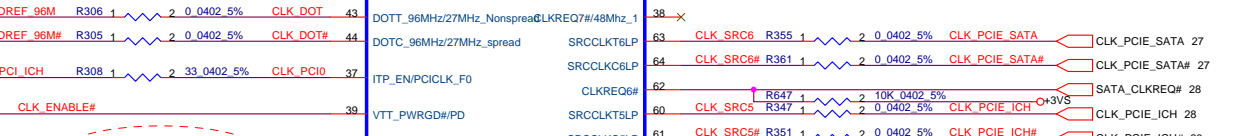
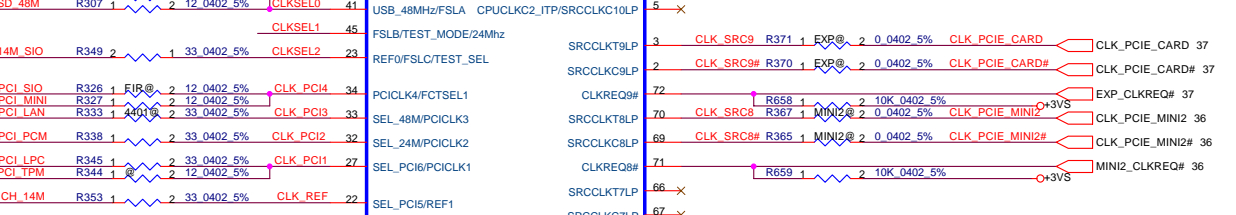
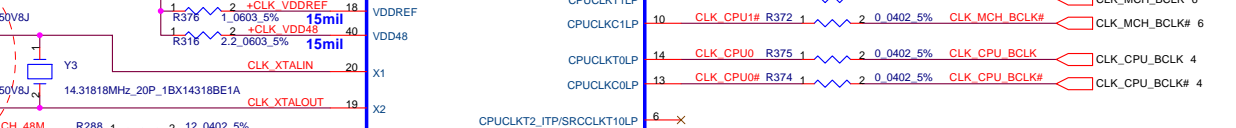
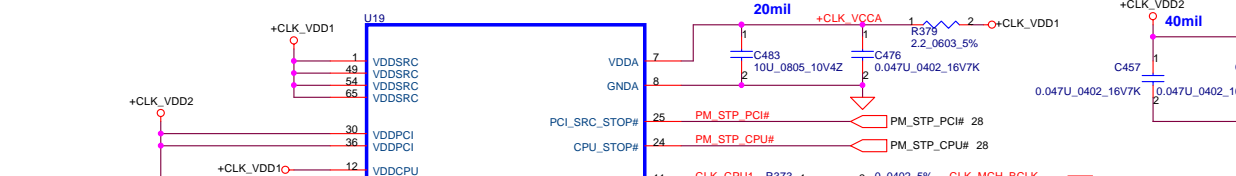
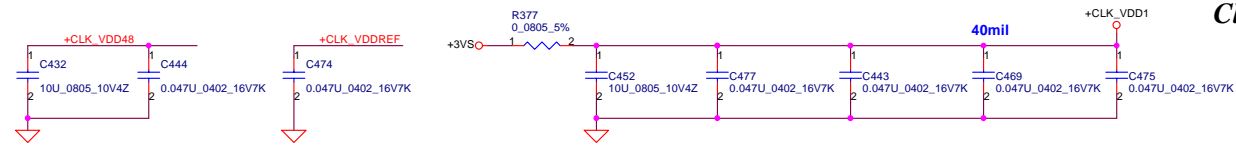
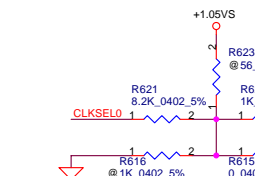
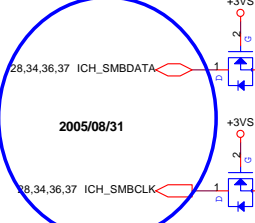
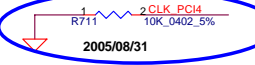
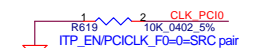
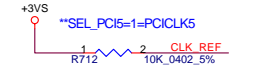
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0	1	1	166	100	33.3

Table : ICS9LPR325

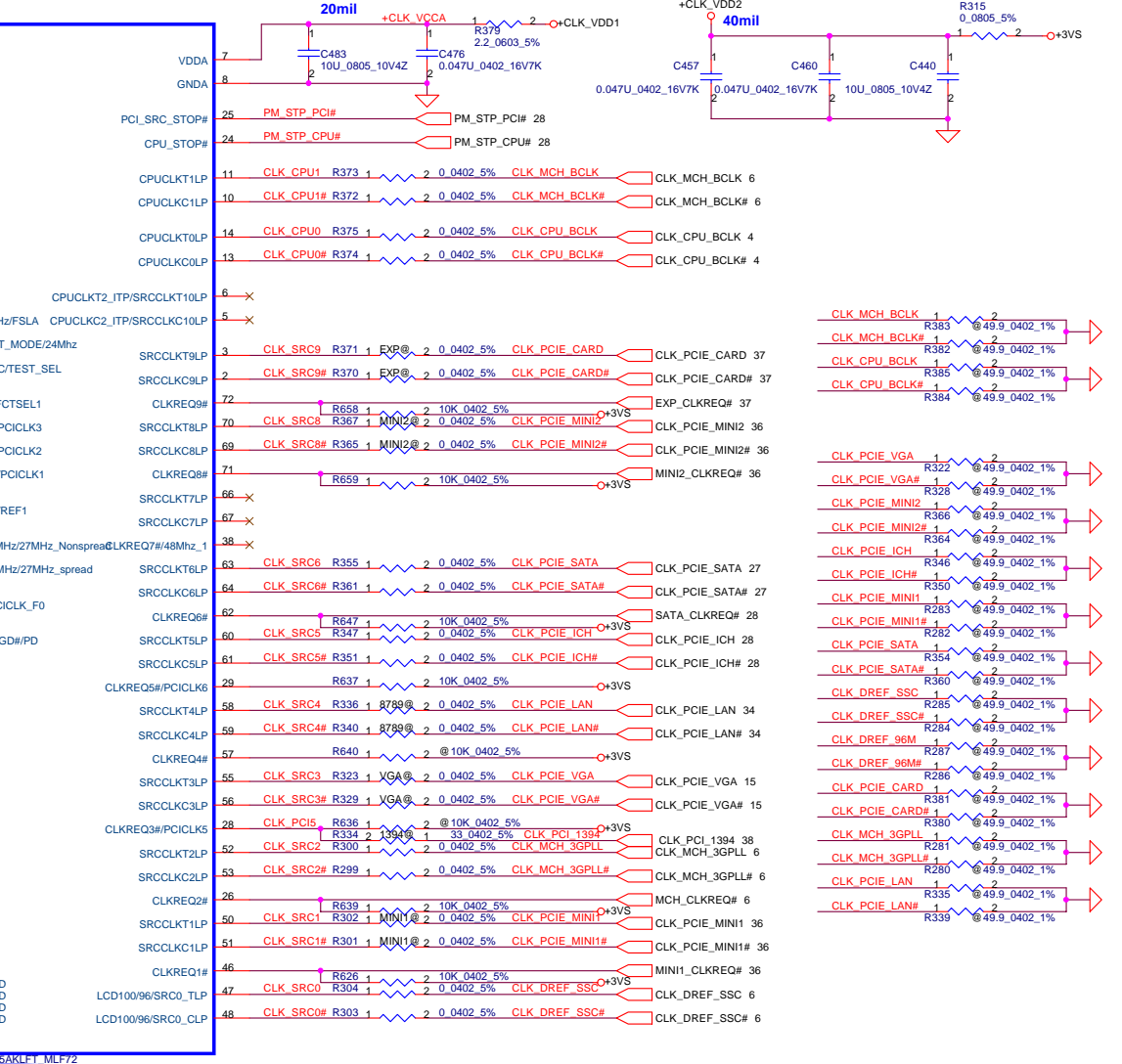
	0	1
**SEL_PCI5/REF1	CLKREQ3#	33.3MHz PCICLK5
**SEL_PCI6/PCICLK1	CLKREQ5#	33.3MHz PCICLK6
**SEL_24M/PCICLK2	TESTMODE	24MHz Output
**SEL_48M/PCICLK3	CLKREQ7#	48MHz_1 Output
ITP_EN/PCICLK_F0	SRC pair	CPU_ITP pair

**SEL_24M/PCICLK2=0=TESTMODE
**SEL_PCI6/PCICLK1=0=CLKREQ5#

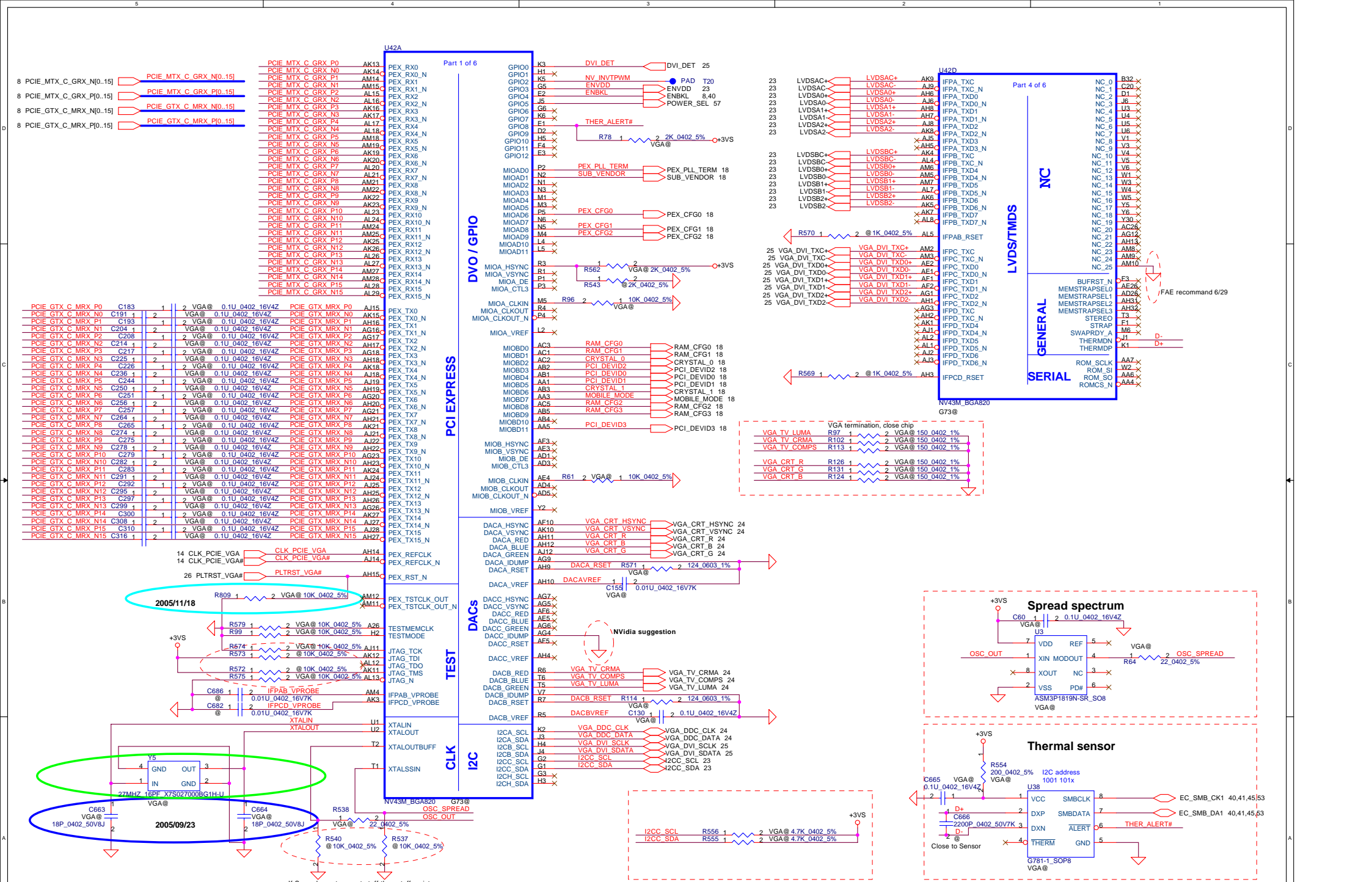
**SEL_PCI5=1=PCICLK5
ITP_EN/PCICLK_F0=0=SRC pair



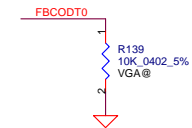
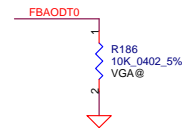
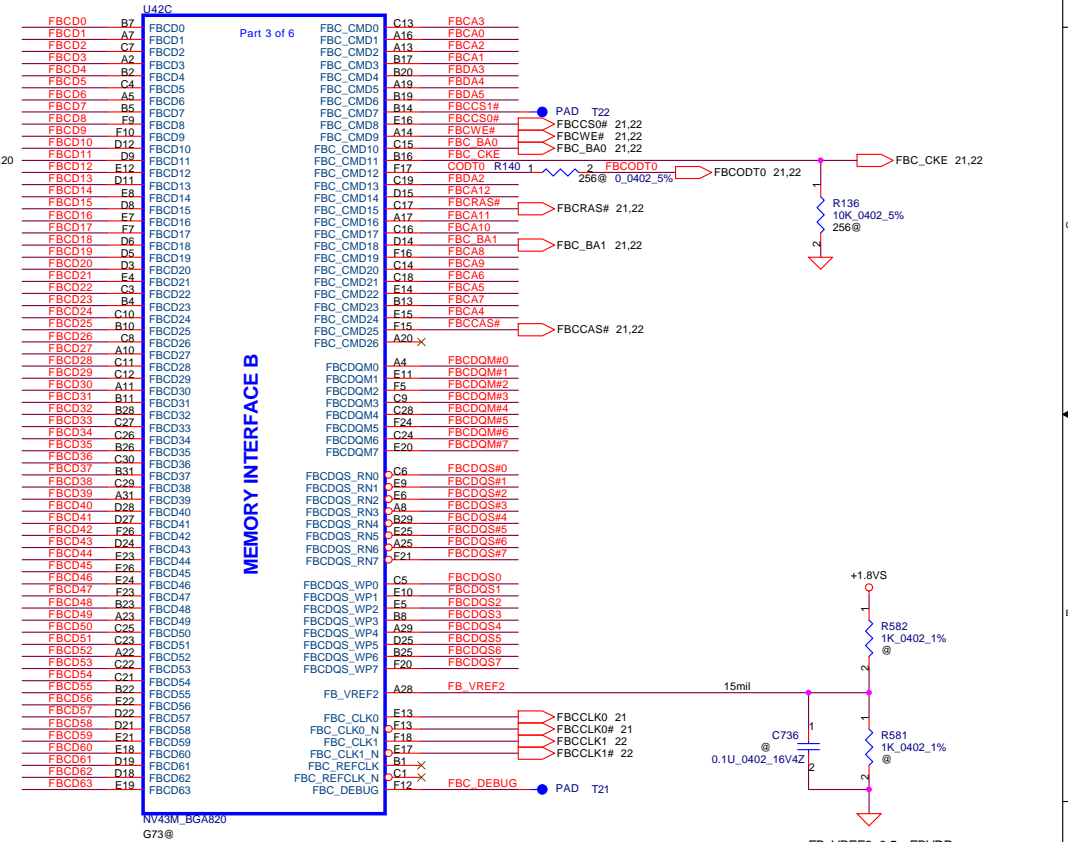
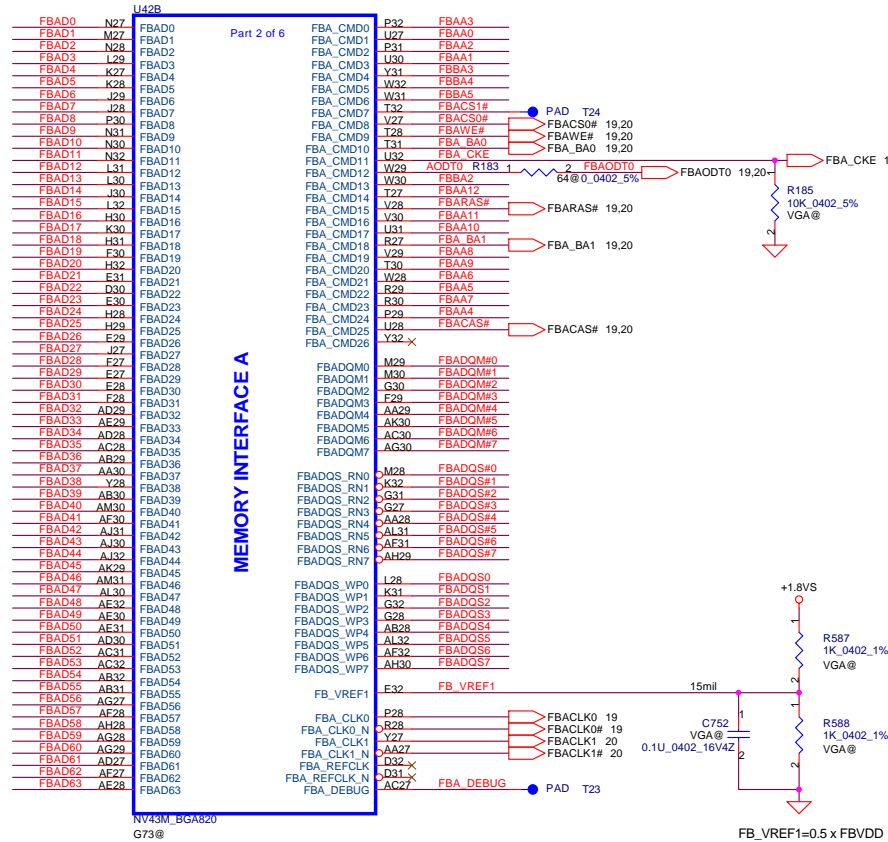
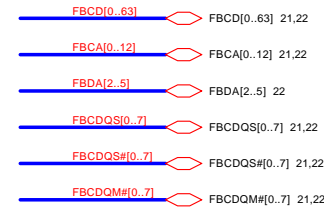
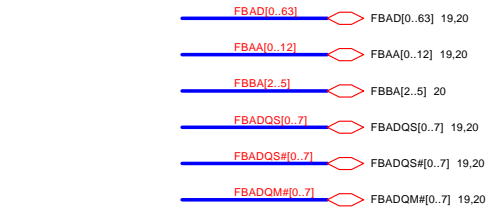
Clock Generator



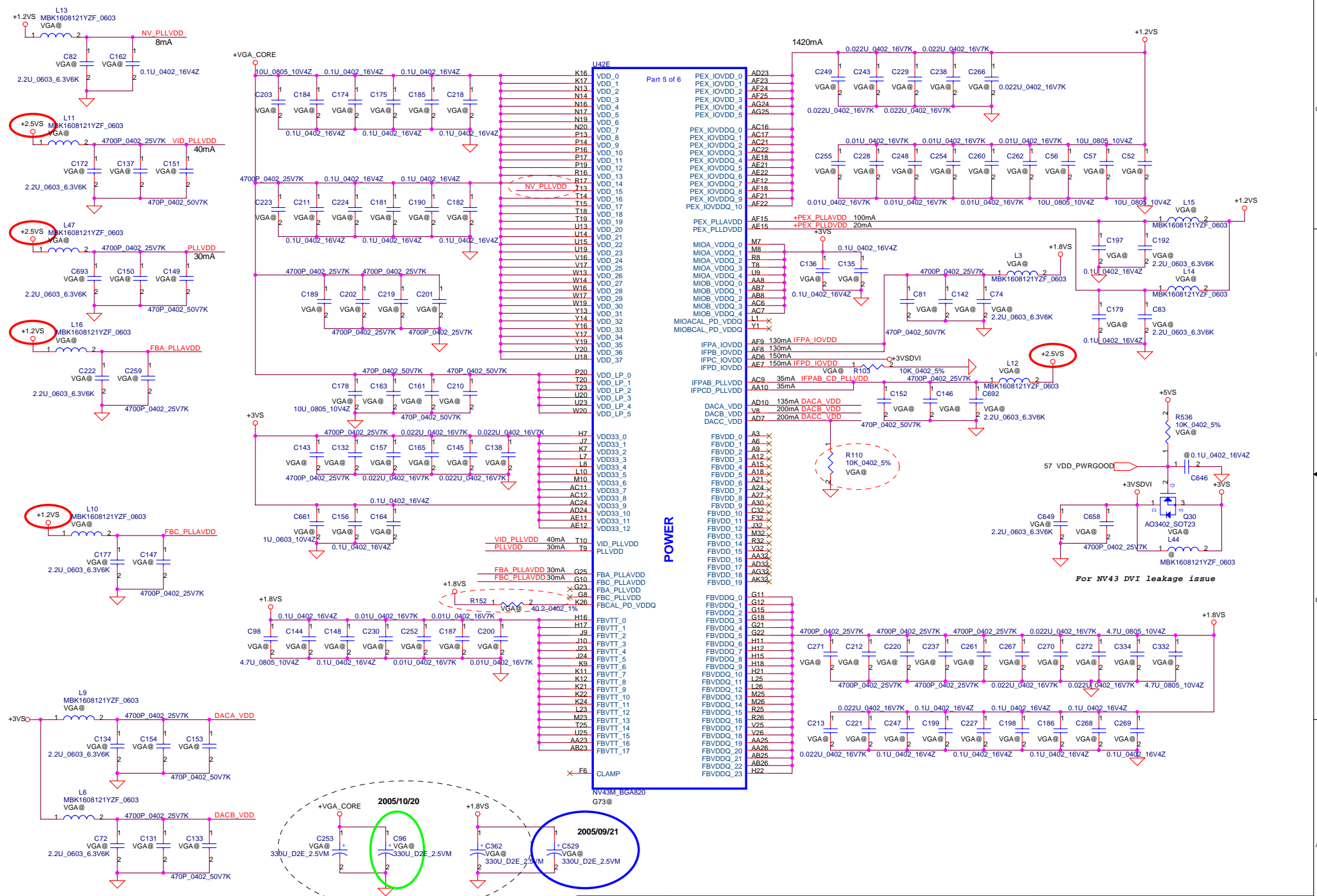
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Issued Date	2005/06/20	Deciphered Date	2006/11/30
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Size	Document Number	Rev	
B	HBQ60 LA-3191P	0.1	
Date:	Wednesday, November 30, 2005	Sheet	14 of 59



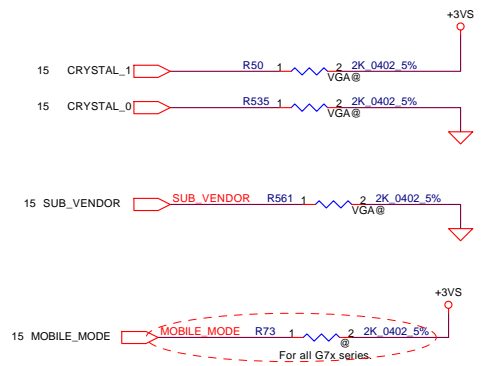
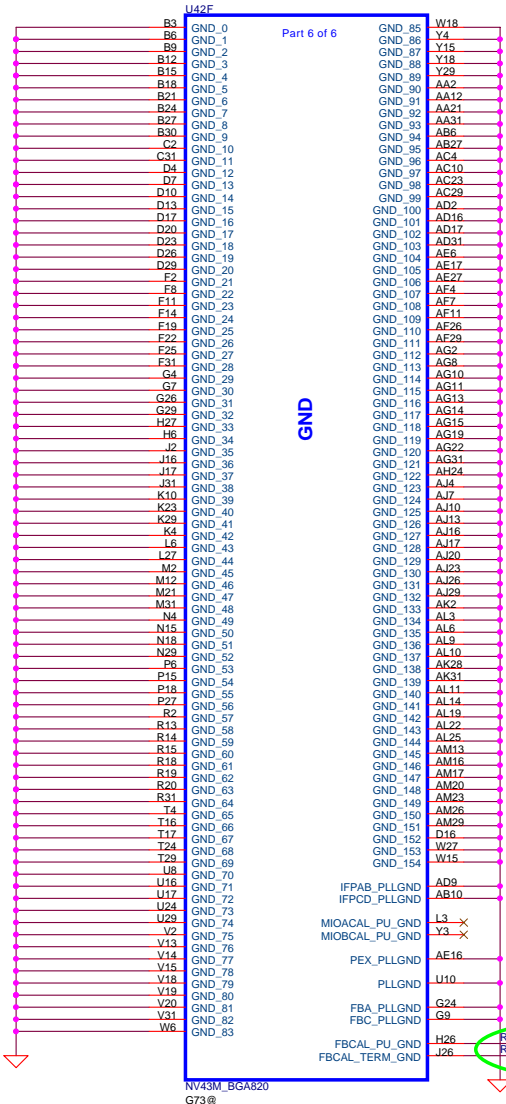
Security Classification		Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	G72/G73 Main	
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Size	Document Number	Rev	
B	HBQ60 LA-3191P	0.1	
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Security Classification		Compal Secret Data		Title		
Issued Date	2005/06/20	Deciphered Date	2006/11/30	G72/G73 Power		
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				B	HBQ60 LA-3191P	0.1
				Date:	Wednesday, November 30, 2005	Sheet 17 of 59

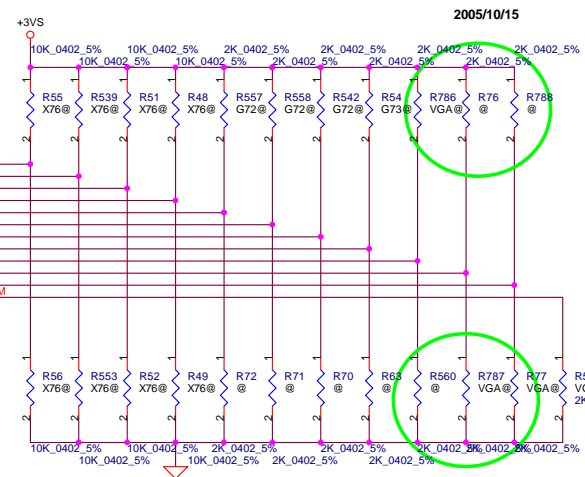


G73M : SA0000QZ00
 G72M : SA0000QY00
 G72MV : SA0000QY20

STRAPS	PIN	DESCRIPTION	Value	Value
CRYSTAL[1:0]	MIOBD[6,2]	27MHz=10, 14.318MHz=01, 13.5MHz=00	10	
ROM_TYPE[1:0]	MIOBD [11:10]	Parallel=00, SERIAL M25P10=01, Serial SST45VF=10	01	
SUB_VENDOR	MIOAD1	VBIOS on card (pull high) VBIOS with system BIOS (pull down)	0	
PEX_PLL_TERM	MIOAD0		0	
PEX_CFG[2:0]	MIOAD [9,8,6]	Recommended for G7x	010	
RAM_CFG[3:0]	MIOAD[5:2]	16Mx16x4 1.8V (128bit G73M)	0001	Samsung
		16Mx16x4 1.8V (128bit G73M)	0011	Hynix
		16Mx16x4 1.8V (64bit G73M)	1001	Samsung
		16Mx16x4 1.8V (64bit G73M)	1011	Hynix
		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	MIOBD7	For NV44M/G7x		0

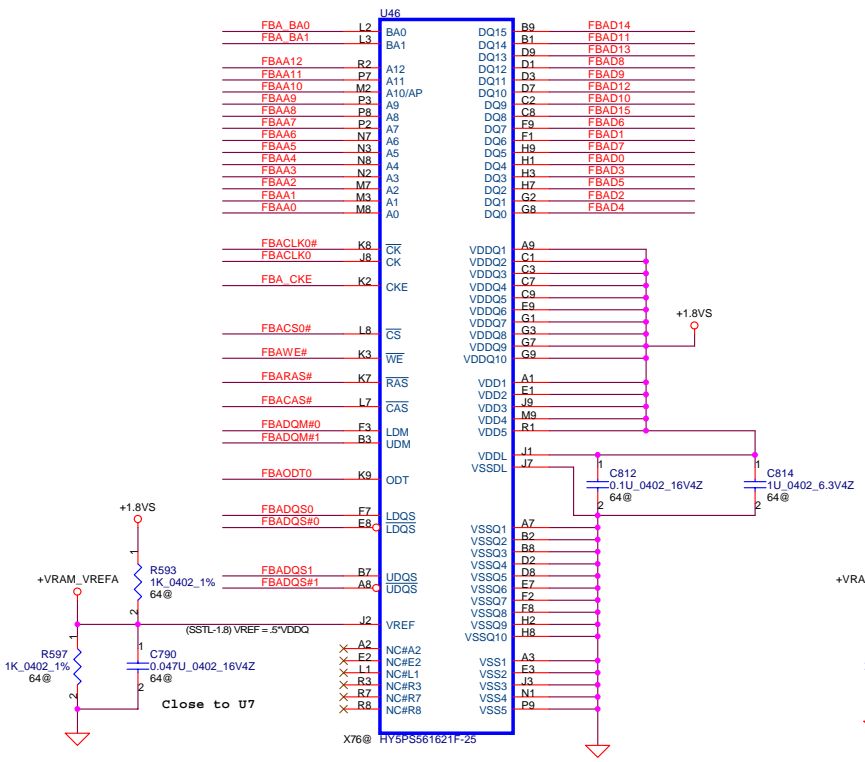
RAM_CFG[1:0]
 (Manufacture)
 (01=Sam, 10=Inf, 11=Hyn)
 RAM_CFG[2] (0=16M or 1=32M)
 RAM_CFG[3] (Bandwidth 0=Full, 1=Half)

Bandwidth	RAM Type	Vendor
FULL R49	32M R51	Samsung R553, R55
HALF R48	16M R52	Hynix R539, R55 Infineon R553, R56

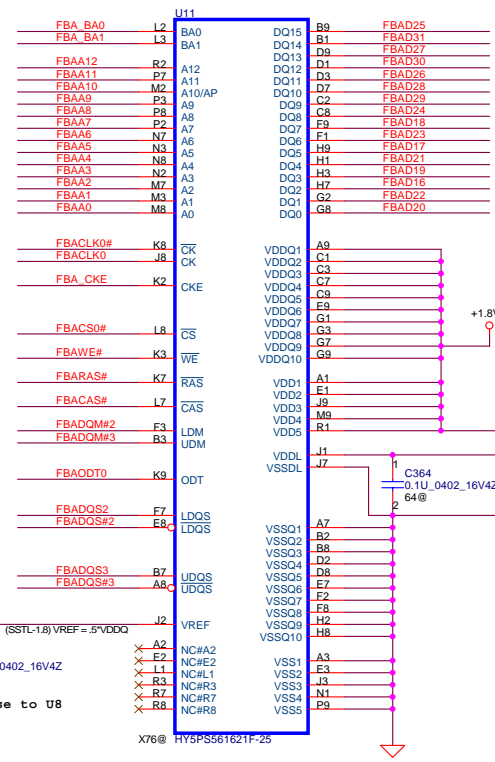
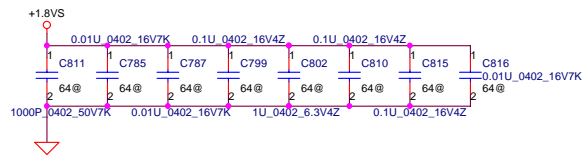


Package	Infineon GDDR2(400): SA0000S800 (HYB18T256161AF-25)	Infineon GDDR2(350): SA0000T700 (HYB18T256161AF-28)
(10*12.5)	Samsung GDDR2 (400): SA0000FG10 (K4N56163QF-ZC25)	Samsung GDDR2 (350): SA0000TB00 (K4N56163QF-ZC2A)
(11*13)	Hynix GDDR2 (400): SA0000FF10 (HY5PS561621AFP-25)	Hynix GDDR2 (350): SA0000TJ00 (HY5PS561621AFP-28)
(8*13)		

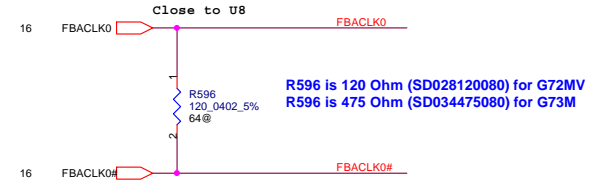
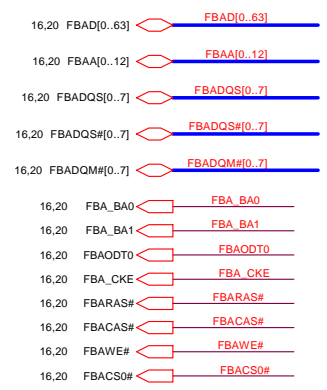
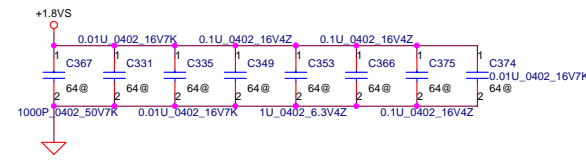
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Issued Date	2005/06/20	Deciphered Date	2006/11/30	G72/G73 GND & STRAP		
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				Date:	Wednesday, November 30, 2005	Sheet 18 of 59



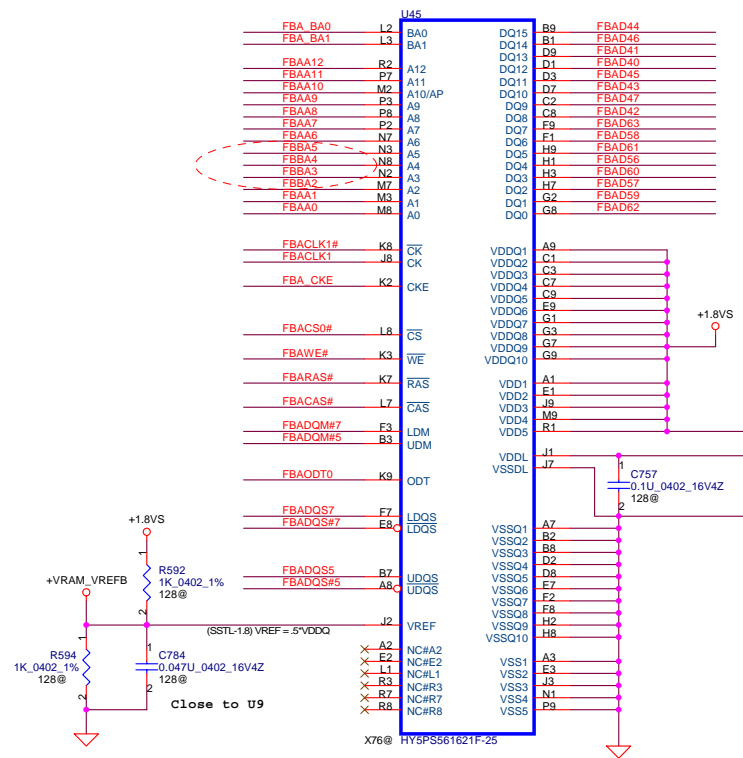
DDR2 BGA MEMORY



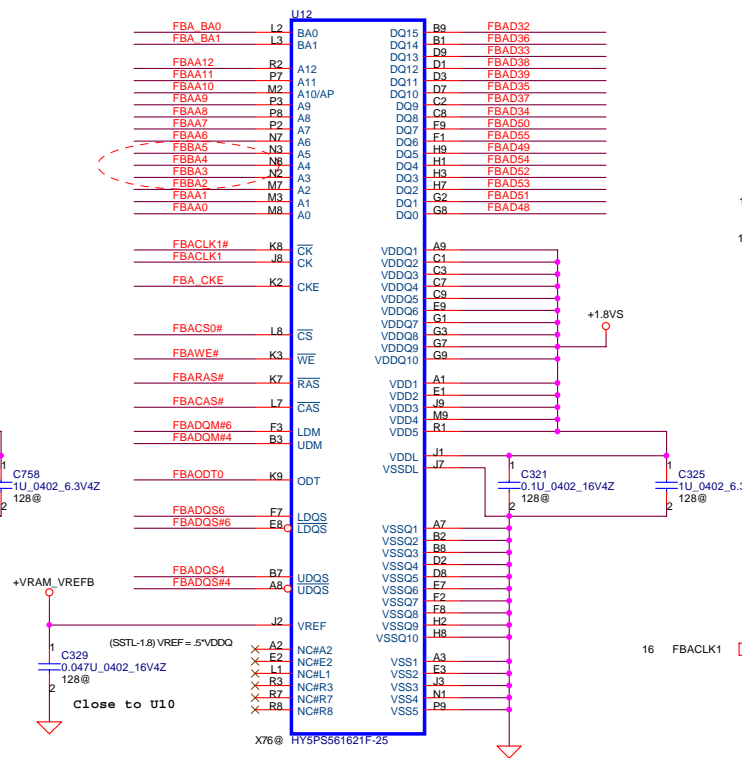
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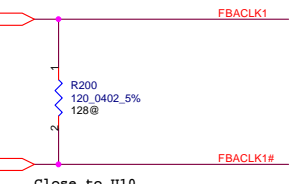
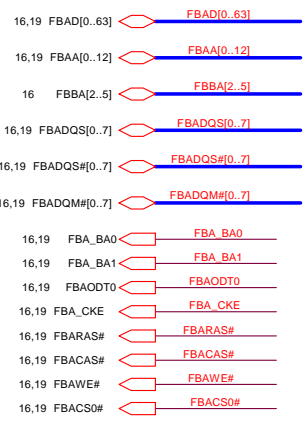
Security Classification	Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	VRAM DDRA
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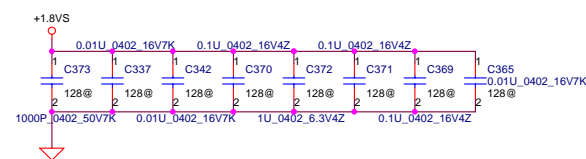
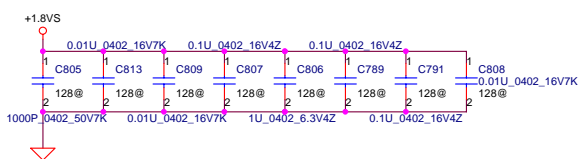
DDR2 BGA MEMORY



DDR2 BGA MEMORY

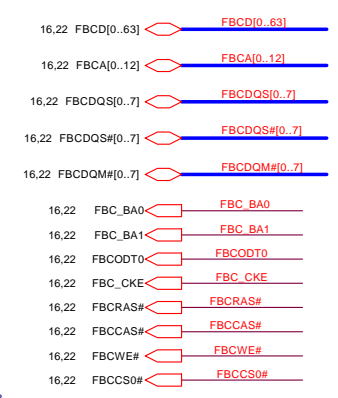
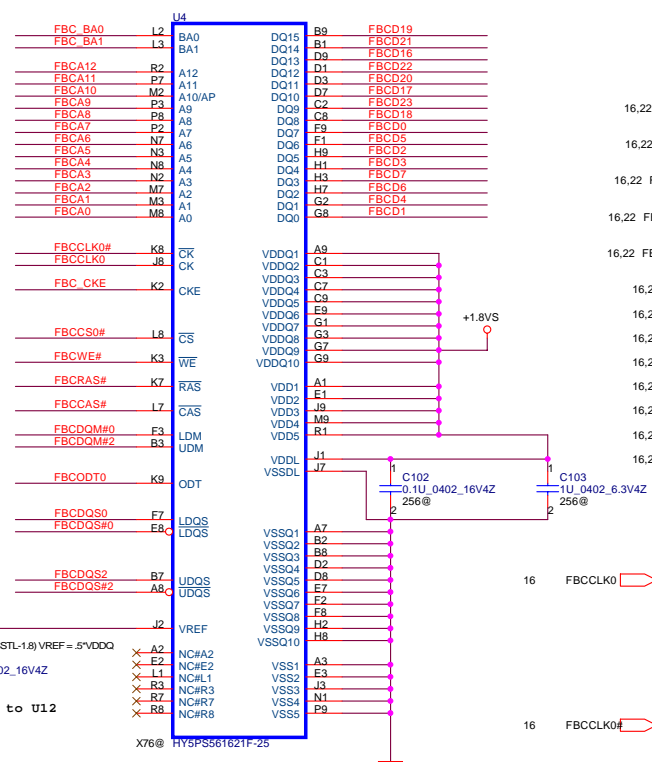
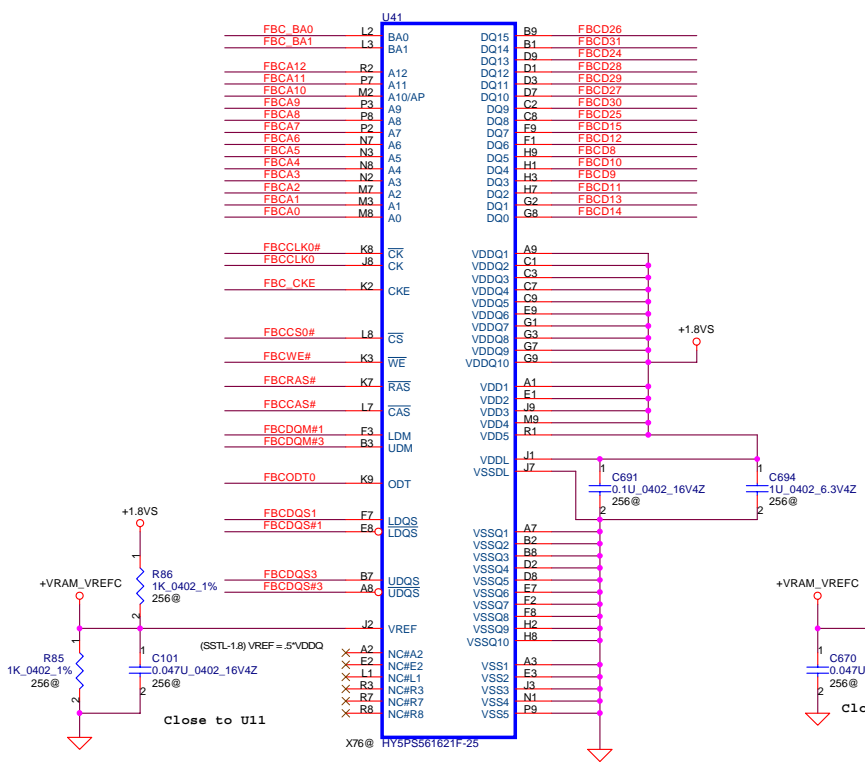


R200 is 120 Ohm (SD028120080) for G72MV
R200 is 475 Ohm (SD034475080) for G73M



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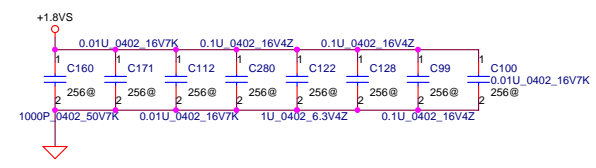
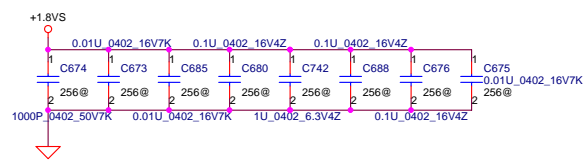
Compal Electronics, Inc.		
Title		
VRAM DDRB		
Size	Document Number	Rev
Custom	HBQ60 LA-3191P	0.1
Date:	Wednesday, November 30, 2005	Sheet 20 of 59



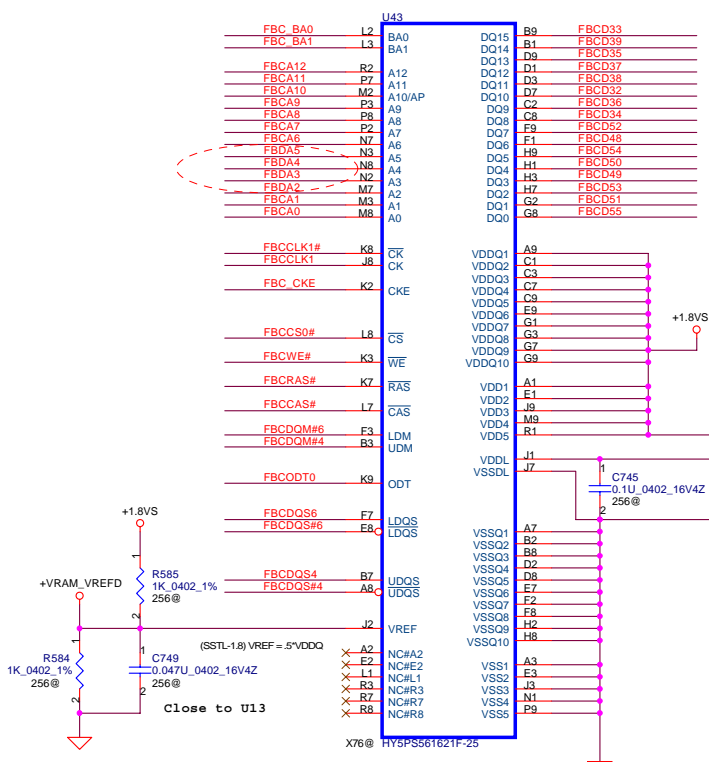
R566 is 120 Ohm (SD028120080) for G72MV
R566 is 475 Ohm (SD034475080) for G73M

DDR2 BGA MEMORY

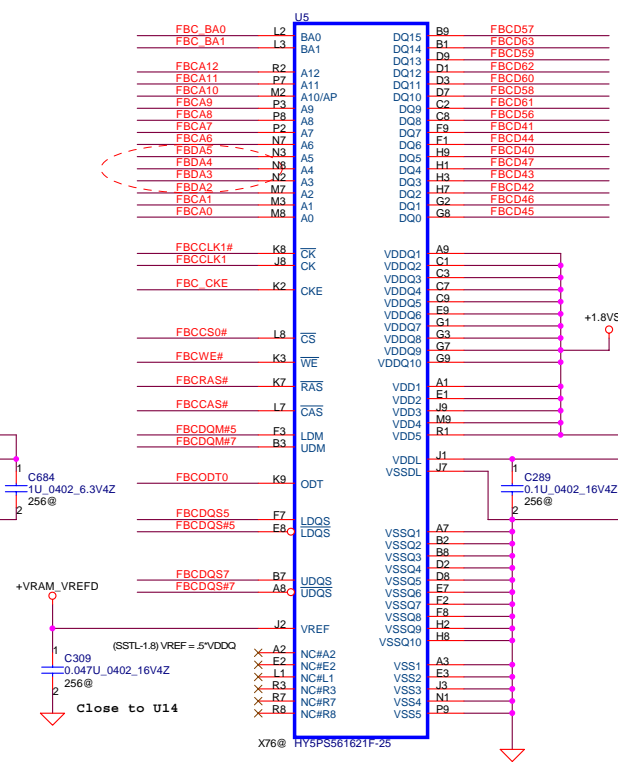
DDR2 BGA MEMORY



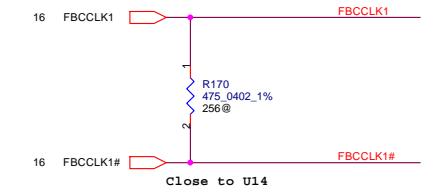
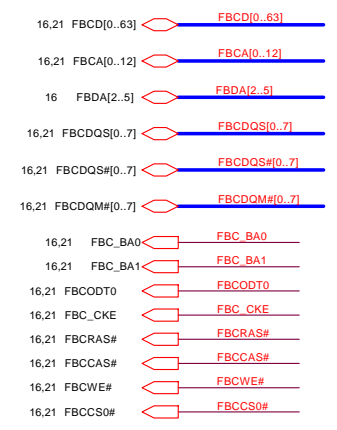
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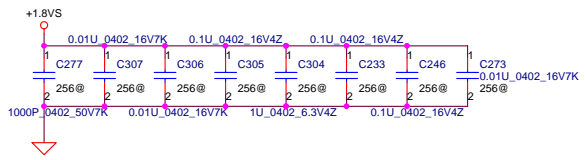
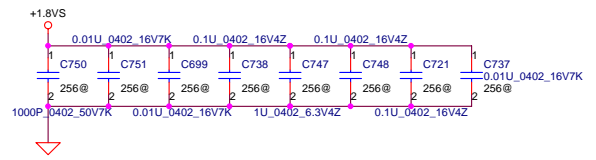
DDR2 BGA MEMORY



DDR2 BGA MEMORY

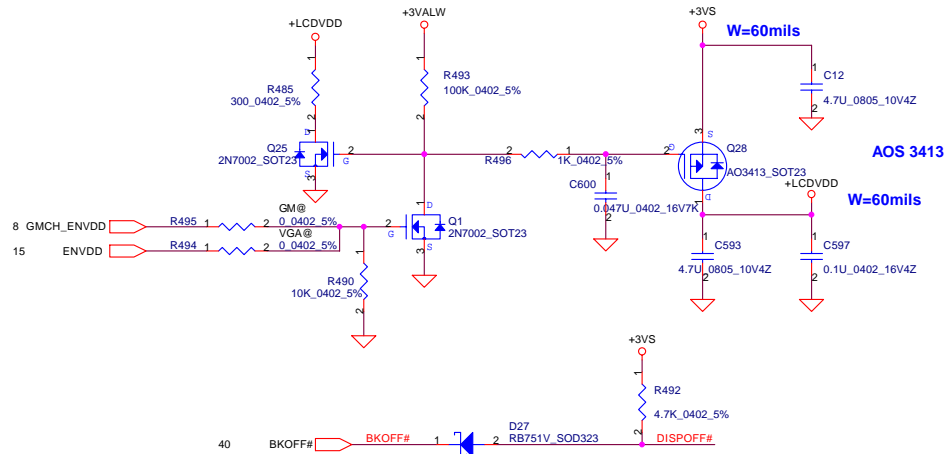


R170 is 120 Ohm (SD028120080) for G72MV
R170 is 475 Ohm (SD034475080) for G73M

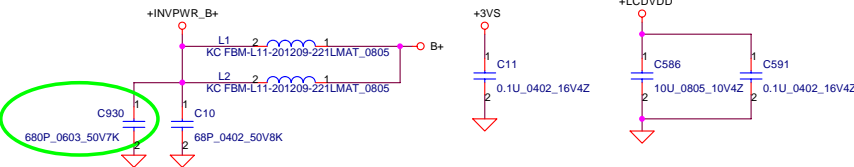
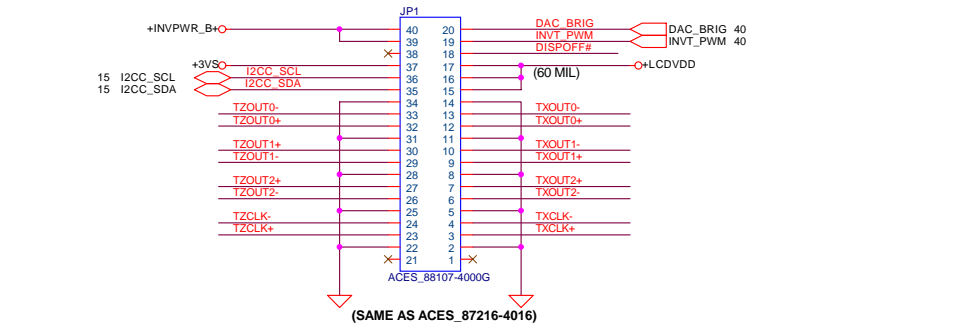


Security Classification	Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	VRAM DDRD
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				Document Number HBQ60 LA-3191P
				Rev 0.1
				Date: Wednesday, November 30, 2005 Sheet 22 of 59

LCD POWER CIRCUIT



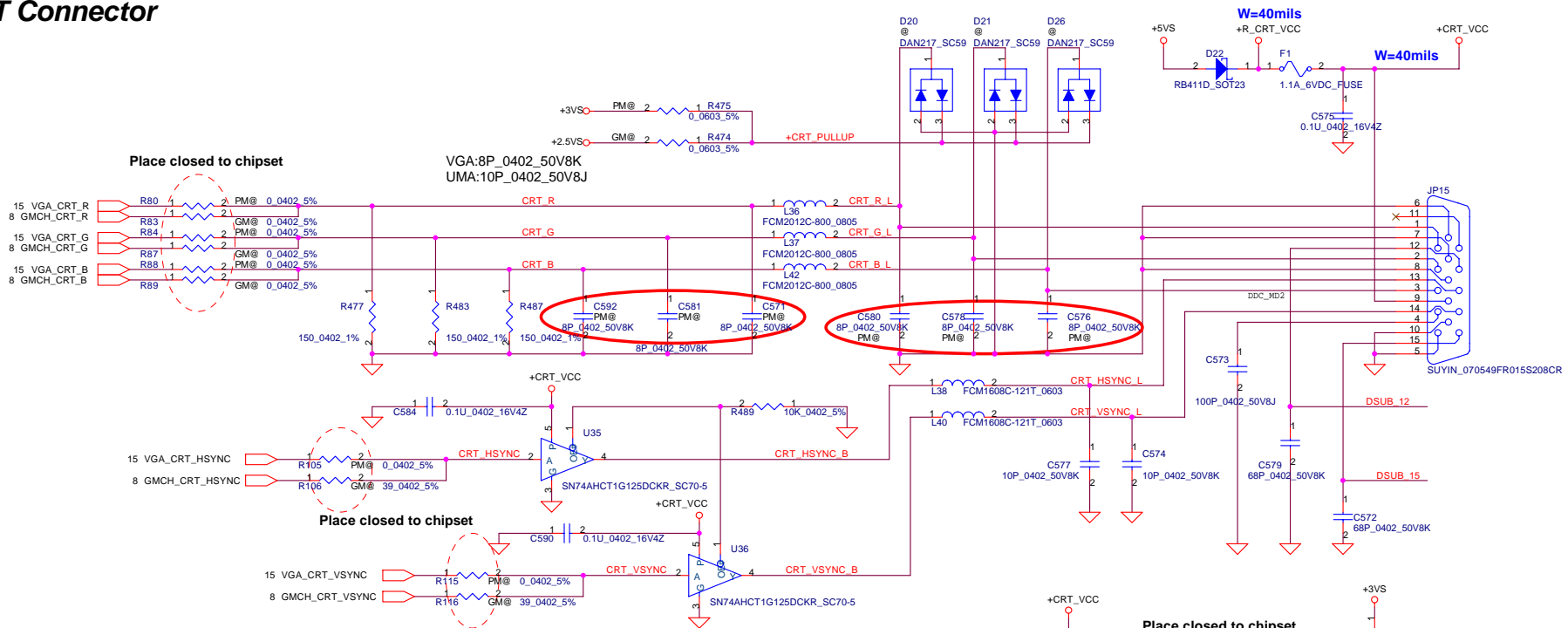
LCD/PANEL BD. Conn.



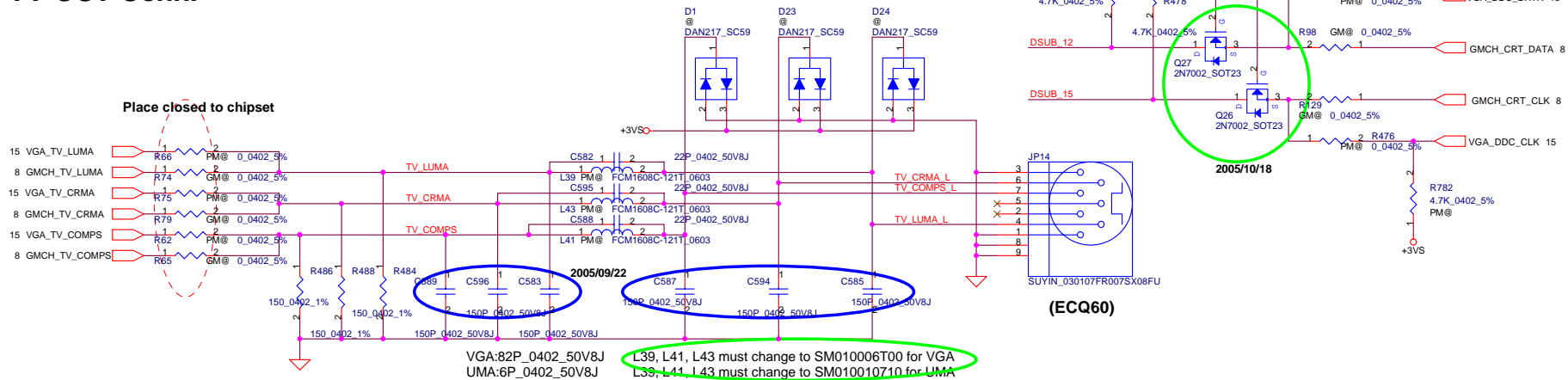
TXOUT0-	R25	1	2	VGA@ 0.0402 5%	LVDSA0-	LVDSA0-	15
TXOUT0+	R26	1	2	VGA@ 0.0402 5%	LVDSA0+	LVDSA0+	15
TXOUT1-	R27	1	2	VGA@ 0.0402 5%	LVDSA1-	LVDSA1-	15
TXOUT1+	R28	1	2	VGA@ 0.0402 5%	LVDSA1+	LVDSA1+	15
TXOUT2-	R29	1	2	VGA@ 0.0402 5%	LVDSA2-	LVDSA2-	15
TXOUT2+	R30	1	2	VGA@ 0.0402 5%	LVDSA2+	LVDSA2+	15
TXCLK-	R31	1	2	VGA@ 0.0402 5%	LVDSAC-	LVDSAC-	15
TXCLK+	R32	1	2	VGA@ 0.0402 5%	LVDSAC+	LVDSAC+	15
TZOUT0-	R33	1	2	VGA@ 0.0402 5%	LVDSB0-	LVDSB0-	15
TZOUT0+	R34	1	2	VGA@ 0.0402 5%	LVDSB0+	LVDSB0+	15
TZOUT1-	R35	1	2	VGA@ 0.0402 5%	LVDSB1-	LVDSB1-	15
TZOUT1+	R36	1	2	VGA@ 0.0402 5%	LVDSB1+	LVDSB1+	15
TZOUT2-	R37	1	2	VGA@ 0.0402 5%	LVDSB2-	LVDSB2-	15
TZOUT2+	R38	1	2	VGA@ 0.0402 5%	LVDSB2+	LVDSB2+	15
TZCLK-	R39	1	2	VGA@ 0.0402 5%	LVDSBC-	LVDSBC-	15
TZCLK+	R40	1	2	VGA@ 0.0402 5%	LVDSBC+	LVDSBC+	15
I2CC_SCL	R41	1	2	GM@ 0.0402 5%	GMCH_LCD_CLK	GMCH_LCD_CLK	8
I2CC_SDA	R42	1	2	GM@ 0.0402 5%	GMCH_LCD_DATA	GMCH_LCD_DATA	8
TXOUT0-	R509	1	2	GM@ 0.0402 5%	GMCH_TXOUT0-	GMCH_TXOUT0-	8
TXOUT0+	R508	1	2	GM@ 0.0402 5%	GMCH_TXOUT0+	GMCH_TXOUT0+	8
TXOUT1-	R507	1	2	GM@ 0.0402 5%	GMCH_TXOUT1-	GMCH_TXOUT1-	8
TXOUT1+	R506	1	2	GM@ 0.0402 5%	GMCH_TXOUT1+	GMCH_TXOUT1+	8
TXOUT2-	R505	1	2	GM@ 0.0402 5%	GMCH_TXOUT2-	GMCH_TXOUT2-	8
TXOUT2+	R504	1	2	GM@ 0.0402 5%	GMCH_TXOUT2+	GMCH_TXOUT2+	8
TXCLK-	R503	1	2	GM@ 0.0402 5%	GMCH_TXCLK-	GMCH_TXCLK-	8
TXCLK+	R502	1	2	GM@ 0.0402 5%	GMCH_TXCLK+	GMCH_TXCLK+	8
TZOUT0-	R525	1	2	GM@ 0.0402 5%	GMCH_TZOUT0-	GMCH_TZOUT0-	8
TZOUT0+	R524	1	2	GM@ 0.0402 5%	GMCH_TZOUT0+	GMCH_TZOUT0+	8
TZOUT1-	R523	1	2	GM@ 0.0402 5%	GMCH_TZOUT1-	GMCH_TZOUT1-	8
TZOUT1+	R522	1	2	GM@ 0.0402 5%	GMCH_TZOUT1+	GMCH_TZOUT1+	8
TZOUT2-	R521	1	2	GM@ 0.0402 5%	GMCH_TZOUT2-	GMCH_TZOUT2-	8
TZOUT2+	R520	1	2	GM@ 0.0402 5%	GMCH_TZOUT2+	GMCH_TZOUT2+	8
TZCLK-	R519	1	2	GM@ 0.0402 5%	GMCH_TZCLK-	GMCH_TZCLK-	8
TZCLK+	R518	1	2	GM@ 0.0402 5%	GMCH_TZCLK+	GMCH_TZCLK+	8

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Issued Date	2005/06/20	Deciphered Date	2006/11/30	LCD Connector
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Date:	Wednesday, November 30, 2005	Sheet	23 of 59	

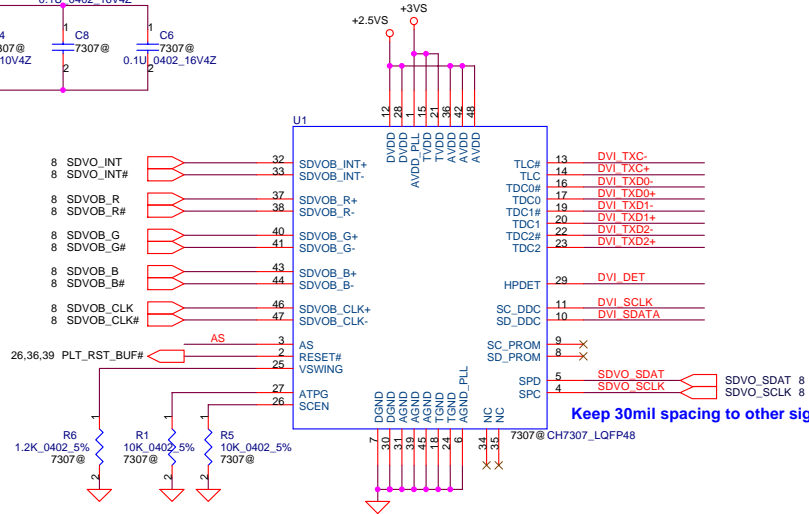
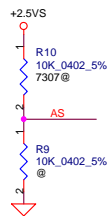
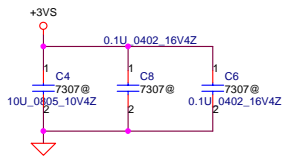
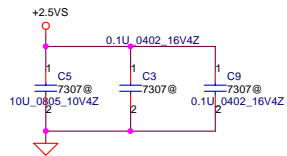
CRT Connector



TV-OUT Conn.

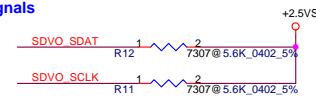


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Issued Date	2005/06/20	Deciphered Date	2006/11/30	CRT & TV-OUT Connector	
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				B	HBQ60 LA-3191P
				Date:	Wednesday, November 30, 2005 Sheet 24 of 59

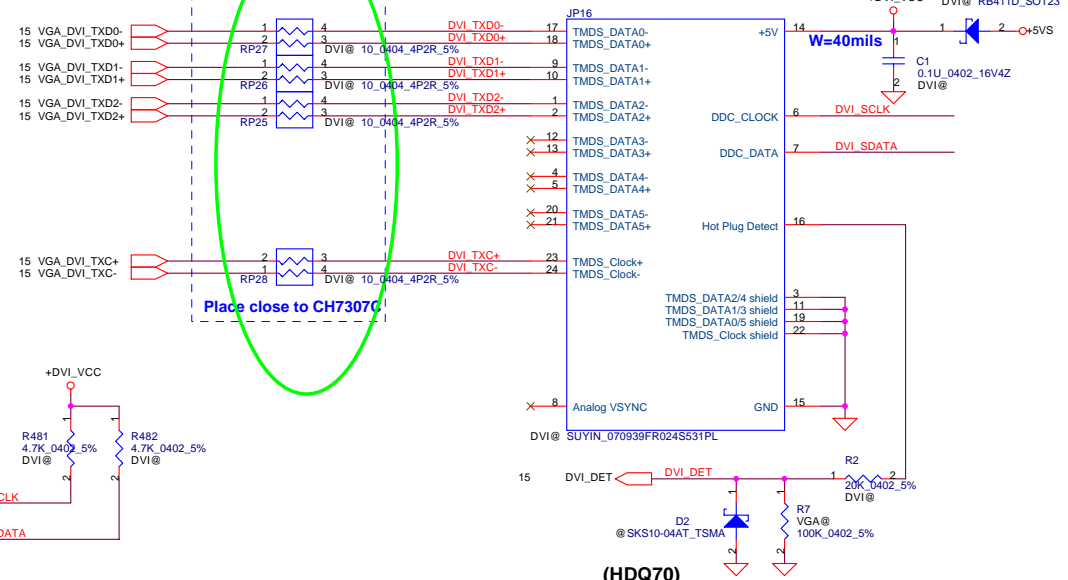


BOM structure	DVI from SDVO	DVI from Discrete VGA
7307@	Stuff	No_Stuff
VGA@	No_Stuff	Stuff
@	No_Stuff	No_Stuff

Keep 30mil spacing to other signals



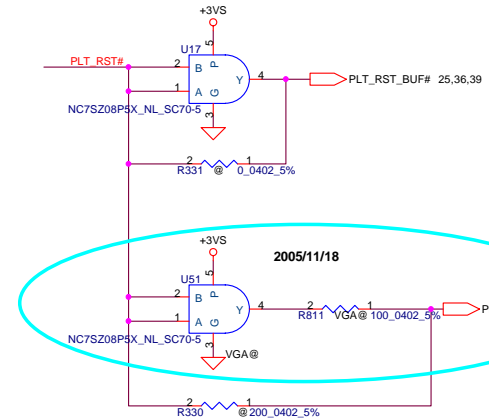
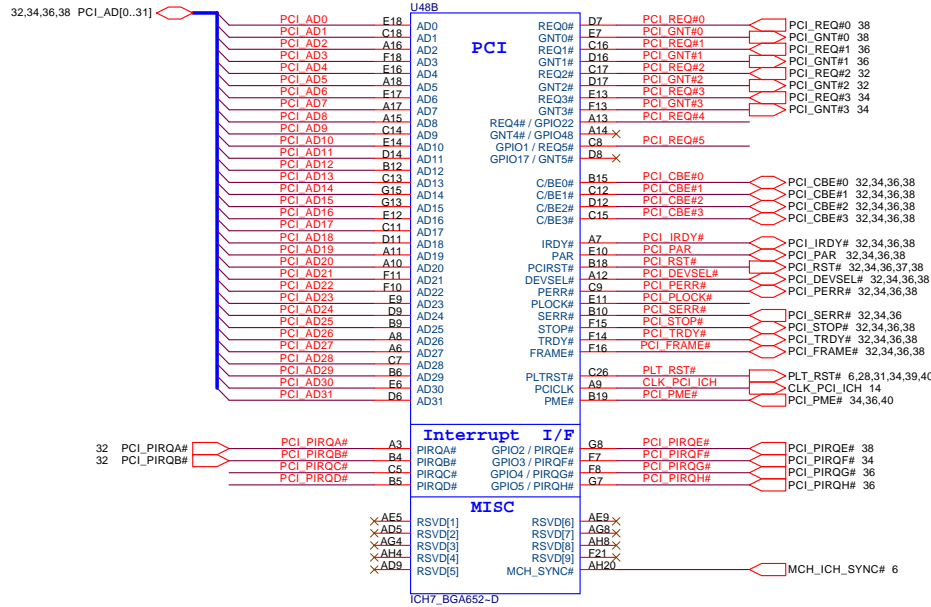
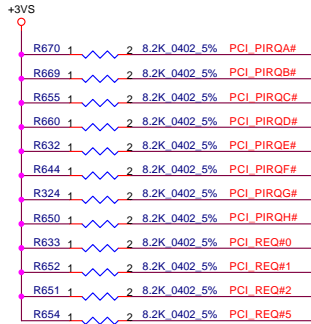
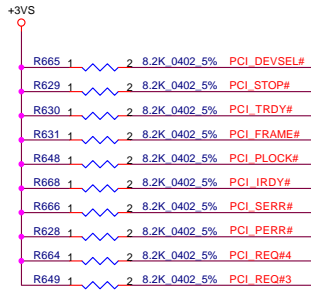
DVI-D Connector



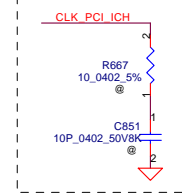
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				HBQ60 LA-3191P		Rev 0.1
				Date: Wednesday, November 30, 2005 Sheet 25 of 59		

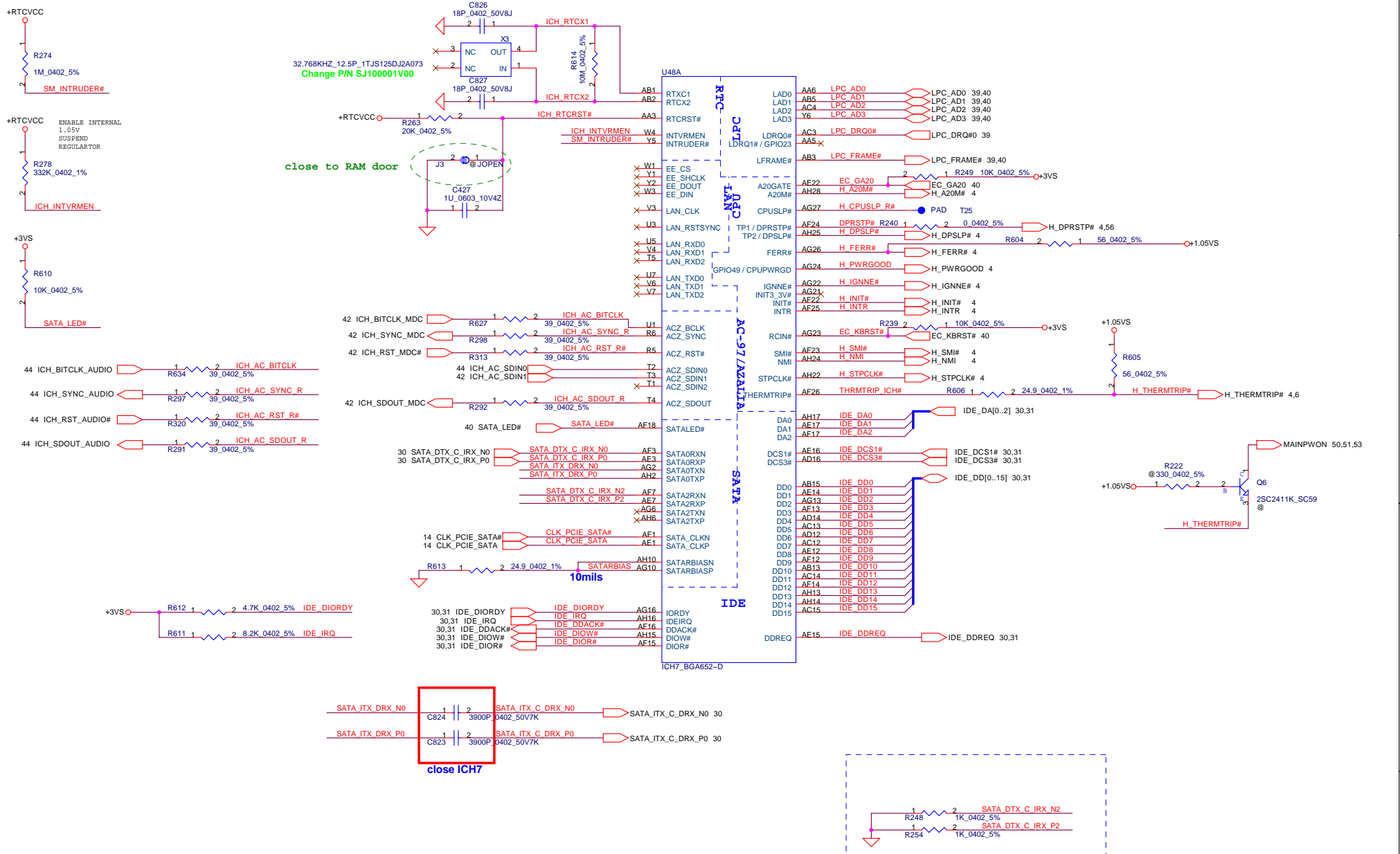
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Place closely pin A9

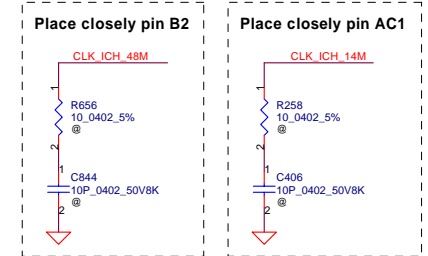
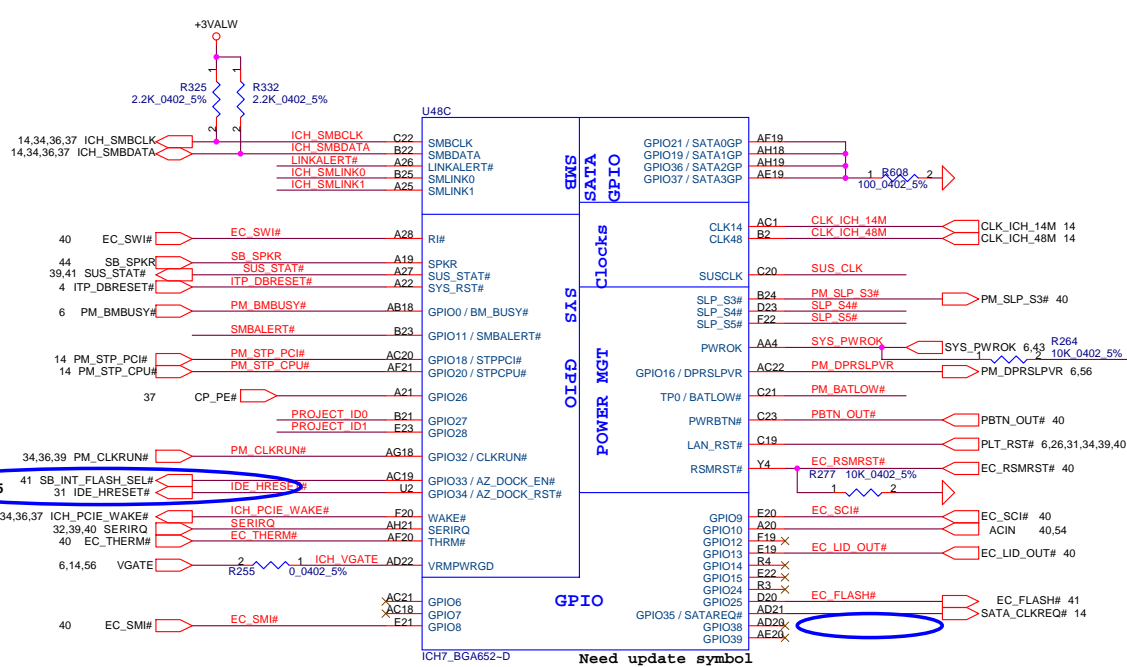
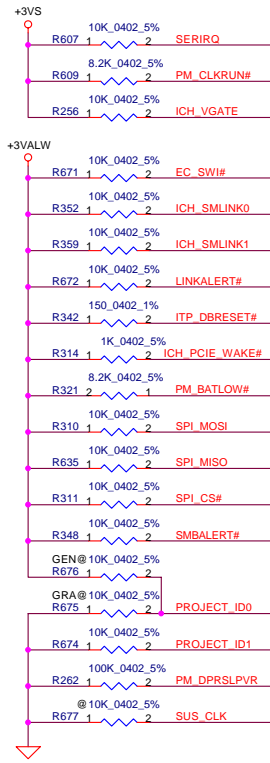


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				Date:	Wednesday, November 30, 2005	Sheet 26 of 59

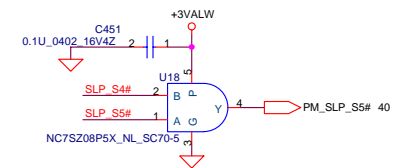


SATA_RXn/p need tie to ground when SATA port no used

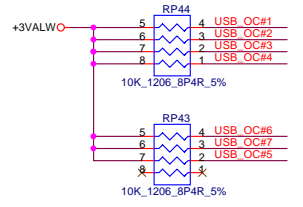
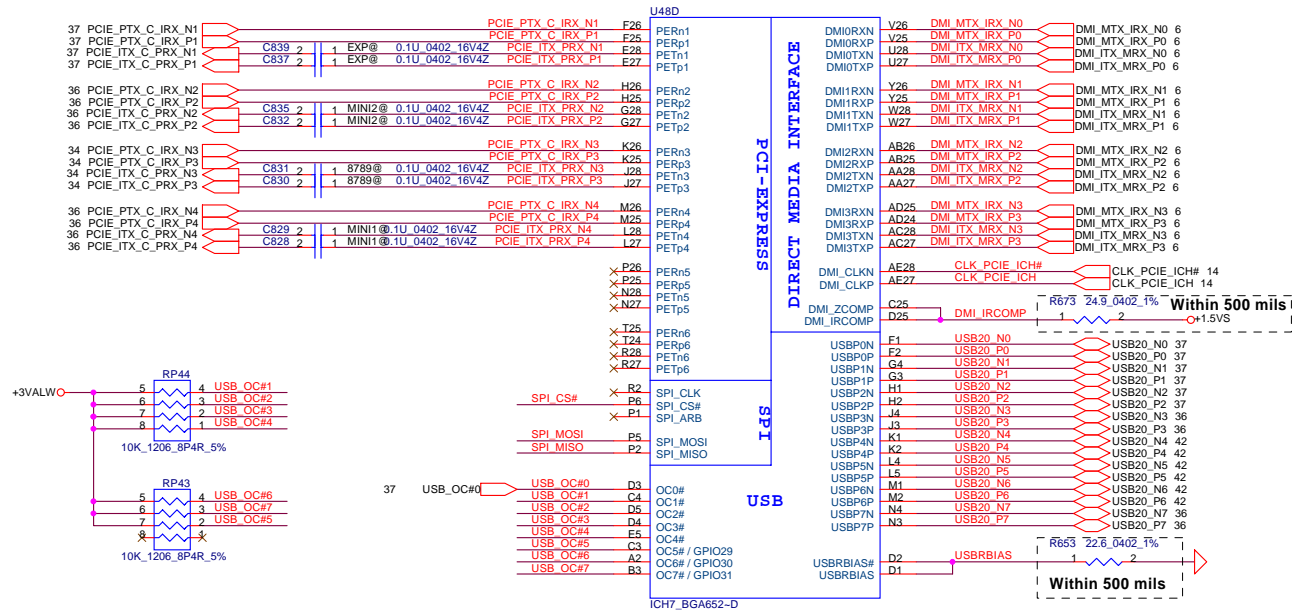
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Issued Date	2005/06/20	Deciphered Date	2006/11/30	Size	Document Number
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Date:	Wednesday, November 30, 2005	Sheet	27	of	59



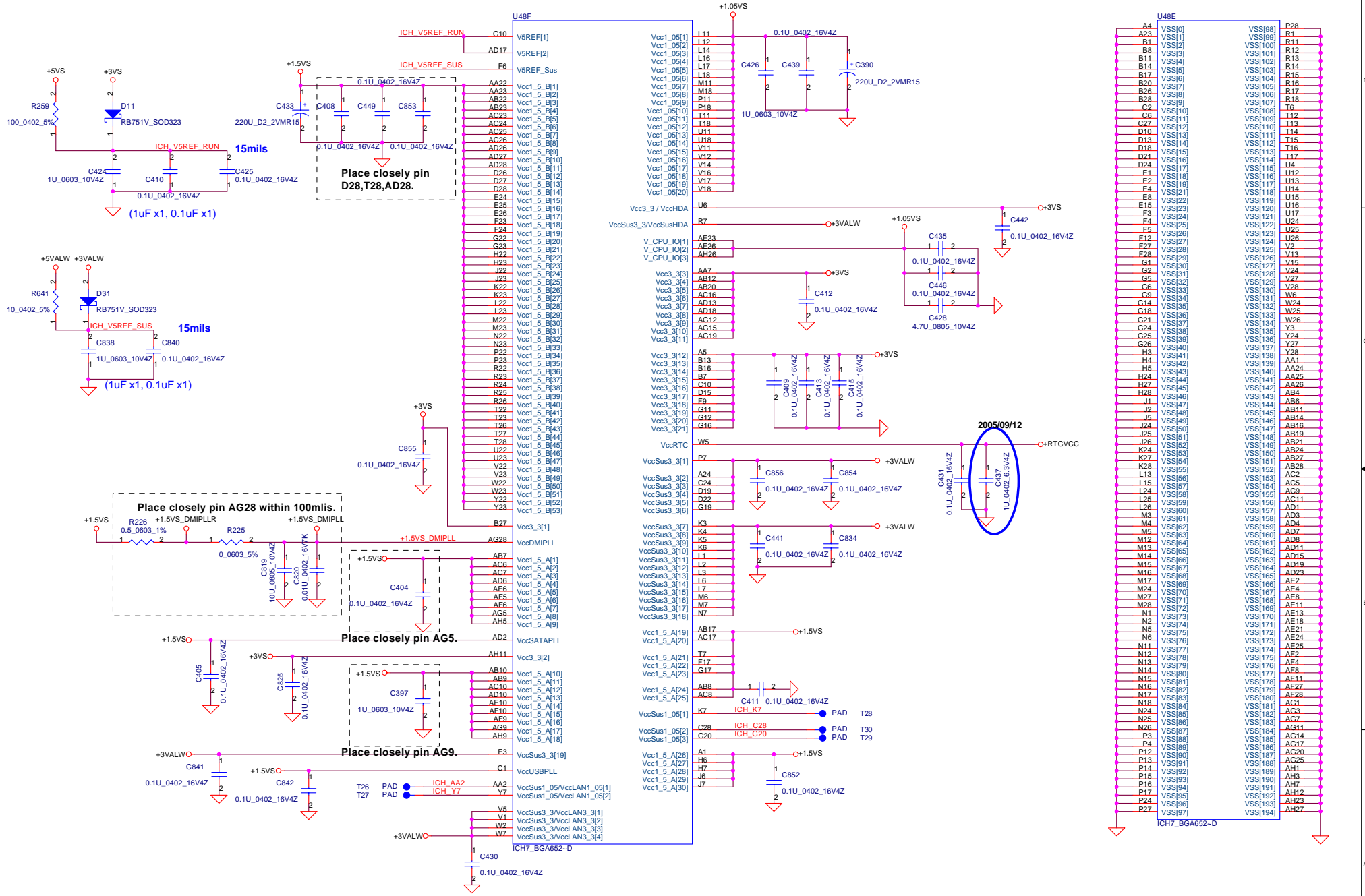
PM_DPRSPLVPR : Need to series a 500Ohm resistor to IMVP6



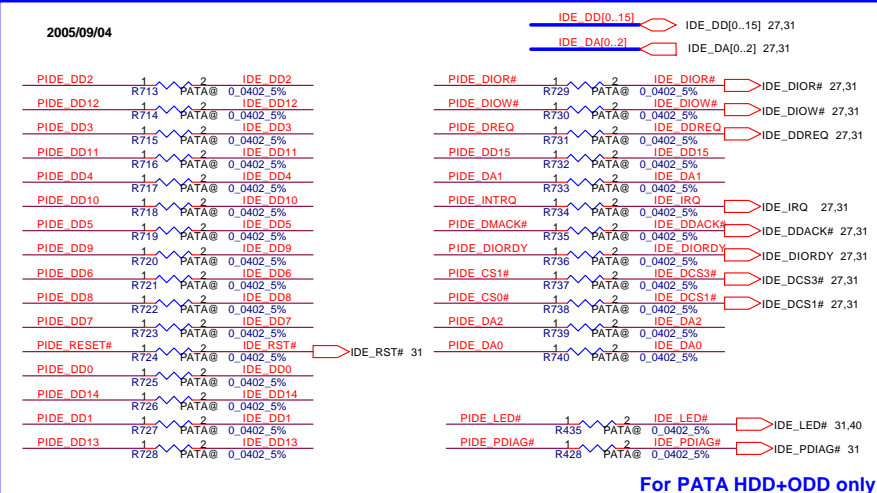
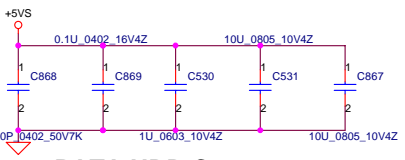
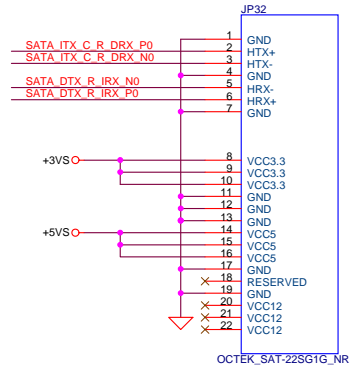
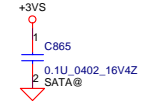
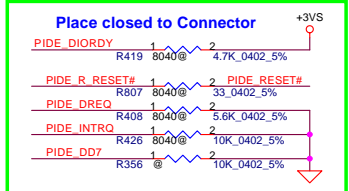
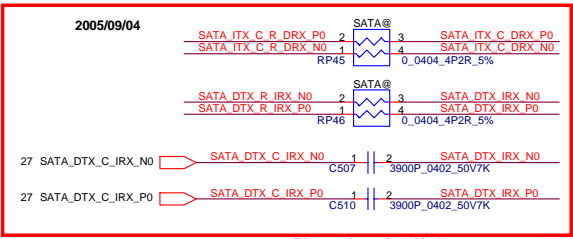
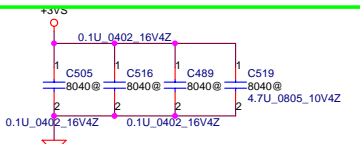
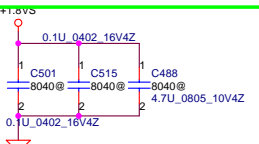
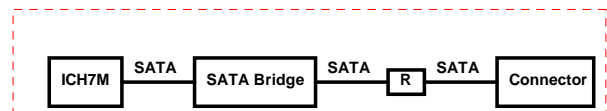
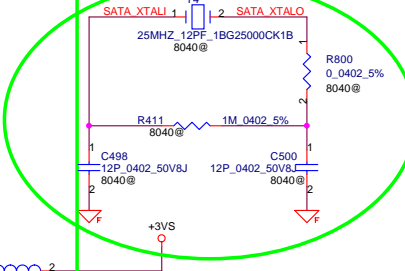
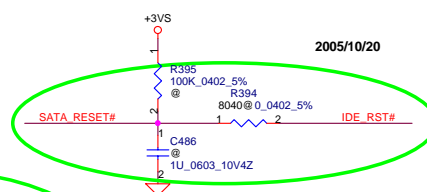
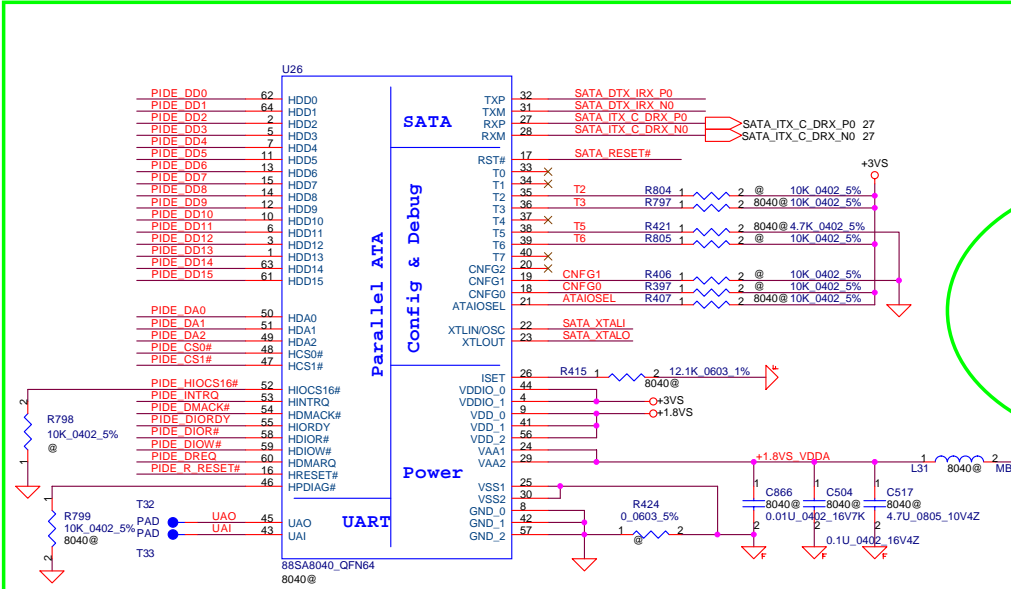
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01 = Geneva



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Custom	HBQ60 LA-319P	0.1			
Date:	Wednesday, November 30, 2005	Sheet	28	of	59



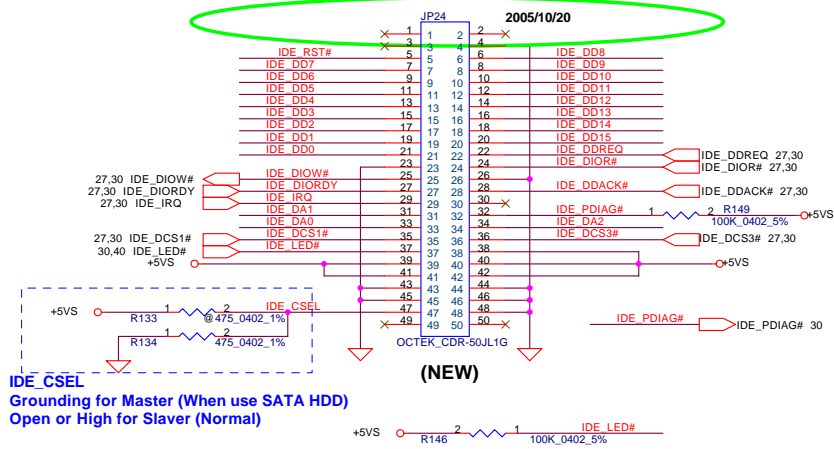
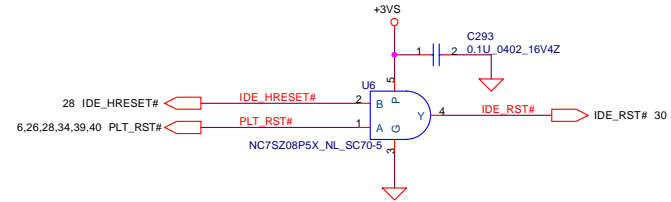
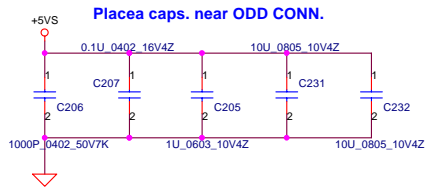
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		Sheet	29	of
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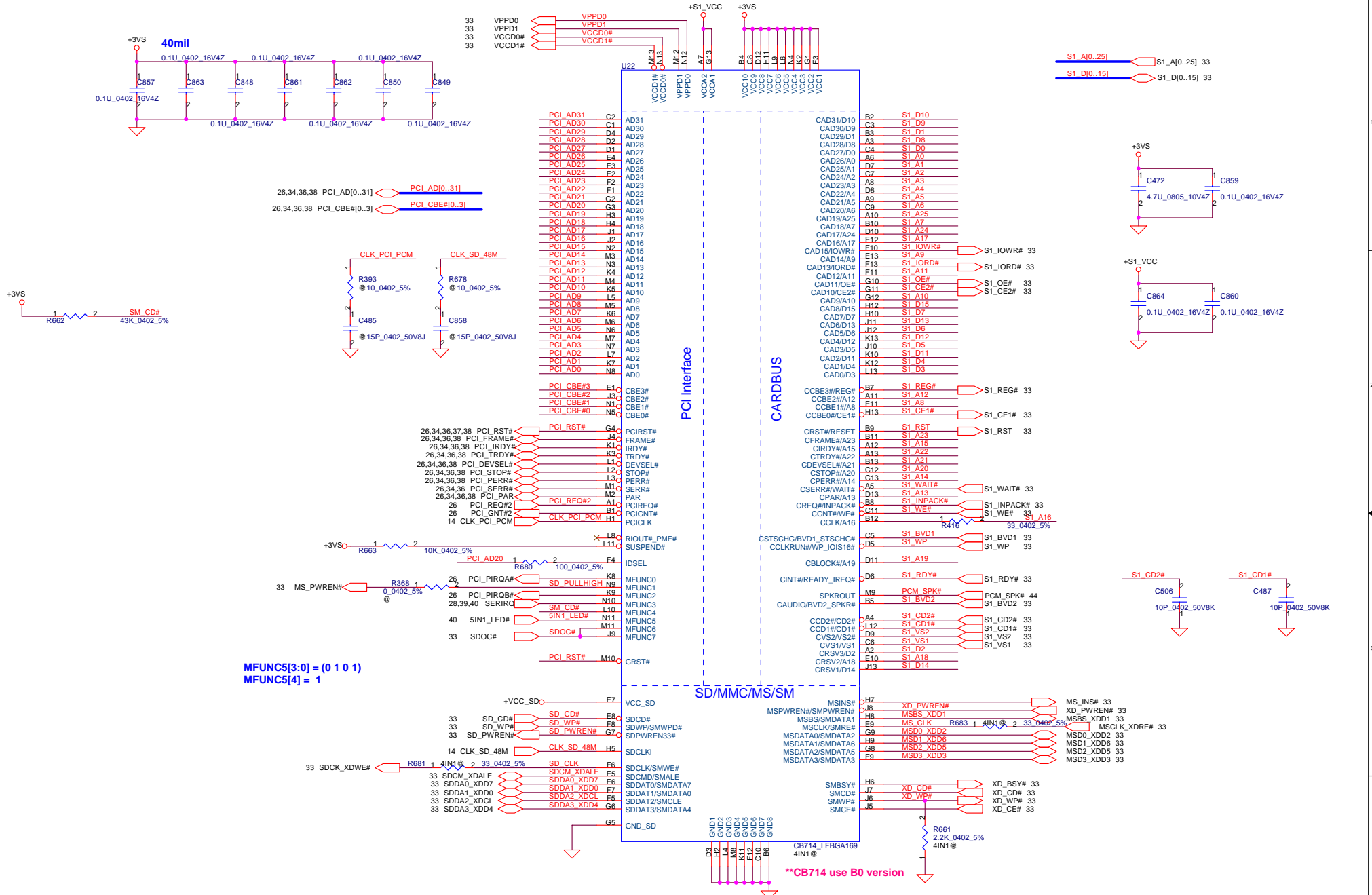
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Issued Date	2005/06/20	Deciphered Date
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Compal Electronics, Inc.			
SATA Bridge			
Title	SATA Bridge		
Size	Document Number	Rev	
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Date:	Wednesday, November 30, 2005	Sheet	30 of 59



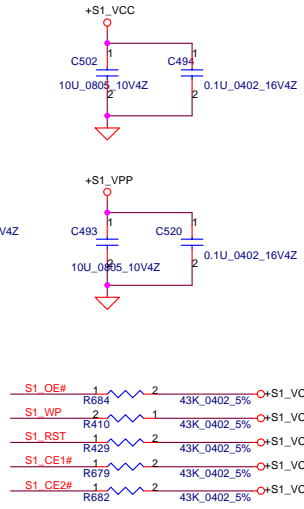
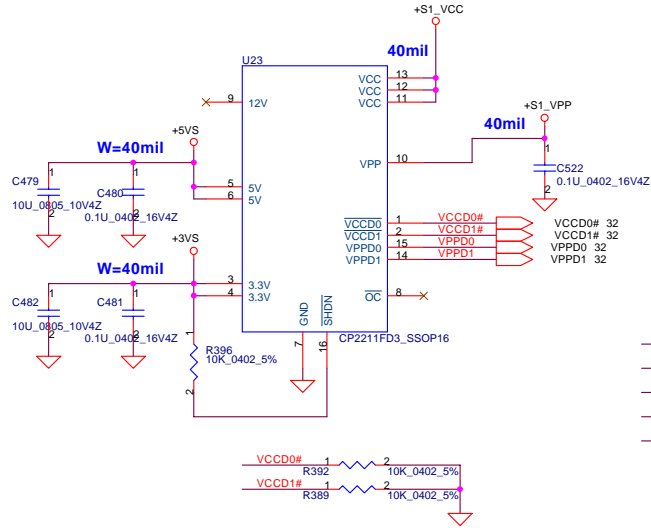
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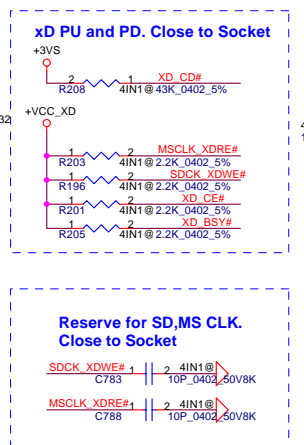
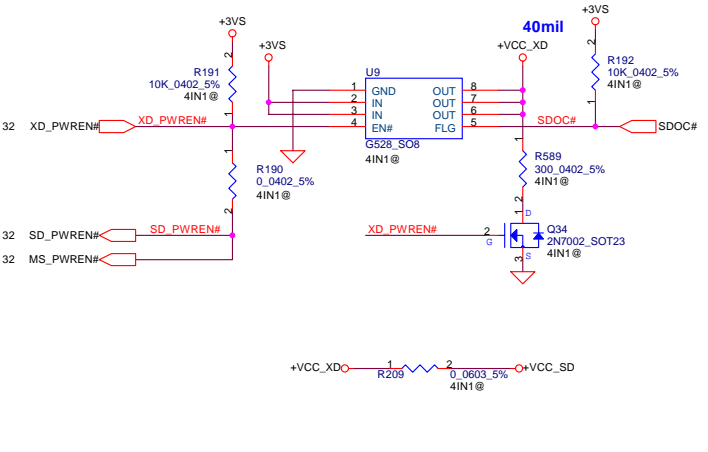
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CB1410 P/N: SA014100310

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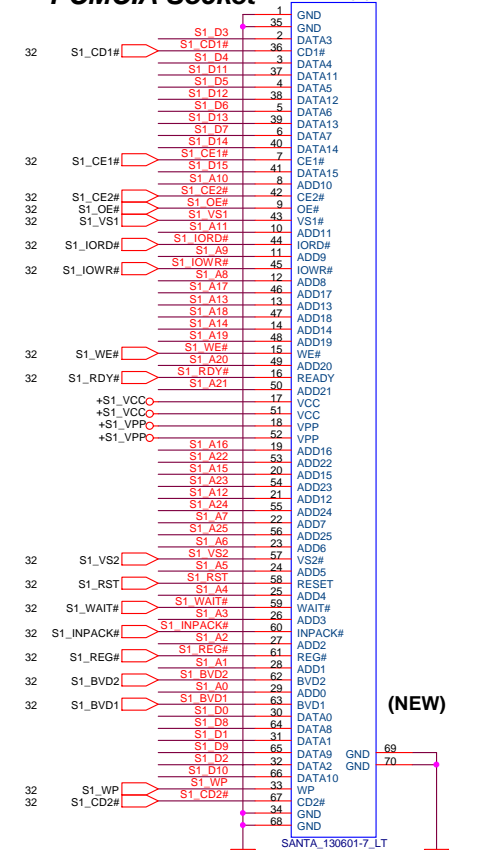
PCMCIA Power Control



SD/MS Power Control XD Power Control

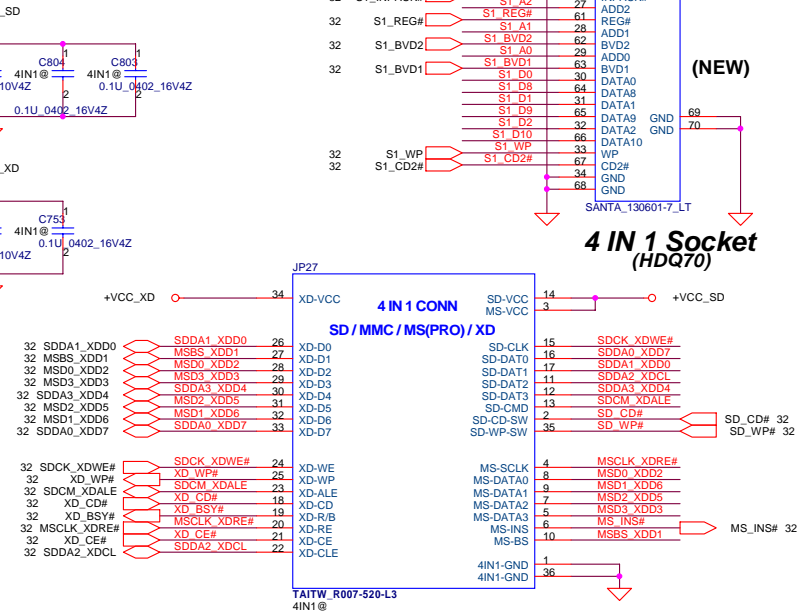


PCMCIA Socket



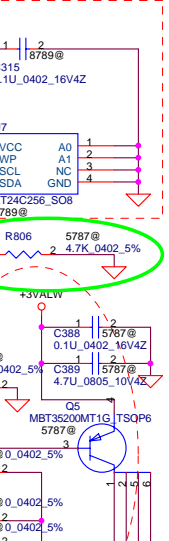
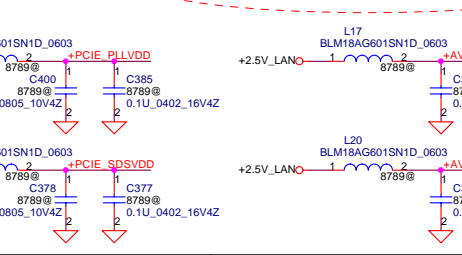
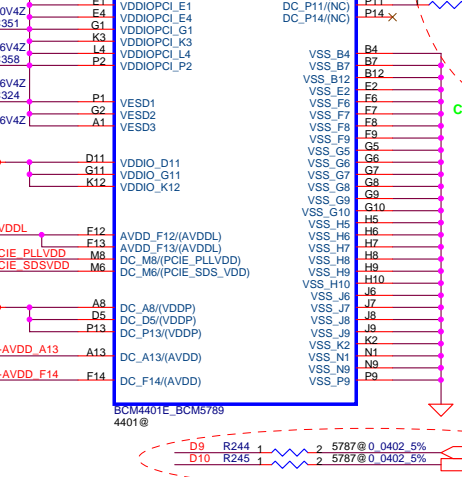
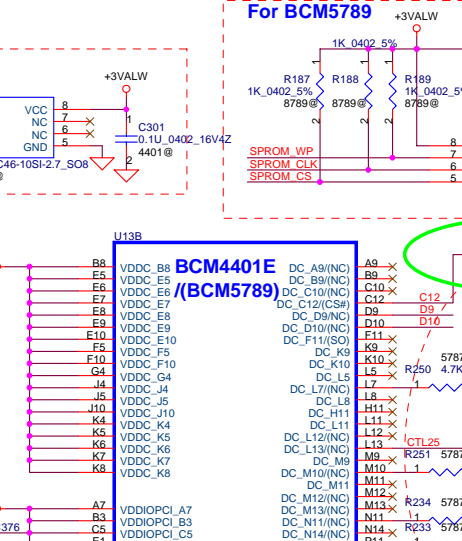
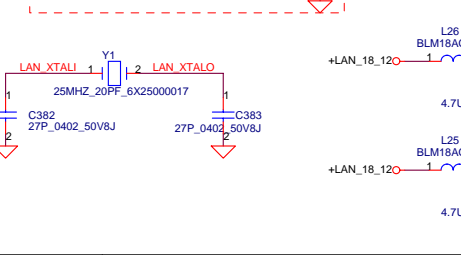
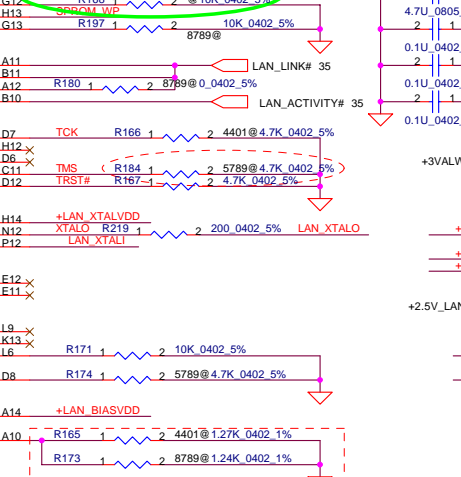
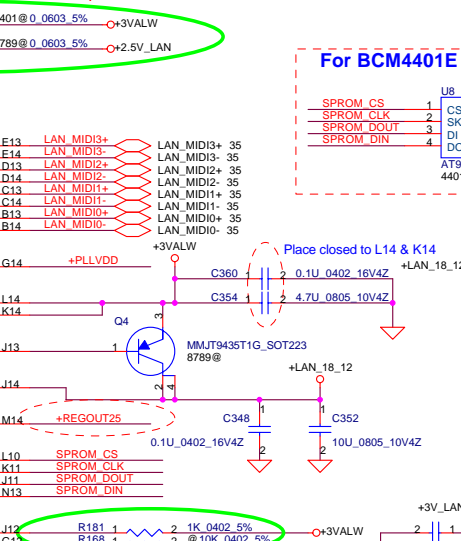
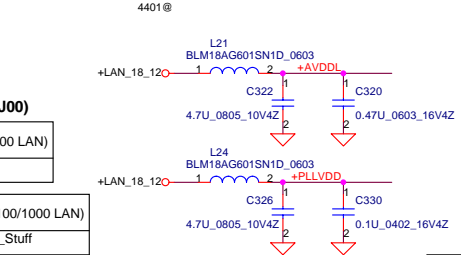
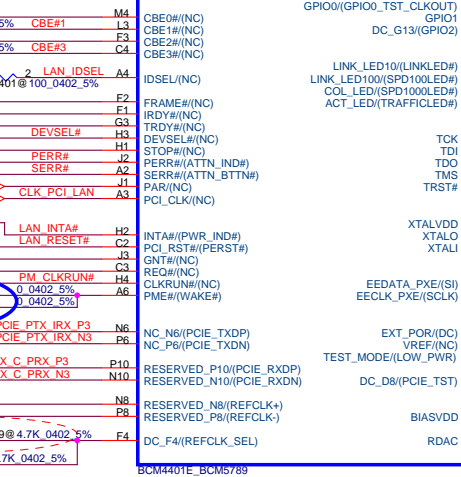
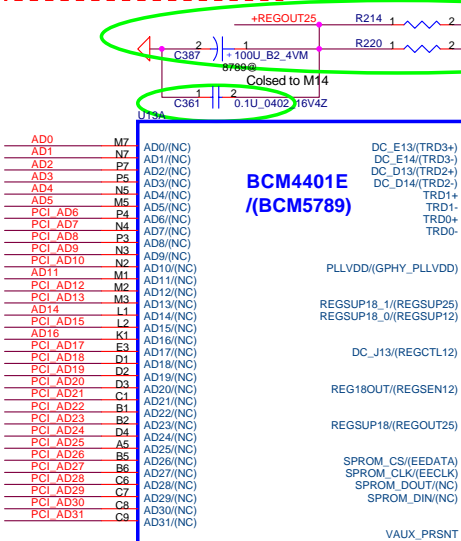
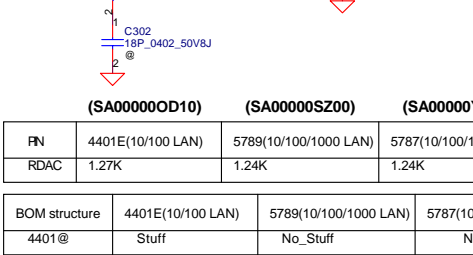
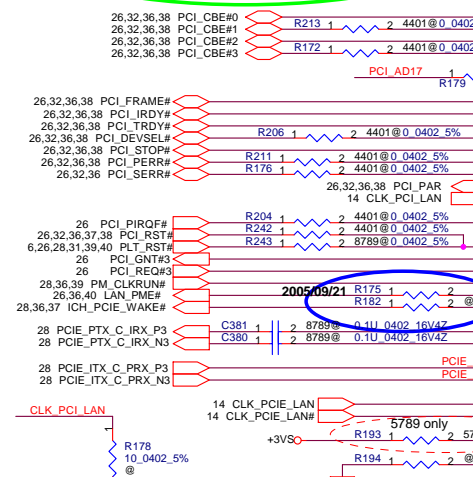
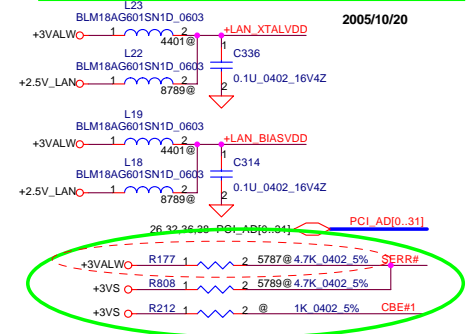
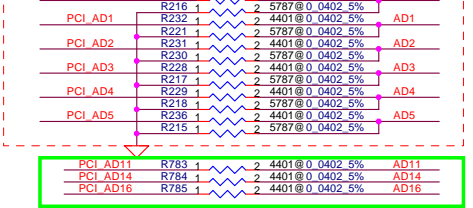
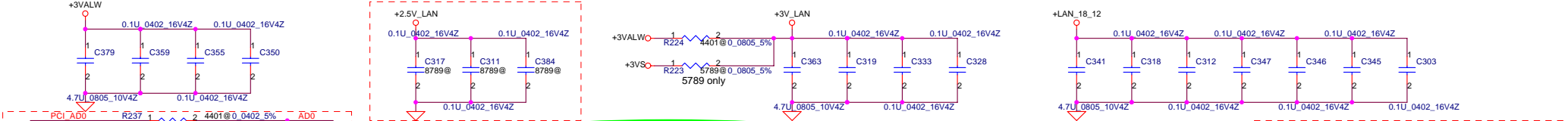
(NEW)

4 IN 1 Socket (HDQ70)



Security Classification	Compal Secret Data		Title	PCMCIA Socket	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	Size	Document Number
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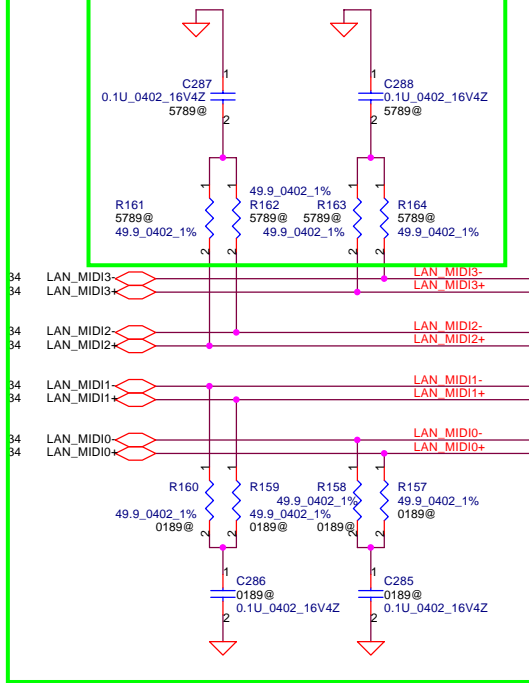
	(SA00000D10)	(SA00000S200)	(SA00000YJ00)
FN	4401E(10/100 LAN)	5789(10/100/1000 LAN)	5787(10/100/1000 LAN)
RDAC	1.27K	1.24K	1.24K
BOM structure	4401E(10/100 LAN)	5789(10/100/1000 LAN)	5787(10/100/1000 LAN)
4401@	Stuff	No_Stuff	No_Stuff
5789@	No_Stuff	Stuff	No_Stuff
5787@	No_Stuff	No_Stuff	Stuff
8789@	No_Stuff	Stuff	Stuff
@	No_Stuff	No_Stuff	No_Stuff

Security Classification	Compal Secret Data		Title	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	LAN BCM4401E/Jade15
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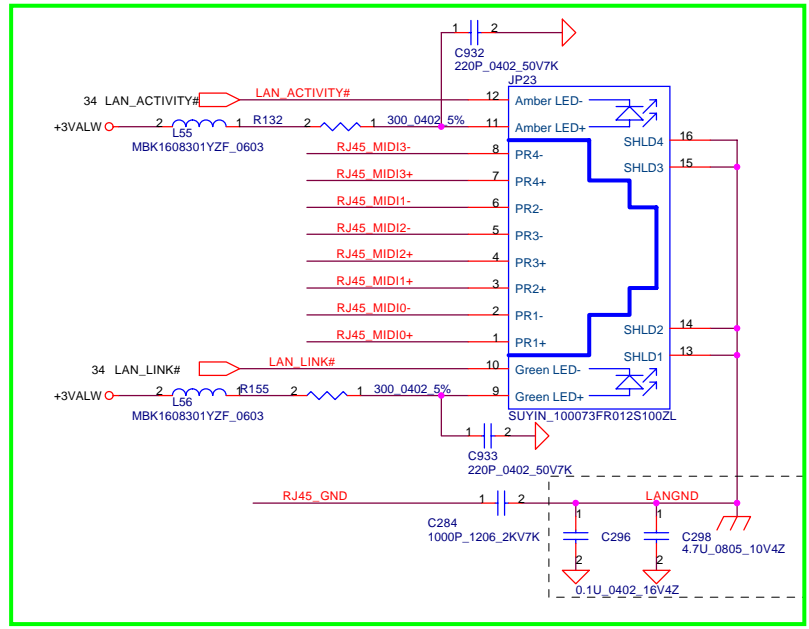
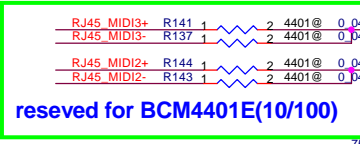
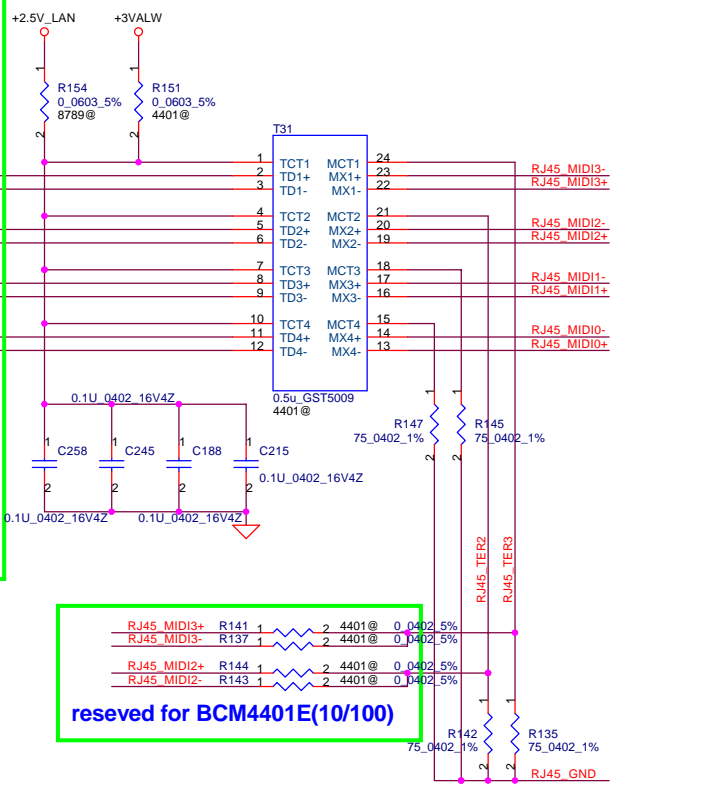
LAN BCM4401E/ BCM5789

Place these components colsed to LAN chip

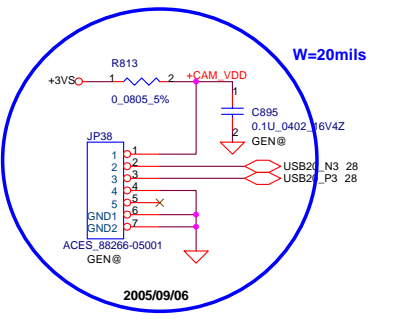
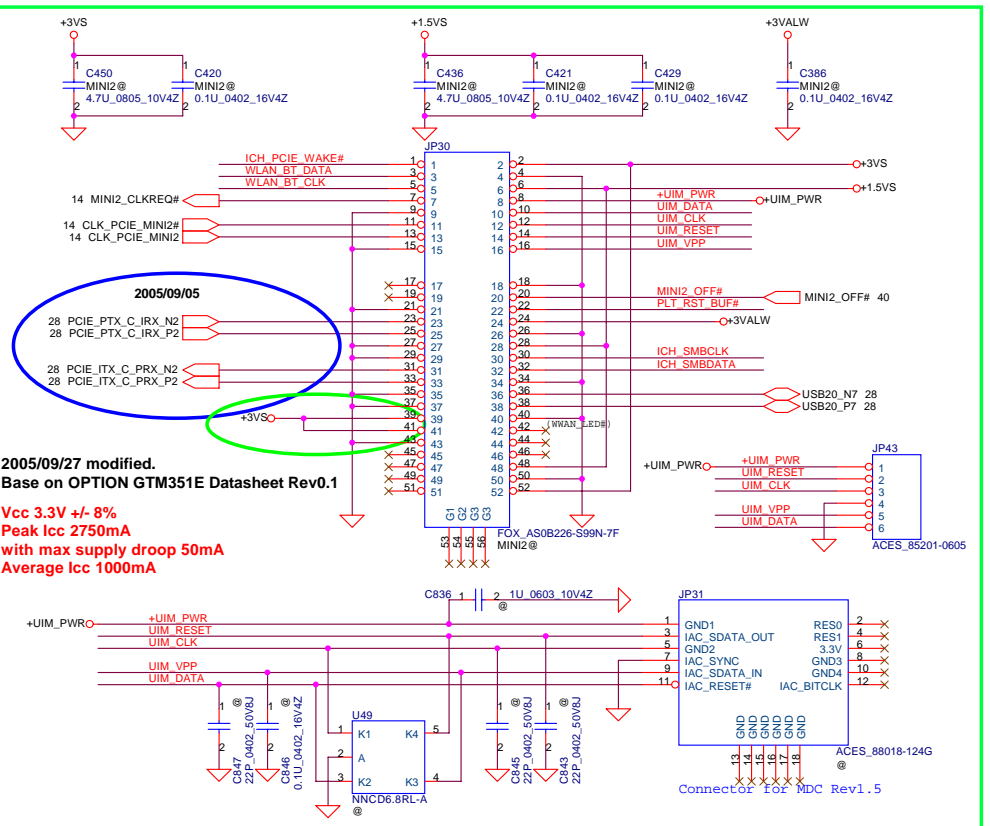
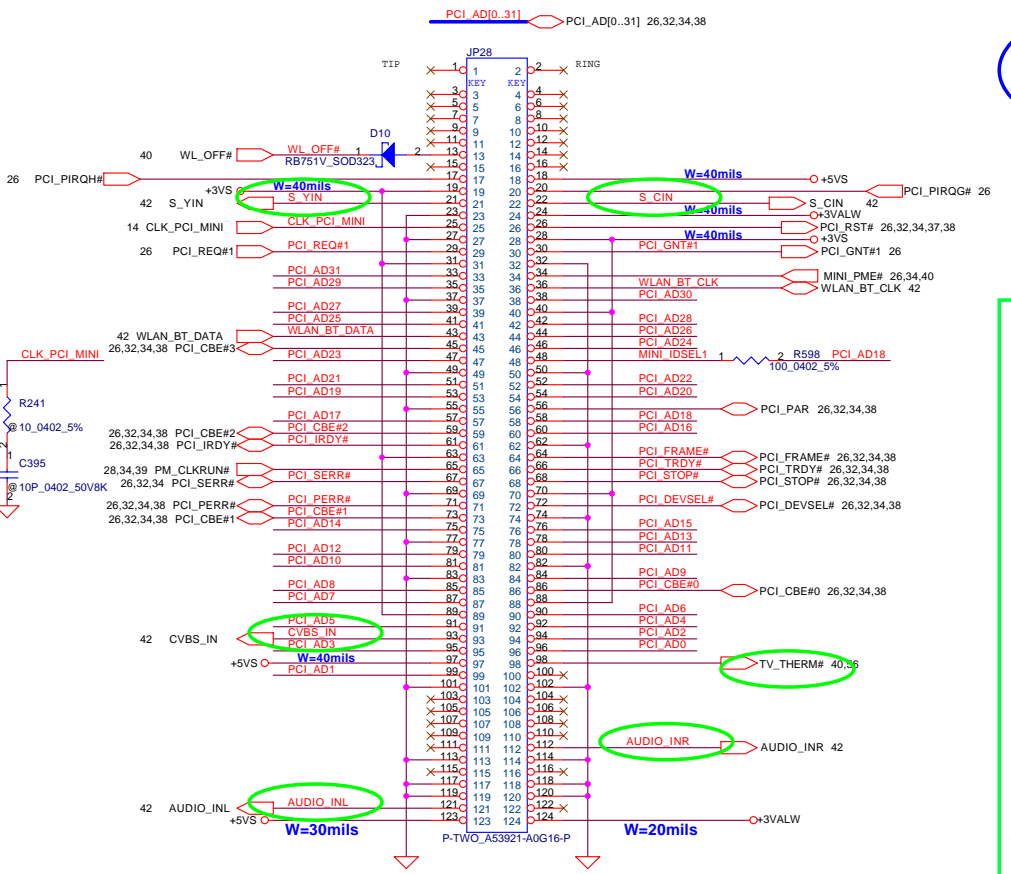
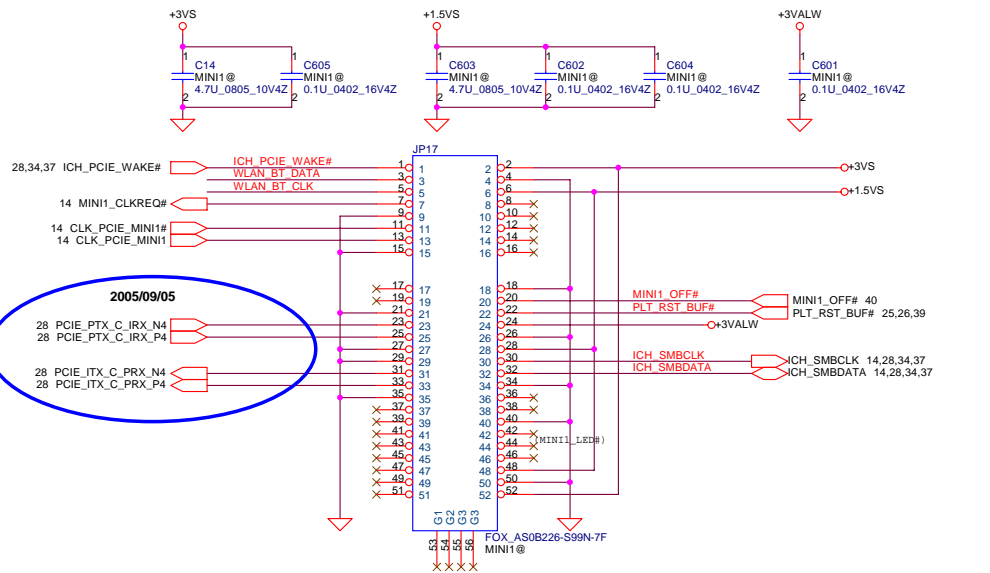
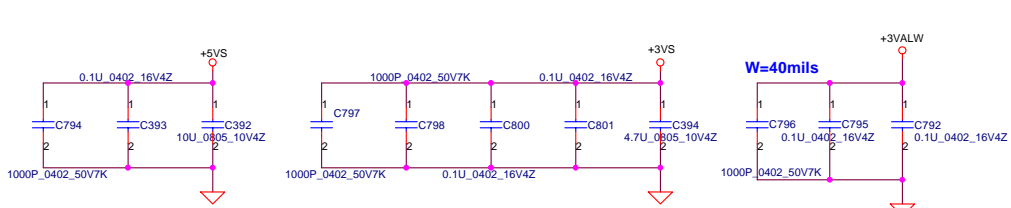
unpop when use BCM4401E(10/100)



GbE Transformer: GST5009 (SP050005610)
10/100 Transformer : TST1284-LF (SP050001X10)

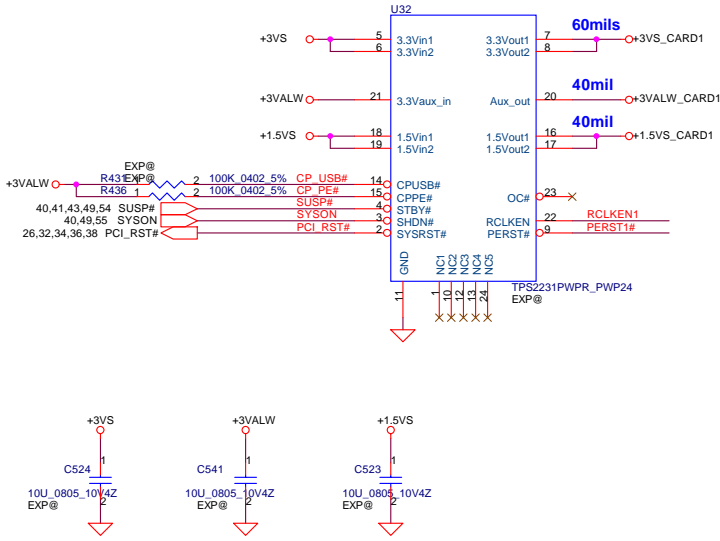


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Size	Document Number	Rev		0.1	
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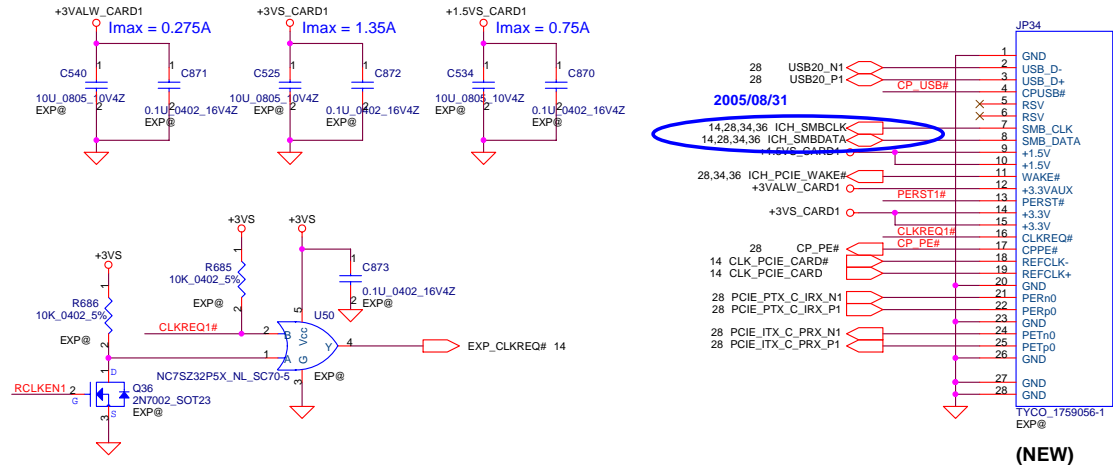


Power	Mini Card Power Rating		
	Primary Power (mA)	Auxiliary Power (mA)	
	Peak	Normal	
+3VS	1000	750	
+3VALW	330	250	250 (wake enable)
+1.5VS	500	375	5 (Not wake enable)

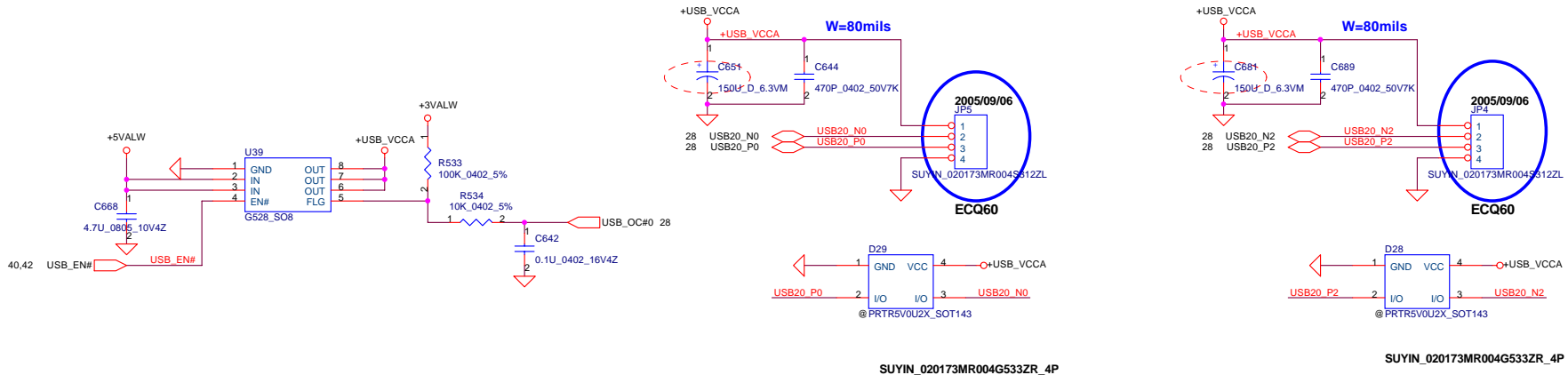
New Card Power Switch



New Card Socket (Left)

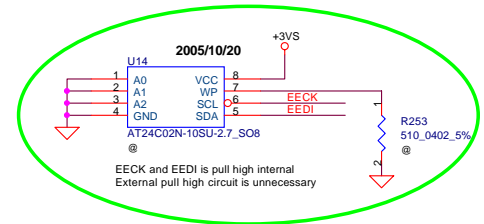
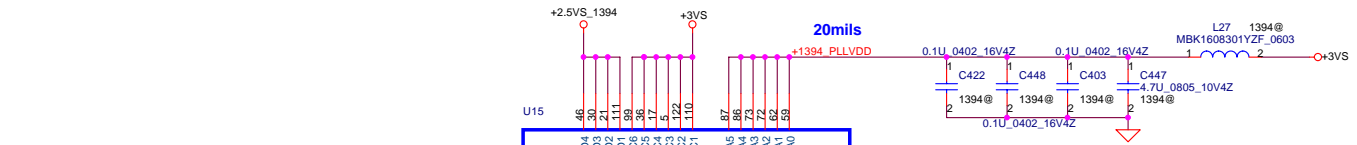
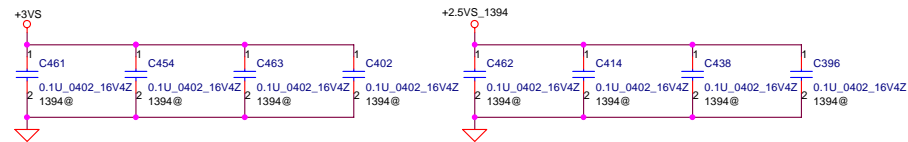


USB CONN. 1 & 2

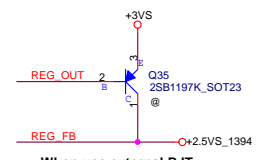
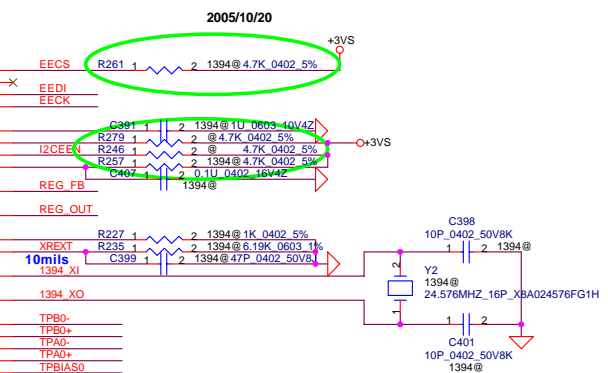
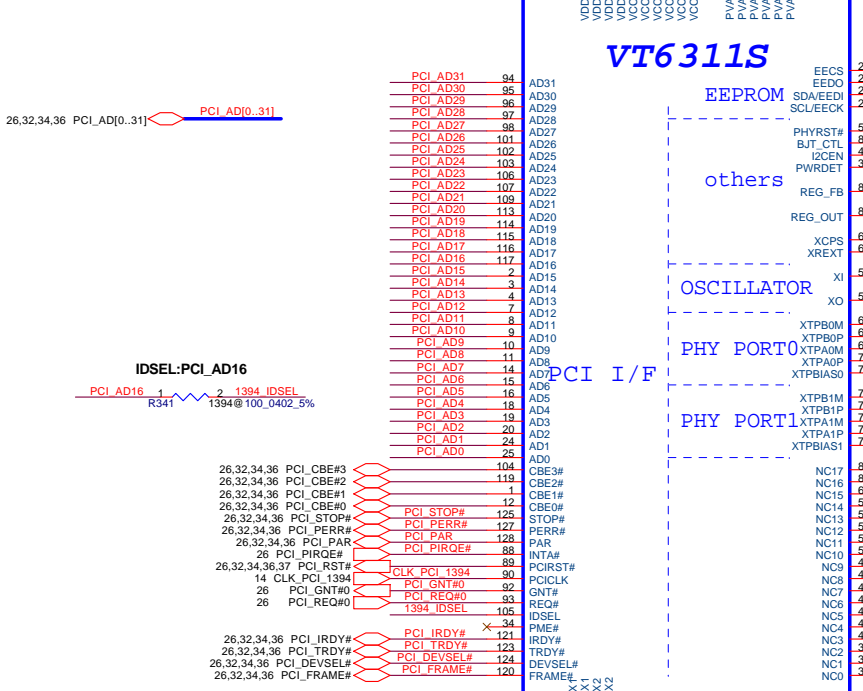


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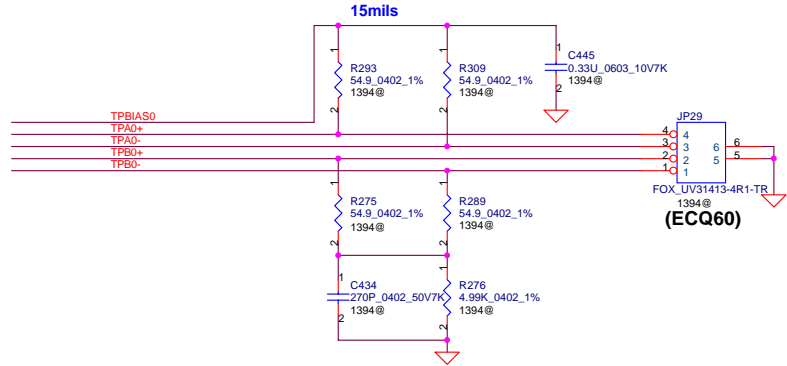
Compal Electronics, Inc.		
Title NEW CARD SOCKET		
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When use external EEPROM
Populate U14, R246, R253
Un-populate R261



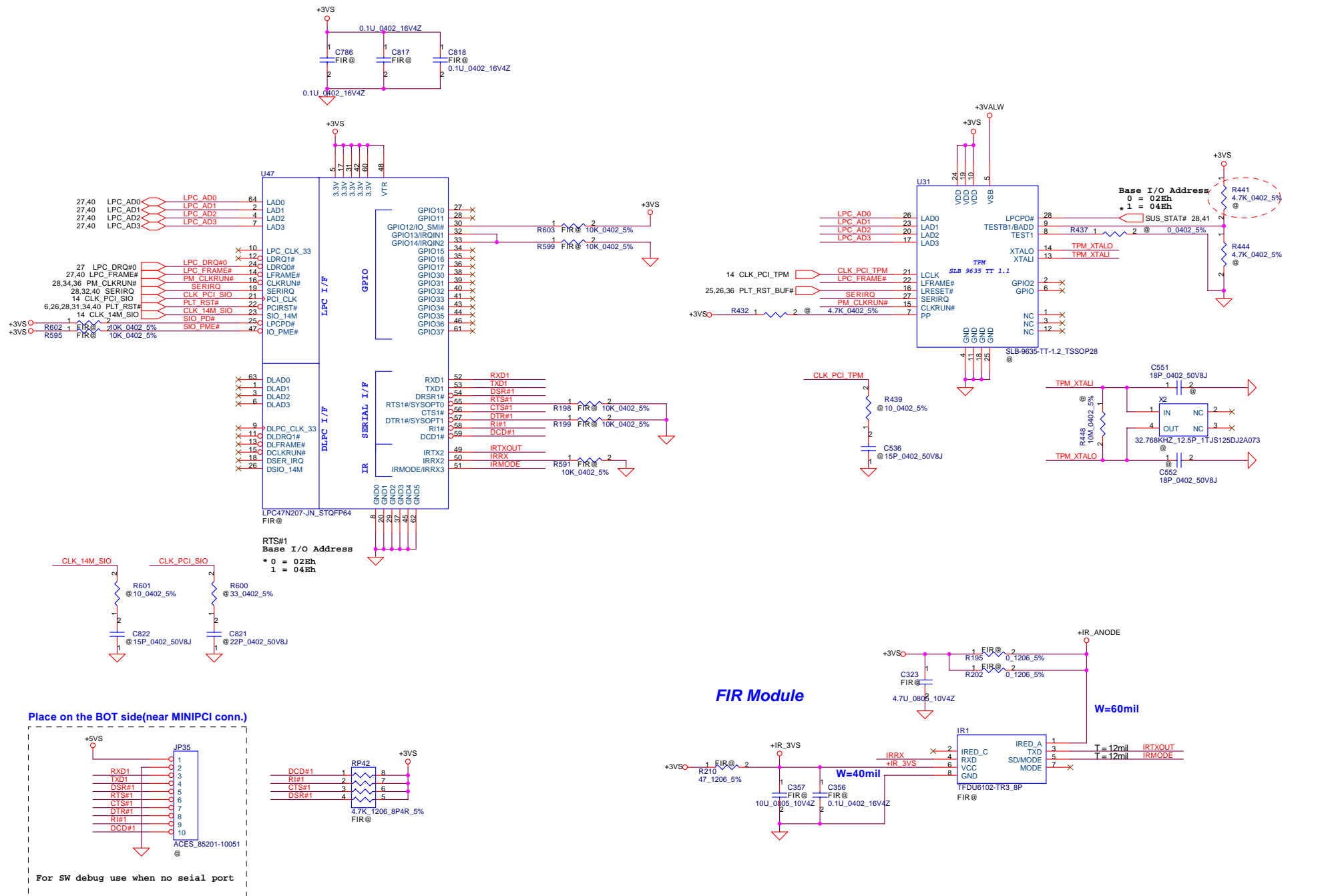
When use external BJT
Populate Q35, R279



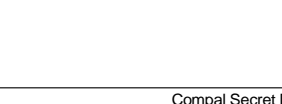
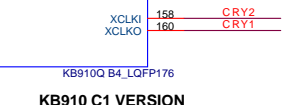
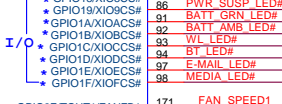
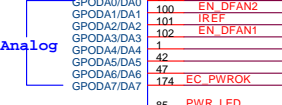
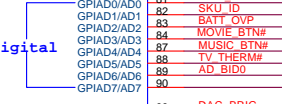
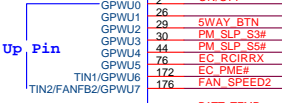
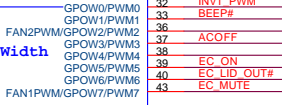
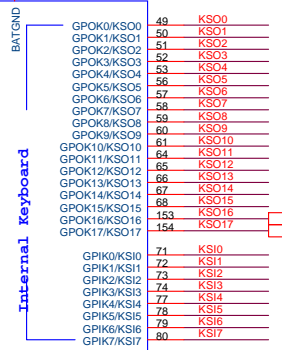
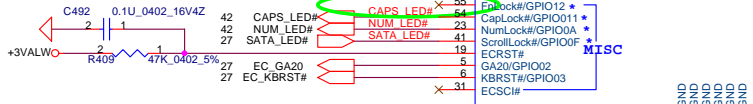
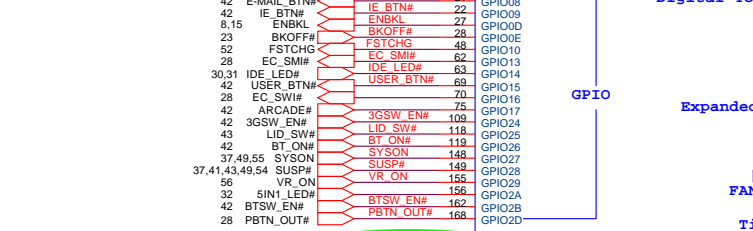
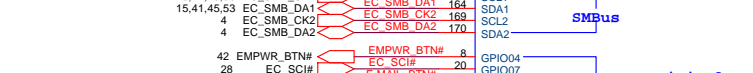
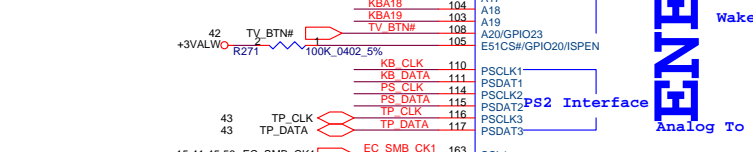
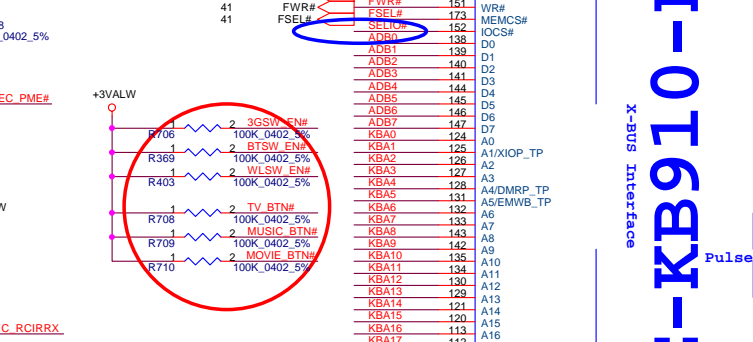
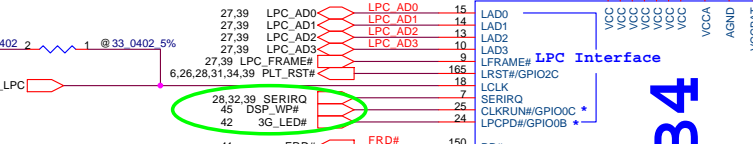
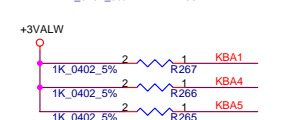
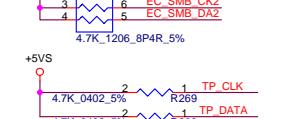
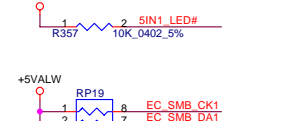
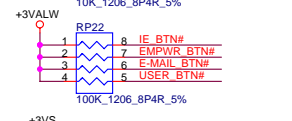
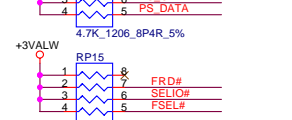
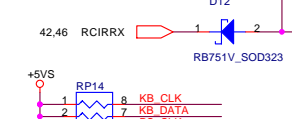
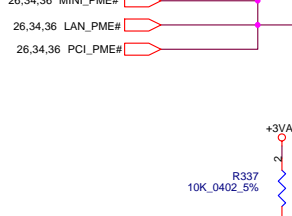
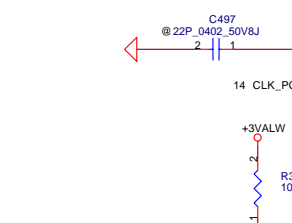
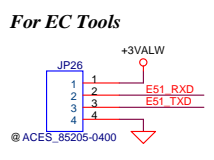
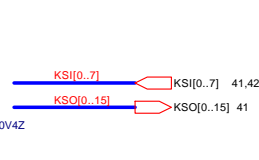
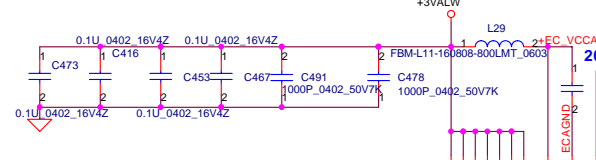
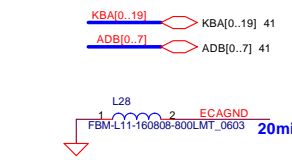
(ECQ60)

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				IEEE1394 VIA VT6311S	
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SUPER I/O SMsC LPC47N207

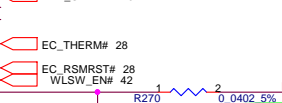
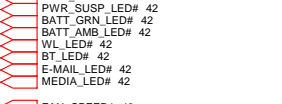
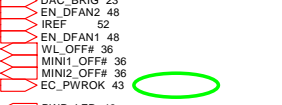
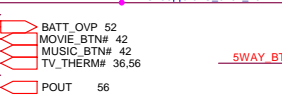
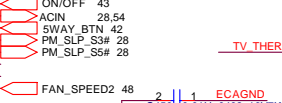
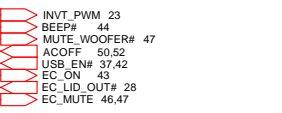
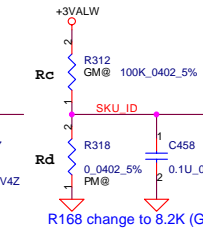
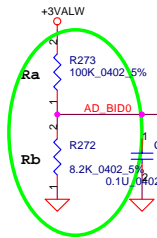


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Analog Board ID definition, Please see page 3.

SKU ID definition, Please see page 3.



ENE-KB910-B4

X-bus Interface

Pulse Width

Wake Up Pin

Analog To Digital

Digital To Analog

Expanded I/O

FAN

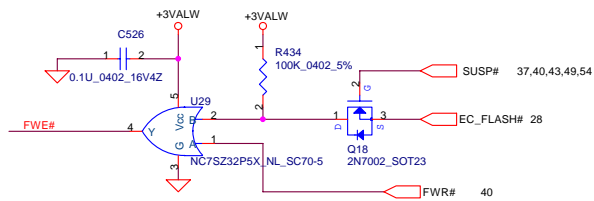
Timer Pin

MISC

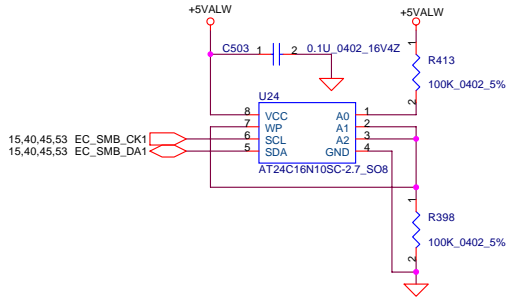
KB910 C1 VERSION

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Size	Document Number		Rev	
B	HBQ60 LA-3191P		0.1	
Date:	Wednesday, November 30, 2005		Sheet	40 of 59

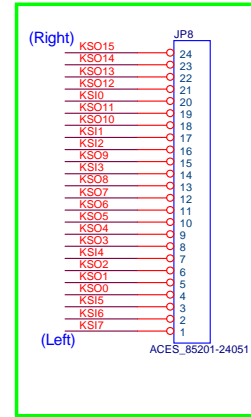
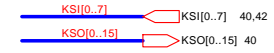
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EC ENE KB910				
HBQ60 LA-3191P				
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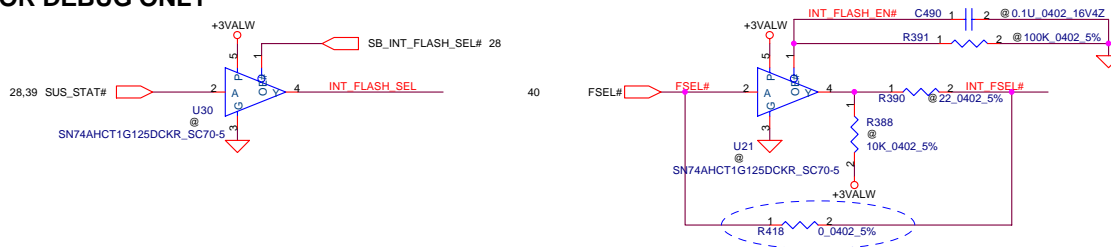
Check PCB Footprint



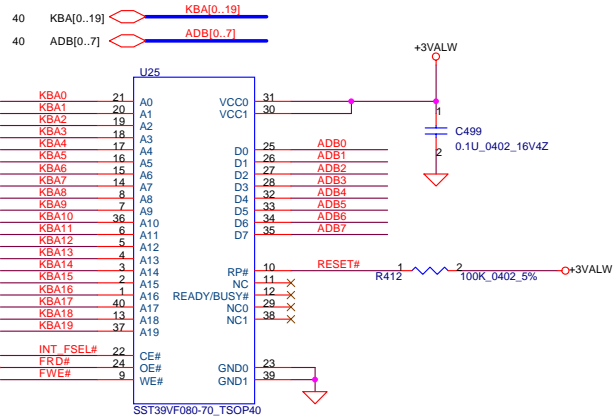
INT_KBD Conn.



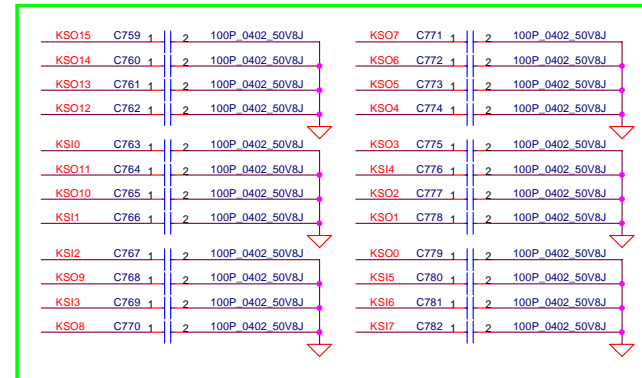
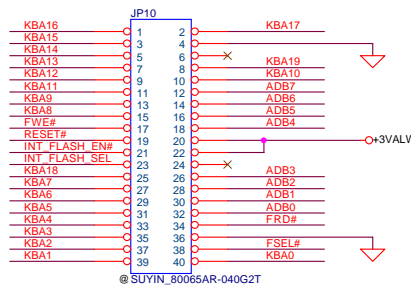
FOR DEBUG ONLY



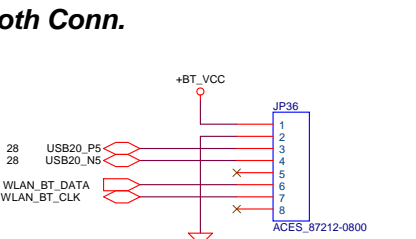
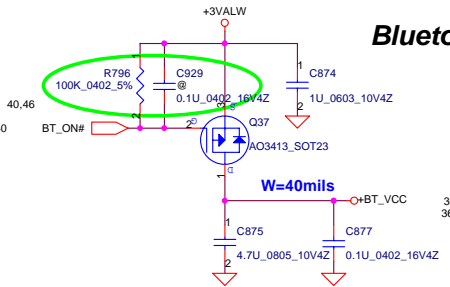
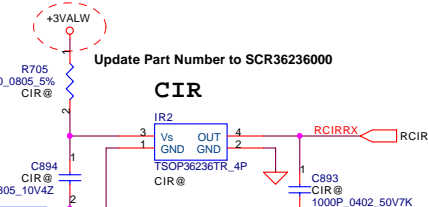
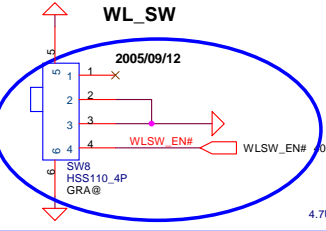
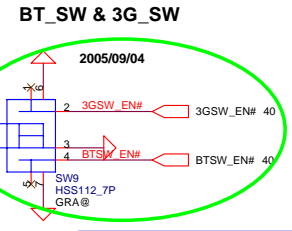
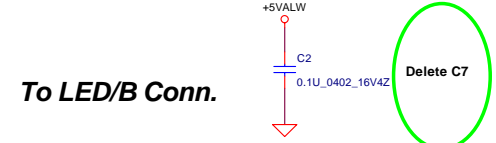
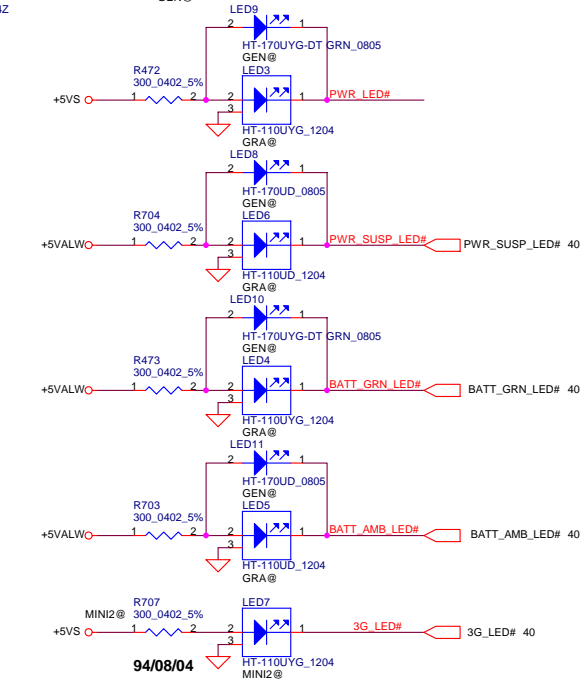
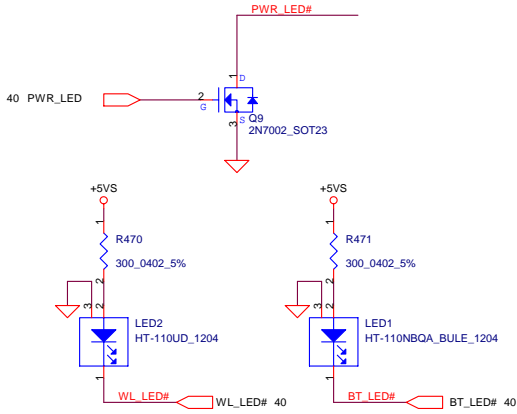
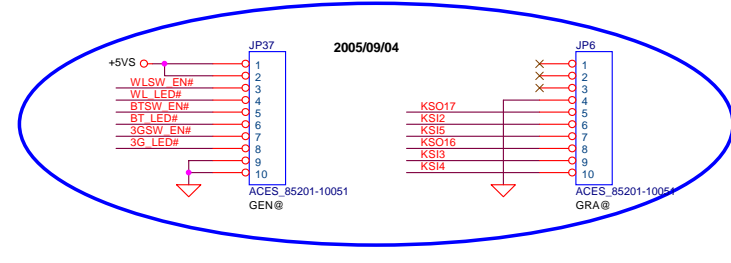
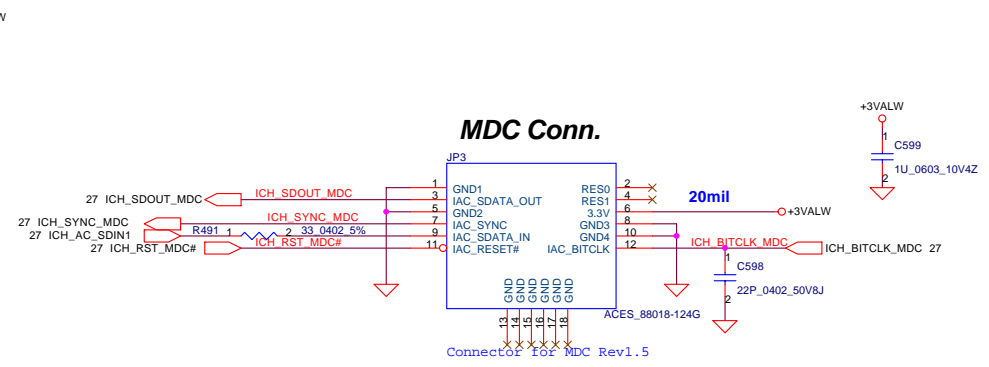
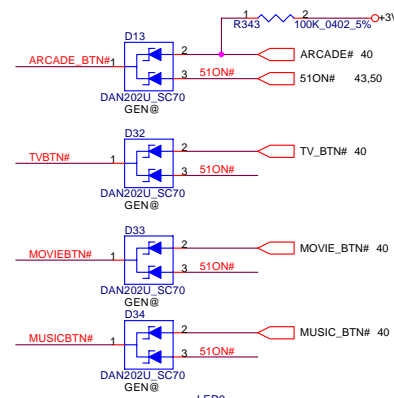
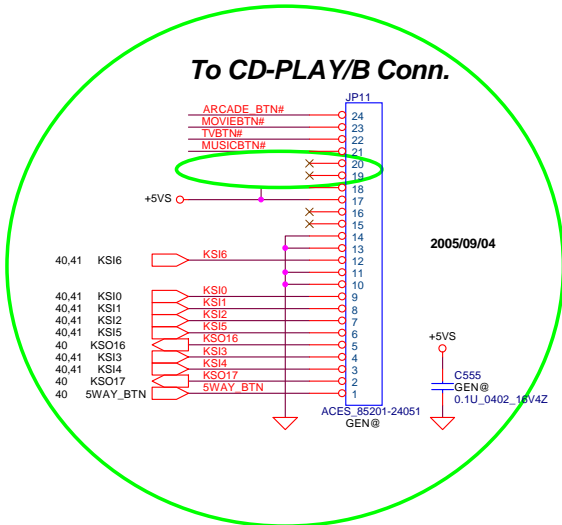
1MB Flash ROM



1MB ROM Socket

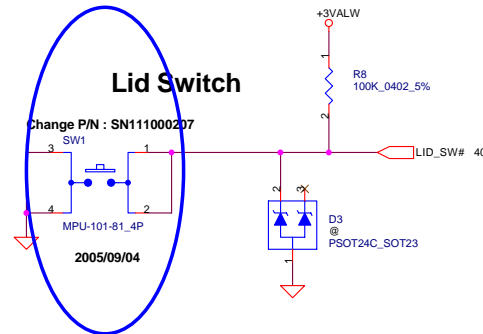
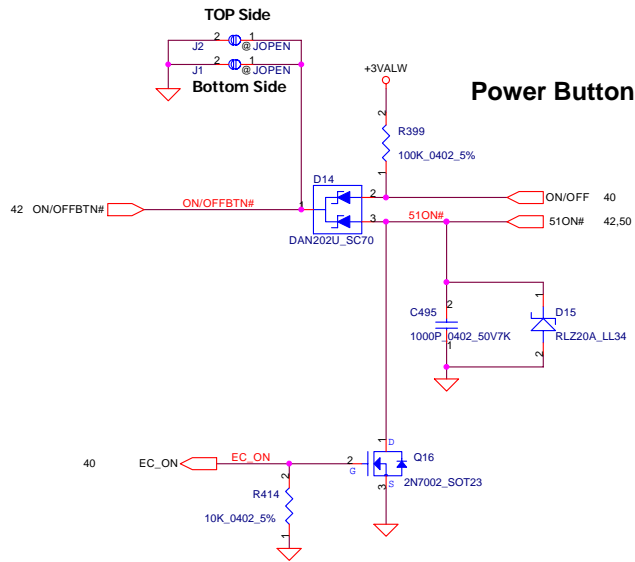


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Issued Date	2005/06/20	Deciphered Date	2006/11/30	Title	
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Size	Document Number	Rev		Date	
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		Sheet	41	of	59



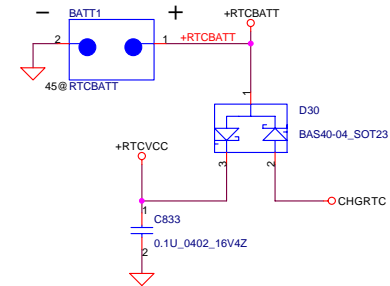
	Geneva		Grapevine	
KSO10	VOL_UP	KSO17		
KSI1	RIGHT	VOL_DOWN		
KSI2	PLAY	ENTER	KSI2	PLAY
KSI3	STOP		KSI3	STOP
KSI4	NEXT		KSI4	NEXT
KSI5	REV		KSI5	REV
KSI6		RECORD		ARCADE_TV

ON/OFF switch

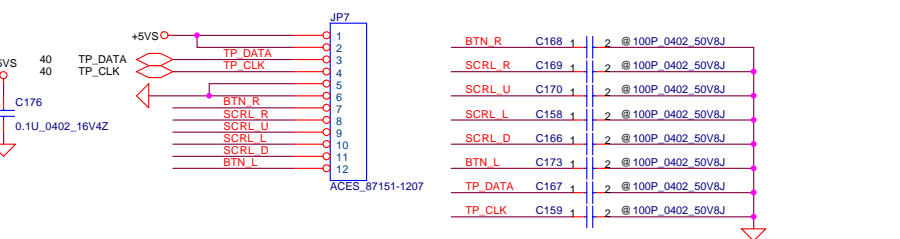
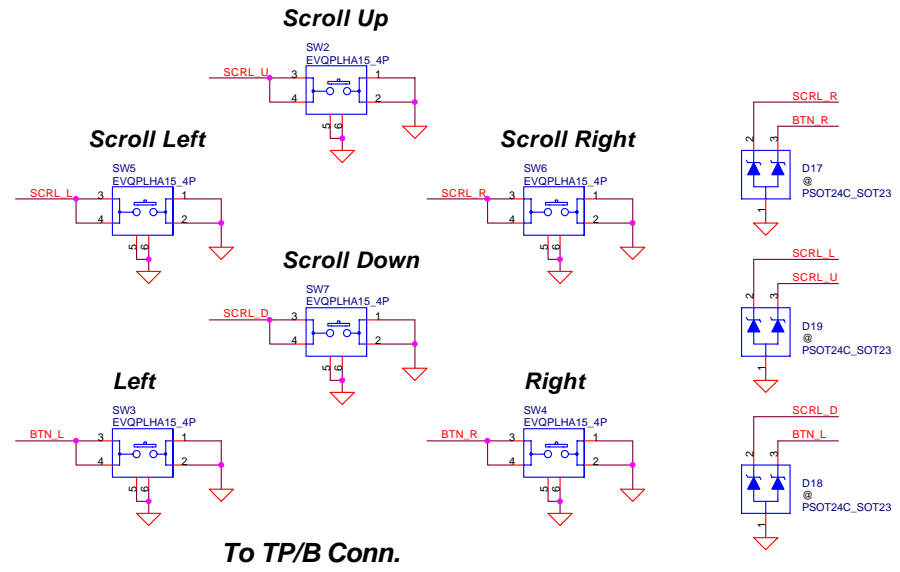
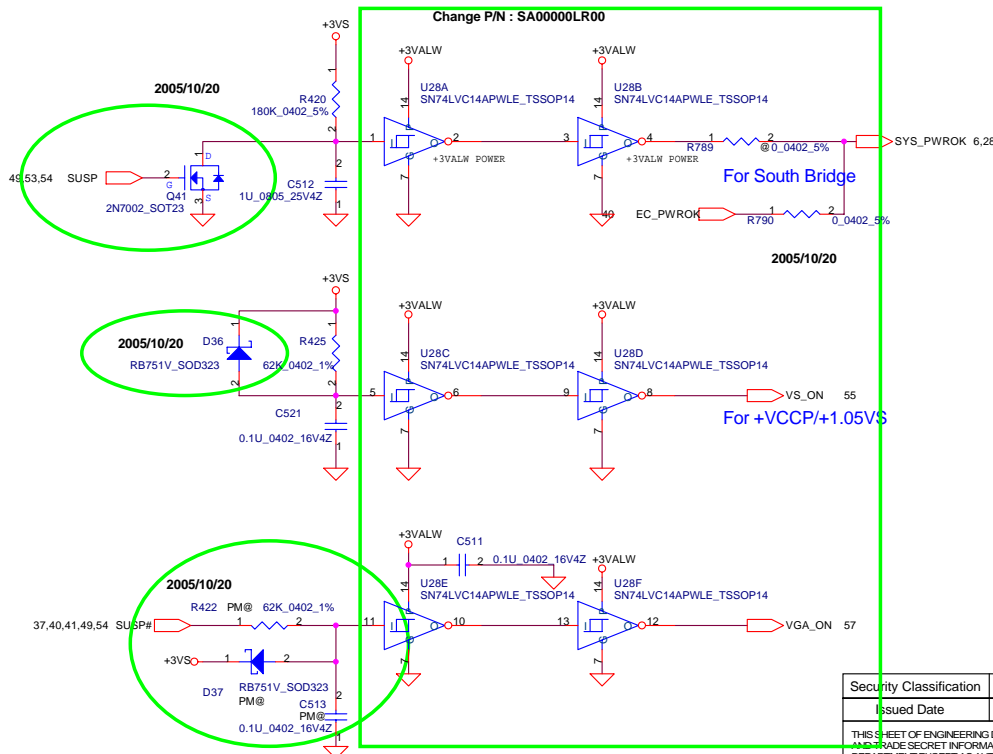


Change BATT1 P/N : SP093PA0200 (Panasonic)
SP093MX0000 (MAXELL)

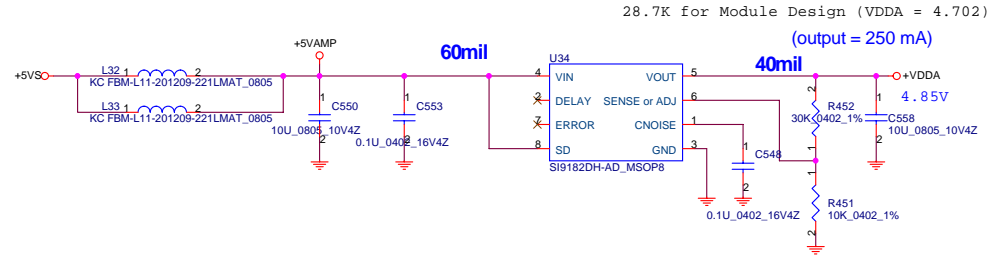
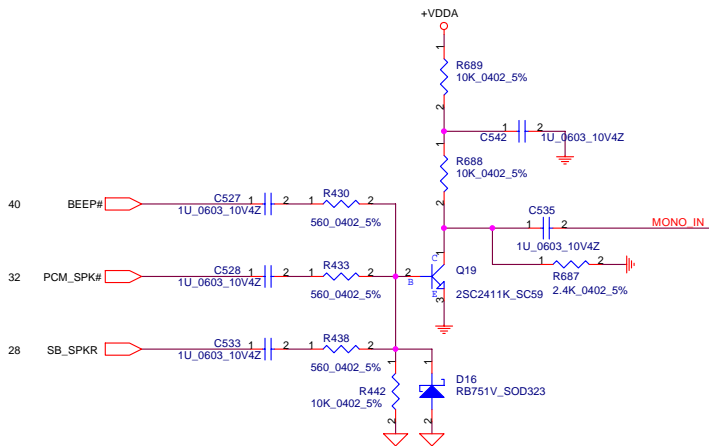
RTC Battery



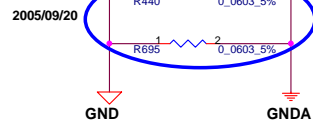
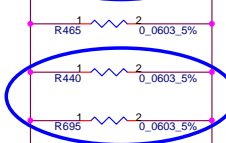
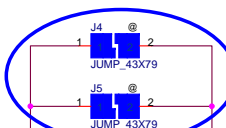
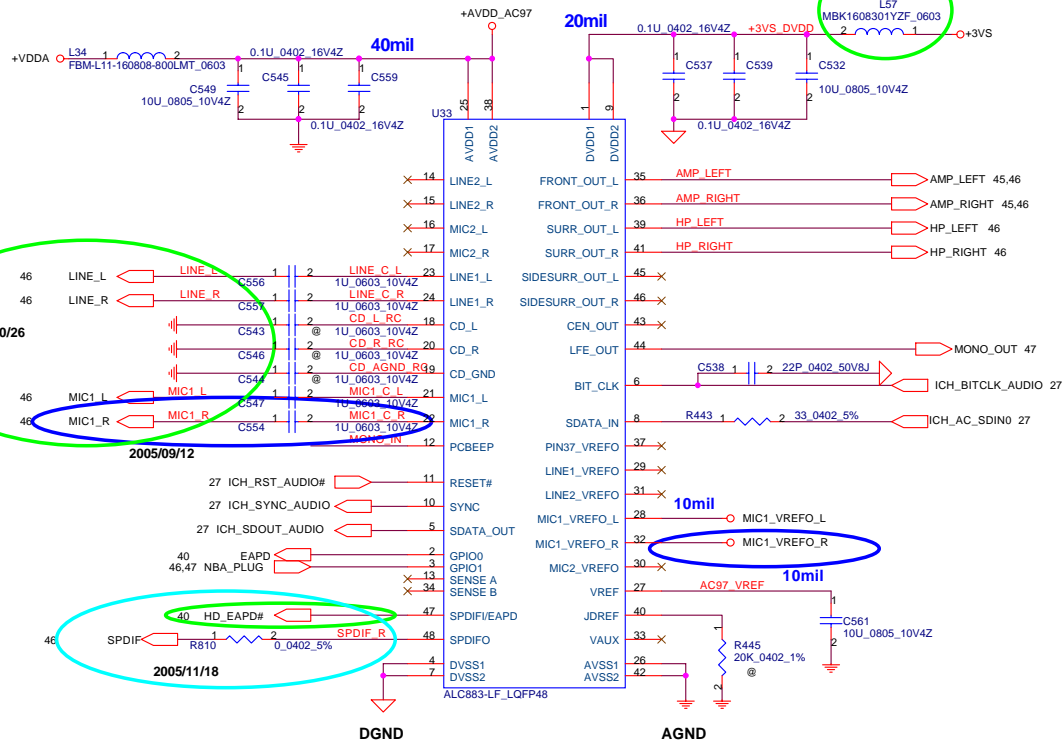
Power ON Circuit



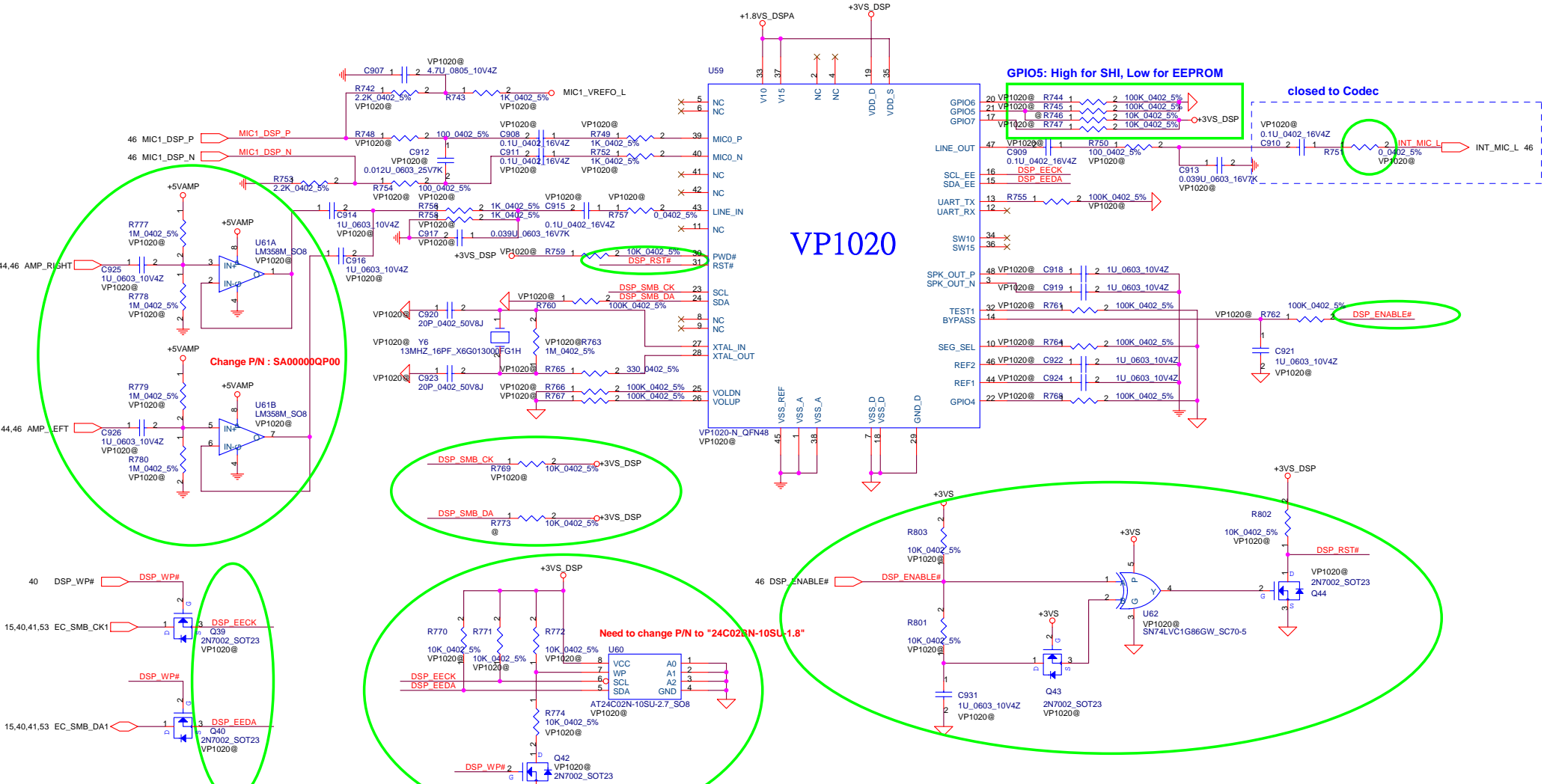
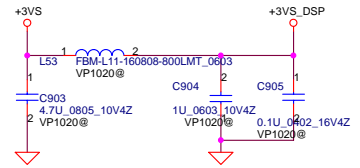
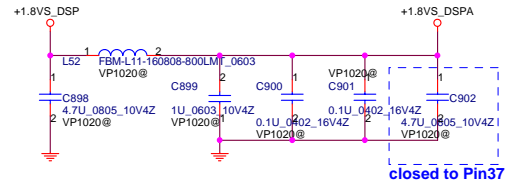
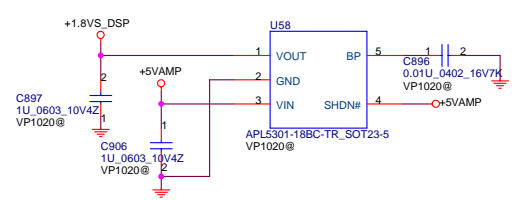
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Issued Date	2005/06/20	Deciphered Date	2006/11/30	Title
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Size B	Document Number	HBQ60 LA-3191P		Rev 0.1
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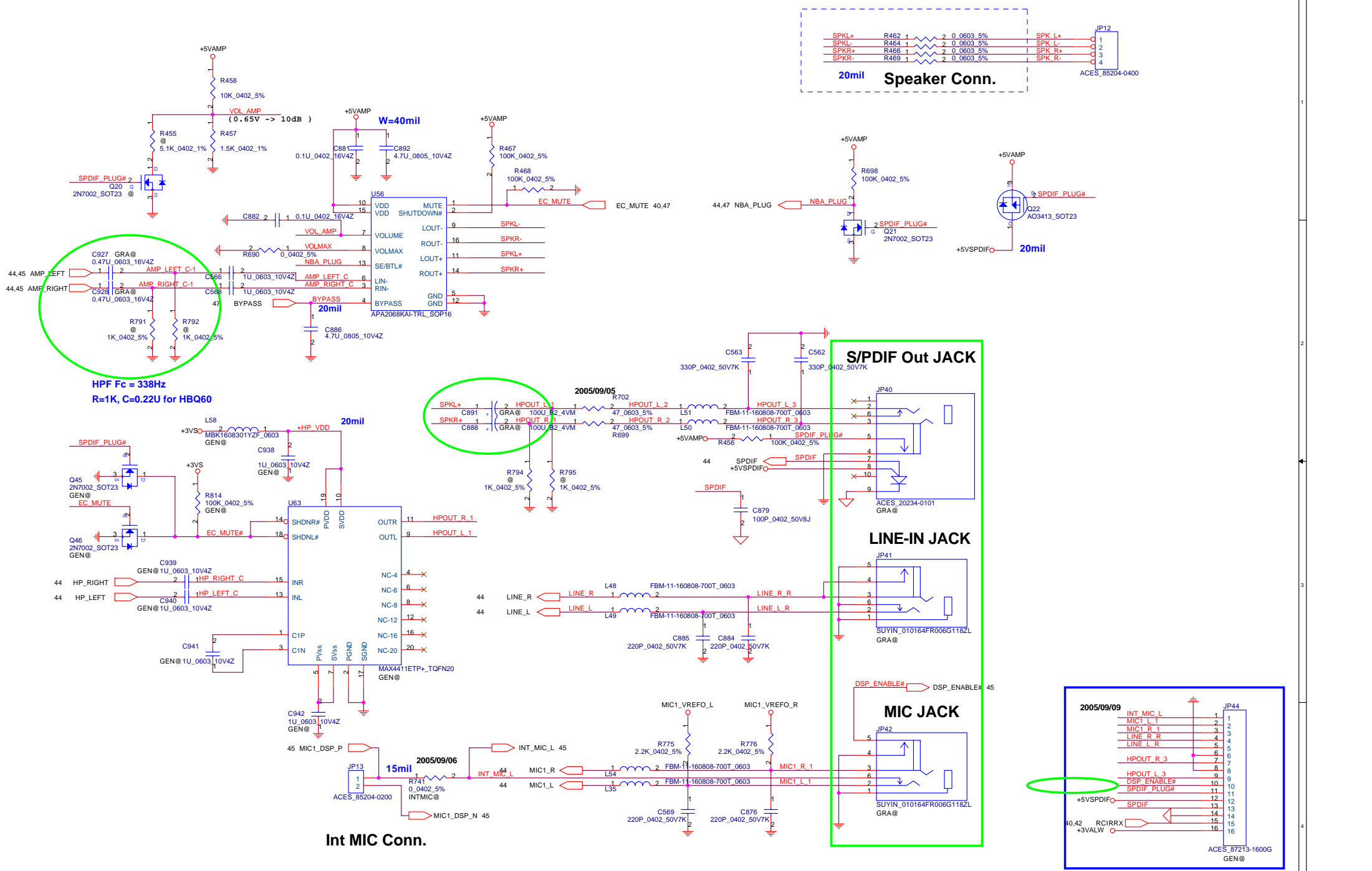
HD Audio Codec



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Issued Date	2005/06/20	Deciphered Date	2006/11/30	HD Audio Codec ALC883		
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HPF Fc = 338Hz
R=1K, C=0.22U for HBQ60

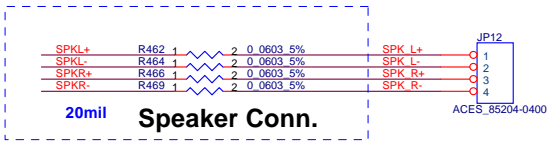
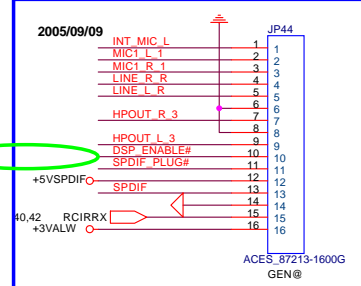
Int MIC Conn.

SP/DIF Out JACK

LINE-IN JACK

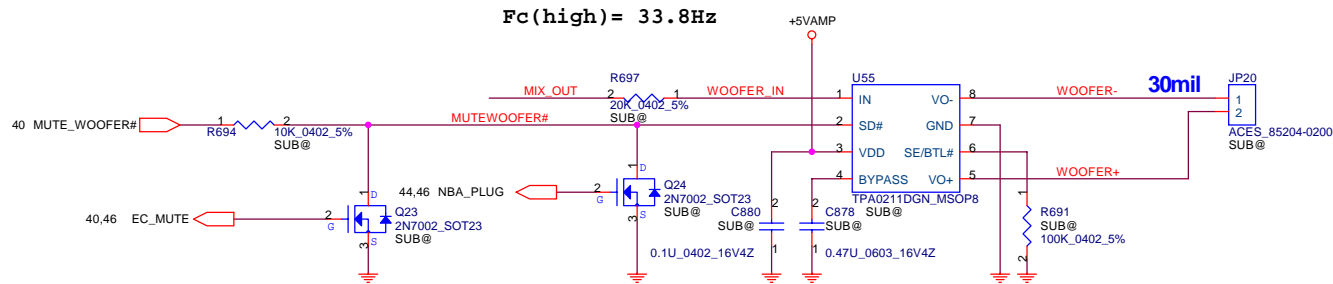
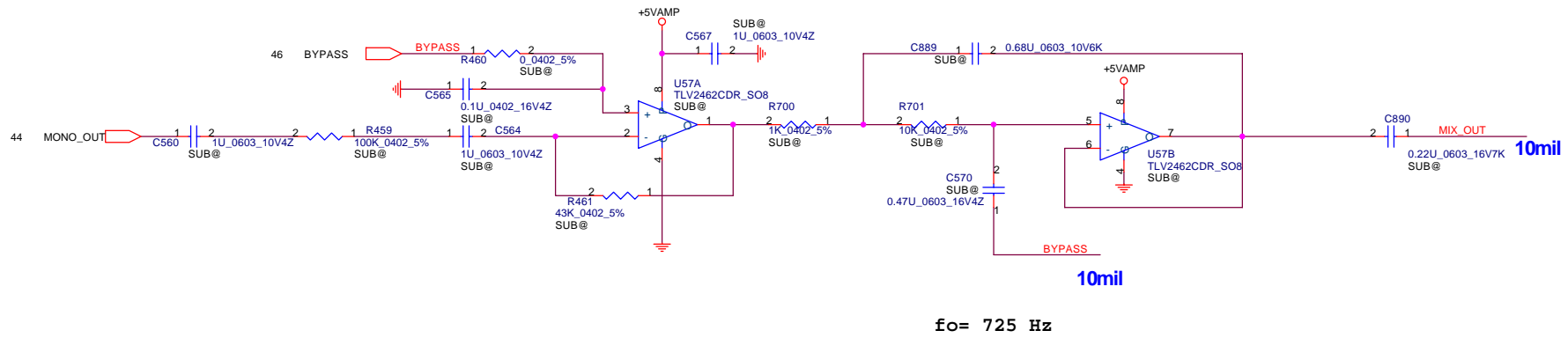
MIC JACK

2005/09/09



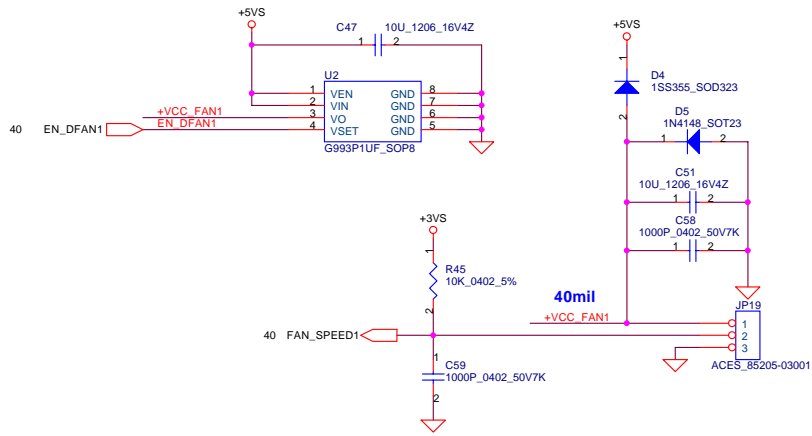
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Compal Electronics, Inc.			
Amplifier & Audio Jack			
Size	Document Number	Rev	
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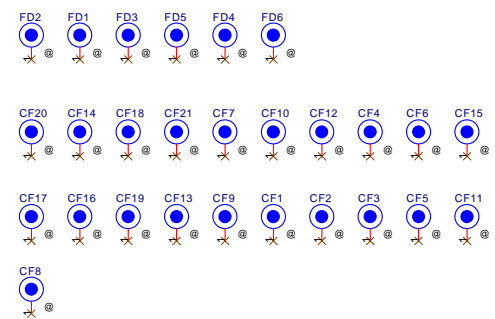
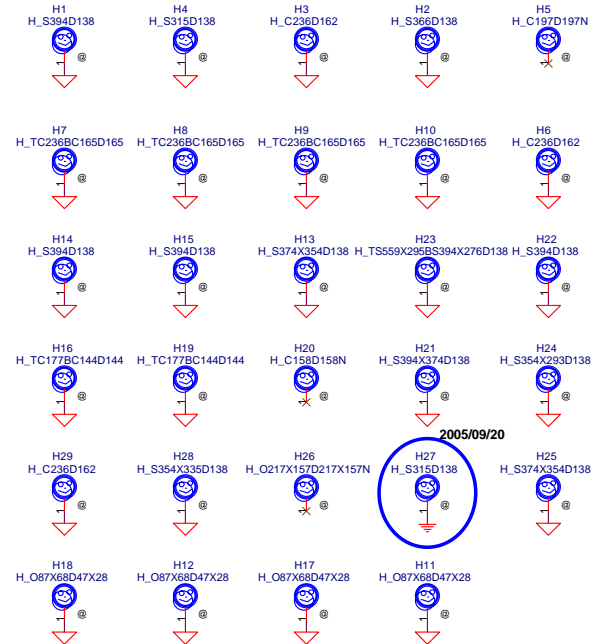
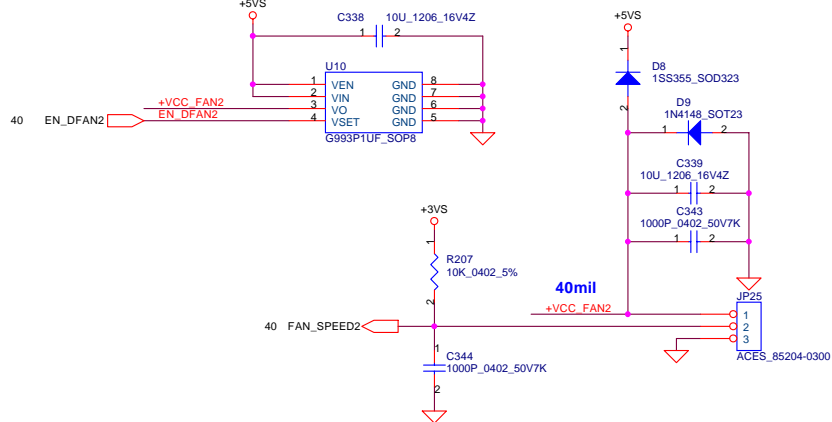


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Size	Document Number			Rev	
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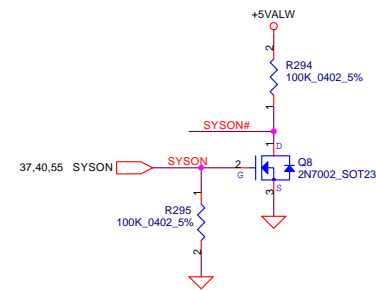
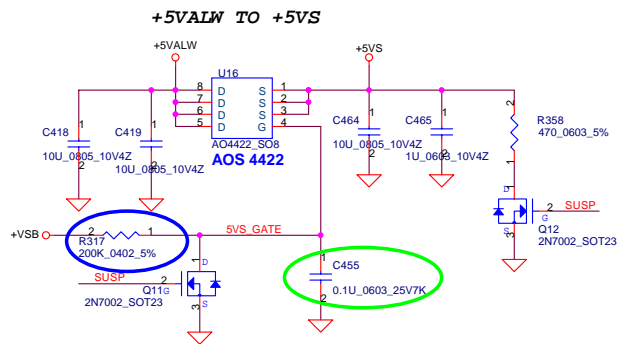
FAN1 Conn



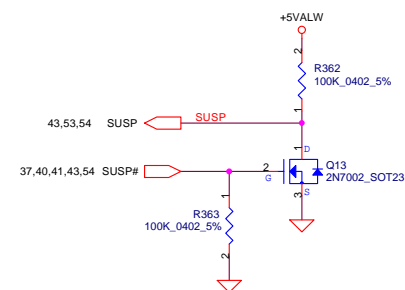
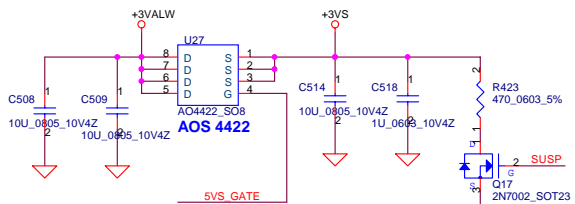
FAN2 Conn



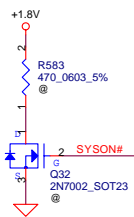
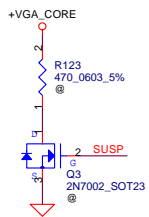
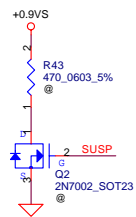
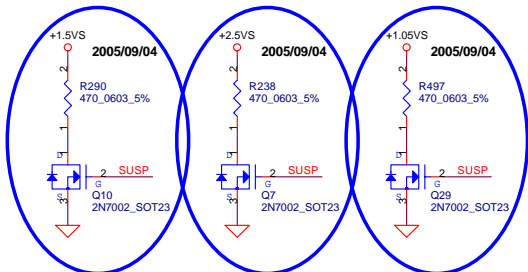
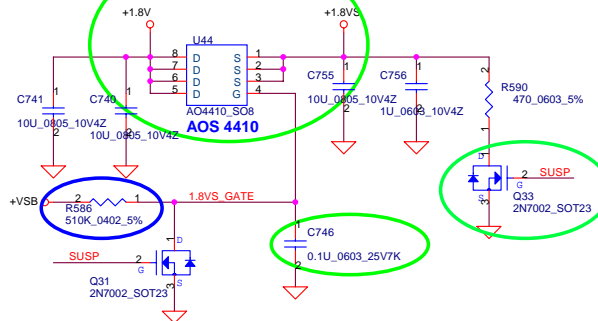
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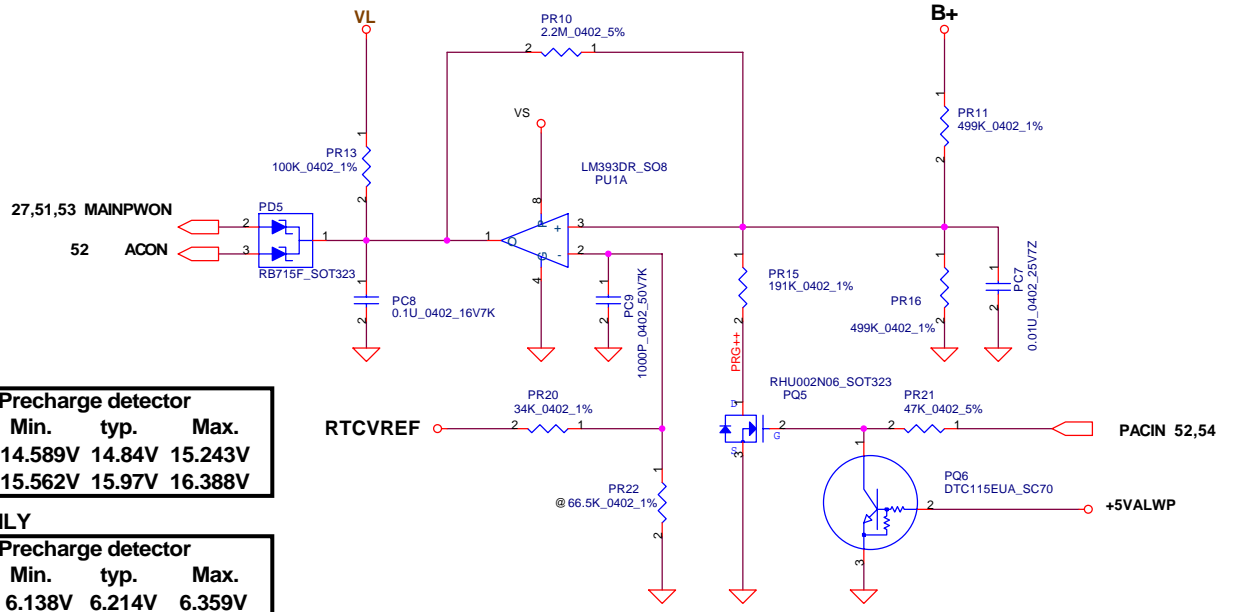
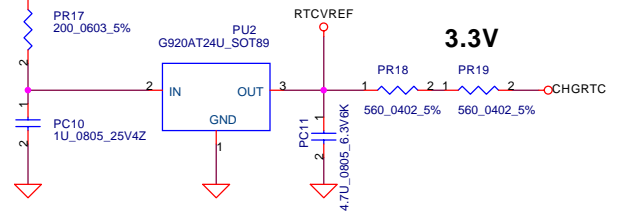
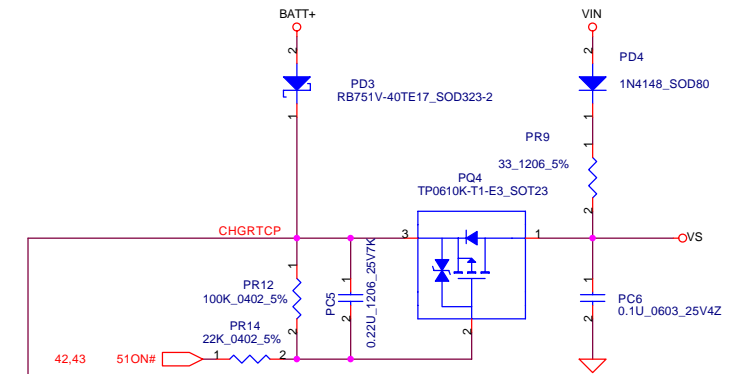
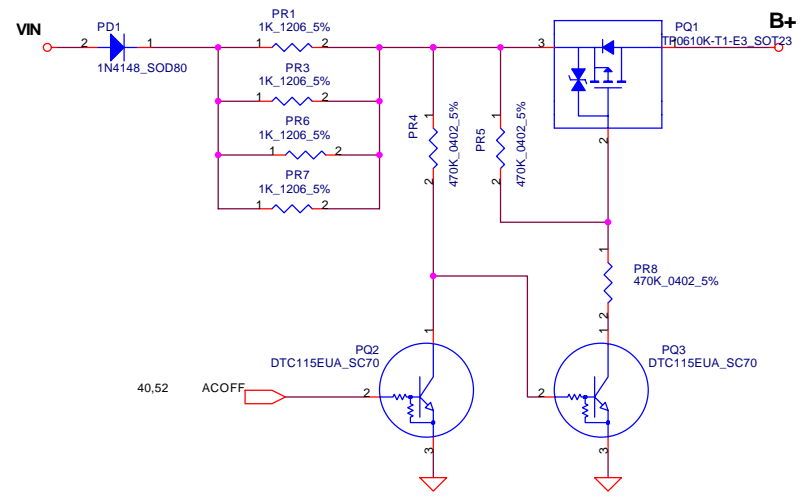
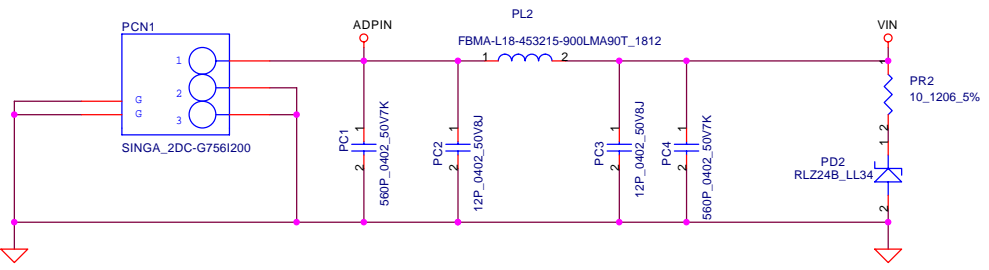
+3VALW TO +3VS



+1.8V to +1.8VS



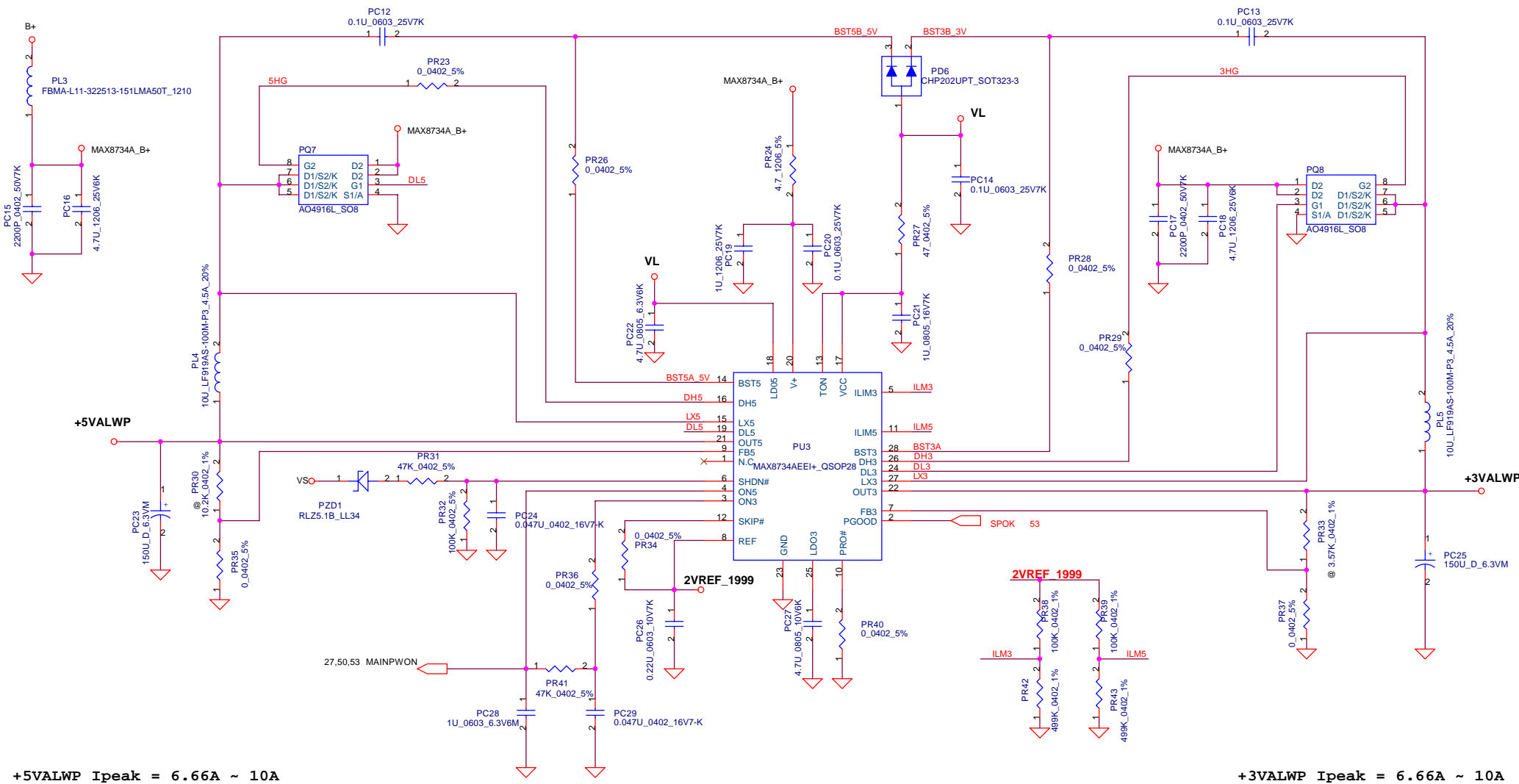
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Issued Date	2005/06/20	Deciphered Date	2006/11/30	DC Interface	
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ACIN			
Precharge detector			
	Min.	typ.	Max.
H->L	14.589V	14.84V	15.243V
L->H	15.562V	15.97V	16.388V

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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Size B	HBQ60 LA-3191P			Rev 0.1
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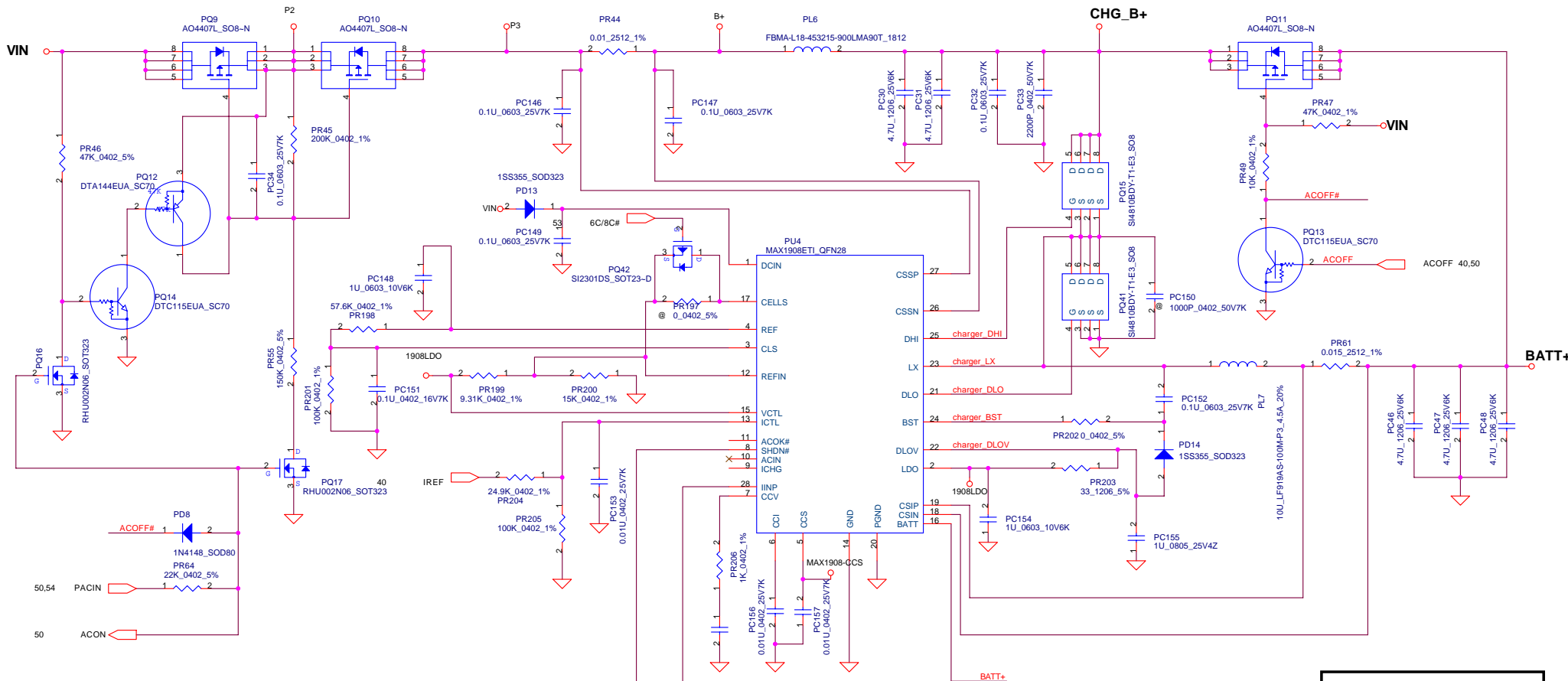


+5VALWP Ipeak = 6.66A ~ 10A

+3VALWP Ipeak = 6.66A ~ 10A

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Size	Document Number	Date:		Sheet	Rev
Custom		Wednesday, November 30, 2005		51	0.1
				of	59

I_{adp}=0~4.74A(90W)



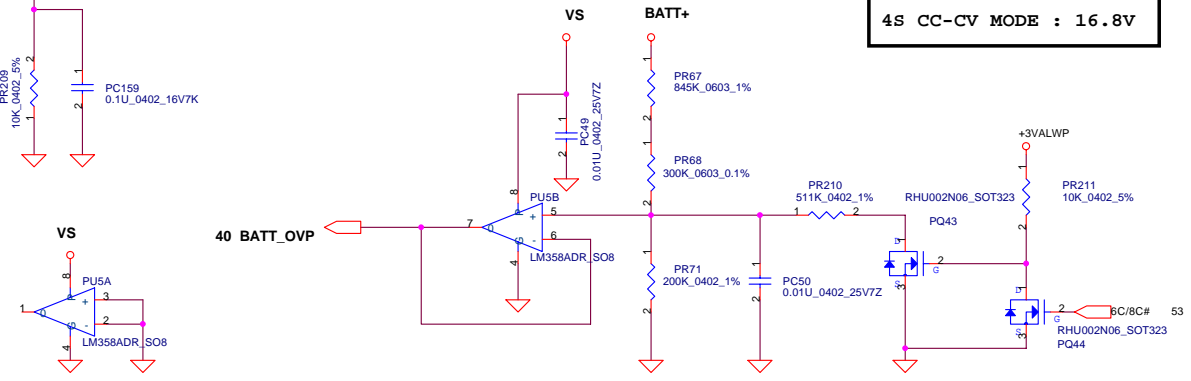
Charge voltage
4S CC-CV MODE : 16.8V

LI-4S : 17.8V--BATT-OVP=1.9758V
BATT-OVP=0.111*BATT+

IREF=0.832*Icharge
IREF=0.73~3.3V

2P4S:4800mAh/cell
0.8C=3.84A

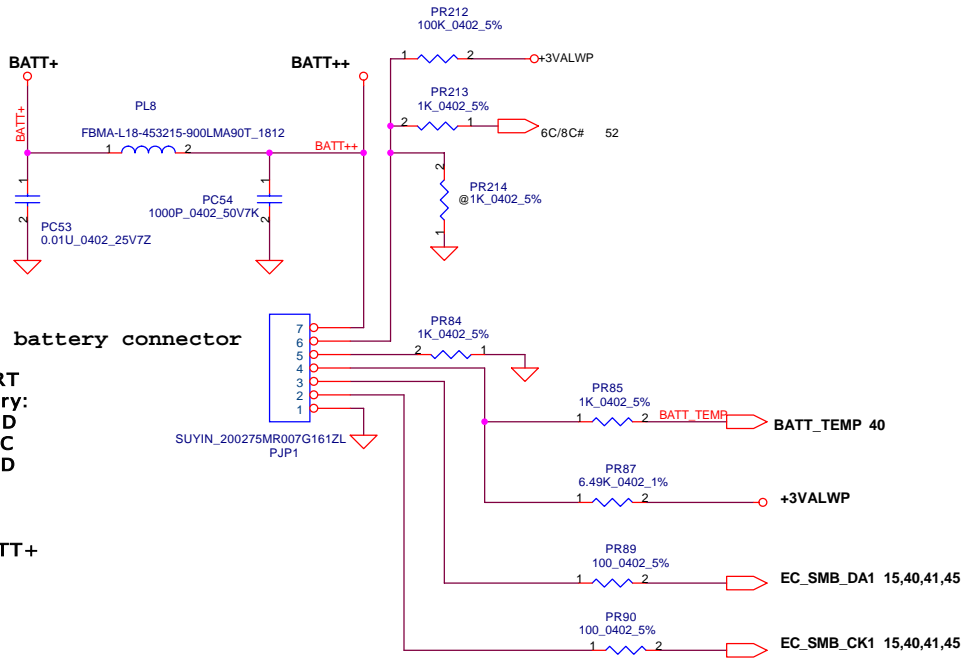
OVP voltage :
LI-3S : 17.8V---BATT-OVP=1.9758V
BATT-OVP=0.111*BATT+



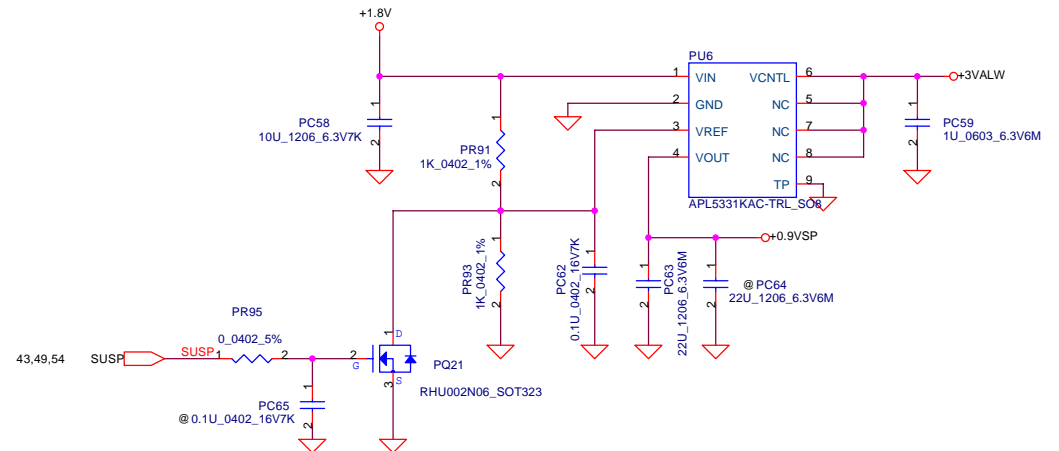
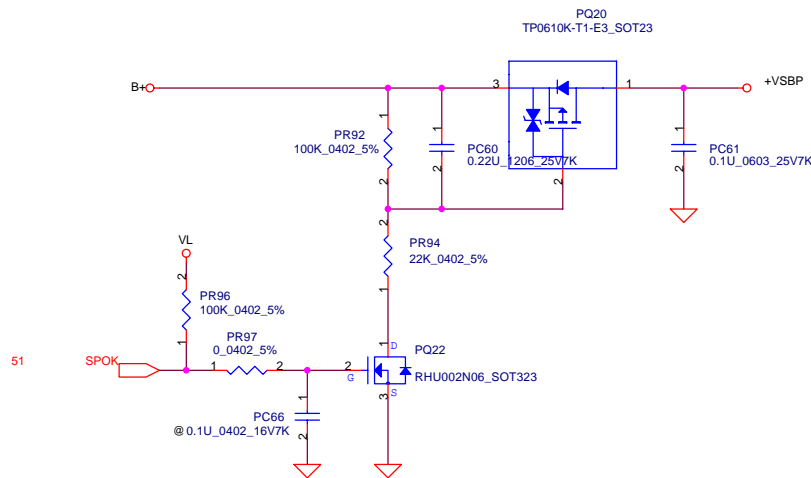
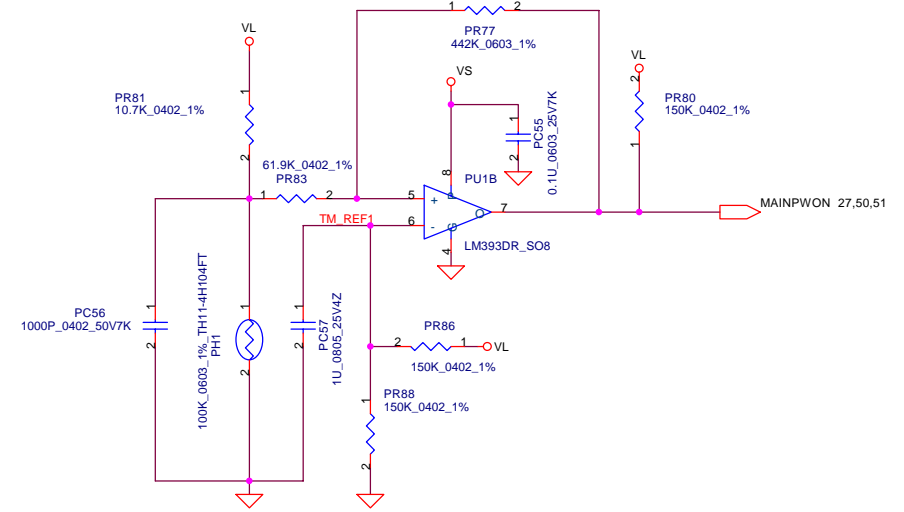
Security Classification		Compal Secret Data		Title		
Issued Date	2005/06/20	Deciphered Date	2006/11/30	Charger		
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PJP2 battery connector

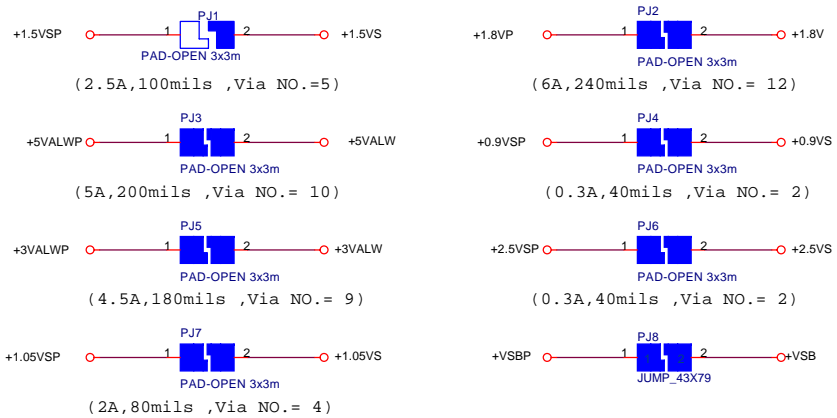
- SMART Battery:**
 1.GND
 2.SMC
 3.SMD
 4.TS
 5.B/I
 6.ID
 7.BATT+



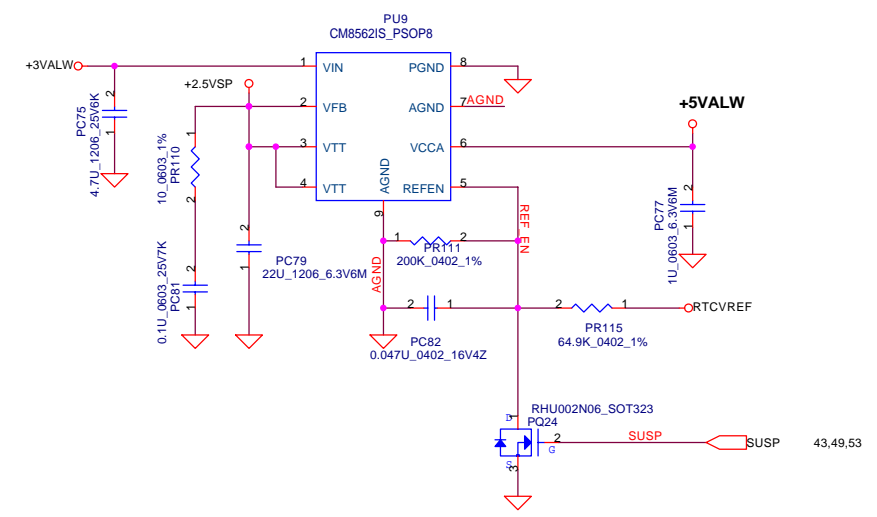
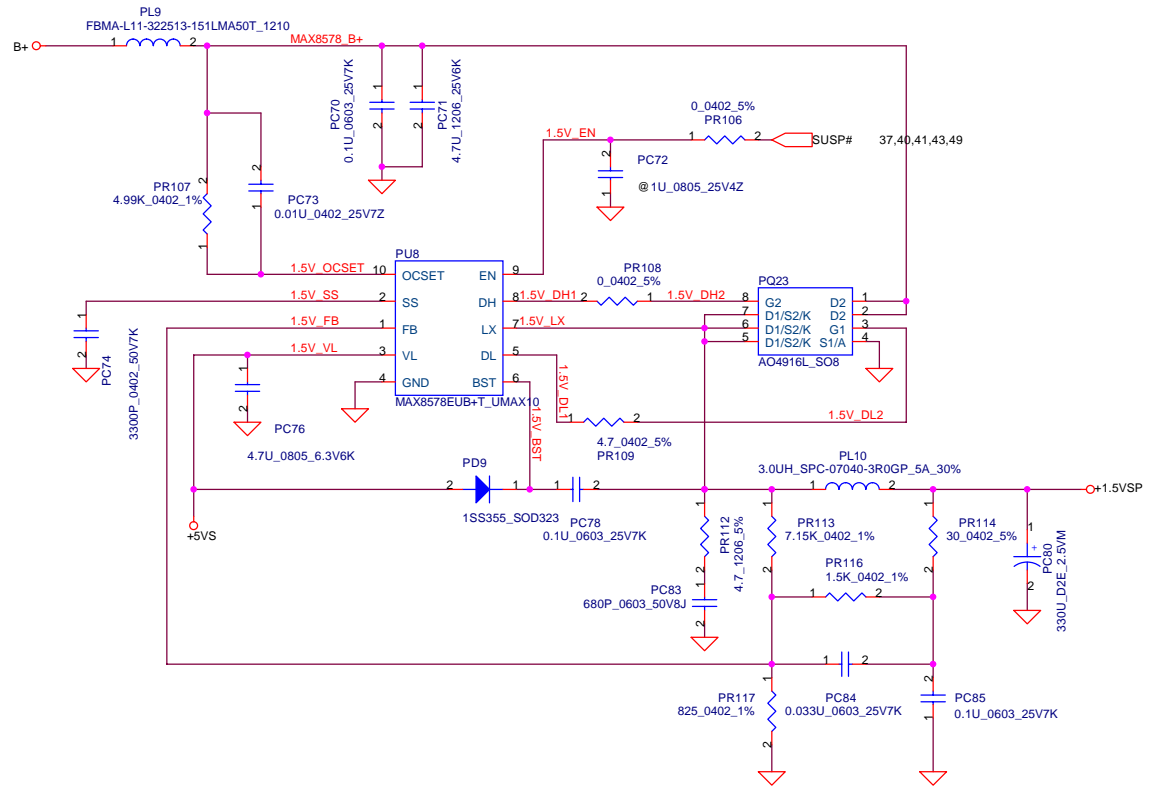
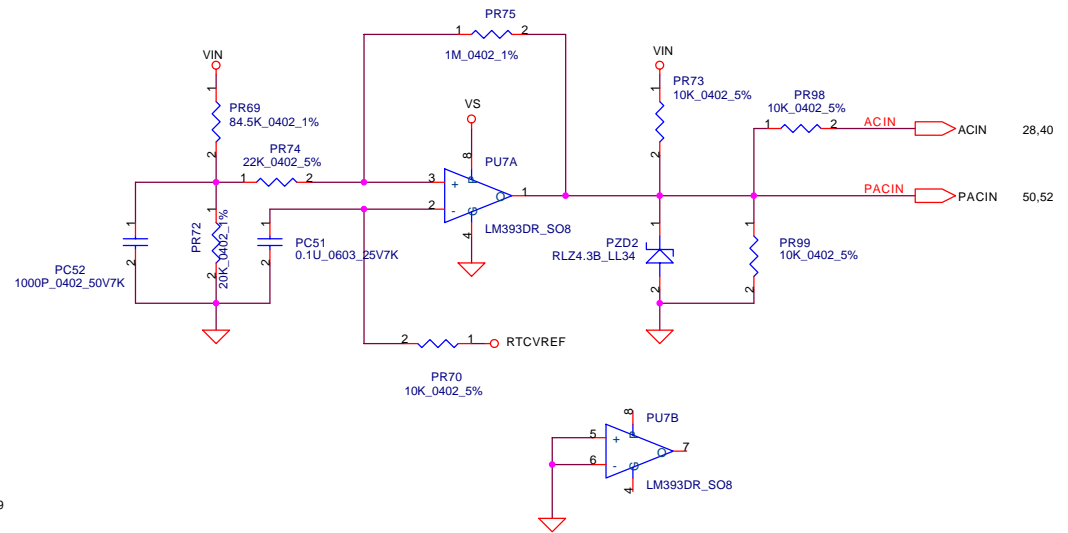
PH1 under CPU botten side :
 CPU thermal protection at 80 degree C
 Recovery at 44(45) degree C



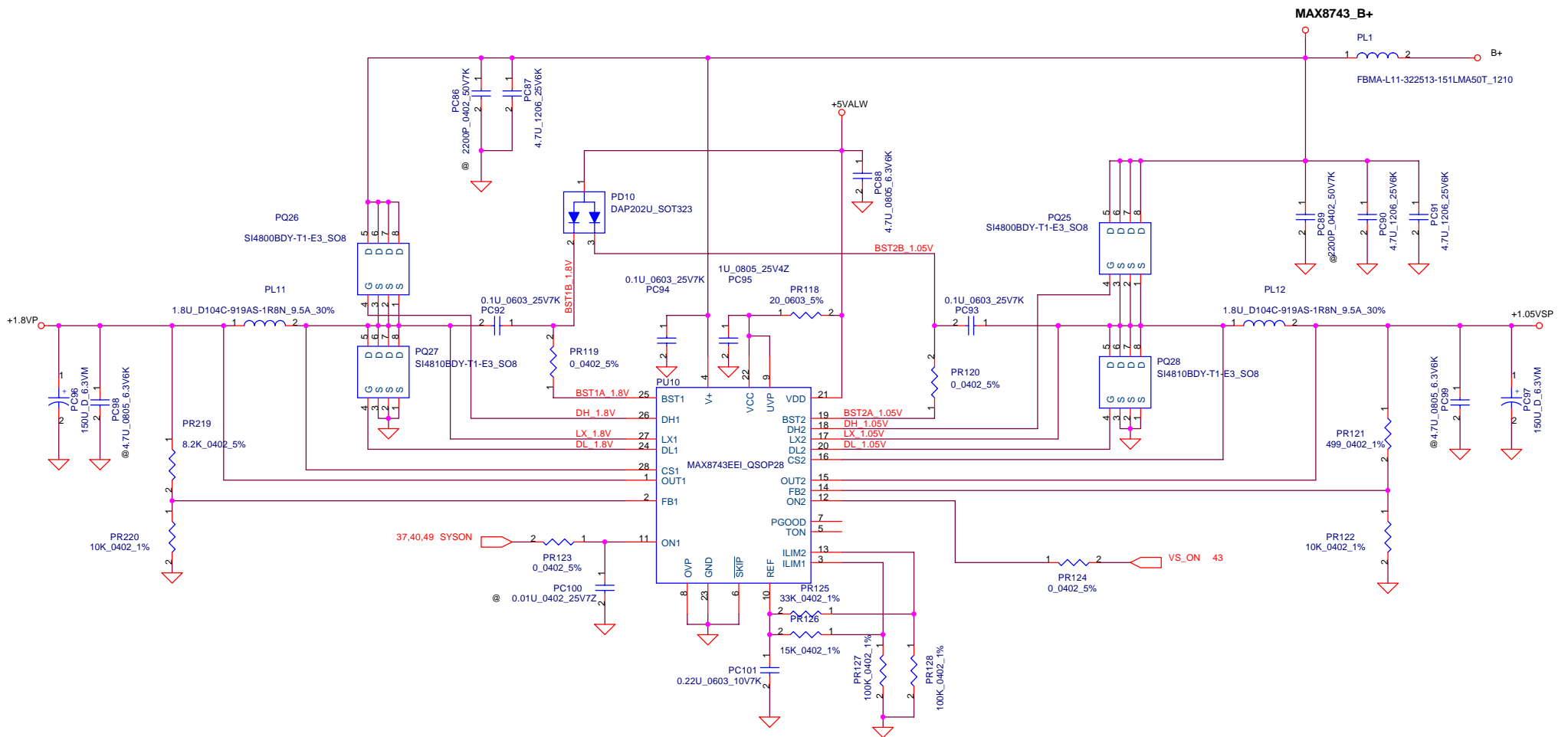
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2005/06/20	Deciphered Date	2006/11/30	Title	BATTERY CONN. / OTP/+0.9VSP
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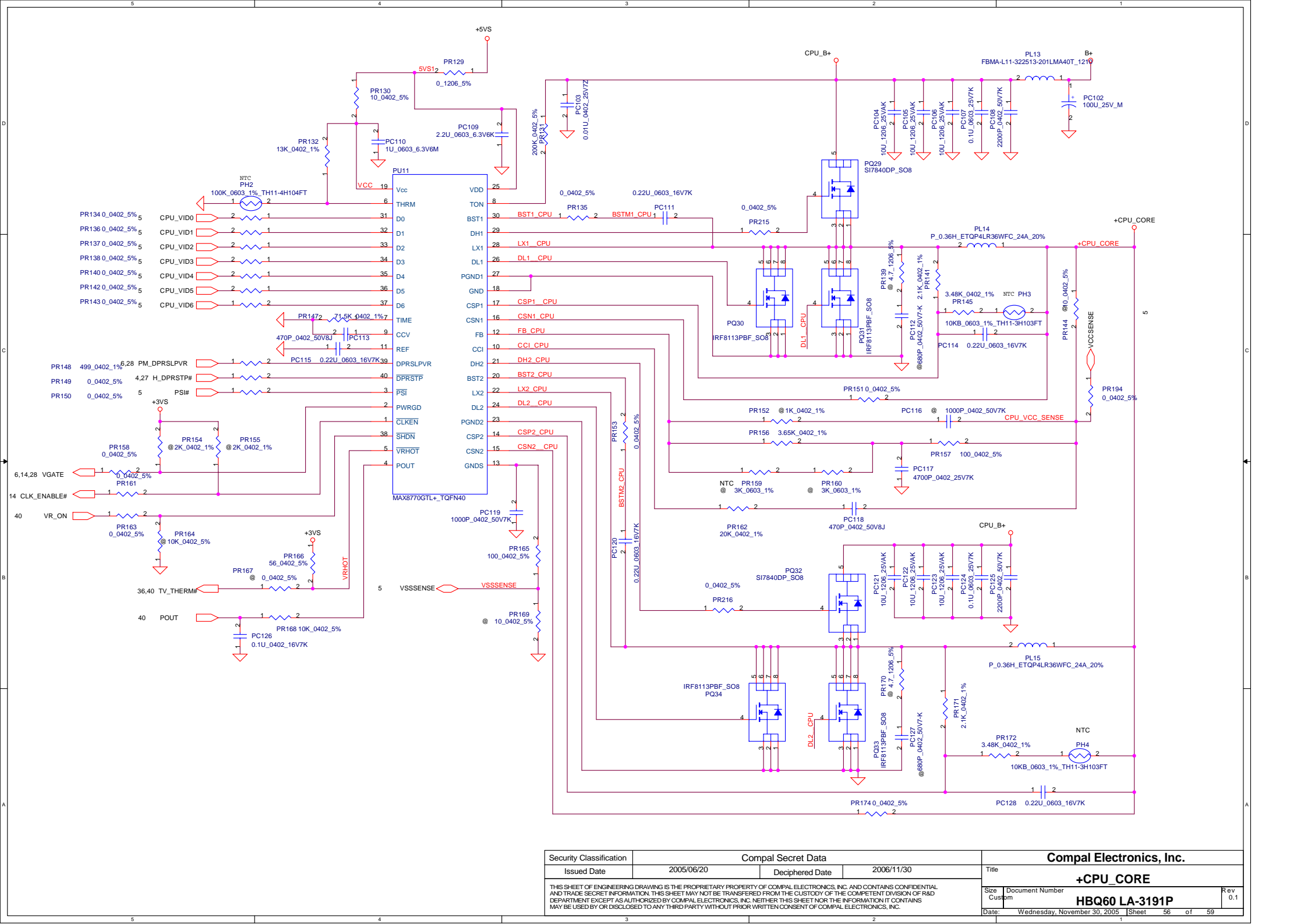
Vin Detector
17.90V/17.24V



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				Title: +1.5VSP/RTCVREF Document Number: HBQ60 LA-3191P Date: Wednesday, November 30, 2005 Sheet 54 of 59	

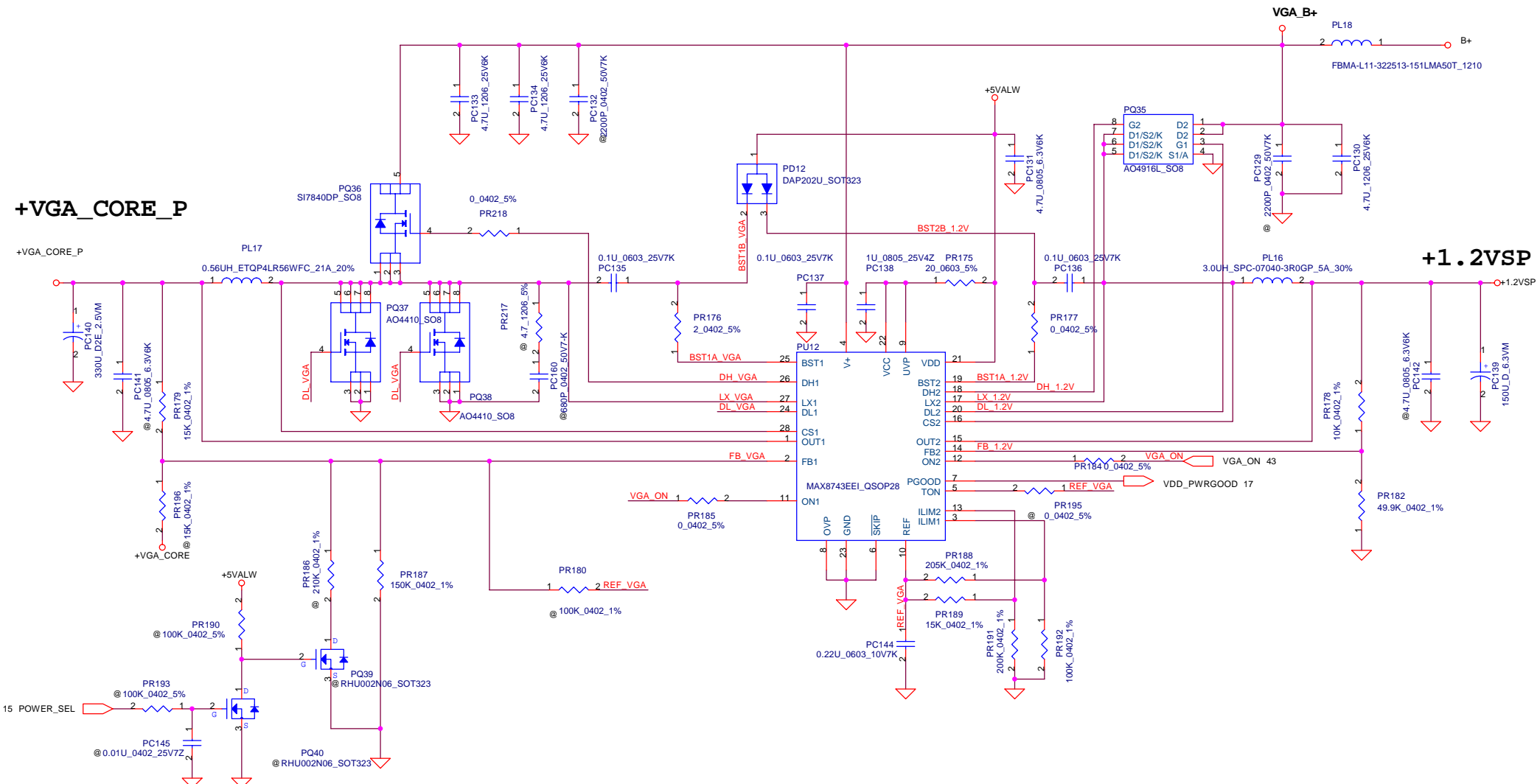


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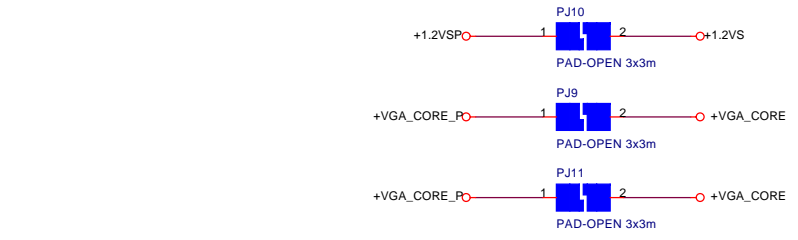
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POWER_SEL	H	L
+VGA_CORE FOR G73.	+0.95V (VGA@+G72@)	+1.025V
+VGA_CORE FOR G72.	+1.1V (VGA@)	



+VGA_CORE_P

+1.2VSP



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Compal Electronics, Inc.		
+VGA_CORE_P/+1.2VSP		
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A --> B Change List

1. Page06 : No stuff R100 10K_0402_5%
2. Page09 : Add C49 & C887 220U_D2_4VMM
3. Page10 : No stuff R57 2.2K_0402_5%
4. Page14 : Add R711 10K_0402_5% to set 96MHz output
Change Q14 & Q15 pin1 net name to connect to ICH7M
Change U19 ICS9LPRS325CKLFT part number to SA00000RE20
5. Page15 : Change C663, C664 from 22P_0402_50V8J to 18P_0402_50V8J.
6. Page18 : Modify VGA Device ID for G72MV & G73.
7. Page24 : Change VGA_DDC_CLK & VGA_DDC_DATA to Q26 & Q27 Level shift.
Add R781 & R782 4.7K_0402_5%
Change C589, C596, C583, C587, C594, C585 to 150P_0402_50V8J
8. Page28 : Change SB_INT_FLASH_SEL# from ICH7M GPIO38 to GPIO33.
9. Page29 : Change C437 from 0.1U_0402_16V4Z to 1U_0402_6.3V4Z
10. Page30 : Change PATA HDD+ODD select resistor form RP to R_0402 (0_0402_5%)
11. Page34 : Stuff R175 & no stuff R182 (0_0402_5%) for BCM4401E/BCM5789M/BCM5787M
12. Page35 : Modify LAN_ACTIVITY# & LAN_LINK# LED color
13. Page 36 : Add JP38 & C895 for CAMERA.
Swap JP17 PCIE TX & RX Signal.
Swap JP30 PCIE TX & RX Signal.
14. Page37 : Connect JP34 SMBus interface to ICH7M
Change JP4 & JP5 USB connector to BOTTOM.
15. Page38 : Add 1394 @ BOM Structure.
16. Page41 : Delete LCM interface Extension I/O.
No stuff R390 & Stuff R418 for Flash ROM interface.
17. Page42 : Change JP11 from 34 pin to 24 pin.
Change SW8 & SW9.
Add JP37.
18. Page43 : Change U28 Part Number.
Change SW1 Part Number.
Change R425 from 10K_0402_5% to 62K_0402_1%
Change R422 from 10K_0402_5% to 62K_0402_1% & add C513 0.1U_0402_16V4Z
19. Page44 : Add C554 for MIC_R
Add R440, R695 (0_0603_5%) & J4, J5 for EMI request.
20. Page45 : Add Echo Cancellation function.
21. Page46 : Correct Headphone L & R signal.
Reserved C879 for EMI request
Modify MIC Jack circuit. add R741, R775, R776, L54, C876
Change JP44 from 14 pin to 16 pin
22. Page48 : H27 connect to GNDA.
23. Page49 : Add R290, R238, R497, Q10, Q7, Q29
Change R317 to 200K_0402_5%
Change R586 to 510K_0402_5%

B --> C Change List

1. Page05 : No stuff C608, C614
2. Page12 : Change JP22 Footprint
3. Page14 : Change R620 from 2K_0402_5% to 10K_0402_5% & add Q38
4. Page15 : Delete DVI pull high resistor
5. Page17 : AddC96 330U for +VGA_CORE
6. Page18 : Modify PEX_CFG[0..2] setting from 02 to 01.
7. Page30 : Delete R395 & C486, add R394 for SATA bridge reset timing
Modify SATA HDD connector library
8. Page31 : Delete IDE_CD_L, IDE_CD_R & CD_GNDA
9. Page34 : Add R783, R784, R785 for BCM5787M, stuff R214 when use BCM4401E,
Del R168, change Q5 P/N
10. Page36 : Add +3VS, GND at JP30 for 3G device
11. Page38 : No stuff U14, R253, R246 & stuff R261
12. Page40 : Reserved R793 for ALC883 pin47 EAPD, & define KB910 Pin174 as EC_PWROK
13. Page41 : No stuff U21, U30, C490, R391, R390, R388 & stuff R418
14. Page42 : Modify SW9 Pin1, Pin5 as NC, no stuff C7
15. Page43 : Modify Power OK circuit. add R790 for EC_PWROK, reserved Q41, R420, C512
add D35, D37, Change BATT1 P/N to SP093PA0200
16. Page44 : Delete ALC883 CD input circuit, add HD_EAPD# signal
17. Page46 : Add C927, C928, reserved R791, R792
18. Page49 : Stuff Q33

Rev0.3 --> Rev0.4 Change List

1. Page15 : Add R809
2. Page23 : Reserved C934, C935, C936 for EMI
3. Page26 : Add U51, R811, Reserved R330
4. Page44 : Add R810 for EMI.

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D

D

C

C

B

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A

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