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

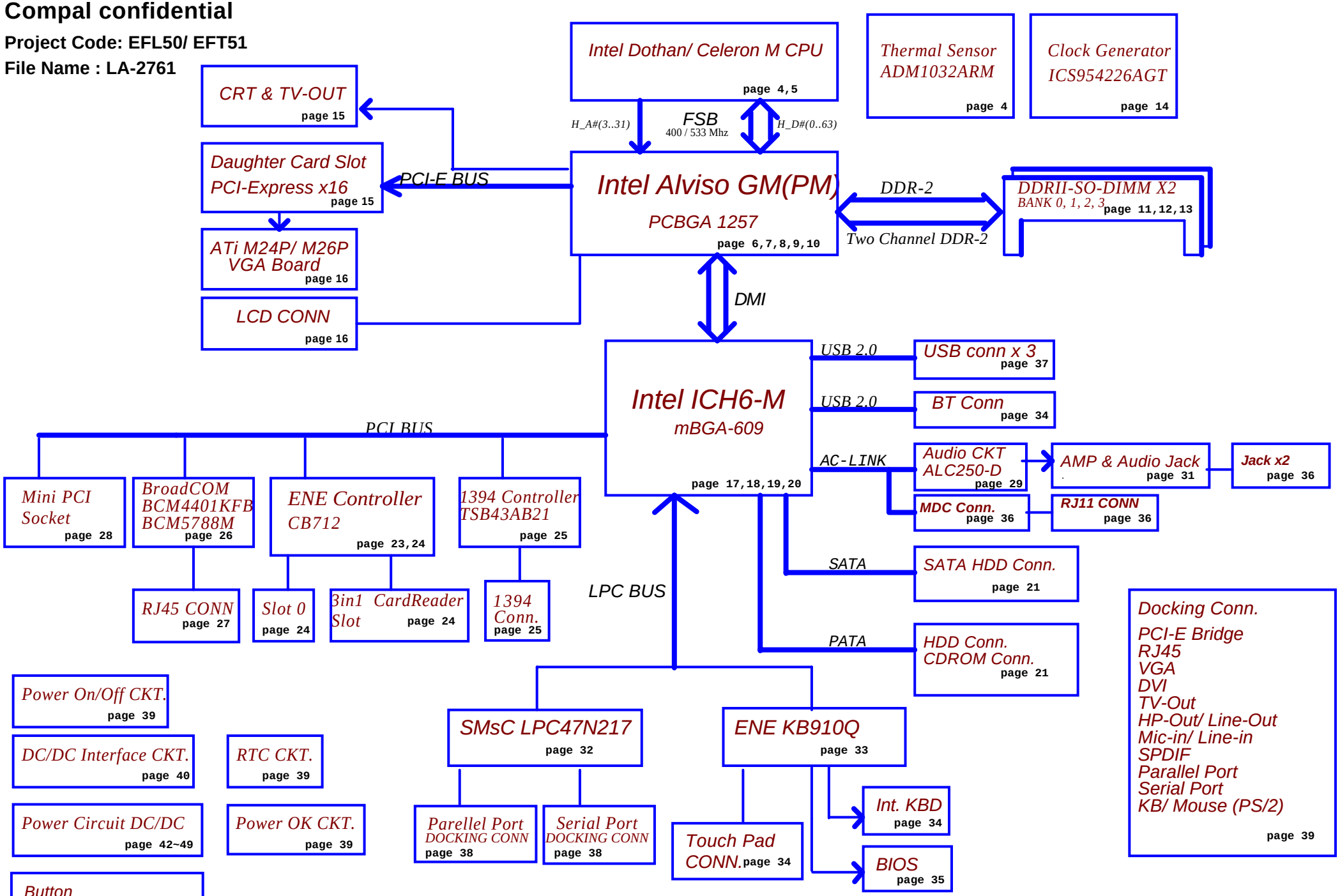
Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	Cover Sheet		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 1 of 51		

Compal confidential

Project Code: EFL50/ EFT51

File Name : LA-2761



Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	Block Diagrams		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 2 of 51		

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
Smart Battery	0001 011X b
EEPROM(24C16/02)	1010 000X b
(24C04)	1011 000Xb

EC SM Bus2 address

Device	Address
ADM1032	1001 110X b

ICH6M SM Bus address

Device	Address
Clock Generator (ICS 954226AGT)	1101 001Xb
DDRII DIMM0	1001 000Xb
DDRII 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	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_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

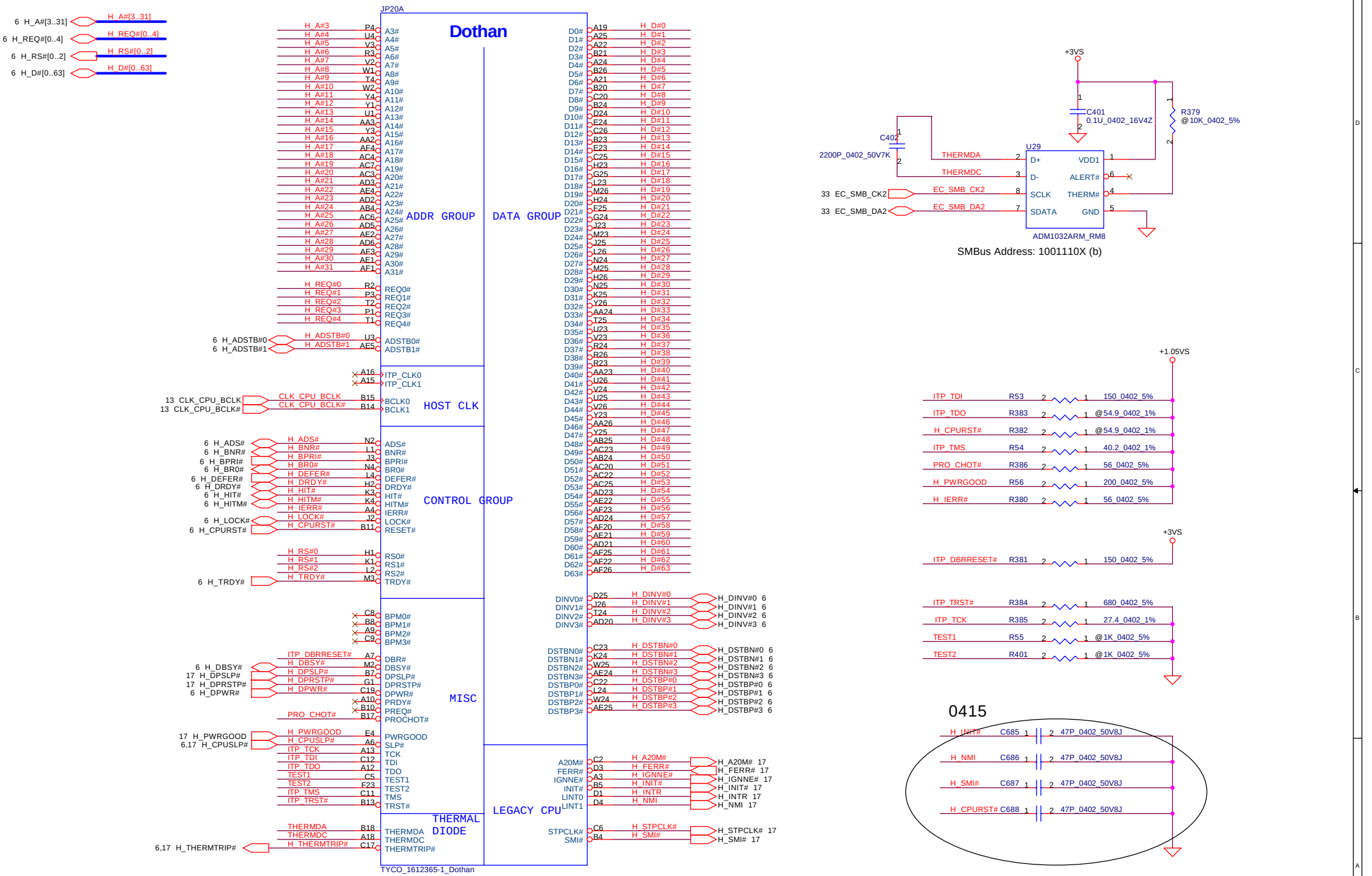
SKU ID	SKU
0	
1	
2	
3	
4	
5	
6	
7	

BTO Option Table

BTO Item	BOM Structure
UMA	GM@
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>@

Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	Notes		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 3 of 51		



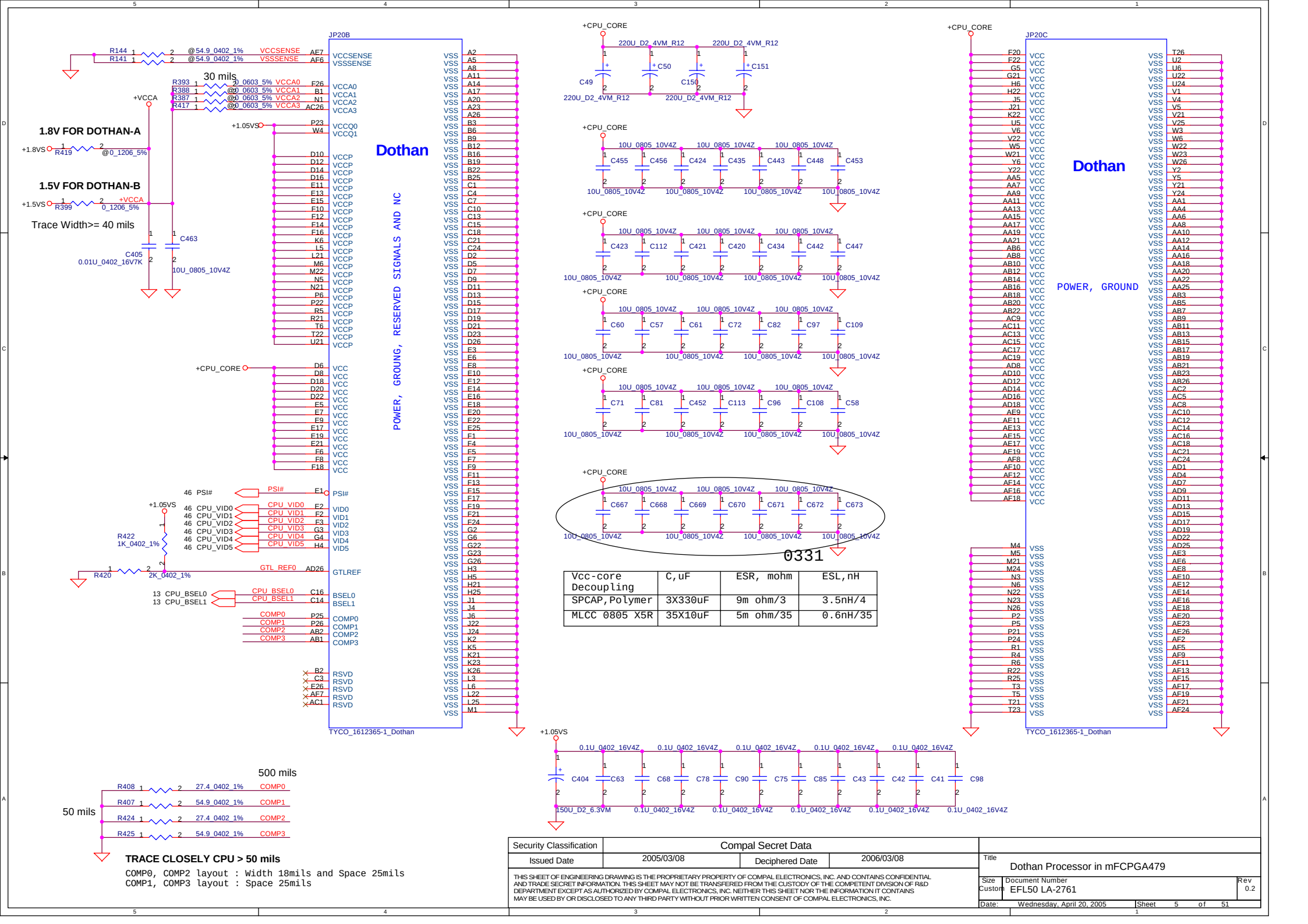
THERMDA & THERMDC Trace / Space = 10 / 10 mil

Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title: Dothon Processor in mFCPGA479

Size	Document Number	Rev
Custom	EFL50 LA-2761	0.2

Date: Wednesday, April 20, 2005 Sheet 4 of 51



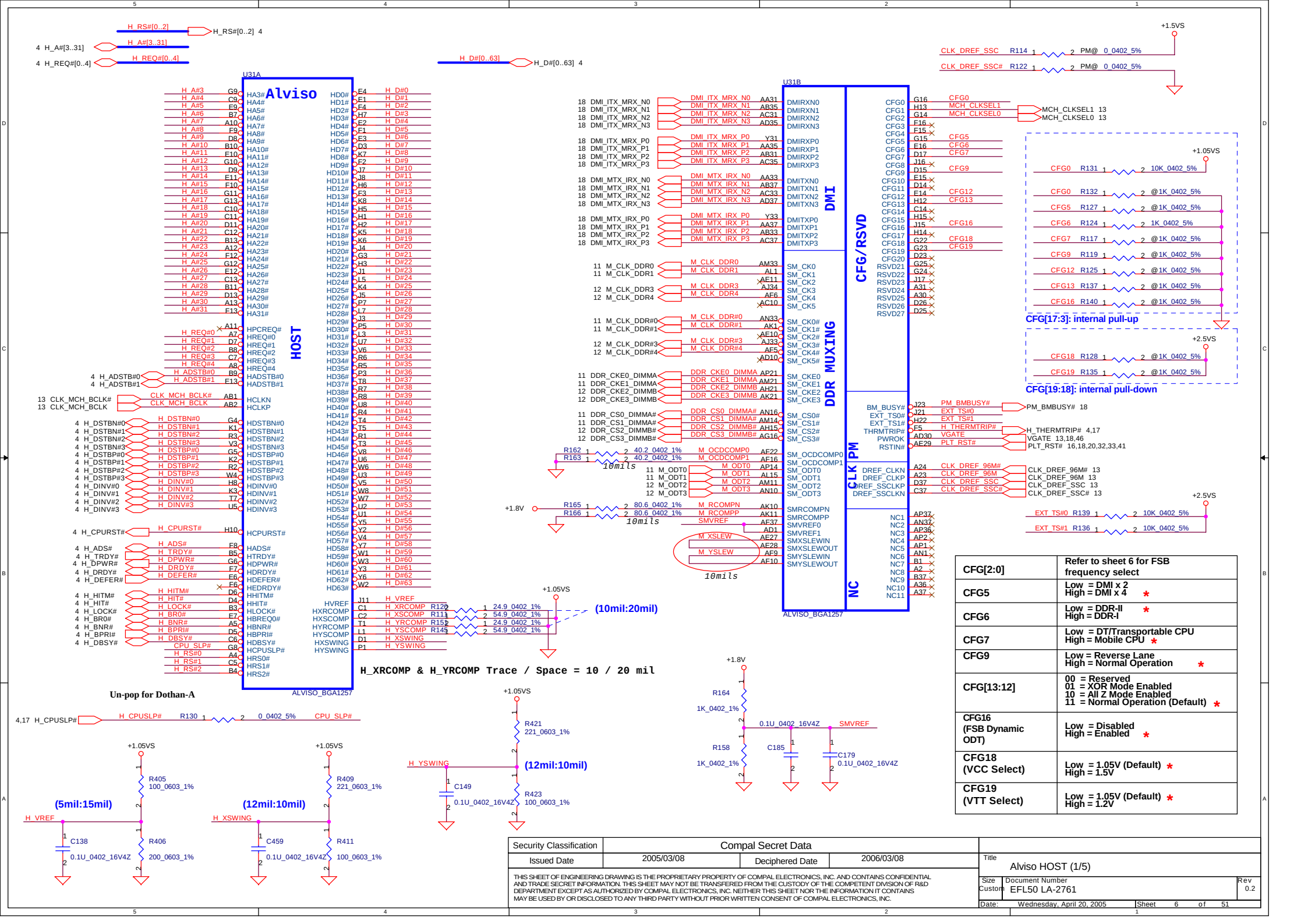
Vcc-core Decoupling	C,uF	ESR, mohm	ESL,nH
SPCAP,Polymer	3X330uF	9m ohm/3	3.5nH/4
MLCC 0805 X5R	35X10uF	5m ohm/35	0.6nH/35

Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title: Dothan Processor in mFCPGA479

Size: Custom | Document Number: EFL50 LA-2761 | Rev: 0.2

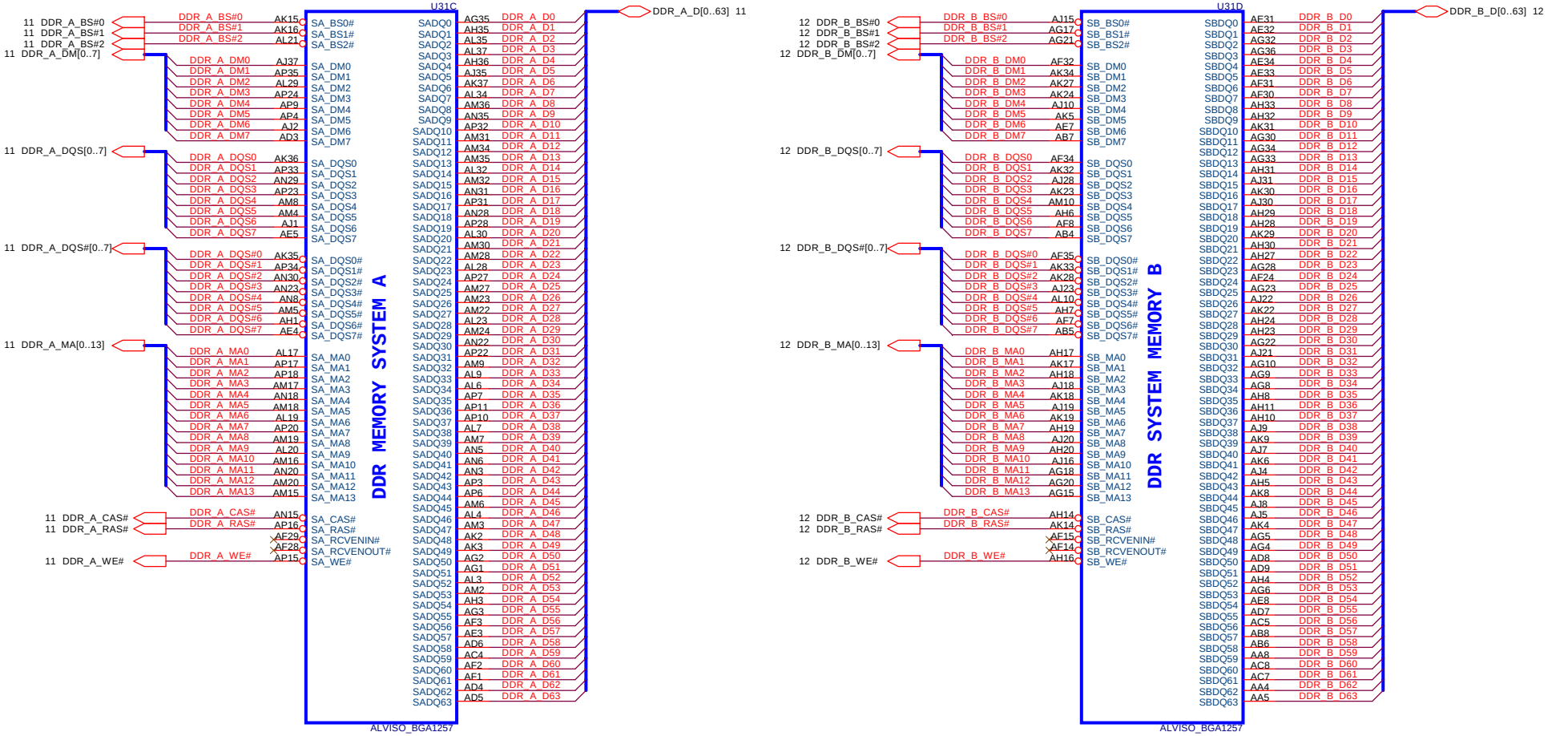
Date: Wednesday, April 20, 2005 | Sheet 5 of 51



CFG[2:0]	Refer to sheet 6 for FSB frequency select
CFG5	Low = DMI x 2 High = DMI x 4 *
CFG6	Low = DDR-II * High = DDR-I
CFG7	Low = DT/Transportable CPU High = Mobile CPU *
CFG9	Low = Reverse Lane High = Normal Operation *
CFG[13:12]	00 = Reserved 01 = XOR Mode Enabled 10 = All Z Mode Enabled 11 = Normal Operation (Default) *
CFG16 (FSB Dynamic ODT)	Low = Disabled High = Enabled *
CFG18 (VCC Select)	Low = 1.05V (Default) * High = 1.5V
CFG19 (VTT Select)	Low = 1.05V (Default) * High = 1.2V

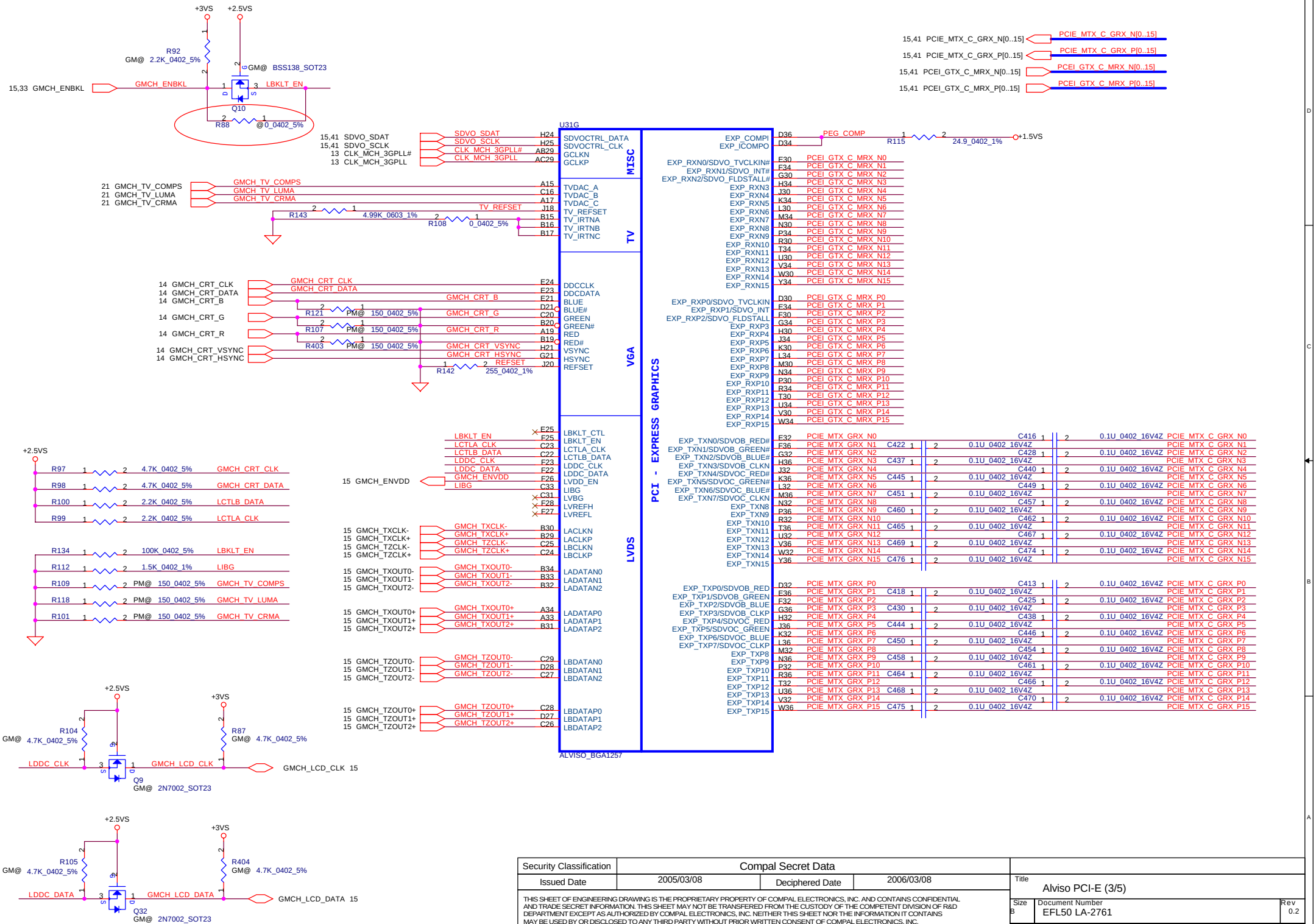
Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	Alviso HOST (1/5)		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 6 of 51		



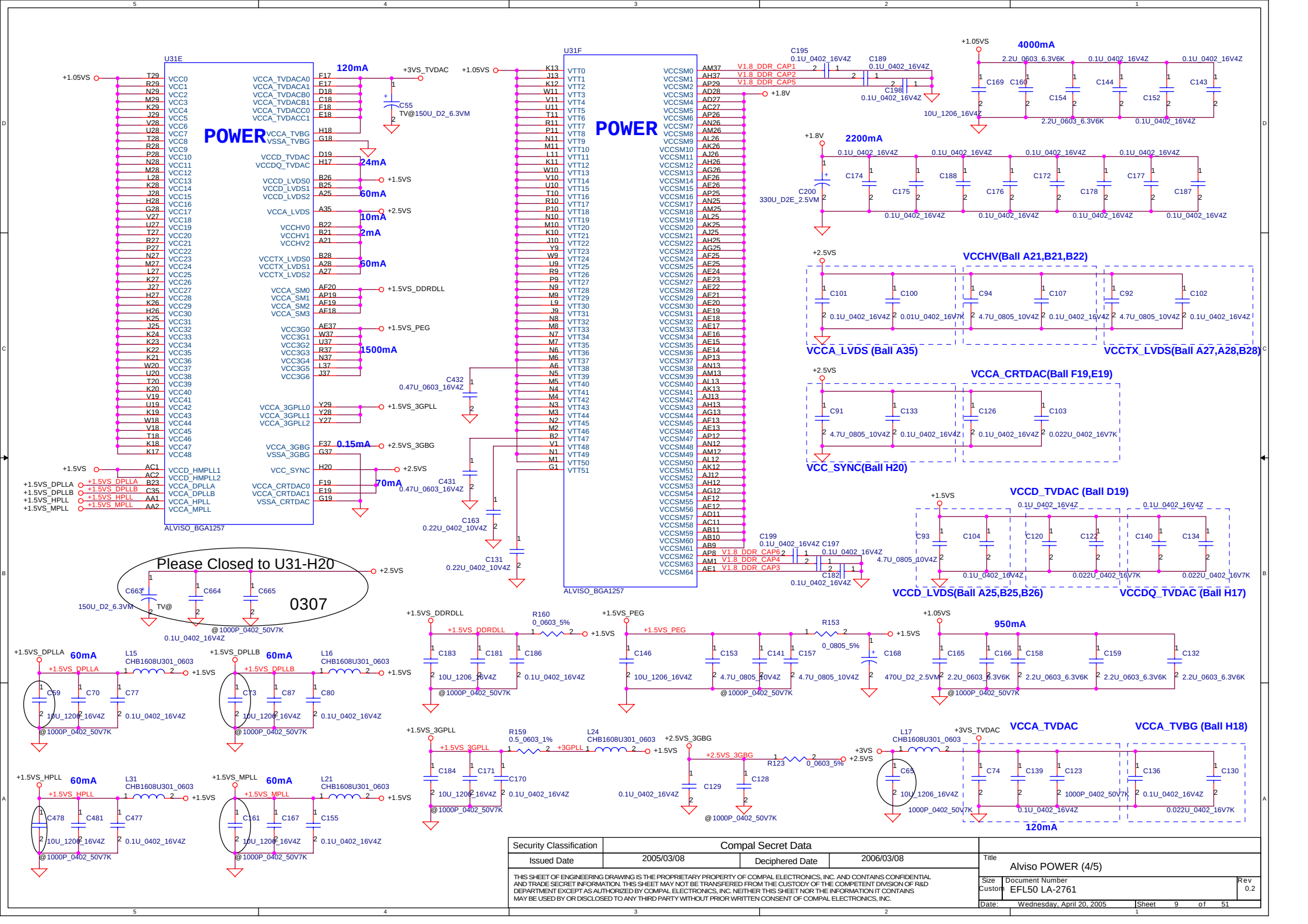
Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

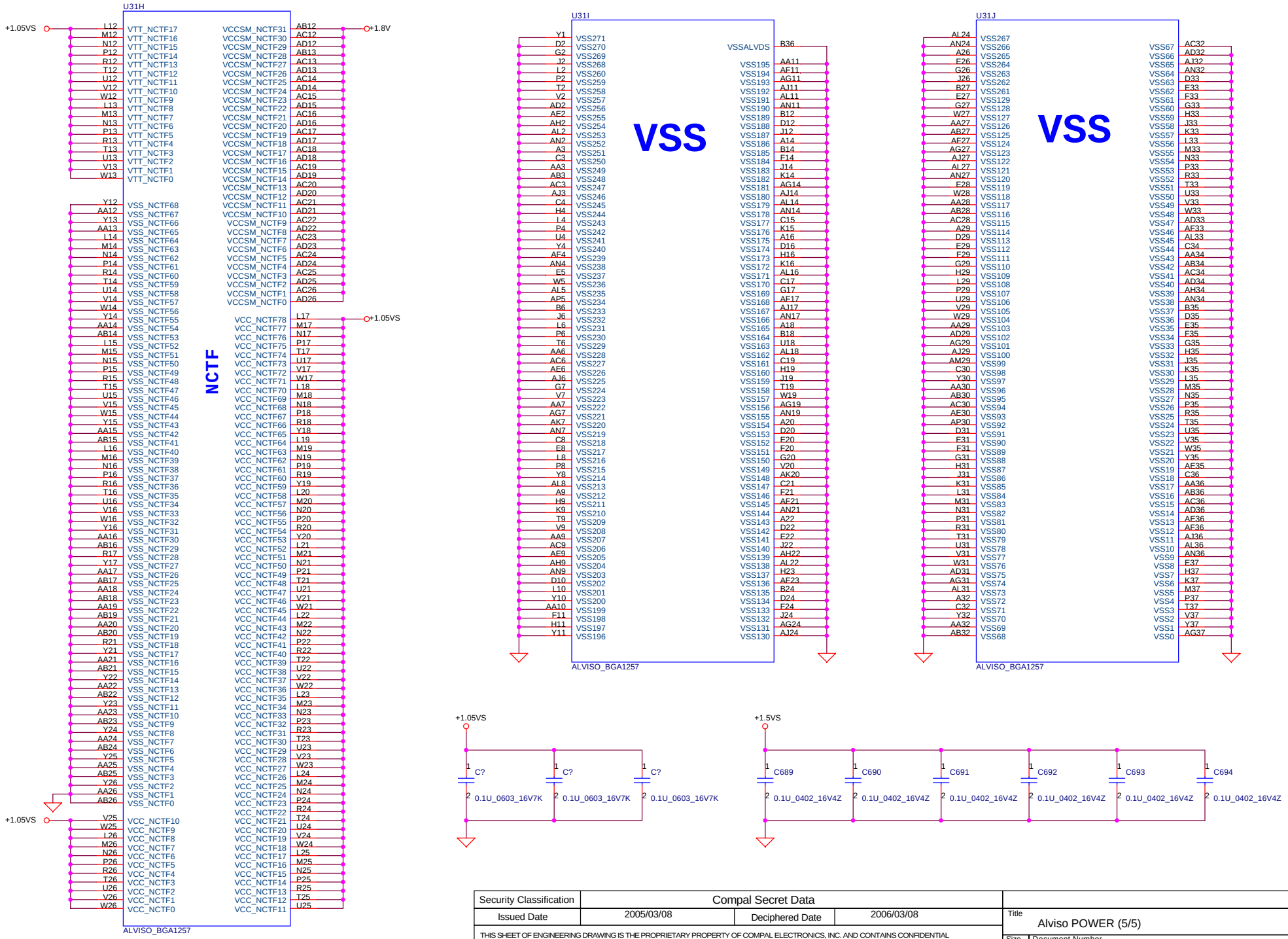
Title	Alviso DDR (2/5)	
Size: Custom	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 7 of 51	



Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	Alviso PCI-E (3/5)		
Size B	Document Number EFL50 LA-2761		Rev 0.2
Date: Wednesday, April 20, 2005	Sheet 8 of 51		


U31E
POWER
ALVISO_BGA1257
U31F
POWER
ALVISO_BGA1257
+1.05VS
+1.8V
+2.5V
+3VS_TVDAC
+1.5VS
+2.5VS
+1.5VS_DDRDLL
+1.5VS_PEG
+1.5VS_3GPLL
+2.5VS_3GBG
+1.5VS_DPLLA
+1.5VS_DPLLB
+1.5VS_HPLL
+1.5VS_MPLL
120mA
24mA
60mA
10mA
2mA
60mA
1500mA
0.15mA
70mA
4000mA
2200mA
VCCHV(Ball A21,B21,B22)
VCCA_LVDS (Ball A35)
VCCTX_LVDS(Ball A27,A28,B28)
VCCA_CRTDAC(Ball F19,E19)
VCC_SYNC(Ball H20)
VCCD_TDAC (Ball D19)
VCCD_LVDS(Ball A25,B25,B26)
VCCDQ_TDAC (Ball H17)
VCCA_TVDAC
VCCA_TVBG (Ball H18)
950mA
120mA
Please Closed to U31-H20
0307
Security Classification
Compal Secret Data
Issued Date
2005/03/08
Deciphered Date
2006/03/08
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 TRANSFERED 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.
Title
Alviso POWER (4/5)
Size
Custom
Document Number
EFL50 LA-2761
Rev
0.2
Date:
Wednesday, April 20, 2005
Sheet
9
of
51

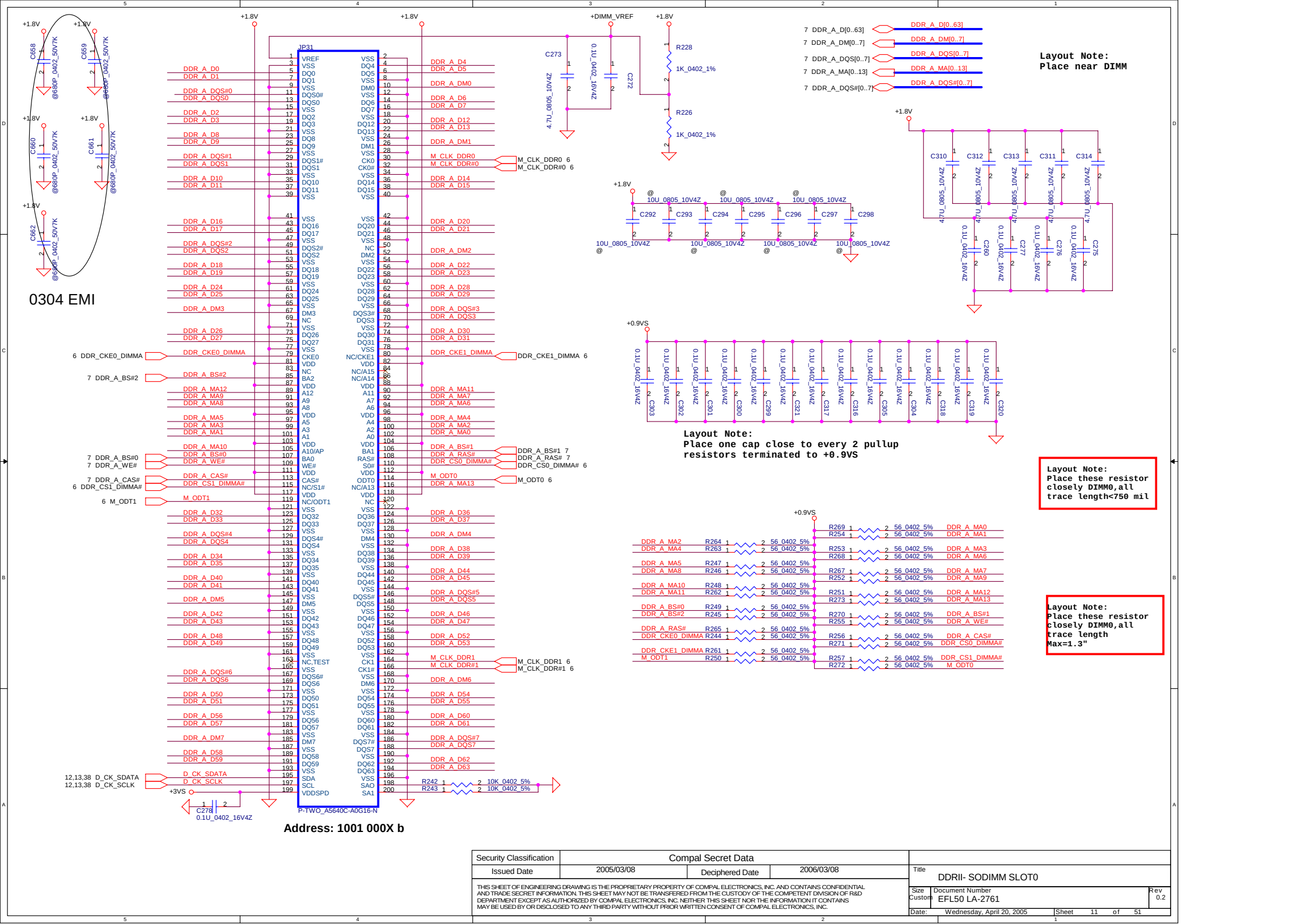


Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title: Alviso POWER (5/5)

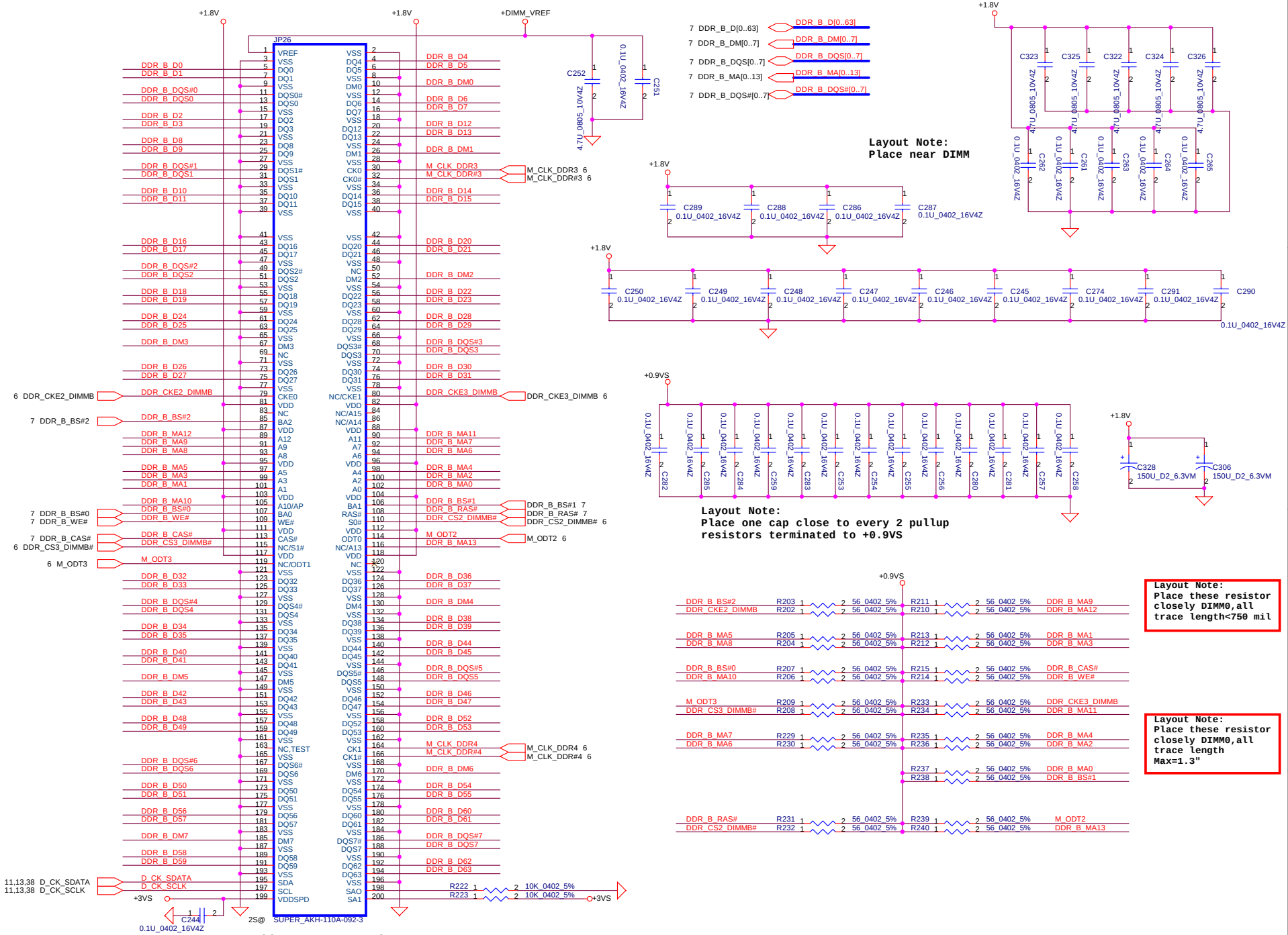
Size	Document Number	Rev
B	EFL50 LA-2761	0.2

Date: Wednesday, April 20, 2005 Sheet 10 of 51



Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	DDRII- SODIMM SLOT0		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 11 of 51		



Address: 1001 010X b

Security Classification	Compal Secret Data		
Issued Date	2005/03/08	Deciphered Date	2006/03/08

Title	DDRII-SODIMM SLOT1		
Size: Custom	Document Number: EFL50 LA-2761		Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 12 of 51		

Clock Generator

	FSC CLKSEL0	FSB CLKSEL1	FSA CLKSEL2	CPU MHz	SRC MHz	PCI MHz
*	1	0	1	100	100	33.3
	0	0	1	133	100	33.3
	0	1	1	166	100	33.3
	0	1	0	200	100	33.3

Table : ICS 954206B

CLK_PCI2 = 1, Pin 32,33 are PEREQ# pin

CLK_PCI0 = 0, Pin 35,36 are PCIe CLK pair

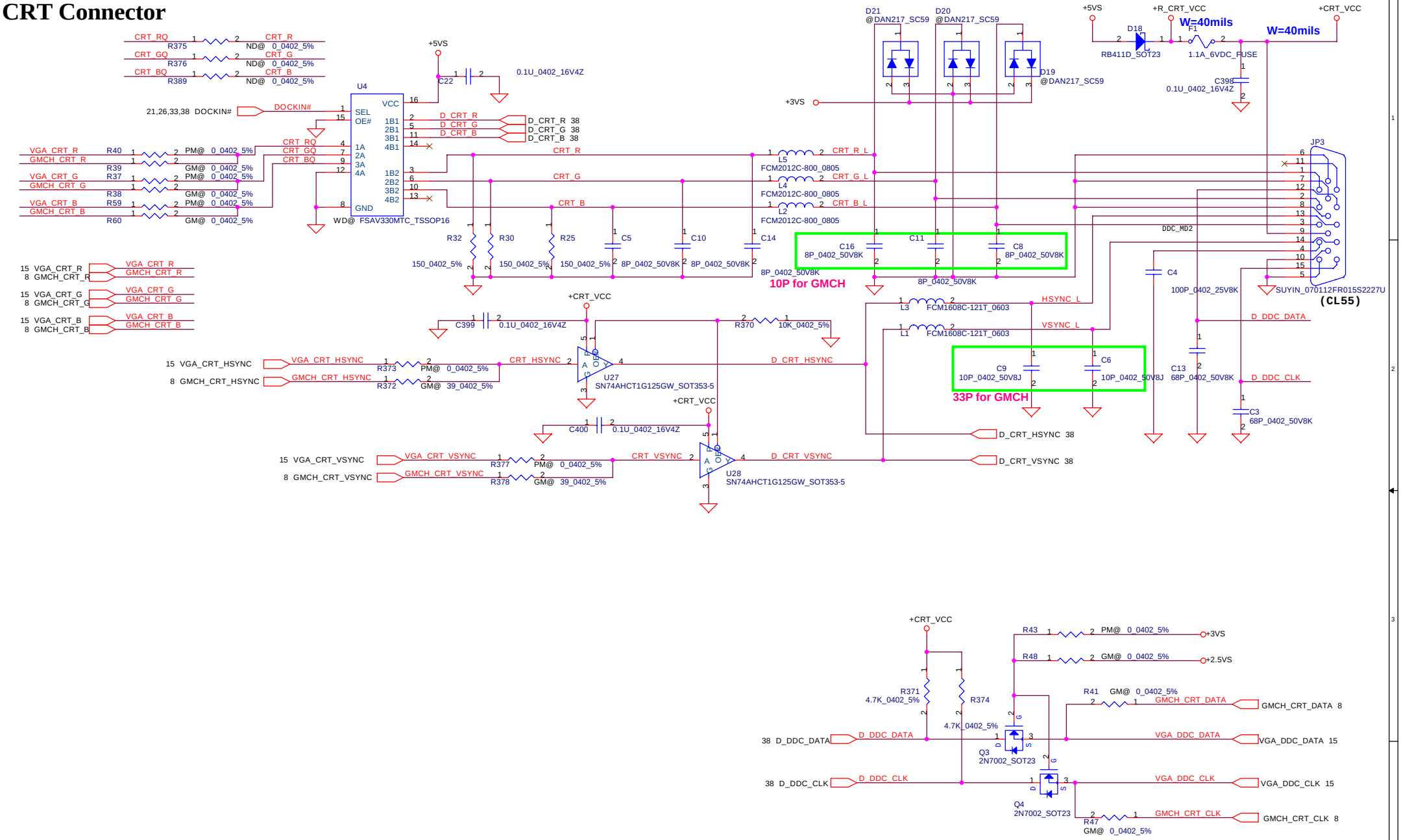
CLK_PCI1 = 0, Pin 17,18 are 96Mhz

U33 ICS954226AGT_TSSOP56

Compal Electronics, Inc.

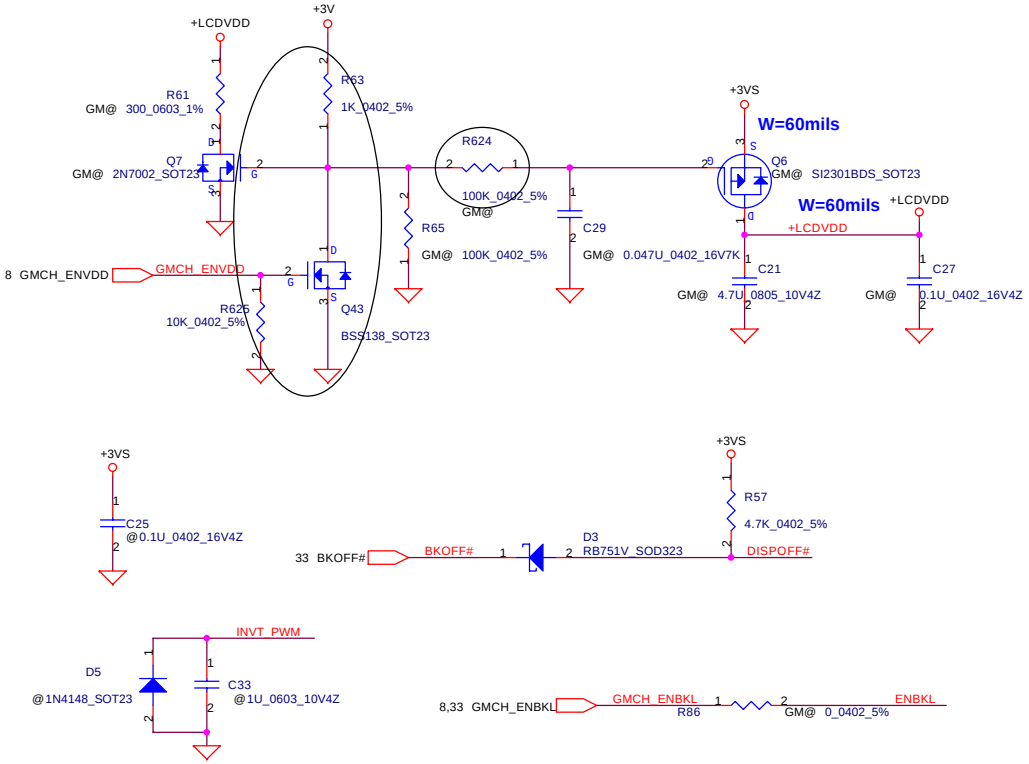
Title	Clock Generator	
Size	Document Number EFL50 LA-2761	Rev 0.2
Date: Wednesday, April 20, 2005	Sheet 13 of 51	

CRT Connector

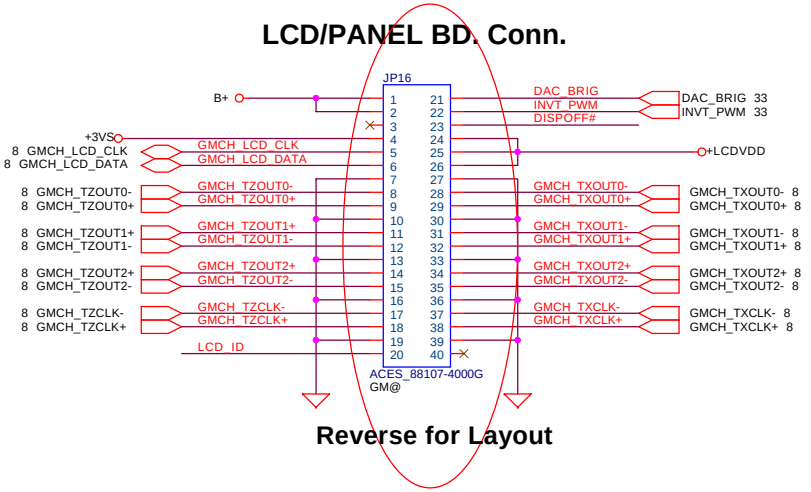


Compal Electronics, Inc.		
Title: CRT & TVout Connector		
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 14 of 51	

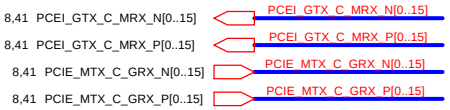
LCD POWER CIRCUIT

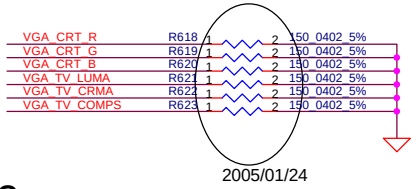


LCD/PANEL BD. Conn.

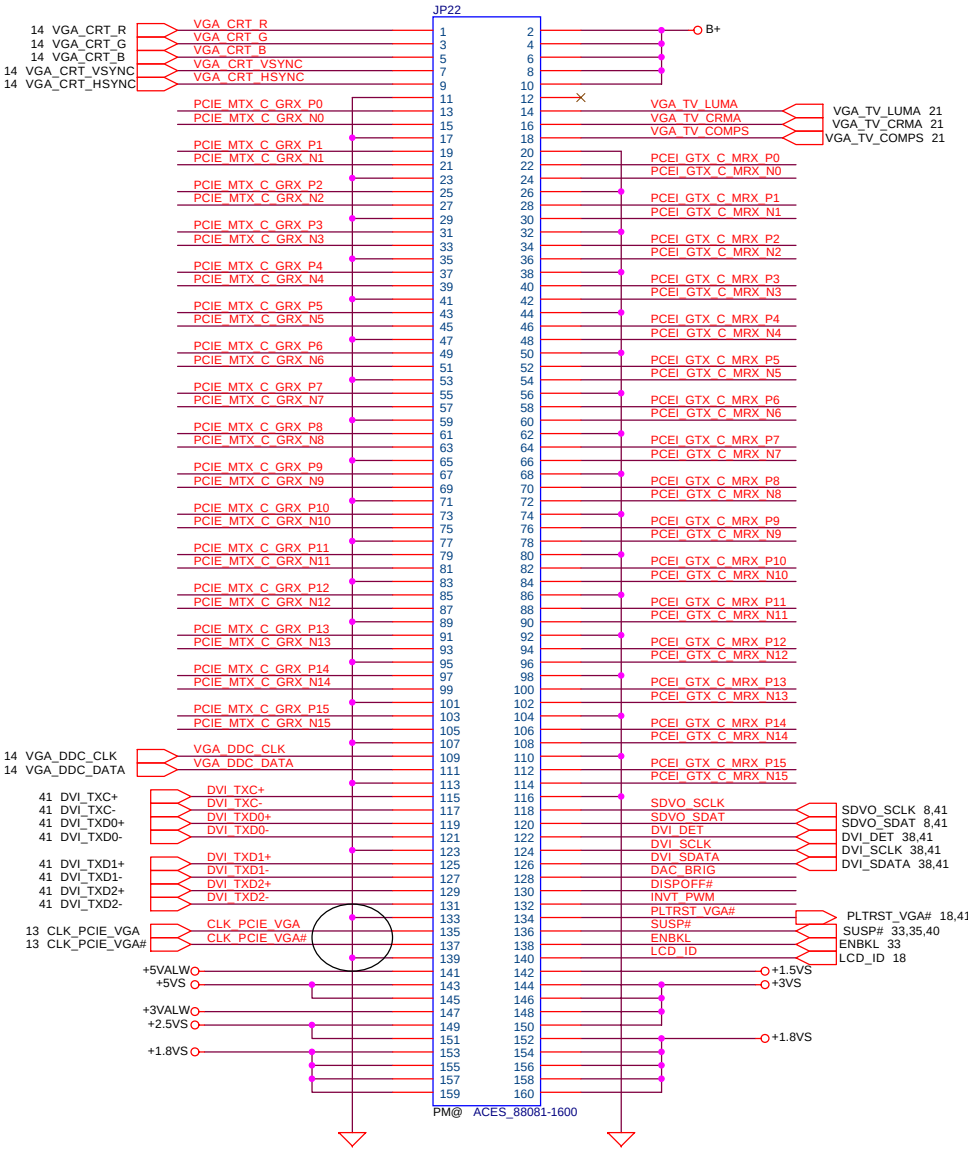


Reverse for Layout





VGA BOARD Conn.

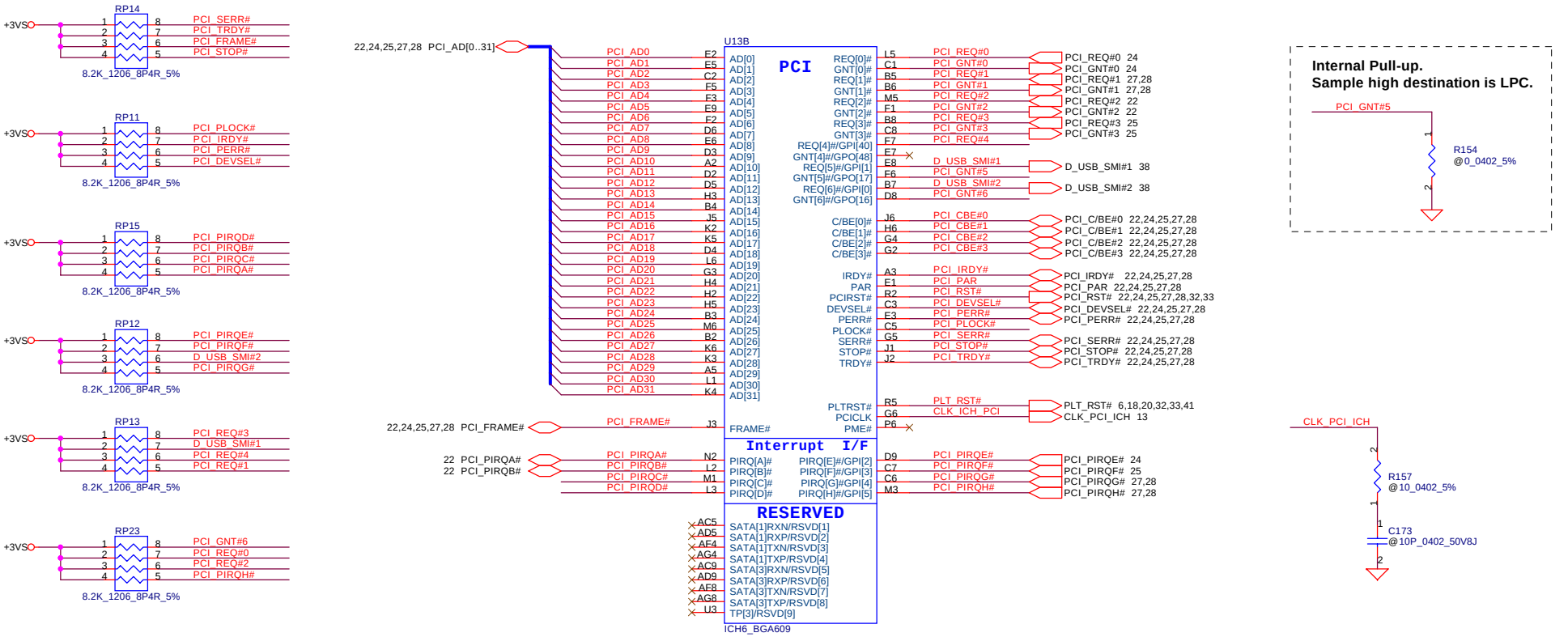


Compal Electronics, Inc.

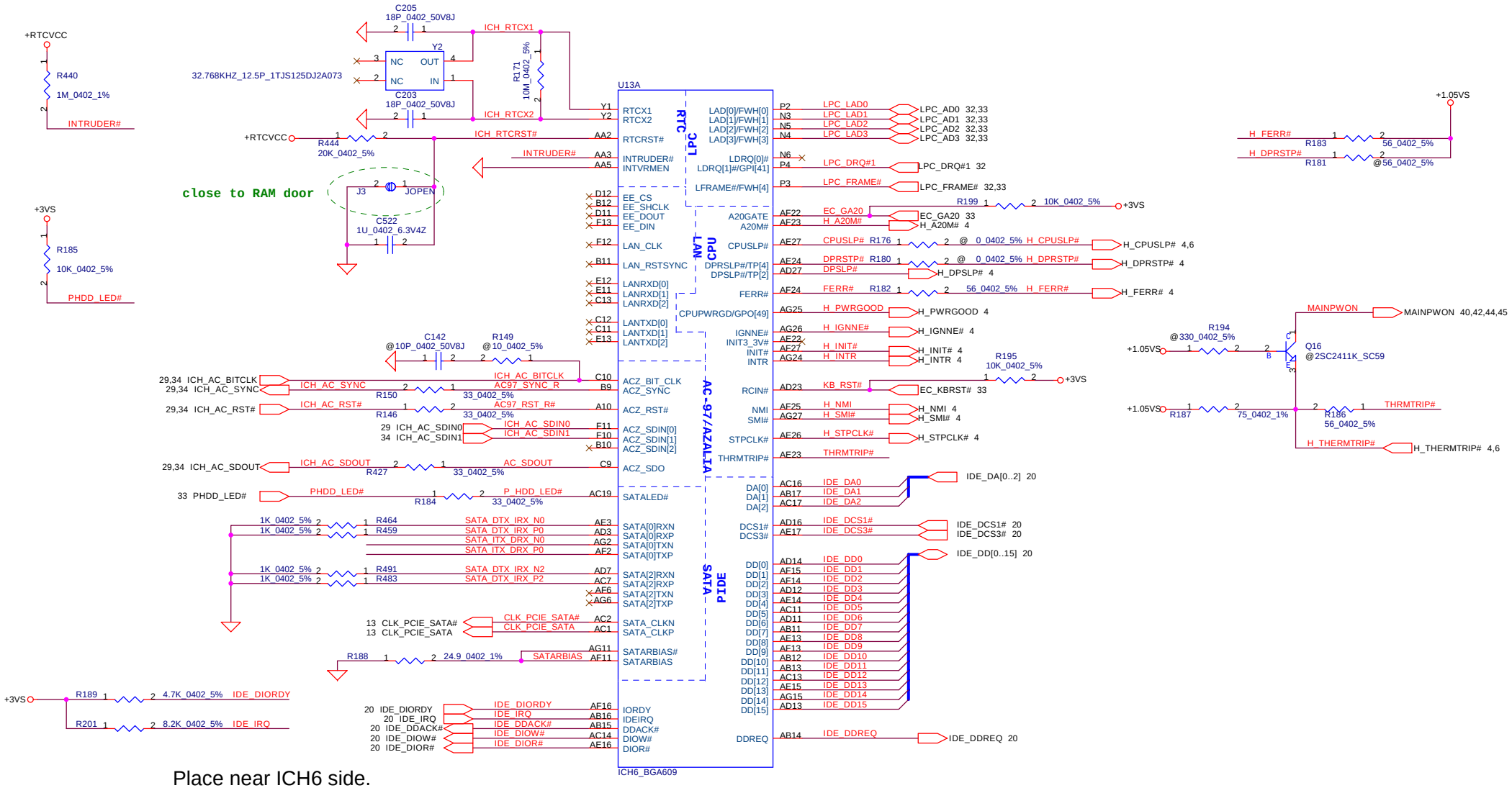
Title: VGA / LCD CONN.

Size | Document Number: EFL50 LA-2761 | Rev: 0.2

Date: Wednesday, April 20, 2005 | Sheet 15 of 51

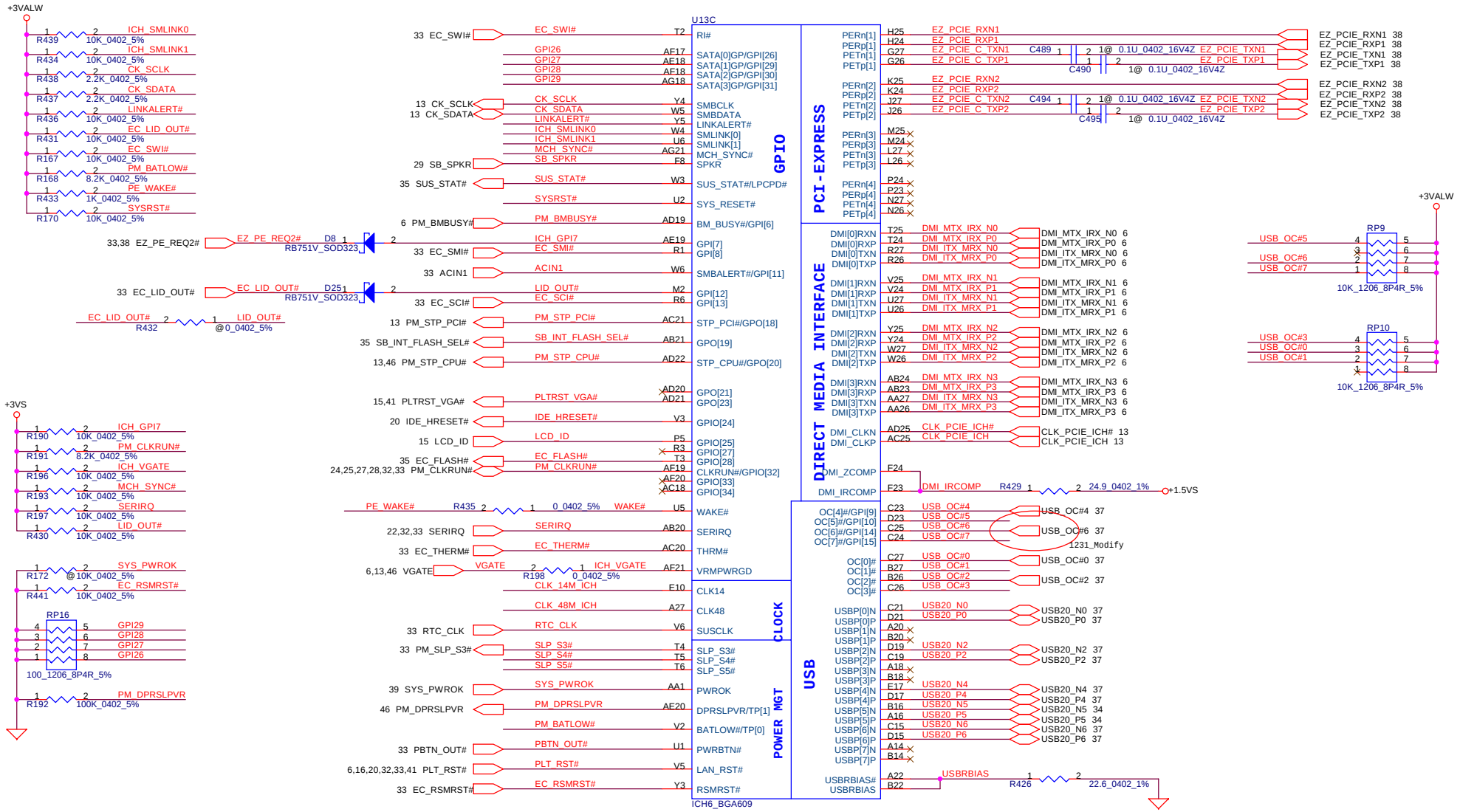


Compal Electronics, Inc.		
Title	ICH6(1/4)	
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 16 of 51	



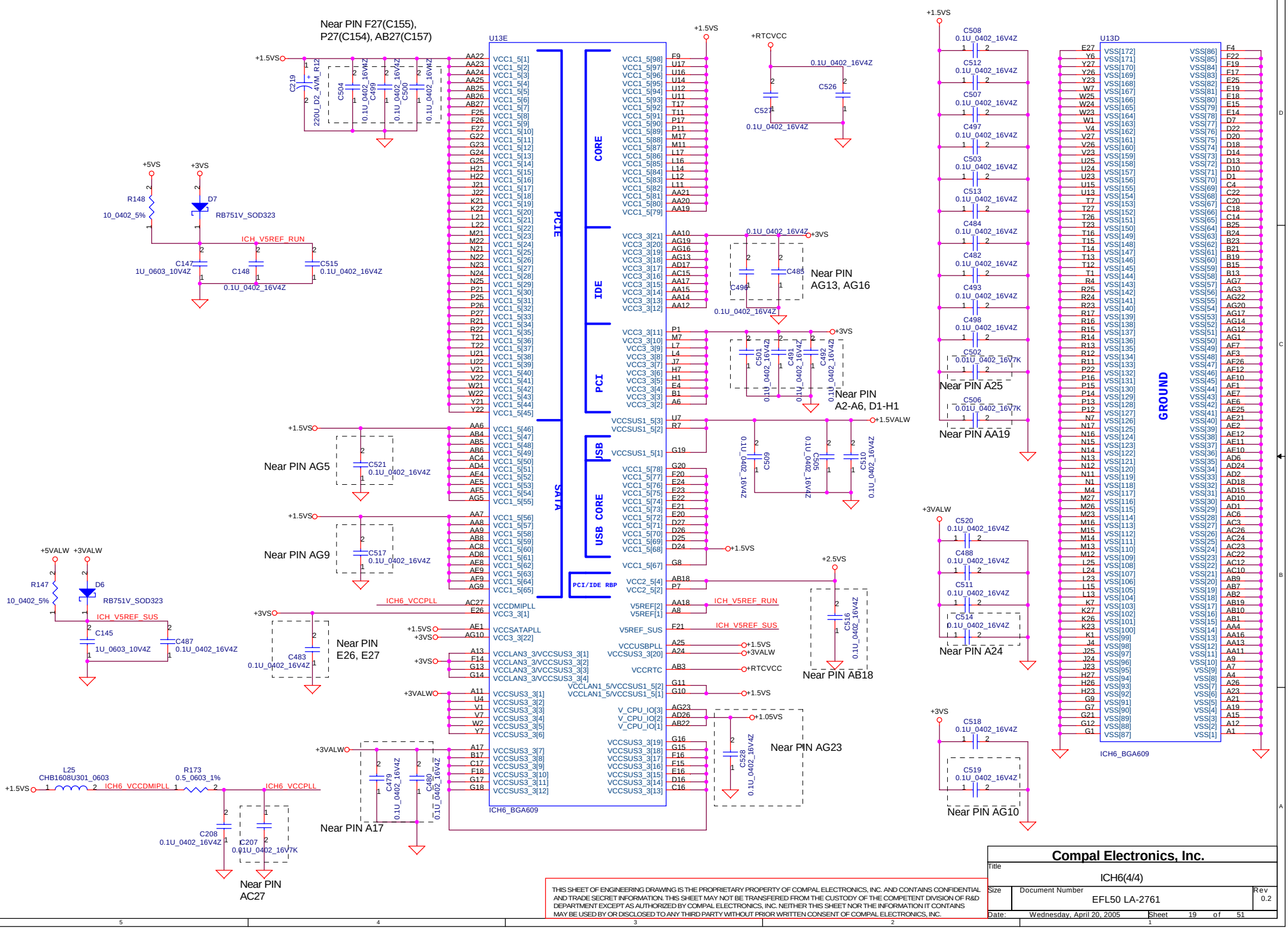
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS 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, Inc.		
Title: ICH6(2/4)		
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 17 of 51	



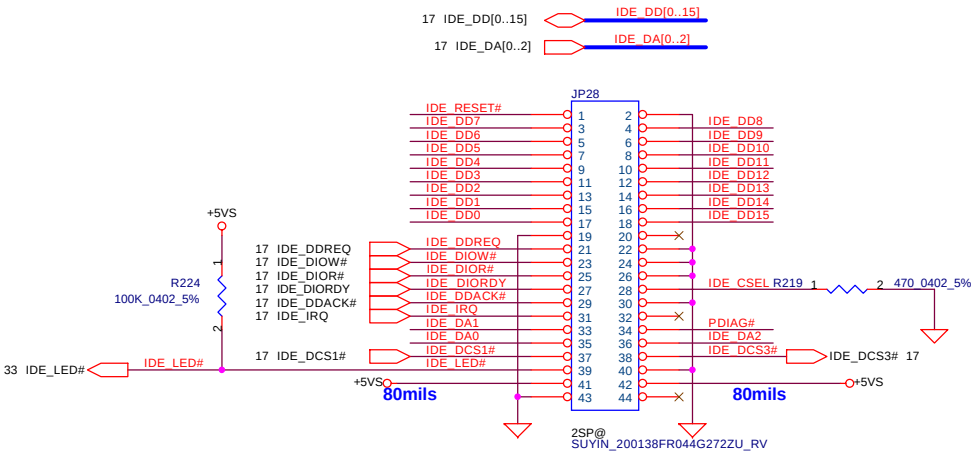
Compal Electronics, Inc.

Title	ICH6(3/4)	
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 18 of 51	

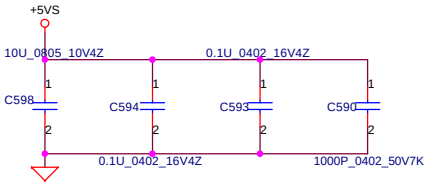


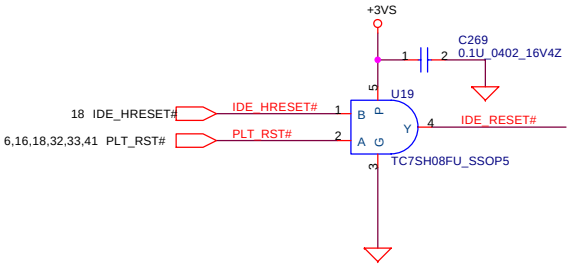
Compal Electronics, Inc.	
Title	ICH6(4/4)
Size	Document Number: EFL50 LA-2761
Rev	0.2
Date:	Wednesday, April 20, 2005
Sheet	19 of 51

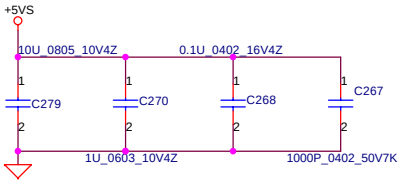
HDD CONN



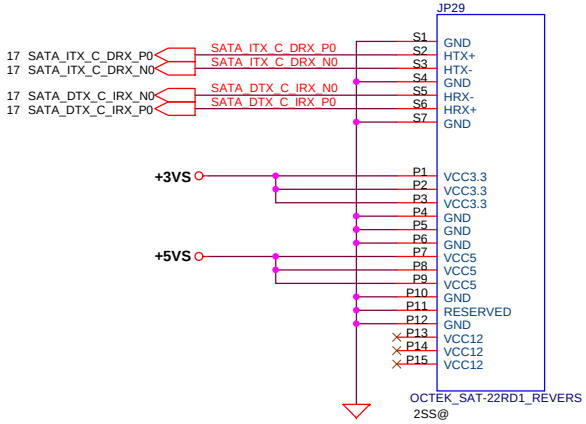
For 2 Spindle





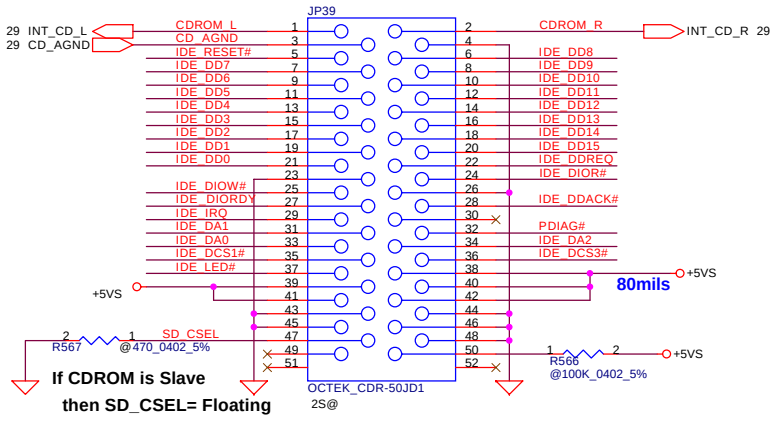


SATA HDD CONN



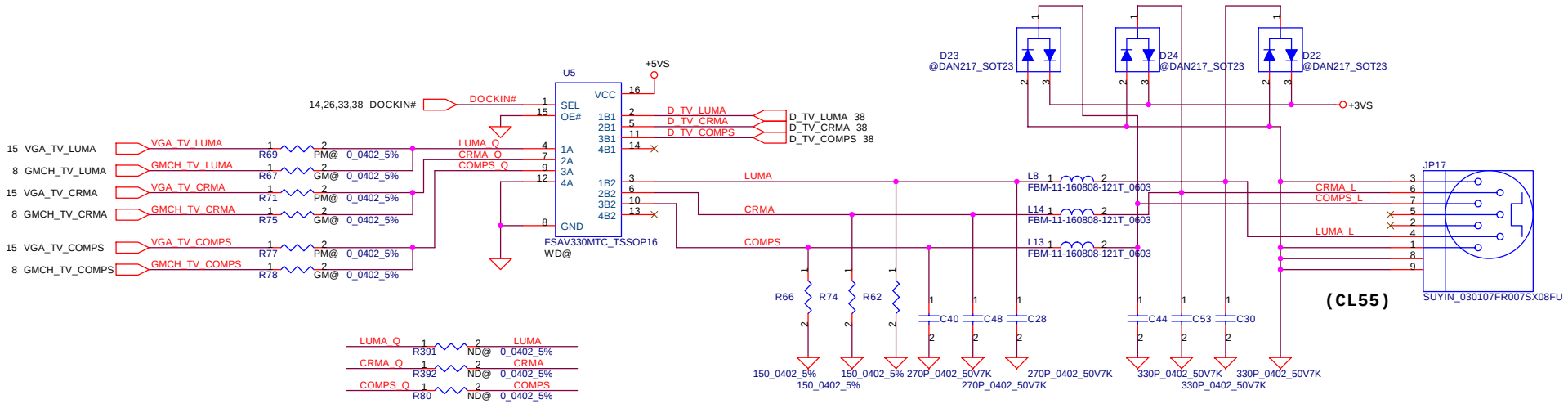
For 2 Spindle

CDROM CONN



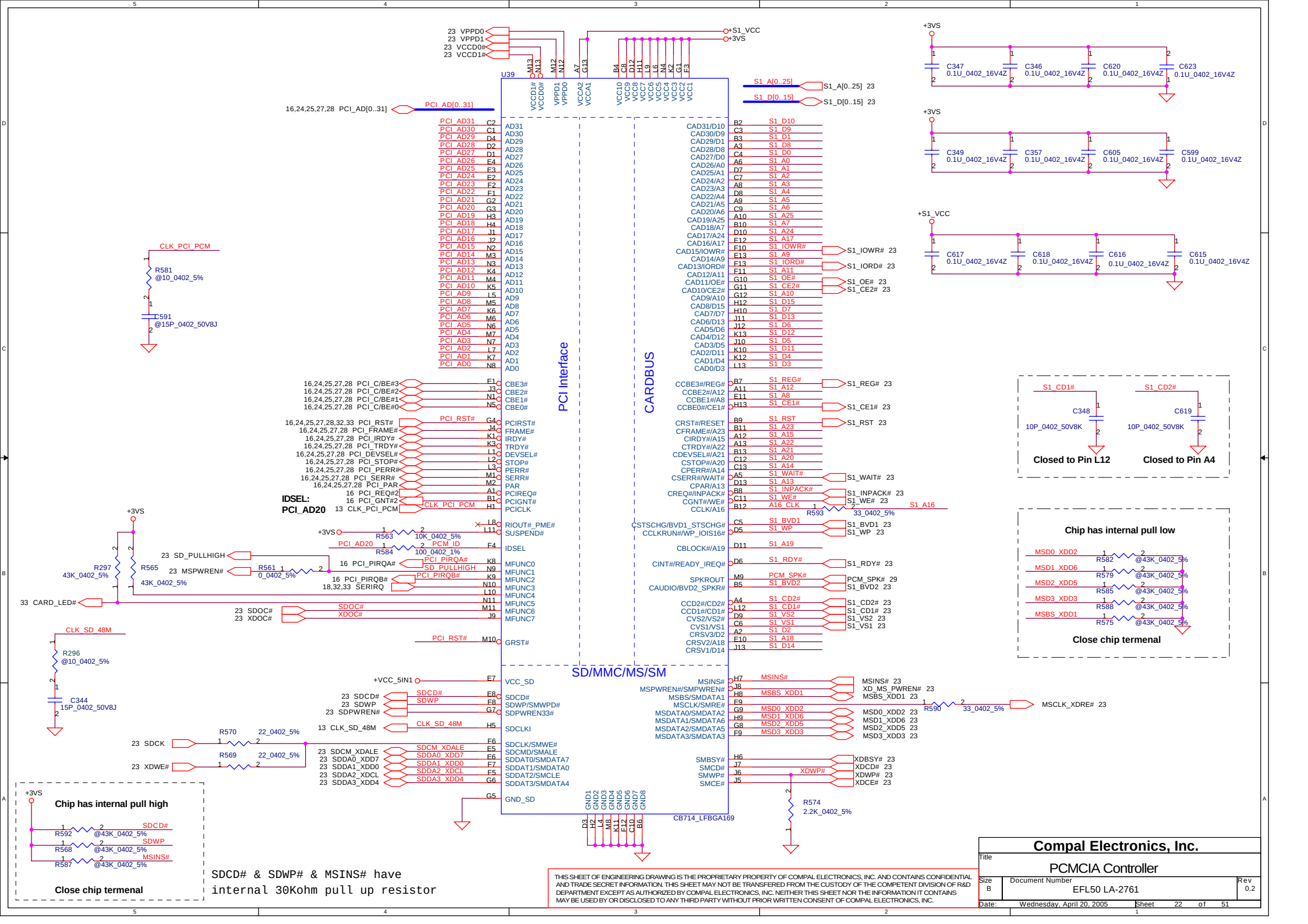
If CDROM is Slave
then SD_CSEL= Floating
else SD_CSEL= Low

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



Compal Electronics, Inc.

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



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 TRANSFERED 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, Inc.

Title	PCMCIA Controller	
Size B	Document Number EFL50 LA-2761	Rev 0.2
Date: Wednesday, April 20, 2005	Sheet 22 of 51	

PCMCIA Power Controller

Don't support 12V card

U36 — CP2211D3_SSOP16

+S1_VCC 40mil — C585 0.1U_0402_16V4Z; C584 0.1U_0402_16V4Z; C586 10U_0805_10V4Z

+S1_VPP 20mil — C583 0.01U_0402_16V7K; C587 1U_0603_10V4Z

+5VS — C573 0.1U_0402_16V4Z; C570 4.7U_0805_10V4Z

+3VS — C574 0.1U_0402_16V4Z; C571 4.7U_0805_10V4Z

R562 10K_0402_5%

VCCD0# 22; VCCD1# 22; VPPD0 22; VPPD1 22

R550 @0_0805_5%

Reserve for SD pull high issue.

Close to CardBus Conn.

+S1_VCC — C337 10U_0805_10V4Z; C339 0.1U_0402_16V4Z

+S1_VPP — C343 4.7U_0805_10V4Z; C341 0.01U_0402_16V7K

SD/ MMC/ MS

Chip has internal pull high

+3VS — R552 @43K_0402_5% — MSINS# — XDCD# 22 — Q45 2N7002_SOT23 — XD_CD#

SDDA3_XDD4; SDDA1_XDD0; SDDA0_XDD7; SDCM_XDALE; SDDA2_XDCL; MSBS_XDD1; MSD1_XDD6; MSD0_XDD2; MSD2_XDD5; MSINS#; MSD3_XDD3; SDWP; SDCD#

+VCC_5IN1 — C589 1U_0603_10V4Z; C580 0.1U_0402_16V4Z; C588 0.1U_0402_16V4Z

JP36 — 4 IN 1 CONN — SD / MMC / MS(PRO) / XD — TAITW_R007-520-L3

+VCC_SM/XD — XDBSY# 22 — R551 43K_0402_5%; XDCE# 22 — R547 43K_0402_5%; MSCLK_XDRE# — R564 43K_0402_5%; XDWE# 22 — R545 2.2K_0402_5%

SD CLK — 22 SDCK — SDCK — C579 10P_0402_50V8K

MS CLK — 22 MSCLK_XDRE# — MSCLK_XDRE# — R549 @0_0402_5%; C572 @10P_0402_50V8K

+SD_PULLHIGH by BIOS setting — 22 SD_PULLHIGH — SD_PULLHIGH — R294 @ 0_0603_5%; SDCM_XDALE — R557 @ 43K_0402_5%; SDDA0_XDD7 — R553 @ 43K_0402_5%; SDDA1_XDD0 — R541 @ 43K_0402_5%; SDDA2_XDCL — R560 @ 43K_0402_5%; SDDA3_XDD4 — R559 @ 43K_0402_5%

Close to 5 in 1 socket

+VCC_SM/XD — C656 1U_0603_10V4Z; C657 0.1U_0402_16V4Z

+VCC_5IN1 — C551 1U_0603_10V4Z; C556; C555; C554; C553 — 0.1U_0402_16V4Z

5 IN 1 PWR Control — U49 — TPS2041ADR_SO8

+3VS — R536 4.7K_0402_5%; R537 10K_0402_5%; R538 0_0402_5%; SDOC# 22; R633 0_0402_5%; XDOC#

0308

22 SDPWREN#; 22 MSPWREN#; 22 XD_MS_PWREN# — R632 0_0402_5%

0307

+VCC_5IN1 — R531 100K_0402_5%

R571 0_0603_5% — +VCC_5IN1 — +VCC_SM/XD

0307

+3VS — R627 10K_0402_5%; R629 4.7K_0402_5%

22 XD_MS_PWREN# — DTC115EKA_SOT23 Q44 — 100K; 100K

5 IN 1 PWR Control — U48 — RT9702ACB_SOT23-5 — VIN; FLG; VOUT; CE; GND

+VCC_SM/XD — R628 0_0402_5%; R630 100K_0402_5%; R626 10K_0402_5%; XDOC# — XDOC# 22; C666 0.1U_0402_16V4Z @

22 S1_A[0..25] — S1_A[0..25]

22 S1_D[0..15] — S1_D[0..15]

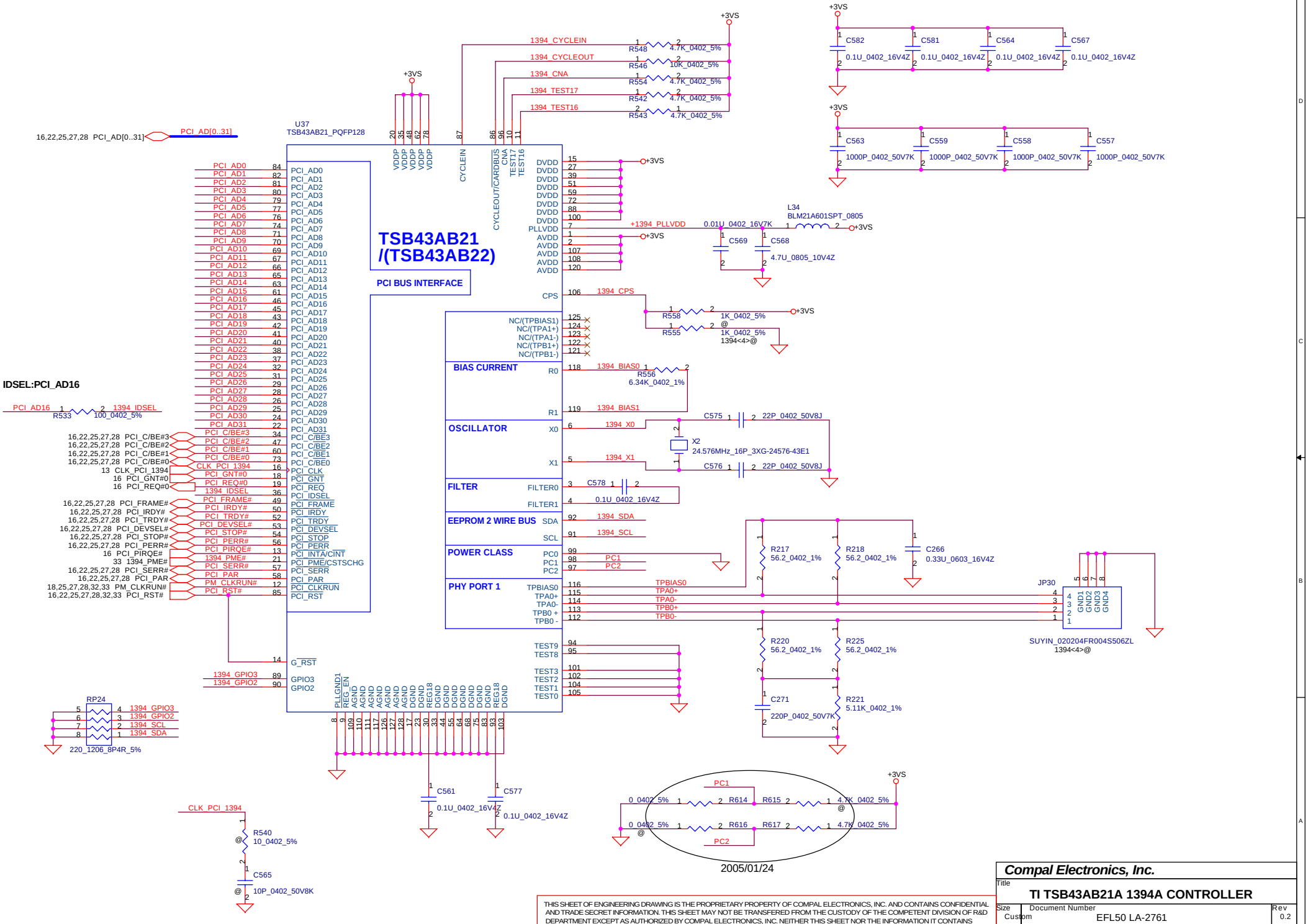
CardBus Socket

JP7 — SANTA_130609-1_LT

GND	1		
GND	35		
DATA3	2	S1_D3	
CD1#	36	S1_CD1#	S1_CD1# 22
DATA4	3	S1_D4	
DATA11	37	S1_D11	
DATA5	4	S1_D5	
DATA12	38	S1_D12	
DATA6	5	S1_D6	
DATA13	39	S1_D13	
DATA7	6	S1_D7	
DATA14	40	S1_D14	
CE1#	7	S1_CE1#	S1_CE1# 22
DATA15	41	S1_D15	
ADD10	8	S1_A10	
CE2#	42	S1_CE2#	S1_CE2# 22
OE#	9	S1_OE#	S1_OE# 22
VS1#	43	S1_VS1	S1_VS1 22
ADD11	10	S1_A11	
IORD#	44	S1_IORD#	S1_IORD# 22
ADD9	11	S1_A9	
IOWR#	45	S1_IOWR#	S1_IOWR# 22
ADD8	12	S1_A8	
ADD17	46	S1_A17	
ADD13	13	S1_A13	
ADD18	47	S1_A18	
ADD14	14	S1_A14	
ADD19	48	S1_A19	
WE#	15	S1_WE#	S1_WE# 22
ADD20	49	S1_A20	
READY	16	S1_RDY#	S1_RDY# 22
ADD21	50	S1_A21	
VCC	17		+S1_VCC
VCC	51		+S1_VCC
VPP	18		+S1_VPP
VPP	52		+S1_VPP
ADD16	19	S1_A16	
ADD22	53	S1_A22	
ADD15	20	S1_A15	
ADD23	54	S1_A23	
ADD12	21	S1_A12	
ADD24	55	S1_A24	
ADD7	22	S1_A7	
ADD25	56	S1_A25	
ADD6	23	S1_A6	
VS2#	57	S1_VS2	S1_VS2 22
ADD5	24	S1_A5	
RESET	58	S1_RST	S1_RST 22
ADD4	25	S1_A4	
WAIT#	59	S1_WAIT#	S1_WAIT# 22
ADD3	26	S1_A3	
INPACK#	60	S1_INPACK#	S1_INPACK# 22
ADD2	27	S1_A2	
REG#	61	S1_REG#	S1_REG# 22
ADD1	28	S1_A1	
BVD2	62	S1_BVD2	S1_BVD2 22
ADD0	29	S1_A0	
BVD1	63	S1_BVD1	S1_BVD1 22
DATA0	30	S1_D0	
DATA8	64	S1_D8	
DATA1	31	S1_D1	
DATA9	65	S1_D9	
DATA2	32	S1_D2	
DATA10	66	S1_D10	
WP	33	S1_WP	S1_WP 22
CD2#	67	S1_CD2#	S1_CD2# 22
GND	34		
GND	68		
GND	69		
GND	70		

Compal Electronics, Inc.

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



Compal Electronics, Inc.	
Title	TI TSB43AB21A 1394A CONTROLLER
Size: Custom	Document Number: EFL50 LA-2761
Rev	0.2
Date: Wednesday, April 20, 2005	Sheet 24 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

unpop when use BCM4401

80mils

20mils

60mils

60mils

unpop R554 when use BCM4401

20mils

10mils

1.24K for BCM5788
1.27K for BCM4401

10mils

	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	

AT93C46 for BCM4401

24C256 for BCM5788

Unpop when use BCM4401

Compal Electronics, Inc.

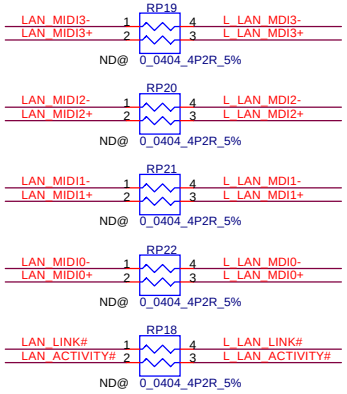
Title: LAN BCM5788M

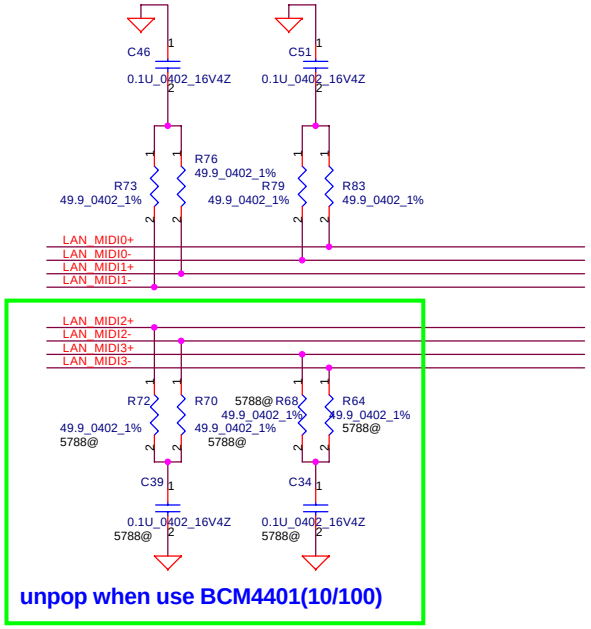
Size: B | Document Number: EFL50 LA-2761 | Rev: 0.2

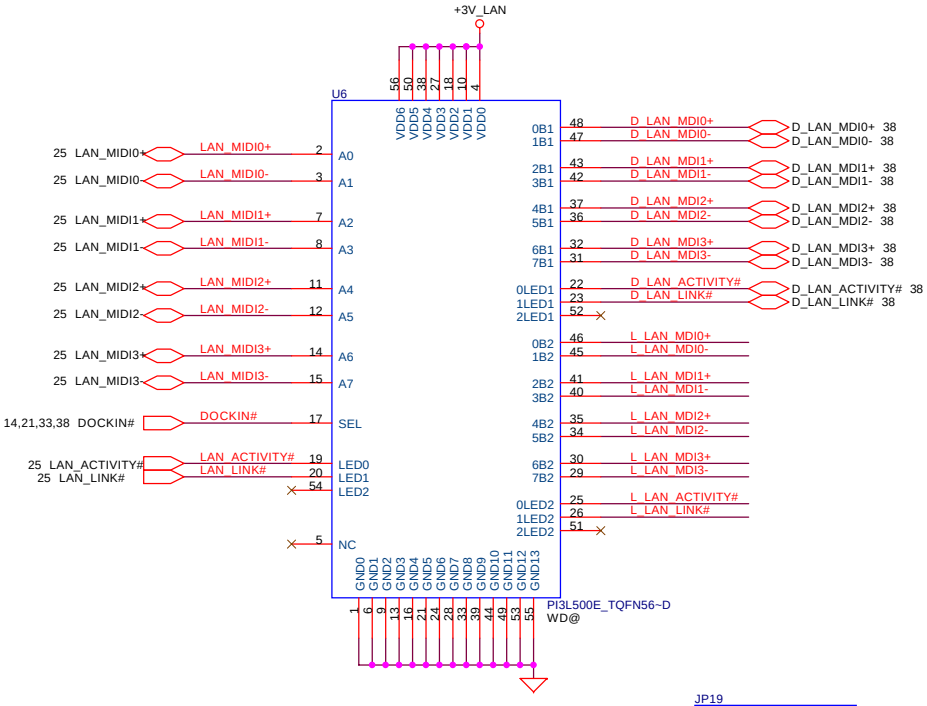
Date: Wednesday, April 20, 2005 | Sheet 25 of 51

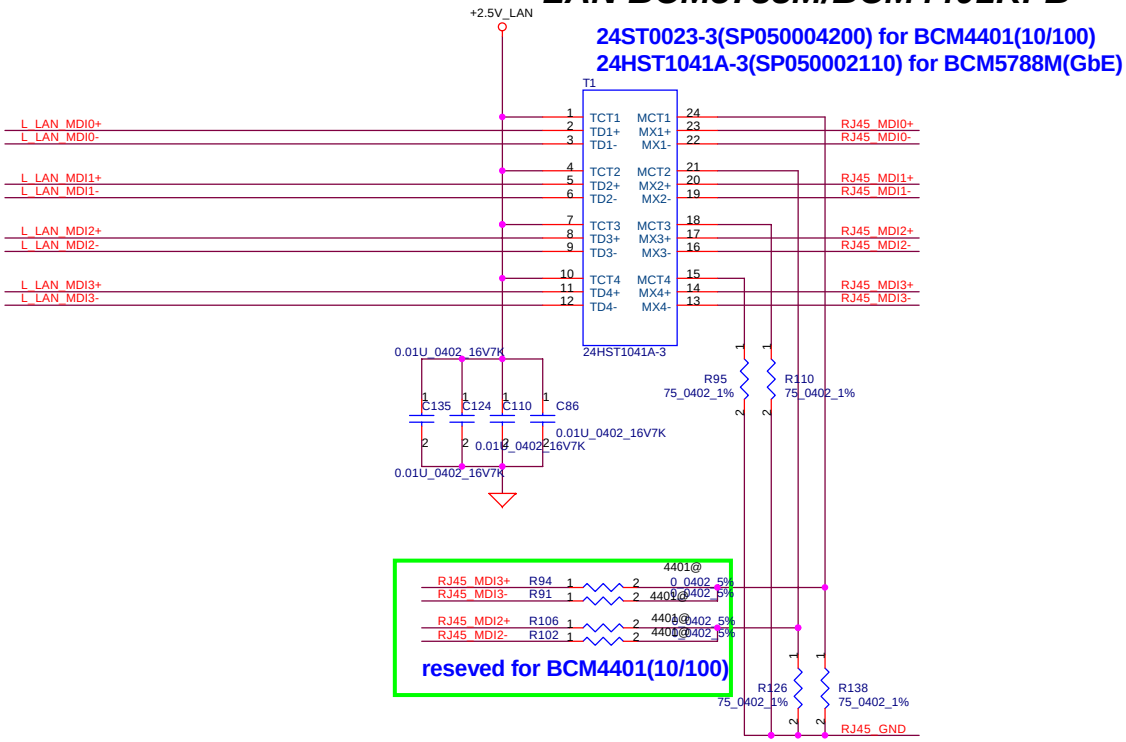
LAN BCM5788M/BCM4401KFB

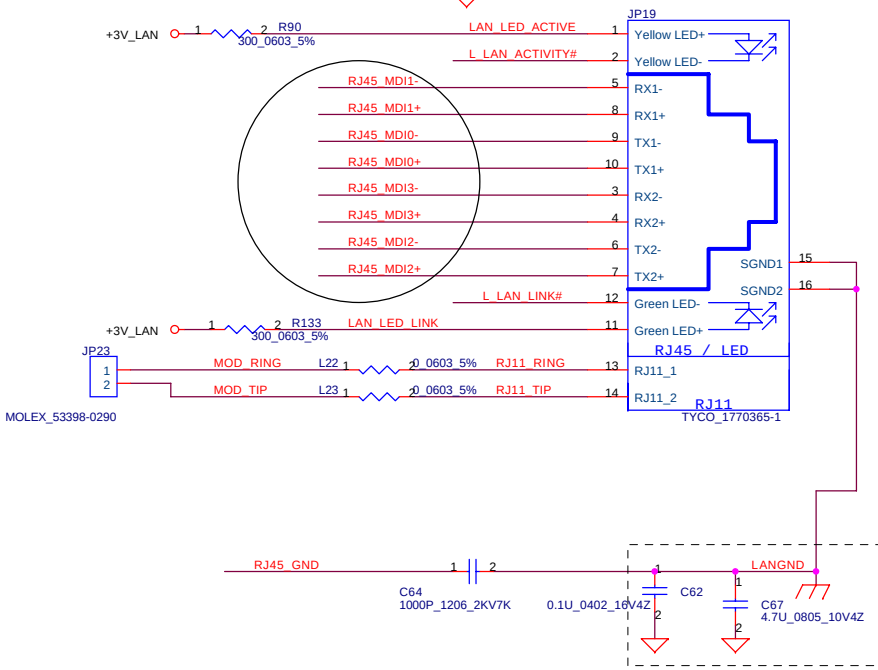
24ST0023-3(SP050004200) for BCM4401(10/100)
24HST1041A-3(SP050002110) for BCM5788M(GbE)



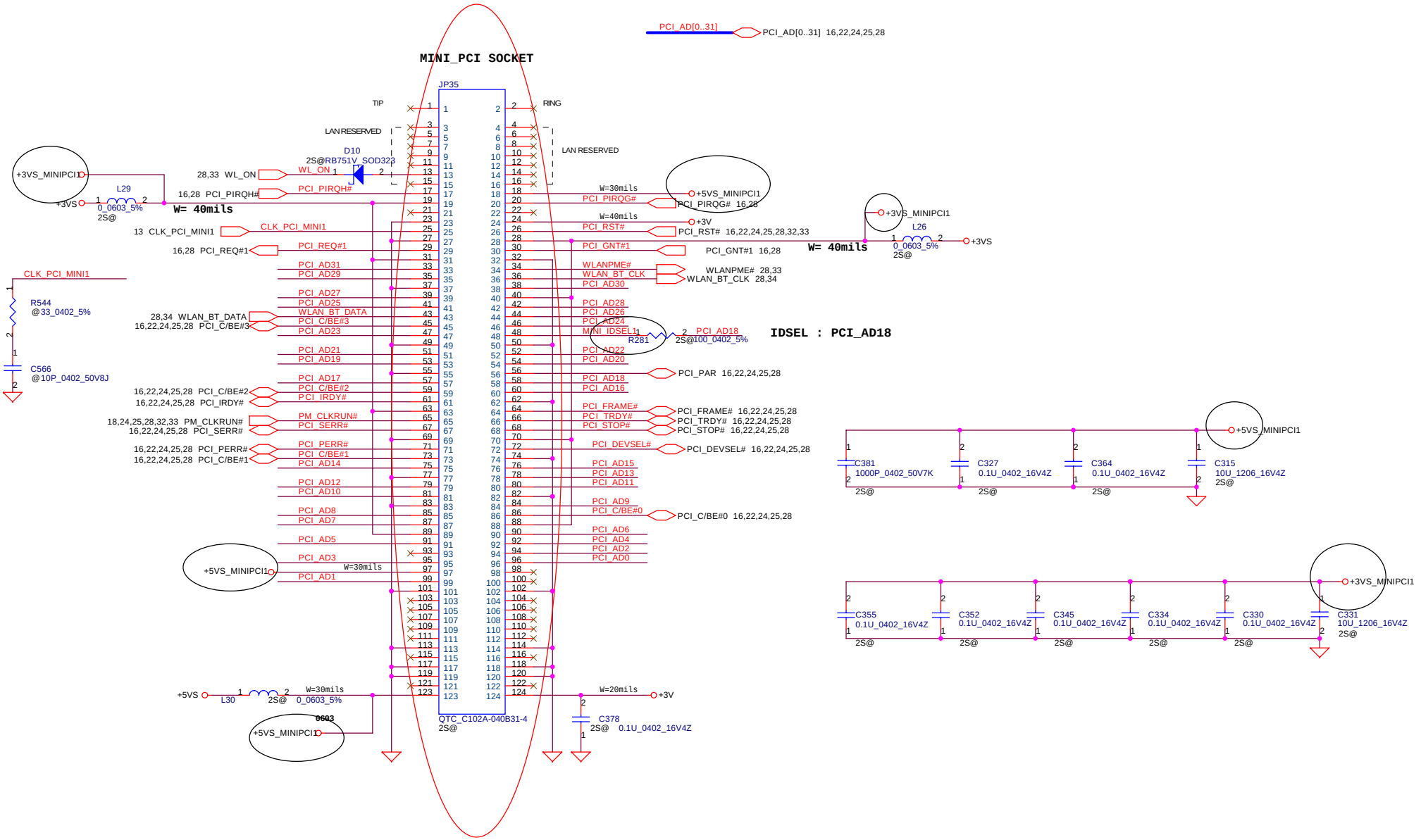








Compal Electronics, Inc.		
Title: LAN Magnetic & RJ45/RJ11		
Size: B	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 26 of 51	

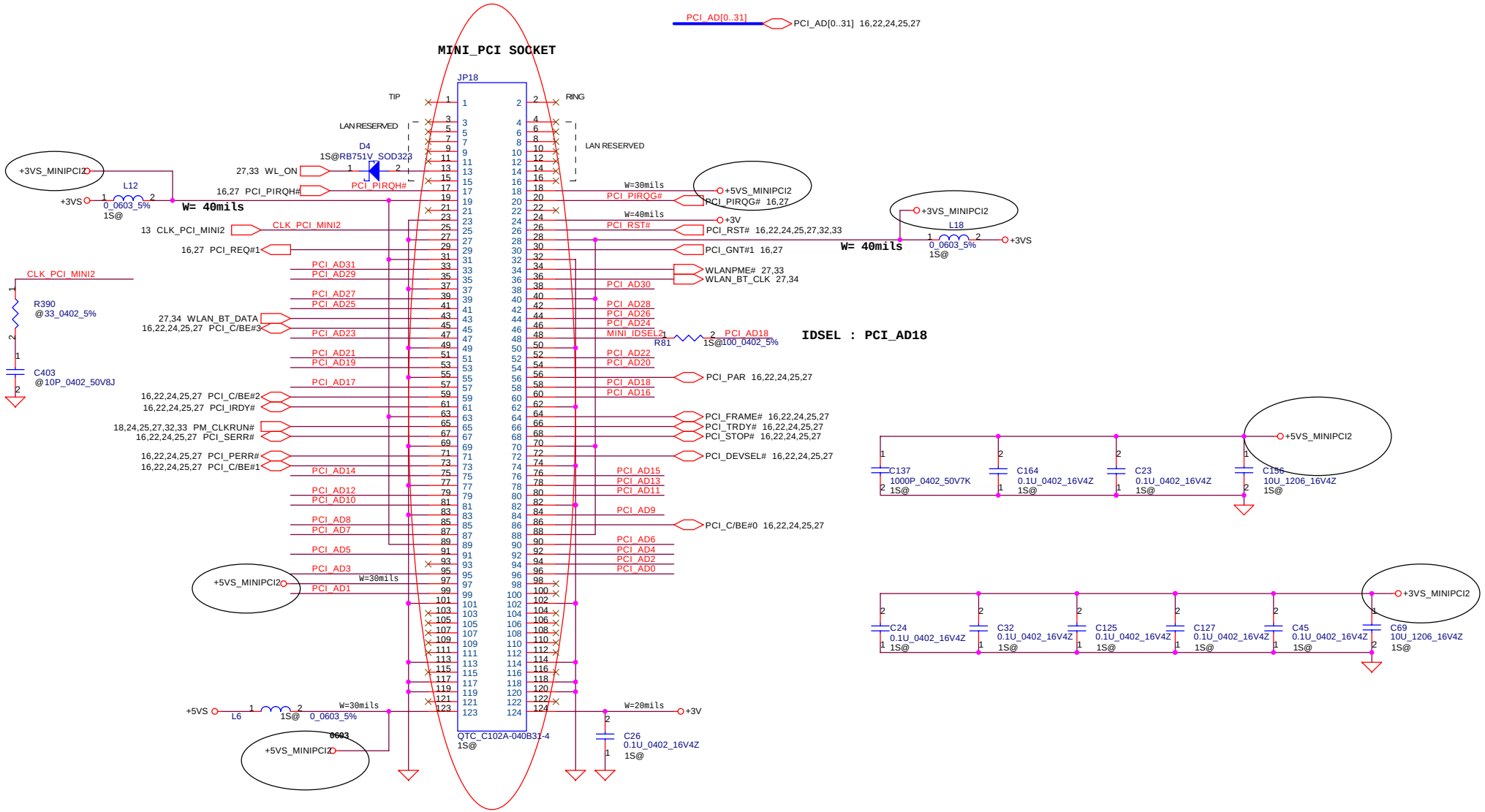


Compal Electronics, Inc.

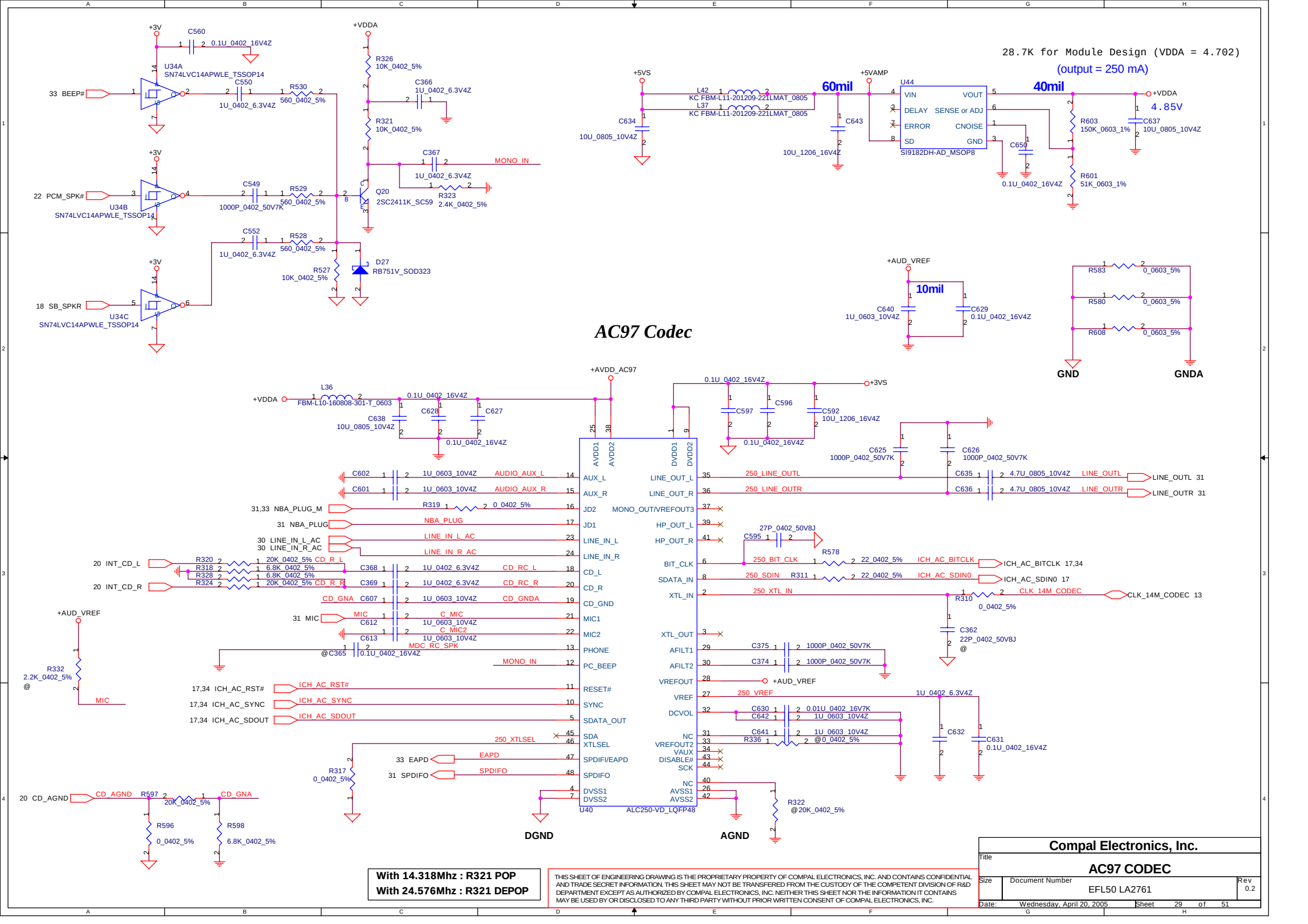
Title: **Mini PCI Slot**

Size | Document Number: EFL50 LA-2761 | Rev: 0.2

Date: Wednesday, April 20, 2005 | Sheet 27 of 51

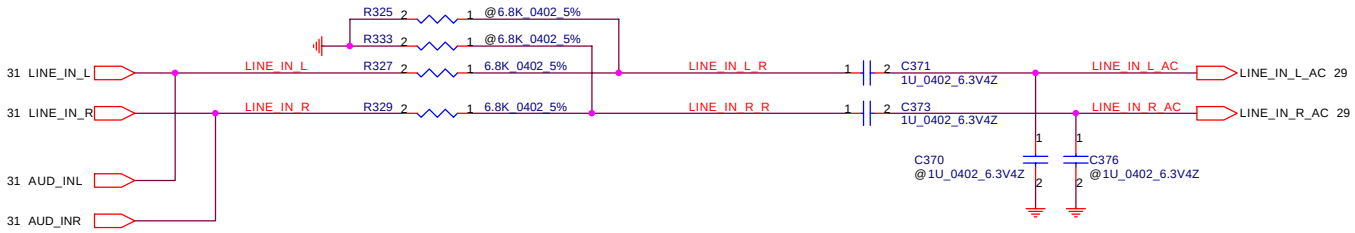


Compal Electronics, Inc.		
Title: Mini PCI Slot		
Size	Document Number: EFL50 LA2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 28 of 51	



Compal Electronics, Inc.

Title	AC97 CODEC	
Size	Document Number: EFL50 LA2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 29 of 51	



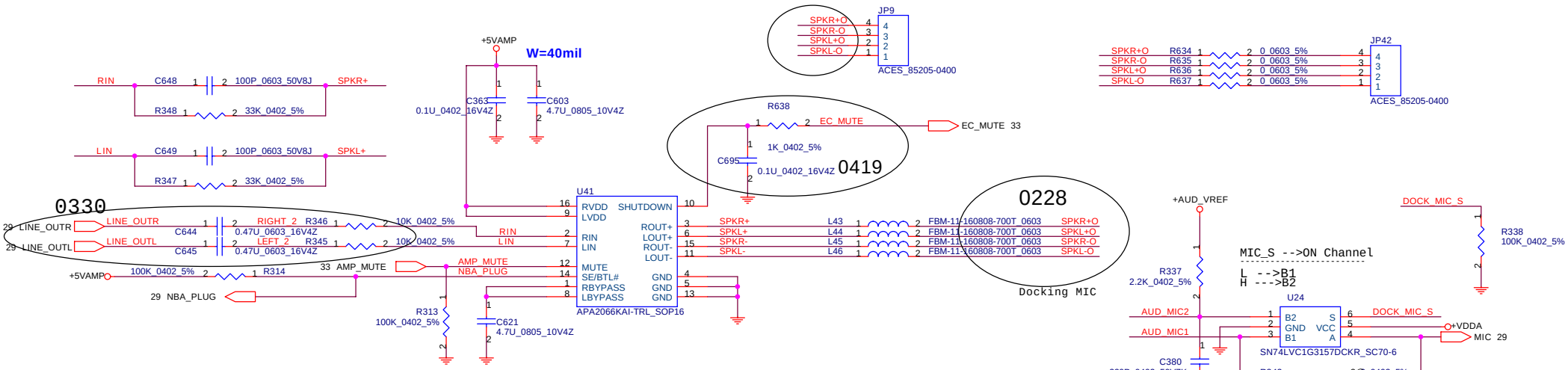
Compal Electronics, Inc.

Title: **Audio Line Switch**

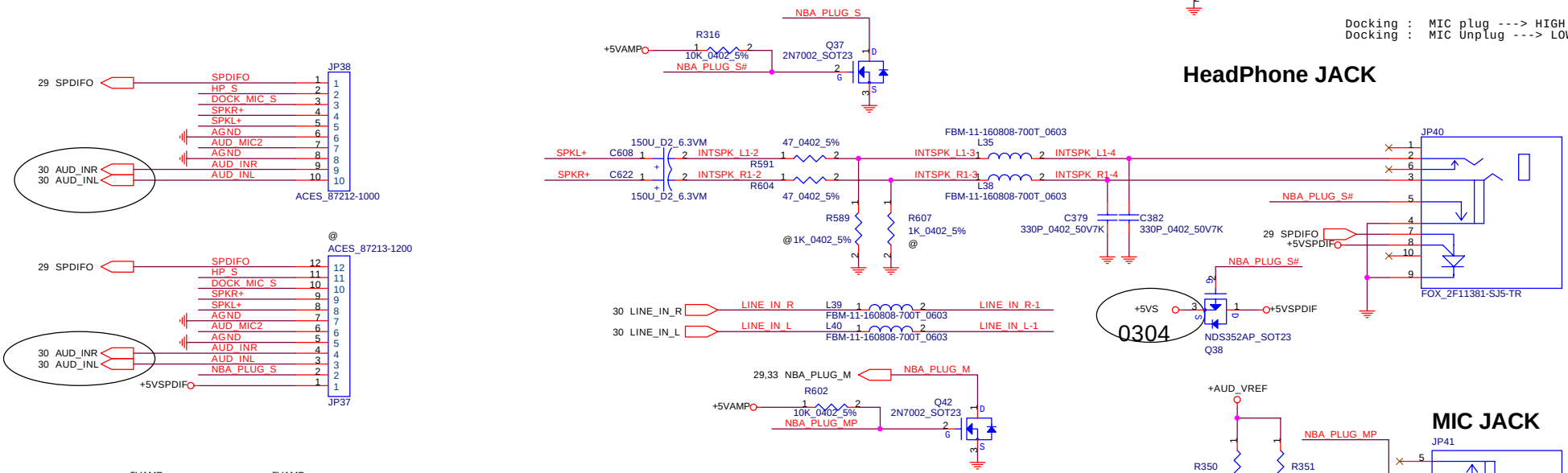
Size | Document Number: EFL50 LA-2761 | Rev: 0.2

Date: Wednesday, April 20, 2005 | Sheet 30 of 51

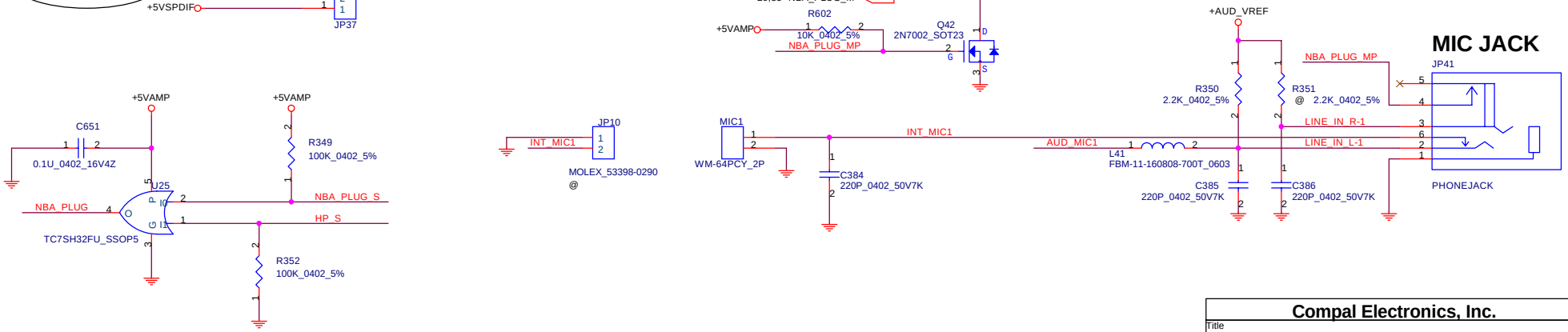
Speaker Conn.



HeadPhone JACK

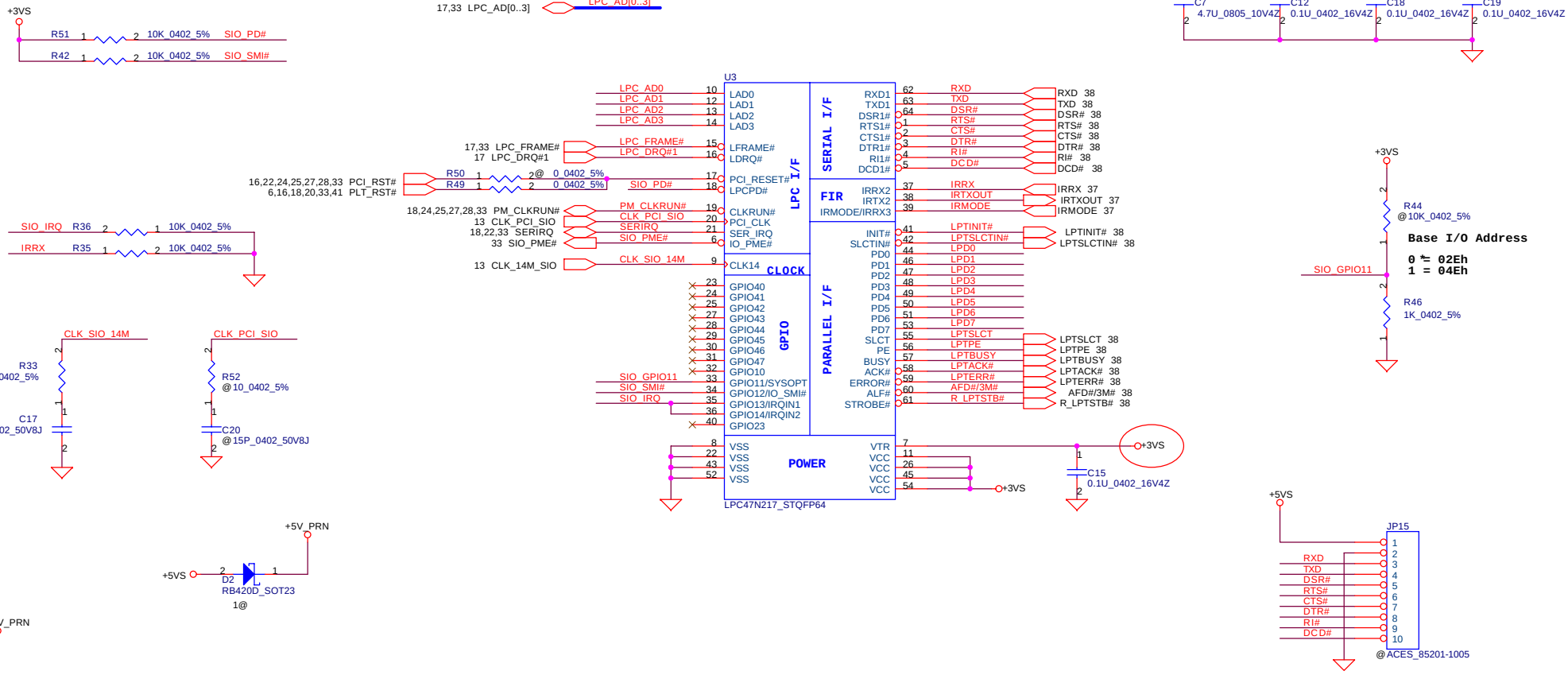


MIC JACK

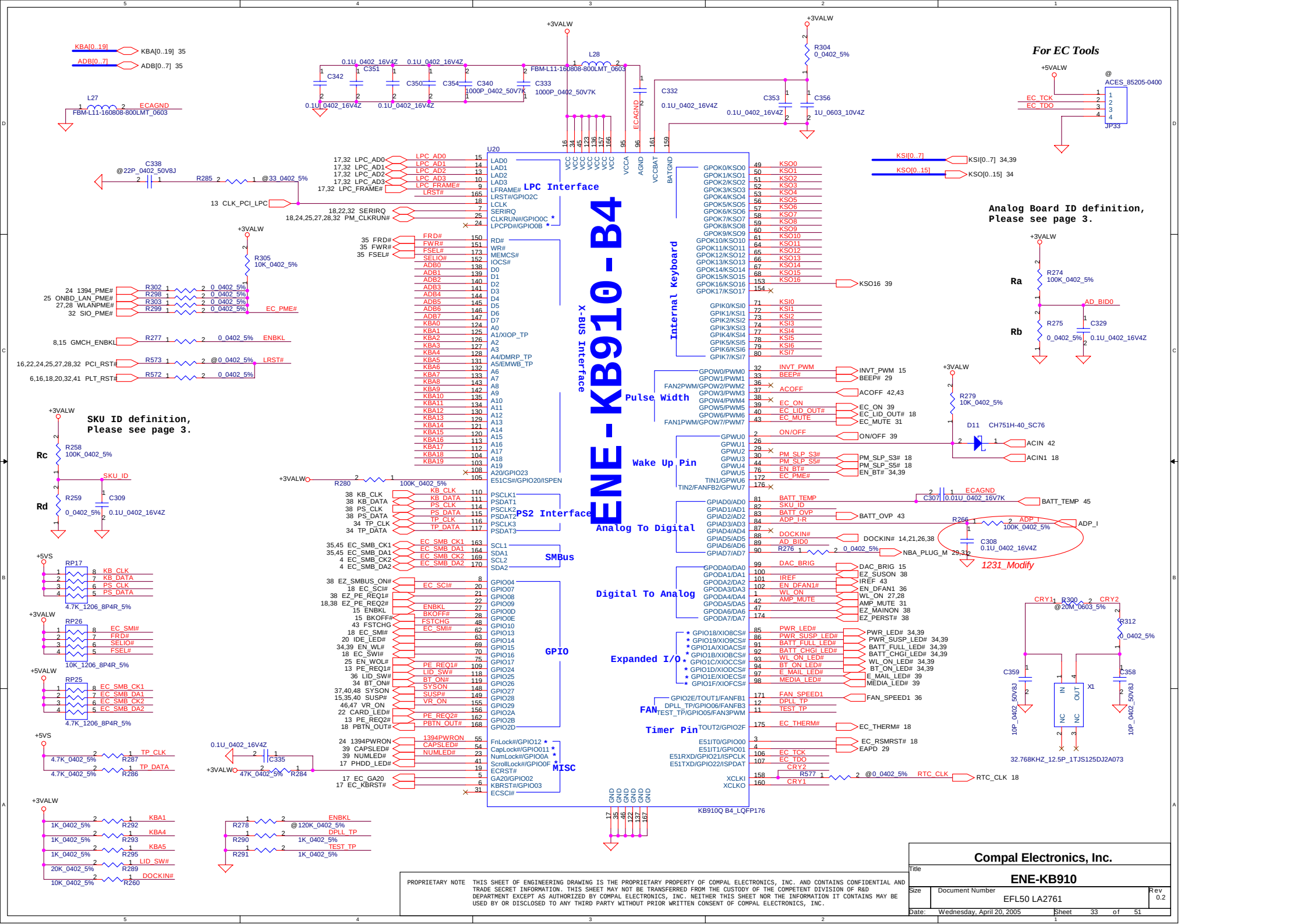


Compal Electronics, Inc.		
Title: AMP & Audio Jack		
Size: B	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 31 of 51	

SUPER I/O SMsC LPC47N217



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



PROPRIETARY NOTE 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.

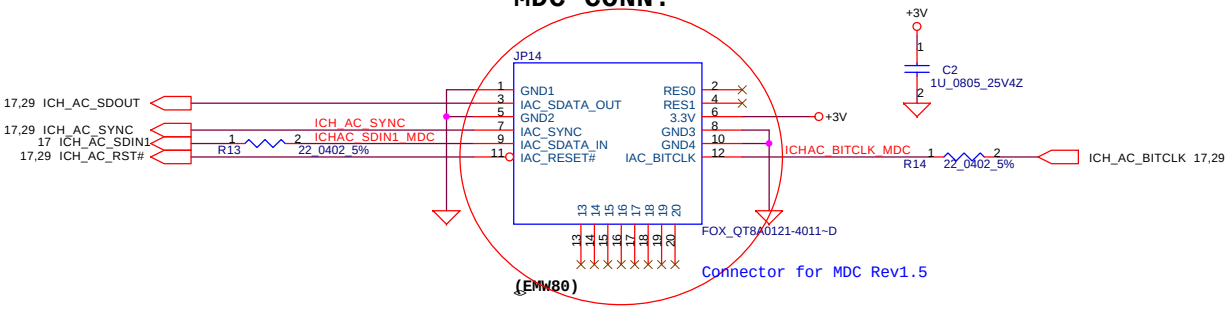
Compal Electronics, Inc.

Title: ENE-KB910

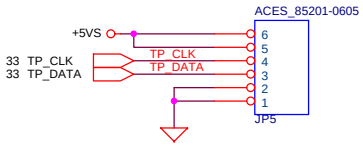
Size | Document Number: EFL50 LA2761 | Rev: 0.2

Date: Wednesday, April 20, 2005 | Sheet 33 of 51

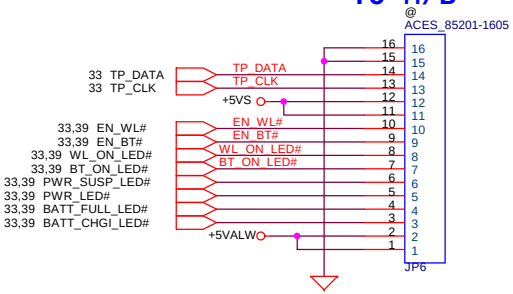
MDC CONN.

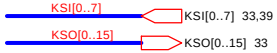


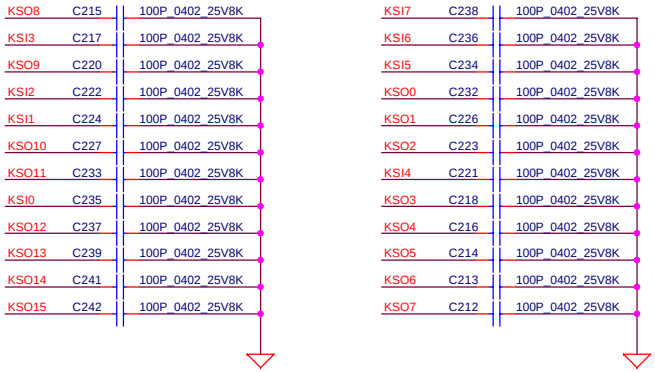
TO M/B



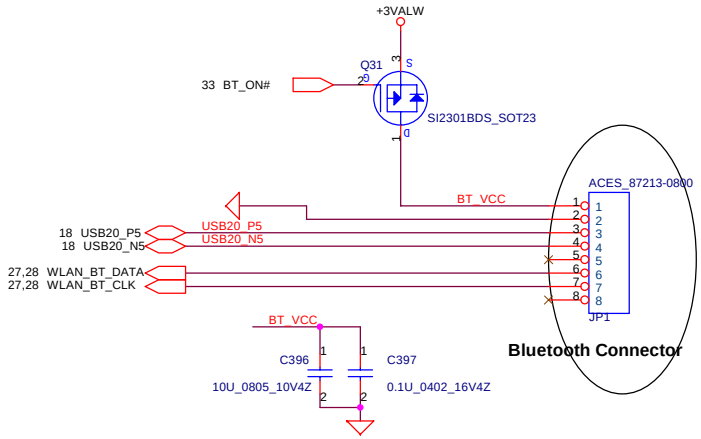
TO M/B



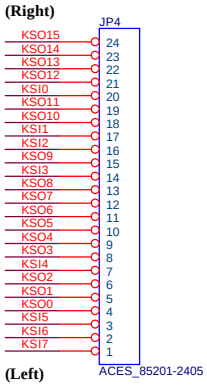




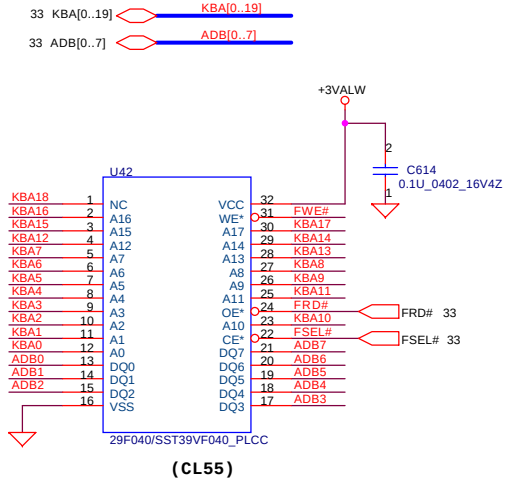
BlueTooth Interface

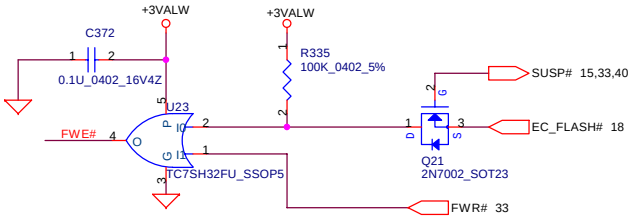


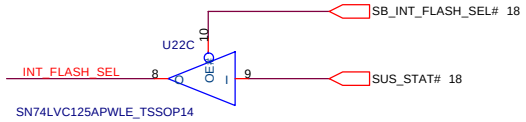
INT_KBD CONN.

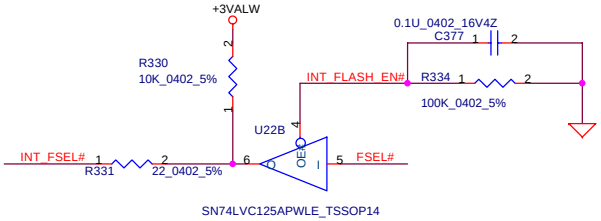


Compal Electronics, Inc.	
Title	MDC / BT / KBD / TP
Size	Document Number: EFL50 LA2761 — Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 34 of 51

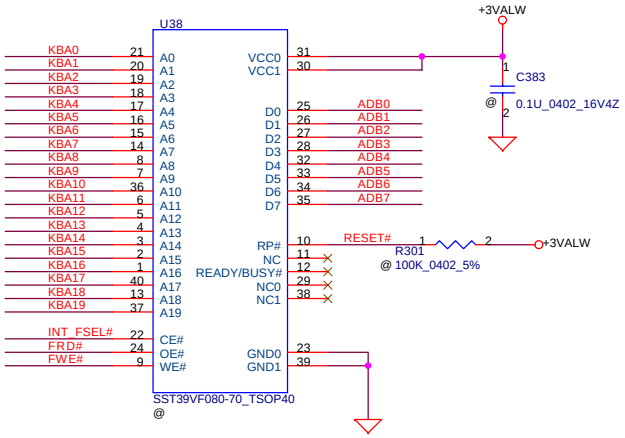




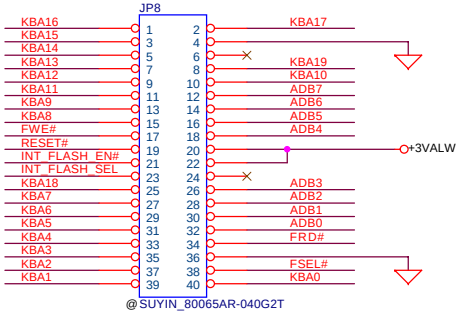


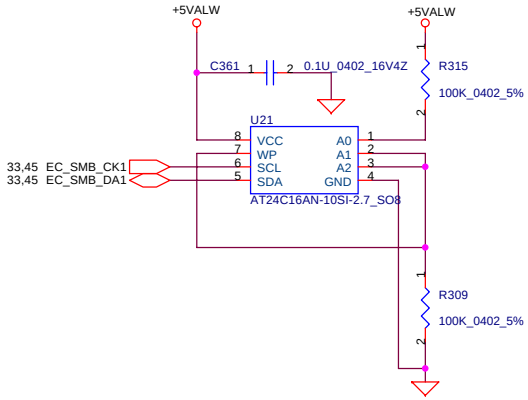


1MB Flash ROM



1MB ROM Socket





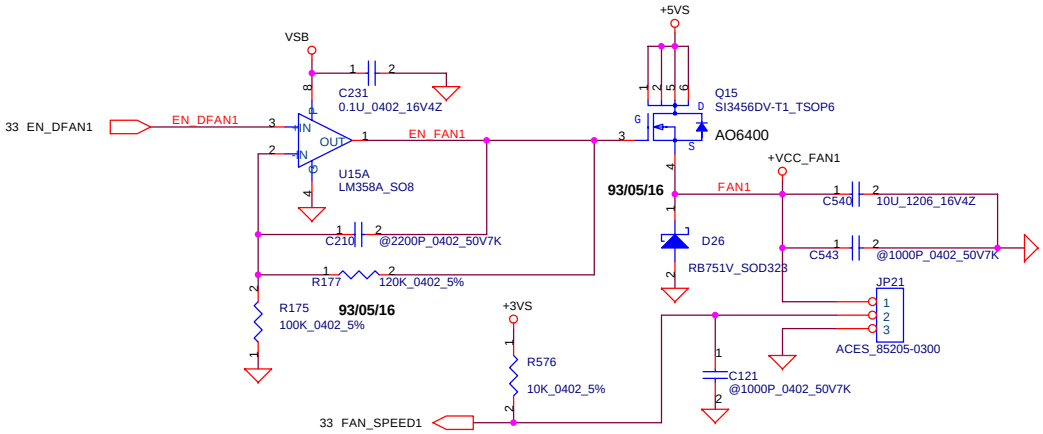
Compal Electronics, Inc.

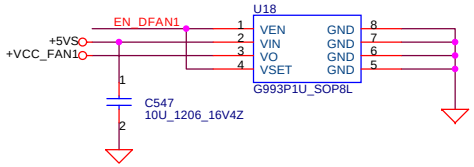
Title: BIOS & EXT. I/O PORT & SATA HDD

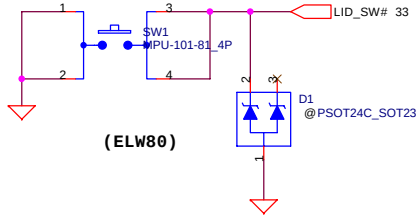
Size	Document Number	Rev
	EFL50 LA-2761	0.2

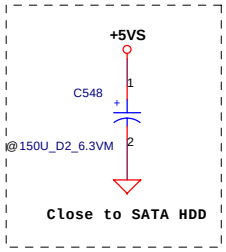
Date: Wednesday, April 20, 2005 Sheet 35 of 51

FAN Conn







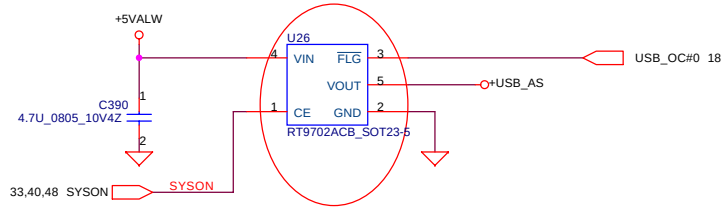


Compal Electronics, Inc.

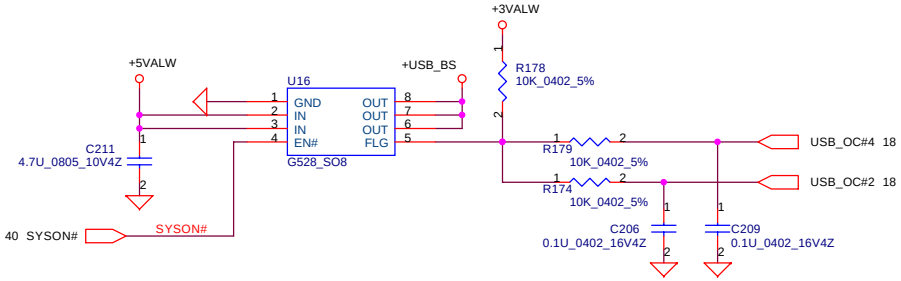
Title: **FAN / FIR / RJ11/Lid_Switch**

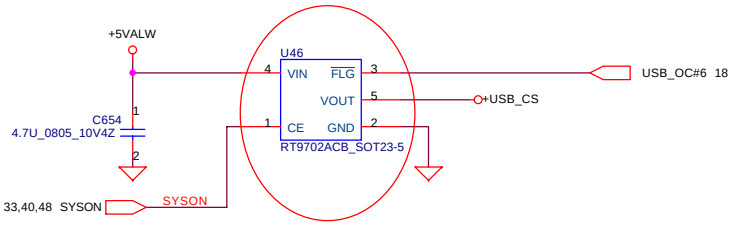
Size	Document Number	Rev
	EFL50 LA-2761	0.2

Date: Wednesday, April 20, 2005 Sheet 36 of 51



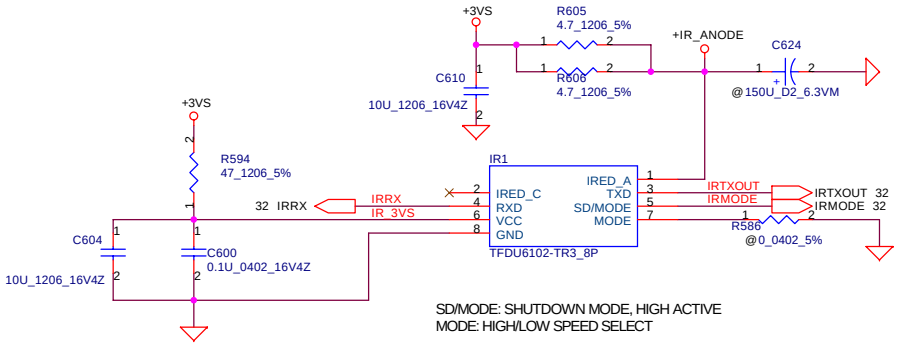
Cost-Down from G528 to RT9702



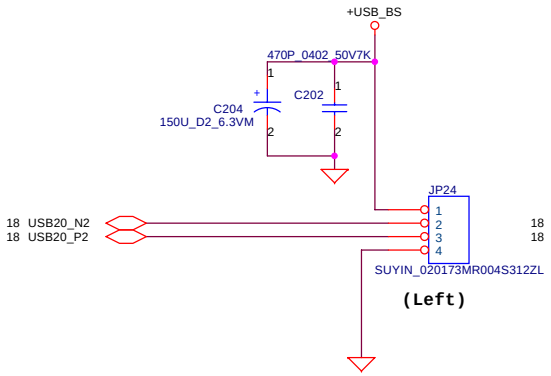


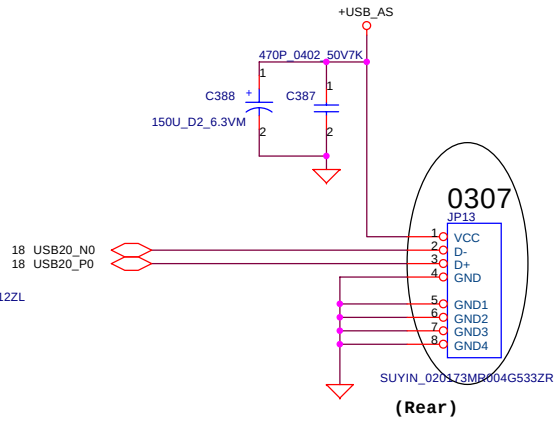
Cost-Down from G528 to RT9702

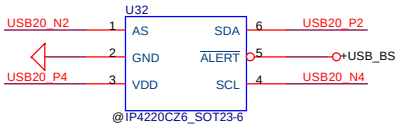
FIR Module

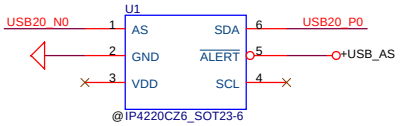


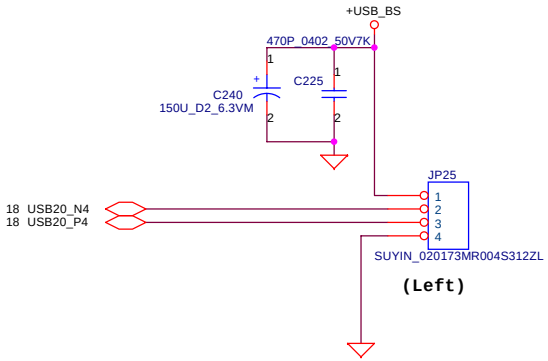
SD/MODE: SHUTDOWN MODE, HIGH ACTIVE
MODE: HIGH/LOW SPEED SELECT

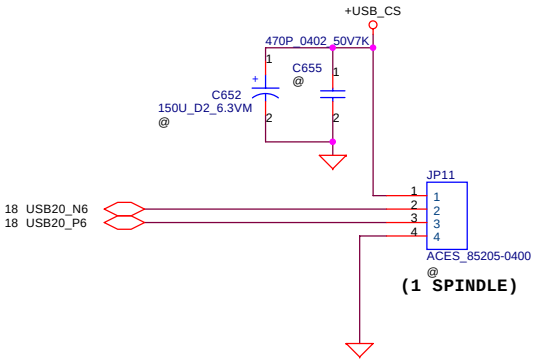


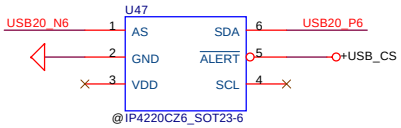






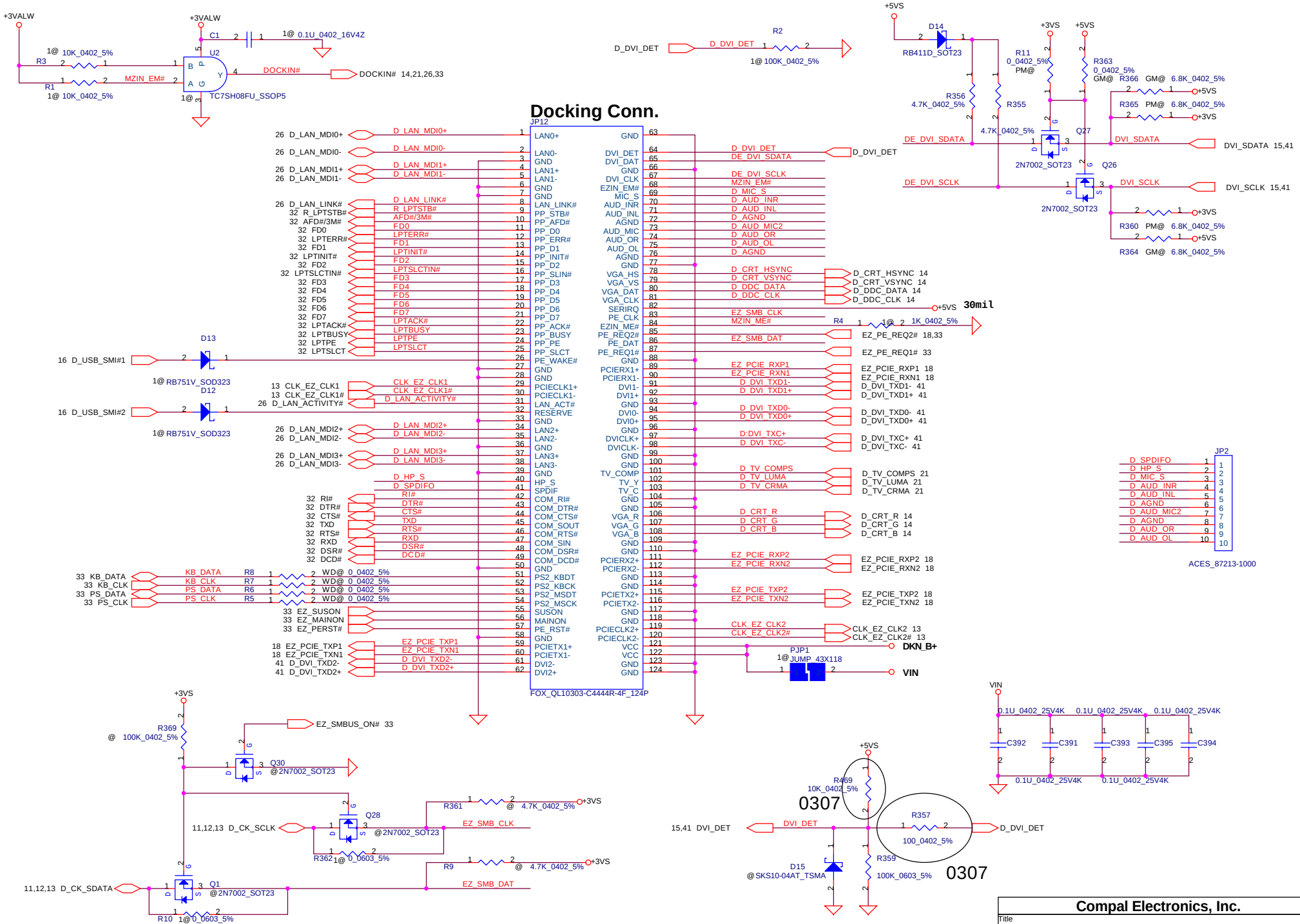






Compal Electronics, Inc.		
Title: USB Conn		
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 37 of 51	

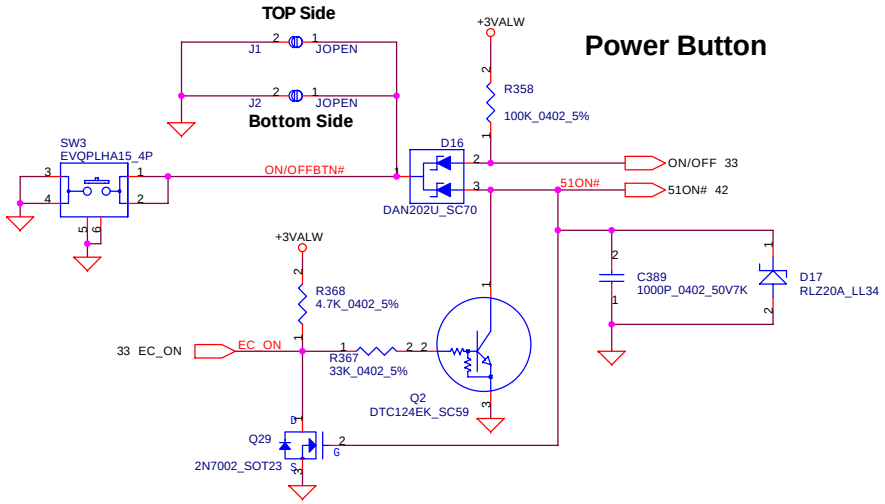
Docking Conn.



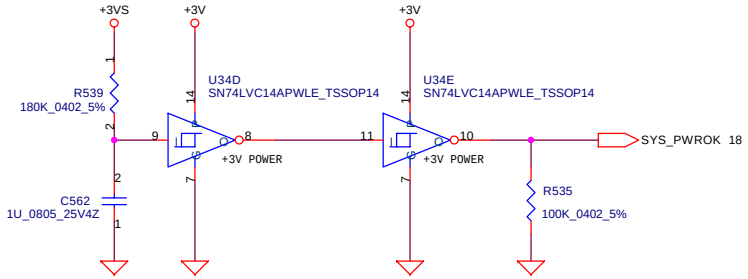
Compal Electronics, Inc.

Title	Docking	
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 38 of 51	

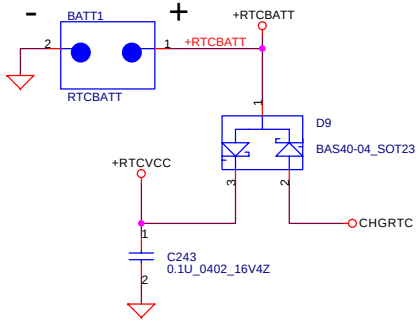
Power Button



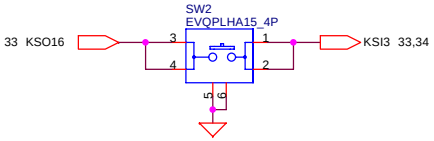
Power ON Circuit



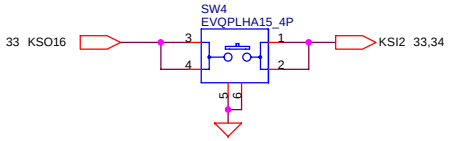
RTC Battery



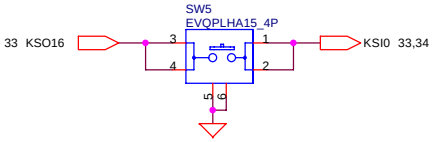
E-Mail_BTN



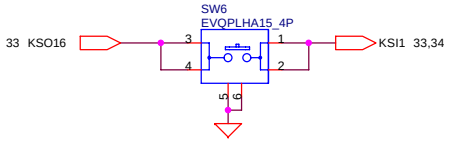
Internet_BTN



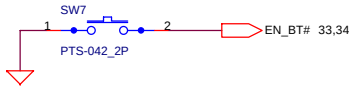
e/eManager_BTN



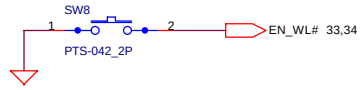
Launch Manager_BTN



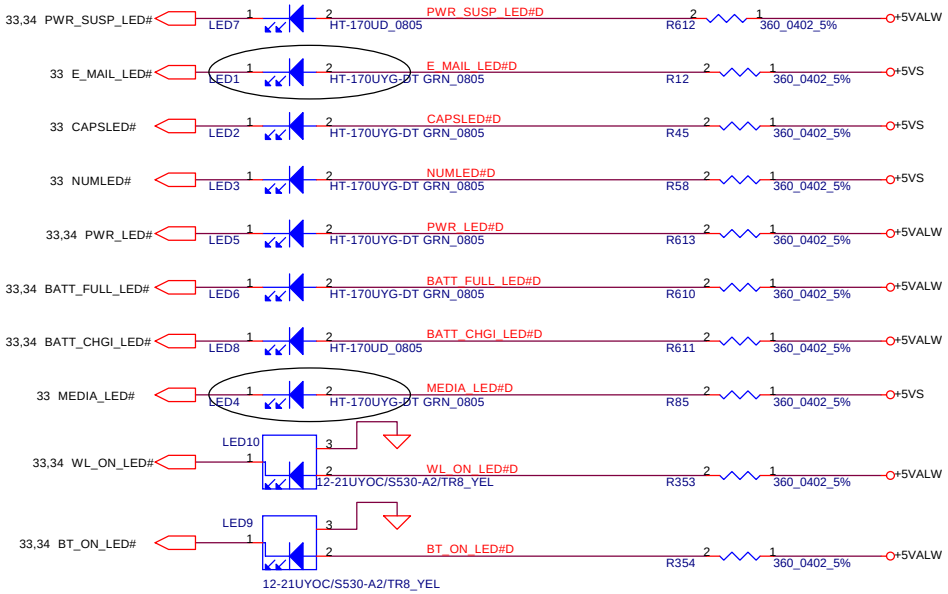
BlueTooth_BTN



Wireless_BTN

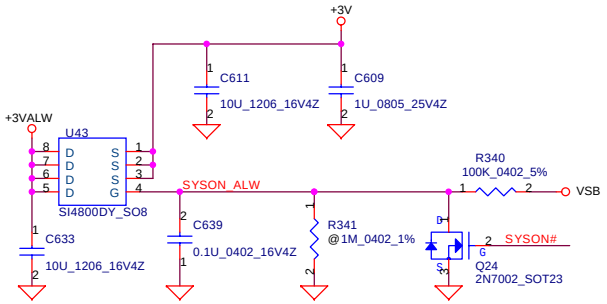


LED Indicator

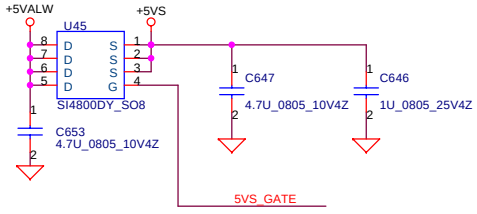


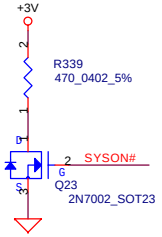
Compal Electronics, Inc.		
Title: Power OK/Reset/RTC battery		
Size	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 39 of 51	

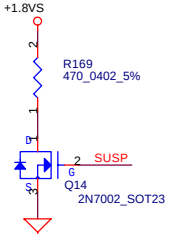
+3VALW TO +3V



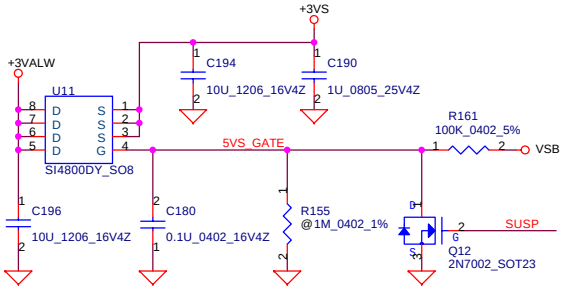
+5VALW TO +5VS



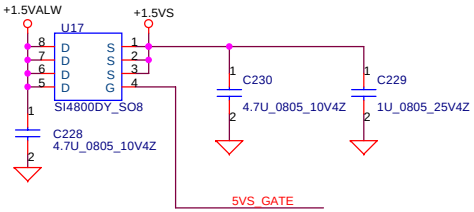


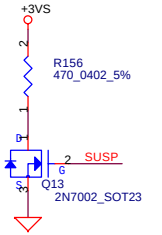


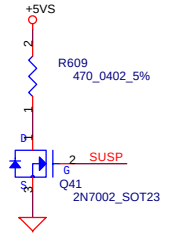
+3VALW TO +3VS

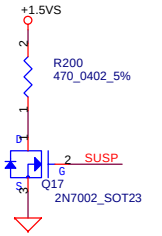


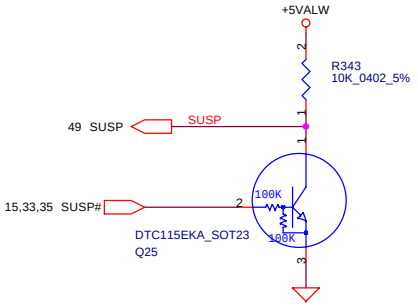
+1.5VALW TO +1.5VS

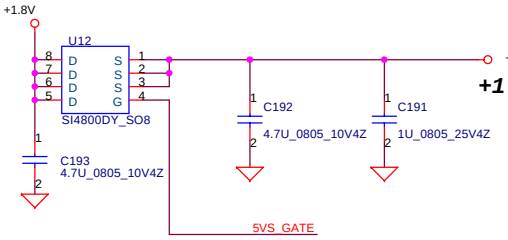




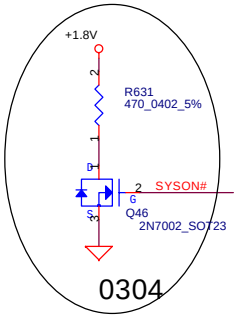


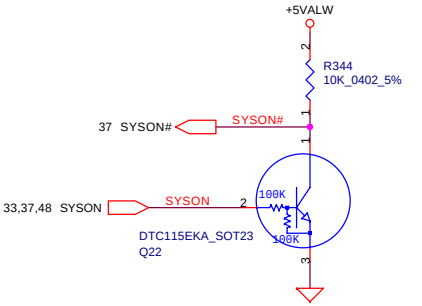






+1.8V TO +1.8VS (DDR2)





Compal Electronics, Inc.

Title: POWER CONTROL CKT

Size: B | Document Number: EFL50 LA-2761 | Rev: 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
EXP_RXN1/SDVO_INT#	PCEI_GTX_C_MRX_N1

DVI CONTROLLER

0307

For EMI

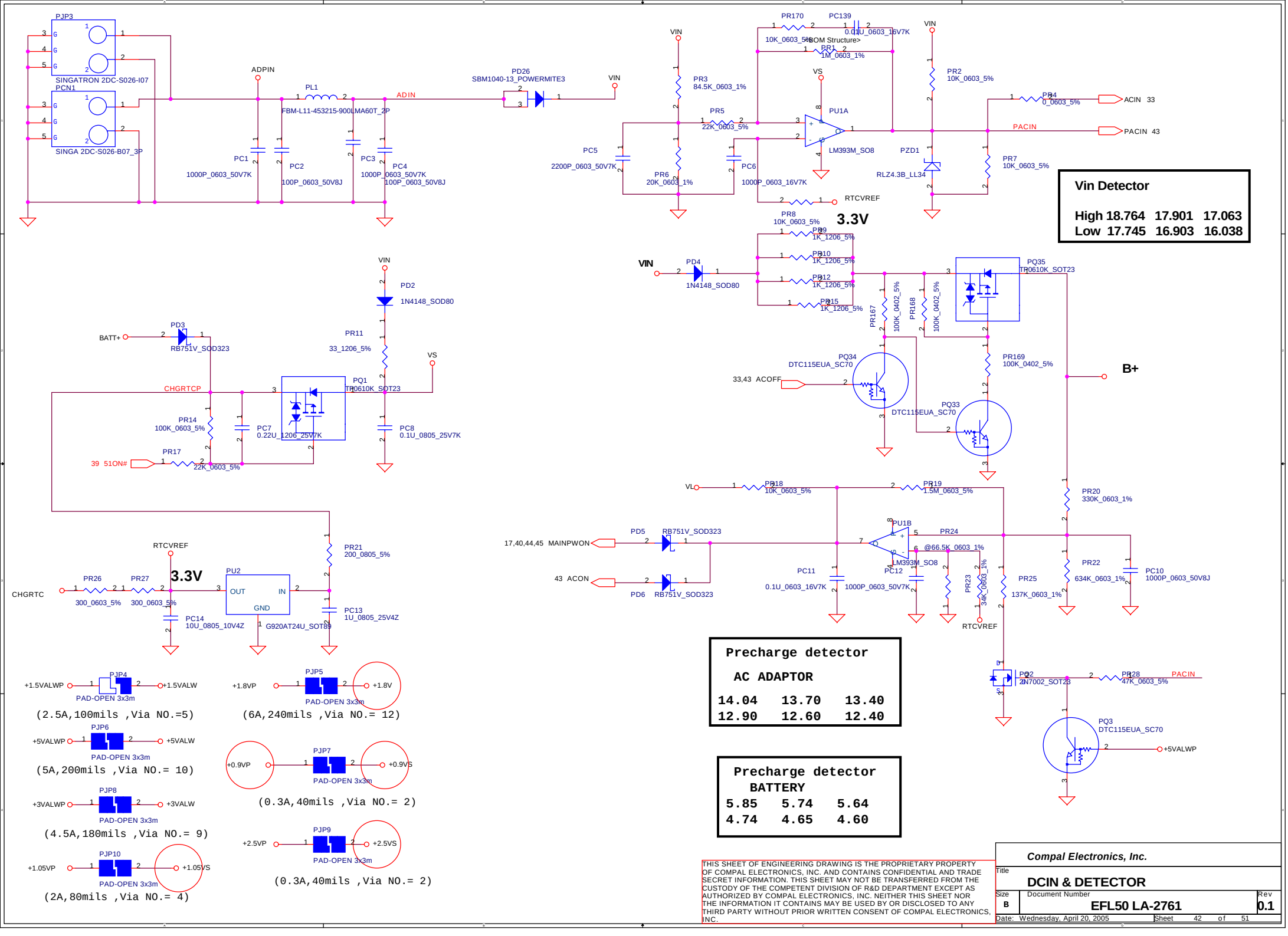
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS 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, Inc.

Title: Screws and CH7307

Size: | Document Number: EFL50 LA-2761 | Rev: 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

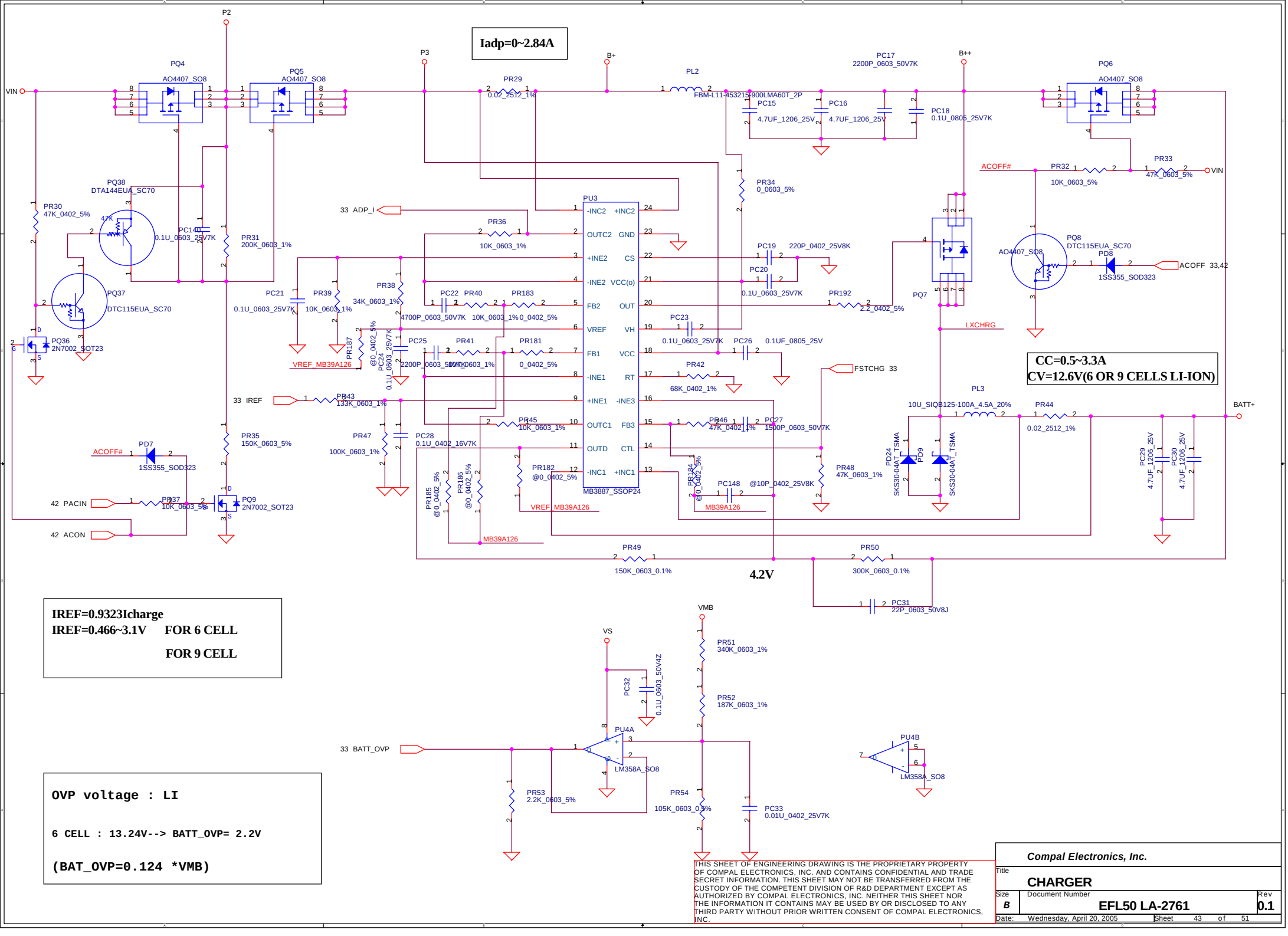
5.85	5.74	5.64
4.74	4.65	4.60

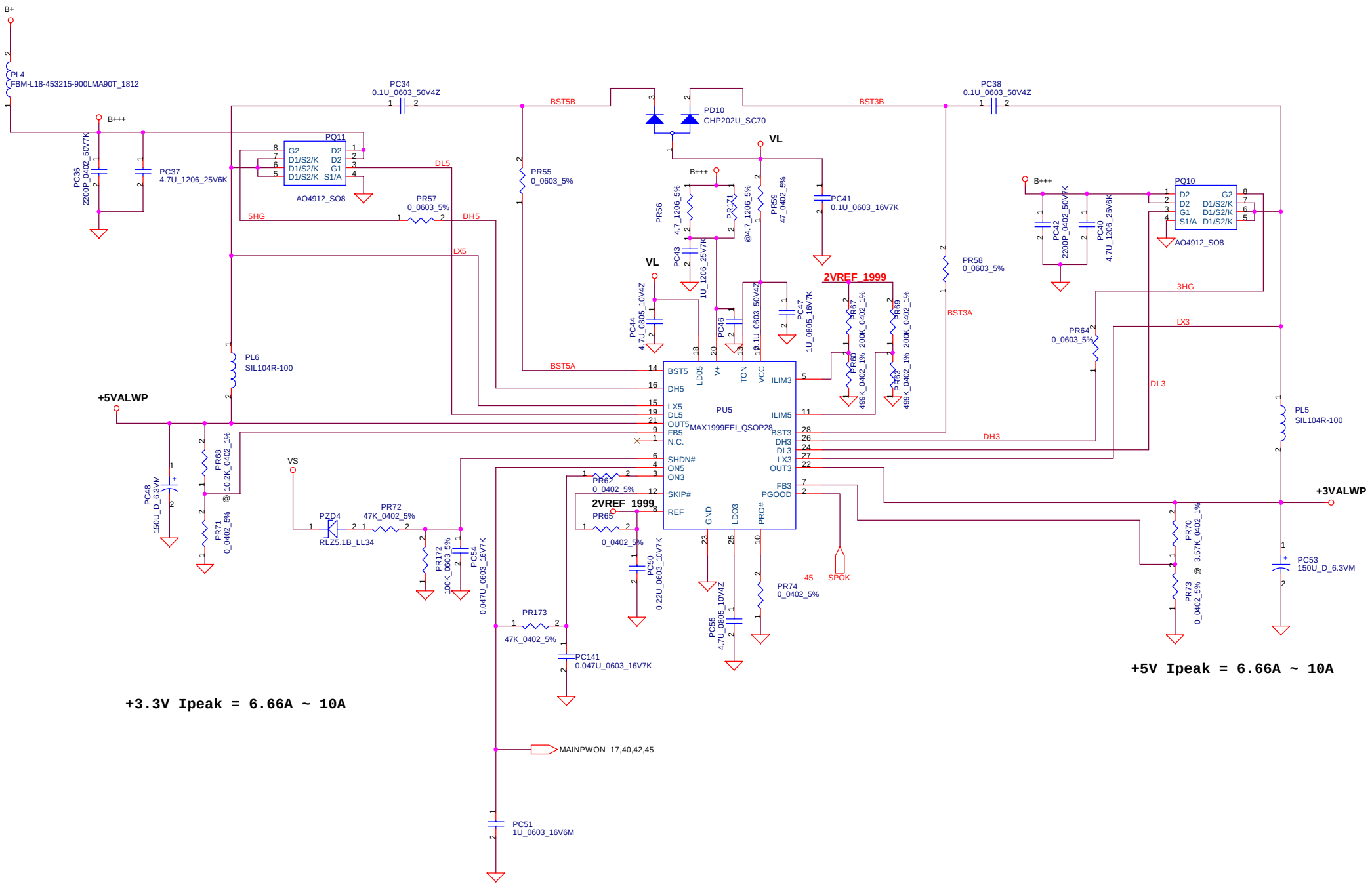
Compal Electronics, Inc.

Title: **DCIN & DETECTOR**

Size	Document Number	Rev
B	EFL50 LA-2761	0.1

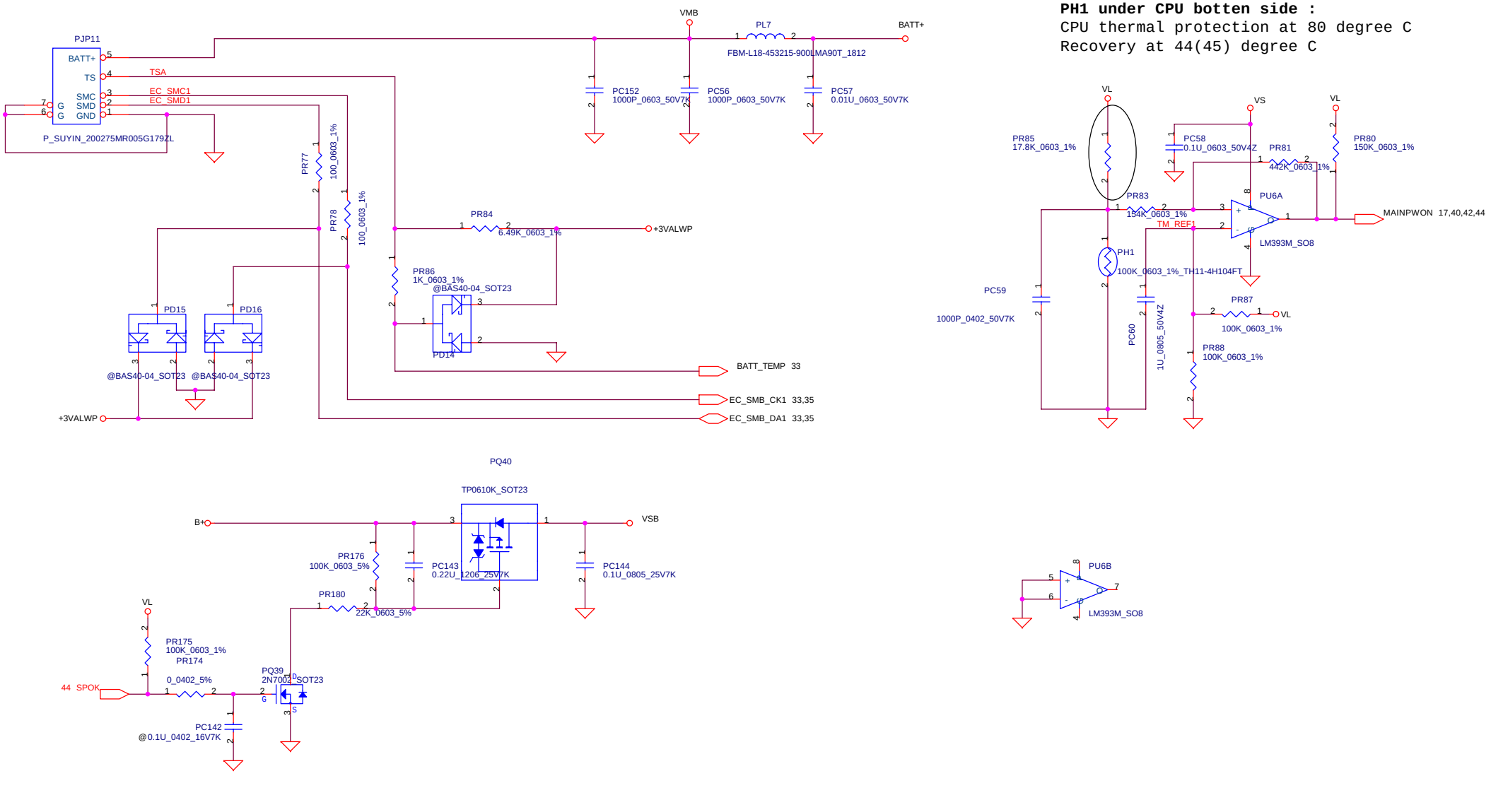
Date: Wednesday, April 20, 2005 Sheet 42 of 51


Iadp=0~2.84A
CC=0.5~3.3A
CV=12.6V(6 OR 9 CELLS LI-ION)
4.2V
IREF=0.9323Icharge
IREF=0.466~3.1V FOR 6 CELL
FOR 9 CELL
OVP voltage : LI
6 CELL : 13.24V--> BATT_OVP= 2.2V
(BAT_OVP=0.124 *VMB)
MB3887_SSOP24
LM358A_SO8
Compal Electronics, Inc.
CHARGER
EFL50 LA-2761
0.1
Wednesday, April 20, 2005
43 of 51



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

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

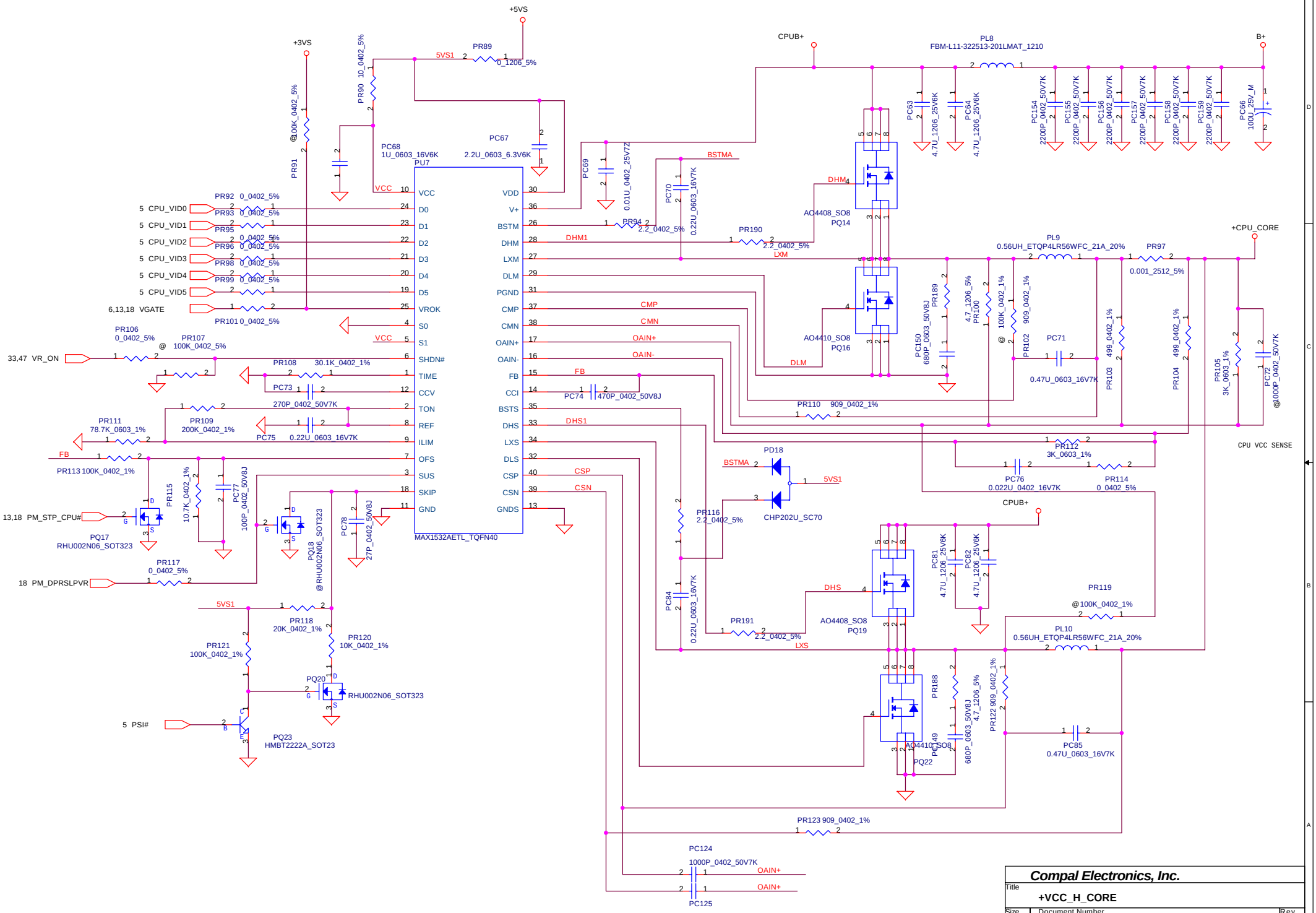


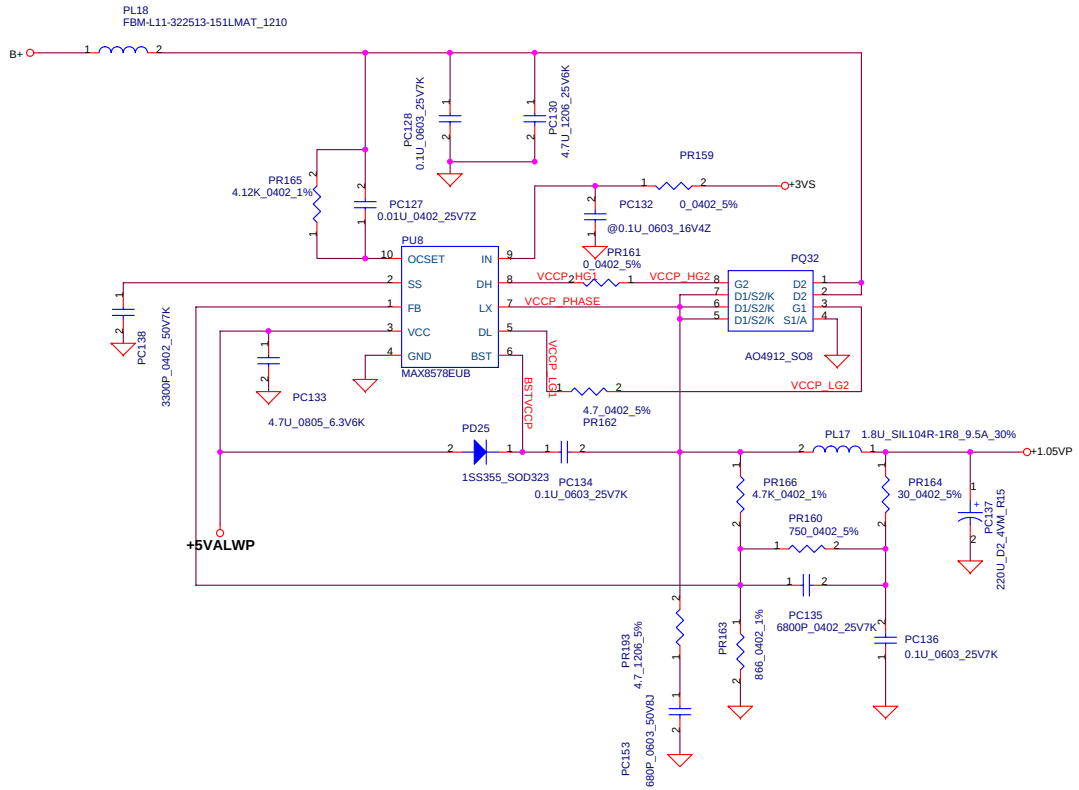
Compal Electronics, Inc.

Title: **BATTERY CONN / OTP/1.2V**

Size: B | Document Number: **EFL50 LA-2761** | Rev: **0.1**

Date: Wednesday, April 20, 2005 | Sheet 45 of 51

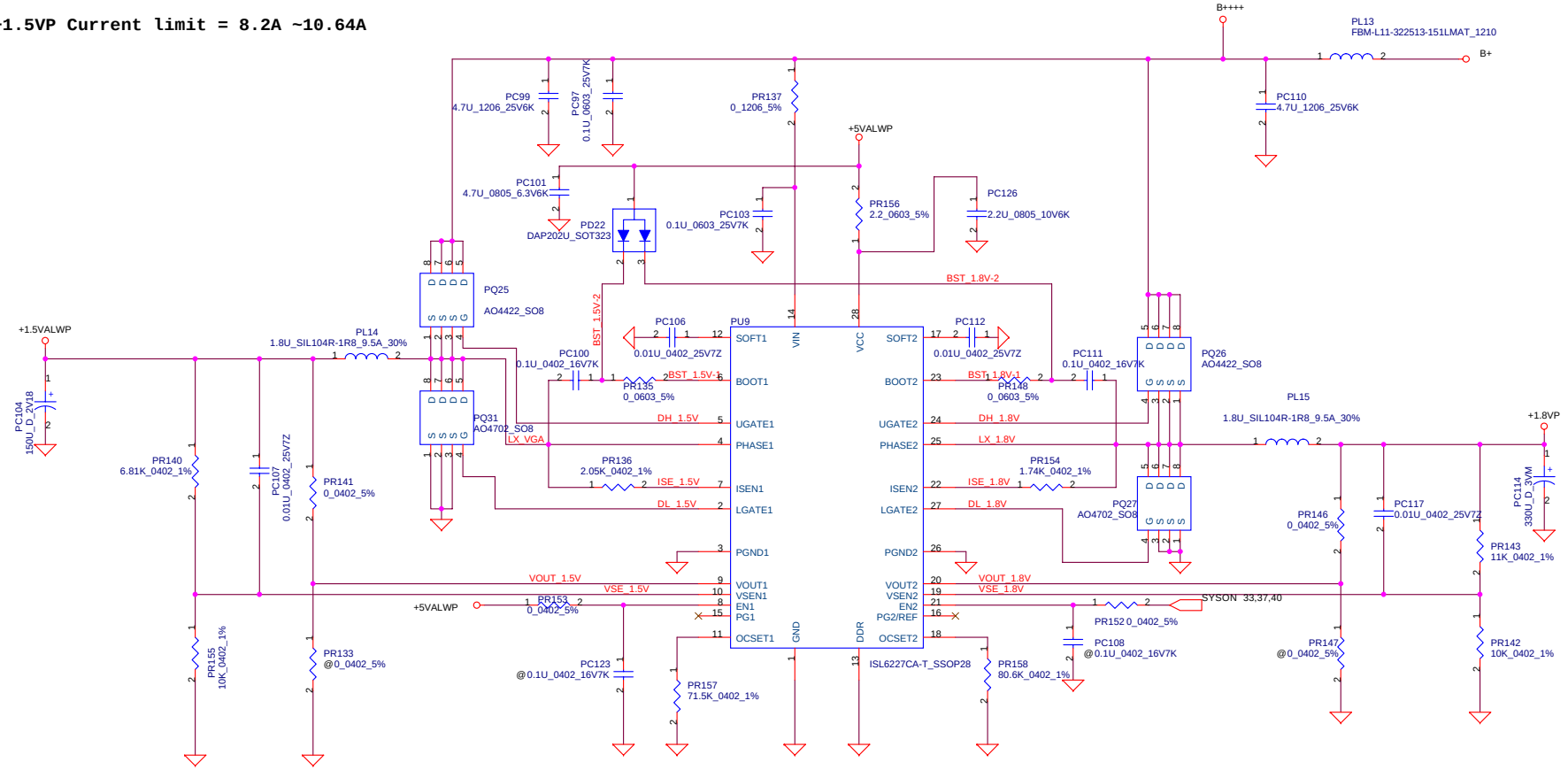

+5VS
+3VS
5VS1
PR89 0_1206_5%
PR90 10_0402_5%
PR91 @100K_0402_5%
PC68 1U_0603_16V6K
PC67 2.2U_0603_6.3V6K
PU7
MAX1532AETL_TQFN40
VCC
VDD
V+
BSTM
DHM
LXM
DLM
PGND
CMP
CMN
OAIN+
OAIN-
FB
CCI
BSTS
DHS
LXS
DLS
CSP
CSN
GNDS
D0
D1
D2
D3
D4
D5
VROK
S0
S1
SHDN#
TIME
CCV
TON
REF
ILIM
OFS
SUS
SKIP
GND
PR92 0_0402_5%
PR93 0_0402_5%
PR95 0_0402_5%
PR96 0_0402_5%
PR98 0_0402_5%
PR99 0_0402_5%
PR101 0_0402_5%
5 CPU_VID0
5 CPU_VID1
5 CPU_VID2
5 CPU_VID3
5 CPU_VID4
5 CPU_VID5
6,13,18 VGATE
PR106 0_0402_5%
PR107 @ 100K_0402_5%
33,47 VR_ON
PR108 30.1K_0402_1%
PC73 270P_0402_50V7K
PR109 200K_0402_1%
PC75 0.22U_0603_16V7K
PR111 78.7K_0603_1%
PR113 100K_0402_1%
PR115 10.7K_0402_1%
PC77 100P_0402_50V8J
PQ17 RHU002N06_SOT323
13,18 PM_STP_CPU#
PR117 0_0402_5%
18 PM_DPRSLPVR
PQ18 @RHU002N06_SOT323
PC78 27P_0402_50V8J
PR118 20K_0402_1%
PR120 10K_0402_1%
PR121 100K_0402_1%
PQ20 RHU002N06_SOT323
5 PSI#
PQ23 HMBT2222A_SOT23
PC69 0.01U_0402_25V7K
PC70 0.22U_0603_16V7K
PR94 2.2_0402_5%
PR190 2.2_0402_5%
PR116 2.2_0402_5%
PR191 2.2_0402_5%
PC84 0.22U_0603_16V7K
PD18 CHP202U_SC70
BSTMA
DHM1
LXM
DHS1
LXS
CPUB+
PL8 FBM-L11-322513-201LMAT_1210
PC63 4.7U_1206_25V6K
PC64 4.7U_1206_25V6K
PC154 220P_0402_50V7K
PC155 220P_0402_50V7K
PC156 220P_0402_50V7K
PC157 220P_0402_50V7K
PC158 220P_0402_50V7K
PC159 220P_0402_50V7K
PC66 100U_25V_M
B+
AO4408_SO8 PQ14
AO4410_SO8 PQ16
AO4408_SO8 PQ19
AO4410_SO8 PQ22
PC150 680P_0603_50V8J
PR189 4.7_1206_5%
PR100 @ 100K_0402_1%
PR102 909_0402_1%
PC71 0.47U_0603_16V7K
PR103 499_0402_1%
PR104 499_0402_1%
PR105 3K_0603_1%
PR97 0.001_2512_5%
PL9 0.56UH_ETQP4LR56WFC_21A_20%
+CPU_CORE
PC72 @100P_0402_50V7K
CPU VCC SENSE
PR110 909_0402_1%
PR112 3K_0603_1%
PC76 0.022U_0402_16V7K
PR114 0_0402_5%
PC81 4.7U_1206_25V6K
PC82 4.7U_1206_25V6K
PR119 @100K_0402_1%
PL10 0.56UH_ETQP4LR56WFC_21A_20%
PR188 4.7_1206_5%
PR122 909_0402_1%
PC85 0.47U_0603_16V7K
PR123 909_0402_1%
PC124 1000P_0402_50V7K
PC125 1000P_0402_50V7K
OAIN+
Compal Electronics, Inc.
Title
+VCC_H_CORE
Size B
Document Number EFL50 LA-2761
Rev 0.1
Date: Wednesday, April 20, 2005
Sheet 46 of 51



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

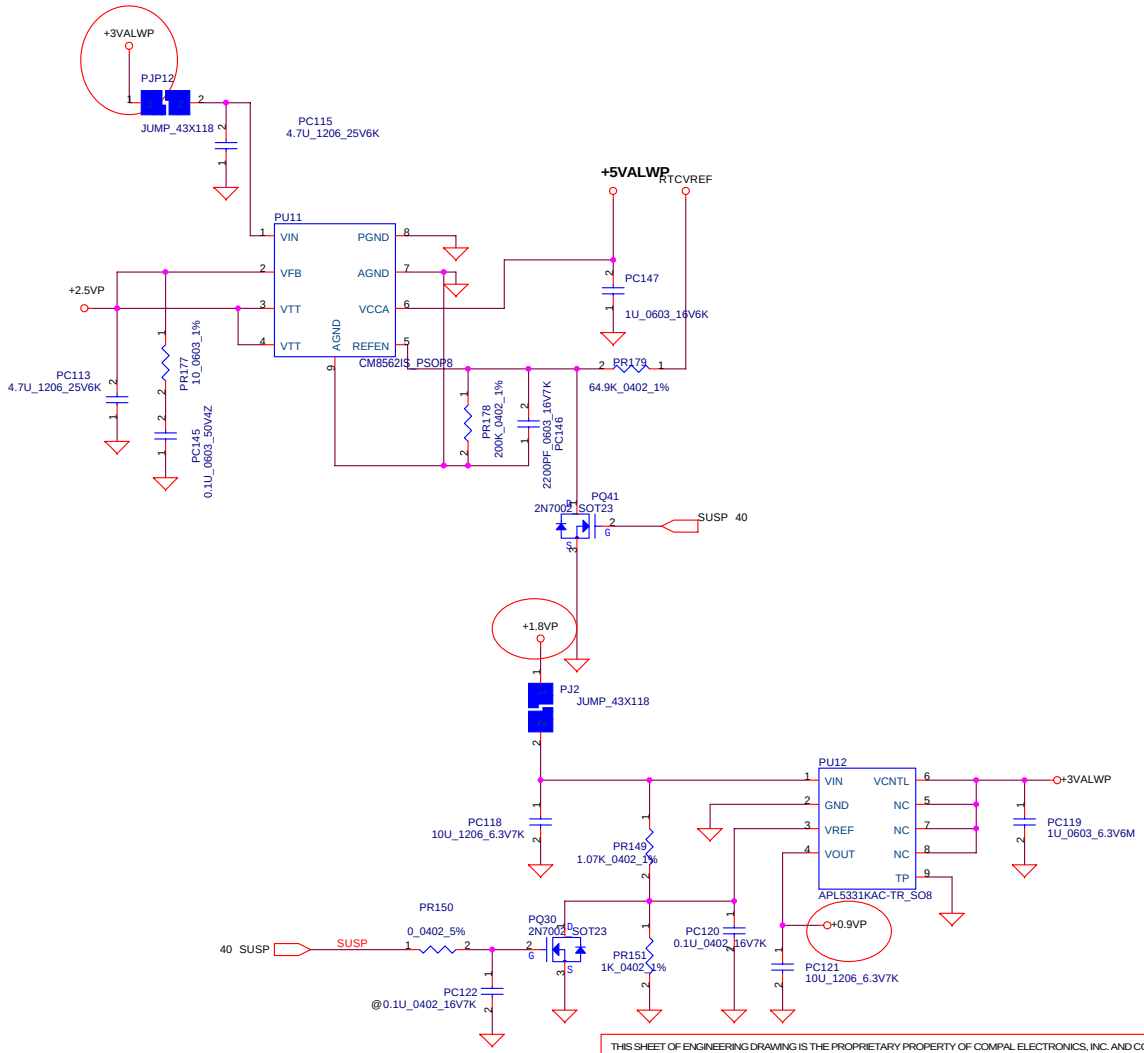
+1.8VP O.C.P. =8.1A ~ 10.36A

+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**

Compal Electronics, Inc.		
Title: **1.5VP**		
Size: **B**	Document Number: **EFL50 LA-2761**	Rev: 0.1



Compal Electronics, Inc.		
Title: 1.8VP/0.9VP/2.5VP		
Size: B	Document Number: EFL50 LA-2761	Rev: 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							

Title	PIR (HW)	
Size: Custom	Document Number: EFL50 LA-2761	Rev: 0.2
Date: Wednesday, April 20, 2005	Sheet 50 of 51	

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

for PWR

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 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							

Compal Electronics, Inc.		
Title	**PIR (PWR)**	
Size	Document Number **LA-2511**	Rev 0.1
Date: Wednesday, April 20, 2005	Sheet 51 of 51	