

Compal Confidential

EFL50 / EFT51 Schematics Document

Intel Dothan/ Celeron M/ Alviso GM(PM) / DDR-2 / ICH6-M

(Daughter Card: ATi M24P/ M26P)

2005 / 03 / 08 (B-Test EVT)

Rev:0.2

Page Index

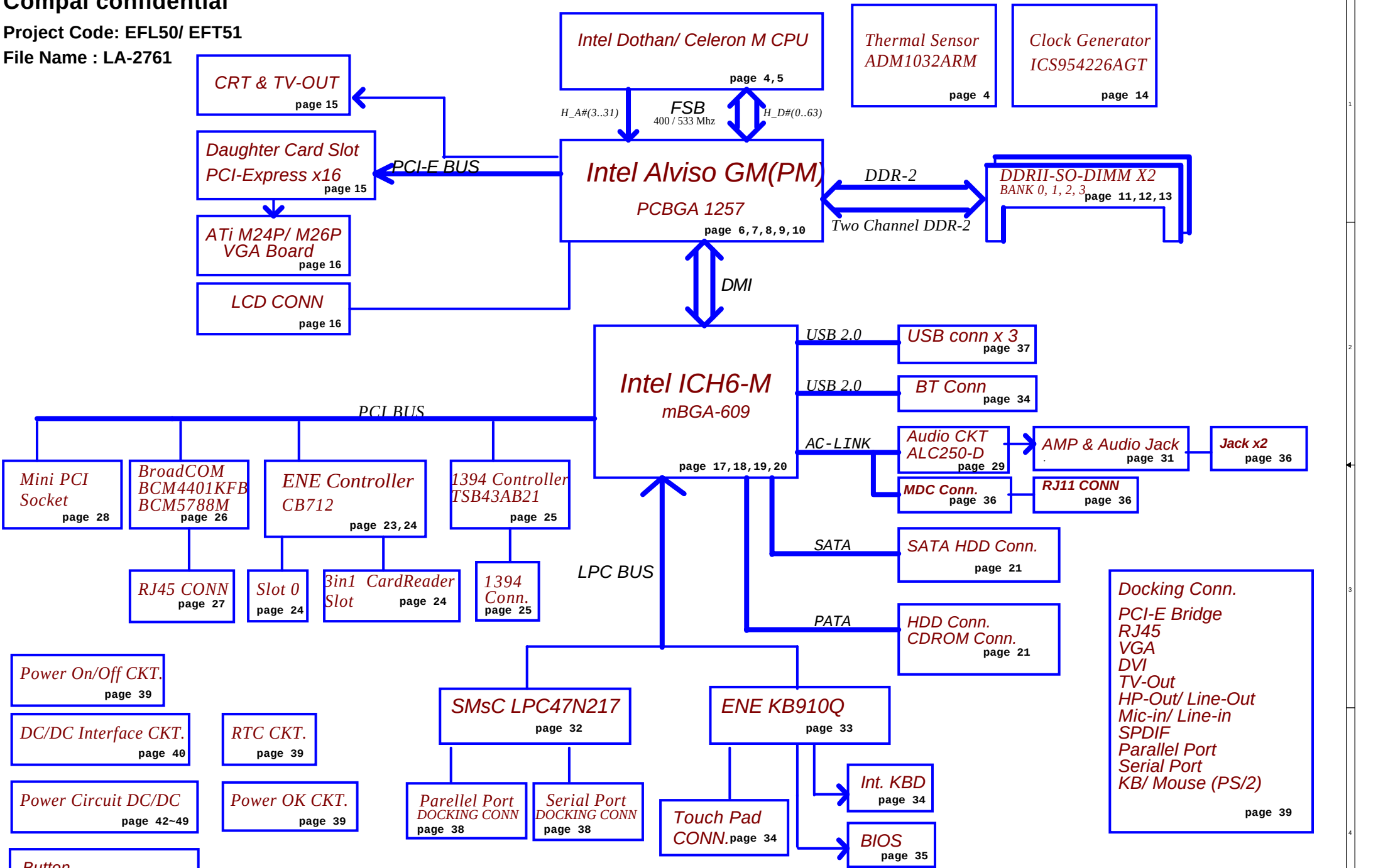
P01-Cover Page
P02-Block Diagram
P03-Notes List
P04-Dothan(1/2)
P05-Dothan(2/2)
P06-Alviso HOST(1/5)
P07-Alviso DDR(2/5)
P08-Alviso PCI-E(3/5)
P09-Alviso POWER(4/5)
P10-Alviso POWER(5/5)
P11-DDRI-SODIMM0
P12-DDRI-SODIMM1
P13-DDR Decoupling
P14-Clock Generator
P15-CRT Conn.
P16-VGA / LCD Conn.
P17-ICH6(1/4)_HUB,PCI,HOST
P18-ICH6(2/4)_CPU,AC97,IDE,LPC
P19-ICH6(3/4)_USB,PM,LAN,GPIO
P20-ICH6(4/4)_POWER&GND
P21-HDD/CDROM
P22-DVI / TV_Out Conn
P23-PCMCIA ENE CB1410 & CB714
P24-PCMCIA SOCKET
P25-TI 1394A TSB43AB21A
P26-LAN BCM5788M
P27-LAN Magnetic & RJ45/RJ11
P28-Mimi-PCI Slot
P29-AC97 Codec_ALC250D
P30-Audio Line in Switch
P31-AMP & Audio Jack
P32-Super IO SMC217
P33-ENE-KB910
P34-MDC / BT / KBD / TP Conn.
P35-BIOS & I/O Port & SATA HDD
P36-RJ11/LID Switch / Fan / FIR
P37-USB2.0 Conn
P38-Docking Conn.
P39-PWR_OK / RTC
P40-DC INTERFACE
P41-Screws
P42-PWR-DCIN / Precharge
P43-PWR-Charger
P44-PWR-Battery Select
P45-PWR-3V/5V/12V
P46-PWR-GMCH_CORE/1.8V/0.9V
P47-PWR-1.5V/2.5V
P48-PWR-CPU_CORE
P49-PWR-OTP
P50-PWR-PIR

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				Date	Wednesday, April 20, 2005
				Sheet	1 of 51
				Rev	0.2

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Project Code: EFL50/ EFT51

File Name : LA-2761



Security Classification		Compal Secret Data			
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				Date	Wednesday, April 20, 2005
				Sheet	2 of 51
				Rev	0.2

Voltage Rails

Power Plane	Description	S1	S3	S4/ S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+1.05VS	1.05V switched power rail	ON	OFF	OFF
+DDRVTT	0.9V switched power rail for DDR terminator	ON	OFF	OFF
+1.5VALW	1.5V always on power rail	ON	ON	ON*
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+DDRVCC	1.8V power rail for DDR	ON	ON	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+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
+5VMOD	5V switched power rail for Module Bay	ON	OFF	OFF
+12VALW	12V 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	AD20	2	PIRQA/PIRQB
1394	AD16	0	PIRQE
SD	AD20	2	PIRQA/PIRQB
Mini-PCI	AD18	1	PIRQG/PIRQH
LAN	AD17	3	PIRQF

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 110X b
EEPROM(24C16/02)	1010 000X b		
(24C04)	1011 000Xb		

ICH6M SM Bus address

Device	Address
Clock Generator (ICS 954226AGT)	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	100K +/- 5%			
Board ID	Rb / Rd	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

BOARD ID Table

Board ID	PCB Revision
0	0.1
1	0.2
2	
3	
4	
5	
6	
7	

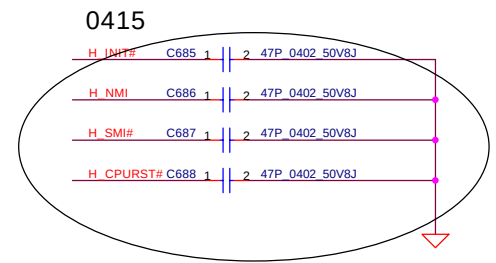
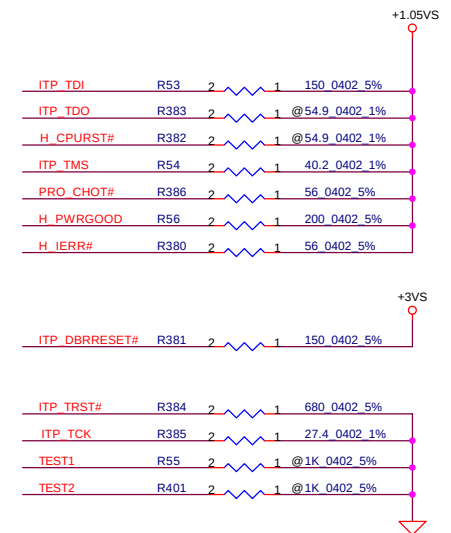
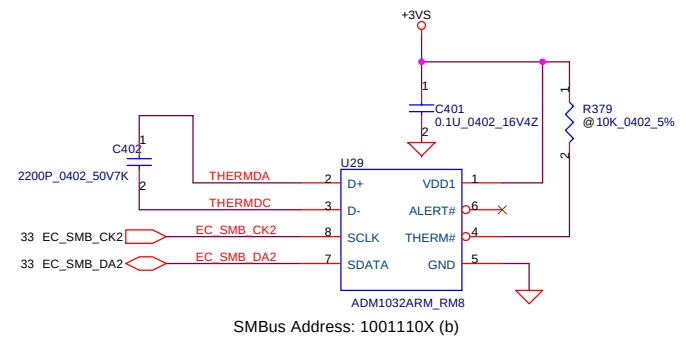
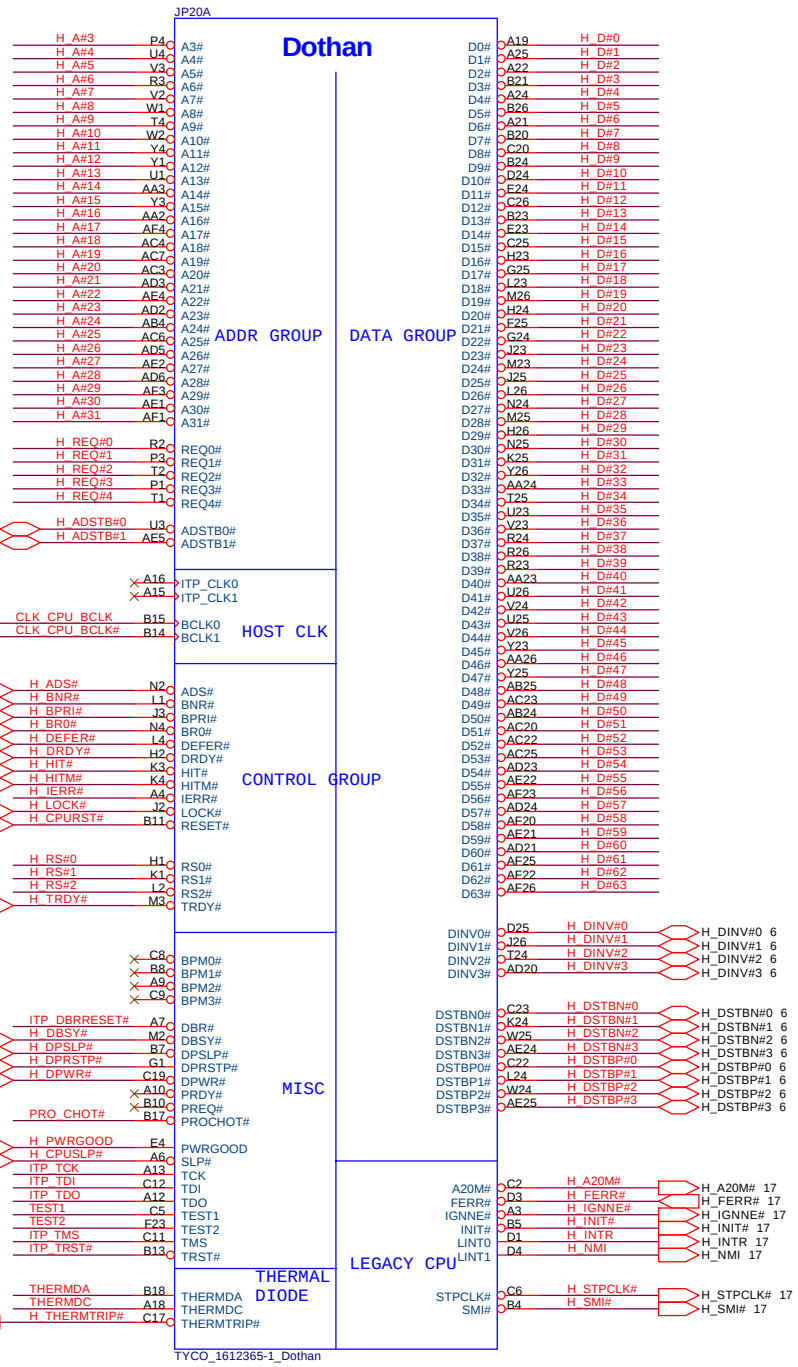
SKU ID Table

SKU ID	SKU
0	
1	
2	
3	
4	
5	
6	
7	

BTO Option Table

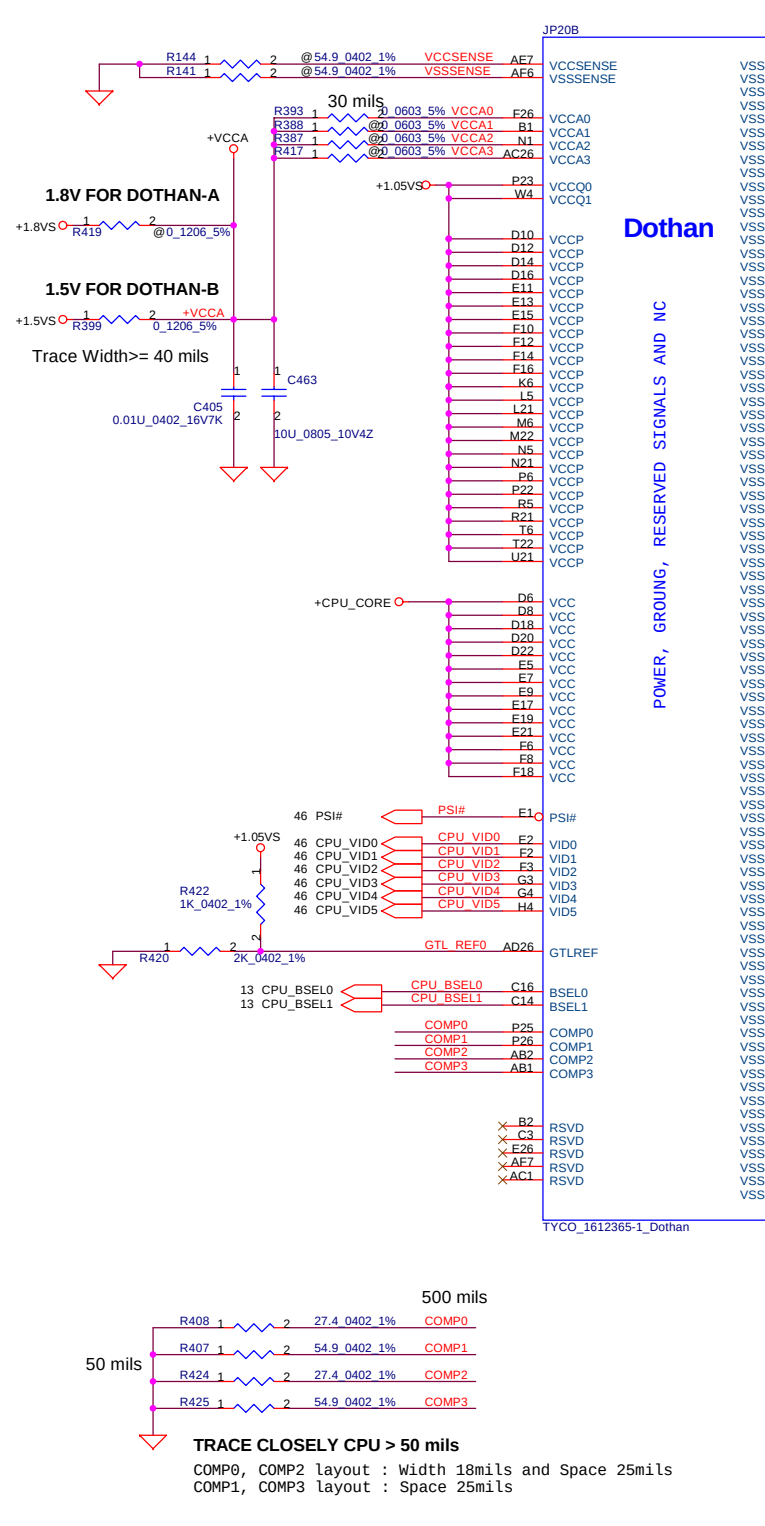
BTO Item	BOM Structure
UMA	6M@
Discrete	PM@
LAN 10/100	4401@
LAN GIGA	5788@
1 Spindle	1S@
2 Spindle	2S@
2 Spindle with SATA	2SS@
2 Spindle with PATA	2SP@
1 Spindle with SATA	1SS@
1 Spindle with PATA	1SP@
With Docking	WD@
Without Docking	ND@
With 1394	1394@
With 1394 4pin	1394<4>@
With 1394 6pin	1394<6>@

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					Date:	Wednesday, April 20, 2005	Sheet	3 of 51



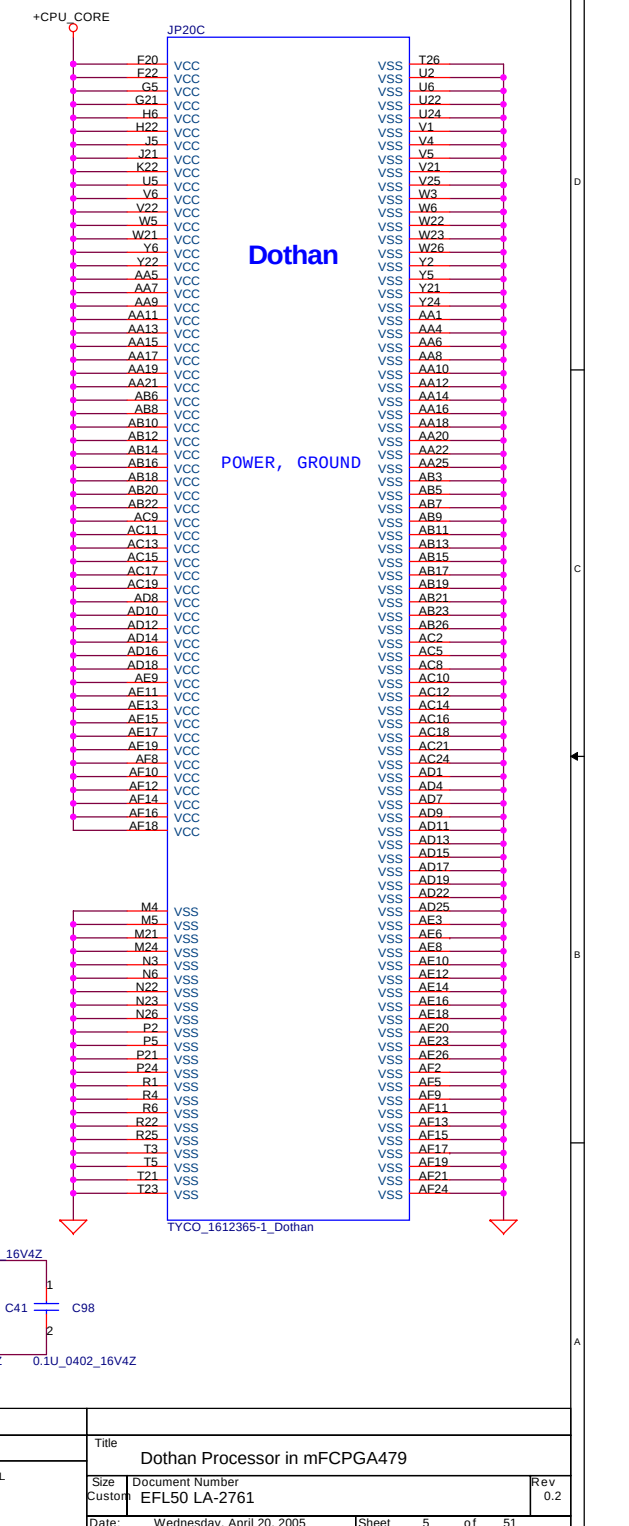
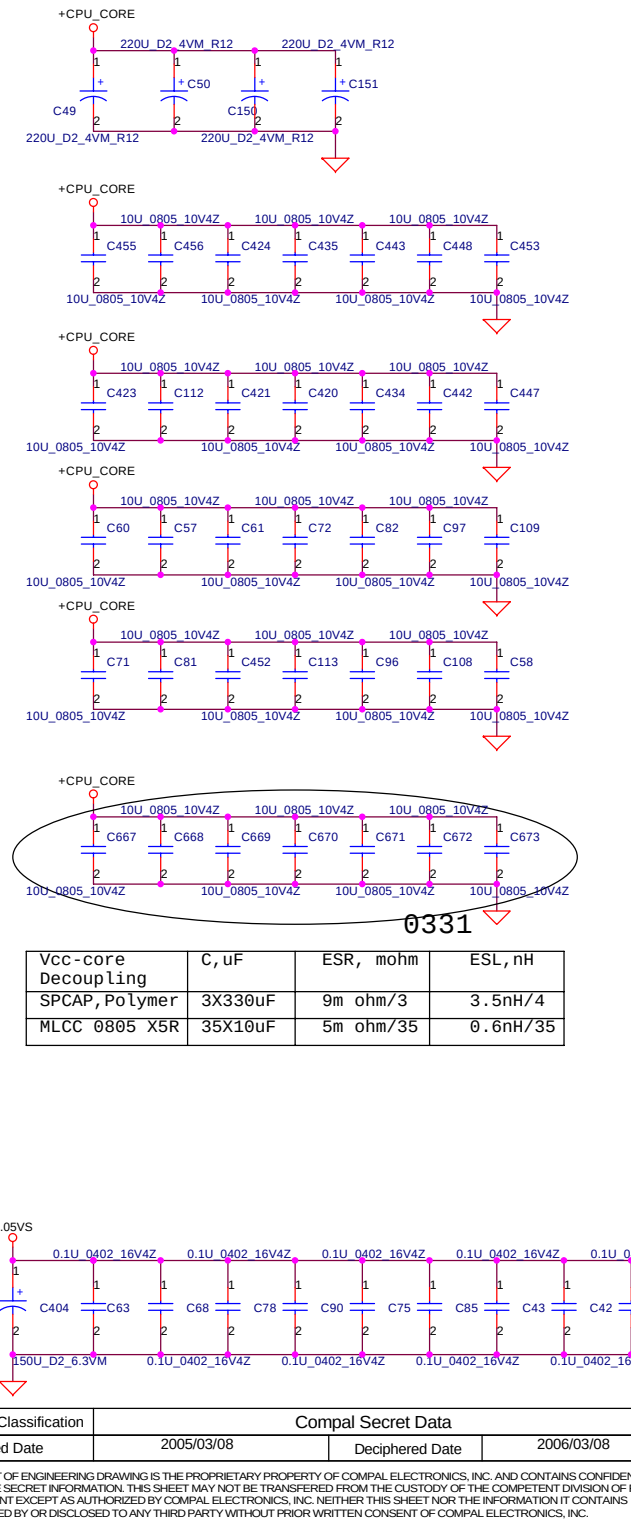
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								Size	Document Number			Rev
								Custom	EFL50 LA-2761			0.2
								Date:	Wednesday, April 20, 2005			Sheet
3				2				1				



Dothan

POWER, GROUND, RESERVED SIGNALS AND NC

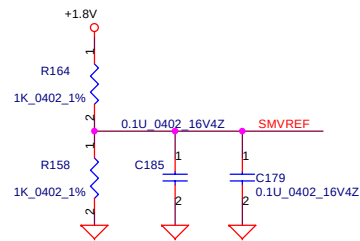
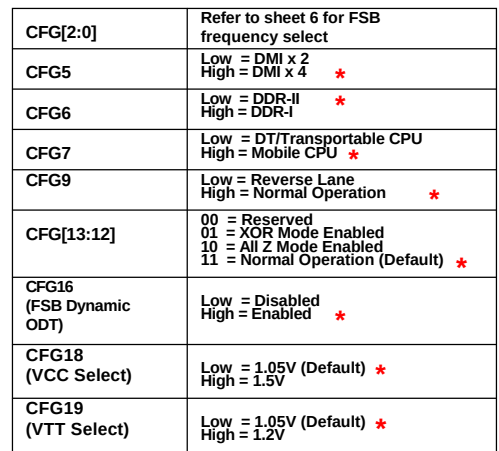


Dothan

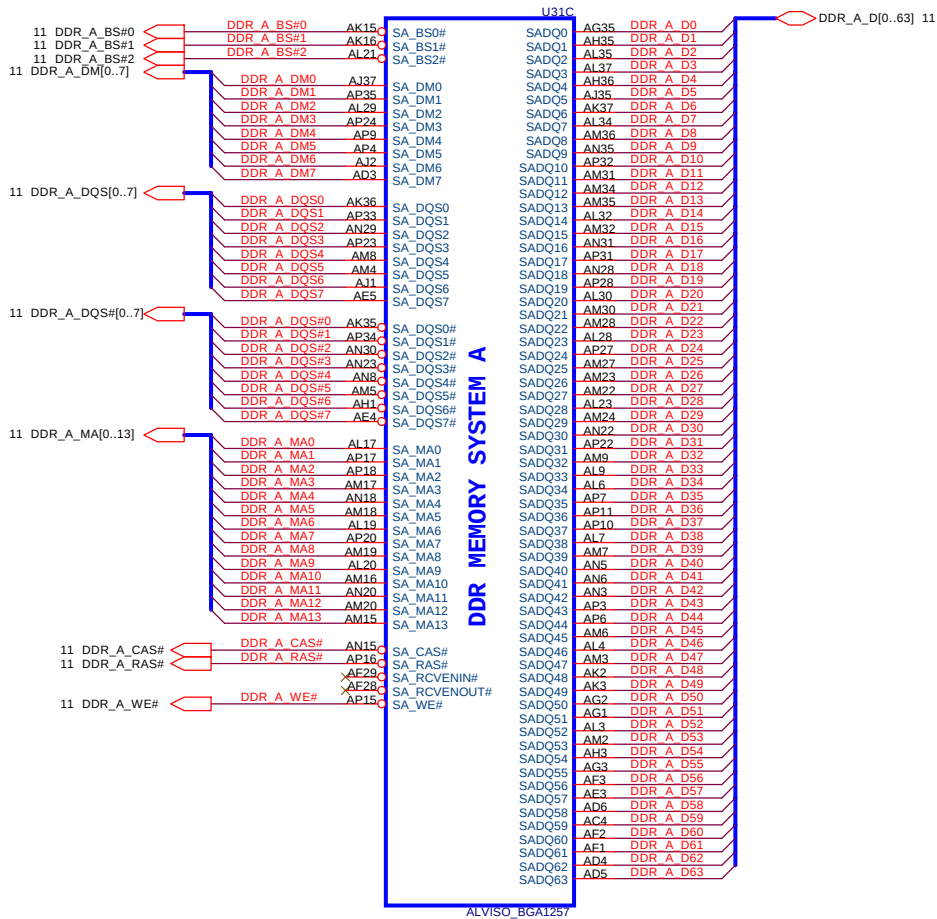
POWER, GROUND

Vcc-core Decoupling	C,uF	ESR, mohm	ESL,nH
SPCAP, Polymer	3X330uF	9m ohm/3	3.5nH/4
MLCC 0805 X5R	35X10uF	5m ohm/35	0.6nH/35

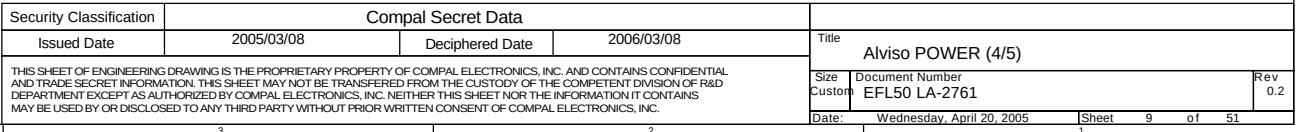
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						Size Custom		Document Number		Rev	
						EFL50 LA-2761		0.2			
Date:		Wednesday, April 20, 2005				Sheet 5 of 51					

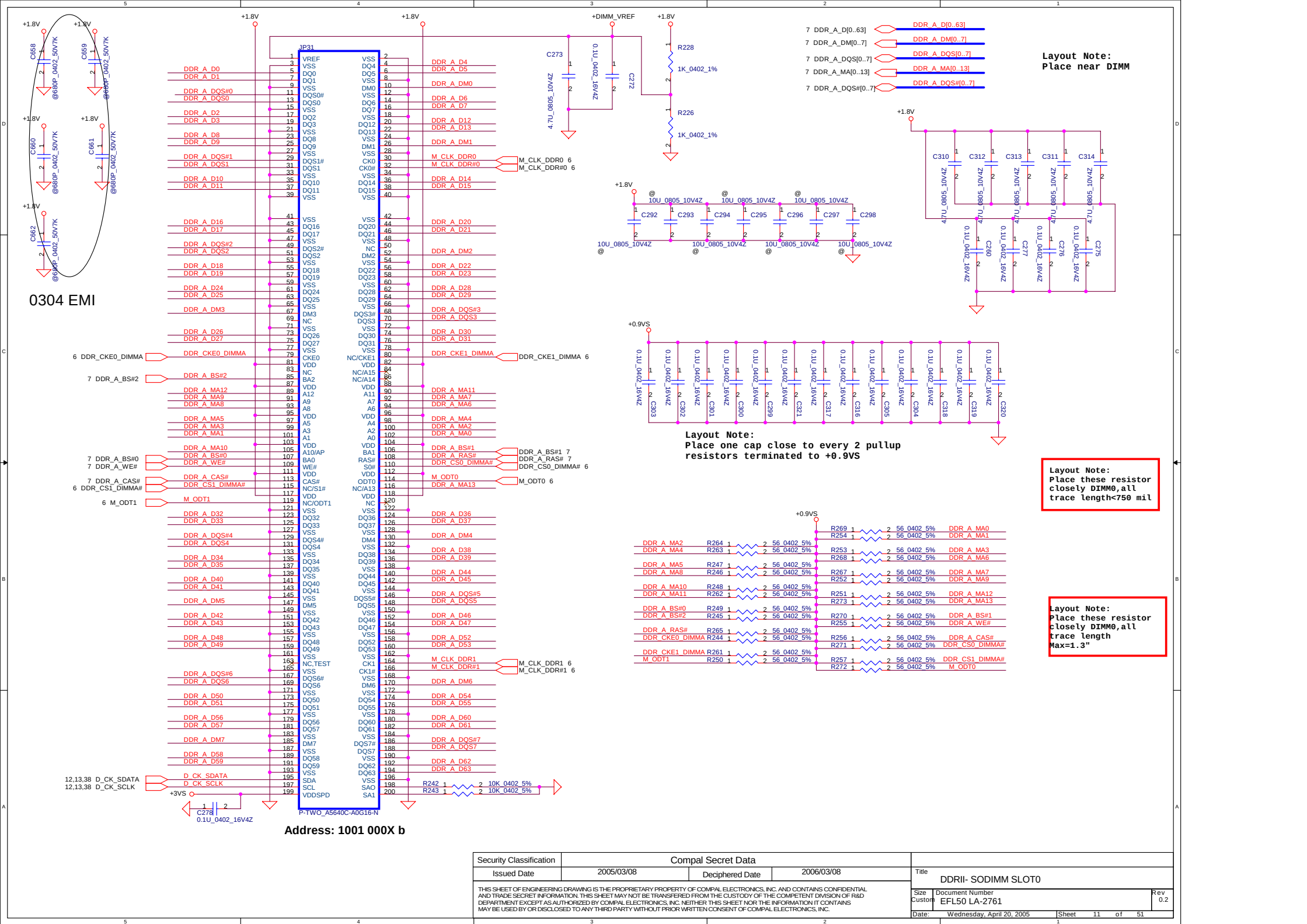


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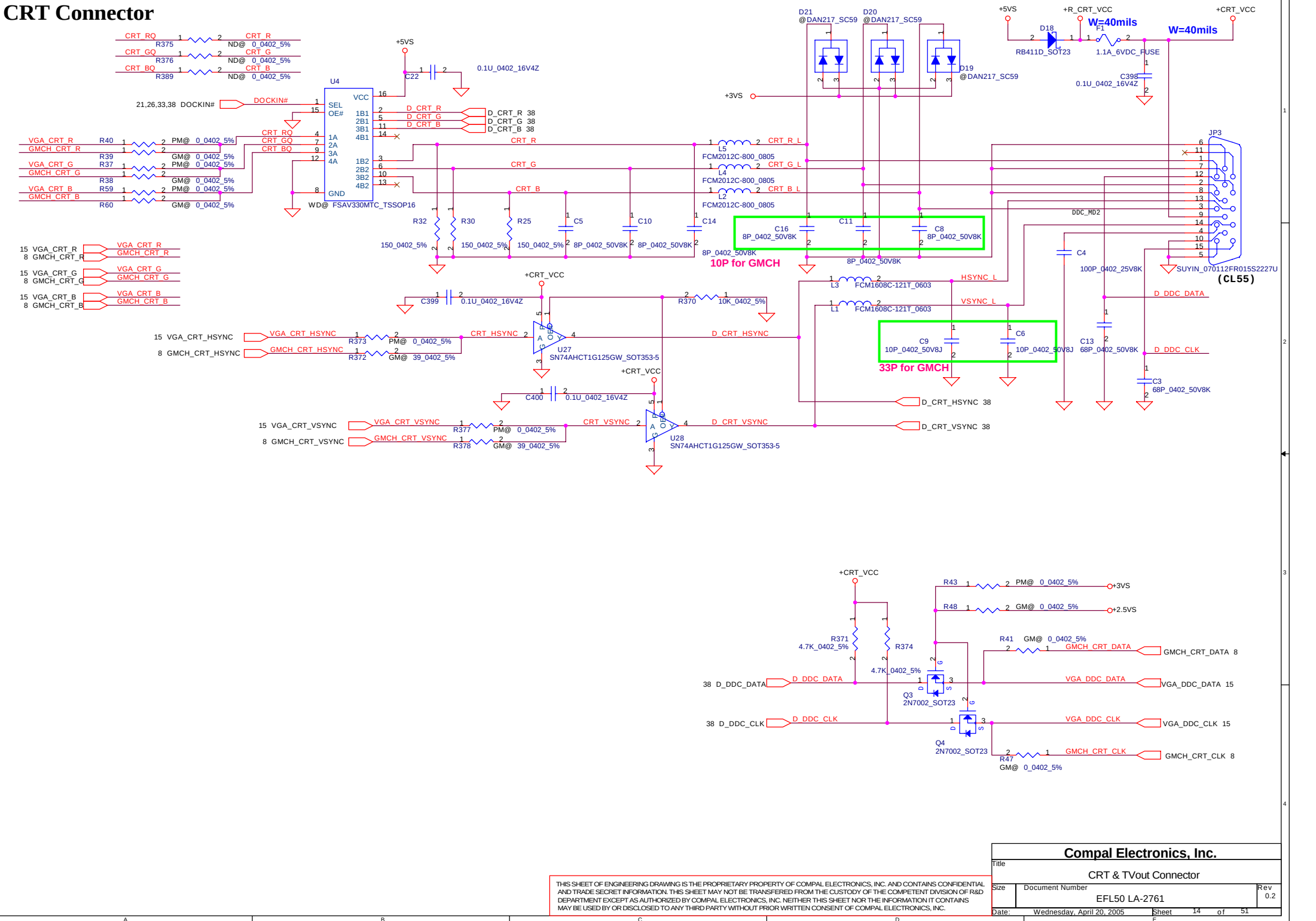


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Size	Custom	Document Number	Rev		0.2
Date:		Wednesday, April 20, 2005	Sheet	7	of 51

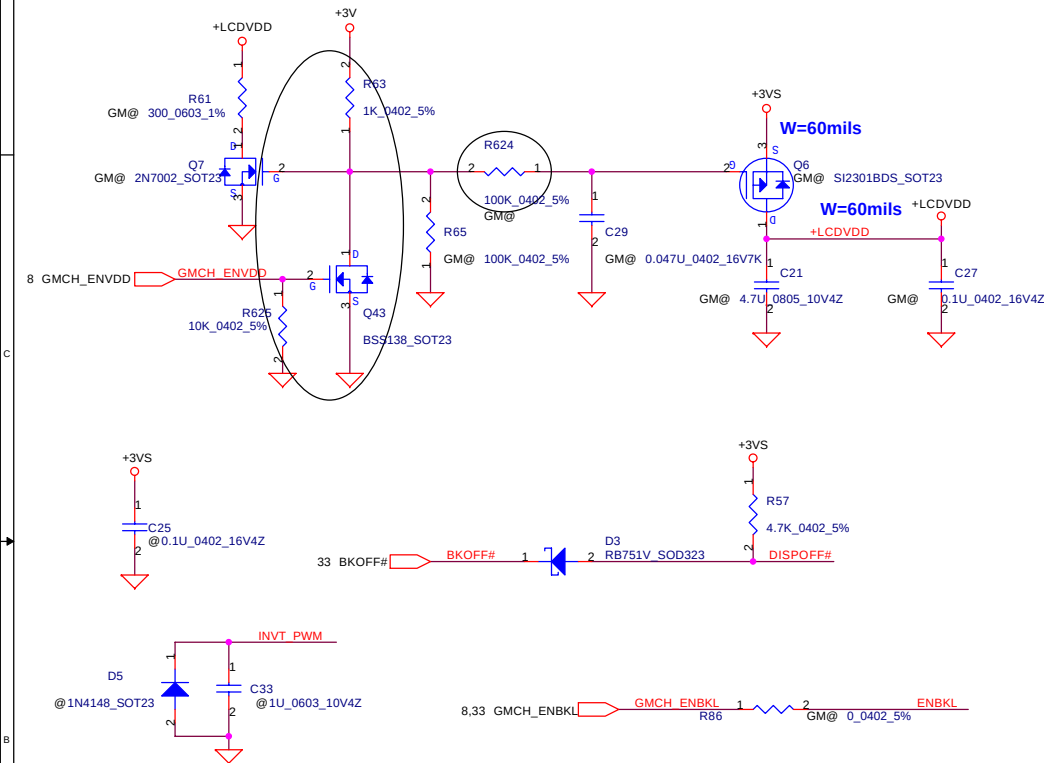




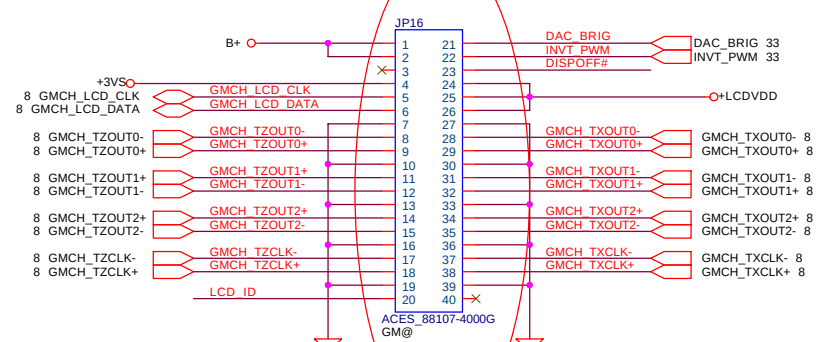
CRT Connector



LCD POWER CIRCUIT



LCD/PANEL BD. Conn.



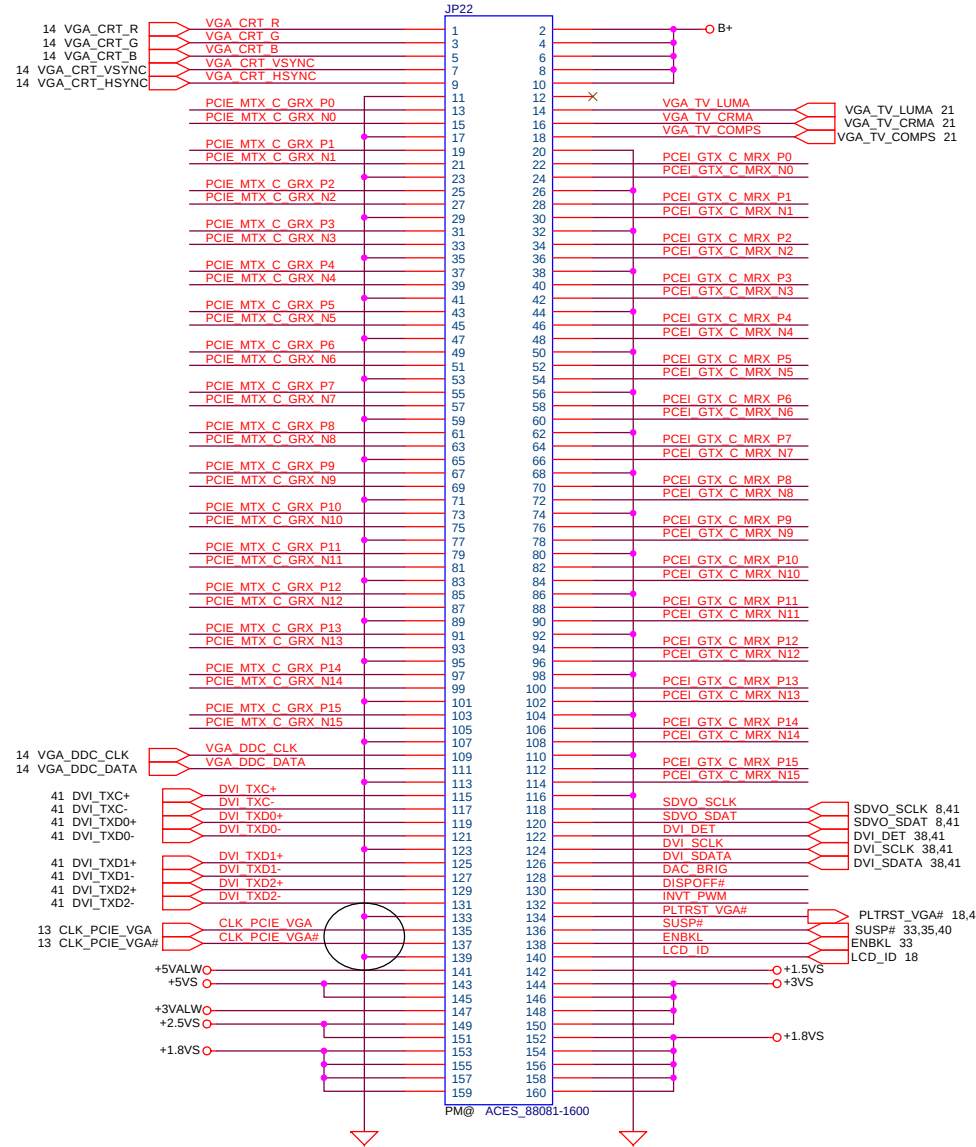
Reverse for Layout

8,41 PCIE GTX_C_MRX_N[0..15] ← PCIE GTX_C_MRX N[0..15]
 8,41 PCIE GTX_C_MRX_P[0..15] ← PCIE GTX_C_MRX P[0..15]
 8,41 PCIE_MTX_C_GRX_N[0..15] ← PCIE_MTX_C_GRX N[0..15]
 8,41 PCIE_MTX_C_GRX_P[0..15] ← PCIE_MTX_C_GRX P[0..15]

VGA CRT_R R618 2 150 0402 5%
 VGA CRT_G R619 1 2 150 0402 5%
 VGA CRT_B R620 1 2 150 0402 5%
 VGA TV_LUMA R621 1 2 150 0402 5%
 VGA TV_CRMA R622 1 2 150 0402 5%
 VGA TV_COMPS R623 1 2 150 0402 5%

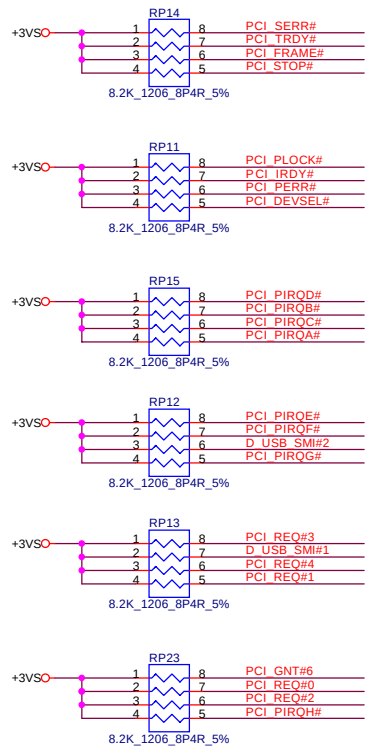
2005/01/24

VGA BOARD Conn.



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Title			
VGA / LCD CONN.			
Size	Document Number	Rev	
	EFL50 LA-2761	0.2	
Date:	Wednesday, April 20, 2005	Sheet	15 of 51



22,24,25,27,28 PCI_AD[0..31]

PCI_AD0	E2
PCI_AD1	E5
PCI_AD2	C2
PCI_AD3	E5
PCI_AD4	E3
PCI_AD5	E9
PCI_AD6	E2
PCI_AD7	D6
PCI_AD8	E6
PCI_AD9	D3
PCI_AD10	A2
PCI_AD11	D2
PCI_AD12	D5
PCI_AD13	H3
PCI_AD14	B4
PCI_AD15	J5
PCI_AD16	K2
PCI_AD17	K5
PCI_AD18	D4
PCI_AD19	L6
PCI_AD20	G3
PCI_AD21	H4
PCI_AD22	H2
PCI_AD23	H5
PCI_AD24	B3
PCI_AD25	M6
PCI_AD26	B2
PCI_AD27	K6
PCI_AD28	K3
PCI_AD29	A5
PCI_AD30	L1
PCI_AD31	K4

U13B

PCI

REQ[0]#	L5	PCI_REQ#0	PCI_REQ#0 24
GNT[0]#	C1	PCI_GNT#0	PCI_GNT#0 24
REQ[1]#	B5	PCI_REQ#1	PCI_REQ#1 27,28
GNT[1]#	B6	PCI_GNT#1	PCI_GNT#1 27,28
REQ[2]#	M5	PCI_REQ#2	PCI_REQ#2 22
GNT[2]#	F1	PCI_GNT#2	PCI_GNT#2 22
REQ[3]#	B8	PCI_REQ#3	PCI_REQ#3 25
GNT[3]#	C8	PCI_GNT#3	PCI_GNT#3 25
REQ[4]#/GPI[40]	E7	PCI_REQ#4	PCI_REQ#4 25
GNT[4]#/GPO[48]	E7	D_USB_SMI#1	D_USB_SMI#1 38
REQ[5]#/GPI[1]	E8	PCI_GNT#5	PCI_GNT#5 22,24,25,27,28
GNT[5]#/GPO[17]	E6	D_USB_SMI#2	D_USB_SMI#2 38
REQ[6]#/GPI[0]	B7	PCI_GNT#6	PCI_GNT#6 22,24,25,27,28
GNT[6]#/GPO[16]	D8	PCI_GNT#6	PCI_GNT#6 22,24,25,27,28
C/BE[0]#	J6	PCI_CBE#0	PCI_C/BE#0 22,24,25,27,28
C/BE[1]#	H6	PCI_CBE#1	PCI_C/BE#1 22,24,25,27,28
C/BE[2]#	G4	PCI_CBE#2	PCI_C/BE#2 22,24,25,27,28
C/BE[3]#	G2	PCI_CBE#3	PCI_C/BE#3 22,24,25,27,28
IRDY#	A3	PCI_IRDY#	PCI_IRDY# 22,24,25,27,28
PAR	E1	PCI_PAR	PCI_PAR 22,24,25,27,28
PCIRST#	R2	PCI_RST#	PCI_RST# 22,24,25,27,28,32,33
DEVSEL#	C3	PCI_DEVSEL#	PCI_DEVSEL# 22,24,25,27,28
PERR#	E3	PCI_PERR#	PCI_PERR# 22,24,25,27,28
PLOCK#	C5	PCI_PLOCK#	PCI_PLOCK# 22,24,25,27,28
SERR#	G5	PCI_SERR#	PCI_SERR# 22,24,25,27,28
STOP#	J1	PCI_STOP#	PCI_STOP# 22,24,25,27,28
TRDY#	J2	PCI_TRDY#	PCI_TRDY# 22,24,25,27,28
PLTRST#	R5	PLT_RST#	PLT_RST# 6,18,20,32,33,41
PCICK	G6	CLK_ICH_PCI	CLK_PCI_ICH 13
PME#	P6	CLK_ICH_PCI	CLK_PCI_ICH 13

FRAME#

Interrupt I/F

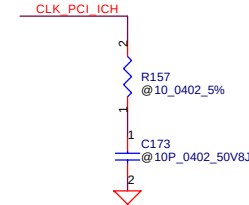
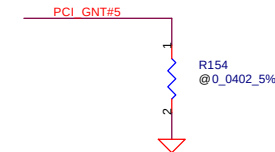
22,24,25,27,28 PCI_FRAME#	PCI_FRAME#	J3
22 PCI_PIRQA#	PCI_PIRQA#	N2
22 PCI_PIRQB#	PCI_PIRQB#	L2
	PCI_PIRQC#	M1
	PCI_PIRQD#	L3
	PIRQ[A]#	PIRQ[E]#/GPI[2]
	PIRQ[B]#	PIRQ[F]#/GPI[3]
	PIRQ[C]#	PIRQ[G]#/GPI[4]
	PIRQ[D]#	PIRQ[H]#/GPI[5]

RESERVED

×AC5	SATA[1]RXN/RSVD[1]
×AD5	SATA[1]RXP/RSVD[2]
×AF4	SATA[1]TXN/RSVD[3]
×AG4	SATA[1]TXP/RSVD[4]
×AD9	SATA[3]RXN/RSVD[5]
×AF8	SATA[3]RXP/RSVD[6]
×AG8	SATA[3]TXN/RSVD[7]
×U3	SATA[3]TXP/RSVD[8]
	TP[3]/RSVD[9]

ICH6_BGA609

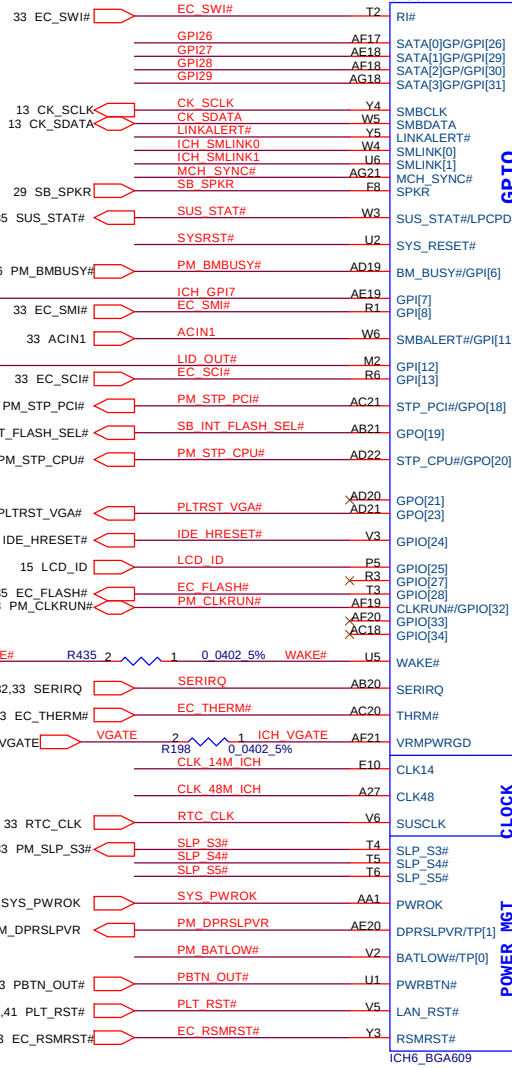
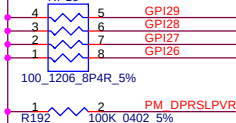
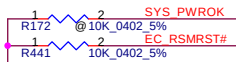
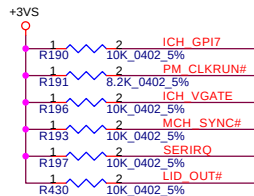
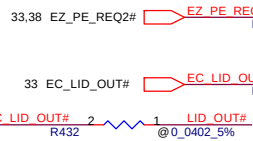
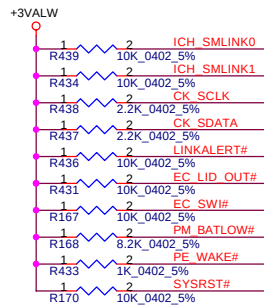
Internal Pull-up.
Sample high destination is LPC.



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Title	ICH6(1/4)		
Size	Document Number	EFL50 LA-2761	Rev 0.2
Date:	Wednesday, April 20, 2005	Sheet 16	of 51

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PCI-EXPRESS

DIRECT MEDIA INTERFACE

USB

POWER MGT

CLOCK

GPIO

PCI-EXPRESS

DIRECT MEDIA INTERFACE

USB

POWER MGT

CLOCK

GPIO

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DIRECT MEDIA INTERFACE

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USB

POWER MGT

CLOCK

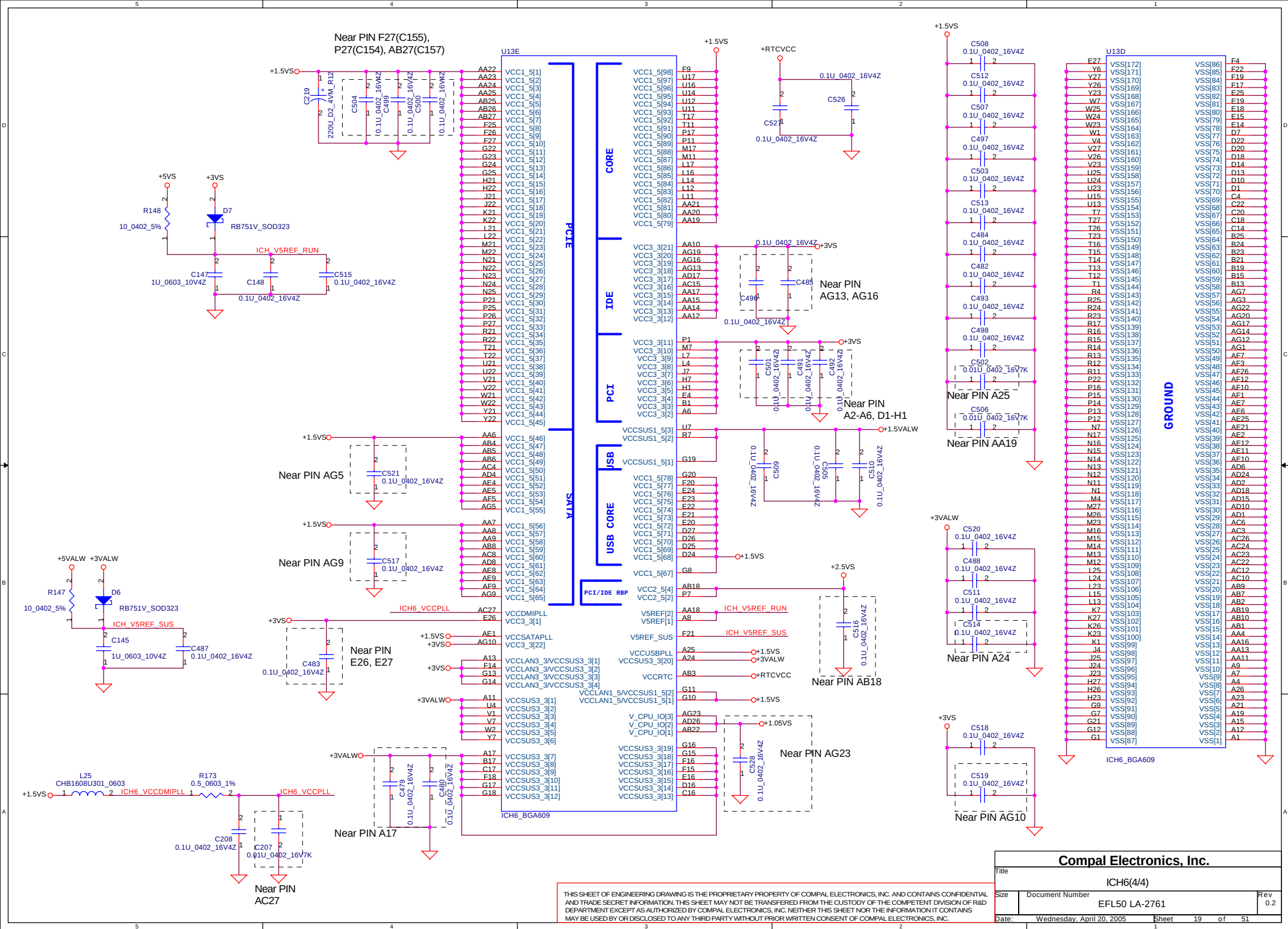
GPIO

PCI-EXPRESS

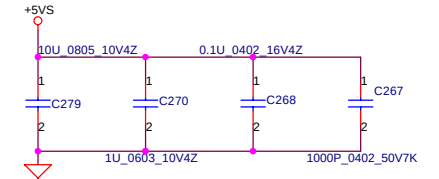
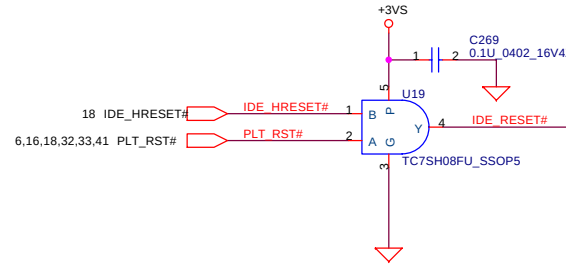
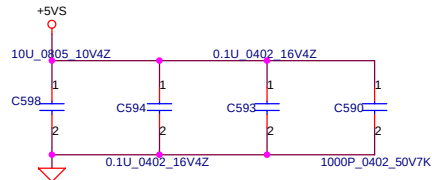
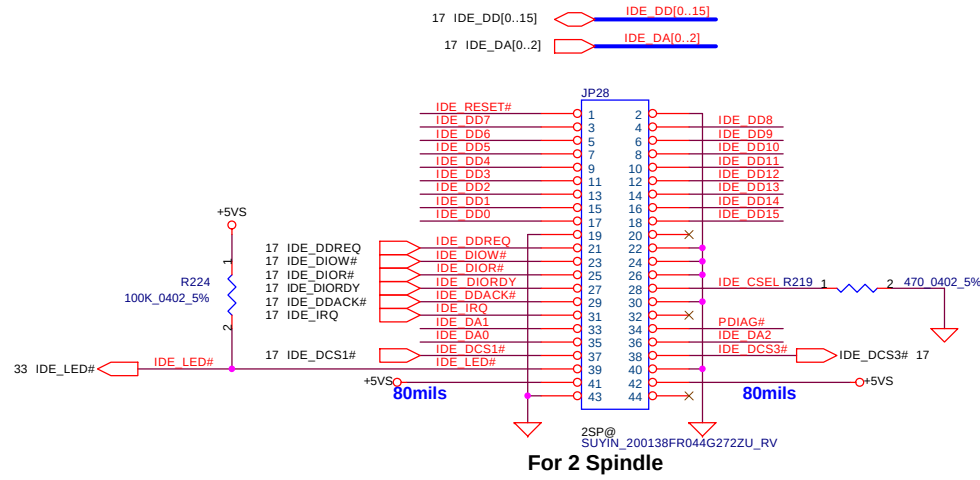
DIRECT MEDIA INTERFACE

USB

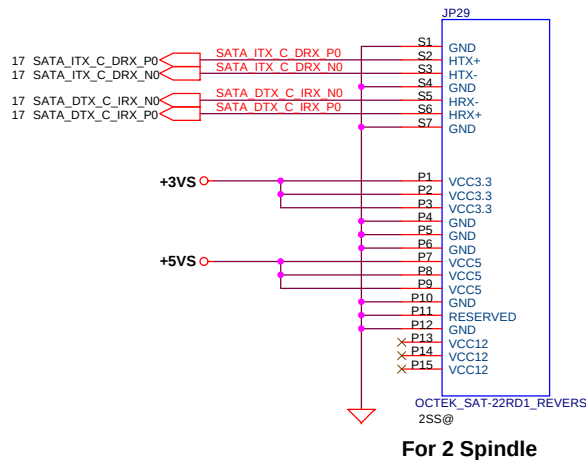
POWER MGT



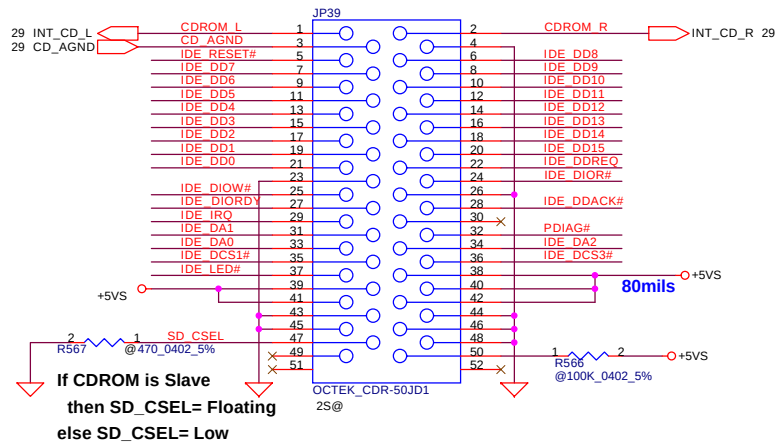
HDD CONN



SATA HDD CONN



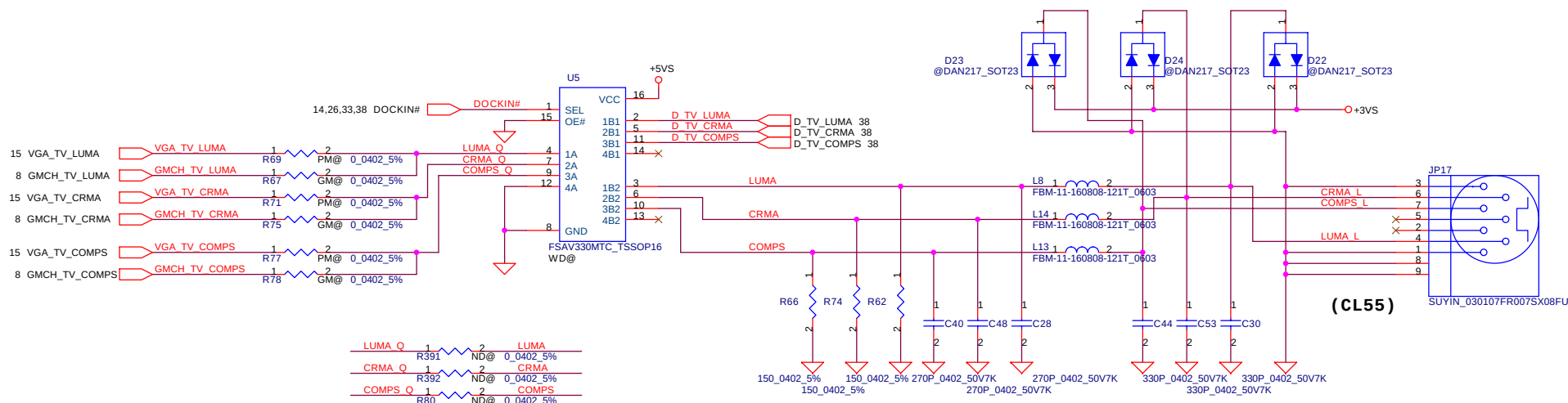
CDROM CONN



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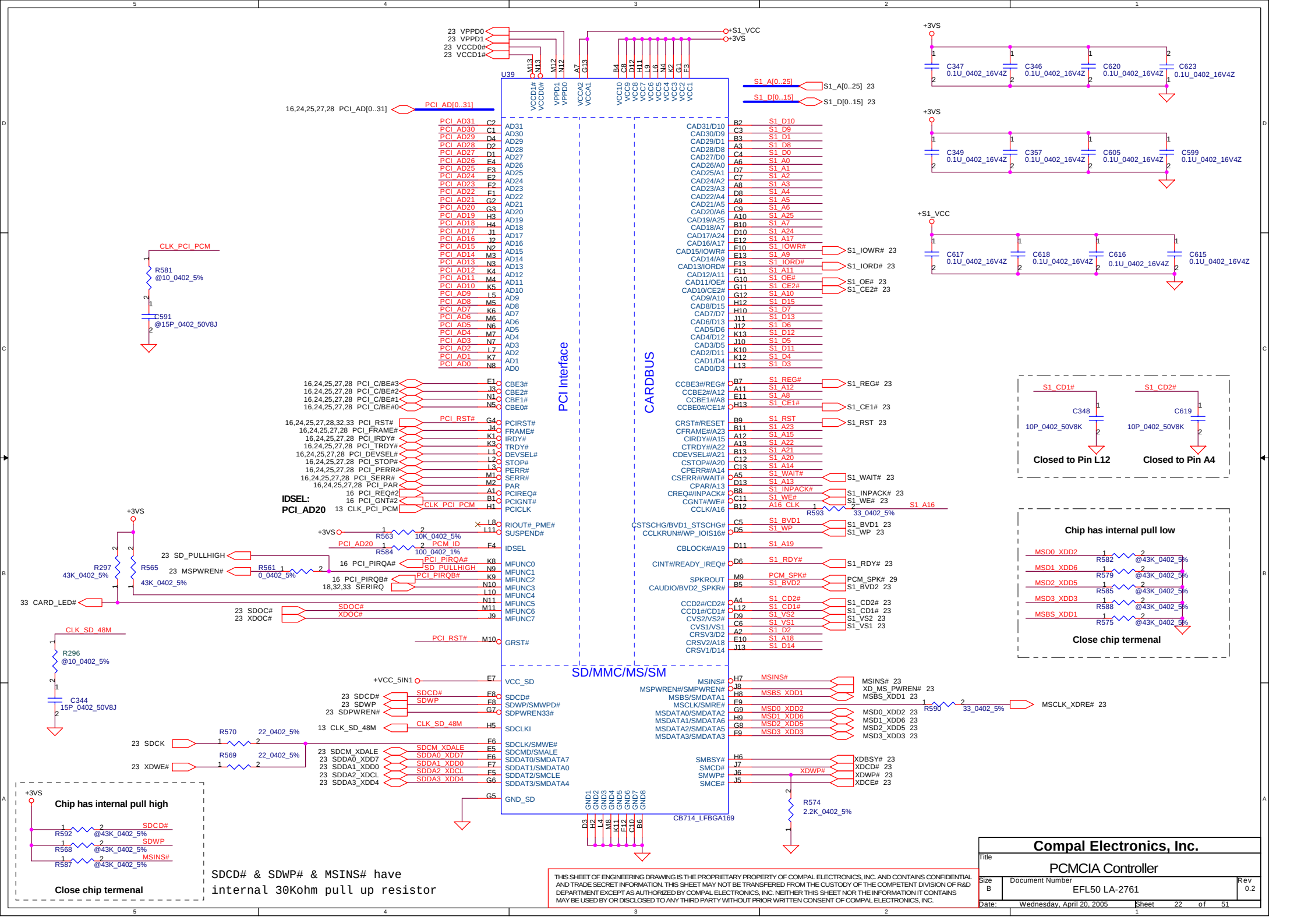
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HDD & CDROM Connector		
Size	Document Number	Rev
	EFL50 LA-2761	0.2
Date:	Wednesday, April 20, 2005	Sheet 20 of 51

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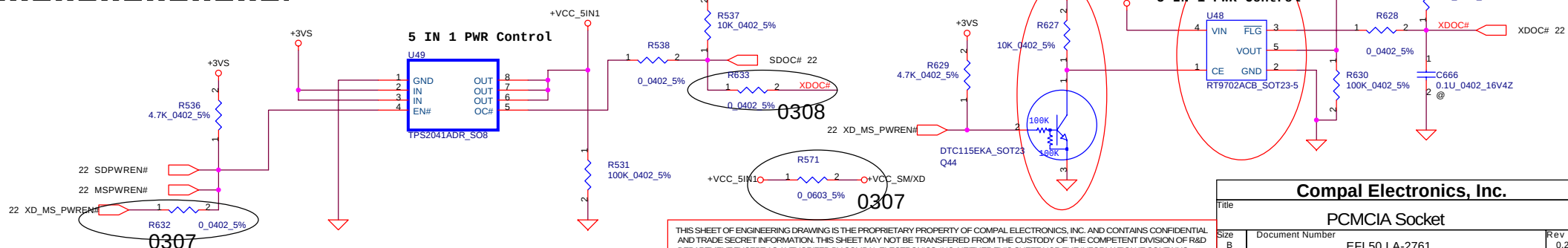
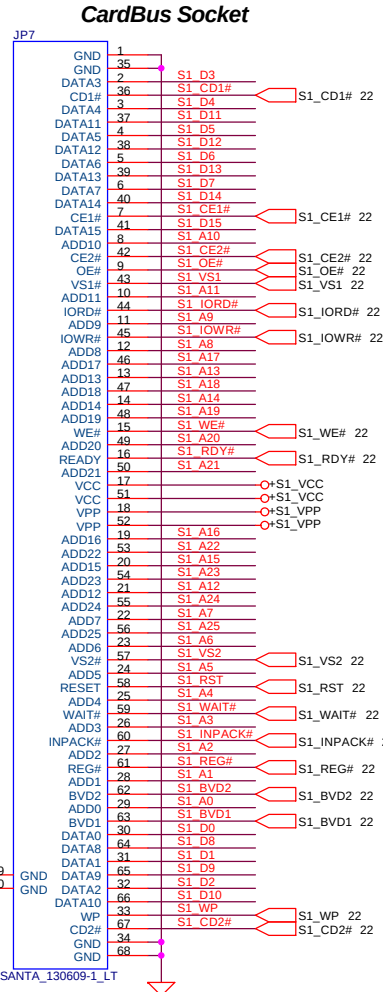
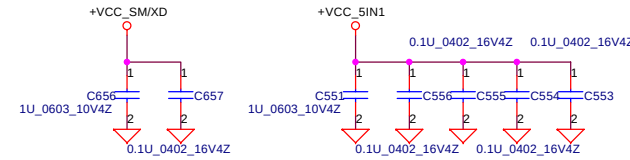
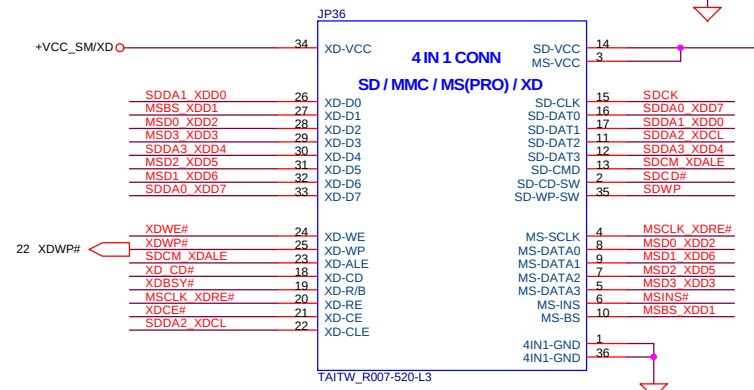
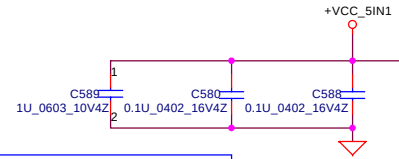
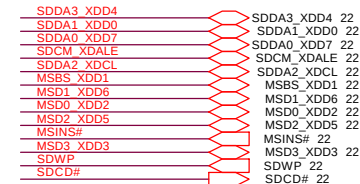
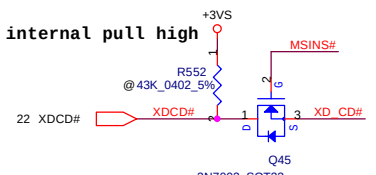
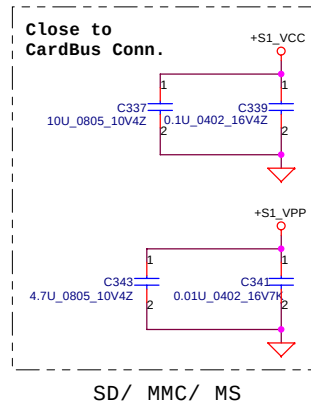
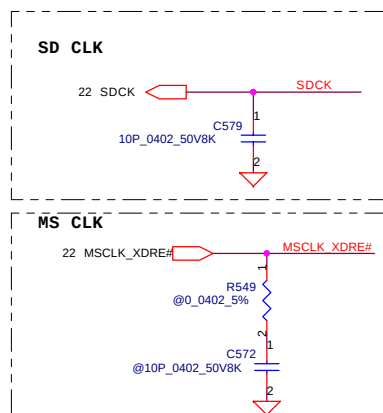
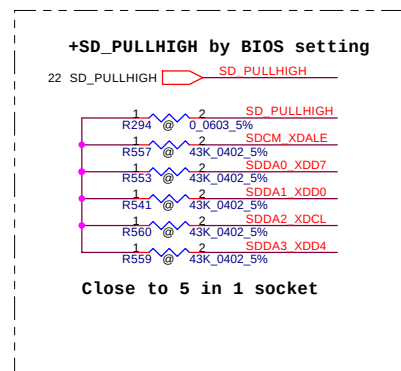
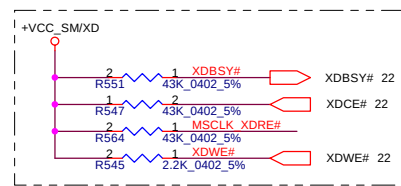
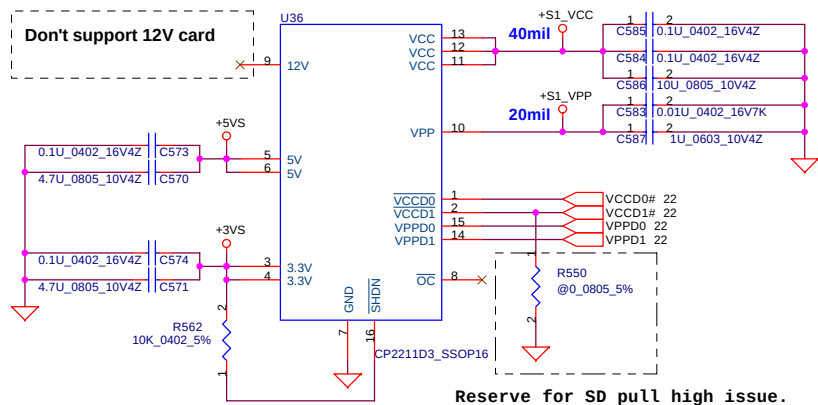


Compal Electronics, Inc.			
Title		PATA / SATA HDD Connector	
Size	Document Number	EFL50 LA-2761	
Date:	Wednesday, April 20, 2005	Sheet	21 of 51
		Rev	0.2

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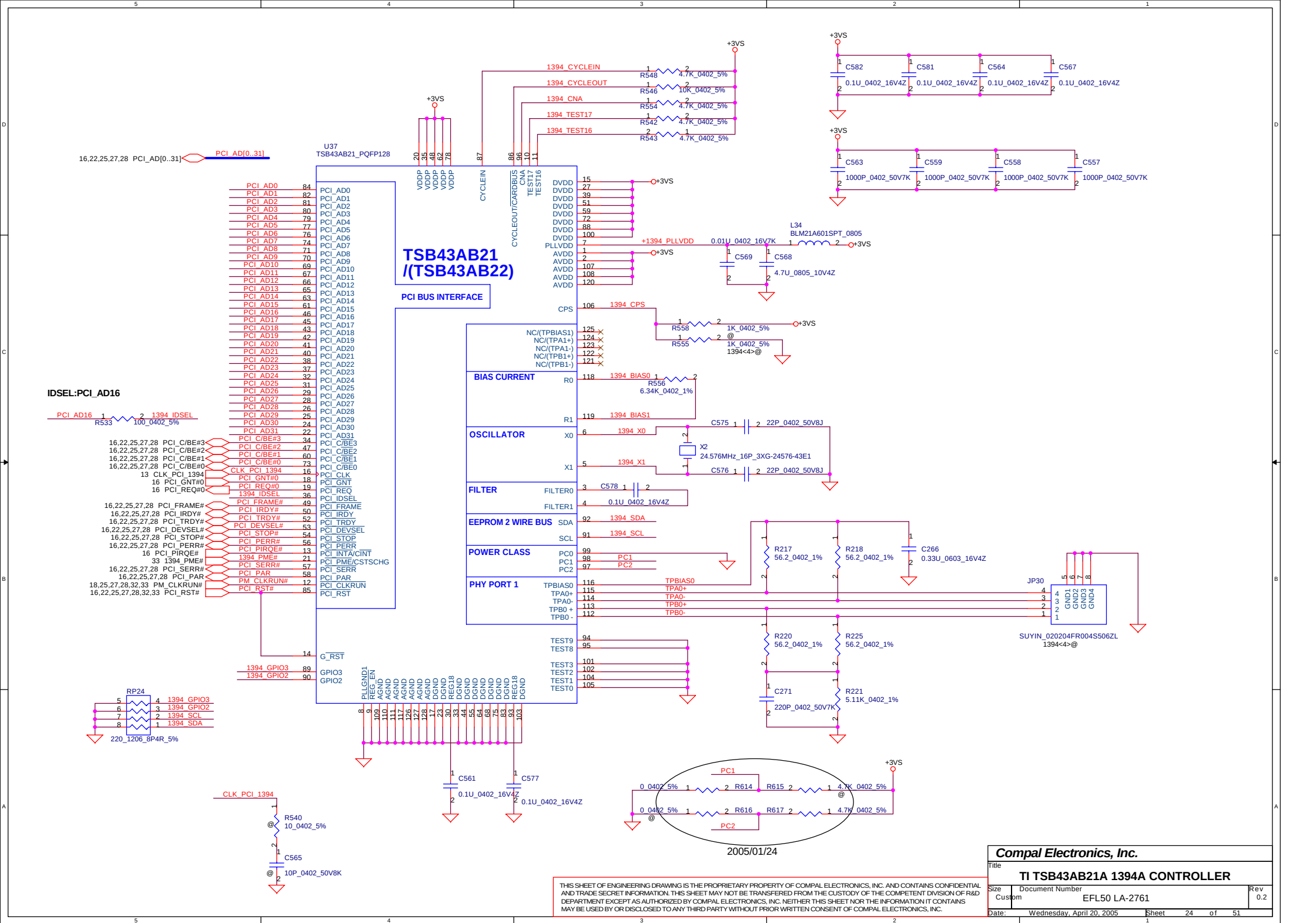


PCMCIA Power Controller



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Compal Electronics, Inc.			
Title			
PCMCIA Socket			
Size	Document Number	Rev	
B	EFL50 LA-2761	0.2	
Date:	Wednesday, April 20, 2005	Sheet	23 of 51

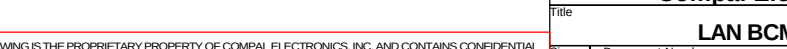
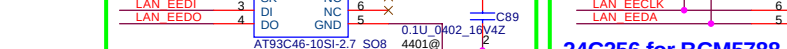
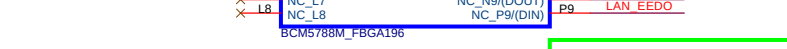
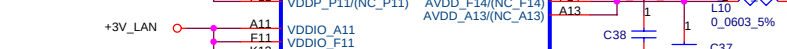
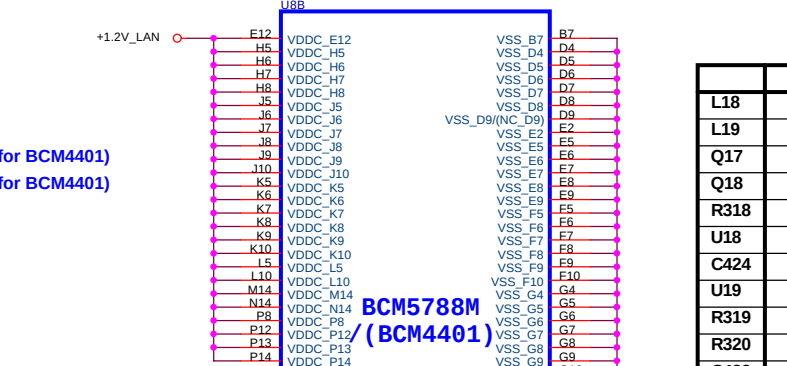
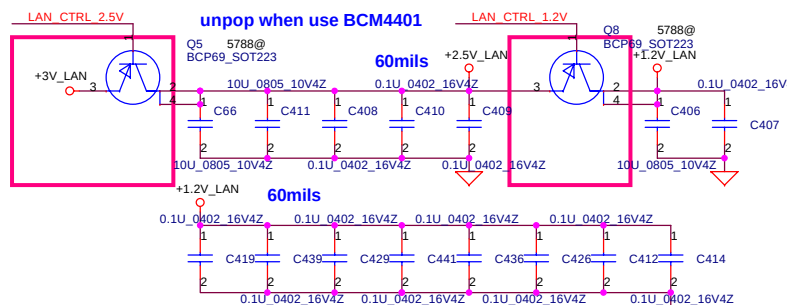
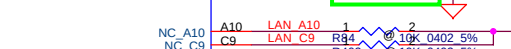
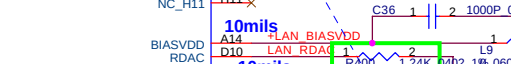
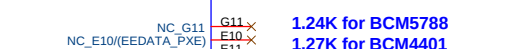
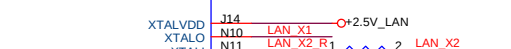
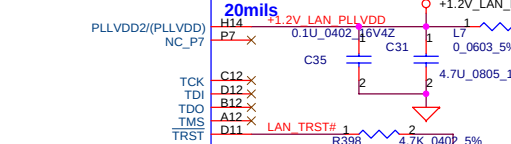
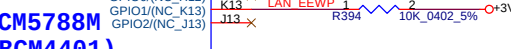
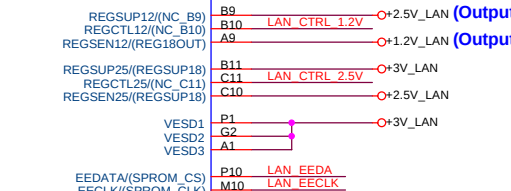
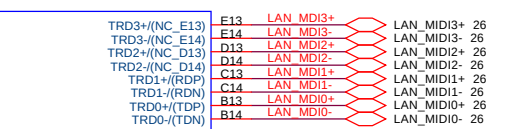
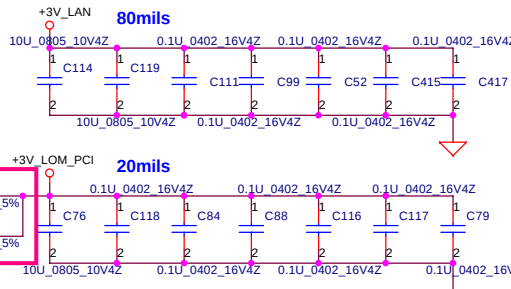
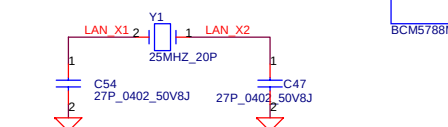
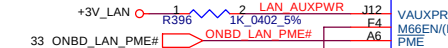
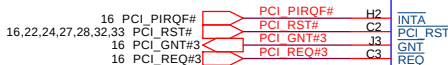
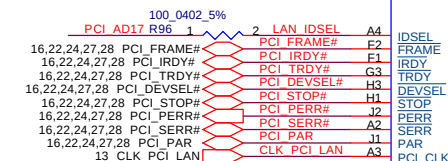
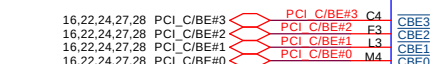
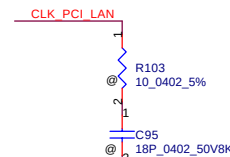


EN_WOL# = Low,
System can wake on LAN
(keep Low when Power On)

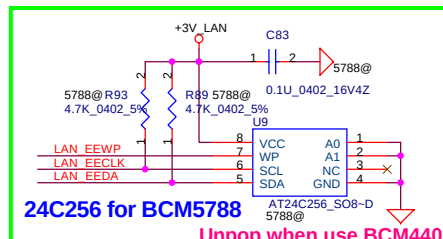
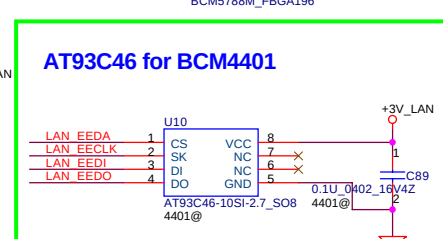
VGS(th) = -0.45V
IDmax = 2.3A

+3VS for BCM5788
+3V_LAN for BCM4401

16,22,24,27,28 PCI_AD[0..31]

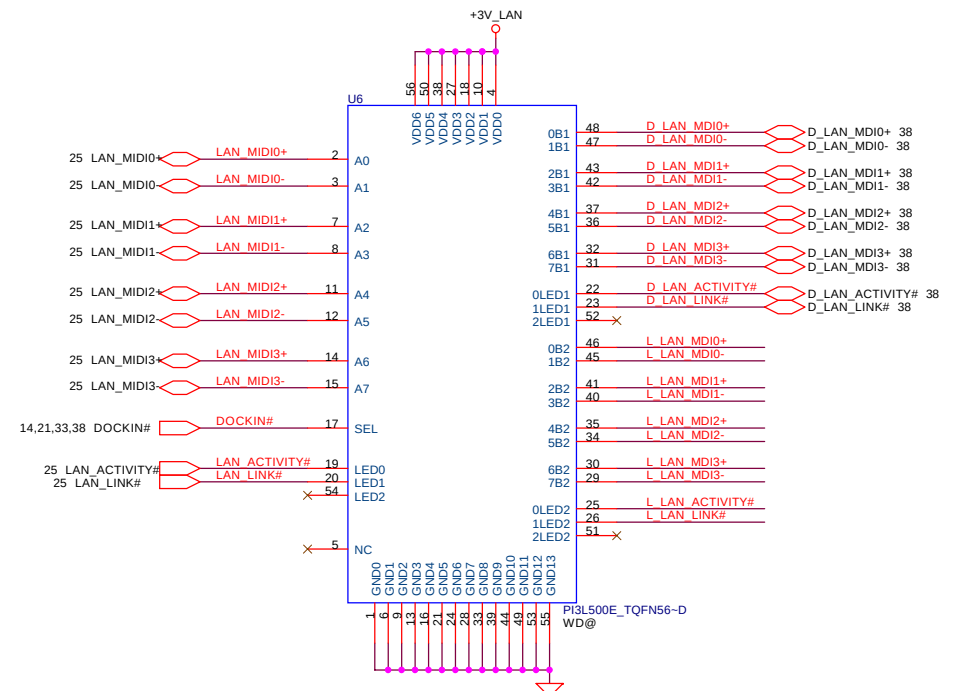


	5788	4401
L18		Pop
L19	Pop	
Q17	Pop	
Q18	Pop	
R318	1.24K	1.27K
U18		Pop
C424		Pop
U19	Pop	
R319	Pop	
R320	Pop	
C423	Pop	



Compal Electronics, Inc.		
Title LAN BCM5788M		
Size B	Document Number EFL50 LA-2761	Rev 0.2
Date: Wednesday, April 20, 2005	Sheet 25 of 51	

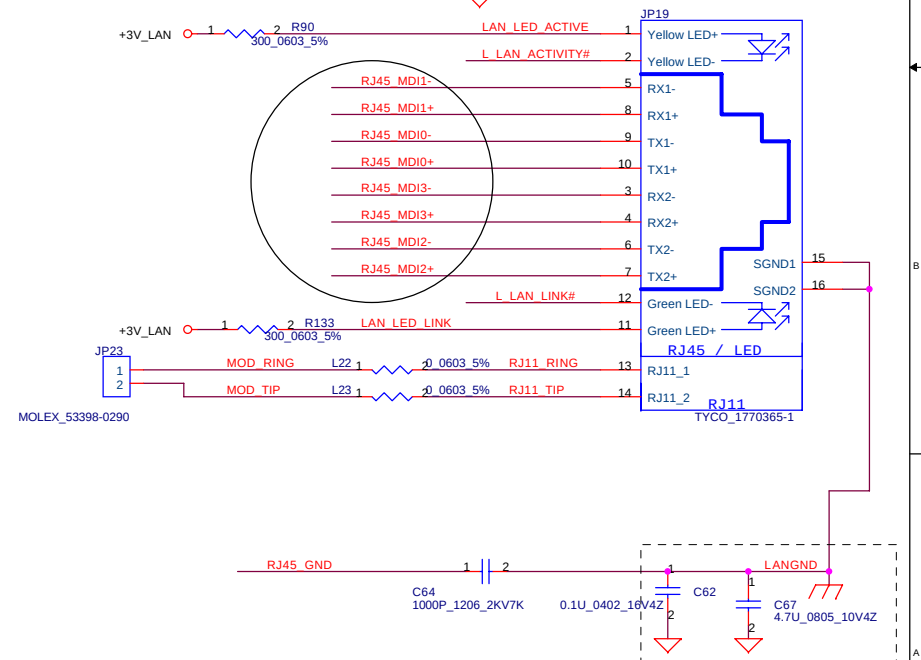
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LAN BCM5788M/BCM4401KFB

24ST0023-3(SP050004200) for BCM4401(10/100)

24HST1041A-3(SP050002110) for BCM5788M(GbE)



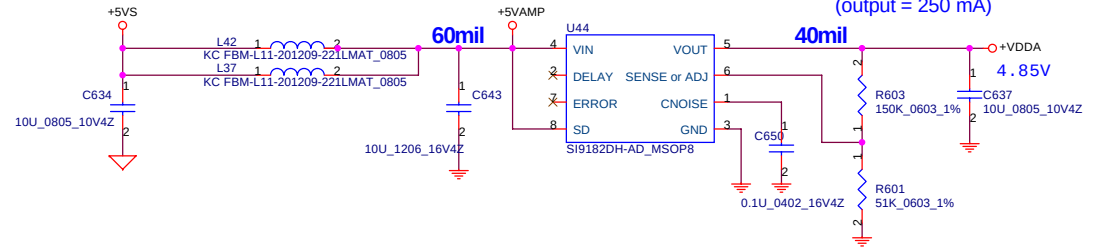
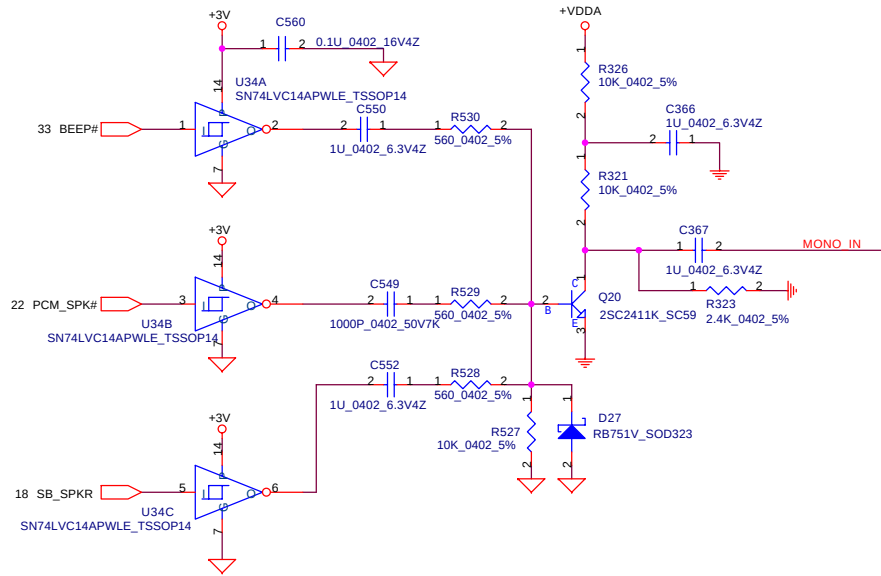
reserved for BCM4401(10/100)

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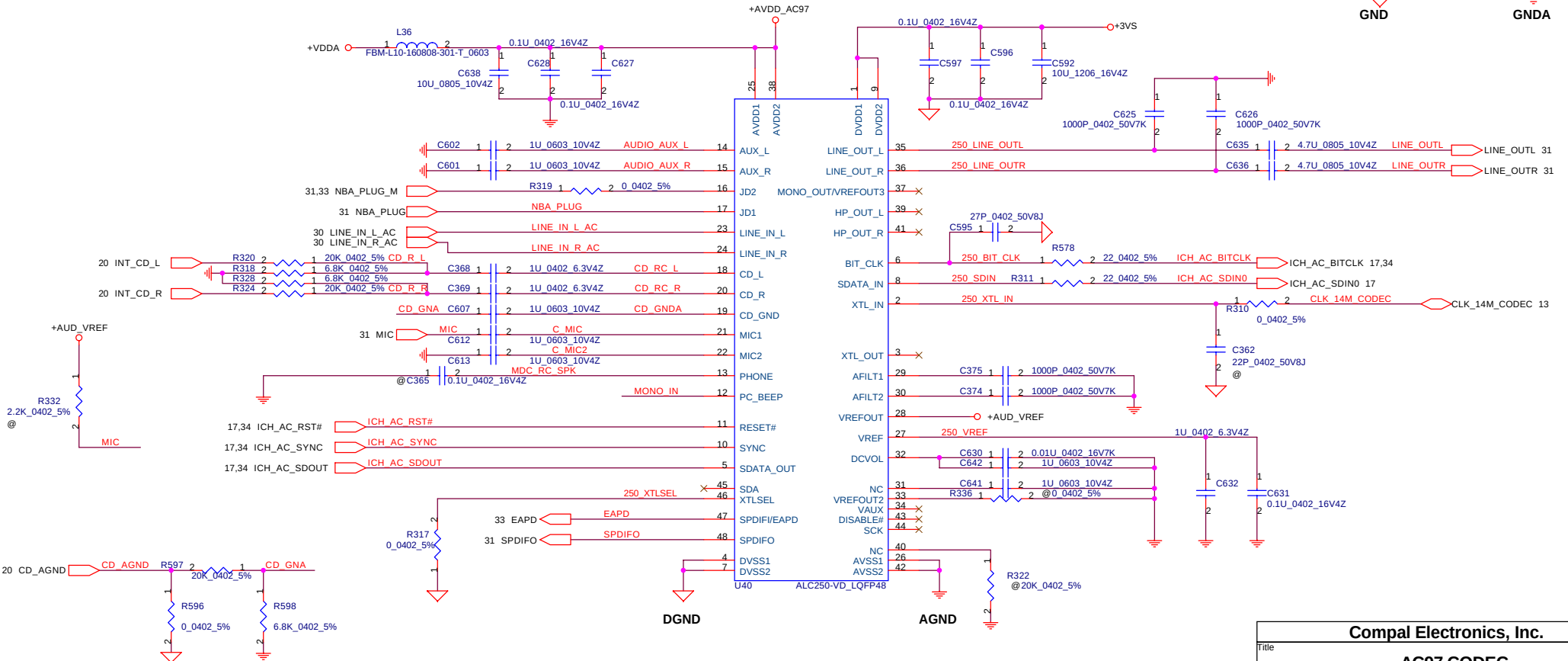
LAN Magnetic & RJ45/RJ11

Title			
LAN Magnetic & RJ45/RJ11			
Size B	Document Number EFL50 LA-2761	Rev 0.2	
Date:	Wednesday, April 20, 2005	Sheet	26 of 51

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AC97 Codec

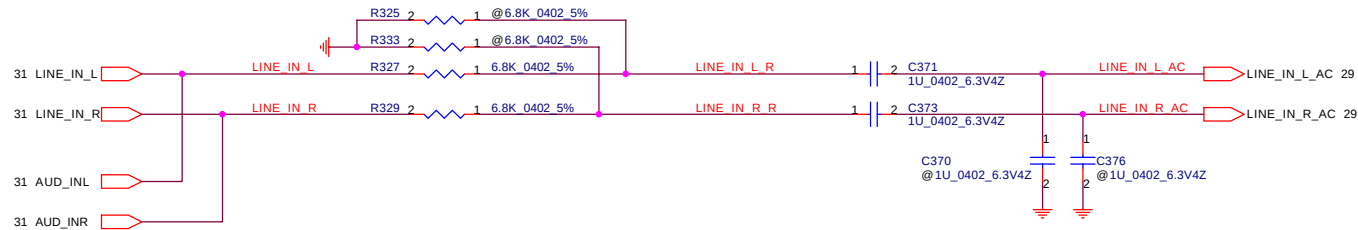


With 14.318Mhz : R321 POP
With 24.576Mhz : R321 DEPOP

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Compal Electronics, Inc.

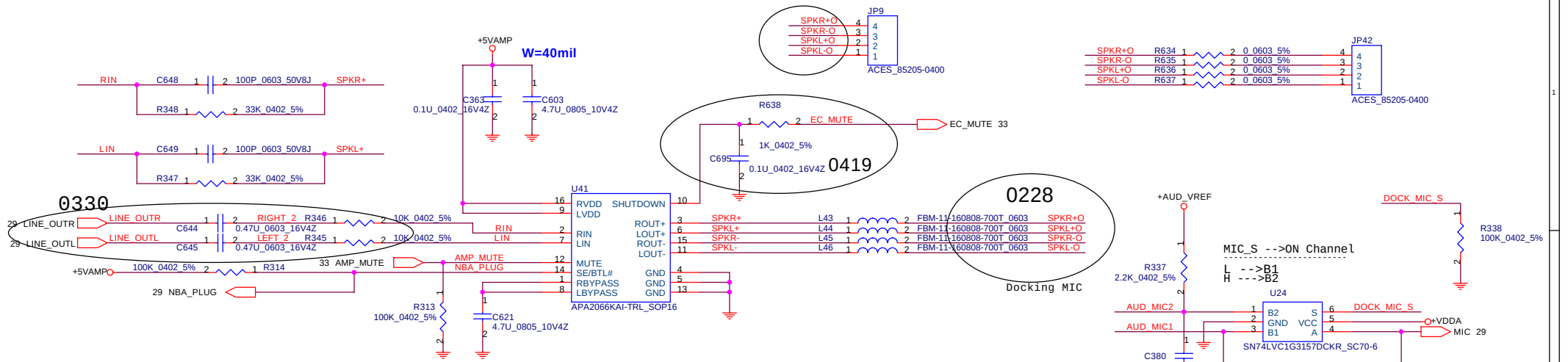
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Size	Document Number	Rev
	EFL50 LA2761	0.2
Date:	Wednesday, April 20, 2005	Sheet 29 of 51



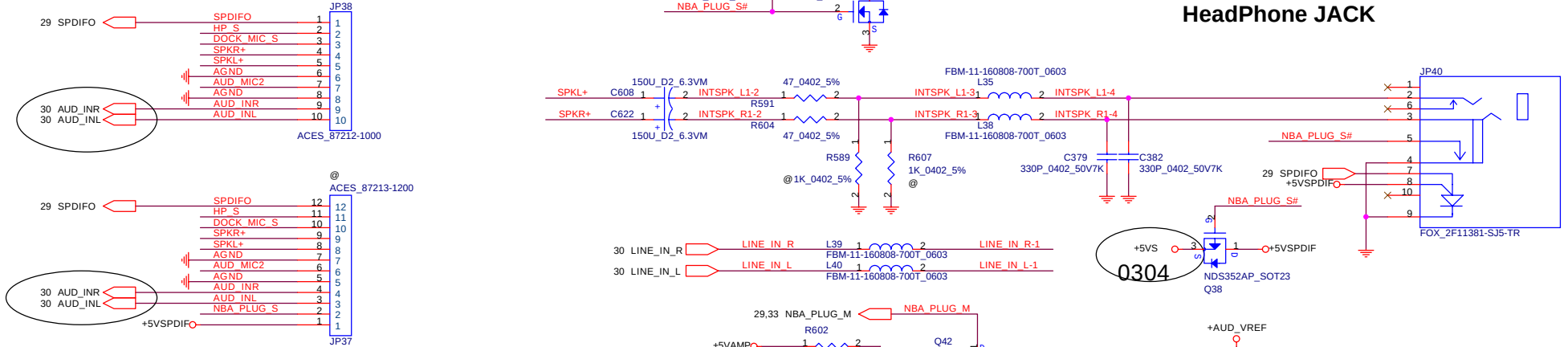
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Compal Electronics, Inc.			
Title			
Audio Line Switch			
Size	Document Number		Rev
	EFL50 LA-2761		0.2
Date:	Wednesday, April 20, 2005		Sheet 30 of 51

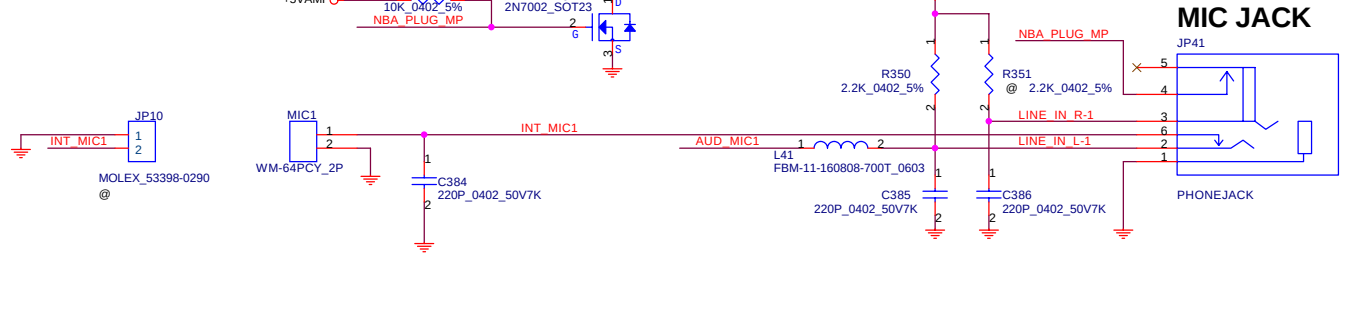
Speaker Conn.



HeadPhone JACK



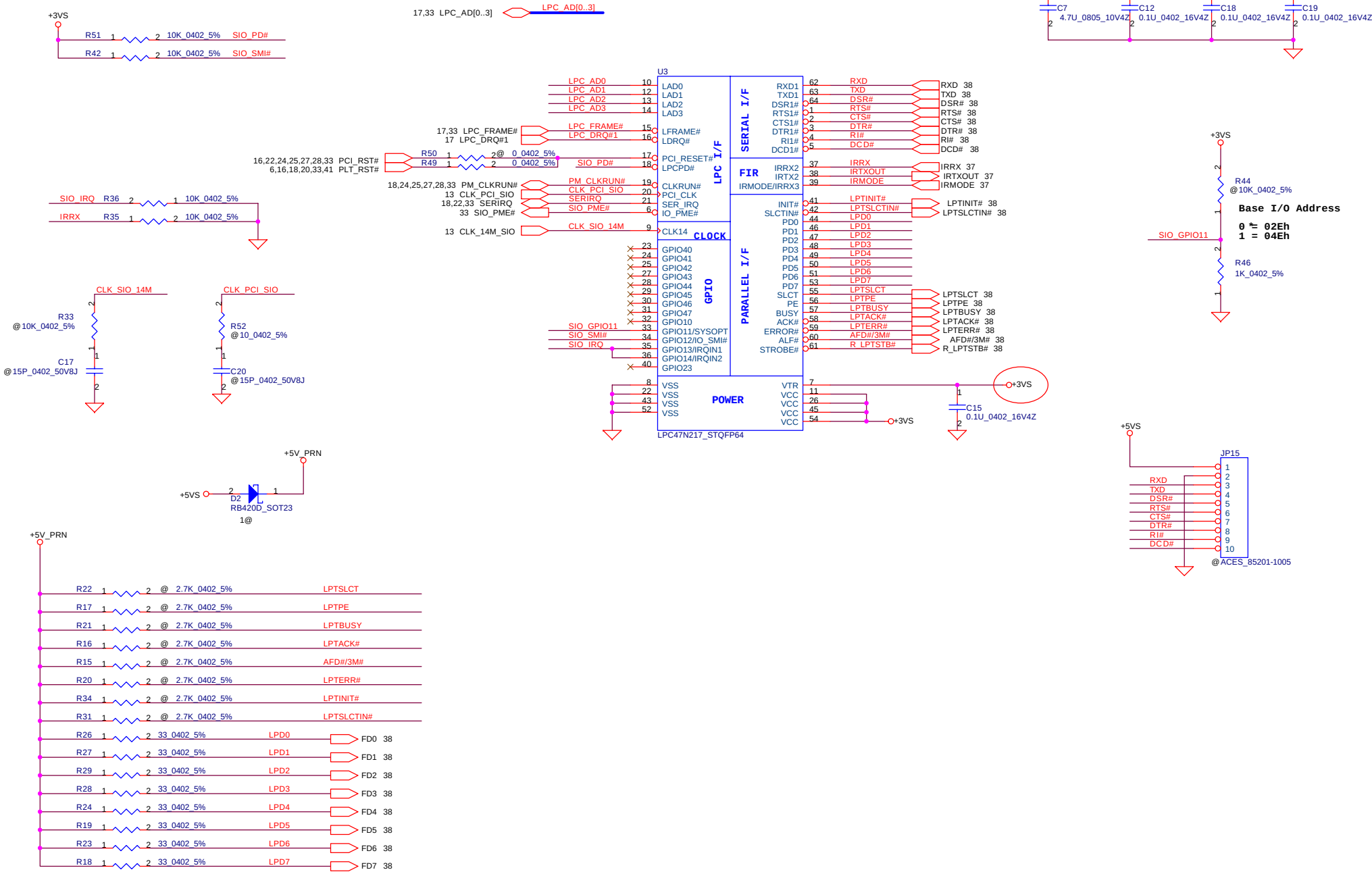
MIC JACK



Compal Electronics, Inc.			
Title			
AMP & Audio Jack			
Size	Document Number	Rev	
	EFL50 LA-2761	0.2	
Date:	Wednesday, April 20, 2005	Sheet	31 of 51

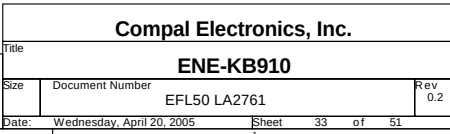
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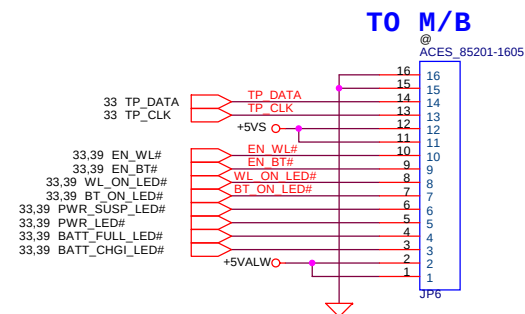
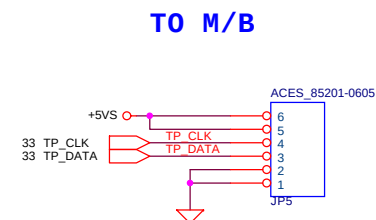
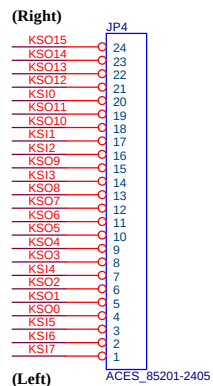
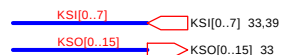
SUPER I/O SMC LPC47N217



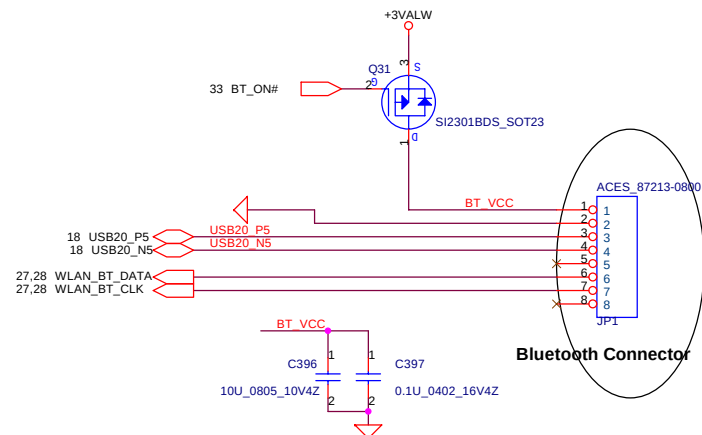
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS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

Compal Electronics, Ltd.			
Title			
LPC-Super I/O 217			
Size	Document Number	Rev	
	EFL50 LA2751	0.2	
Date:	Wednesday, April 20, 2005	Sheet	32 of 51

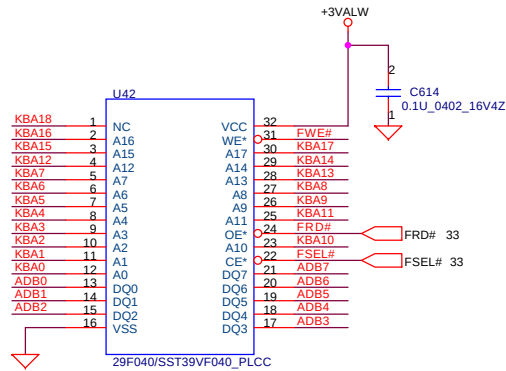




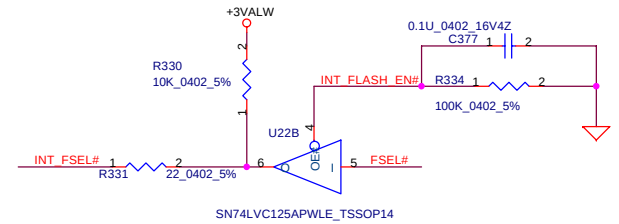
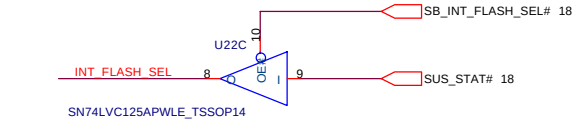
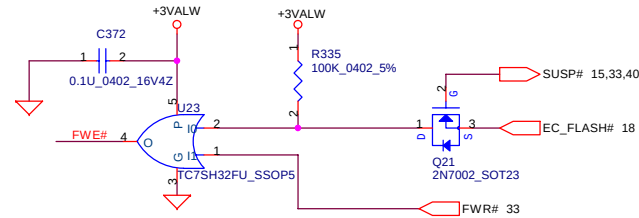
BlueTooth Interface



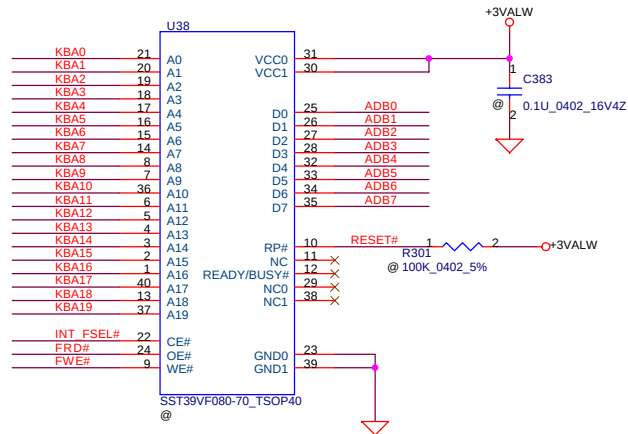
33 KBA[0..19] KBA[0..19]
33 ADB[0..7] ADB[0..7]



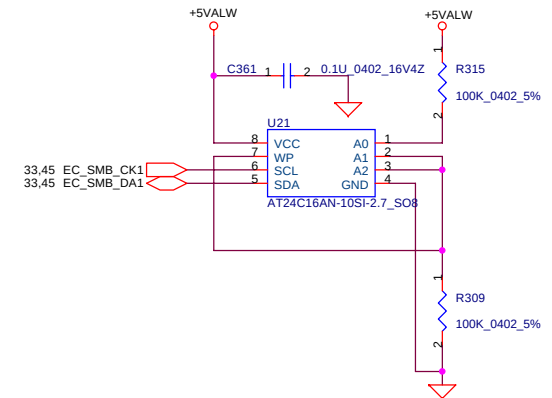
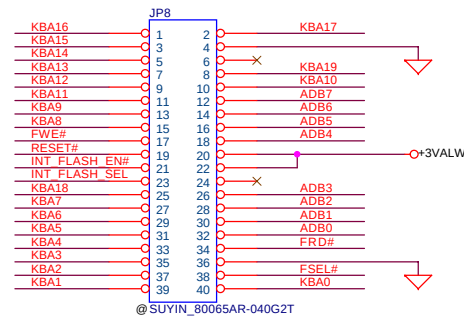
(CL55)



1MB Flash ROM



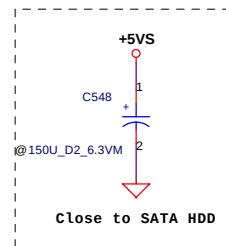
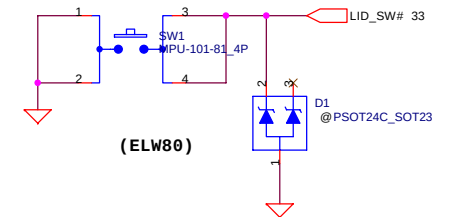
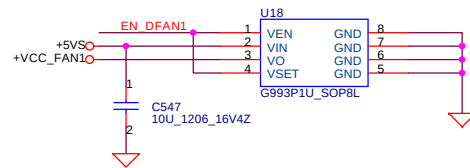
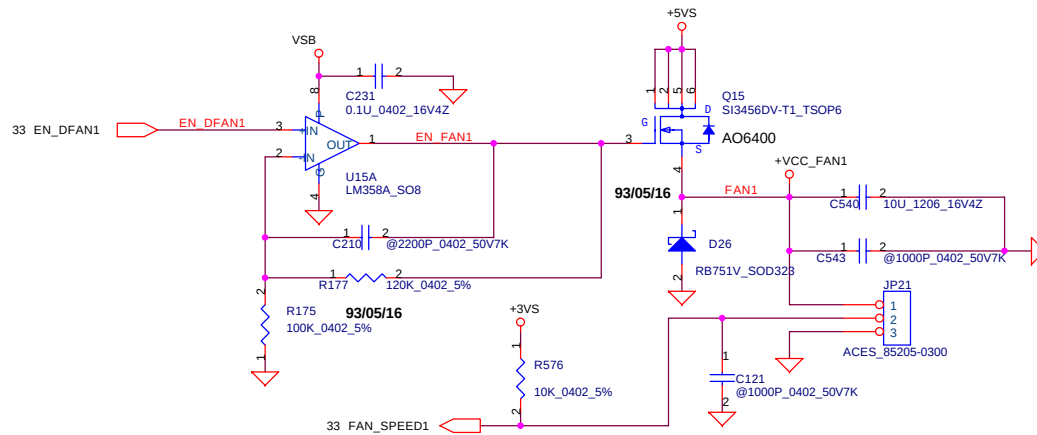
1MB ROM Socket



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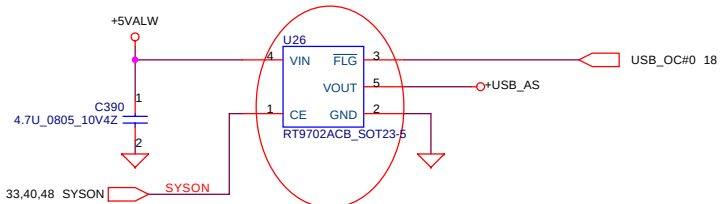
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Title				
BIOS & EXT. I/O PORT & SATA HDD				
Size	Document Number			Rev
	EFL50 LA-2761			0.2
Date:	Wednesday, April 20, 2005		Sheet	35 of 51

FAN Conn

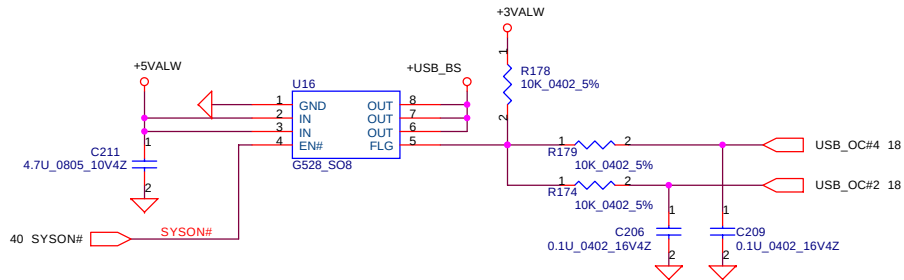


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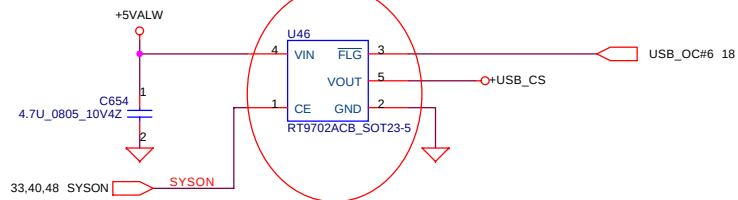
Compal Electronics, Inc.			
Title			
FAN / FIR / RJ11/Lid Switch			
Size	Document Number		Rev
	EFL50 LA-2761		0.2
Date:	Wednesday, April 20, 2005	Sheet	36 of 51



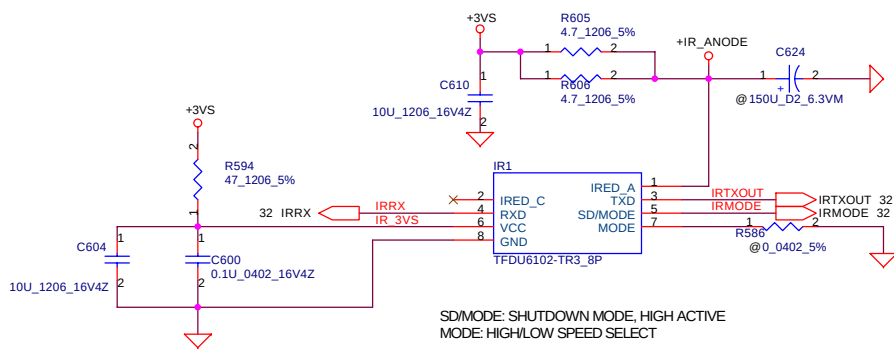
Cost-Down from G528 to RT9702



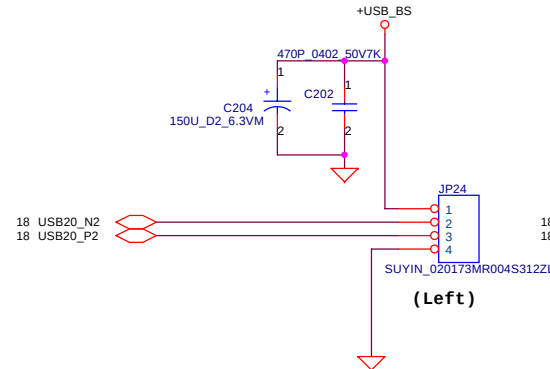
Cost-Down from G528 to RT9702



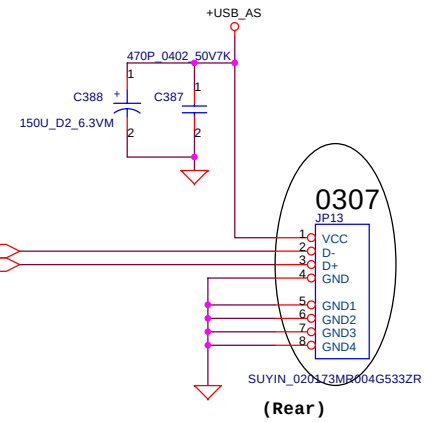
FIR Module



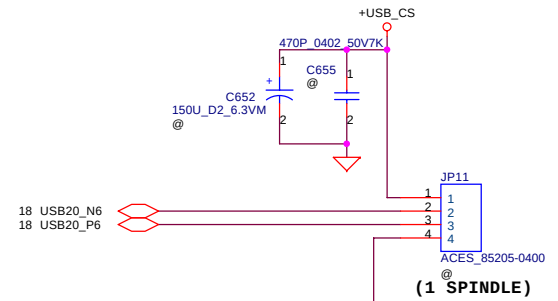
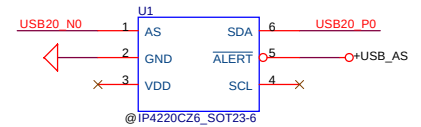
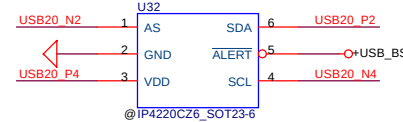
SDMODE: SHUTDOWN MODE, HIGH ACTIVE
MODE: HIGH/LOW SPEED SELECT



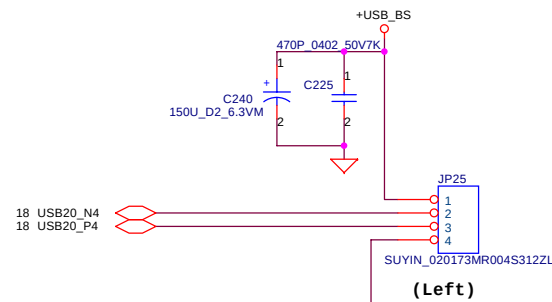
(Left)



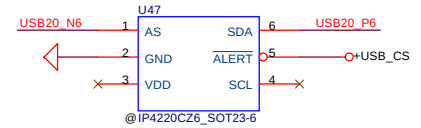
(Rear)



(1 SPINDLE)



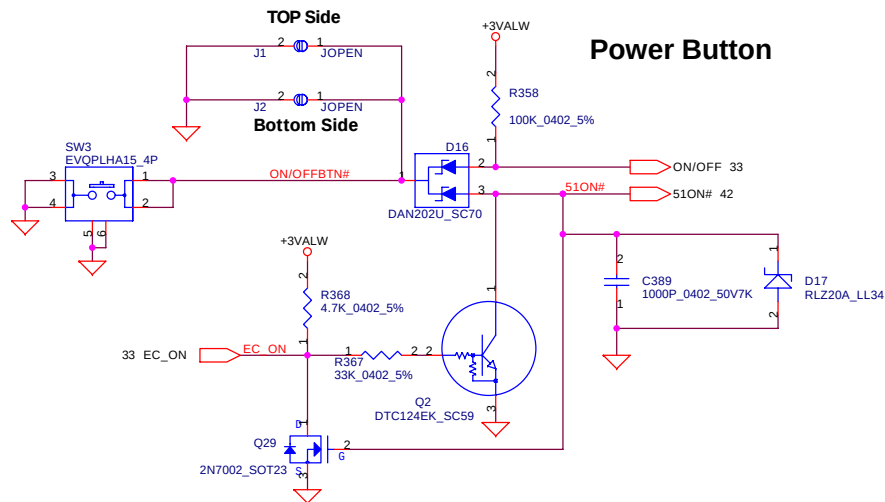
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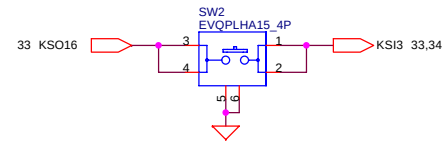
Compal Electronics, Inc.

Title		
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Size	Document Number	Rev
	EFL50 LA-2761	0.2
Date:	Wednesday, April 20, 2005	Sheet 37 of 51

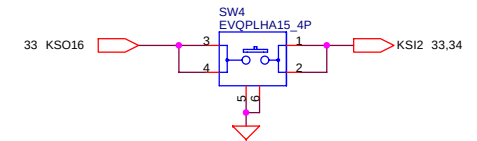
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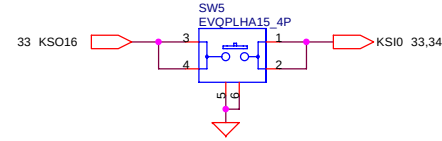
E-Mail_BTN



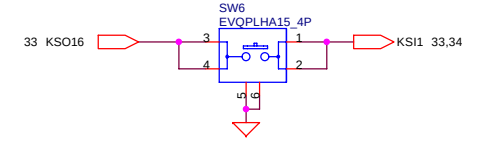
Internet_BTN



e/eManager_BTN



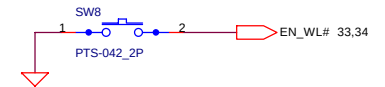
Launch Manager_BTN



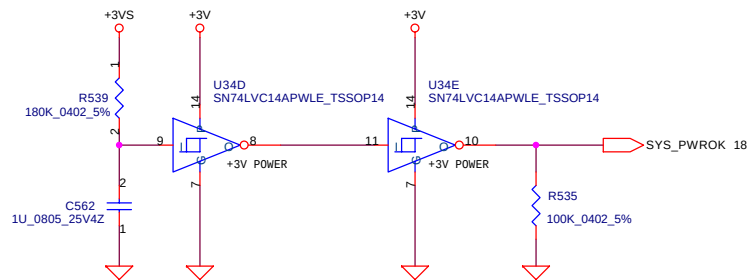
BlueTooth_BTN



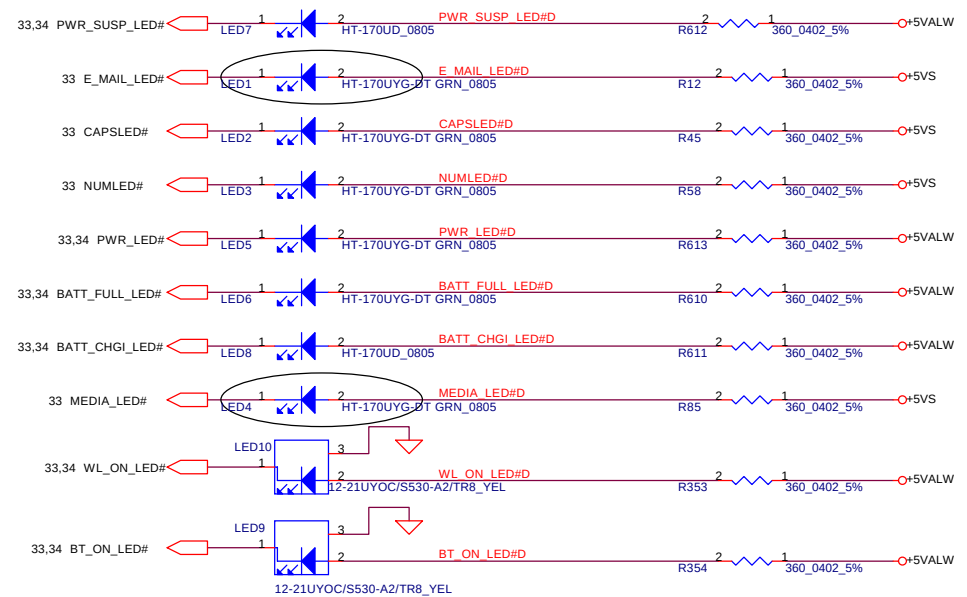
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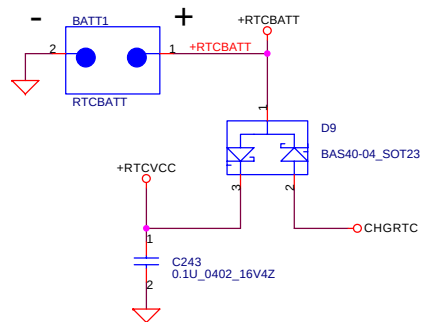
Power ON Circuit



LED Indicator

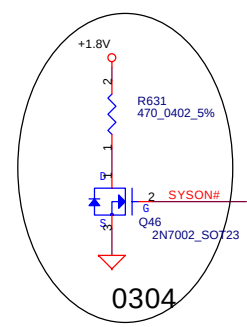
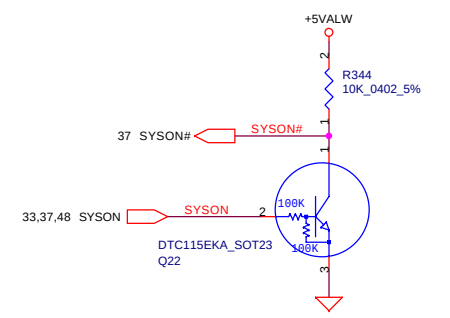
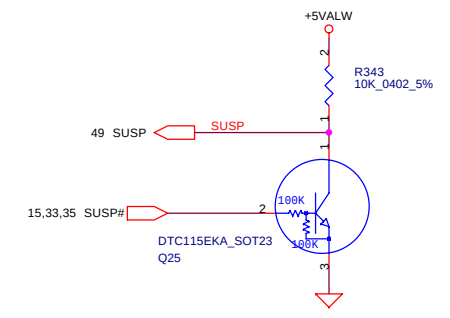
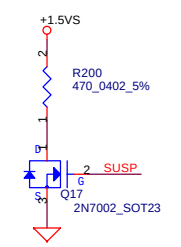
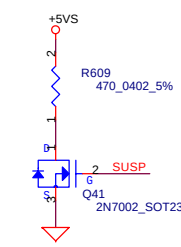
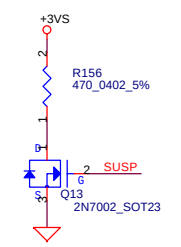
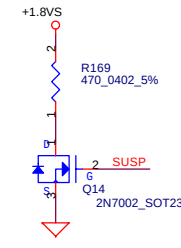
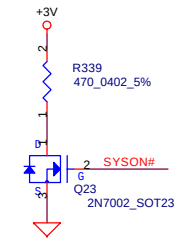
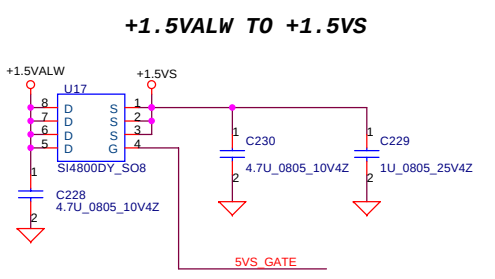
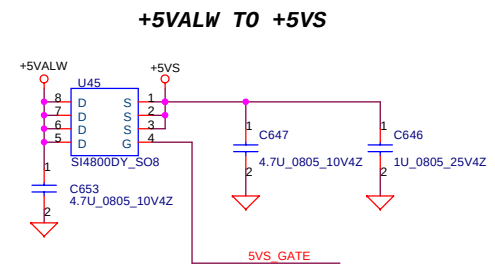
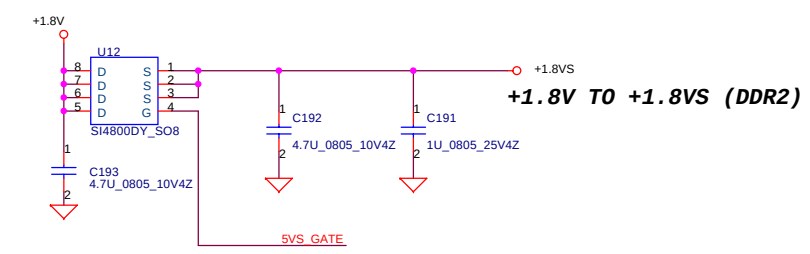
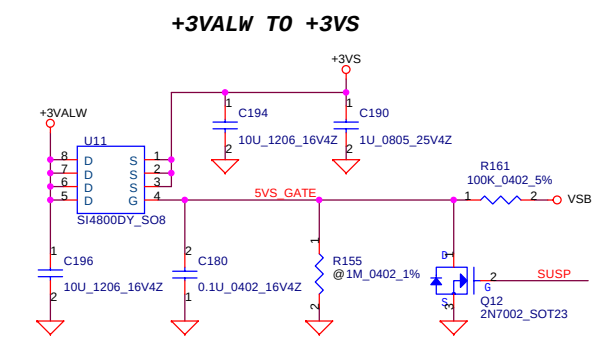
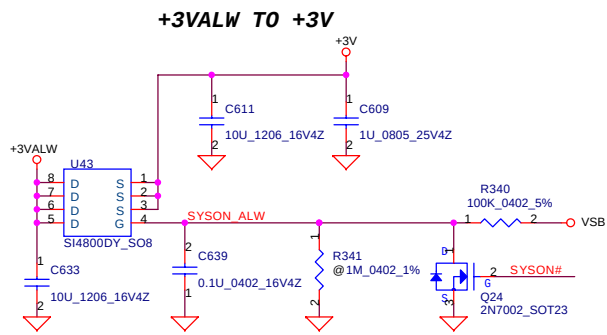


RTC Battery



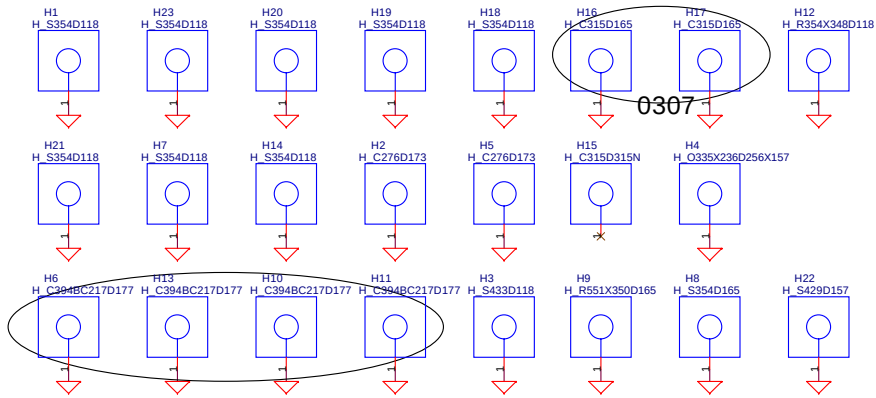
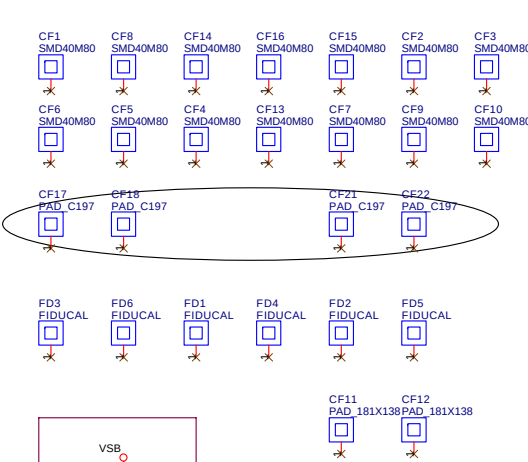
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Compal Electronics, Inc.			
Title			
Power OK/Reset/RTC battery			
Size	Document Number	Rev	
	EFL50 LA-2761	0.2	
Date:	Wednesday, April 20, 2005	Sheet	39 of 51



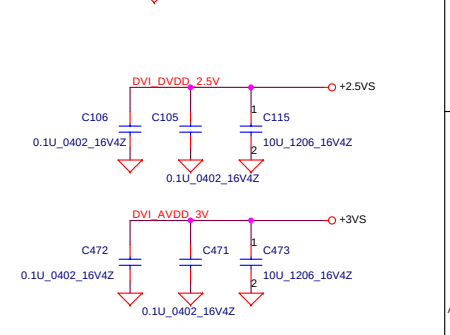
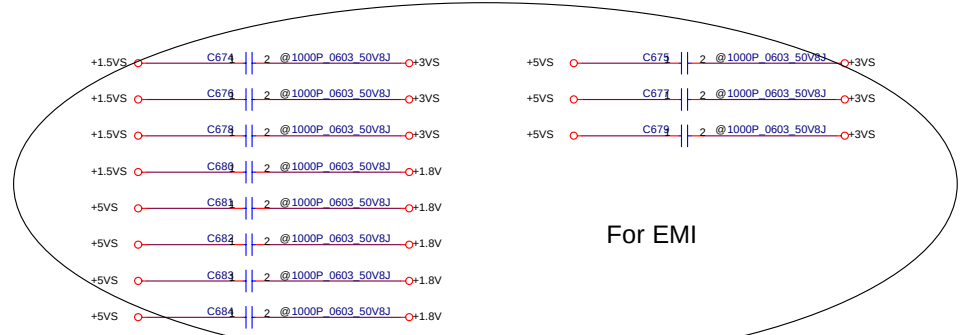
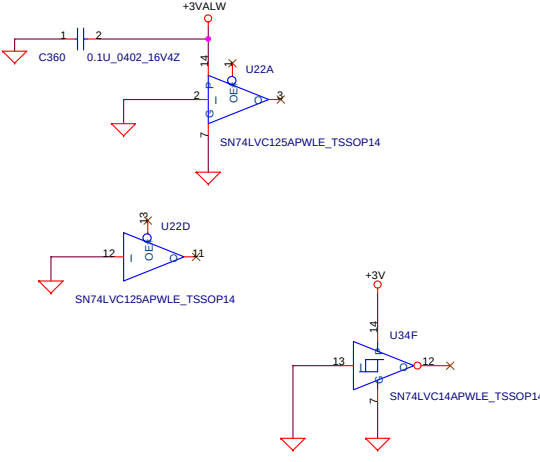
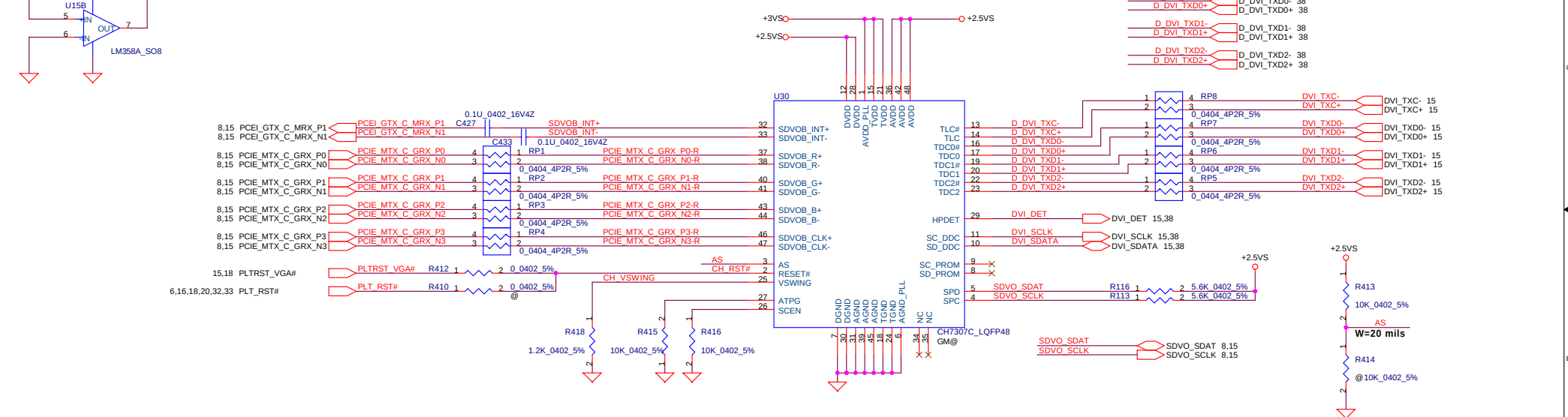
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Compal Electronics, Inc.			
Title			
POWER CONTROL CKT			
Size	Document Number	Rev	
B	EFL50 LA-2761	0.2	
Date:	Wednesday, April 20, 2005	Sheet	40 of 51



Chip_Name	Label_Name
EXP_TXP0/SDVOB_RED	PCIE_MTX_C_GRX_P0
EXP_TXN0/SDVOB_RED#	PCIE_MTX_C_GRX_N0
EXP_TXP1/SDVOB_GREEN	PCIE_MTX_C_GRX_P1
EXP_TXN1/SDVOB_GREEN#	PCIE_MTX_C_GRX_N1
EXP_TXP2/SDVOB_BLUE	PCIE_MTX_C_GRX_P2
EXP_TXN2/SDVOB_BLUE#	PCIE_MTX_C_GRX_N2
EXP_TXP3/SDVOB_CLKP	PCIE_MTX_C_GRX_P3
EXP_TXN3/SDVOB_CLKN	PCIE_MTX_C_GRX_N3
EXP_RXP1/SDVO_INT	PCEI_GTX_C_MRX_P1
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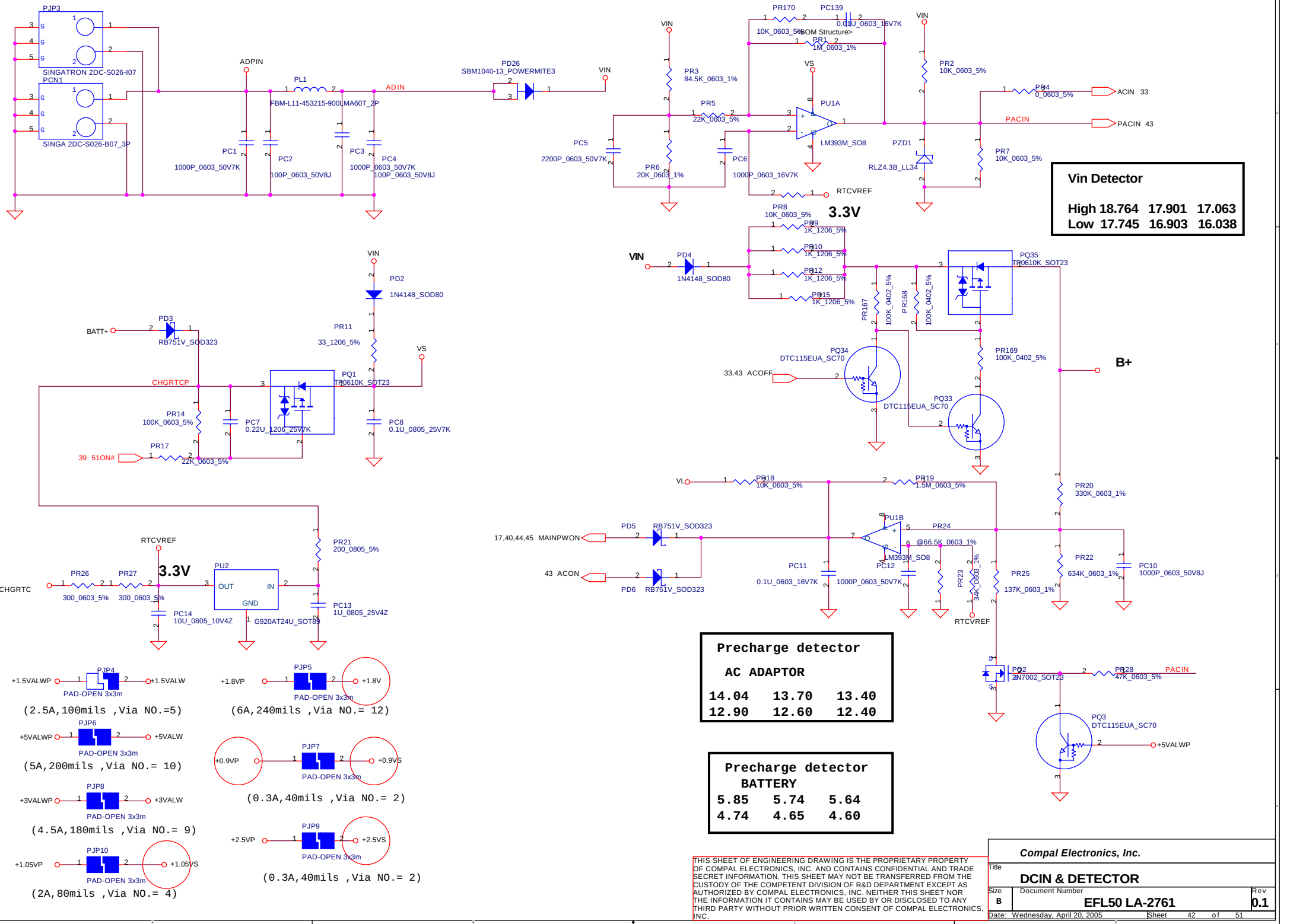
DVI CONTROLLER



For EMI

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Compal Electronics, Inc.		
Screws and CH7307		
Title	Document Number	Rev
	EFL50 LA-2761	0.2
Date:	Wednesday, April 20, 2005	Sheet 41 of 51



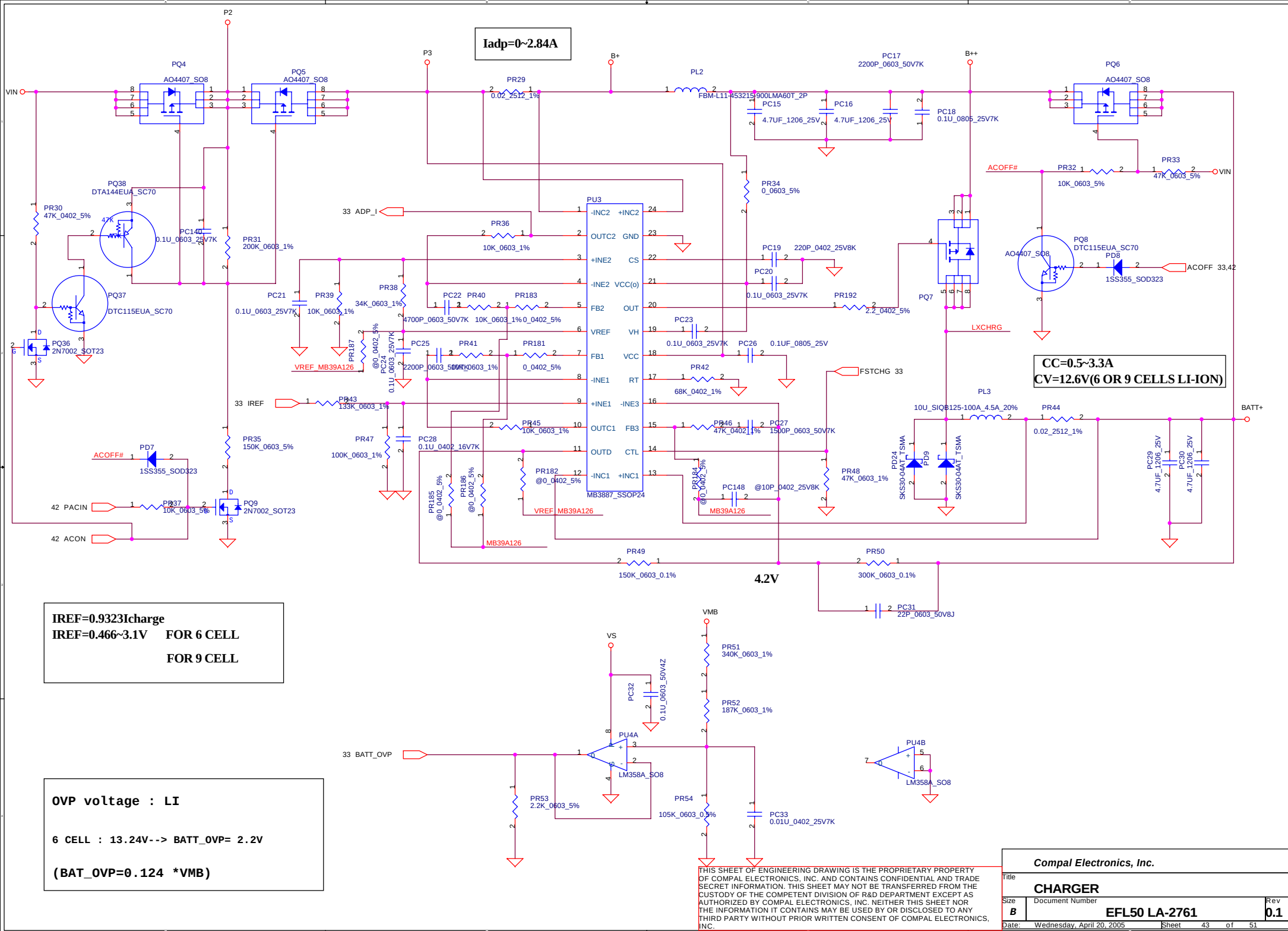
Vin Detector			
High	18.764	17.901	17.063
Low	17.745	16.903	16.038

Precharge detector			
AC ADAPTOR			
14.04	13.70	13.40	
12.90	12.60	12.40	

Precharge detector			
BATTERY			
5.85	5.74	5.64	
4.74	4.65	4.60	

Compal Electronics, Inc.			
Title			
DCIN & DETECTOR			
Size	Document Number	Rev	
B	EFL50 LA-2761	0.1	
Date:	Wednesday, April 20, 2005	Sheet	42 of 51

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Compal Electronics, Inc.

CHARGER

Document Number

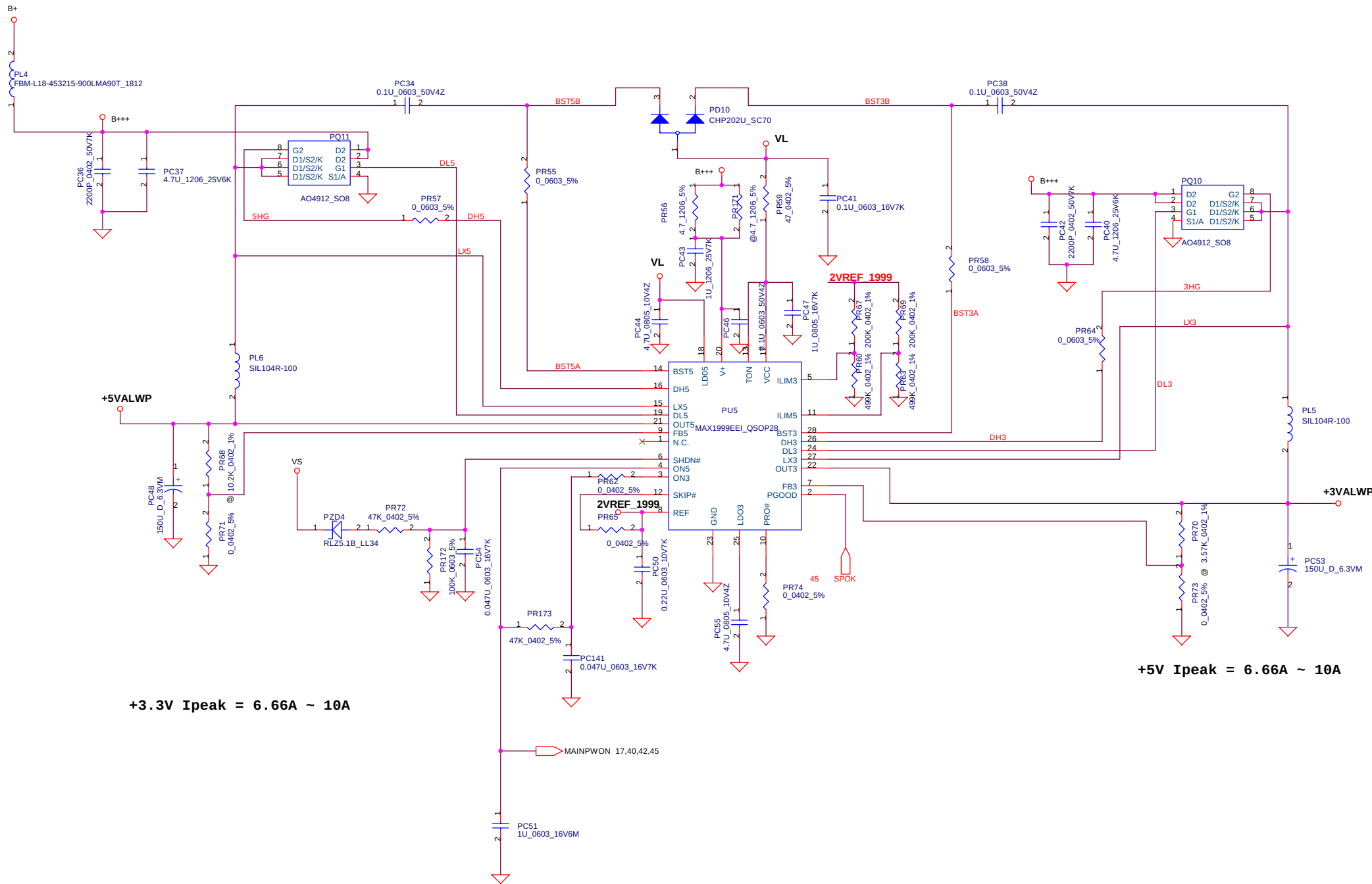
EFL50 LA-2761

Date: Wednesday, April 20, 2005

Sheet 43 of 51

Rev

0.1



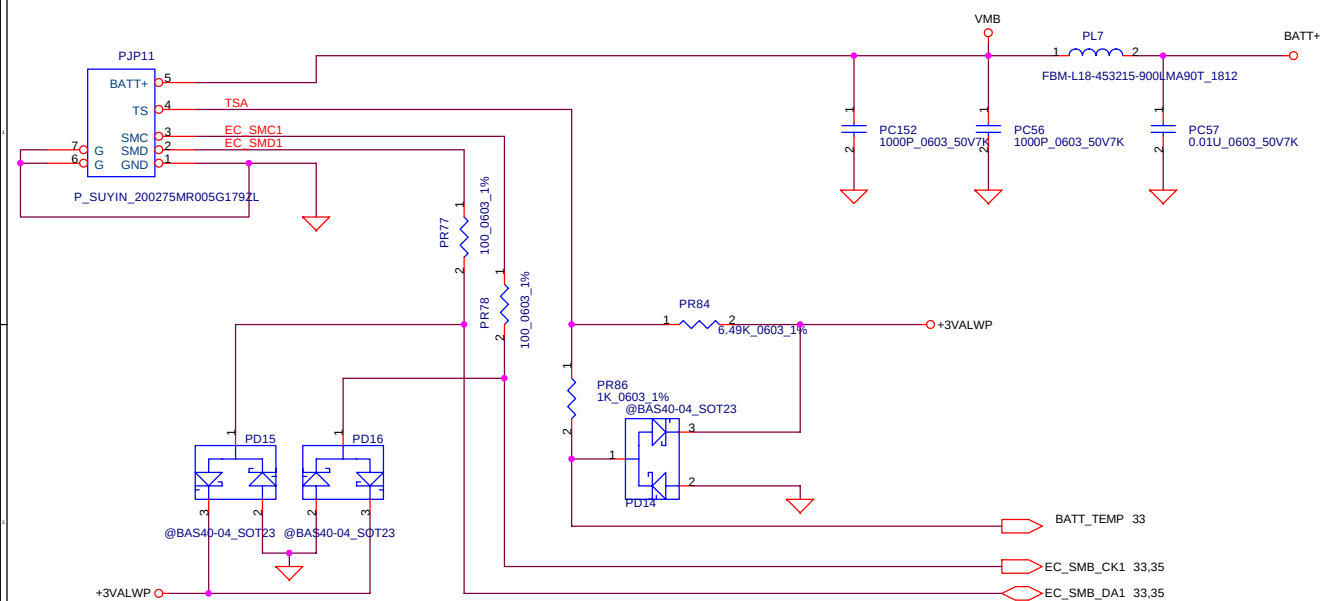
+3.3V Ipeak = 6.66A ~ 10A

+5V Ipeak = 6.66A ~ 10A

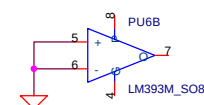
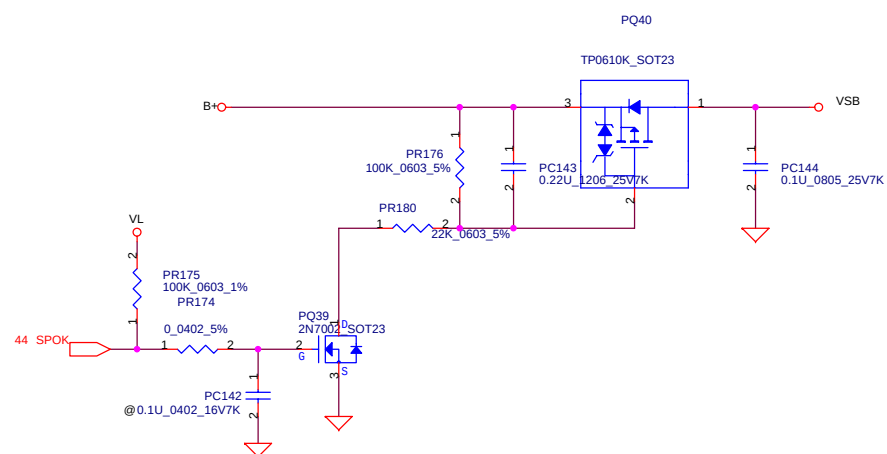
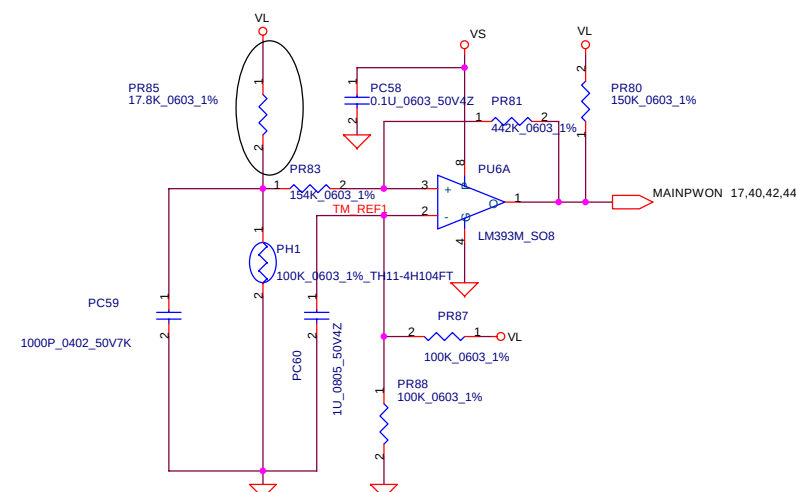
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Compal Electronics, Inc.

Title		5V/3.3V/12V	
Size	Document Number	EFL50 LA-2761	
Date: Wednesday, April 20, 2005	Sheet	44	of 51
		Rev	0.1



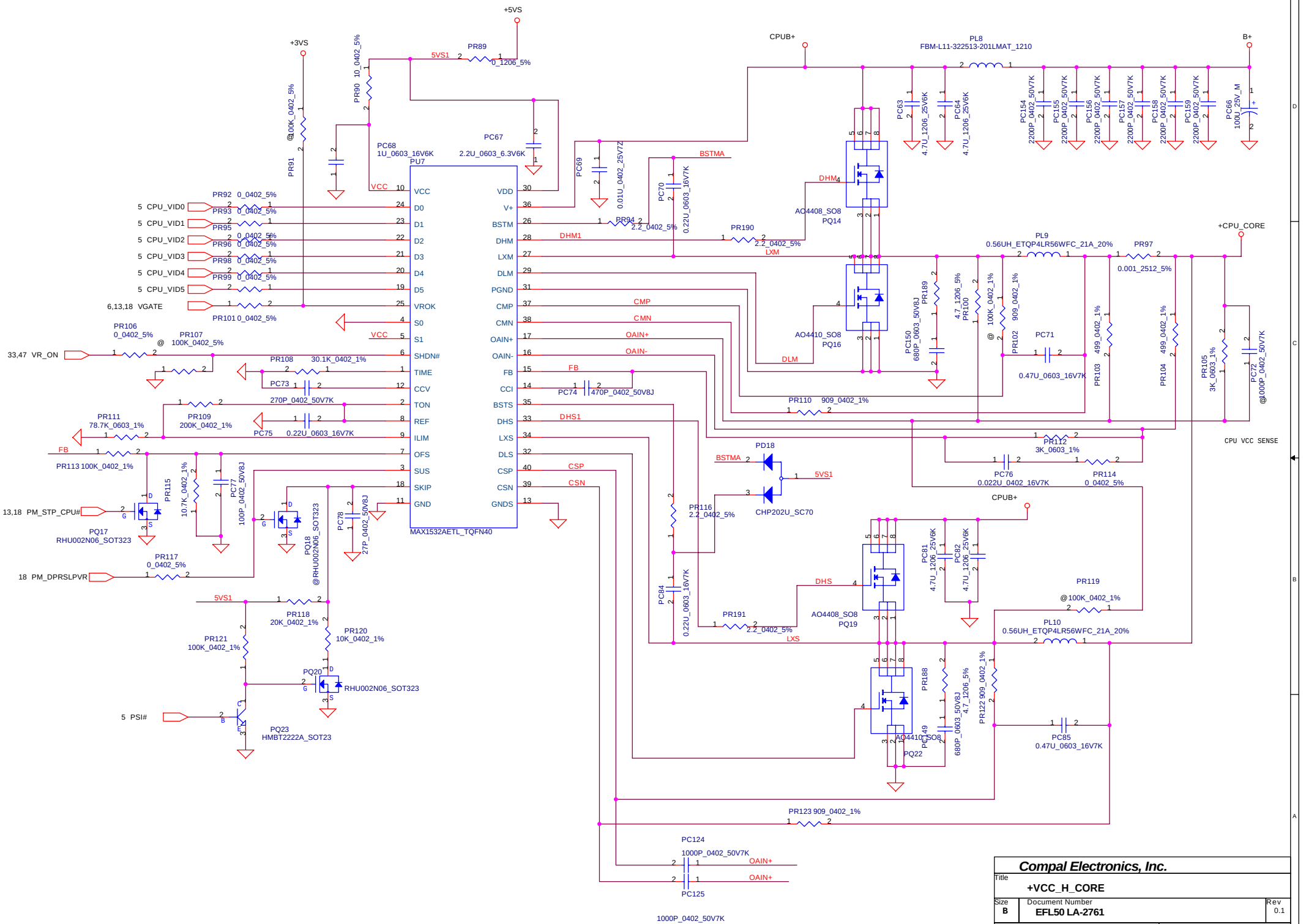
PH1 under CPU bottom side :
CPU thermal protection at 80 degree C
Recovery at 44(45) degree C

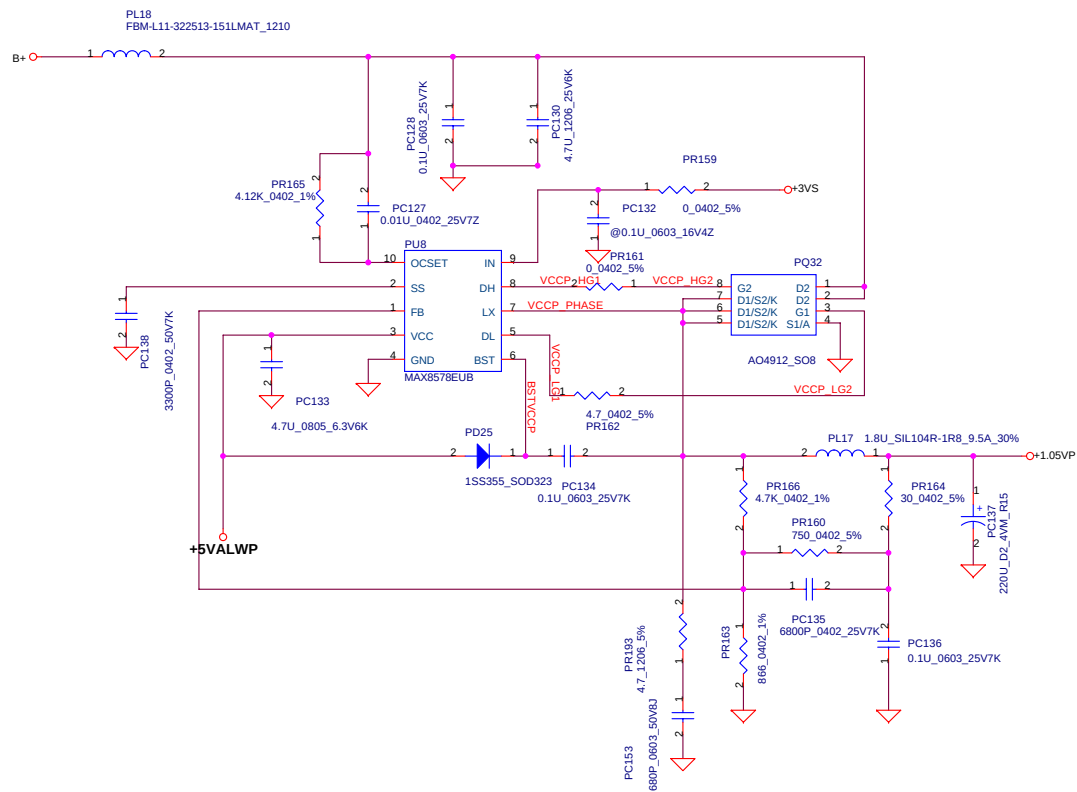


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Title		BATTERY CONN / OTP/1.2V	
Size	Document Number	Rev	
B	EFL50 LA-2761	0.1	
Date: Wednesday, April 20, 2005	Sheet	45	of 51



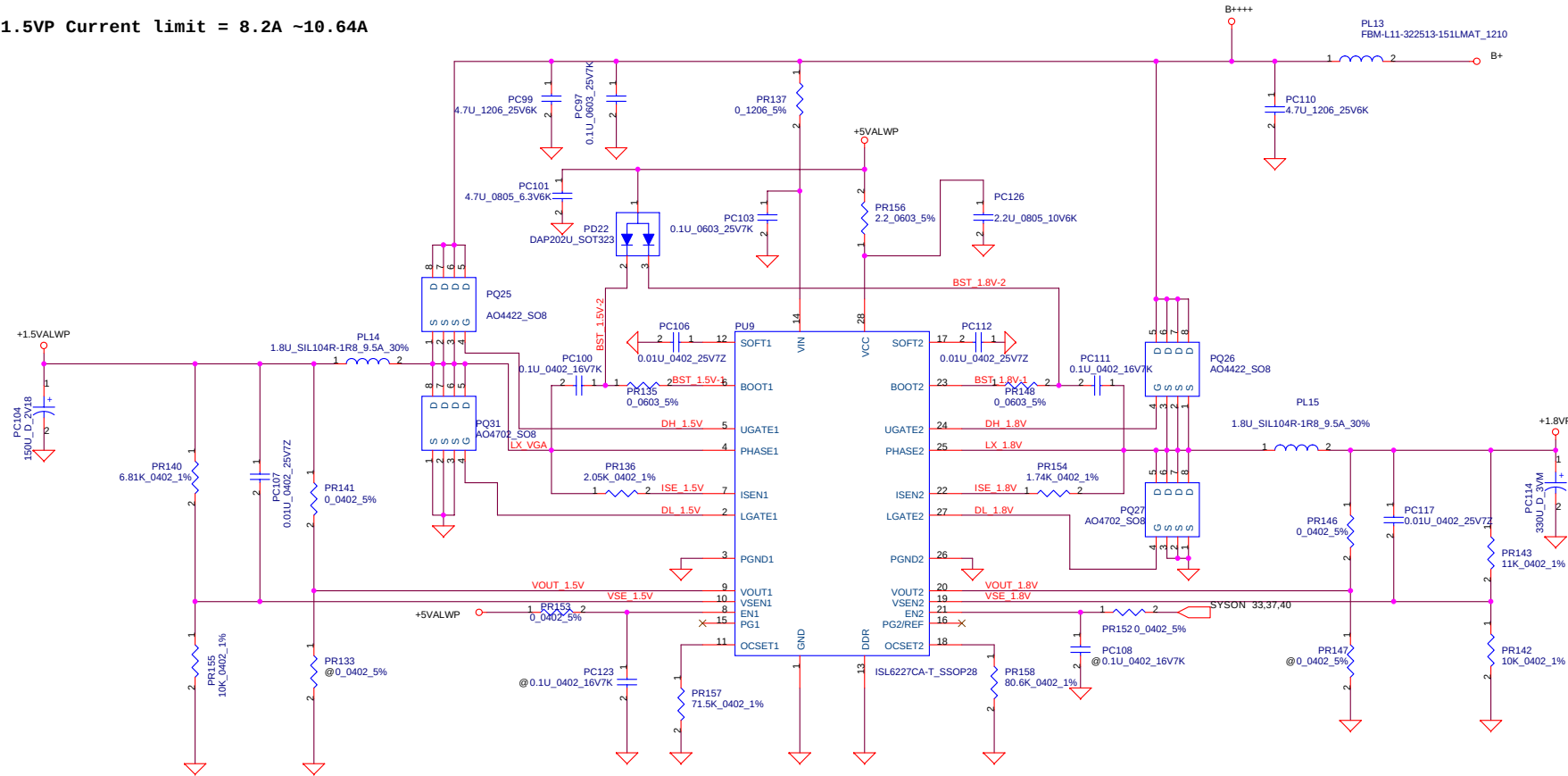


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Title			
1.5V & 1.8V			
Size	Document Number	Rev	
B	EFL50 LA-2761	0.1	
Date:	Wednesday, April 20, 2005	Sheet	47 of 51

+1.8VP O.C.P. =8.1A ~ 10.36A

+1.5VP Current limit = 8.2A ~10.64A



915PM(DISCRETE)	PR143=11K 1.8VP=1.867V
915GM (UMA)	PR143=10.5K 1.8VP=1.8V

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Title
1.5VP

Size
B

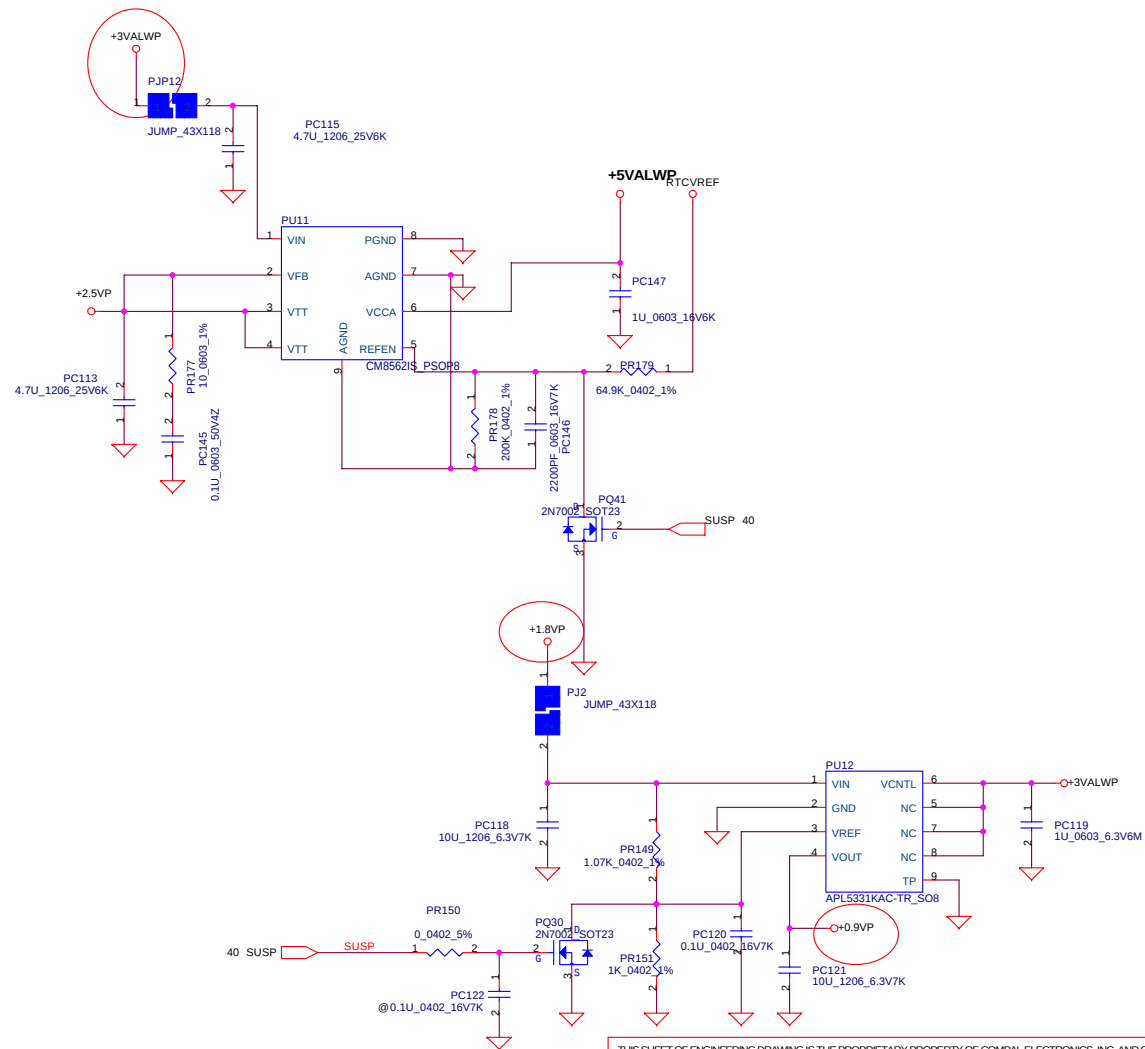
Document Number

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Title			
1.8VP/0.9VP/2.5VP			
Size	Document Number	Rev	
B	EFL50 LA-2761	0.1	
Date:	Wednesday, April 20, 2005	Sheet	49 of 51

Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG #	Modify List	VER	Phase
1	Add C663, C664, C665	For +2.5V (VCC_SYNC)	0.2	9			
2	Add C658, C659, C660, C661, C662	For EMI Solution	0.2	11			
3	Change L43, L44, L45, L46 Net	Improve Audio	0.2	31			
4							
5							
6							
7							
8							
9							

Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG #	Modify List	VER	Phase
1		Modify PU8 IC		47	1. change PU8 from MAX8576 to MAX8578 2delete PC132		DVT
2		Modify 1.05VP voltage level		47	1. change PR166 from 7.15k to 4.7k , PC135 from 6800P to 0.047u 0603		DVT
3		change precharge detect point		42	1. change PR20 from 412k to 330k		DVT
4		Modify disable precharge respond time		42	1. change PR167/PR168/PR169 from 470k to 100k		DVT
5		PD16 PIN2 AND PIN3 are wrong		45	1. modify PD16 schematic,and delete PD16(only reserve)		DVT
6		for decrease BATT connector EMI		45	1. add PC151/PC152/PC153 :680PF		DVT
7		for decrease CPU CORE switching ring effect and add EMI solution : snubber		46	1. change PR94/PR116 from 0 to 2.2 add PR189//PR188 4.7 1206 ,add PC150/PC149 680P		DVT
8		for decreaseVCCP ripple		47	1. change PC137 from 150u 35m to 220u 15m		DVT2
9		add EMI solution		45 46 43	1. add PC152 1. add PR190/191:2.2 1. add PR192:2.2		DVT2
10		add EMI solution		47	1. add PL18 FBM L11		PVT
11		add EMI solution in 1.05VP power regulator		47	1. add PC153=680PF ,PR193=4.7		PVT
8							
9							

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