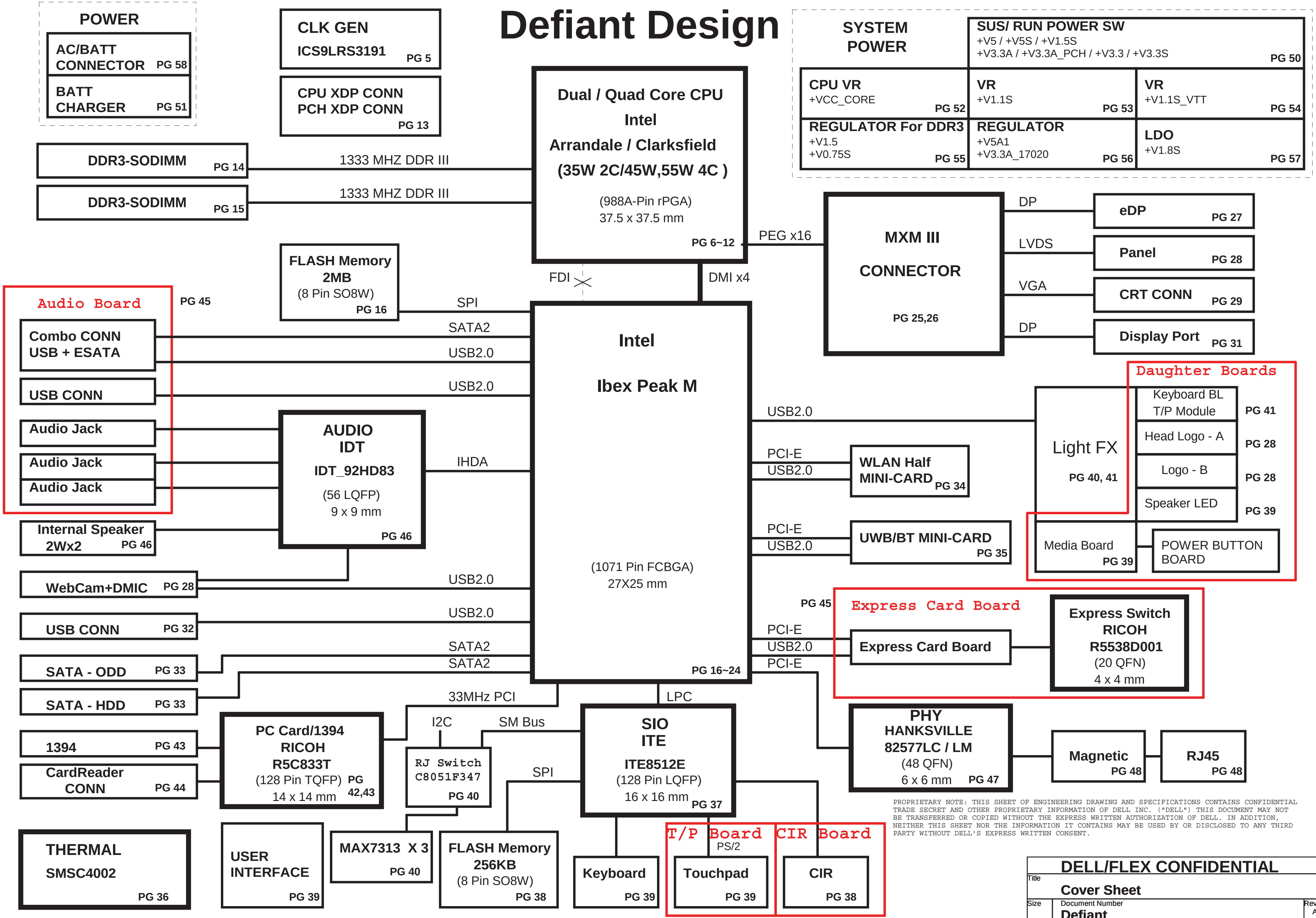
Defiant Design



POWER
AC/BATT CONNECTOR PG 58
BATT CHARGER PG 51
CLK GEN ICS9LRS3191 PG 5
CPU XDP CONN PCH XDP CONN PG 13
SYSTEM POWER
SUS/ RUN POWER SW
+V5 / +V5S / +V1.5S
+V3.3A / +V3.3A_PCH / +V3.3 / +V3.3S
PG 50
CPU VR +VCC_CORE PG 52
VR +V1.1S PG 53
VR +V1.1S_VTT PG 54
REGULATOR For DDR3 +V1.5 +V0.75S PG 55
REGULATOR +V5A1 +V3.3A_17020 PG 56
LDO +V1.8S PG 57
DDR3-SODIMM PG 14
DDR3-SODIMM PG 15
1333 MHZ DDR III
1333 MHZ DDR III
Dual / Quad Core CPU
Intel
Arrandale / Clarksfield
(35W 2C/45W,55W 4C)
(988A-Pin rPGA)
37.5 x 37.5 mm
PG 6~12
PEG x16
MXM III CONNECTOR PG 25,26
DP
LVDS
VGA
DP
eDP PG 27
Panel PG 28
CRT CONN PG 29
Display Port PG 31
FDI
DMI x4
FLASH Memory 2MB (8 Pin SO8W) PG 16
SPI
Audio Board
PG 45
Combo CONN USB + ESATA
SATA2
USB2.0
USB CONN
USB2.0
Audio Jack
Audio Jack
Audio Jack
AUDIO IDT
IDT_92HD83
(56 LQFP)
9 x 9 mm
PG 46
IHDA
Internal Speaker 2Wx2 PG 46
Intel
Ibex Peak M
(1071 Pin FCBGA)
27X25 mm
PG 16~24
USB2.0
Light FX PG 40, 41
Daughter Boards
Keyboard BL T/P Module PG 41
Head Logo - A PG 28
Logo - B PG 28
Speaker LED PG 39
Media Board PG 39
POWER BUTTON BOARD
PCI-E
USB2.0
WLAN Half MINI-CARD PG 34
PCI-E
USB2.0
UWB/BT MINI-CARD PG 35
WebCam+DMIC PG 28
USB2.0
USB CONN PG 32
USB2.0
SATA2
SATA2
SATA - ODD PG 33
SATA - HDD PG 33
PG 45
Express Card Board
PCI-E
USB2.0
PCI-E
Express Card Board
Express Switch RICOH R5538D001 (20 QFN) 4 x 4 mm
33MHz PCI
LPC
I2C
SM Bus
1394 PG 43
CardReader CONN PG 44
PC Card/1394 RICOH R5C833T (128 Pin TQFP) 14 x 14 mm PG 42,43
RJ Switch C8051F347 PG 40
SPI
SIO ITE ITE8512E (128 Pin LQFP) 16 x 16 mm PG 37
PHY HANKSVILLE 82577LC / LM (48 QFN) 6 x 6 mm PG 47
Magnetic PG 48
RJ45 PG 48
THERMAL SMSC4002 PG 36
USER INTERFACE PG 39
MAX7313 X 3 PG 40
FLASH Memory 256KB (8 Pin SO8W) PG 38
Keyboard PG 39
T/P Board
PS/2
Touchpad PG 39
CIR Board
CIR PG 38

DELL/FLEX CONFIDENTIAL

Title	Cover Sheet
Size	Document Number: Defiant — Rev A00
Date:	Wednesday, August 12, 2009 — Sheet 1 of 66

INDEX

Page#	Description
1	Schematic Block Diagram
2	Front Page
3	CLOCK MAP
4	POWER SEQUENCING
5	CLOCK GEN (SLG8SP585)
6-12	CPU (Arrandale / Clarksfield)
13	XDP
14,15	DDRIII SO-DIMM(204P)
16-24	PCH
25,26	MXM CONN
27	eDP CONN
28	LCD Conn
29	CRT Conn
30	MXM& PCH DDC/ AUX MUX
31	DP CONN
32	USB
33	HDD & CD ROM/ G-Sensor
34	MINI-CARD (WLAN)
35	MINI-CARD (WPAN)
36	FAN & THERMAL EMC4002
37	SIO (ITE8512)
38	FLASH/ CIR
39	Keyboard, Daughtor Board conn & User Interface
40,41	LED Light FX

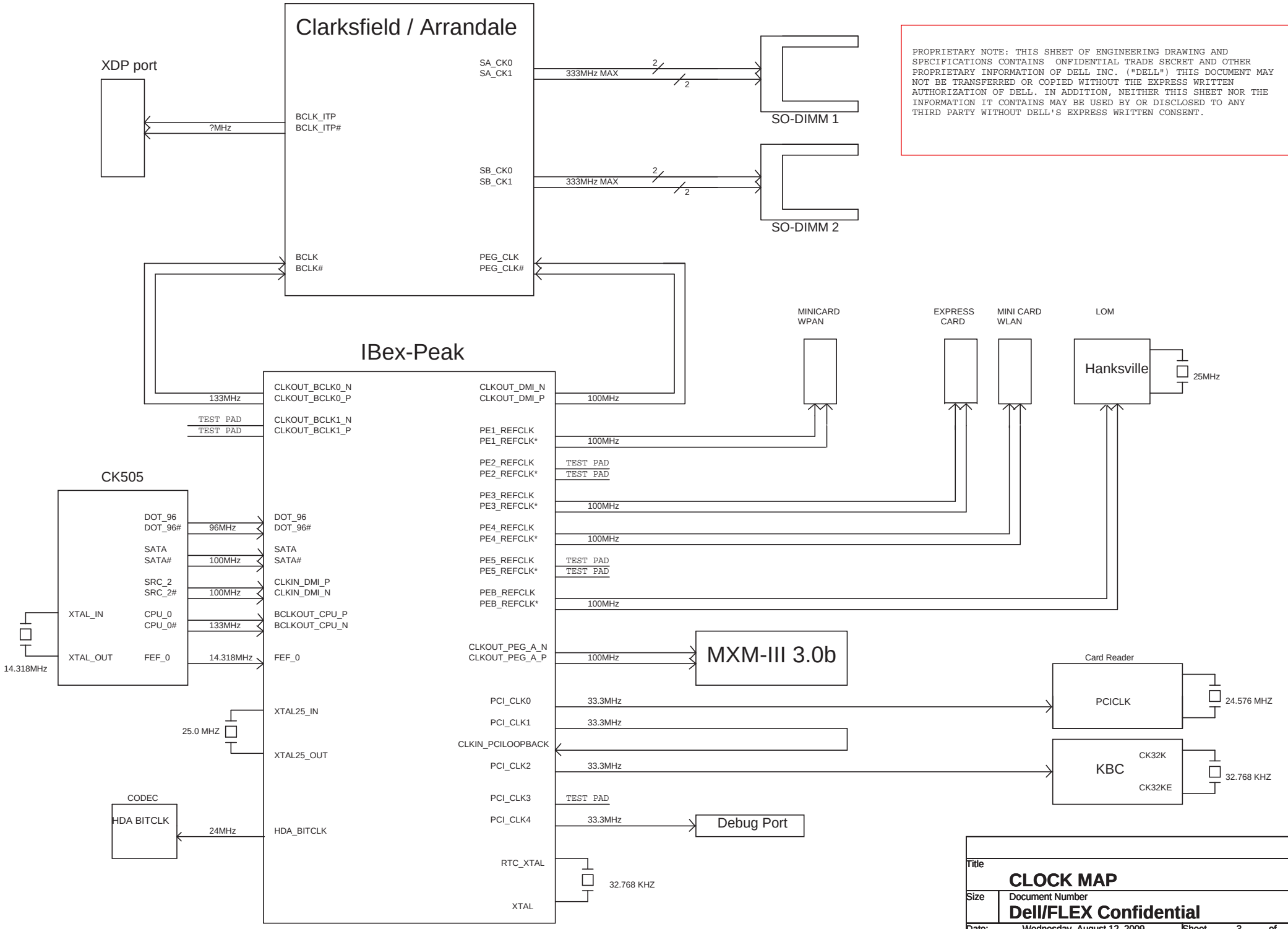
INDEX

Page#	Description
42,43	PCCARD/Conn & 1394
44	CardReader CONN
45	Audio Board and Exp Board CONN
46	Audio_(92HD83)/CON
47,48	PHY(HANKSVILLE),RJ45&Transform
49	System Reset Circuit
50	SUS/RUN POWER SW
51	CHARGER (MAX8731)
52	CPU Core (MAX8786)
53	+V1.1S (MAX8792)
54	+V1.1S_VTT (MAX8792)
55	DDR3 1.5V/0.75V (MAX8632)
56	SYS 5V/3V(MAX17020)
57	+V1.8S (RT9025-25PSP)
58	DCIN,Batt
59	PAD/ SCREW/ Moat Cap
60	Power Block Diagram
61	Reset Map
62	LED BOARD
63	KBC Power Up Sequence
64	SMBus Map_PCH
65	SMBus Map_ITE8512E
66-67	HISTORY

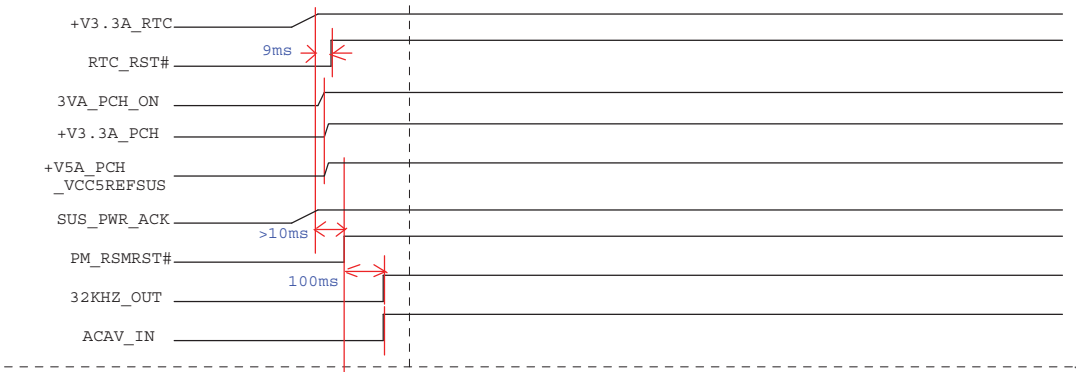
Power States

Power Rail	Control Signal	S0	S3	S4	S5	G3	S4/ M-off	S5/ M-off
+PWR_SRC	N/A	V	V	V	V			
+V0.75S	RUN_ON	V						
+V1.1S_VTT	+V1.1S_VTT_MXM1 _PWRON	V						
+V1.1S	RUN_ON	V						
+V1.5S	RUN_ON	V						
+V1.5	SUS_ON	V	V					
+V1.8S	RUN_ON	V						
+V3.3A	3V_ALW_ON	V	V	V	V			
+V3.3M_LAN	PM_SLP_LAN#	V	define WOL	define WOL	define WOL			
+V3.3S	RUN_ON	V						
+V3.3	SUS_ON	V	V					
+V5A1	+5V_EN2	V	V	V	V			
+V5A2	+PWR_SRC	V	V	V	V			
+V5	SUS_ON	V	V					
+5V_HDD	N/A	V						
+5V_MOD	N/A	V						
+V5S	RUN_ON	V						
+GFX_PWR_SRC	RUN_ON	V						
+LCDVCC	ENVDD	V						
+V3.3A_RTC	RTC	V	V	V	V	V		
+VCC_CORE	IMVP_VR_ON	V						
+USB_RIGHT_PWR	USB_SIDE_EN#	V	define	define				
+USB_LEFT_PWR	*USB_BACK_EN#*	V	define					
+V15_A	N/A	V	V	V	V			
+V3.3A_17020	+3.3V_EN2	V	V	V	V			
+V1.0M_LAN	PM_SLP_LAN#	V	define WOL	define WOL	define WOL			

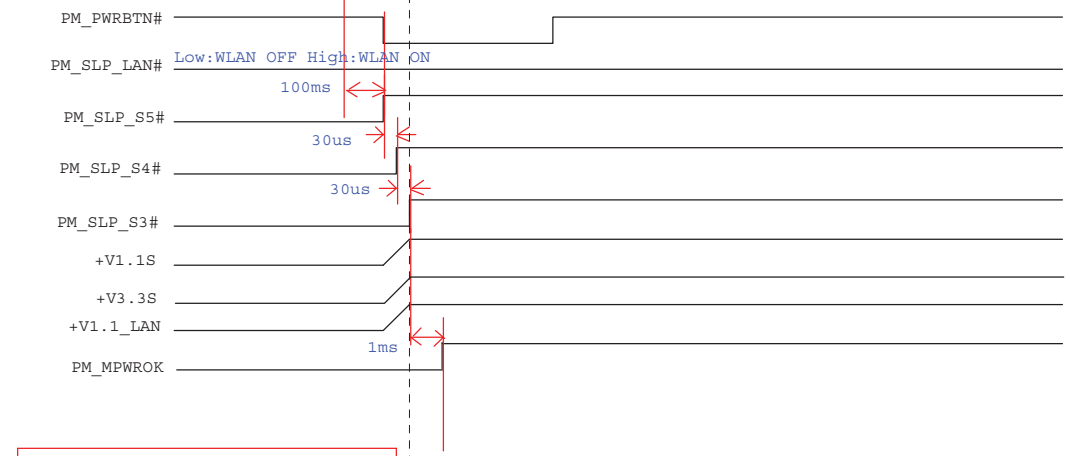
By Albert

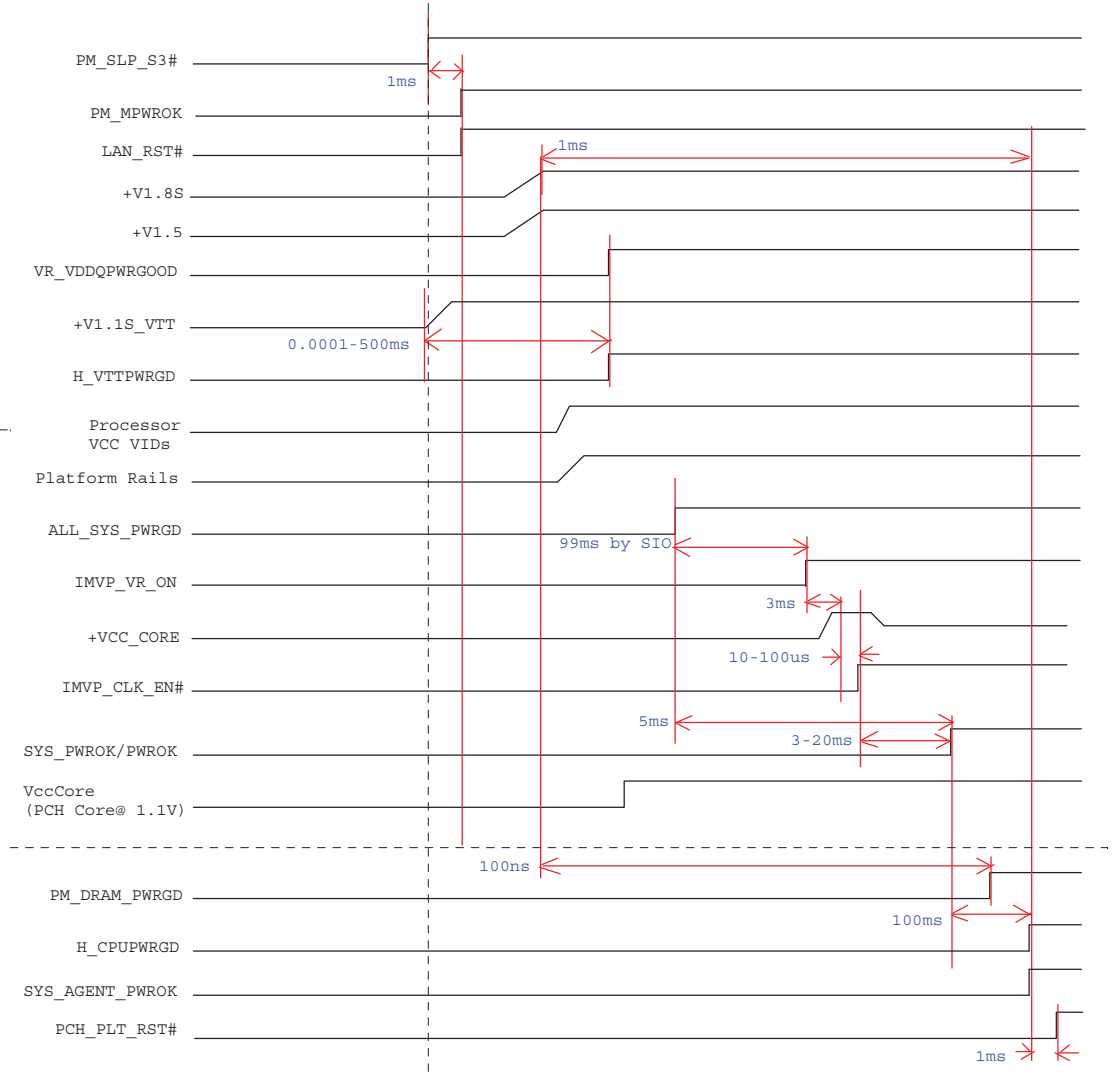

Clarksfield / Arrandale
XDP port
?MHz
BCLK_ITP
BCLK_ITP#
SA_CK0
SA_CK1
333MHz MAX
SO-DIMM 1
SB_CK0
SB_CK1
333MHz MAX
SO-DIMM 2
BCLK
BCLK#
PEG_CLK
PEG_CLK#
PROPRIETARY NOTE: THIS SHEET OF ENGINEERING DRAWING AND SPECIFICATIONS CONTAINS ONFIDENTIAL TRADE SECRET AND OTHER PROPRIETARY INFORMATION OF DELL INC. ("DELL") THIS DOCUMENT MAY NOT BE TRANSFERRED OR COPIED WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF DELL. IN ADDITION, NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT DELL'S EXPRESS WRITTEN CONSENT.
IBex-Peak
MINICARD WPAN
EXPRESS CARD
MINI CARD WLAN
LOM
Hanksville
25MHz
CLKOUT_BCLK0_N
CLKOUT_BCLK0_P
133MHz
CLKOUT_DMI_N
CLKOUT_DMI_P
100MHz
TEST PAD
TEST PAD
CLKOUT_BCLK1_N
CLKOUT_BCLK1_P
PE1_REFCLK
PE1_REFCLK*
100MHz
CK505
PE2_REFCLK
PE2_REFCLK*
TEST PAD
TEST PAD
PE3_REFCLK
PE3_REFCLK*
100MHz
DOT_96
DOT_96#
96MHz
PE4_REFCLK
PE4_REFCLK*
100MHz
SATA
SATA#
100MHz
PE5_REFCLK
PE5_REFCLK*
TEST PAD
TEST PAD
SRC_2
SRC_2#
100MHz
PEB_REFCLK
PEB_REFCLK*
100MHz
XTAL_IN
CPU_0
CPU_0#
133MHz
XTAL_OUT
FEF_0
14.318MHz
14.318MHz
CLKOUT_PEG_A_N
CLKOUT_PEG_A_P
100MHz
MXM-III 3.0b
Card Reader
PCICLK
24.576 MHZ
XTAL25_IN
25.0 MHZ
XTAL25_OUT
PCI_CLK0
33.3MHz
PCI_CLK1
33.3MHz
CLKIN_PCILOOPBACK
PCI_CLK2
33.3MHz
KBC
CK32K
CK32KE
32.768 KHZ
CODEC
HDA BITCLK
24MHz
HDA_BITCLK
PCI_CLK3
TEST PAD
PCI_CLK4
33.3MHz
Debug Port
RTC_XTAL
32.768 KHZ
XTAL
Title
CLOCK MAP
Size
Document Number
Dell/FLEX Confidential
Rev
A00
Date:
Wednesday, August 12, 2009
Sheet
3
of
66

G3 to Sx



Sx to S0





Title: **POWER SEQUENCING**

Size | Document Number: **Dell/FLEX Confidential** | Rev: A00

Date: Wednesday, August 12, 2009 | Sheet 4 of 66

	Vender	Vender P/N	FLEX P/N
MAIN	IDT	ICS9LRS3191AKLFT	DELH-12D00J0000005G
2ND	SILEGO	SLG8SP585VTR	DELH-12D00J0000004G

+V3.3S

L35
BLM18PG181SN1D
L0603
MAX 1.5A

CLK_VCC: 40mil width
0.1uF near the every power pin.

IDD MAX 250mA

CLK_VCC

C407 10U/10V_0805 CAP0805
C446 0.1U/10V
C422 0.1U/10V
C460 0.1U/10V
C419 0.1U/10V
C461 0.1U/10V

10%

C444
33P/50V
Y5
14.318MHz
20pF_+-30ppm
C428
33P/50V

U13

1	VDD_DOT	VDD_SRC_IO	15
5	VDD_27	VDD_CPU_IO	18
17	VDD_SRC		
24	VDD_CPU	DOT_96	3
29	VDD_REF	DOT_96#	4
28	CK505_XTAL_IN / XTAL_IN	27MHz	6
27	CK505_XTAL_OUT / XTAL_OUT	27MHz_SS	7
30	REF_0/CPU_SEL	SRC_1/SATA	10
31	SDA	SRC_1/SATA#	11
32	SCL	SRC_2	13
2	VSS_DOT	SRC_2#	14
8	VSS_27	CPU_STOP#	16
9	VSS_SATA	CPU_1	20
12	VSS_SRC	CPU_1#	19
21	VSS_CPU	CPU_0	23
26	VSS_REF	CPU_0#	22
M1	M1	CKPWRGD/PD#	25

IDT_ICS9LRS3191AKLFT

(17) CLK_BUF_REF14 — R348 33 — REF_0/CPU_SEL

(14,15,17) SMB_DATA_S2
(14,15,17) SMB_CLK_S2

VDD_I/O can be ranging from 1.05V to 3.3V.

+V1.1S
L37
BLM18AG121SN1D
L0603

+V3.3S
L36
*BLM18AG121SN1D_NC
L0603

CLK_VCC_IO: 40mil width
0.1uF near the every power pin.

CLK_VCC_IO
C421 0.1U/10V
C420 0.1U/10V
C426 10U/10V_0805 CAP0805

CLK_DOT96_P_R — R342 — CLK_BUF_DOT96_P (17)
CLK_DOT96_N_R — R343 — CLK_BUF_DOT96_N (17)

PAD T133
PAD T132

CKSSCD is now being Routed to SATA

CLK_SRC1_P_R — R322 — CLK_BUF_CKSSCD_P (17)
CLK_SRC1_N_R — R318 — CLK_BUF_CKSSCD_N (17)
CLK_BUF_EXP_P_R — R310 — CLK_BUF_EXP_P (17)
CLK_BUF_EXP_N_R — R300 — CLK_BUF_EXP_N (17)

CPU_STOP# — SLG8SP585V Internal PU

PAD T128
PAD T129

CLK_BUF_BCLK_P_R — R279 — CLK_BUF_BCLK_P (17)
CLK_BUF_BCLK_N_R — R280 — CLK_BUF_BCLK_N (17)

CK_PWRGD_R

Place all these 0 ohm resistors close to the CLK GEN

Mount for ICS9LRS3191AKLFT

+V3.3S
R262 10K
CPU_STOP#

Number of Clock Outputs

Output	Number Output
133MHz	2
SRC(100MHz_SS)	1
SRC/SATA (100MHz)	1
USB (48MHz)	1
REF (14.3181MHz)	1
DOT_CLK (96MHz)	1
27MHz	1
27MHz SS	1

CLK_BUF_DOT96_P C467 *10p/50V_NC
CLK_BUF_DOT96_N C468 *10p/50V_NC
CLK_BUF_CKSSCD_P C458 *10p/50V_NC
CLK_BUF_CKSSCD_N C448 *10p/50V_NC
CLK_BUF_EXP_P C445 *10p/50V_NC
CLK_BUF_EXP_N C431 *10p/50V_NC
CLK_BUF_BCLK_P C411 *10p/50V_NC
CLK_BUF_BCLK_N C412 *10p/50V_NC
CLK_BUF_REF14 C466 *10p/50V_NC

EMI

CPU_SEL During CK_PWRGD Latch Pin 30

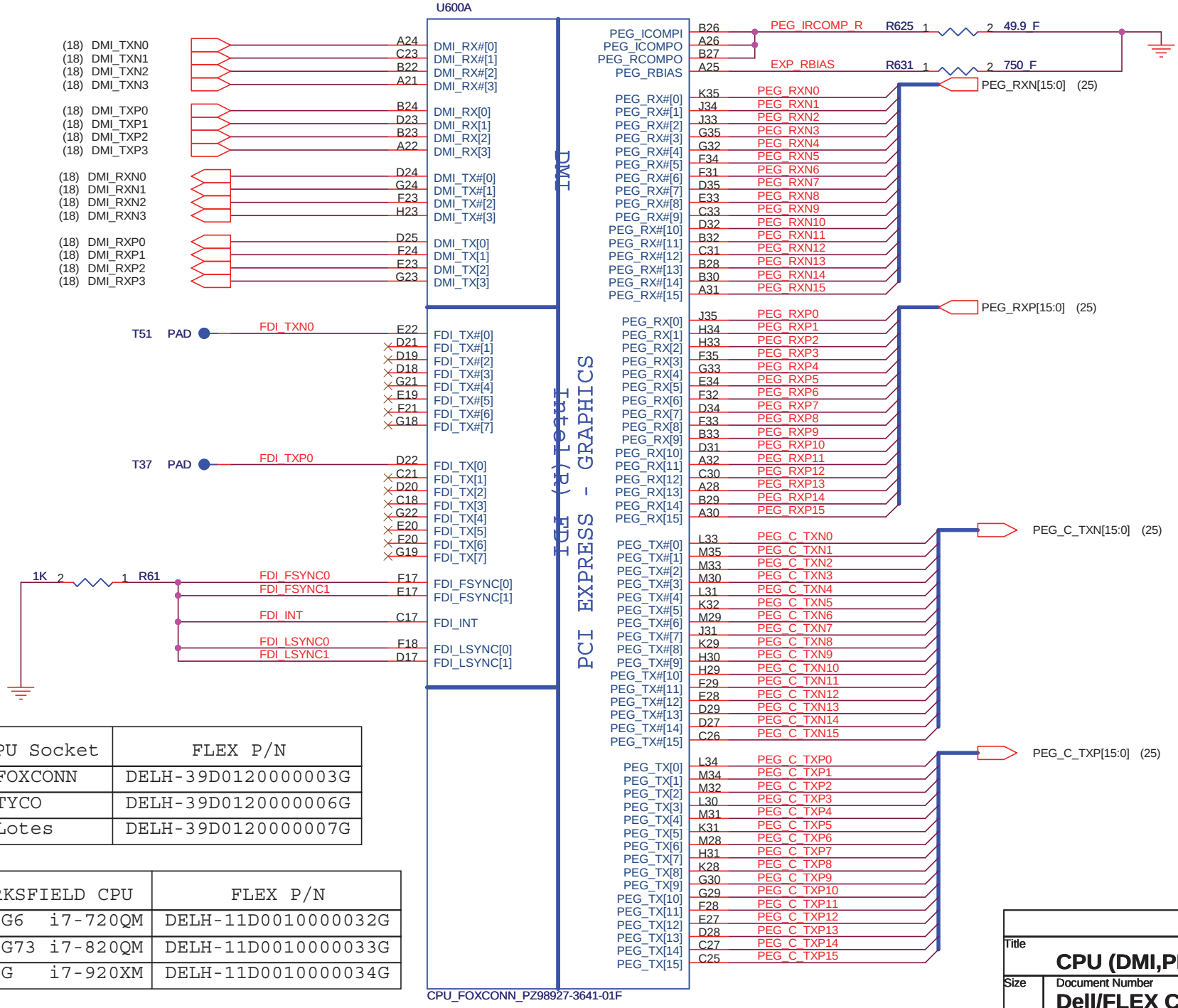
Input (pin 30)	CPU_0/_1	SRC
0 -> NOW	133MHz	100MHz
1	100MHz	100MHz

R349 10K REF_0/CPU_SEL

+V3.3S
R837 10K
VR_PWRGD_CLKEN — R836 — CK_PWRGD_R
(52) VR_PWRGD_CLKEN#
Q648 2N7002W-7-F
FROM VCORE PWM

Title: CLOCK GEN (ICS9LRS3191)
Size:
Document Number: Dell/FLEX Confidential
Rev: A00
Date: Wednesday, August 12, 2009
Sheet 5 of 66

ARRANDALE/CLARKSFIELD PROCESSOR (DMI,PEG,FDI)



CPU Socket	FLEX P/N
FOXCONN	DELH-39D0120000003G
TYCO	DELH-39D0120000006G
Lotes	DELH-39D0120000007G

CLARKSFIELD CPU	FLEX P/N
45W 1G6 i7-720QM	DELH-11D0010000032G
45W 1G73 i7-820QM	DELH-11D0010000033G
55W 2G i7-920XM	DELH-11D0010000034G

Title: **CPU (DMI,PEG,FDI) 1/7**

Size | Document Number: **Dell/FLEX Confidential** | Rev: A00

Date: Wednesday, August 12, 2009 | Sheet 6 of 66

ARRANDALE/CLARKSFIELD PROCESSOR (CLK,MISC,JTAG)

U600B

CPU_FOXCONN_PZ98927-3641-01F

JTAG MAPPING

Scan Chain (Default)	
CPU Only	
GMCH Only	

CAD Note:
TCLK: Provide a scope test point at the Processor socket breakout via to verify signal integrity of the first platforms.

Layout Note:
Place these resistors near Processor

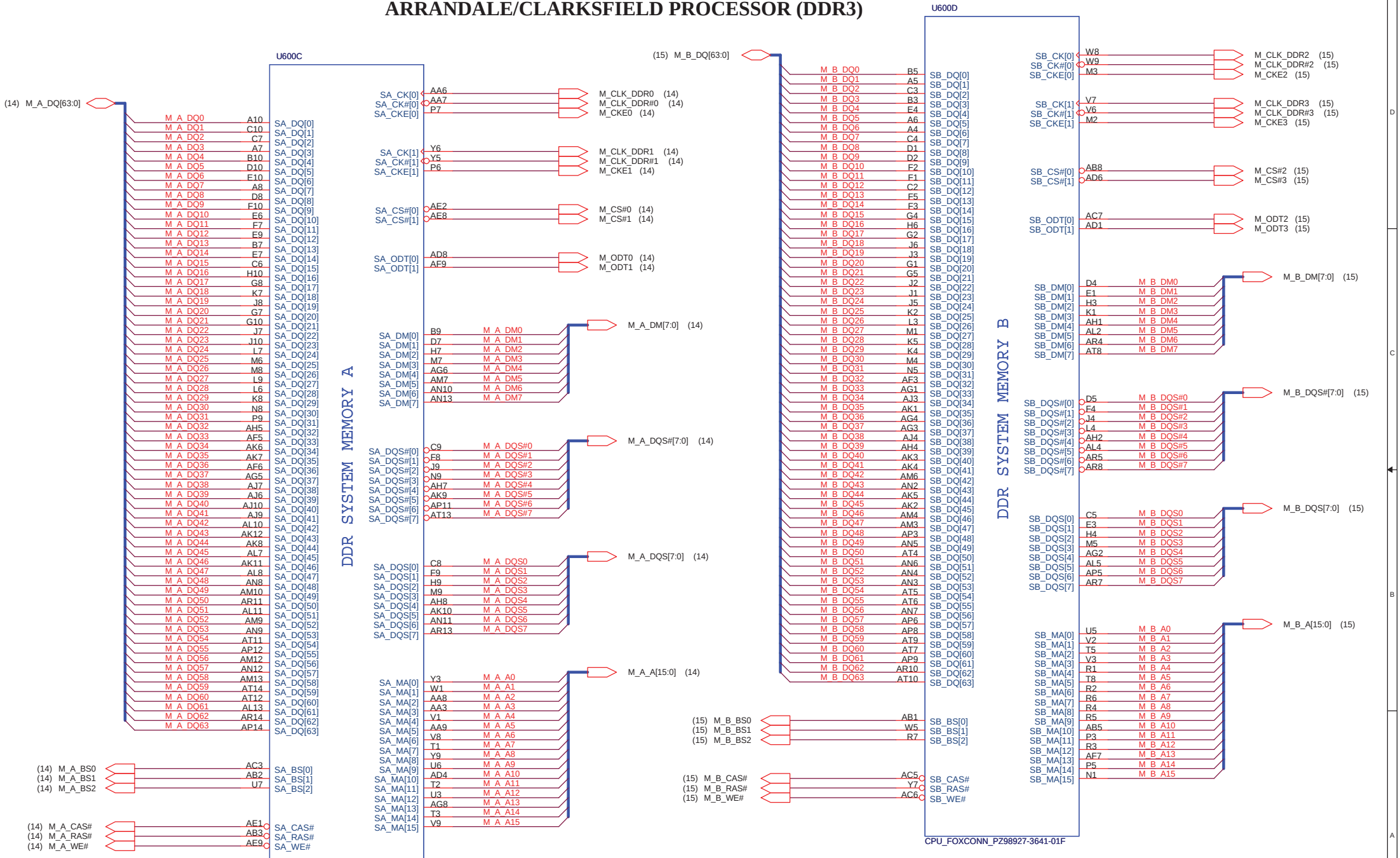
Processor Pullups

Processor Compensation Signals

DDR3 Compensation Signals

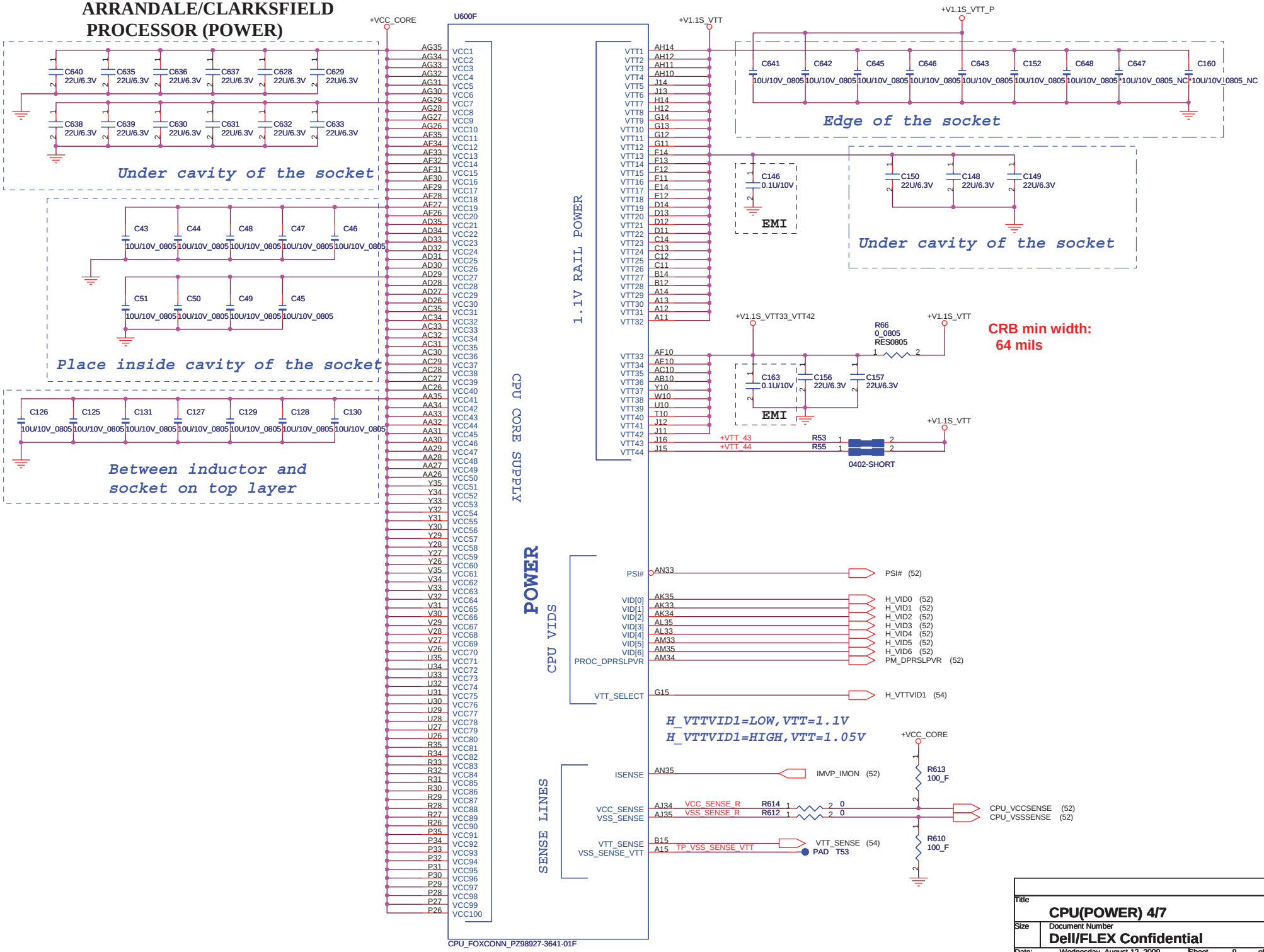
Title	CPU(CLK,MISC) 2/7
Size	Document Number: Dell/FLEX Confidential
Rev	A00
Date:	Wednesday, August 12, 2009
Sheet	7 of 66

ARRANDALE/CLARKSFIELD PROCESSOR (DDR3)



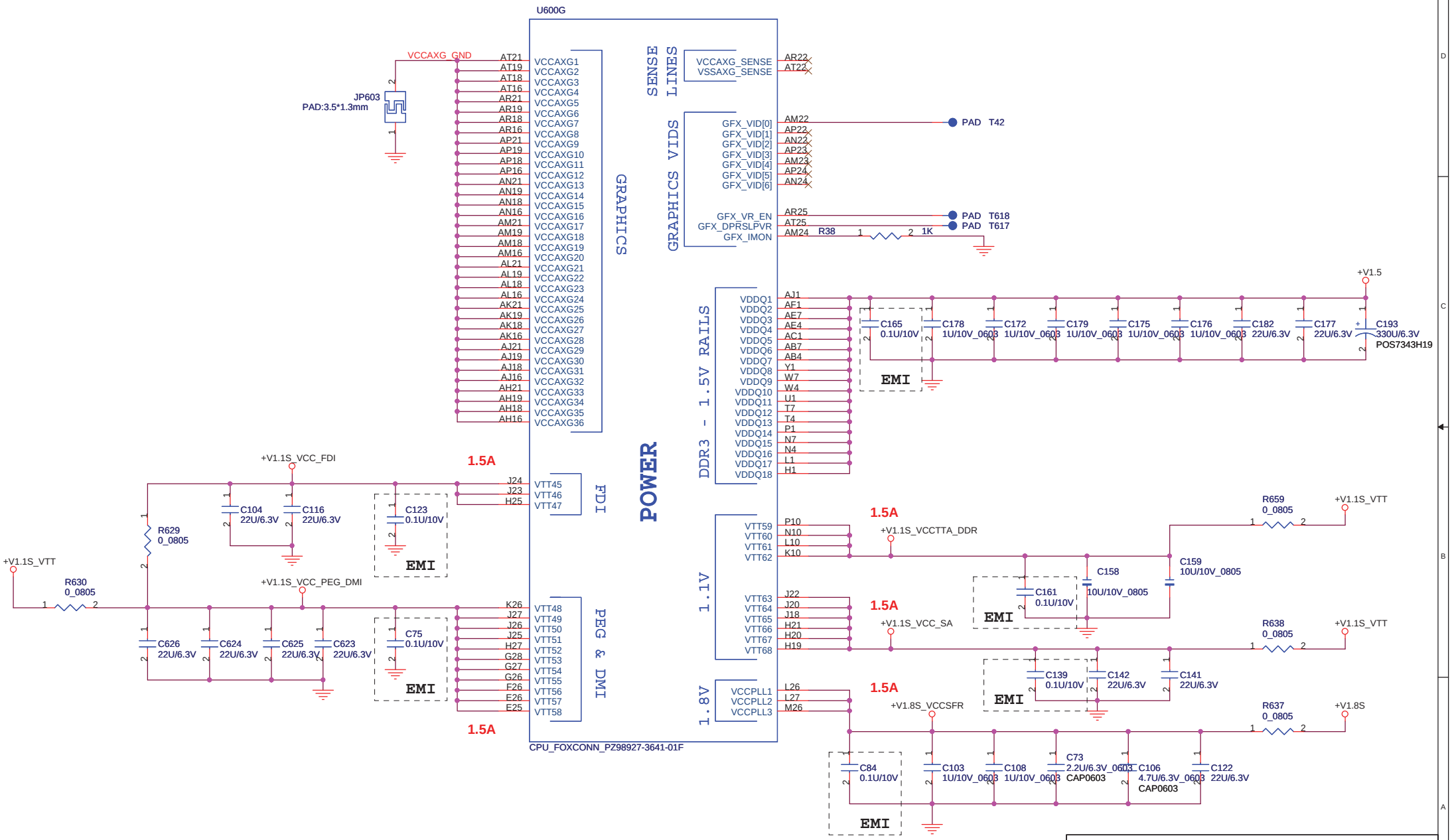
Title	CPU(DDR3) 3/7	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 8 of 66	

ARRANDALE/CLARKSFIELD PROCESSOR (POWER)



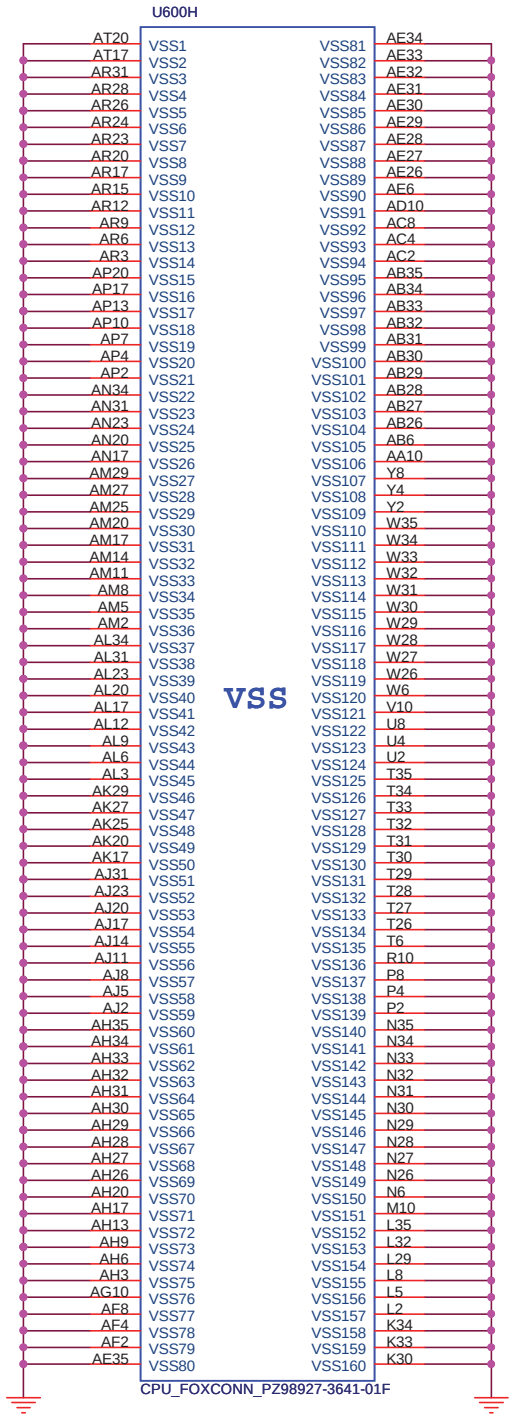
Title	CPU(POWER) 4/7	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 9 of 66	

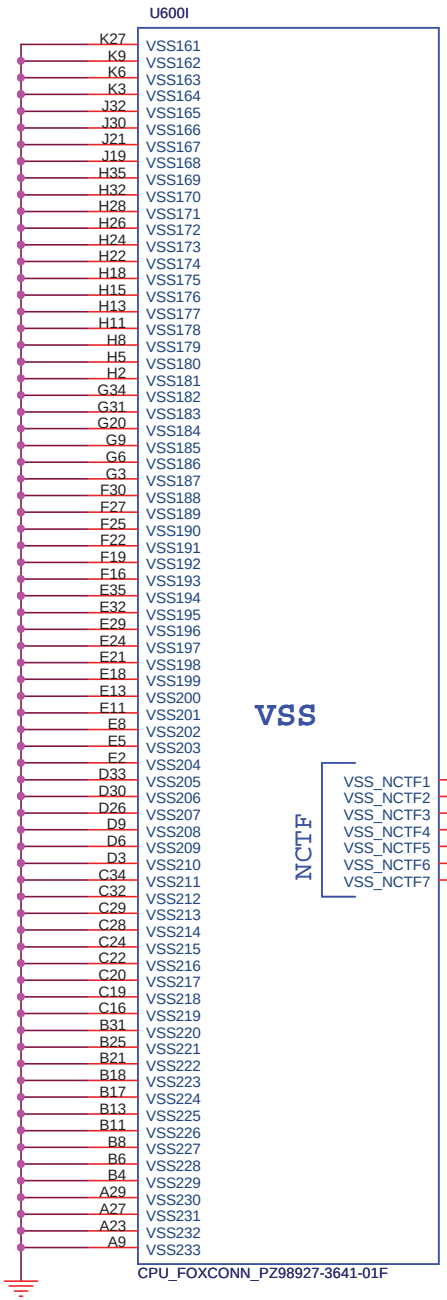
ARRANDALE/CLARKSFIELD PROCESSOR (GRAPHICS POWER)

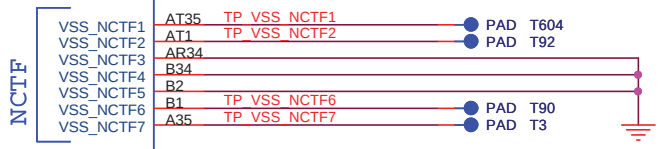


Title	CPU(GRAPHICS PWR) 5/7	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 10 of 66	

ARRANDALE/CLARKSFIELD PROCESSOR (GND)

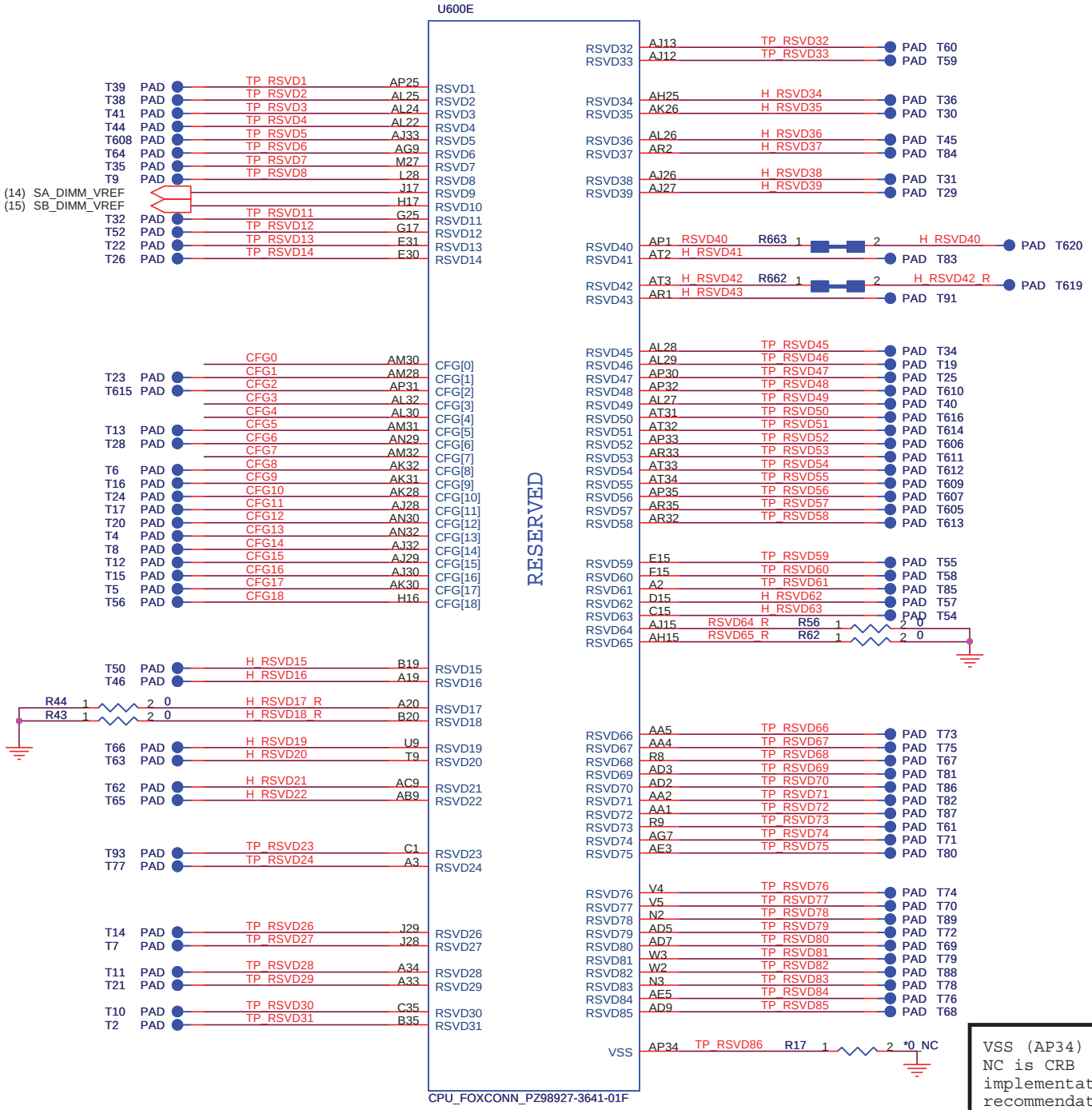






Title	CPU(GND) 6/7	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 11 of 66	

ARRANDALE/CLARKSFIELD PROCESSOR(RESERVED, CFG)



CFG Straps for PROCESSOR

PCI-Express Configuration Select	
CFG0	1:Single PEG(Default) 0:Bifurcation enabled

CFG0 — R617 *3.01K_F_NC 0402

CFG3 - PCI-Express Static Lane Reversal	
CFG3	1 :Normal Operation(Default) 0 :Lane Numbers Reversed 15 -> 0, 14 -> 1, ...

CFG3 — R615 3.01K_F 0402

CFG4 - Display Port Presence	
CFG4	1:Disabled; No Physical Display Port attached to Embedded Display Port (Default) 0:Enabled; An external Display Port device is connected to the Embedded Display Port

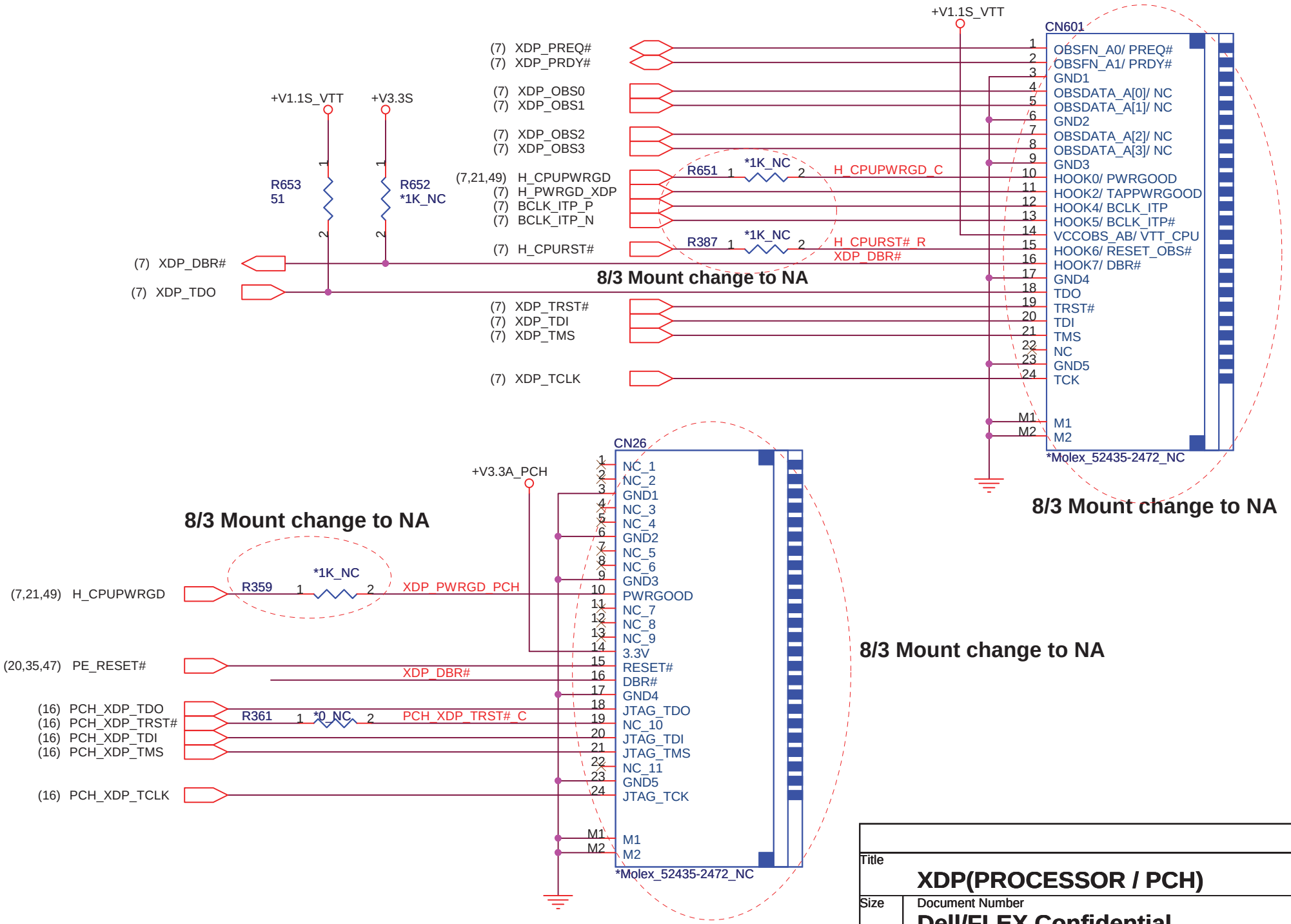
CFG4 — PAD T18

CFG7	Only temporary for early CFD samples (rPGA/BGA) [For details please refer to the WW33 MoW and sighting report].

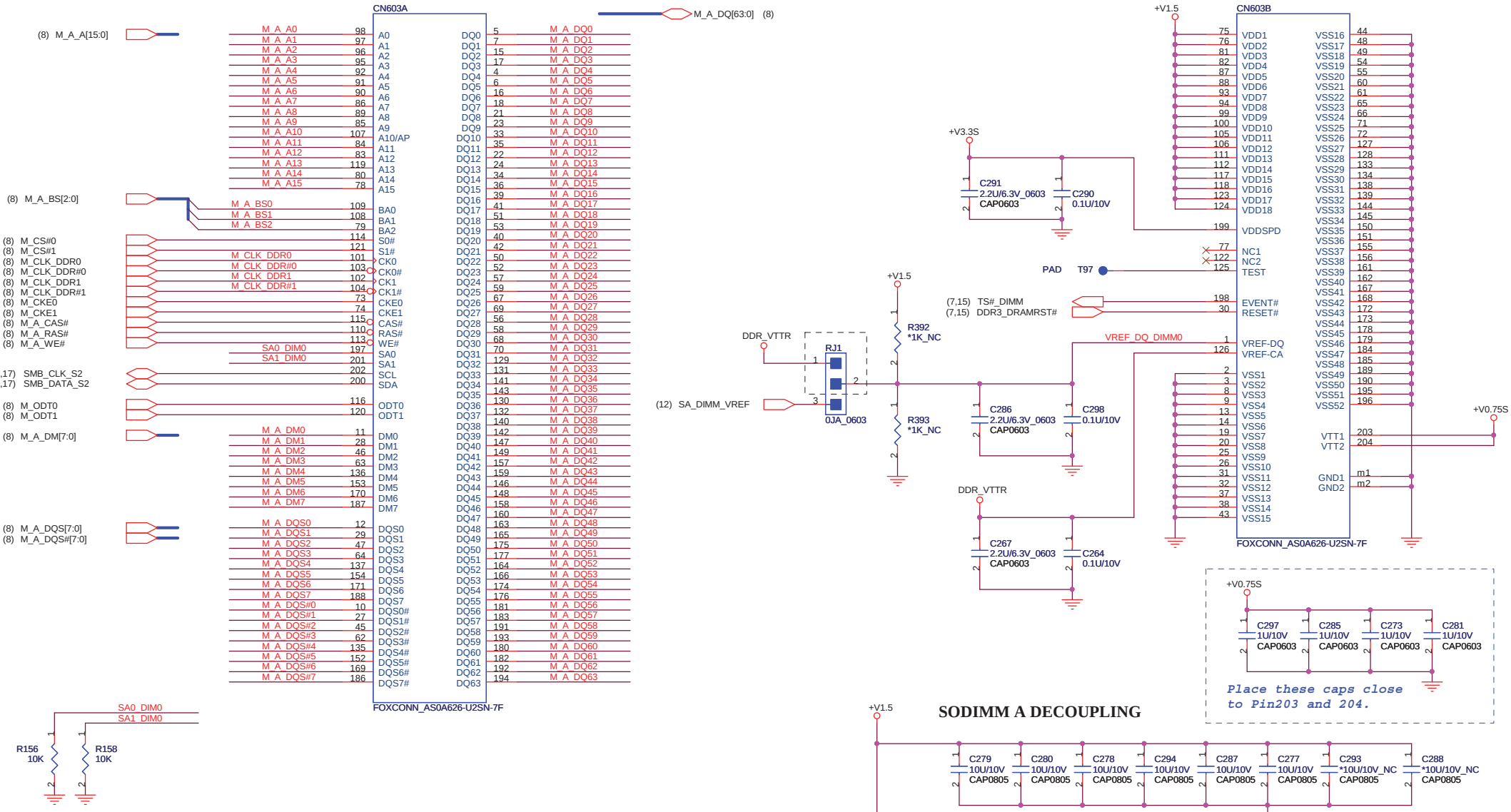
CFG7 — R18 *3.01K_F_NC

VSS (AP34) can be left NC is CRB implementation; EDS/DG recommendation to GND

Title: CPU(RSVD,CFG) 7/7			
Size	Document Number: Dell/FLEX Confidential		Rev: A00
Date: Wednesday, August 12, 2009	Sheet 12 of 66		



Title	XDP(PROCESSOR / PCH)	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 13 of 66	



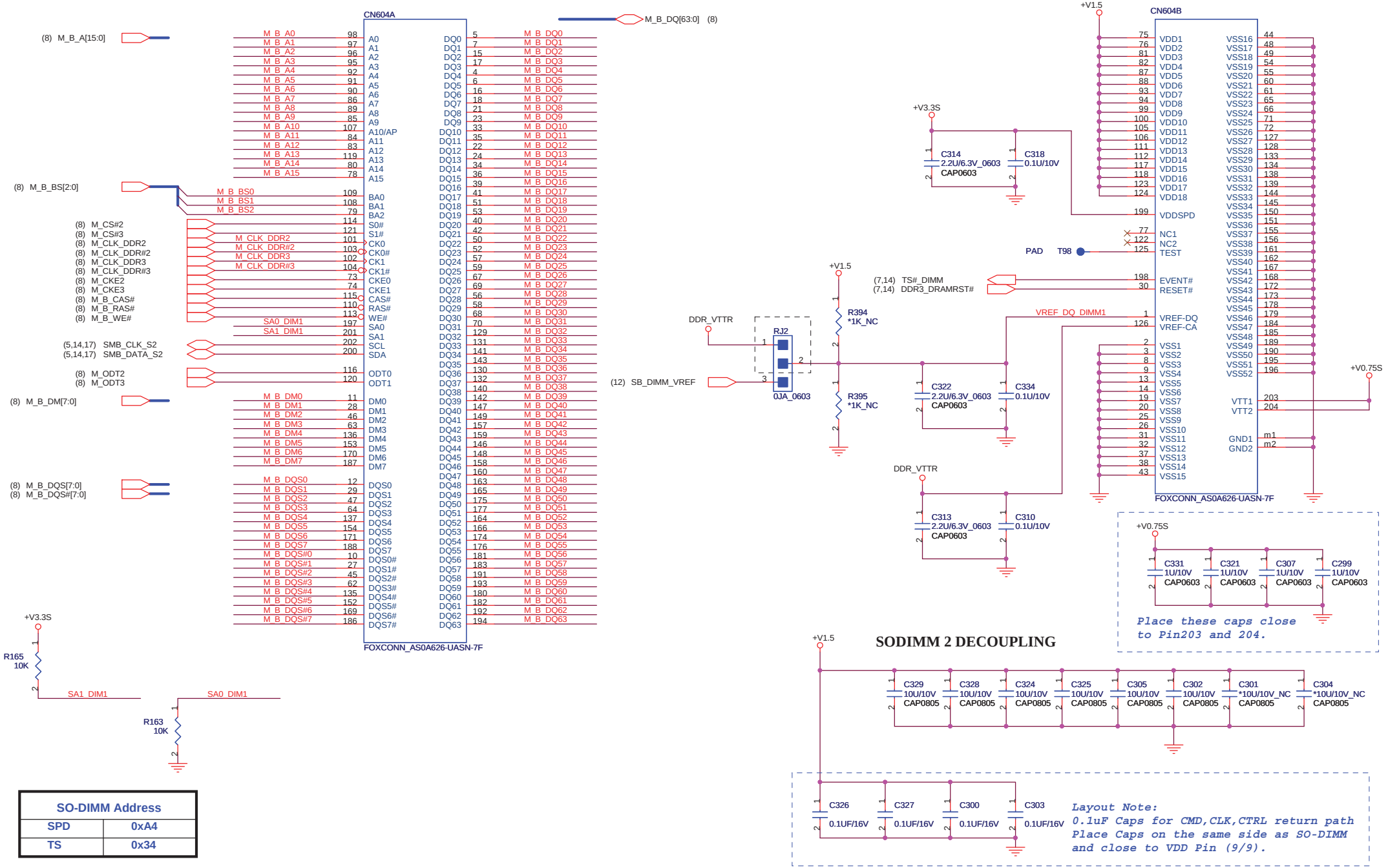
SO-DIMM Address		
SA0_DIM0 = 0, SA1_DIM0 = 0	SPD	0xA0
	TS	0x30
SA0_DIM0 = 1, SA1_DIM0 = 0	SPD	0xA2
	TS	0x32

	Vender	FLEX P/N	DESCRIPTION
MAIN	FOXCONN	DELH-39D0370000009G	DDR3 SO-DIMM H:5.2mm AS0A626-U2SN-7F
2ND	TYCO	DELH-39D0370000011G	DDR3 SO-DIMM H:5.2mm 2-2013289-2

Title: DDR3 SO-DIMM1(204P)

Size | Document Number: Dell/FLEX Confidential | Rev: A00

Date: Wednesday, August 12, 2009 | Sheet 14 of 66



	Vender	FLEX P/N	DESCRIPTION
MAIN	FOXCONN	DELH-39D0370000010G	DDR3 SO-DIMM H:9.2mm AS0A626-UASN-7F
2ND	TYCO	DELH-39D0370000012G	DDR3 SO-DIMM H:9.2mm 2-2013310-2

Title: DDR3 SO-DIMM2(204P)

Size | Document Number: Dell/FLEX Confidential | Rev: A00

Date: Wednesday, August 12, 2009 | Sheet 15 of 66

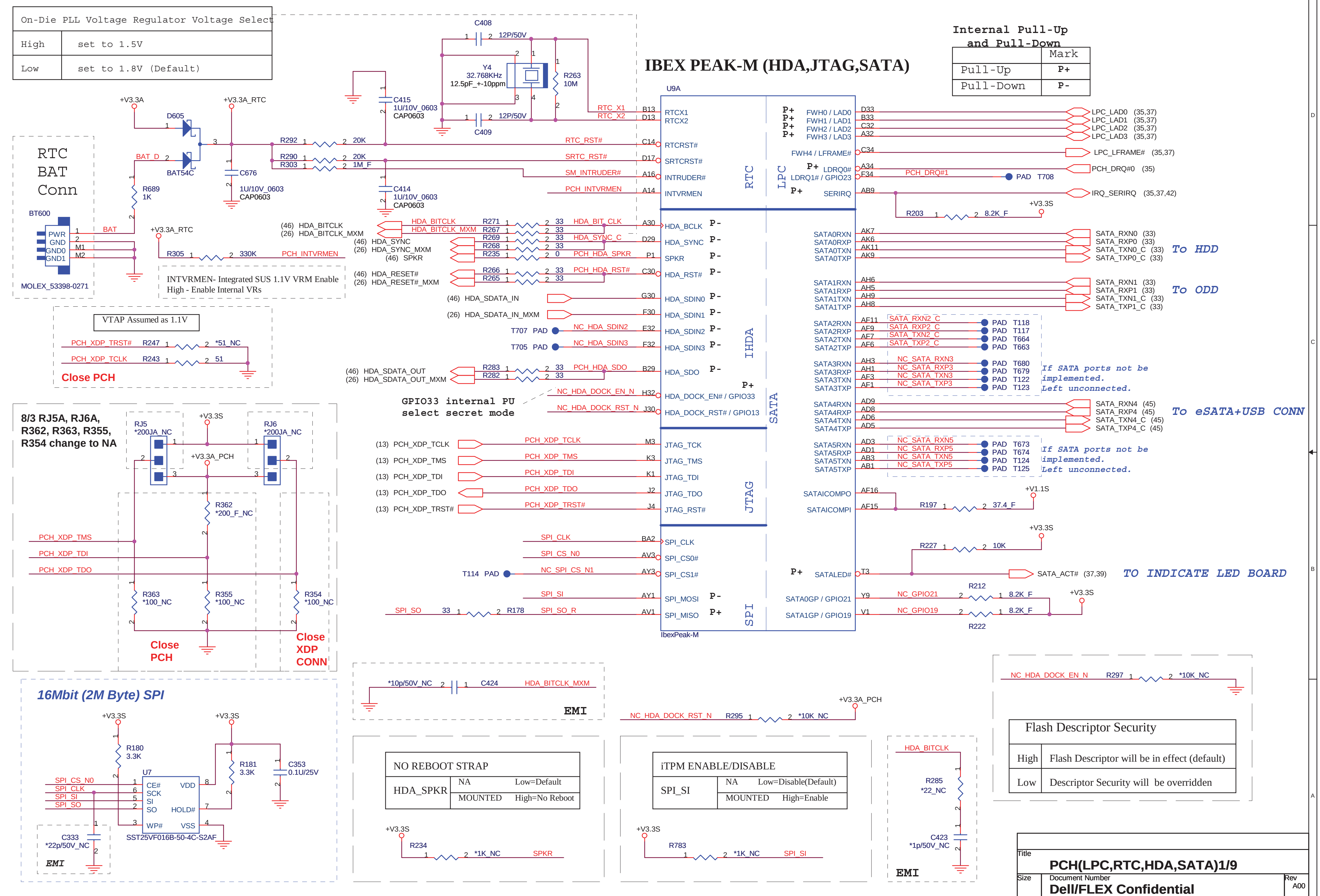
On-Die PLL Voltage Regulator Voltage Select

High	set to 1.5V
Low	set to 1.8V (Default)

IBEX PEAK-M (HDA,JTAG,SATA)

Internal Pull-Up and Pull-Down

	Mark
Pull-Up	P+
Pull-Down	P-



NO REBOOT STRAP		
HDA_SPKR	NA	Low=Default
	MOUNTED	High=No Reboot

iTPM ENABLE/DISABLE		
SPI_SI	NA	Low=Disable(Default)
	MOUNTED	High=Enable

Flash Descriptor Security	
High	Flash Descriptor will be in effect (default)
Low	Descriptor Security will be overridden

Title	PCH(LPC,RTC,HDA,SATA)1/9
Size	Document Number: Dell/FLEX Confidential
Rev	A00
Date:	Wednesday, August 12, 2009
Sheet	16 of 66

IBEX PEAK-M (PCI-E,SMBUS,CLK)

PCI-E* x1	Usage
Lane 1	UWB
Lane2	WWAN ->DEL
Lane 3	EXPRESS CARD -AUDIO BOARD
Lane 4	WLAN
Lane 5	NC
Lane 6	PHY
Lane 7	NC
Lane 8	NC

U9B

PCI-E* / SMBus / Controller Link / PEG / From CLK BUFFER / Clock Flex

(35) PCIE_UWB_RX_N1 — BG30 PERN1
(35) PCIE_UWB_RX_P1 — BJ30 PERP1
(35) PCIE_UWB_C_TX_N1 — PCIE_UWB_C_TX_N1 — BF29 PETN1
(35) PCIE_UWB_C_TX_P1 — PCIE_UWB_C_TX_P1 — BH29 PETP1

T657 PAD, T658 PAD, T640 PAD, T647 PAD — NC_PCIE_WWAN_C_RX_N2 — AW30 PERN2
NC_PCIE_WWAN_C_RX_P2 — BA30 PERP2
NC_PCIE_WWAN_C_TX_N2 — BC30 PETN2
NC_PCIE_WWAN_C_TX_P2 — BD30 PETP2

(45) PCIE_EXPCARD_RX_N3 — AU30 PERN3
(45) PCIE_EXPCARD_RX_P3 — AT30 PERP3
(45) PCIE_EXPCARD_C_TX_N3 — PCIE_EXPCARD_C_TX_N3 — AU32 PETN3
(45) PCIE_EXPCARD_C_TX_P3 — PCIE_EXPCARD_C_TX_P3 — AV32 PETP3

(34) PCIE_WLAN_RX_N4 — BA32 PERN4
(34) PCIE_WLAN_RX_P4 — BB32 PERP4
(34) PCIE_WLAN_C_TX_N4 — PCIE_WLAN_C_TX_N4 — BD32 PETN4
(34) PCIE_WLAN_C_TX_P4 — PCIE_WLAN_C_TX_P4 — BE32 PETP4

T101 PAD, T102 PAD, T107 PAD, T103 PAD — NC_P2E_PCH_RXN5 — BF33 PERN5
NC_P2E_PCH_RXP5 — BH33 PERP5
NC_P2E_PCH_TXN5 — BG32 PETN5
NC_P2E_PCH_TXP5 — BJ32 PETP5

(47) PCIE_LAN_RX_N6 — BA34 PERN6
(47) PCIE_LAN_RX_P6 — AW34 PERP6
(47) PCIE_LAN_TX_N6 — C349 0.1U/10V — P2E_PCH_LAN_TX_C_N6 — BC34 PETN6
(47) PCIE_LAN_TX_P6 — C348 0.1U/10V — P2E_PCH_LAN_TX_C_P6 — BD34 PETP6

not implemented

PAD T639 — NC_P2E_PCH_RXN7 — AT34 PERN7
PAD T626 — NC_P2E_PCH_RXP7 — AU34 PERP7
PAD T631 — NC_P2E_PCH_TXN7 — AU36 PETN7
PAD T630 — NC_P2E_PCH_TXP7 — AV36 PETP7

PAD T99 — NC_P2E_PCH_RXN8 — BG34 PERN8
PAD T110 — NC_P2E_PCH_RXP8 — BJ34 PERP8
PAD T104 — NC_P2E_PCH_TXN8 — BG36 PETN8
PAD T108 — NC_P2E_PCH_TXP8 — BJ36 PETP8

T652 PAD — NC_CLK_PCH_SRC0_N — AK48 CLKOUT_PCIE0N
AK47 CLKOUT_PCIE0P

T695 PAD — NC_PCIE_CLK_REQ0# — P9 PCIECLKRQ0# / GPIO73 P+

(35) CLK_PCIE_UWB# — R198 — CLK_PCH_SRC1_N — AM43 CLKOUT_PCIE1N
(35) CLK_PCIE_UWB — R194 — CLK_PCH_SRC1_P — AM45 CLKOUT_PCIE1P
(35) UWB_CLK_REQ# — R793 — UWB_CLK_REQ#_R — U4 PCIECLKRQ1# / GPIO18

T644 PAD — CLK_PCH_SRC2_N — AM47 CLKOUT_PCIE2N
T654 PAD — CLK_PCH_SRC2_P — AM48 CLKOUT_PCIE2P

WWAN_CLK_REQ#_R — N4 PCIECLKRQ2# / GPIO20

(45) CLK_PCIE_EXPCARD# — R174 — CLK_PCH_SRC3_N — AH42 CLKOUT_PCIE3N
(45) CLK_PCIE_EXPCARD — R175 — CLK_PCH_SRC3_P — AH41 CLKOUT_PCIE3P

(45) EXPCARD_CLK_REQ# — EXPCARD_CLK_REQ# — A8 PCIECLKRQ3# / GPIO25

(34) CLK_PCIE_WLAN# — R191 — CLK_PCH_SRC4_N — AM51 CLKOUT_PCIE4N
(34) CLK_PCIE_WLAN — R193 — CLK_PCH_SRC4_P — AM53 CLKOUT_PCIE4P

(34) WLAN_CLK_REQ# — WLAN_CLK_REQ# — M9 PCIECLKRQ4# / GPIO26

PAD T665 — NC_CLK_PCH_SRC5_N — AJ50 CLKOUT_PCIE5N
PAD T661 — NC_CLK_PCH_SRC5_P — AJ52 CLKOUT_PCIE5P

NC_PCIE_CLK_REQ5# — H6 PCIECLKRQ5# / GPIO44

(47) CLK_PCIE_LAN# — R199 — CLK_PCH_SRC5_N — AK53 CLKOUT_PEG_B_N
(47) CLK_PCIE_LAN — R195 — CLK_PCH_SRC5_P — AK51 CLKOUT_PEG_B_P

(47) LAN_CLK_REQ# — R838 — LAN_CLK_REQ#_R — P13 PEG_B_CLKRQ# / GPIO56

ibexPeak-M

SMBALERT# / GPIO11 — B9 — NC_GPIO11
SMBCLK — H14 — SMB_CLK — TO SMBUS HUB
SMBDATA — C8 — SMB_DATA

SML0ALERT# / GPIO60 — J14 — PCH_UPEK_INIT_N
SML0CLK — C6 — SML0_CLK — SML0_CLK (47) — TO LAN
SML0DATA — G8 — SML0_DATA — SML0_DATA (47)

SML1ALERT# / GPIO74 — M14 — LPD_SPI_INTR#
SML1CLK / GPIO58 — E10 — SML1_SMB2_CLK — R803 0 — SMBCLK2 — SMBCLK2 (37,39,40) — TO KBC
SML1DATA / GPIO75 — G12 — SML1_SMB2_DATA — R353 0 — SMBDAT2 — SMBDAT2 (37,39,40)

P+ CL_CLK1 — T13 — WLAN_CL_CLK — PAD T671
P+ CL_DATA1 — T11 — WLAN_CL_DATA — PAD T677
CL_RST1# — T9 — WALN_CL_RST_N — PAD T690

PEG_A_CLKRQ# / GPIO47 — H1 — MXM1_CLKREQ# (25)

CLKOUT_PEG_A_N — AD43 — CLK_PCH_PEGA_N — R184 0 — CLK_PCIE_VGA1# (25) — TO MXM
CLKOUT_PEG_A_P — AD45 — CLK_PCH_PEGA_P — R185 0 — CLK_PCIE_VGA1 (25)

CLKOUT_DMI_N — AN4 — CLK_EXP_N (7)
CLKOUT_DMI_P — AN2 — CLK_EXP_P (7)

CLKOUT_DP_N / CLKOUT_BCLK1_N — AT1 — PCH_CLK_DP_N_R — PAD T120
CLKOUT_DP_P / CLKOUT_BCLK1_P — AT3 — PCH_CLK_DP_P_R — PAD T116

CLKIN_DMI_N — AW24 — CLK_BUF_EXP_N (5)
CLKIN_DMI_P — BA24 — CLK_BUF_EXP_P (5)

CLKIN_BCLK_N — AP3 — CLK_BUF_BCLK_N (5)
CLKIN_BCLK_P — AP1 — CLK_BUF_BCLK_P (5)

CLKIN_DOT_96N — F18 — CLK_BUF_DOT96_N (5)
CLKIN_DOT_96P — E18 — CLK_BUF_DOT96_P (5)

CLKIN_SATA_N / CKSSCD_N — AH13 — CLK_BUF_CKSSCD_N (5)
CLKIN_SATA_P / CKSSCD_P — AH12 — CLK_BUF_CKSSCD_P (5)

REFCLK14IN — P41 — CLK_BUF_REF14 (5)

CLKIN_PCILOOPBACK — J42 — CLK_PCI_FB (20)

XTAL25_IN — AH51 — XTAL25_IN
XTAL25_OUT — AH53 — XTAL25_OUT
XCLK_RCOMP — AF38 — XCLK_RCOMP — R786 90.9 F — +V1.1S
PU 100 or 90 ohm to 1.1VS 10/06

P- CLKOUTFLEX0 / GPIO64 — T45 — NC_CLK_PCH_PCI_SIO_DOCK — PAD T684
P- CLKOUTFLEX1 / GPIO65 — P43 — NC_CLK_PCI_LPC_R — PAD T699
P- CLKOUTFLEX2 / GPIO66 — T42 — NC_CLK_PCH_REF14 — PAD T687
P- CLKOUTFLEX3 / GPIO67 — N50 — NC_GPIO67 — PAD T701

SMB_CLK C775 *10p/50V_NC
SML0_CLK C402 *10p/50V_NC
SMBCLK2 C758 *10p/50V_NC
CLK_EXP_N C365 *10p/50V_NC
CLK_EXP_P C363 *10p/50V_NC
EMI

0 ohm
C378 0
R201 *1M_F_NC
Y3 *25MHz_NC 20PF_+-25ppm
C373 *18P/50V_NC

+V3.3M_LAN
SML0_CLK R251 2.2K
SML0_DATA R252 2.2K

+V3.3S
10K R794 UWB_CLK_REQ#_R
10K R791 WWAN_CLK_REQ#_R

+V3.3
10K R811 EXPCARD_CLK_REQ#

+V3.3V_WLAN
10K R825 WLAN_CLK_REQ#

+V3.3A_PCH
10K R852 NC_PCIE_CLK_REQ5#

SMBUS HUB

U14 NXP_PCA9518PW

+V3.3A_PCH
C463 0.1U/10V
R341 10K CL1
R337 10K CL2
R338 10K DA1
R344 10K DA2
SMB_CLK
SMB_DATA
R319 10K I2C_EN1
R306 10K I2C_EN2
R317 10K I2C_EN3
R333 10K I2C_EN4
EXPSCL1 EXPSCL2 EXPSDA1 EXPSDA2 SCL0 SDA0 EN1 EN2 EN3 EN4 VSS VCC SCL1 SDA1 SCL2 SDA2 SCL3 SDA3 SCL4 SDA4
SMB_CLK_A1 SMB_DATA_A1 (35,45)
SMB_CLK_S2 SMB_DATA_S2 (5,14,15)
SMB_CLK_S3 SMB_DATA_S3 (33)
NC_HUB_SCL4 NC_HUB_SDA4
PAD T131 PAD T130

TO WLAN,UWB,ExpressCard
TO CLK GEN,DDR3*2
TO G-Sensor

+V3.3
SMB_CLK_A1 R320 10K
SMB_DATA_A1 R324 10K

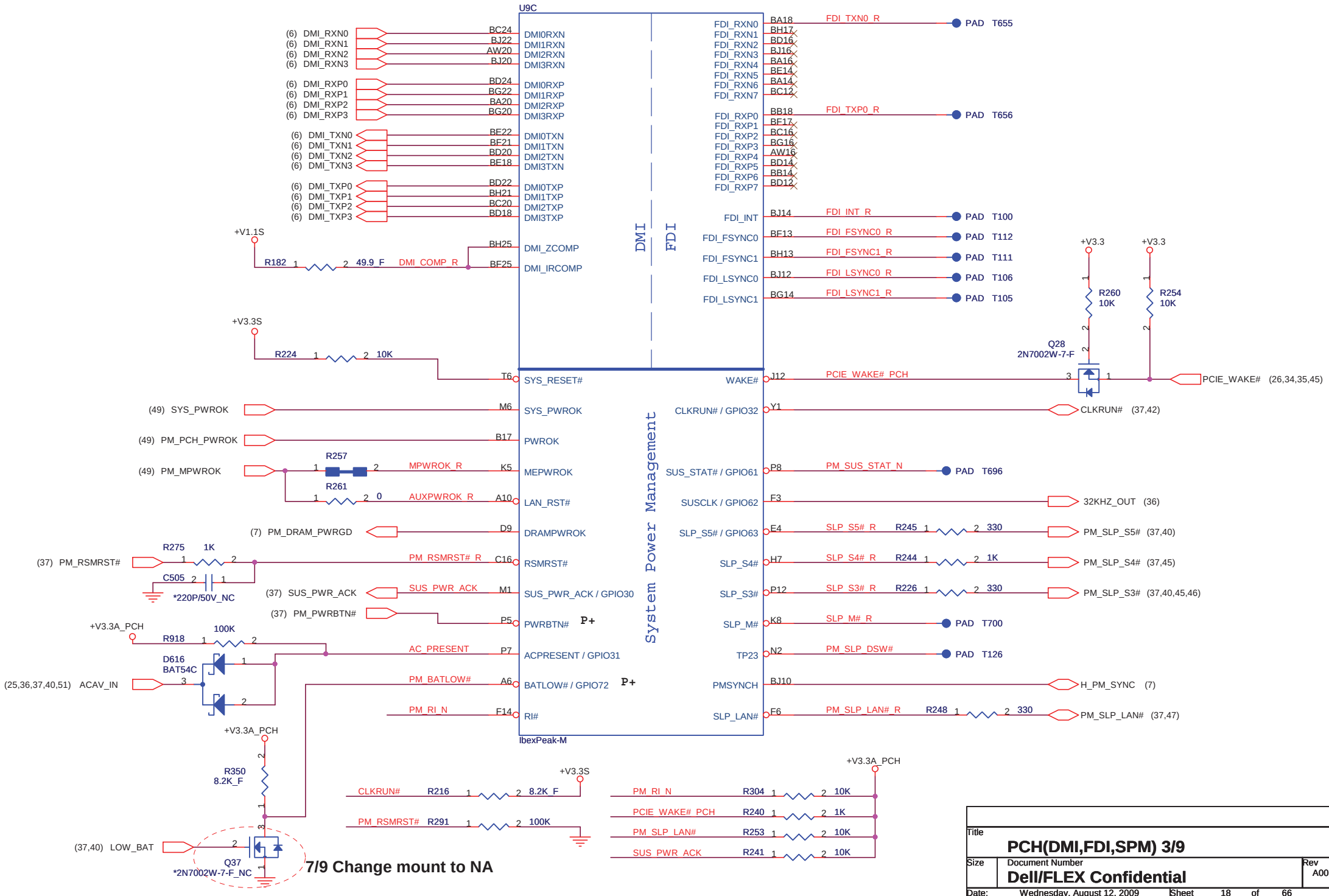
+V3.3S
SMB_CLK_S2 R308 10K
SMB_DATA_S2 R307 10K
MXM1_CLKREQ# R246 10K

+V3.3_MXM1
MXM1_CLKREQ# R645 *100K_NC

+V3.3A_PCH
NC_GPIO11 R258 10K
PCH_UPEK_INIT_N R351 10K
SMB_CLK R336 2.2K
SMB_DATA R325 2.2K
SMBCLK2 R807 4.7K
SMBDAT2 R352 4.7K
LPD_SPI_INTR# R313 10K

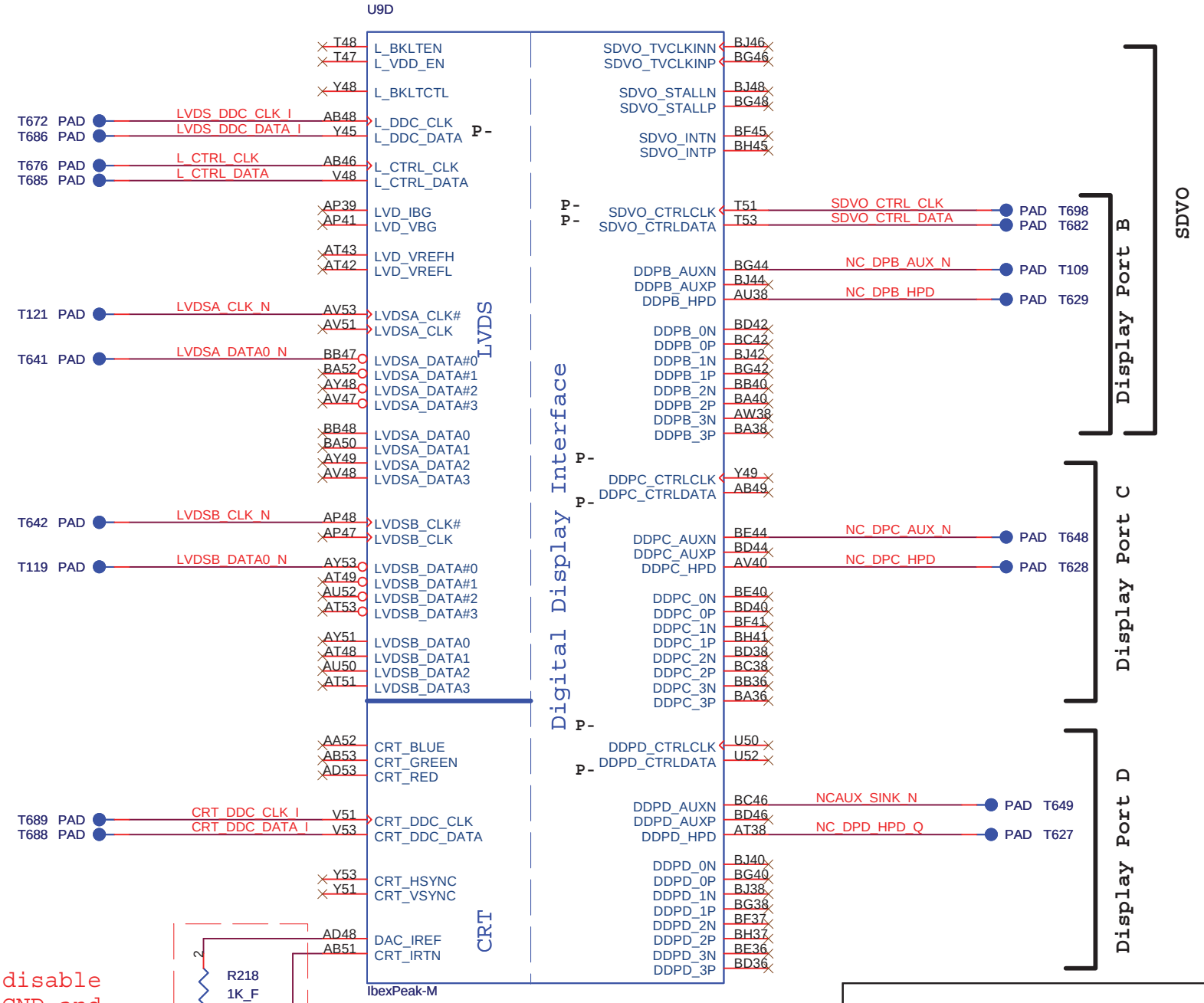
Title	PCH(PCIE,SMBUS,CLK)2/9		
Size	Document Number	Dell/FLEX Confidential	Rev A00
Date:	Wednesday, August 12, 2009	Sheet 17 of 66	

IBEX PEAK-M (DMI,FDI,GPIO)



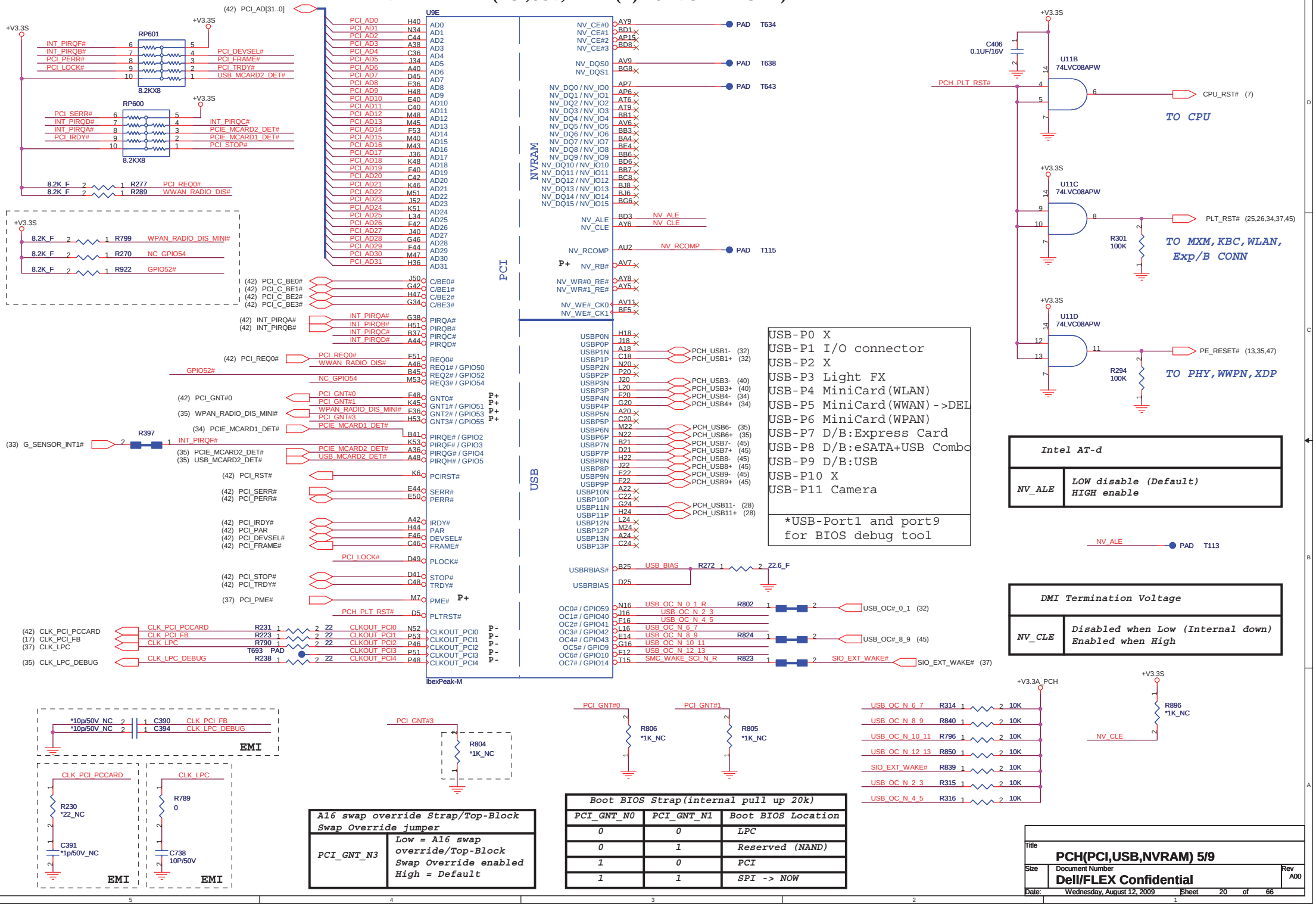
Title	PCH(DMI,FDI,SPM) 3/9	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 18 of 66	

IBEX PEAK-M (LVDS,DDI)



Title	PCH(CRT,LVDS,DDI) 4/9	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 19 of 66	

IBEX PEAK-M (PCI,USB,INTEL(R) TURBO MEMORY)



IBEX PEAK-M(GPIO,VSS_NCTF,RSVD)

On-Die PLL voltage regulator	
High	enable(default)
Low	disable

U9F

MISC
NC_GPIO0 Y3 BMBUSY# / GPIO0
(37) PCH_EXT_SMI# PCH_EXT_SMI# C38 TACH1 / GPIO1
NC_GPIO6 D37 TACH2 / GPIO6 P+
(37) PCH_EXT_SCI# PCH_EXT_SCI# J32 TACH3 / GPIO7 P+
T706 PAD NC_HOST_ALERT_N2 F10 GPIO8 P+
(47) PM_LANPHY_ENABLE K9 LAN_PHY_PWR_CTRL / GPIO12
NC_GPIO15 T7 GPIO15 P-

GPIO
NC_GPIO16 AA2 SATA4GP / GPIO16 P+
NC_GPIO17 F38 TACH0 / GPIO17 P+
BIOS_REC Y7 SCLOCK / GPIO22
(35) WPAN_PCIE_RST# WPAN_PCIE_RST# H10 MEM_LED / GPIO24
T669 PAD NC_GPIO27 AB12 GPIO27 P+
WWAN_PCIE_RST# V13 GPIO28
STP_PCI_N M11 STP_PCI# / GPIO34
(34) WLAN_PCIE_RST# WLAN_PCIE_RST# V6 SATACLKREQ# / GPIO35
NC_GPIO36 AB7 SATA2GP / GPIO36
(34) USB_MCARD1_DET# USB_MCARD1_DET# AB13 SATA3GP / GPIO37
MFG_MODE V3 SLOAD / GPIO38
CRB_SV_DET P3 SDATAOUT0 / GPIO39
(55) VRDD_0 VRDD_0 H3 PCIECLKRQ6# / GPIO45
(55) VRDD_1 VRDD_1 F1 PCIECLKRQ7# / GPIO46
SV_SET_UP AB6 SDATAOUT1 / GPIO48
NC_GPIO49 AA4 SATA5GP / GPIO49
(34) WLAN_RADIO_DIS# F8 GPIO57

CPU
CLKOUT_PCIE6N AH45 TP_PCH_PCIE6N PAD T662
CLKOUT_PCIE6P AH46 TP_PCH_PCIE6P PAD T653
CLKOUT_PCIE7N AF48 TP_PCH_PCIE7N PAD T651
CLKOUT_PCIE7P AF47 TP_PCH_PCIE7P PAD T678
A20GATE U2 H_A20GATE H_A20GATE (37)
CLKOUT_BCLK0_N / CLKOUT_PCIE8N AM3 BCLK_CPU_N (7)
CLKOUT_BCLK0_P / CLKOUT_PCIE8P AM1 BCLK_CPU_P (7)
PECI BG10 PCH_PECI_R R179 1 0 2 H_PECI (7)
RCIN# T1 H_RCIN# (37)
PROCPWRGD BE10 H_CPUPWRGD (7,13,49)
THRMTRIP# BD10 PCH_THRMTRIP#_R 1 R177 56.2_F 2 H_THERMTRIP# (7,36)
+V1.1S_VTT
2 R171 56.2_F 1

TP1 BA22 TP1_PCH PAD T667
TP2 AW22 TP2_PCH PAD T660
TP3 BB22 TP3_PCH PAD T666
TP4 AY45 TP4_PCH PAD T636
TP5 AY46 TP5_PCH PAD T637
TP6 AV43 TP6_PCH PAD T633
TP7 AV45 TP7_PCH PAD T632
TP8 AF13 TP8_PCH PAD T659
TP9 M18 TP9_PCH PAD T697
TP10 N18 TP10_PCH PAD T710
TP11 AJ24 TP11_PCH PAD T650
TP12 AK41 TP12_PCH PAD T646
TP13 AK42 TP13_PCH PAD T645
TP14 M32 TP14_PCH PAD T704
TP15 N32 TP15_PCH PAD T692
TP16 M30 TP16_PCH PAD T703
TP17 N30 TP17_PCH PAD T709
TP18 H12 TP18_PCH PAD T702
TP19 AA23 TP19_PCH PAD T681
NC_1 AB45 TP_PCH_NC1 PAD T675
NC_2 AB38 TP_PCH_NC2 PAD T683
NC_3 AB42 TP_PCH_NC3 PAD T670
NC_4 AB41 TP_PCH_NC4 PAD T668
NC_5 T39 TP_PCH_NC5 PAD T694
P+ INIT3_3V# P6 TP_INIT3_3V PAD T691
TP24 C10 TP_PCH_SST PAD T127

NCTF
A4 VSS_NCTF_1
A49 VSS_NCTF_2
A5 VSS_NCTF_3
A50 VSS_NCTF_4
A52 VSS_NCTF_5
A53 VSS_NCTF_6
B2 VSS_NCTF_7
B4 VSS_NCTF_8
B52 VSS_NCTF_9
B53 VSS_NCTF_10
BE1 VSS_NCTF_11
BE53 VSS_NCTF_12
BF1 VSS_NCTF_13
BF53 VSS_NCTF_14
BH1 VSS_NCTF_15
BH2 VSS_NCTF_16
BH52 VSS_NCTF_17
BH53 VSS_NCTF_18
BJ1 VSS_NCTF_19
BJ2 VSS_NCTF_20
BJ4 VSS_NCTF_21
BJ49 VSS_NCTF_22
BJ5 VSS_NCTF_23
BJ50 VSS_NCTF_24
BJ52 VSS_NCTF_25
BJ53 VSS_NCTF_26
D1 VSS_NCTF_27
D2 VSS_NCTF_28
D53 VSS_NCTF_29
E1 VSS_NCTF_30
E53 VSS_NCTF_31

RSVD

IbexPeak-M

+V3.3A_PCH
NC_GPIO15 R232 2 1 1K
WWAN_PCIE_RST# R217 2 1 10K
VRDD_0 R186 2 1 100K
VRDD_1 R172 2 1 100K
+V3.3S
PCH_EXT_SMI# R286 2 1 10K
PCH_EXT_SCI# R296 2 1 10K
H_A20GATE R225 2 1 8.2K_F
STP_PCI_N R849 2 1 10K
H_RCIN# R311 2 1 10K
USB_MCARD1_DET# R205 1 2 10K
NC_GPIO16 R214 2 1 10K
WLAN_PCIE_RST# R213 2 1 10K
NC_GPIO49 R211 2 1 10K
NC_GPIO6 R819 2 1 10K
NC_GPIO0 R215 2 1 10K
NC_GPIO17 R818 2 1 10K
NC_GPIO36 R207 2 1 10K

+V3.3S
R210 10K
BIOS_REC
R208 *0_NC

BIOS Recovery	
Enable	0ohm Mounted
Disable	0ohm NA

+V3.3S
R209 10K
SV_SET_UP
R204 1 2 *0_NC

SV_SET_UP	0ohm NA High = Strong (Default) 0ohm Mounted Low = Weak

+V3.3S
CRB/SV DETECT
10K NA
R233 10K
CRB_SV_DET
R239 *100K_NC

+V3.3S
R219 10K
MFG_MODE

Title	PCH(CPU,PIO,VSS,RSD)6/9		
Size	Document Number Dell/FLEX Confidential		Rev A00
Date: Wednesday, August 12, 2009	Sheet 21 of 66		

Please note that all Ibex Peak-M rails with netnames +V1.1S and +V1.1M rails are actually +V1.05S and +V1.05M rails

IBEX PEAK-M(POWER)

1432mA

+V1.1S

C347 10U/6.3V_0603

C726 0.1UF/16V

U9G

POWER

VCC CORE

AB24 AB26 AB28 AD26 AD28 AF26 AF28 AF30 AF31 AH26 AH28 AH30 AH31 AJ30 AJ31

VCCCORE[1] VCCCORE[2] VCCCORE[3] VCCCORE[4] VCCCORE[5] VCCCORE[6] VCCCORE[7] VCCCORE[8] VCCCORE[9] VCCCORE[10] VCCCORE[11] VCCCORE[12] VCCCORE[13] VCCCORE[14] VCCCORE[15]

CRT

VCCADAC[1] VCCADAC[2] VSSA_DAC[1] VSSA_DAC[2]

AE50 AE52 AF53 AF51

+V3.3S_CRT_VCCA_DAC

L34 BLM18AG601SN1D

+V3.3S

69mA

C718 0.1UF/16V

C381 1U/10V_0603 CAP0603

VCCALVDS VSSA_LVDS

AH38 AH39

+V3.3S_VCCA_LVD

R273 0402-SHORT

<1mA

59mA

+V1.8S_VCCTX_LVD

R914 0402-SHORT

40mA

+V1.1S_VCCAPLL_EXP

+V1.1S

AK24 BJ24

VCCIO[24] VCCAPLLEXP

LVDS

VCCTX_LVDS[1] VCCTX_LVDS[2] VCCTX_LVDS[3] VCCTX_LVDS[4]

AP43 AP45 AT46 AT45

C344 *0.1UF/16V_NC

VCCIO Total 3062mA

AN20 AN22 AN23 AN24 AN26 AN28 BJ26 BJ28 AT26 AT28 AU26 AU28 AV26 AV28 AW26 AW28 BA26 BA28 BB26 BB28 BC26 BC28 BD26 BD28 BE26 BE28 BG26 BG28 BH27

VCCIO[25] VCCIO[26] VCCIO[27] VCCIO[28] VCCIO[29] VCCIO[30] VCCIO[31] VCCIO[32] VCCIO[33] VCCIO[34] VCCIO[35] VCCIO[36] VCCIO[37] VCCIO[38] VCCIO[39] VCCIO[40] VCCIO[41] VCCIO[42] VCCIO[43] VCCIO[44] VCCIO[45] VCCIO[46] VCCIO[47] VCCIO[48] VCCIO[49] VCCIO[50] VCCIO[51] VCCIO[52] VCCIO[53]

HVCMOS

VCC3_3[2] VCC3_3[3] VCC3_3[4]

AB34 AB35 AD35

+V3.3S

C747 0.1UF/16V

VCC3_3 Total 357mA

+V1.1S

C719 10U/6.3V_0603

C727 1U/6.3V

+V1.5S_1.8S

Internal VRM supply

VCCVRM[2]

AT24

61mA

DMI

VCCDMI[1] VCCDMI[2]

AT16 AU16

+V1.1S_VCC_DMI

R782 0_0402

+V1.1S_VTT

C705 0.1UF/16V

R173 *0_0402_NC

+V1.1S

58mA

196mA

Internal VRM supply

Refer to P16 PCH_INTVRMEN

+V1.5S

R169 *0_0402_NC

+V1.8S

R168 0_0402

+V1.5S_1.8S

PCI E*

VCCPNAND[1] VCCPNAND[2] VCCPNAND[3] VCCPNAND[4] VCCPNAND[5] VCCPNAND[6] VCCPNAND[7] VCCPNAND[8] VCCPNAND[9]

AM16 AK16 AK20 AK19 AK15 AK13 AM12 AM13 AM15

+V3.3S_VCCPNAND

R785 0402-SHORT

+V3.3S

156mA

C712 0.1UF/16V

+V3.3S

C732 0.1UF/16V

37mA

AN30 AN31

VCC3_3[54] VCC3_3[55]

AN35

VCC3_3[1]

NAND / SPI

+V1.1S_VCCAPLL_FDI

AT22

VCCVRM[1]

BJ18

VCCFDIPLL

AM23

VCCIO[1]

FDI

VCCME3_3[1] VCCME3_3[2] VCCME3_3[3] VCCME3_3[4]

AM8 AM9 AP11 AP9

+V3.3S_VCCME3_3

+V3.3M_LAN

R784 0402-SHORT

85mA

C713 0.1UF/16V

C345 *0.1UF/16V_NC

+V1.1S

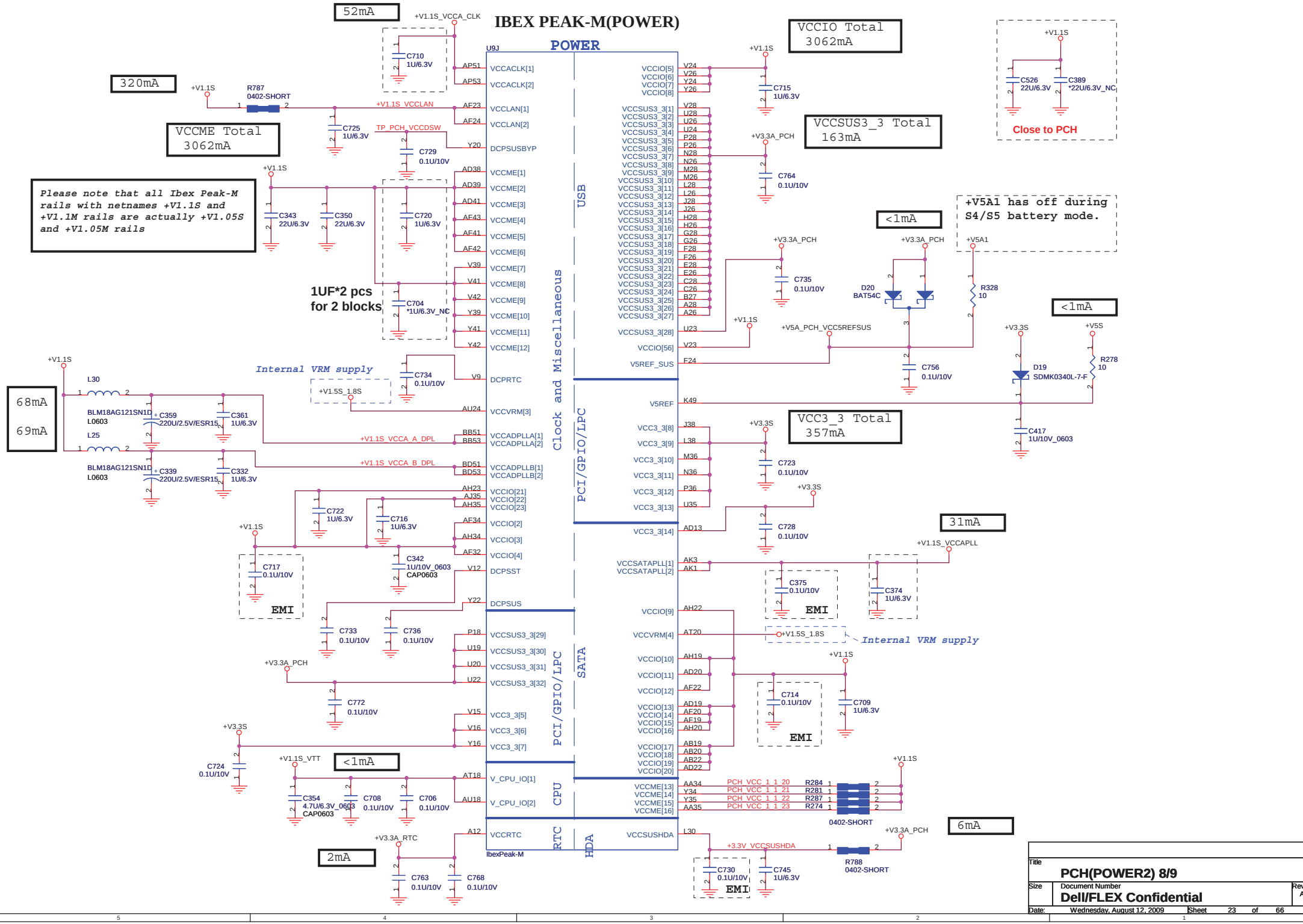
R192 0402-SHORT

+V1.1S_VCCIO

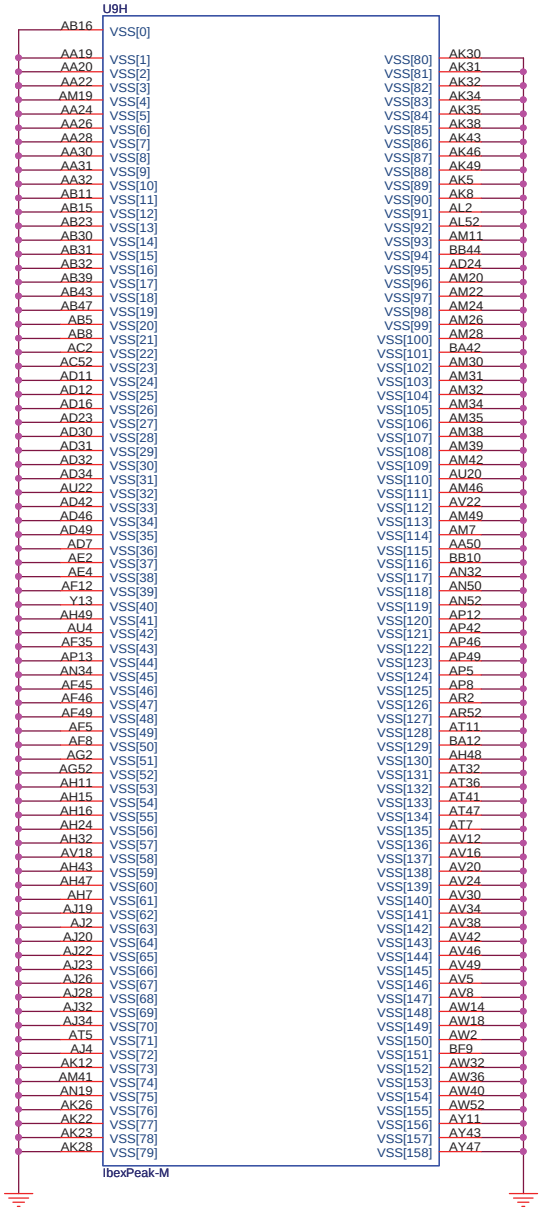
IbexPeak-M

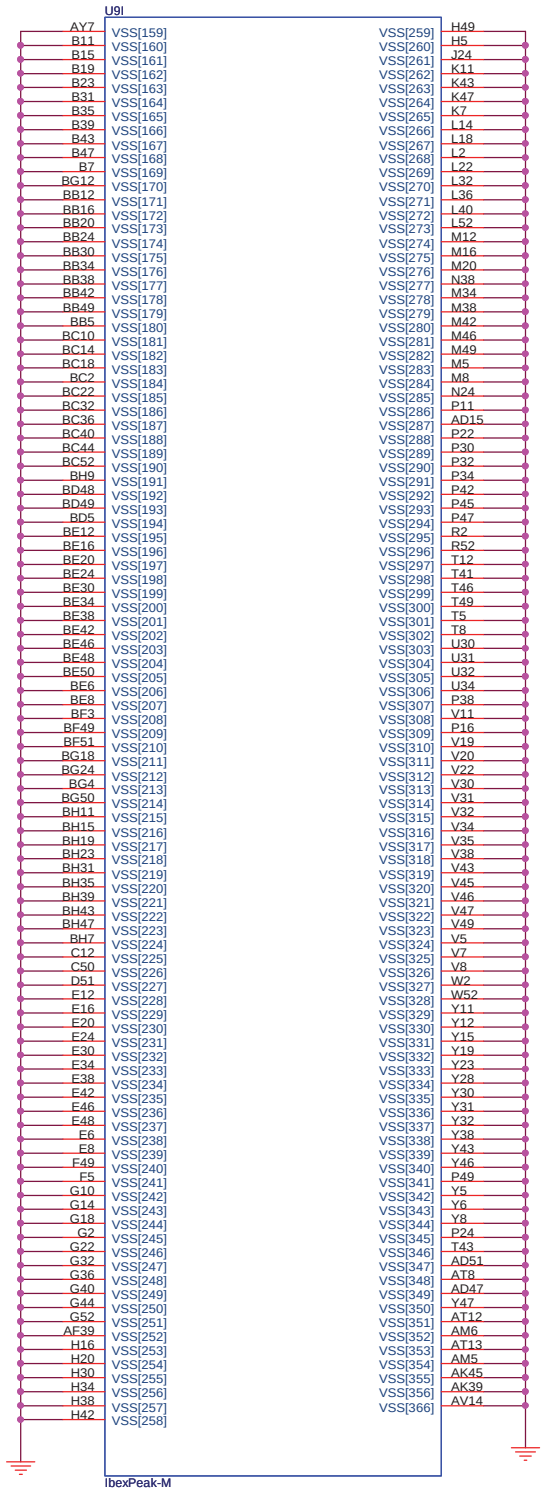
If LVDS not use, VCCALVDS and VCCTXLVDS connect to GND.
If use LVDS, 3.3V and 1.8V power source need.

Title	PCH(POWER1) 7/9	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 22 of 66	

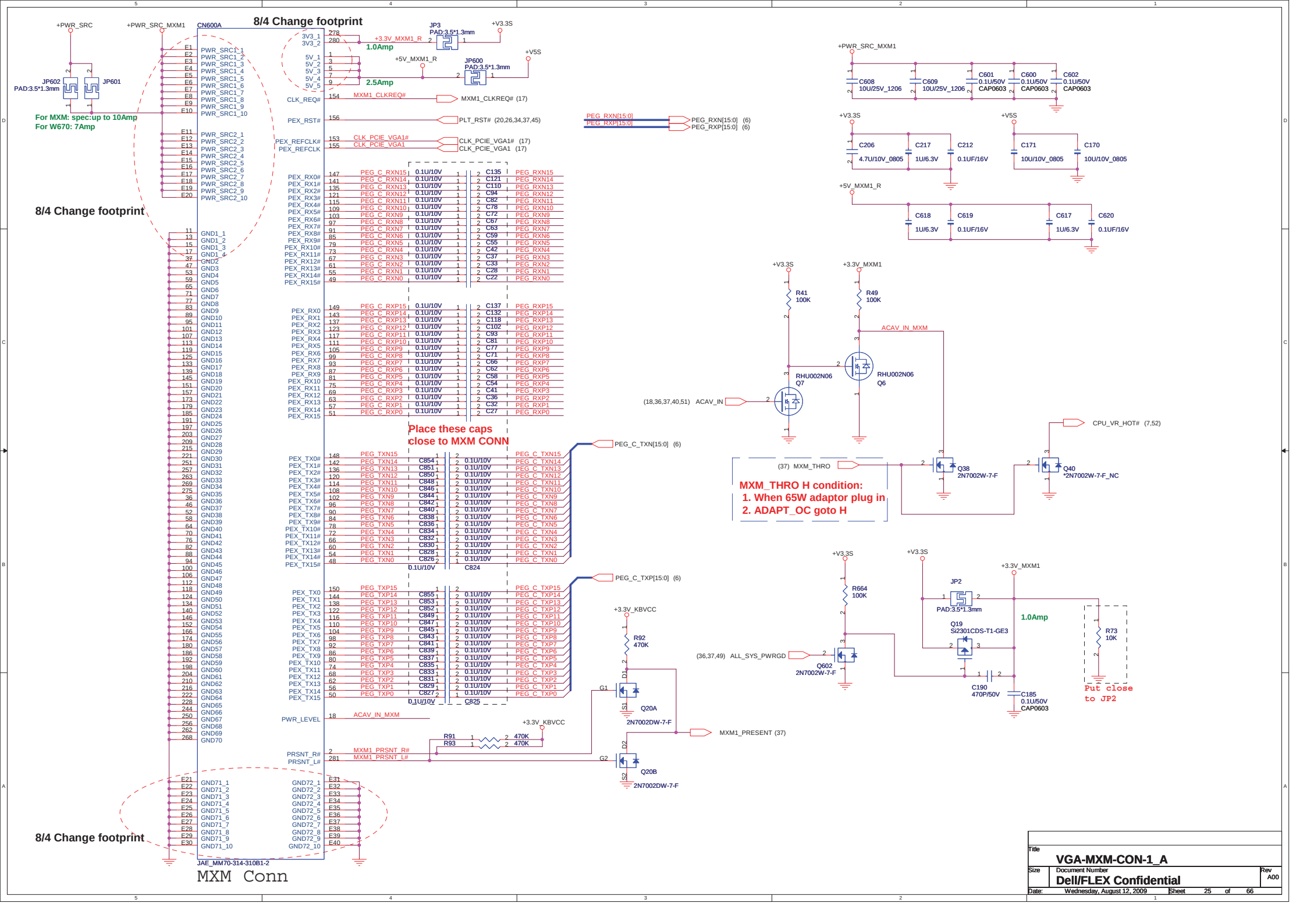

IBEX PEAK-M(POWER)
POWER
52mA
320mA
VCCME Total 3062mA
Please note that all Ibex Peak-M rails with netnames +V1.1S and +V1.1M rails are actually +V1.05S and +V1.05M rails
1UF*2 pcs for 2 blocks
Internal VRM supply
68mA
69mA
2mA
VCCIO Total 3062mA
VCCSUS3_3 Total 163mA
VCC3_3 Total 357mA
<1mA
+V5A1 has off during S4/S5 battery mode.
Close to PCH
31mA
6mA
EMI
U9J
IbexPeak-M
USB
Clock and Miscellaneous
PCI/GPIO/LPC
SATA
CPU
RTC
HDA
Title
PCH(POWER2) 8/9
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 23 of 66

IBEX PEAK-M (GND)

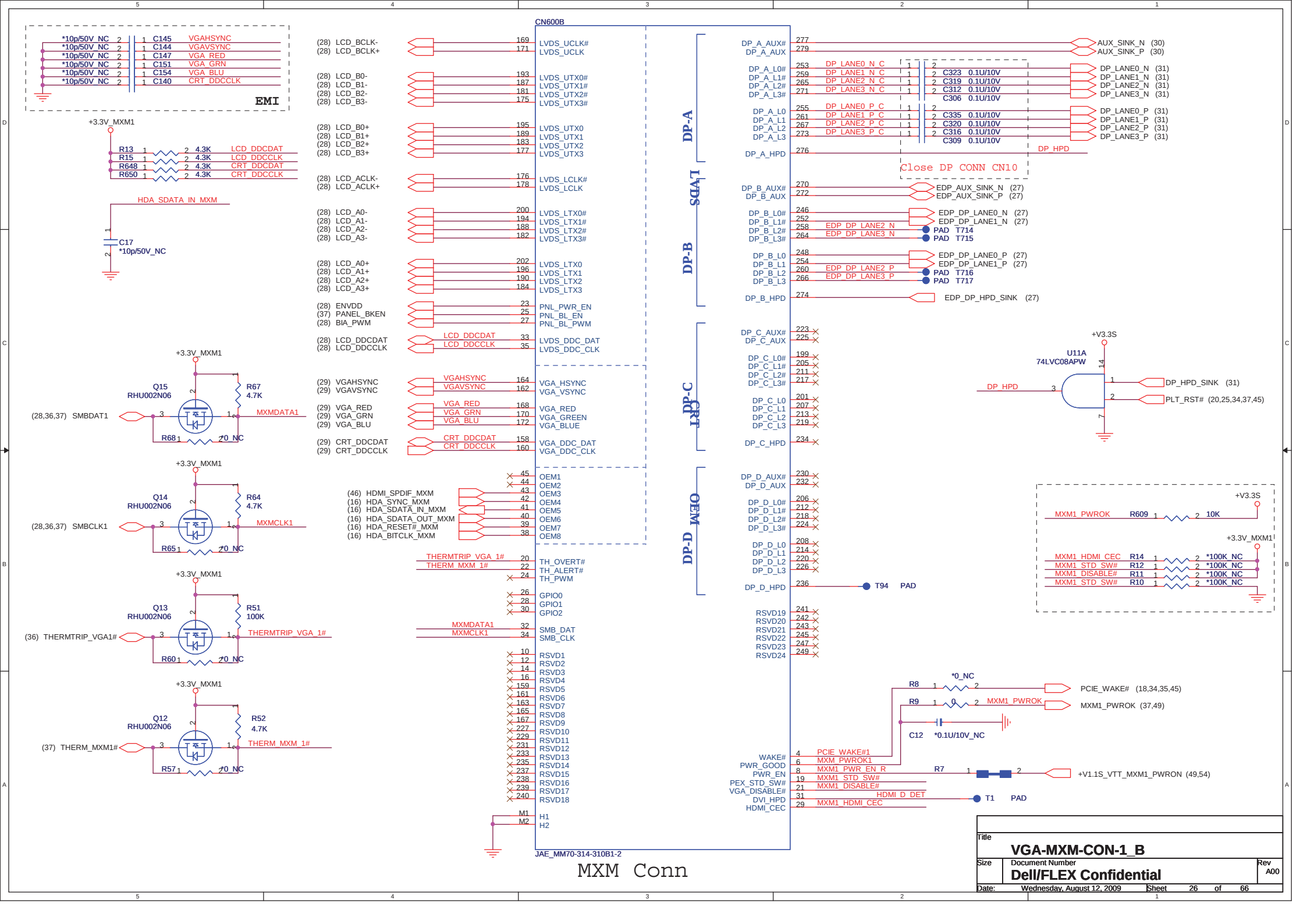




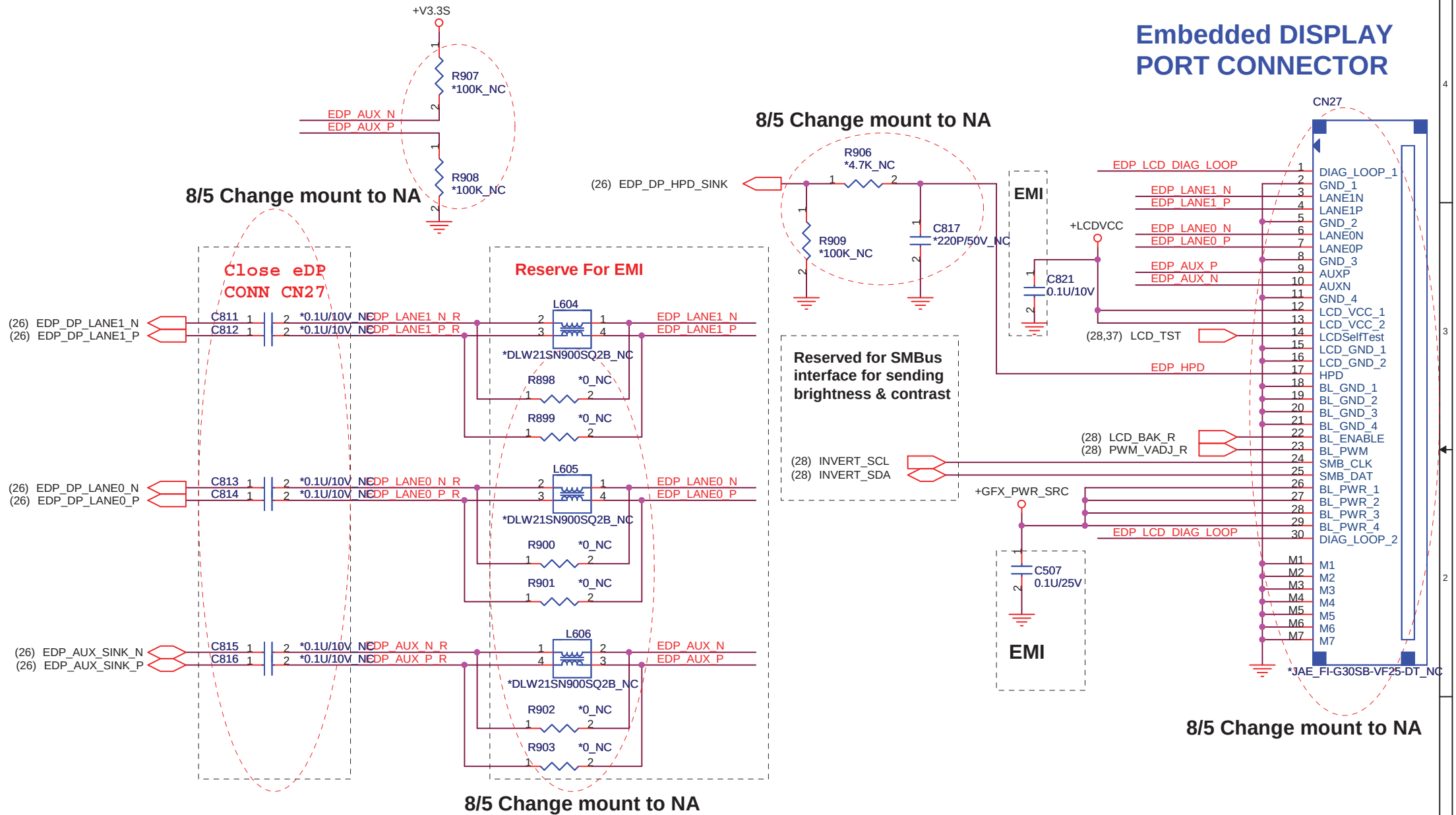
Title	PCH(GND) 9/9	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 24 of 66	



Title	VGA-MXM-CON-1_A
Size	Document Number: Dell/FLEX Confidential
Rev	A00
Date:	Wednesday, August 12, 2009
Sheet	25 of 66


EMI
*10p/50V_NC C145 VGAHSYNC
*10p/50V_NC C144 VGAVSYNC
*10p/50V_NC C147 VGA_RED
*10p/50V_NC C151 VGA_GRN
*10p/50V_NC C154 VGA_BLU
*10p/50V_NC C140 CRT_DDCCLK
+3.3V_MXM1
R13 4.3K LCD_DDCDAT
R15 4.3K LCD_DDCCLK
R648 4.3K CRT_DDCDAT
R650 4.3K CRT_DDCCLK
HDA_SDATA_IN_MXM
C17 *10p/50V_NC
Q15 RHU002N06
R67 4.7K
(28,36,37) SMBDAT1
MXMDATA1
R68 *0_NC
Q14 RHU002N06
R64 4.7K
(28,36,37) SMBCLK1
MXMCLK1
R65 *0_NC
Q13 RHU002N06
R51 100K
(36) THERMTRIP_VGA1#
THERMTRIP_VGA_1#
R60 *0_NC
Q12 RHU002N06
R52 4.7K
(37) THERM_MXM1#
THERM_MXM_1#
R57 *0_NC
CN600B
(28) LCD_BCLK-
(28) LCD_BCLK+
(28) LCD_B0-
(28) LCD_B1-
(28) LCD_B2-
(28) LCD_B3-
(28) LCD_B0+
(28) LCD_B1+
(28) LCD_B2+
(28) LCD_B3+
(28) LCD_ACLK-
(28) LCD_ACLK+
(28) LCD_A0-
(28) LCD_A1-
(28) LCD_A2-
(28) LCD_A3-
(28) LCD_A0+
(28) LCD_A1+
(28) LCD_A2+
(28) LCD_A3+
(28) ENVDD
(37) PANEL_BKEN
(28) BIA_PWM
(28) LCD_DDCDAT
(28) LCD_DDCCLK
LVDS_UCLK#
LVDS_UCLK
LVDS_UTX0#
LVDS_UTX1#
LVDS_UTX2#
LVDS_UTX3#
LVDS_UTX0
LVDS_UTX1
LVDS_UTX2
LVDS_UTX3
LVDS_LCLK#
LVDS_LCLK
LVDS_LTX0#
LVDS_LTX1#
LVDS_LTX2#
LVDS_LTX3#
LVDS_LTX0
LVDS_LTX1
LVDS_LTX2
LVDS_LTX3
PNL_PWR_EN
PNL_BL_EN
PNL_BL_PWM
LVDS_DDC_DAT
LVDS_DDC_CLK
LVDS
DP-A
DP-B
DP-C
DP-D
CRT
OEM
(29) VGAHSYNC
(29) VGAVSYNC
(29) VGA_RED
(29) VGA_GRN
(29) VGA_BLU
(29) CRT_DDCDAT
(29) CRT_DDCCLK
VGA_HSYNC
VGA_VSYNC
VGA_RED
VGA_GREEN
VGA_BLUE
VGA_DDC_DAT
VGA_DDC_CLK
(46) HDMI_SPDIF_MXM
(16) HDA_SYNC_MXM
(16) HDA_SDATA_IN_MXM
(16) HDA_SDATA_OUT_MXM
(16) HDA_RESET#_MXM
(16) HDA_BITCLK_MXM
OEM1
OEM2
OEM3
OEM4
OEM5
OEM6
OEM7
OEM8
THERMTRIP_VGA_1#
THERM_MXM_1#
TH_OVERT#
TH_ALERT#
TH_PWM
GPIO0
GPIO1
GPIO2
MXMDATA1
MXMCLK1
SMB_DAT
SMB_CLK
RSVD1
RSVD2
RSVD3
RSVD4
RSVD5
RSVD6
RSVD7
RSVD8
RSVD9
RSVD10
RSVD11
RSVD12
RSVD13
RSVD14
RSVD15
RSVD16
RSVD17
RSVD18
M1
M2
H1
H2
JAE_MM70-314-310B1-2
DP_A_AUX#
DP_A_AUX
DP_A_L0#
DP_A_L1#
DP_A_L2#
DP_A_L3#
DP_A_L0
DP_A_L1
DP_A_L2
DP_A_L3
DP_A_HPD
DP_LANE0_N_C
DP_LANE1_N_C
DP_LANE2_N_C
DP_LANE3_N_C
DP_LANE0_P_C
DP_LANE1_P_C
DP_LANE2_P_C
DP_LANE3_P_C
C323 0.1U/10V
C319 0.1U/10V
C312 0.1U/10V
C306 0.1U/10V
C335 0.1U/10V
C320 0.1U/10V
C316 0.1U/10V
C309 0.1U/10V
AUX_SINK_N (30)
AUX_SINK_P (30)
DP_LANE0_N (31)
DP_LANE1_N (31)
DP_LANE2_N (31)
DP_LANE3_N (31)
DP_LANE0_P (31)
DP_LANE1_P (31)
DP_LANE2_P (31)
DP_LANE3_P (31)
DP_HPD
Close DP CONN CN10
DP_B_AUX#
DP_B_AUX
DP_B_L0#
DP_B_L1#
DP_B_L2#
DP_B_L3#
DP_B_L0
DP_B_L1
DP_B_L2
DP_B_L3
DP_B_HPD
EDP_AUX_SINK_N (27)
EDP_AUX_SINK_P (27)
EDP_DP_LANE0_N (27)
EDP_DP_LANE1_N (27)
EDP_DP_LANE2_N
EDP_DP_LANE3_N
PAD T714
PAD T715
EDP_DP_LANE0_P (27)
EDP_DP_LANE1_P (27)
EDP_DP_LANE2_P
EDP_DP_LANE3_P
PAD T716
PAD T717
EDP_DP_HPD_SINK (27)
DP_C_AUX#
DP_C_AUX
DP_C_L0#
DP_C_L1#
DP_C_L2#
DP_C_L3#
DP_C_L0
DP_C_L1
DP_C_L2
DP_C_L3
DP_C_HPD
+V3.3S
U11A
74LVC08APW
DP_HPD
DP_HPD_SINK (31)
PLT_RST# (20,25,34,37,45)
DP_D_AUX#
DP_D_AUX
DP_D_L0#
DP_D_L1#
DP_D_L2#
DP_D_L3#
DP_D_L0
DP_D_L1
DP_D_L2
DP_D_L3
DP_D_HPD
T94 PAD
RSVD19
RSVD20
RSVD21
RSVD22
RSVD23
RSVD24
MXM1_PWROK R609 10K
MXM1_HDMI_CEC R14 *100K_NC
MXM1_STD_SW# R12 *100K_NC
MXM1_DISABLE# R11 *100K_NC
MXM1_STD_SW# R10 *100K_NC
R8 *0_NC
PCIE_WAKE# (18,34,35,45)
R9 0
MXM1_PWROK (37,49)
C12 *0.1U/10V_NC
WAKE#
PWR_GOOD
PWR_EN
PEX_STD_SW#
VGA_DISABLE#
DVI_HPD
HDMI_CEC
PCIE_WAKE#1
MXM_PWROK1
MXM1_PWR_EN_R
MXM1_STD_SW#
MXM1_DISABLE#
HDMI_D_DET
R7
+V1.1S_VTT_MXM1_PWRON (49,54)
T1 PAD
MXM Conn
Title
VGA-MXM-CON-1_B
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 26 of 66

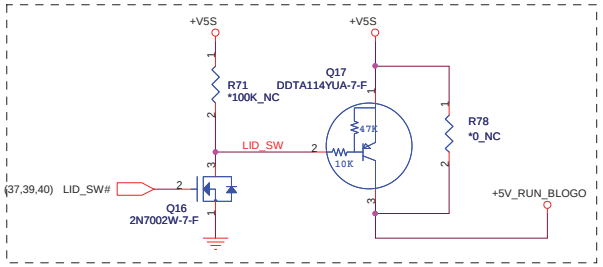
Embedded DISPLAY PORT CONNECTOR

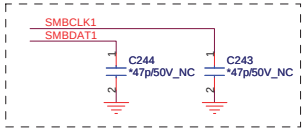


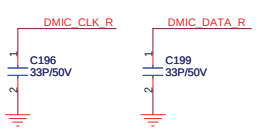
Title	LVDS SELECTION_Blank	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 27 of 66	

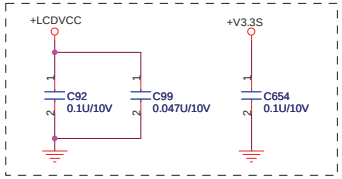
Array Microphone & Camera

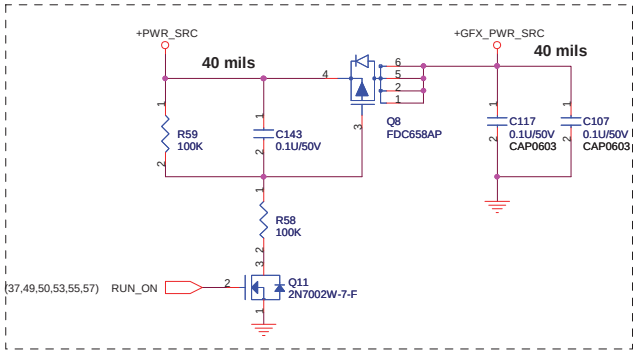
8/3 R100, R101 change to NA.
L12 change to mount.

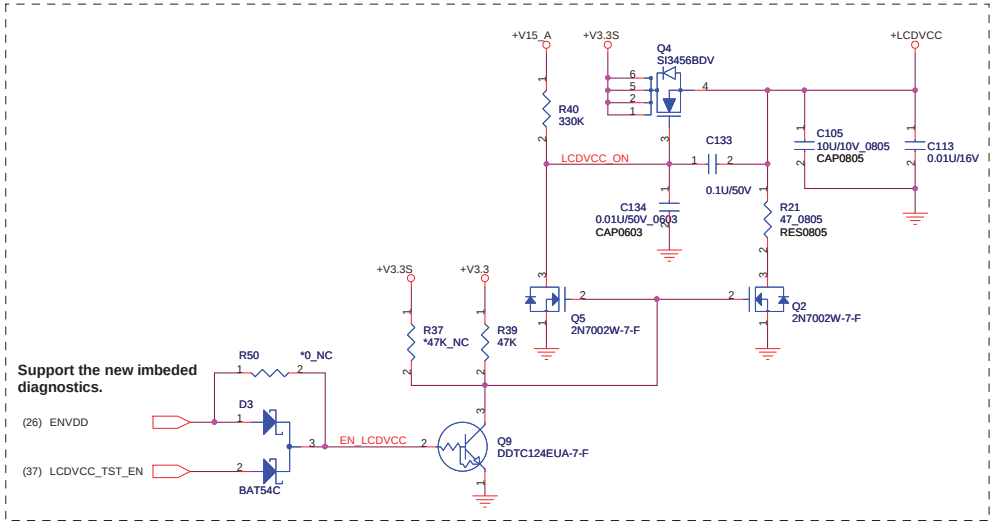


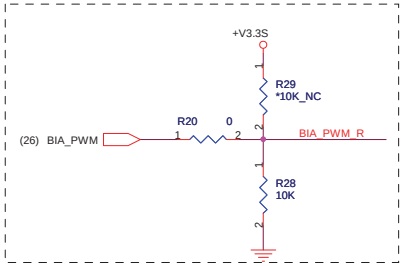


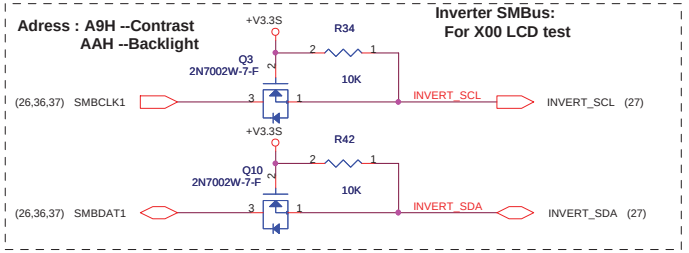


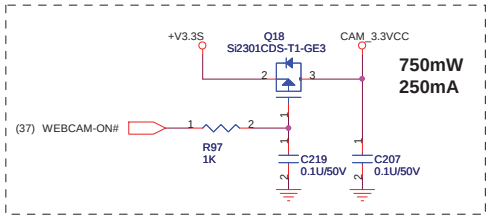


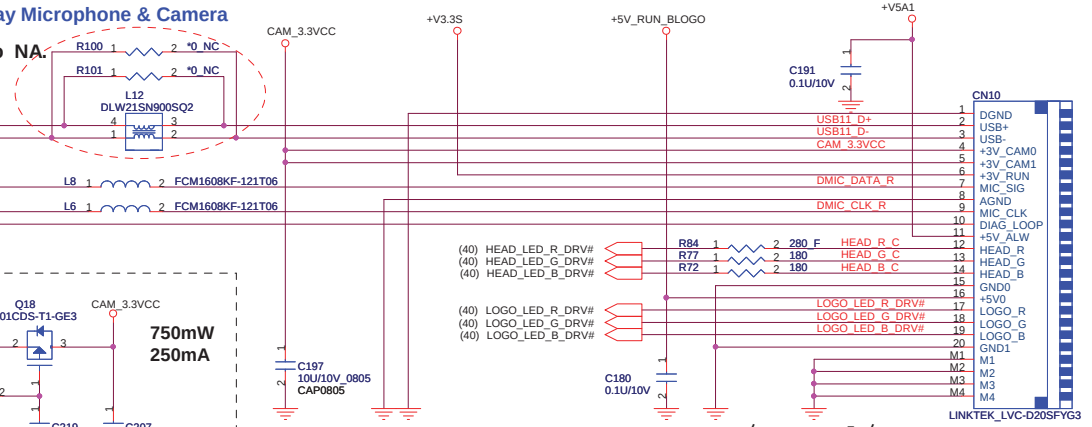




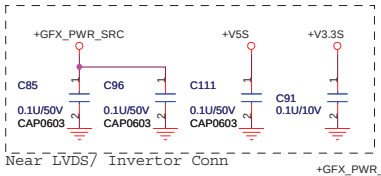




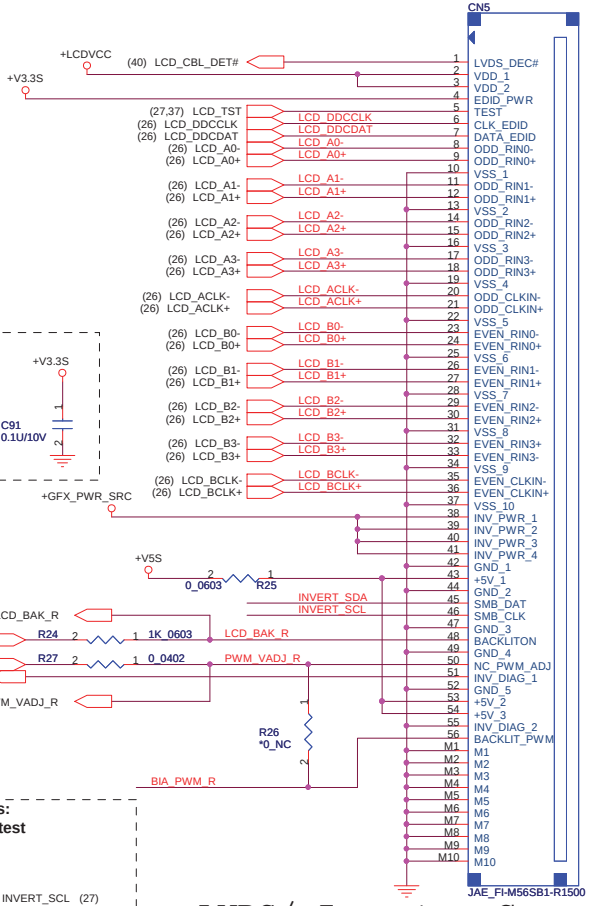




CAM/ Head/ Logo Conn

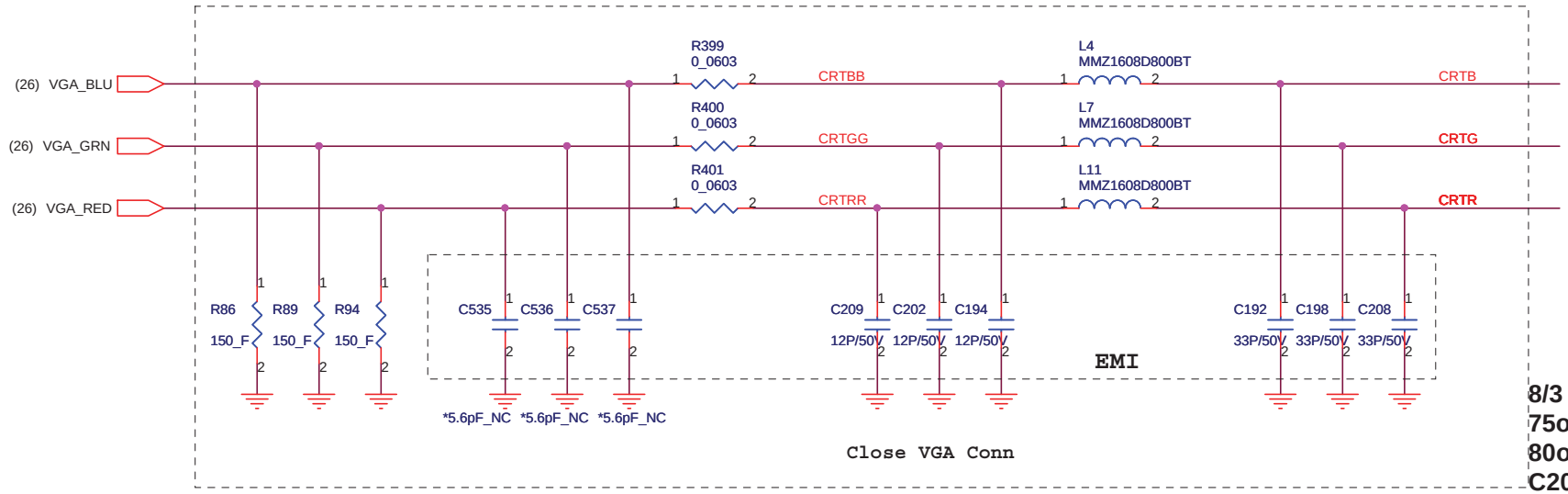


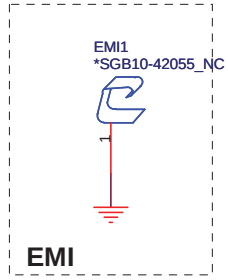
Near LVDS/ Invertor Conn



LVDS/ Invertor Conn

Title	**LCD CONN**
Size	Document Number: **Dell/FLEX Confidential** — Rev: A00
Date: Wednesday, August 12, 2009	Sheet 28 of 66

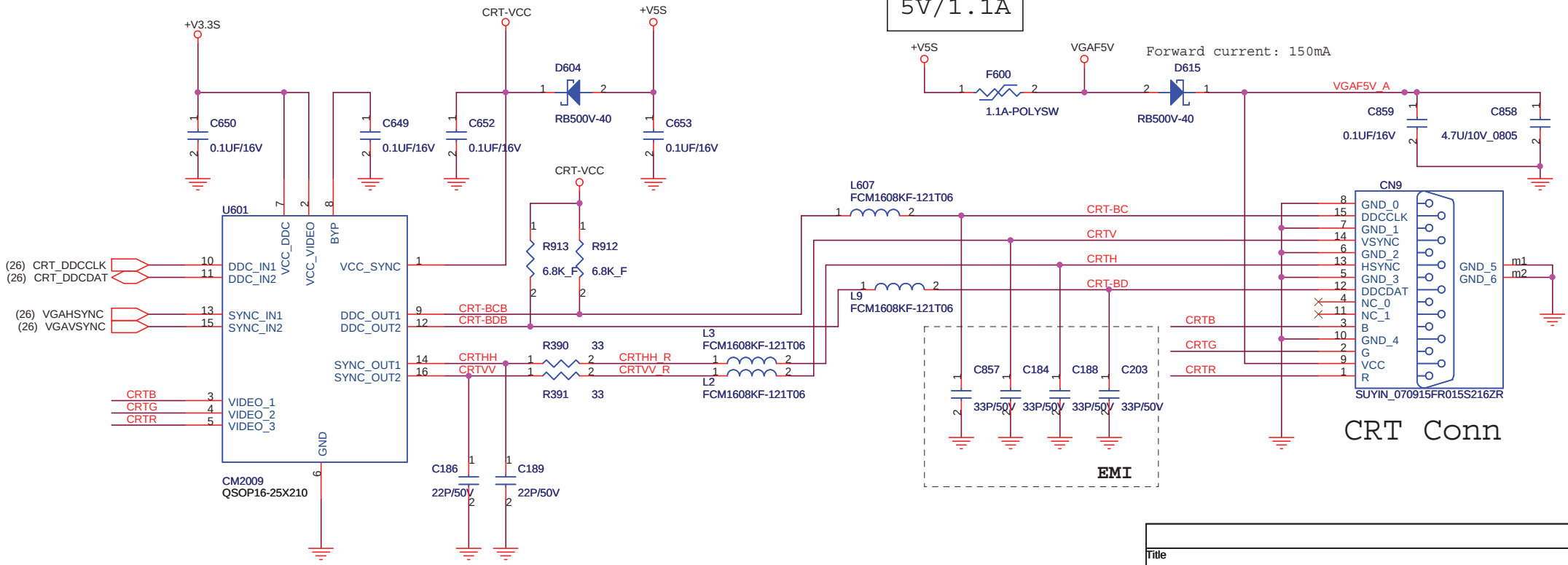




8/3 L4, L7, L11 change from 75ohm_BLM18BB750SN1D to 80ohm_MMZ1608D800BT. C209, C202, C194 change from 18pF to 12pF. C192, C198, C208 change from 18pF to 33pF.

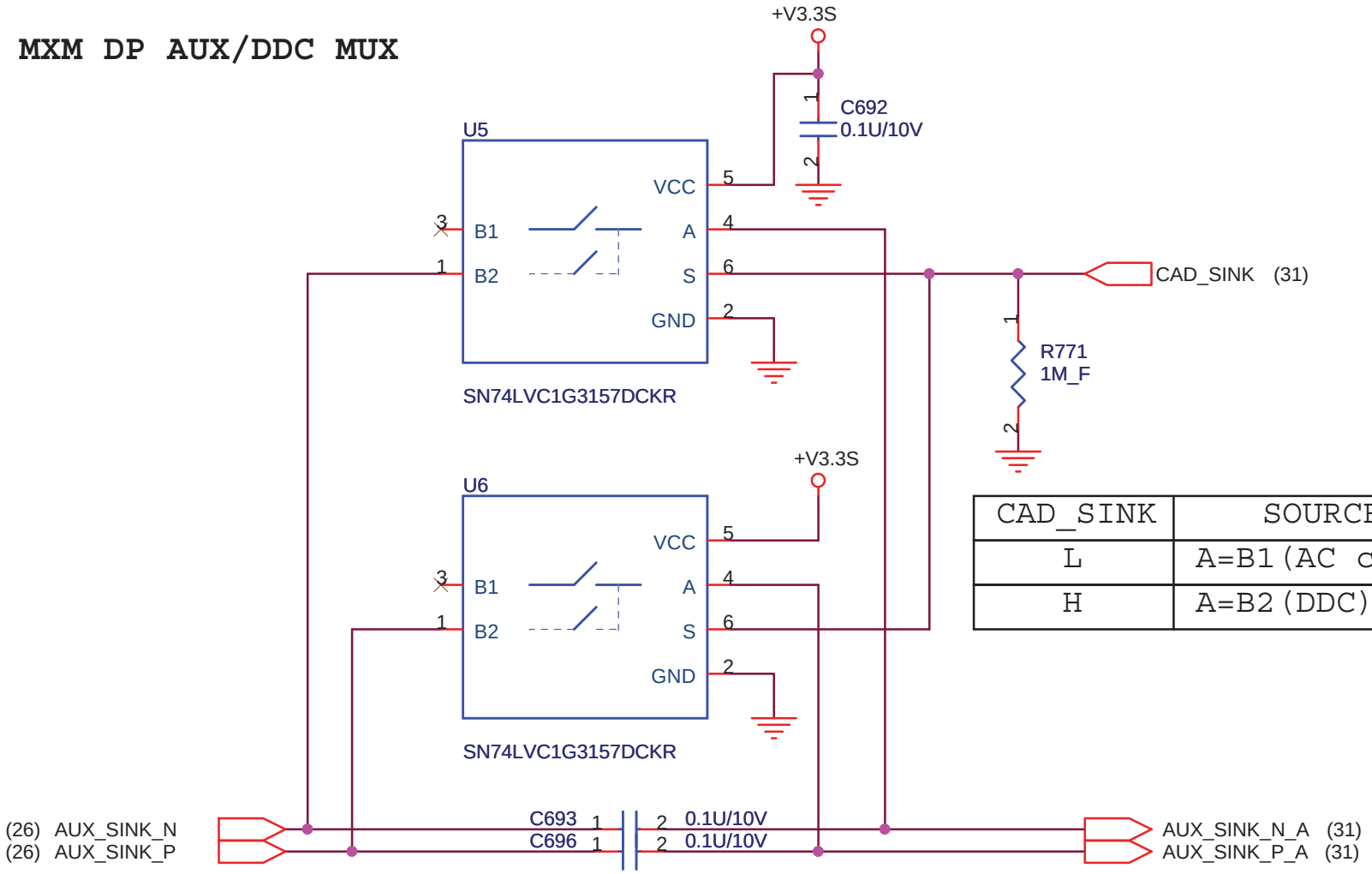
5V/1.1A

Forward current: 150mA



Title	CRT CONN	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 29 of 66	

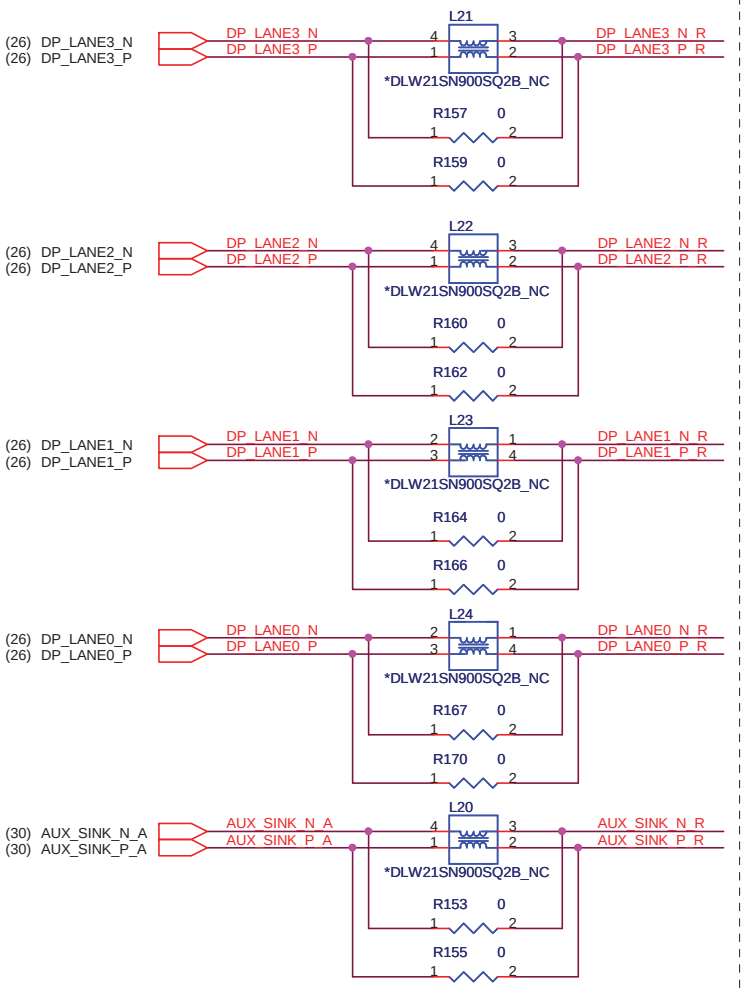
MXM DP AUX/DDC MUX



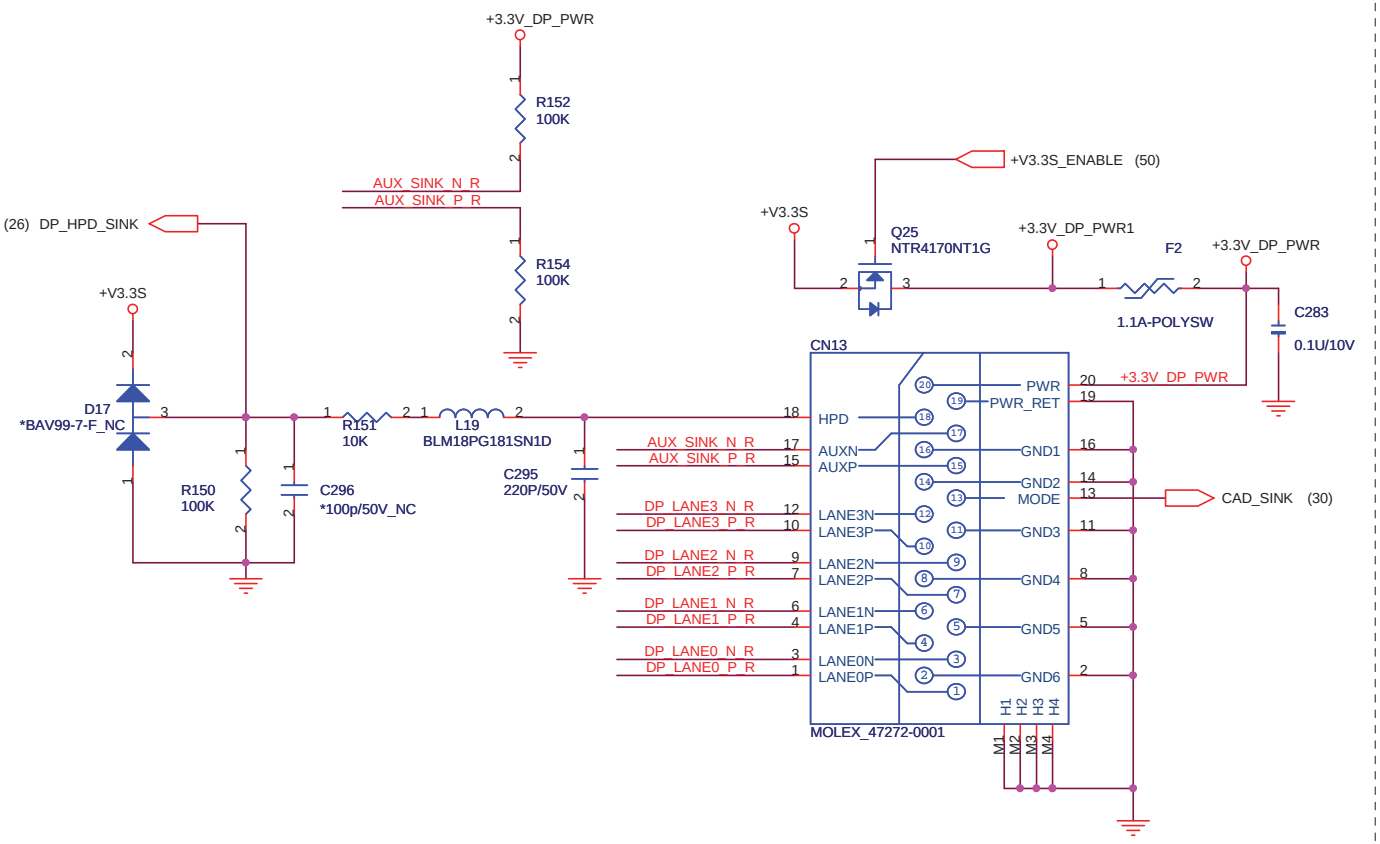
CAD_SINK	SOURCE	Function
L	A=B1(AC couple)	DP Path
H	A=B2(DDC)	HDMI Path

Title	MXM& PCH DDC/ AUX MUX	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 30 of 66	

Reserve For EMI



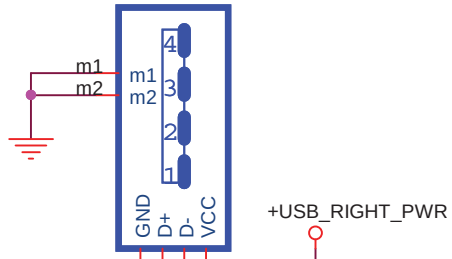
DISPLAY PORT CONNECTOR



Title	DP CONN	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 31 of 66	

USB CONN

CN15
FOXCONN_UB9112C-CA201-9F



+USB_RIGHT_PWR

USB1_D+
USB1_D-

C701 *47p/50V_NC
C702 *47p/50V_NC
C703 0.1U/50V CAP0603

USB POWER SW

Place 150uF cap near USB connector.

Each channel is 1A

+V5A1

JP5
PAD:3.5*1.3mm

FS1
*1.1A-POLYSW_NC

+V5A1_USBP1

(37,45) USB_BACK_EN#

U8
TPS2062ADR
IN
GND
EN1#
OUT1
OC1#
EN2#
OUT2
OC2#
M1

+V3.3A_PCH

R183 10K

+USB_RIGHT_PWR

USB_OC#_0_1 (20)

C370 0.1U/50V CAP0603

C355 10U/10V_0805 CAP0805

C351 150U/6.3V POS7343H19

(20) PCH_USB1-
(20) PCH_USB1+

L28
DLW21SN900SQ2B

USB1_D-
USB1_D+

R188 *0_NC

R187 *0_NC

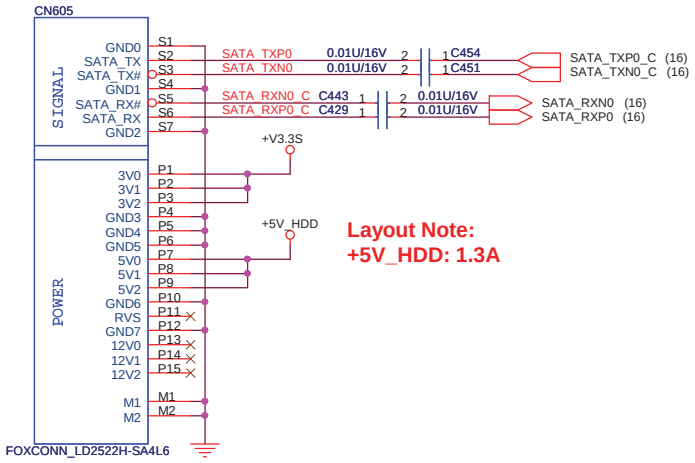
Place ESD diodes as close as USB connector.

ESD3
IP4220CZ6

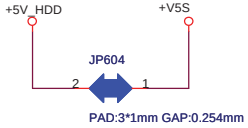
EMI604
*SGB10-42055_NC

EMI

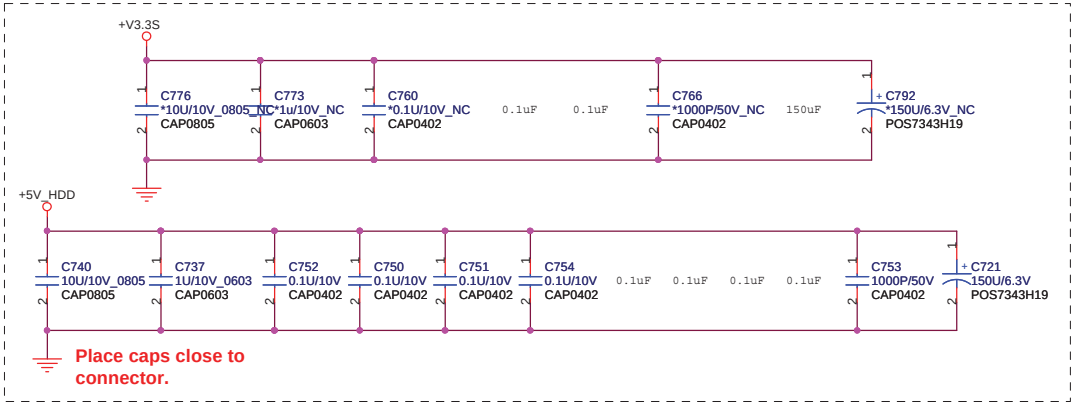
Title: USB		
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 32 of 66	



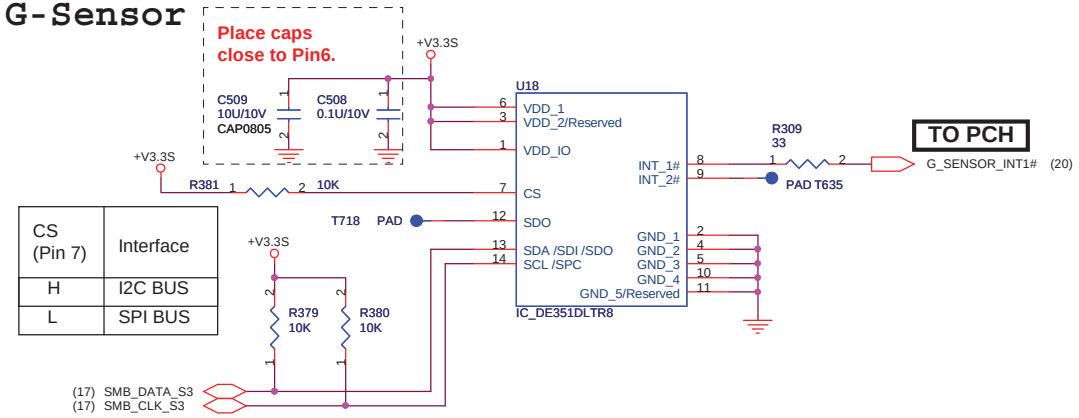
Layout Note:
+5V_HDD: 1.3A



HDD Conn

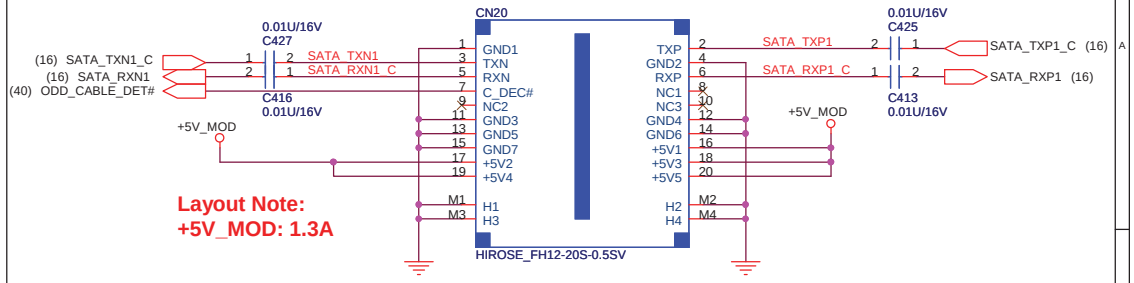


G-Sensor



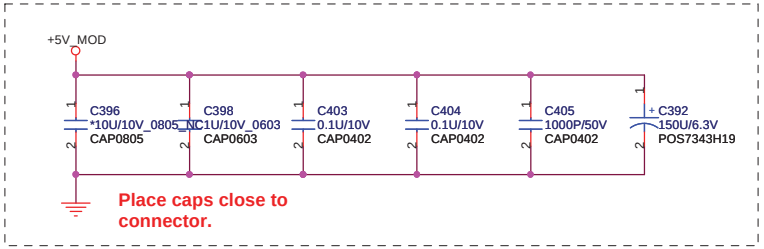
CS (Pin 7)	Interface
H	I2C BUS
L	SPI BUS

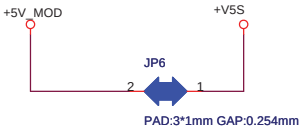
Layout Note:
TAKE CARE with route on
SATA_TX1+- & SATA_RX1+-



Layout Note:
+5V_MOD: 1.3A

ODD Conn





Title	HDD & CD ROM
Size	Document Number: Dell/FLEX Confidential
Rev	A00
Date:	Wednesday, August 12, 2009
Sheet	33 of 66

MiniCard WLAN Connector

CN4 TYCO_1775868-1

M1 M2 M3 M4

Mini PCI-E Latch

Reserved PAD for EMI

L600

USB4_D-
USB4_D+

*DLW21SN900SQ2B_NC

PCH_USB4- (20)
PCH_USB4+ (20)

R608 0

R607 0

UIM_PWR

1.8V or 3.3V
?mA

UIM_PWR

R602 10K

+3.3V_WLAN +V1.5S +3.3V_WLAN

CN3

	WAKE#	3.3V_1	2
	RESERVED_1	GND0	4
	RESERVED_2	1.5V_1	6
	CLKREQ#	UIM_PWR	8
	GND1	UIM_DATA	10
	REFCLK-	UIM_CLK	12
	REFCLK+	UIM_RESET	14
	GND2	UIM_VPP	16
	UIM_C8	GND3	18
	UIM_C4	W_DISABLE#	20
	GND4	PERST#	22
	PERn0	3.3VAUX1	24
	PERp0	GND5	26
	GND6	1.5V_2	28
	GND7	SMB_CLK	30
	PETn0	SMB_DATA	32
	PETp0	GND8	34
	GND9	USB_D-	36
	RESERVED_3	USB_D+	38
	RESERVED_4	GND10	40
	RESERVED_5	LED_WWAN#	42
	RESERVED_6	LED_WLAN#	44
	RESERVED_7	LED_WPAN#	46
	RESERVED_8	1.5V_3	48
	RESERVED_9	GND11	50
	RESERVED_10	3.3V_2	52

M1 M2

TYCO_1775861-1

M1 M2

(18,26,35,45) PCIE_WAKE#
(35) COEX2_WLAN_ACTIVE
(35) COEX1_BT_ACTIVE_MINI
(17) WLAN_CLK_REQ#

R19 *0_NC
R605 0
R606 0

WLAN_CLK_REQ#

(17) CLK_PCIE_WLAN#
(17) CLK_PCIE_WLAN

UIM_DATA
UIM_CLK
UIM_RESET
UIM_VPP

UIM_DATA (35)
UIM_CLK (35)
UIM_RESET (35)
UIM_VPP (35)

PCI-Express TX and RX direct to connector

PAD T600
PAD T601

(17) PCIE_WLAN_RX_N4
(17) PCIE_WLAN_RX_P4

(17) PCIE_WLAN_C_TX_N4
(17) PCIE_WLAN_C_TX_P4

0.1U/10V C607 PCIE_WLAN_TX_N4
0.1U/10V C606 PCIE_WLAN_TX_P4

(20) PCIE_MCARD1_DET#

WLAN_RADIO_OFF#

R600 0 PLT_RST# (20,25,26,37,45)

R601 *0_NC WLAN_PCIE_RST# (21)

+3.3V_WLAN

WPAN_SMBCLK (35)
WPAN_SMBDATA (35)

USB4_D-
USB4_D+

USB_MCARD1_DET# (21)

PAD T603
PAD T602

WLAN_CLK_REQ#

C604 220P/50V

Suport for WoW

WLAN_RADIO_OFF#

D601 SDMK0340L-7-F

WLAN_RADIO_DIS# (21)

R604 *0_NC

Prevent backdrive when WoW is enabled.

+3.3V_WLAN +V3.3S

JP1

PAD:3.5*1.3mm

+3.3V_WLAN

Place caps close to connector.

C615 0.1U/10V
C612 0.047U/10V
C613 0.1U/10V
C603 0.047U/10V
C525 4.7U/10V_0805 CAP0805
C69 *330U/6.3V_NC POS7343H19

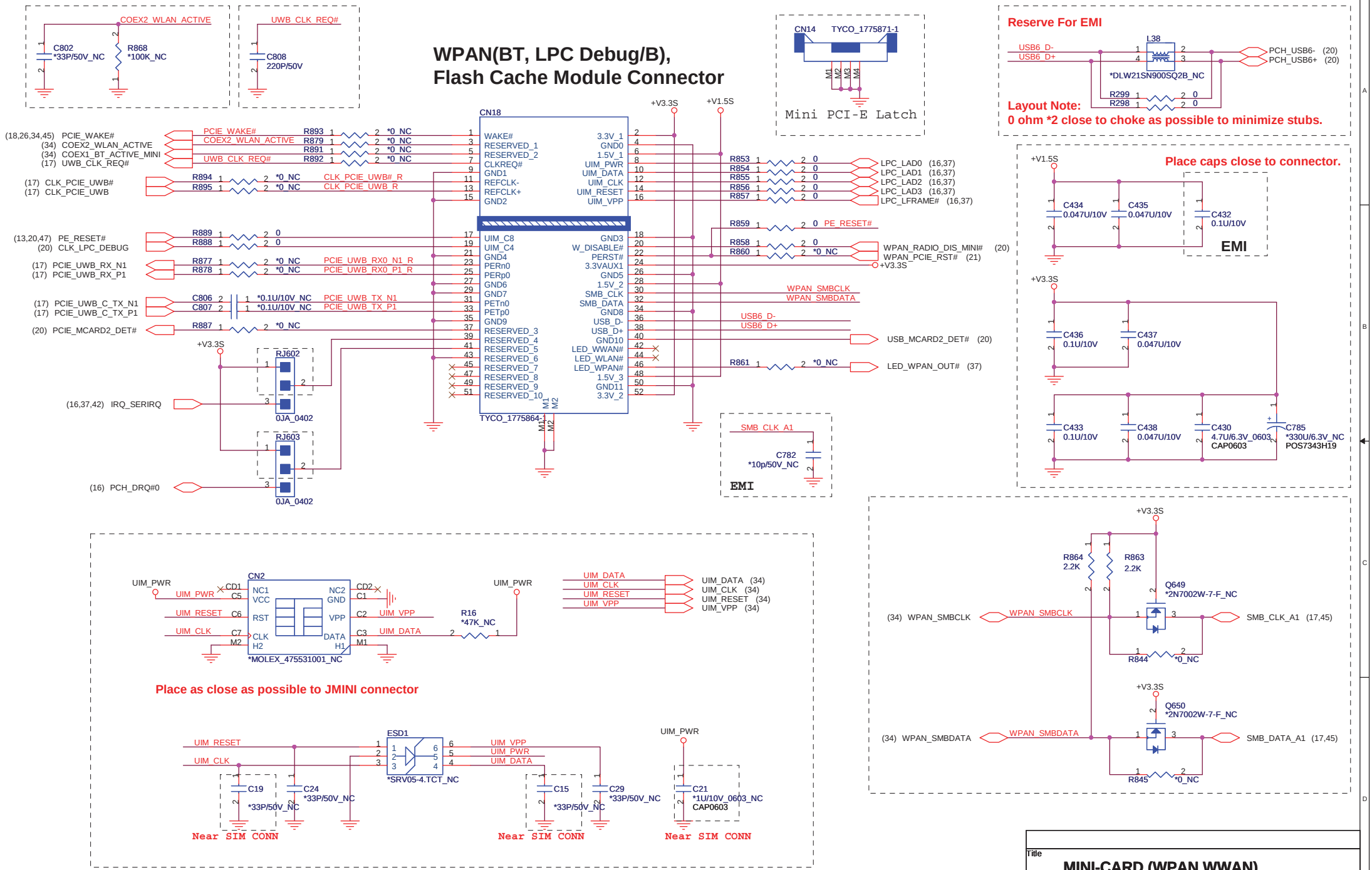
+V1.5S

C611 0.047U/10V
C610 0.047U/10V
C614 0.1U/10V

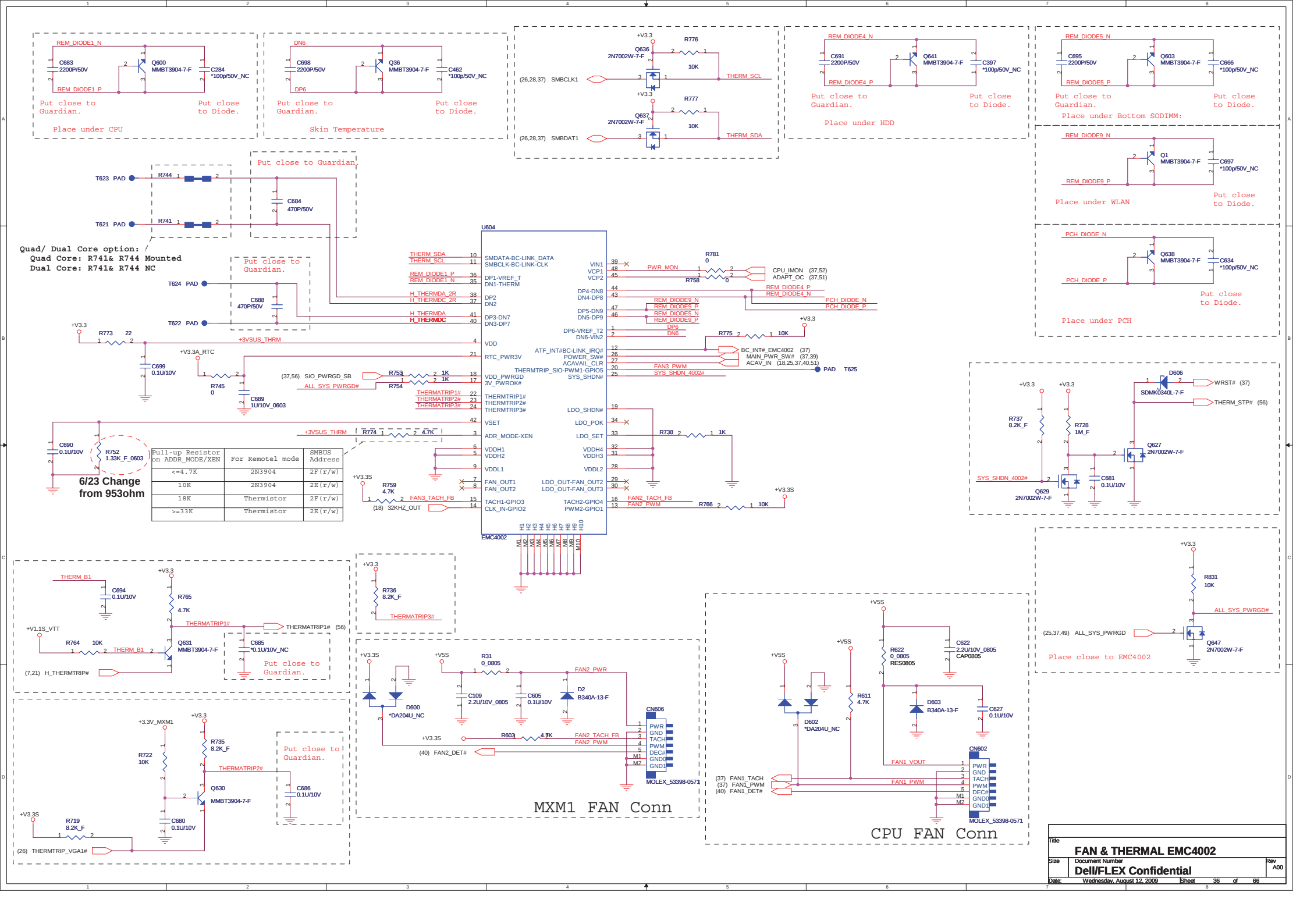
EMI

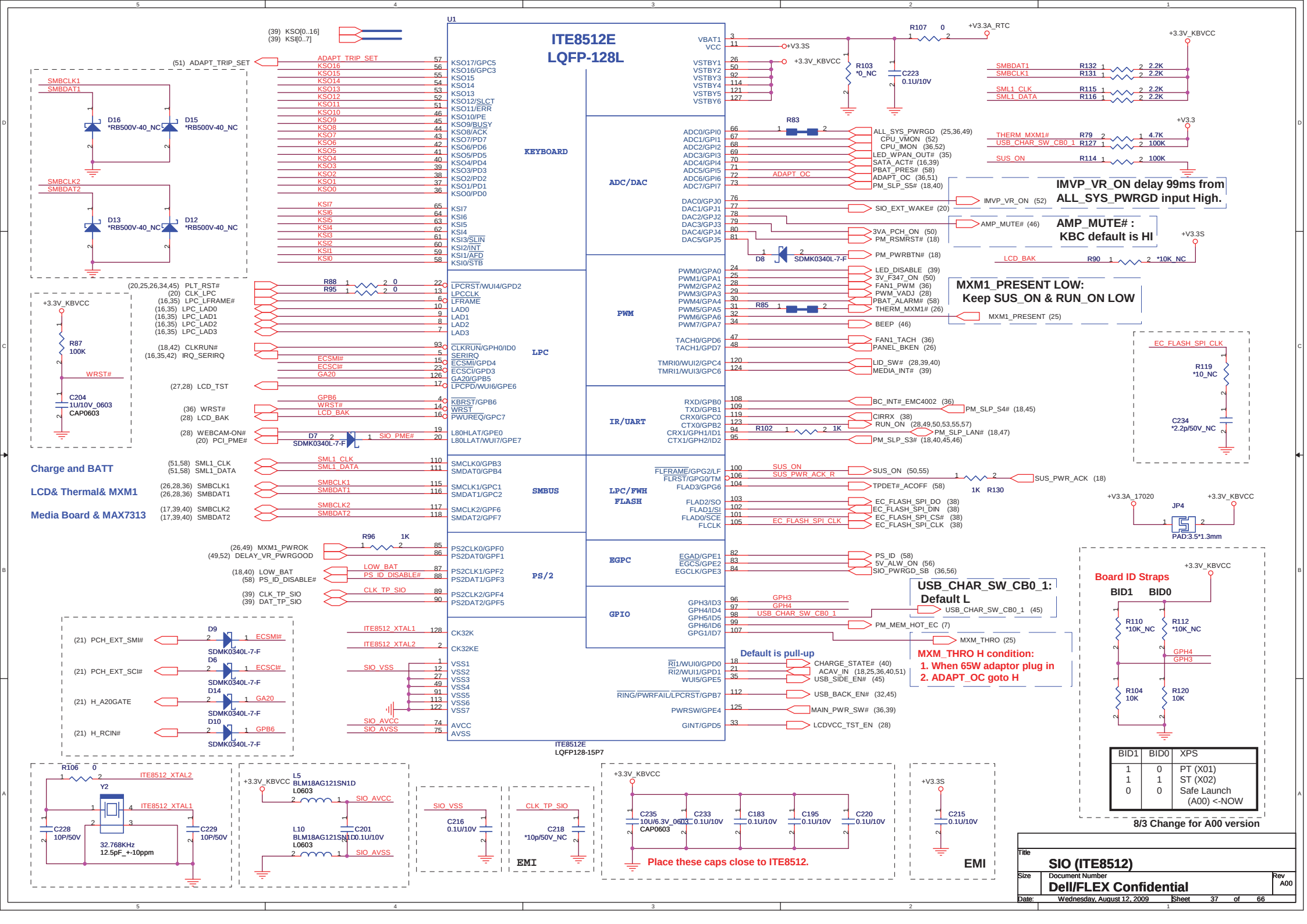
Title	MINI-CARD (WLAN)	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 34 of 66	

WPAN(BT, LPC Debug/B), Flash Cache Module Connector

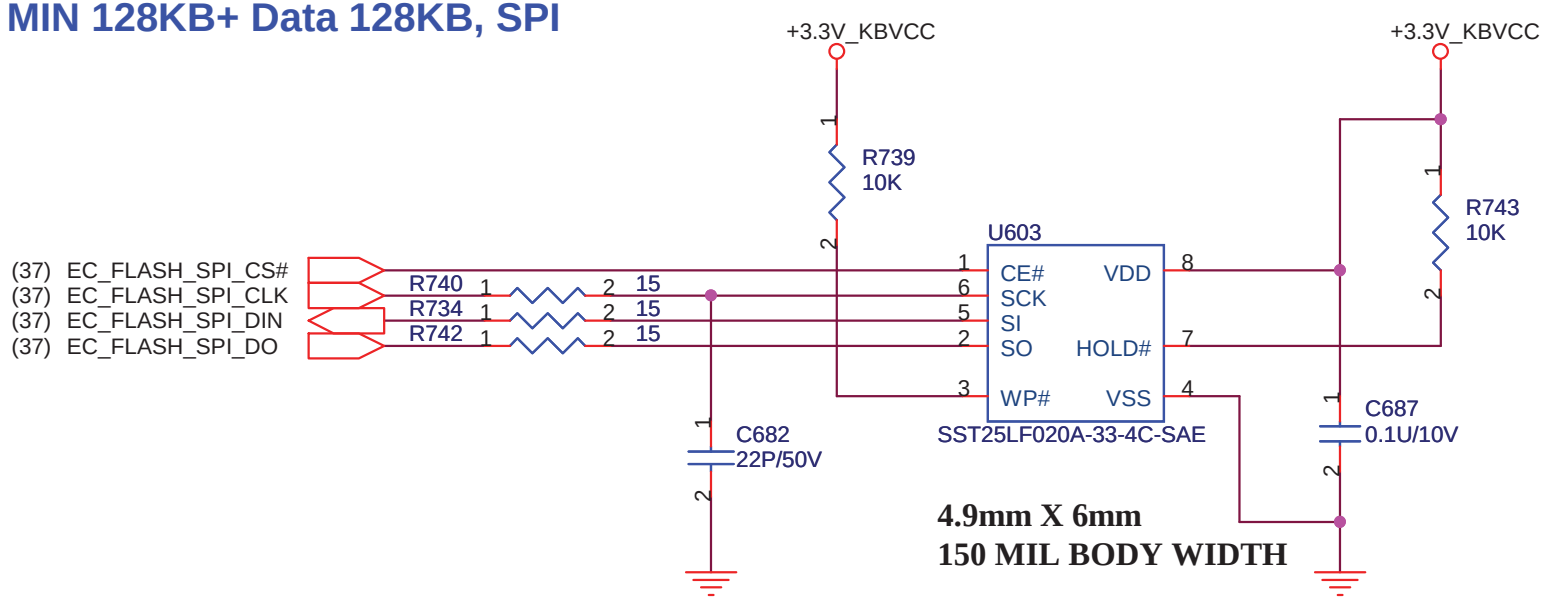


Title	MINI-CARD (WPAN,WWAN)	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 35 of 66	

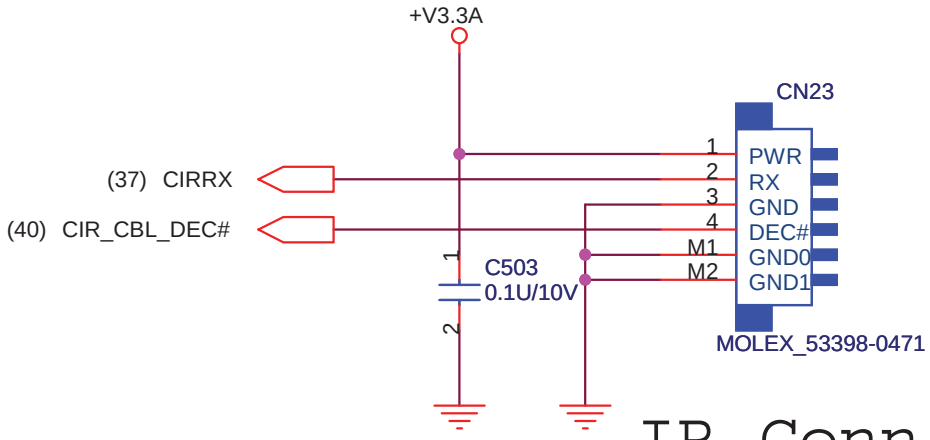

REM_DIODE1_N
C683 2200P/50V
Q600 MMBT3904-7-F
C284 *100p/50V_NC
REM_DIODE1_P
Put close to Guardian.
Put close to Diode.
Place under CPU
DN6
C698 2200P/50V
Q36 MMBT3904-7-F
C462 *100p/50V_NC
DP6
Put close to Guardian.
Put close to Diode.
Skin Temperature
+V3.3
Q636 2N7002W-7-F
R776 10K
(26,28,37) SMBCLK1
THERM_SCL
Q637 2N7002W-7-F
R777 10K
(26,28,37) SMBDAT1
THERM_SDA
REM_DIODE4_N
C691 2200P/50V
Q641 MMBT3904-7-F
C397 *100p/50V_NC
REM_DIODE4_P
Put close to Guardian.
Put close to Diode.
Place under HDD
REM_DIODE5_N
C695 2200P/50V
Q603 MMBT3904-7-F
C666 *100p/50V_NC
REM_DIODE5_P
Put close to Guardian.
Put close to Diode.
Place under Bottom SODIMM:
REM_DIODE9_N
Q1 MMBT3904-7-F
C697 *100p/50V_NC
REM_DIODE9_P
Place under WLAN
Put close to Diode.
PCH_DIODE_N
Q638 MMBT3904-7-F
C634 *100p/50V_NC
PCH_DIODE_P
Put close to Diode.
Place under PCH
T623 PAD
R744
T621 PAD
R741
C684 470P/50V
Put close to Guardian.
Quad/ Dual Core option:
Quad Core: R741& R744 Mounted
Dual Core: R741& R744 NC
T624 PAD
C688 470P/50V
T622 PAD
Put close to Guardian.
U604
SMDATA-BC-LINK_DATA
SMBCLK-BC-LINK-CLK
DP1-VREF_T
DN1-THERM
DP2
DN2
DP3-DN7
DN3-DP7
VDD
RTC_PWR3V
VDD_PWRGD
3V_PWROK#
THERMTRIP1#
THERMTRIP2#
THERMTRIP3#
VSET
ADR_MODE-XEN
VDDH1
VDDH2
VDDL1
FAN_OUT1
FAN_OUT2
TACH1-GPIO3
CLK_IN-GPIO2
VIN1
VCP1
VCP2
DP4-DN8
DN4-DP8
DP5-DN9
DN5-DP9
DP6-VREF_T2
DN6-VIN2
ATF_INT#BC-LINK_IRQ#
POWER_SW#
ACAVAIL_CLR
THERMTRIP_SIO-PWM1-GPIO5
SYS_SHDN#
LDO_SHDN#
LDO_POK
LDO_SET
VDDH4
VDDH3
VDDL2
LDO_OUT-FAN_OUT2
LDO_OUT-FAN_OUT3
TACH2-GPIO4
PWM2-GPIO1
EMC4002
THERM_SDA
THERM_SCL
REM_DIODE1_P
REM_DIODE1_N
H_THERMDA_2R
H_THERMDC_2R
H_THERMDA
H_THERMDC
R781 0
R758 0
PWR_MON
CPU_IMON (37,52)
ADAPT_OC (37,51)
REM_DIODE4_P
REM_DIODE4_N
PCH_DIODE_N
PCH_DIODE_P
REM_DIODE9_N
REM_DIODE9_P
REM_DIODE5_N
REM_DIODE5_P
DP6
DN6
R775 10K
BC_INT#_EMC4002 (37)
MAIN_PWR_SW# (37,39)
ACAV_IN (18,25,37,40,51)
FAN3_PWM
SYS_SHDN_4002#
PAD T625
+3V3.3
R773 22
+3VSUS_THRM
+3V3A_RTC
C699 0.1U/10V
R745 0
C689 1U/10V_0603
(37,56) SIO_PWRGD_SB
ALL_SYS_PWRGD#
R753 1K
R754 1K
THERMATRIP1#
THERMATRIP2#
THERMATRIP3#
C690 0.1U/10V
R752 1.33K_F_0603
6/23 Change from 953ohm
R774 4.7K
R759 4.7K
(18) 32KHZ_OUT
FAN3_TACH_FB
R738 1K
FAN2_TACH_FB
FAN2_PWM
R766 10K
+3V3S
H1 H2 H3 H4 H5 H6 H7 H8 H9 H10
M1 M2 M3 M4 M5 M6 M7 M8 M9 M10
Pull-up Resistor on ADDR_MODE/XEN
For Remotel mode
SMBUS Address
<=4.7K
2N3904
2F(r/w)
10K
2N3904
2E(r/w)
18K
Thermistor
2F(r/w)
>=33K
Thermistor
2E(r/w)
D606 SDMK0340L-7-F
WRST# (37)
THERM_STP# (56)
R737 8.2K_F
R728 1M_F
Q627 2N7002W-7-F
SYS_SHDN_4002#
Q629 2N7002W-7-F
C681 0.1U/10V
THERM_B1
C694 0.1U/10V
R765 4.7K
THERMATRIP1#
THERMATRIP1# (56)
+V1.1S_VTT
R764 10K
Q631 MMBT3904-7-F
C685 *0.1U/10V_NC
Put close to Guardian.
(7,21) H_THERMTRIP#
R736 8.2K_F
THERMATRIP3#
R831 10K
ALL_SYS_PWRGD#
(25,37,49) ALL_SYS_PWRGD
Q647 2N7002W-7-F
Place close to EMC4002
+3.3V_MXM1
R722 10K
R735 8.2K_F
THERMATRIP2#
Q630 MMBT3904-7-F
C686 0.1U/10V
C680 0.1U/10V
R719 8.2K_F
(26) THERMTRIP_VGA1#
+V5S
R31 0_0805
FAN2_PWR
C109 2.2U/10V_0805
C605 0.1U/10V
D600 *DA204U_NC
D2 B340A-13-F
CN606
PWR
GND
TACH
PWM
DEC#
GND0
GND1
R603 4.7K
(40) FAN2_DET#
MOLEX_53398-0571
MXM1 FAN Conn
R622 0_0805 RES0805
C622 2.2U/10V_0805 CAP0805
R611 4.7K
D602 *DA204U_NC
D603 B340A-13-F
C627 0.1U/10V
FAN1_VOUT
FAN1_PWM
(37) FAN1_TACH
(37) FAN1_PWM
(40) FAN1_DET#
CN602
MOLEX_53398-0571
CPU FAN Conn
Title
FAN & THERMAL EMC4002
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 36 of 66


ITE8512E
LQFP-128L
U1
KEYBOARD
ADC/DAC
PWM
LPC
IR/UART
SMBUS
LPC/FWH FLASH
EGPC
GPIO
PS/2
Charge and BATT
LCD& Thermal& MXM1
Media Board & MAX7313
IMVP_VR_ON delay 99ms from ALL_SYS_PWRGD input High.
AMP_MUTE# : KBC default is HI
MXM1_PRESENT LOW: Keep SUS_ON & RUN_ON LOW
USB_CHAR_SW_CB0_1: Default L
Default is pull-up
MXM_THRO H condition:
1. When 65W adaptor plug in
2. ADAPT_OC goto H
Board ID Straps
BID1 BID0
BID1 BID0 XPS
1 0 PT (X01)
1 1 ST (X02)
0 0 Safe Launch (A00) <-NOW
8/3 Change for A00 version
Place these caps close to ITE8512.
EMI
EMI
SIO (ITE8512)
Dell/FLEX Confidential
Wednesday, August 12, 2009

MIN 128KB+ Data 128KB, SPI

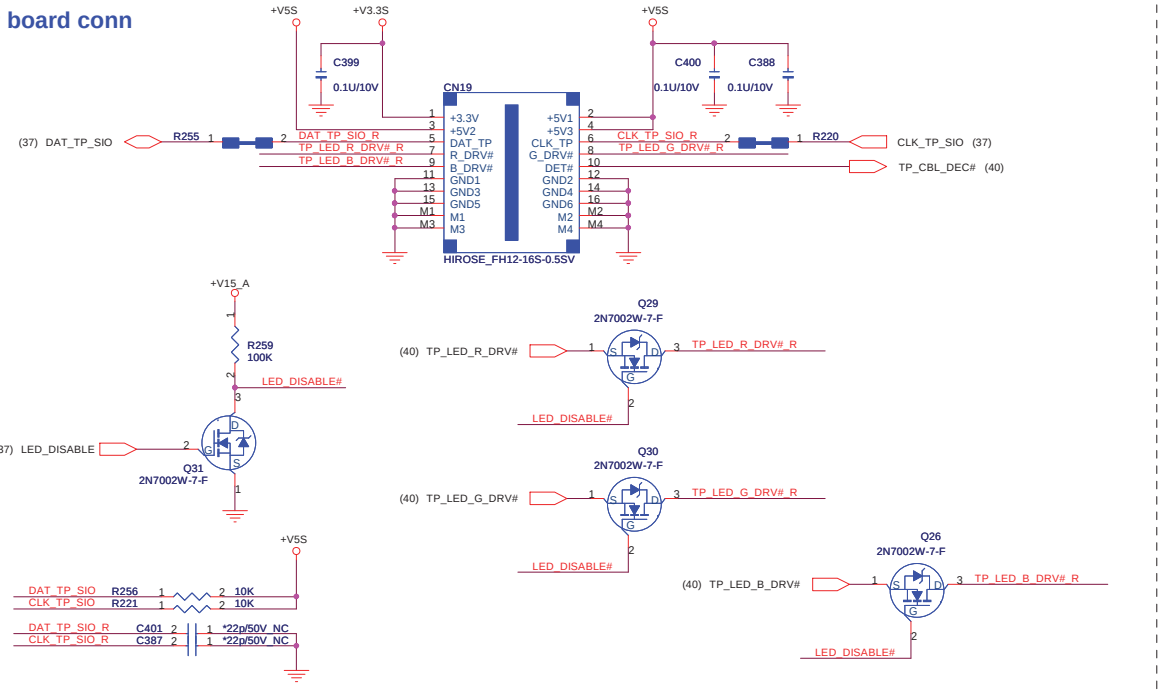


to Consumer IR

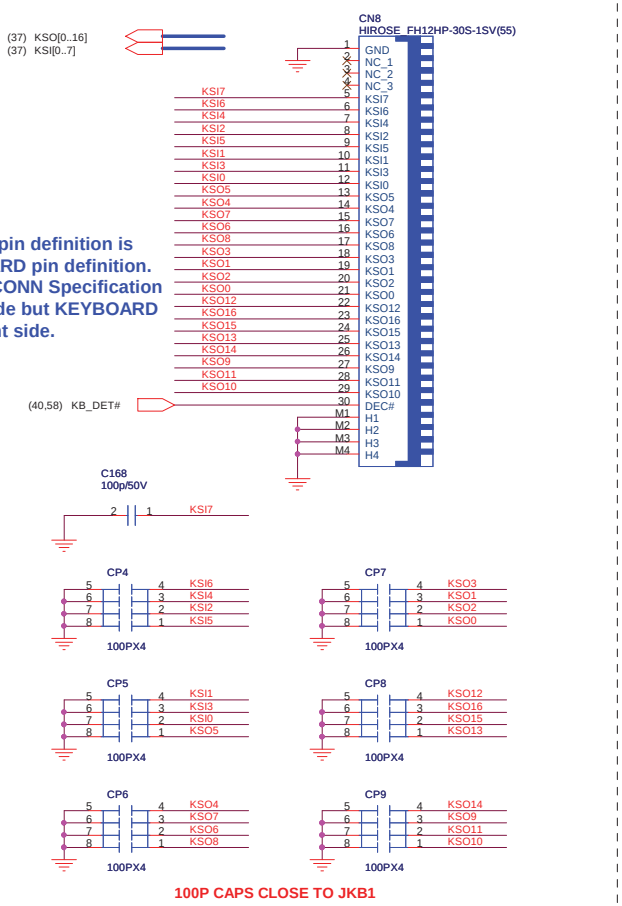


Title	FLASH/ CIR	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 38 of 66	

T/P board conn

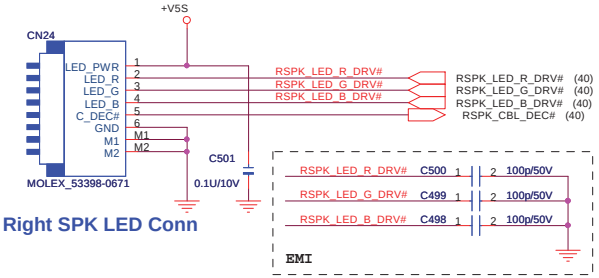


KEYBOARD CONNECTOR

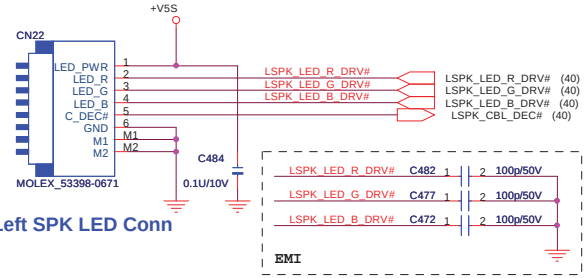


KEYBOARD CONN pin definition is reverse of KEYBOARD pin definition. This is cause that CONN Specification order pin1 in left side but KEYBOARD cable pin1 is in right side.

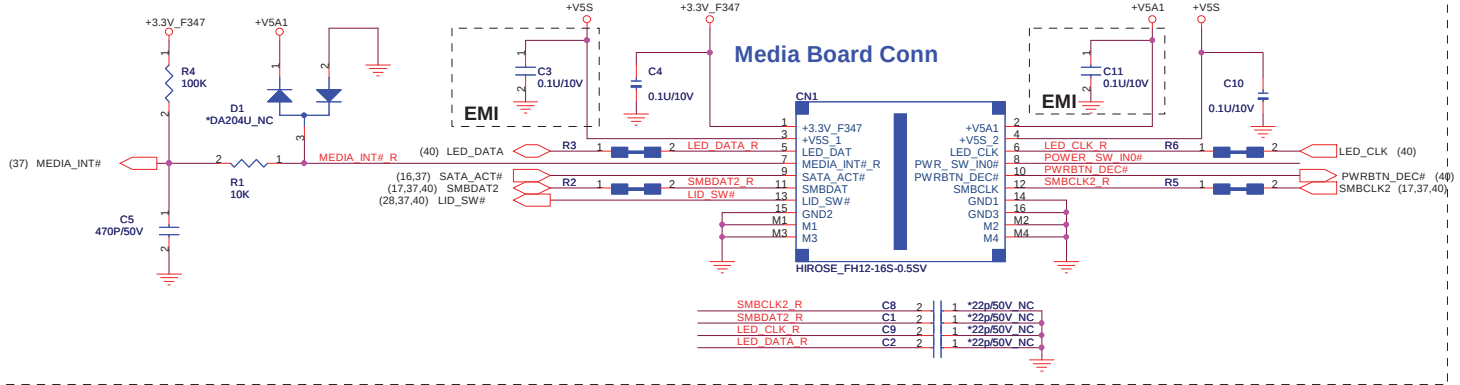
Right SPK LED Conn



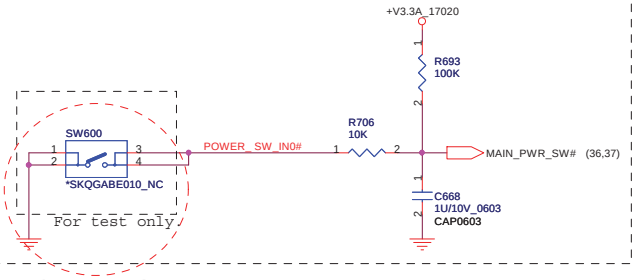
Left SPK LED Conn



Media Board Conn

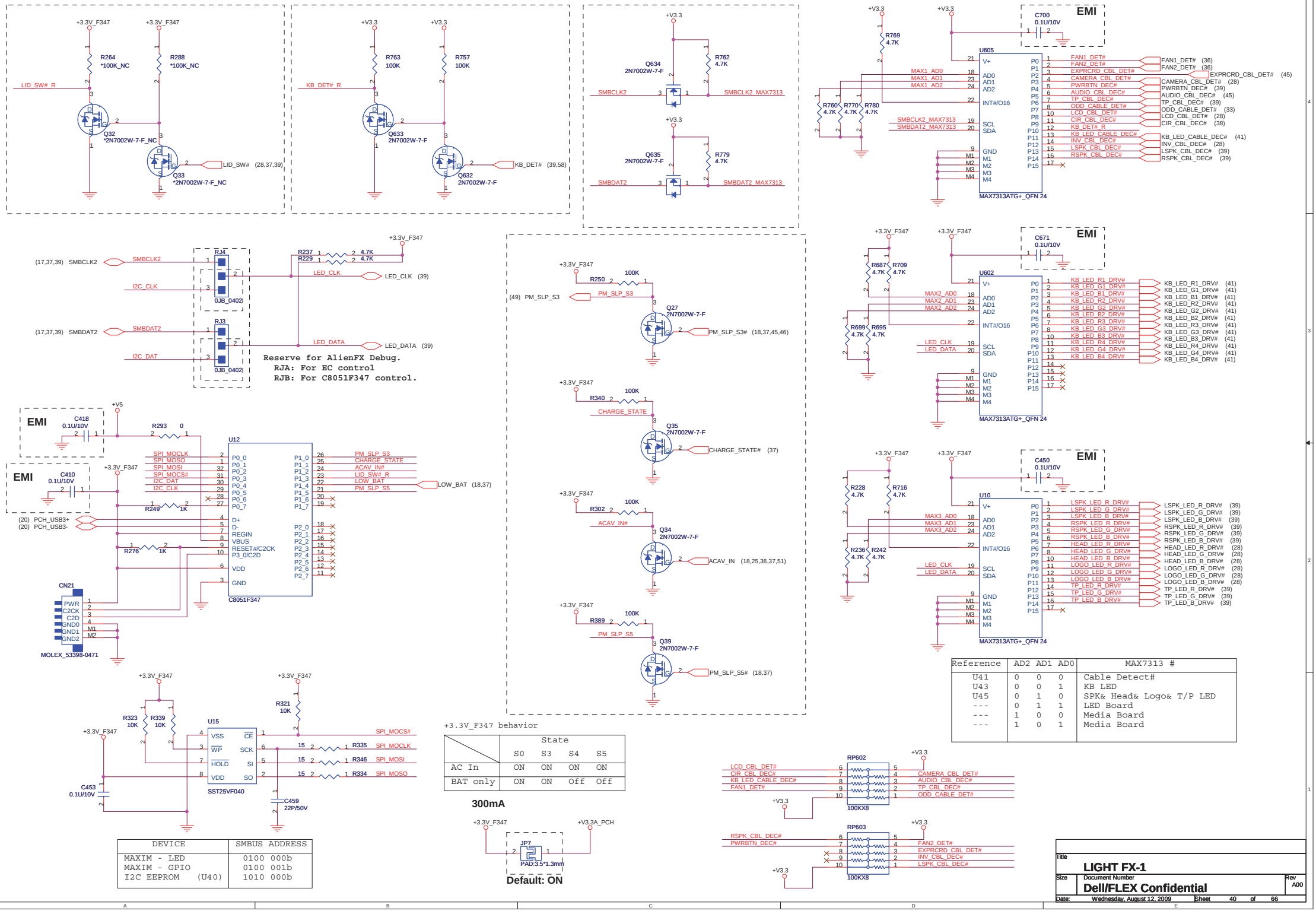


Power Buttom



8/5 SW600 change mount to NA

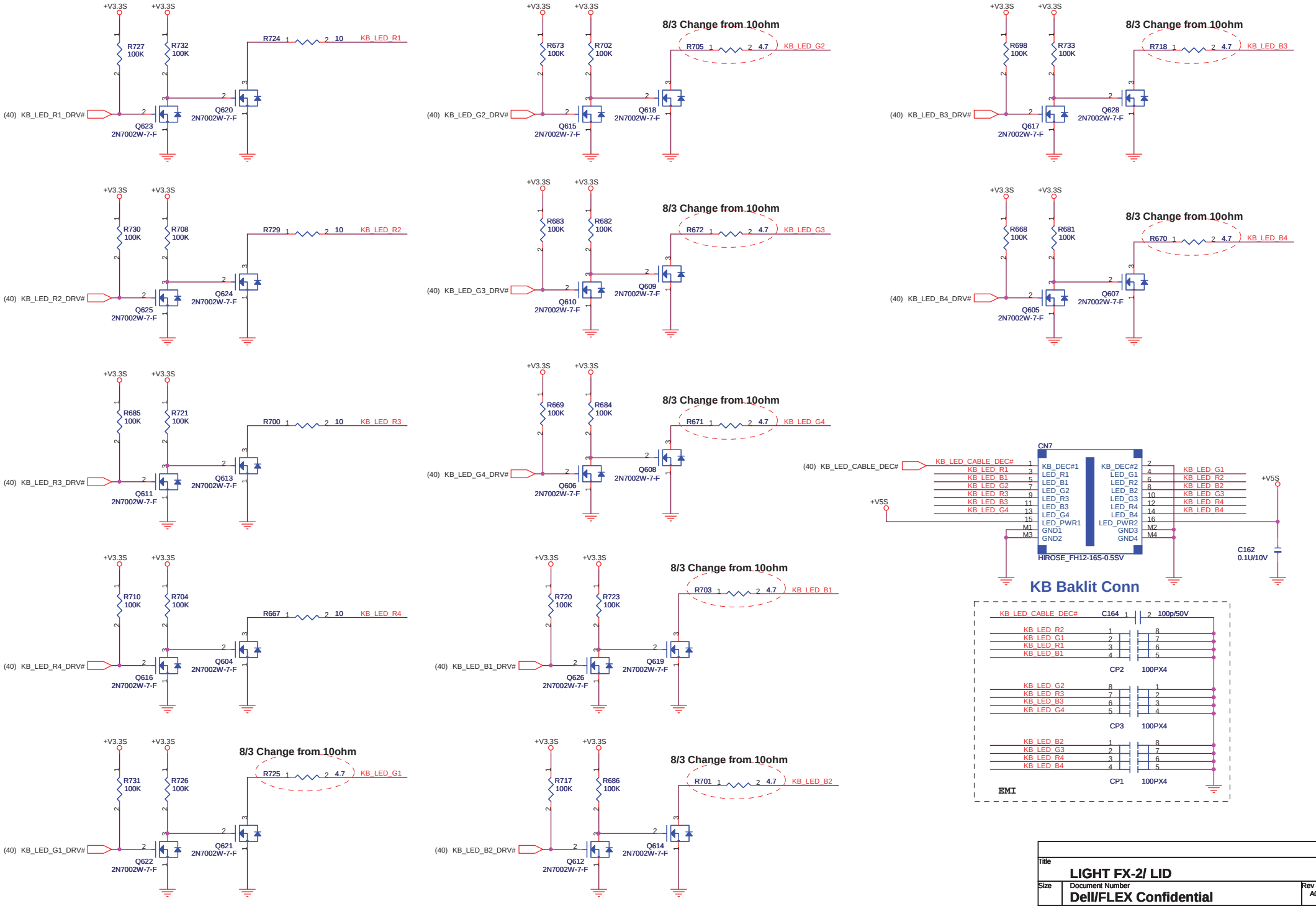
Title	KB/ DAUGHTER BOARD CONN	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 39 of 66	



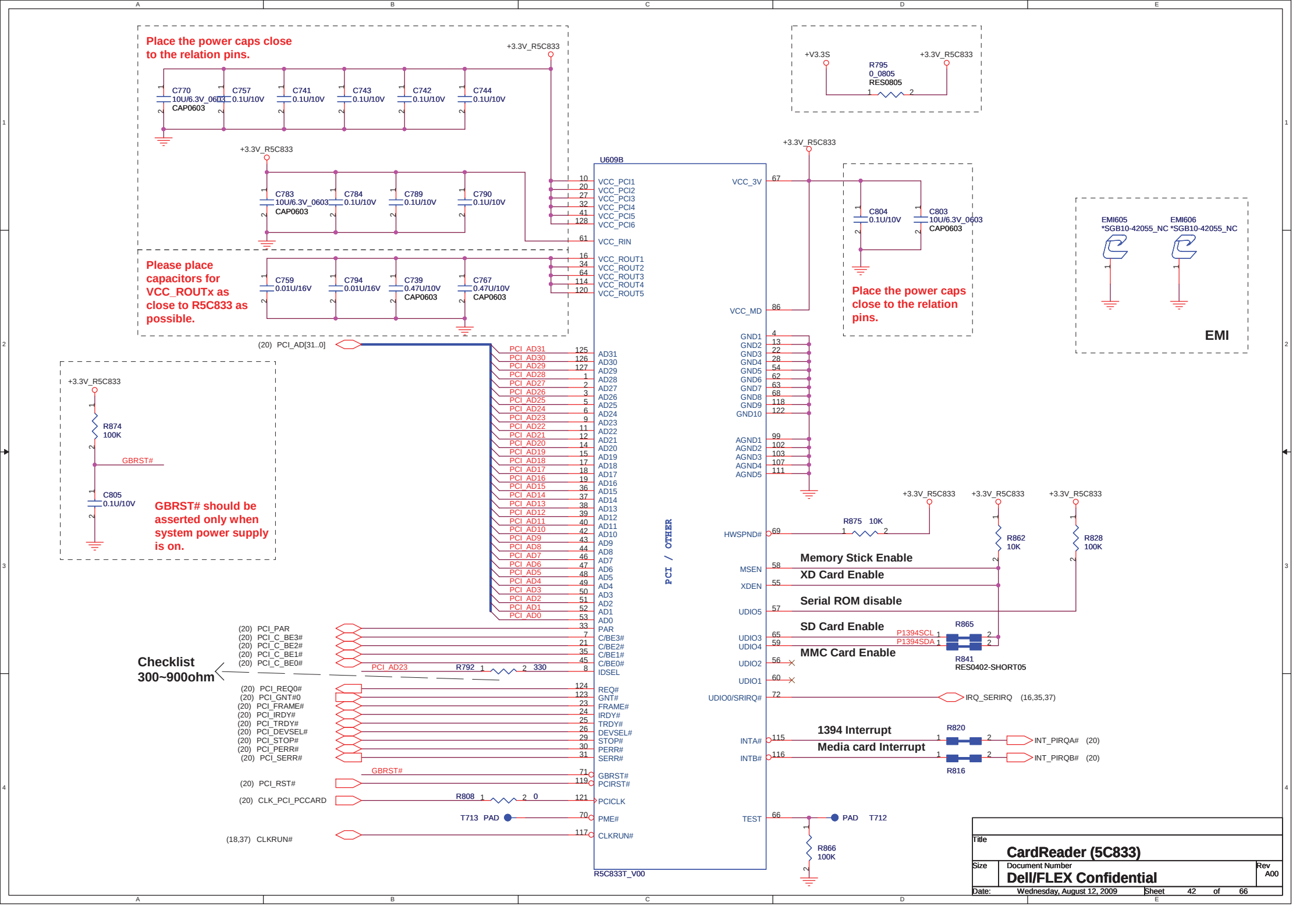
Reference	AD2	AD1	AD0	MAX7313 #
U41	0	0	0	Cable Detect#
U43	0	0	1	KB LED
U45	0	1	0	SPK& Head& Logo& T/P LED
---	0	1	1	LED Board
---	1	0	0	Media Board
---	1	0	1	Media Board

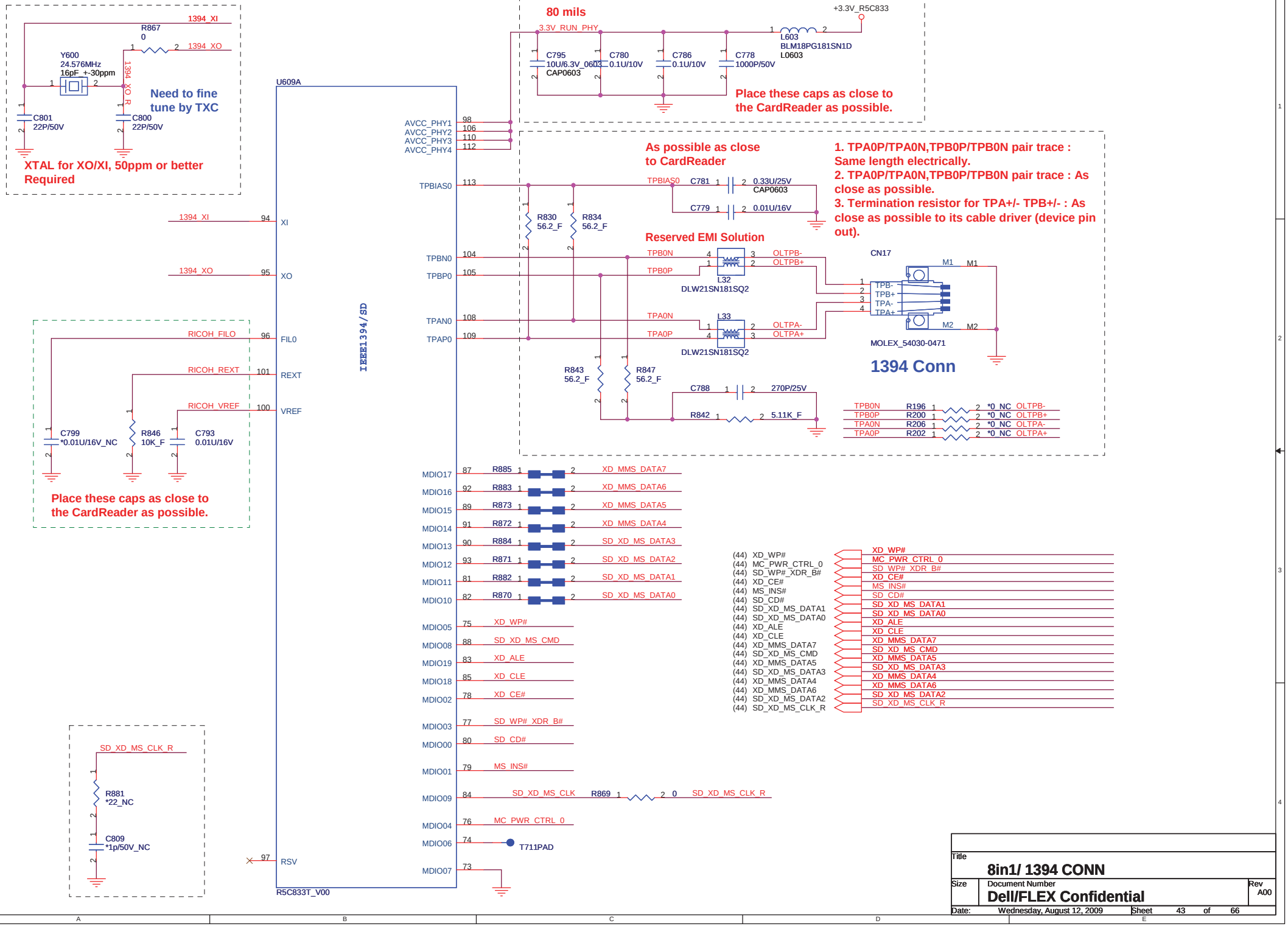
DEVICE	SMBUS ADDRESS
MAXIM - LED	0100 000b
MAXIM - GPIO	0100 001b
I2C EEPROM (U40)	1010 000b

Title	LIGHT FX-1
Size	Document Number: Dell/FLEX Confidential
Rev	A00
Date:	Wednesday, August 12, 2009
Sheet	40 of 66



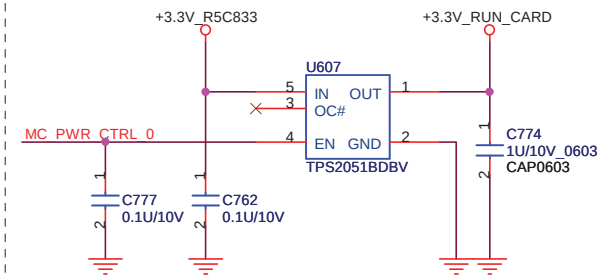
Title	LIGHT FX-2/ LID	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 41 of 66	

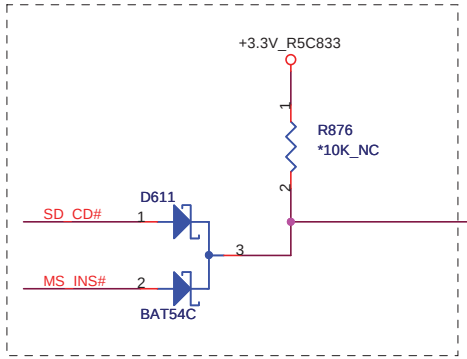

Place the power caps close to the relation pins.
+3.3V_R5C833
C770 10U/6.3V_0603 CAP0603
C757 0.1U/10V
C741 0.1U/10V
C743 0.1U/10V
C742 0.1U/10V
C744 0.1U/10V
C783 10U/6.3V_0603 CAP0603
C784 0.1U/10V
C789 0.1U/10V
C790 0.1U/10V
Please place capacitors for VCC_ROUTx as close to R5C833 as possible.
C759 0.01U/16V
C794 0.01U/16V
C739 0.47U/10V CAP0603
C767 0.47U/10V CAP0603
U609B
VCC_PCI1
VCC_PCI2
VCC_PCI3
VCC_PCI4
VCC_PCI5
VCC_PCI6
VCC_RIN
VCC_ROUT1
VCC_ROUT2
VCC_ROUT3
VCC_ROUT4
VCC_ROUT5
VCC_3V
VCC_MD
GND1
GND2
GND3
GND4
GND5
GND6
GND7
GND8
GND9
GND10
AGND1
AGND2
AGND3
AGND4
AGND5
+V3.3S
R795 0_0805 RES0805
C804 0.1U/10V
C803 10U/6.3V_0603 CAP0603
Place the power caps close to the relation pins.
EMI605 *SGB10-42055_NC
EMI606 *SGB10-42055_NC
EMI
(20) PCI_AD[31..0]
PCI_AD31
PCI_AD30
PCI_AD29
PCI_AD28
PCI_AD27
PCI_AD26
PCI_AD25
PCI_AD24
PCI_AD23
PCI_AD22
PCI_AD21
PCI_AD20
PCI_AD19
PCI_AD18
PCI_AD17
PCI_AD16
PCI_AD15
PCI_AD14
PCI_AD13
PCI_AD12
PCI_AD11
PCI_AD10
PCI_AD9
PCI_AD8
PCI_AD7
PCI_AD6
PCI_AD5
PCI_AD4
PCI_AD3
PCI_AD2
PCI_AD1
PCI_AD0
AD31
AD30
AD29
AD28
AD27
AD26
AD25
AD24
AD23
AD22
AD21
AD20
AD19
AD18
AD17
AD16
AD15
AD14
AD13
AD12
AD11
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
AD0
PCI / OTHER
+3.3V_R5C833
R874 100K
GBRST#
C805 0.1U/10V
GBRST# should be asserted only when system power supply is on.
(20) PCI_PAR
(20) PCI_C_BE3#
(20) PCI_C_BE2#
(20) PCI_C_BE1#
(20) PCI_C_BE0#
PAR
C/BE3#
C/BE2#
C/BE1#
C/BE0#
IDSEL
Checklist 300~900ohm
PCI_AD23
R792 330
(20) PCI_REQ0#
(20) PCI_GNT#0
(20) PCI_FRAME#
(20) PCI_IRDY#
(20) PCI_TRDY#
(20) PCI_DEVSEL#
(20) PCI_STOP#
(20) PCI_PERR#
(20) PCI_SERR#
REQ#
GNT#
FRAME#
IRDY#
TRDY#
DEVSEL#
STOP#
PERR#
SERR#
(20) PCI_RST#
GBRST#
PCIRST#
(20) CLK_PCI_PCCARD
R808 0
PCICLK
T713 PAD
PME#
(18,37) CLKRUN#
CLKRUN#
R5C833T_V00
HWSPND#
R875 10K
MSEN
XDEN
UDIO5
UDIO3
UDIO4
UDIO2
UDIO1
UDIO0/SRIRQ#
Memory Stick Enable
XD Card Enable
Serial ROM disable
SD Card Enable
MMC Card Enable
R862 10K
R828 100K
R865
P1394SCL
P1394SDA
R841 RES0402-SHORT05
IRQ_SERIRQ (16,35,37)
INTA#
INTB#
1394 Interrupt
Media card Interrupt
R820
R816
INT_PIRQA# (20)
INT_PIRQB# (20)
TEST
PAD T712
R866 100K
Title
CardReader (5C833)
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 42 of 66

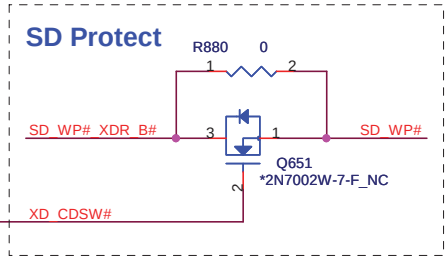


Title	8in1/ 1394 CONN	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 43 of 66	

Layout Note:
1). The distance between Media Card Power Switch and Media Socket should be less than 2-inches.
2). The trace width for +3.3V_RUN_CARD should be 40MIL at least.
3). The GND trace for Media Card Socket should be 40MIL at least.

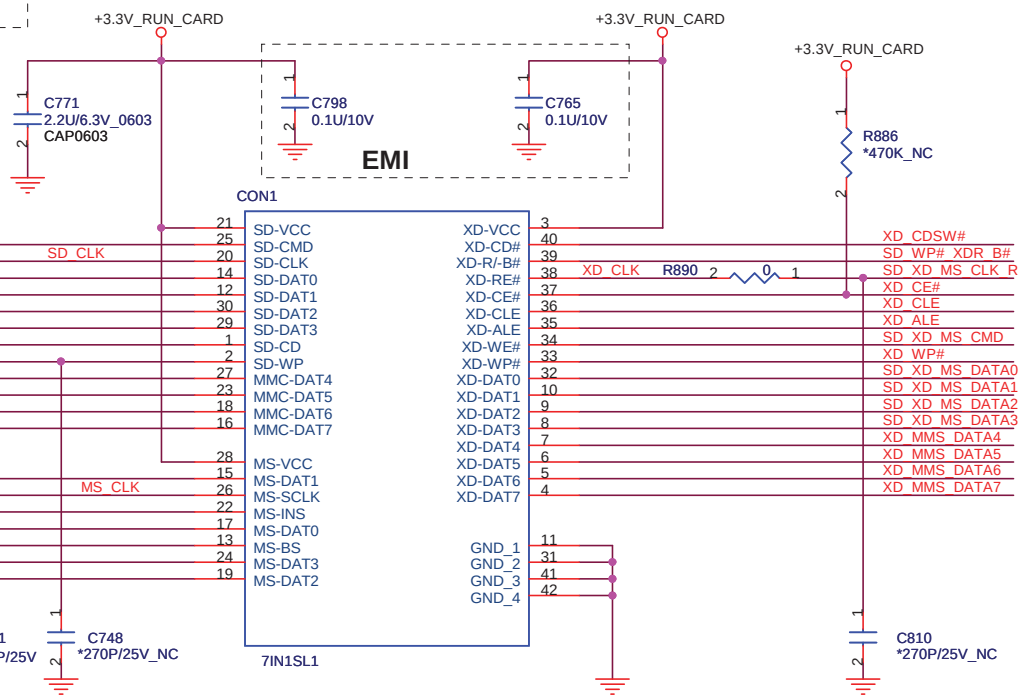






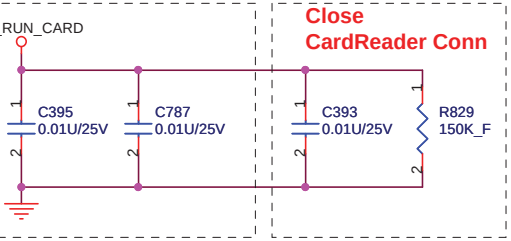
(43) XD_WP#
(43) MC_PWR_CTRL_0
(43) SD_WP#_XDR_B#
(43) XD_CE#
(43) MS_INS#
(43) SD_CD#
(43) SD_XD_MS_DATA1
(43) SD_XD_MS_DATA0
(43) XD_ALE
(43) XD_CLE
(43) XD_MMS_DATA7
(43) SD_XD_MS_CMD
(43) XD_MMS_DATA5
(43) SD_XD_MS_DATA3
(43) XD_MMS_DATA4
(43) XD_MMS_DATA6
(43) SD_XD_MS_DATA2
(43) SD_XD_MS_CLK_R

2.2uF cap is no more than 250mils away from the power pin and a have a min trace width of 40mils.



The trace width for +3.3V_RUN_CARD should be 40MIL at least.

Close CardReader Conn



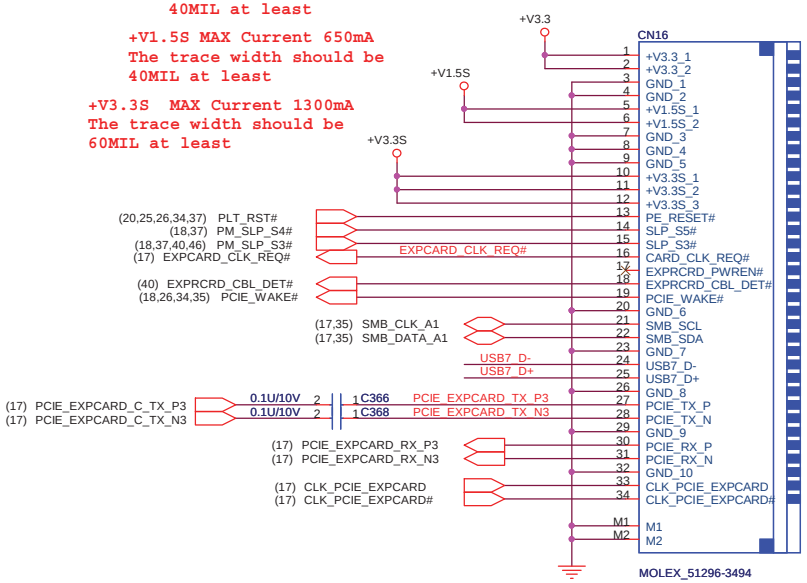
Title	**CardReader CONN**	
Size	Document Number **Dell/FLEX Confidential**	Rev A00
Date: Wednesday, August 12, 2009	Sheet 44 of 66	

+V3.3 MAX Current 275mA
The trace width should be
40MIL at least

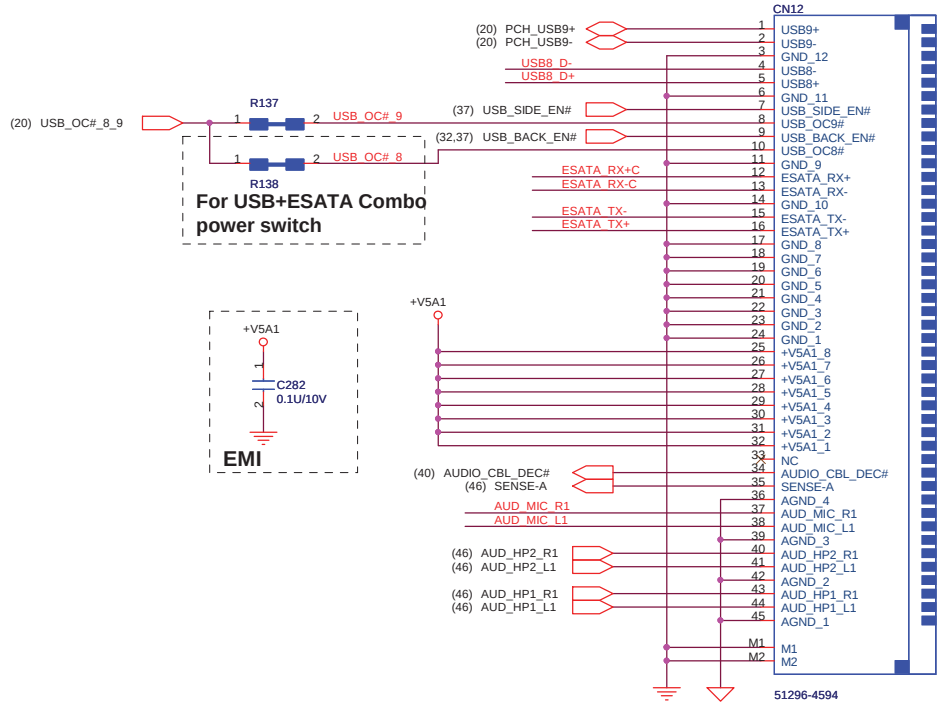
+V1.5S MAX Current 650mA
The trace width should be
40MIL at least

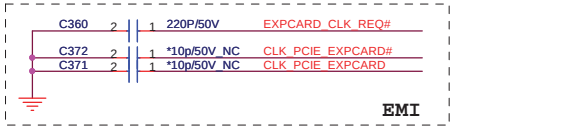
+V3.3S MAX Current 1300mA
The trace width should be
60MIL at least

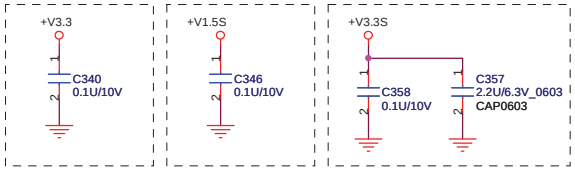
ExpressCard Board CONN

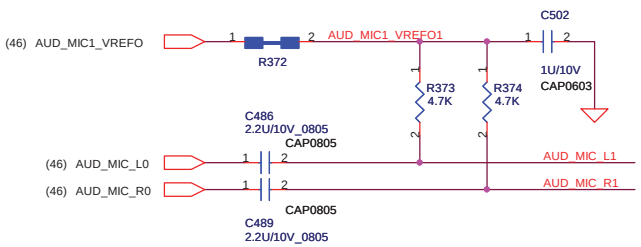


Audio and USB Board CONN

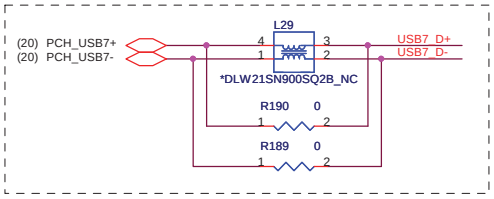




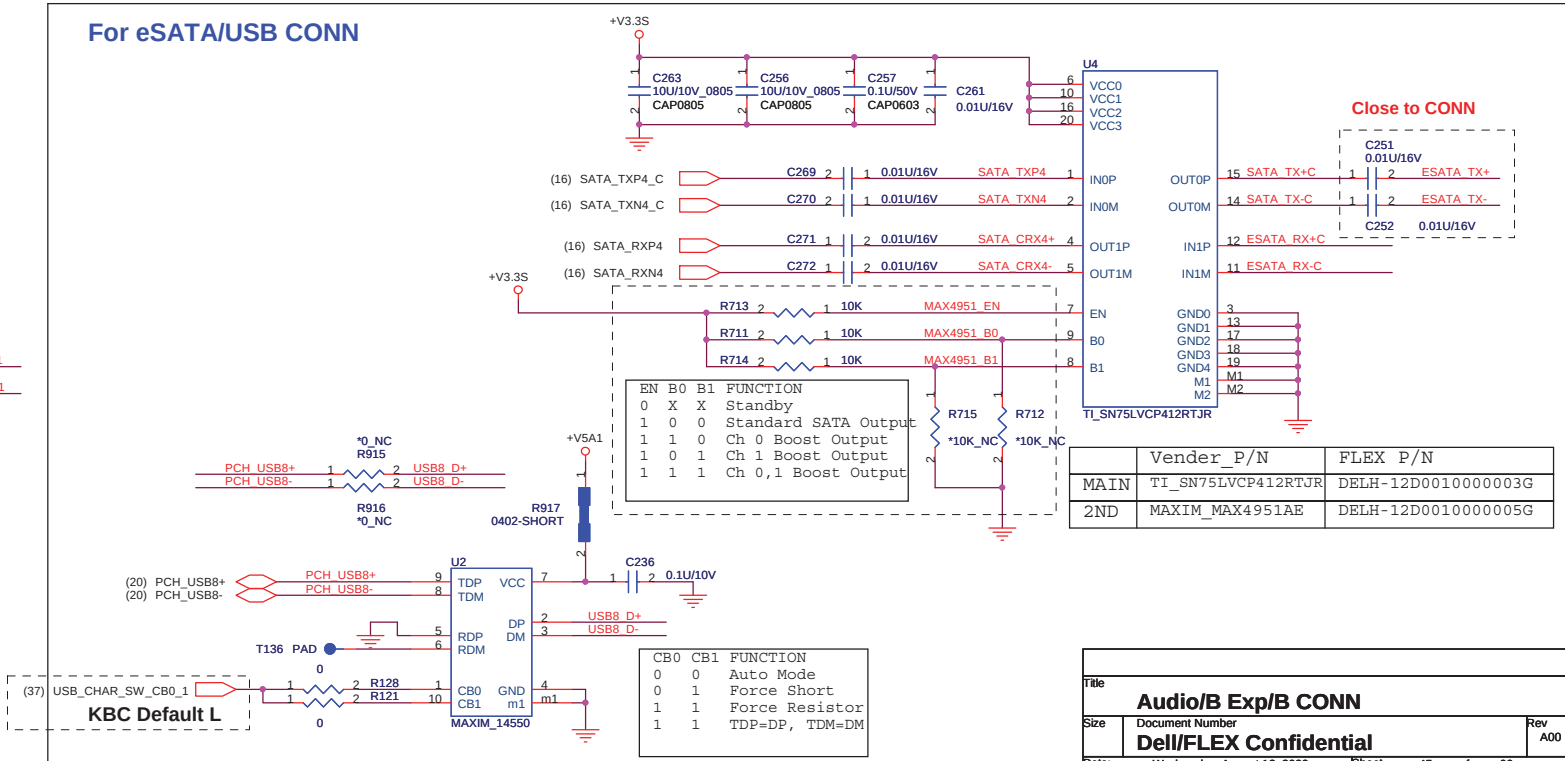




PCI-Express TX and RX direct to connector.



For eSATA/USB CONN



	Vender_P/N	FLEX P/N
MAIN	TI_SN75LVCP412RTJR	DELH-12D0010000003G
2ND	MAXIM_MAX4951AE	DELH-12D0010000005G

Title	Audio/B Exp/B CONN	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 45 of 66	

AZALIA (HD) CODEC
SPK & HP AMP 1,2

U17
IDT_ 92HD83C1X5NLGXUAX

+V3.3S
L39
BLM21PG331SN1D
C439 1U/10V CAP0603
C441 1U/10V CAP0603
C440 0.1U/25V
DVDD
C455 10U/10V
R330 0402-SHORT

DVDD_CORE
DVDD
DVDD_IO

(16) HDA_BITCLK
(16) HDA_SDATA_IN
(16) HDA_SDATA_OUT
(16) HDA_SYNC
(16) HDA_RESET#
R329 22
HDA_BITCLK
HDA_SDI
HDA_RESET#
C457 10P/50V
C495
CAP0805 2.2U/10V_0805
CAP+
CAP-
Mono_Out

(28) DMIC_CLK
(28) DMIC_DATA
(26) HDMI_SPDIF_MXM
DMIC_CLK
R326 22
R332 0
DMIC_CLK/GPIO1
DMIC0/GPIO2
DMIC1/GPIO/SPDIFOUT1

SPDIFOUT0
EAPD
EAPD#
DVSS

AVSS1 AVSS2 AVSS3 PVSS AGND1 AGND2 AGND3 AGND4 AGND5 AGND6 AGND7 AGND8 AGND9 AGND10 AGND11 AGND12
26 30 33 42 m1 m2 m3 m4 m5 m6 m7 m8 m9 m10 m11 m12

+VDDA
C496 0.1U/25V
C497 1U/10V CAP0603
C487 0.1U/25V
C470 1U/10V
C469 10U/10V CAP0805
330ohm_1.5A
+V5S
L41 BLM21PG331SN1D
L40 BLM21PG331SN1D
330ohm_1.5A
R367 2.49K_F
SENSE-A (45)
C481 1000P/50V

AVDD1 AVDD2
PVDD1 PVDD2
SENSE_B SENSE_A
R369 100K
PORTA_L(HP0) PORTA_R(HP0)
AUD_HP1_L1 (45)
AUD_HP1_R1 (45)
PORTB_L (HP1) PORTB_R (HP1)
AUD_HP2_L1 (45)
AUD_HP2_R1 (45)
PORTC_L PORTC_R VREFOUT-C
AUD_MIC_L0 (45)
AUD_MIC_R0 (45)
AUD_MIC1_VREFO (45)
PORTD_+L PORTD_-L PORTD_+R PORTD_-R
SPL+ R SPL- R SPR+ R SPR- R
R370 R365 R358 R364 0_0603
EMI
C485 C483 C475 C480 *47p/50V_NC
SPL+ SPL- SPR+ SPR-
CN25
PWR RX GND DEC# GND0 GND1
M1 M2
MOLEX_53398-0471
PORTE_L PORTE_R
PORTF_L PORTF_R VREFOUT-F
CAP2
VREFFILT
V-
VREG
PCBEEP
C493 2.2U/10V_0805
C494 2.2U/10V_0805
C490 10U/10V CAP0805
C491 1U/10V CAP0603

EMI Reserved
C465 C479 C488 C308 C863 C447 C474 0.1UF/16V
R368 R371 R347 *0_NC

JP8
PAD:1.27*1.27mm GAP:0.254mm

Close to CODEC
+VDDA
C464 0.1U/25V CAP0603
C476 1U/10V CAP0603
AUD_PC_BEEP
BEEP2
R357 10K
BEEP1
R366 2.2K
U16 74LVC1G86GW
BEEP (37)
SPKR (16)
D21
*BAT54C_NC

DMIC_CLK
R327 *22_NC
C452 *1p/50V_NC
EMI
DVDD
C442 0.1U/25V
FOR EMI
+VDDA
C492 0.1U/25V
FOR EMI

(18,37,40,45) PM_SLP_S3#
HDA_RESET#
D23 1SS355
D24 1SS355
R378 100K
D25 1SS355
(37) AMP_MUTE#
R331 100
EAPD
C506 1U/10V CAP0603
AMP_MUTE# :
KBC default is HI

Title	Audio_(92HD83)/CONN	
Size	Document Number	Rev
	Dell/FLEX Confidential	A00
Date: Wednesday, August 12, 2009	Sheet 46 of 66	

Hanksville PHY	FLEX P/N
WG82577LC QLMH A3	DELH-10D0040000005G

Reserved EMI

Put close to IC

Near pin 1&2

EMI

EMI

U3

HANKSVILLE_WG82577LC

PCIE

SMBUS

LED

JTAG

MDI

220 mA

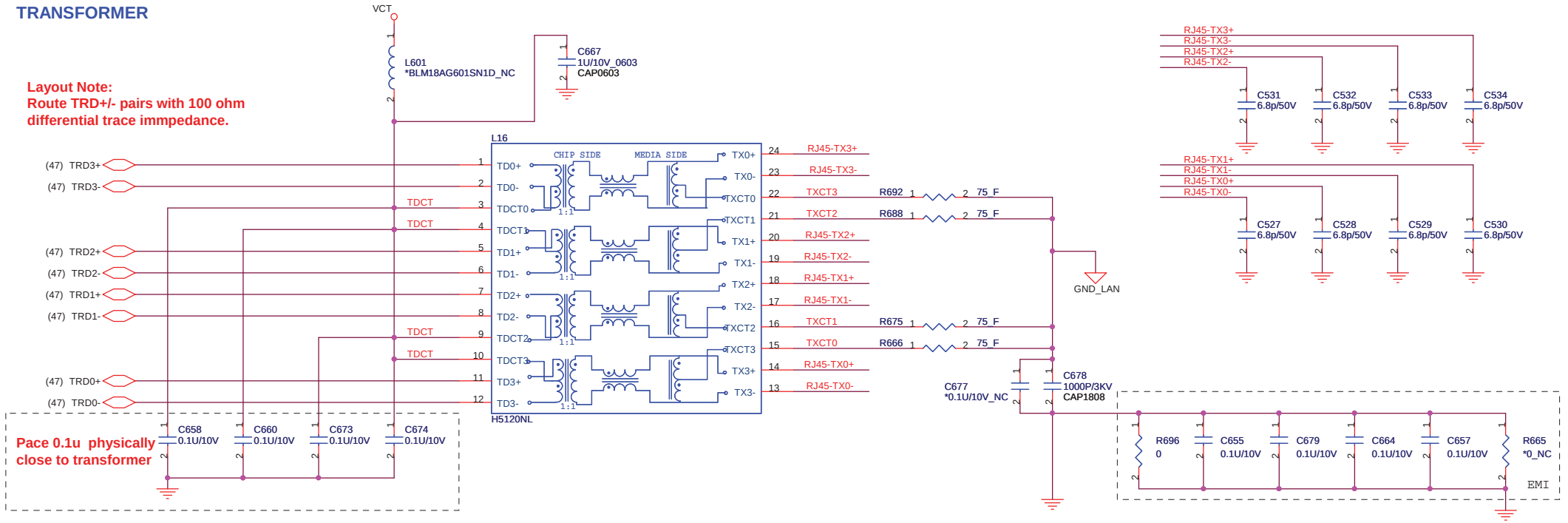
Title: PHY_HANKSVILLE GbE LAN

Size: Document Number: Dell/FLEX Confidential — Rev A00

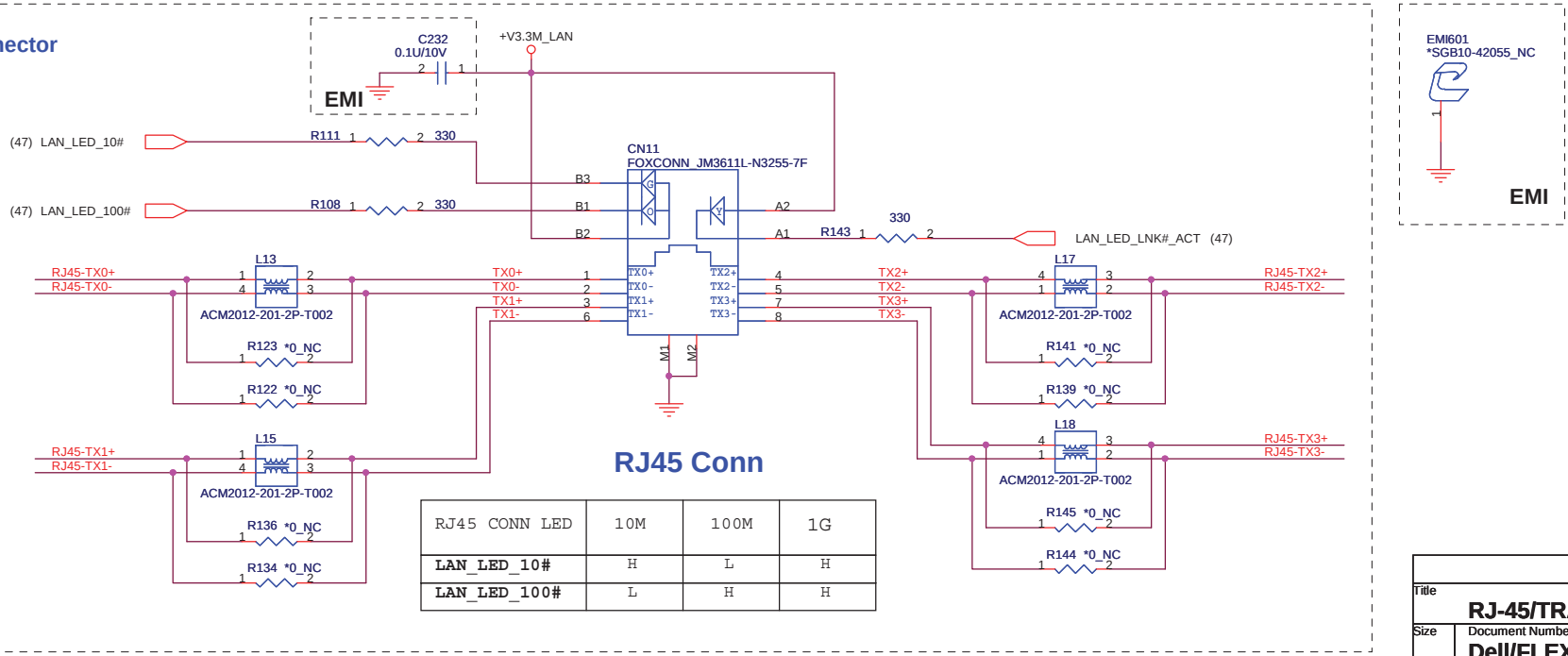
Date: Wednesday, August 12, 2009 — Sheet 47 of 66

TRANSFORMER

Layout Note:
Route TRD+/- pairs with 100 ohm differential trace immpedance.



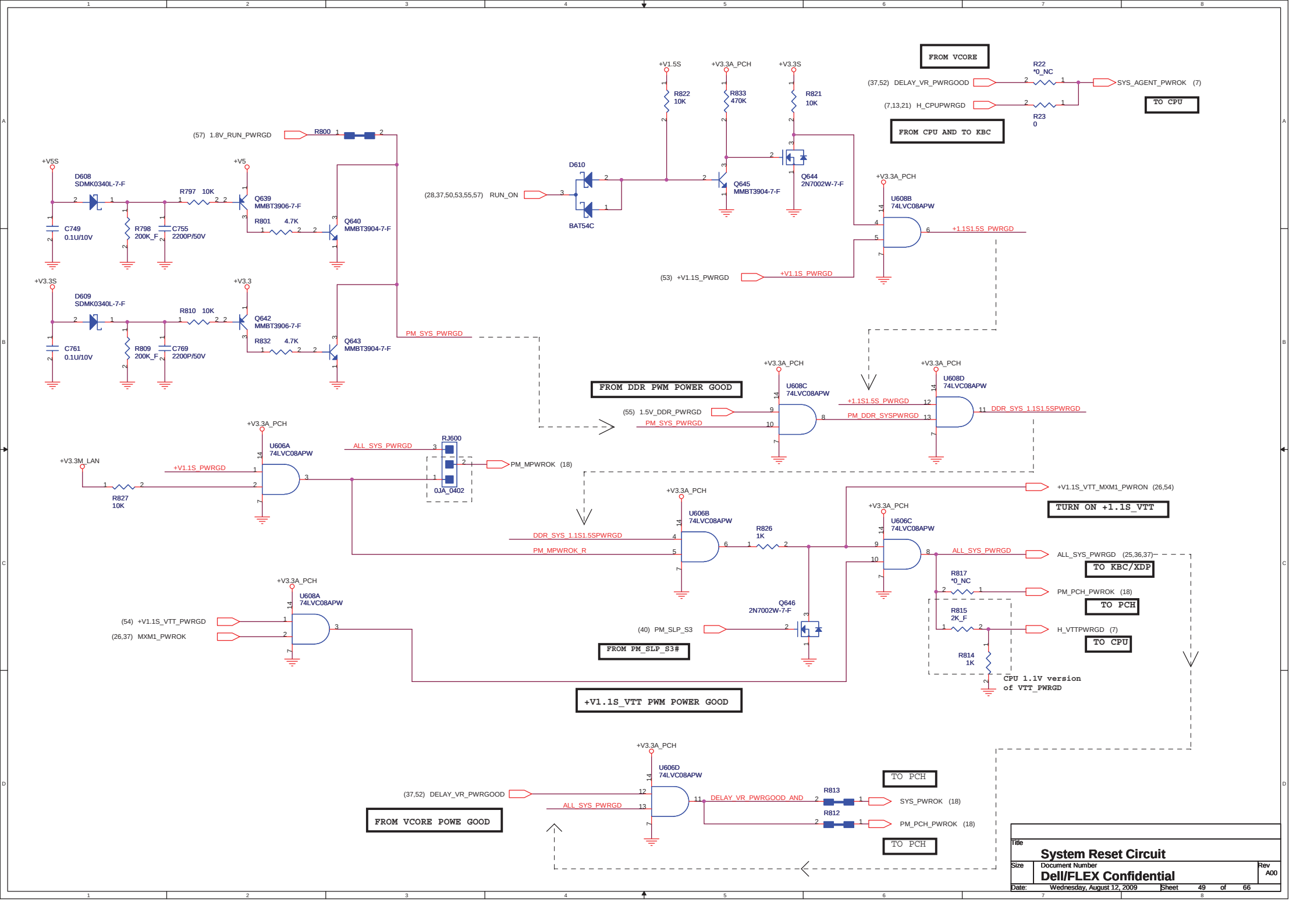
RJ-45 Connector

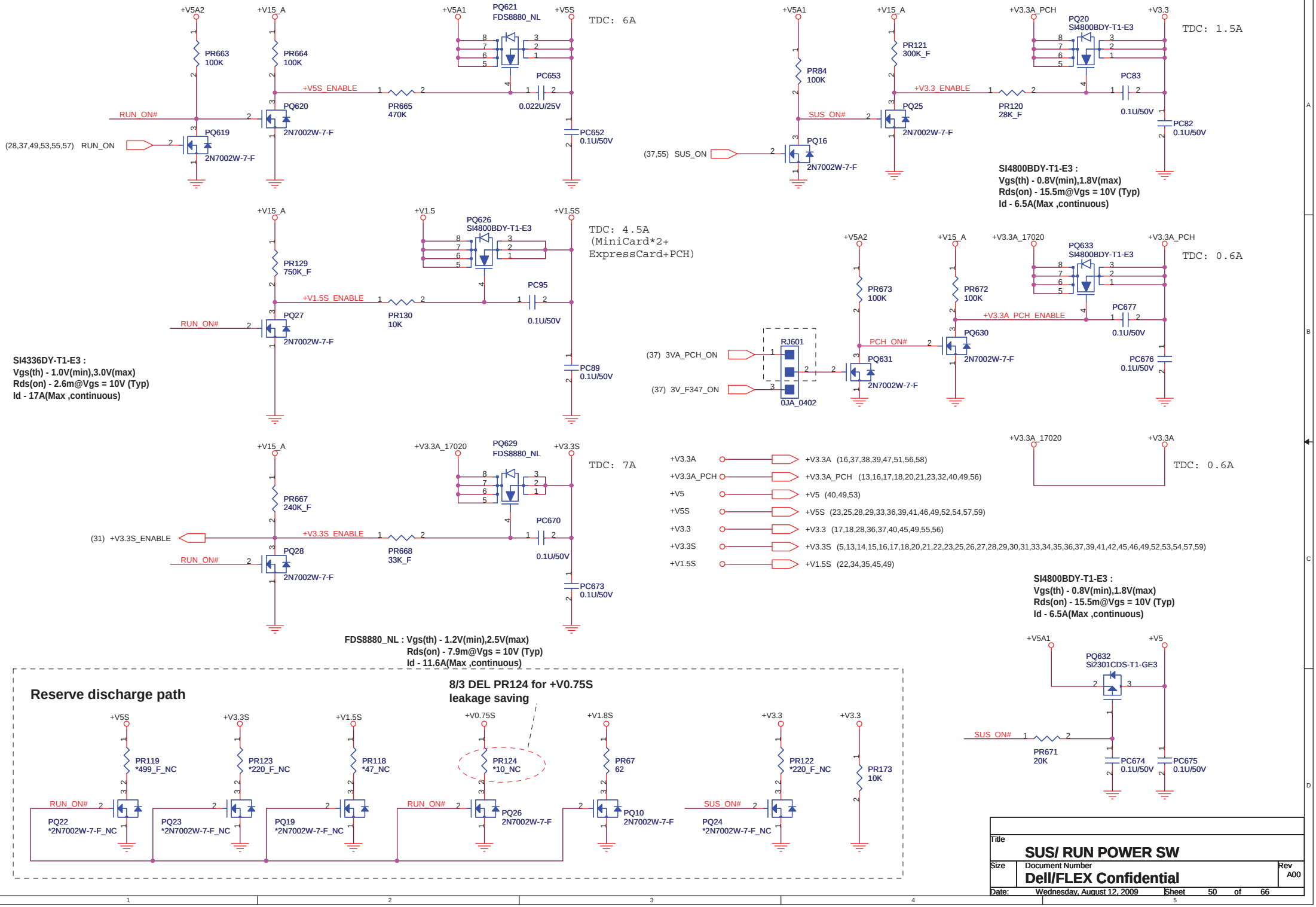


RJ45 Conn

RJ45 CONN LED	10M	100M	1G
LAN_LED_10#	H	L	H
LAN_LED_100#	L	H	H

Title	**RJ-45/TRANSFORM**	
Size	Document Number **Dell/FLEX Confidential**	Rev A00
Date: Wednesday, August 12, 2009	Sheet 48 of 66	


FROM VCORE
(37,52) DELAY_VR_PWRGOOD
R22 *0_NC
SYS_AGENT_PWROK (7)
(7,13,21) H_CPUPWRGD
R23 0
TO CPU
FROM CPU AND TO KBC
+V1.5S
+V3.3A_PCH
+V3.3S
R822 10K
R833 470K
R821 10K
D610
BAT54C
(28,37,50,53,55,57) RUN_ON
Q645 MMBT3904-7-F
Q644 2N7002W-7-F
U608B 74LVC08APW
+1.1S1.5S_PWRGD
(53) +V1.1S_PWRGD
+V1.1S_PWRGD
(57) 1.8V_RUN_PWRGD
R800
+V5S
+V5
D608 SDMK0340L-7-F
R797 10K
Q639 MMBT3906-7-F
R801 4.7K
Q640 MMBT3904-7-F
C749 0.1U/10V
R798 200K_F
C755 2200P/50V
+V3.3S
+V3.3
D609 SDMK0340L-7-F
R810 10K
Q642 MMBT3906-7-F
R832 4.7K
Q643 MMBT3904-7-F
C761 0.1U/10V
R809 200K_F
C769 2200P/50V
PM_SYS_PWRGD
FROM DDR PWM POWER GOOD
U608C 74LVC08APW
U608D 74LVC08APW
(55) 1.5V_DDR_PWRGD
PM_SYS_PWRGD
PM_DDR_SYSPWRGD
DDR_SYS_1.1S1.5SPWRGD
+V3.3M_LAN
R827 10K
U606A 74LVC08APW
ALL_SYS_PWRGD
RJ600
0JA_0402
PM_MPWROK (18)
U606B 74LVC08APW
R826 1K
PM_MPWROK_R
+V1.1S_VTT_MXM1_PWRON (26,54)
TURN ON +1.1S_VTT
U606C 74LVC08APW
ALL_SYS_PWRGD (25,36,37)
TO KBC/XDP
R817 *0_NC
PM_PCH_PWROK (18)
TO PCH
R815 2K_F
H_VTTPWRGD (7)
TO CPU
R814 1K
CPU 1.1V version of VTT_PWRGD
U608A 74LVC08APW
(54) +V1.1S_VTT_PWRGD
(26,37) MXM1_PWROK
Q646 2N7002W-7-F
(40) PM_SLP_S3
FROM PM_SLP_S3#
+V1.1S_VTT PWM POWER GOOD
U606D 74LVC08APW
(37,52) DELAY_VR_PWRGOOD
ALL_SYS_PWRGD
DELAY_VR_PWRGOOD_AND
R813
R812
SYS_PWROK (18)
PM_PCH_PWROK (18)
TO PCH
TO PCH
FROM VCORE POWE GOOD
Title
System Reset Circuit
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 49 of 66


+V5A2
+V15_A
+V5A1
PQ621
FDS8880_NL
+V5S
TDC: 6A
PR663
100K
PR664
100K
PC653
+V5S_ENABLE
PR665
470K
0.022U/25V
RUN_ON#
PQ620
2N7002W-7-F
PC652
0.1U/50V
PQ619
2N7002W-7-F
(28,37,49,53,55,57) RUN_ON
+V5A1
+V15_A
+V3.3A_PCH
PQ20
SI4800BDY-T1-E3
+V3.3
TDC: 1.5A
PR84
100K
PR121
300K_F
PC83
+V3.3_ENABLE
PR120
28K_F
0.1U/50V
SUS_ON#
PQ25
2N7002W-7-F
PC82
0.1U/50V
PQ16
2N7002W-7-F
(37,55) SUS_ON
SI4800BDY-T1-E3 :
Vgs(th) - 0.8V(min),1.8V(max)
Rds(on) - 15.5m@Vgs = 10V (Typ)
Id - 6.5A(Max ,continuous)
+V15_A
+V1.5
PQ626
SI4800BDY-T1-E3
+V1.5S
TDC: 4.5A
(MiniCard*2+
ExpressCard+PCH)
PR129
750K_F
PC95
+V1.5S_ENABLE
PR130
10K
0.1U/50V
RUN_ON#
PQ27
2N7002W-7-F
PC89
0.1U/50V
SI4336DY-T1-E3 :
Vgs(th) - 1.0V(min),3.0V(max)
Rds(on) - 2.6m@Vgs = 10V (Typ)
Id - 17A(Max ,continuous)
+V5A2
+V15_A
+V3.3A_17020
PQ633
SI4800BDY-T1-E3
+V3.3A_PCH
TDC: 0.6A
PR673
100K
PR672
100K
PC677
+V3.3A_PCH_ENABLE
0.1U/50V
PQ630
2N7002W-7-F
PCH_ON#
PQ631
2N7002W-7-F
PC676
0.1U/50V
RJ601
(37) 3VA_PCH_ON
(37) 3V_F347_ON
0JA_0402
+V15_A
+V3.3A_17020
PQ629
FDS8880_NL
+V3.3S
TDC: 7A
PR667
240K_F
PC670
(31) +V3.3S_ENABLE
+V3.3S_ENABLE
PR668
33K_F
0.1U/50V
RUN_ON#
PQ28
2N7002W-7-F
PC673
0.1U/50V
FDS8880_NL : Vgs(th) - 1.2V(min),2.5V(max)
Rds(on) - 7.9m@Vgs = 10V (Typ)
Id - 11.6A(Max ,continuous)
+V3.3A
+V3.3A_PCH
+V5
+V5S
+V3.3
+V3.3S
+V1.5S
+V3.3A (16,37,38,39,47,51,56,58)
+V3.3A_PCH (13,16,17,18,20,21,23,32,40,49,56)
+V5 (40,49,53)
+V5S (23,25,28,29,33,36,39,41,46,49,52,54,57,59)
+V3.3 (17,18,28,36,37,40,45,49,55,56)
+V3.3S (5,13,14,15,16,17,18,20,21,22,23,25,26,27,28,29,30,31,33,34,35,36,37,39,41,42,45,46,49,52,53,54,57,59)
+V1.5S (22,34,35,45,49)
+V3.3A_17020
+V3.3A
TDC: 0.6A
SI4800BDY-T1-E3 :
Vgs(th) - 0.8V(min),1.8V(max)
Rds(on) - 15.5m@Vgs = 10V (Typ)
Id - 6.5A(Max ,continuous)
+V5A1
+V5
PQ632
Si2301CDS-T1-GE3
SUS_ON#
PR671
20K
PC674
0.1U/50V
PC675
0.1U/50V
Reserve discharge path
8/3 DEL PR124 for +V0.75S
leakage saving
+V5S
+V3.3S
+V1.5S
+V0.75S
+V1.8S
+V3.3
+V3.3
PR119
*499_F_NC
PR123
*220_F_NC
PR118
*47_NC
PR124
*10_NC
PR67
62
PR122
*220_F_NC
PR173
10K
RUN_ON#
PQ22
*2N7002W-7-F_NC
PQ23
*2N7002W-7-F_NC
PQ19
*2N7002W-7-F_NC
RUN_ON#
PQ26
2N7002W-7-F
PQ10
2N7002W-7-F
SUS_ON#
PQ24
*2N7002W-7-F_NC
Title
SUS/ RUN POWER SW
Size
Document Number
Dell/FLEX Confidential
Rev
A00
Date: Wednesday, August 12, 2009
Sheet 50 of 66

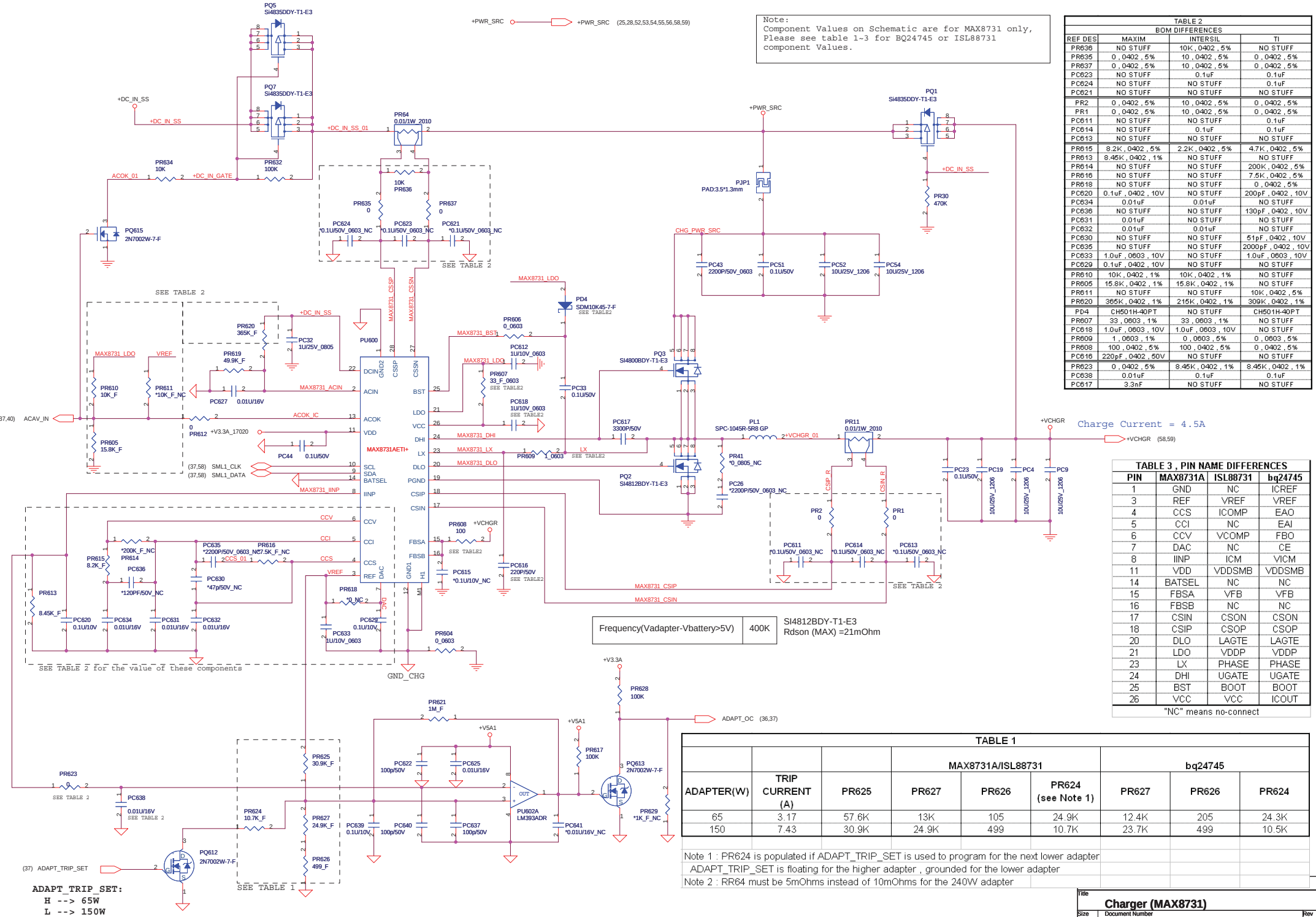


TABLE 2
BOM DIFFERENCES

REF DES	MAXIM	INTERSIL	TI
PR636	NO STUFF	10K , 0402 , 5%	NO STUFF
PR635	0 , 0402 , 5%	10 , 0402 , 5%	0 , 0402 , 5%
PR637	0 , 0402 , 5%	10 , 0402 , 5%	0 , 0402 , 5%
PC623	NO STUFF	0.1uF	0.1uF
PC624	NO STUFF	NO STUFF	0.1uF
PC621	NO STUFF	NO STUFF	NO STUFF
PR2	0 , 0402 , 5%	10 , 0402 , 5%	0 , 0402 , 5%
PR1	0 , 0402 , 5%	10 , 0402 , 5%	0 , 0402 , 5%
PC611	NO STUFF	NO STUFF	0.1uF
PC614	NO STUFF	0.1uF	0.1uF
PC613	NO STUFF	NO STUFF	NO STUFF
PR615	8.2K , 0402 , 5%	2.2K , 0402 , 5%	4.7K , 0402 , 5%
PR613	8.45K , 0402 , 1%	NO STUFF	NO STUFF
PR614	NO STUFF	NO STUFF	200K , 0402 , 5%
PR616	NO STUFF	NO STUFF	7.5K , 0402 , 5%
PR618	NO STUFF	NO STUFF	0 , 0402 , 5%
PC620	0.1uF , 0402 , 10V	NO STUFF	200pF , 0402 , 10V
PC634	0.01uF	0.01uF	NO STUFF
PC636	NO STUFF	NO STUFF	130pF , 0402 , 10V
PC631	0.01uF	NO STUFF	NO STUFF
PC632	0.01uF	0.01uF	NO STUFF
PC630	NO STUFF	NO STUFF	51pF , 0402 , 10V
PC635	NO STUFF	NO STUFF	2000pF , 0402 , 10V
PC633	1.0uF , 0603 , 10V	NO STUFF	1.0uF , 0603 , 10V
PC629	0.1uF , 0402 , 10V	NO STUFF	NO STUFF
PR610	10K , 0402 , 1%	10K , 0402 , 1%	NO STUFF
PR605	15.8K , 0402 , 1%	15.8K , 0402 , 1%	NO STUFF
PR611	NO STUFF	NO STUFF	10K , 0402 , 5%
PR620	365K , 0402 , 1%	215K , 0402 , 1%	309K , 0402 , 1%
PD4	CH501H-40PT	NO STUFF	CH501H-40PT
PR607	33 , 0603 , 1%	33 , 0603 , 1%	NO STUFF
PC618	1.0uF , 0603 , 10V	1.0uF , 0603 , 10V	NO STUFF
PR609	1 , 0603 , 1%	0 , 0603 , 5%	0 , 0603 , 5%
PR608	100 , 0402 , 5%	100 , 0402 , 5%	0 , 0402 , 5%
PC616	220pF , 0402 , 50V	NO STUFF	NO STUFF
PR623	0 , 0402 , 5%	8.45K , 0402 , 1%	8.45K , 0402 , 1%
PC638	0.01uF	0.1uF	0.1uF
PC617	3.3nF	NO STUFF	NO STUFF

TABLE 3 , PIN NAME DIFFERENCES

PIN	MAX8731A	ISL88731	bq24745
1	GND	NC	ICREF
3	REF	VREF	VREF
4	CCS	ICOMP	EAO
5	CCI	NC	EAI
6	CCV	VCOMP	FBO
7	DAC	NC	CE
8	IINP	ICM	VICM
11	VDD	VDDSMB	VDDSMB
14	BATSEL	NC	NC
15	FBSA	VFB	VFB
16	FBSB	NC	NC
17	CSIN	CSON	CSON
18	CSIP	CSOP	CSOP
20	DLO	LAGTE	LAGTE
21	LDO	VDDP	VDDP
23	LX	PHASE	PHASE
24	DHI	UGATE	UGATE
25	BST	BOOT	BOOT
26	VCC	VCC	ICOUT

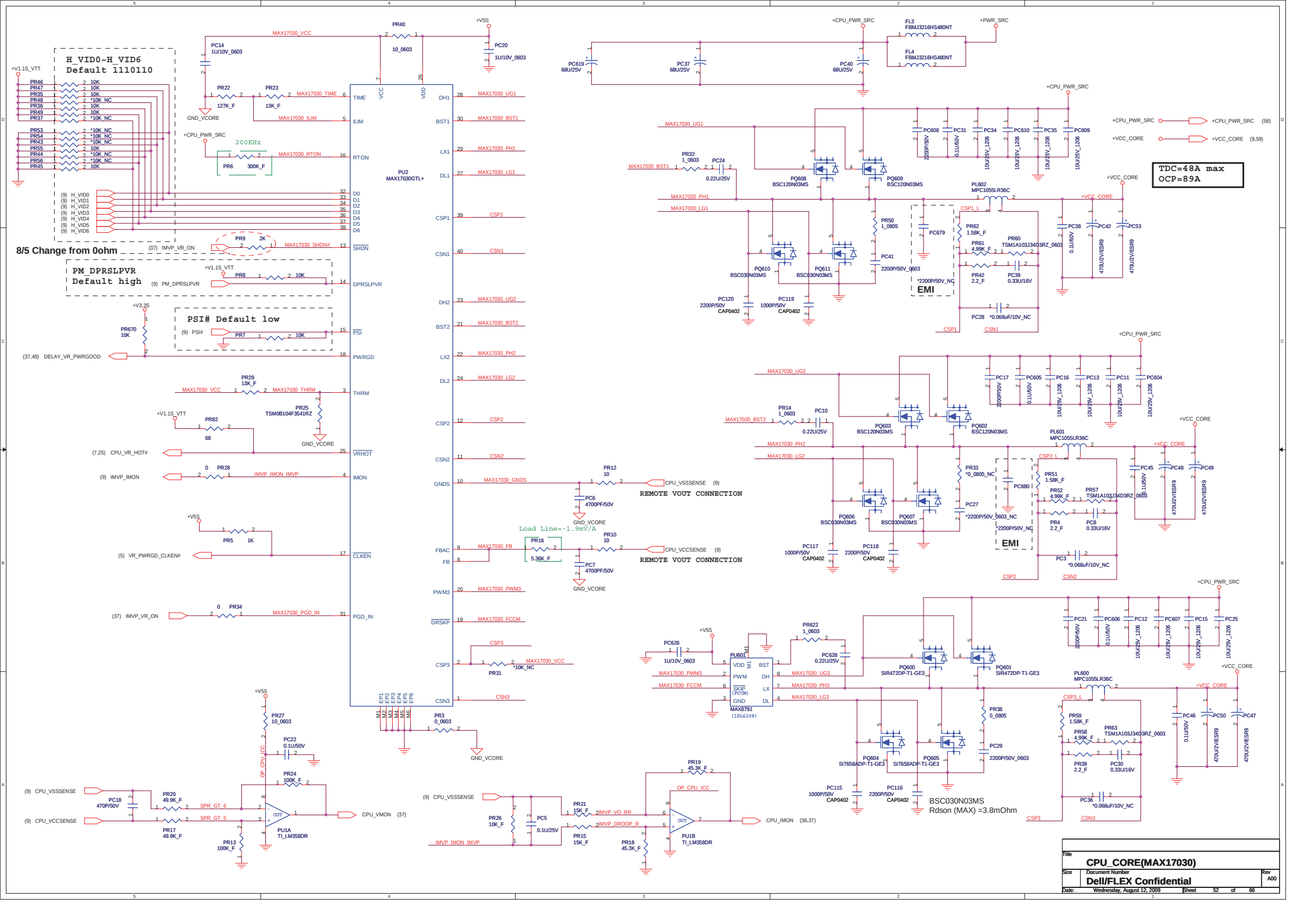
"NC" means no-connect

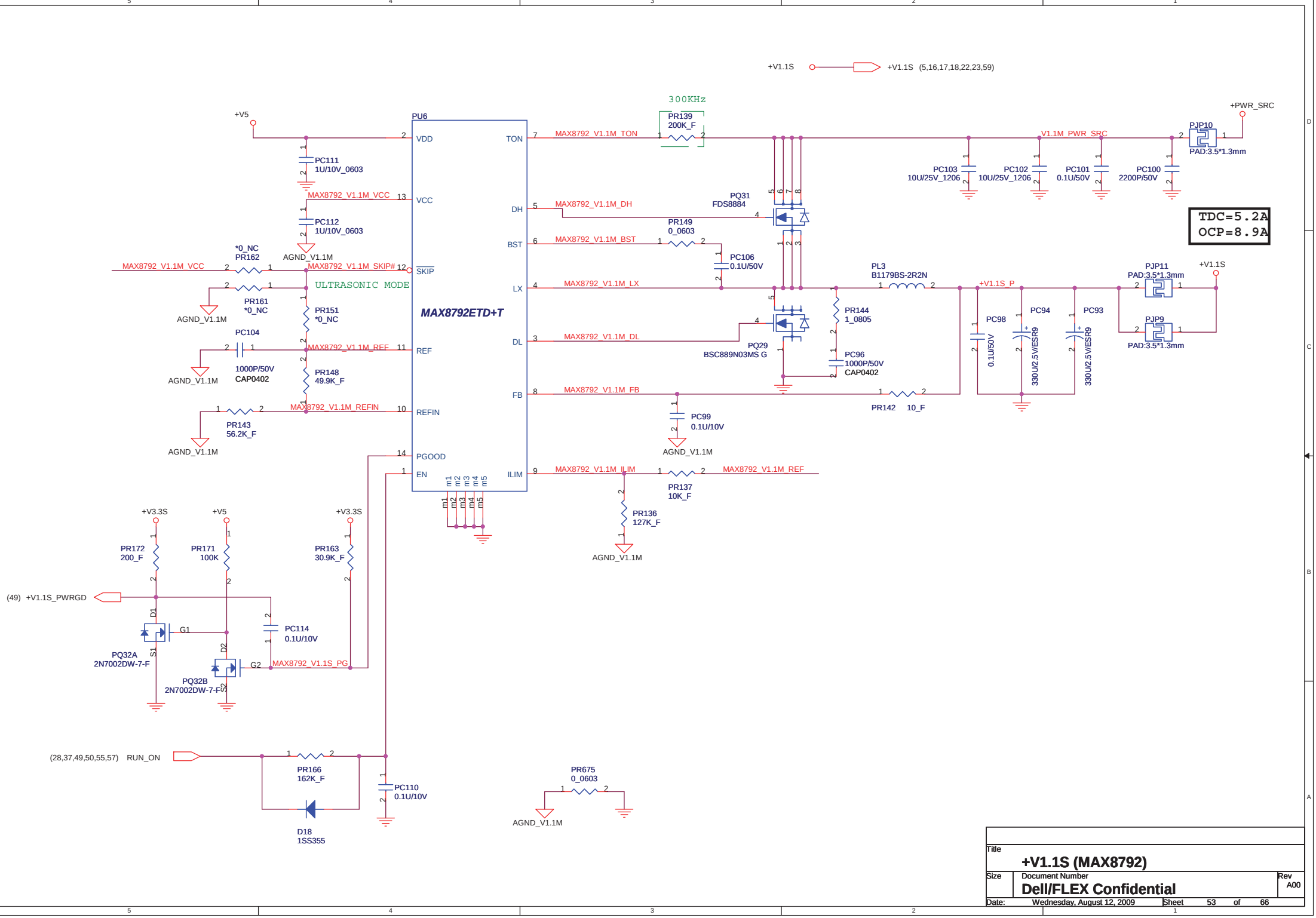
TABLE 1

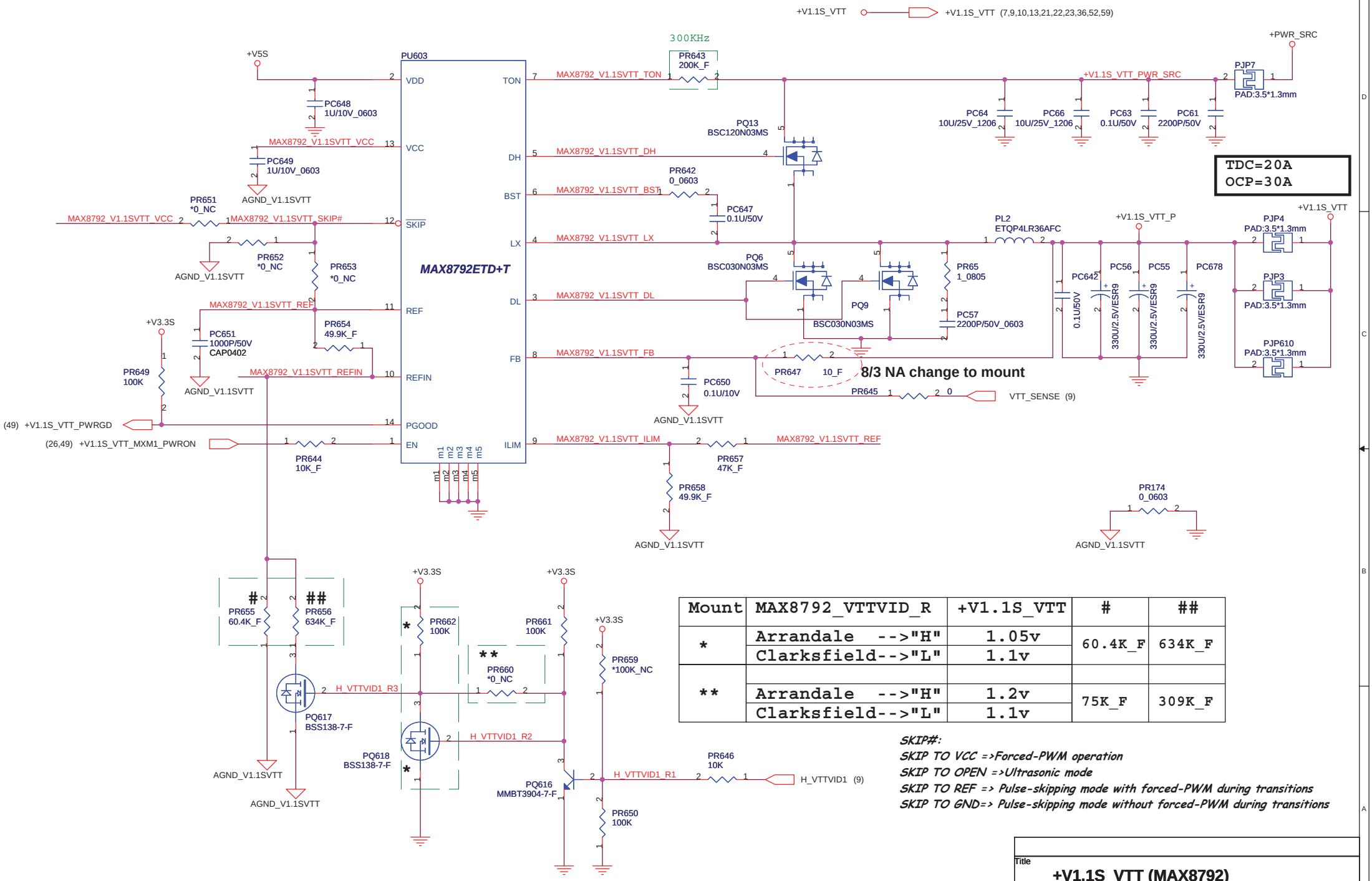
			MAX8731A/ISL88731			bq24745		
ADAPTER(W)	TRIP CURRENT (A)	PR625	PR627	PR626	PR624 (see Note 1)	PR627	PR626	PR624
65	3.17	57.6K	13K	105	24.9K	12.4K	205	24.3K
150	7.43	30.9K	24.9K	499	10.7K	23.7K	499	10.5K

Note 1 : PR624 is populated if ADAPT_TRIP_SET is used to program for the next lower adapter
ADAPT_TRIP_SET is floating for the higher adapter , grounded for the lower adapter
Note 2 : RR64 must be 5mOhms instead of 10mOhms for the 240W adapter

Title: Charger (MAX8731)
Size: Document Number: Dell/FLEX Confidential
Rev: A00
Date: Wednesday, August 12, 2009 Sheet 51 of 66


H_VID0~H_VID6
Default 1110110
8/5 Change from 0ohm
PM_DPRSLPVR
Default high
PSI# Default low
REMOTE VOUT CONNECTION
REMOTE VOUT CONNECTION
Load Line=-1.9mV/A
TDC=48A max
OCP=89A
EMI
EMI
BSC030N03MS
Rdson (MAX) =3.8mOhm
CPU_CORE(MAX17030)
Dell/FLEX Confidential
A00
Wednesday, August 12, 2009
52 of 66

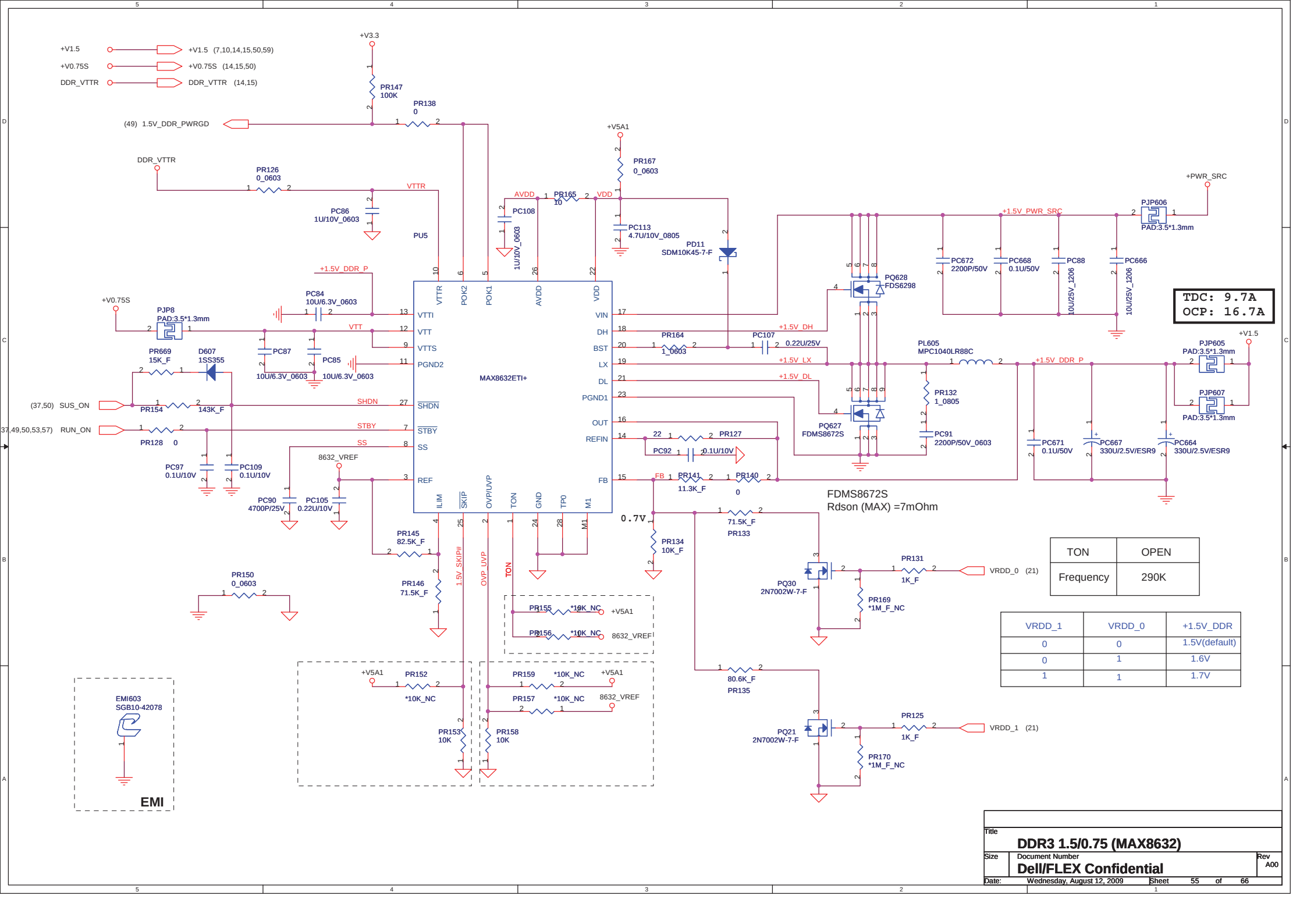

+V1.1S
+V1.1S (5,16,17,18,22,23,59)
300KHz
PU6
MAX8792ETD+T
VDD
VCC
SKIP
REF
REFIN
PGOOD
EN
TON
DH
BST
LX
DL
FB
ILIM
+V5
PC111 1U/10V_0603
PC112 1U/10V_0603
AGND_V1.1M
MAX8792_V1.1M_VCC
MAX8792_V1.1M_SKIP#
MAX8792_V1.1M_REF
MAX8792_V1.1M_REFIN
*0_NC PR162
PR161 *0_NC
PR151 *0_NC
ULTRASONIC MODE
PC104 1000P/50V CAP0402
PR148 49.9K_F
PR143 56.2K_F
PR139 200K_F
MAX8792_V1.1M_TON
MAX8792_V1.1M_DH
MAX8792_V1.1M_BST
MAX8792_V1.1M_LX
MAX8792_V1.1M_DL
MAX8792_V1.1M_FB
MAX8792_V1.1M_ILIM
PR149 0_0603
PC106 0.1U/50V
PQ31 FDS8884
PQ29 BSC889N03MS G
PR144 1_0805
PC96 1000P/50V CAP0402
PL3 B1179BS-2R2N
PR142 10_F
PC99 0.1U/10V
PR137 10K_F
PR136 127K_F
V1.1M_PWR_SRC
PC103 10U/25V_1206
PC102 10U/25V_1206
PC101 0.1U/50V
PC100 2200P/50V
PJP10 PAD:3.5*1.3mm
+PWR_SRC
TDC=5.2A
OCP=8.9A
+V1.1S_P
PC98 0.1U/50V
PC94 330U/2.5V/ESR9
PC93 330U/2.5V/ESR9
PJP11 PAD:3.5*1.3mm
PJP9 PAD:3.5*1.3mm
+V1.1S
+V3.3S
PR172 200_F
PR171 100K
PR163 30.9K_F
(49) +V1.1S_PWRGD
PQ32A 2N7002DW-7-F
PQ32B 2N7002DW-7-F
PC114 0.1U/10V
MAX8792_V1.1S_PG
(28,37,49,50,55,57) RUN_ON
PR166 162K_F
D18 1SS355
PC110 0.1U/10V
PR675 0_0603
Title
+V1.1S (MAX8792)
Size
Document Number
Dell/FLEX Confidential
Rev A00
Date: Wednesday, August 12, 2009
Sheet 53 of 66



Mount	MAX8792_VTTVID_R	+V1.1S_VTT	#	##
*	Arrandale -->"H"	1.05v	60.4K_F	634K_F
	Clarksfield-->"L"	1.1v		
**				
	Arrandale -->"H"	1.2v	75K_F	309K_F
	Clarksfield-->"L"	1.1v		

SKIP#:
SKIP TO VCC =>Forced-PWM operation
SKIP TO OPEN =>Ultrasonic mode
SKIP TO REF => Pulse-skipping mode with forced-PWM during transitions
SKIP TO GND=> Pulse-skipping mode without forced-PWM during transitions

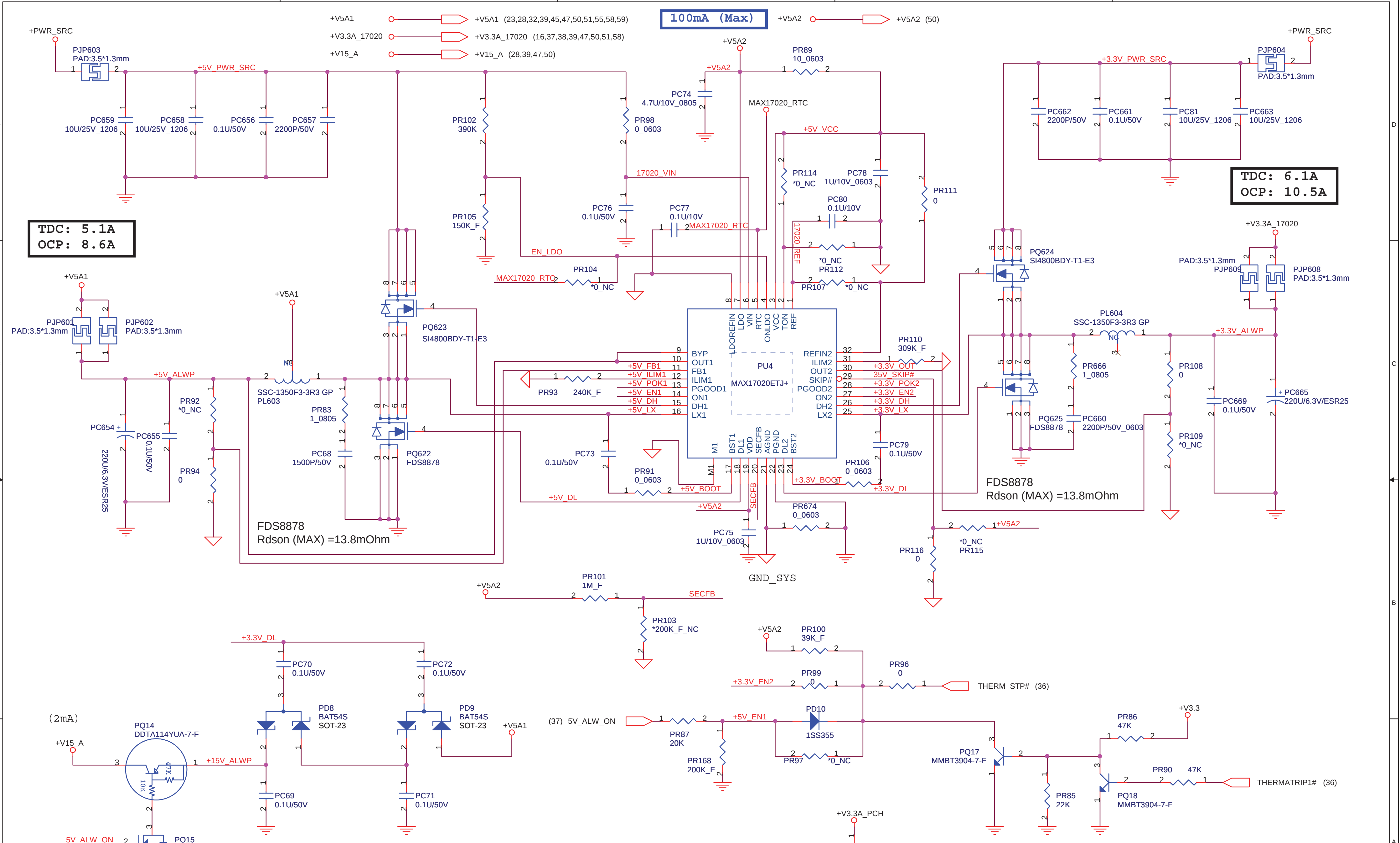
Title	+V1.1S_VTT (MAX8792)	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 54 of 66	



TON	OPEN
Frequency	290K

VRDD_1	VRDD_0	+1.5V_DDR
0	0	1.5V(default)
0	1	1.6V
1	1	1.7V

Title	DDR3 1.5/0.75 (MAX8632)	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 55 of 66	



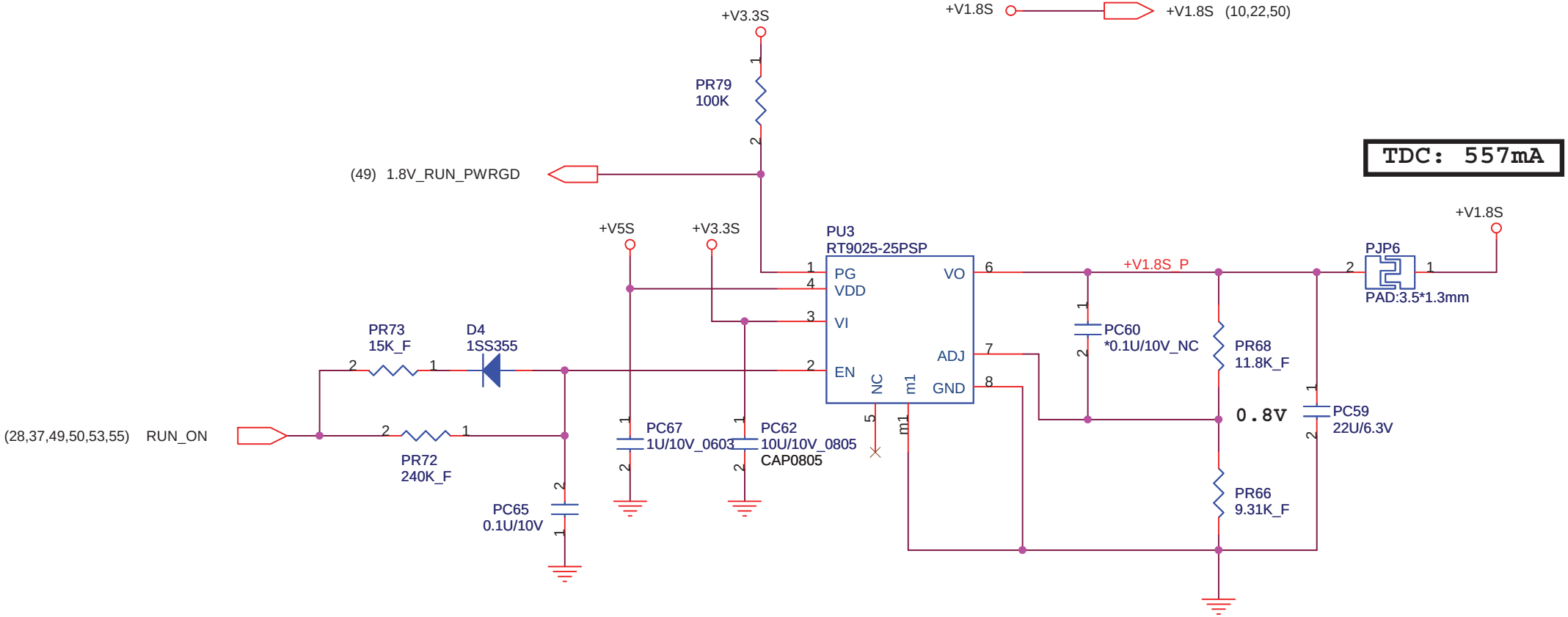
+V5A1 (23,28,32,39,45,47,50,51,55,58,59)
+V3.3A_17020 (16,37,38,39,47,50,51,58)
+V15_A (28,39,47,50)
100mA (Max)
+V5A2 (50)
+PWR_SRC
PJP603
PAD:3.5*1.3mm
+5V_PWR_SRC
PC659
10U/25V_1206
PC658
10U/25V_1206
PC656
0.1U/50V
PC657
2200P/50V
PR102
390K
PR98
0_0603
PC74
4.7U/10V_0805
PR89
10_0603
MAX17020_RTC
+5V_VCC
PR114
*0_NC
PC78
1U/10V_0603
PR111
0
PC80
0.1U/10V
17020_VIN
PR105
150K_F
PC76
0.1U/50V
PC77
0.1U/10V
EN_LDO
PR104
*0_NC
*0_NC
PR112
PR107
17020_REF
TDC: 5.1A
OCP: 8.6A
TDC: 6.1A
OCP: 10.5A
+3.3V_PWR_SRC
PJP604
PC662
2200P/50V
PC661
0.1U/50V
PC81
10U/25V_1206
PC663
10U/25V_1206
PQ624
SI4800BDY-T1-E3
PJP601
PJP602
PJP609
PJP608
PQ623
SI4800BDY-T1-E3
PU4
MAX17020ETJ+
BYP
OUT1
FB1
ILIM1
PGOOD1
ON1
DH1
LX1
REFIN2
ILIM2
OUT2
SKIP#
PGOOD2
ON2
DH2
LX2
LDOREFIN
LDO
VIN
RTC
ONLDO
VCC
TON
REF
M1
BST1
DL1
VDD
SECFB
AGND
PGND
DL2
BST2
PL604
SSC-1350F3-3R3 GP
+3.3V_ALWP
PR110
309K_F
+3.3V_OUT
35V_SKIP#
+3.3V_POK2
+3.3V_EN2
+3.3V_DH
+3.3V_LX
PR666
1_0805
PR108
0
PC669
0.1U/50V
PC665
220U/6.3V/ESR25
+5V_ALWP
PL603
SSC-1350F3-3R3 GP
PR92
*0_NC
PR83
1_0805
+5V_FB1
+5V_ILIM1
+5V_POK1
+5V_EN1
+5V_DH
+5V_LX
PR93
240K_F
PQ625
FDS8878
PC660
2200P/50V_0603
PR109
*0_NC
PC654
PC655
0.1U/50V
220U/6.3V/ESR25
PR94
0
PC68
1500P/50V
PQ622
FDS8878
PC73
0.1U/50V
PR91
0_0603
+5V_BOOT
+5V_DL
PC79
0.1U/50V
PR106
0_0603
+3.3V_BOOT
+3.3V_DL
FDS8878
Rdson (MAX) =13.8mOhm
FDS8878
Rdson (MAX) =13.8mOhm
PR674
0_0603
PC75
1U/10V_0603
GND_SYS
PR116
0
*0_NC
PR115
PR101
1M_F
SECFB
PR103
*200K_F_NC
+3.3V_DL
PC70
0.1U/50V
PC72
0.1U/50V
PD8
BAT54S
SOT-23
PD9
BAT54S
SOT-23
(2mA)
PQ14
DDTA114YUA-7-F
+15V_ALWP
PC69
0.1U/50V
PC71
0.1U/50V
5V_ALW_ON
PQ15
2N7002W-7-F
PR100
39K_F
PR99
0
PR96
0
THERM_STP# (36)
(37) 5V_ALW_ON
PR87
20K
PD10
1SS355
PR168
200K_F
PR97
*0_NC
PQ17
MMBT3904-7-F
PR86
47K
+V3.3
PR90
47K
THERMATRIP1# (36)
PR85
22K
PQ18
MMBT3904-7-F
+V3.3A_PCH
PR117
1K
PR113
0
+3.3V_POK2
+5V_POK1
PR95
0
SIO_PWRGD_SB (36,37)

TON	Frequency
GND	OUT1@400K , OUT2@500K
VCC	OUT1@200K , OUT2@300K
OPEN	OUT1@400K , OUT2@300K

Title
SYS 5V/3V(MAX17020)

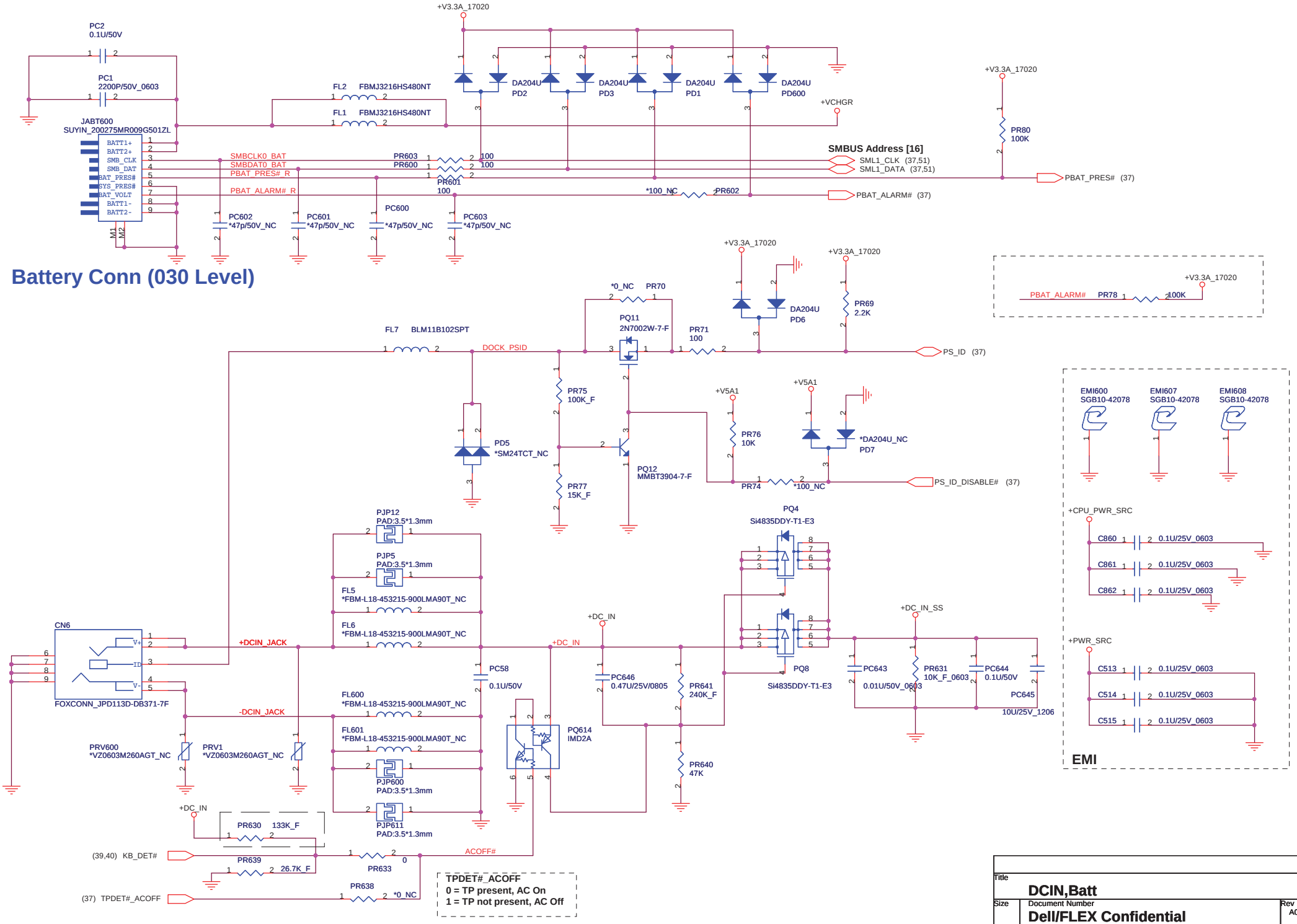
Size	Document Number	Rev
	Dell/FLEX Confidential	A00

Date: Wednesday, August 12, 2009 Sheet 56 of 66



Title	+V1.8S	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 57 of 66	

Battery Conn (030 Level)



Title	DCIN,Batt	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 58 of 66	

Screw Hole

H3 NPTH9_2.8 MTGR354_110
H16 NPTH9_2.8 MTGR354_110
H7 NPTH7_2.8 MTGR276_110
H14 NPTH9_2.8 MTGR354_110
H21 NPTH9_2.8 MTGR354_110
H8 NPTH7_2.8 MTGR276_110
H15 NPTH9_2.8 MTGR354_110
H9 NPTH9_2.8 MTGR354_110
H1 NPTH7_2.8 MTGR276_110
H17 NPTH9_2.8 MTGR354_110
H10 NPTH9_2.8 MTGR354_110
H2 NPTH7_2.8 MTGR276_110
H24 NPTH9_2.8 MTGR354_110
H13 NPTH7_2.8 MTGR276_110
H25 NPTH9_2.8 MTGR354_110

H23 PTH8_4.7+2 THR244X220_150X126

ellipse

H4 PTH0B6.2_3.2 THR0B244_126

H5 PTH8_4.7 THR315_185
H6 PTH8_4.7 THR315_185
H11 PTH8_4.7 THR315_185
H12 PTH8_4.7 THR315_185

CPU SUPPORT

H20 PTH_0_1_6 THR236B0_048 DELH-75110-0000025G
H18 PTH_0_1_6 THR236B0_048 DELH-75110-0000025G

PCH SUPPORT

HDD CONN BACK SCREW

Moat Cap

+PWR_SRC — C7 0.1U/25V_0603 — +VCHGR
+VCHGR — C6 0.1UF/16V — +V5S

+PWR_SRC — C167, C187, C237, C274, C311 0.1U/25V_0603 — +V5S
+V1.5 — C213, C225, C214, C226, C330 0.1UF/16V

+PWR_SRC — C23, C13, C377, C379, C380, C382, C621 0.1U/25V_0603 — +V3.3S
+V1.1S_VTT — C856 0.1UF/16V — +V3.3S
+V3.3S — C338, C166, C200 0.1UF/16V

+PWR_SRC — C40 0.1U/25V_0603 — +VCC_CORE
+PWR_SRC — C153 0.1U/25V_0603 — +V1.1S_VTT
+V3.3S — C383, C352, C362, C384, C385, C731 0.1UF/16V — +V1.1S

+PWR_SRC — C227, C210, C337 0.1U/25V_0603
+V3.3S — C336, C341, C364, C456, C386, C796, C797, C449, C471, C317, C181, C18 0.1UF/16V — +V5S

+PWR_SRC — C356 0.1U/25V_0603 — +V1.5
+VDDA — C473 0.1UF/16V — +V5S
+3.3V_KBVCC — C651, C656 0.1UF/16V

Unused Gate

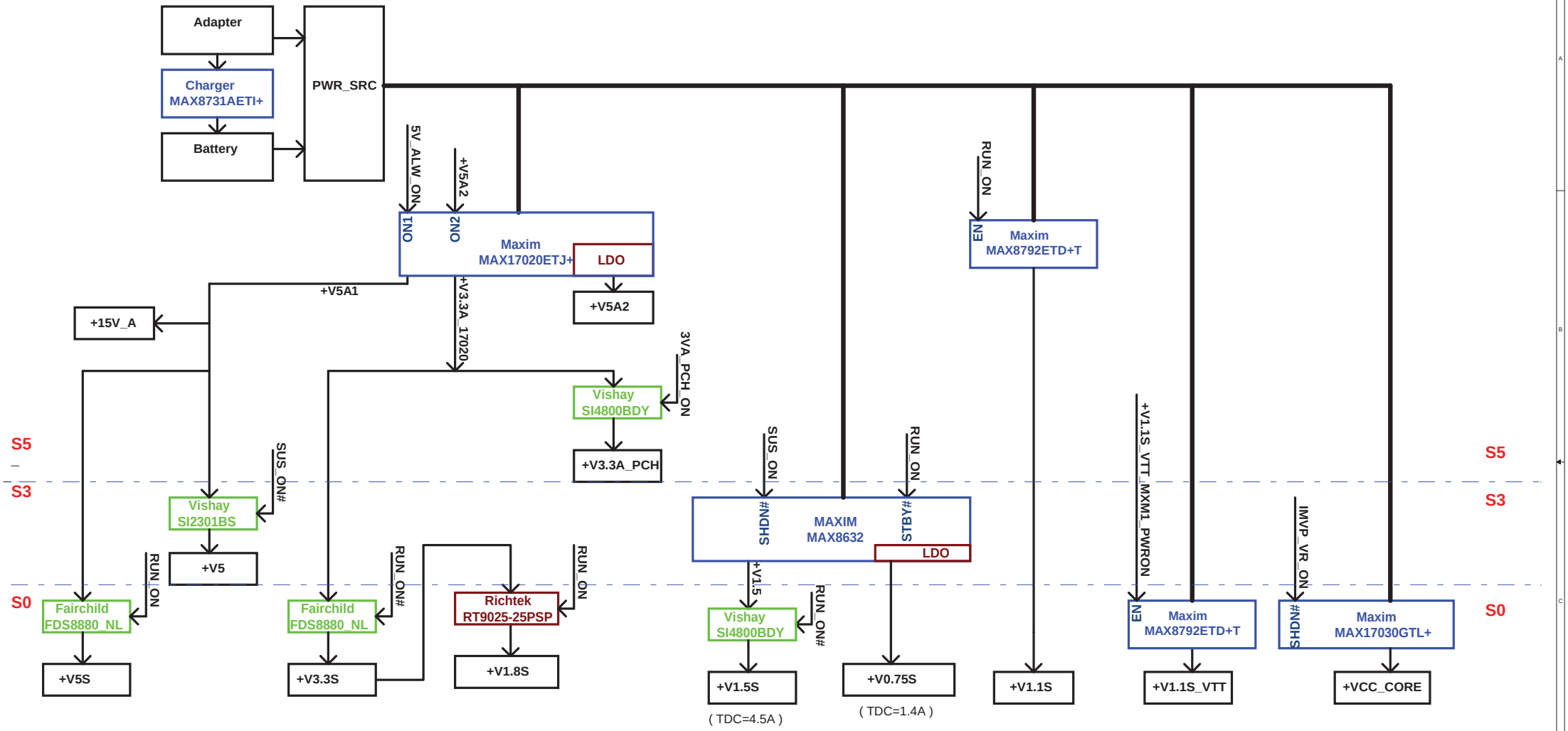
+V5A1
PU602B
LM393ADR

FID

FID603 FIDUCIAL NC, NO CONNECT TO ANY.
FID4 FIDUCIAL NC, NO CONNECT TO ANY.
FID601 FIDUCIAL NC, NO CONNECT TO ANY.
FID2 FIDUCIAL NC, NO CONNECT TO ANY.
FID602 FIDUCIAL NC, NO CONNECT TO ANY.
FID600 FIDUCIAL NC, NO CONNECT TO ANY.
FID3 FIDUCIAL NC, NO CONNECT TO ANY.
FID1 FIDUCIAL NC, NO CONNECT TO ANY.

PCB1
DELH-41-AB3900-A00G

Title	PAD & SCREW	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 59 of 66	



PWM Switching

LDO

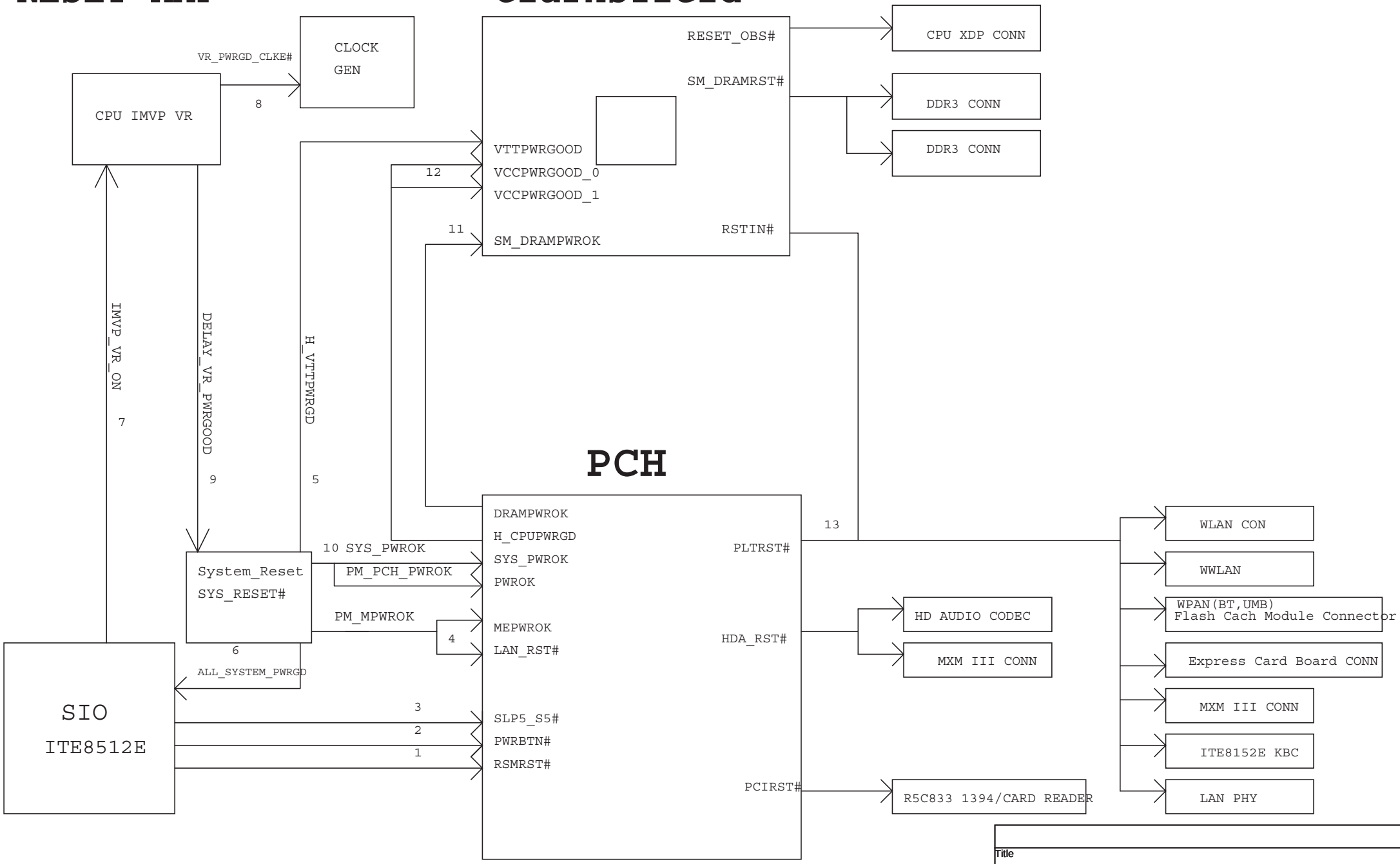
Mosfet

Power Rail	+V5A1	+V5A2	+V15_A	+V3.3A_17020	+V1.8S	+V1.5	+V0.75S	+V1.1S	+V1.1S_VTT	+VCC_CORE
TDC (Thermal Design Current)	5.1A	100mA	2mA	6.1A	557mA	9.7A	1.4A	5.2A	15A	65A
OCP (Over Current Protect)	8.6A	260mA		10.5A	2A	16.7A	5A	8.9A	25.32A	89A

Title	Power Block Diagram	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 60 of 66	

RESET MAP

Clarksfield



Title	RESET MAP	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 61 of 66	

Media button board
1.Play/Pause
2. Stop
3. Skip Back
4. Skip Forward
5. Vol_DWN
6. Vol_UP
7. Wireless On/Off
8. AW Command
9. Stealth Mode
Total: 9 LED

C-Panel MEDIA BUTTON BLOCK

CAP Button

ST CONTROL IC
+3.3V_F347

SCROLL LED | NUM LED | CAP LED
5V_RUN

9 PCS LED
5V_RUN

Control LED (100% / 10%)

Control LED Color

C-Panel
HEAD BUTTON BOARD
HDD LED
1 PCS LED
For Head's EYES
5V_RUN

10 PIN FPC
R/G/B Signal

A-Panel
HEAD BOARD
1 PCS LED
5V_ALW Power LED

B-Panel
AW Logo Board
2 PCS LED
5V_RUN

POWER/CHARGE_LED
2 PCS LED
For Head's RIM
5V_ALW

SATA_ACT

LID_SW

MAX7313AEG
+3.3V_F347

MAX7313AEG
+3.3V_F347

6 PIN FPC
R/G/B Signal

6 PIN FPC
R/G/B Signal

I2C

16 PIN FPC

20 Pin Conn

Mother Board

+3.3V_F347 behavior

	State			
	S0	S3	S4	S5
AC In	ON	ON	ON	ON
BAT only	ON	ON	Off	Off

SMBUS

A Head/ B Logo and Wecam Conn

TOUCH PAD
4 PCS LED
5V_RUN

+3.3V_F347
IC C8051F347

I2C

3V_ALW
KBC

BT LED Active

12 PIN FPC
R/G/B Signal

I2C

MAX7313AEG
+3.3V_F347

MAX7313AEG
+3.3V_F347

R/G/B Signal
6 PIN FPC

6 PIN FPC
R/G/B Signal

16 PIN FPC

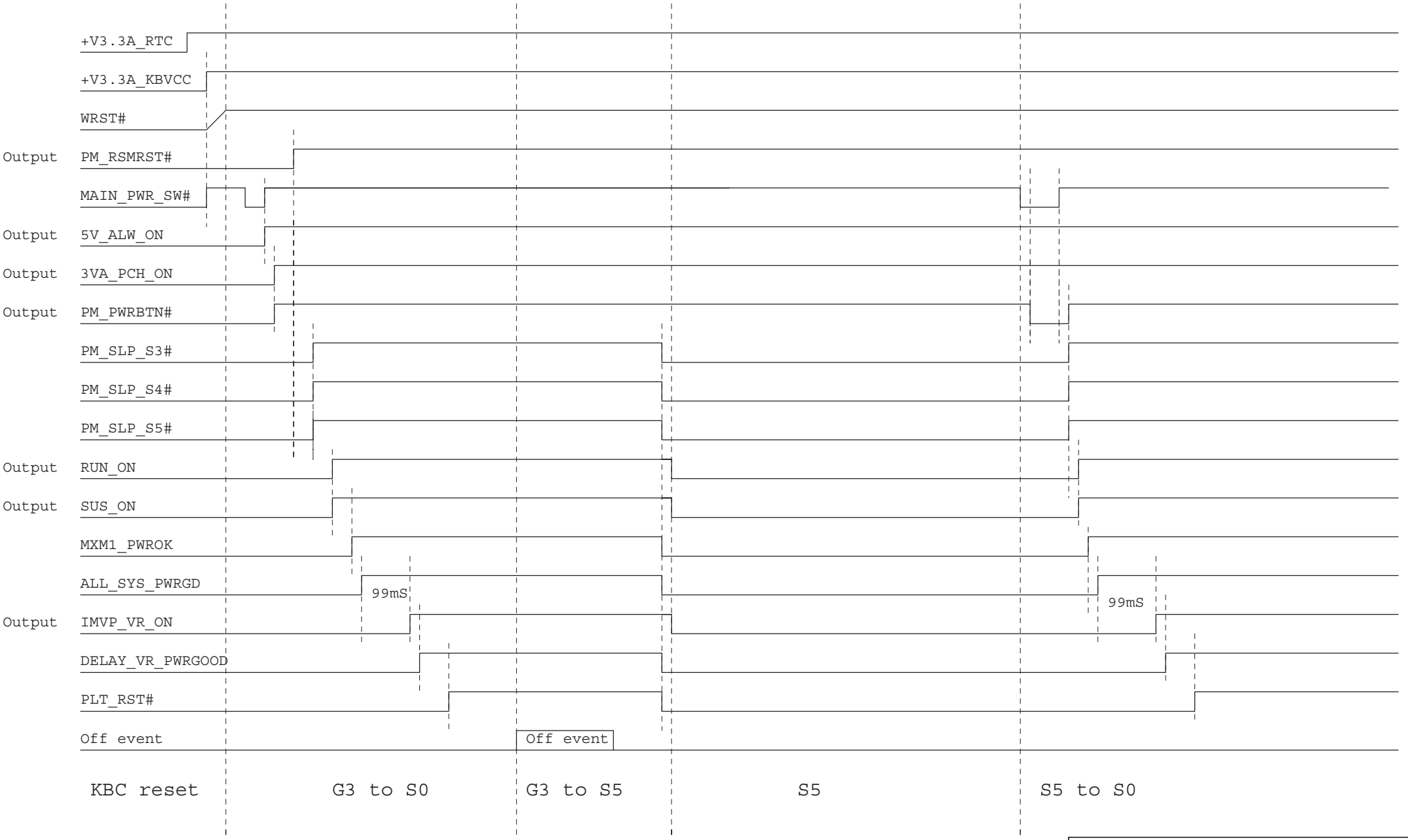
5V_RUN
LEFT SPEAKER LED
2 PCS LED

5V_RUN
RIGHT SPEAKER LED
2 PCS LED

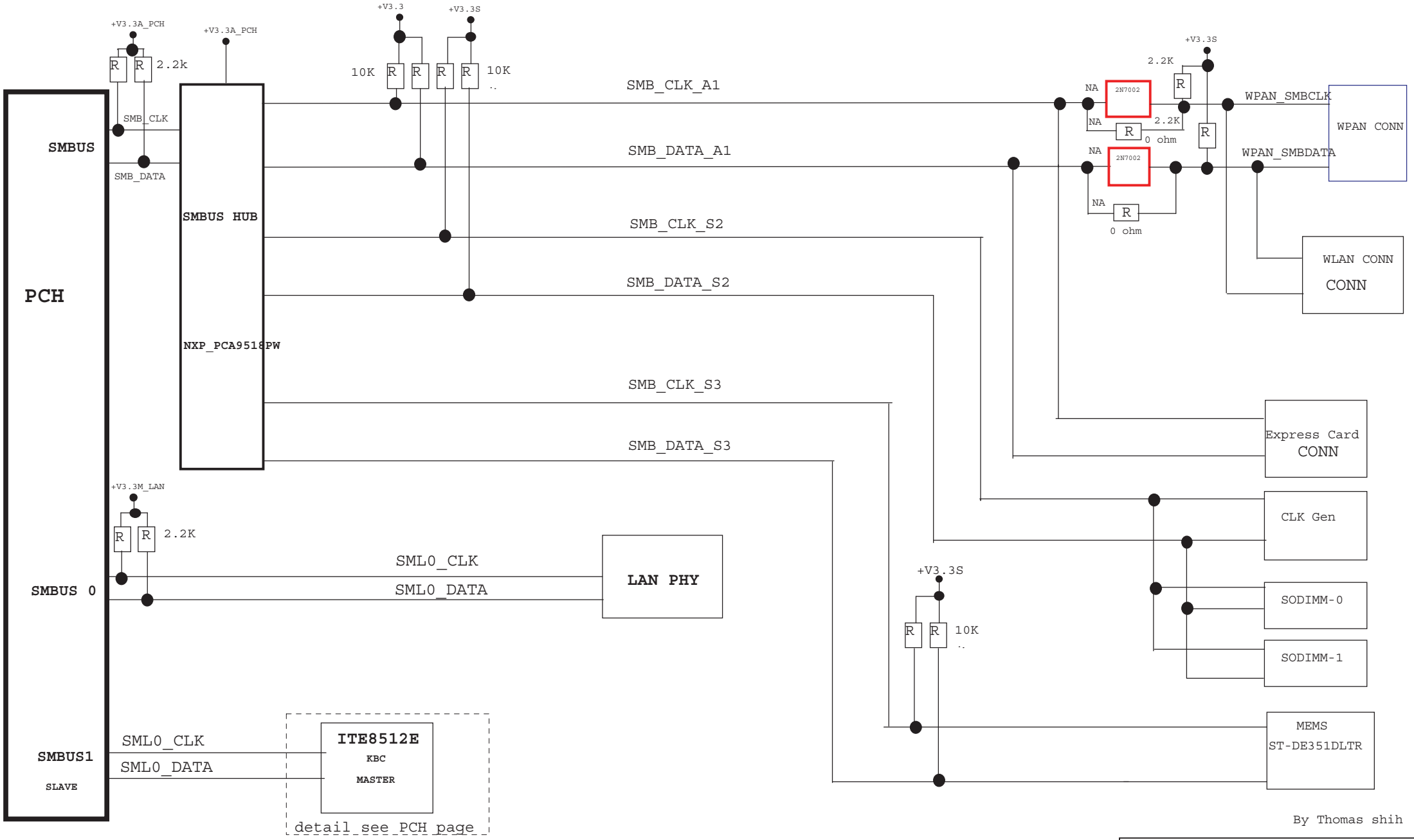
5V_RUN
Keyboard LED

Title	LED BOARD	
Size	Document Number: Dell/FLEX Confidential	Rev A00
Date: Wednesday, August 12, 2009	Sheet 62 of 66	

KBC Powre Up Sequence

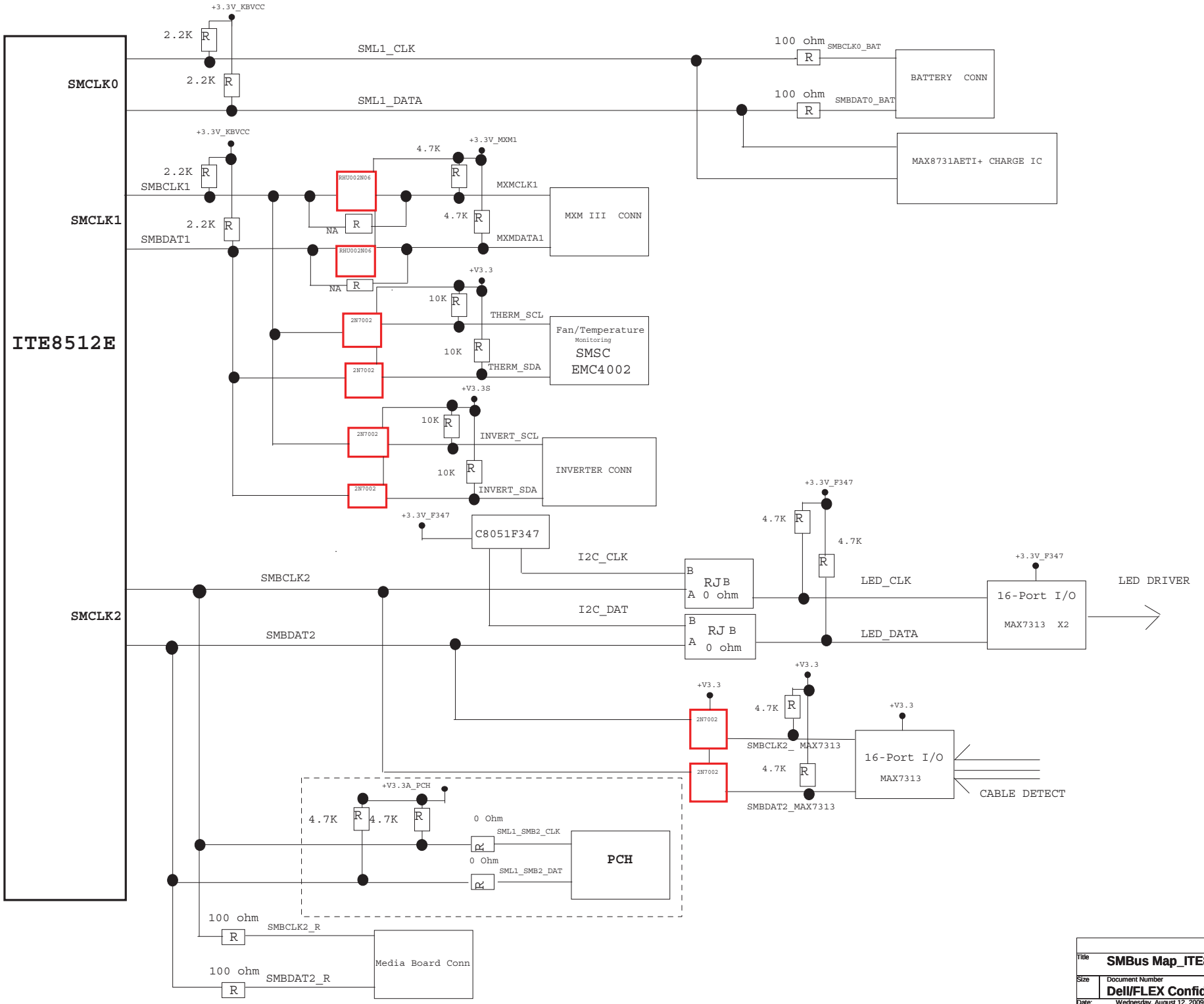


Title	KBC Power Up Sequence	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 63 of 66	



By Thomas shih

Title	SMBus Map_PCH	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 64 of 66	


ITE8512E
SMCLK0
SMCLK1
SMCLK2
SML1_CLK
SML1_DATA
SMBCLK0_BAT
SMBDAT0_BAT
BATTERY CONN
MAX8731AETI+ CHARGE IC
SMBCLK1
SMBDAT1
MXMCLK1
MXMDATA1
MXM III CONN
THERM_SCL
THERM_SDA
Fan/Temperature Monitoring
SMSC
EMC4002
INVERT_SCL
INVERT_SDA
INVERTER CONN
C8051F347
I2C_CLK
I2C_DAT
SMBCLK2
SMBDAT2
RJ B
0 ohm
LED_CLK
LED_DATA
16-Port I/O
MAX7313 X2
LED DRIVER
SMBCLK2_ MAX7313
SMBDAT2_MAX7313
CABLE DETECT
PCH
SML1_SMB2_CLK
SML1_SMB2_DAT
SMBCLK2_R
SMBDAT2_R
Media Board Conn
By Thomas shih
SMBus Map_ITE8512E
Dell/FLEX Confidential
Wednesday, August 12, 2009
65 of 66

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

	Item	Fixed Issue	Reason for Change	Rev	PG#	Modify List	B Ver#	Phase
EE change	1	CPU thermal shutdown change to 93C	6/23 PWA X120 was changed	A00	36	R752 change from 953_F to 1.33k_F ohm	A00	Safe Launch
	2	FOR LOW_BAT & cost down	7/9 PWA X220 was changed	A00	18	Q37 change from mount to NA	A00	Safe Launch
	3	Board ID Straps	Change for A00 version	A00	37	Change R104, R120 mount; R110, R112 NA	A00	Safe Launch
	4	K/B LED grey	Increase K/B LED brightness	A00	41	R725, R701, R703, R671, R672, R705, R670, R718 change from 10 ohm to 4.7 ohm	A00	Safe Launch
	5	+V0.75S leakage saving	+V0.75S leakage saving	A00	50	PR124 mount change to NA	A00	Safe Launch
	6	Intel confirm to remove	Intel confirm to remove	A00	16	RJ5A, RJ6A, R362, R363, R355, R354 mount change to NA	A00	Safe Launch
	7	Remove XDP function	Remove XDP function	A00	13	CN601, CN26, R651, R387, R359 Mount change to NA	A00	Safe Launch
	8	Change MXM CONN footprint	Change MXM CONN footprint	A00	25	Change MXM CONN footprint and library	A00	Safe Launch
	9	Remove on board power button	Only for test	A00	39	Mount change to NA: SW600.	A00	Safe Launch
	10	Remove eDP function	Remove eDP function	A00	27	Mount change to NA: CN27, C817, R906, R907, R908, R909, R898, R899, R900, R901, R902, R903, C811, C812, C813, C814, C815, C816.	A00	Safe Launch
	11	Change for factory without CPU test	Change for factory without CPU test	A00	52	PR9 change from 0ohm to 2Kohm	A00	Safe Launch
POWER change	1	For +V1.1S_VTT feedbeck	For +V1.1S_VTT feedbeck	A00	54	PR647 NA change to mount	A00	Safe Launch
EMI change	1	For USB 480Mhz over limit issue	For USB 480Mhz over limit issue	A00	28	R100, R101 change to NA. L12 change to mount.	A00	Safe Launch
	2	CRT RGB Signal quality and EMI	CRT RGB Signal quality and EMI	A00	29	L4, L7, L11 change from 75ohm_BLM18BB750SN1D to 80ohm_MMZ1608D800BT. C209, C202, C194 change from 18pF to 12pF. C192, C198, C208 change from 18pF to 33pF.	A00	Safe Launch

Title	History - 1	
Size	Document Number: Dell/FLEX Confidential	Rev: A00
Date: Wednesday, August 12, 2009	Sheet 66 of 66	