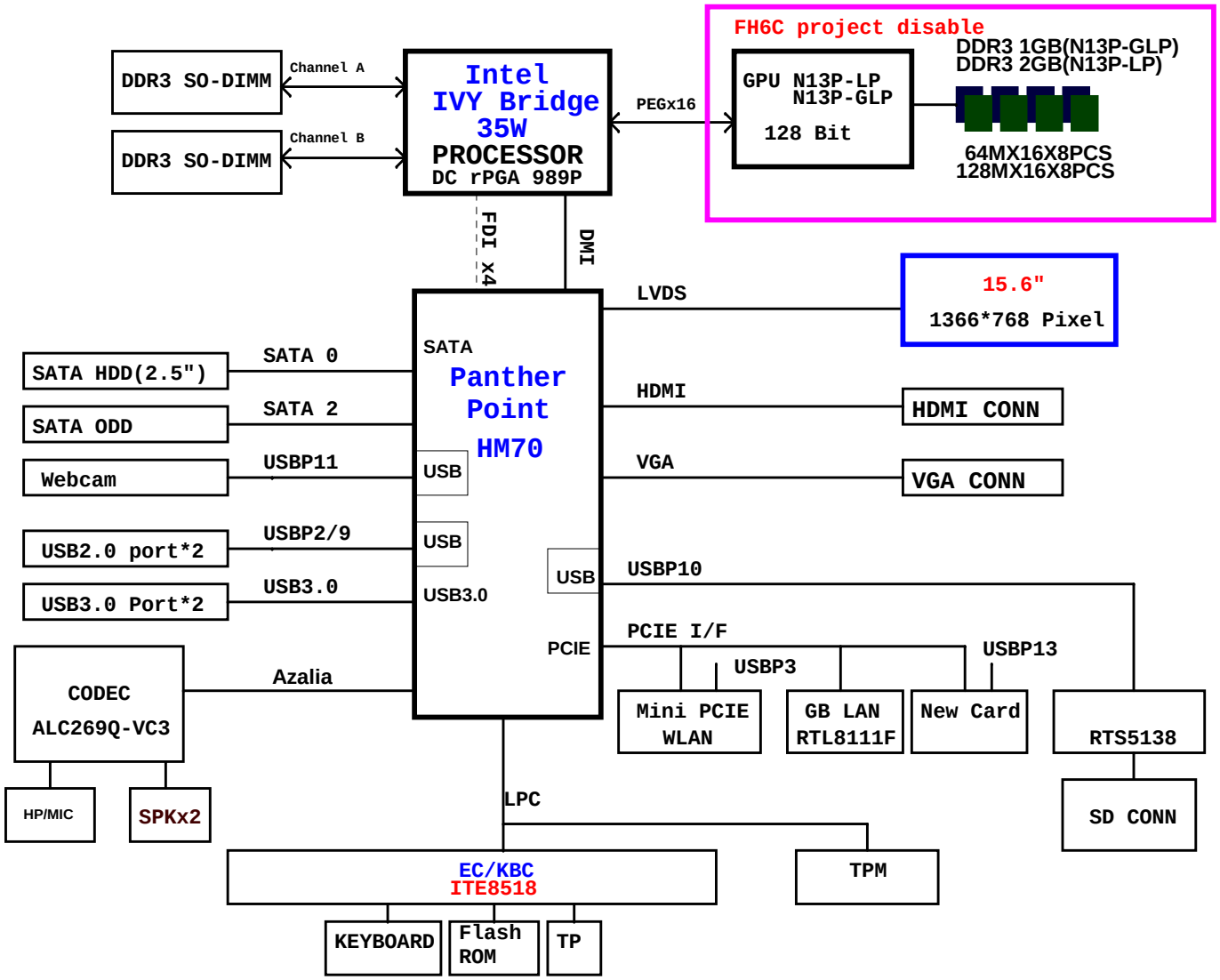
PCB Stackups

LAYER 1 : TOP
LAYER 2 : GND
LAYER 3 : IN1
LAYER 4 : IN2
LAYER 5 : PWR
LAYER 6 : BOT

15.6" Discrete Block Diagram

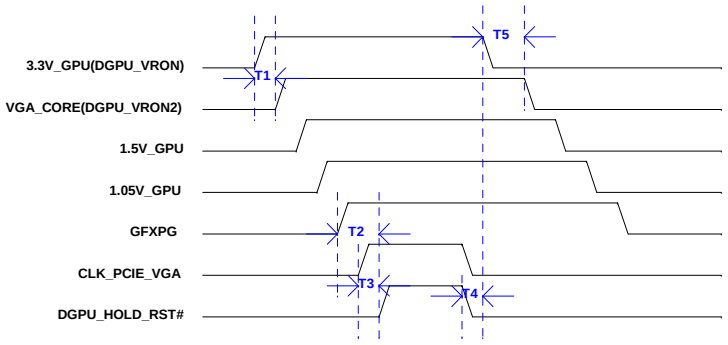


Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: Block Diagram | Rev B
Date: Tuesday, May 22, 2012 | Sheet 1 of 45

Table of Contents

POWER PLANE	VOLTAGE	CONTROL SIGNAL	Power States ACTIVE IN
VIN	10V~+19V		S0~S5
3V_RTC	+3.0V~+3.3V		S0~G3
3V_S0	+3.3V	S0_ON1	S0
3V_S5	+3.3V	EC	S0~S5
3V_AUX	+3.3V	AC/DC Insert enable	AWLAYS
5V_S0	+5V	S0_ON1	S0
5V_S3	+5V	S3_ON	S0~S3
5V_S5	+5V	EC	S0~S5
5V_AUX	+5V	AC/DC Insert enable	AWLAYS
1.8V_S0	+1.8V	S0_ON2	S0
1.5V_S0	+1.5V	S0_ON2	S0
1.5V_S3	+1.5V	S3_ON	S0~S3
1.05V_S0	+1.05V	S0_ON2	S0
VCCSA	By VID	S0_ON2	S0
CPU_CORE	By VID	VR_ON	S0
VCC_AXG	By VID	VR_ON	S0
3V_LAN	+3.3V	LAN_ON	S0~S5(By WOL)
3V_GPU	+3.3V	DGPU_VRON	Optimus
1.5V_GPU	+1.5V	DGFX_VR_PWRGD	Optimus
1.05V_GPU	+1.05V	DGFX_VR_PWRGD	Optimus
VGA_CORE	By VID	DGPU_VRON1	Optimus

N13P-LP Power ON/OFF Sequence



BIOS/ EC control:
T1:DGPU_VRON to DGPU_VRON2 = 500us
T2:GFXPG to DGPU_HOLD_RST# = 5ms
T3:CLK_PCIE_VGA to DGPU_HOLD_RST# >100us(Spec)
T4:DGPU_HOLD_RST# to DGPU_VRON = 5ms
Note: Clock must be shutdown before 3.3V_GPU
T5:DGPU_VRON to DGPU_VRON2 = 500us

N13P-LP & N13P-GLP Table

	N13P-GLP	N13P-LP
VL3	BLM18P121SN (CX8PG121009)	0ohm_0603 (CS00003J951)

	N13P-GLP	N13P-LP
VR111	NA	10Kohm_0402 (CS31002FB26)

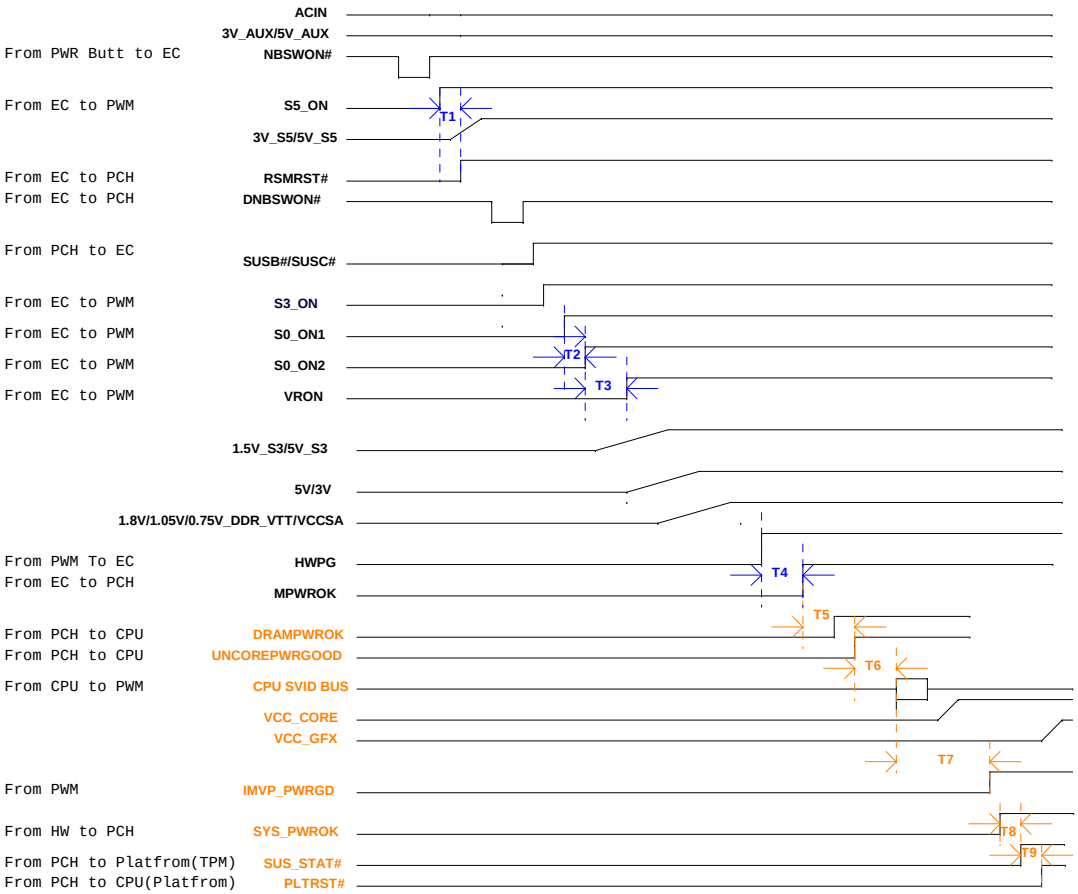
	N13P-GLP	N13P-LP
VR62	10Kohm_0402 (CS31002FB26)	NA

ID2	ID1	ID0	Model PU/PD RES P/N:CS31002JB28
0-R435	0-R438	0-R437	FJ8 UMA
0-R435	0-R438	1-R430	FJ8 Discrete
0-R435	1-R382	0-R437	FH6 UMA(Consumer)
0-R435	1-R382	1-R430	FH6 UMA(Commercial)
1-R384	0-R438	0-R437	FH6 N13P-LP
1-R384	0-R438	1-R430	FH6 N13P-GLP
1-R384	1-R382	0-R437	TBD
1-R384	1-R382	1-R430	TBD

B-29

		GLP 1GB HYN	GLP 1GB SAM	GLP 2GB HYN	GLP 2GB SAM	LP 2GB HYN	LP 2GB SAM
ROM_SCLK	VR44 VR54	NA CS31502FB24	NA CS31502FB24	NA CS31502FB24	NA CS31502FB24	CS24992FB26 NA	CS24992FB26 NA
ROM_SI	VR41 VR52	NA CS31502FB24	NA CS32002FB29	NA CS33012FB18	NA CS34532FB18	NA CS33012FB18	NA CS34532FB18
ROM_SO	VR43 VR53	NA CS31002FB26	NA CS31002FB26	NA CS31002FB26	NA CS31002FB26	CS31002FB26 NA	CS31002FB26 NA
STRAP0	VR51 VR55	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA
STRAP1	VR46 VR56	NA CS34532FB18	NA CS34532FB18	NA CS34532FB18	NA CS34532FB18	NA CS24992FB26	NA CS24992FB26
STRAP2	VR47 VR57	CS24992FB26 NA	CS24992FB26 NA	CS24992FB26 NA	CS24992FB26 NA	NA CS32002FB29	NA CS32002FB29
STRAP3	VR48 VR58	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26
STRAP4	VR50 VR59	NA NA	NA NA	NA NA	NA NA	NA CS34532FB18	NA CS34532FB18

System Power-ON Sequence



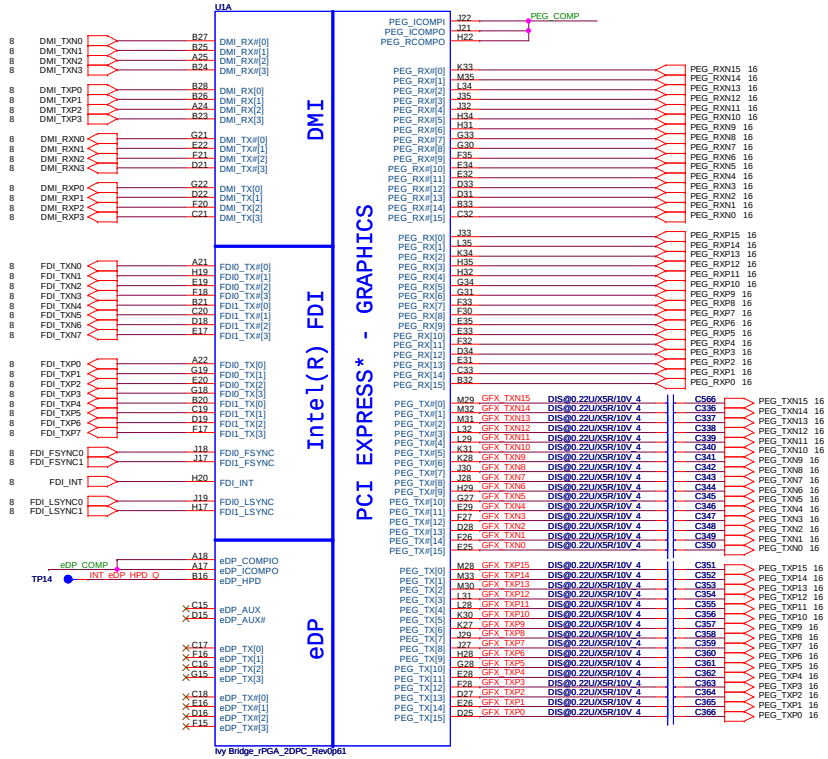
System Power Sequence

EC Control:
T1: S5_ON TO RSMRST# = 20ms (spec:mini 10ms)
T2: S0_ON1 TO S0_ON2 = 500us
T3: S0_ON2 TO VRON = 10ms
T4: HWPG TO MPWROK = 110ms (spec:mini 99ms)
Note:HWPG NEED TO BE HIGH at that time

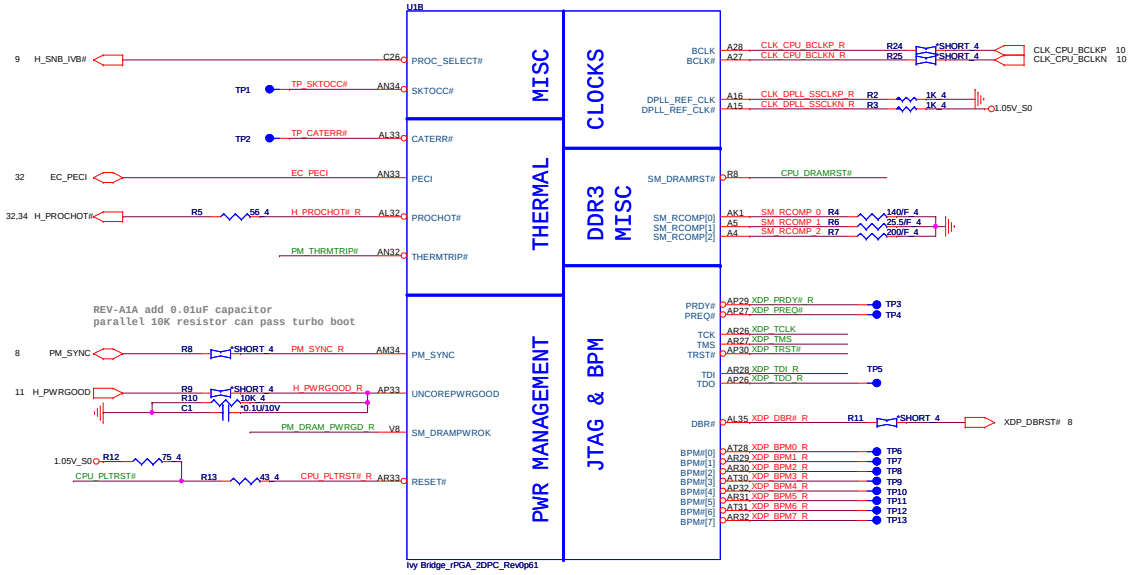
System:
T5: MPWROK to UNCOREPWRGOOD =2ms(Min)
T6: UNCOREPWRGOOD to SVID Packet =500us(Max)
T7: SVID Packet to IMVP_PWRGD =5ms(Max)
T8: SYS_PWROK to SUS_STAT# =1ms(Min)
T9:SUS_STAT# to PLTRST# =60us(Min)

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: POWER SEQUENCE | Rev B
Date: Tuesday, May 22, 2012 | Sheet 3 of 45

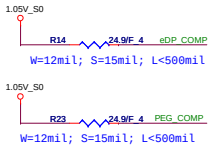
Ivy Bridge Processor (DMI,PEG,FDI)



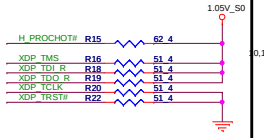
Ivy Bridge Processor (CLK,MISC,JTAG)



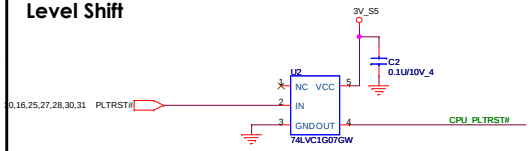
DP & PEG Compensation



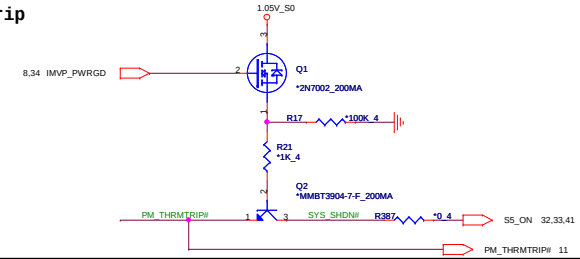
Processor pull-up



Level Shift



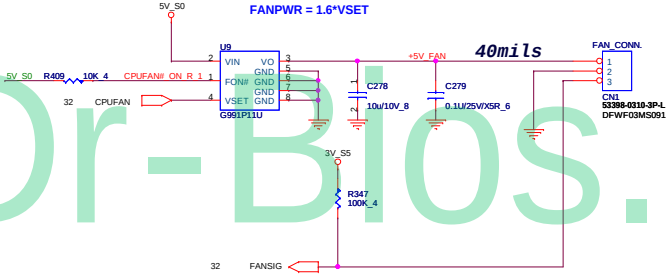
Thermal Trip



FAN Control-->For one FAN solution

VSET >= 1V, Enable

FANPWR = 1.6*VSET



Quanta Computer Inc.

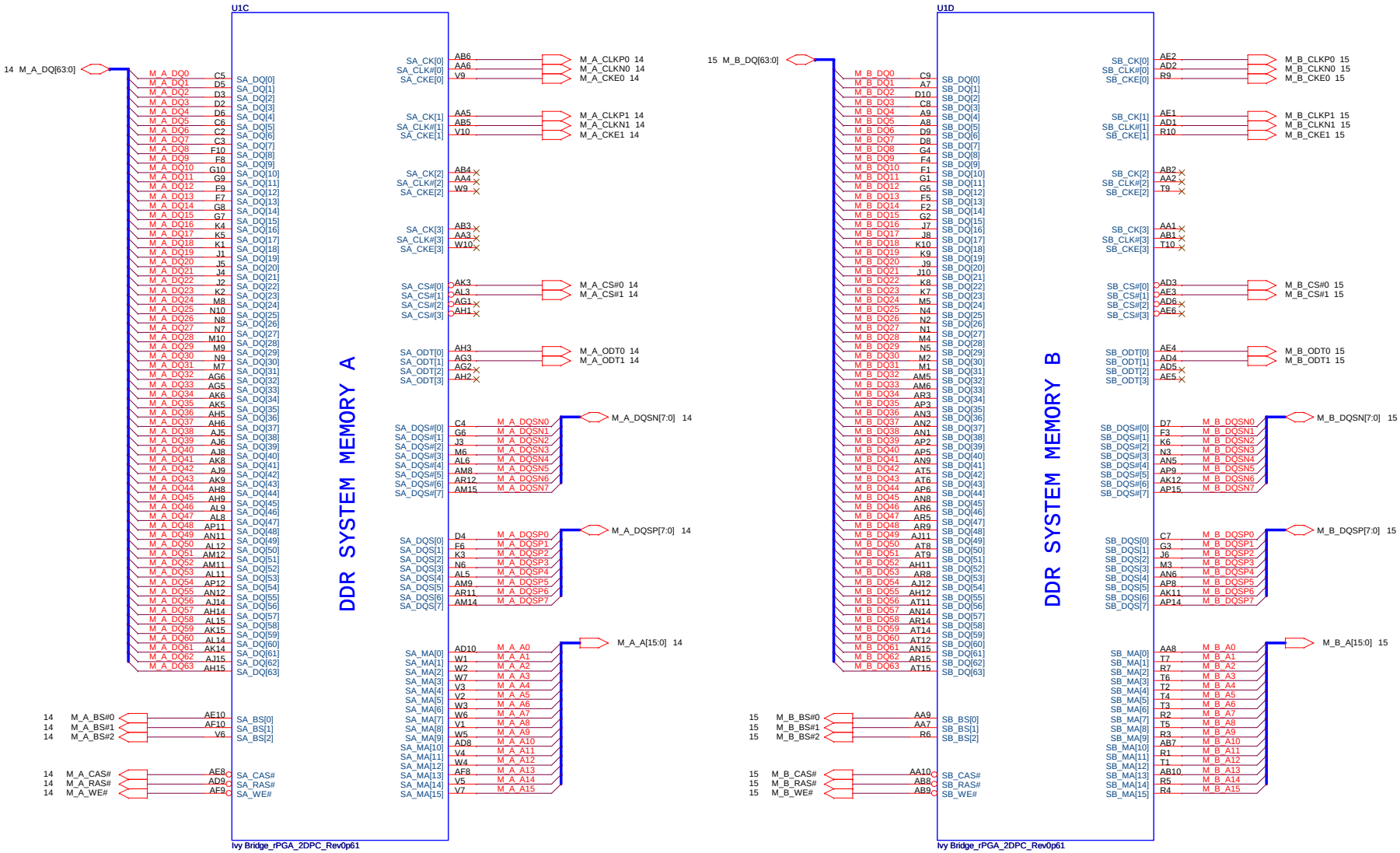
PROJECT : FH6C_HM70

Size	Document Number	Rev
	Ivy Bridge 1/4	B

Date: Tuesday, May 22, 2012 Sheet 4 of 45

Ivy Bridge Processor (DDR3)

05



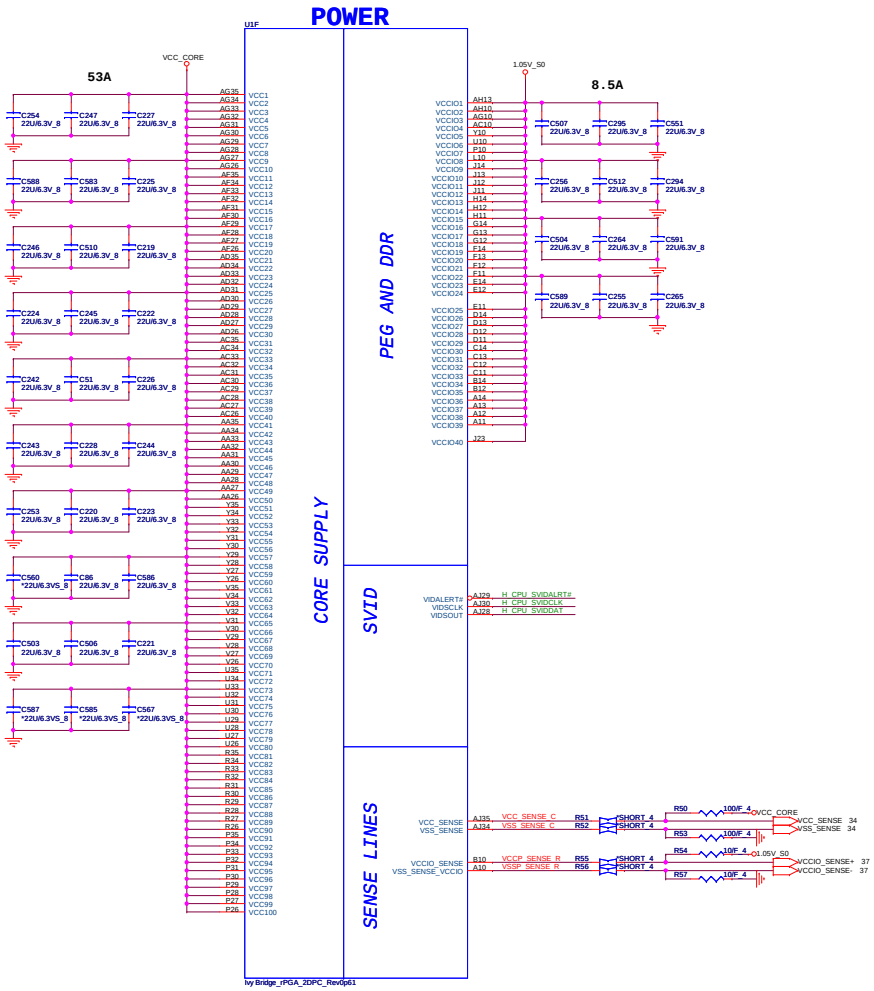
Quanta Computer Inc.

PROJECT : FH6C_HM70

Size	Document Number	Rev
	Ivy Bridge 2/4	B

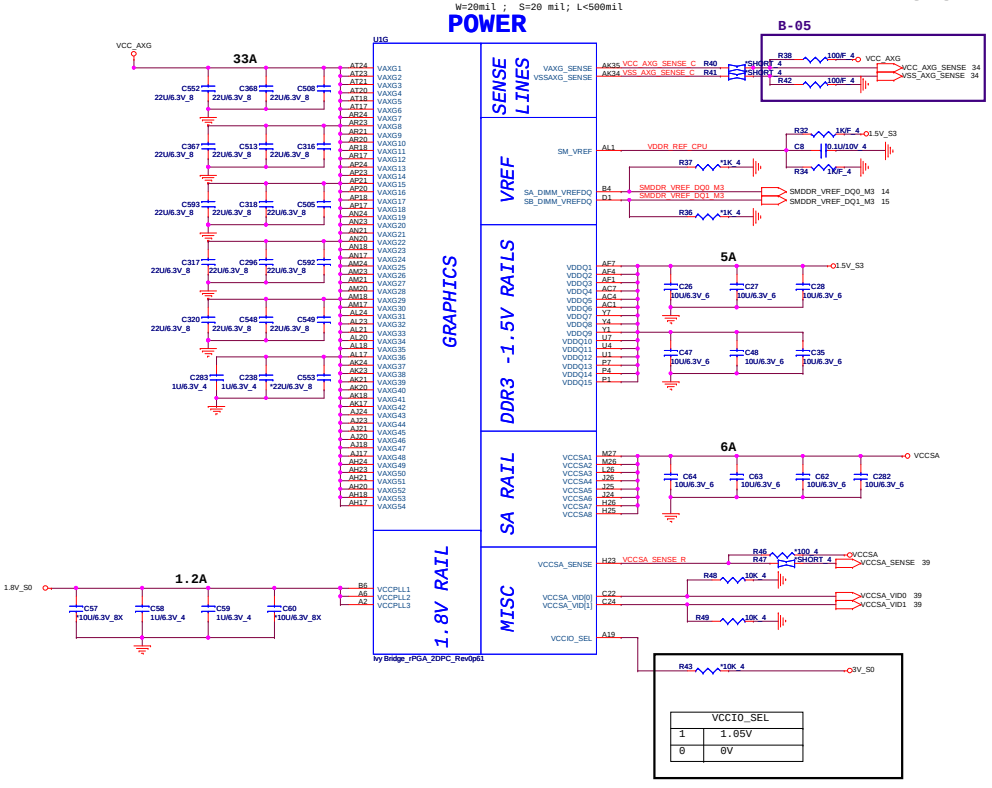
Date: Tuesday, May 22, 2012 Sheet 5 of 45

Ivy Bridge Processor (POWER)



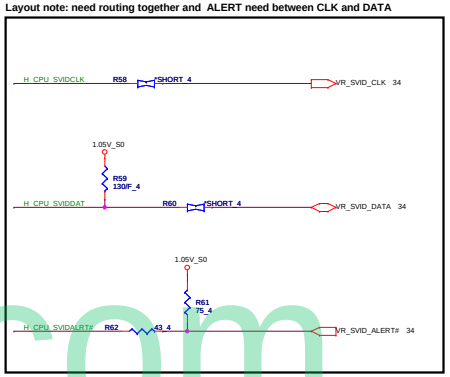
Ivy Bridge Processor (GRAPHIC POWER)

W=20mil ; S=20 mil; L<500mil



VCCIO_SEL	
1	1.05V
0	0V

Layout note: need routing together and ALERT need between CLK and DATA

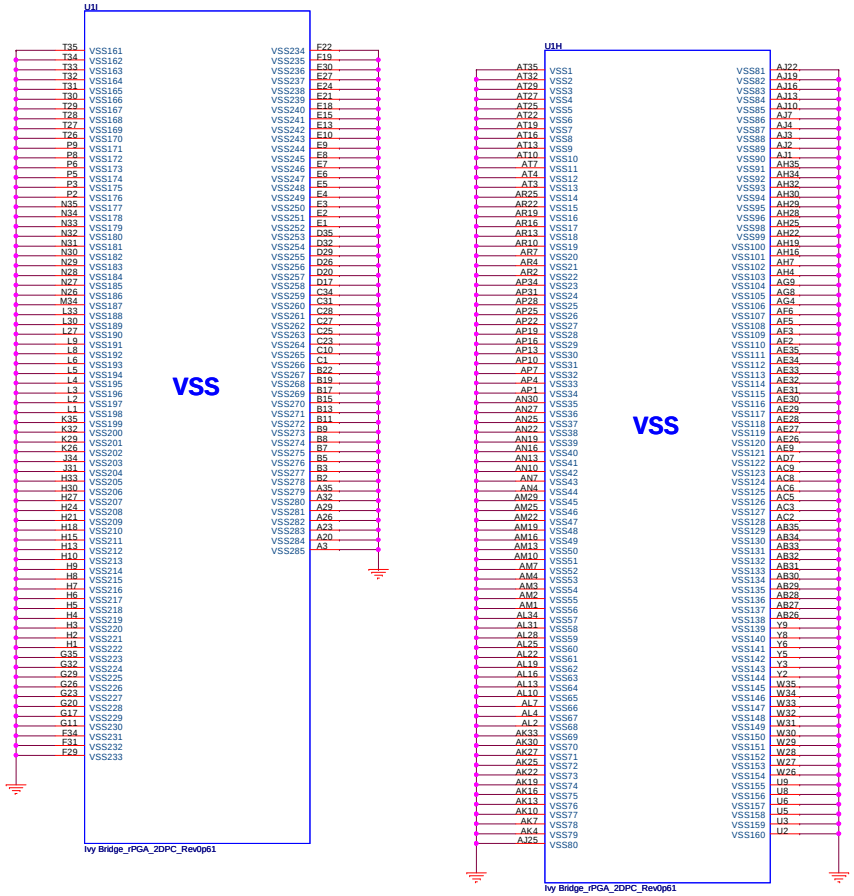


Quanta Computer Inc.

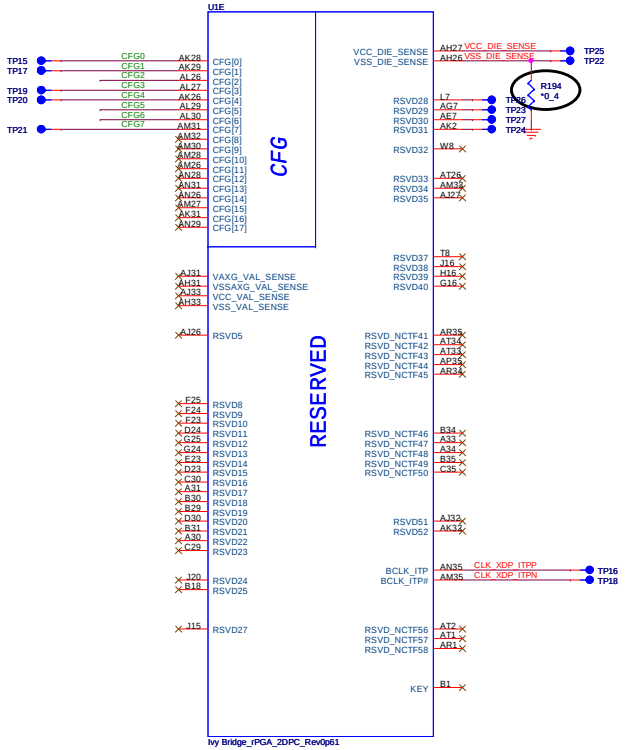
PROJECT : FH6C_HM70

Size	Document Number	Rev
	Ivy Bridge 3/4	B
Date: Tuesday, May 22, 2012	Sheet 6 of 45	

Ivy Bridge Processor (GND)

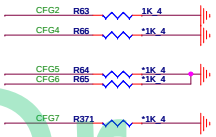


Ivy Bridge Processor (RESERVED, CFG)



Processor Strapping

CFG2	0	PCIe X16 LANE Reversed
	1	Normal Operation
CFG3	0	PCIe X4 LANE Reversed
	1	Normal Operation
CFG4	0	Enable; An ext DP device is connected to eDP
	1	Disable; No physical DP attached to eDP
CFG(5:6)	00	1 x 8 , 2 x 4 PCIe
	01	Reserve
	10	2 x 8 PCIe
	11	1 x 16 PCIe
CFG7	0	PEG Wait for BIOS for training
	1	PEG Train immediately following PLT_RST#

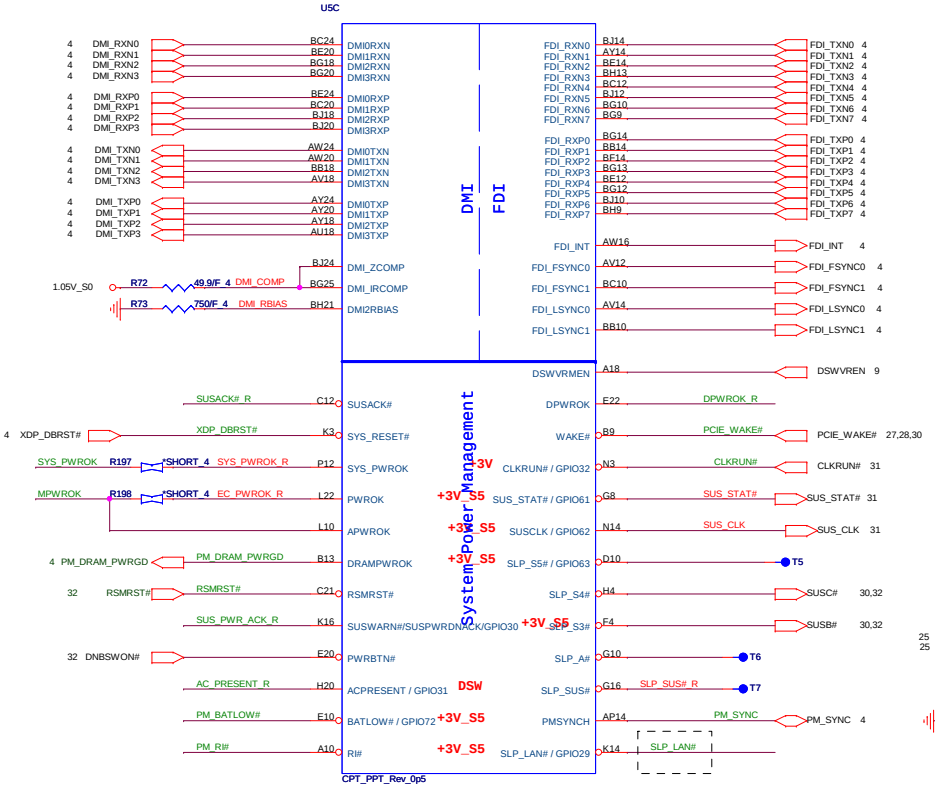


Quanta Computer Inc.
PROJECT : FH6C_HM70

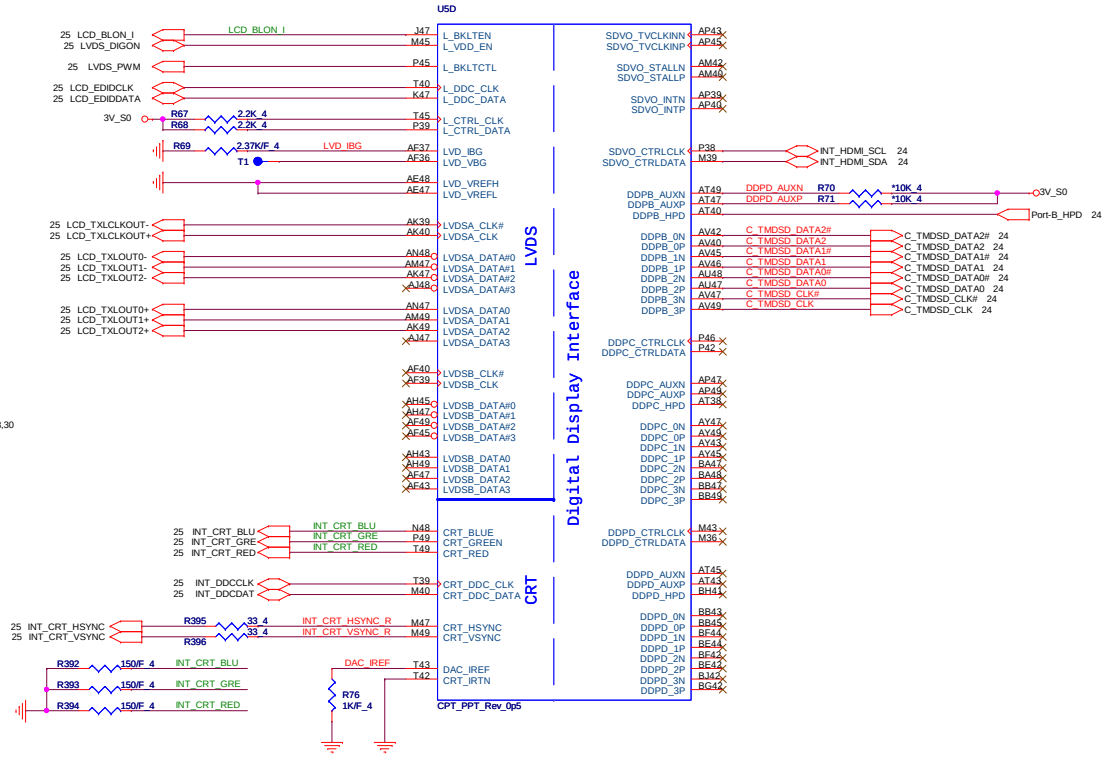
Size	Document Number	Rev
	Ivy Bridge 4/4	B

Date: Tuesday, May 22, 2012 Sheet 7 of 45

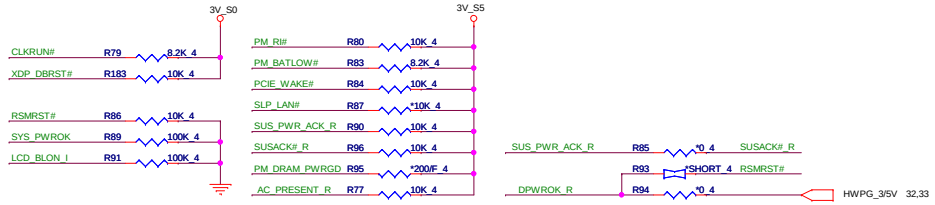
Panther Point (DMI,FDI,PM)



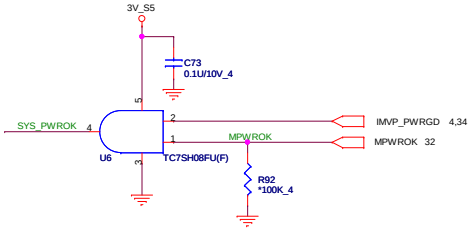
Panther Point (LVDS,DDI)



PCH Pull-high/low

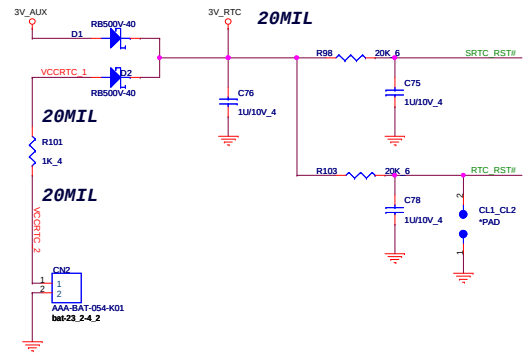


System PWR_OK

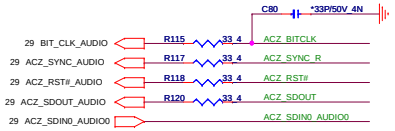


Quanta Computer Inc.			
PROJECT : FH6C_HM70			
Size	Document Number		Rev
	Panther Point 1/6		B
Date: Wednesday, May 23, 2012		Sheet 8 of 45	

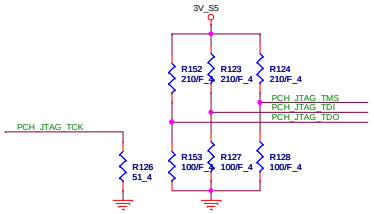
RTC Circuit



HDA Bus

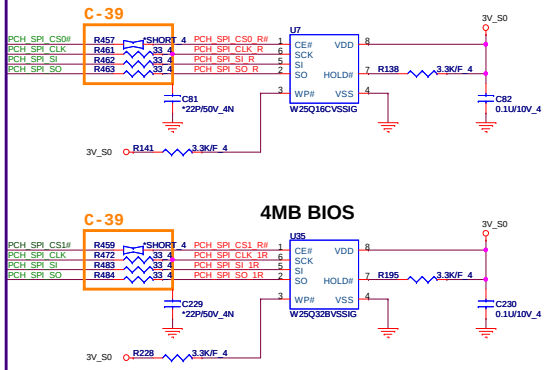


PCH JTAG Debug



B-12

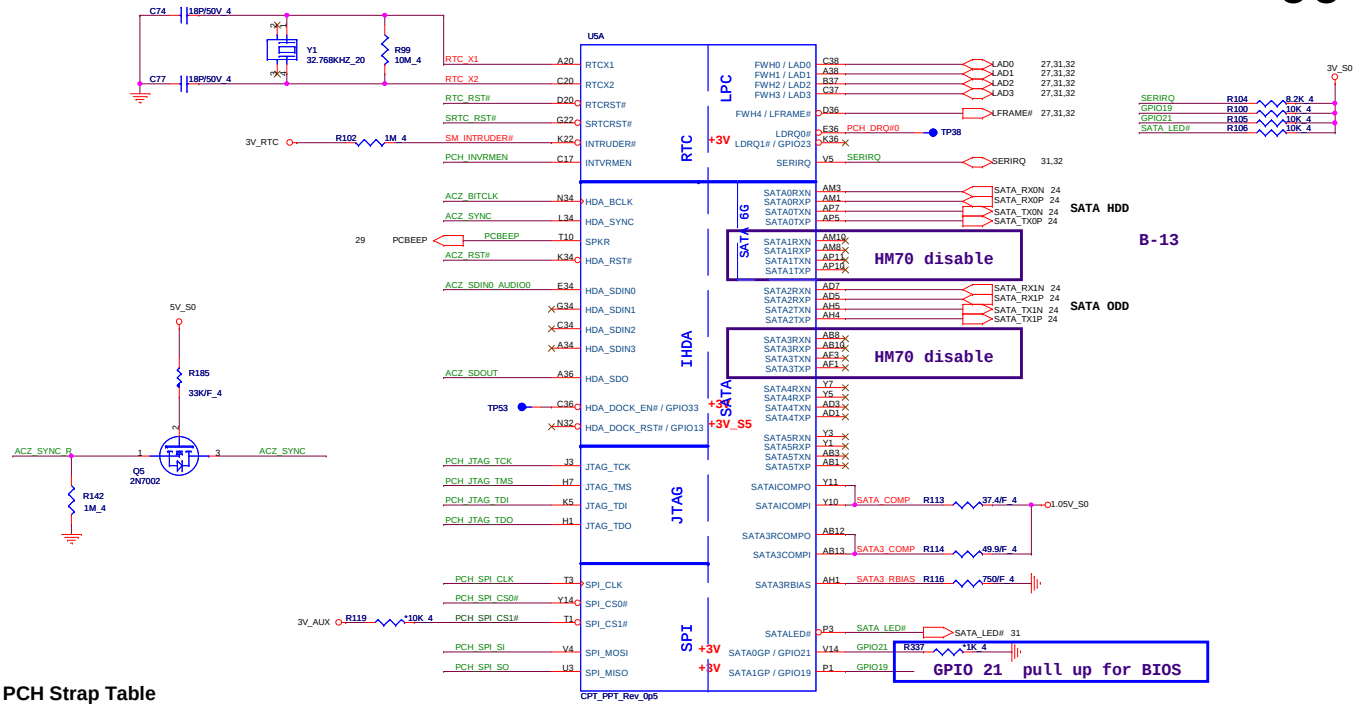
PCH Dual SPI Change from 8MB to 2MB for ME



PCH2

Panther Point (HDA,JTAG,SATA)

09



PCH Strap Table

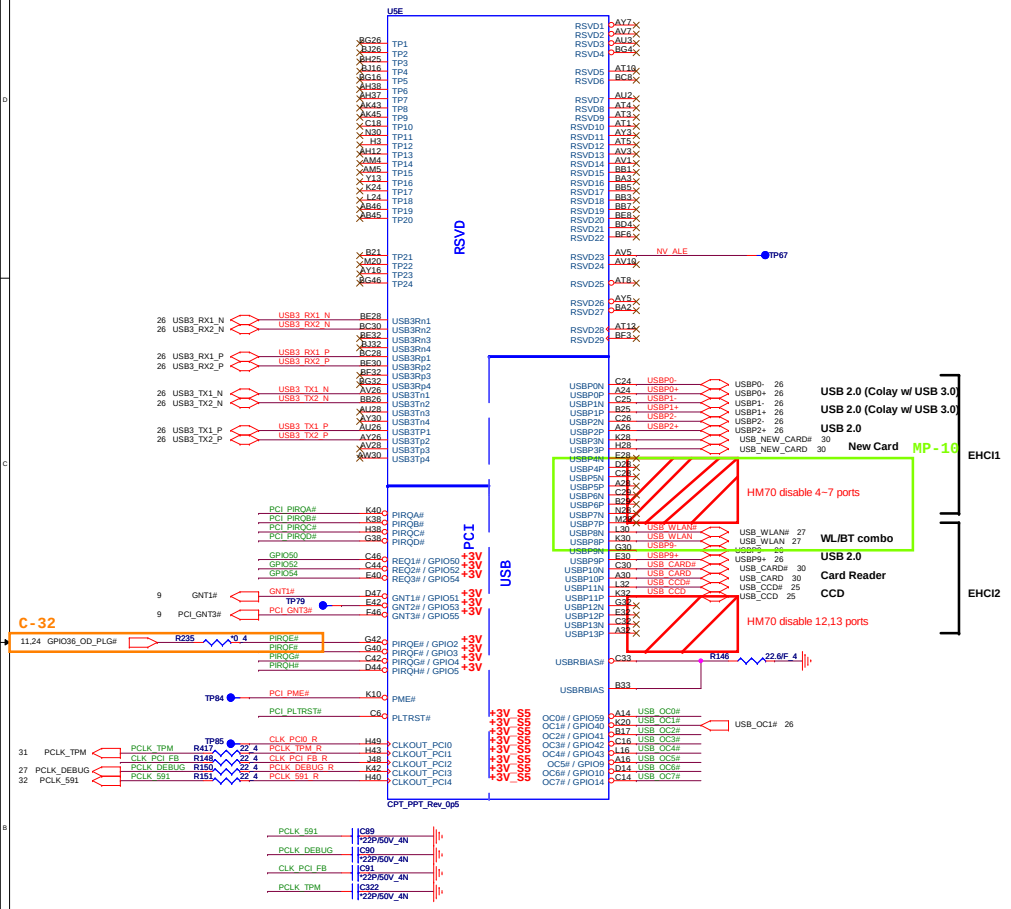
Pin Name	Strap description	Sampled	Configuration	
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	3V_S0 R121 *1K_4 PCBEEP
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)	R122 *1K_4 PCI_GNT3# 10
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up	3V_RTC R125 330K_4 PCH_INVRMEN
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	GNT1# / GPIO19 / Boot Location: 1 / 1 / SPI; 0 / 0 / LPC	R129 *1K_4 GNT1# 10 R130 *1K_4 GPIO19
GPIO19	Boot BIOS Selection 0 [bit-0]	PWROK		
HDA_SDO	Flash Descriptor Security	RSMRST	1 = Override 0 = Default (weak PD 20K)	3V_S0 R131 *1K_4 ACZ_SDOUT ACZ_SDOUT 32
DF_TVS	DMI/FDI Termination voltage	PWROK	0 = Set to Vss 1 = Set to Vcc (weak pull-down 20K)	R132 2.2K_4 R133 1K_4 1.8V_S0 DF_TVS 11 H_SNB_IVB# 4
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)	3V_AUX R134 *10K_4 R135 *1K_4 PLL_ODVR_EN 11
HDA_SYNC	On-Die PLL VR Voltage Select	RSMRST	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V	3V_S5 R136 1K_4 ACZ_SYNC
GPIO15	TLS Confidentiality	RSMRST	0 = Default. TLS no Confidentiality 1 = TLS Confidentiality	3V_S5 R137 *1K_4 GPIO15 11
DSWVRMEN	Deep S4/S5 Well On -Die Voltage Regulator Enable	ALWAYS	0 = Disable 1 = Enable	DSWVREN 8 3V_RTC R139 330K_4 R140 *330K_4
INIT3_3V#	**Reserved**	PWROK	1 = Default (weak pull-up 20K)	**Should not pull low. leave as No Connect**
GNT2#/ GPIO53	**ESI Strap (Server Only)**	PWROK	1 = Default. Should not be pulled low for desktop and mobile	**Should not pull low for desktop and mobile**
L_DDC_DATA	LVDS Detected	PWROK	0 = Default. Not Detected 1 = Detected	1= PU to 3V
SDVO_CTRLDATA	Port B Detected	PWROK	0 = Default. Not Detected 1 = Detected	1= PU to 3V
DDPC_CTRLDATA	Port C Detected	PWROK	0 = Default. Not Detected 1 = Detected	0=NC
DDPD_CTRLDATA	Port D Detected	PWROK	0 = Default. Not Detected 1 = Detected	0=NC
SATA3GP/ GPIO37	**Reserved**	PWROK	0 = Default	**Should not be pulled high when strap is sampled**
SATA2GP/ GPIO36	**Reserved**	PWROK	0 = Default	**Should not be pulled high when strap is sampled**

Quanta Computer Inc.
PROJECT : FH6C_HM70

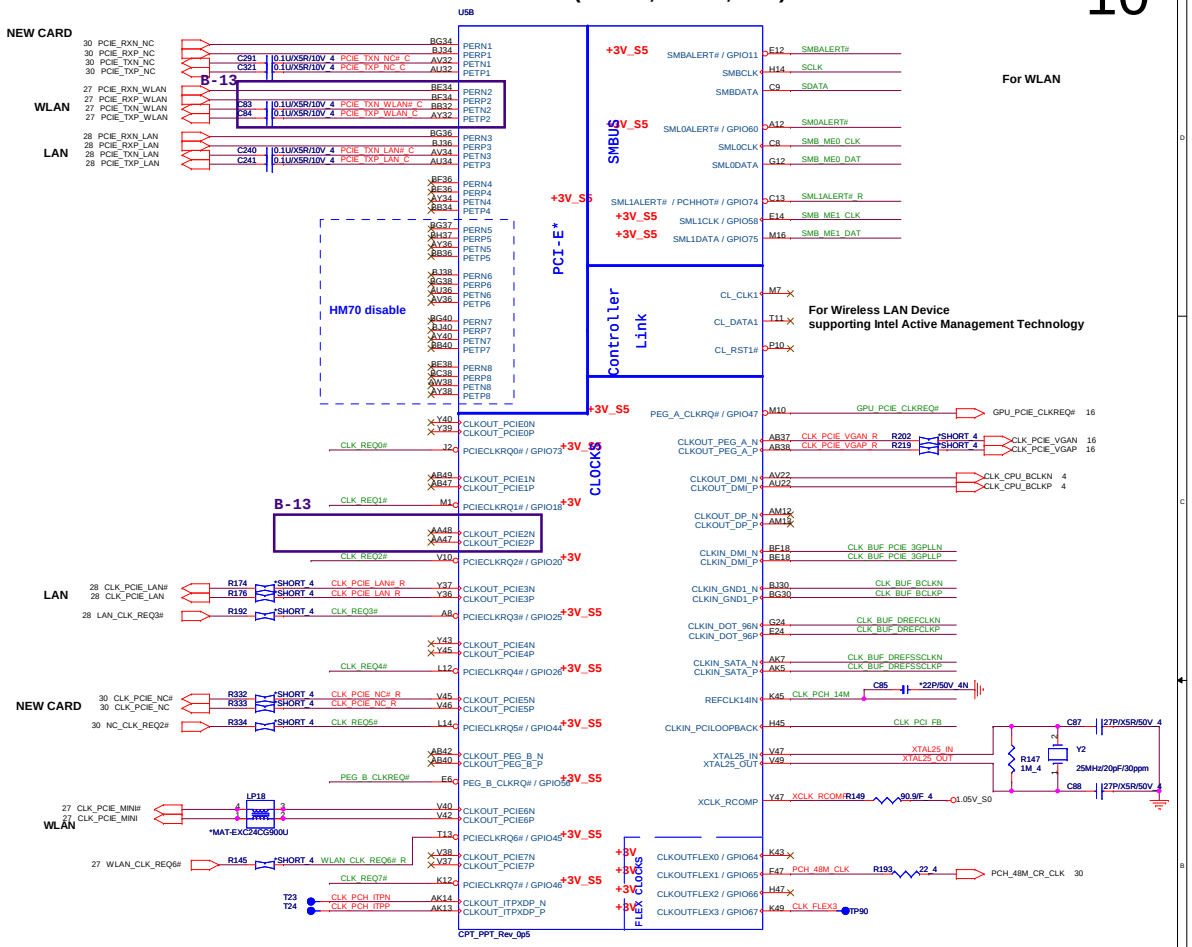
Size	Document Number	Rev
	Panther Point 2/6	B

Date: Tuesday, May 22, 2012 Sheet 9 of 45

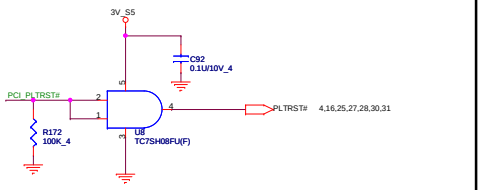
Panther Point-M (PCI,USB,NVRAM)



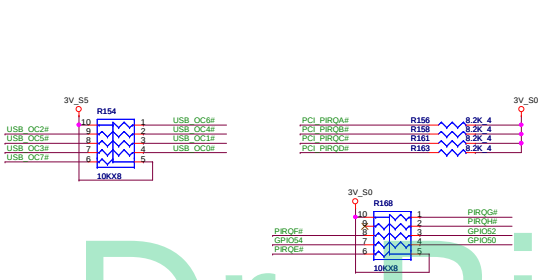
Panther Point-M (PCI-E,SMBUS,CLK)



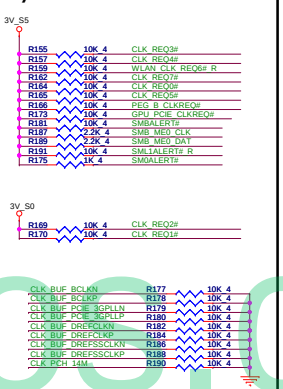
PLTRST#



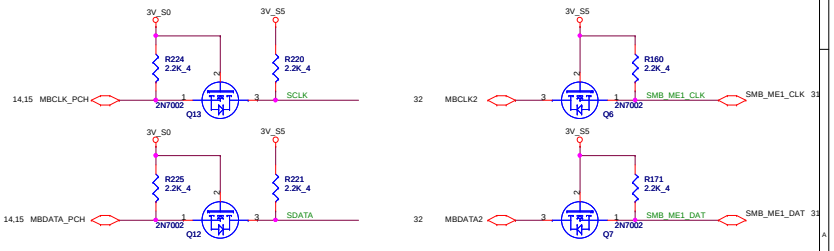
PCI/USBOC# PU



System PU



SMBUS Level Shift

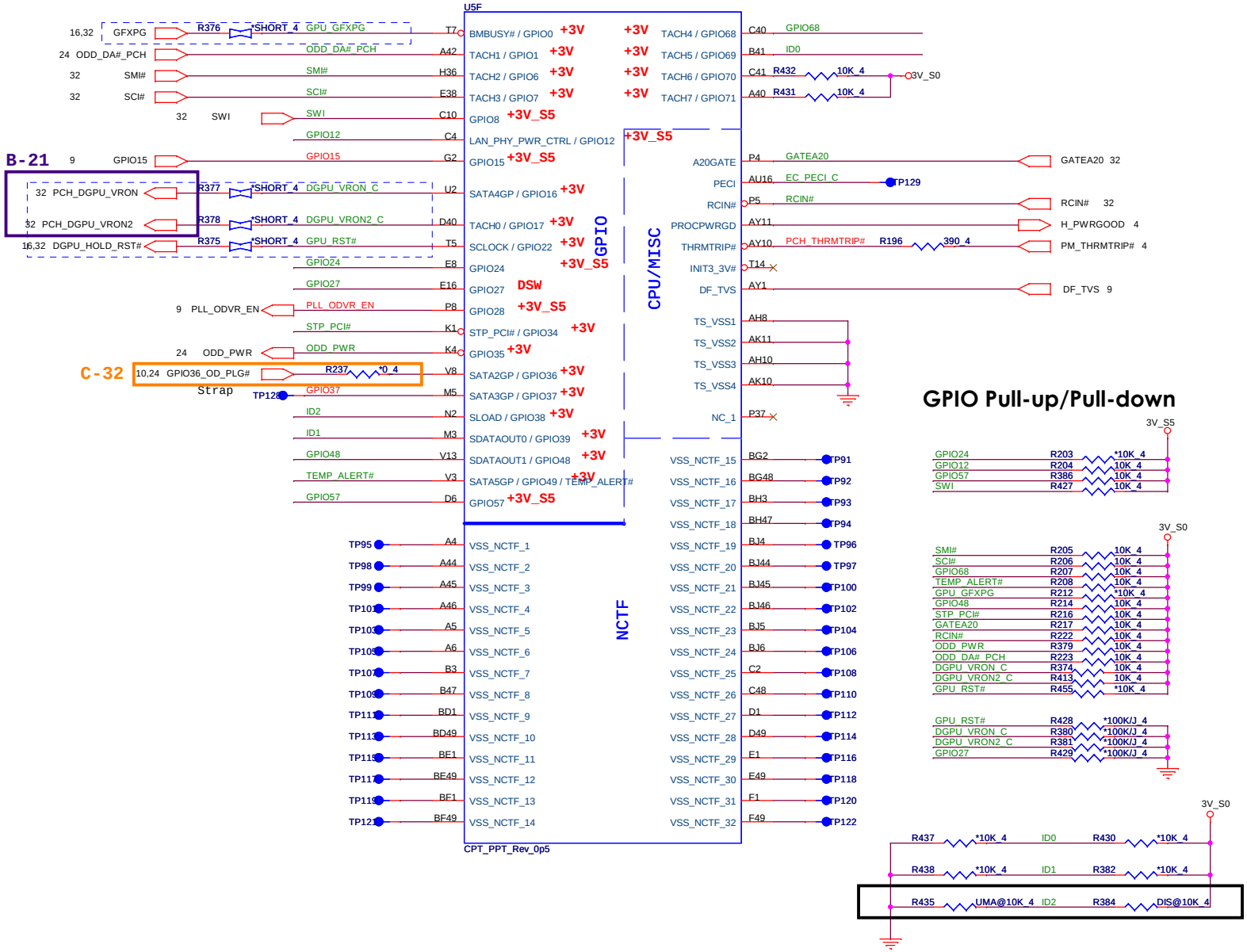


Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	Panther Point 3/6	B

Date: Tuesday, May 22, 2012 Sheet 10 of 45

Panther Point (GPIO,VSS_NCTF,RSVD)



GPIO Pull-up/Pull-down

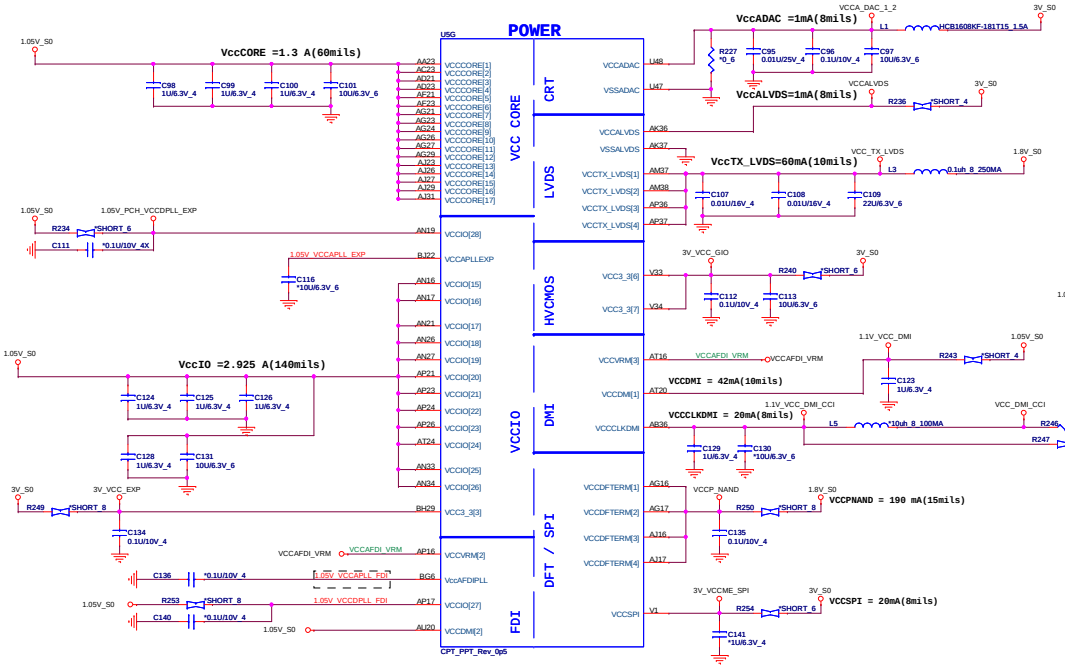
ID2	ID1	ID0	Model
0	0	0	FJ8 UMA
0	0	1	FJ8 Discrete
0	1	0	FH6 UMA(Consumer)
0	1	1	FH6 UMA(Commercial)
1	0	0	FH6 N13P-LP
1	0	1	FH6 N13P-GLP
1	1	0	TBD
1	1	1	TBD

Quanta Computer Inc.
PROJECT : FH6C_HM70

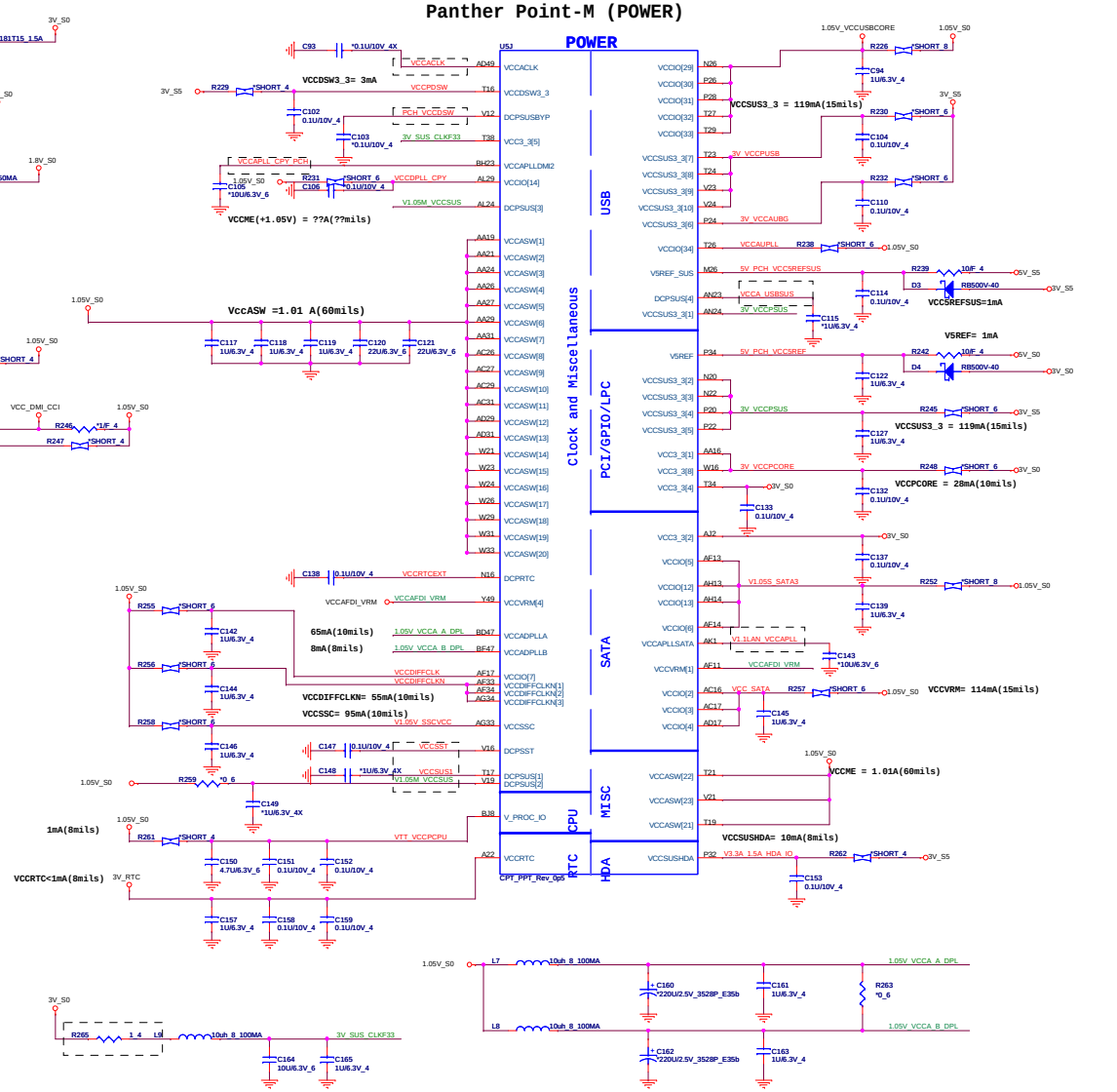
Size	Document Number	Rev
	Panther Point 4/6	B

Date: Tuesday, May 22, 2012 Sheet 11 of 45

Panther Point (POWER)

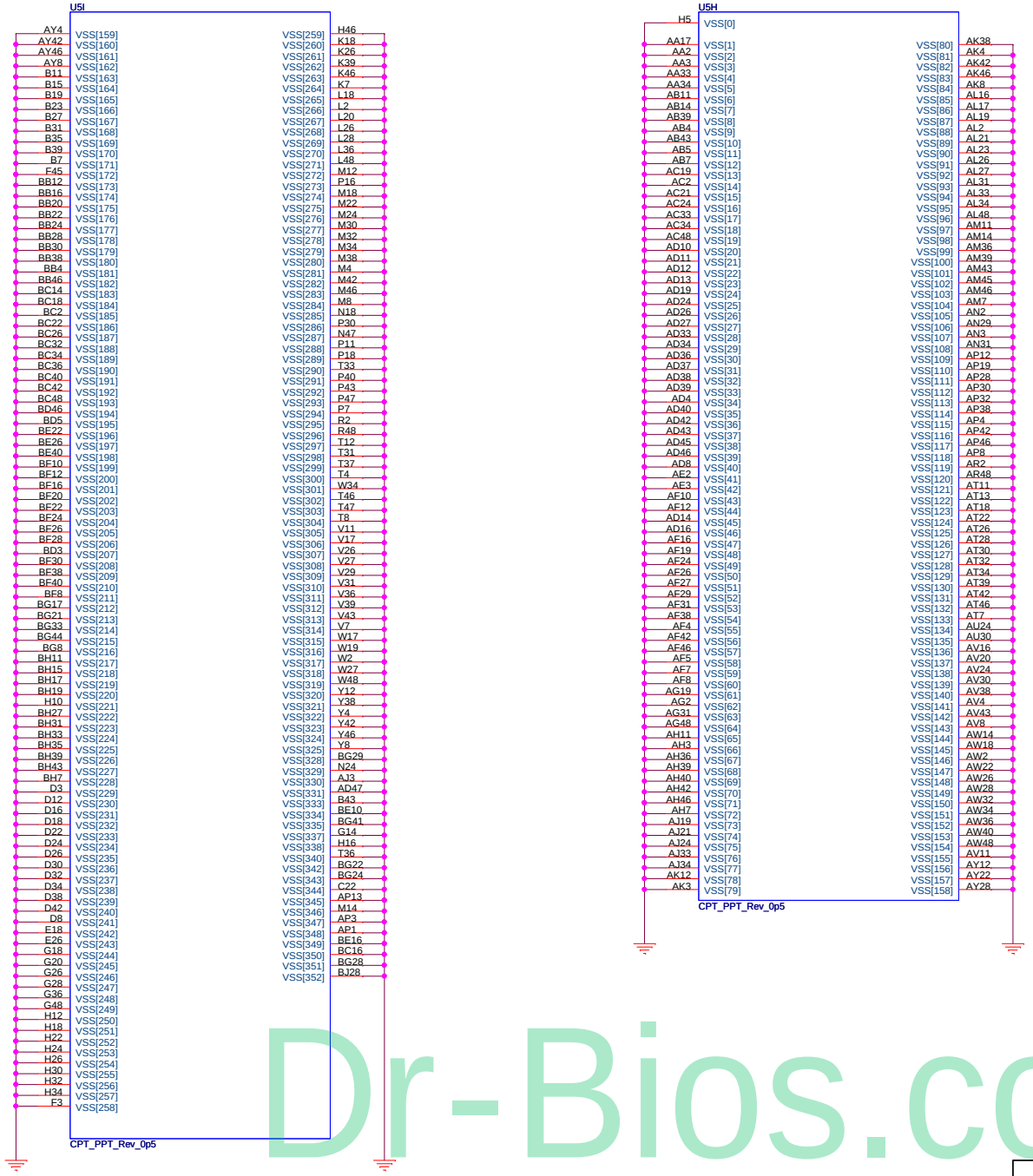


Panther Point-M (POWER)



Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: Panther Point 5/6	Rev: B
Date: Tuesday, May 22, 2012	Sheet 12 of 45	

IBEX PEAK-M (GND)

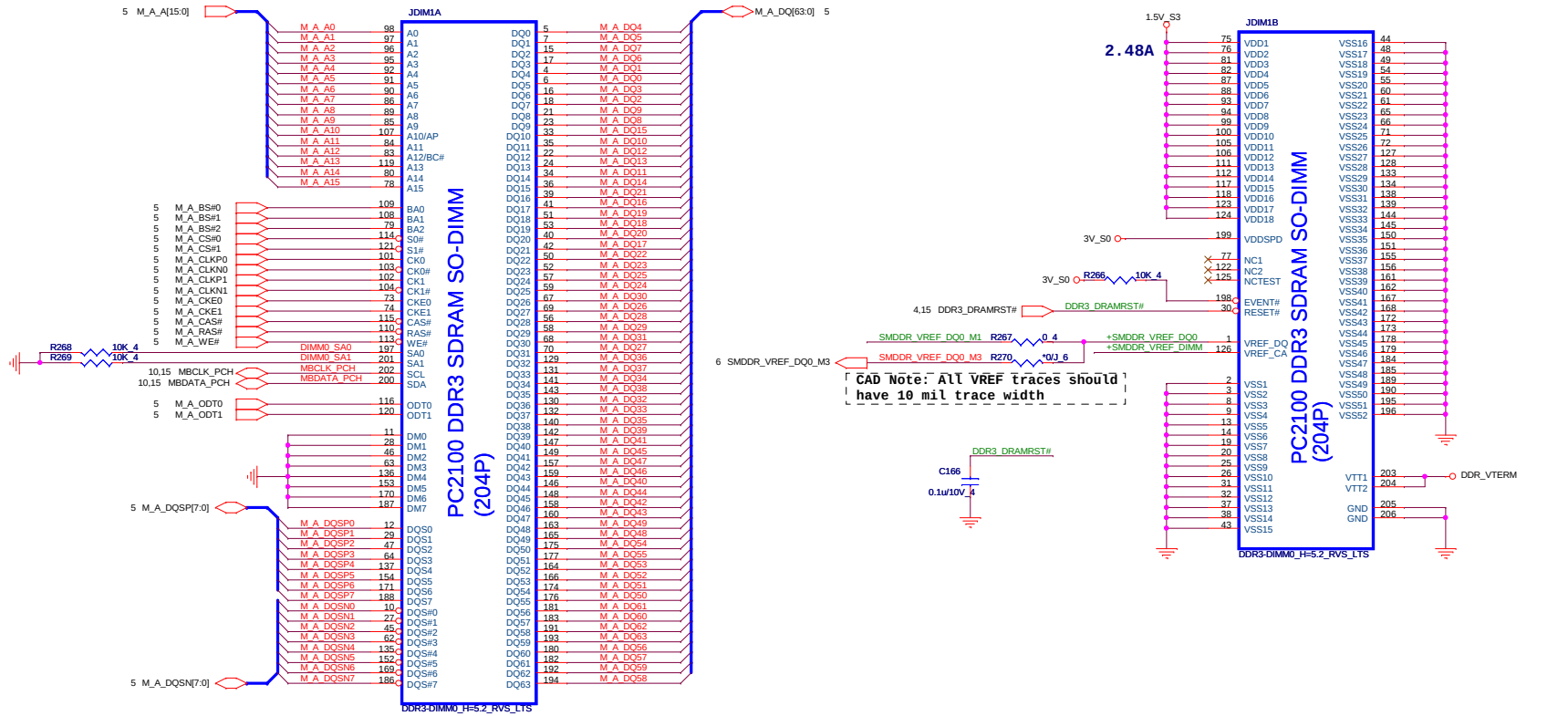


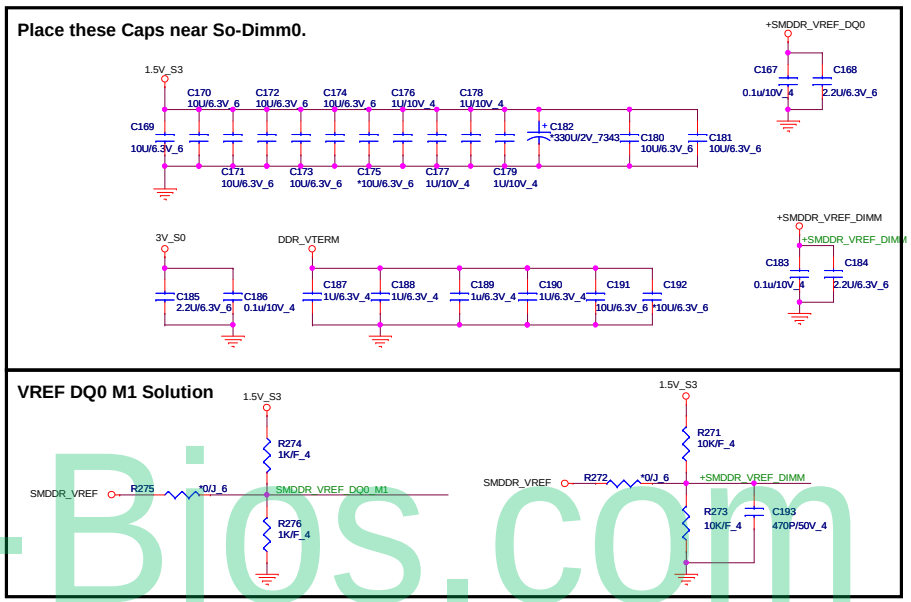
Quanta Computer Inc.

PROJECT : FH6C_HM70

Size	Document Number	Rev
	Panther Point 6/6	B
Date: Tuesday, May 22, 2012	Sheet 13 of 45	

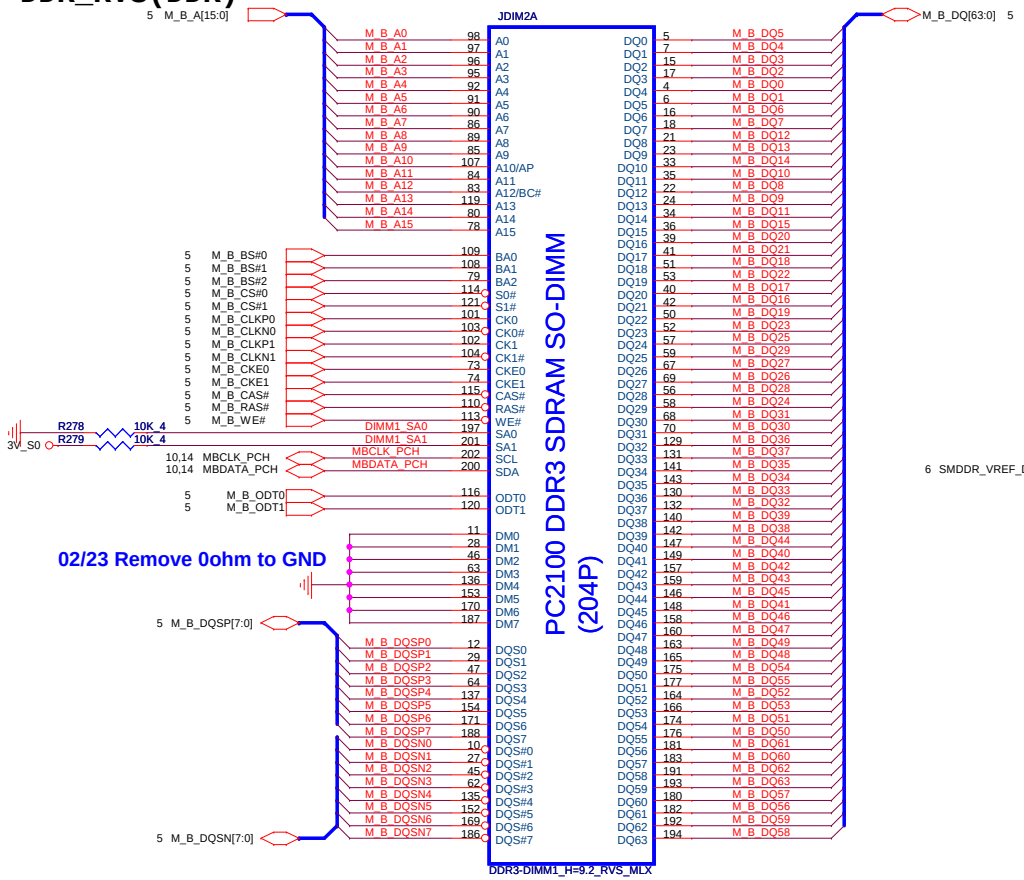
DDR_STD(DDR)

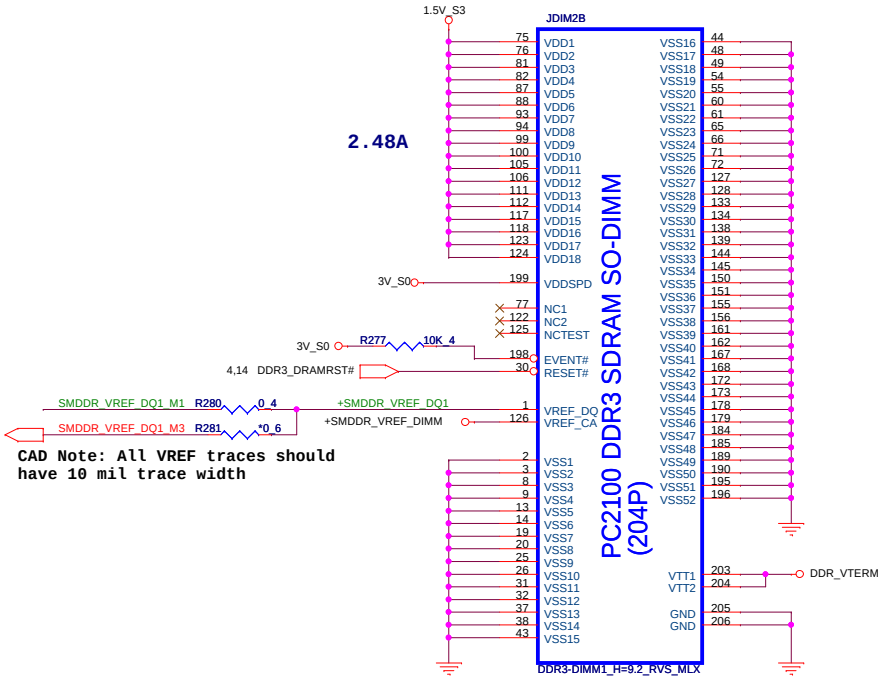




Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: DDRIII SO-DIMM-0	Rev: B
Date: Tuesday, May 22, 2012	Sheet 14 of 45	

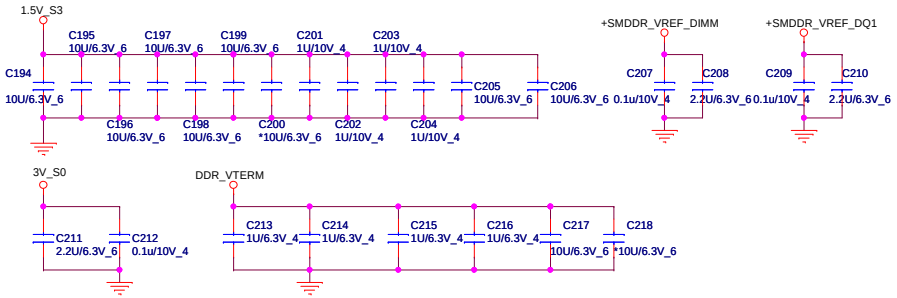
DDR_RVS(DDR)



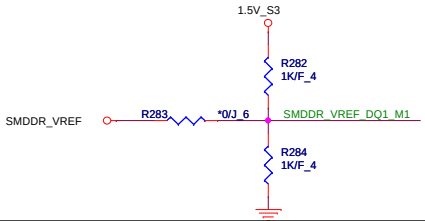


CAD Note: All VREF traces should have 10 mil trace width

Place these Caps near So-Dimm1.



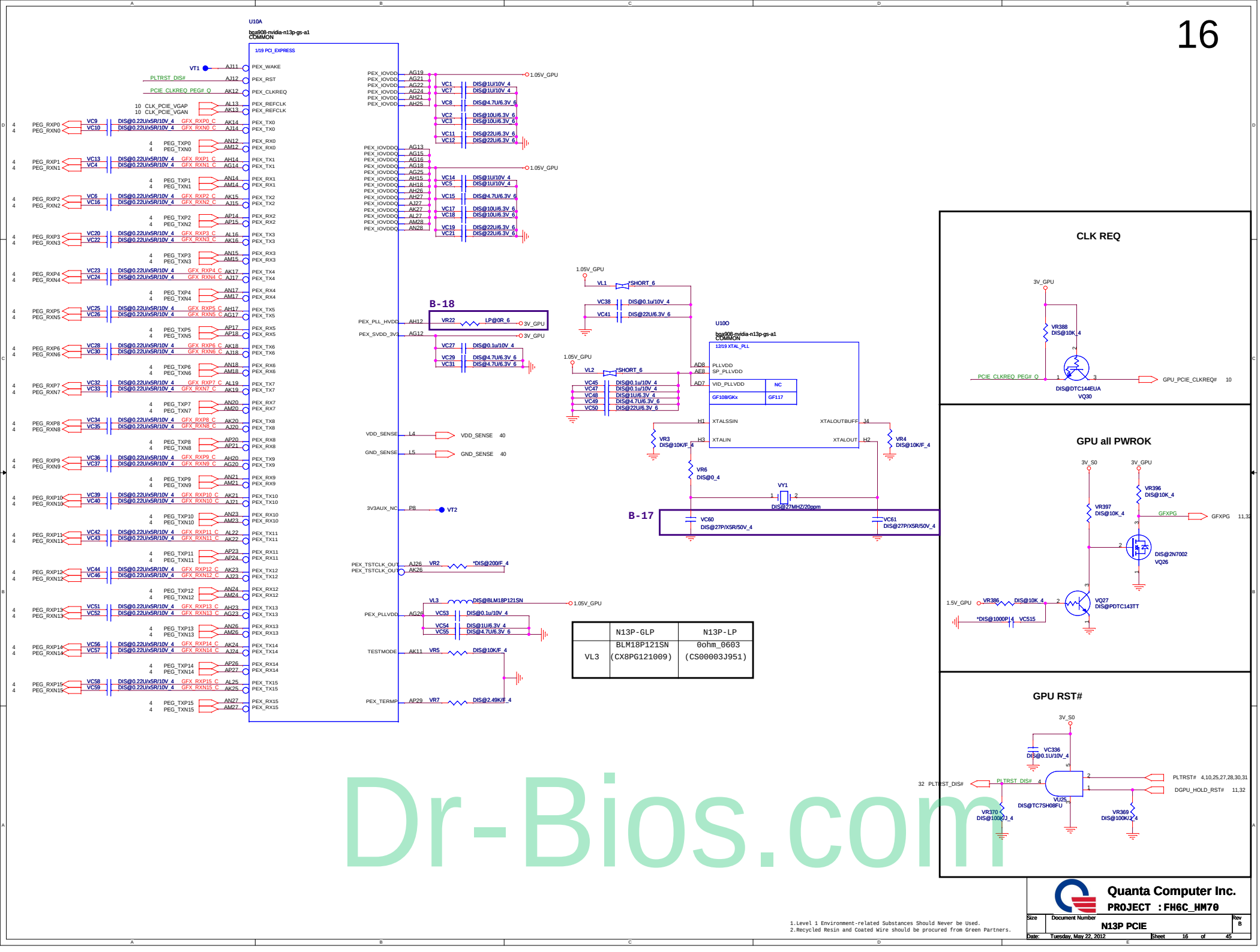
VREF DQ1 M1 Solution



Quanta Computer Inc.

PROJECT : FH6C_HM70

Size	Document Number	Rev
	DDRIII SO-DIMM-1	B
Date: Tuesday, May 22, 2012	Sheet 15 of 45	



1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	N13P PCIE	B

Date: Tuesday, May 22, 2012 Sheet 16 of 45

22 FBA_DQ[0..63]
22 FBA_DQM[0..7]
22 FBA_WDQSP[0..7]
22 FBA_RDQSN[0..7]
22 FBA_CMD[0..31]

23 FBB_DQ[0..63]
23 FBB_DQM[0..7]
23 FBB_WDQSP[0..7]
23 FBB_RDQSN[0..7]
23 FBB_CMD[0..31]

U10B
bga908-nvidia-n13p-gs-a1
COMMON
2/19 FBA

U10C
bga908-nvidia-n13p-gs-a1
COMMON
3/19 FBB

	N13P-GLP	N13P-LP
VR111	NA	10Kohm_0402 (CS31002FB26)

VR111 LP@10K_4

FB_CLAMP E1
FB_DLL_AVDD K27 FBA_PLL_AVDD
VC62 DIS@0.1u/10V_4

FBA_DQ0 L28 FBA_D0
FBA_DQ1 M29 FBA_D1
FBA_DQ2 L29 FBA_D2
FBA_DQ3 M28 FBA_D3
FBA_DQ4 N31 FBA_D4
FBA_DQ5 P29 FBA_D5
FBA_DQ6 R29 FBA_D6
FBA_DQ7 P28 FBA_D7
FBA_DQ8 J28 FBA_D8
FBA_DQ9 H29 FBA_D9
FBA_DQ10 J29 FBA_D10
FBA_DQ11 H28 FBA_D11
FBA_DQ12 G29 FBA_D12
FBA_DQ13 E31 FBA_D13
FBA_DQ14 E32 FBA_D14
FBA_DQ15 F30 FBA_D15
FBA_DQ16 C34 FBA_D16
FBA_DQ17 D32 FBA_D17
FBA_DQ18 B33 FBA_D18
FBA_DQ19 C33 FBA_D19
FBA_DQ20 F33 FBA_D20
FBA_DQ21 F32 FBA_D21
FBA_DQ22 H33 FBA_D22
FBA_DQ23 H32 FBA_D23
FBA_DQ24 P34 FBA_D24
FBA_DQ25 P32 FBA_D25
FBA_DQ26 P31 FBA_D26
FBA_DQ27 P33 FBA_D27
FBA_DQ28 L31 FBA_D28
FBA_DQ29 L34 FBA_D29
FBA_DQ30 L32 FBA_D30
FBA_DQ31 L33 FBA_D31
FBA_DQ32 AG28 FBA_D32
FBA_DQ33 AF29 FBA_D33
FBA_DQ34 AG29 FBA_D34
FBA_DQ35 AF28 FBA_D35
FBA_DQ36 AD30 FBA_D36
FBA_DQ37 AD29 FBA_D37
FBA_DQ38 AC29 FBA_D38
FBA_DQ39 AD28 FBA_D39
FBA_DQ40 AJ29 FBA_D40
FBA_DQ41 AK29 FBA_D41
FBA_DQ42 AJ30 FBA_D42
FBA_DQ43 AK28 FBA_D43
FBA_DQ44 AM29 FBA_D44
FBA_DQ45 AM31 FBA_D45
FBA_DQ46 AN29 FBA_D46
FBA_DQ47 AM30 FBA_D47
FBA_DQ48 AN31 FBA_D48
FBA_DQ49 AN32 FBA_D49
FBA_DQ50 AP30 FBA_D50
FBA_DQ51 AP32 FBA_D51
FBA_DQ52 AM33 FBA_D52
FBA_DQ53 AL31 FBA_D53
FBA_DQ54 AK33 FBA_D54
FBA_DQ55 AK32 FBA_D55
FBA_DQ56 AD34 FBA_D56
FBA_DQ57 AD32 FBA_D57
FBA_DQ58 AC30 FBA_D58
FBA_DQ59 AD33 FBA_D59
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FBA_DQ62 AG32 FBA_D62
FBA_DQ63 AG33 FBA_D63

FBA_DQM0 P30 FBA_DQM0
FBA_DQM1 F31 FBA_DQM1
FBA_DQM2 F34 FBA_DQM2
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FBA_DQM4 AD31 FBA_DQM4
FBA_DQM5 AL29 FBA_DQM5
FBA_DQM6 AM32 FBA_DQM6
FBA_DQM7 AF34 FBA_DQM7

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FBA_WDQSP3 M33 FBA_DQS_WP3
FBA_WDQSP4 AE31 FBA_DQS_WP4
FBA_WDQSP5 AK30 FBA_DQS_WP5
FBA_WDQSP6 AN33 FBA_DQS_WP6
FBA_WDQSP7 AF33 FBA_DQS_WP7

FBA_RDQSN0 M30 FBA_DQS_RN0
FBA_RDQSN1 H30 FBA_DQS_RN1
FBA_RDQSN2 E34 FBA_DQS_RN2
FBA_RDQSN3 M34 FBA_DQS_RN3
FBA_RDQSN4 AF30 FBA_DQS_RN4
FBA_RDQSN5 AK31 FBA_DQS_RN5
FBA_RDQSN6 AM34 FBA_DQS_RN6
FBA_RDQSN7 AF32 FBA_DQS_RN7

H26 FB_VREF

FBA_CMD0 U30 FBA_CMD0
FBA_CMD1 T31 FBA_CMD1
FBA_CMD2 U29 FBA_CMD2
FBA_CMD3 R34 FBA_CMD3
FBA_CMD4 R33 FBA_CMD4
FBA_CMD5 U32 FBA_CMD5
FBA_CMD6 U33 FBA_CMD6
FBA_CMD7 U28 FBA_CMD7
FBA_CMD8 V28 FBA_CMD8
FBA_CMD9 V29 FBA_CMD9
FBA_CMD10 V30 FBA_CMD10
FBA_CMD11 U34 FBA_CMD11
FBA_CMD12 U31 FBA_CMD12
FBA_CMD13 V34 FBA_CMD13
FBA_CMD14 V33 FBA_CMD14
FBA_CMD15 V32 FBA_CMD15
FBA_CMD16 AA31 FBA_CMD16
FBA_CMD17 AA29 FBA_CMD17
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FBA_CMD20 AC33 FBA_CMD20
FBA_CMD21 AA32 FBA_CMD21
FBA_CMD22 AA33 FBA_CMD22
FBA_CMD23 Y28 FBA_CMD23
FBA_CMD24 Y29 FBA_CMD24
FBA_CMD25 W31 FBA_CMD25
FBA_CMD26 Y30 FBA_CMD26
FBA_CMD27 AA34 FBA_CMD27
FBA_CMD28 Y31 FBA_CMD28
FBA_CMD29 Y34 FBA_CMD29
FBA_CMD30 Y33 FBA_CMD30
FBA_CMD31 V31 FBA_CMD31

VT3 VT5 VT7

FBA_CMD_RFU0 R32 VT9
FBA_CMD_RFU1 AC32 VT10

FBA_CMD2 VR8 DIS@10K_4 FBA_ODT_L
FBA_CMD18 VR10 DIS@10K_4 FBA_ODT_H
FBA_CMD3 VR12 DIS@10K_4 FBA_CKE_L
FBA_CMD19 VR14 DIS@10K_4 FBA_CKE_H
FBA_CMD5 VR16 DIS@10K_4 FBA_RST#

Debug
1.5V_GPU
FBA_DEBUG0 R28 FBA_DEBUG0 VR18 *DIS@60.4/F_4
FBA_DEBUG1 AC28 FBA_DEBUG1 VR19 *DIS@60.4/F_4

FBA_CLK0 R30 FBA_CLK0 22
FBA_CLK0 R31 FBA_CLK#0 22
FBA_CLK1 AB31 FBA_CLK1 22
FBA_CLK1 AC31 FBA_CLK#1 22

FBA_WCK01 K31
FBA_WCK01 L30
FBA_WCK23 H34
FBA_WCK23 J34
FBA_WCK45 AG30
FBA_WCK45 AG31
FBA_WCK67 AJ34
FBA_WCK67 AK34

FBA_WCKB01 J30
FBA_WCKB01 J31
FBA_WCKB23 J32
FBA_WCKB23 J33
FBA_WCKB45 AH31
FBA_WCKB45 AJ31
FBA_WCKB67 AJ32
FBA_WCKB67 AJ33

FBA_PLL_AVDD U27 FBA_PLL_AVDD VL4 *SHORT_6 1.05V_GPU
VC64 DIS@0.1u/10V_4
VC65 DIS@22u/6.3V_6

B-07

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FBB_DQ6 F12 FBB_D6
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FBB_DQ8 G6 FBB_D8
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FBB_DQ33 G23 FBB_D33
FBB_DQ34 E24 FBB_D34
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FBB_DQ40 G27 FBB_D40
FBB_DQ41 D27 FBB_D41
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FBB_DQ44 E29 FBB_D44
FBB_DQ45 F29 FBB_D45
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FBB_DQ50 C32 FBB_D50
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FBB_DQ52 D29 FBB_D52
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FBB_DQM6 C30 FBB_DQM6
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FBB_RDQSN1 E4 FBB_DQS_RN1
FBB_RDQSN2 B2 FBB_DQS_RN2
FBB_RDQSN3 A9 FBB_DQS_RN3
FBB_RDQSN4 D22 FBB_DQS_RN4
FBB_RDQSN5 D28 FBB_DQS_RN5
FBB_RDQSN6 A30 FBB_DQS_RN6
FBB_RDQSN7 B23 FBB_DQS_RN7

FBB_CMD0 D13 FBB_CMD0
FBB_CMD1 E14 FBB_CMD1
FBB_CMD2 E14 FBB_CMD2
FBB_CMD3 A12 FBB_CMD3
FBB_CMD4 B12 FBB_CMD4
FBB_CMD5 C14 FBB_CMD5
FBB_CMD6 B14 FBB_CMD6
FBB_CMD7 G15 FBB_CMD7
FBB_CMD8 F15 FBB_CMD8
FBB_CMD9 E15 FBB_CMD9
FBB_CMD10 D15 FBB_CMD10
FBB_CMD11 A14 FBB_CMD11
FBB_CMD12 D14 FBB_CMD12
FBB_CMD13 A15 FBB_CMD13
FBB_CMD14 B15 FBB_CMD14
FBB_CMD15 C17 FBB_CMD15
FBB_CMD16 D18 FBB_CMD16
FBB_CMD17 E18 FBB_CMD17
FBB_CMD18 F18 FBB_CMD18
FBB_CMD19 A20 FBB_CMD19
FBB_CMD20 B20 FBB_CMD20
FBB_CMD21 C18 FBB_CMD21
FBB_CMD22 B18 FBB_CMD22
FBB_CMD23 G18 FBB_CMD23
FBB_CMD24 G17 FBB_CMD24
FBB_CMD25 E17 FBB_CMD25
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FBB_CMD27 A18 FBB_CMD27
FBB_CMD28 D17 FBB_CMD28
FBB_CMD29 A17 FBB_CMD29
FBB_CMD30 B17 FBB_CMD30
FBB_CMD31 E17 FBB_CMD31

VT4 VT6 VT8

FBB_CMD_RFU0 C12 VT11
FBB_CMD_RFU1 C20 VT12

FBB_CMD2 VR9 DIS@10K_4 FBB_ODT_L
FBB_CMD18 VR11 DIS@10K_4 FBB_ODT_H
FBB_CMD3 VR13 DIS@10K_4 FBB_CKE_L
FBB_CMD19 VR15 DIS@10K_4 FBB_CKE_H
FBB_CMD5 VR17 DIS@10K_4 FBB_RST#

Debug
1.5V_GPU
FBB_DEBUG0 G14 FBB_DEBUG0 VR20 *DIS@60.4/F_4
FBB_DEBUG1 G20 FBB_DEBUG1 VR21 *DIS@60.4/F_4

FBB_CLK0 D12 FBB_CLK0 23
FBB_CLK0 E12 FBB_CLK#0 23
FBB_CLK1 E20 FBB_CLK1 23
FBB_CLK1 F20 FBB_CLK#1 23

FBB_WCK01 F8
FBB_WCK01 E8
FBB_WCK23 A5
FBB_WCK23 A6
FBB_WCK45 D24
FBB_WCK45 D25
FBB_WCK67 B27
FBB_WCK67 C27

FBB_WCKB01 D6
FBB_WCKB01 D7
FBB_WCKB23 C6
FBB_WCKB23 B6
FBB_WCKB45 F26
FBB_WCKB45 E26
FBB_WCKB67 A26
FBB_WCKB67 A27

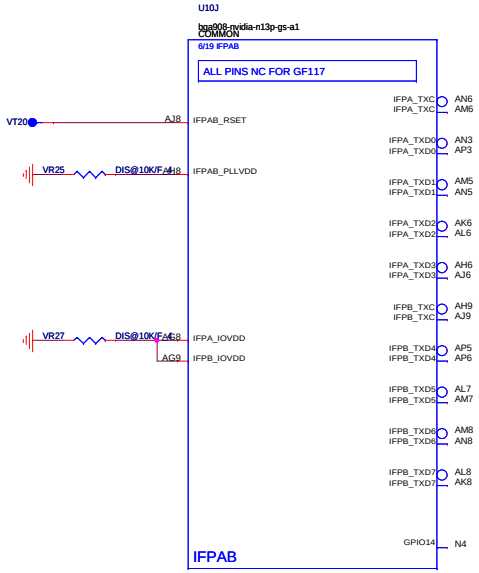
FBB_PLL_AVDD H17 FBA_PLL_AVDD
VC63 LP@0.1u/10V_4

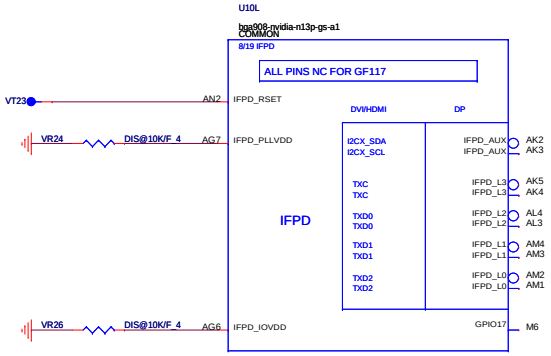
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

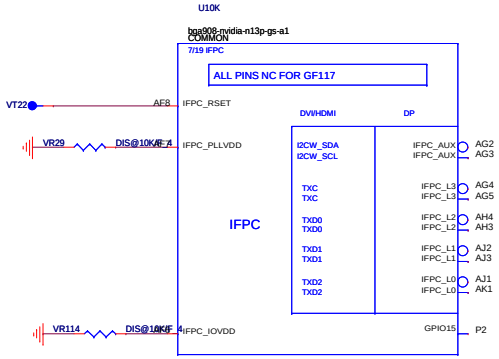
Quanta Computer Inc.
PROJECT : FH6C_HM70

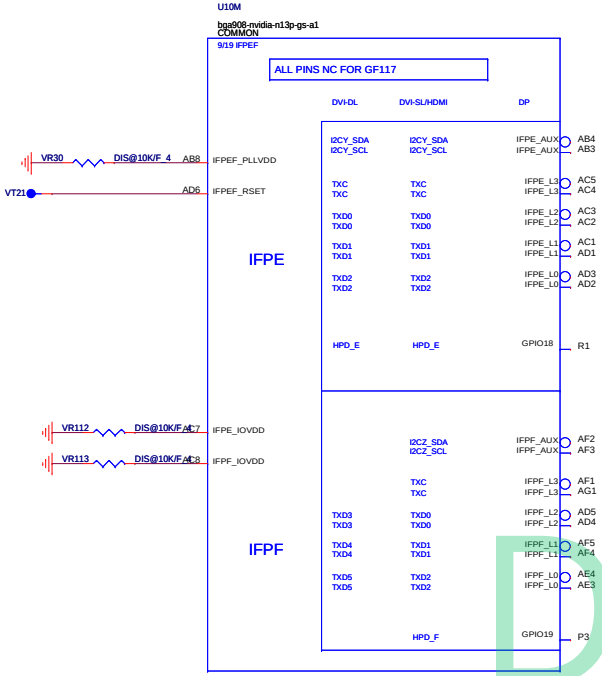
Size	Document Number	Rev
	N13P MEM I/F	B

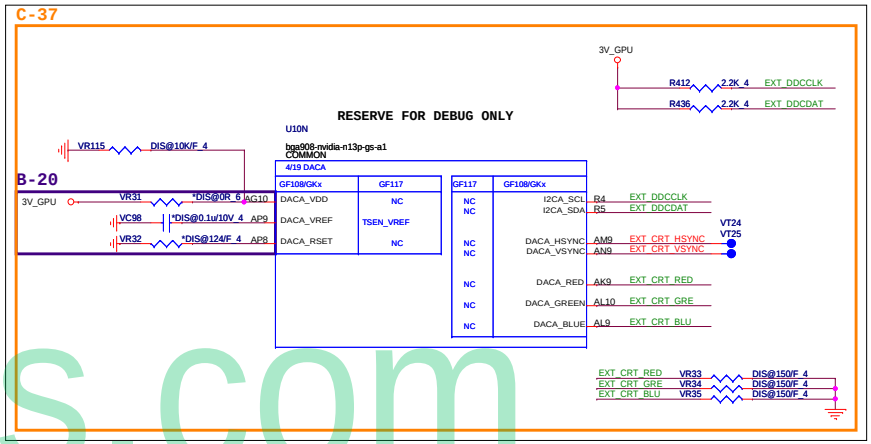
Date: Tuesday, May 22, 2012 Sheet 17 of 45











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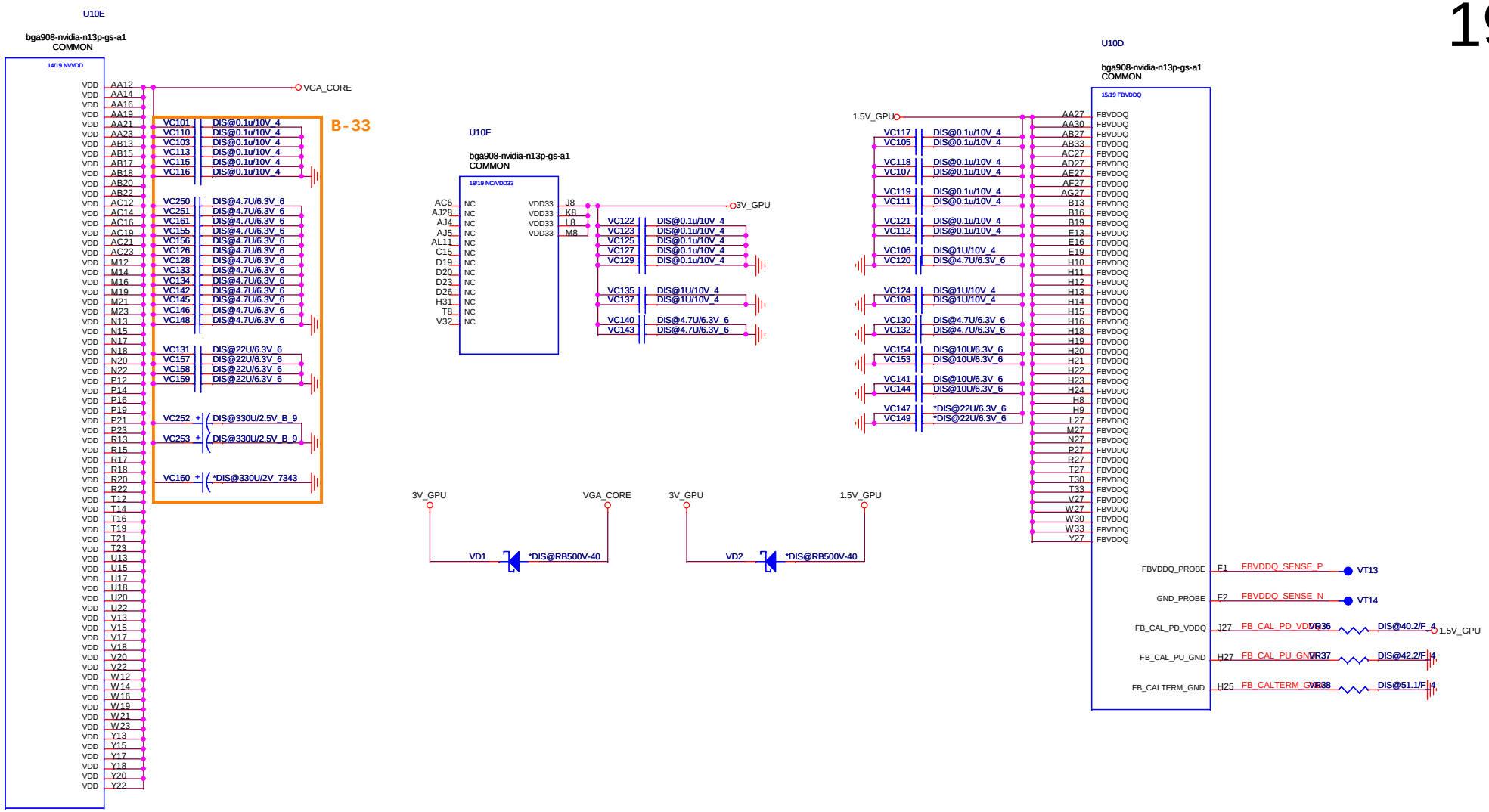
Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	N13P DISPLAY	B
Date: Tuesday, May 22, 2012	Sheet 18 of 45	



Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: N13P POWER	Rev: B
Date: Tuesday, May 22, 2012	Sheet 19 of 45	

U10G

bga908-nvidia-n13p-gs-a1
COMMON

16/19 GND_1/2

A2	GND	GND	AM25		
AA17	GND	GND	AN1		
AA18	GND	GND	AN10		
AA20	GND	GND	AN13		
AA22	GND	GND	AN16		
AB12	GND	GND	AN19		
AB14	GND	GND	AN22		
AB16	GND	GND	AN25		
AB19	GND	GND	AN30		
AB2	GND	GND	AN34		
AB21	GND	GND	AN4		
A33	GND	GND	AN7		
AB23	GND	GND	AP2		
AB28	GND	GND	AP33		
AB30	GND	GND	B1		
AB32	GND	GND	B10		
AB5	GND	GND	B22		
AB7	GND	GND	B25		
AC13	GND	GND	B28		
AC15	GND	GND	B31		
AC17	GND	GND	B34		
AC18	GND	GND	B4		
AA13	GND	GND	B7		
AC20	GND	GND	C10		
AC22	GND	GND	C13		
AE2	GND	GND	C19		
AE28	GND	GND	C22		
AE30	GND	GND	C25		
AE32	GND	GND	C28		
AE33	GND	GND	C7		
AE5	GND	GND	D2		
AE7	GND	GND	D31		
AH10	GND	GND	D33		
AA15	GND	GND	E10		
AH13	GND	GND	E22		
AH16	GND	GND	E25		
AH19	GND	GND	E5		
AH2	GND	GND	E7		
AH22	GND	GND	E28		
AH24	GND	GND	F7		
AH28	GND	GND	G10		
AH29	GND	GND	G13		
AH30	GND	GND	G16		
AH32	GND	GND	G19		
AH33	GND	GND	G2		
AH5	GND	GND	G22		
AH7	GND	GND	G25		
AJ7	GND	GND	G28		
AK10	GND	GND	G3		
AK7	GND	GND	G30		
AL12	GND	GND	G32		
AL14	GND	GND	G33		
AL15	GND	GND	G5		
AL17	GND	GND	G7		
AL18	GND	GND	K2		
AL2	GND	GND	K28		
AL20	GND	GND	K30		
AL21	GND	GND	K32		
AL23	GND	GND	K33		
AL24	GND	GND	K5		
AL26	GND	GND	K7		
AL28	GND	GND	M13		
AL30	GND	GND	M15		
AL32	GND	GND	M17		
AL33	GND	GND	M18		
AL5	GND	GND	M20		
AM13	GND	GND	M22		
AM16	GND	GND	N12		
AM19	GND	GND	N14		
AM22	GND	GND	N16		

U10I

bga908-nvidia-n13p-gs-a1
COMMON

17/19 GND_2/2

N19	GND	GND	T28		
N2	GND	GND	T32		
N21	GND	GND	T5		
N23	GND	GND	T7		
N28	GND	GND	U12		
N30	GND	GND	U14		
N32	GND	GND	U16		
N33	GND	GND	U19		
N5	GND	GND	U21		
N7	GND	GND	U23		
P13	GND	GND	V12		
P15	GND	GND	V14		
P17	GND	GND	V16		
P18	GND	GND	V19		
P20	GND	GND	V21		
P22	GND	GND	V23		
R12	GND	GND	W13		
R14	GND	GND	W15		
R16	GND	GND	W17		
R19	GND	GND	W18		
R21	GND	GND	W20		
R23	GND	GND	W22		
T13	GND	GND	W28		
T15	GND	GND	Y12		
T17	GND	GND	Y14		
T18	GND	GND	Y16		
T2	GND	GND	Y19		
T20	GND	GND	Y21		
T22	GND	GND	Y23		
AG11	GND	GND	AH11		
		GND_OPT	C16		
		GND_OPT	W32		

Optional CMD GNDs (2)
NC for 4-Lyr cards

U10H

bga908-nvidia-n13p-gs-a1
COMMON

10/19 XVDD

CONFIGURABLE
POWER
CHANNELS

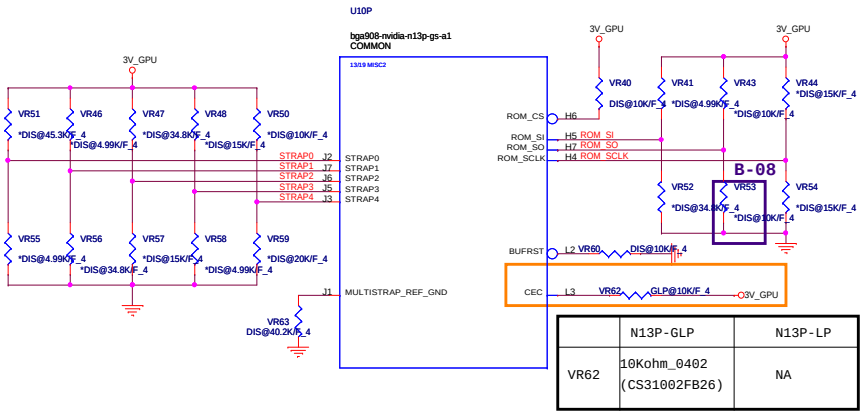
XVDD	U1	XVDD	V1	XVDD	Y1
XVDD	U2	XVDD	V2	XVDD	Y2
XVDD	U3	XVDD	V3	XVDD	Y3
XVDD	U4	XVDD	V4	XVDD	Y4
XVDD	U5	XVDD	V5	XVDD	Y5
XVDD	U6	XVDD	V6	XVDD	Y6
XVDD	U7	XVDD	V7	XVDD	Y7
XVDD	U8	XVDD	V8	XVDD	Y8
		XVDD	W2	XVDD	AA1
		XVDD	W3	XVDD	AA2
		XVDD	W4	XVDD	AA3
		XVDD	W5	XVDD	AA4
		XVDD	W7	XVDD	AA5
		XVDD	W8	XVDD	AA6
				XVDD	AA7
				XVDD	AA8

To be configured as needed on the PCB

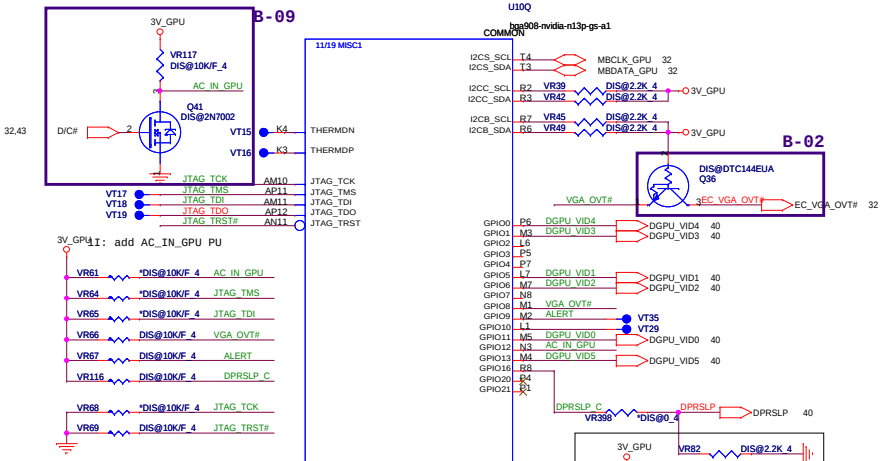
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	N13P GND	B
Date: Tuesday, May 22, 2012	Sheet 20 of 45	

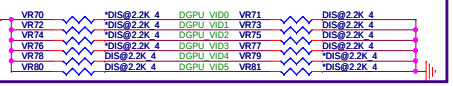


	N13P-GLP	N13P-LP
VR62	10Kohm_0402 (CS31002FB26)	NA



C-33 For IVMP 6.5(GPU)

Default:0.9V (0110000) N13P-GLP/LP
Note:VID6 PD in VR Side



B-29

Logical Strap Bit Mapping

Value	PU-VDD	PD	QCI PN(0402)
4.99K	1000	0000	CS24992FB26
10K	1001	0001	CS31002FB26
15K	1010	0010	CS31502FB24
20K	1011	0011	CS32002FB29
24.9K	1100	0100	CS32492FB16
30.1K	1101	0101	CS33012FB18
34.8K	1110	0110	CS33482FB22
45.3K	1111	0111	CS34532FB18

VRAM(DDR3) Configuration Table

RAMCFG [3:0]	DESCRIPTION (Vendor P/N)	Vendor	QCI P/N	ROM_SI
0111	128*16-900MHz K4W2G1646C-HC11	Samsung	AKD5MGWT500	PD 45.3K
0110	128*16-900MHz H5TQ2G63BFR-11C	Hinyx	AKD5MGWTW00	PD 35K
0010	64*16-900MHz H5TQ1G63DFR-11C	Hinyx	AKD5LZWTW02	PD 15K
0011	64*16-900MHz K4W1G1646G-BC11	Samsung	AKD5EGGT500	PD 20K

B-29

		GLP 1GB HYN	GLP 1GB SAM	GLP 2GB HYN	GLP 2GB SAM	LP 2GB HYN	LP 2GB SAM
ROM_SCLK	VR44 VR54	NA CS31502FB24	NA CS31502FB24	NA CS31502FB24	NA CS31502FB24	CS24992FB26 NA	CS24992FB26 NA
ROM_SI	VR41 VR52	NA CS31502FB24	NA CS32002FB29	NA CS33012FB18	NA CS34532FB18	NA CS33012FB18	NA CS34532FB18
ROM_SO	VR43 VR53	NA CS31002FB26	NA CS31002FB26	NA CS31002FB26	NA CS31002FB26	CS31002FB26 NA	CS31002FB26 NA
STRAP0	VR51 VR55	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA	CS34532FB18 NA
STRAP1	VR46 VR56	NA CS34532FB18	NA CS34532FB18	NA CS34532FB18	NA CS34532FB18	NA CS24992FB26	NA CS24992FB26
STRAP2	VR47 VR57	CS24992FB26 NA	CS24992FB26 NA	CS24992FB26 NA	CS24992FB26 NA	NA CS32002FB29	NA CS32002FB29
STRAP3	VR48 VR58	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26	NA CS24992FB26
STRAP4	VR50 VR59	NA NA	NA NA	NA NA	NA NA	NA CS34532FB18	NA CS34532FB18

N13P-LP (GK107-ESP)	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
ROM_SCLK	PCI_DEVIDE[4]	SUB_VENDOR	SLOT_CLK_CFG-GLP PCI_DEVIDE[5]-LP	PEX_PLL_EN_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
ROM_SO	XCLK_417 FB[1]-LP	FB_0_BAR_SIZE FB[0]-LP	SMB_ALT_ADDR I2CS ADDR:0X9E	VGA_DEVICE
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	Reserve PCIE_SPEED-LP	PCIE_MAX_SPEED	DP_PLL_VDD3V

Value	Note
1000	LP:ES Samples 5K PU(0X0FDB)
0010	GLP:ES Samples 15K PD(0X0DFE)
0110	LP H5TQ2G63BFR-11C :35K PD
0111	LP K4W2G1646C-HC11 45.3K PD
0010	GLP H5TQ1G63DFR-11C :15K PD
0011	GLP K4W1G1646G-BC11 :20K PD
1001	10K PU
0001	10K PD
1111	EDID is used :45K PU
0000	LP:notebook default:35K PD
0111	GLP: Reserve:45.3K PD
0011	LP ES Samples:20K PU(0X0FDB)
1000	GLP ES Samples:45.3K PU(0X0DEF)
0000	Not in use :5K PD
0111	LP:10K PD GLP: NA

B-08

*LP QS Samples:5K PU(0X0FD3)
*GLP MP Samples 15K PD(0X0DE8)
*H5TQ2G63DFR-11C: 30.1K PD(0X5)

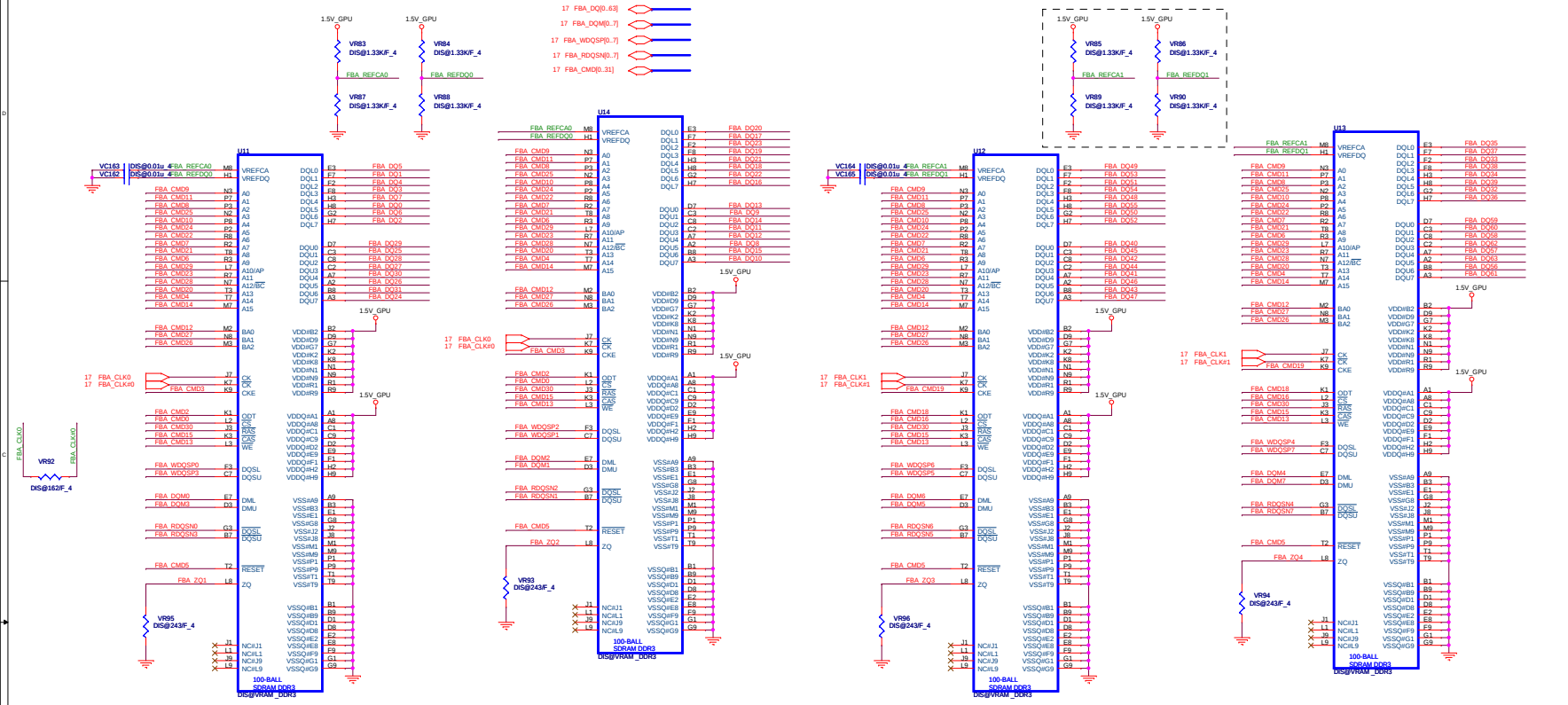
C-48

*LP QS Samples: 4.99K PD(0X0)
*LP QS Samples: 20K PD(0X0FD3)
*GLP MP Samples: 5K PU(0X0DE8)
*LP QS Samples: 45K PD(0X111)

GPIO ASSIGNMENTS

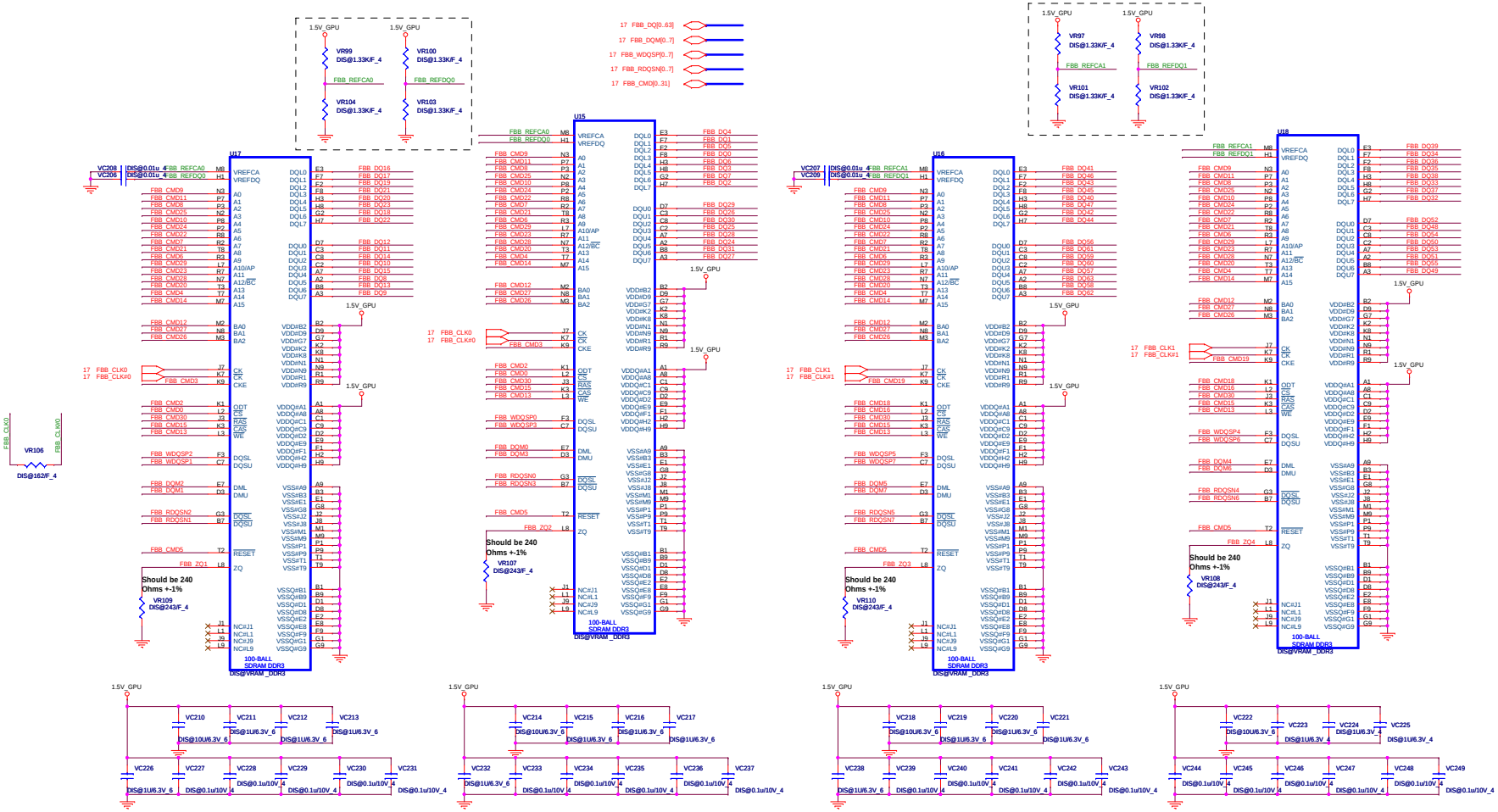
GPIO	I/O	USAGE	
0	OUT	Y	NVVDD VID4
1	OUT	Y	NVVDD VID3
2	OUT	N	PANEL BACKLIGHT PWM
3	OUT	N	PANEL POWER ENABLE
4	OUT	N	PANEL BACKLIGHT ENABLE
5	OUT	Y	NVVDD VID1
6	OUT	Y	NVVDD VID2
7	OUT	N	3D STEREO
8	I/O	Y	GPU Overtemp
9	I/O	Y	GPU ALERT
10	OUT	N	FB Vref Control
11	OUT	Y	NVVDD VID0
12	IN	N	PWR_Level AC Detect
13	OUT	Y	NVVDD VID5
14	IN	N	HPD for IFP AB
15	IN	N	HPD for IFP C
16	OUT	N	DPRSLP(Default) or PSI#
17	OUT	N	HPD for IFP D
18	OUT	N	HPD for IFP E
19	OUT	N	HPD for IFP F
20	OUT	N	
21	OUT	N	

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: N13P STRAP/GPIO | Rev B
Date: Tuesday, May 22, 2012 | Sheet 21 of 45



1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number	Rev
	N13P VRAM-A DDR3	B
Date: Tuesday, May 22, 2012	Sheet 22 of 45	



	LOWER 0..31	UPPER 32..63
CMD0	A0	A0
CMD1	A1	A1
CMD2	A2	A2
CMD3	A3	A3
CMD4	A4	A4
CMD5	A5	A5
CMD6	A6	A6
CMD7	A7	A7
CMD8	A8	A8
CMD9	A9	A9
CMD10	A10	A10
CMD11	A11	A11
CMD12	A12	A12
CMD13	A13	A13
CMD14	A14	A14
CMD15	A15	A15
CMD16	BA0	BA0
CMD17	BA1	BA1
CMD18	BA2	BA2
CMD19	CKE	N/A
CMD20	N/A	CKE
CMD21	ODT	N/A
CMD22	N/A	ODT
CMD23	CS0	N/A
CMD24	N/A	CS0
CMD25	RAS	RAS
CMD26	CAS	CAS
CMD27	WE	WE
CMD28	RST	RST
CMD29	N/A	N/A
CMD30	N/A	N/A
CMD31	N/A	N/A

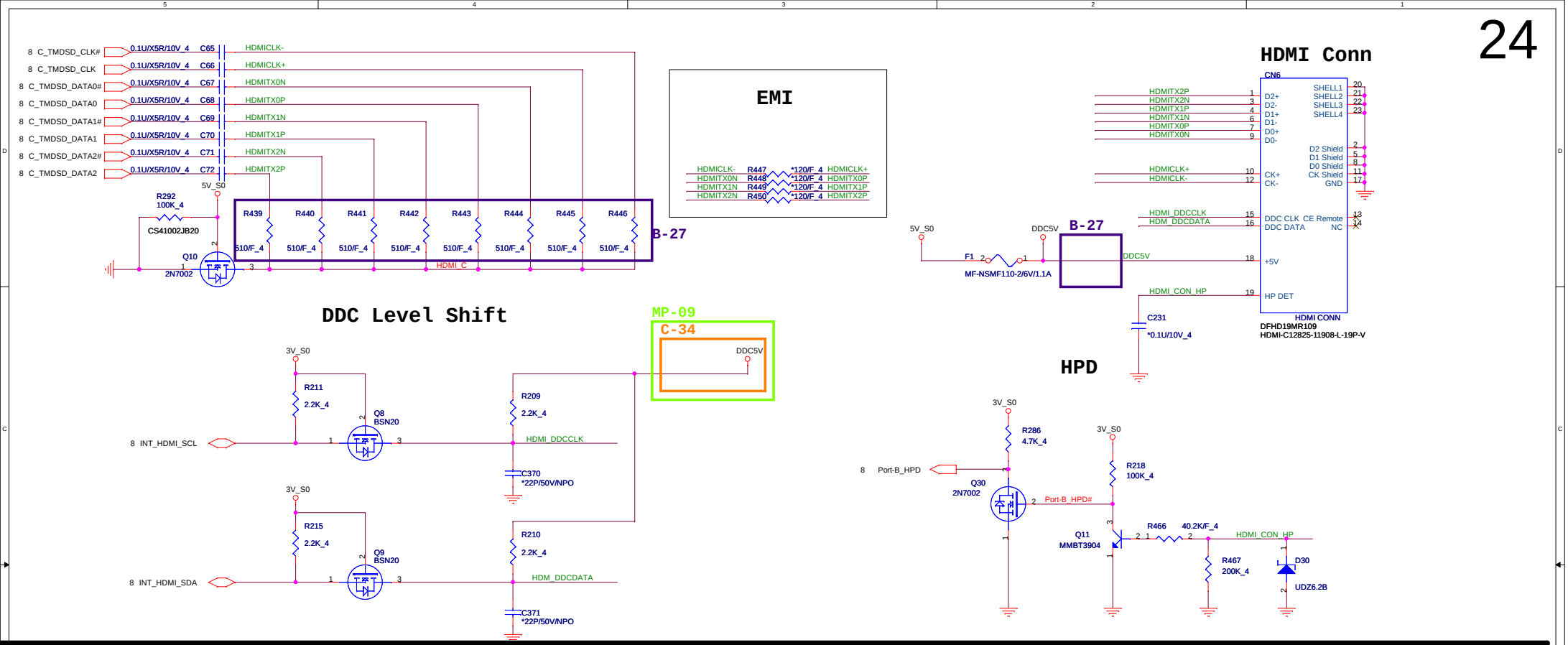
IN USE ON VUP - VUP

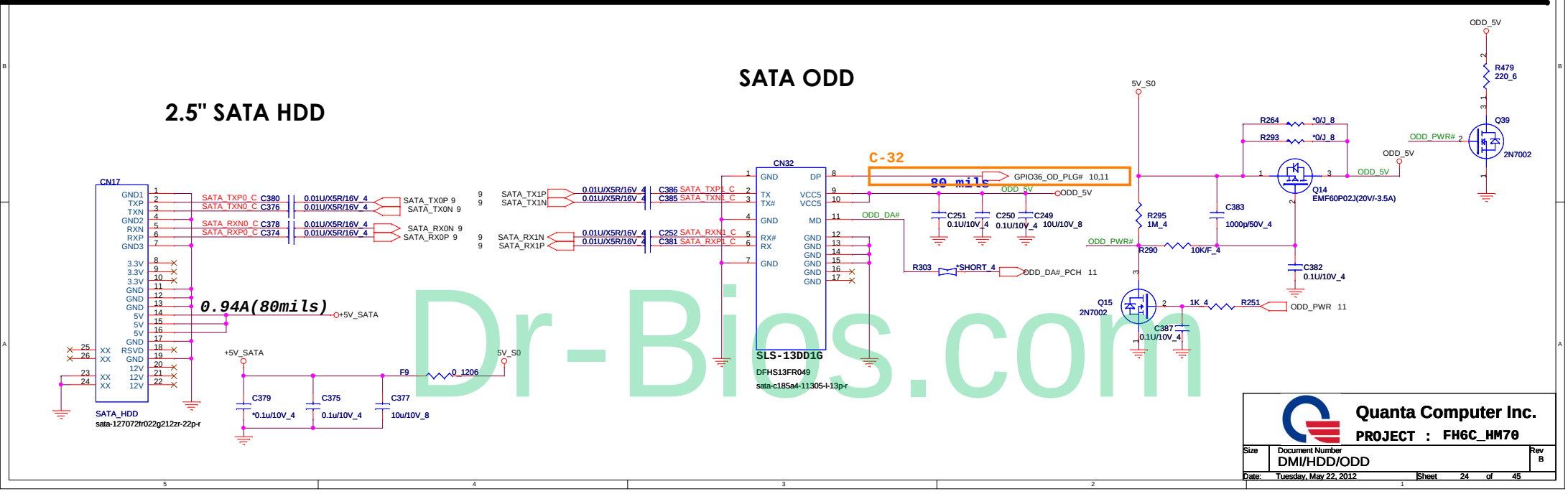
	LOWER 0..31	UPPER 32..63
CMD0	A0	A0
CMD1	A1	A1
CMD2	A2	A2
CMD3	A3	A3
CMD4	A4	A4
CMD5	A5	A5
CMD6	A6	A6
CMD7	A7	A7
CMD8	A8	A8
CMD9	A9	A9
CMD10	A10	A10
CMD11	A11	A11
CMD12	A12	A12
CMD13	A13	A13
CMD14	A14	A14
CMD15	A15	A15
CMD16	BA0	BA0
CMD17	BA1	BA1
CMD18	BA2	BA2
CMD19	CKE	N/A
CMD20	N/A	CKE
CMD21	ODT	N/A
CMD22	N/A	ODT
CMD23	CS0	N/A
CMD24	N/A	CS0
CMD25	RAS	RAS
CMD26	CAS	CAS
CMD27	WE	WE
CMD28	RST	RST
CMD29	N/A	N/A
CMD30	N/A	N/A
CMD31	N/A	N/A

IN USE ON VUP - VUP

1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.

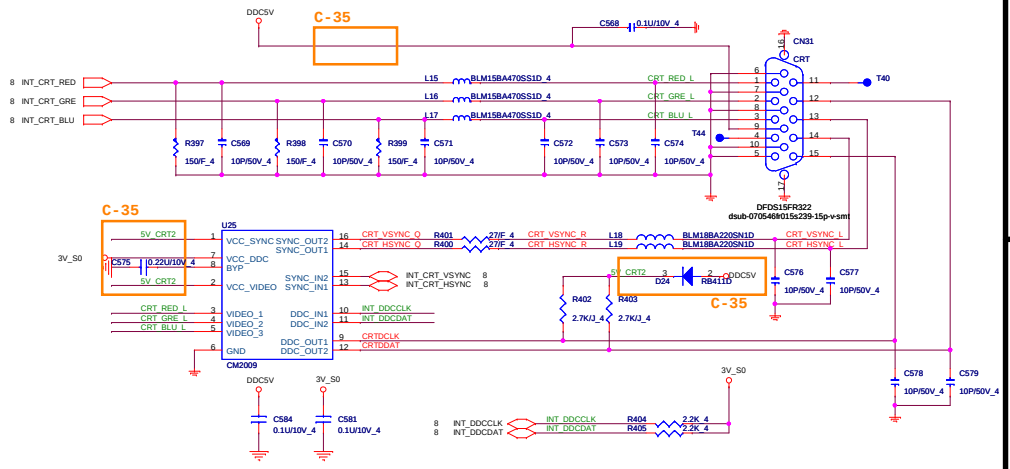
Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number | Rev
N13P VRAM-B DDR3 | B
Date: Tuesday, May 22, 2012 | Sheet 23 of 45





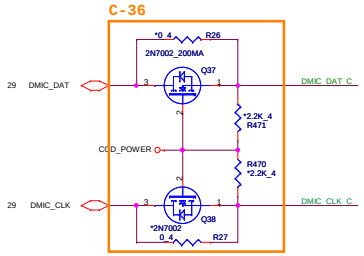
Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number DMI/HDD/ODD	Rev B
Date: Tuesday, May 22, 2012	Sheet 24 of 45	

CRT CONN/DDC LEVEL SHIFT

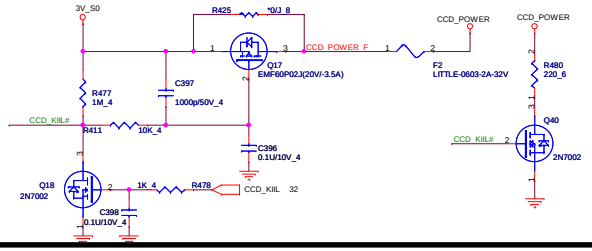


C-37

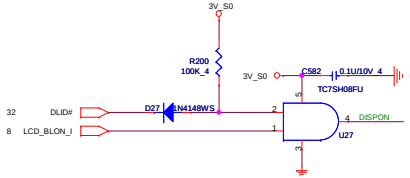
C-36



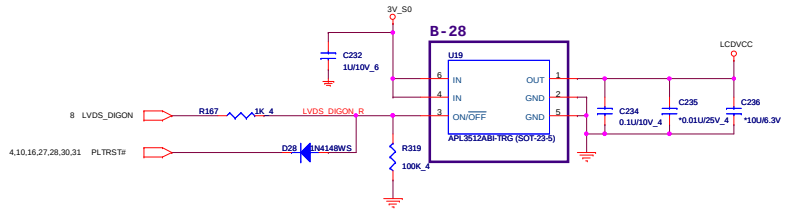
CCD KILL



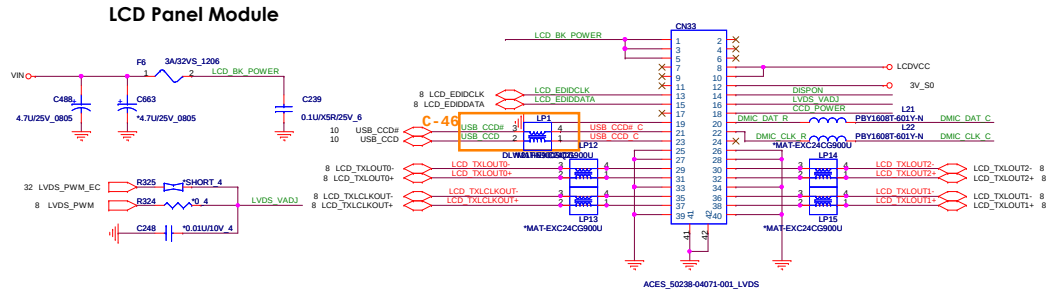
PANEL BACKLIGHT CONTROL



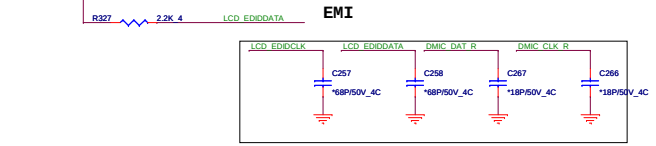
LCD POWER SWITCH



LCD Panel Module



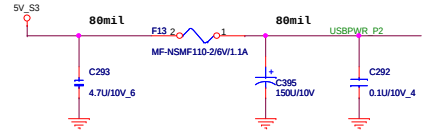
EMI

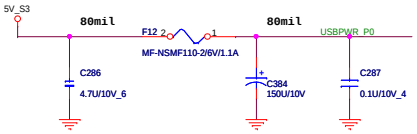


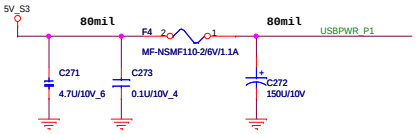
Quanta Computer Inc.
PROJECT : FH6C_HM70

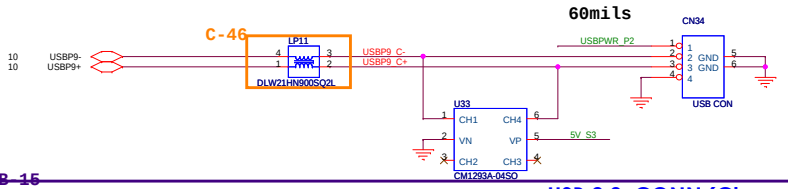
Size	Document Number	Rev
	LVDS/CCD/CRT	B

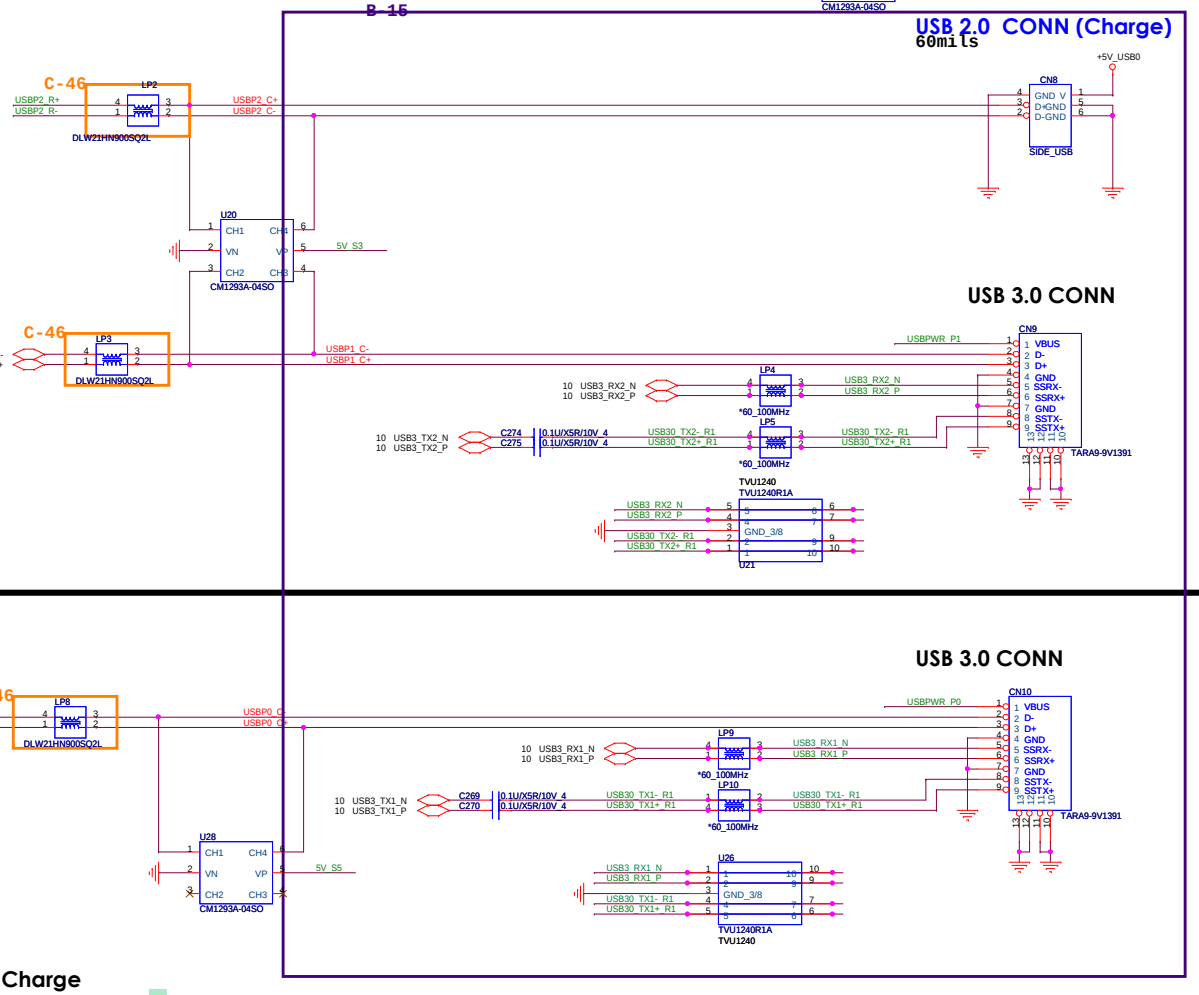
Date: Tuesday, May 22, 2012 Sheet 25 of 45

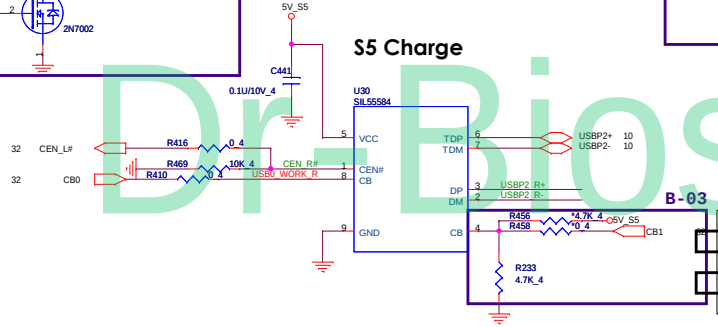










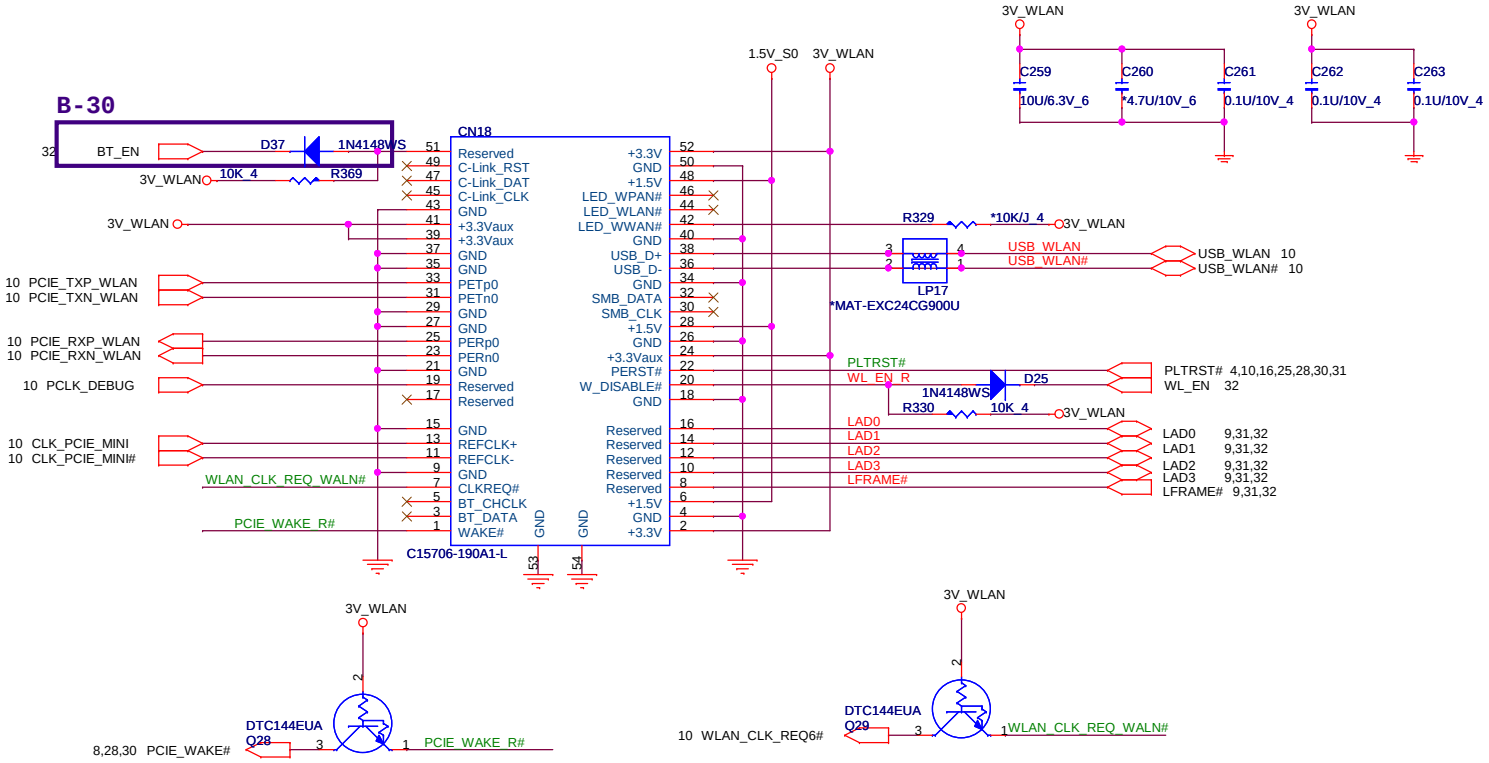


CB0	CB1	Status
0	0	Auto Dection Charge Mode
0	1	Force Dedicated Charger Mode
1	0	Pass Through Mode
1	1	Pass Through Mode with CDP or SDP(SIG55584 only)

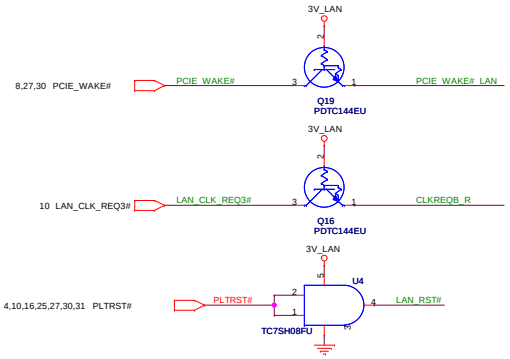
Quanta Computer Inc.
PROJECT : FH6C_HM70

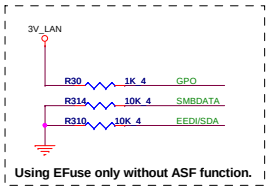
Size	Document Number	Rev
	USB 3.0/USB 2.0	B
Date: Wednesday, May 23, 2012	Sheet 26 of 45	

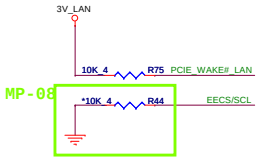
Wireless/BT COMBO

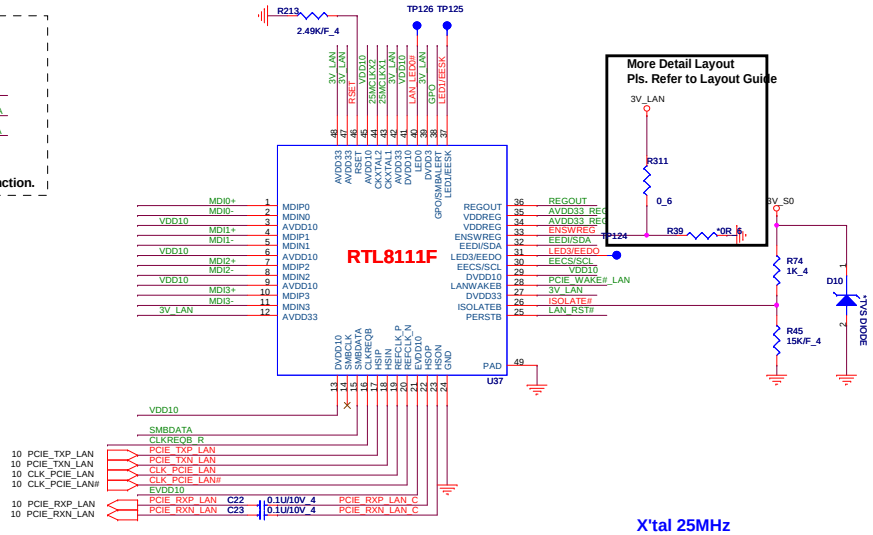


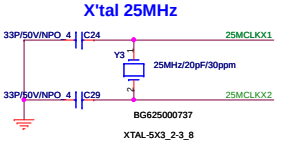
Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: WLAN/BT	Rev: B
Date: Tuesday, May 22, 2012	Sheet 27 of 45	

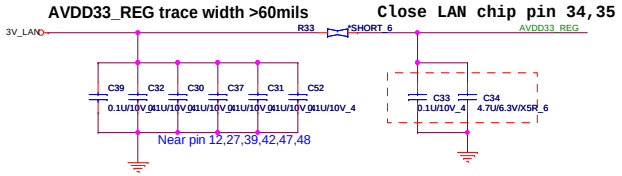


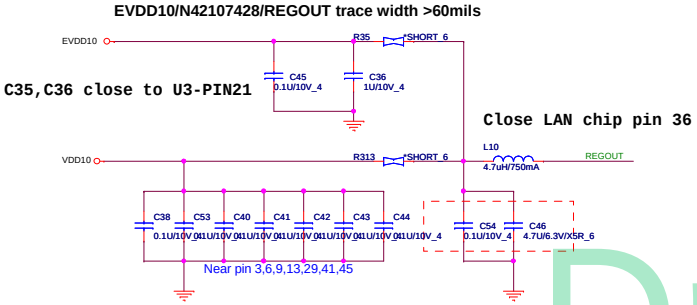


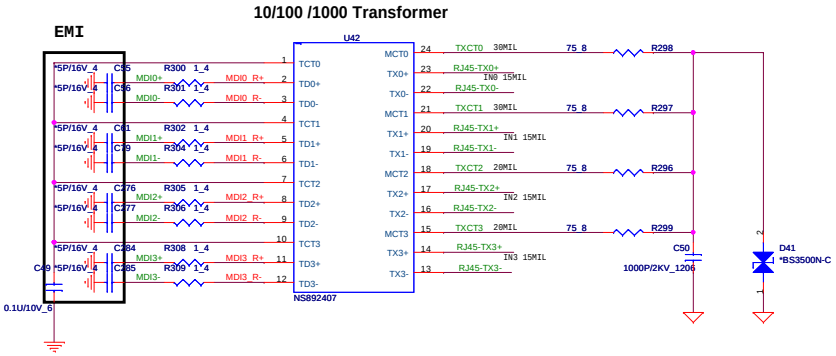


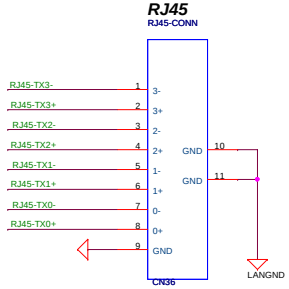


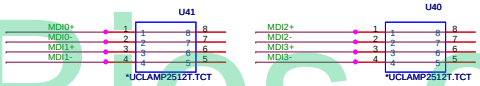


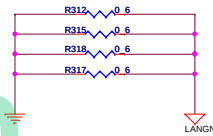






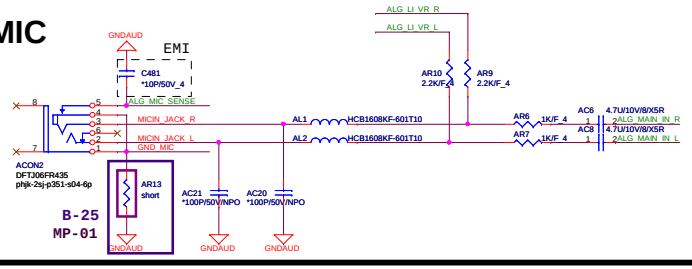




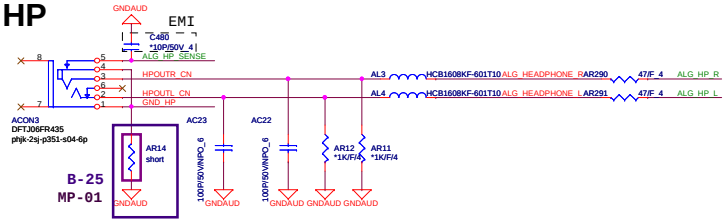


Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number	Rev
	LAN RTL8111F	B
Date: Tuesday, May 22, 2012	Sheet 28 of 45	

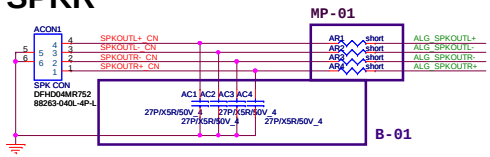
MIC



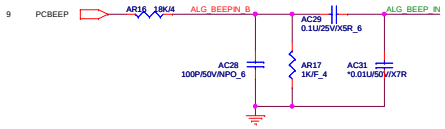
HP



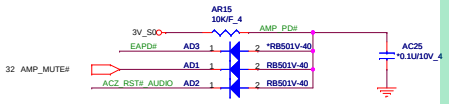
SPKR



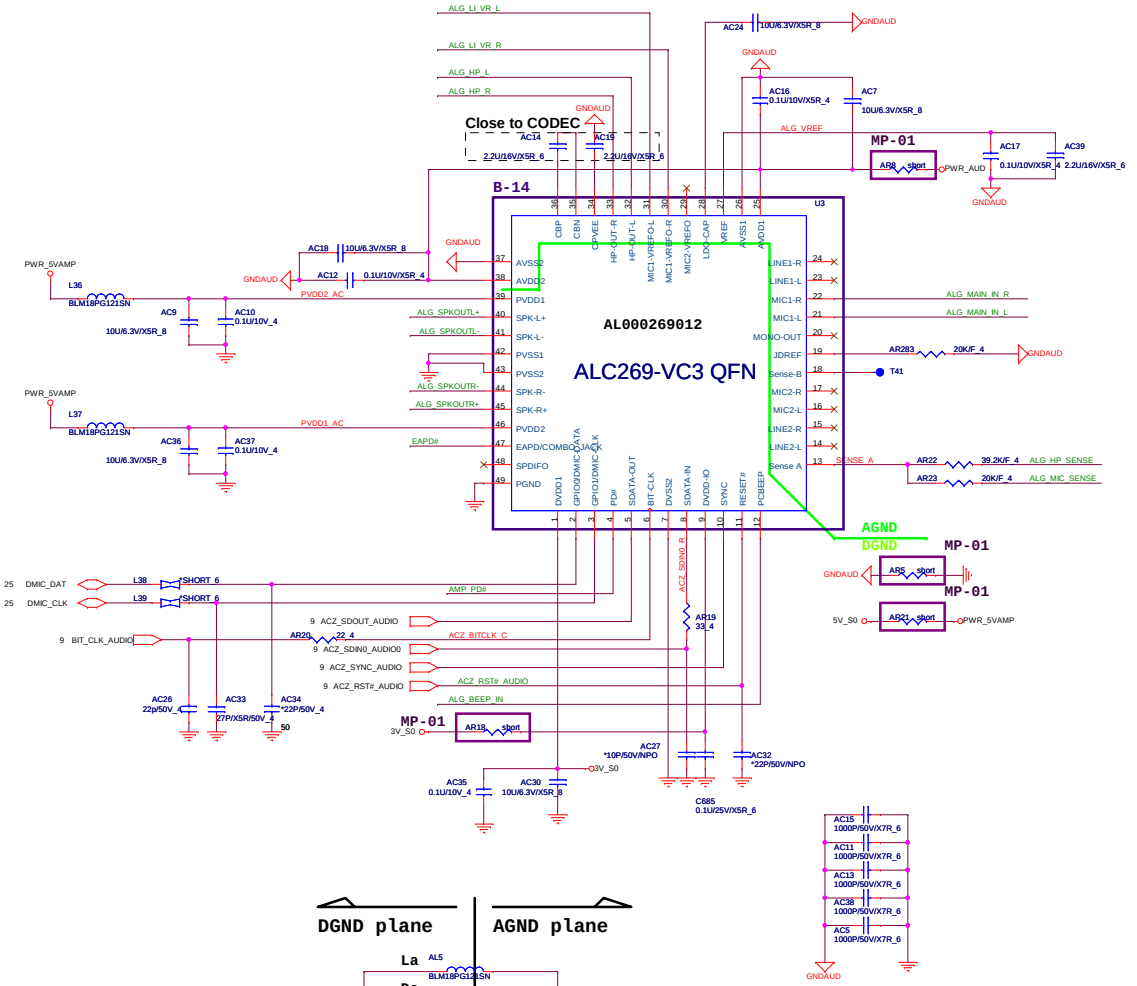
BEEP



VOLMUTE



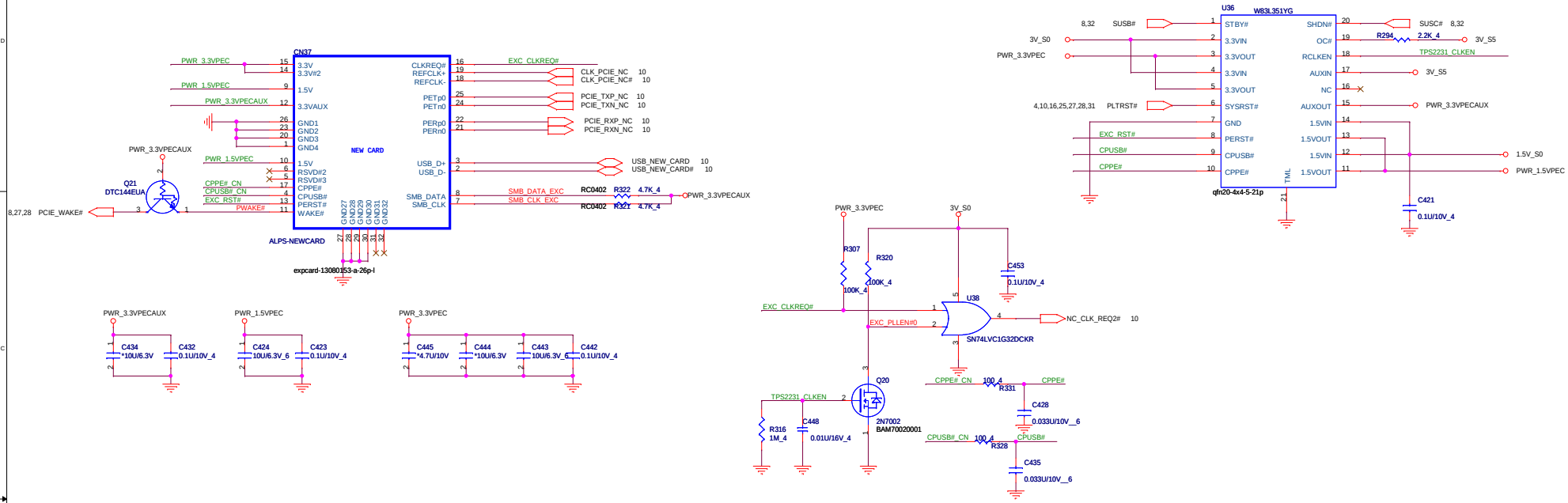
Codec ALC269-VC3



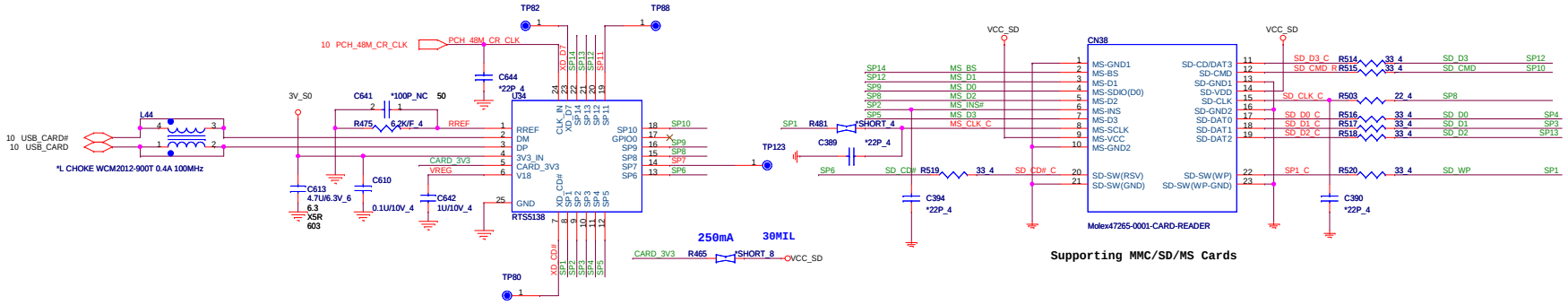
Quanta Computer Inc.
PROJECT : FH6C_HM70

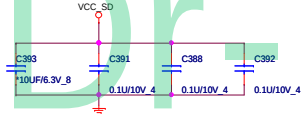
Size	Document Number	Rev
	CODEC (ALC269Q-VC3)	B
Date: Tuesday, May 22, 2012	Sheet 29 of 45	

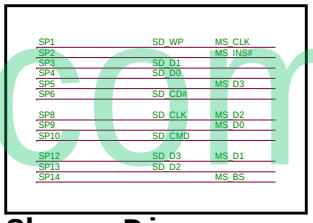
NEW CARD



Card reader RTS5138





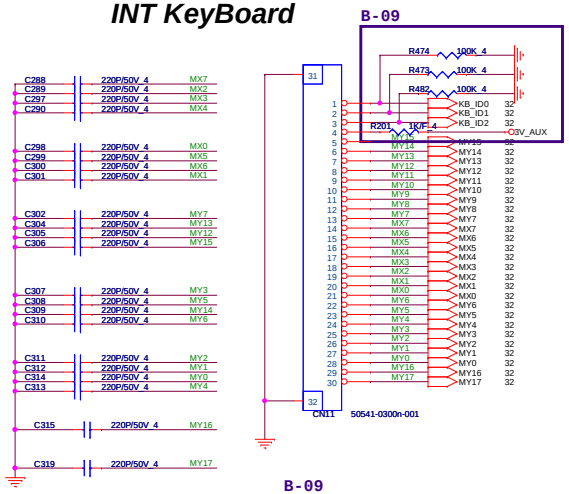


Share Pin

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	NEW CARD/CARD READER	B
Date: Tuesday, May 22, 2012	Sheet 30 of 45	

INT KeyBoard

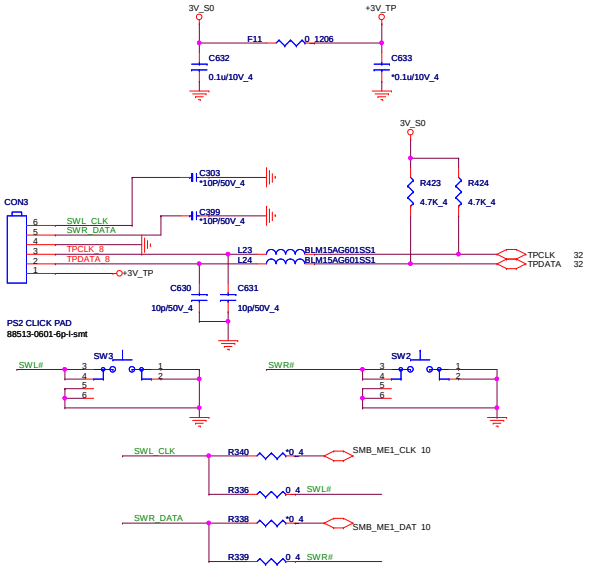


B-09

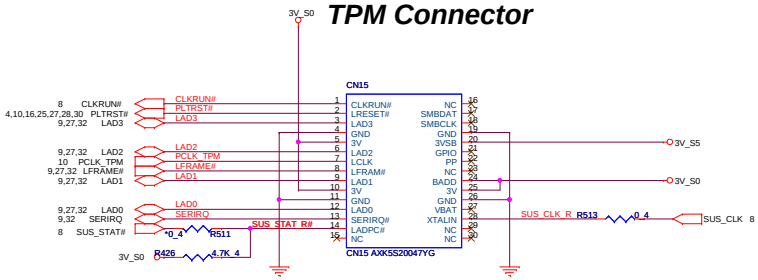
	ID0	ID1	ID2		KB_ID
			CH0	ISO	
UK	1	0	0	1	1
US	0	1	0	1	1
JP	1	1	0	1	1

Touch Pad

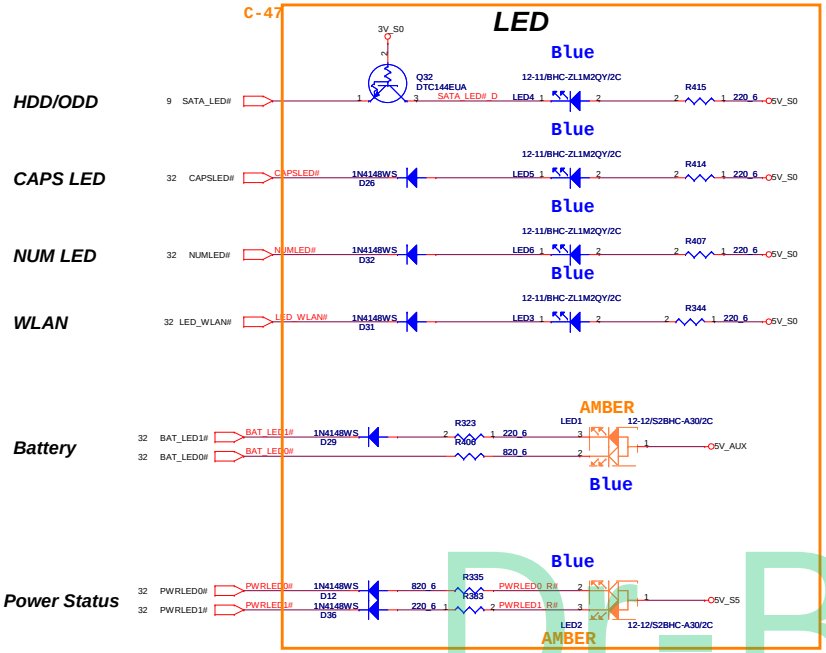
SMBUS CLICK PAD reserve



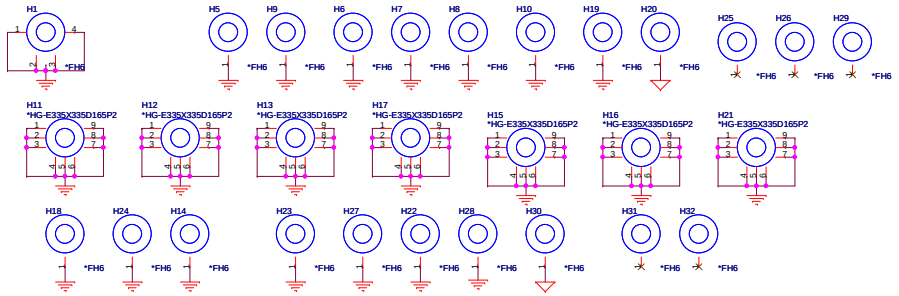
TPM Connector



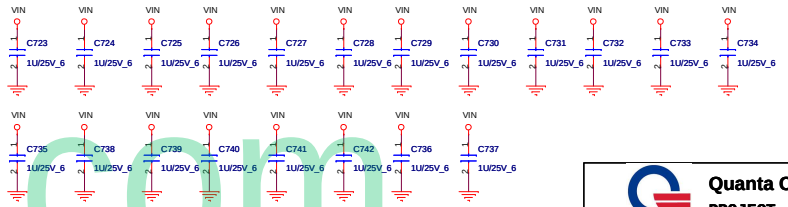
LED



HOLE



Decaupling Cap



Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	TPM/KB/TP/LED/HOLE	B

Date: Tuesday, May 22, 2012 Sheet 31 of 45

EC_ITE8519

Close EC Side

C326 *10U/6.3V_6 | C327 *10U/6.3V_6 | C328 *10U/6.3V_6 | C329 0.1U/10V_4 | C330 0.1U/10V_4 | C331 0.1U/10V_4

	UMA	DIS
R97	CS41002JB20	NA
R108	NA	CS41002JB20

IT8518

ITE-IT8518E

GPU Thermal

1MB ROM

0.025A(20mils)

Intel Turbo mode only <CPU>

HWPG circuit

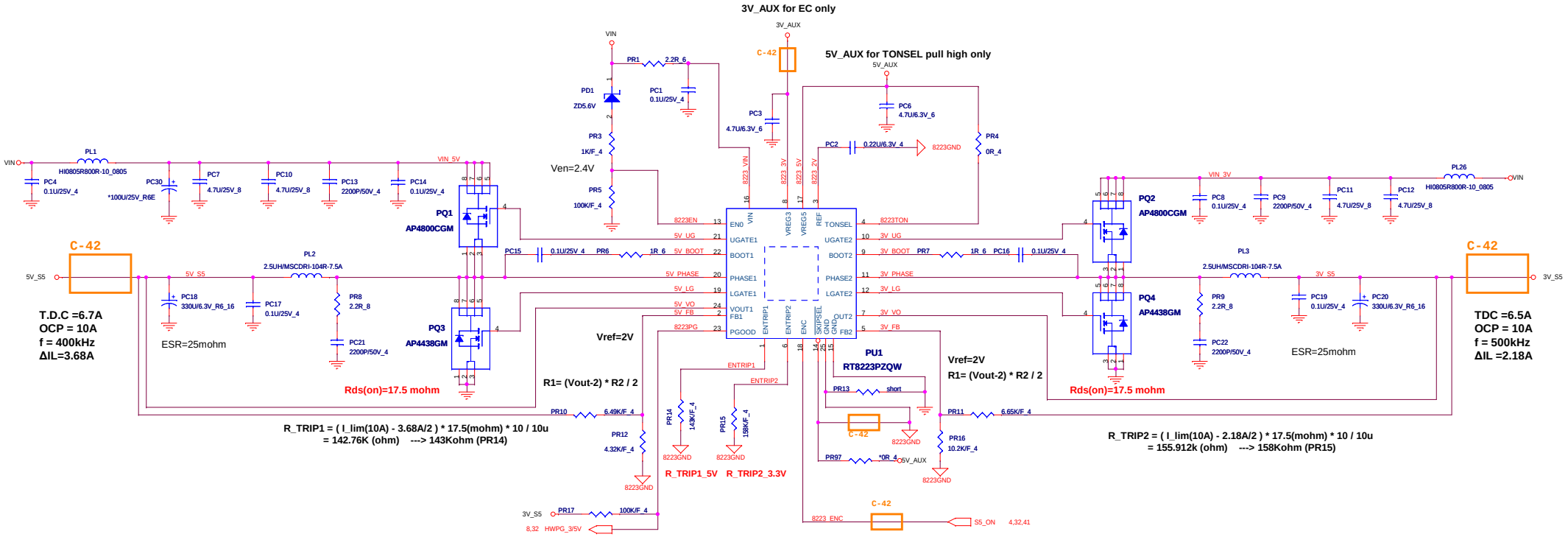
For Debug

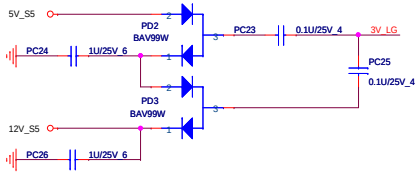
PWR BOARD CON

Layout Note:
32.768kHz clock lines:
a. If possible, please avoid using any through-hole.
b. Please make the trace length short, and the trace width wide enough.
c. The spacing to the closest neighbor should be wide enough.

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size: | Document Number: EC_ITE8518 | Rev: B
Date: Tuesday, May 22, 2012 | Sheet 32 of 45

System 3V_S5 and 5V_S5 (RT8223PZQW)





Iripple=(Vin-Vout)*Vout/(Vin*L*f)

O.C.P setup information

Output	Mos Rds_on	I_OCP	OC_ΔIL(A)	Freq(KHz)	Inductor	R_TRIP
5V	17.5m_Max	10	3.68	400	2.5uH	143K
3.3V	17.5m_Max	10	2.18	500	2.5uH	158K

L/S Mosfet parameter

Mosfet	Package	ID (Ta=25C)	Rds_on_max
Si4134DY	SO-8	9.9A/14A	17.5m
AO4712	SO-8	10A/11.2A	18.0m
AO4710	SO-8	11A/12.7A	14.2m
AP4438GSM	SO-8	7A/11.7A	18.0m
DMG4812	SO-8	9.6A/10.7A	18.5m
AON7702	DFN3x3	11A/20A	14.0m

Power On sequencing

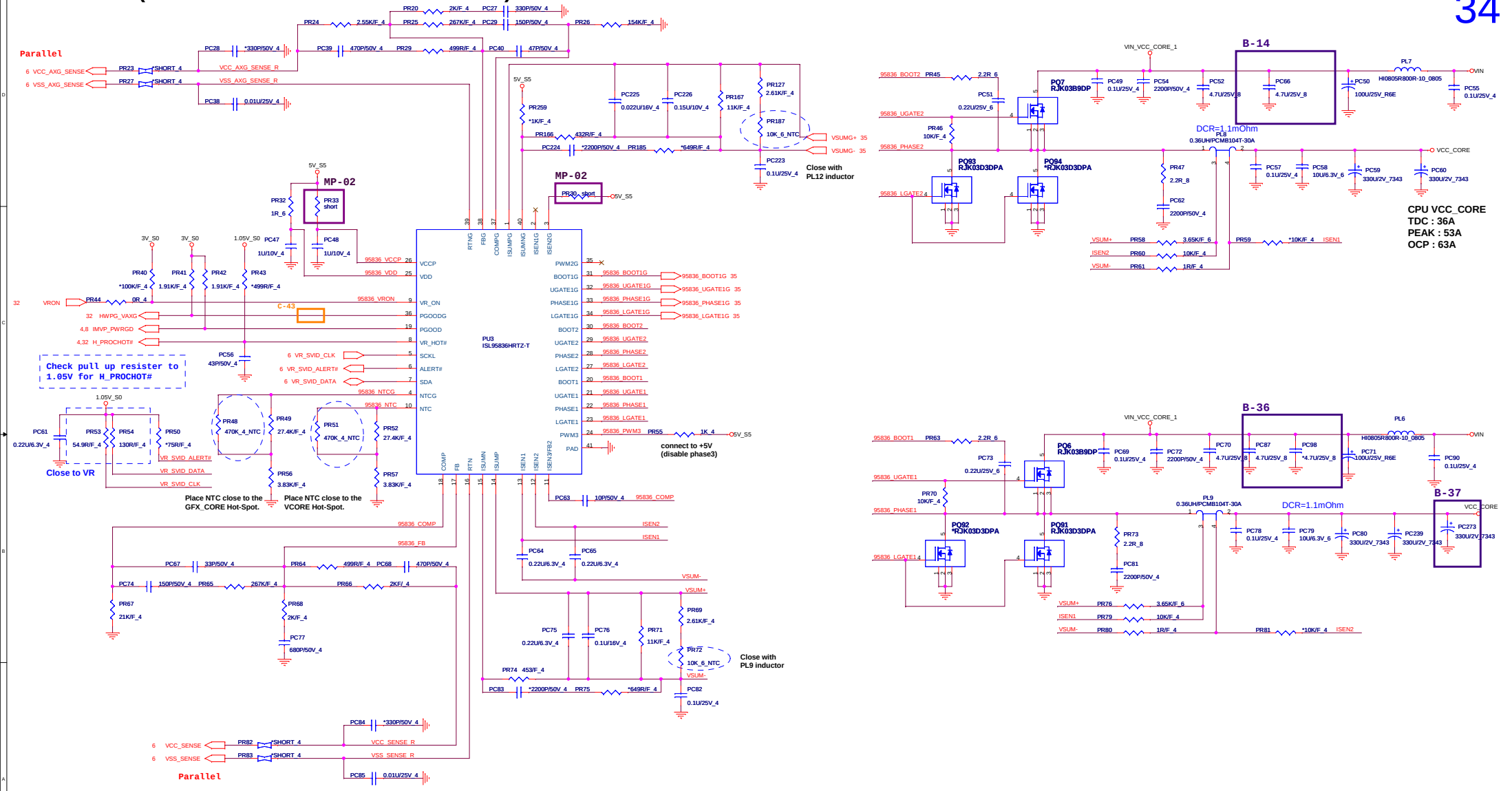
EN0	ENC	REF	VREG3	VREG5	SMPS1	SMPS2
LOW	LOW	OFF	OFF	OFF	OFF	OFF
> 2.4V	LOW	ON	ON	ON	OFF	OFF
> 2.4V	> 2.4V	ON	ON	ON	ON	ON

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	System 3V_S5 and 5V_S5 (RT8223PZQW)	B

Date: Tuesday, May 22, 2012 Sheet 33 of 45

CPU VCORE (ISL95836HRTZ-T and ISL6208CRZ-T)

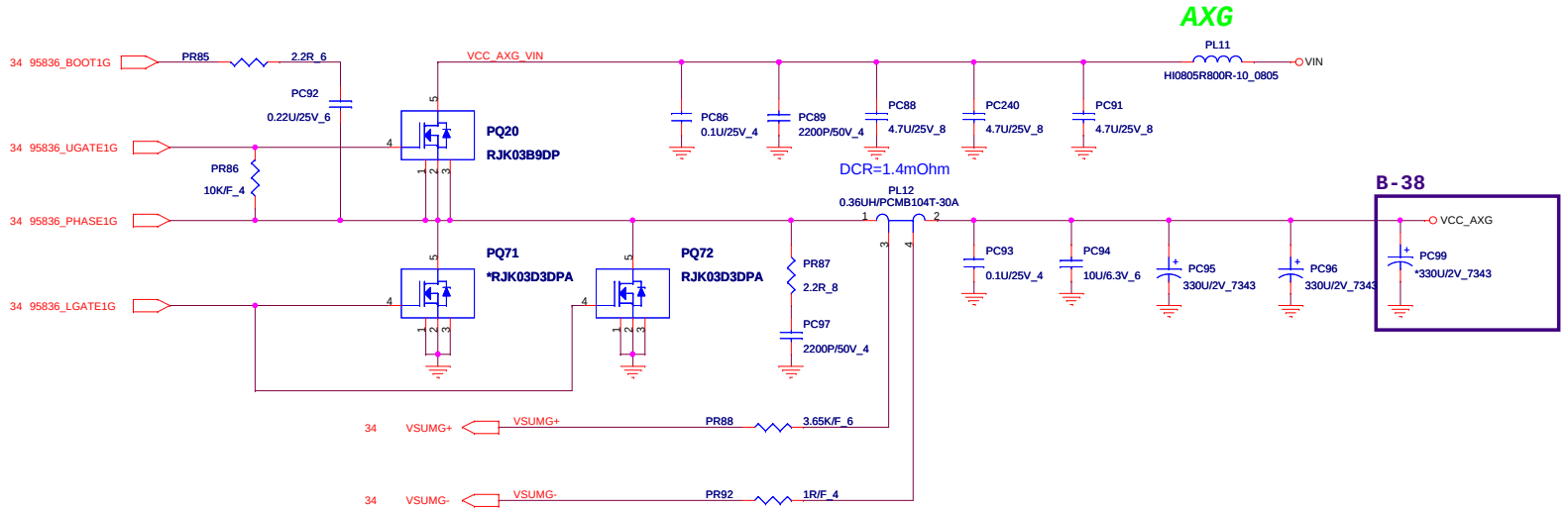


Inductor information

Value	Vendor	QCI P/N	Irms(A)	Isat(A)	Rdc (ohm)	Size	Vendor P/N
0.36uH 20%	CYN	CV+36V0MZ13	30	50	1.4m Max.	10x10x4	PCMB104T-R36MT
0.36uH 20%	Panasonic	CV+18V0MZ04	30	34	1.4m Max.	10x10x4	ETQP4LR36WFC

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: CPU_CORE (ISL95836HRTZ-T and ISL6208CRZ-T) | Rev: S
Date: Tuesday, May 22, 2012 | Sheet 34 of 45

VCC_AXG (ISL95836HRTZ-T)



CPU VCC_AXG
TDC : 21.5A
PEAK :33A
OCP : 39A
Width : 1400mil

L/S Mosfet parameter

Mosfet	Package	ID (Ta=25C)	Rds_on_max	Schottky
RJK03D3DPA	P_PAK	20A/40A	4.7m	YES
AOL1718	P_PAK	20A/90A	4.3m	YES
RMW200N03FUB	P_PAK	20A/80A	4.6m	NO
FDMS0310S	P_PAK	14A/83A	5.2m	YES

Inductor information

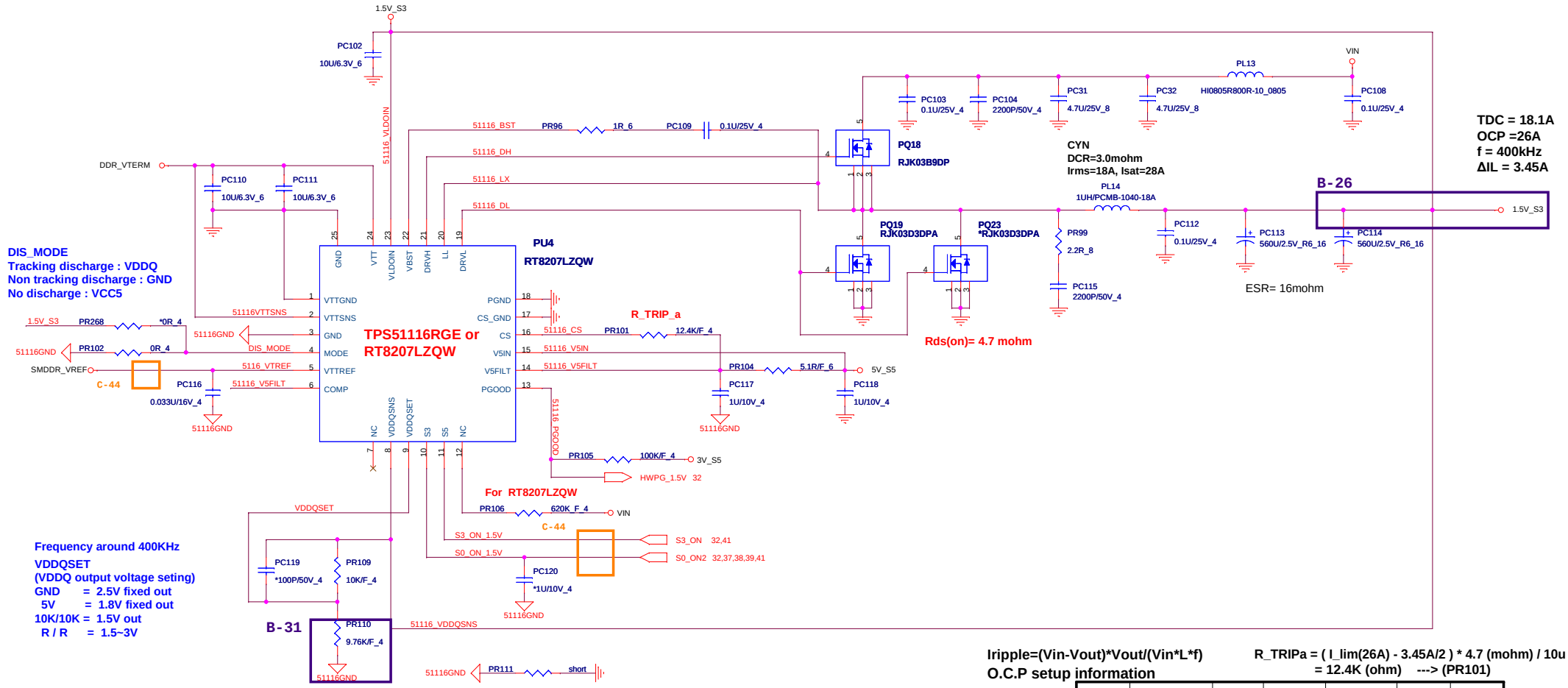
Value	Vendor	QCI P/N	Irms(A)	Isat(A)	Rdc (ohm)	Size	Vendor P/N
0.36uH 20%	Panasonic	CV+36Q0MZ00	20	25	1.4m Max.	7X7X4	ETQP4LR36AFM

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	CPU_GFX (ISL95836HRTZ-T)	B

Date: Tuesday, May 22, 2012 Sheet 35 of 45

DDR3 1.5V_S3 (TPS51116RGE or RT8207LZQW)



Frequency around 400KHz

VDDQSET
(VDDQ output voltage seting)
GND = 2.5V fixed out
5V = 1.8V fixed out
10K/10K = 1.5V out
R / R = 1.5~3V

Iripple=(Vin-Vout)*Vout/(Vin*L*f)

R_TRIPa = (I_lim(26A) - 3.45A/2) * 4.7 (mohm) / 10u
= 12.4K (ohm) ---> (PR101)

O.C.P setup information

Output	Mos Rds_on	I_OCP	OC_ΔIL(A)	Freq(KHz)	Inductor	R_TRIP
1.5V	4.7m_Max	26	3.45	400	1uH	12.4K

L/S Mosfet parameter

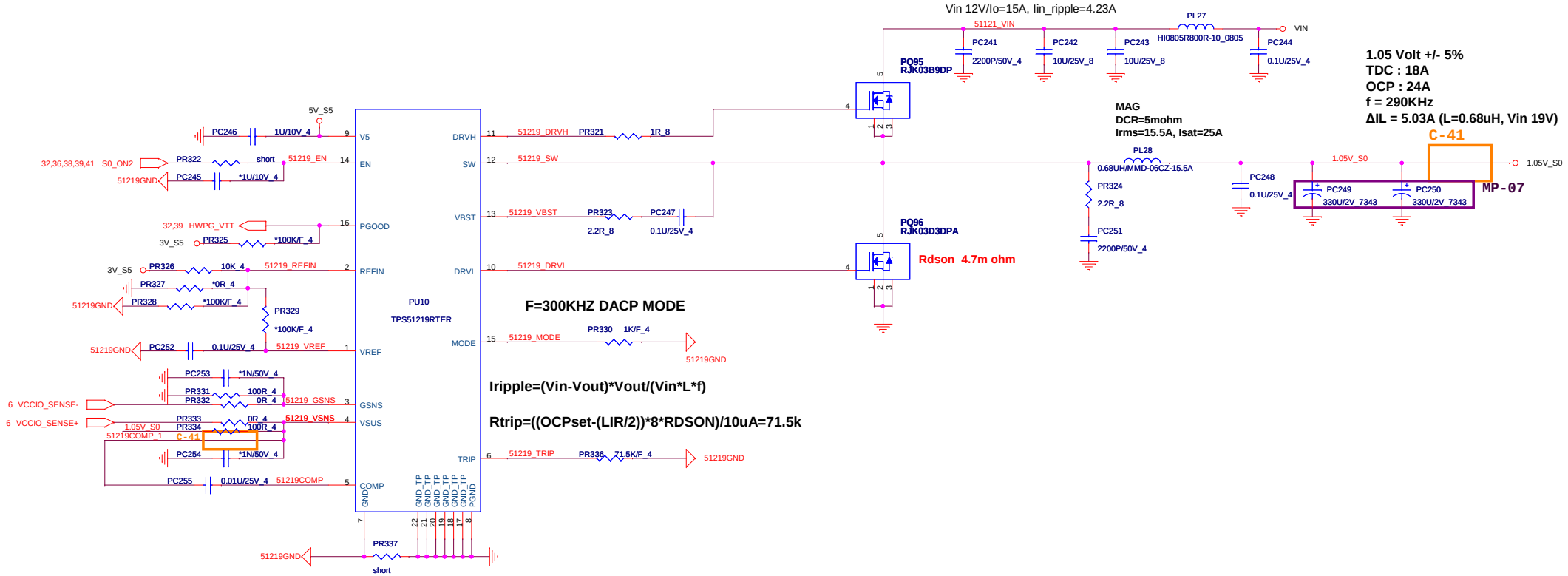
Mosfet	Package	ID (Ta=25C)	Rds_on_max	Schottky
RJK03D3DPA	P_PAK	20A/40A	4.7m	YES
AOL1718	P_PAK	20A/90A	4.3m	YES
RMW200N03FUB	P_PAK	20A/80A	4.6m	NO
FDMS0310S	P_PAK	14A/83A	5.2m	YES

Inductor information

Value	Vendor	QCI P/N	Irms(A)	Isat(A)	Rdc (ohm)	Size
1uH 20%	CYN	CV-10I0MZ04	18	28	3.3m Max.	11X10X4
1uH 20%	MAG Layer	CV-10L0MZ28	21	30	3.1m Max.	11X10X4

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: DDR3 1.5V_S3 (RT8207LZQW) | Rev B
Date: Tuesday, May 22, 2012 | Sheet 36 of 45

VCCIO and 1.05V_PCH (TPS51219RTER)



VCCIO_SENSE- connect to the GND sense point of the load
VCCIO_SENSE+ connect to the load voltage sense point.

Output Voltage Selection

RFIN=3.3V	output voltage=1.05V
RFIN=GND	output voltage=1.00V
Resister Divider	Adjutable from VREF

Inductor information

Value	Vendor	QCI P/N	Irms(A)	Isat(A)	Rdc (ohm)	Size
1uH 20%	CYN	CV-10I0MZ04	18	28	3.3m Max.	11X10X4
1uH 20%	MAG Layer	CV-10L0MZ28	21	30	3.1m Max.	11X10X4

O.C.P setup information

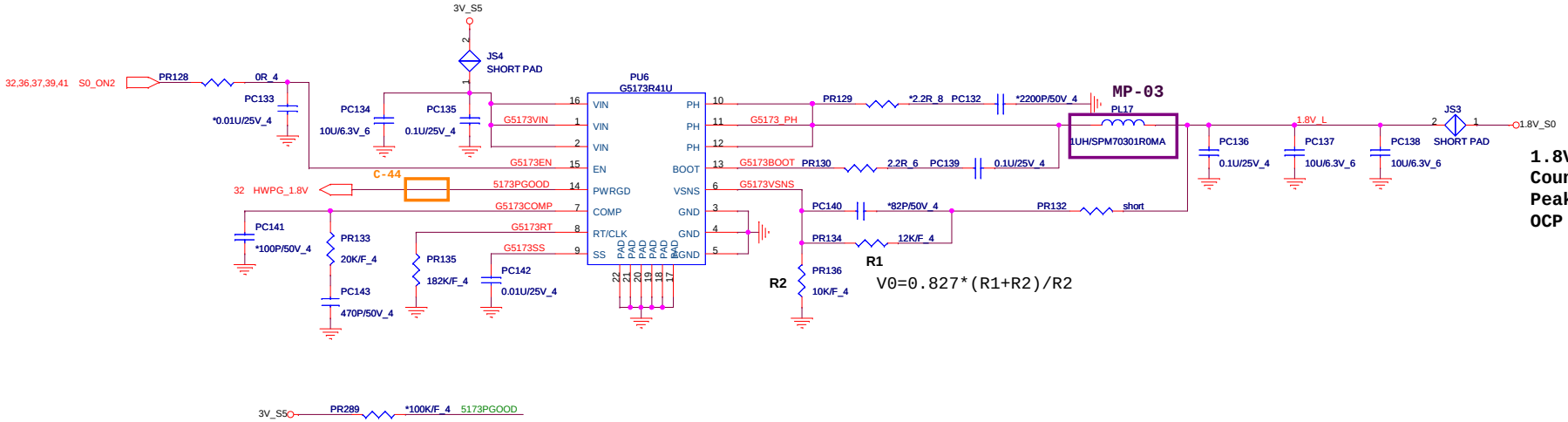
Output	Mos Rds_on	I_OCP	OC_ΔIL(A)	Freq(KHz)	Inductor	R_TRIP
1.05V	4.3m_Max	24	3.306	300	1uH	56.2K

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	VCCIO and 1.05V_PCH (TPS51219RTER)	B

Date: Tuesday, May 22, 2012 Sheet 37 of 45

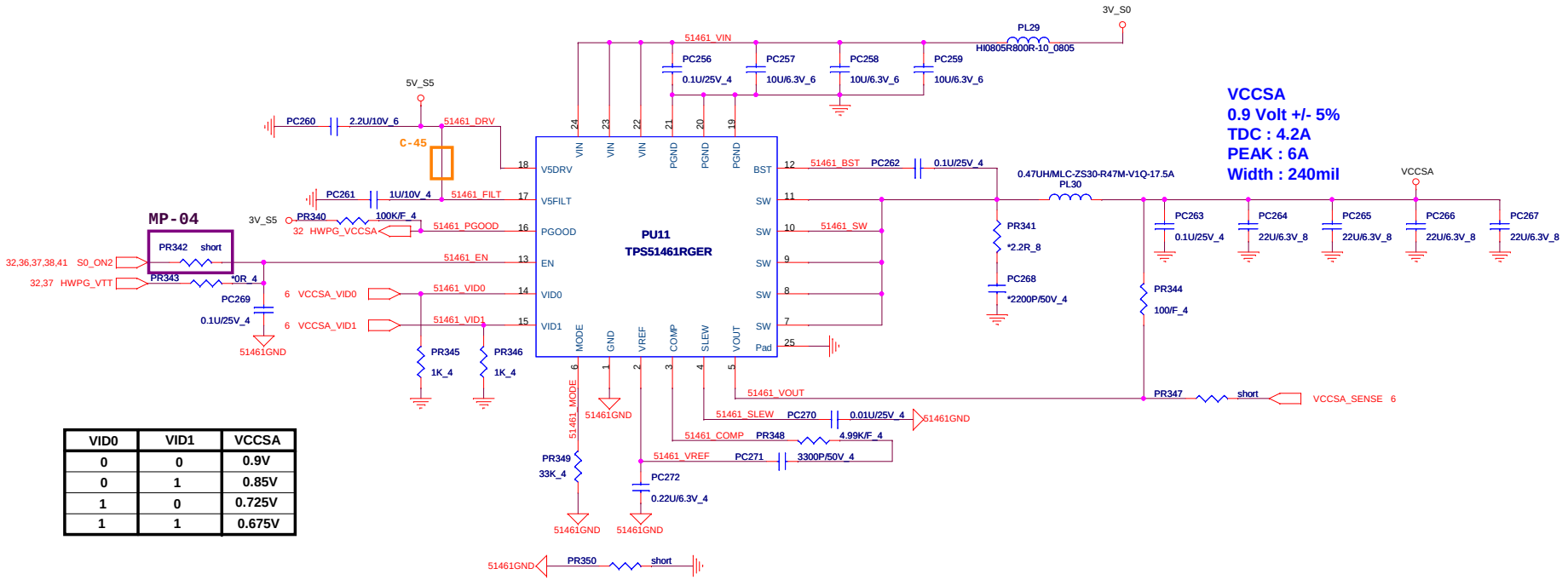
1.8V_S0(G5173R41U)



1.8V_S0 +/- 5%
Countinue current:1.4A
Peak current:3A
OCP minimum 4.5A

Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: 1.8V_S0(G5173R41U)	Rev B
Date: Tuesday, May 22, 2012	Sheet 38 of 45	

VCCSA (TPS51461RGER)



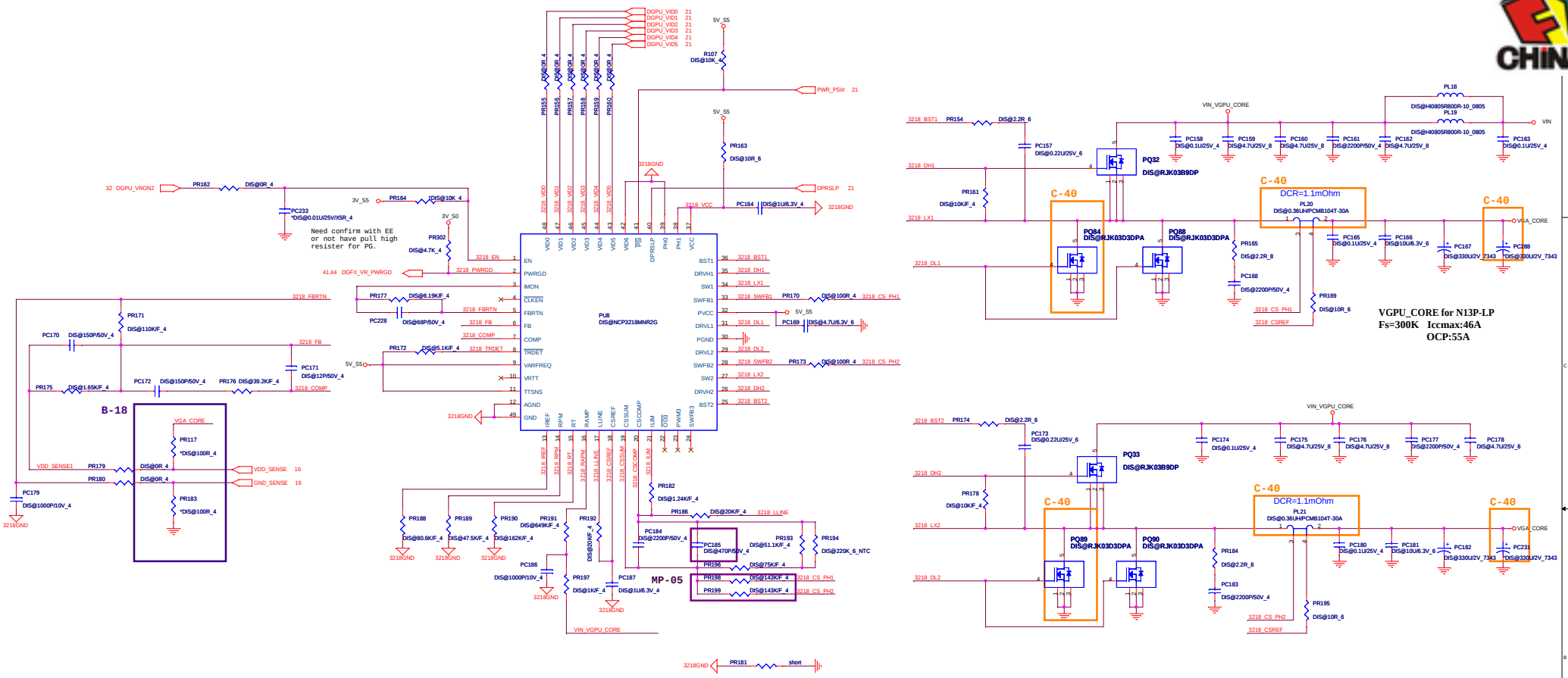
VID0	VID1	VCCSA
0	0	0.9V
0	1	0.85V
1	0	0.725V
1	1	0.675V

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	VCCSA (TPS51461RGER)	B

Date: Tuesday, May 22, 2012 Sheet 39 of 45

VGA_CORE (NCP3218MNR2G)



L/S Mosfet parameter

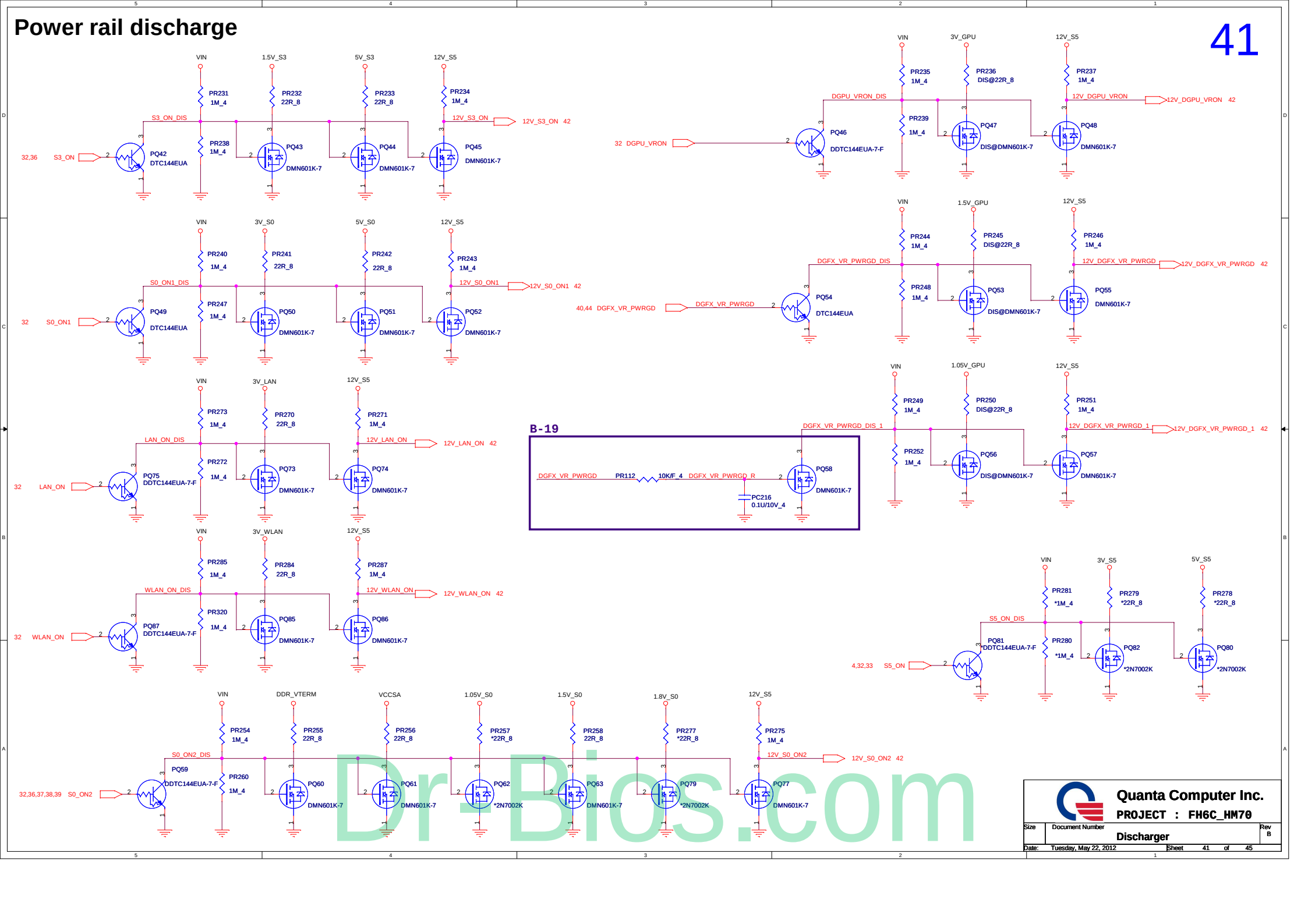
Mosfet	Package	ID (Ta=25C)	Rds_on_max	Schottky
RJK03D3DPA	P_PAK	20A/40A	4.7m	YES
AOL1718	P_PAK	20A/90A	4.3m	YES
RMW200N03FUB	P_PAK	20A/80A	4.6m	NO
FDMS0310S	P_PAK	14A/83A	5.2m	YES

Inductor information

Value	Vendor	QCI P/N	Irms(A)	Isat(A)	Rdc (ohm)	Size	Vendor P/N
0.36uH 20%	CYN	CV+36V0MZ13	20	25	1.2m Max.	7x7x3	PCMB104T-R36MT
0.36uH 20%	Panasonic	CV+36Q0MZ00	20	25	1.4m Max.	7x7x3	ETQP4LR36AFM

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size: Document Number: VGA_CORE (NCP3218MNR2G) Rev: B
Date: Tuesday, May 22, 2012 Sheet 40 of 45

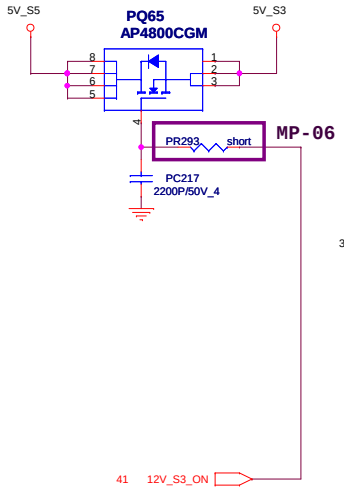
Power rail discharge



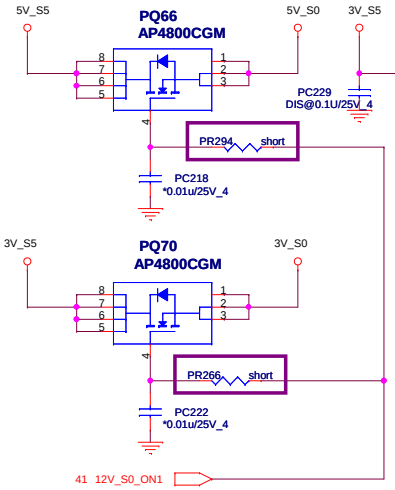
Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: Discharger	Rev B
Date: Tuesday, May 22, 2012	Sheet 41 of 45	

Load Switch

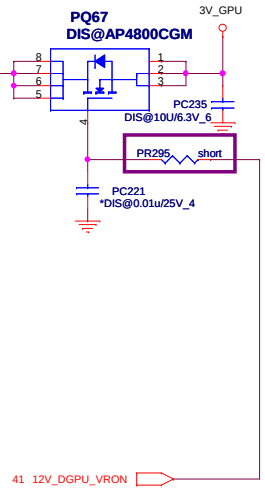
S3 ON Load SW



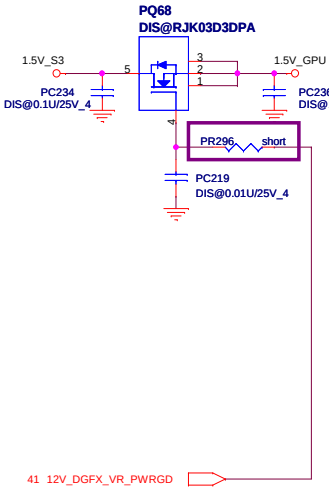
S0 ON1 Load SW



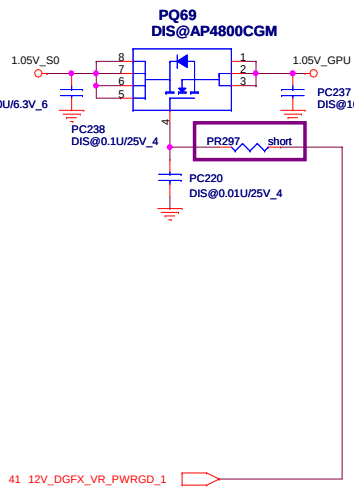
DGPU VRON Load SW



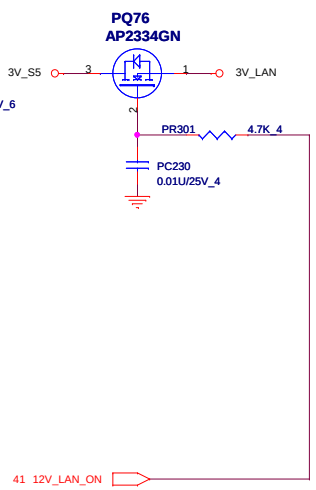
DGFX_VR_PWRGD Load SW



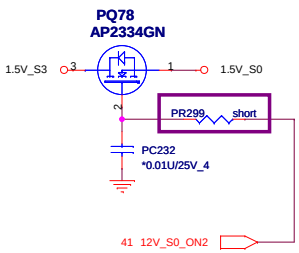
DGFX_VR_PWRGD_1 Load SW



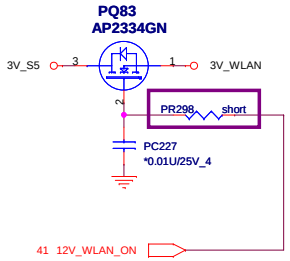
LAN_ON Load SW



S0 ON2 Load SW



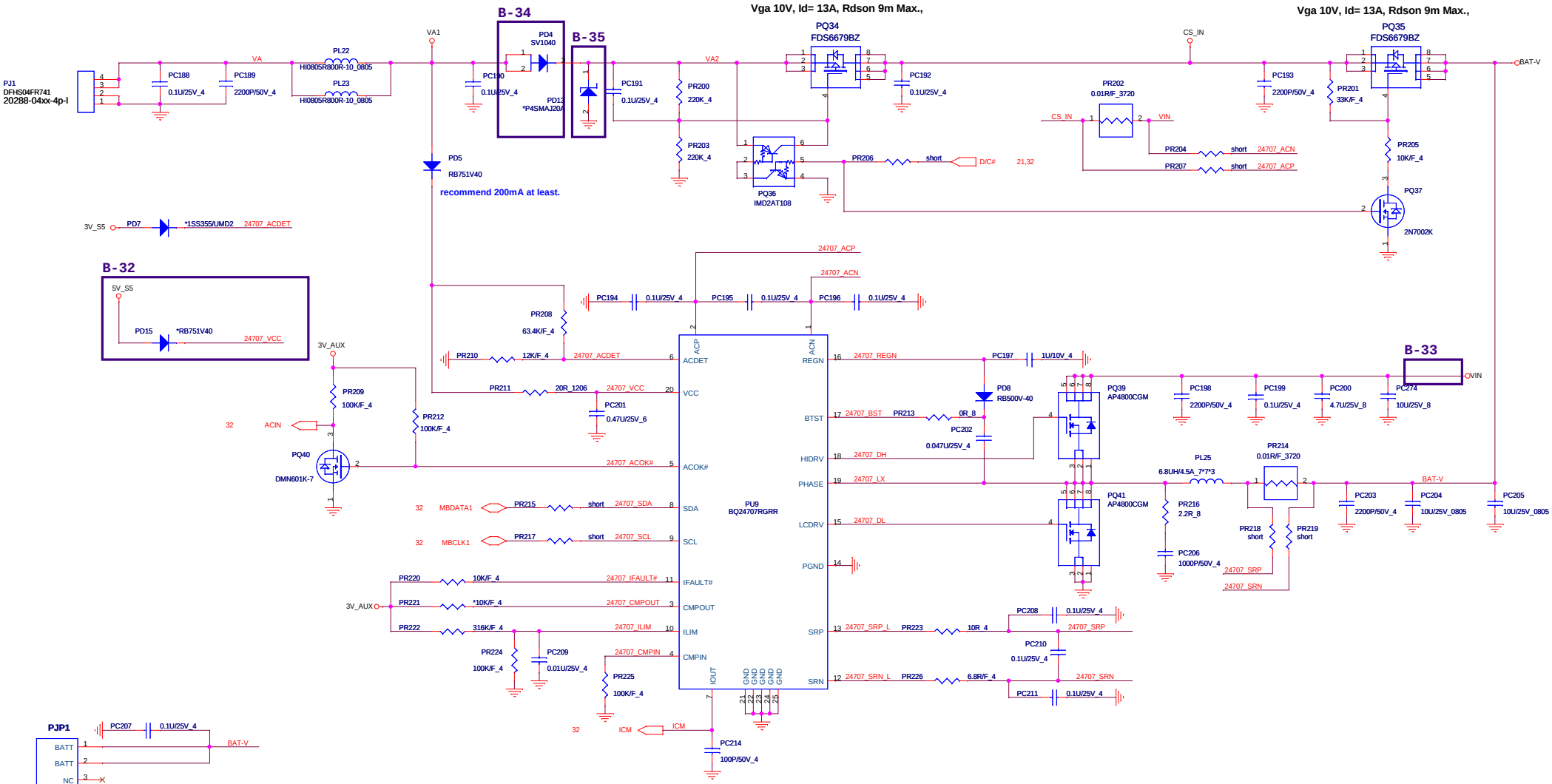
WLAN_ON Load SW



Mosfet parameter

Mosfet	Package	ID(Ta=25C)	Rds_on_max	Vgs_max
AO4468	SO-8	8.4A/10.4A	22m	+/- 20V
AP4800CGM	SO-8	7.5A/10.4A	22m	+/- 20V
Si4128DY	SO-8	7.0A/10.9A	30m	+/- 20V
Si4134DY	SO-8	7.0A/14A	17.5m	+/- 20V
ME3424D	TSOP-6	5.0A/6.7A	42m	+/- 20V
AP2334GN	SOT-23	4.5A/5.0A	42m	+/- 20V
AO3404	SOT-23	5.0A/5.8A	43m	+/- 20V

Adapter/Battery input & Charger



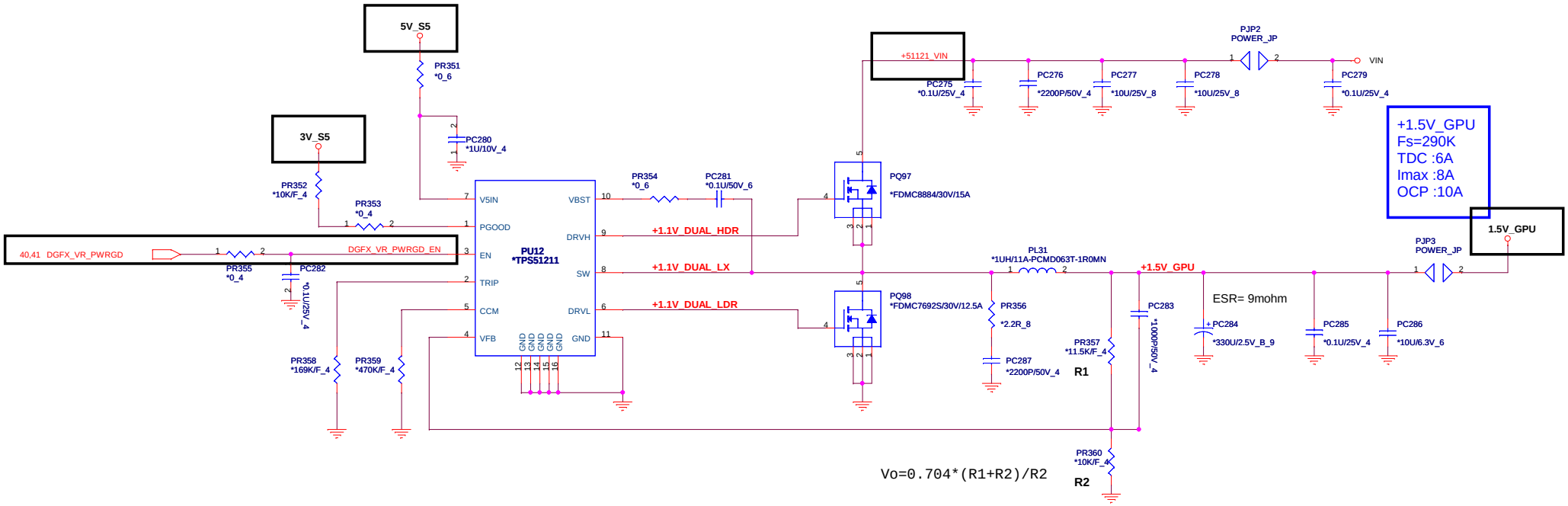
H/L side Mosfet parameter

Mosfet	Package	ID (Ta=25C)	Rds_on_max	Schottky
AO4468	SO-8	10A/11.6A	22m	NO
AO4712	SO-8	10A/11.2A	18.0m	YES
Si4128DY	SO-8	7.0A/10.9A	30m	NO
Si4134DY	SO-8	7.0A/14A	17.5m	NO
AP4800CGM	SO-8	7.5A/10.4A	22m	NO

Quanta Computer Inc.
PROJECT : FH6C_HM70

Size	Document Number	Rev
	Charger (BQ24707RGRR)	B

Date: Tuesday, May 22, 2012 Sheet 43 of 45



Quanta Computer Inc.		
PROJECT : FH6C_HM70		
Size	Document Number: +1.5V_GPU	Rev: B
Date: Tuesday, May 22, 2012	Sheet 44 of 45	

FH6C Mother Board Schematics Revision History

PCB Rev	Sch Rev	BOM Rev	DATE	Change List & Description
B	B		0426	USB S5 Charge U30.2.3 from USBP0_R-, USBP0_R+ to USBP2_R-, USBP2_R+
B	B		0426	USB S5 Charge U30.7.8 from USBP0-, USBP0+ to USBP2-, USBP2+
B	B		0426	CN8.1 USBPWR_P0 swap to CN10.1 +5V_USB0
B	B		0426	Change CON3 from 12Pin to 6Pin 1.0 pitch connector for factoryRequirements

Quanta Computer Inc.
PROJECT : FH6C_HM70
Size | Document Number: Change List | Rev: B
Date: Tuesday, May 22, 2012 | Sheet 45 of 45