Q77H2-AD

Rev : 1.0.

TABLE OF CONTENTS

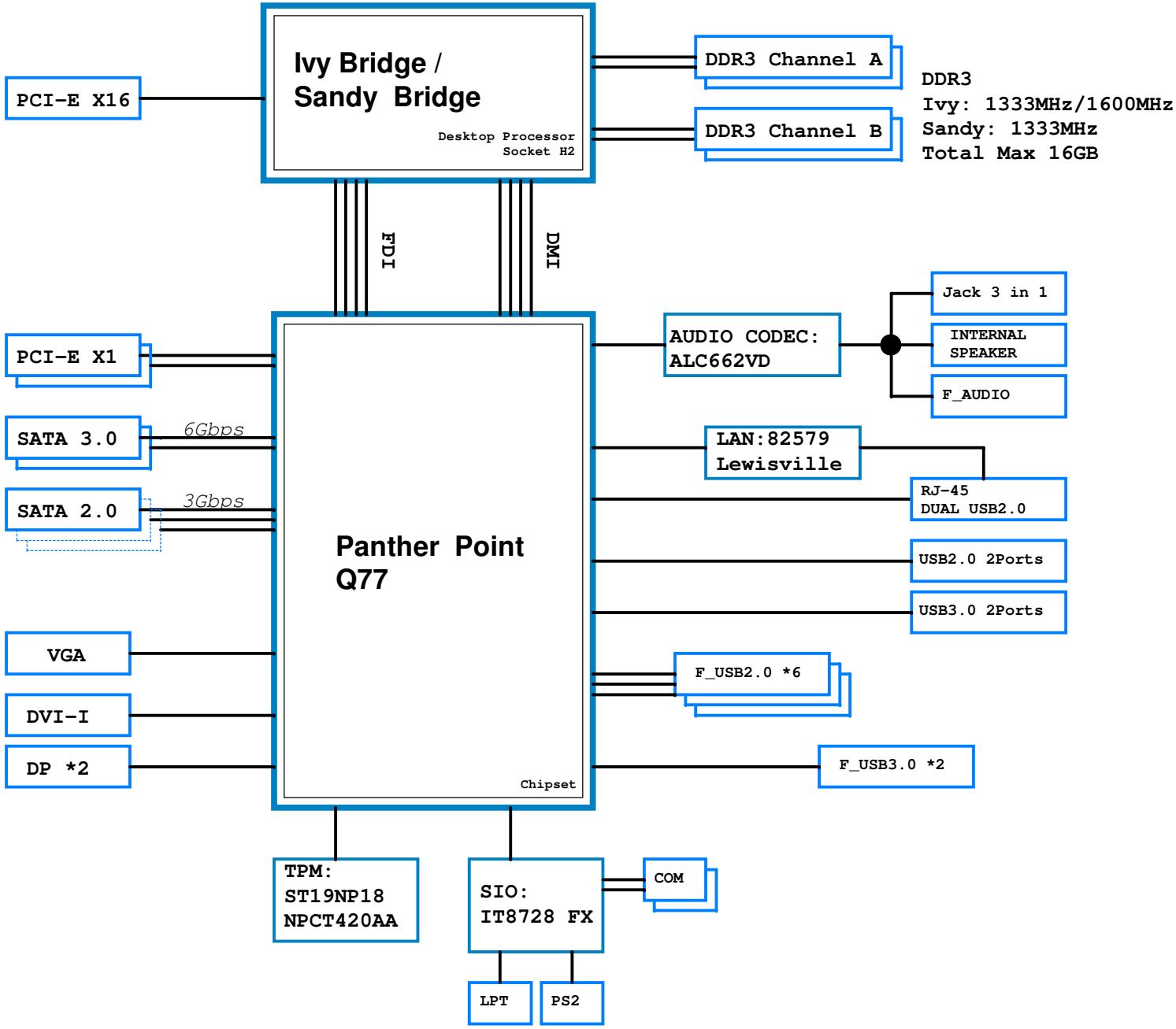
NOTE:

REVISION HISTORY:

Rev	Date	Notes
V.A	2011/10/03	Initial version
V.B	2011/12/13	
V1.0	2012/01/17	
V1.0.	2012/04/10	

Elitegroup Computer Systems

Title: Cover Page		
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 1 of 49	



Elitegroup Computer Systems

Title: Block Diagram

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 2 of 49

GPIO Table

PCH

Name	Type	Voltage	Default	Function
GPIO1	I/O	+VCC3	Input	OBR
GPIO6	I/O	+VCC3	Input	Thermal Shut Down
GPIO13	I/O	+3VSB	Input	LPC_PME_L
GPIO15	I/O	+3VSB	Input	TLS_EN
GPIO23	I/O	+VCC3	Input	HDPANEL_DETECT
GPIO27	I/O	SB_3VSB	Input	LANWAKEB for Bcm
GPIO28	I/O	+3VSB	Input	ON_DIE_PLL_EN
GPIO45	I/O	+3VSB	Input	SPI_WPSW
GPIO57	I/O	+3VSB	Input	SPI_WP0_L
GPIO59	I/O	+3VSB	Input	LAN_LED_D
GPIO61	I/O	+3VSB	Input	LPCPD_L
GPIO72	I/O	+3VSB	Input	GPIO72_S4S5

IT8728F D/EX

Name	Type	Voltage	Int. Res.	Function
GP14	I/O	+VCC3	OD	Thermal Shut Down
GP15	I/O	+VCC3	OD	MB_ID1
GP16	I/O	+VCC3	OD	PC BEEP
GP22	I/O	+3VSB	OD	LED1
GP23	I/O	+3VSB	OD	LED0
GP35	I/O	+VCC3	OD	MB_ID2
GP36	I/O	+VCC3	OD	GPO36 FOR ACER reserve
GP64	I/O	+VCC3	OD	GPO64 FOR ACER reserve

Straping Table

PCH Straping (Page.14)

TLS Confidentiality:

TLS_EN (internal PD)	
H	Enable TLS
L	Disable TLS

No Reboot:

PCH_SPKR (internal PD)	
H	Enable No Reboot
L	Disable

On-Die PLL VR:

ON_DIE_PLL_EN (internal PU)	
H	Enable
L	Disable

On-Die PLL VR Source:

HDA_SYNC_R (internal PD)	
H	1.5V
L	1.8V

Integrated 1.05V SUS VRM:

INTVRMEN	
H	Enable
L	Disable

SIO IT8728F D/EX Straping (Page.28)

Power-On Strapping

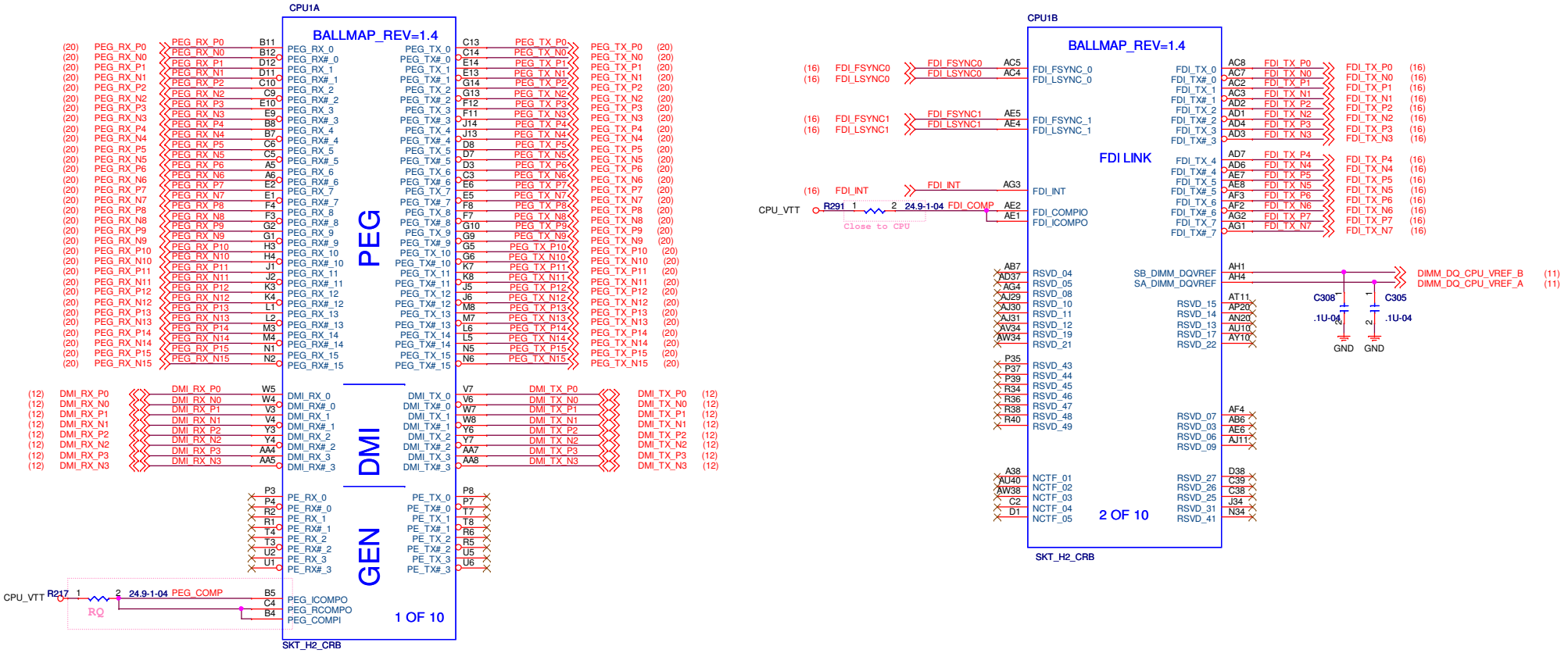
	Symbol	Value	Description
JP1 Pin-48	DSW_EUP_SEL	1	EUP
		0	DSW
JP2 Pin-122	WDT_EN	1	Disable WDT to reset PWROK
		0	Enable WDT to reset PWROK
JP3 Pin-124	FAN_CTL_SEL	1	EC Index 63h/6Bh/73h is 80h
		0	EC Index 63h/6Bh/73h is 00h
JP4 Pin-126	K8PWR_EN	1	Disable K8 Power Sequence
		0	Enable K8 Power Sequence
JP5 Pin-29	UOVMODE_SEL OV/UV	1	Notice Mode (Default)
		0	Force Mode

Elitegroup Computer Systems

Title: GPIO Function Map

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

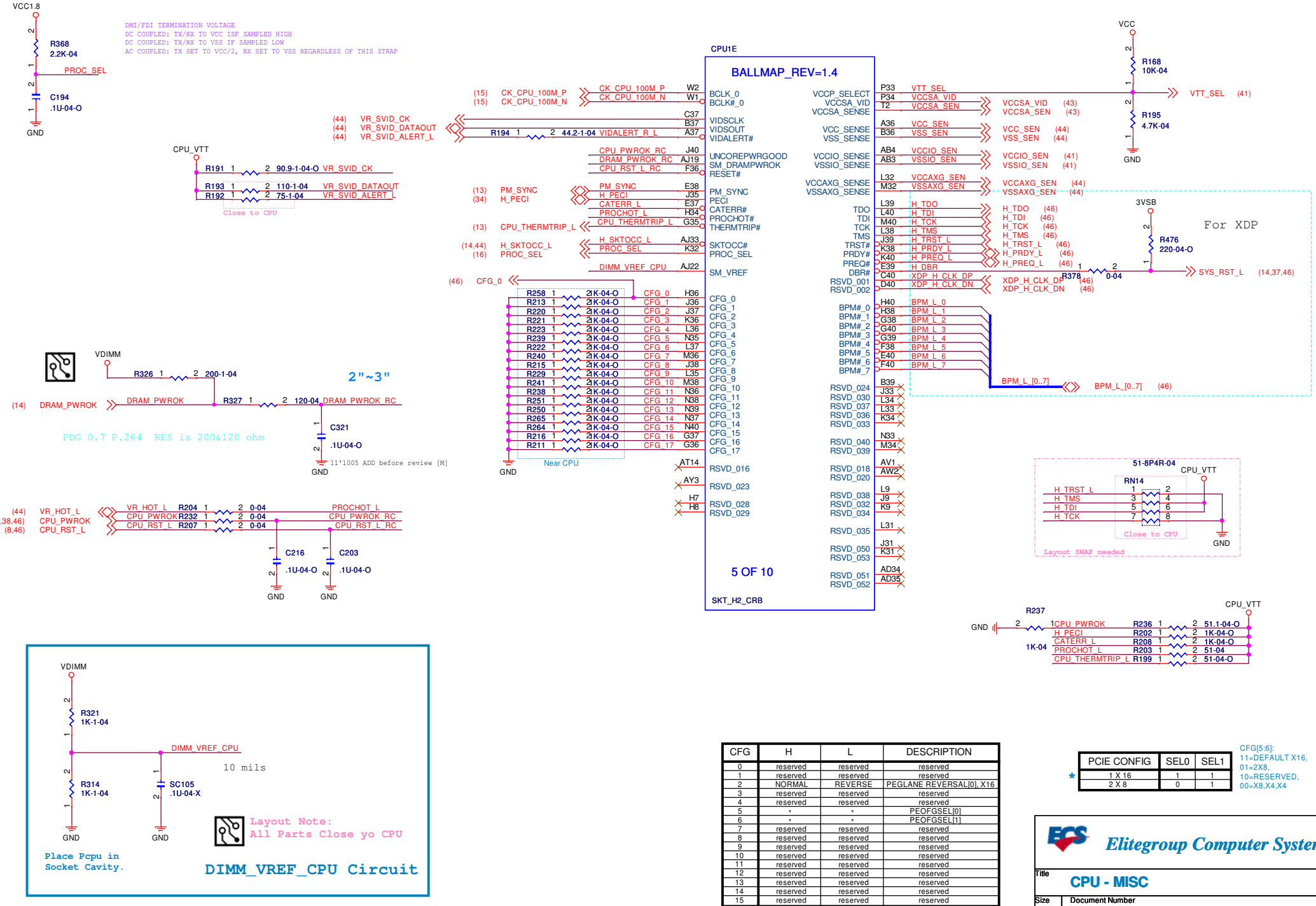
Date: Tuesday, April 10, 2012 | Sheet 3 of 49



SHORT B4 & C4 TOGETHER, ROUTE AS A SINGLE 4MIL TRACE TO RQ.
1 ROUTE B5 TO RQ. 1 AS A SEPERATE 12MIL TRACE.

Elitegroup Computer Systems

Title	CPU - DMI/FDI/PEG	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0
Date: Tuesday, April 10, 2012	Sheet 4 of 49	



CFG	H	L	DESCRIPTION
0	reserved	reserved	reserved
1	reserved	reserved	reserved
2	NORMAL	REVERSE	PEGLANE REVERSAL[0], X16
3	reserved	reserved	reserved
4	reserved	reserved	reserved
5	*	*	PEOFGSEL[0]
6	*	*	PEOFGSEL[1]
7	reserved	reserved	reserved
8	reserved	reserved	reserved
9	reserved	reserved	reserved
10	reserved	reserved	reserved
11	reserved	reserved	reserved
12	reserved	reserved	reserved
13	reserved	reserved	reserved
14	reserved	reserved	reserved
15	reserved	reserved	reserved

CFG_[0..17] HAVE INTERNAL PULL-UPS

*	PCIE CONFIG	SEL0	SEL1
	1 X 16	1	1
	2 X 8	0	1

CFG[5:6]:
11=DEFAULT X16,
01=2X8,
10=RESERVED,
00=X8,X4,X4

Elitegroup Computer Systems

Title: CPU - MISC

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 5 of 49

(9) M_DATA_A[0..63] — M_DATA_A[0..63]
(9) M_DQS_A_P[0..7] — M_DQS_A_P[0..7]
(9) M_DQS_A_N[0..7] — M_DQS_A_N[0..7]
(9) M_MA_A[0..15] — M_MA_A[0..15]
(9) M_BS_A[0..2] — M_BS_A[0..2]
(9) M_CS_A_L[0..3] — M_CS_A_L[0..3]
(9) M_CKE_A[0..3] — M_CKE_A[0..3]
(9) M_ODT_A[0..3] — M_ODT_A[0..3]
(9) M_CLK_A_P[0..3] — M_CLK_A_P[0..3]
(9) M_CLK_A_N[0..3] — M_CLK_A_N[0..3]

(9) M_WE_A_L — M_WE_A_L
(9) M_CAS_A_L — M_CAS_A_L
(9) M_RAS_A_L — M_RAS_A_L

DDR3 CH.A

(9,10) DDR3_DRAMRST_L — DDR3_DRAMRST_L

(10) M_DATA_B[0..63] — M_DATA_B[0..63]
(10) M_DQS_B_P[0..7] — M_DQS_B_P[0..7]
(10) M_DQS_B_N[0..7] — M_DQS_B_N[0..7]
(10) M_MA_B[0..15] — M_MA_B[0..15]
(10) M_BS_B[0..2] — M_BS_B[0..2]
(10) M_CS_B_L[0..3] — M_CS_B_L[0..3]
(10) M_CKE_B[0..3] — M_CKE_B[0..3]
(10) M_ODT_B[0..3] — M_ODT_B[0..3]
(10) M_CLK_B_P[0..3] — M_CLK_B_P[0..3]
(10) M_CLK_B_N[0..3] — M_CLK_B_N[0..3]

(10) M_WE_B_L — M_WE_B_L
(10) M_CAS_B_L — M_CAS_B_L
(10) M_RAS_B_L — M_RAS_B_L

DDR3 CH.B

CPU1C

BALLMAP_REV=1.4

M_DATA_A0	AJ3	SA_DQ_0	SA_MA_0	AV27	M_MA_A0
M_DATA_A1	AJ4	SA_DQ_1	SA_MA_1	AY24	M_MA_A1
M_DATA_A2	AL3	SA_DQ_2	SA_MA_2	AW24	M_MA_A2
M_DATA_A3	AL4	SA_DQ_3	SA_MA_3	AW23	M_MA_A3
M_DATA_A4	AJ2	SA_DQ_4	SA_MA_4	AY23	M_MA_A4
M_DATA_A5	AJ1	SA_DQ_5	SA_MA_5	AT24	M_MA_A5
M_DATA_A6	AL2	SA_DQ_6	SA_MA_6	AT23	M_MA_A6
M_DATA_A7	AL1	SA_DQ_7	SA_MA_7	AU22	M_MA_A7
M_DATA_A8	AN1	SA_DQ_8	SA_MA_8	AV22	M_MA_A8
M_DATA_A9	AN4	SA_DQ_9	SA_MA_9	AT22	M_MA_A9
M_DATA_A10	AR3	SA_DQ_10	SA_MA_10	AV28	M_MA_A10
M_DATA_A11	AR4	SA_DQ_11	SA_MA_11	AU21	M_MA_A11
M_DATA_A12	AN2	SA_DQ_12	SA_MA_12	AT21	M_MA_A12
M_DATA_A13	AN3	SA_DQ_13	SA_MA_13	AW32	M_MA_A13
M_DATA_A14	AR2	SA_DQ_14	SA_MA_14	AU20	M_MA_A14
M_DATA_A15	AR1	SA_DQ_15	SA_MA_15	AT20	M_MA_A15
M_DATA_A16	AV2	SA_DQ_16			
M_DATA_A17	AW3	SA_DQ_17			
M_DATA_A18	AV5	SA_DQ_18	SA_WE#	AW29	M_WE_A_L
M_DATA_A19	AW5	SA_DQ_19	SA_CAS#	AV30	M_CAS_A_L
M_DATA_A20	AU2	SA_DQ_20	SA_RAS#	AU28	M_RAS_A_L
M_DATA_A21	AU3	SA_DQ_21			
M_DATA_A22	AU5	SA_DQ_22			
M_DATA_A23	AY5	SA_DQ_23	SA_BS_0	AY29	M_BS_A0
M_DATA_A24	AY7	SA_DQ_24	SA_BS_1	AW28	M_BS_A1
M_DATA_A25	AU7	SA_DQ_25	SA_BS_2	AV20	M_BS_A2
M_DATA_A26	AV9	SA_DQ_26			
M_DATA_A27	AU9	SA_DQ_27			
M_DATA_A28	AV7	SA_DQ_28	SA_CS#_0	AU29	M_CS_A_L0
M_DATA_A29	AW7	SA_DQ_29	SA_CS#_1	AV32	M_CS_A_L1
M_DATA_A30	AW9	SA_DQ_30	SA_CS#_2	AW30	M_CS_A_L2
M_DATA_A31	AY9	SA_DQ_31	SA_CS#_3	AU33	M_CS_A_L3
M_DATA_A32	AU35	SA_DQ_32			
M_DATA_A33	AW37	SA_DQ_33			
M_DATA_A34	AU39	SA_DQ_34			
M_DATA_A35	AU36	SA_DQ_35	SA_CKE_0	AV19	M_CKE_A0
M_DATA_A36	AW35	SA_DQ_36	SA_CKE_1	AT19	M_CKE_A1
M_DATA_A37	AY36	SA_DQ_37	SA_CKE_2	AU18	M_CKE_A2
M_DATA_A38	AU38	SA_DQ_38	SA_CKE_3	AV18	M_CKE_A3
M_DATA_A39	AU37	SA_DQ_39			
M_DATA_A40	AR40	SA_DQ_40			
M_DATA_A41	AR37	SA_DQ_41			
M_DATA_A42	AN38	SA_DQ_42	SA_ODT_0	AV31	M_ODT_A0
M_DATA_A43	AN37	SA_DQ_43	SA_ODT_1	AU32	M_ODT_A1
M_DATA_A44	AR39	SA_DQ_44	SA_ODT_2	AU30	M_ODT_A2
M_DATA_A45	AR38	SA_DQ_45	SA_ODT_3	AW33	M_ODT_A3
M_DATA_A46	AN39	SA_DQ_46			
M_DATA_A47	AN40	SA_DQ_47			
M_DATA_A48	AL40	SA_DQ_48			
M_DATA_A49	AL37	SA_DQ_49	SA_CK_0	AY25	M_CLK_A_P0
M_DATA_A50	AJ38	SA_DQ_50	SA_CK#_0	AW25	M_CLK_A_N0
M_DATA_A51	AJ37	SA_DQ_51	SA_CK_1	AU24	M_CLK_A_P1
M_DATA_A52	AL39	SA_DQ_52	SA_CK#_1	AU25	M_CLK_A_N1
M_DATA_A53	AL38	SA_DQ_53	SA_CK_2	AW27	M_CLK_A_P2
M_DATA_A54	AJ39	SA_DQ_54	SA_CK#_2	AY27	M_CLK_A_N2
M_DATA_A55	AJ40	SA_DQ_55	SA_CK_3	AV26	M_CLK_A_P3
M_DATA_A56	AG40	SA_DQ_56	SA_CK#_3	AW26	M_CLK_A_N3
M_DATA_A57	AG37	SA_DQ_57			
M_DATA_A58	AE38	SA_DQ_58			
M_DATA_A59	AE37	SA_DQ_59			
M_DATA_A60	AG39	SA_DQ_60			
M_DATA_A61	AG38	SA_DQ_61			
M_DATA_A62	AE39	SA_DQ_62			
M_DATA_A63	AE40	SA_DQ_63			

M_DQS_A_P0	AK3	SA_DQS_0	SM_DRAMRST#	AW18	DDR3_DRAMRST_R_L
M_DQS_A_P1	AP3	SA_DQS_1			
M_DQS_A_P2	AW4	SA_DQS_2	SA_DQS_8	AV13	
M_DQS_A_P3	AV8	SA_DQS_3	SA_DQS#_8	AV12	
M_DQS_A_P4	AV37	SA_DQS_4			
M_DQS_A_P5	AP38	SA_DQS_5			
M_DQS_A_P6	AK38	SA_DQS_6	SA_ECC_CB_0	AU12	
M_DQS_A_P7	AF38	SA_DQS_7	SA_ECC_CB_1	AU14	
			SA_ECC_CB_2	AW13	
M_DQS_A_N0	AK2		SA_ECC_CB_3	AV13	
M_DQS_A_N1	AP2	SA_DQS#_0	SA_ECC_CB_4	AU13	
M_DQS_A_N2	AV4	SA_DQS#_1	SA_ECC_CB_5	AU11	
M_DQS_A_N3	AW8	SA_DQS#_2	SA_ECC_CB_6	AV12	
M_DQS_A_N4	AV36	SA_DQS#_3	SA_ECC_CB_7	AW12	
M_DQS_A_N5	AP39	SA_DQS#_4			
M_DQS_A_N6	AK39	SA_DQS#_5			
M_DQS_A_N7	AF39	SA_DQS#_6			
		SA_DQS#_7			

SKT_H2_CRB

DDR_0

3 OF 10

DDR3 CH.A

R405 1 2 0-04 — DDR3_DRAMRST_L

C350 1 2 .1U-04-O — GND

For RC Filter

Desktop dosen't support ECC

Pay Attention to This Part!

CPU1D

BALLMAP_REV=1.4

M_DATA_B0	AG7	SB_DQ_0	SB_MA_0	AK24	M_MA_B0
M_DATA_B1	AG8	SB_DQ_1	SB_MA_1	AM20	M_MA_B1
M_DATA_B2	AJ9	SB_DQ_2	SB_MA_2	AM19	M_MA_B2
M_DATA_B3	AJ8	SB_DQ_3	SB_MA_3	AK18	M_MA_B3
M_DATA_B4	AG5	SB_DQ_4	SB_MA_4	AP19	M_MA_B4
M_DATA_B5	AG6	SB_DQ_5	SB_MA_5	AP18	M_MA_B5
M_DATA_B6	AJ6	SB_DQ_6	SB_MA_6	AM18	M_MA_B6
M_DATA_B7	AJ7	SB_DQ_7	SB_MA_7	AL18	M_MA_B7
M_DATA_B13	AL7	SB_DQ_8	SB_MA_8	AN18	M_MA_B8
M_DATA_B9	AM7	SB_DQ_9	SB_MA_9	AY17	M_MA_B9
M_DATA_B11	AM10	SB_DQ_10	SB_MA_10	AN23	M_MA_B10
M_DATA_B15	AL10	SB_DQ_11	SB_MA_11	AU17	M_MA_B11
M_DATA_B12	AL6	SB_DQ_12	SB_MA_12	AT18	M_MA_B12
M_DATA_B8	AM6	SB_DQ_13	SB_MA_13	AR26	M_MA_B13
M_DATA_B14	AL9	SB_DQ_14	SB_MA_14	AY16	M_MA_B14
M_DATA_B10	AM9	SB_DQ_15	SB_MA_15	AV16	M_MA_B15
M_DATA_B16	AP7	SB_DQ_16			
M_DATA_B17	AR7	SB_DQ_17			
M_DATA_B18	AP10	SB_DQ_18	SA_CK[2]	AR25	M_WE_B_L
M_DATA_B19	AR10	SB_DQ_19	SA_CK[1]	AK25	M_CAS_B_L
M_DATA_B20	AP6	SB_DQ_20	SA_ODT[2]	AP24	M_RAS_B_L
M_DATA_B21	AR6	SB_DQ_21			
M_DATA_B22	AP9	SB_DQ_22			
M_DATA_B23	AR9	SB_DQ_23	SB_BS_0	AP23	M_BS_B0
M_DATA_B24	AM12	SB_DQ_24	SB_BS_1	AM24	M_BS_B1
M_DATA_B25	AM13	SB_DQ_25	SB_BS_2	AW17	M_BS_B2
M_DATA_B26	AR13	SB_DQ_26			
M_DATA_B27	AP13	SB_DQ_27			
M_DATA_B28	AL12	SB_DQ_28	SB_CS#_0	AN25	M_CS_B_L0
M_DATA_B29	AL13	SB_DQ_29	SB_CS#_1	AN26	M_CS_B_L1
M_DATA_B30	AR12	SB_DQ_30	SB_CS#_2	AL25	M_CS_B_L2
M_DATA_B31	AP12	SB_DQ_31	SB_CS#_3	AT26	M_CS_B_L3
M_DATA_B32	AR28	SB_DQ_32			
M_DATA_B33	AR29	SB_DQ_33			
M_DATA_B34	AL28	SB_DQ_34			
M_DATA_B35	AL29	SB_DQ_35	SB_CKE_0	AU16	M_CKE_B0
M_DATA_B36	AP28	SB_DQ_36	SB_CKE_1	AY15	M_CKE_B1
M_DATA_B37	AP29	SB_DQ_37	SB_CKE_2	AW15	M_CKE_B2
M_DATA_B38	AM28	SB_DQ_38	SB_CKE_3	AV15	M_CKE_B3
M_DATA_B39	AM29	SB_DQ_39			
M_DATA_B40	AP32	SB_DQ_40			
M_DATA_B41	AP31	SB_DQ_41			
M_DATA_B42	AP35	SB_DQ_42	SB_ODT_0	AL26	M_ODT_B0
M_DATA_B43	AP34	SB_DQ_43	SB_ODT_1	AP26	M_ODT_B1
M_DATA_B44	AR32	SB_DQ_44	SB_ODT_2	AM26	M_ODT_B2
M_DATA_B45	AR31	SB_DQ_45	SB_ODT_3	AK26	M_ODT_B3
M_DATA_B46	AR35	SB_DQ_46			
M_DATA_B47	AR34	SB_DQ_47			
M_DATA_B48	AM32	SB_DQ_48			
M_DATA_B52	AM31	SB_DQ_49	SB_CK_0	AL21	M_CLK_B_P0
M_DATA_B55	AL35	SB_DQ_50	SB_CK#_0	AL22	M_CLK_B_N0
M_DATA_B51	AL32	SB_DQ_51	SB_CK_1	AL20	M_CLK_B_P1
M_DATA_B54	AM34	SB_DQ_52	SB_CK#_1	AK20	M_CLK_B_N1
M_DATA_B49	AL31	SB_DQ_53	SB_CK_2	AL23	M_CLK_B_P2
M_DATA_B53	AM35	SB_DQ_54	SB_CK#_2	AM22	M_CLK_B_N2
M_DATA_B50	AL34	SB_DQ_55	SB_CK_3	AP21	M_CLK_B_P3
M_DATA_B56	AH35	SB_DQ_56	SB_CK#_3	AN21	M_CLK_B_N3
M_DATA_B57	AH34	SB_DQ_57			
M_DATA_B58	AE34	SB_DQ_58			
M_DATA_B59	AE35	SB_DQ_59			
M_DATA_B60	AJ35	SB_DQ_60			
M_DATA_B61	AJ34	SB_DQ_61			
M_DATA_B62	AF33	SB_DQ_62			
M_DATA_B63	AF35	SB_DQ_63			

M_DQS_B_P0	AH7	SB_DQS_0	SB_DQS_8	AN16	
M_DQS_B_P1	AM8	SB_DQS_1	SB_DQS#_8	AN15	
M_DQS_B_P2	AR8	SB_DQS_2			
M_DQS_B_P3	AN13	SB_DQS_3			
M_DQS_B_P4	AN29	SB_DQS_4	SB_ECC_CB_0	AL16	
M_DQS_B_P5	AP33	SB_DQS_5	SB_ECC_CB_1	AM16	
M_DQS_B_P6	AL33	SB_DQS_6	SB_ECC_CB_2	AP16	
M_DQS_B_P7	AG35	SB_DQS_7	SB_ECC_CB_3	AR16	
			SB_ECC_CB_4	AL15	
M_DQS_B_N0	AH6		SB_ECC_CB_5	AM15	
M_DQS_B_N1	AL8	SB_DQS#_0	SB_ECC_CB_6	AP15	
M_DQS_B_N2	AP8	SB_DQS#_1	SB_ECC_CB_7	AR15	
M_DQS_B_N3	AN12	SB_DQS#_2			
M_DQS_B_N4	AN28	SB_DQS#_3			
M_DQS_B_N5	AR33	SB_DQS#_4			
M_DQS_B_N6	AM33	SB_DQS#_5			
M_DQS_B_N7	AG34	SB_DQS#_6			
		SB_DQS#_7			

SKT_H2_CRB

DDR_1

4 OF 10

DDR3 CH.B

Desktop dosen't support ECC

Elitegroup Computer Systems

Title: CPU - DDR3

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 6 of 49

MAX 112A
In CPU_VCORE

CPU1F

BALLMAP_REV=1.4

A12	VCC_001	VCC_082	F32
A13	VCC_002	VCC_083	F33
A14	VCC_003	VCC_084	F34
A15	VCC_004	VCC_085	G15
A16	VCC_005	VCC_086	G16
A18	VCC_006	VCC_087	G18
A24	VCC_007	VCC_088	G19
A25	VCC_008	VCC_089	G21
A27	VCC_009	VCC_090	G22
A28	VCC_010	VCC_091	G24
B15	VCC_011	VCC_092	G25
B16	VCC_012	VCC_093	G27
B18	VCC_013	VCC_094	G28
B24	VCC_014	VCC_095	G30
B25	VCC_015	VCC_096	G31
B27	VCC_016	VCC_097	G32
B28	VCC_017	VCC_098	G33
B30	VCC_018	VCC_099	H13
B31	VCC_019	VCC_100	H14
B33	VCC_020	VCC_101	H15
B34	VCC_021	VCC_102	H16
C15	VCC_022	VCC_103	H18
C16	VCC_023	VCC_104	H19
C18	VCC_024	VCC_105	H21
C19	VCC_025	VCC_106	H22
C21	VCC_026	VCC_107	H24
C22	VCC_027	VCC_108	H25
C24	VCC_028	VCC_109	H27
C25	VCC_029	VCC_110	H28
C27	VCC_030	VCC_111	H30
C28	VCC_031	VCC_112	H31
C30	VCC_032	VCC_113	H32
C31	VCC_033	VCC_114	J12
C33	VCC_034	VCC_115	J15
C34	VCC_035	VCC_116	J16
C36	VCC_036	VCC_117	J18
D13	VCC_037	VCC_118	J19
D14	VCC_038	VCC_119	J21
D15	VCC_039	VCC_120	J22
D16	VCC_040	VCC_121	J24
D18	VCC_041	VCC_122	J25
D19	VCC_042	VCC_123	J27
D21	VCC_043	VCC_124	J28
D22	VCC_044	VCC_125	J30
D24	VCC_045	VCC_126	K15
D25	VCC_046	VCC_127	K16
D27	VCC_047	VCC_128	K18
D28	VCC_048	VCC_129	K19
D30	VCC_049	VCC_130	K21
D31	VCC_050	VCC_131	K22
D33	VCC_051	VCC_132	K24
D34	VCC_052	VCC_133	K25
D35	VCC_053	VCC_134	K27
D36	VCC_054	VCC_135	K28
E15	VCC_055	VCC_136	K30
E16	VCC_056	VCC_137	L13
E18	VCC_057	VCC_138	L14
E19	VCC_058	VCC_139	L15
E21	VCC_059	VCC_140	L16
E22	VCC_060	VCC_141	L18
E24	VCC_061	VCC_142	L19
E25	VCC_062	VCC_143	L21
E27	VCC_063	VCC_144	L22
E28	VCC_064	VCC_145	L24
E30	VCC_065	VCC_146	L25
E31	VCC_066	VCC_147	L27
E33	VCC_067	VCC_148	L28
E34	VCC_068	VCC_149	L30
E35	VCC_069	VCC_150	M14
F15	VCC_070	VCC_151	M15
F16	VCC_071	VCC_152	M16
F18	VCC_072	VCC_153	M18
F19	VCC_073	VCC_154	M19
F21	VCC_074	VCC_155	M21
F22	VCC_075	VCC_156	M22
F24	VCC_076	VCC_157	M24
F25	VCC_077	VCC_158	M25
F27	VCC_078	VCC_159	M27
F28	VCC_079	VCC_160	M28
F30	VCC_080	VCC_161	M30
F31	VCC_081		

6 OF 10

SKT_H2_CRB

MAX 112A
In CPU_VCORE

1.05V/1.00V
MAX 8.8A
In CPU_VTT

CPU1G

BALLMAP_REV=1.4

M13	VCCIO_34	VDDQ_01	AJ13
		VDDQ_02	AJ14
A11	VCCIO_01	VDDQ_04	AJ23
A7	VCCIO_02	VDDQ_05	AJ24
AA3	VCCIO_03	VDDQ_06	AR20
AB8	VCCIO_04	VDDQ_07	AR21
AF8	VCCIO_05	VDDQ_08	AR22
AG33	VCCIO_06	VDDQ_09	AR23
AJ16	VCCIO_07	VDDQ_10	AR24
AJ17	VCCIO_08	VDDQ_11	AU19
AJ26	VCCIO_09	VDDQ_12	AU23
AJ28	VCCIO_10	VDDQ_13	AU27
AJ32	VCCIO_11	VDDQ_14	AU31
AK15	VCCIO_12	VDDQ_15	AV21
AK17	VCCIO_13	VDDQ_16	AV24
AK19	VCCIO_14	VDDQ_17	AV25
AK21	VCCIO_15	VDDQ_18	AV29
AK23	VCCIO_16	VDDQ_19	AV33
AK27	VCCIO_17	VDDQ_20	AW31
AK29	VCCIO_18	VDDQ_21	AY23
AK30	VCCIO_19	VDDQ_22	AY26
B9	VCCIO_20	VDDQ_23	AY28
D10	VCCIO_21		
D6	VCCIO_22		AJ20
E3	VCCIO_23	VDDQ_03	
E4	VCCIO_24		
G3	VCCIO_25		
G4	VCCIO_26		
J3	VCCIO_27		
J4	VCCIO_28		
J7	VCCIO_29		
J8	VCCIO_30		
L3	VCCIO_31		
L4	VCCIO_32		
L7	VCCIO_33		
N3	VCCIO_35		
N4	VCCIO_36		
N7	VCCIO_37		
R3	VCCIO_38		
R4	VCCIO_39		
R7	VCCIO_40		
U3	VCCIO_41		
U4	VCCIO_42		
U7	VCCIO_43		
V8	VCCIO_44		
W3	VCCIO_45		

POWER
7 OF 10

SKT_H2_CRB

1.5V
MAX 4.5A
In VDIMM

MAX 35A
In V_AXG

CPU1H

VBALLMAP_REV=1.4

AB33	VCCAXG_01
AB34	VCCAXG_02
AB35	VCCAXG_03
AB36	VCCAXG_04
AB37	VCCAXG_05
AB38	VCCAXG_06
AB39	VCCAXG_07
AB40	VCCAXG_08
AC33	VCCAXG_09
AC34	VCCAXG_10
AC35	VCCAXG_11
AC36	VCCAXG_12
AC37	VCCAXG_13
AC38	VCCAXG_14
AC39	VCCAXG_15
AC40	VCCAXG_16
T33	VCCAXG_17
T34	VCCAXG_18
T35	VCCAXG_19
T36	VCCAXG_20
T37	VCCAXG_21
T38	VCCAXG_22
T39	VCCAXG_23
T40	VCCAXG_24
U33	VCCAXG_25
U34	VCCAXG_26
U35	VCCAXG_27
U36	VCCAXG_28
U37	VCCAXG_29
U38	VCCAXG_30
U39	VCCAXG_31
U40	VCCAXG_32
W33	VCCAXG_33
W34	VCCAXG_34
W35	VCCAXG_35
W36	VCCAXG_36
W37	VCCAXG_37
W38	VCCAXG_38
Y33	VCCAXG_39
Y34	VCCAXG_40
Y35	VCCAXG_41
Y36	VCCAXG_42
Y37	VCCAXG_43
Y38	VCCAXG_44

8 OF 10

SKT_H2_CRB

0.925V/0.85V
MAX 8.8A
In V_SA

1.8V
MAX 1A
In VCC1.8

CPU_VTT

BC21 .1U-04 BC296 .1U-04 BC22 .1U-04 BC18 .1U-04
BC16 .1U-04 BC19 .1U-04
BC17 .1U-04 BC20 .1U-04 C284 .1U-04
GND

DECOUPLING & STITCHING CAPS.

CPU_VTT V_SA

SC83 22U-6V3-08-X-O
SC63 22U-6V3-08-X
GND

PLACE NEAR SKT EDGE
OUTSIDE CAVITY.

VCC1.8

BC23 .1U-10VX-04 C286 22U-6V3-08
GND

CPU_VCORE

C268 C256 C262 C191 C267 C261
22U-6V3-08
GND

PLACE NEAR SKT EDGE
OUTSIDE CAVITY.

VDIMM

C292 C294 C293
22U-6V3-08
GND

CPU_VTT

C278 C271 C279 C280
C277 C282 C281 C295
22U-6V3-08
22U-6V3-08-O
GND

V_AXG

SC69 C270 C276 SC81
SC73 C264 C283
22U-6V3-08-X
22U-6V3-08
22U-6V3-08-X-O
GND

CPU_VCORE

SC64 SC65 SC77 SC76 SC72 C269 C258 C255 SC70
SC71 C189 C257 C263 C190 C192 SC66 SC67 SC75
22U-6V3-08-X
22U-6V3-08-X-O
22U-6V3-08
GND

PLACE ALL 0805 CAPS INSIDE CPU SOCKET CAVITY, TOPSIDE.

CPU_VTT V_AXG

SC85 SC101 SC68 SC86 SC78 SC89
SC102 SC82 SC84 C259 C266 SC74
SC93 SC79 C175 SC87 SC92
22U-6V3-08-X-O
22U-6V3-08
GND

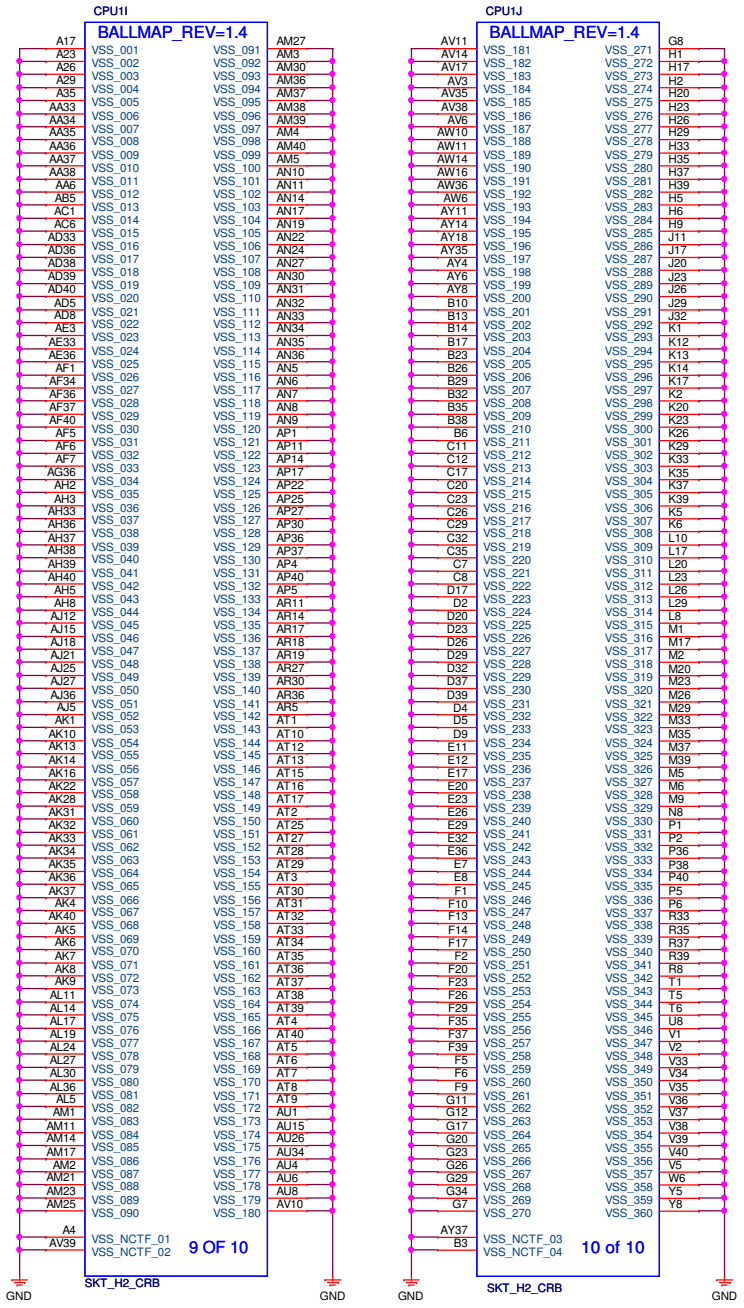
PLACE ALL 0805 CAPS INSIDE CPU SOCKET CAVITY, BACKSIDE.

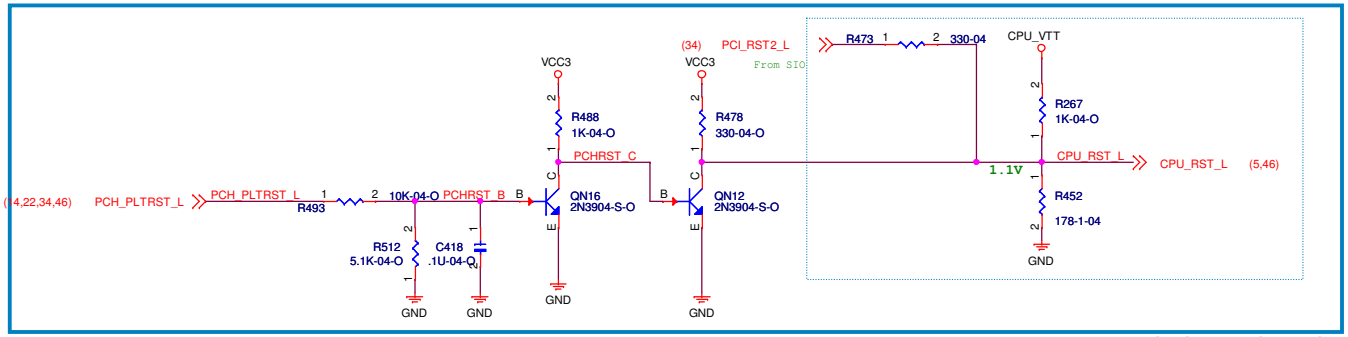
Elitegroup Computer Systems

Title: CPU - PWR

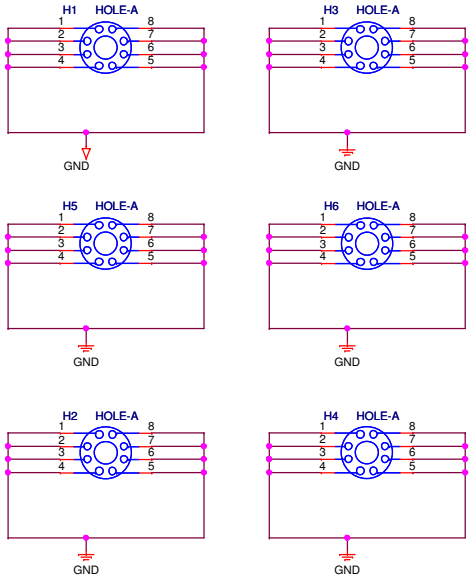
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 7 of 49





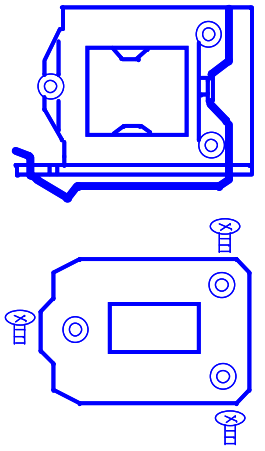
PLTRST_L Driving Circuit



11-018-115123 CPU SMD SOCKET
SOCKET.CPU..LGA 1155P SMD..G/F...BLACK.
ACA-ZIF-096-E02....LEAD-FREE(RoHS/HF).LOTES

20-800-005011 SUBASSY.STEEL....LGA 1155P.....
W/BACK PLATE.ACA-ZIF-082-E23....LEAD-FREE(RoHS).LOTES

CPU(104)
CPU_SUBASSY_STEEL



Elitegroup Computer Systems

Title	CPU - GND, CPU_RST_L	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0
Date: Tuesday, April 10, 2012	Sheet 8 of 49	

CHANNEL A DIMMs

The processor memory controller does not have any DDR3 Data Mask (DM) signals for either channel. As a result the DM[8:0] pins of each DDR3 DIMM connector must be tied directly to ground.

Desktop dosen't support ECC

CH.A	SA1	SA0
DIMM0	L	L
DIMM1	L	H

0.75V
MAX 1A

1.5V
MAX 15A
S3 1.0A

For CHAD1

For CHAD2

PLACE BETWEEN CHA &CHB.
DO NOT PUNCH VIA.

Elitegroup Computer Systems

Title: DDR3 - CHA DIMM0/1

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 9 of 49

CHANNEL B DIMMs

The processor memory controller does not have any DDR3 Data Mask (DM) signals for either channel. As a result the DM[8:0] pins of each DDR3 DIMM connector must be tied directly to ground.

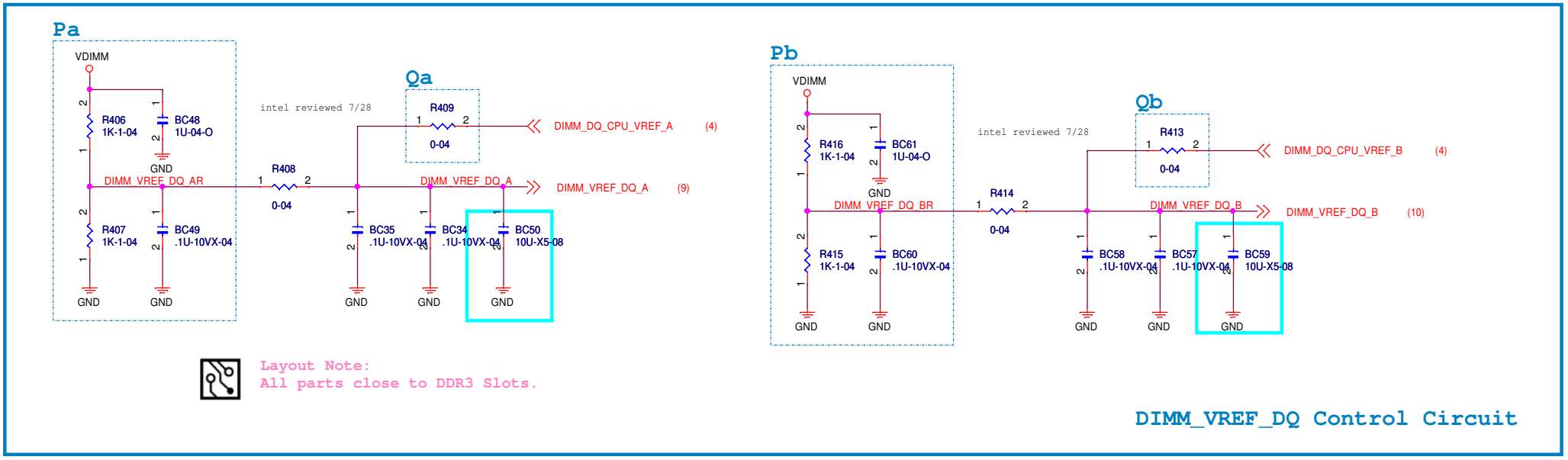
Desktop dosen't support ECC

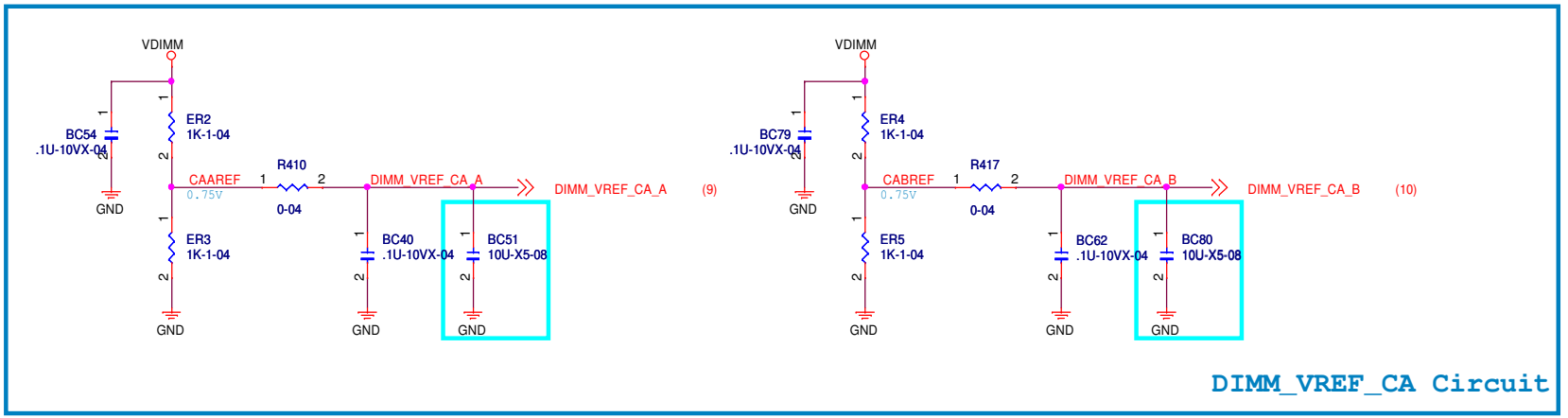
CH.B	SA1	SA0
DIMM0	H	L
DIMM1	H	H

STICHING CAPS FOR CMD, ADDR, CTL. BETWEEN CHBD1 & CHBD2

STICHING CAPS FOR CMD, ADDR, CTL. BELOW CHBD3.

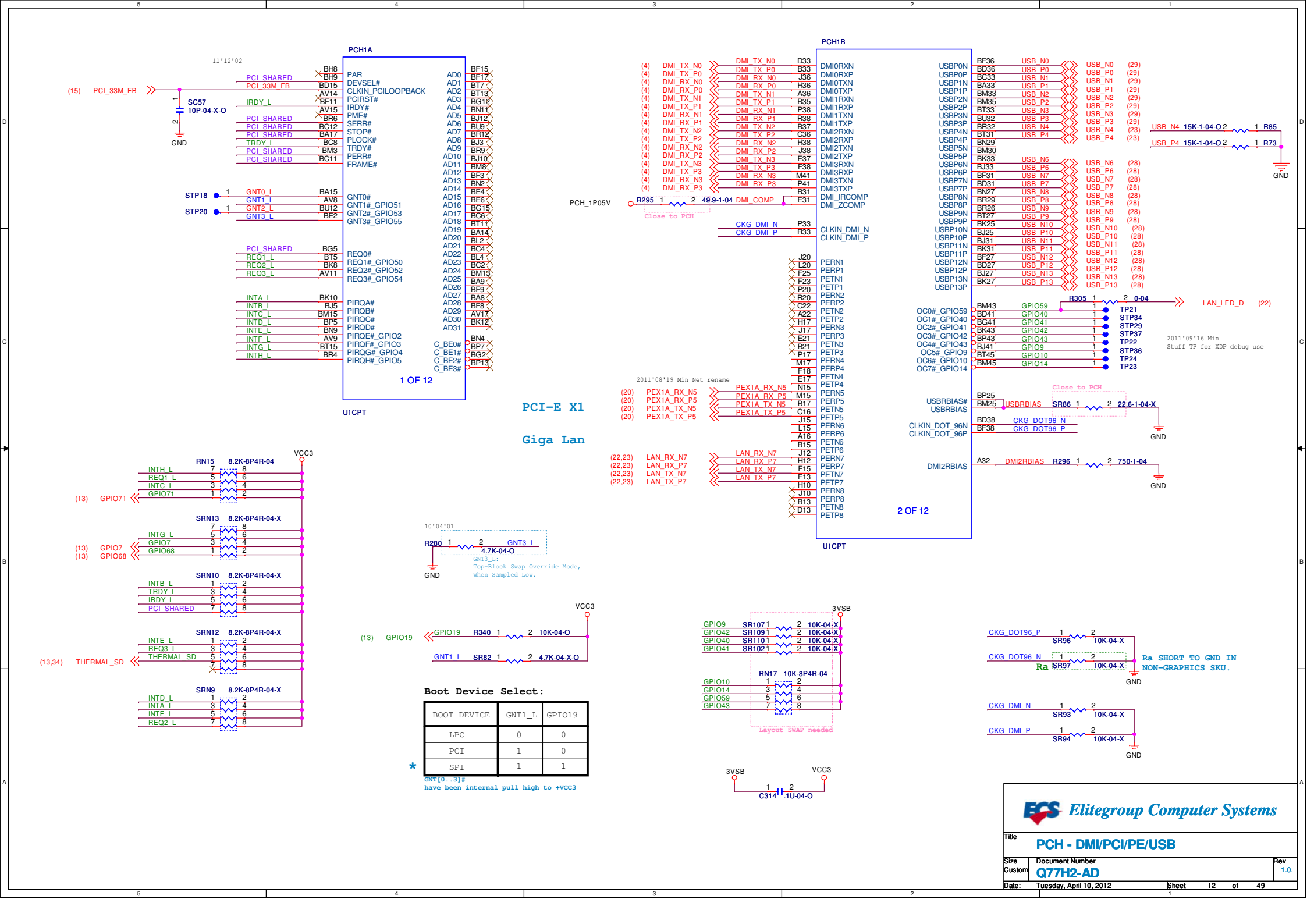
Company	Elitegroup Computer Systems
Title	DDR3 - CHB DIMM0/1
Size	Custom
Document Number	Q77H2-AD
Rev	1.0
Date	Tuesday, April 10, 2012
Sheet	10 of 49





Elitegroup Computer Systems

Title: DDR3 - VREF		
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 11 of 49	


PCH1A
11'12'02
PCI_SHARED
PCI_33M_FB
(15) PCI_33M_FB
SC57
10P-04-X-O
GND
IRDY_L
PCI_SHARED
PCI_SHARED
PCI_SHARED
TRDY_L
PCI_SHARED
PCI_SHARED
STP18
STP20
GNT0_L
GNT1_L
GNT2_L
GNT3_L
PCI_SHARED
REQ1_L
REQ2_L
REQ3_L
INTA_L
INTB_L
INTC_L
INTD_L
INTE_L
INTF_L
INTG_L
INTH_L
PAR
DEVSEL#
CLKIN_PCILOOPBACK
PCIRST#
IRDY#
PME#
SERR#
STOP#
PLOCK#
TRDY#
PERR#
FRAME#
GNT0#
GNT1#_GPIO51
GNT2#_GPIO53
GNT3#_GPIO55
REQ0#
REQ1#_GPIO50
REQ2#_GPIO52
REQ3#_GPIO54
PIRQA#
PIRQB#
PIRQC#
PIRQD#
PIRQE#_GPIO2
PIRQF#_GPIO3
PIRQG#_GPIO4
PIRQH#_GPIO5
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
AD8
AD9
AD10
AD11
AD12
AD13
AD14
AD15
AD16
AD17
AD18
AD19
AD20
AD21
AD22
AD23
AD24
AD25
AD26
AD27
AD28
AD29
AD30
AD31
C_BE0#
C_BE1#
C_BE2#
C_BE3#
1 OF 12
U1CPT
PCI-E X1
Giga Lan
PCH1B
DMI_TX_N0
DMI_TX_P0
DMI_RX_N0
DMI_RX_P0
DMI_TX_N1
DMI_TX_P1
DMI_RX_N1
DMI_RX_P1
DMI_TX_N2
DMI_TX_P2
DMI_RX_N2
DMI_RX_P2
DMI_TX_N3
DMI_TX_P3
DMI_RX_N3
DMI_RX_P3
PCH_1P05V
R295 49.9-1-04
Close to PCH
DMI_COMP
DMI_IRCOMP
DMI_ZCOMP
CKG_DMI_N
CKG_DMI_P
CLKIN_DMI_N
CLKIN_DMI_P
PERN1
PERP1
PETN1
PETP1
PERN2
PERP2
PETN2
PETP2
PERN3
PERP3
PETN3
PETP3
PERN4
PERP4
PETN4
PETP4
PERN5
PERP5
PETN5
PETP5
PERN6
PERP6
PETN6
PETP6
PERN7
PERP7
PETN7
PETP7
PERN8
PERP8
PETN8
PETP8
2011'08'19 Min Net rename
PEX1A_RX_N5
PEX1A_RX_P5
PEX1A_TX_N5
PEX1A_TX_P5
LAN_RX_N7
LAN_RX_P7
LAN_TX_N7
LAN_TX_P7
2 OF 12
U1CPT
USBP0N
USBP0P
USBP1N
USBP1P
USBP2N
USBP2P
USBP3N
USBP3P
USBP4N
USBP4P
USBP5N
USBP5P
USBP6N
USBP6P
USBP7N
USBP7P
USBP8N
USBP8P
USBP9N
USBP9P
USBP10N
USBP10P
USBP11N
USBP11P
USBP12N
USBP12P
USBP13N
USBP13P
USB_N4 15K-1-04-O
USB_P4 15K-1-04-O
R85
R73
GND
OC0#_GPIO59
OC1#_GPIO40
OC2#_GPIO41
OC3#_GPIO42
OC4#_GPIO43
OC5#_GPIO9
OC6#_GPIO10
OC7#_GPIO14
R305 0-04
LAN_LED_D (22)
TP21
STP34
STP29
STP37
TP22
STP36
TP24
TP23
2011'09'16 Min
Stuff TP for XDP debug use
USBRBIAS#
USBRBIAS
SR86 22.6-1-04-X
CLKIN_DOT_96N
CLKIN_DOT_96P
CKG_DOT96_N
CKG_DOT96_P
DMI2RBIAS
R296 750-1-04
RN15 8.2K-8P4R-04
RN13 8.2K-8P4R-04-X
RN10 8.2K-8P4R-04-X
RN12 8.2K-8P4R-04-X
RN9 8.2K-8P4R-04-X
VCC3
(13) GPIO71
(13) GPIO7
(13) GPIO68
(13,34) THERMAL_SD
R280 4.7K-04-O
GNT3_L:
Top-Block Swap Override Mode,
When Sampled Low.
(13) GPIO19
R340 10K-04-O
GNT1_L
SR82 4.7K-04-X-O
Boot Device Select:
BOOT DEVICE | GNT1_L | GPIO19
LPC | 0 | 0
PCI | 1 | 0
SPI | 1 | 1
GNT[0..3]#
have been internal pull high to +VCC3
3VSB
SR107 10K-04-X
SR109 10K-04-X
SR110 10K-04-X
SR102 10K-04-X
RN17 10K-8P4R-04
Layout SWAP needed
C314 .1U-04-O
SR96 10K-04-X
SR97 10K-04-X
Ra
Ra SHORT TO GND IN
NON-GRAPHICS SKU.
SR93 10K-04-X
SR94 10K-04-X
Elitegroup Computer Systems
Title
PCH - DMI/PCI/PE/USB
Size
Custom
Document Number
Q77H2-AD
Rev
1.0.
Date: Tuesday, April 10, 2012
Sheet 12 of 49

(39) PCH_MEPWROK — Ra — SR104 1 2 0-04-X — PCH_MEPWROK_R

(14,34,38) PWROK (FROM SIO) — Rb — SR103 1 2 0-04-X-O

MODE	Ra	Rb
* AMT	V	X
NON_AMT	X	V

OBR HEADER

OBR1 H2X1-WH: 1 GPIO1_OBR; 2 — C274 .1U-04

PCH1C

BA50 CL_CLK1
BF50 CL_DATA1
BF49 CL_RST1#
PCH_MEPWROK_R BC46 APWROK
BN21 PWM0
BT21 PWM1
BM20 PWM2
BN19 PWM3
GPIO17 BT17 TACH0_GPIO17
GPIO1_OBR BR19 TACH1_GPIO1
(12,34) THERMAL_SD BA22 TACH2_GPIO6
(12) GPIO7 BR16 TACH3_GPIO7
(12) GPIO68 BU16 TACH4_GPIO68
GPIO69 BM18 TACH5_GPIO69
GPIO70 BN17 TACH6_GPIO70
(12) GPIO71 BP15 TACH7_GPIO71
BC43 SST
GPIO22 BA53 SCLOCK_GPIO22
GPIO38 BE54 SLOAD_GPIO38
GPIO39 BF55 SDATAOUT0_GPIO39
GPIO48 AW53 SDATAOUT1_GPIO48
AY20 NC_1

SATA0RXN AC56 SATA3P0_RX_N0
SATA0RXP AB55 SATA3P0_RX_P0
SATA0TXN AE46 SATA3P0_TX_N0
SATA0TXP AE44 SATA3P0_TX_P0
SATA1RXN AA53 SATA3P0_RX_N1
SATA1RXP AA56 SATA3P0_RX_P1
SATA1TXN AG49 SATA3P0_TX_N1
SATA1TXP AG47 SATA3P0_TX_P1
SATA2RXN AL50 SATA2P0_RX_N2
SATA2RXP AL49 SATA2P0_RX_P2
SATA2TXN AL56 SATA2P0_TX_N2
SATA2TXP AL53 SATA2P0_TX_P2
SATA3RXN AN46 SATA2P0_RX_N3
SATA3RXP AN44 SATA2P0_RX_P3
SATA3TXN AN56 SATA2P0_TX_N3
SATA3TXP AM55 SATA2P0_TX_P3
SATA4RXN AN49
SATA4RXP AN50
SATA4TXN AT50
SATA4TXP AT49
SATA5RXN AT46
SATA5RXP AT44
SATA5TXN AV50
SATA5TXP AV49

IN / OUT

0901 ADD FOR RFQ

CKG_SATA_N R330 1 2 10K-04
CKG_SATA_P R329 1 2 10K-04
GND

CLKIN_SATA_N AF55 CKG_SATA_N
CLKIN_SATA_P AG56 CKG_SATA_P

SATALED# BF57 SATALED_L — SATALED_L (37)
SATAICOMPI AJ55
SATAICOMPO AJ53 SATA1RCOMP R346 1 2 37.4-1-04 — PCH_1P05V

SATA0GP_GPIO21 BC54 GPIO21
SATA1GP_GPIO19 AY52 GPIO19
SATA2GP_GPIO36 BB55 GPIO36
SATA3GP_GPIO37 BG53 GPIO37
SATA4GP_GPIO16 AU56 GPIO16
SATA5GP_GPIO49 BA56 GPIO49
GPIO19 (12)

SATA3COMPI AE54
SATA3RCOMPO AE52 SATA3RCOMP R347 1 2 49.9-1-04 — PCH_1P05V

TP16 AE50 PCH_TP16 1 STP30
SATA3RBIAS AC52 SATA3RBIAS SR95 1 2 750-1-04-X — GND

A20GATE BB57 A20GATE (TO SIO) — A20GATE (34)
INIT3_3V# BN56 INIT3_3V_L
RCIN# BG56 KB_RST_L — KB_RST_L (34)
SERIRQ AV52 SER_IRQ — SER_IRQ (34,35)
THRMTRIP# E56 CPU_THERMTRIP_L — CPU_THERMTRIP_L (5)
PECI H48 PECI 1 STP27
PMSYNCH F55 PM_SYNC — PM_SYNC (5)

C319 100P-04-O — GND

3 OF 12

U1CPT

PECI SIGNAL, CRB RESERVE CONNECT FROM CPU

11'1005 ADD before review [M]

VCC3

SATALED_L R363 10K-04
GPIO39 R362 10K-04
KB_RST_L R391 10K-04
GPIO22 R354 10K-04

RN16 10K-8P4R-04
GPIO70 7 8
GPIO17 5 6
GPIO69 3 4
GPIO1_OBR 1 2

A20GATE R350 10K-04
GPIO21 R366 10K-04
GPIO38 R364 10K-04

RN18 10K-8P4R-04
GPIO16 1 2
SER_IRQ 3 4
GPIO48 5 6
GPIO49 7 8

INIT3_3V_L R322 1K-04-O — GND

GPIO37 R337 10K-04-O
GPIO36 R331 10K-04-O — GND

Intel reveiwed and modify again
07'29'10

C327 33P-04-O
KB_RST_L

11'1024 Add for internal check list

SATA1

OUT: SATA3P0_TX_P0 C381 .01U-04 SATA3P0_TX_C_P0; SATA3P0_TX_N0 C380 .01U-04 SATA3P0_TX_C_N0
IN: SATA3P0_RX_N0 C379 .01U-04 SATA3P0_RX_C_N0; SATA3P0_RX_P0 C378 .01U-04 SATA3P0_RX_C_P0

TXP TXN RXN RXP GND GND GND — SATA-7P2R-RED — GND

SATA2

SATA3P0_TX_P1 C372 .01U-04 SATA3P0_TX_C_P1
SATA3P0_TX_N1 C371 .01U-04 SATA3P0_TX_C_N1
SATA3P0_RX_N1 C370 .01U-04 SATA3P0_RX_C_N1
SATA3P0_RX_P1 C369 .01U-04 SATA3P0_RX_C_P1

TXP TXN RXN RXP GND GND GND — SATA-7P2R-RED — GND

change footprint to SATAII connector

Layout Note:
SATA3.0 4.5/7.5/20 in 90 Ω ±17.5%
SATA2.0 4.5/7.5/15 in 90 Ω ±17.5%

SATA3

SATA2P0_TX_P2 C363 .01U-04 SATA2P0_TX_C_P2
SATA2P0_TX_N2 C362 .01U-04 SATA2P0_TX_C_N2
SATA2P0_RX_N2 C361 .01U-04 SATA2P0_RX_C_N2
SATA2P0_RX_P2 C360 .01U-04 SATA2P0_RX_C_P2

TXP TXN RXN RXP GND GND GND — SATA-7P2R-BK — GND

SATA4

SATA2P0_TX_P3 C346 .01U-04 SATA2P0_TX_C_P3
SATA2P0_TX_N3 C345 .01U-04 SATA2P0_TX_C_N3
SATA2P0_RX_N3 C344 .01U-04 SATA2P0_RX_C_N3
SATA2P0_RX_P3 C343 .01U-04 SATA2P0_RX_C_P3

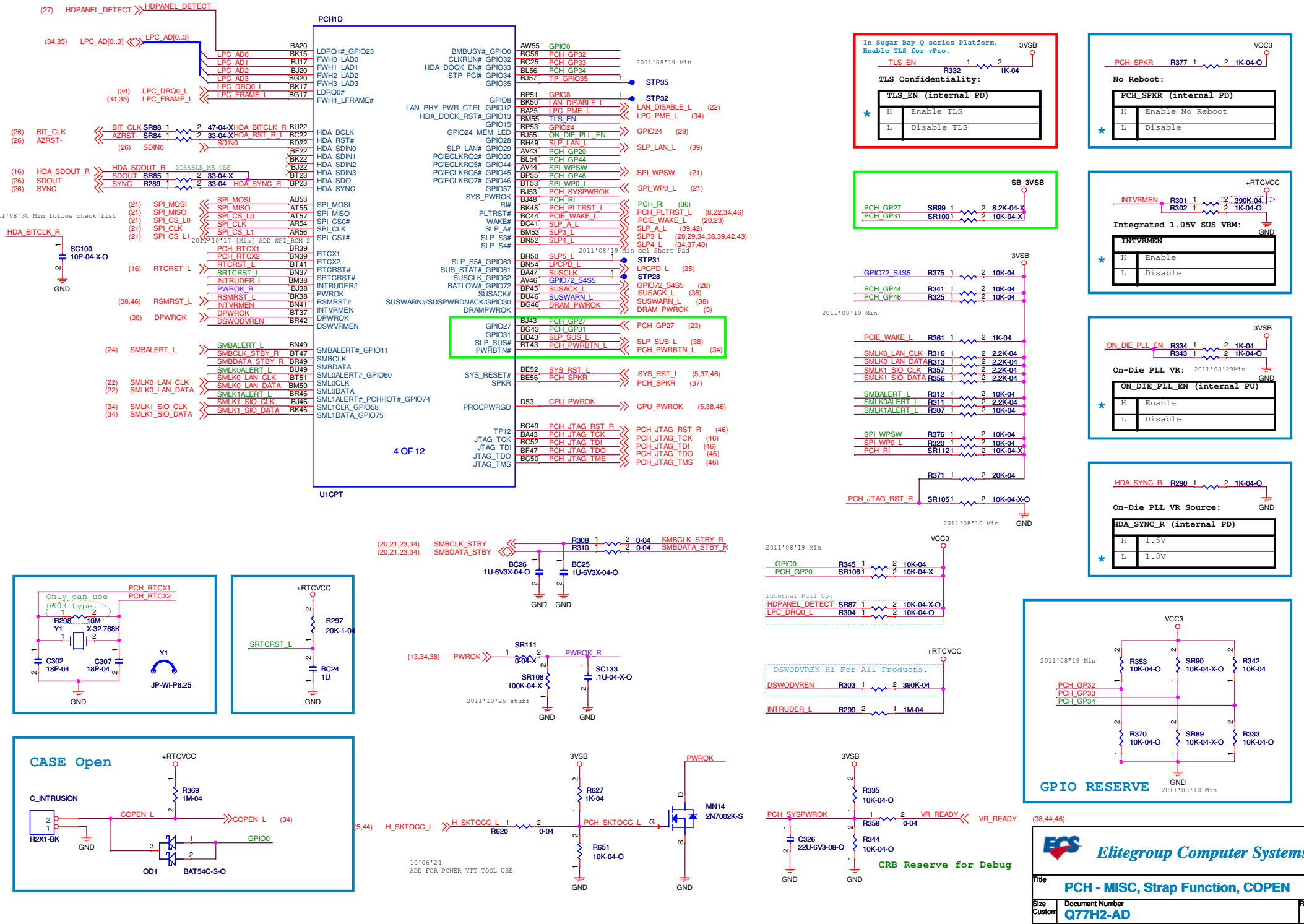
TXP TXN RXN RXP GND GND GND — SATA-7P2R-BK — GND

Elitegroup Computer Systems

Title: PCH - SATA, SATA CONN, OBR

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

Date: Tuesday, April 10, 2012 | Sheet 13 of 49

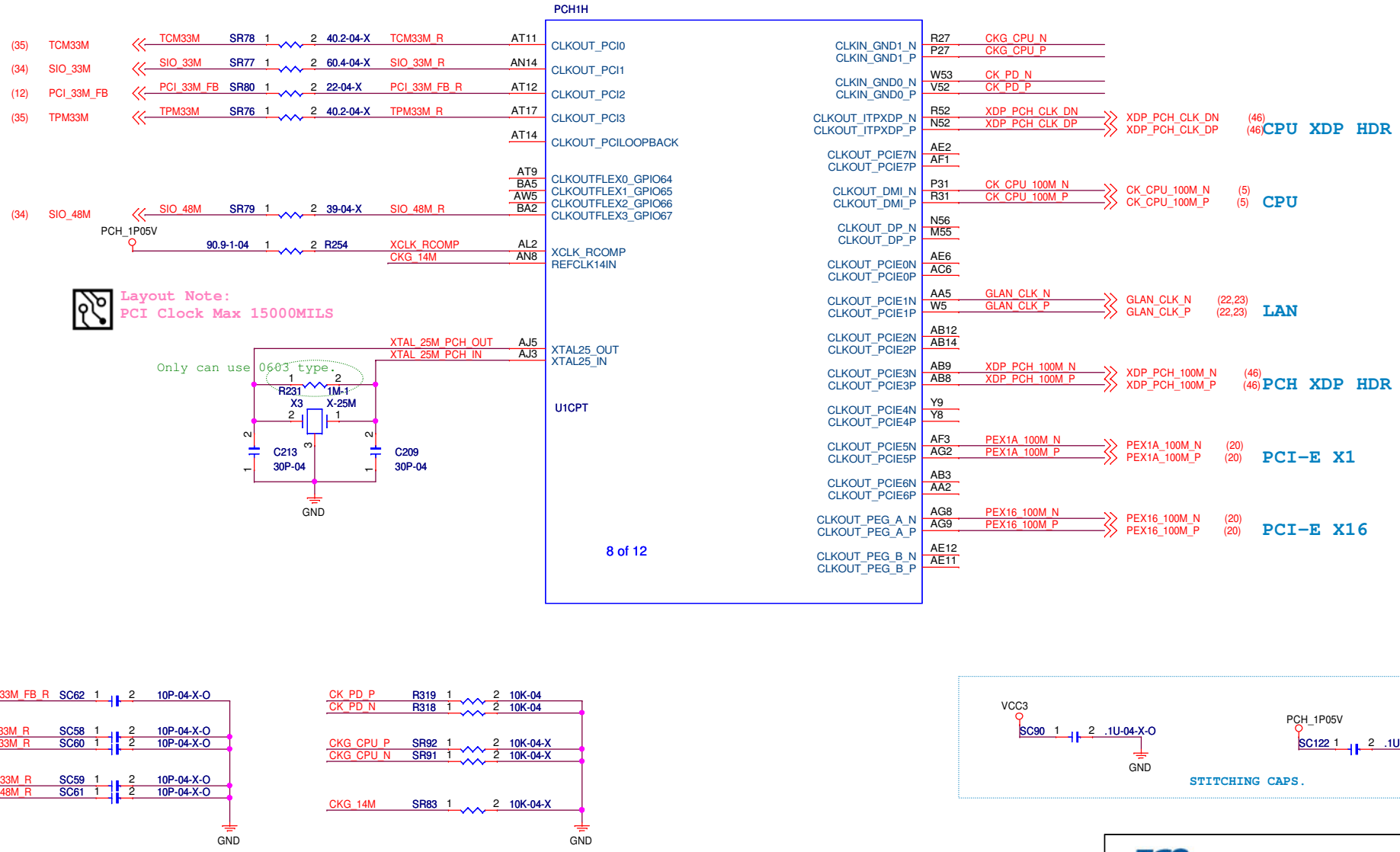


Elitegroup Computer Systems

Title: PCH - MISC, Strap Function, COPEN

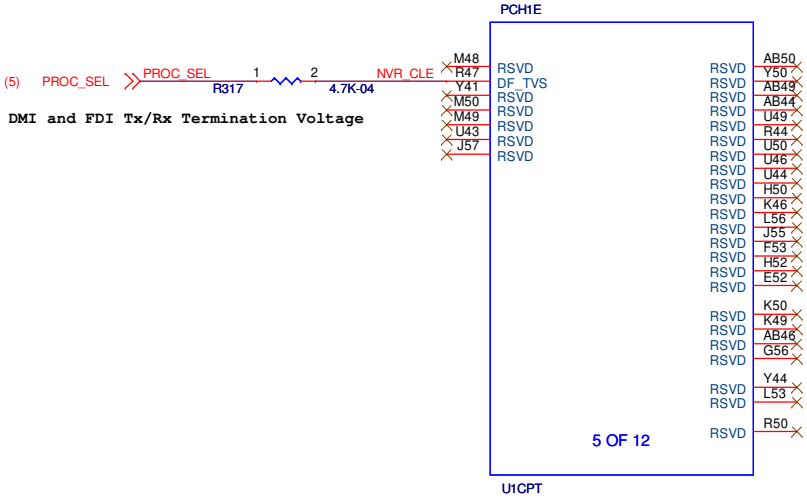
Size	Document Number	Rev
Custom	Q77H2-AD	1.0

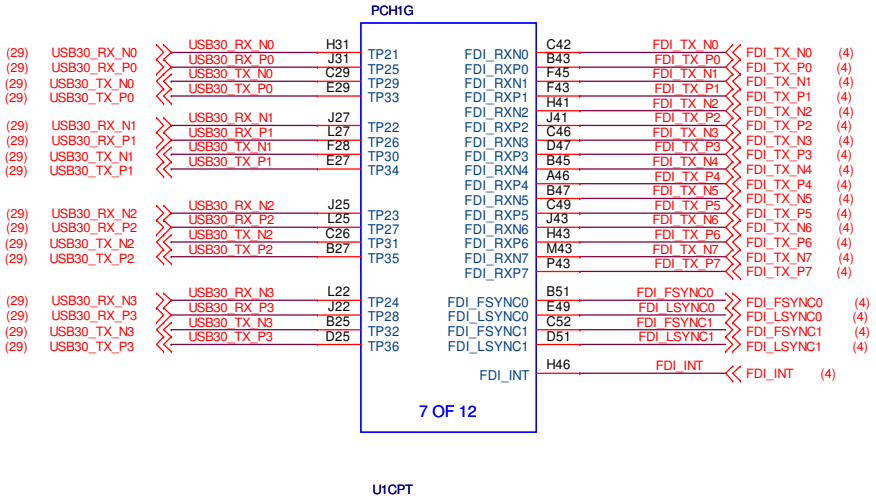
Date: Tuesday, April 10, 2012 Sheet 14 of 49

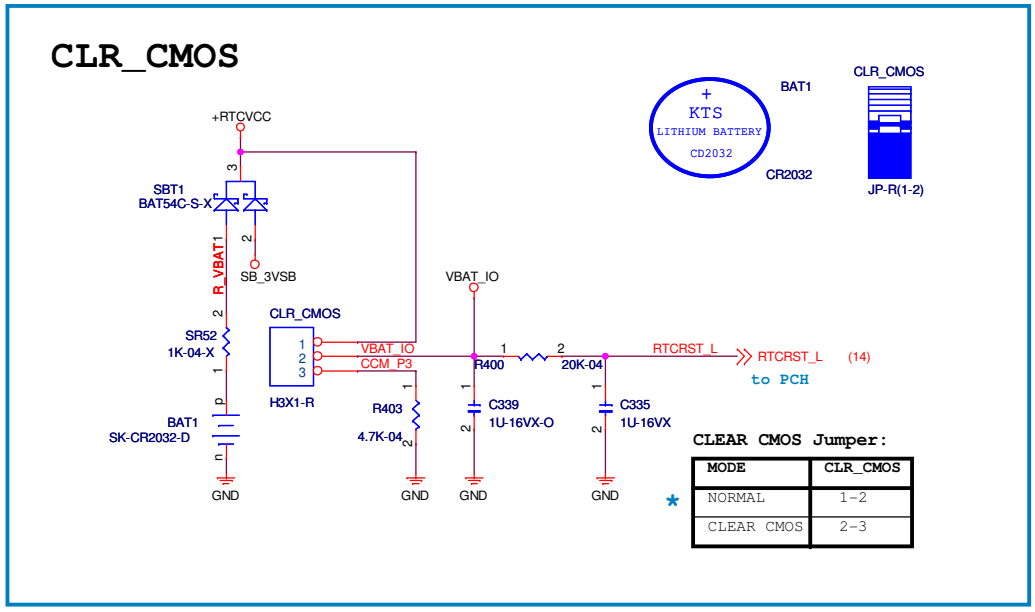


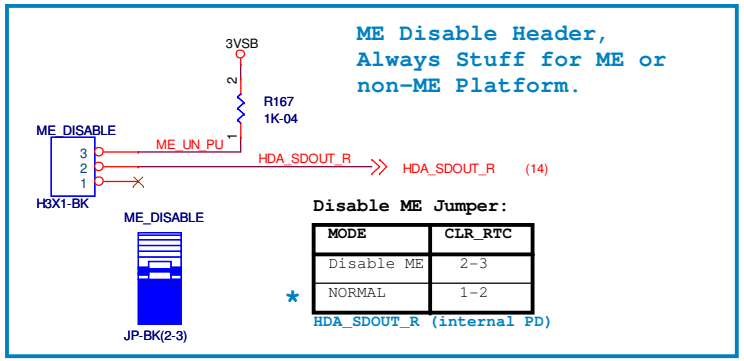
Elitegroup Computer Systems

Title	PCH - CLK IO	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 15 of 49	







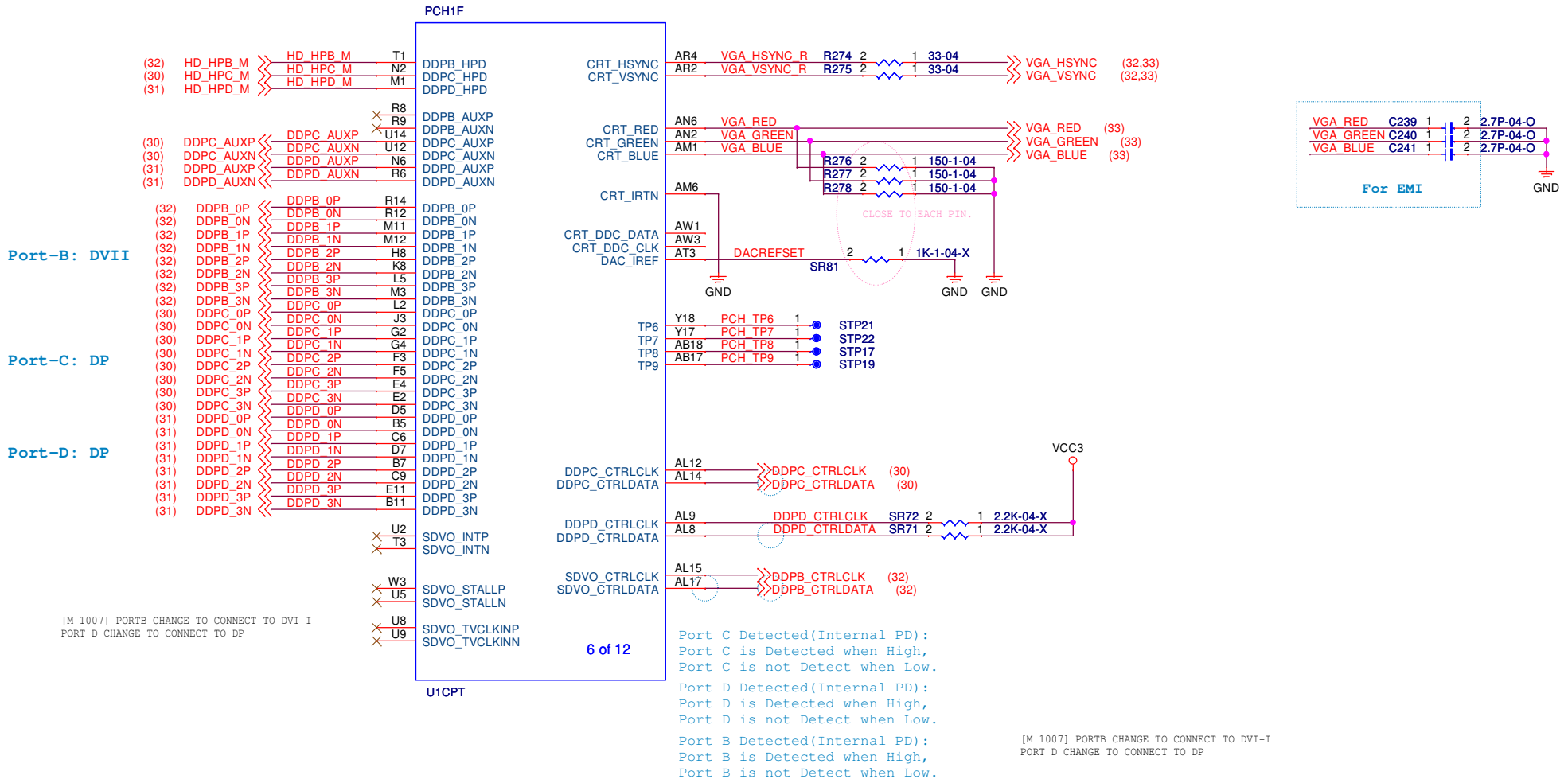


ECS Elitegroup Computer Systems

Title: PCH - USB3.0/FDI, CLR_CMOS

Size: B | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 03, 2012 | Sheet 16 of 49

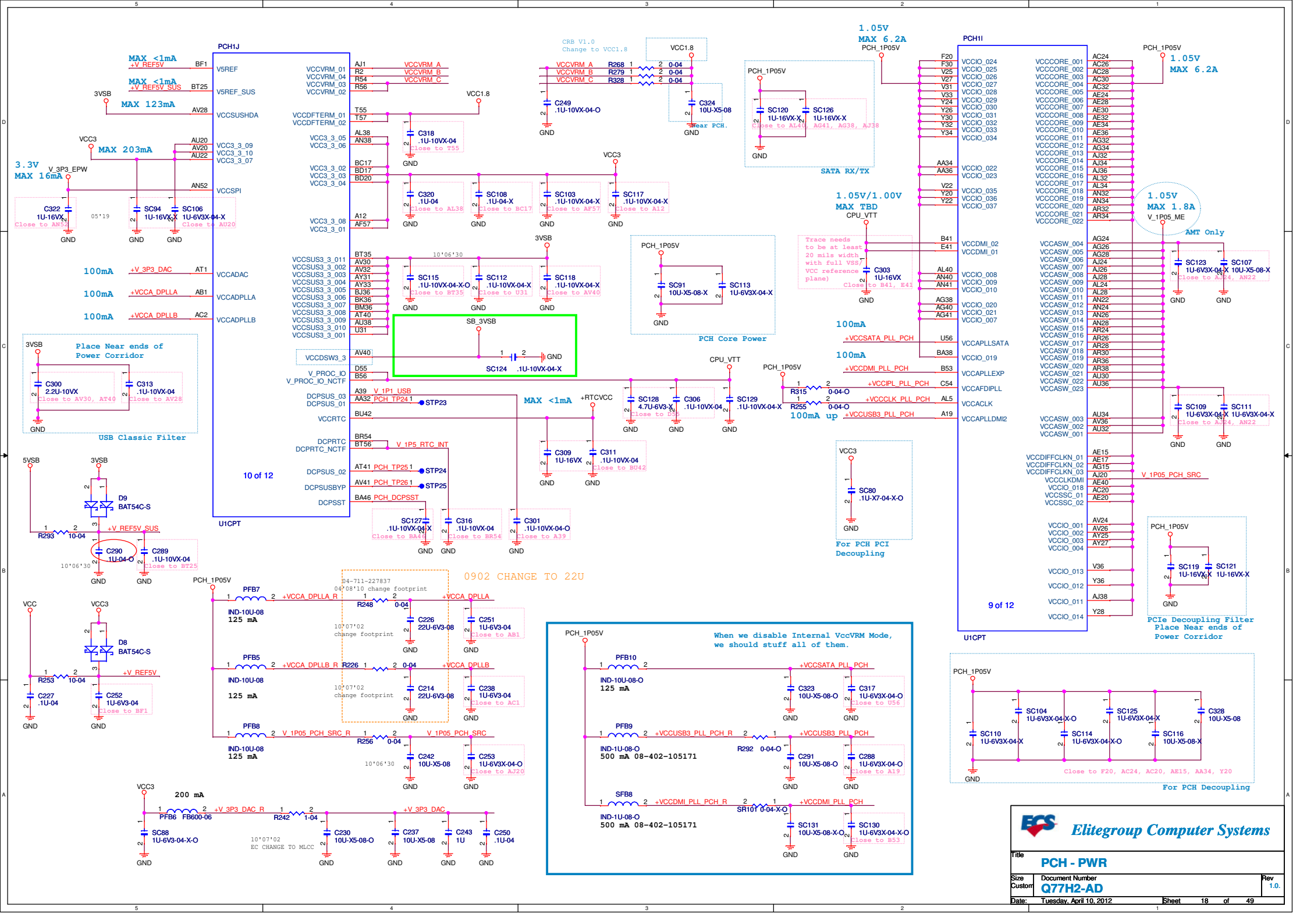


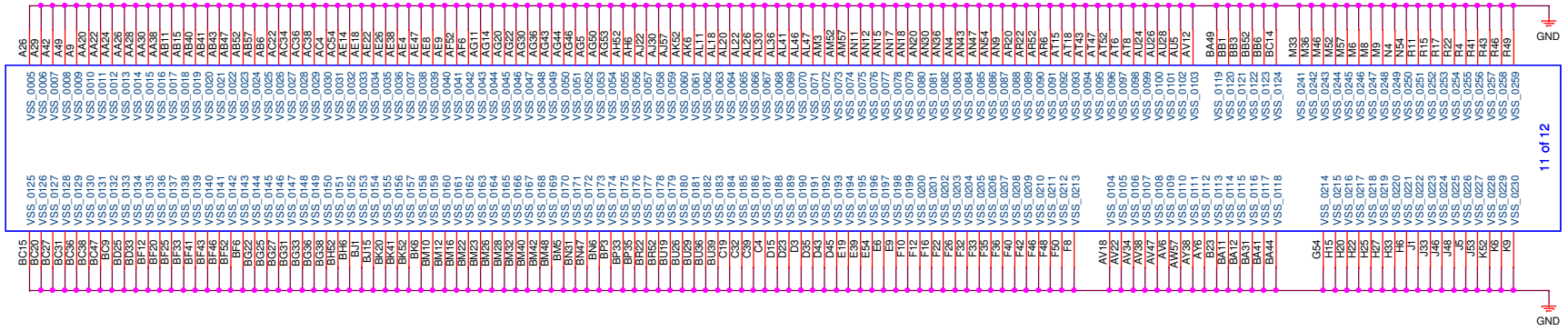
Elitegroup Computer Systems

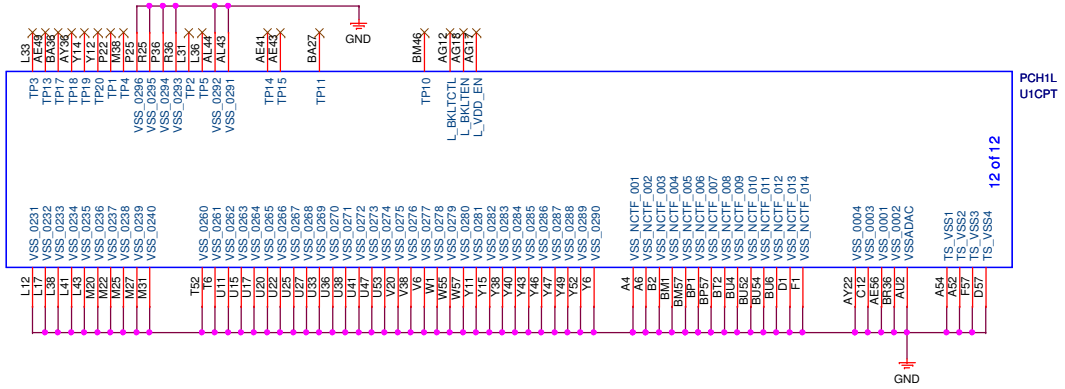
Title: PCH - DISPLAY/VGA

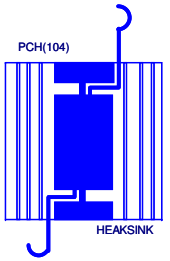
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

Date: Tuesday, April 10, 2012 | Sheet 17 of 49


PCH1J
MAX <1mA
+V_REF5V
V5REF
MAX <1mA
+V_REF5V_SUS
V5REF_SUS
3VSB
MAX 123mA
VCCSUSHDA
VCC3
MAX 203mA
VCC3_3_09
VCC3_3_10
VCC3_3_07
3.3V
MAX 16mA
V_3P3_EPW
VCCSPI
C322 1U-16VX Close to AN52
SC94 1U-16VX-X
SC106 1U-6V3X-04-X Close to AU20
100mA
+V_3P3_DAC
VCCADAC
100mA
+VCCA_DPLLA
VCCADPLLA
100mA
+VCCA_DPLLB
VCCADPLLB
3VSB
Place Near ends of Power Corridor
C300 2.2U-10VX Close to AV30, AT40
C313 .1U-10VX-04 Close to AV28
USB Classic Filter
10 of 12
U1CPT
VCCVRM_01
VCCVRM_04
VCCVRM_03
VCCVRM_02
VCCDFTERM_01
VCCDFTERM_02
VCC3_3_05
VCC3_3_06
VCC3_3_02
VCC3_3_03
VCC3_3_04
VCC3_3_08
VCC3_3_01
VCCSUS3_3_011
VCCSUS3_3_002
VCCSUS3_3_003
VCCSUS3_3_004
VCCSUS3_3_005
VCCSUS3_3_006
VCCSUS3_3_007
VCCSUS3_3_008
VCCSUS3_3_009
VCCSUS3_3_010
VCCSUS3_3_001
VCCDSW3_3
V_PROC_IO
V_PROC_IO_NCTF
DCPSUS_03
DCPSUS_01
VCCRTC
DCPRTC
DCPRTC_NCTF
DCPSUS_02
DCPSUSBYP
DCPSST
AJ1 VCCVRM_A
R2 VCCVRM_B
R54 VCCVRM_C
R56
T55
T57
C318 .1U-10VX-04 Close to T55
AL38
AN38
BC17
BD17
BD20
C320 .1U-04 Close to AL38
SC108 .1U-04-X Close to BC17
SC103 .1U-10VX-04-X Close to AF57
SC117 .1U-10VX-04-X Close to A12
A12
AF57
BT35
AV30
AV32
AY31
AY33
BJ36
BK36
BM36
AT40
AU38
U31
10'06'30
SC115 .1U-10VX-04-X-O Close to BT35
SC112 .1U-10VX-04-X Close to U31
SC118 .1U-10VX-04-X Close to AV40
3VSB
SB_3VSB
SC124 .1U-10VX-04-X
AV40
D55
B56
A39 V_1P1_USB
AA32 PCH_TP24 1
STP23
BU42
BR54
BT56
V_1P5_RTC_INT
AT41 PCH_TP25 1
STP24
AV41 PCH_TP26 1
STP25
BA46 PCH_DCPSST
SC127 .1U-10VX-04-X Close to BA46
C316 .1U-10VX-04 Close to BR54
C301 .1U-10VX-04-O Close to A39
MAX <1mA
+RTCVCC
C309 10-1GVX
C311 .1U-10VX-04 Close to BU42
CRB V1.0
Change to VCC1.8
VCC1.8
VCCVRM_A R268 1 2 0-04
VCCVRM_B R279 1 2 0-04
VCCVRM_C R328 1 2 0-04
C249 .1U-10VX-04-O
C324 10U-X5-08 Near PCH.
PCH_1P05V
SC120 1U-16VX-X
SC126 1U-16VX-X
Close to AL40, AG41, AG38, AJ38
SATA RX/TX
1.05V
MAX 6.2A
PCH_1P05V
PCH1I
F20 VCCIO_024
F30 VCCIO_025
V25 VCCIO_026
V27 VCCIO_027
V31 VCCIO_028
V33 VCCIO_029
Y24 VCCIO_030
Y26 VCCIO_031
Y30 VCCIO_032
Y32 VCCIO_033
Y34 VCCIO_034
AA34 VCCIO_022
AA36 VCCIO_023
V22 VCCIO_035
Y20 VCCIO_036
Y22 VCCIO_037
1.05V/1.00V
MAX TBD
CPU_VTT
Trace needs to be at least 20 mils width with full VSS/VCC reference plane)
C303 10-1GVX Close to B41, E41
B41 VCCDMI_02
E41 VCCDMI_01
AL40 VCCIO_008
AN40 VCCIO_009
AN41 VCCIO_010
AG38 VCCIO_020
AG40 VCCIO_021
AG41 VCCIO_007
100mA
+VCCSATA_PLL_PCH
U56 VCCAPLLSATA
BA38 VCCIO_019
100mA
+VCCDMI_PLL_PCH
B53 VCCAPLLEXP
+VCCIPL_PLL_PCH
C54 VCCAFDIPLL
+VCCCLK_PLL_PCH
AL5 VCCACLK
100mA up
+VCCUSB3_PLL_PCH
A19 VCCAPLLDMI2
R315 2 0-04-O
R255 2 0-04-O
PCH_1P05V
SC91 10U-X5-08-X
SC113 1U-6V3X-04-X
PCH Core Power
SC128 4.7U-6V3-X
SC306 .1U-10VX-04
SC129 .1U-10VX-04-X
VCC3
SC80 .1U-X7-04-X-O
For PCH PCI Decoupling
VCCCORE_001
VCCCORE_002
VCCCORE_003
VCCCORE_004
VCCCORE_005
VCCCORE_006
VCCCORE_007
VCCCORE_008
VCCCORE_009
VCCCORE_010
VCCCORE_011
VCCCORE_012
VCCCORE_013
VCCCORE_014
VCCCORE_015
VCCCORE_016
VCCCORE_017
VCCCORE_018
VCCCORE_019
VCCCORE_020
VCCCORE_021
VCCCORE_022
1.05V
MAX 1.8A
V_1P05_ME
AMT Only
VCCASW_004
VCCASW_005
VCCASW_006
VCCASW_007
VCCASW_008
VCCASW_009
VCCASW_010
VCCASW_011
VCCASW_012
VCCASW_013
VCCASW_014
VCCASW_015
VCCASW_016
VCCASW_017
VCCASW_018
VCCASW_019
VCCASW_020
VCCASW_021
VCCASW_022
VCCASW_023
SC123 1U-6V3X-04-X Close to AJ24, AN22
SC107 10U-X5-08-X
SC109 1U-6V3X-04-X Close to AJ24, AN22
SC111 1U-6V3X-04-X
VCCASW_003
VCCASW_002
VCCASW_001
VCCDIFFCLKN_01
VCCDIFFCLKN_02
VCCDIFFCLKN_03
VCCCLKDMI
VCCIO_018
VCCSSC_01
VCCSSC_02
V_1P05_PCH_SRC
VCCIO_001
VCCIO_002
VCCIO_003
VCCIO_004
VCCIO_013
VCCIO_012
VCCIO_011
VCCIO_014
9 of 12
U1CPT
PCH_1P05V
SC119 1U-16VX-X
SC121 1U-16VX-X
PCIe Decoupling Filter
Place Near ends of Power Corridor
5VSB
3VSB
D9 BAT54C-S
R293 10-04
+V_REF5V_SUS
C290 1U-04-O
C289 .1U-10VX-04 Close to BT25
10'06'30
VCC
VCC3
D8 BAT54C-S
R253 10-04
+V_REF5V
C227 .1U-04
C252 1U-6V3-04 Close to BF1
0902 CHANGE TO 22U
04-711-227837
04'08'10 change footprint
PCH_1P05V
PFB7 IND-10U-08 125 mA
+VCCA_DPLLA_R
R248 0-04
+VCCA_DPLLA
C226 22U-6V3-08
C251 1U-6V3-04 Close to AB1
10'07'02 change footprint
PFB5 IND-10U-08 125 mA
+VCCA_DPLLB_R
R226 0-04
+VCCA_DPLLB
C214 22U-6V3-08
C238 1U-6V3-04 Close to AC1
10'07'02 change footprint
PFB8 IND-10U-08 125 mA
V_1P05_PCH_SRC_R
R256 0-04
V_1P05_PCH_SRC
C242 10U-X5-08
C253 1U-6V3X-04-O Close to AJ20
10'06'30
When we disable Internal VccVRM Mode, we should stuff all of them.
PFB10 IND-10U-08-O 125 mA
+VCCSATA_PLL_PCH
C323 10U-X5-08-O
C317 1U-6V3X-04-O Close to U56
PFB9 IND-1U-08-O 500 mA 08-402-105171
+VCCUSB3_PLL_PCH_R
R292 0-04-O
+VCCUSB3_PLL_PCH
C291 10U-X5-08-O
C288 1U-6V3X-04-O Close to A19
SFB8 IND-1U-08-O 500 mA 08-402-105171
+VCCDMI_PLL_PCH_R
SR101 0-04-X-O
+VCCDMI_PLL_PCH
SC131 10U-X5-08-X-O
SC130 1U-6V3X-04-X-O Close to B53
PCH_1P05V
SC104 1U-6V3X-04-X-O
SC125 1U-6V3X-04-X
C328 10U-X5-08
SC110 1U-6V3X-04-X
SC114 1U-6V3X-04-X-O
SC116 10U-X5-08-X
Close to F20, AC24, AC20, AE15, AA34, Y20
For PCH Decoupling
VCC3
200 mA
PFB6 FB600-06
+V_3P3_DAC_R
R242 1-04
+V_3P3_DAC
SC88 1U-6V3-04-X-O
10'07'02
EC CHANGE TO MLCC
C230 10U-X5-08-O
C237 10U-X5-08
C243 1U
C250 .1U-04
Elitegroup Computer Systems
Title
PCH - PWR
Size Custom
Document Number
Q77H2-AD
Rev 1.0
Date: Tuesday, April 10, 2012
Sheet 18 of 49







2010'08'19 update heatsink footprint to hk29d4x30d7_pt40d11x21

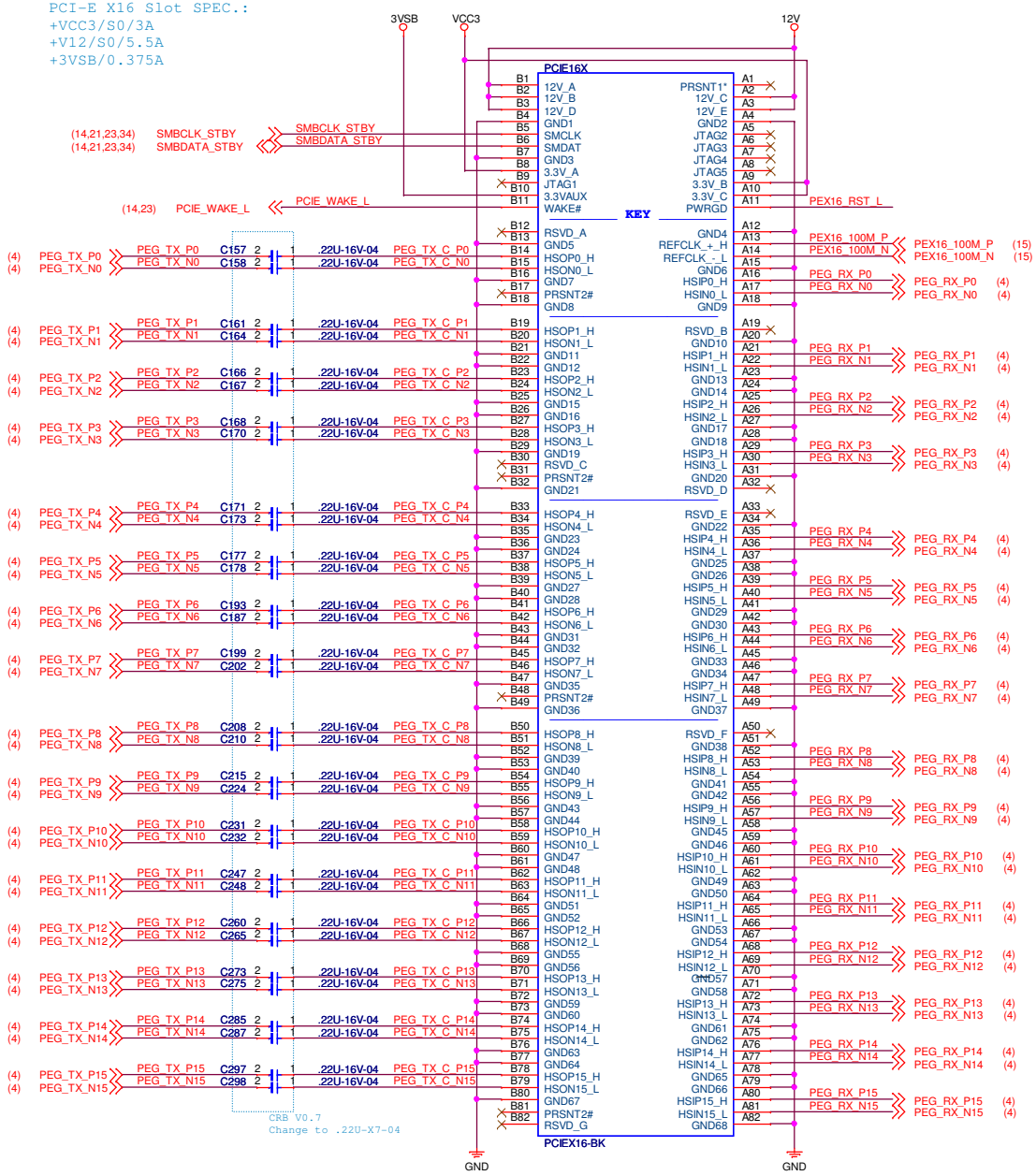
Elitegroup Computer Systems

Title: PCH - GND

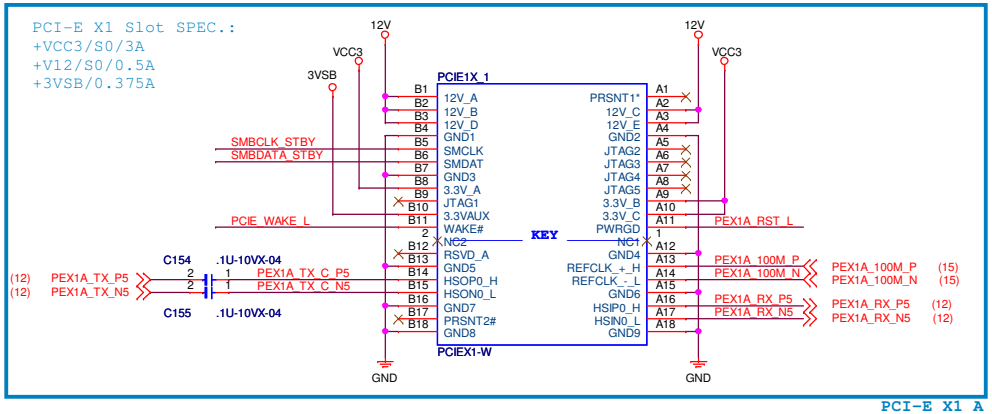
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

Date: Tuesday, April 10, 2012 | Sheet 19 of 49

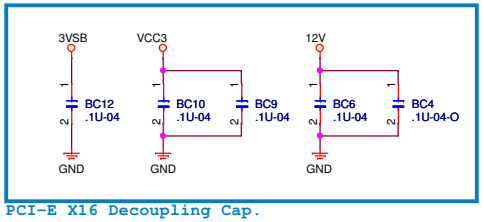
PCI-E X16 Slot SPEC.:
+VCC3/S0/3A
+V12/S0/5.5A
+3VSB/0.375A



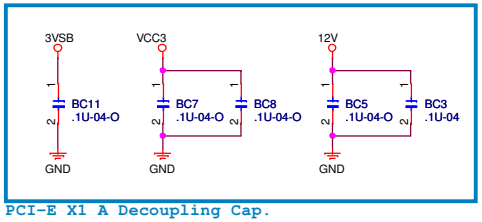
PCI-E X1 Slot SPEC.:
+VCC3/S0/3A
+V12/S0/0.5A
+3VSB/0.375A



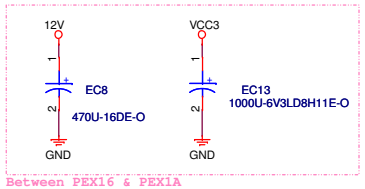
PCI-E X1 A



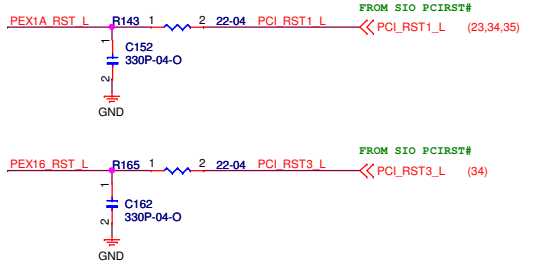
PCI-E X16 Decoupling Cap.



PCI-E X1 A Decoupling Cap.



Between PEX16 & PEX1A



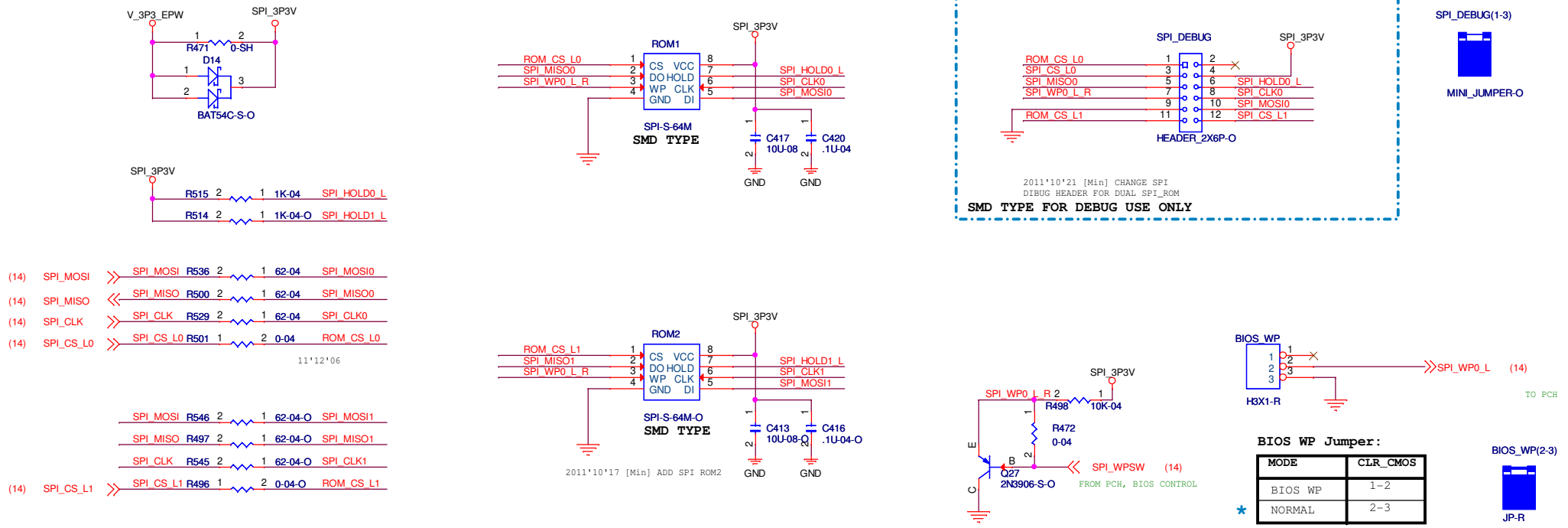
Elitegroup Computer Systems

Title: Slot - PCI-EX16/PCI-EX1

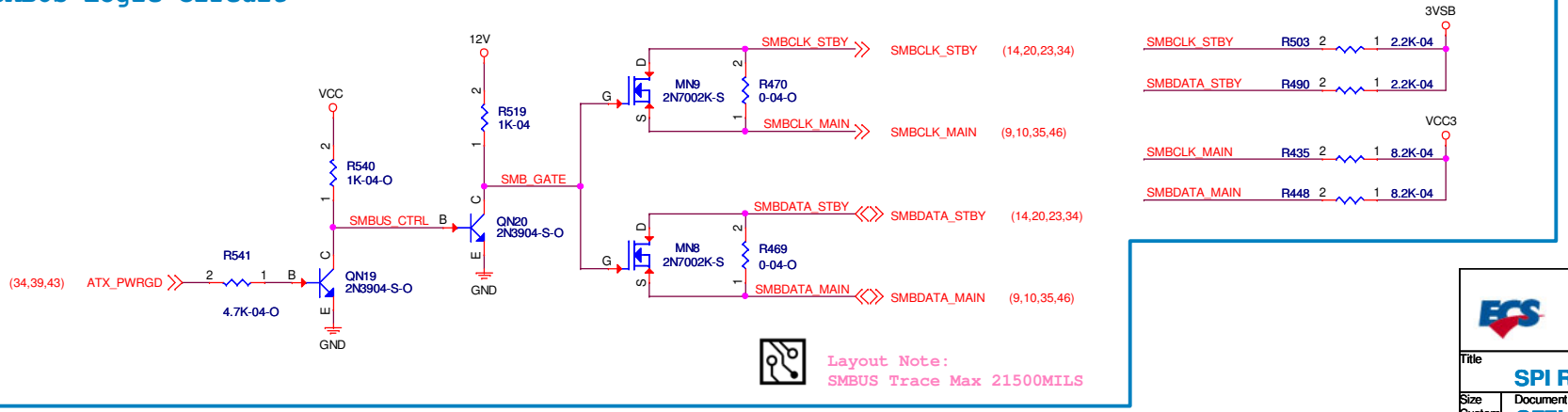
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 03, 2012 | Sheet 20 of 49

SPI ROM Circuit



SMBUS Logic Circuit



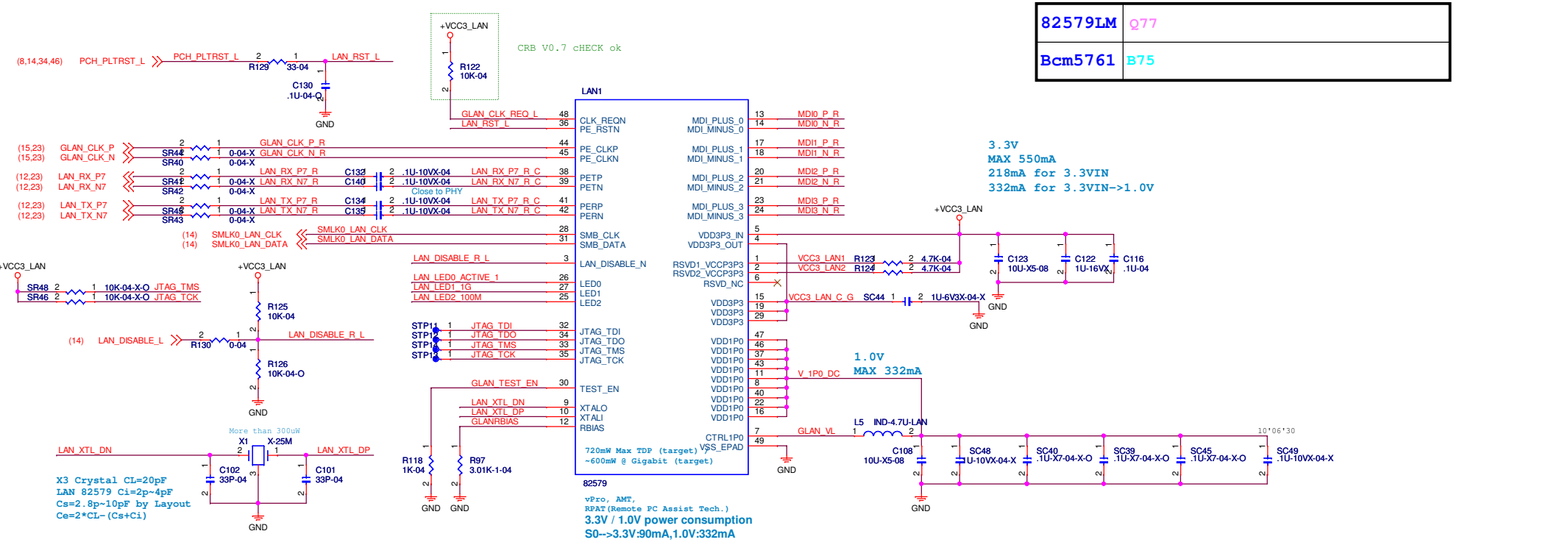
Elitegroup Computer Systems

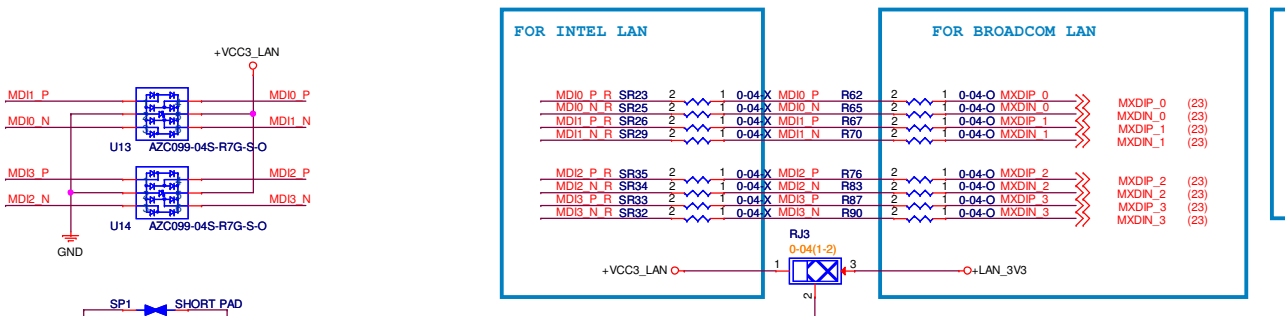
Title: SPI ROM, SMBUS

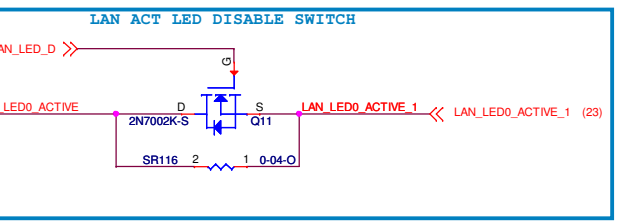
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

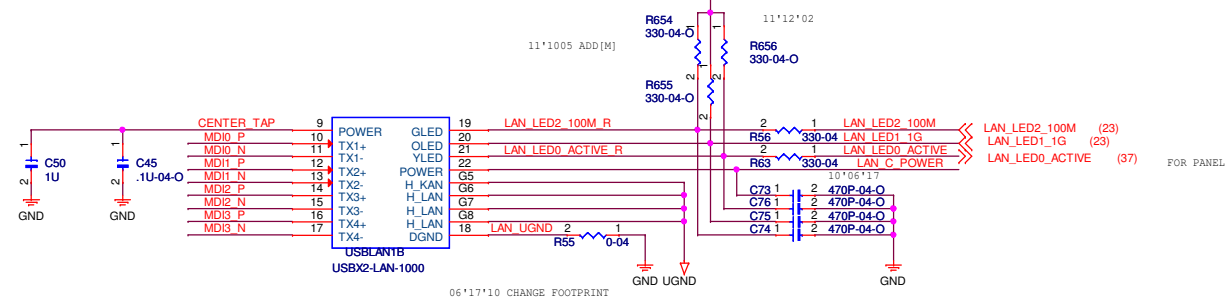
Date: Tuesday, April 10, 2012 | Sheet 21 of 49

82579LM	Q77
Bcm5761	B75

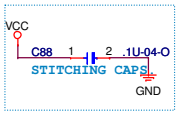








Function	INT port	PCIE port	Chipset
LAN	INT A#	PETX/RX 7	Intel 82579 Broarcom 5761/5754
SATA	INT B#	N/A	PCH integrated

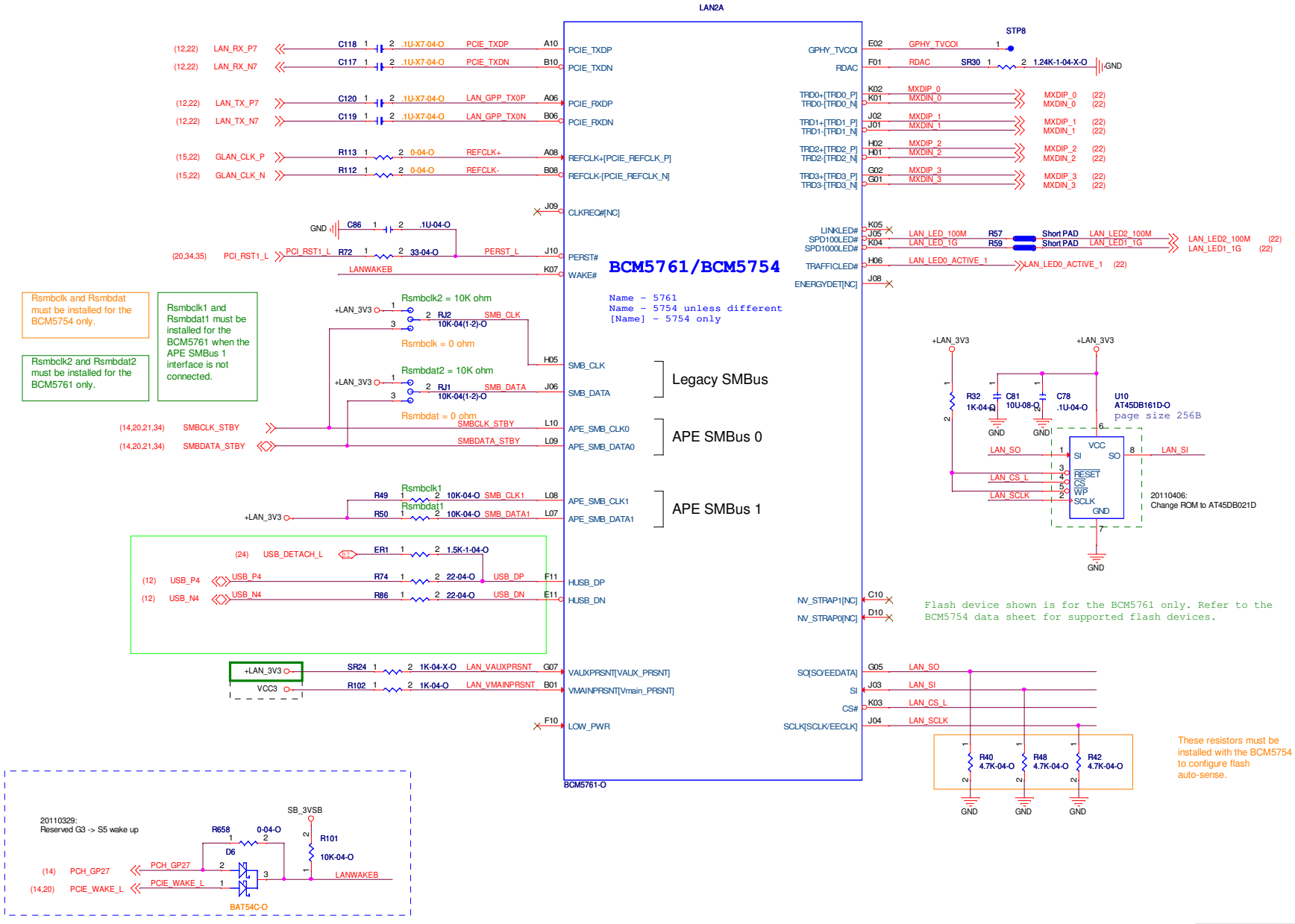


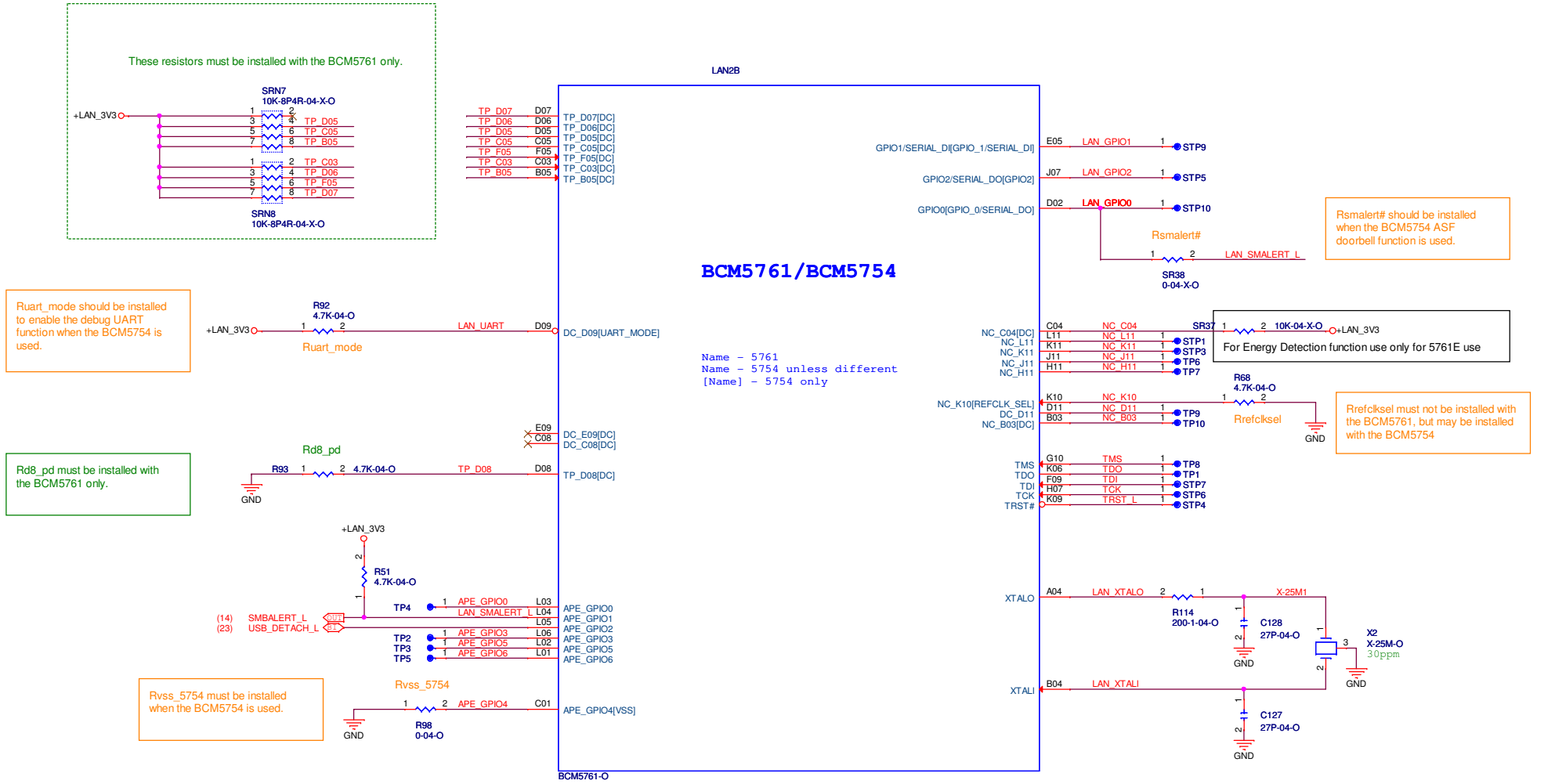
Elitegroup Computer Systems

Title: LAN PHY - 82579, USBLAN

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 22 of 49


LAN2A
BCM5761/BCM5754
Name - 5761
Name - 5754 unless different
[Name] - 5754 only
BCM5761-O
STP8
Rsmbclk and Rsmbdat must be installed for the BCM5754 only.
Rsmbclk1 and Rsmbdat1 must be installed for the BCM5761 when the APE SMBus 1 interface is not connected.
Rsmbclk2 and Rsmbdat2 must be installed for the BCM5761 only.
Rsmbclk2 = 10K ohm
Rsmbclk = 0 ohm
Rsmbdat2 = 10K ohm
Rsmbdat = 0 ohm
Legacy SMBus
APE SMBus 0
APE SMBus 1
Flash device shown is for the BCM5761 only. Refer to the BCM5754 data sheet for supported flash devices.
These resistors must be installed with the BCM5754 to configure flash auto-sense.
20110406:
Change ROM to AT45DB021D
page size 256B
20110329:
Reserved G3 -> S5 wake up
BAT54C-O
Elitegroup Computer Systems
LAN (BCM5761) Main Link
Q77H2-AD
Tuesday, April 10, 2012
Sheet 23 of 49



Elitegroup Computer Systems

Title: LAN (BCM5761) XTAL,GPIO

Size	Document Number	Rev
Custom	Q77H2-AD	1.0.

Date: Tuesday, April 10, 2012 Sheet 24 of 49

	5754	5761
Ra	V	X
Rb	X	V

*

3VSB

SB_3VSB

SFB7 FB-600-08P-X-O

SFB6 FB-600-08P-X-O

3.3V
Max. 86mA
+LAN_3V3

SC52 .1U-04-X-O
SC51 .1U-04-X-O
SC53 4.7U-X5-08-X-O
GND

+LAN_2V5
+LAN_3V3
Ra
Rb
R120 0-08-O
R119 0-08-O

PFB4 FB-600-S-O 200mA
FBxtalvddh
LAN_XTALVDDH A05
C121 .1U-04-O

SFB2 FB-600-S-X-O 200mA
FBavddh
LAN_AVDDH G03 H03
SC15 .1U-04-X-O
SC16 .1U-04-X-O

SFB1 FB-600-S-X-O 200mA
FBbiasvddh
LAN_BIASVDDH F02
SC22 .1U-04-X-O

LAN2C

XTALVDDH[XTALVDD]
AVDDH_G03[AVDD]
AVDDH_H03[AVDD]
BIASVDDH[BIASVDD]

BCM5761/BCM5754

Name - 5761
Name - 5754 unless different
[Name] - 5754 only

+LAN_1V2

SFB4 FB-600-S-X-O 200mA
LAN_AVDDL E03 F03
SC19 4.7U-X5-08-X-O
SC21 .1U-04-X-O

SFB5 FB-600-S-X-O 200mA
LAN_GPHY_PLLVDDL E01
C97 4.7U-X5-08-O
C96 .1U-04-O

PFB2 FB-600-S-O 200mA
LAN_PCIE_PLLVDDL C07
C99 4.7U-X5-08-O
SC35 .1U-04-X-O

PFB3 FB-600-S-O 200mA
LAN_PCIE_SDSVDDL B09
C107 4.7U-X5-08-O
SC37 .1U-04-X-O

PFB1 FB-600-S-O 200mA
FBusb_pll
LAN_USB_PLLVDDL C11
C94 4.7U-X5-08-O
C98 .1U-04-O
Cusb_bulk
Cusb_hf

GPHY_PLLVDDL[GPHY_PLLVDD]
PCIE_PLLVDDL[PCIE_PLLVDD]
PCIE_SDSVDDL[PCIE_VDD]
USB_PLLVDDL

BCM5761-O

If the BCM5761 is installed, FBusb_pll, Cusb_bulk, and Cusb_hf must be laid out even if the USB interface is not used since the USB PLL may provide an alternate clock source internal to the BCM5761.

If the BCM5754 is installed, FBusb_pll, Cusb_bulk, and Cusb_hf may be uninstalled.

+LAN_3V3

VDDIO_K08 K08
VDDIO_H10 H10
VDDIO_C02 C02
VDDIO_A03 A03

3.3V
Max. 312mA

Rvddc must be installed with the BCM5754 only.
Rout25 must be installed with the BCM5761 only.

+LAN_1V2

VDDC_H08 H08
VDDC_G09 G09
VDDC_G08 G08
VDDC_E10 E10
VDDC_C09 C09

SC33 .1U-04-X-O
SC30 .1U-04-X-O
GND

REGCTL12 D01 LAN_REGCTL12

SR39 1.5-1-08-X-O
SC50 4.7U-X5-08-X-O
GND

1.2V
Max. 684mA
+LAN_1V2

SQ2 BCP69T1-S-X-O
Pd: 1.14W

SC36 .047U-16V-04-X-O Cdebug12
SC31 .1U-04-X-O
SC34 .1U-04-X-O
SC41 10U-08-X-O
SC42 .1U-04-X-O
SC43 .1U-04-X-O
SC47 .1U-04-X-O
SC46 .1U-04-X-O
GND

VDDP[VDDC] F04 LAN_VDDP

REGOUT25[REGCTL25] A01 LAN_REGOUT25

Rout25
SR36 0-X-O
Rvddc
SR31 0-X-O +LAN_1V2
Cvddp SC32 1U-X-O
GND

Cvddp must have ESR < 1 Ohm.

Qpnp25 and Cpnp25 must be installed with the BCM5754 only

+LAN_3V3

QN1 BCP69T1-S-O Qpnp25
C124 4.7U-X5-08-O
C103 .047U-16V-04-O Cdebug25
C137 10U-08-O
C126 .1U-04-O
C104 .1U-04-O
GND

2.5V
Max. 543mA
+LAN_2V5

PWR_DOWN[VDDP] B02 LAN_PWR_DOWN

R100 0-O +LAN_2V5
Rvddp
R99 4.7K-04-O
Rpwr_down_pd
GND

Cdebug12 and Cdebug25 are place holders only for debug purpose.

VSS_H09 H09
VSS_H04 H04
VSS_G11 G11
VSS_G06 G06
VSS_G04 G04
VSS_F08 F08
VSS_F07 F07
VSS_F06 F06
VSS_E08 E08
VSS_E07 E07
VSS_E06 E06
VSS_E04 E04
VSS_D04 D04
VSS_D03 D03
VSS_C06 C06
VSS_B11 B11
VSS_B07 B07
VSS_A11 A11
VSS_A09 A09
VSS_A07 A07
VSS_A02 A02
GND

Rvddp must be installed with the BCM5754 only.

Rpwr_down_pd must be installed with the BCM5761 only.

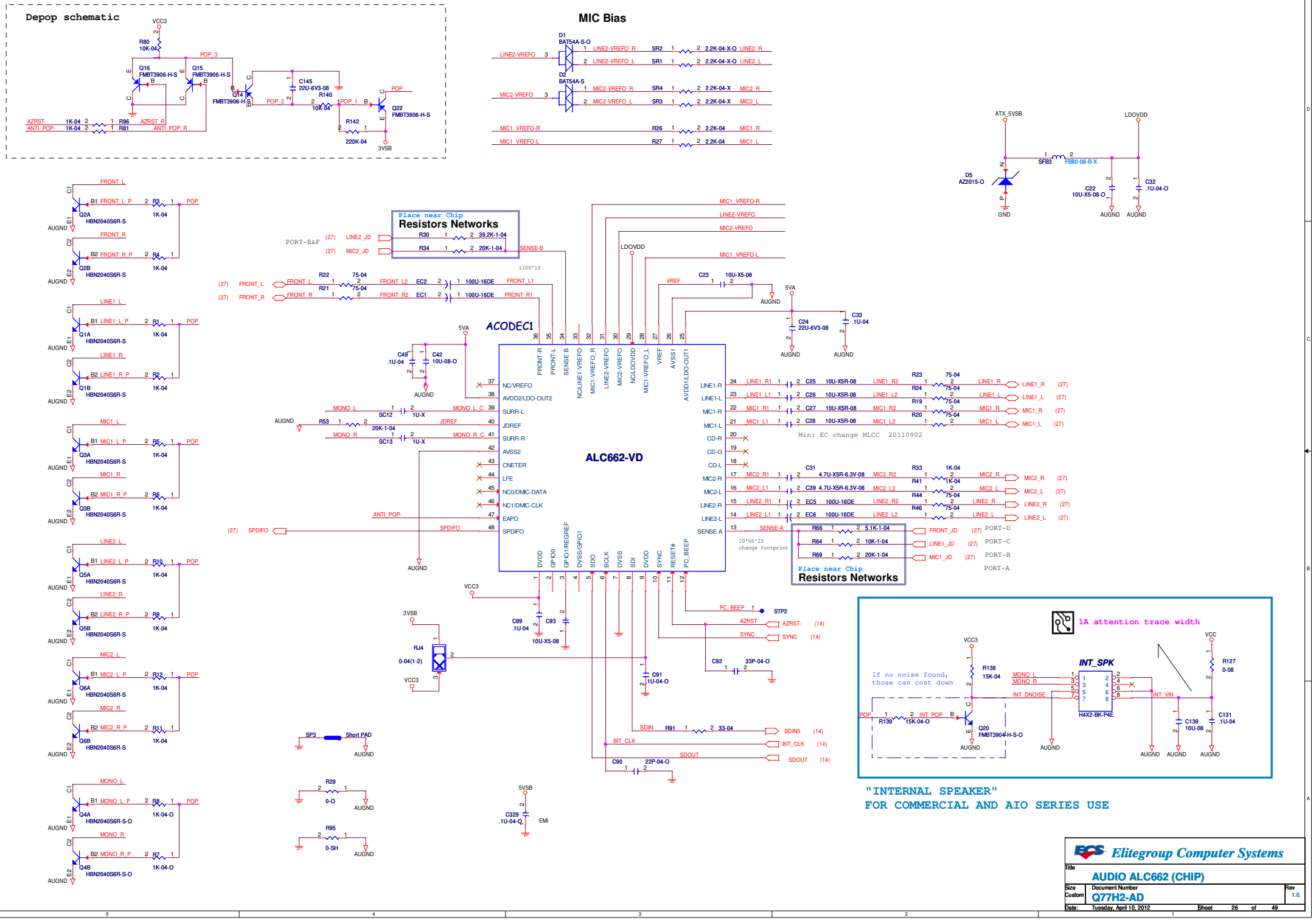
The PWR_DWN[VDDP] ball must not be driven to 3.3V. Refer to the BCM5761 data sheet for logic thresolds and maximum ratings.

Elitegroup Computer Systems

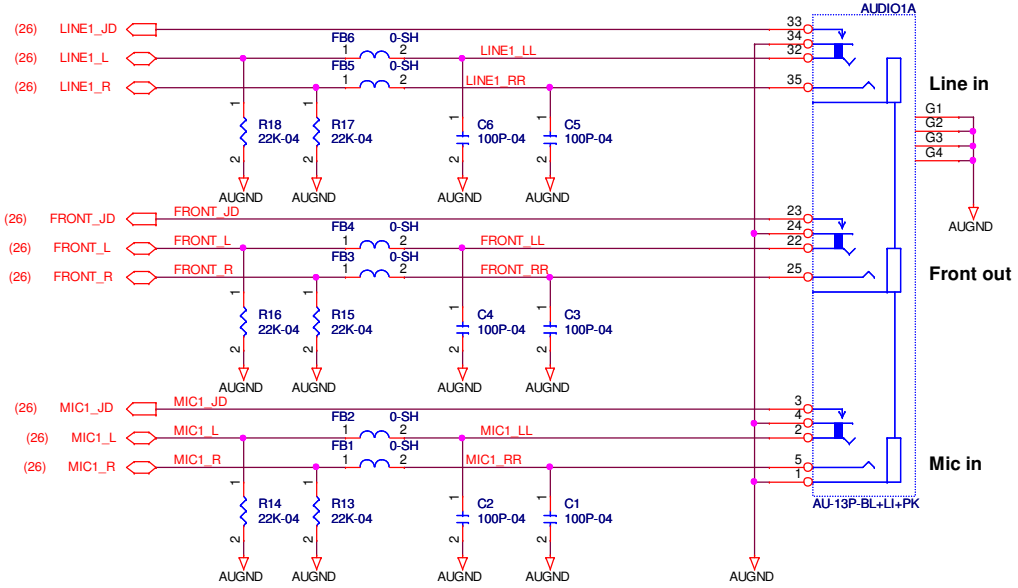
Title: LAN (BCM5761) PWR & GND

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

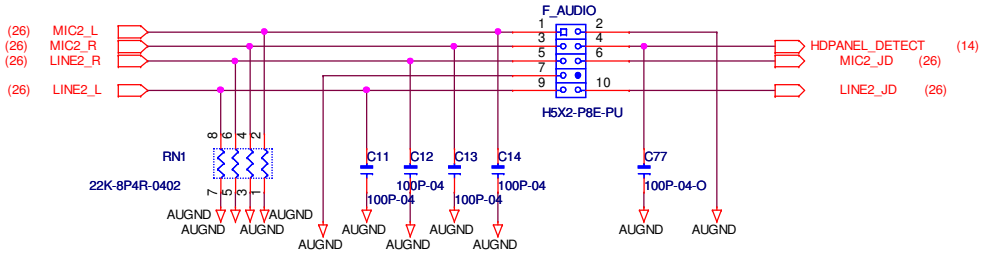
Date: Tuesday, April 10, 2012 | Sheet 25 of 49


Depop schematic
MIC Bias
ACODEC1
ALC662-VD
Place near Chip
Resistors Networks
Min: EC change MLCC 20110902
10'06'23
change footprint
1A attention trace width
If no noise found,
those can cost down
INT_SPK
"INTERNAL SPEAKER"
FOR COMMERCIAL AND AIO SERIES USE
Elitegroup Computer Systems
AUDIO ALC662 (CHIP)
Q77H2-AD
Tuesday, April 10, 2012

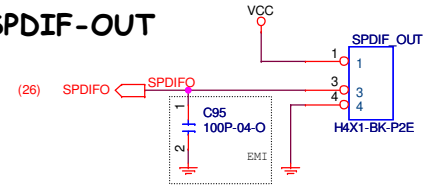
REAR-AUDIO

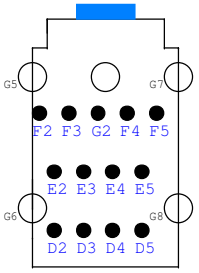


FRONT-AUDIO

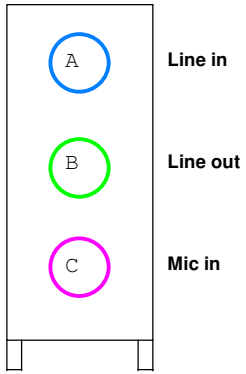


SPDIF-OUT





TOP VIEW



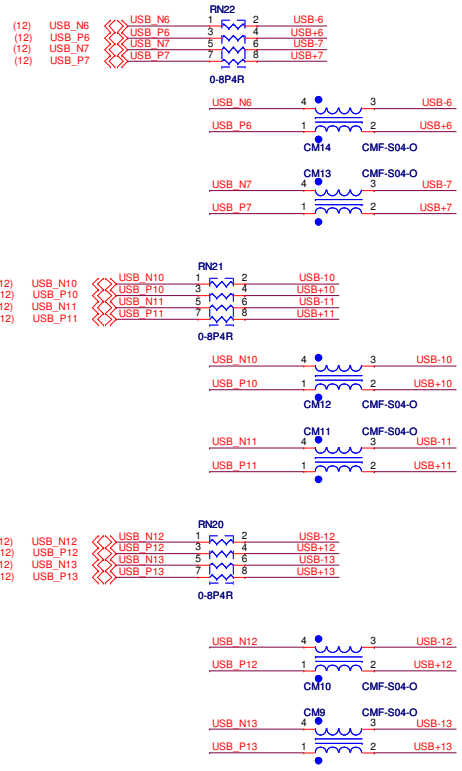
FRONT VIEW

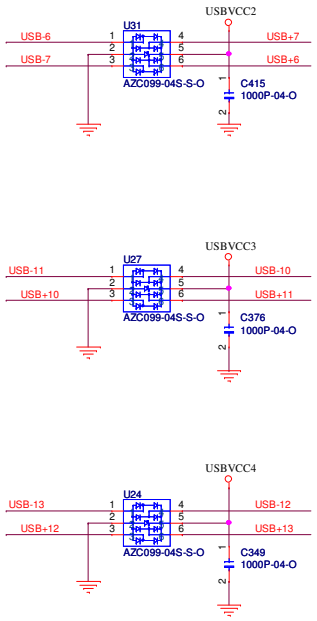
Elitegroup Computer Systems

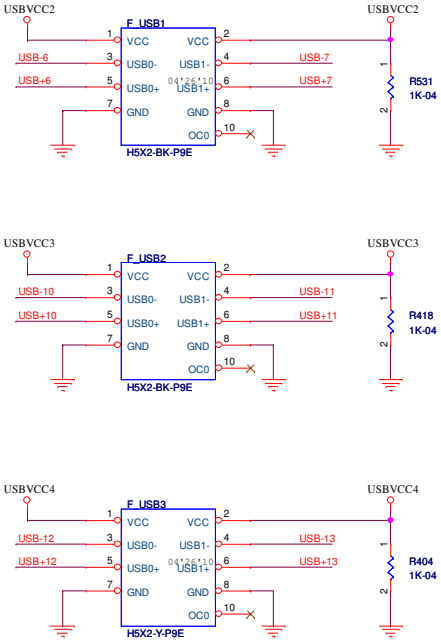
Title: AUDIO ALC662 Connector (PANEL)

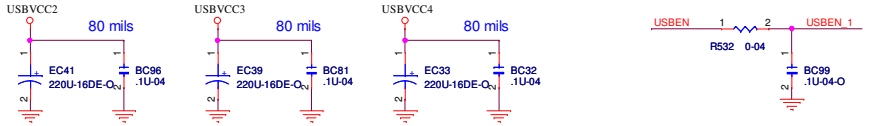
Size	Document Number	Rev
B	Q77H2-AD	1.0.

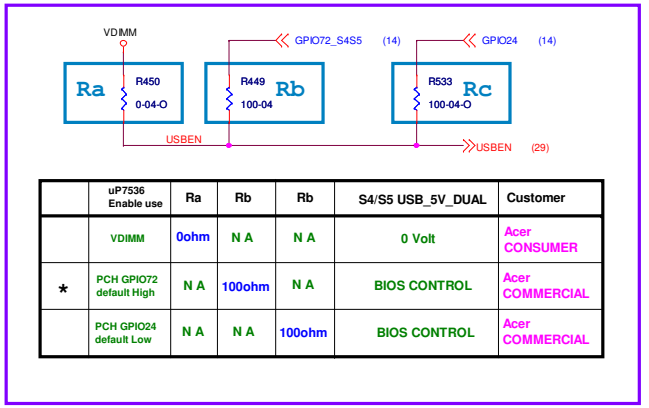
Date: Tuesday, April 10, 2012 Sheet 27 of 49



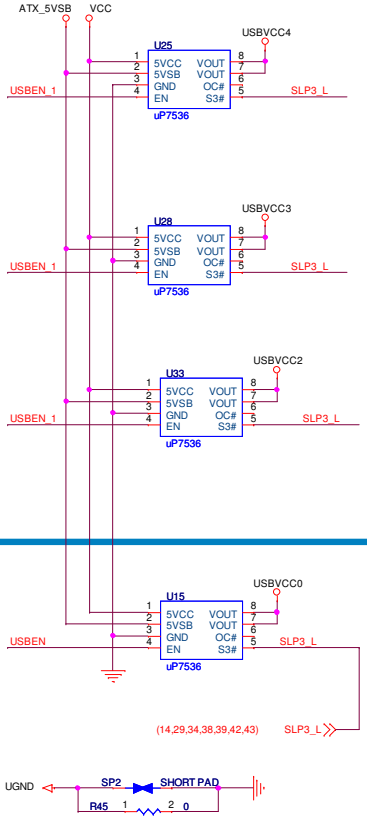






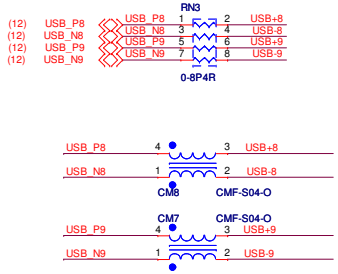


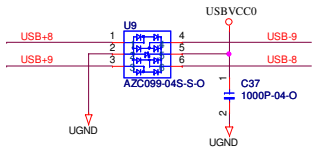
	uP7536 Enable use	Ra	Rb	Rb	S4/S5 USB_5V_DUAL	Customer
	VDIMM	0ohm	N A	N A	0 Volt	Acer CONSUMER
*	PCH GPIO72 default High	N A	100ohm	N A	BIOS CONTROL	Acer COMMERCIAL
	PCH GPIO24 default Low	N A	N A	100ohm	BIOS CONTROL	Acer COMMERCIAL

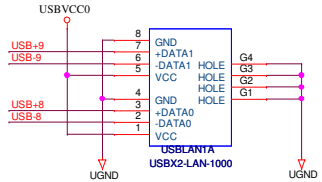


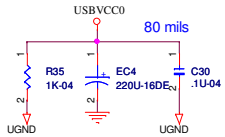
FRONT PANEL USB2.0 HEADER

REAR PANEL USB2.0 CONNECTOR







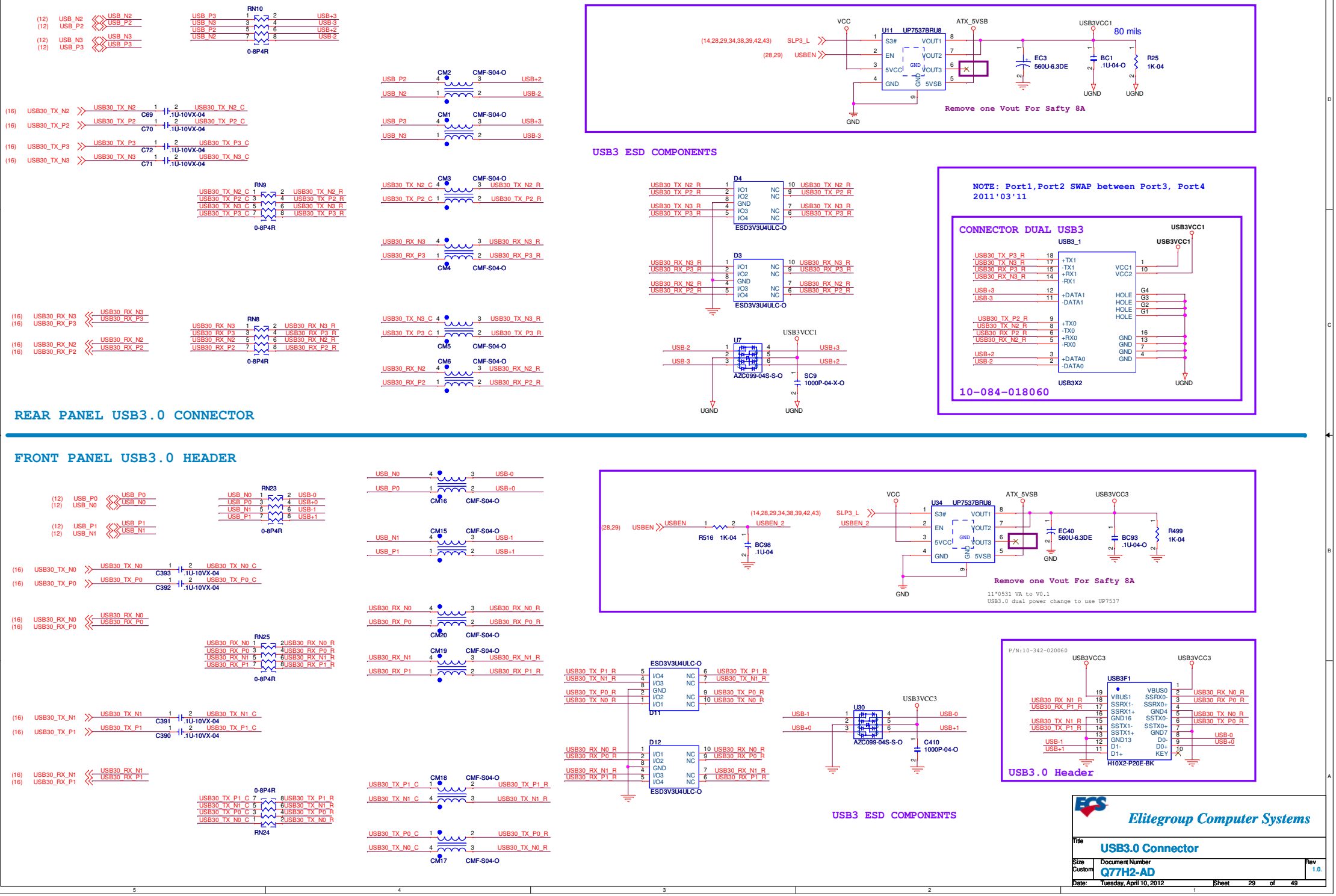


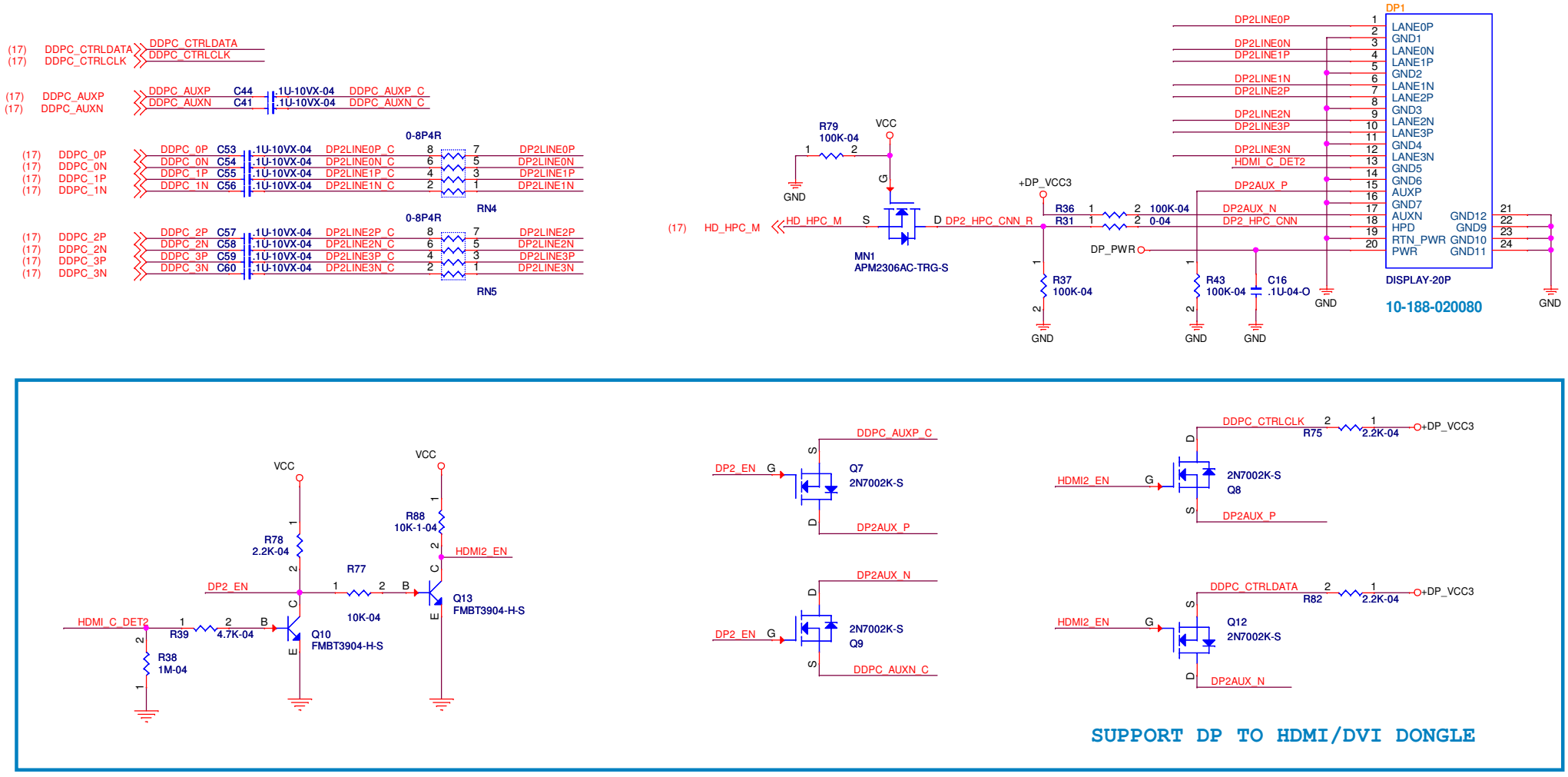
Elitegroup Computer Systems

Title: USB - PWR/CONN/HDR

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

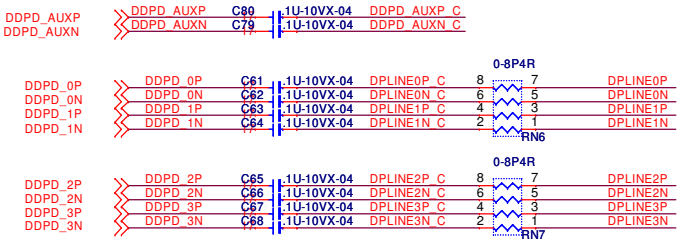
Date: Tuesday, April 10, 2012 | Sheet 28 of 49

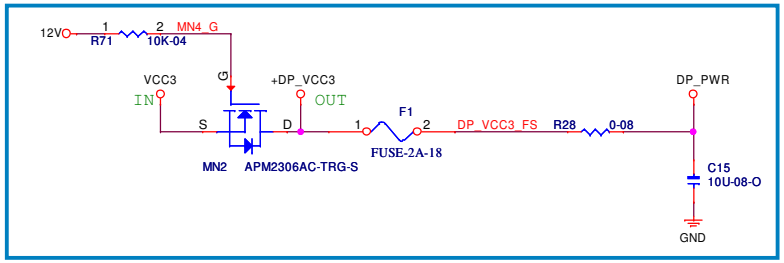

REAR PANEL USB3.0 CONNECTOR
USB3 ESD COMPONENTS
NOTE: Port1,Port2 SWAP between Port3, Port4
2011'03'11
CONNECTOR DUAL USB3
10-084-018060
Remove one Vout For Safty 8A
FRONT PANEL USB3.0 HEADER
USB3.0 Header
USB3 ESD COMPONENTS
Elitegroup Computer Systems
USB3.0 Connector
Q77H2-AD
Tuesday, April 10, 2012

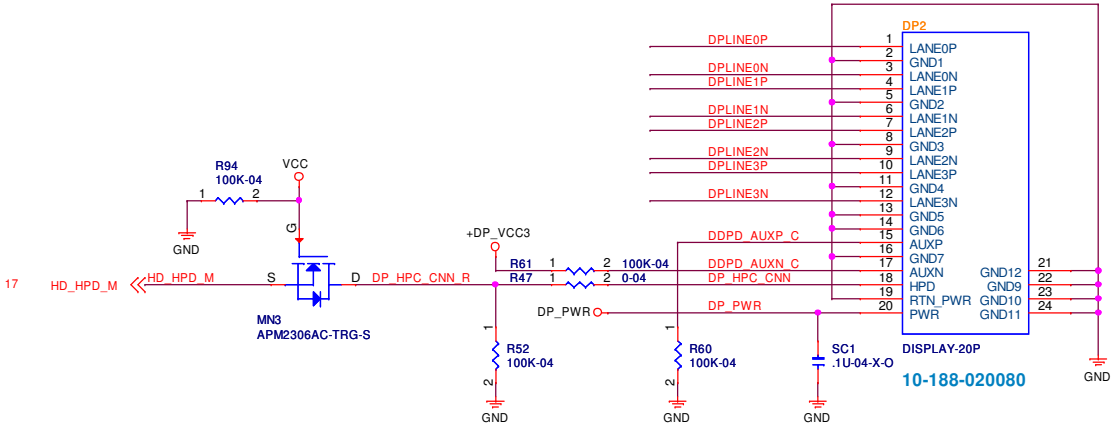


Elitegroup Computer Systems			
Title: DISPLAY PORT1			
Size: Custom	Document Number: Q77H2-AD		Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 30 of 49		

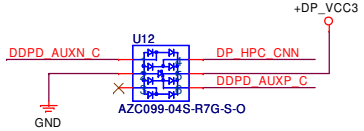
[M 1007] CHANGE TO PORT"D"

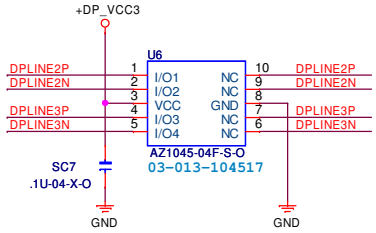


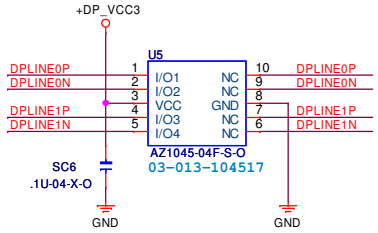




DP ESD Circuit







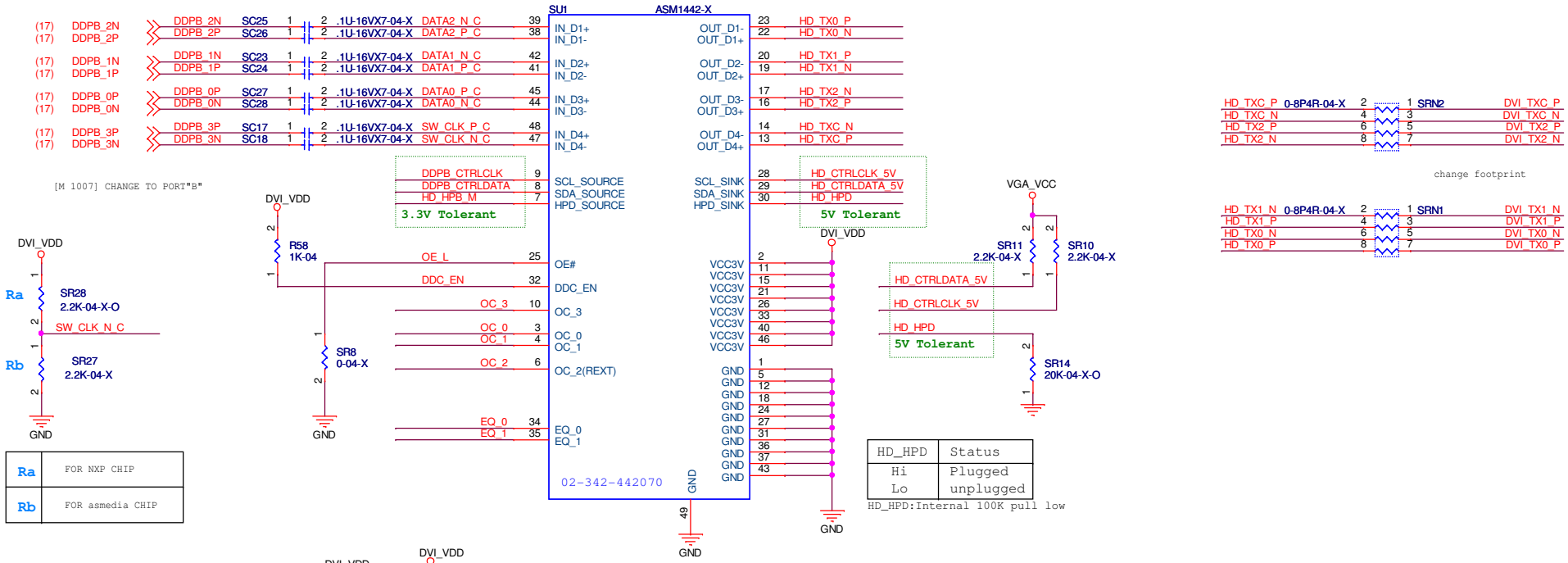
Elitegroup Computer Systems

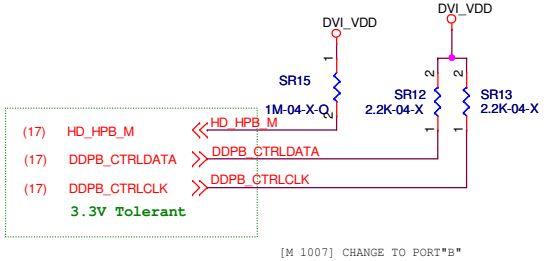
Title: DISPLAY PORT2

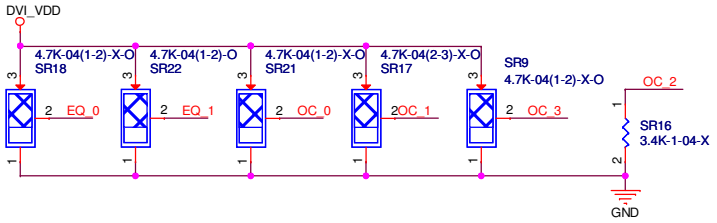
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0.

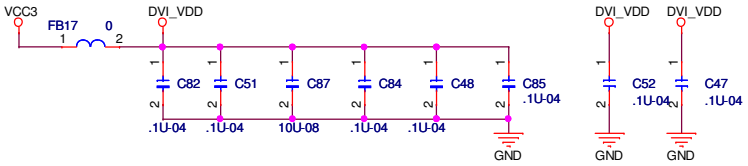
Date: Tuesday, April 10, 2012 | Sheet 31 of 49

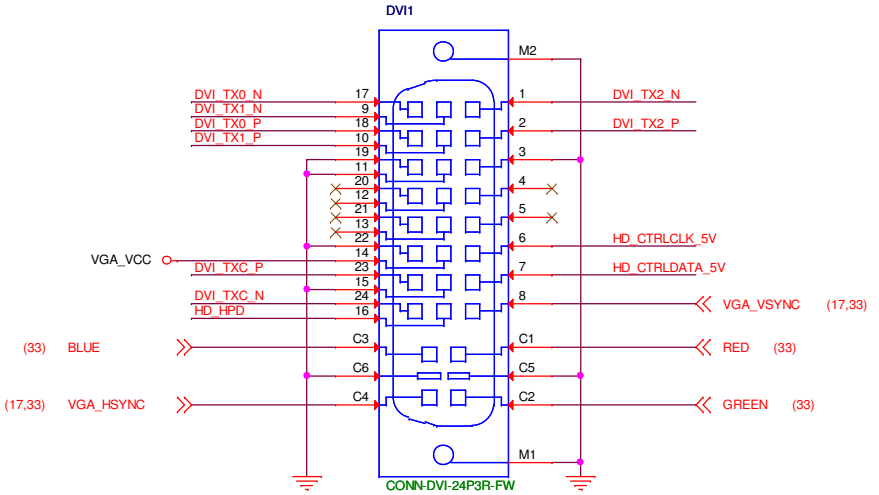
Level Shifter





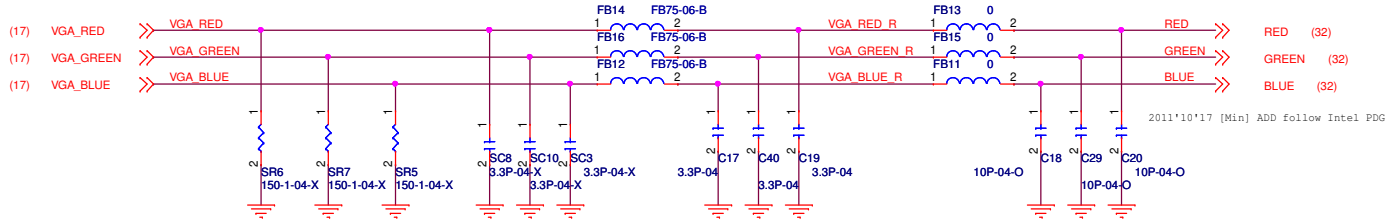




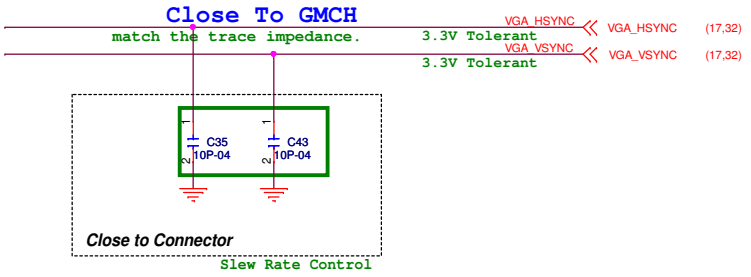


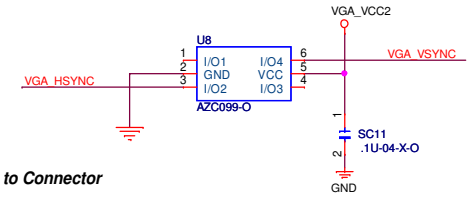
Elitegroup Computer Systems

Title	DVI	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 32 of 49	

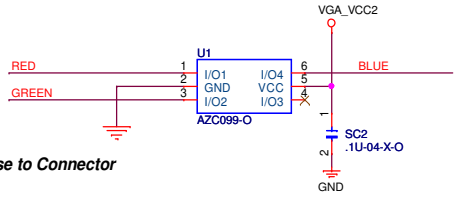


Close to Connector



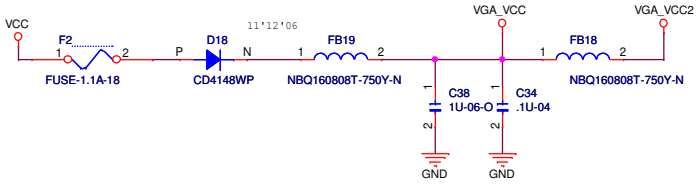


Close to Connector



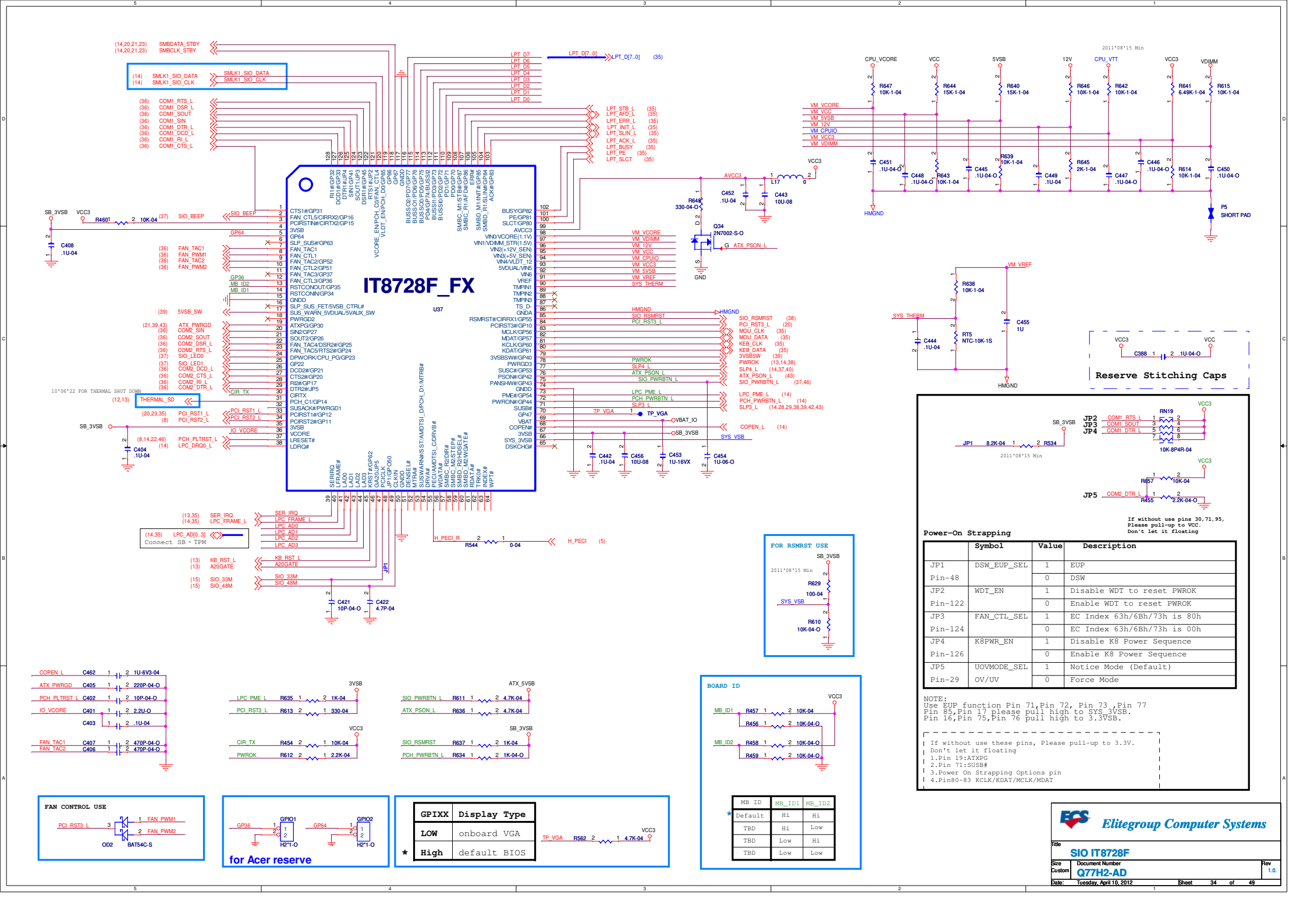
Close to Connector

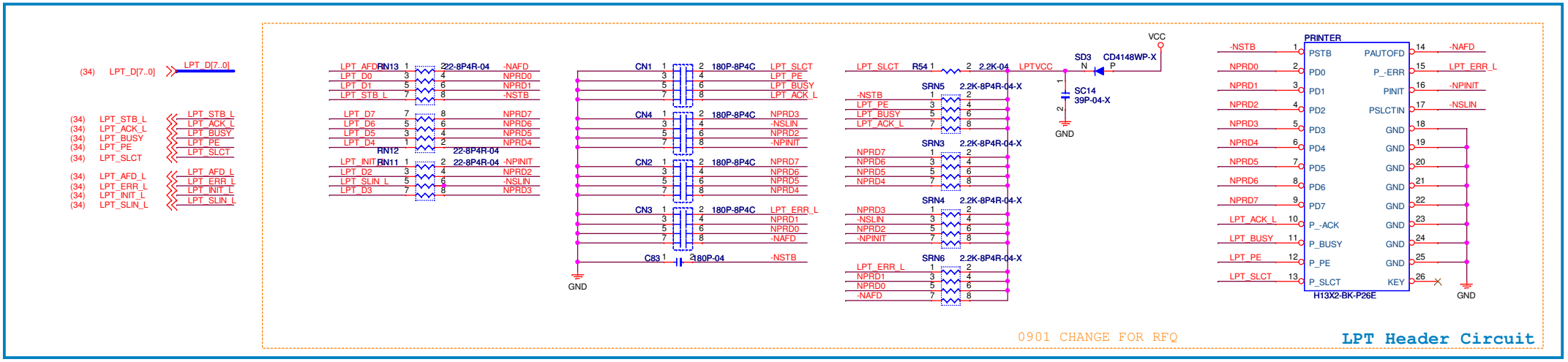
If build in Internal DVI Con,
that can use the circuit to protect reverse voltage together.

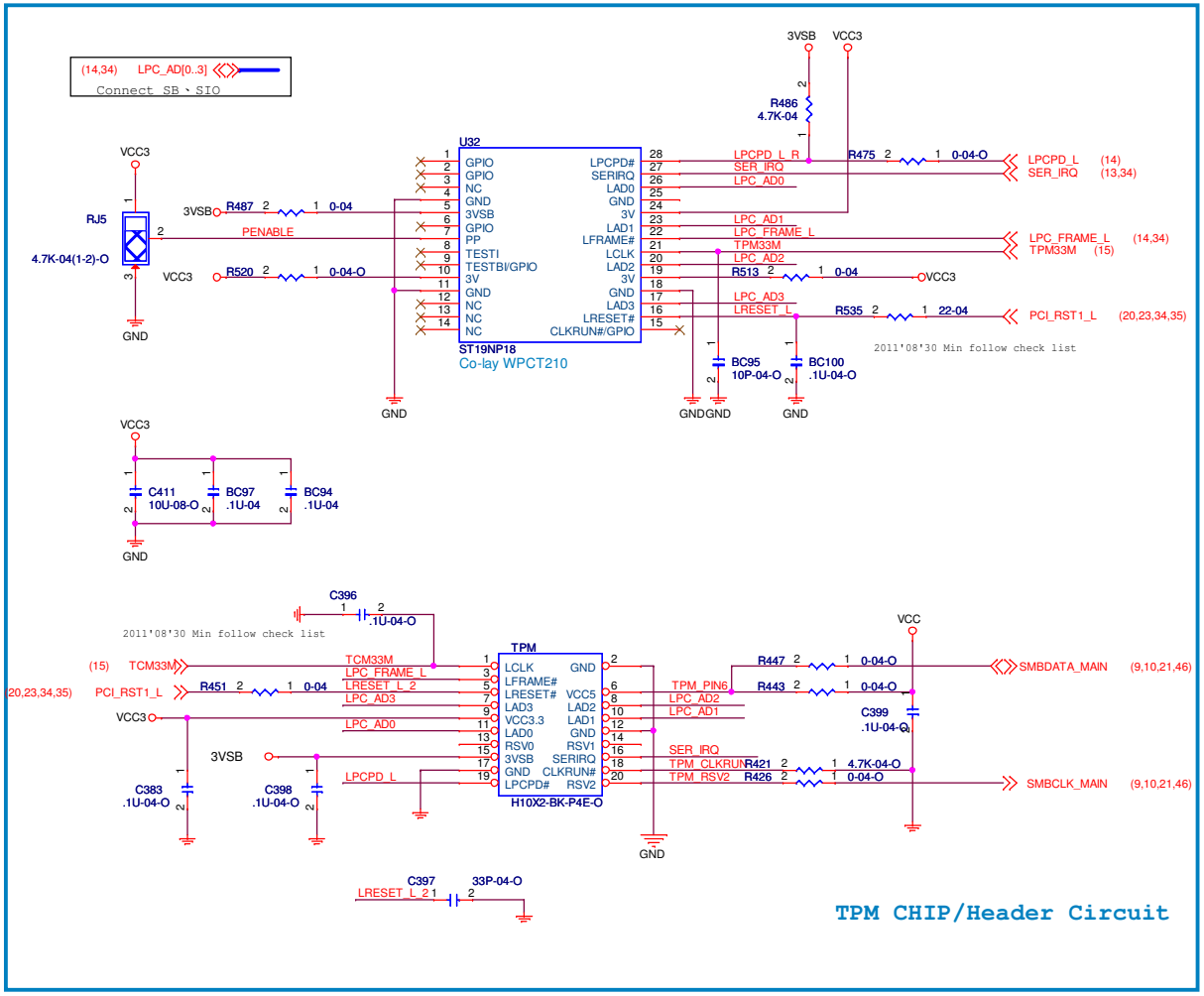


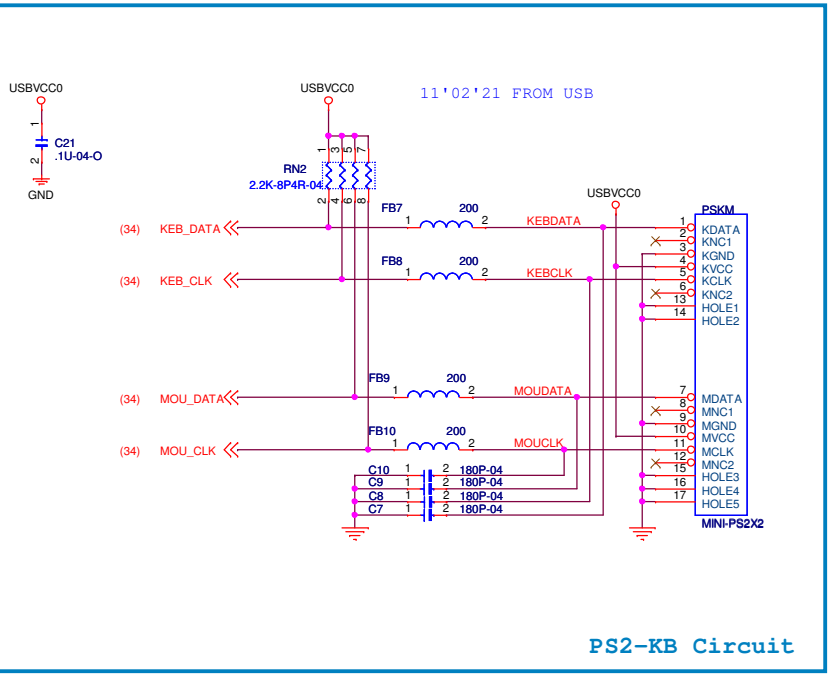
Elitegroup Computer Systems

Title: VGA CONNECTOR			
Size: Custom	Document Number: Q77H2-AD		Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 33 of 49		


IT8728F_FX
U37
Reserve Stitching Caps
Power-On Strapping
Symbol
Value
Description
JP1 DSW_EUP_SEL 1 EUP
Pin-48 0 DSW
JP2 WDT_EN 1 Disable WDT to reset PWROK
Pin-122 0 Enable WDT to reset PWROK
JP3 FAN_CTL_SEL 1 EC Index 63h/6Bh/73h is 80h
Pin-124 0 EC Index 63h/6Bh/73h is 00h
JP4 K8PWR_EN 1 Disable K8 Power Sequence
Pin-126 0 Enable K8 Power Sequence
JP5 UOVMODE_SEL 1 Notice Mode (Default)
Pin-29 OV/UV 0 Force Mode
If without use pins 30,71,95, Please pull-up to VCC. Don't let it floating
NOTE:
Use EUP function Pin 71,Pin 72, Pin 73 ,Pin 77
Pin 85,Pin 17 please pull high to SYS_3VSB.
Pin 16,Pin 75,Pin 76 pull high to 3.3VSB.
If without use these pins, Please pull-up to 3.3V.
Don't let it floating
1.Pin 19:ATXPG
2.Pin 71:SUSB#
3.Power On Strapping Options pin
4.Pin80-83 KCLK/KDAT/MCLK/MDAT
FOR RSMRST USE
BOARD ID
MB_ID MB_ID1 MB_ID2
Default Hi Hi
TBD Hi Low
TBD Low Hi
TBD Low Low
FAN CONTROL USE
for Acer reserve
GPIXX Display Type
LOW onboard VGA
High default BIOS
Elitegroup Computer Systems
SIO IT8728F
Q77H2-AD
Rev 1.0
Date: Tuesday, April 10, 2012
Sheet 34 of 49





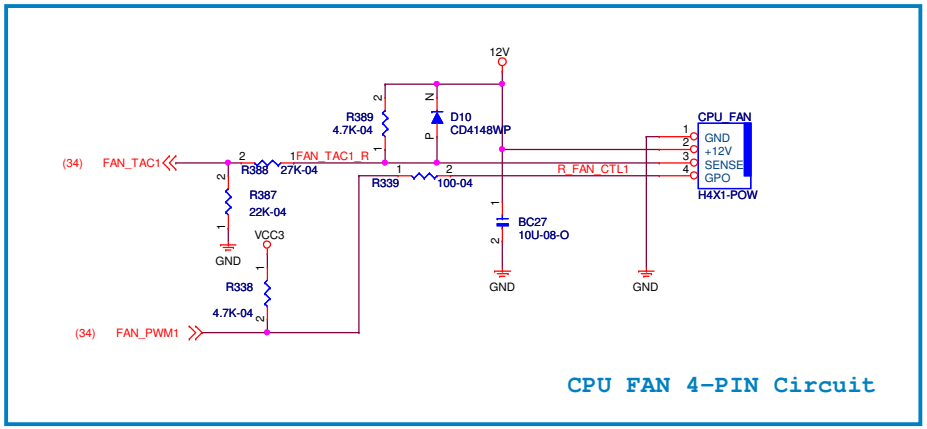


Elitegroup Computer Systems

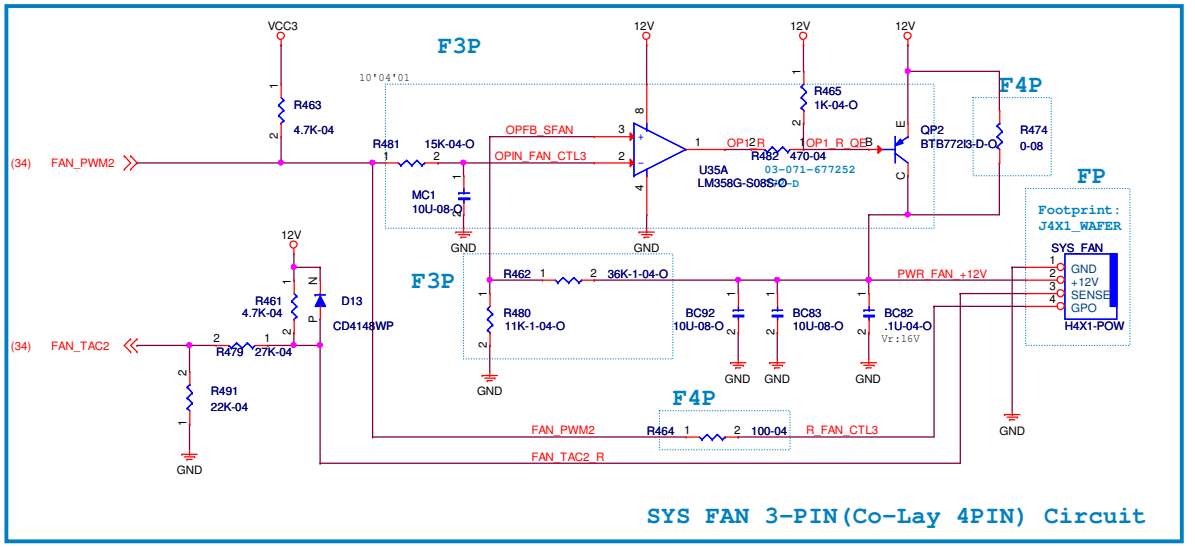
Title: TPM, PS/2, LPT

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 35 of 49

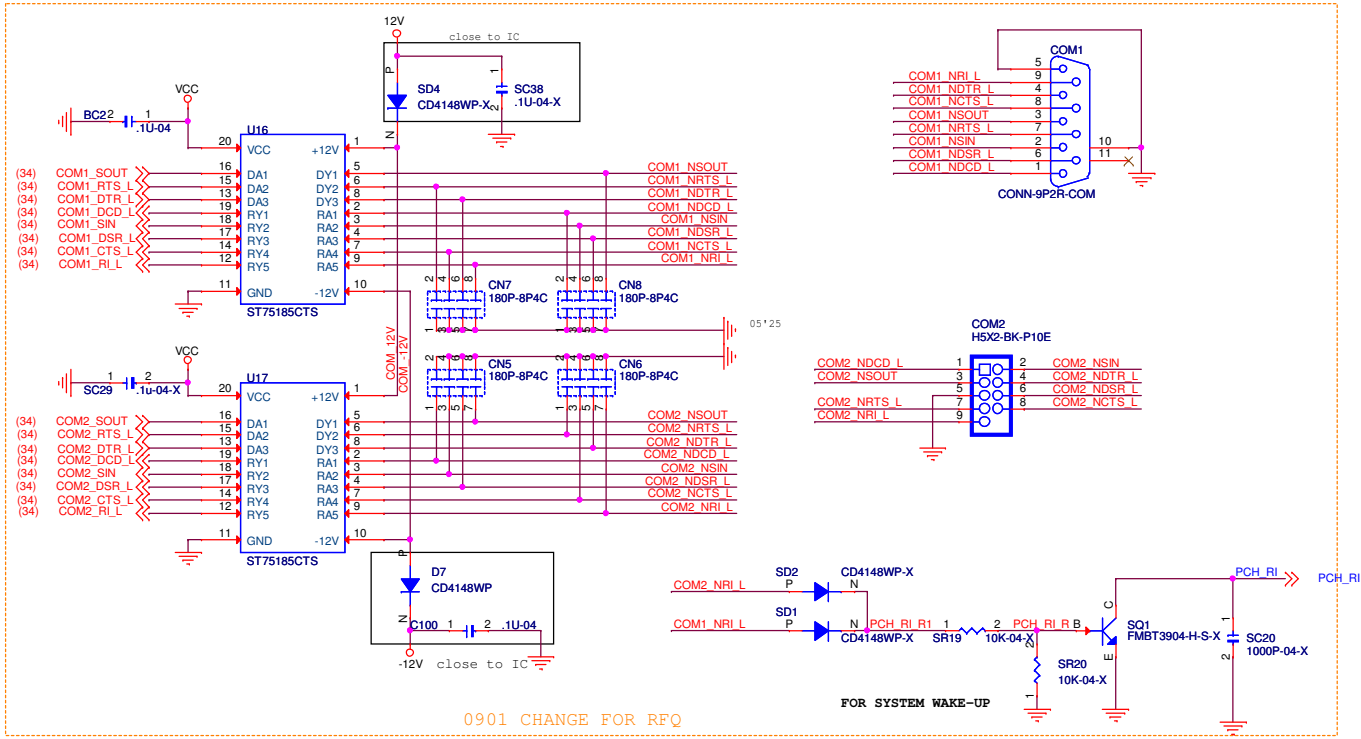


CPU FAN 4-PIN Circuit

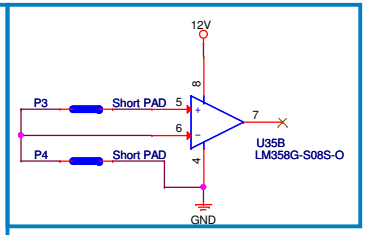


SYS FAN 3-PIN(Co-Lay 4PIN) Circuit

COM PORT I/O



0901 CHANGE FOR RFQ



+ - terminal add short pad to ground for nonuse OP , 20110406

PWR FAN:

MODE	F3P	F4P	FP Value
* 3PIN	V	X	H3X1-P-W
4PIN	X	V	H4X1-P-W

0901 CHANGE FOR RFQ

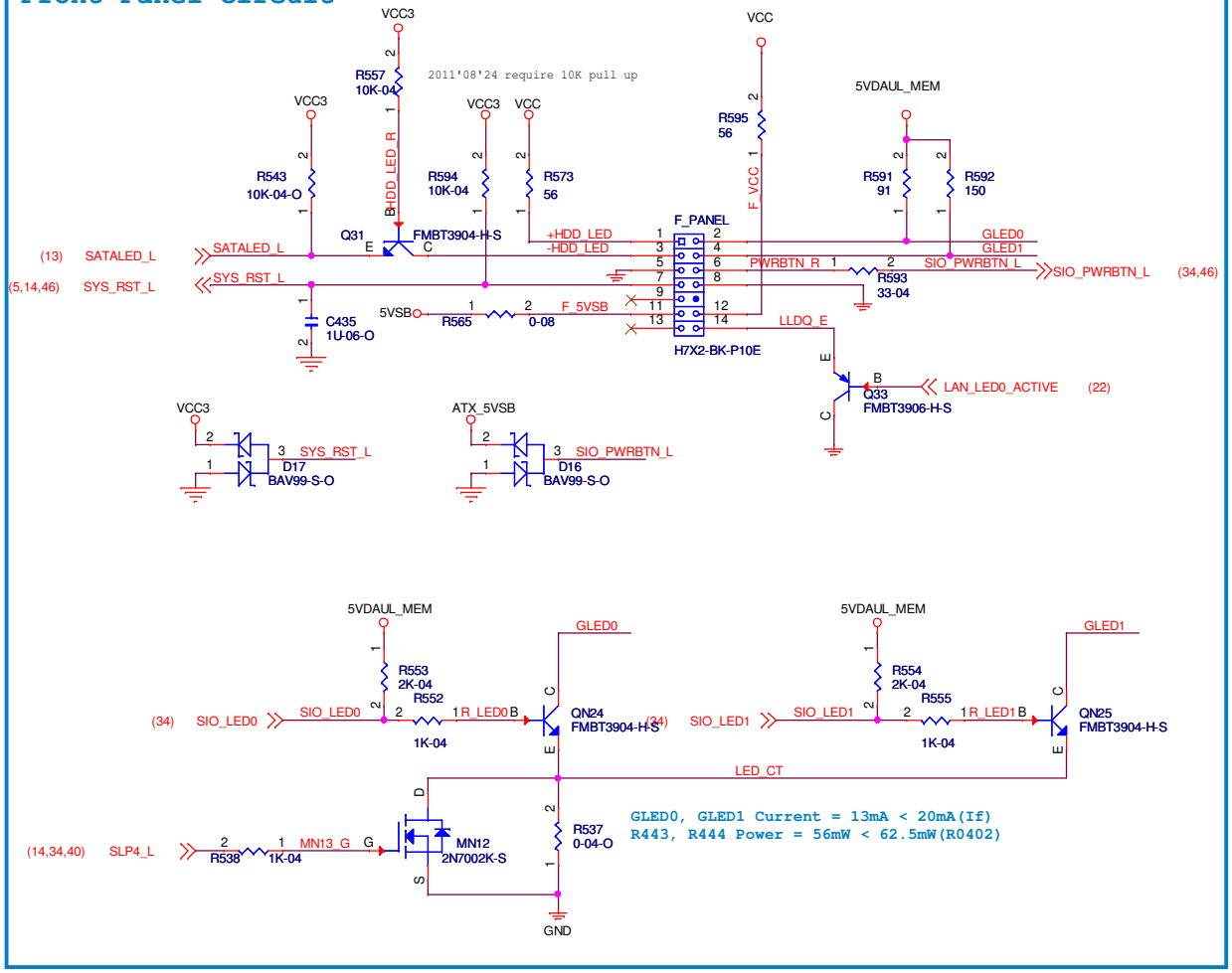
Elitegroup Computer Systems

Title: FAN, COM

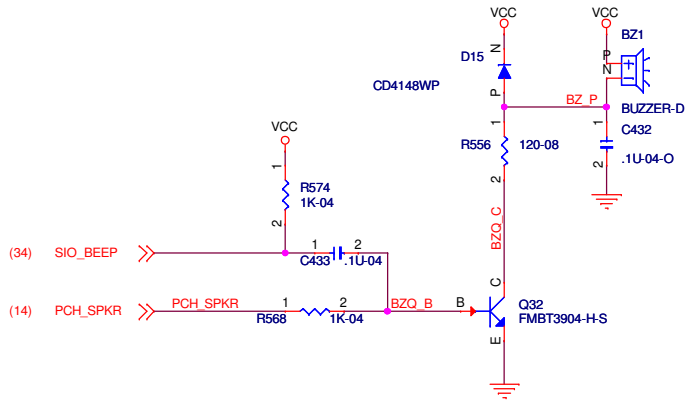
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 36 of 49

Front Panel Circuit



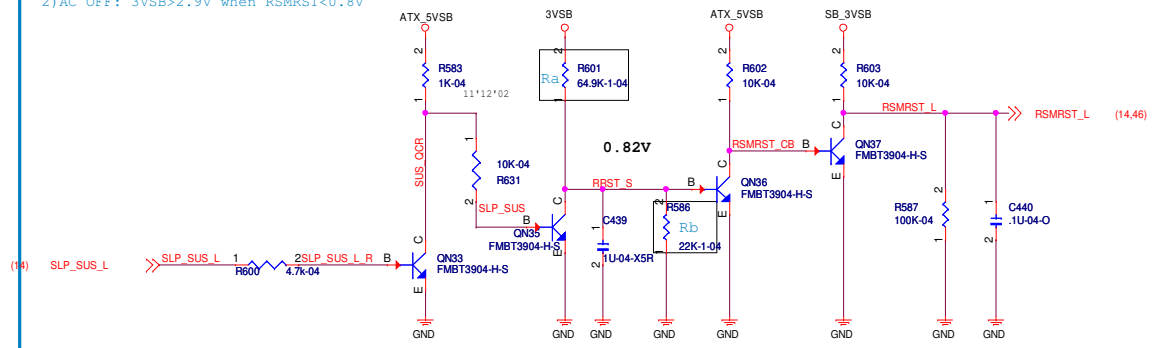
Buzzer Circuit



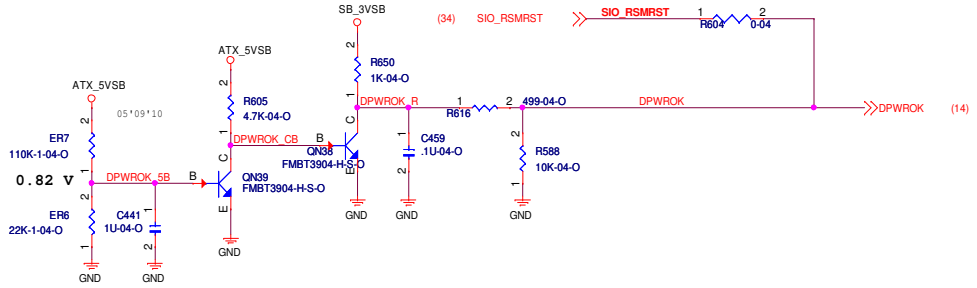
Elitegroup Computer Systems		
Title: F_PANEL, BUZ		
Size: B	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 37 of 49	

RSMRST Circuit

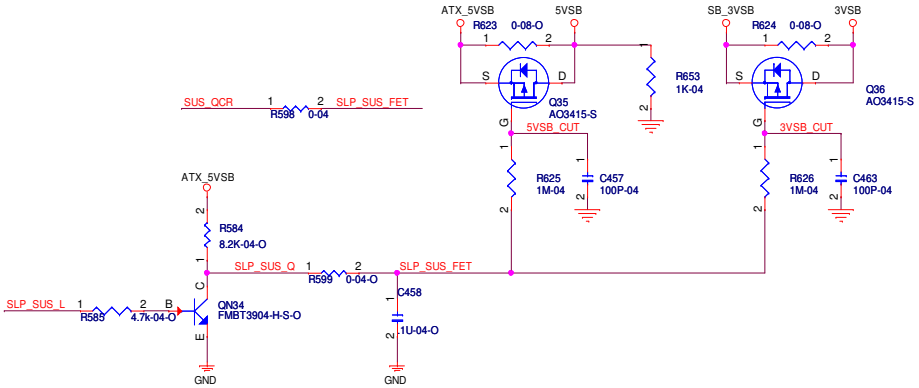
MODIFY Ra/Rb VALUE FOR FOLLOWING RULES
1)AC ON: 3VSB vs RSMRST(t204: min 10ms)
2)AC OFF: 3VSB>2.9V when RSMRST<0.8V

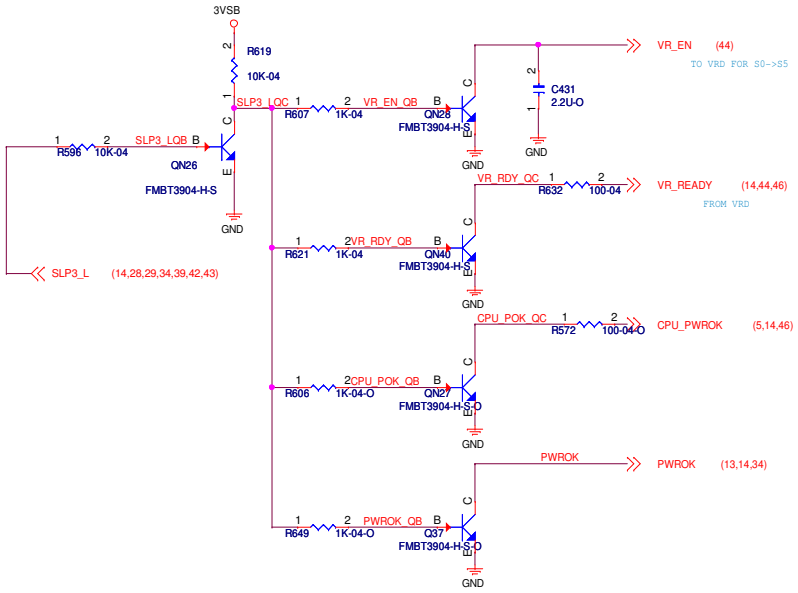


DPWROK Circuit

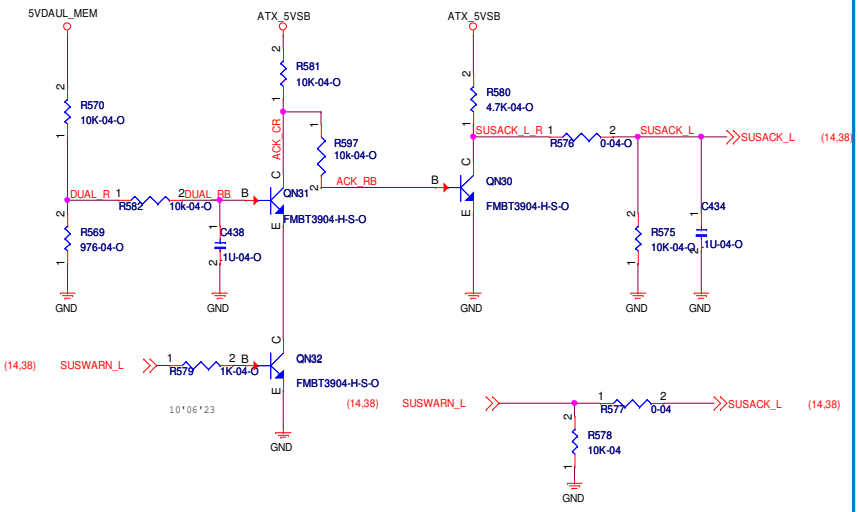


SUS_3/5VSB SWITCH





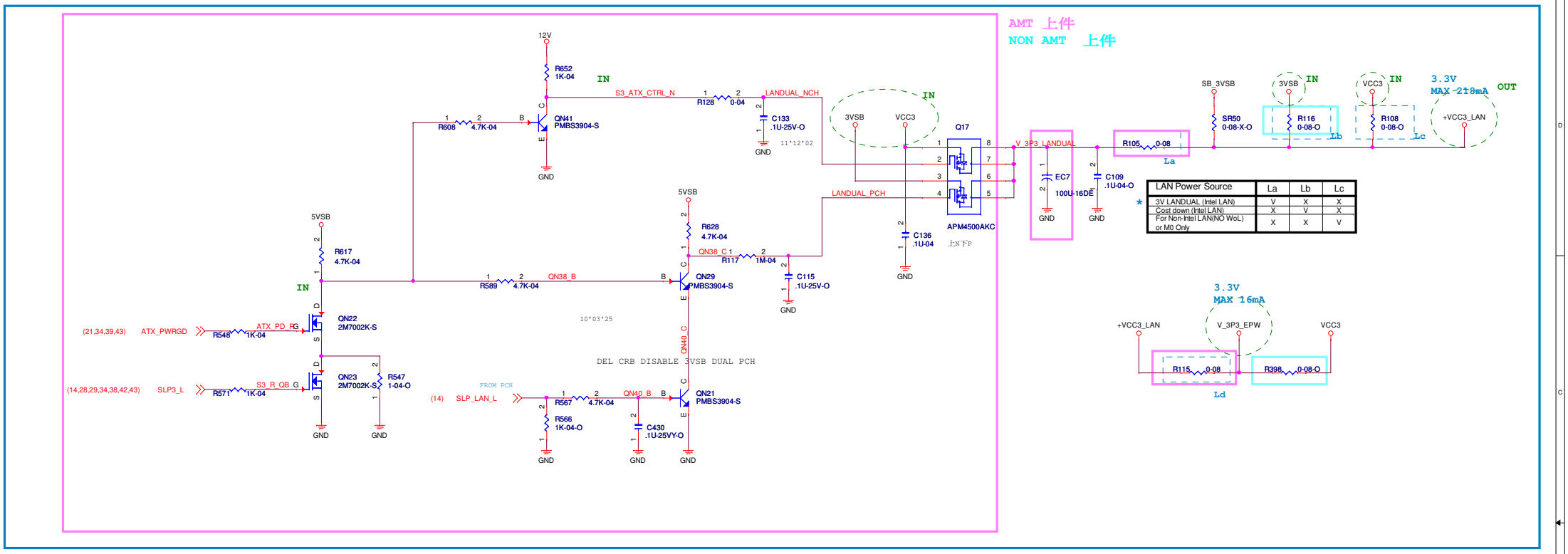
Power Down Sequencing Circuit

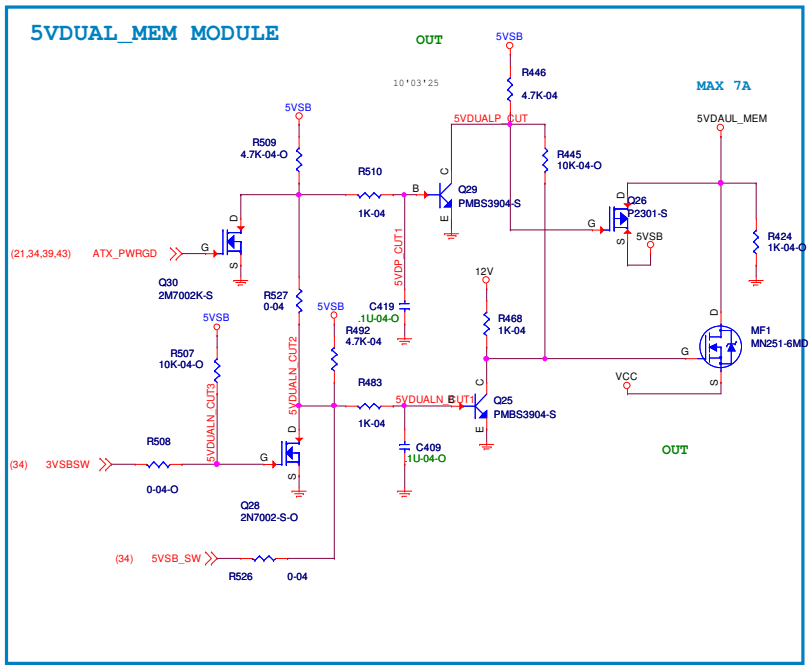


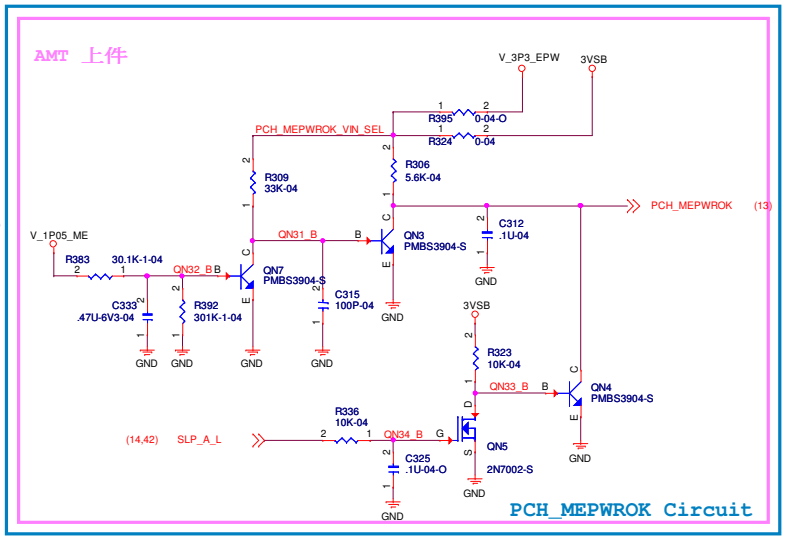
SUSACK_L CTRL CIRCUIT

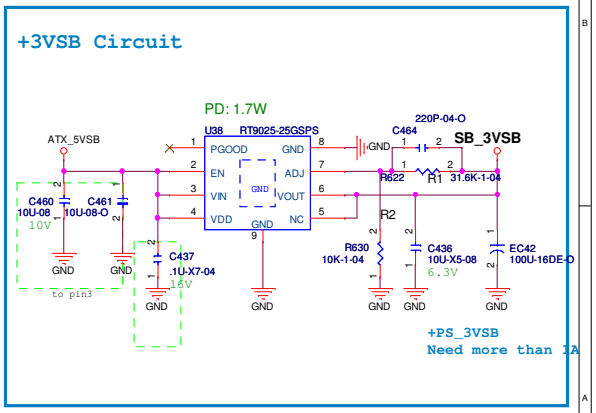
Elitegroup Computer Systems

Title	SEQUENCE/ DSW CKT	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0.
Date: Tuesday, April 10, 2012	Sheet 38 of 49	









Elitegroup Computer Systems

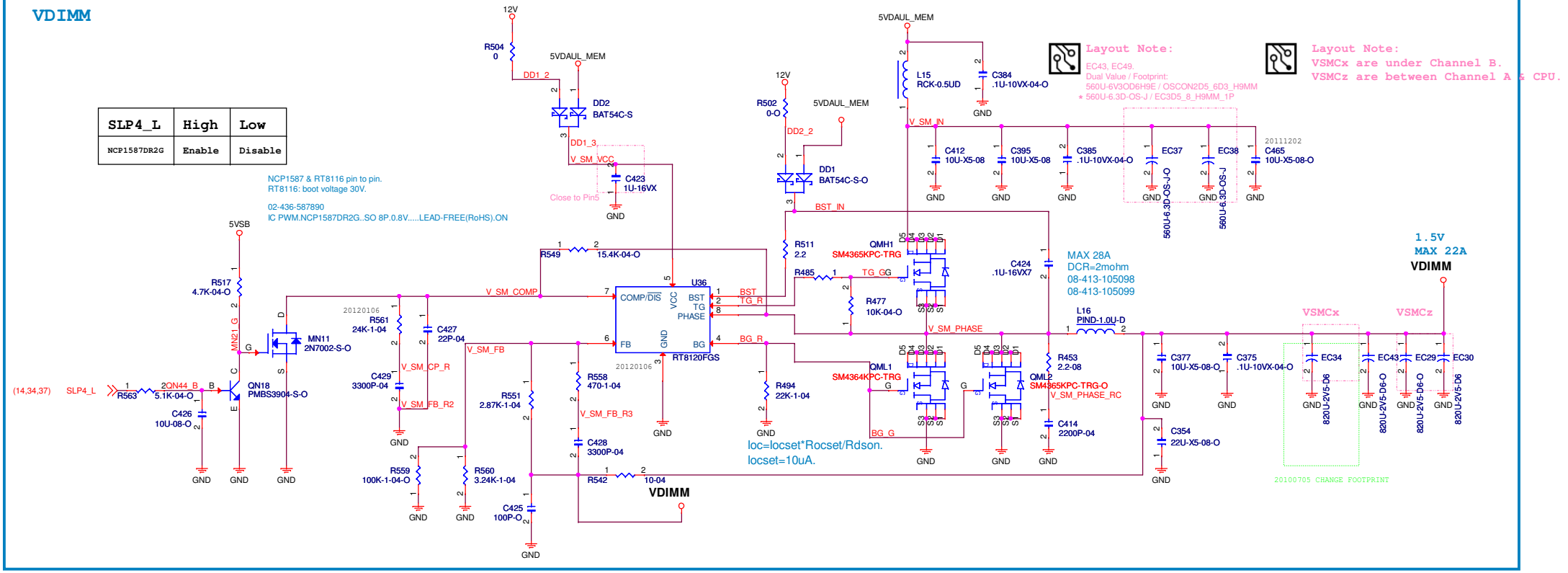
Title	DC/DC 3VSB/3VDUAL/5VDUAL		
Size: Custom	Document Number: Q77H2-AD		Rev: 1.0
Date: Tuesday, April 10, 2012	Sheet 39 of 49		

VDIMM

SLP4_L	High	Low
NCP1587DR2G	Enable	Disable

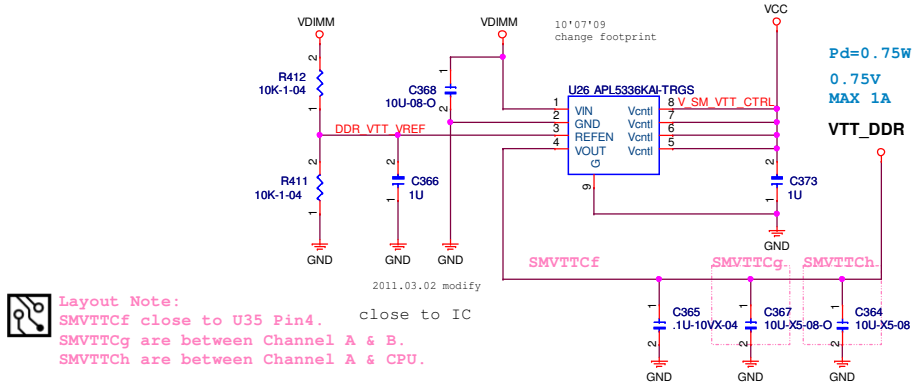
NCP1587 & RT8116 pin to pin.
RT8116: boot voltage 30V.

02-436-587890
IC PWM.NCP1587DR2G..SO 8P.0.8V.....LEAD-FREE(RoHS).ON



DDR_VTT

AP5336/GS9020/AME9172M



Elitegroup Computer Systems

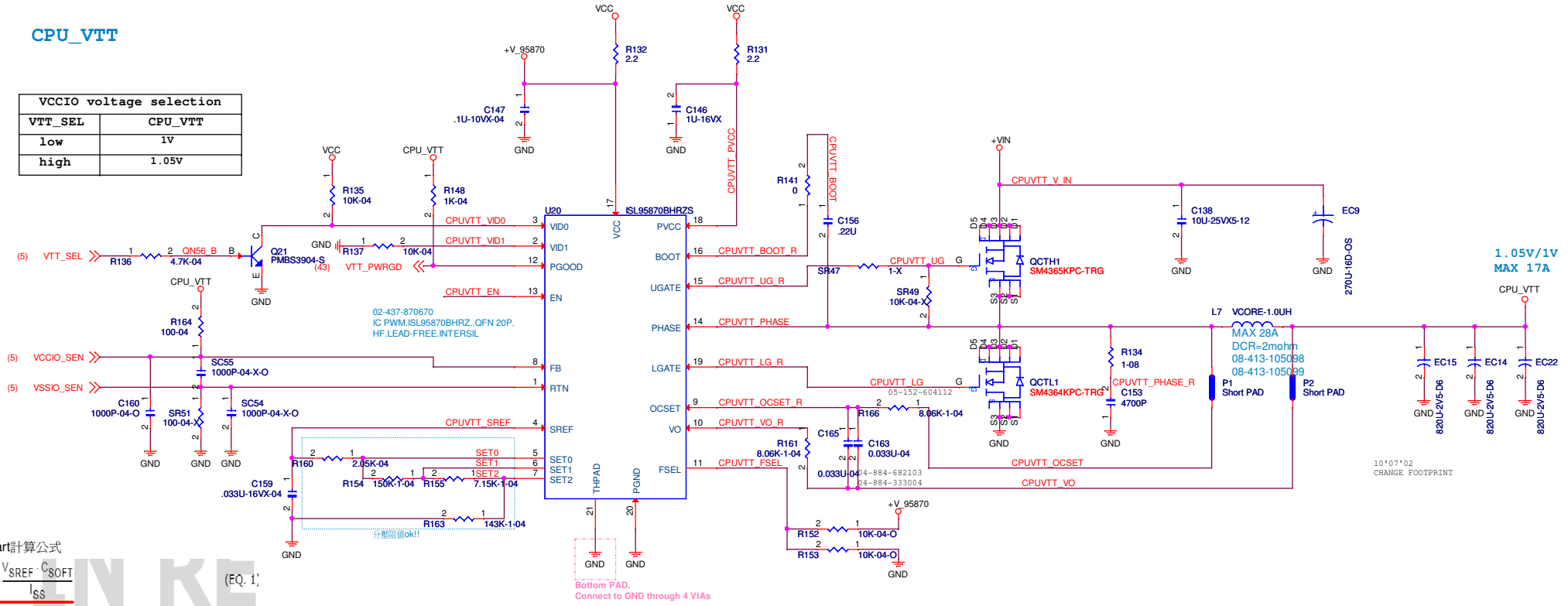
Title: DC/DC VDIMM/DDR_VTT

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 40 of 49

CPU_VTT

VCCIO voltage selection	
VTT_SEL	CPU_VTT
low	1V
high	1.05V



Soft-start計算公式

$$t_{SS} = \frac{V_{SREF} \cdot C_{SOFT}}{I_{SS}} \quad \text{(EQ. 1)}$$

Where:

- I_{SS} is the soft-start current source at the 20µA limit
- V_{SREF} is the buffered V_{REF} reference voltage

Frequency selection	
F(Hz)	FSEL
300K	Directly to GND
500K	Floating
600K	100K ohm to GND
1M	Pull-up to VCC

Vout計算公式

TABLE 2. ISL95870B VID TRUTH TABLE

VID STATE		RESULT		
VID1	VID0	CLOSE	V_{SREF}	V_{OUT}
1	1	SW0	V_{SET1}	V_{OUT1}
1	0	SW1	V_{SET2}	V_{OUT2}
0	1	SW2	V_{SET3}	V_{OUT3}
0	0	SW3	V_{SET4}	V_{OUT4}

Equations 21, 22, 23 and 24 give the specific V_{SET} equations for the ISL95870B setpoint reference voltages.

The ISL95870B V_{SET1} setpoint is written as Equation 21:

$$V_{SET1} = V_{REF} \quad \text{(EQ. 21)}$$

The ISL95870B V_{SET2} setpoint is written as Equation 22:

$$V_{SET2} = V_{REF} \cdot \left(1 + \frac{R_{SET1}}{R_{SET2} + R_{SET3} + R_{SET4}}\right) \quad \text{(EQ. 22)}$$

The ISL95870B V_{SET3} setpoint is written as Equation 23:

$$V_{SET3} = V_{REF} \cdot \left(1 + \frac{R_{SET1} + R_{SET2}}{R_{SET3} + R_{SET4}}\right) \quad \text{(EQ. 23)}$$

The ISL95870B V_{SET4} setpoint is written as Equation 24:

$$V_{SET4} = V_{REF} \cdot \left(1 + \frac{R_{SET1} + R_{SET2} + R_{SET3}}{R_{SET4}}\right) \quad \text{(EQ. 24)}$$

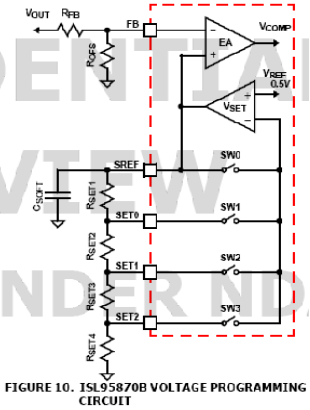
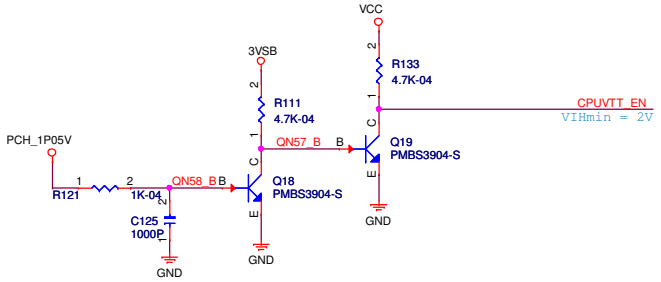


FIGURE 10. ISL95870B VOLTAGE PROGRAMMING CIRCUIT

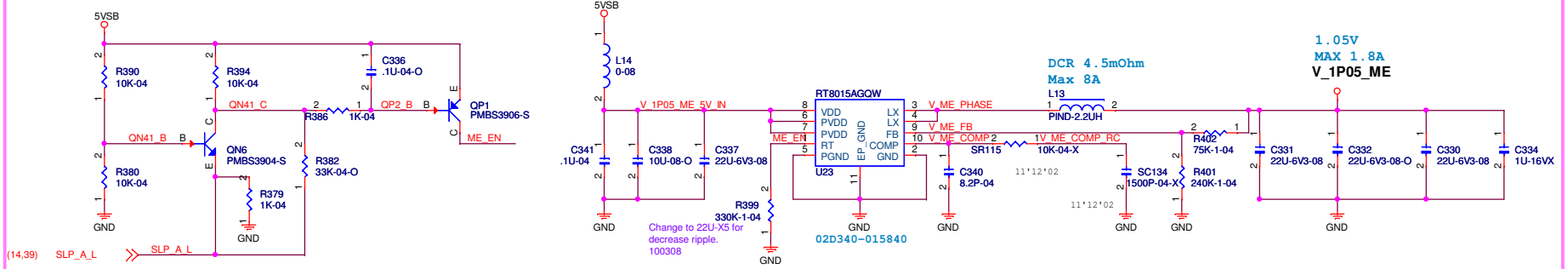


Elitegroup Computer Systems

Title: DC/DC V_CPUVTT

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

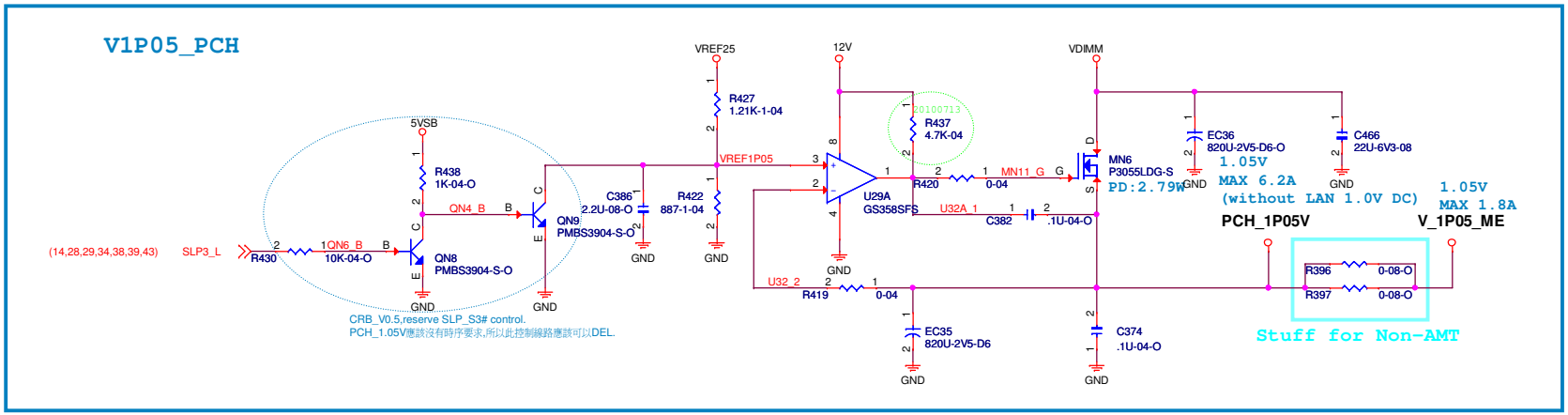
Date: Tuesday, April 10, 2012 | Sheet 41 of 49



SLPAMT_L	EN	V_1P05_ME
High	5VSB	Enable
Low	0 V	Disable

V1P05_ME

AMT 上件



BOM Note:

02-340-015840....dfn10_rt8106a
IC REG.RT8015AGQW.WDFN 10P.3A.LEAD-FREE(RoHS/HF).
RICHTEK

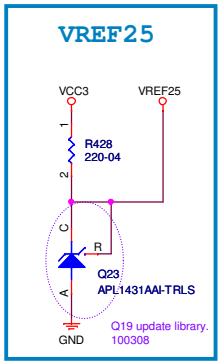
08-413-225094....choke_2r2m_pt4d9x4d6mm
POWER IND.2.2uH.20%.8A.4.5m OHM.DIP 2P.8.2*8.2*7.5*6.7 mm.AKL0806MN-2R2M-L3.2....LEAD-FREE(RoHS).MAGIC

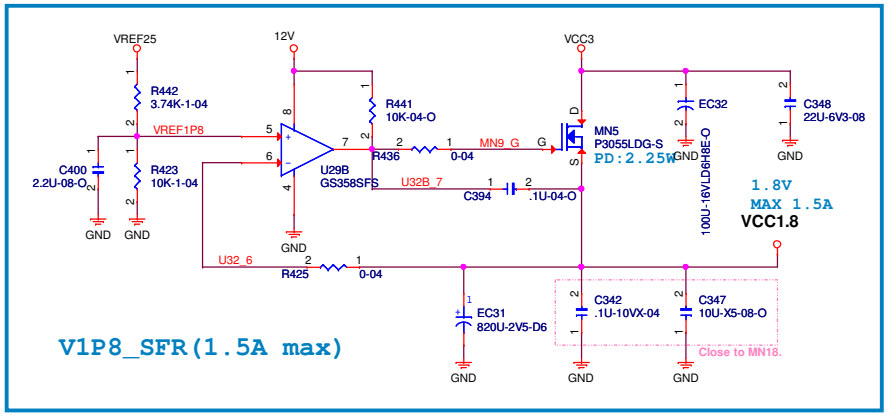
05-152-750113
RES.75K.1/16W.1%..SMD 0402.....LEAD-FREE(RoHS/HF).

05-152-430103
RES.43K.1/16W.5%..SMD 0402.....LEAD-FREE(RoHS/HF).

05-152-240114
RES.240K.1/16W.1%..SMD 0402.....LEAD-FREE(RoHS/HF).

04-880-828100
C/C.8.2pF.50V.0.25pf..NPO...SMD 0402....LEAD-FREE(RoHS/HF).





Elitegroup Computer Systems

Title: DC/DC V1P05_PCH,ME/V1P8_SFR

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 42 of 49

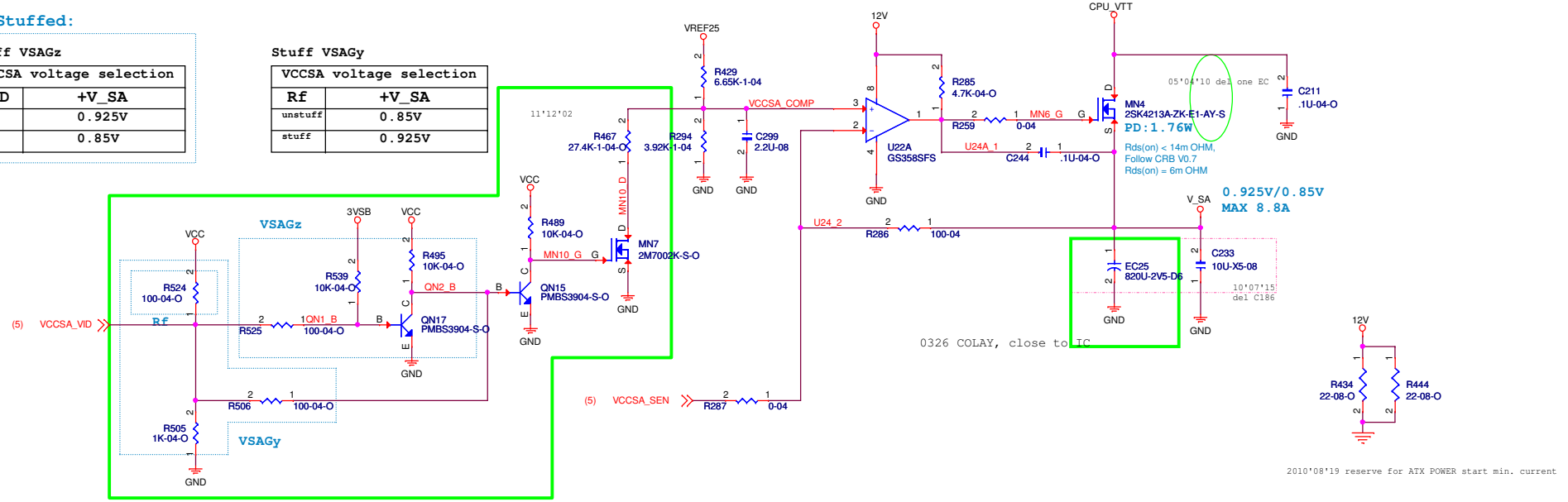
Default Stuffed:

Stuff VSAGz

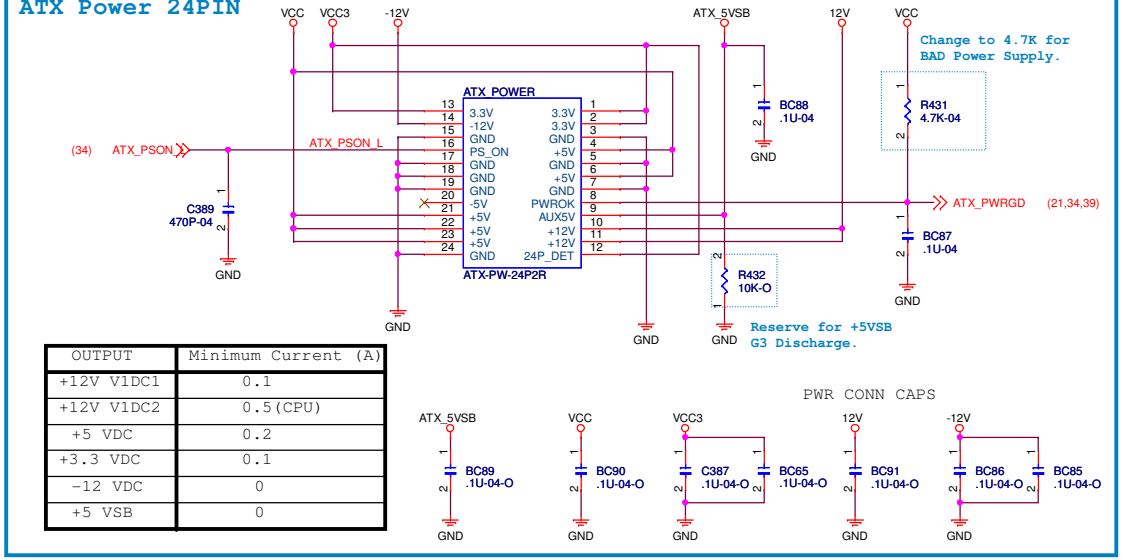
VCCSA voltage selection	
VID	+V_SA
0	0.925V
* 1	0.85V

Stuff VSAGy

VCCSA voltage selection	
Rf	+V_SA
unstuff	0.85V
stuff	0.925V

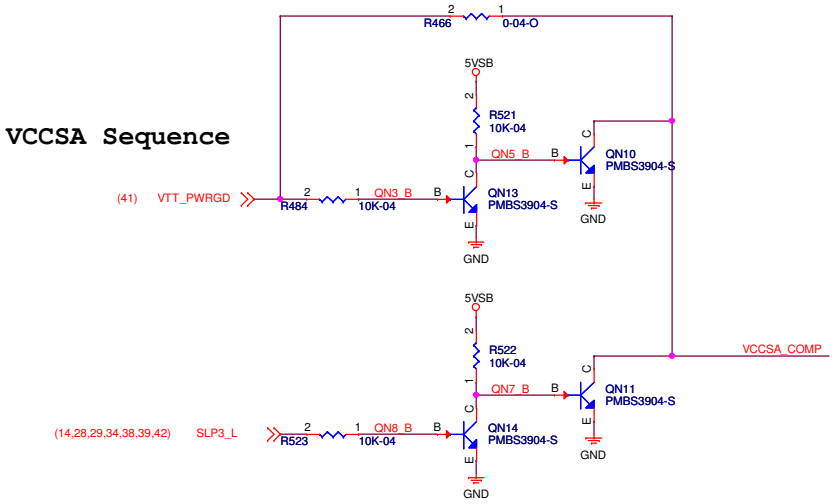


ATX Power 24PIN

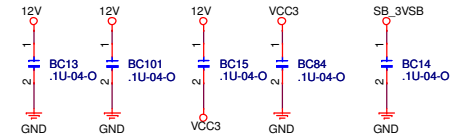


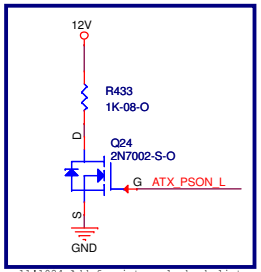
OUTPUT	Minimum Current (A)
+12V V1DC1	0.1
+12V V1DC2	0.5(CPU)
+5 VDC	0.2
+3.3 VDC	0.1
-12 VDC	0
+5 VSB	0

VCCSA Sequence



EMI





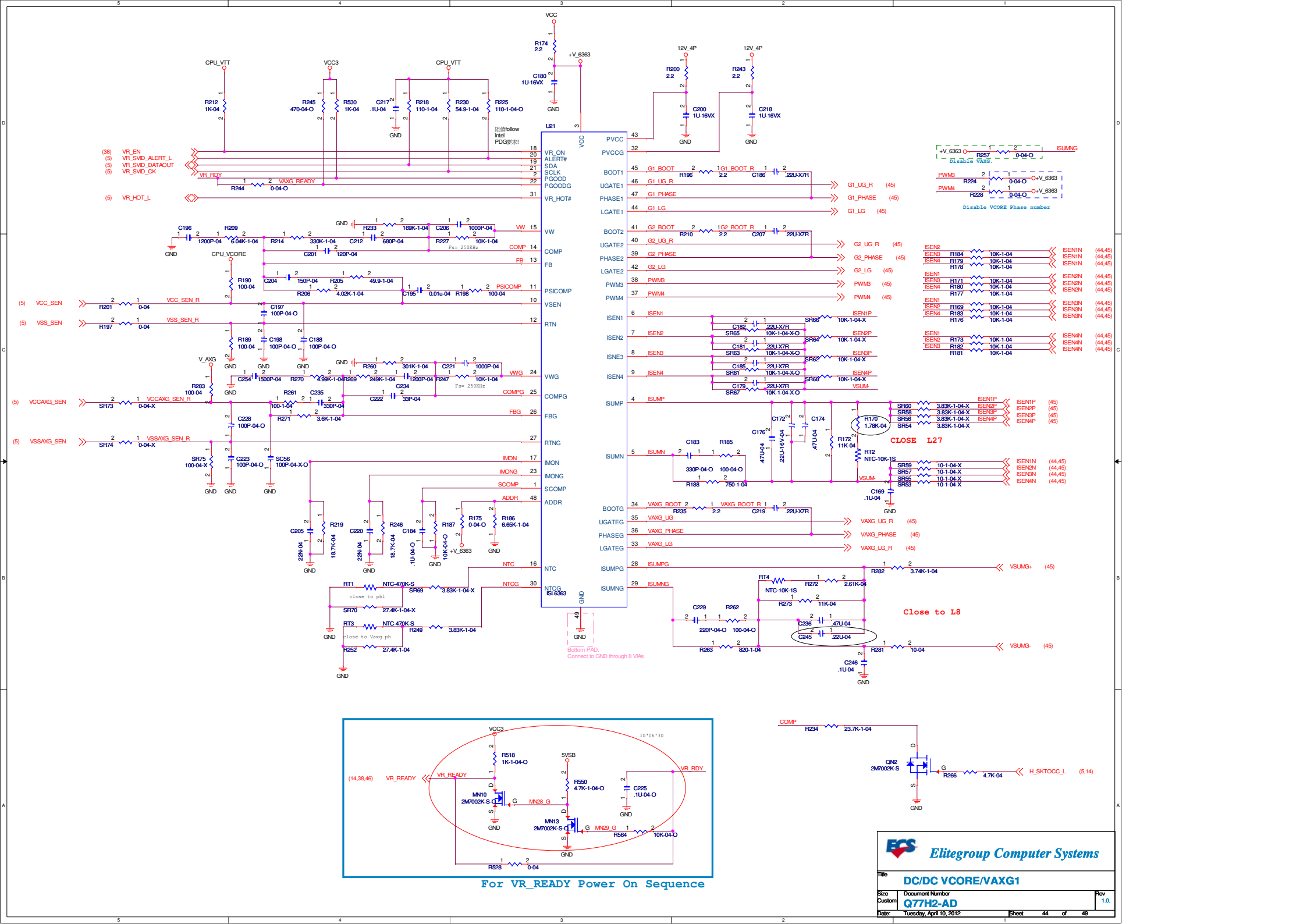
11'1024 Add for internal check list

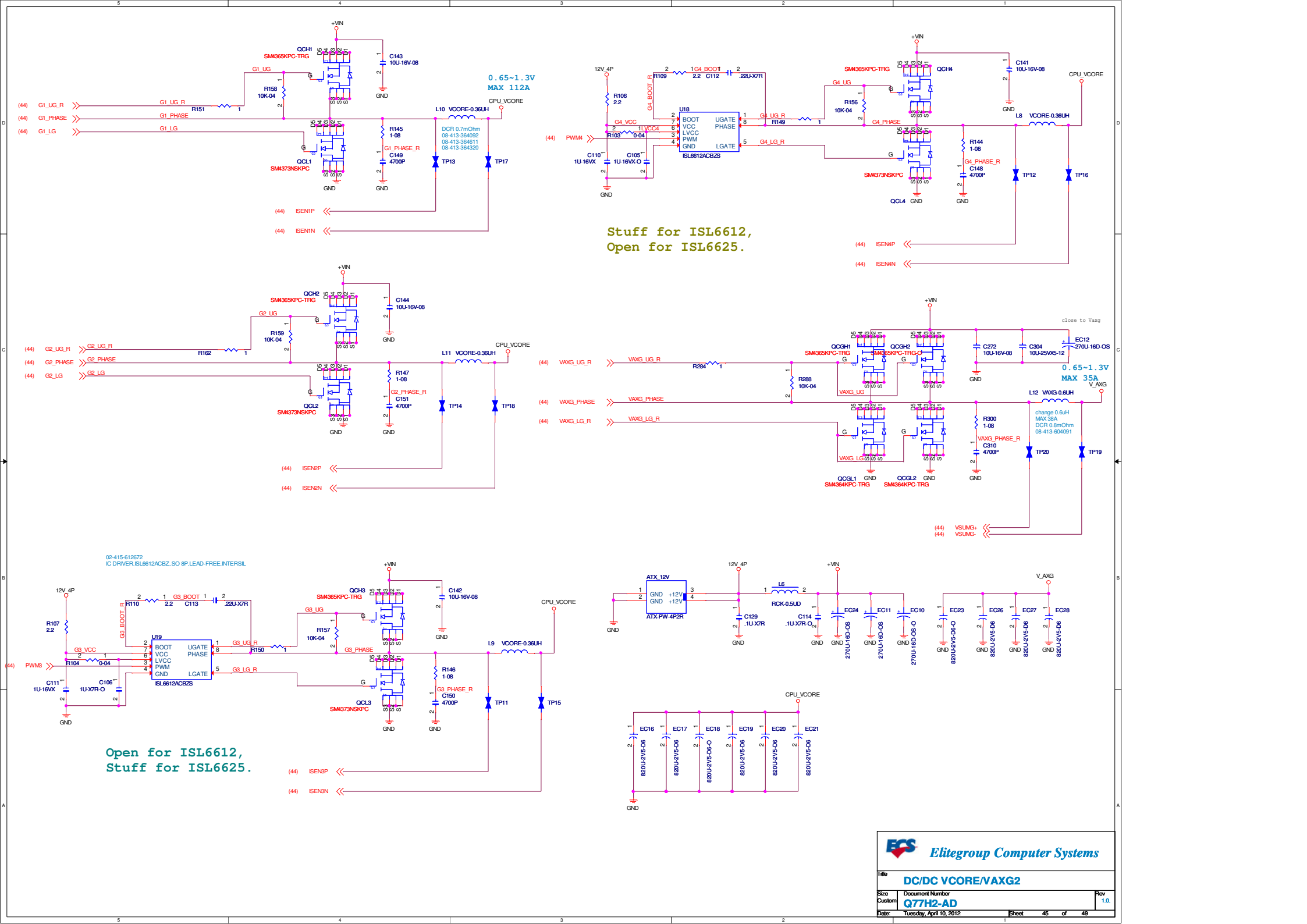
Elitegroup Computer Systems

Title: DC/DC VCCSA, ATXPWR

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 43 of 49


U21
ISL6363
VCC
PVCC
PVCCG
BOOT1
UGATE1
PHASE1
LGATE1
BOOT2
UGATE2
PHASE2
LGATE2
PWM3
PWM4
ISEN1
ISEN2
ISNE3
ISEN4
ISUMP
ISUMN
BOOTG
UGATEG
PHASEG
LGATEG
ISUMPG
ISUMNG
VR_ON
ALERT#
SDA
SCLK
PGOOD
PGOODG
VR_HOT#
VW
COMP
FB
PSICOMP
VSEN
RTN
VWG
COMPG
FBG
RTNG
IMON
IMONG
SCOMP
ADDR
NTC
NTCG
GND
Bottom PAD.
Connect to GND through 8 VIAs
CLOSE L27
Close to L8
For VR_READY Power On Sequence
Elitegroup Computer Systems
DC/DC VCORE/VAXG1
Q77H2-AD
Tuesday, April 10, 2012
Sheet 44 of 49

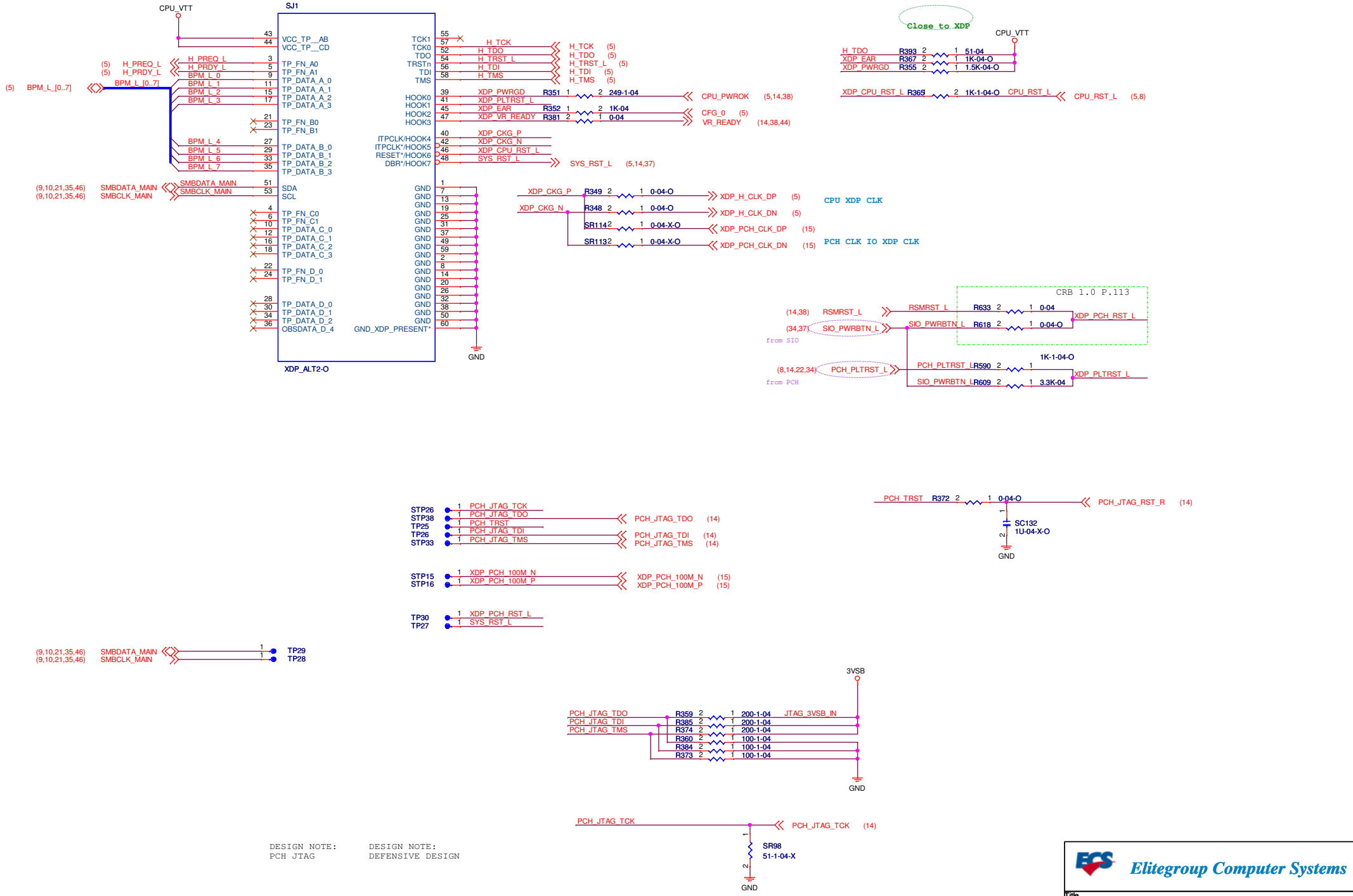


Elitegroup Computer Systems

Title: DC/DC VCORE/VAXG2

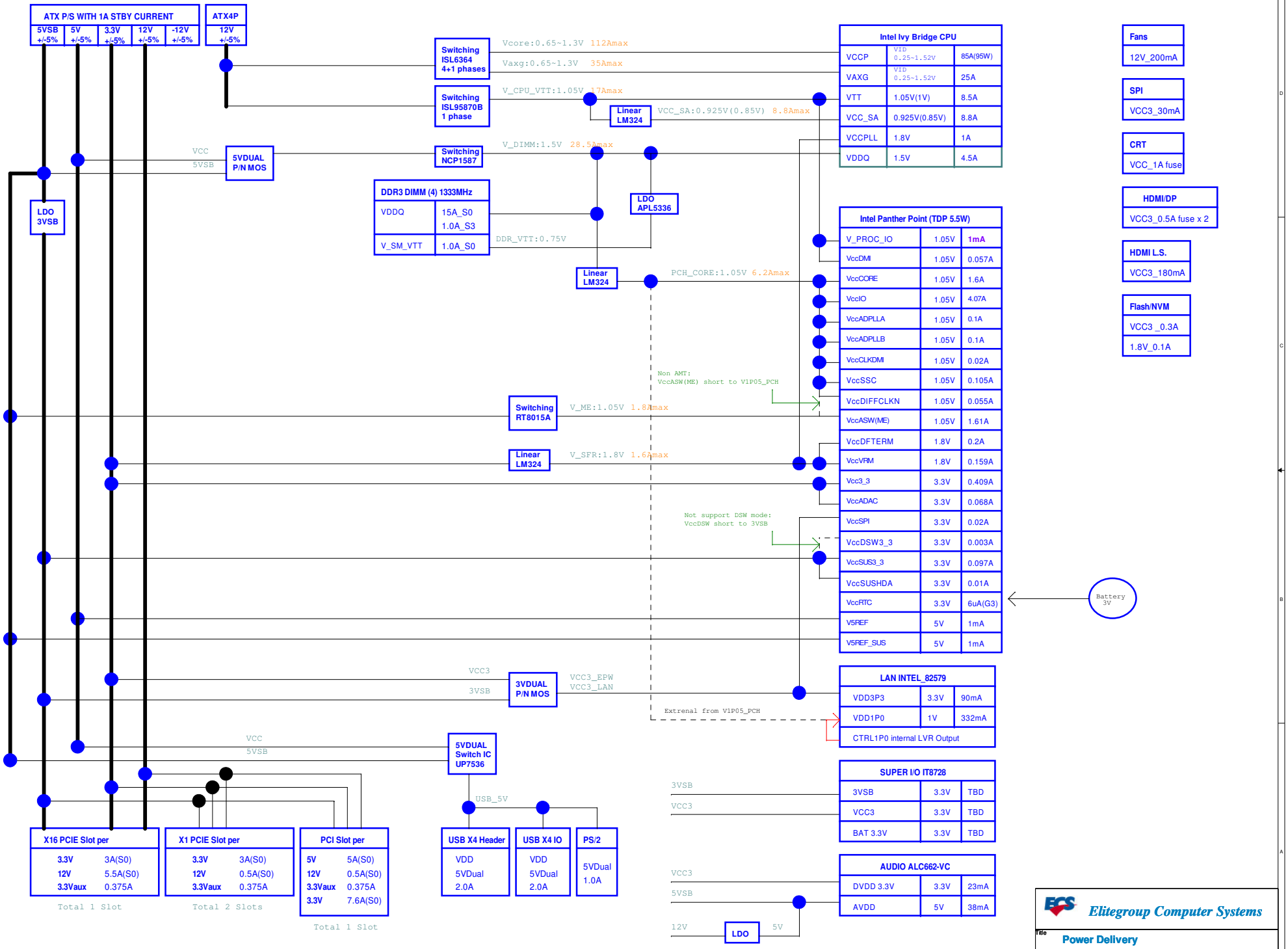
Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

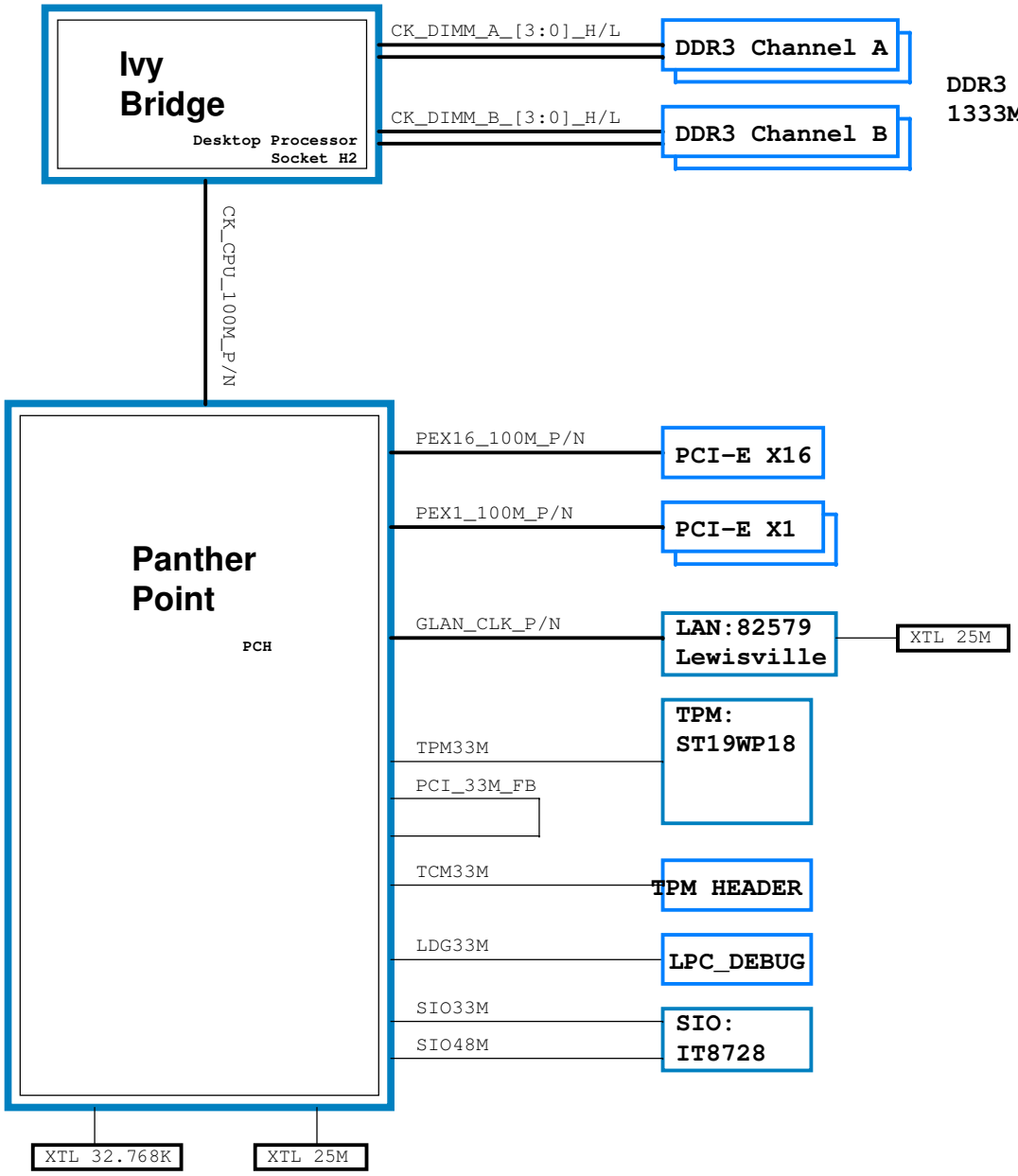
Date: Tuesday, April 10, 2012 | Sheet 45 of 49



Elitegroup Computer Systems

Title	XDP	
Size: Custom	Document Number: Q77H2-AD	Rev: 1.0
Date: Tuesday, April 10, 2012	Sheet 46 of 49	


ATX P/S WITH 1A STBY CURRENT
5VSB +/-5%
5V +/-5%
3.3V +/-5%
12V +/-5%
-12V +/-5%
ATX4P
12V +/-5%
Switching ISL6364 4+1 phases
Vcore:0.65~1.3V 112Amax
Vaxg:0.65~1.3V 35Amax
Switching ISL95870B 1 phase
V_CPU_VTT:1.05V 17Amax
Linear LM324
VCC_SA:0.925V(0.85V) 8.8Amax
Intel Ivy Bridge CPU
VCCP VID 0.25~1.52V 85A(95W)
VAXG VID 0.25~1.52V 25A
VTT 1.05V(1V) 8.5A
VCC_SA 0.925V(0.85V) 8.8A
VCCPLL 1.8V 1A
VDDQ 1.5V 4.5A
Fans
12V_200mA
SPI
VCC3_30mA
CRT
VCC_1A fuse
HDMI/DP
VCC3_0.5A fuse x 2
HDMI L.S.
VCC3_180mA
Flash/NVM
VCC3 _0.3A
1.8V_0.1A
VCC
5VSB
5VDUAL P/N MOS
Switching NCP1587
V_DIMM:1.5V 28.5Amax
LDO 3VSB
DDR3 DIMM (4) 1333MHz
VDDQ 15A_S0 1.0A_S3
V_SM_VTT 1.0A_S0
LDO APL5336
DDR_VTT:0.75V
Linear LM324
PCH_CORE:1.05V 6.2Amax
Intel Panther Point (TDP 5.5W)
V_PROC_IO 1.05V 1mA
VccDMI 1.05V 0.057A
VccCORE 1.05V 1.6A
VccIO 1.05V 4.07A
VccADPLLA 1.05V 0.1A
VccADPLLB 1.05V 0.1A
VccCLKDMI 1.05V 0.02A
VccSSC 1.05V 0.105A
VccDIFFCLKN 1.05V 0.055A
VccASW(ME) 1.05V 1.61A
VccDFTERM 1.8V 0.2A
VccVRM 1.8V 0.159A
Vcc3_3 3.3V 0.409A
VccADAC 3.3V 0.068A
VccSPI 3.3V 0.02A
VccDSW3_3 3.3V 0.003A
VccSUS3_3 3.3V 0.097A
VccSUSHDA 3.3V 0.01A
VccRTC 3.3V 6uA(G3)
V5REF 5V 1mA
V5REF_SUS 5V 1mA
Non AMT:
VccASW(ME) short to V1P05_PCH
Switching RT8015A
V_ME:1.05V 1.8Amax
Linear LM324
V_SFR:1.8V 1.6Amax
Not support DSW mode:
VccDSW short to 3VSB
Battery 3V
VCC3
3VSB
3VDUAL P/N MOS
VCC3_EPW
VCC3_LAN
Extrenal from V1P05_PCH
LAN INTEL_82579
VDD3P3 3.3V 90mA
VDD1P0 1V 332mA
CTRL1P0 internal LVR Output
VCC
5VSB
5VDUAL Switch IC UP7536
USB_5V
3VSB
VCC3
SUPER I/O IT8728
3VSB 3.3V TBD
VCC3 3.3V TBD
BAT 3.3V 3.3V TBD
X16 PCIE Slot per
3.3V 3A(S0)
12V 5.5A(S0)
3.3Vaux 0.375A
Total 1 Slot
X1 PCIE Slot per
3.3V 3A(S0)
12V 0.5A(S0)
3.3Vaux 0.375A
Total 2 Slots
PCI Slot per
5V 5A(S0)
12V 0.5A(S0)
3.3Vaux 0.375A
3.3V 7.6A(S0)
Total 1 Slot
USB X4 Header
VDD 5VDual 2.0A
USB X4 IO
VDD 5VDual 2.0A
PS/2
5VDual 1.0A
VCC3
5VSB
12V
LDO
5V
AUDIO ALC662-VC
DVDD 3.3V 3.3V 23mA
AVDD 5V 38mA
Elitegroup Computer Systems
Title
Power Delivery
Size C
Document Number Q77H2-AD
Rev 1.0
Date: Tuesday, April 10, 2012
Sheet 47 of 49



Elitegroup Computer Systems

Title: Clock Distribution

Size: Custom | Document Number: Q77H2-AD | Rev: 1.0

Date: Tuesday, April 10, 2012 | Sheet 49 of 49