KL1 BLOCK DIAGRAM

01

PCB STACK UP
8L

- LAYER 1 : TOP
- LAYER 2 : SGND1
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : IN3
- LAYER 7 : SGND2
- LAYER 8 : BOT

CPU (Penryn)
478P (uPGA)/35W
PAGE 4,5

CPU THERMAL SENSOR
PAGE 5

CPU CORE(MAX17021)
PAGE 41

FSB 667/800/1066

14.318MHz
CLOCK GEN
ICS9LPRS365BGLFT
PAGE 3

CLK_CPU_BCLK,CLK_CPU_BCLK#
CLK_MCH_BCLK,CLK_MCH_BCLK#
DREFCLK,DREFCLK#
DREFSSCLK,DREFSSCLK#

VCCP +1.05V AND GMCH +1.5V(RT8204)
PAGE 28

PCI-Express 1X

Level-Shifter(PS8101)
PAGE 22

GDDR3 X 2 (256MB)
PAGE 18

GDDR3 X 2 (256MB)
PAGE 19

FBA
FBC

NORTH BRIDGE
Cantiga
PAGE 6~10

27MHz

NVIDIA
N10M-GS1(64bit)
N10P-GE1(128bit)
PAGE 13~19

HDMI CONN
PAGE 22

CRT CONN
PAGE 20

VGACORE(OZ8119)
PAGE 42

LCD CONN
PAGE 21

Single link

PCI-Express 16X

DDR III (TPS51116REGR)
1.5VSUS/SMDDR_VTERM
/SMDDR_VREF
PAGE 39

DDRIII-SODIMM1
PAGE 11

DDRIII-SODIMM2
PAGE 12

DDRIII 800/1066 MHz
DDRIII 800/1066 MHz

DMI LINK

32.768KHz

NBSRCCLK, NBSRCCLK#

USB2.0

SOUTH BRIDGE
ICH-9M
PAGE 23,24,25,26

SATA - HDD
PAGE 35

SATA - CD-ROM
PAGE 35

USB+eSATA
PAGE 32

SATA0 150MB
SATA1 150MB
SATA5 150MB

0,1,8
USB2.0 Ports X3
PAGE 32

9
USB+eSATA Port X1
PAGE 32

4
BlueTooth
PAGE 36

2
CCD Module
PAGE 37

6,10,11
Mini PCI-E Card X 2 Express Card
PAGE 33,36

PCI-E

Azalia

X2
Mini PCI-E Card
(WLAN/ WWAN)
PAGE 33

X1
LAN
BCM5784M
(10/100/1G LAN)
PAGE 29,30

X1
Express Card
(NEW CARD)
PAGE 36

X1
Card Reader
JMB380
PAGE 27

24.576MHz

25MHz

RJ45 CONN
PAGE 30

1394 CONN
PAGE 27

6-IN-1 Card Reader CONN
PAGE 28

AUDIO CODEC
ALC269Q-GR
PAGE 31

Digital MIC
(Internal MIC)
PAGE 31

Audio Jack
(External MIC)
PAGE 31

Head-Phone Jack
+ SPDIF
PAGE 31

SYSTEM POWER(ISL6237)
PAGE 40

SYSTEM CHARGER(ISL6251A)
PAGE 28

32.768KHz

LPC

EC
IT8512E
PAGE 34

Touch Pad
PAGE 36

Keyboard
PAGE 37

CIR
PAGE 34

FAN
PAGE 37

SPI BIOS
PAGE 34

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Quanta Computer Inc.

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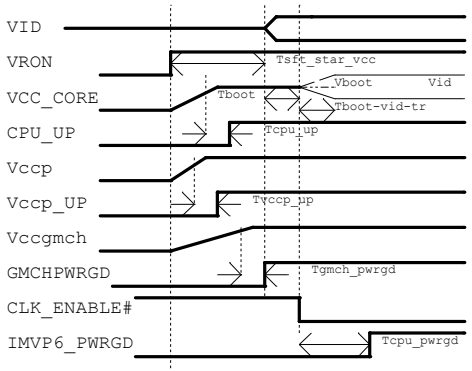
Board Stack up Description

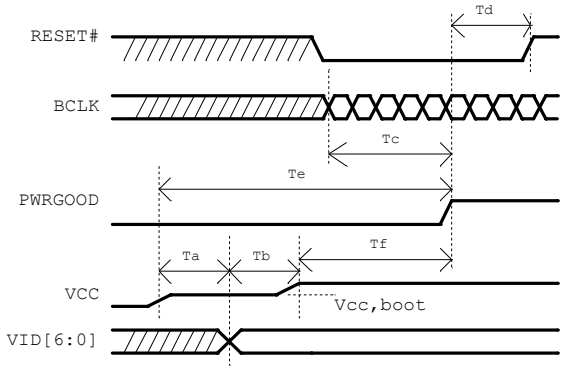
PCB Layers

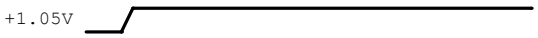
Layer 1		TOP
Layer 2		GND
Layer 3		IN1
Layer 4		IN2
Layer 5		SVCC
Layer 6		IN3
Layer 7		GND
Layer 8		BOTTOM

Power On Sequencing Timing Diagram



Penryn Power-up Timing Specifications



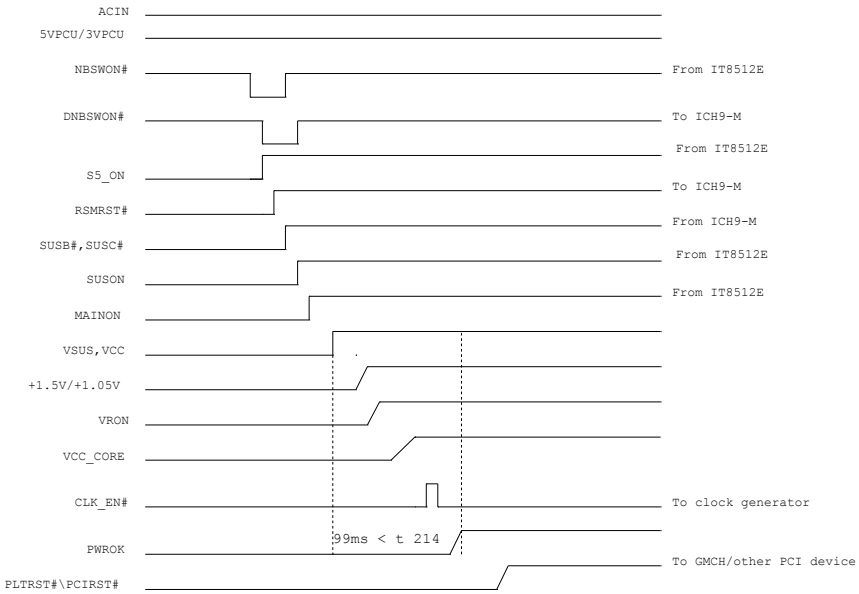


Ta=VCC and VCCP asseration to VID[6:0] vaild
Tb=VID[6:0] stable to VCC vaild
Tc=BCLK stable to PWRGOOD assertion
Td=PWRGOOD to RESET# de-assertion time
Te=Vcc,boot vaild to PWRGOOD assertion time

Voltage Rails

Voltage Rails	ON S0~S2	ON S3	ON S4	ON S5	Control signal
VCC_CORE	V				VRON
+1.5V	V				MAINON
+1.05V	V				MAINON
5V_S5/3V_S5	V	V	V	V	S5_ON
5VSUS/3VSUS/1.5VSUS	V	V			SUSON
SMDDR_VTERM/+3V/+5V/+15V/+1.8V	V				MAINON
+VGACORE/+VGA1.1V	V				MAINON
LANVCC	V	V			LAN_ON
3VPCU	V	V	V	V	VL
5VPCU	V	V	V	V	VL

ACIN POWER ON TIMING



PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SYSTEM INFORMATION	A1A

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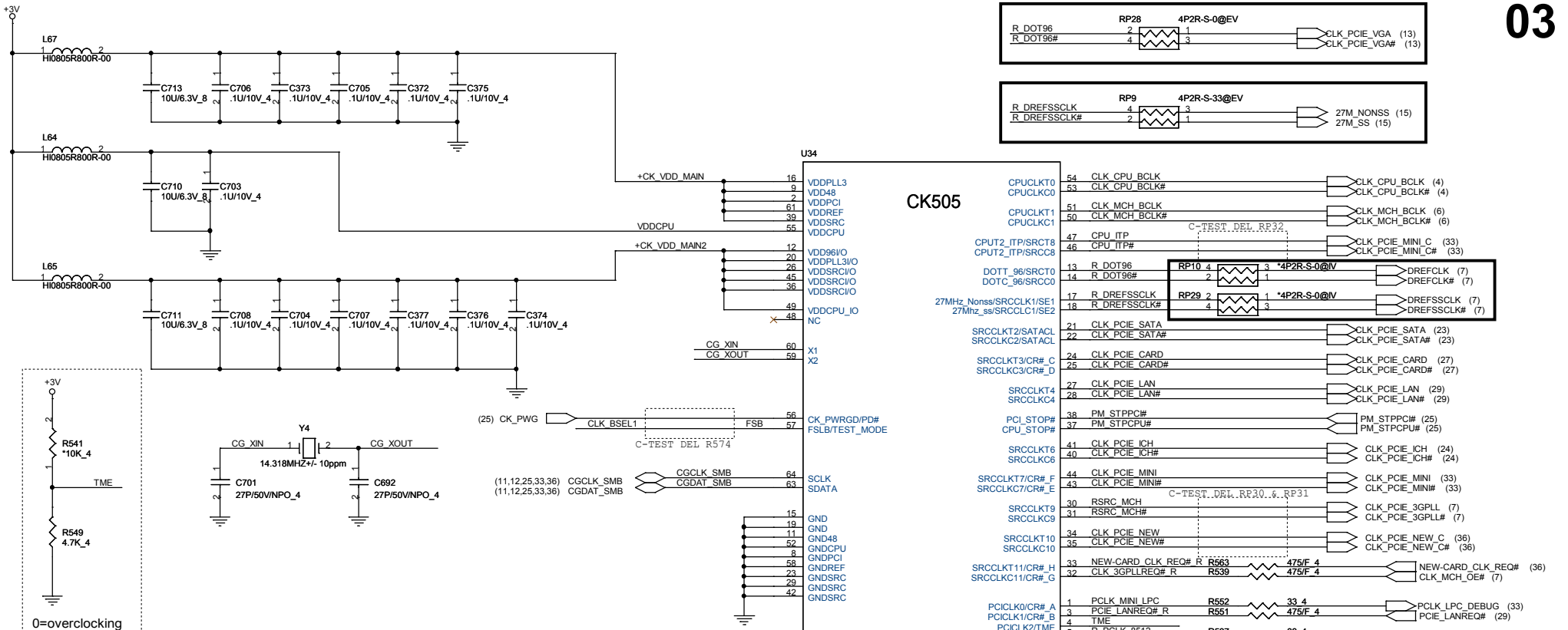
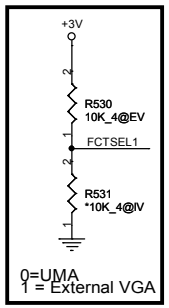
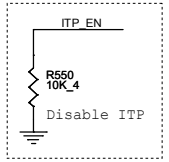






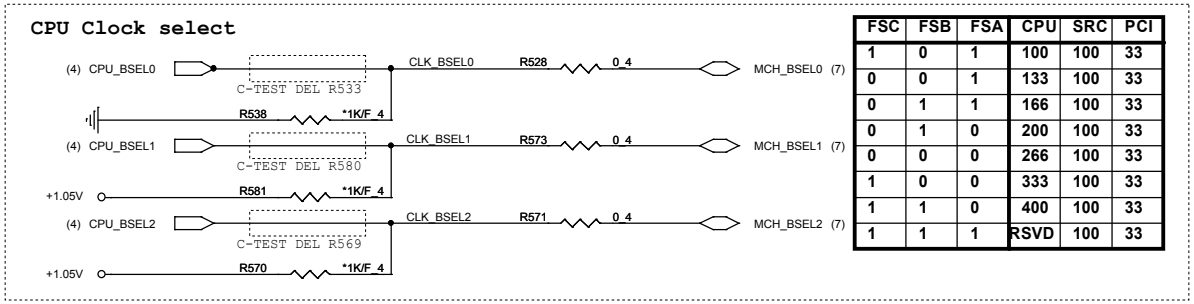
GCLK_SEL = FCTSEL1

FCTSEL1 (PIN13)	PIN13	PIN14	PIN17	PIN18
0=UMA	DOT96T	DOT96C	SRCT1/LCDT_100	SRCT1/LCDT_100
1 = External VGA	SRCT0	SRCC0	27Mout-NSS	27Mout-SS

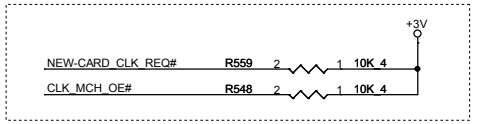
CK505 TSSOP64

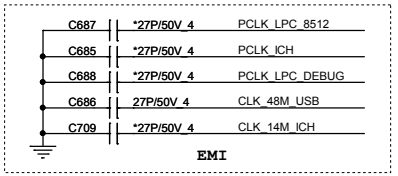
Realtek RTM875T-606-VD-GRT AL000875K00

ICS ICS9LPRS365BGLFT ALPRS365K13



FSC	FSB	FSA	CPU	SRC	PCI
1	0	1	100	100	33
0	0	1	133	100	33
0	1	1	166	100	33
0	1	0	200	100	33
0	0	0	266	100	33
1	0	0	333	100	33
1	1	0	400	100	33
1	1	1	RSVD	100	33





PROJECT : KL1
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Size	Document Number	Rev
Custom	CLOCK GENERATOR	A1A
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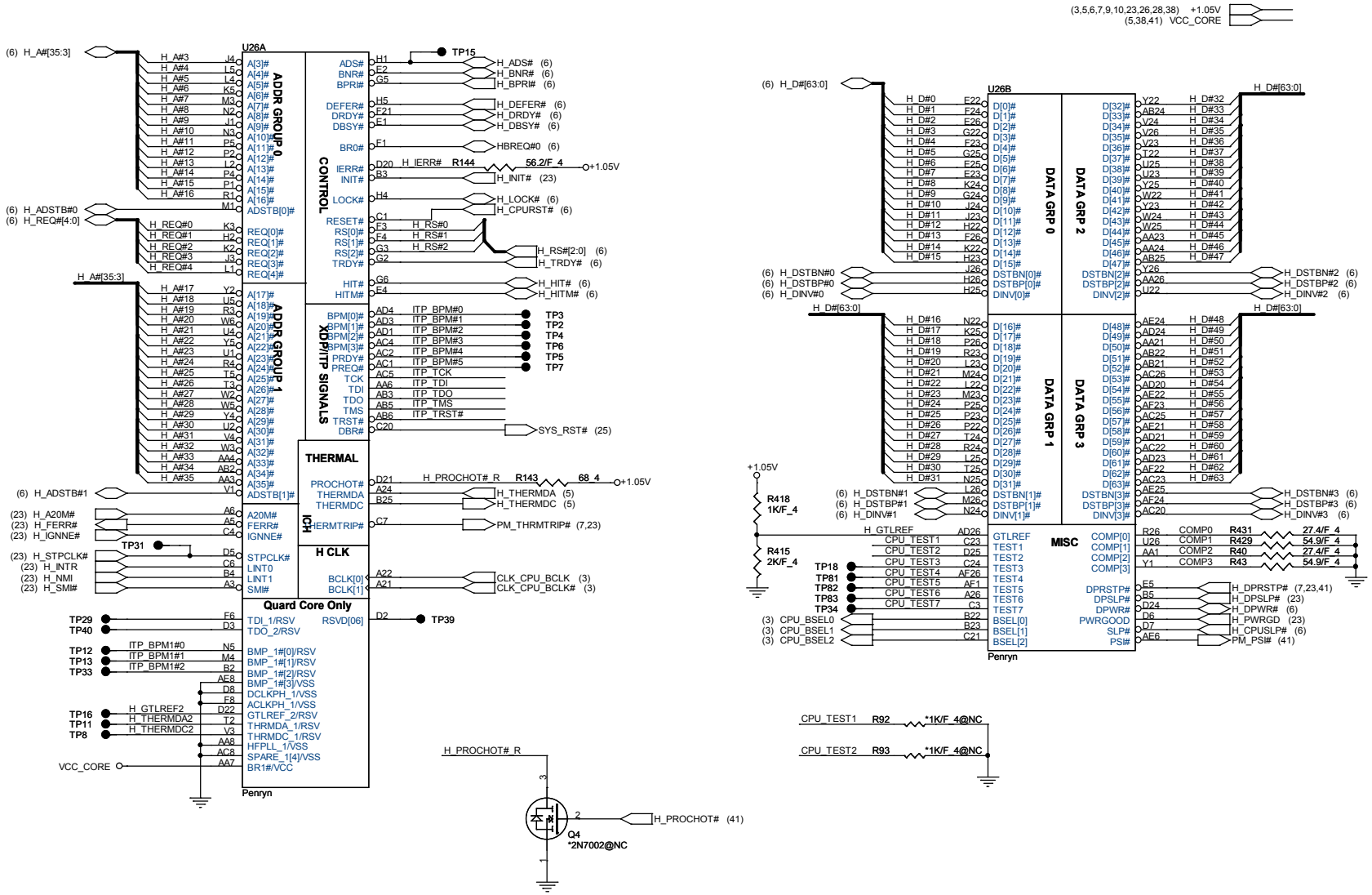
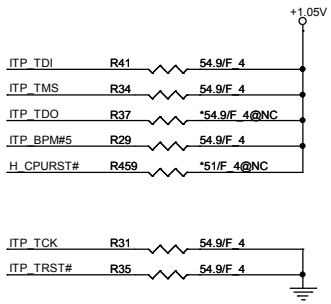


Populate ITP700Flex for bringup



PROJECT : KL1
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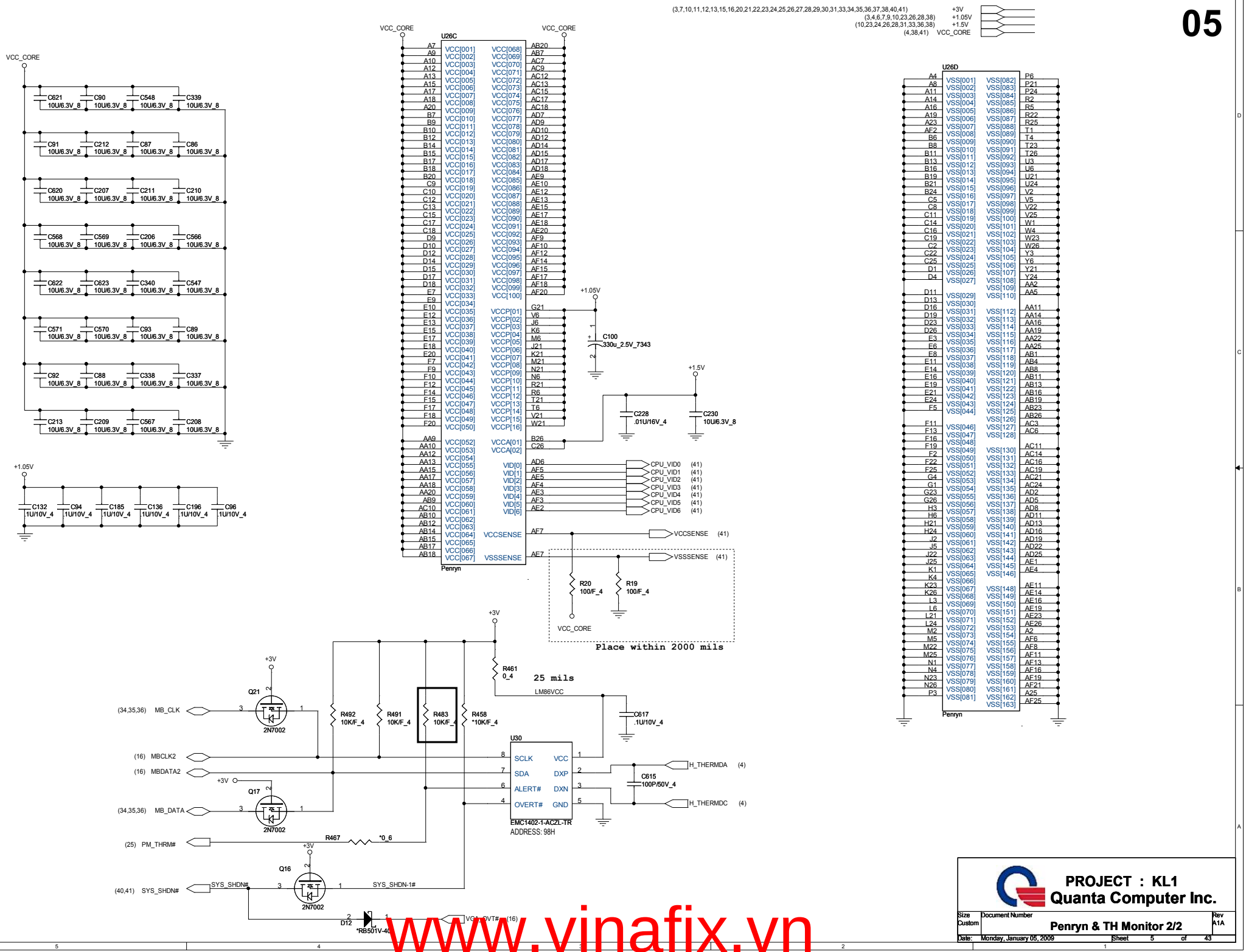
Size	Document Number	Rev
Custom	Penryn 1/2	A1A
Date: Monday, January 05, 2009	Sheet 4 of 43	



PROJECT : KL1
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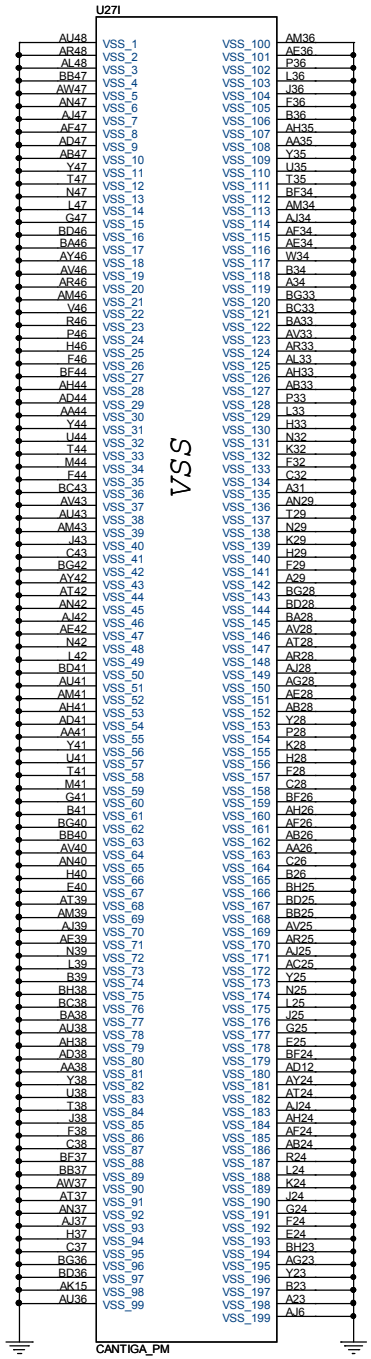
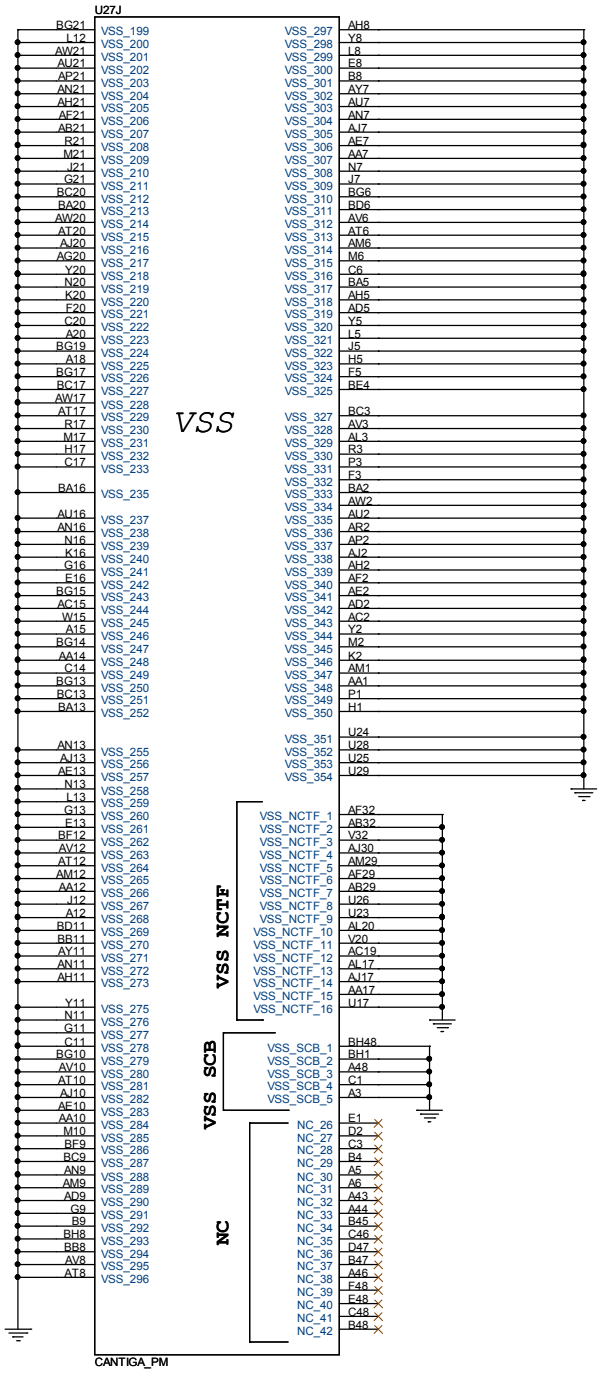
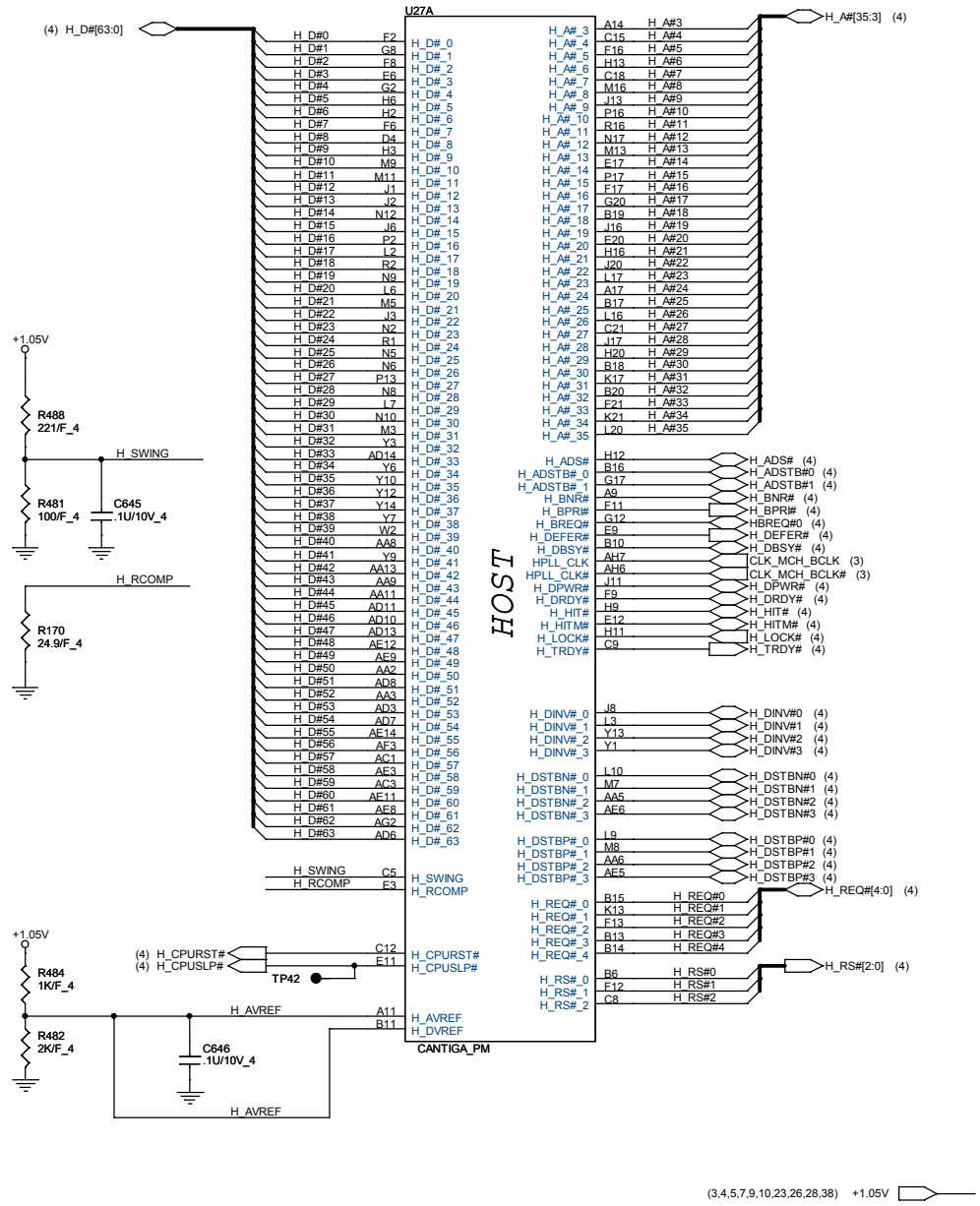
Size	Document Number	Rev
Custom	Penryn & TH Monitor 2/2	A1A
Date: Monday, January 05, 2009	Sheet 5 of 43	







Size: Custom	Document Number: Cantiga Host & VSS 1/5		Rev: A1A
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PROJECT : KL1
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MCH_CFG_5 DMIx2 selection

Low: DMIx2
High: DMIx4 (Default)

MCH_CFG_16 FSB Dynamic ODT

Low: Dynamic ODT disabled
High: Dynamic ODT enabled (Default)

MCH_CFG_9 PCI Express Graphic Lane

Low: Reverse Lane
High: Normal operation(Default)

MCH_CFG_19 DMI Lane Reversal

Low: Normal (Default)
High: Lane Reserved

MCH_CFG_6 iTPM Host Interface

Low: iTPM Host Interface enabled
High: iTPM Host Interface disabled (Default)

MCH_CFG_7 Intel (R) Management Engine Crypto

Low: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality
High: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality (Default)

MCH_CFG_10 PCIe Lookback Enable

Low: Enabled
High: Disabled (Default)

MCH_CFG_12/13 XOR/ALLZ/CLOCK Un-gating

MCH_CFG_13	MCH_CFG_12	Configuration
0	0	Reserved
1	0	XOR Mode enabled
0	1	All-Z Mode enabled
1	1	Normal operation (Default)

U27B

RSVD
CLK / DDR CLK / CONTROL/COMPENSATION
ME JTAG
CFG
DMI
GRAPHICS VID
PM
ME
MISC
NC
HDA

CANTIGA_PM

U27C

LVDS
TV
VGA
PCI-EXPRESS GRAPHICS

UMA & Discrete setting
LVDS Discrete / UMA
R120 NC 10K
R131 NC 10K

LVDS Discrete / UMA
R474 NC 2.37K
UMA & Discrete setting

UMA & Discrete setting
CRT/TV Discrete / UMA

R171	0	75
R156	0	75
R142	0	75
R173	NC	0
R161	NC	0
R159	0	150
R158	0	150
R149	0	150
R147	NC	33
R160	0	1.02K
R133	NC	33

UMA & Discrete setting
Discrete DREFCLK/ DREFCLK# 0Ω
Discrete DREFSSCLK/ DREFSSCLK# 0Ω
UMA DREFCLK/ DREFCLK# NC
UMA DREFSSCLK/ DREFSSCLK# NC

For UMA HDMI Function

C626,C612,C609,C605
C627,C616,C611,C607
Need to install for GM45

HPD# Inverting Level Shifting Circuit

PROJECT : KL1
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Cantiga DMI/DISP 2/5

Size: Document Number: Rev: A1A
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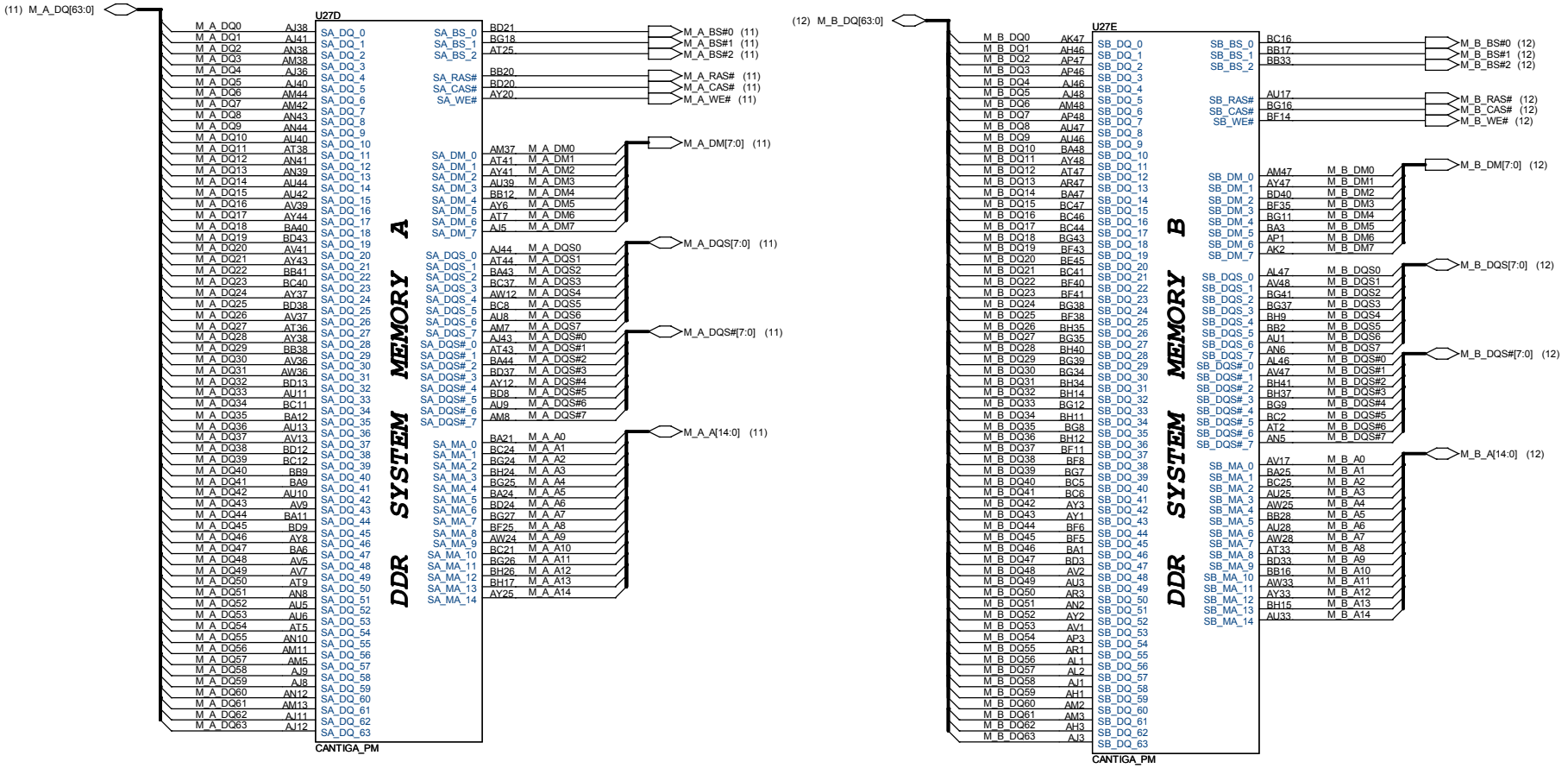

PROJECT : KL1
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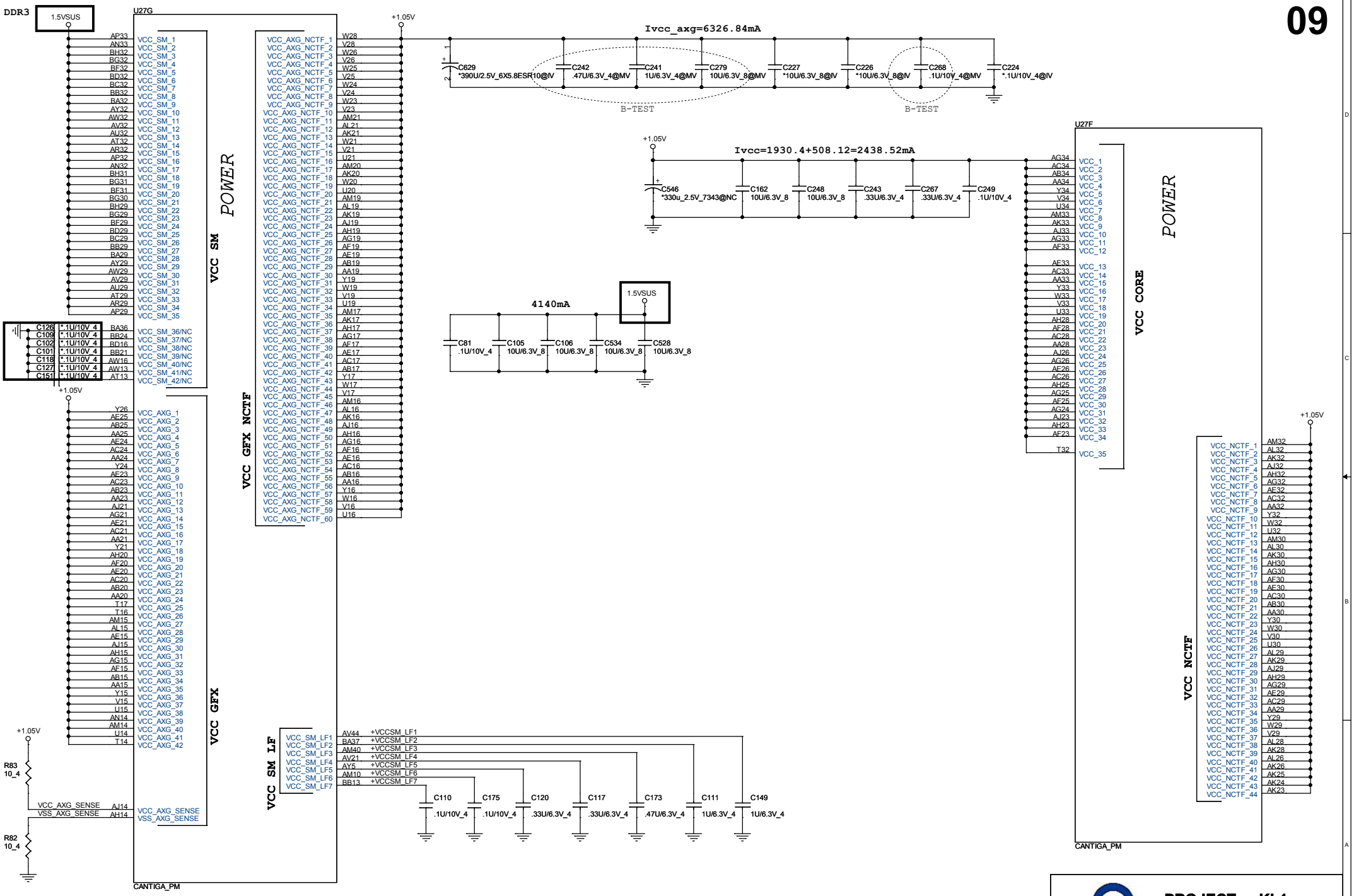
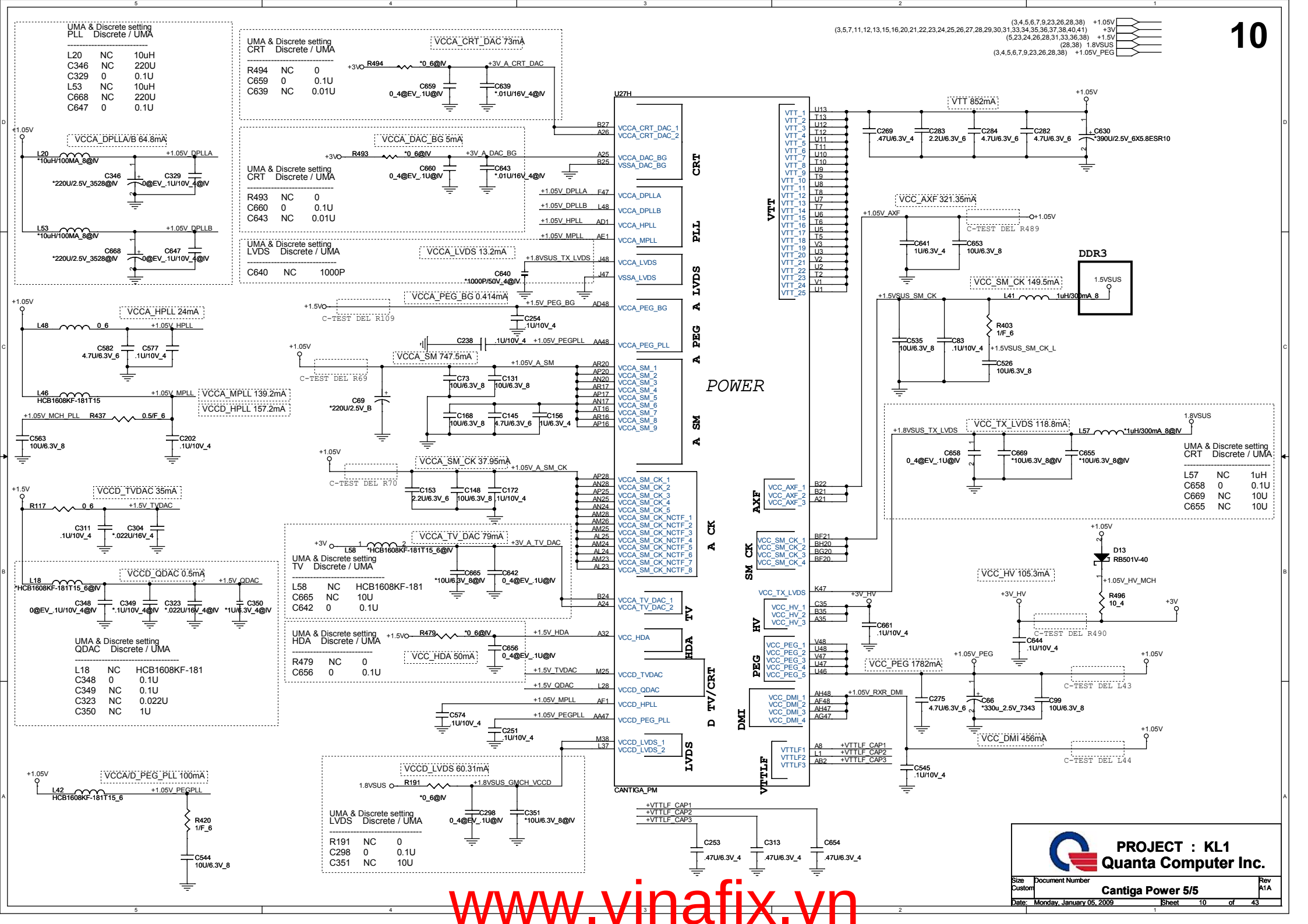
Size	Document Number	Rev
Custom	Cantiga DDR3 3/5	A1A
Date: Monday, January 05, 2009	Sheet 8 of 43	



PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Cantiga Vcc 4/5	A1A
Date: Monday, January 05, 2009	Sheet 9 of 43	


10
UMA & Discrete setting
PLL Discrete / UMA
L20 NC 10uH
C346 NC 220U
C329 0 0.1U
L53 NC 10uH
C668 NC 220U
C647 0 0.1U
VCCA_DPLLA/B 64.8mA
L20 *10uH/100MA_8@IV
C346 *220U/2.5V_3528@IV
C329 0@EV_.1U/10V_4@IV
L53 *10uH/100MA_8@IV
C668 *220U/2.5V_3528@IV
C647 0@EV_.1U/10V_4@IV
+1.05V_DPLLA
+1.05V_DPLLB
UMA & Discrete setting
CRT Discrete / UMA
R494 NC 0
C659 0 0.1U
C639 NC 0.01U
VCCA_CRT_DAC 73mA
R494 *0_6@IV
C659 0_4@EV_.1U@IV
C639 *.01U/16V_4@IV
+3V_A_CRT_DAC
UMA & Discrete setting
CRT Discrete / UMA
R493 NC 0
C660 0 0.1U
C643 NC 0.01U
VCCA_DAC_BG 5mA
R493 *0_6@IV
C660 0_4@EV_.1U@IV
C643 *.01U/16V_4@IV
+3V_A_DAC_BG
UMA & Discrete setting
LVDS Discrete / UMA
C640 NC 1000P
VCCA_LVDS 13.2mA
C640 *1000P/50V_4@IV
+1.8VSUS_TX_LVDS
VCCA_PEG_BG 0.414mA
C-TEST DEL R109
C254 .1U/10V_4
+1.5V_PEG_BG
C238 .1U/10V_4
+1.05V_PEGPLL
VCCA_SM 747.5mA
C-TEST DEL R69
C69 *220U/2.5V_B
C73 10U/6.3V_8
C131 10U/6.3V_8
C168 10U/6.3V_8
C145 4.7U/6.3V_6
C156 1U/6.3V_4
+1.05V_A_SM
VCCA_SM_CK 37.95mA
C-TEST DEL R70
C153 2.2U/6.3V_6
C148 10U/6.3V_8
C172 1U/10V_4
+1.05V_A_SM_CK
VCCA_HPLL 24mA
L48 0_6
C582 4.7U/6.3V_6
C577 .1U/10V_4
VCCA_MPLL 139.2mA
VCCD_HPLL 157.2mA
L46 HCB1608KF-181T15
R437 0.5/F_6
C563 10U/6.3V_8
C202 .1U/10V_4
VCCD_TVDAC 35mA
R117 0_6
C311 .1U/10V_4
C304 *.022U/16V_4
VCCD_QDAC 0.5mA
L18 *HCB1608KF-181T15_6@IV
C348 0@EV_.1U/10V_4@IV
C349 *.1U/10V_4@IV
C323 *.022U/16V_4@IV
C350 *1U/6.3V_4@IV
UMA & Discrete setting
QDAC Discrete / UMA
L18 NC HCB1608KF-181
C348 0 0.1U
C349 NC 0.1U
C323 NC 0.022U
C350 NC 1U
VCCA_TV_DAC 79mA
L58 *HCB1608KF-181T15_6@IV
C665 *10U/6.3V_8@IV
C642 0_4@EV_.1U@IV
+3V_A_TV_DAC
UMA & Discrete setting
TV Discrete / UMA
L58 NC HCB1608KF-181
C665 NC 10U
C642 0 0.1U
UMA & Discrete setting
HDA Discrete / UMA
R479 NC 0
C656 0 0.1U
VCC_HDA 50mA
R479 *0_6@IV
C656 0_4@EV_.1U@IV
+1.5V_HDA
+1.5V_TVDAC
+1.5V_QDAC
+1.05V_MPLL
+1.05V_PEGPLL
C574 .1U/10V_4
C251 .1U/10V_4
VCCD_LVDS 60.31mA
R191 *0_6@IV
C298 0_4@EV_.1U@IV
C351 *10U/6.3V_8@IV
+1.8VSUS_GMCH_VCCD
UMA & Discrete setting
LVDS Discrete / UMA
R191 NC 0
C298 0 0.1U
C351 NC 10U
VCCA/D_PEG_PLL 100mA
L42 HCB1608KF-181T15_6
R420 1/F_6
C544 10U/6.3V_8
+1.05V_PEGPLL
U27H
CANTIGA_PM
CRT
PLL
LVDS
A PEG
A SM
A CK
TV
HDA
TV/CRT
D
POWER
VTT
AXF
SM CK
HV
PEG
DMI
VTTLF
VTT 852mA
C269 .47U/6.3V_4
C283 2.2U/6.3V_6
C284 4.7U/6.3V_6
C282 4.7U/6.3V_6
C630 *390U/2.5V_6X5.8ESR10
VCC_AXF 321.35mA
C-TEST DEL R489
C641 1U/6.3V_4
C653 10U/6.3V_8
DDR3
1.5VSUS
VCC_SM_CK 149.5mA
L41 1uH/300mA_8
C535 10U/6.3V_8
C83 .1U/10V_4
R403 1/F_6
C526 10U/6.3V_8
VCC_TX_LVDS 118.8mA
L57 *1uH/300mA_8@IV
C658 0_4@EV_.1U@IV
C669 *10U/6.3V_8@IV
C655 *10U/6.3V_8@IV
UMA & Discrete setting
CRT Discrete / UMA
L57 NC 1uH
C658 0 0.1U
C669 NC 10U
C655 NC 10U
VCC_HV 105.3mA
D13 RB501V-40
R496 10_4
C-TEST DEL R490
C661 .1U/10V_4
C644 .1U/10V_4
VCC_PEG 1782mA
C-TEST DEL L43
C275 4.7U/6.3V_6
C66 *330u_2.5V_7343
C99 10U/6.3V_8
VCC_DMI 456mA
C-TEST DEL L44
C545 .1U/10V_4
C253 .47U/6.3V_4
C313 .47U/6.3V_4
C654 .47U/6.3V_4
PROJECT : KL1
Quanta Computer Inc.
Size Custom
Document Number
Cantiga Power 5/5
Rev A1A
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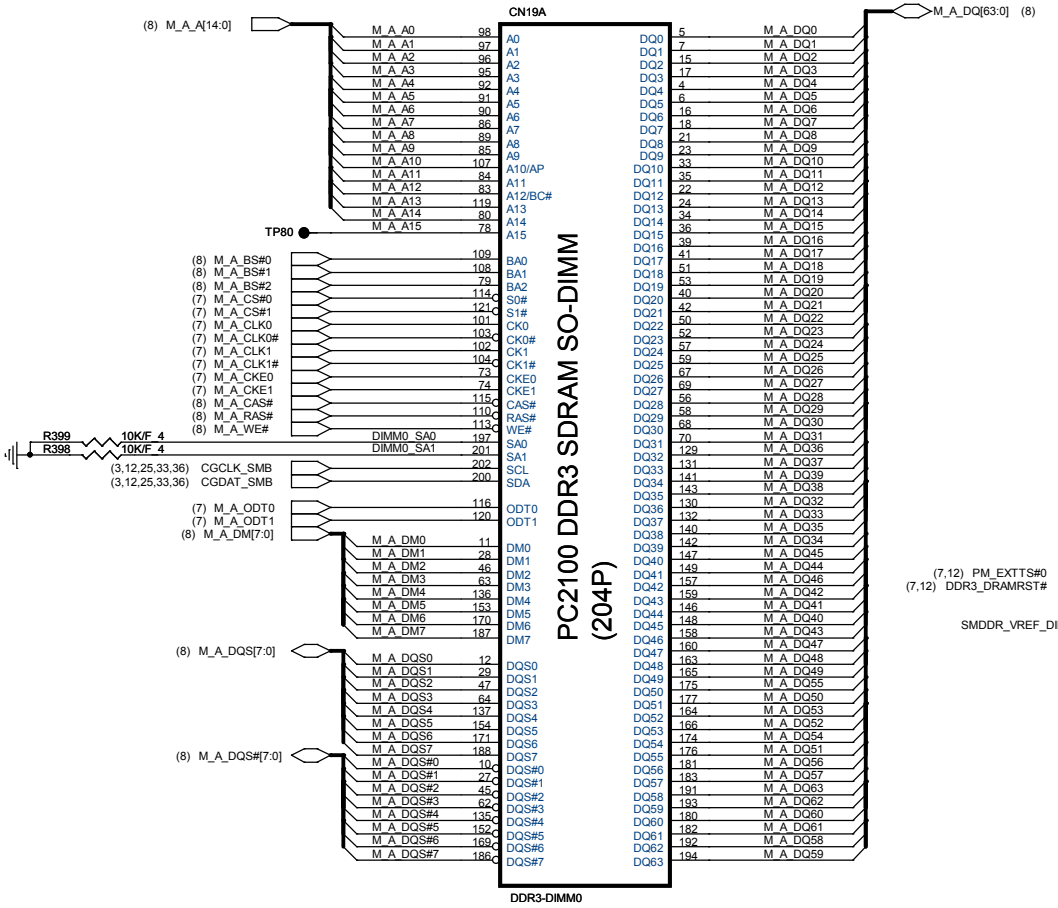
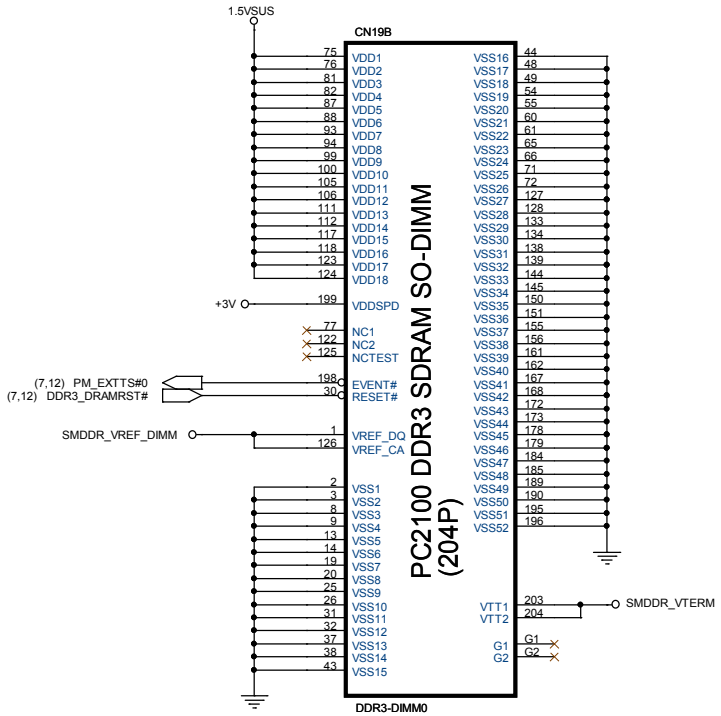
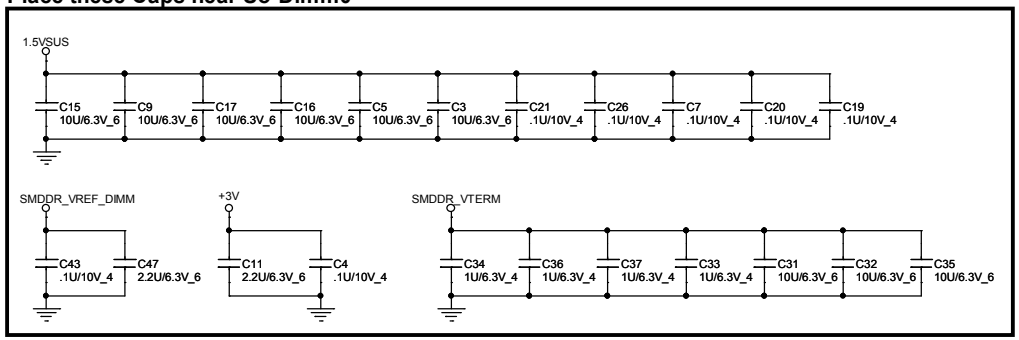
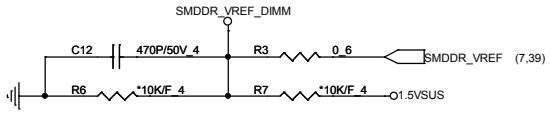




Place these Caps near So-Dimm0





PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 DIMM-0(H=5.2)	A1A
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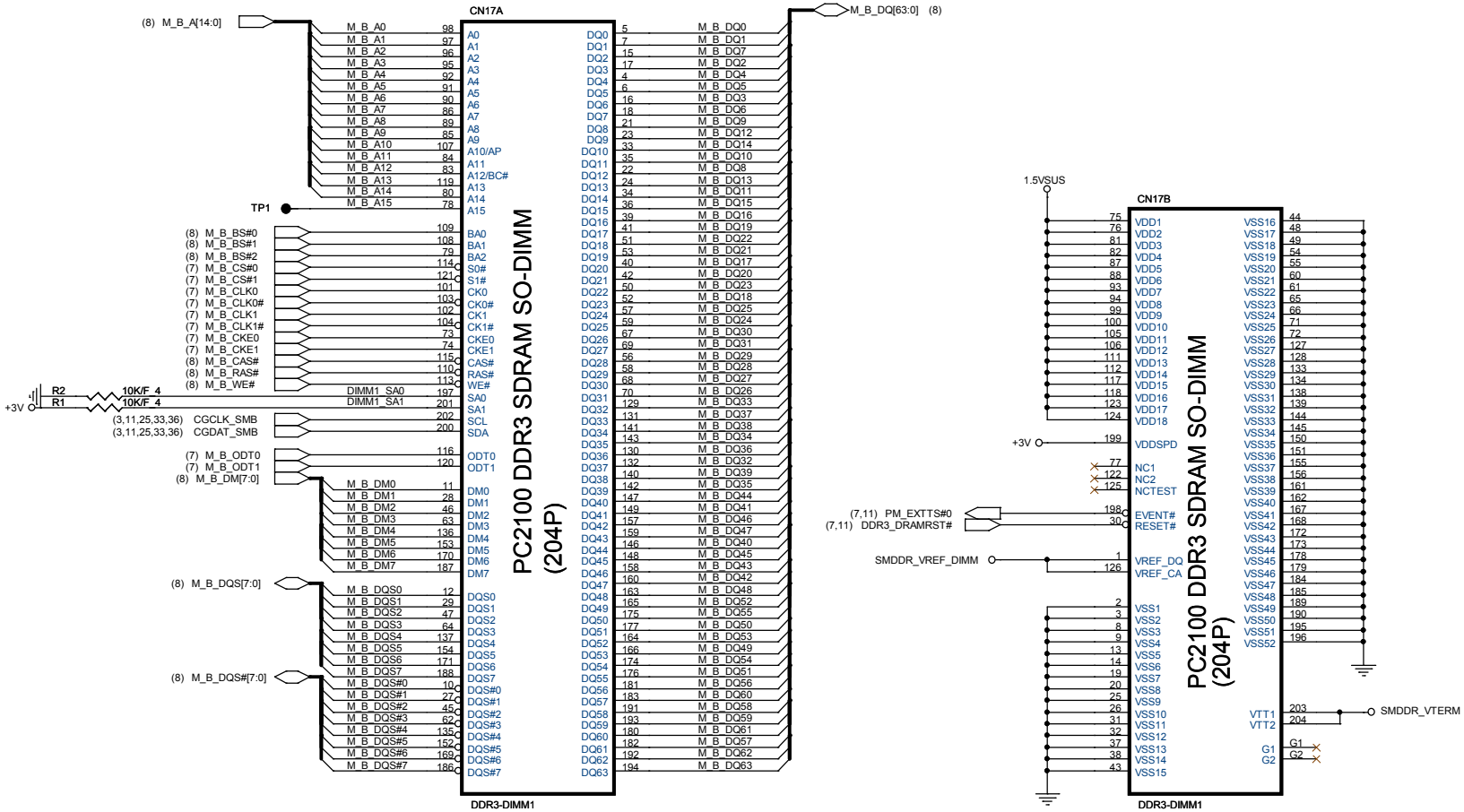
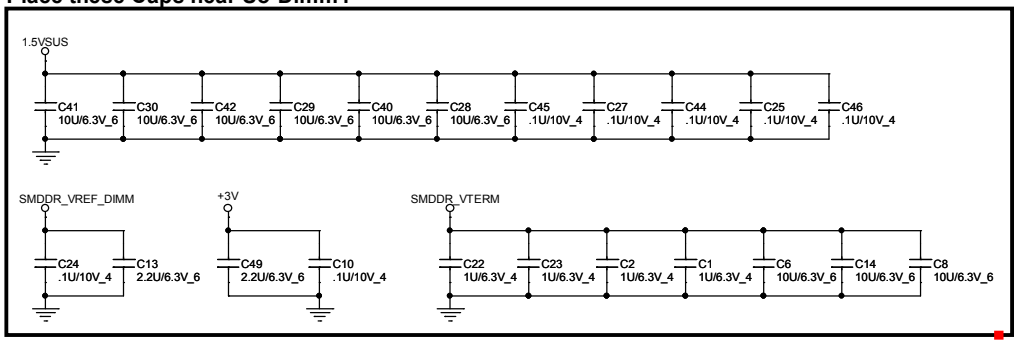


Place these Caps near So-Dimm1



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Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 DIMM-1(H=9.2)	A1A
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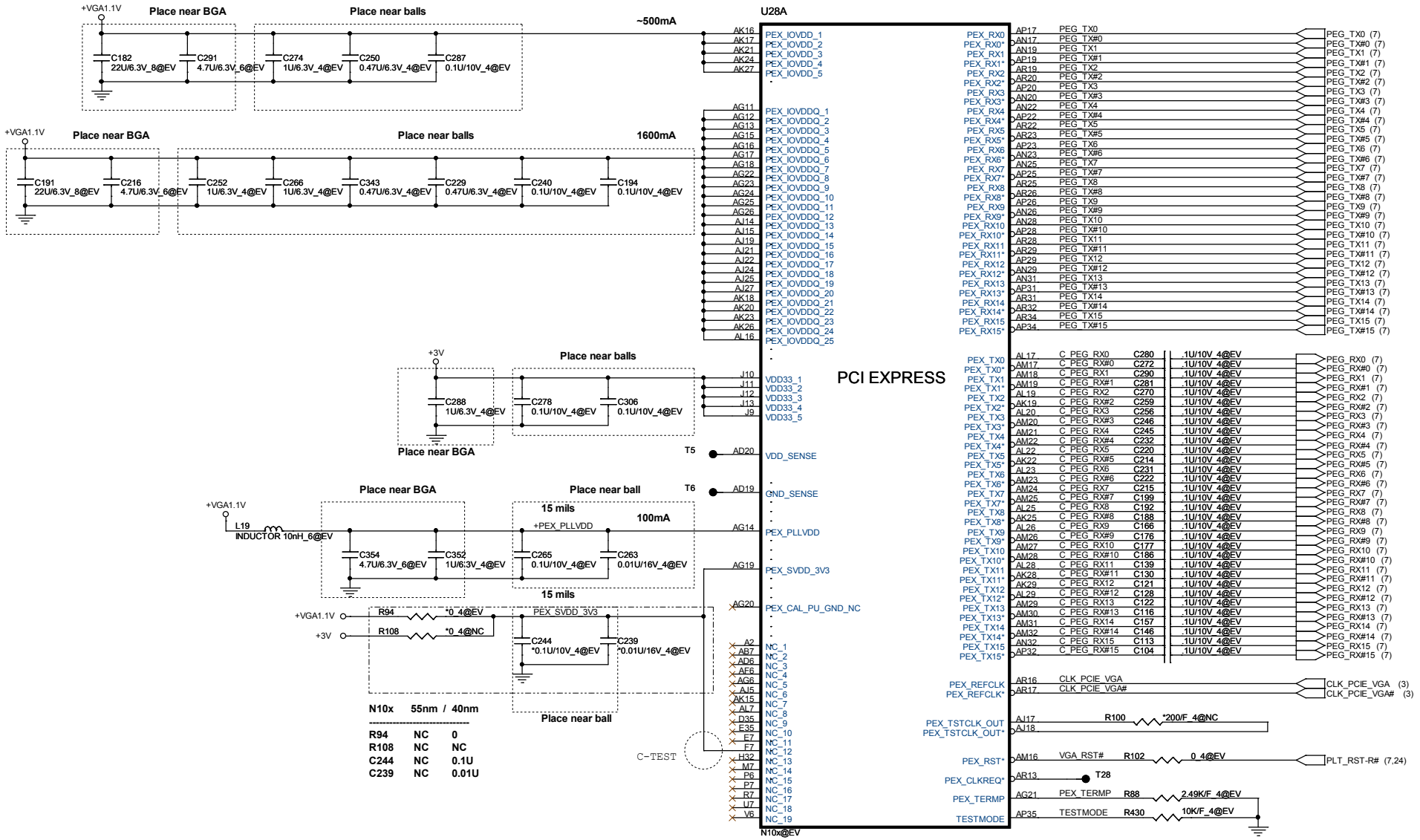
+VGA1.1V (14,15,38)
+3V (3,5,7,10,11,12,15,16,20,21,22,23,24,25,26,27,28,29,30,31,33,34,35,36,37,38,40,41)



Size	Document Number	Rev
Custom	NV10X (PCIE I/F) 1/5	A1A
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Quanta Computer Inc.

U28B

MEMORY I/F A

U28C

MEMORY I/F B

(18) FBA_CMD[29..0]
(18) VMA_DQ[63..0]
(18) VMA_DM[7..0]
(18) VMA_WDQS[7..0]
(18) VMA_RDQS[7..0]

(19) FBC_CMD[29..0]
(19) VMC_DQ[63..0]
(19) VMC_DM[7..0]
(19) VMC_WDQS[7..0]
(19) VMC_RDQS[7..0]

+1.8V (15,18,19,28,37,38)
+VGA1.1V (13,15,38)

FBA_CMD7 FBA_CMD15 FBA_CMD18

R50 *10K_4@EV
R55 10K_4@EV
R54 10K_4@EV

N10x	55nm / 40nm	
R50	NC	10K
R55	10K	10K
R54	10K	10K

FBC_CMD7 FBC_CMD15 FBC_CMD18

R63 *10K_4@EV
R80 10K_4@EV
R77 10K_4@EV

N10x	55nm / 40nm	
R63	NC	10K
R80	10K	10K
R77	10K	10K

Using internal Vref, ext divider no stuff

15 mils

R188 *549/F_4@NC
R181 *931/F_4@NC
R164 *1.33K/F_4@NC
C330 *0.01U/16V_4@NC
Q5 *2N7002E@NC
GDDR3_VREF_SW (16,18,19)

For Debug only

R66 60.4/F_4@EV

Place near balls

C247 0.01U/16V_4@EV
C225 0.1U/10V_4@EV
L11 HCB1608KF-181T15_6@EV
C147 1U/6.3V_4@EV
C165 4.7U/6.3V_6@EV

Place near BGA

N10x-55nm for GDDR3

R65 48.7/F_4@EV
R76 33.2/F_4@EV
R75 40.2/F_4@EV
R90 60.4/F_4@EV

Place near balls

C237 .1U/10V_4@EV
C181 .1U/10V_4@EV

N10x	55nm / 40nm	
C237	0.1U	NC
C181	0.1U	NC

C160 4.7U/6.3V_6@EV
C178 1U/6.3V_4@EV
C171 1U/6.3V_4@EV
C309 1U/6.3V_4@EV
C159 1U/6.3V_4@EV
C261 0.1U/10V_4@EV
C297 0.1U/10V_4@EV
C271 0.1U/10V_4@EV
C164 0.1U/10V_4@EV
C195 0.1U/10V_4@EV
C174 0.1U/10V_4@EV

Place near BGA
Place near balls

	N10M-55nm N10P-55nm	N10M-40nm N10P-40nm
Signal Name	GDDR3	GDDR3
FBCAL_PD_VDDQ	48.7 ohm	
FBCAL_PU_GND	33.2 ohm	
FBCAL_TERM_GND	40.2 ohm	

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Quanta Computer Inc.

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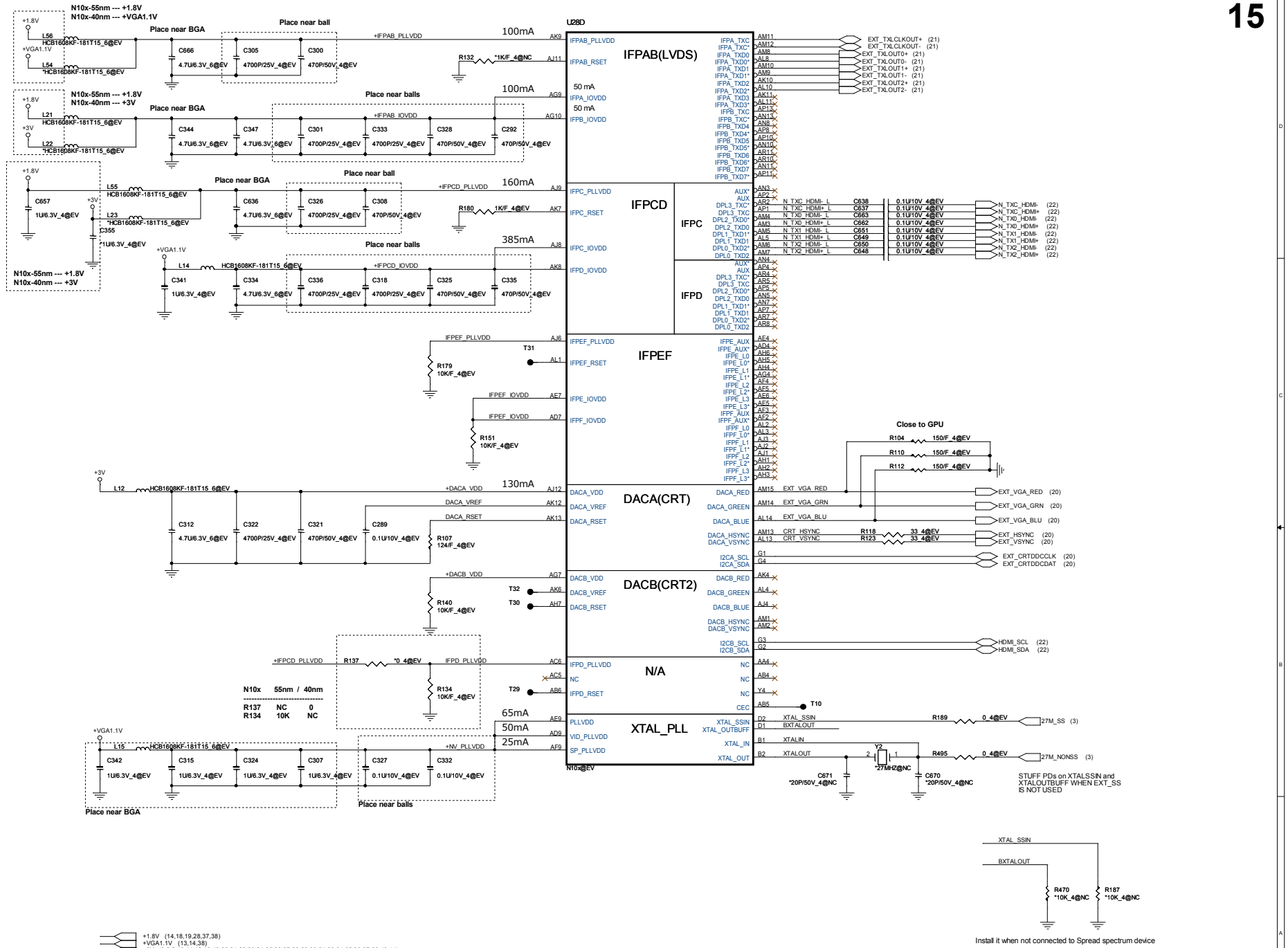

PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X (DISPLAY) 3/5	A1A
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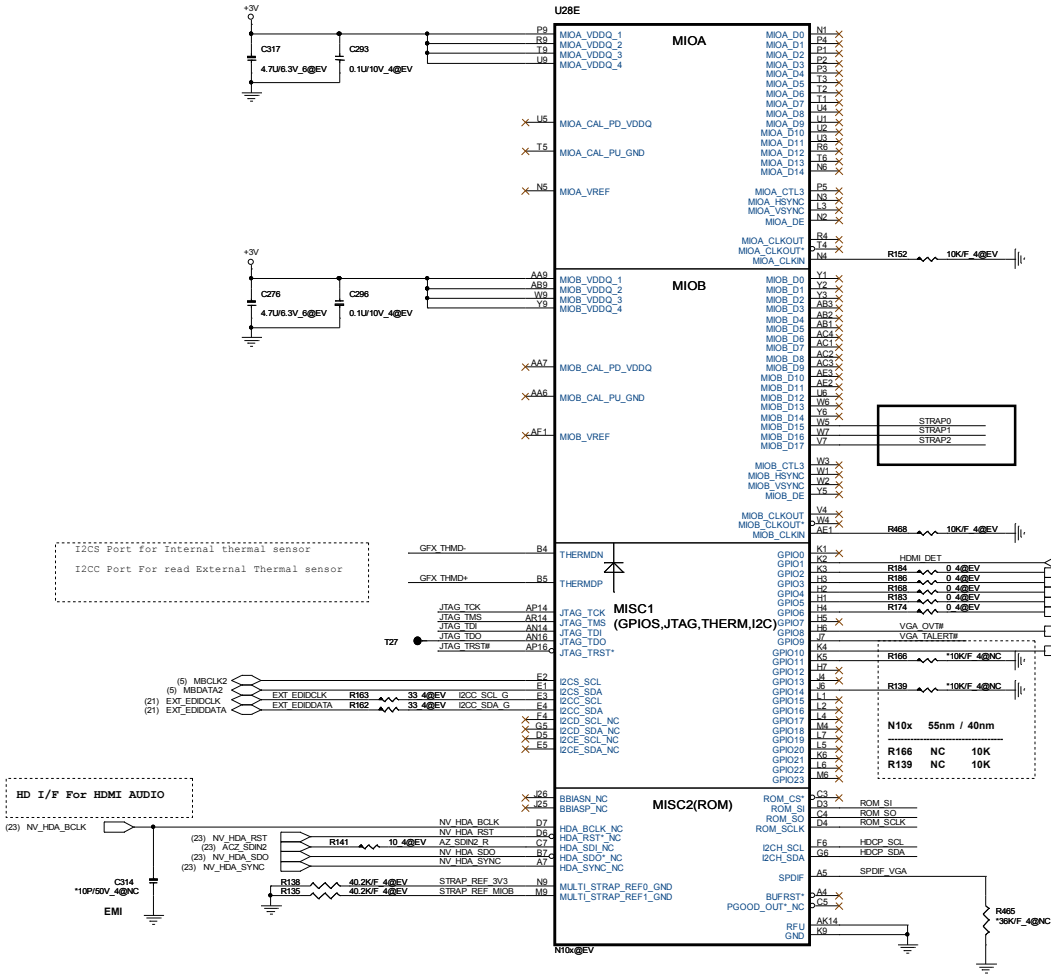
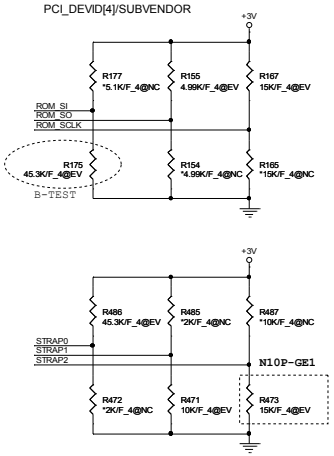
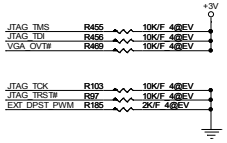


N10P-GE1 Straps
N10M-GS1 Straps
GPIO ASSIGNMENTS

GPIO	I/O	ACTIVE	USAGE
0	IN	N/A	PRIMARY DVI HOTPLUG
1	IN	N/A	SECONDARY DVI HOTPLUG
2	OUT	HIGH	PANEL BACKLIGHT PWM
3	OUT	HIGH	PANEL POWER ENABLE
4	OUT	HIGH	PANEL BACKLIGHT ENABLE
5	OUT	N/A	NVVDD VID0
6	OUT	N/A	NVVDD VID1
7	OUT	N/A	FBVDD VID0
8	IN	LOW	THERMAL ALERT
9	OUT	LOW	FAN PWM
10	OUT	N/A	FBVREF SELECT
11	OUT	N/A	SLI SYNC0
12	IN	N/A	AC DETECT
13	OUT	LOW	PS CONTROL OR HDMI_CEC
14	OUT	HIGH	PS CONTROL



N10P-GE1 55nm / 40nm		N10M-GS1 55nm / 40nm	
R167	15K/F	R167	15K/F
R165	NC	R165	NC
R487	NC	R487	NC
R473	15K/F	R473	10K/F



Logical Strap Bit Mapping

	PU-VDD	PD
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

STRAP TABLE

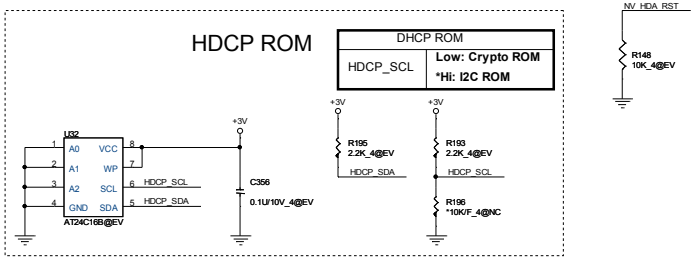
STRAP0: USER[3:0]
STRAP1: 3GIO_PADCFG[3:0]
STRAP2: PCI_DEVID[3:0]
ROM_SCLK: PCI_DEVID_EXT, SUB_VENDOR, SLOT_CLK_CFG, PEX_PLL_EN_TERM
ROM_SI: RAMCFG[3:0]
ROM_SO: XCLK_417, FB_0_BAR_SIZE, SMB_ALT_ADDR, VGA_DEVICE

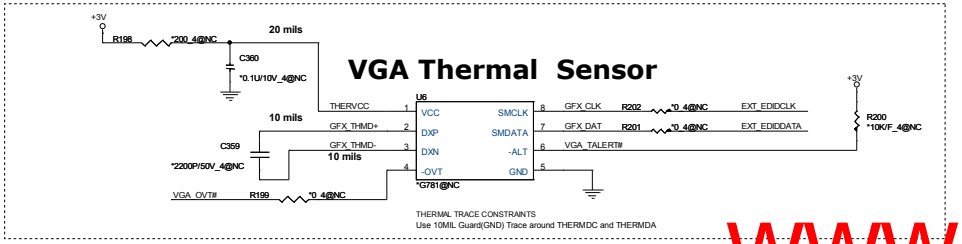
KL1 STRAP FUNCTION MAPPING

USER[3:0]: 1111
3GIO_PADCFG[3:0]: 0001 NoteBook
PCI_DEVID[3:0]: 0001
SUB_VENDOR: 0 No Vedio BIOS ROM
SLOT_CLK_CLG: 1 GPU AND MCH USE COMMON REF CLOCK
PEX_PLL_EN_TERM: 0 DISABLE PEX_PLL TERMINATION
RAMCFG[3:0]: 0000 AND 0001
XCLK_417: 1 USING 27MHZ
FB_0_BAR_SIZE:
SMB_ALT_ADDR:
VGA_DEVICE:

ROM_SI	RAMCFG LSIT:	
PD R175:45K/F	0111	SAMSUNG K4J10324QD-HC12 32M32b * 4PCS
PD R175:30K/F	0101	QIMONDA HYB18H1G321AF-11 32M32b * 2PCS

B-TEST





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Quanta Computer Inc.	
Size: Custom	Document Number: NV10X (GPIO & STRAPS) 4/5
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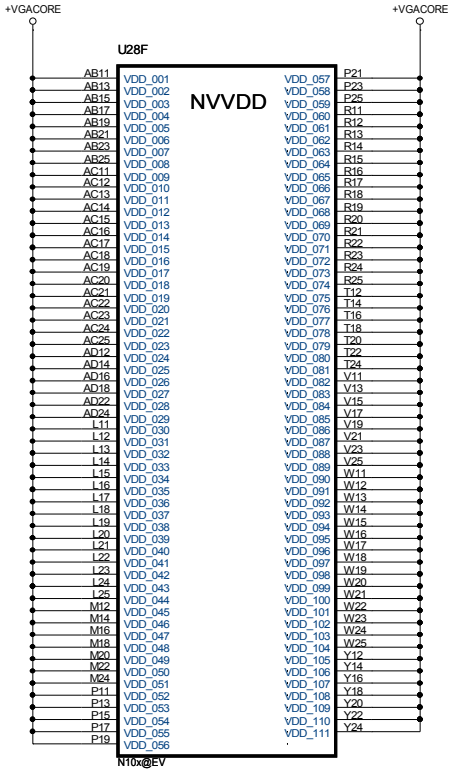
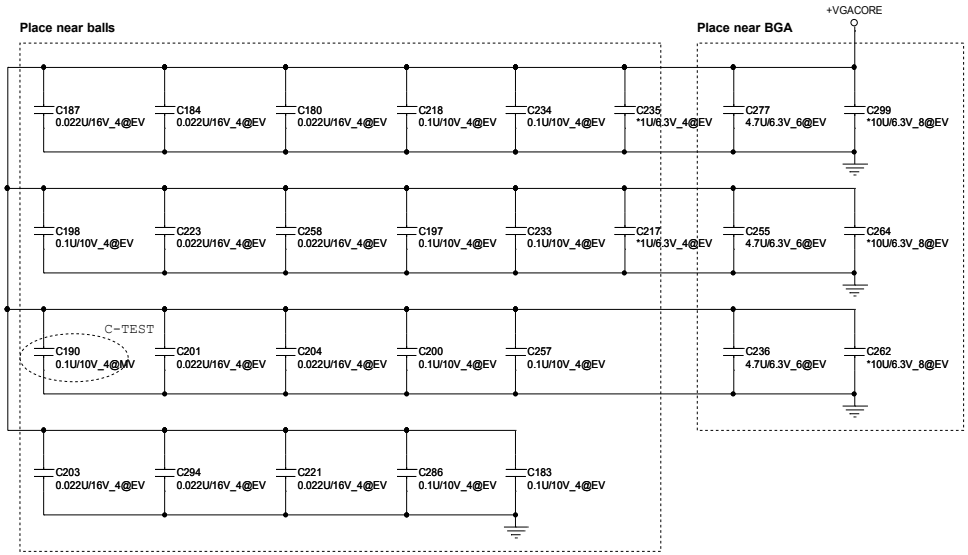
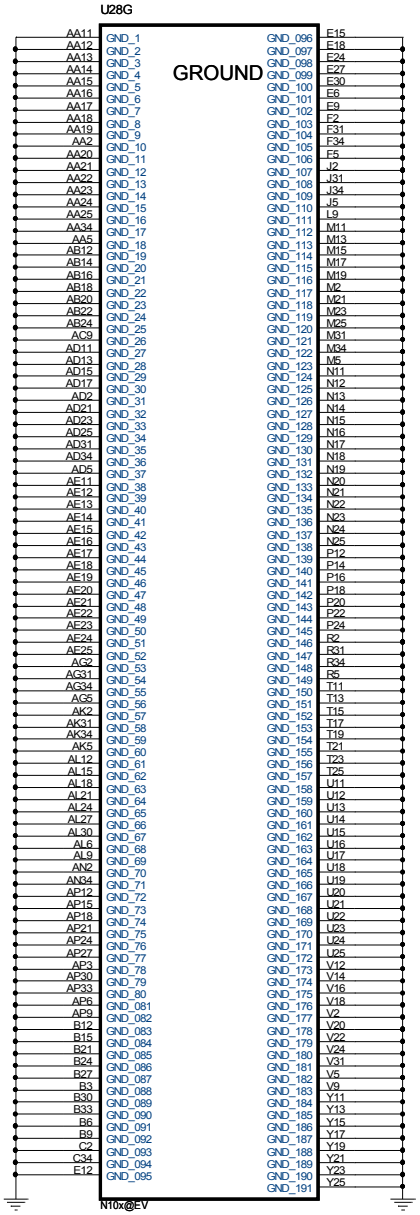
NVVDD Decoupling

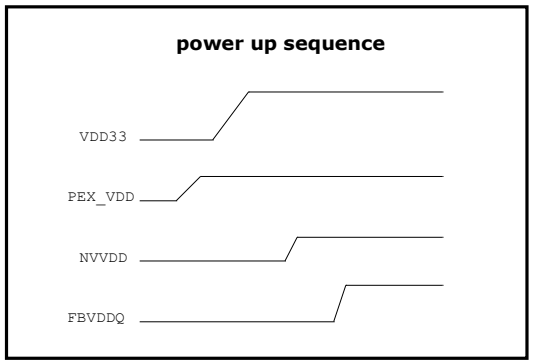




N10x	55nm	40nm
C187	0.022U	0.01U
C198	0.1U	0.01U
C190	0.1U	0.01U
C235	NC	1U
C217	NC	1U
C277	4.7U	1U
C255	4.7U	4.7U
C236	4.7U	NC
C299	NC	10U
C264	NC	10U
C262	NC	10U



N10P-GE1: +VGACORE +0.90V (Normal)



+VGACORE (37,38,42)

PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X (POWER & GND) 5/5	A1A
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(14) FBA_CMD[29..0]
(14) VMA_DQ[63..0]
(14) VMA_DM[7..0]
(14) VMA_WDQS[7..0]
(14) VMA_RDQS[7..0]

Group 3: D24~D31
Group 0: D0~D7
Group 2: D16~D23
Group 1: D8~D15
Group 7: D56~D63
Group 5: D40~D47
Group 6: D48~D55
Group 4: D32~D39

N10x	55nm		40nm	
DQ	0..31	32..63	0..31	32..63
CMD0	A4		A4	
CMD1	RAS*	RAS*	RAS*	RAS*
CMD2	A5		A5	
CMD3	BA1	BA1	BA1	BA1
CMD4		A2		A2
CMD5		A4		A4
CMD6		A3		A3
CMD7	CS1*	CS1*		CKE
CMD8	CS0*	CS0*		CS0*
CMD9	A11	A11	A11	A11
CMD10	CAS*	CAS*	CAS*	CAS*
CMD11	WE*	WE*	WE*	WE*
CMD12	BA0	BA0	BA0	BA0
CMD13		A5		A5
CMD14	A12	A12	A12	A12
CMD15	RST/ODT	RST/ODT	RST/ODT	RST/ODT
CMD16	A7	A7	A7	A7
CMD17	A10	A10	A10	A10
CMD18	CKE	CKE	CKE	
CMD19	A0	A0	A0	A0
CMD20	A9	A9	A9	A9
CMD21	A6	A6	A6	A6
CMD22	A2		A2	
CMD23	A8	A8	A8	A8
CMD24	A3		A3	
CMD25	A1	A1	A1	A1
CMD26	A13	A13	A13	A13
CMD27	BA2	BA2	BA2	BA2
CMD28				ODT/CS1*
CMD29			CS0*	
CMD30			ODT/CS1*	

U2 — VRAM@EV

QIMONDA: HYB18H1G321AF-11
SAMSUNG: K4J10324QD-HC12

U24 — VRAM@EV

QIMONDA: HYB18H1G321AF-11
SAMSUNG: K4J10324QD-HC12

FBA_CMD18 R409 0_4@EV
FBA_CMD7 R412 *0_4@EV → FBA_CKE

FBA_CMD8 R414 0_4@EV
FBA_CMD29 R416 *0_4@EV → FBA_CS0*

N10x	55nm	40nm
R409	0	NC
R412	NC	0
R414	0	NC
R416	NC	0

R23 243/F_4@EV FBA_ZQ1
R404 243/F_4@EV FBA_ZQ2

(14) VMA_CLK0# / (14) VMA_CLK0 → VMA_CLK0# / VMA_CLK0
(14) VMA_CLK1# / (14) VMA_CLK1 → VMA_CLK1# / VMA_CLK1

C520 0.1U/10V_4@EV
C302 0.1U/10V_4@EV

(14,16,19) GDDR3_VREF_SW
FBA_VREF0 R425 931/F_4@EV
FBA_VREF1 R9 931/F_4@EV
Q14 2N7002E@EV
Q1 2N7002E@EV
R428 10K/F_4@EV

Place near U2 VDDQ

C541	10U/6.3V_6@EV
C529	10U/6.3V_6@EV
C539	10U/6.3V_6@EV
C79	1U/6.3V_4@EV
C521	1U/6.3V_4@EV
C519	0.1U/10V_4@EV
C542	0.1U/10V_4@EV
C179	0.1U/10V_4@EV
C50	0.1U/10V_4@EV
C55	0.1U/10V_4@EV
C518	0.1U/10V_4@EV
C125	0.1U/10V_4@EV
C540	0.01U/16V_4@EV
C533	0.01U/16V_4@EV

Place near U24 VDDQ

C78	10U/6.3V_6@EV
C65	10U/6.3V_6@EV
C71	10U/6.3V_6@EV
C76	1U/6.3V_4@EV
C85	1U/6.3V_4@EV
C331	0.1U/10V_4@EV
C295	0.1U/10V_4@EV
C56	0.1U/10V_4@EV
C48	0.1U/10V_4@EV
C114	0.1U/10V_4@EV
C54	0.1U/10V_4@EV
C53	0.1U/10V_4@EV
C68	0.01U/16V_4@EV
C98	0.01U/16V_4@EV

Place near VRAM side

R421 475/F_4@EV VMA_CLK0# / VMA_CLK0
R12 475/F_4@EV VMA_CLK1# / VMA_CLK1

16 ~ 20 mils
R10 1.33K/F_4@EV FBA_VREF0 R11 549/F_4@EV +1.8V
C52 0.01U/16V_4@EV

16 ~ 20 mils
R424 1.33K/F_4@EV FBA_VREF1 R427 549/F_4@EV +1.8V
C543 0.01U/16V_4@EV

+1.8V (14,15,19,28,37,38)

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X GDDR3 SDRAM-1 (BGA136)	A1A
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(14) FBC_CMD[29..0]
(14) VMC_DQ[63..0]
(14) VMC_DM[7..0]
(14) VMC_WDQS[7..0]
(14) VMC_RDQS[7..0]

N10x	55nm		40nm	
DQ	0..31	32..63	0..31	32..63
CMD0	A4		A4	
CMD1	RAS*	RAS*	RAS*	RAS*
CMD2	A5		A5	
CMD3	BA1	BA1	BA1	BA1
CMD4		A2		A2
CMD5		A4		A4
CMD6		A3		A3
CMD7	CS1*	CS1*		CKE
CMD8	CS0*	CS0*		CS0*
CMD9	A11	A11	A11	A11
CMD10	CAS*	CAS*	CAS*	CAS*
CMD11	WE*	WE*	WE*	WE*
CMD12	BA0	BA0	BA0	BA0
CMD13		A5		A5
CMD14	A12	A12	A12	A12
CMD15	RST/ODT	RST/ODT	RST/ODT	RST/ODT
CMD16	A7	A7	A7	A7
CMD17	A10	A10	A10	A10
CMD18	CKE	CKE	CKE	
CMD19	A0	A0	A0	A0
CMD20	A9	A9	A9	A9
CMD21	A6	A6	A6	A6
CMD22	A2		A2	
CMD23	A8	A8	A8	A8
CMD24	A3		A3	
CMD25	A1	A1	A1	A1
CMD26	A13	A13	A13	A13
CMD27	BA2	BA2	BA2	BA2
CMD28				ODT/CS1*
CMD29			CS0*	
CMD30			ODT/CS1*	

Group 2: D16~D23
Group 3: D24~D31
Group 0: D0~D7
Group 1: D8~D15

U5

VMC_DQ20 T3 DQ31 | DQ23 VDDQ A1
VMC_DQ22 T2 DQ30 | DQ22 VDDQ#A12 A12
VMC_DQ18 R3 DQ29 | DQ21 VDD#C1 C1
VMC_DQ23 R2 DQ28 | DQ20 VDD#C4 C4
VMC_DQ21 M3 DQ27 | DQ19 VDD#C9 C9
VMC_DQ17 N2 DQ26 | DQ18 VDDQ#C12 C12
VMC_DQ19 L3 DQ25 | DQ17 VDD#E1 E1
VMC_DQ16 M2 DQ24 | DQ16 VDD#E4 E4
VMC_DQ31 T10 DQ23 | DQ31 VDD#E9 E9
VMC_DQ29 T11 DQ22 | DQ30 VDDQ#E12 E12
VMC_DQ28 R10 DQ21 | DQ29 VDDQ#J4 J4
VMC_DQ30 R11 DQ20 | DQ28 VDDQ#J9 J9
VMC_DQ27 M10 DQ19 | DQ27 VDD#N1 N1
VMC_DQ25 N11 DQ18 | DQ26 VDD#N4 N4
VMC_DQ26 L10 DQ17 | DQ25 VDD#N9 N9
VMC_DQ24 M11 DQ16 | DQ24 VDDQ#N12 N12
VMC_DQ0 G10 DQ15 | DQ7 VDDQ#R1 R1
VMC_DQ4 F11 DQ14 | DQ6 VDD#R4 R4
VMC_DQ1 F10 DQ13 | DQ5 VDD#R9 R9
VMC_DQ6 E11 DQ12 | DQ4 VDDQ#R12 R12
VMC_DQ5 C10 DQ11 | DQ3 VDDQ#V1 V1
VMC_DQ2 C11 DQ10 | DQ2 VDDQ#V12 V12
VMC_DQ7 B10 DQ9 | DQ1 A2
VMC_DQ3 B11 DQ8 | DQ0 VDD A11
VMC_DQ15 G3 DQ7 | DQ15 VDD#A11 F1
VMC_DQ13 F2 DQ6 | DQ14 VDD#F1 F12
VMC_DQ8 F3 DQ5 | DQ13 VDD#F12 M1
VMC_DQ11 E2 DQ4 | DQ12 VDD#M1 M12
VMC_DQ10 C3 DQ3 | DQ11 VDD#M12 V2
VMC_DQ9 C2 DQ2 | DQ10 VDD#V2 V11
VMC_DQ12 B3 DQ1 | DQ9 VDD#V11
VMC_DQ14 B2 DQ0 | DQ8

VSSQ B1
VSSQ#B4 B4
VSSQ#B9 B9
VSSQ#B12 B12
VSSQ#D1 D1
VSSQ#D4 D4
VSSQ#D9 D9
VSSQ#D12 D12
VSSQ#G2 G2
VSSQ#G11 G11
VSSQ#L2 L2
VSSQ#L11 L11
VSSQ#P1 P1
VSSQ#P4 P4
VSSQ#P9 P9
VSSQ#P12 P12
VSSQ#T1 T1
VSSQ#T4 T4
VSSQ#T9 T9
VSSQ#T12 T12
VSS A3
VSS#A10 A10
VSS#G1 G1
VSS#G12 G12
VSS#L1 L1
VSS#L12 L12
VSS#V3 V3
VSS#V10 V10

FBC_CMD27 H10 BA2 | RAS
FBC_CMD3 G9 BA1 | BA0
FBC_CMD12 G4 BA0 | BA1

FBC_CMD9 L4 A11 | A7
FBC_CMD17 K2 A10 | A8
FBC_CMD20 M9 A9 | A3
FBC_CMD23 K11 A8/AP | A10
FBC_CMD16 L9 A7 | A11
FBC_CMD21 K10 A6 | A2
FBC_CMD2 H11 A5 | A1
FBC_CMD0 K9 A4 | A0
FBC_CMD24 M4 A3 | A9
FBC_CMD22 K3 A2 | A6
FBC_CMD25 H2 A1 | A5
FBC_CMD19 K4 A0 | A4

FBC_CS0* F9 CS | CAS
FBC_CMD11 H9 WE | CKE
FBC_CMD1 H3 RAS | BA2
FBC_CMD10 F4 CAS | CS
FBC_CMD18 H4 CKE | WE

(14) VMC_CLK0#
(14) VMC_CLK0
VMC_CLK0# J10
VMC_CLK0 J11
CK
CK

VDDA K1
VDDA#K12 K12

VMC_RDQS2 P3
VMC_RDQS3 P10
VMC_RDQS0 D10
VMC_RDQS1 D3
RDQS3 | RDQS2
RDQS2 | RDQS3
RDQS1 | RDQS0
RDQS0 | RDQS1

VMC_WDQS2 P2
VMC_WDQS3 P11
VMC_WDQS0 D11
VMC_WDQS1 D2
WDQS3 | WDQS2
WDQS2 | WDQS3 VSSA#J12 J12
WDQS1 | WDQS0 VSSA J1
WDQS0 | WDQS1

VMC_DM2 N3
VMC_DM3 N10
VMC_DM0 E10
VMC_DM1 E3
DM3 | DM2
DM2 | DM3
DM1 | DM0
DM0 | DM1

RFU2 J3 FBC_CMD14
RFU1 J2 T7
RFU0 V4

RESET

R169 243/F_4@EV FBC_ZQ1 A4
ZQ

FBC_VREF0 H1
FBC_VREF1 H12
VREF
VREF#H12

MF A9
GND | VDD

VRAM@EV

C285 0.1U/10V_4@EV

QIMONDA: HYB18H1G321AF-11
SAMSUNG: K4J10324QD-HC12

FBC_CMD18 R71 0_4@EV FBC_CKE
FBC_CMD7 R64 *0_4@EV

FBC_CMD8 R85 0_4@EV FBC_CS0*
FBC_CMD29 R89 *0_4@EV

N10x	55nm / 40nm
R71	0 NC
R64	NC 0
R85	0 NC
R89	NC 0

Place near VRAM side

R448 475/F_4@EV VMC_CLK0#
VMC_CLK0
R86 475/F_4@EV VMC_CLK1#
VMC_CLK1

16 ~ 20 mils

R105 1.33K/F_4@EV FBC_VREF0 R101 549/F_4@EV +1.8V
C273 0.01U/16V_4@EV

Group 6: D48~D55
Group 5: D40~D47
Group 4: D32~D39
Group 7: D56~D63

U29

VMC_DQ53 T3 DQ31 | DQ23 VDDQ A1
VMC_DQ55 T2 DQ30 | DQ22 VDDQ#A12 A12
VMC_DQ54 R3 DQ29 | DQ21 VDD#C1 C1
VMC_DQ52 R2 DQ28 | DQ20 VDD#C4 C4
VMC_DQ49 M3 DQ27 | DQ19 VDD#C9 C9
VMC_DQ51 N2 DQ26 | DQ18 VDDQ#C12 C12
VMC_DQ50 L3 DQ25 | DQ17 VDD#E1 E1
VMC_DQ48 M2 DQ24 | DQ16 VDD#E4 E4
VMC_DQ44 T10 DQ23 | DQ31 VDD#E9 E9
VMC_DQ42 T11 DQ22 | DQ30 VDDQ#E12 E12
VMC_DQ41 R10 DQ21 | DQ29 VDDQ#J4 J4
VMC_DQ40 R11 DQ20 | DQ28 VDDQ#J9 J9
VMC_DQ43 M10 DQ19 | DQ27 VDD#N1 N1
VMC_DQ46 N11 DQ18 | DQ26 VDD#N4 N4
VMC_DQ45 L10 DQ17 | DQ25 VDD#N9 N9
VMC_DQ47 M11 DQ16 | DQ24 VDDQ#N12 N12
VMC_DQ33 G10 DQ15 | DQ7 VDDQ#R1 R1
VMC_DQ32 F11 DQ14 | DQ6 VDD#R4 R4
VMC_DQ37 F10 DQ13 | DQ5 VDD#R9 R9
VMC_DQ36 E11 DQ12 | DQ4 VDDQ#R12 R12
VMC_DQ38 C10 DQ11 | DQ3 VDDQ#V1 V1
VMC_DQ34 C11 DQ10 | DQ2 VDDQ#V12 V12
VMC_DQ39 B10 DQ9 | DQ1 A2
VMC_DQ35 B11 DQ8 | DQ0 VDD A11
VMC_DQ59 G3 DQ7 | DQ15 VDD#A11 F1
VMC_DQ58 F2 DQ6 | DQ14 VDD#F1 F12
VMC_DQ56 F3 DQ5 | DQ13 VDD#F12 M1
VMC_DQ57 E2 DQ4 | DQ12 VDD#M1 M12
VMC_DQ60 C3 DQ3 | DQ11 VDD#M12 V2
VMC_DQ62 C2 DQ2 | DQ10 VDD#V2 V11
VMC_DQ63 B3 DQ1 | DQ9 VDD#V11
VMC_DQ61 B2 DQ0 | DQ8

VSSQ B1
VSSQ#B4 B4
VSSQ#B9 B9
VSSQ#B12 B12
VSSQ#D1 D1
VSSQ#D4 D4
VSSQ#D9 D9
VSSQ#D12 D12
VSSQ#G2 G2
VSSQ#G11 G11
VSSQ#L2 L2
VSSQ#L11 L11
VSSQ#P1 P1
VSSQ#P4 P4
VSSQ#P9 P9
VSSQ#P12 P12
VSSQ#T1 T1
VSSQ#T4 T4
VSSQ#T9 T9
VSSQ#T12 T12
VSS A3
VSS#A10 A10
VSS#G1 G1
VSS#G12 G12
VSS#L1 L1
VSS#L12 L12
VSS#V3 V3
VSS#V10 V10

FBC_CMD1 H10 BA2 | RAS
FBC_CMD12 G9 BA1 | BA0
FBC_CMD3 G4 BA0 | BA1

FBC_CMD16 L4 A11 | A7
FBC_CMD23 K2 A10 | A8
FBC_CMD6 M9 A9 | A3
FBC_CMD17 K11 A8/AP | A10
FBC_CMD9 L9 A7 | A11
FBC_CMD4 K10 A6 | A2
FBC_CMD25 H11 A5 | A1
FBC_CMD19 K9 A4 | A0
FBC_CMD20 M4 A3 | A9
FBC_CMD21 K3 A2 | A6
FBC_CMD13 H2 A1 | A5
FBC_CMD5 K4 A0 | A4

FBC_CMD10 F9 CS | CAS
FBC_CKE H9 WE | CKE
FBC_CMD27 H3 RAS | BA2
FBC_CMD8 F4 CAS | CS
FBC_CMD11 H4 CKE | WE

(14) VMC_CLK1#
(14) VMC_CLK1
VMC_CLK1# J10
VMC_CLK1 J11
CK
CK

VDDA K1
VDDA#K12 K12

VMC_RDQS6 P3
VMC_RDQS5 P10
VMC_RDQS4 D10
VMC_RDQS7 D3
RDQS3 | RDQS2
RDQS2 | RDQS3
RDQS1 | RDQS0
RDQS0 | RDQS1

VMC_WDQS6 P2
VMC_WDQS5 P11
VMC_WDQS4 D11
VMC_WDQS7 D2
WDQS3 | WDQS2
WDQS2 | WDQS3 VSSA#J12 J12
WDQS1 | WDQS0 VSSA J1
WDQS0 | WDQS1

VMC_DM6 N3
VMC_DM5 N10
VMC_DM4 E10
VMC_DM7 E3
DM3 | DM2
DM2 | DM3
DM1 | DM0
DM0 | DM1

RFU2 J3 FBC_CMD14
RFU1 J2 T26
RFU0 V4

RESET

R464 243/F_4@EV FBC_ZQ2 A4
ZQ

FBC_VREF0 H1
FBC_VREF1 H12
VREF
VREF#H12

MF A9
GND | VDD

VRAM@EV

C316 0.1U/10V_4@EV

QIMONDA: HYB18H1G321AF-11
SAMSUNG: K4J10324QD-HC12

16 ~ 20 mils

R441 1.33K/F_4@EV FBC_VREF1 R438 549/F_4@EV +1.8V
C587 0.01U/16V_4@EV

(14,16,18) GDDR3_VREF_SW

FBC_VREF0 R58 931/F_4@EV
Q3 2N7002E@EV
R49 10K/F_4@EV
FBC_VREF1 R432 931/F_4@EV
Q15 2N7002E@EV

C75 10U/6.3V_6@EV
C137 10U/6.3V_6@EV
C138 10U/6.3V_6@EV
C51 1U/6.3V_4@EV
C319 1U/6.3V_4@EV
C353 0.1U/10V_4@EV
C310 0.1U/10V_4@EV
C140 0.1U/10V_4@EV
C594 0.1U/10V_4@EV
C142 0.1U/10V_4@EV
C170 0.1U/10V_4@EV
C189 0.1U/10V_4@EV
C133 0.01U/16V_4@EV
C143 0.01U/16V_4@EV

Place near U5 VDDQ

C551 10U/6.3V_6@EV
C150 10U/6.3V_6@EV
C107 10U/6.3V_6@EV
C345 1U/6.3V_4@EV
C530 1U/6.3V_4@EV
C608 0.1U/10V_4@EV
C555 0.1U/10V_4@EV
C553 0.1U/10V_4@EV
C536 0.1U/10V_4@EV
C610 0.1U/10V_4@EV
C606 0.1U/10V_4@EV
C628 0.1U/10V_4@EV
C602 0.01U/16V_4@EV
C554 0.01U/16V_4@EV

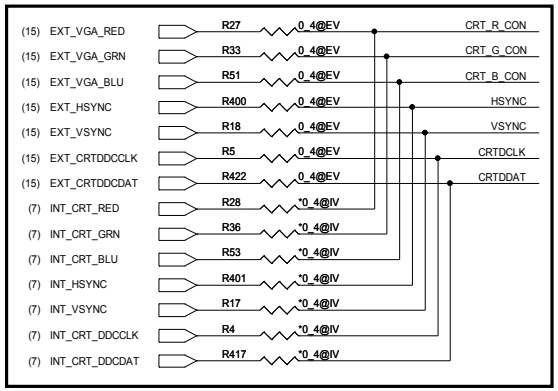
Place near U29 VDDQ

+1.8V (14,15,18,28,37,38)

PROJECT : KL1
Quanta Computer Inc.

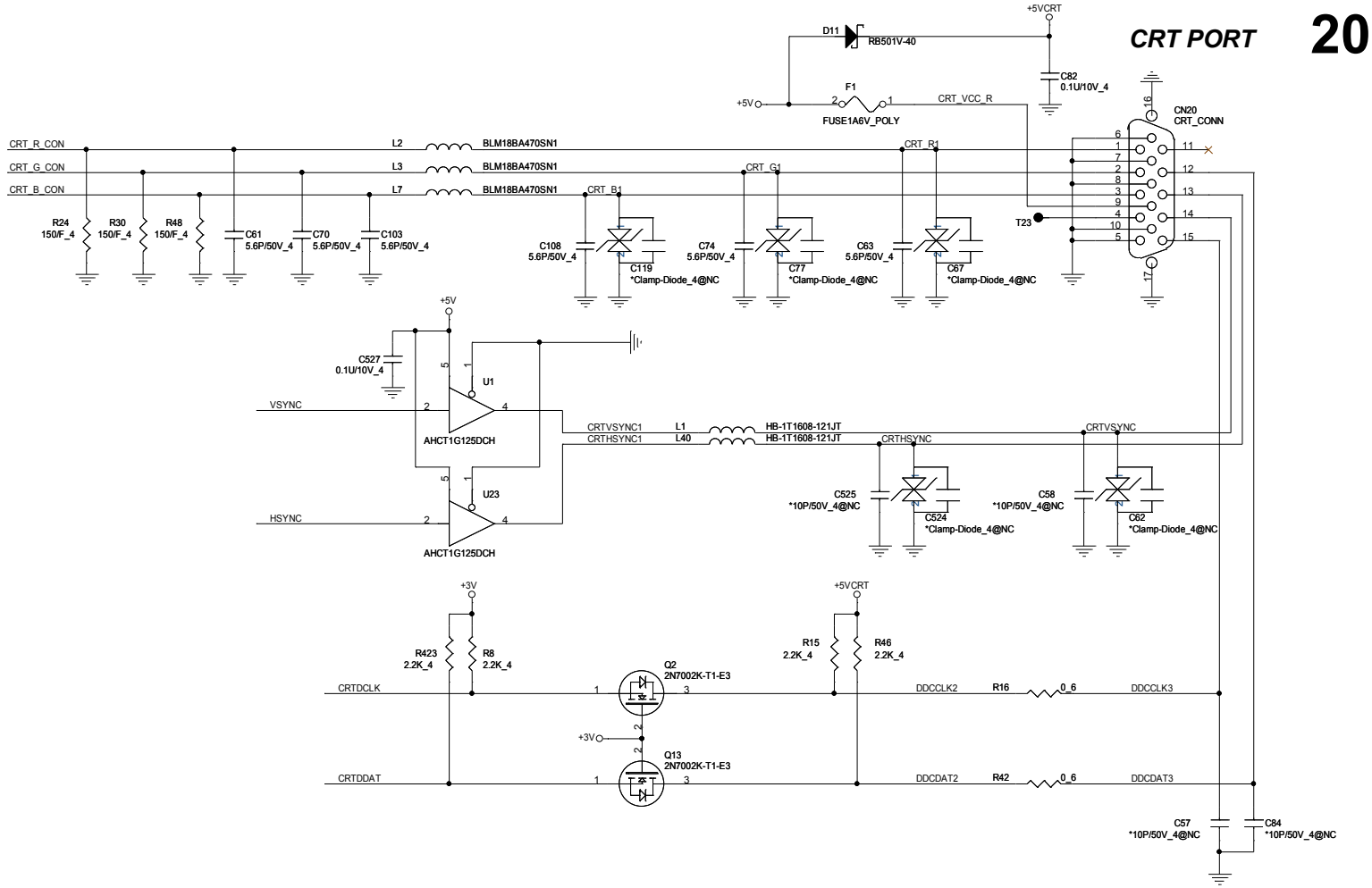
Size	Document Number	Rev
Custom	NV10X GDDR3 SDRAM-2 (BGA136)	A1A
Date: Monday, January 05, 2009	Sheet 19 of 43	

CRT SWITCH



UMA & Discrete setting

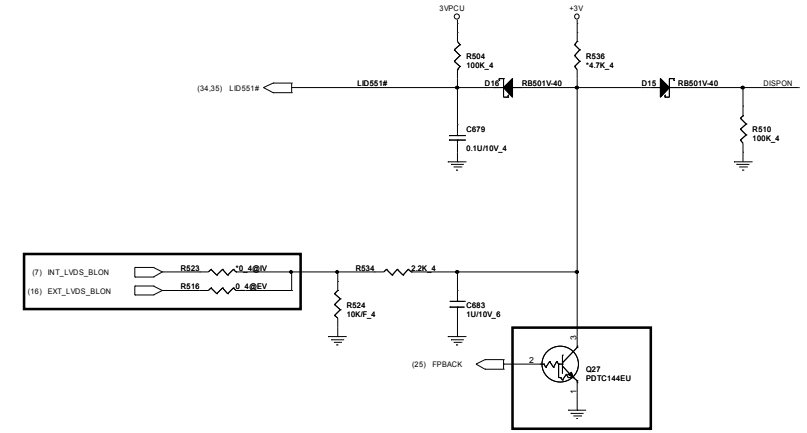
LVDS	Discrete	/ UMA
R27	0	NC
R33	0	NC
R51	0	NC
R400	0	NC
R18	0	NC
R5	0	NC
R422	0	NC
R28	NC	0
R36	NC	0
R53	NC	0
R401	NC	0
R17	NC	0
R4	NC	0
R417	NC	0

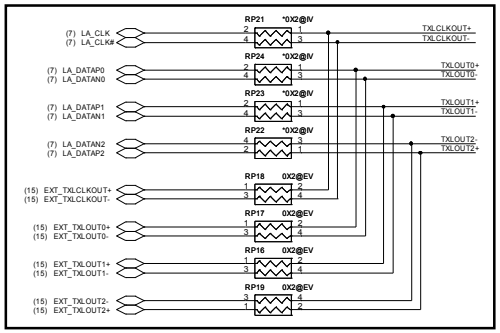


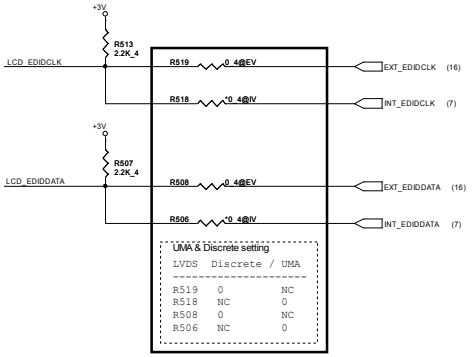
PROJECT : KL1
Quanta Computer Inc.

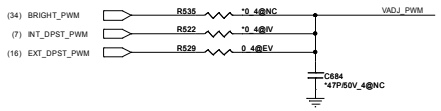
Size	Document Number	Rev
Custom	CRT CONN	A1A

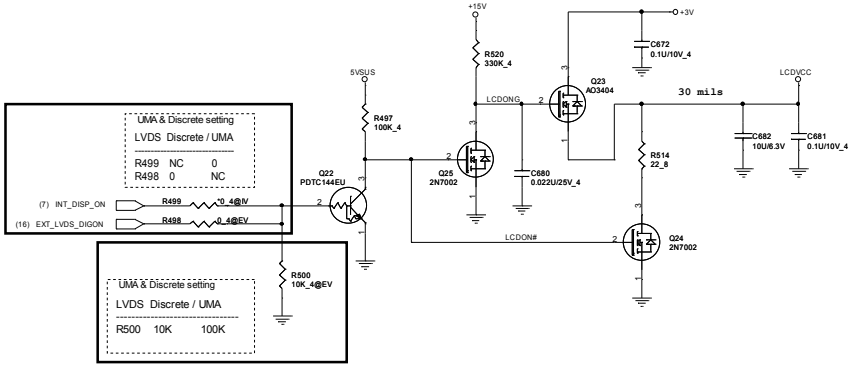
Date: Monday, January 05, 2009 Sheet 20 of 43





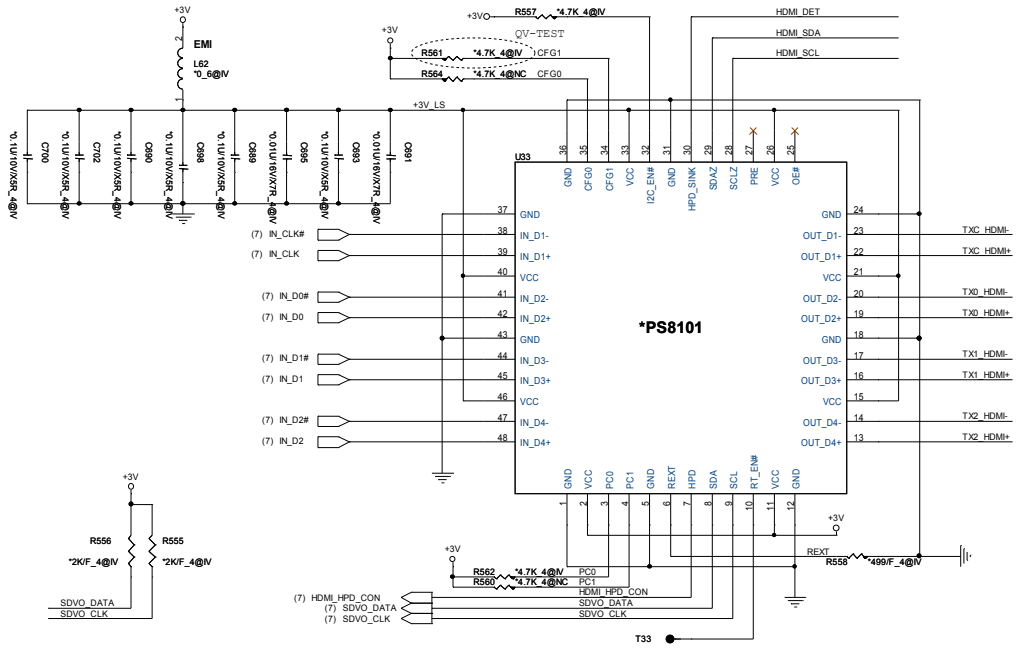






PROJECT : KL1
Quanta Computer Inc.

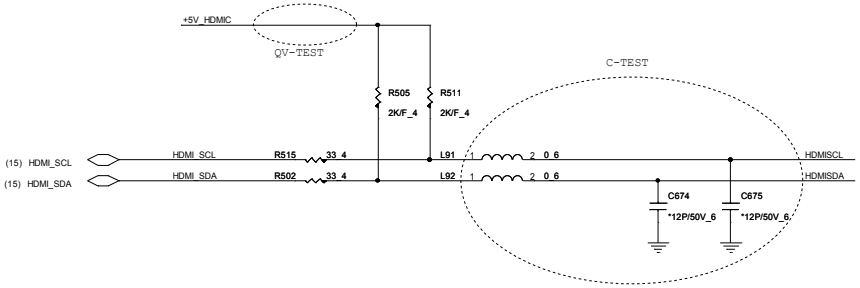
Size	Document Number	Rev
Custom	LCD & LID CONN	A1A
Date: Monday, January 05, 2009	Sheet 21 of 43	

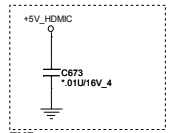


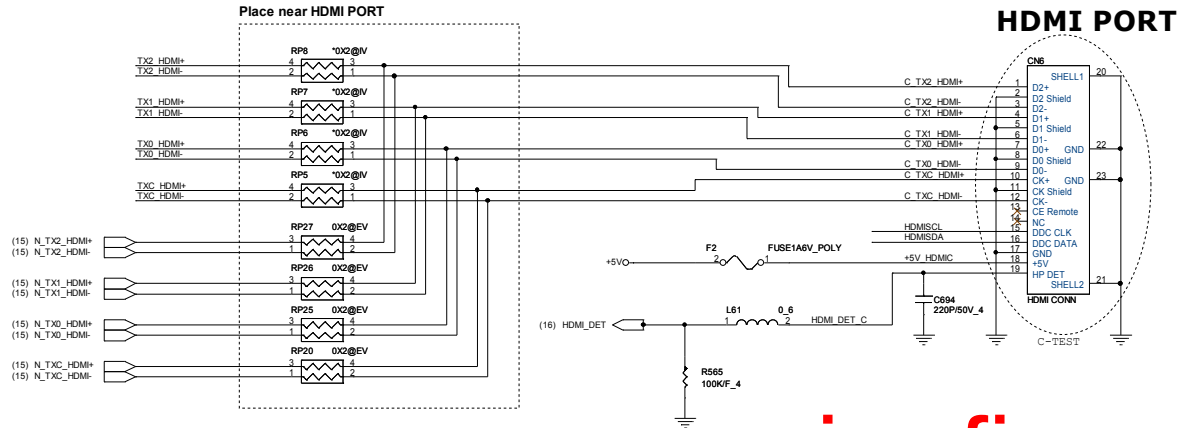
(3,5,7,10,11,12,13,15,16,20,21,23,24,25,26,27,28,29,30,31,33,34,35,36,37,38,40,41) +3V
(20,26,28,31,34,35,36,37,38) +5V

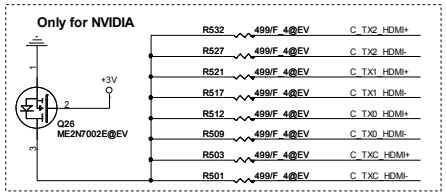
SCLZ/SDAZ Low-level input/output Voltage
CFG1:CFG0=0:0 VIL:<0.4V VOL:0.6V (Default)
CGF1:CGF0=0:1 VIL:<0.36V VOL:0.55V
CGF1:CGF0=1:0 VIL:<0.44V VOL:0.65V
CGF1:CGF0=1:1 VIL:<0.36V VOL:0.6V

EQUALIZATION SETTING
PC1:PC0=0:0 8dB
PC1:PC0=0:1 4dB Recommanded
PC1:PC0=1:0 12dB
PC1:PC0=1:1 0dB



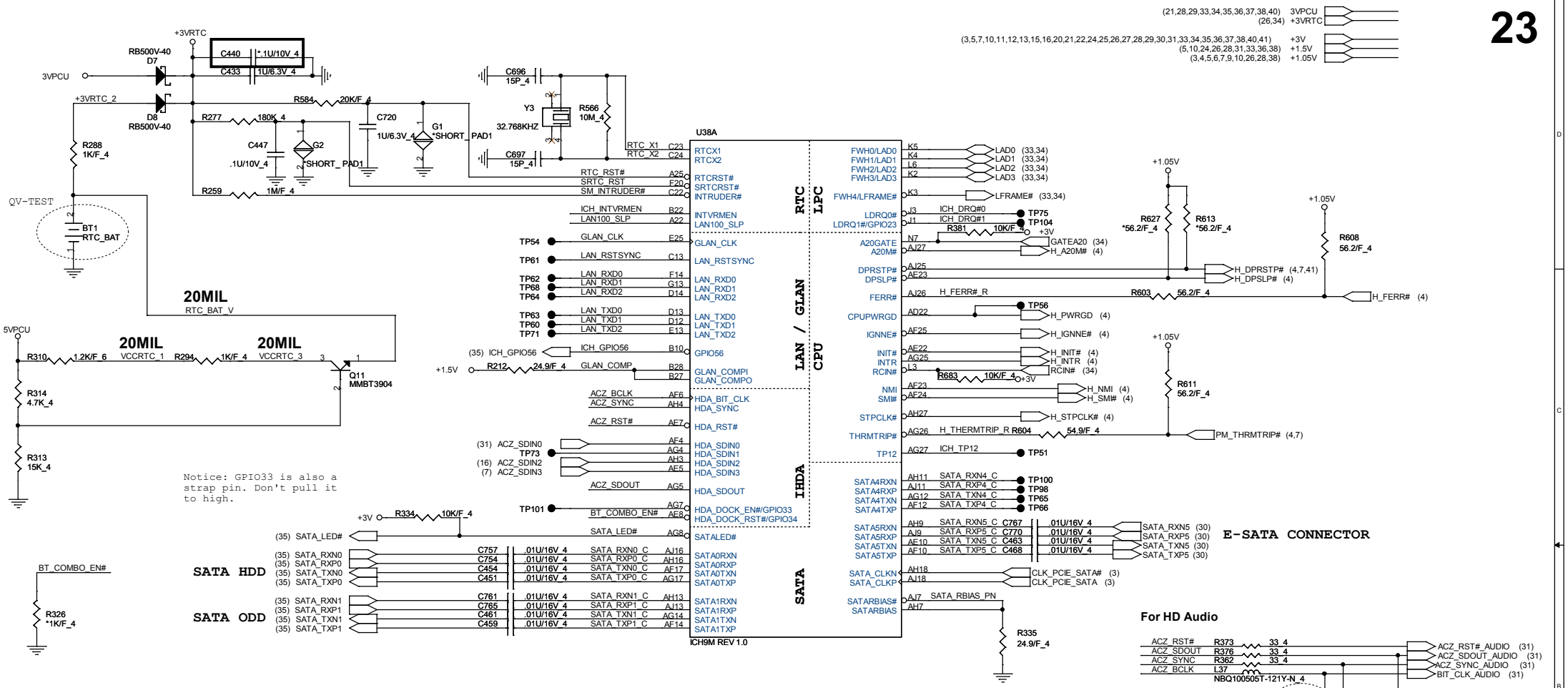






PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
C	PS8101 & HDMI CONN	A1A
Date: Monday, January 05, 2009	Sheet 22 of 43	



SB Strap

ICH9-M Internal VR Enable strap (Internal VR for Vccsus1_05,VccSus1_5 and VccCL1_5)

INTVRMEN	Low = Internal VR disable High = Internal VR enable(Default)

ICH9-M LAN100_SLP Strap (Internal VR for VccLAN1_05 and VccCL1.05)

LAN100_SLP	Low = Internal VR disable High = Internal VR enable(Default)

XOR Chain Entrance Strap

ICH_TP3	HDA_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal opration(Default)
1	1	Set PCIE port config bit 1

ICH9 Boot BIOS select

STRAP	PCI_GNT0#	SPI_CS#1
SPI	0	1
PCI	1	0
LPC	1	1

(default)

No Reboot Strap	
ACZ_SPKR	Low: Default Hi: No reboot

A16 swap override strap	
PCI_GNT#3	Low = A16 swap override enabled Hi = Default

TPM physical presence	
ICH_GPIO57	Low: Default

For HD Audio

For UMA

For Discrete

PROJECT	KL1
Quanta Computer Inc.	
Size: Custom	Document Number: ICH9-M Host 1/4
Rev	A1A
Date: Monday, January 05, 2009	Sheet 23 of 43

(5,10,23,26,28,31,33,36,38) +1.5V
(3,5,7,10,11,12,13,15,16,20,21,22,23,25,26,27,28,29,30,31,33,34,35,36,37,38,40,41) +3V
(25,33,34,36,38,39,41,42) 3VSUS

EXPRESS CARD (NEW CARD)

MINI CARD PCI-E(WWAN)

MINI CARD PCI-E(WLAN)

MINI CARD PCI-E(CARD)

PCIE-LAN

U38D

PCI-Express / Direct Media Interface

SPI

USB

ICH9M REV 1.0

USB Connector
USB Connector
CCD Module

BLUETOOTH

EXPRESS CARD

USB Connector
USB+E-SATA Connector
WWAN Min-Card
WLAN Min-Card

512K byte SPI ROM
For HDCP only

U38B

PCI

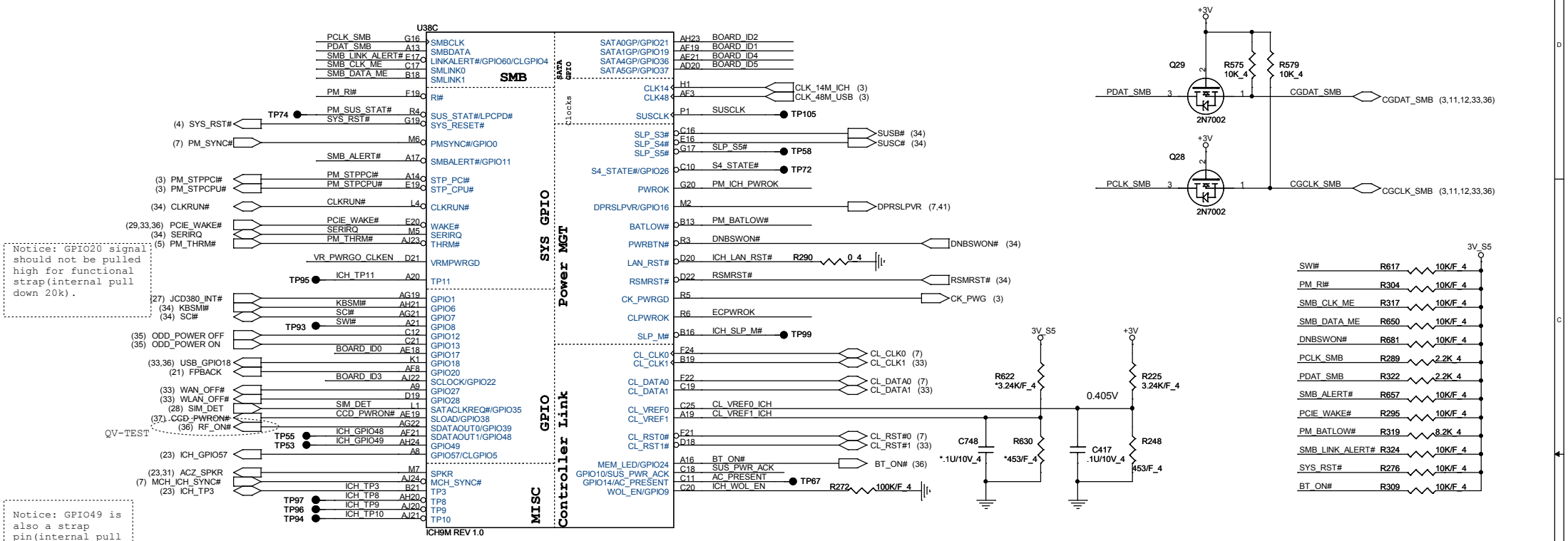
Interrupt I/F

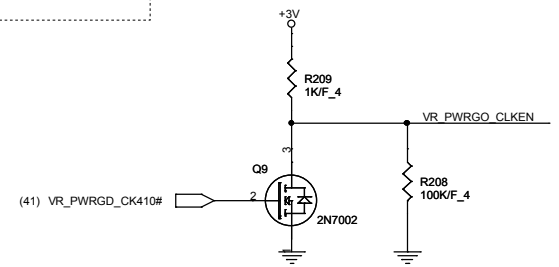
ICH9M REV 1.0

PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ICH9-M PCIE 2/4	A1A
Date: Monday, January 05, 2009	Sheet 24 of 43	

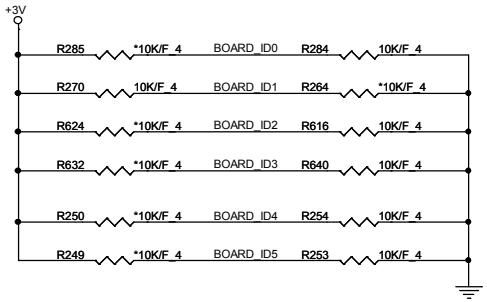
(3,5,7,10,11,12,13,15,16,20,21,22,23,24,26,27,28,29,30,31,33,34,35,36,37,38,40,41) +3V
(23,24,26,38) 3V_S5
(33,34,36,38,39,41,42) 3VSUS

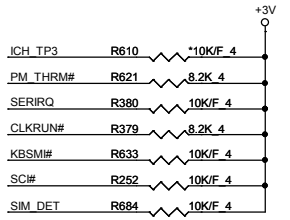


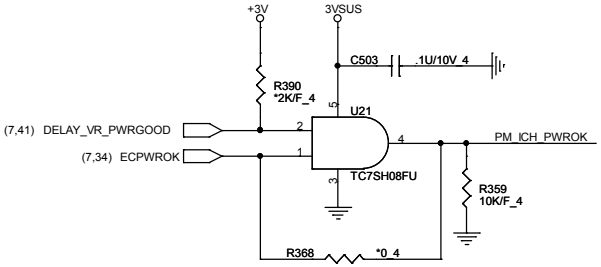


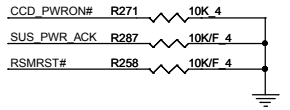
Board ID For Function	ID3 GPIO22	ID2 GPIO21	ID1 GPIO19	ID0 GPIO17
Default	0	0	1	0
GL40	0	1	1	0
GM47	1	0	1	0

Board ID For Model	ID5 GPIO37	ID4 GPIO36
LE6	0	0
LE7	0	1
LE8	1	0
LE9	1	1
KL1	0	0



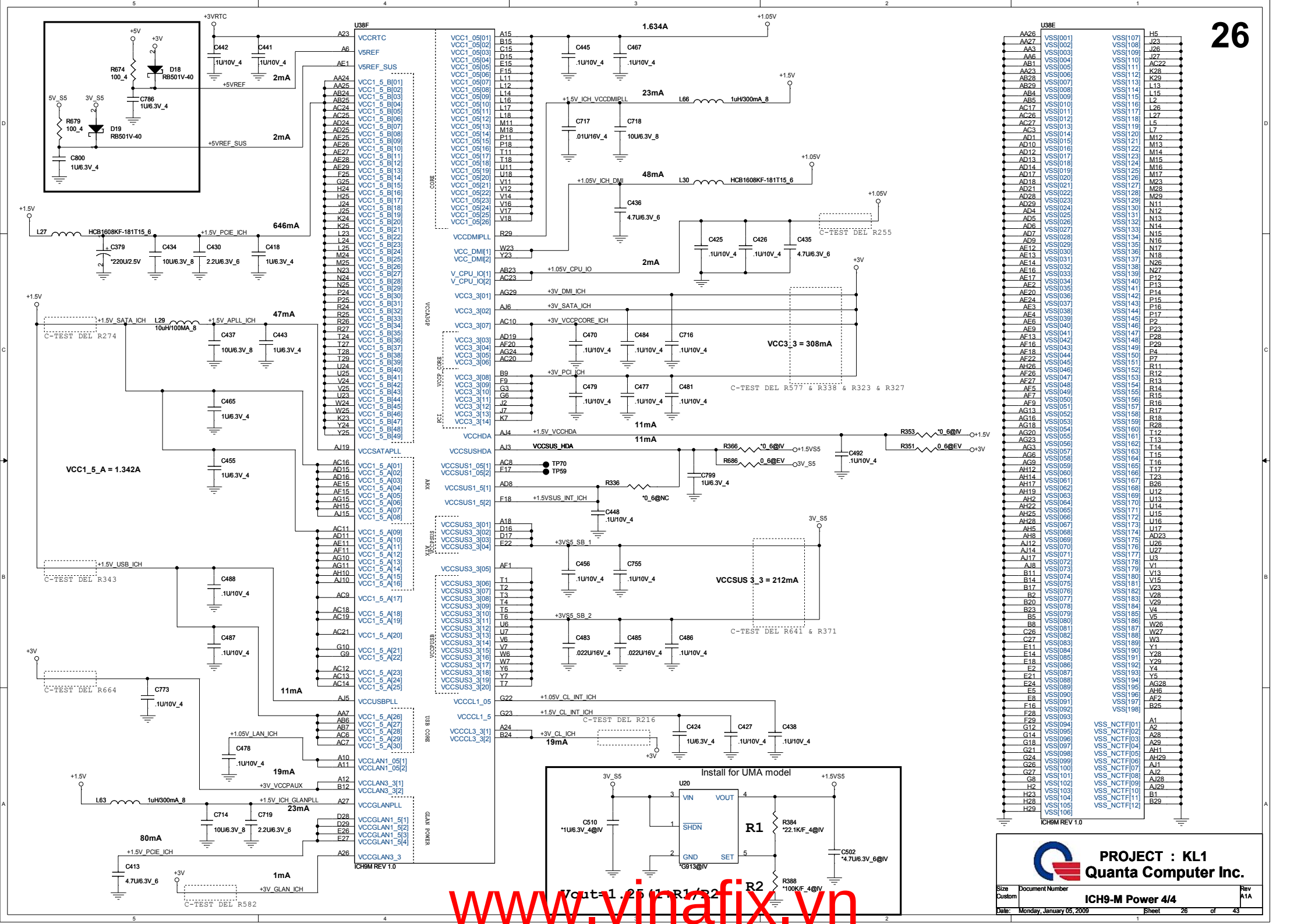


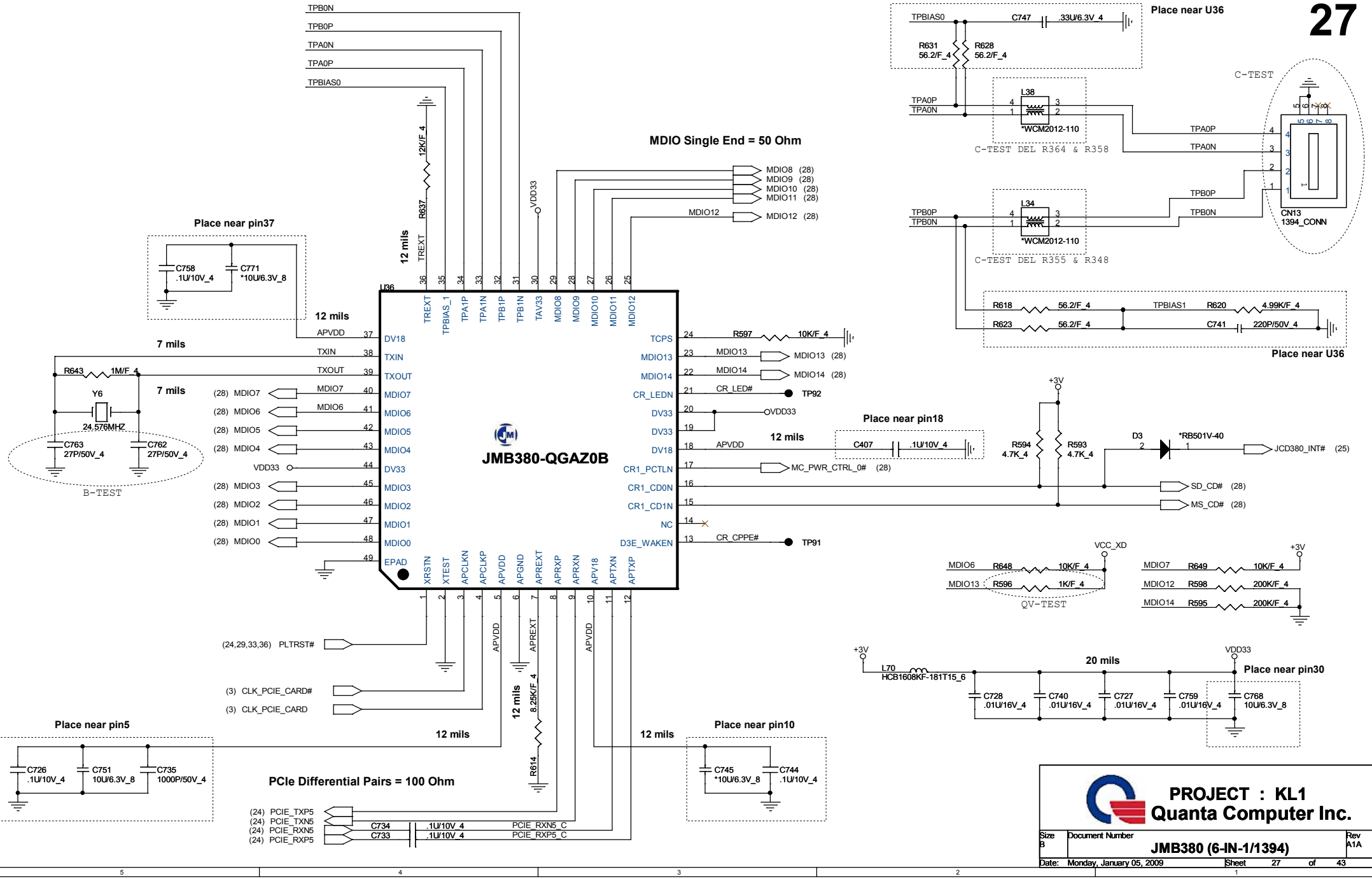




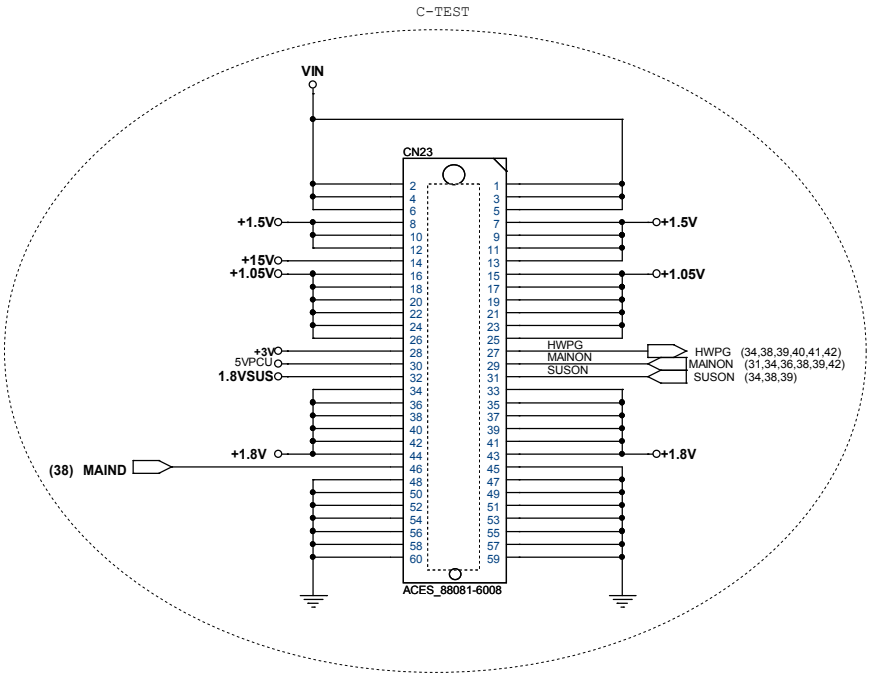
PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ICH9-M GPIO 3/4	A1A
Date: Monday, January 05, 2009	Sheet 25 of 43	

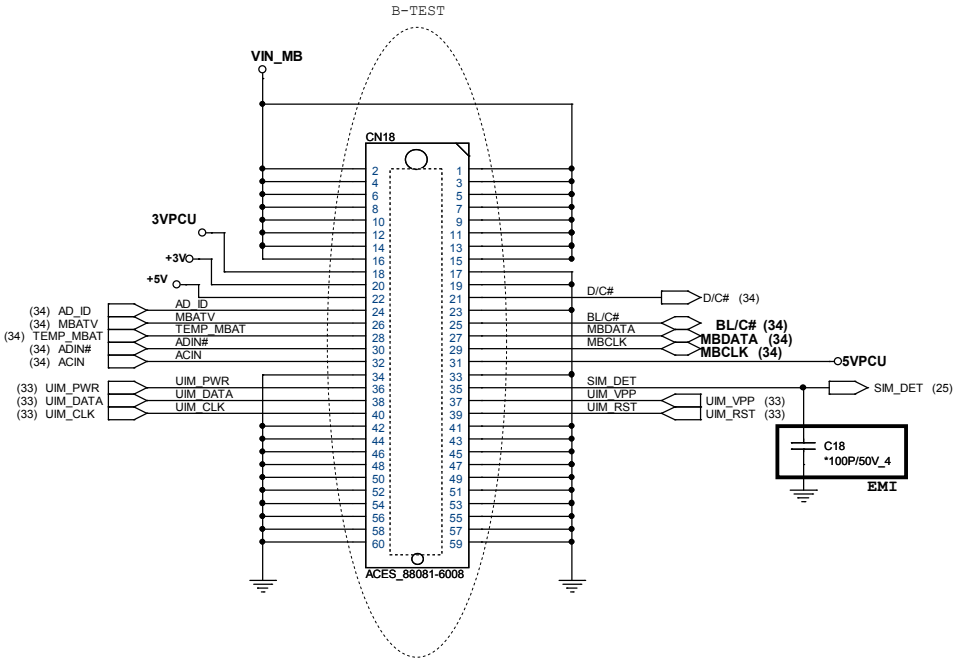

U38F
U38E
+3VRTC
+5V
+3V
+1.5V
+1.05V
R674 100_4
D18 RB501V-40
C442 1U/10V_4
C441 1U/10V_4
2mA
+5VREF
C786 1U/6.3V_4
5V_S5
3V_S5
R679 100_4
D19 RB501V-40
+5VREF_SUS
C800 1U/6.3V_4
1.634A
C445 .1U/10V_4
C467 .1U/10V_4
23mA
+1.5V_ICH_VCCDMIPLL
L66 1uH/300mA_8
C717 .01U/16V_4
C718 10U/6.3V_8
48mA
+1.05V_ICH_DMI
L30 HCB1608KF-181T15_6
C436 4.7U/6.3V_6
646mA
L27 HCB1608KF-181T15_6
+1.5V_PCIE_ICH
C379 *220U/2.5V
C434 10U/6.3V_8
C430 2.2U/6.3V_6
C418 1U/6.3V_4
C425 .1U/10V_4
C426 .1U/10V_4
C435 4.7U/6.3V_6
C-TEST DEL R255
2mA
+1.05V_CPU_IO
47mA
+1.5V_SATA_ICH
L29 10uH/100MA_8
+1.5V_APLL_ICH
C-TEST DEL R274
C437 10U/6.3V_8
C443 1U/6.3V_4
+3V_DMI_ICH
+3V_SATA_ICH
+3V_VCCPCORE_ICH
C470 .1U/10V_4
C484 .1U/10V_4
C716 .1U/10V_4
VCC3_3 = 308mA
C-TEST DEL R577 & R338 & R323 & R327
+3V_PCI_ICH
C479 .1U/10V_4
C477 .1U/10V_4
C481 .1U/10V_4
11mA
C465 1U/6.3V_4
C455 1U/6.3V_4
VCC1_5_A = 1.342A
+1.5V_VCCHDA
R353 *0_6@IV
R351 0_6@EV
+1.5V
+3V
VCCSUS_HDA
R366 *0_6@IV
R686 0_6@EV
+1.5VS5
3V_S5
C492 .1U/10V_4
C799 1U/6.3V_4
TP70
TP59
R336 *0_6@NC
+1.5VSUS_INT_ICH
C448 .1U/10V_4
3V_S5
+3VS5_SB_1
C456 .1U/10V_4
C755 .1U/10V_4
VCCSUS 3_3 = 212mA
+3VS5_SB_2
C483 .022U/16V_4
C485 .022U/16V_4
C486 .1U/10V_4
C-TEST DEL R641 & R371
+1.5V_USB_ICH
C-TEST DEL R343
C488 .1U/10V_4
C487 .1U/10V_4
11mA
C-TEST DEL R664
C773 .1U/10V_4
+1.05V_CL_INT_ICH
+1.5V_CL_INT_ICH
C-TEST DEL R216
+3V_CL_ICH
19mA
C424 1U/6.3V_4
C427 .1U/10V_4
C438 .1U/10V_4
+1.05V_LAN_ICH
C478 .1U/10V_4
19mA
+3V_VCCPAUX
+1.5V
L63 1uH/300mA_8
+1.5V_ICH_GLANPLL
23mA
C714 10U/6.3V_8
C719 2.2U/6.3V_6
80mA
+1.5V_PCIE_ICH
C413 4.7U/6.3V_6
+3V
1mA
+3V_GLAN_ICH
C-TEST DEL R582
ICH9M REV 1.0
Install for UMA model
U20
VIN
VOUT
SHDN
GND
SET
R1
R2
C510 *1U/6.3V_4@IV
R384 *22.1K/F_4@IV
C502 *4.7U/6.3V_6@IV
R388 *100K/F_4@IV
*G913@IV
Vout=1.25(1+R1/R2)
www.vinafix.vn
PROJECT : KL1
Quanta Computer Inc.
Size: Custom
Document Number: ICH9-M Power 4/4
Rev: A1A
Date: Monday, January 05, 2009
Sheet 26 of 43



Power Board B to B 60PIN CONN

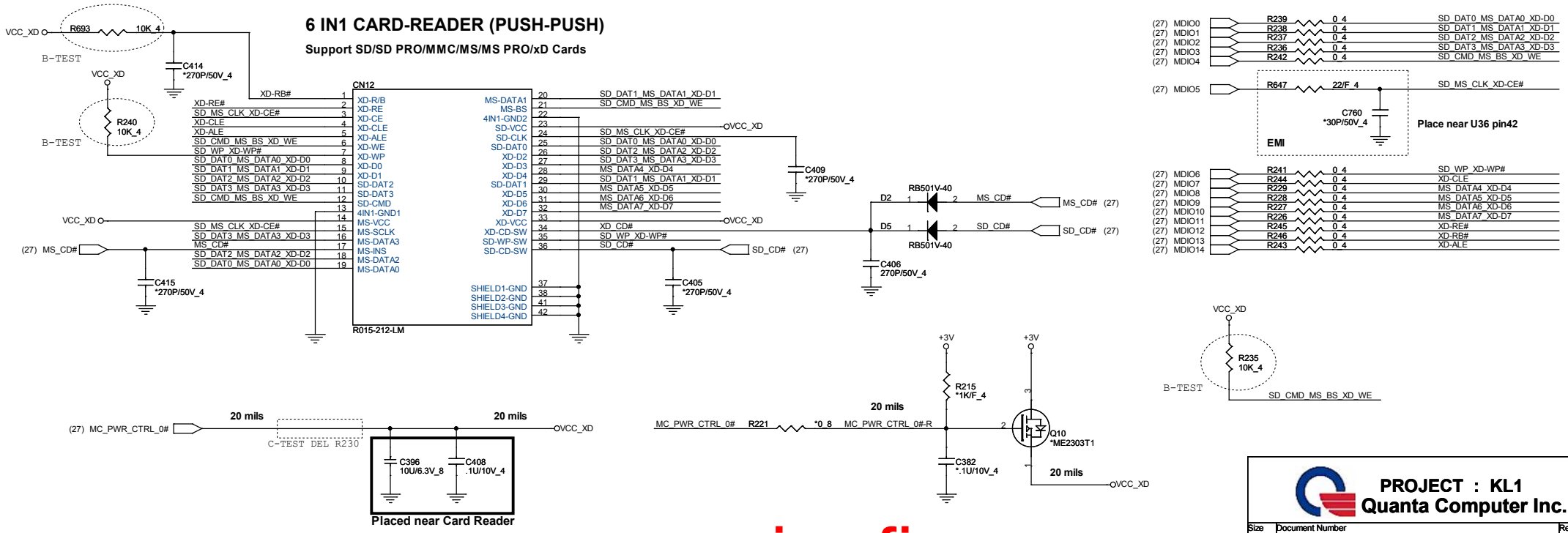


Charger+SIM CARD B to B 60PIN CONN



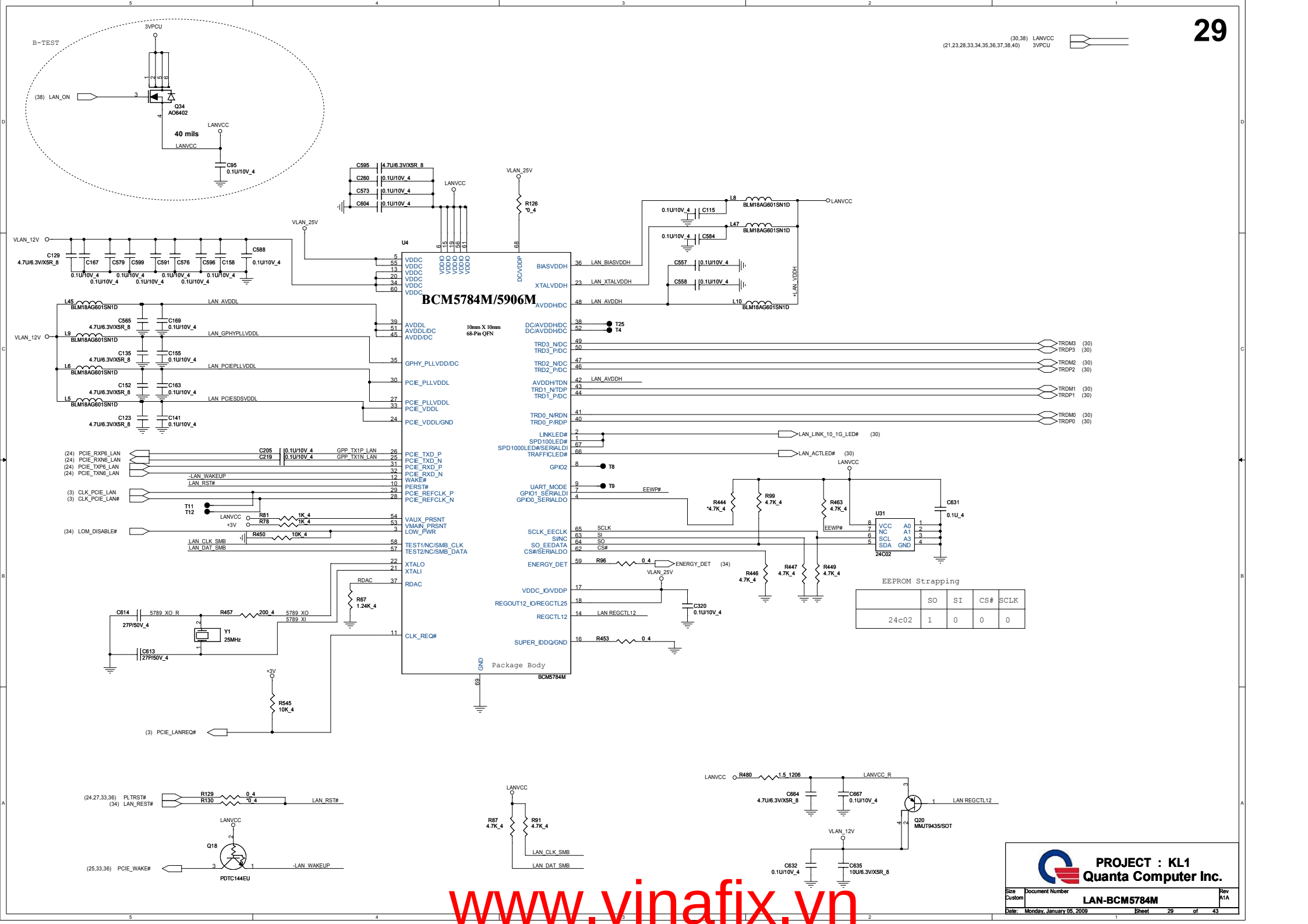
6 IN1 CARD-READER (PUSH-PUSH)

Support SD/SD PRO/MMC/MS/MS PRO/xD Cards

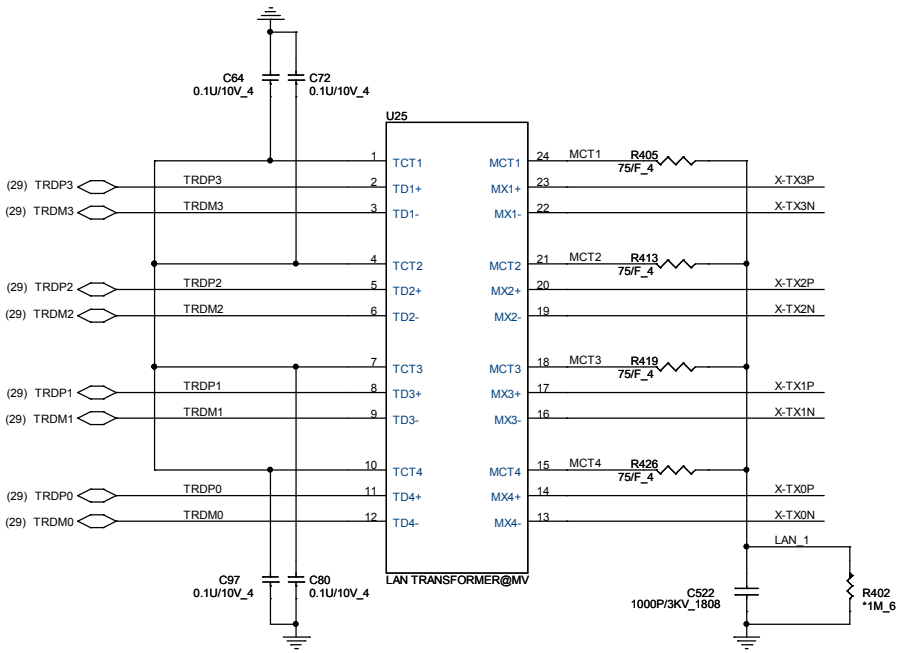


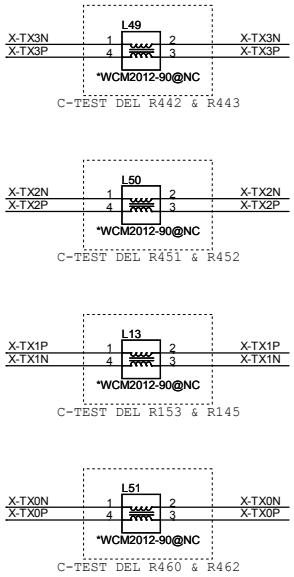
PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	B to B CONN & CR SOCKET	A1A
Date: Monday, January 05, 2009	Sheet 28 of 43	

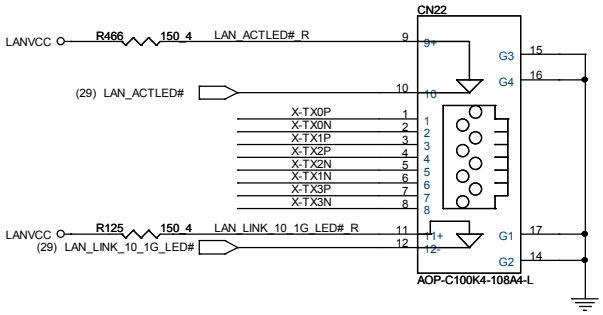


(29,38) LANVCC

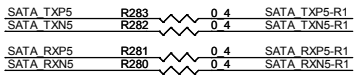


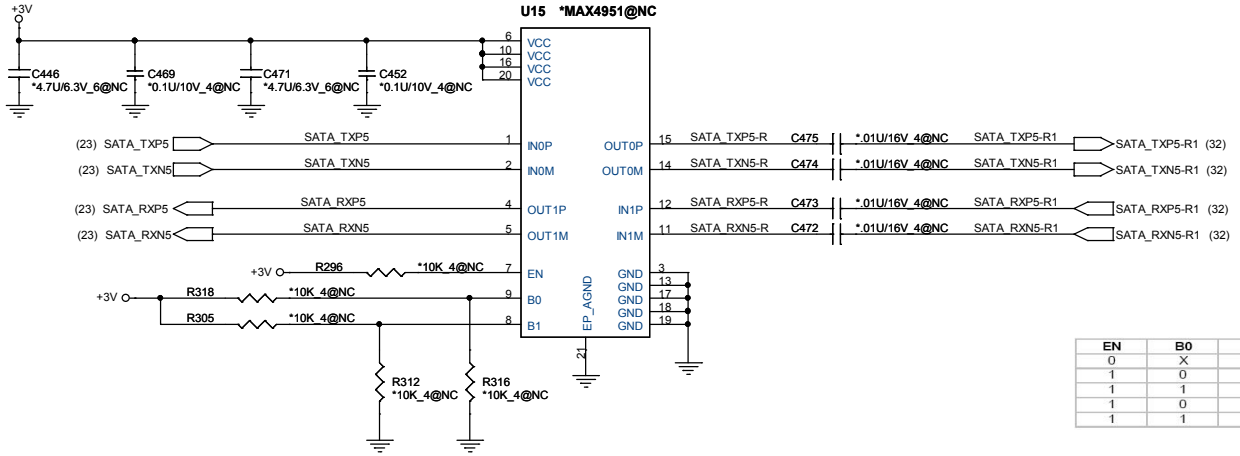


RJ45 CONN



E-SATA RE-DRIVER

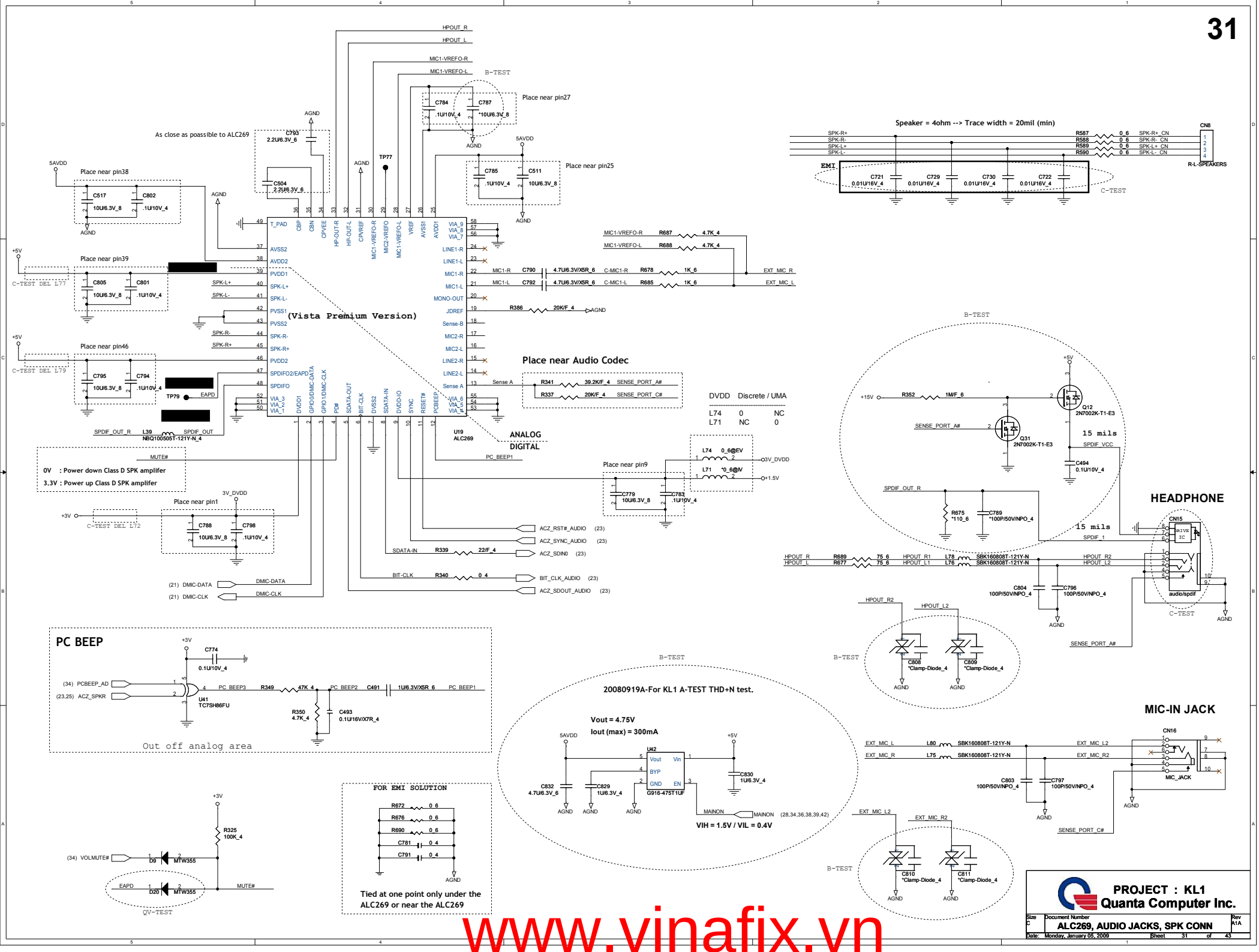




EN	B0	B1	FUNCTION
0	X	X	Standby
1	0	0	Standard SATA Output
1	1	0	Ch 0 Boost Output
1	0	1	Ch 1 Boost Output
1	1	1	Ch 0,1 Boost Output

PROJECT : KL1
Quanta Computer Inc.

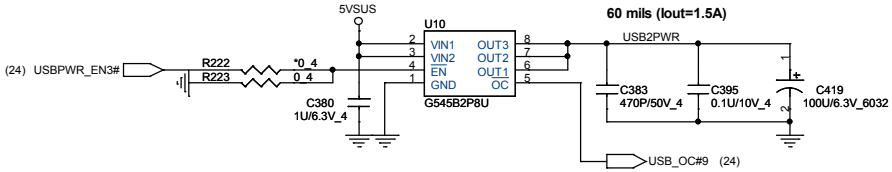
Size	Document Number	Rev
Custom	RJ45, E-SATA RE-DRIVER	A1A
Date: Monday, January 05, 2009	Sheet 30 of 43	

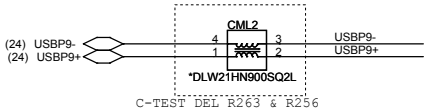


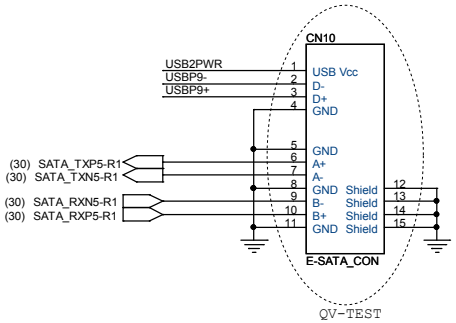
PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
C	ALC269, AUDIO JACKS, SPK CONN	A1A
Date: Monday, January 05, 2009	Sheet 31 of 43	

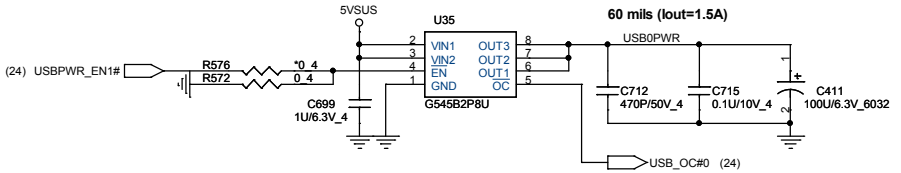
USB + eSATA CONNECTOR

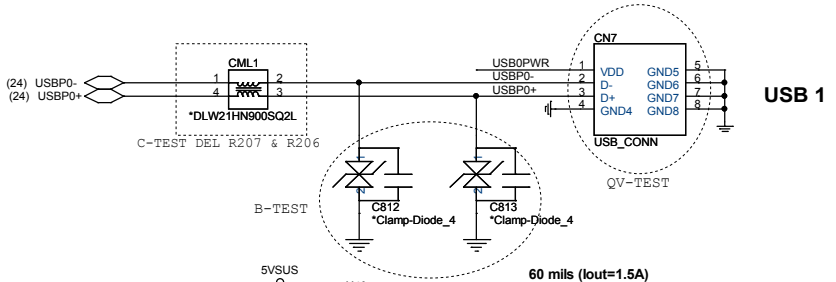


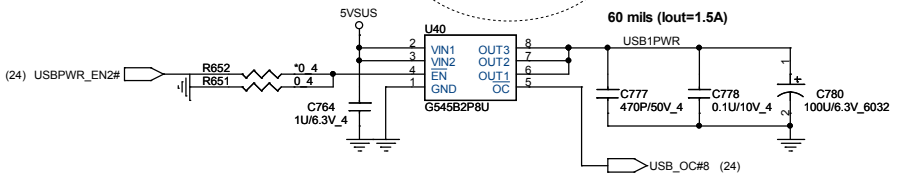


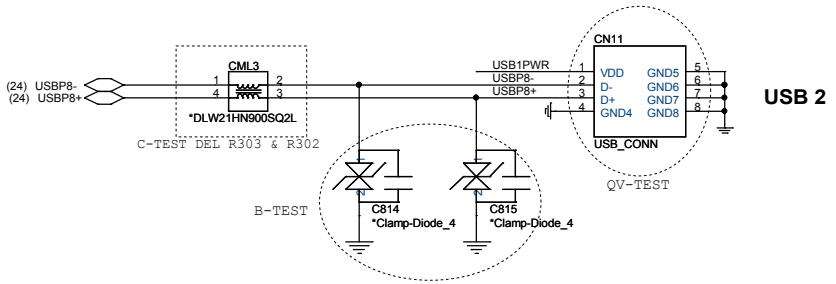


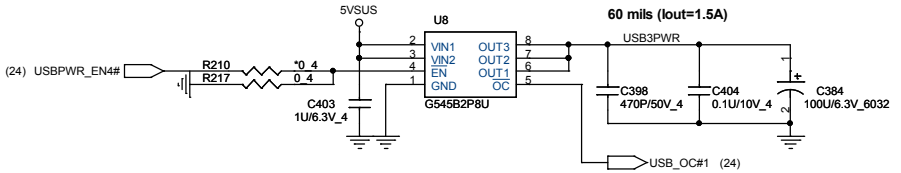
USBX3

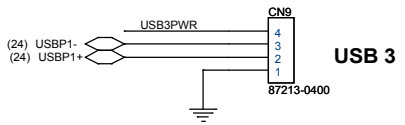








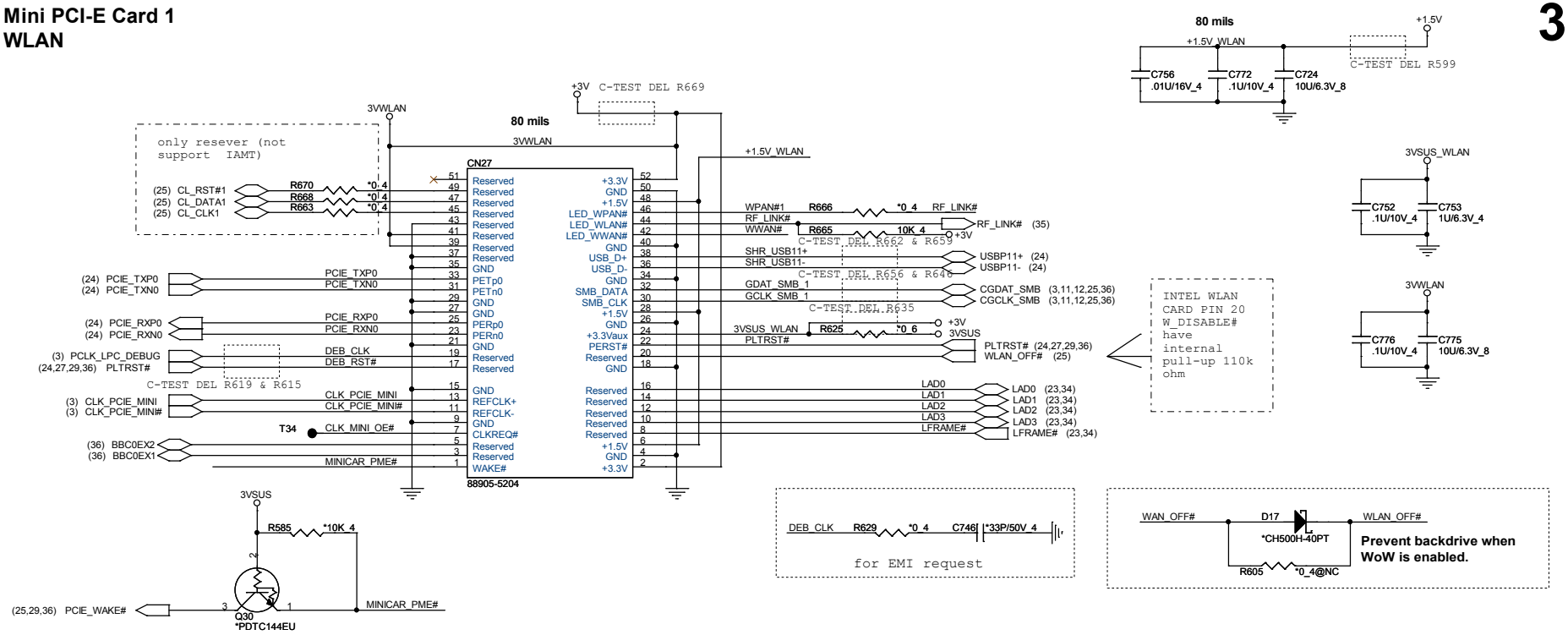




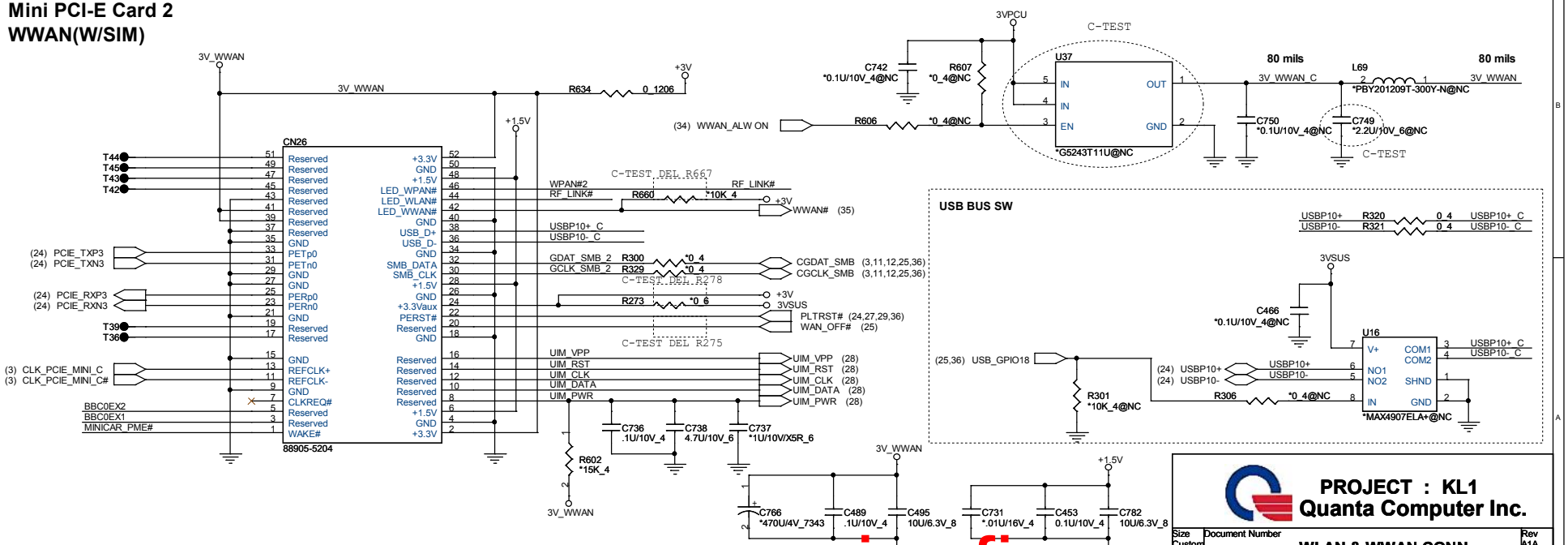
PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	USBX3, USB+E-SATA CONN	A1A
Date: Monday, January 05, 2009	Sheet 32 of 43	

Mini PCI-E Card 1
WLAN



Mini PCI-E Card 2
WWAN(W/SIM)



PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	WLAN & WWAN CONN	A1A
Date: Monday, January 05, 2009	Sheet 33 of 43	

IT8512E

Layout Note:
Place all capacitors close to IT8512.

Layout Note:
net "3VPCU" and "RTC_VCC"
minimum trace width 12mils.

(For PLL Power)

PM=>R291
GM=>R311

Note 1 : Since all GPIO belong to VSTBY power domain, and there are some special considerations below:
(1) If it is output to external VCC derived power domain circuit, this signal should be isolated by a diode such as KBRST# and GA20.
(2) If it is input from external VCC derived power domain circuit, this external circuit must consider not to float the GPIO input.

Note 2 :
(1) Each input pin should be driven or pulled.
(2) Each output-drain output pin should be pulled.

TMKBC Function	
High	Enable
Low	Disable

R609	FLASH TYPE SELECT
High	LPC/FWH FLASH ROM
Low	SPI FLASH ROM (Default)

Close to EC

POWER SWITCH/ NOVO BUTTON

RF ON/OFF SWITCH

16Mbit (2M Byte), SPI

Winbond AKE38ZP0N00
SST AKE28FP0K07
MX AKE37FP0Z13

MX25L1605A

CIR

20 mils

IR-IRM-V538-TR1
IR-IRM-V538-TR1-3P
BEBK0076Z00

B-TEST

DEBUG POWER SWITCH

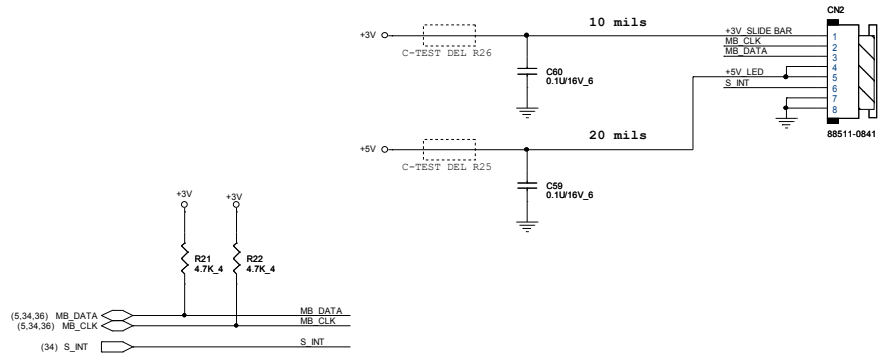
PROJECT : KL1
Quanta Computer Inc.

EC IT8512E

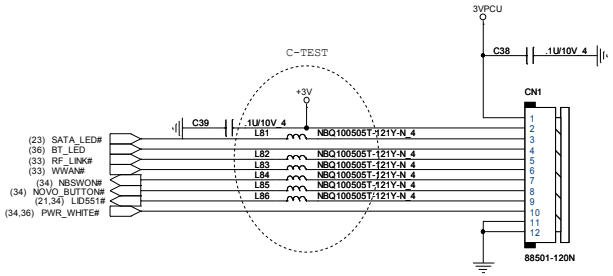
Size: Custom | Document Number | Rev: A1A

Date: Monday, January 05, 2009 | Sheet 34 of 43

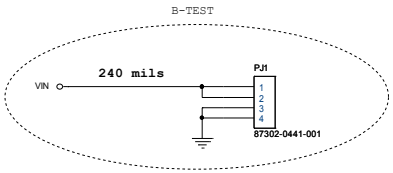
SLIDE BAR CONN



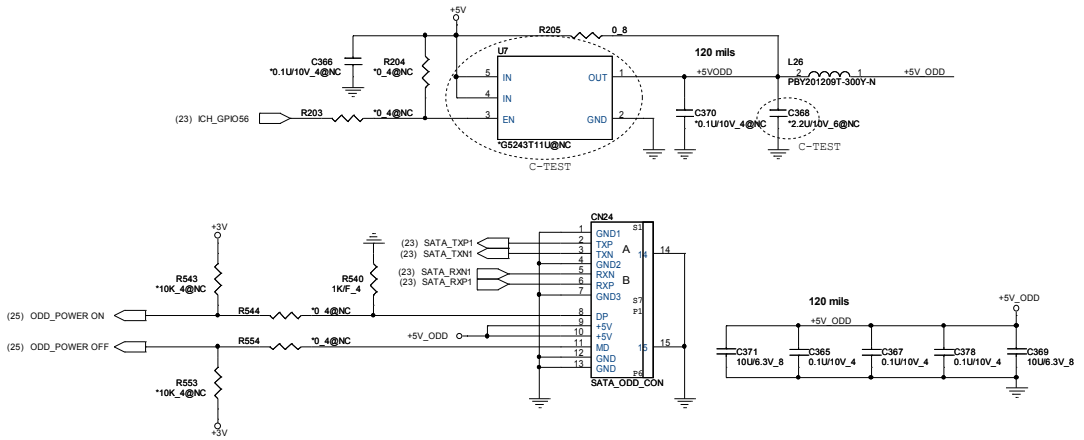
POWER BUTTON/B CONN



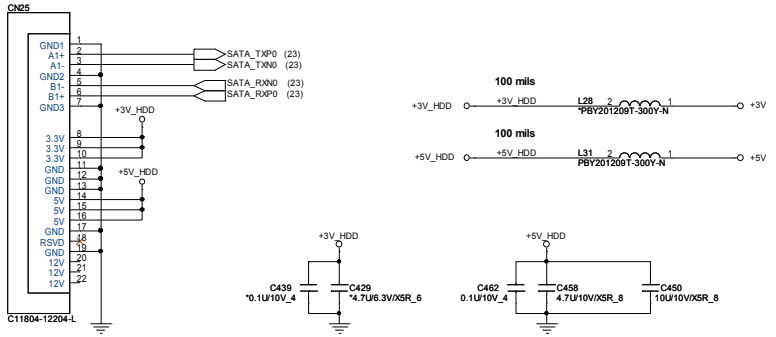
VIN CABLE CONN



SATA CD-ROM



SATA-HDD CONNECTOR

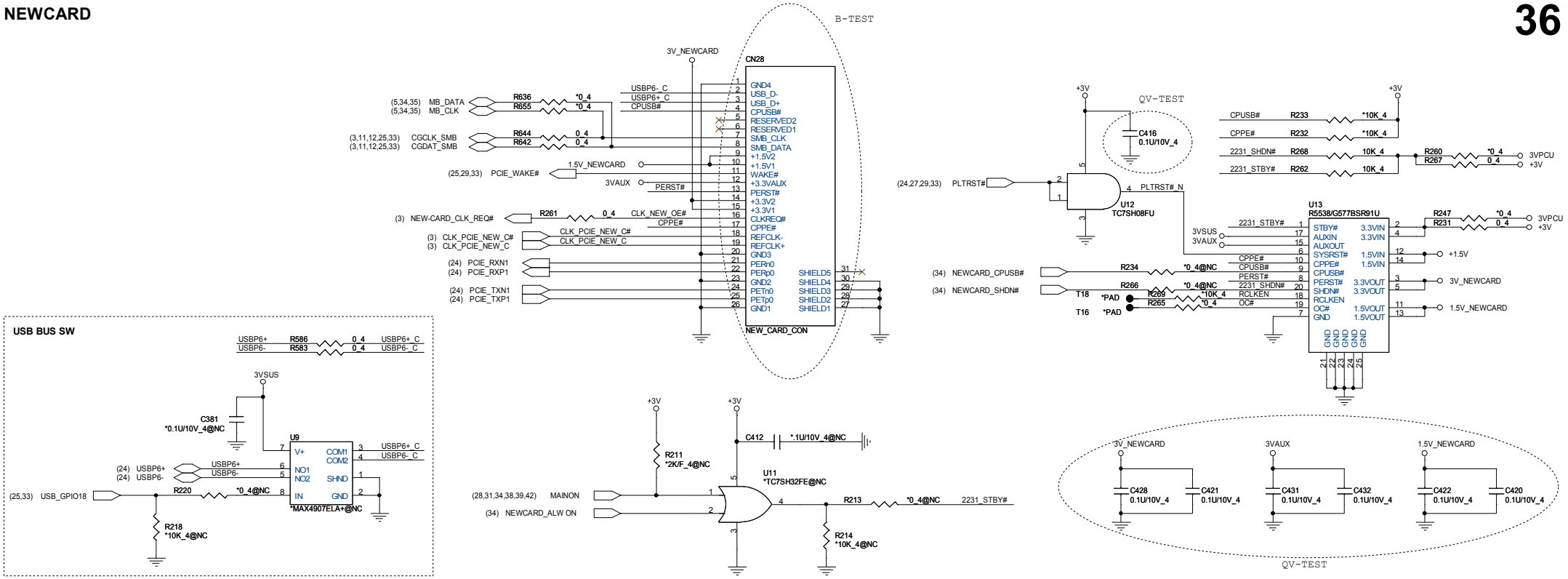


PROJECT : KL1
Quanta Computer Inc.

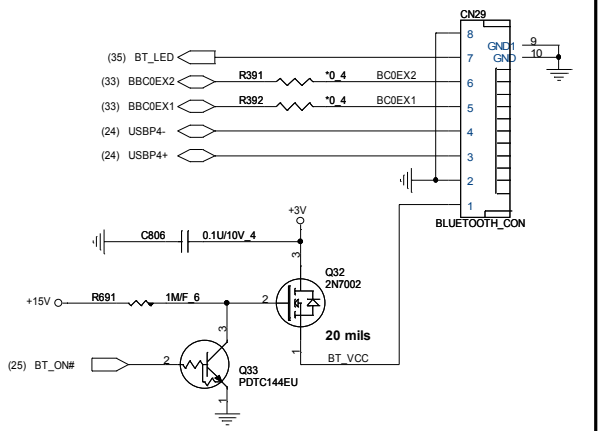
Size	Document Number	Rev
C	SATA ODD&HDD, SB, PB/B CONN	MA

Date: Monday, January 05, 2009 Sheet 35 of 43

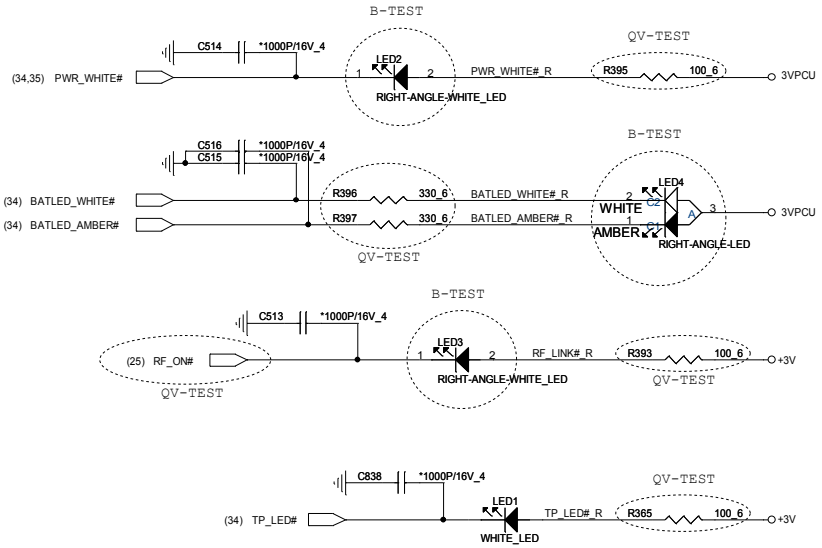
NEWCARD



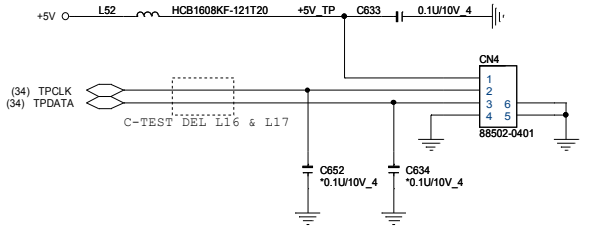
BLUETOOTH



LED



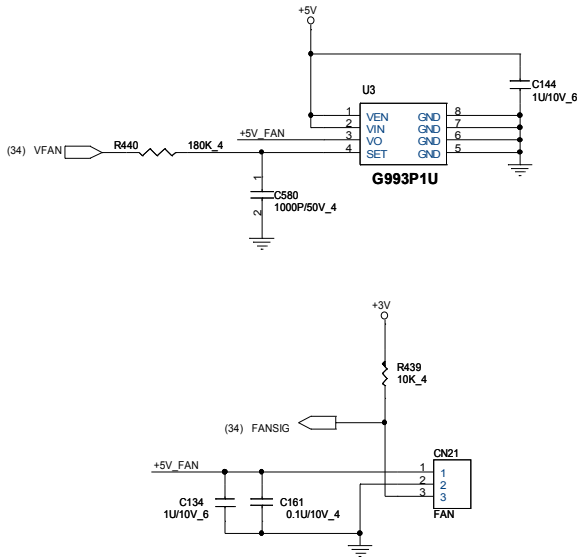
TOUCH PAD



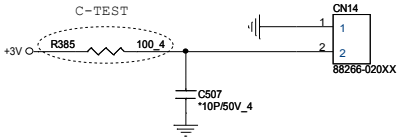
PROJECT : KL1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	T/P, NEW CARD, B/T, LED	A1A
Date: Monday, January 05, 2009	Sheet 36 of 43	

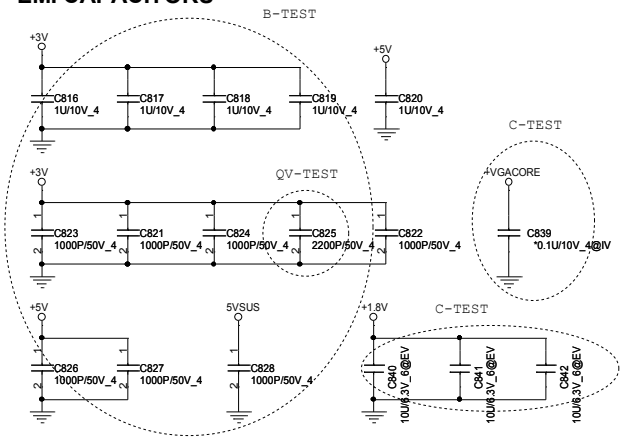
FAN CONTROL

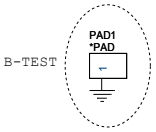


Logo LED CONN



EMI CAPACITORS





WLAN & WWAN CABLE HOLE (NON-PTH)

HOLE9 *H-O157X374D157X374N

(NON-PTH)

HOLE11 *H-C87D87N

M/B SCREW HOLE

HOLE2 *h-c276d110p2
HOLE13 *h-c276d110p2
HOLE4 *h-c217d110p2
HOLE10 *H-C276I150D110P2
HOLE12 *h-c276d110p2
HOLE14 *h-c276d110p2
HOLE15 *h-c276d110p2
HOLE1 *h-c276d110p2
HOLE8 *h-c276d110p2

B-TEST C-TEST

CPU HOLE (NON-PTH)

HOLE3 *h-c142d142n
HOLE6 *h-c142d142n
HOLE7 *h-c142d142n
HOLE5 *h-c142d142n

QV-TEST

VGA NUT (NON-PTH)

HOLE18 *h-c197d142p2
HOLE17 *h-c197d142p2

C-TEST

WLAN NUT

HOLE22 H-C150I110D80P2
HOLE20 H-C150I110D80P2

WWAN NUT

HOLE21 H-C150I110D80P2
HOLE23 H-C150I110D80P2

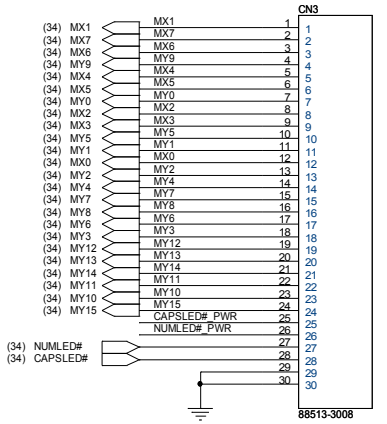
CHARGER+SIM/B NUT

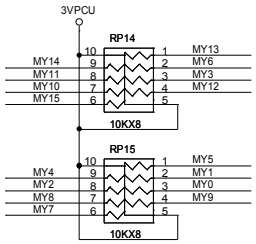
HOLE16 H-C228D87P2

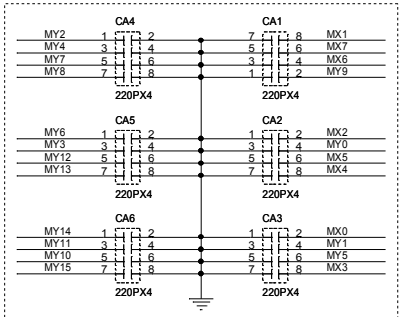
POWER/B NUT

HOLE19 H-C228D87P2

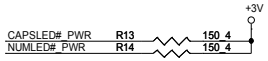
KEYBOARD



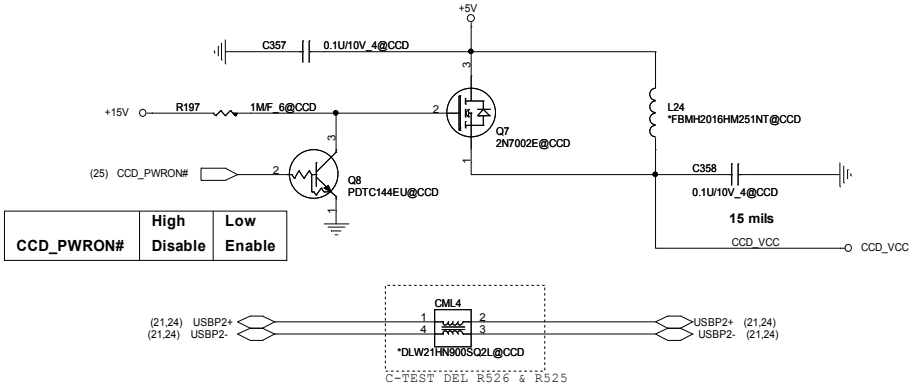




For EMI request



CCD MODULE



CCD_PWRON#	High	Low
	Disable	Enable

C-TEST DEL R526 & R525

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Custom	FAN & K/B CONN, CCD, HOLES, EMI	A1A
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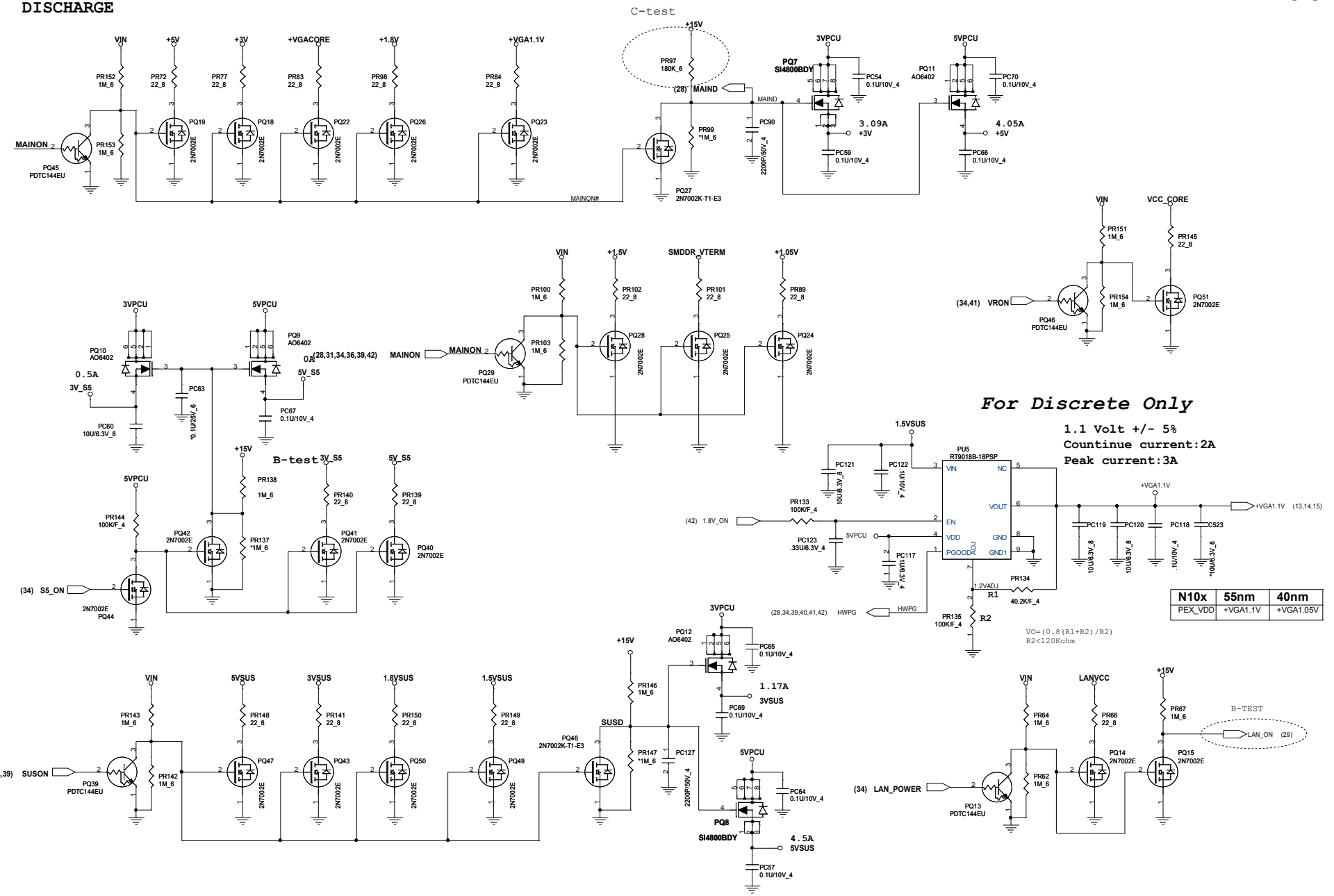
DISCHARGE



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Quanta Computer Inc.

Size	Document Number	Rev
Custom	Discharge	A1A

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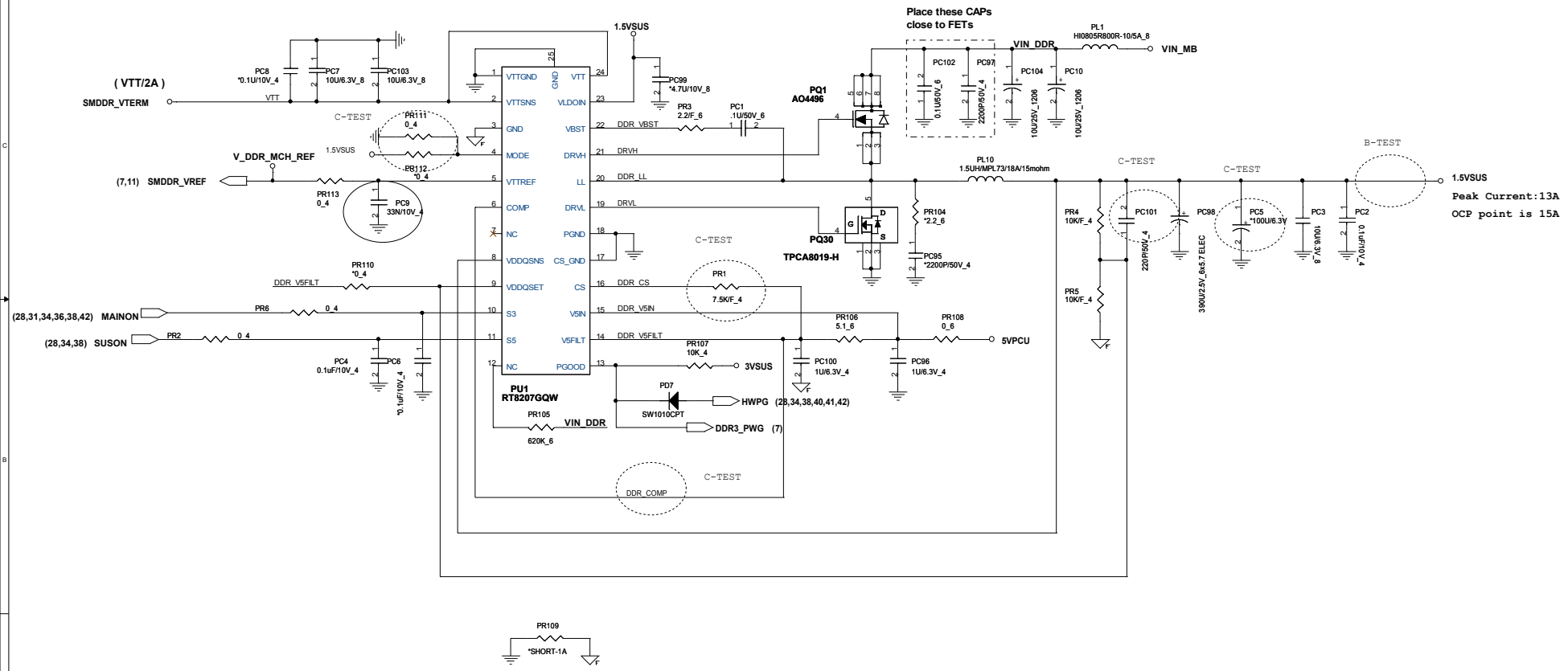

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 (TPS51116PEGR)	A1A

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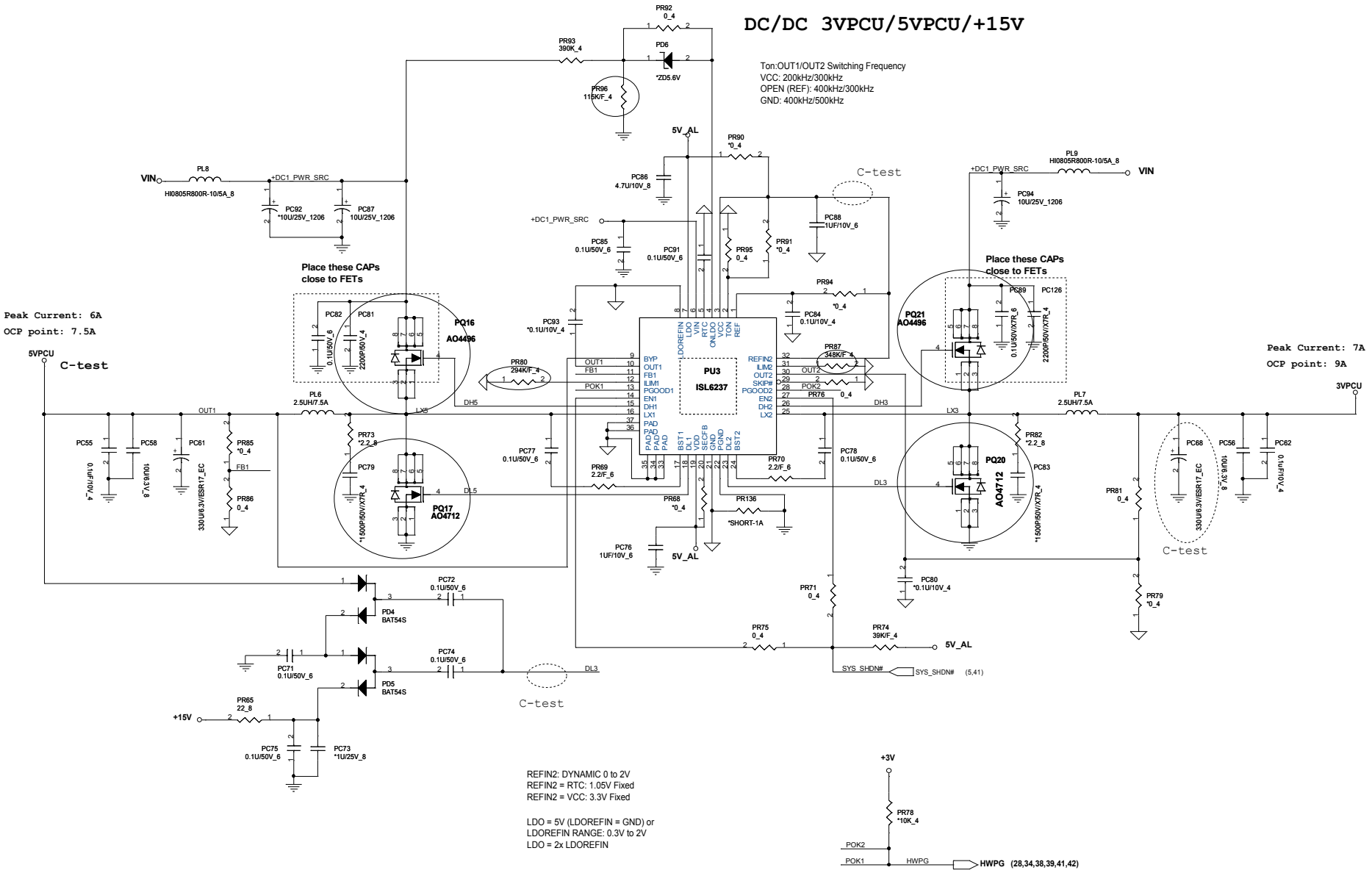
DC/DC 3VPCU/5VPCU/+15V



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Custom	+3V/+5V (ISL6237)	A1A

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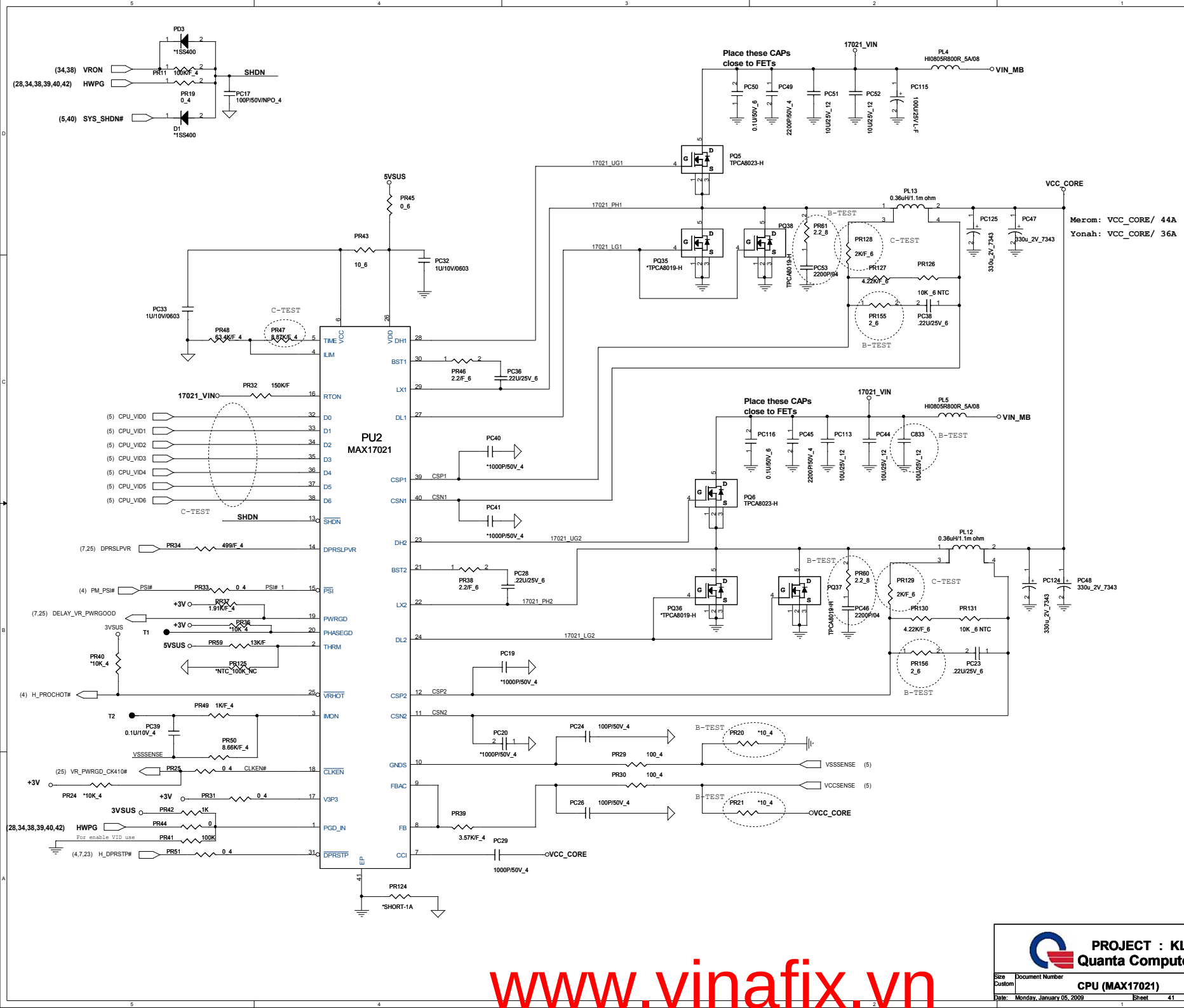
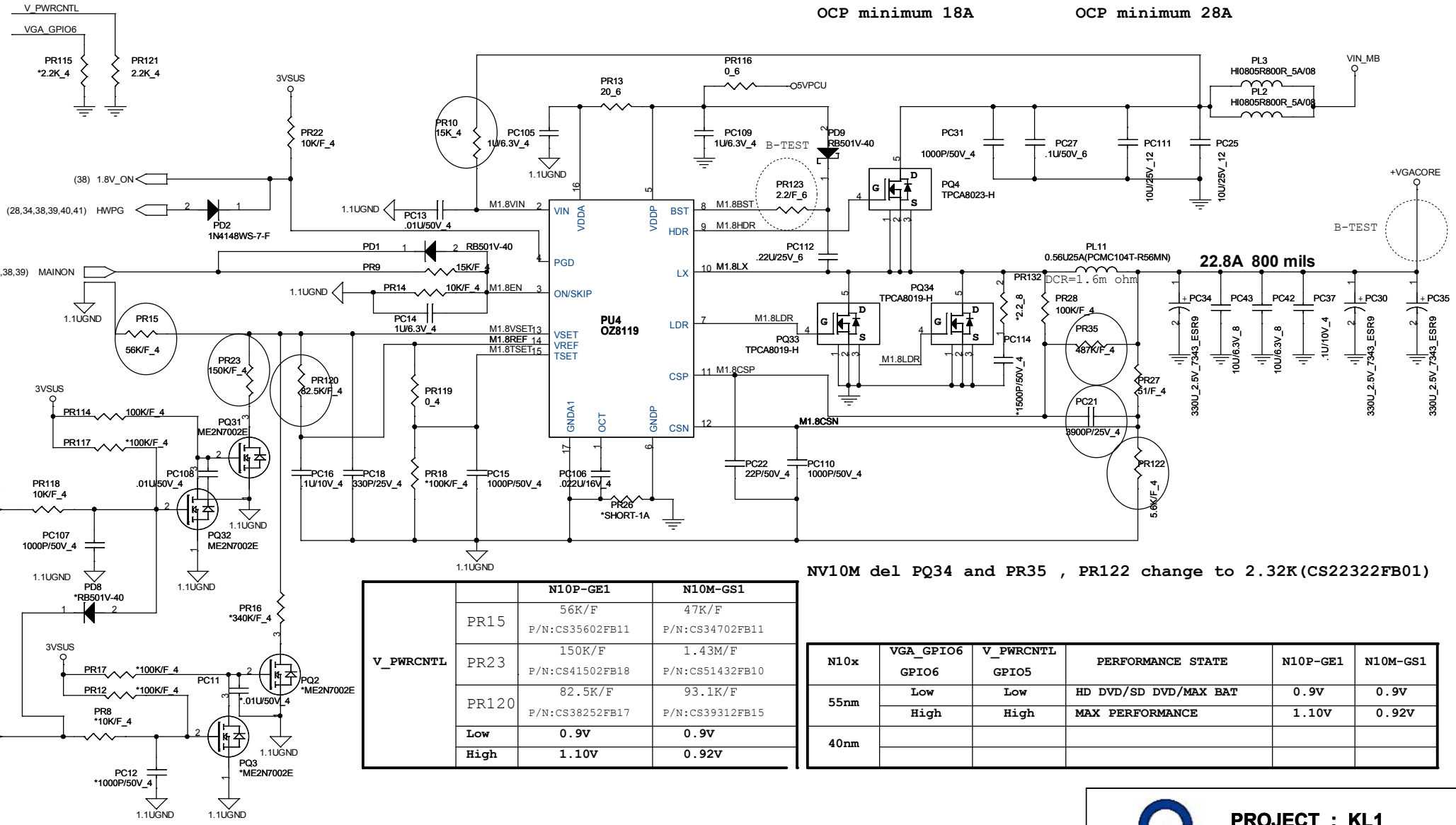


VGA Core & VCC1.1

NV10M +0.92Volt +/- 5%
Countinue current:13A
Peak current:16A
OCP minimum 18A

NV10P +1.1Volt +/- 5%
Countinue current:20A
Peak current:23A
OCP minimum 28A



NV10M del PQ34 and PR35 , PR122 change to 2.32K(CS22322FB01)

V_PWRCNTL		N10P-GE1	N10M-GS1
	PR15	56K/F P/N:CS35602FB11	47K/F P/N:CS34702FB11
	PR23	150K/F P/N:CS41502FB18	1.43M/F P/N:CS51432FB10
	PR120	82.5K/F P/N:CS38252FB17	93.1K/F P/N:CS39312FB15
	Low	0.9V	0.9V
	High	1.10V	0.92V

N10x	VGA_GPIO6 GPIO6	V_PWRCNTL GPIO5	PERFORMANCE STATE	N10P-GE1	N10M-GS1
55nm	Low	Low	HD DVD/SD DVD/MAX BAT	0.9V	0.9V
	High	High	MAX PERFORMANCE	1.10V	0.92V
40nm					

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Size	Document Number	Rev
B	VGA Core (OZ8119)	A1A
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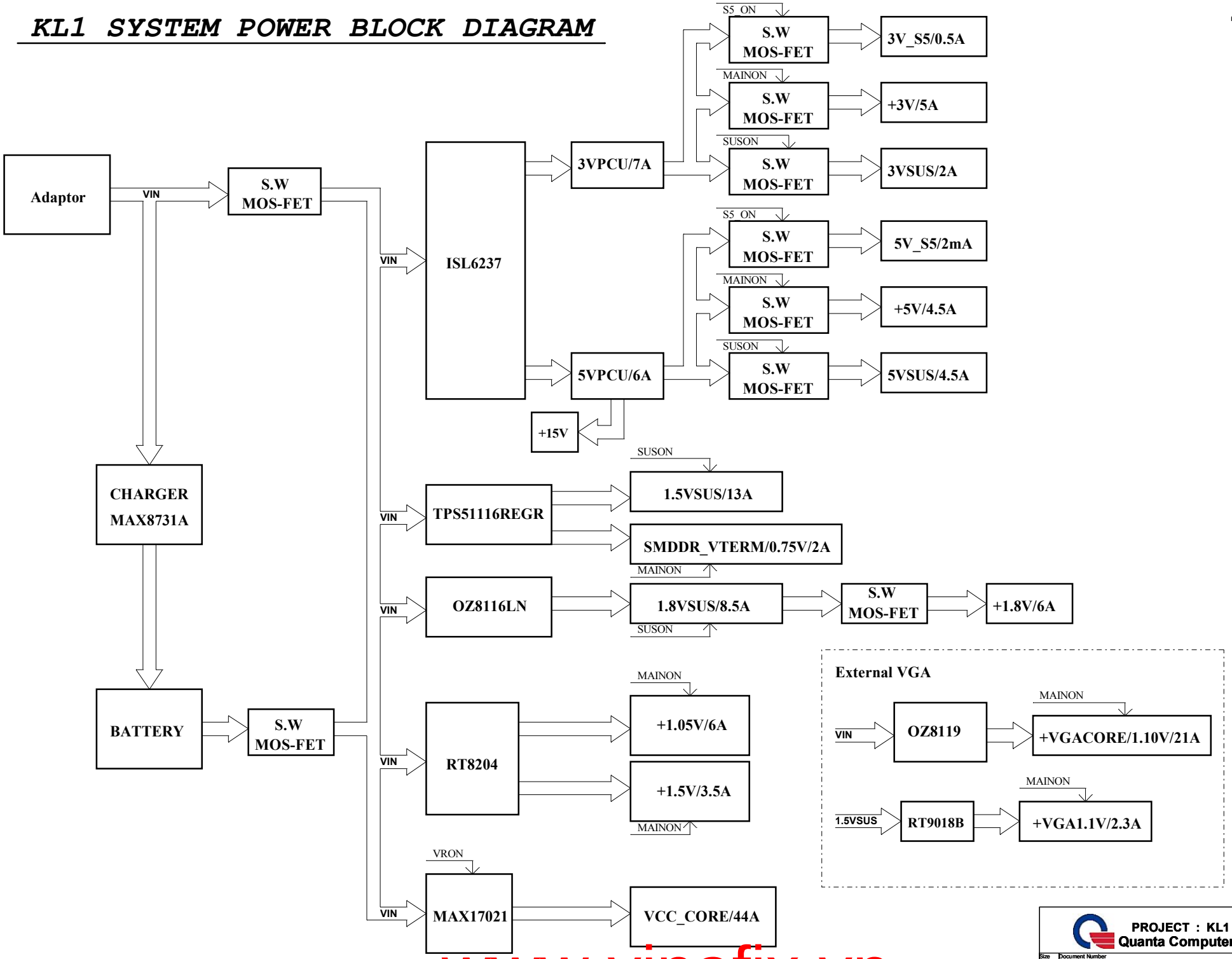
KL1 SYSTEM POWER BLOCK DIAGRAM



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Size	Document Number	Rev
C	SYSTEM POWER BLOCK DIAGRAM	A1A

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