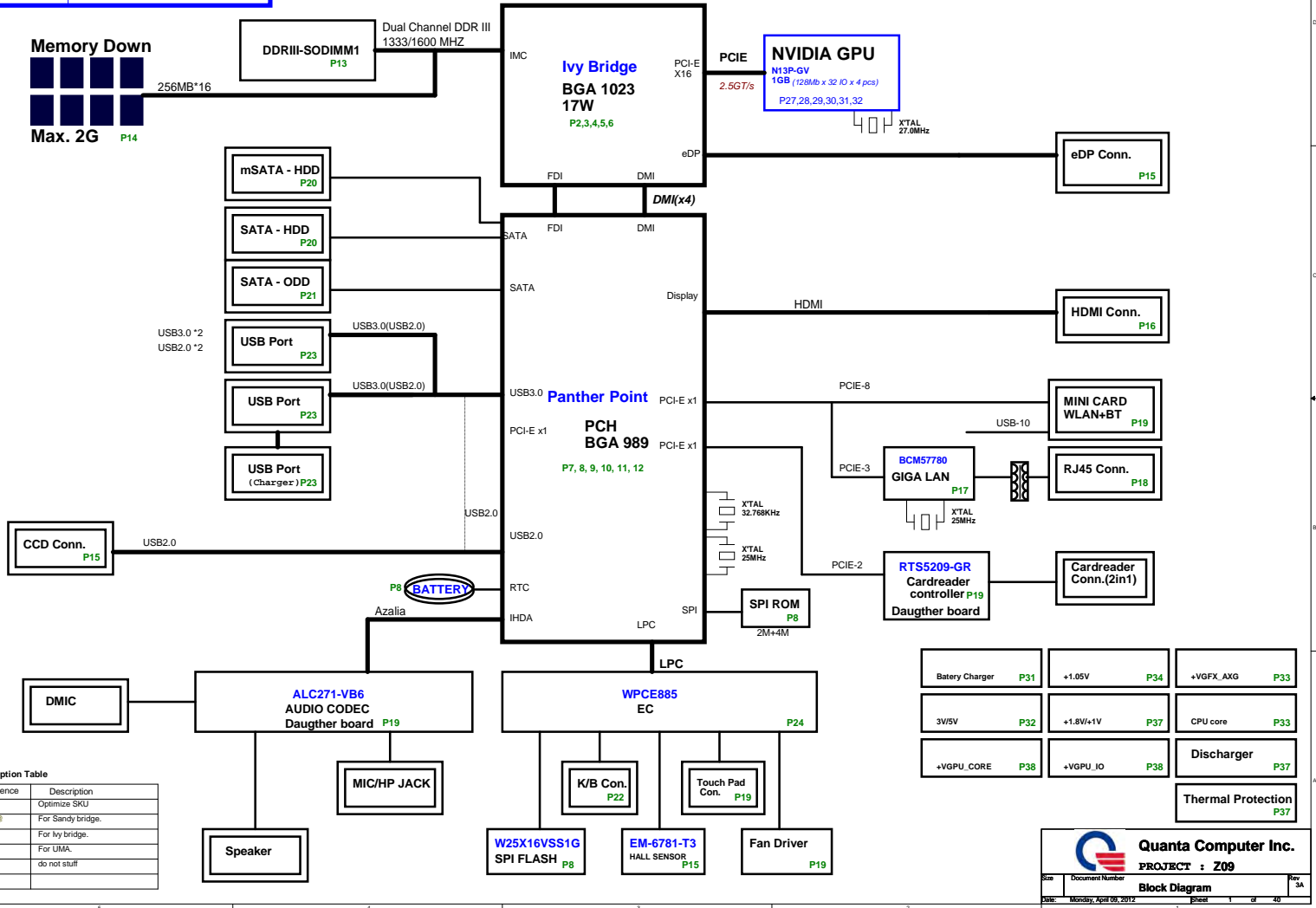


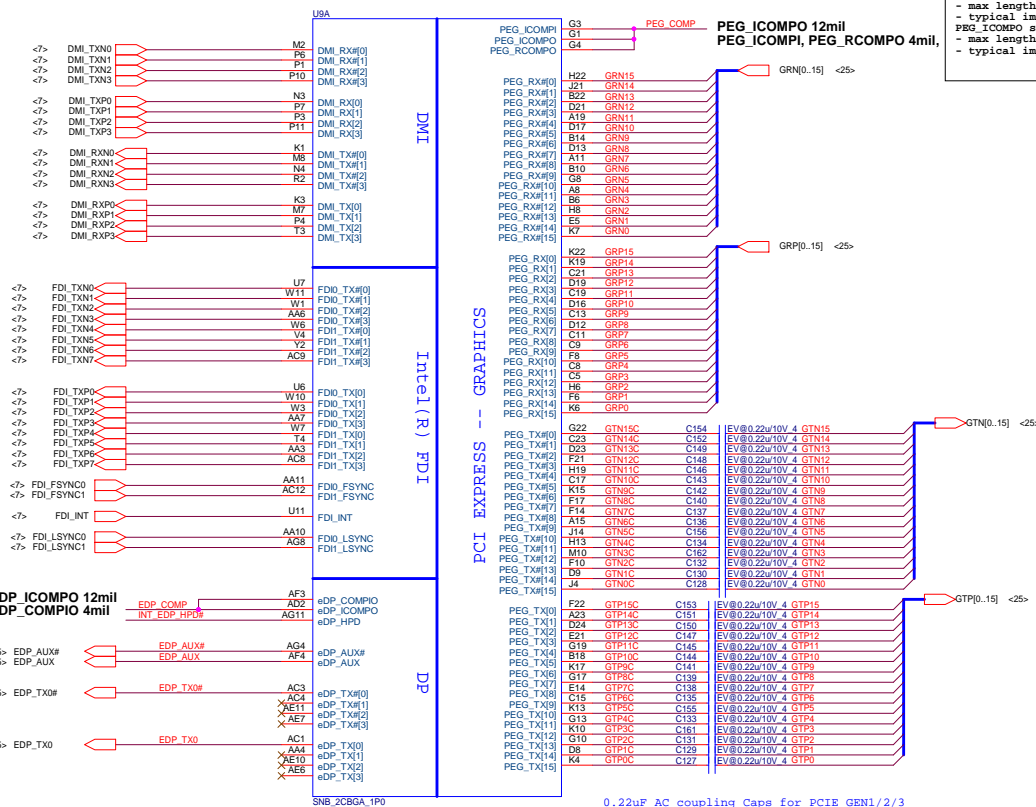
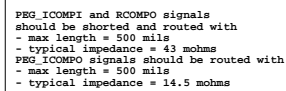
VER : 3A

BOM P/N Description

# Z09 SYSTEM BLOCK DIAGRAM



## Ivy Bridge Processor (DMI,PEG,FDI)



DP\_COMPIO and ICOMPO signals  
should be shorted near balls and routed with  
- typical impedance < 25 mohms

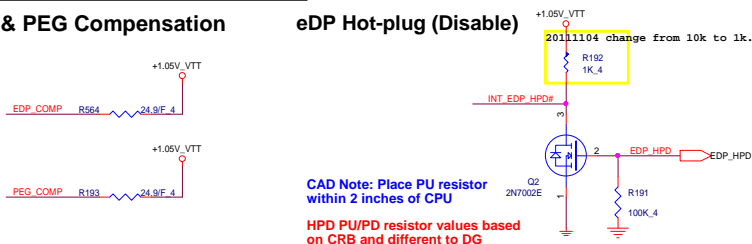
```

.....
DG 1.0 :
The recommended AC cap value is changed to 220nF for compatibility with
PCIe Gen3 on future platforms.
For Gen2 only designs, it is acceptable to continue to use the 100nF capacitor
.....

```

## DP & PEG Compensation

**eDP Hot-plug (Disable)**



**CAD Note: Place PU resistor within 2 inches of CPU**

HPD PU/PD resistor values based on CRB and different to DG

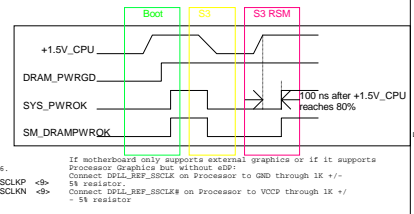
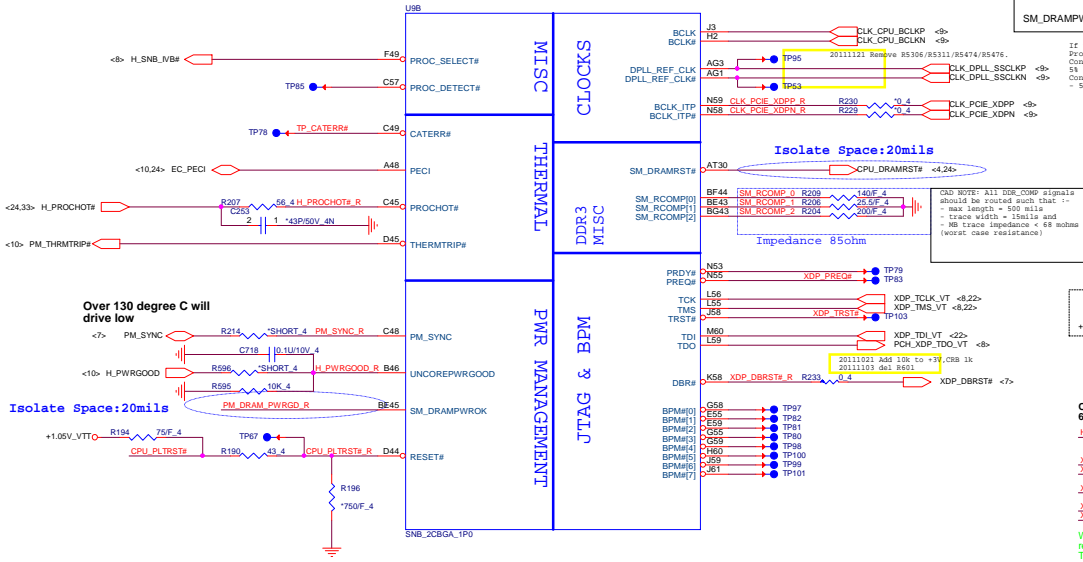
**Quanta Computer Inc.**

PROJECT : Z09

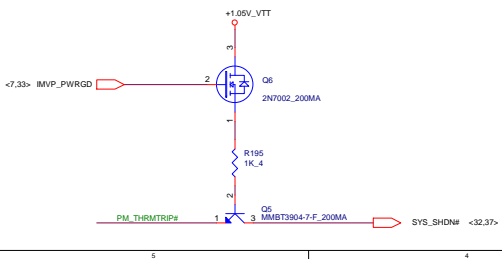
Size	Document Number
	<b>Ivy Bridge 1/5</b>

Date: Monday, April 09, 2012 Sheet 2 of 40

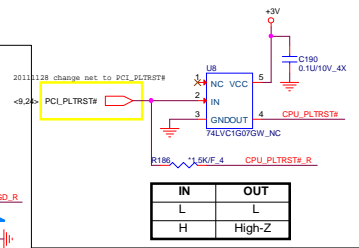
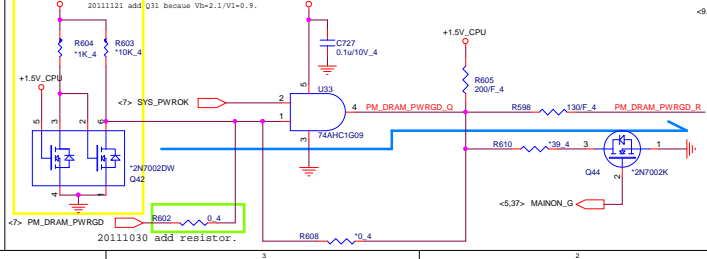
# Ivy Bridge Processor (CLK,MISC,JTAG)



## Thermal Trip <CPU>

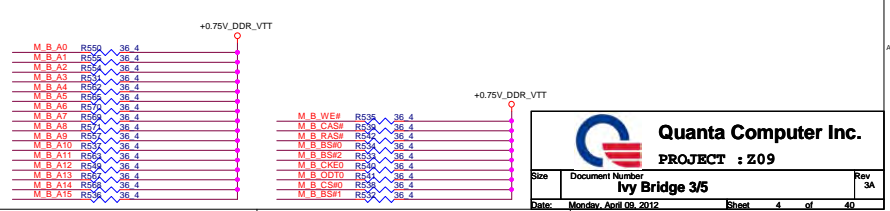
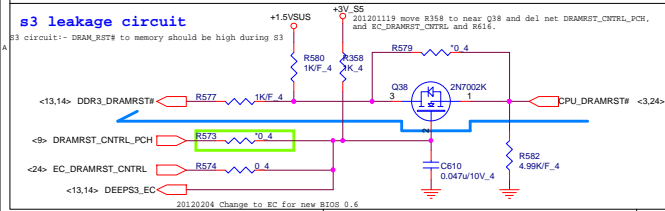
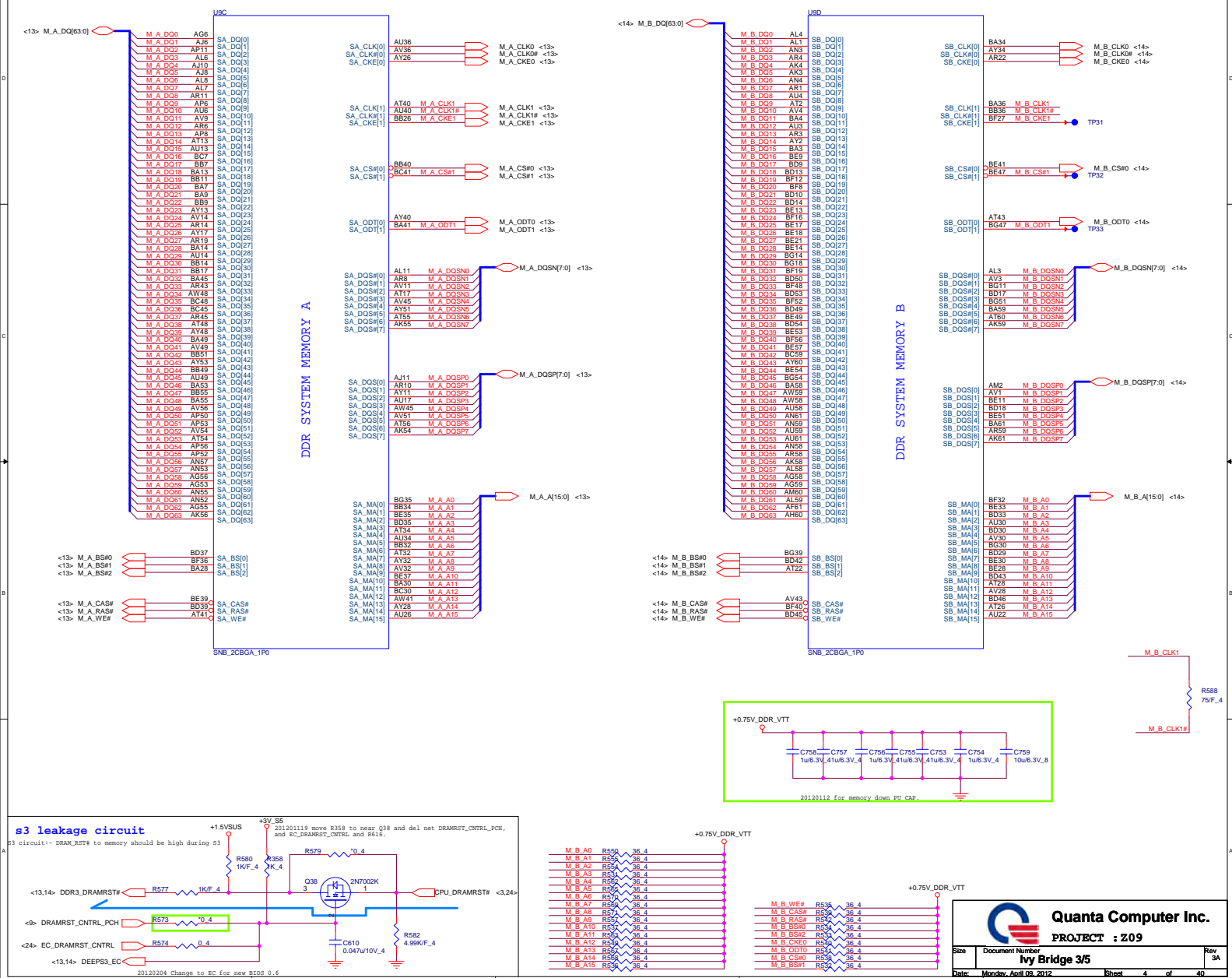


## s3 leakage circuit



IN	OUT
L	L
H	High-Z

## Sandy Bridge Processor (DDR3)



Sandy Bridge Processor (POWER)

CPU VCCIO  
IY 17W:5.5A  
Spec  
330uF/10mohm x 2  
10uF x 10  
10uF x 26  
30uF x 26

CPU VCCIO  
IY 17W:5.5A  
Spec  
330uF/10mohm x 2  
10uF x 10  
10uF x 26  
30uF x 26

CPU VCCIO  
IY 17W:5.5A  
Spec  
330uF/10mohm x 2  
10uF x 10  
10uF x 26  
30uF x 26

Sandy Bridge Processor (GRAPHIC POWER)

CPU VDDQ  
IY 45W: 5A  
Spec  
330uF/10mohm x 1  
10uF x 8  
10uF x 10

CPU Core Power  
IY 17W:5.5A  
Spec  
330uF/10mohm x 2  
10uF x 10  
10uF x 26  
30uF x 26

CPU VCCPL  
IY 17W:5.5A  
Spec  
330uF/10mohm x 1  
10uF x 10  
10uF x 26  
30uF x 26

CPU VCCSA  
IY 17W:5.5A  
Spec  
330uF/10mohm x 1  
10uF x 10  
10uF x 26  
30uF x 26

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

SVID CLK

SVID DATA

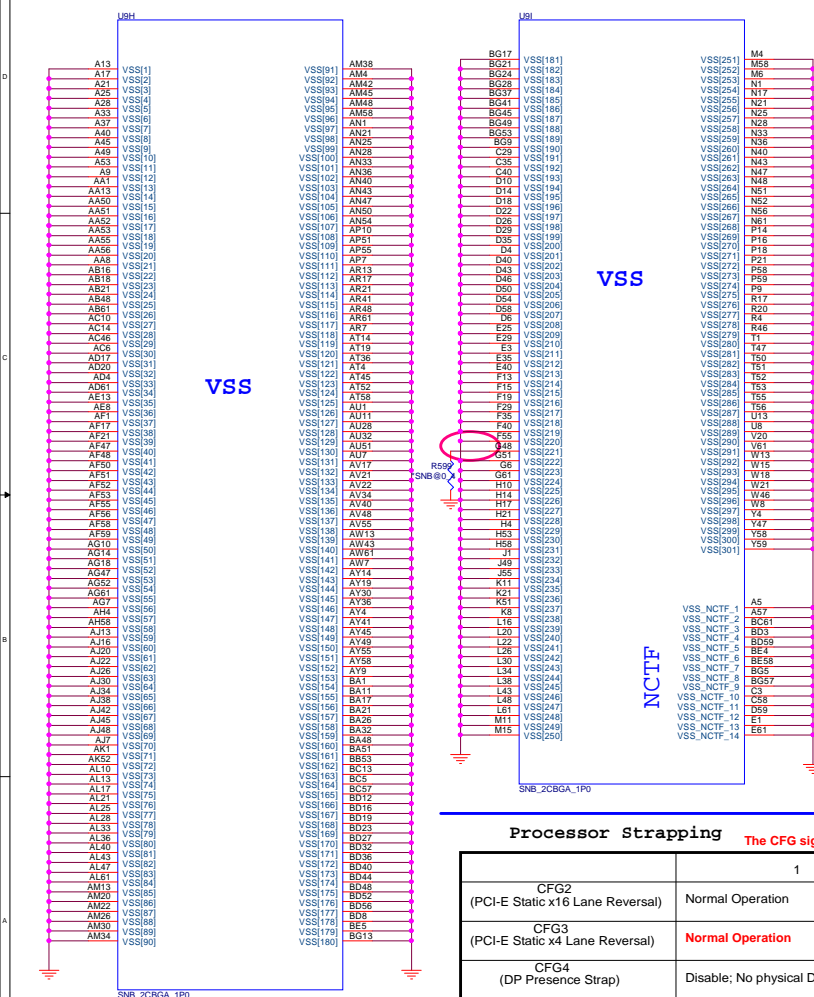
SVID ALERT

Quanta Computer Inc.

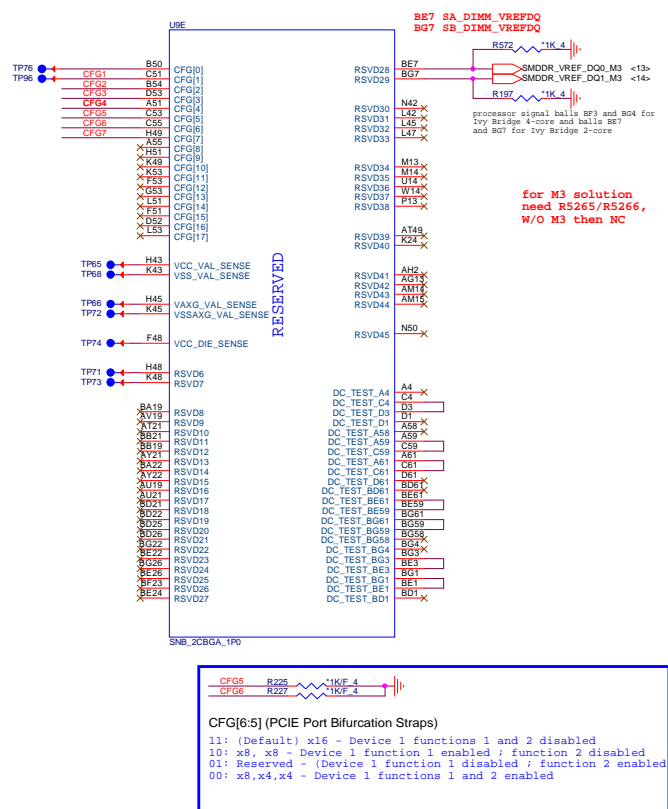
PROJECT : 205

IY Bridge 45

## Sandy Bridge Processor (GND)



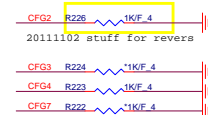
## Sandy Bridge Processor (RESERVED, CFG)



## Processor Strapping

**The CFG signals have a default value of '1' if not terminated on the board.**

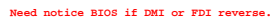
	1	0
CFG2 (PCI-E Static x16 Lane Reversal)	Normal Operation	Lane Reversed
CFG3 (PCI-E Static x4 Lane Reversal)	Normal Operation	Lane Reversed
CFG4 (DP Presence Strap)	Disable; No physical DP attached to eDP	Enable; An ext DP device is connected to eDP
CFG7 (PEG Defeat Training)	PEG train immediately following xRESET de assertion	PEG wait for BIOS training

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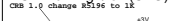
PROJECT : Z09

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## U26C

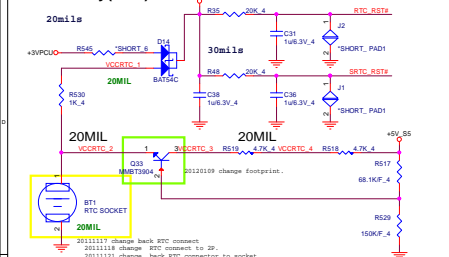


CRB 1.0 change R5196 to 1K



— ( ) —

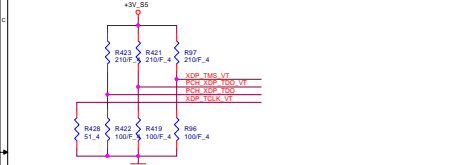




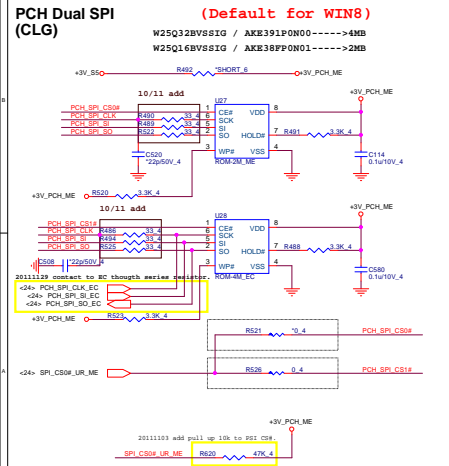
## HDA Bus(CLG)



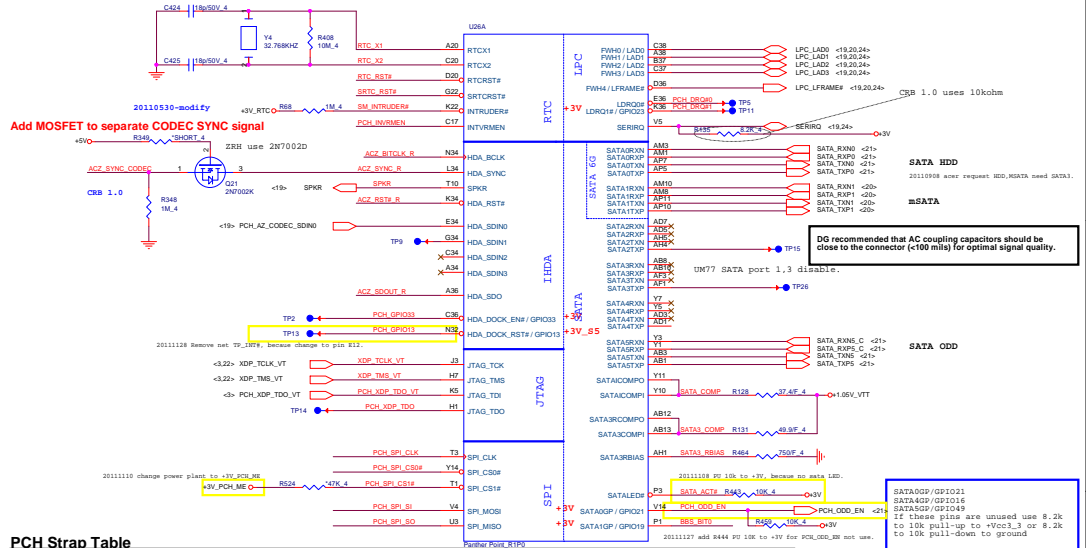
## PCH JTAG Debug (CLG)



## PCH Dual SPI (CLG)



## CPT/PPT (HDA,JTAG,SATA)



## 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										
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)										
INTRVMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up										
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	<table border="1"><thead><tr><th>GNT1#</th><th>GNT0#</th><th>Boot Location</th></tr></thead><tbody><tr><td>1</td><td>1</td><td>SPI *</td></tr><tr><td>0</td><td>0</td><td>LPC</td></tr></tbody></table>	GNT1#	GNT0#	Boot Location	1	1	SPI *	0	0	LPC	
GNT1#	GNT0#	Boot Location											
1	1	SPI *											
0	0	LPC											
GPIO19	Boot BIOS Selection 0 [bit-0]	PWROK											
HDA_SDO	Flash Descriptor Security	RSMRST	0 = effect (default)(weak pull-down 20K) 1 = overridden										
DF_TV5	DMI/FDI Termination voltage	PWROK	0 = Set to Vss (weak pull-down 20K) 1 = Set to Vcc										
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (weak pull-up 20K)										
HDA_SYNC	On-Die PLL VR Voltage Select	RSMRST	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V										
GPIO15	Intel ME Crypto Transport Layer Security (TLS) cipher suite internal PD	RSMRST	0 = Disable (Default) 1 = Enable										
DSWVREN	DEEP S4/S5 well On Die DSW VR Enable	DSW	High = Enable (Default) Low = Disable										
NV_ALE	Intel Anti-Theft HDD protection Only for Interposer	PWROK	0 = Disable (Internal pull-down 20kchm)										

Used as GPIO only, at chxlist 1.2

Default weak pull-up on GNT0/1#  
(Need external pull-down for LPC BIOS)

ME\_WR default EC setting folating

for future CPU, Sandy Bridge EC  
DF\_TV5 needs to be pulled up to VccDTP50 power rail  
through 2.2 kOhm 1% - R463 change to 0 or not??Needs to be pulled High for Huron River platform.  
chxlist 1.2

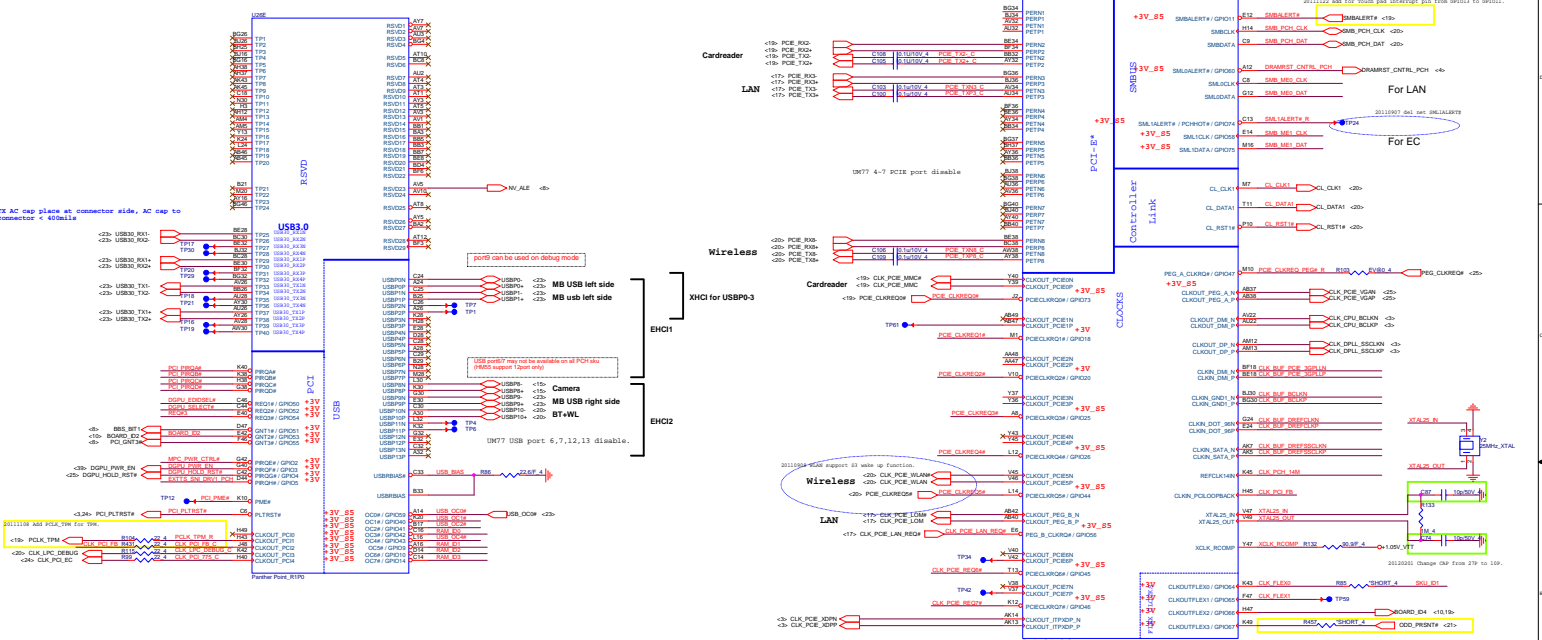


CPT/PPT (PCI,USB,NVRAM)

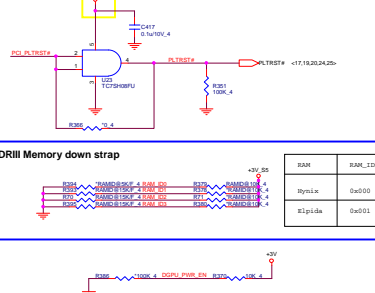
CPT/PPT (PCI-E,SMBUS,CLK)

PCI-E part 1 for command model 03 can't work up.

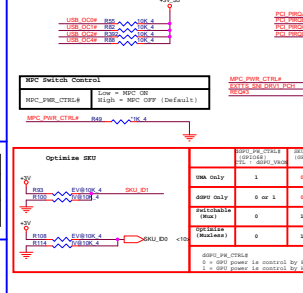
20111111 add for touch pad interrupt pin from 0P003 to 0P001.



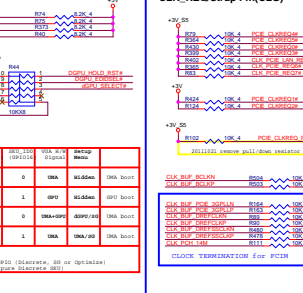
PLTRST#(CLG)



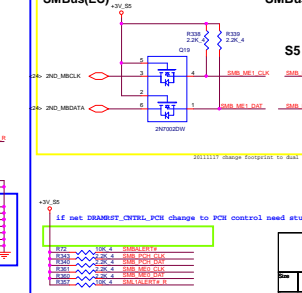
PCVUBOC# Pull-up(CLG)



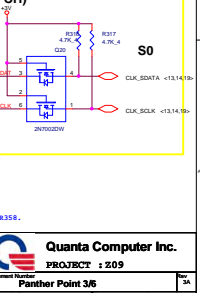
CLK\_REQ/Strap Pin(CLG)



SMBus(EC)



SMBus(PCH)



DDR3 Memory down strap



Optimize SPD



CLK\_REQ/Strap Pin(CLG)

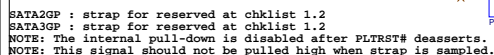


SMBus(EC)



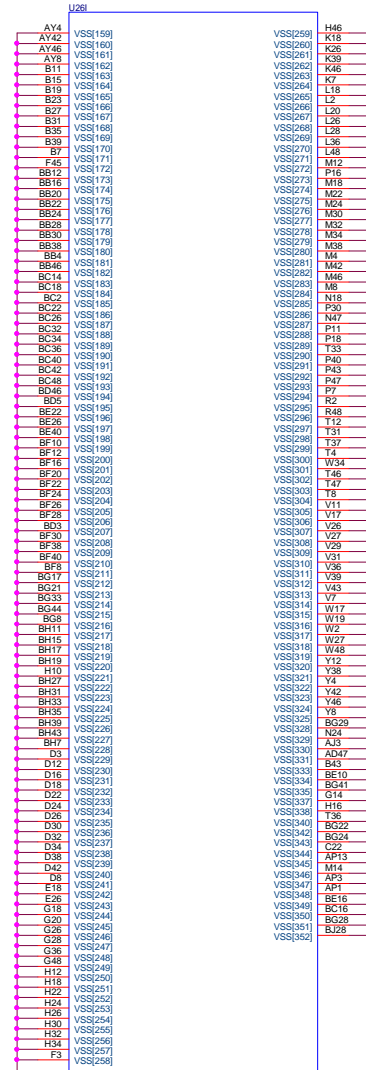
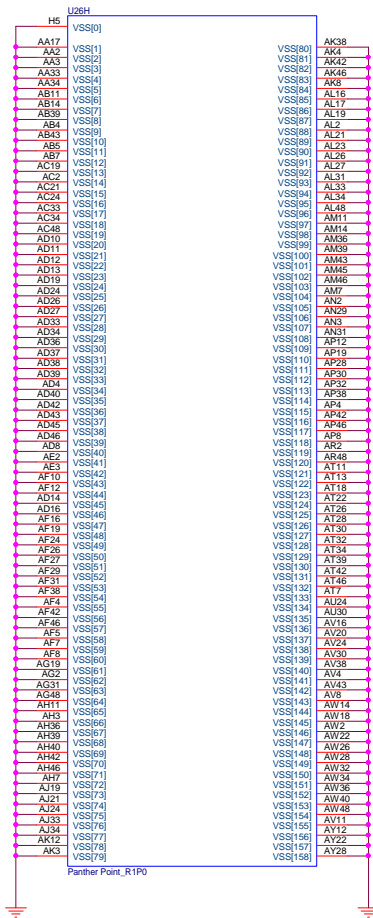
SMBus(PCH)

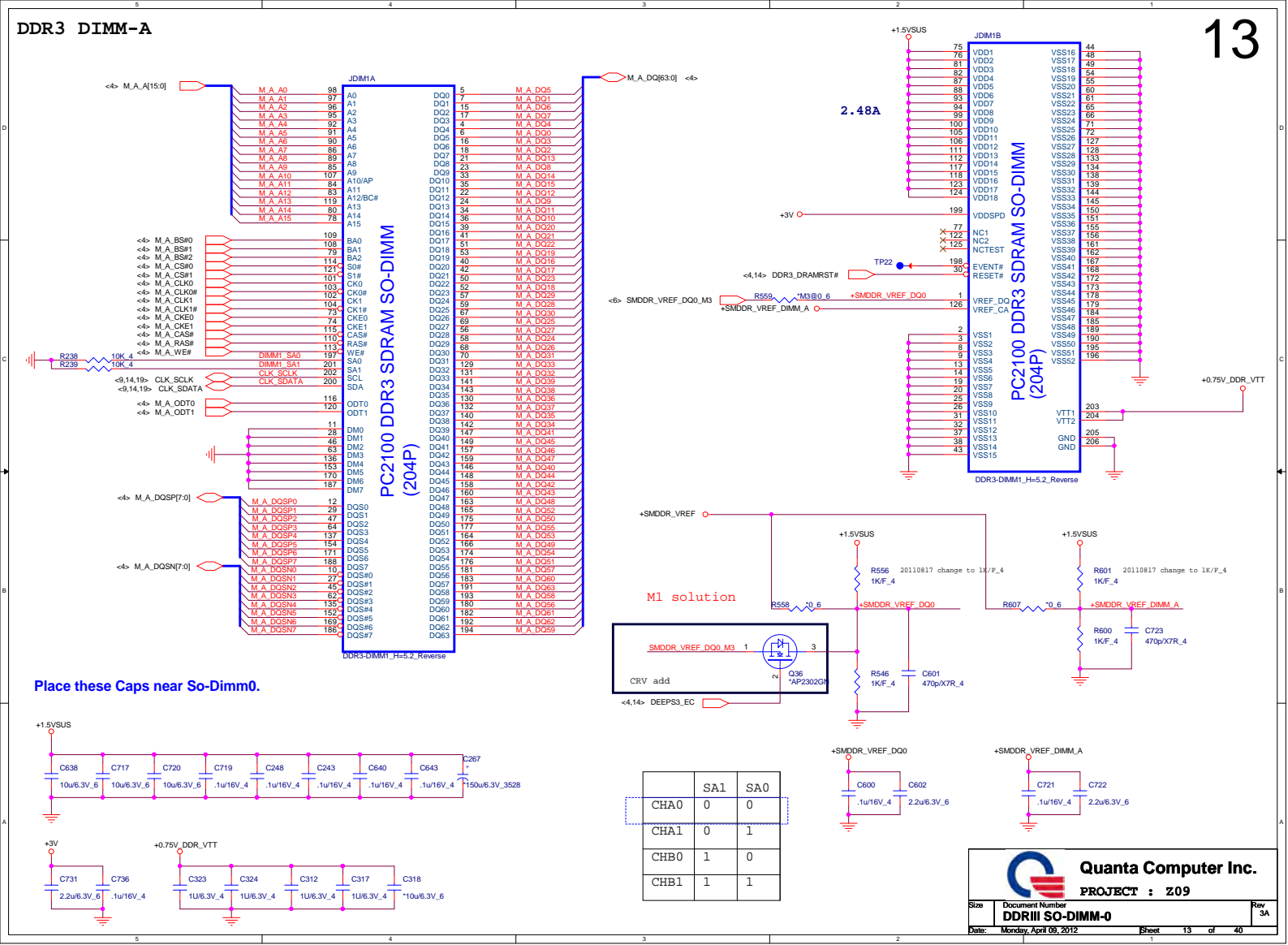


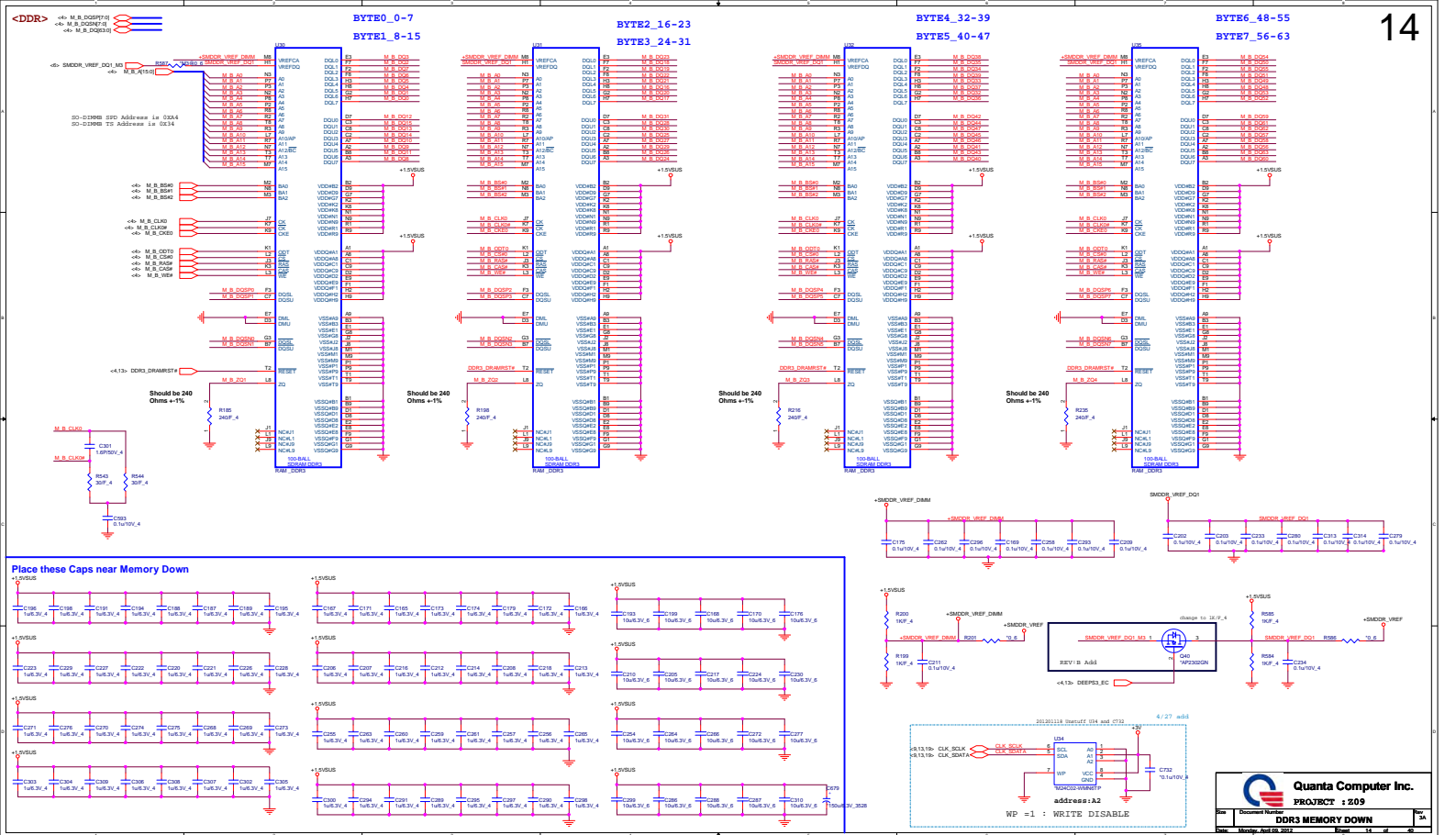


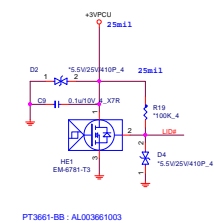


## IBEX PEAK-M (GND)

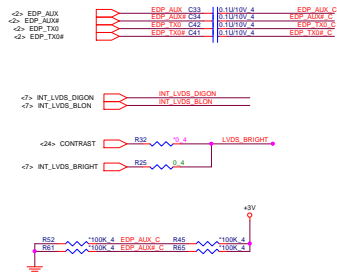




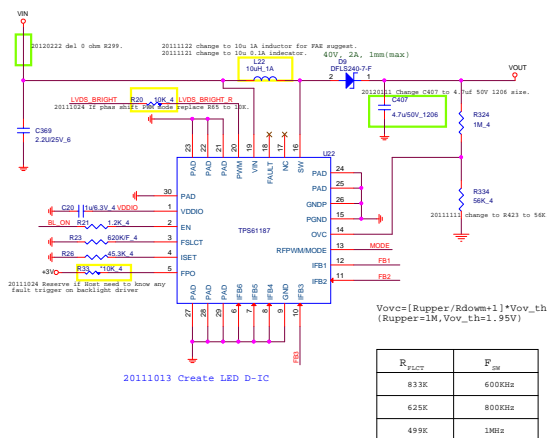




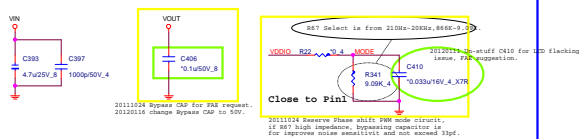
PT3661-BB : AL003661003



## LED Driver-IC

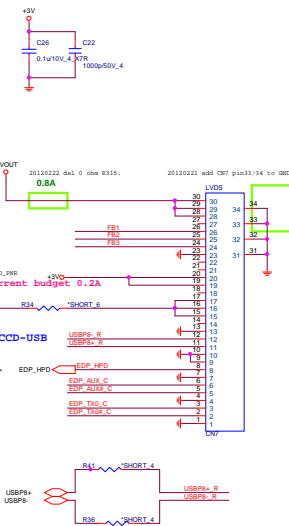


R <sub>FLCT</sub>	F <sub>SM</sub>
833K	600KHz
625K	800KHz
499K	1MHz

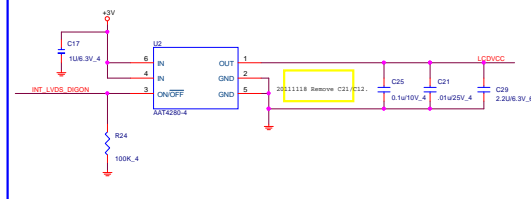


Penal SPEC:  
Iout:78~79.5mA  
Vout:32~34V

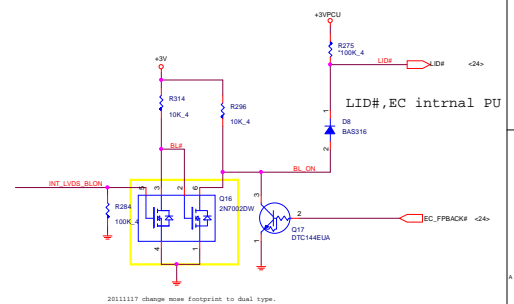
## LCD CONNECTOR



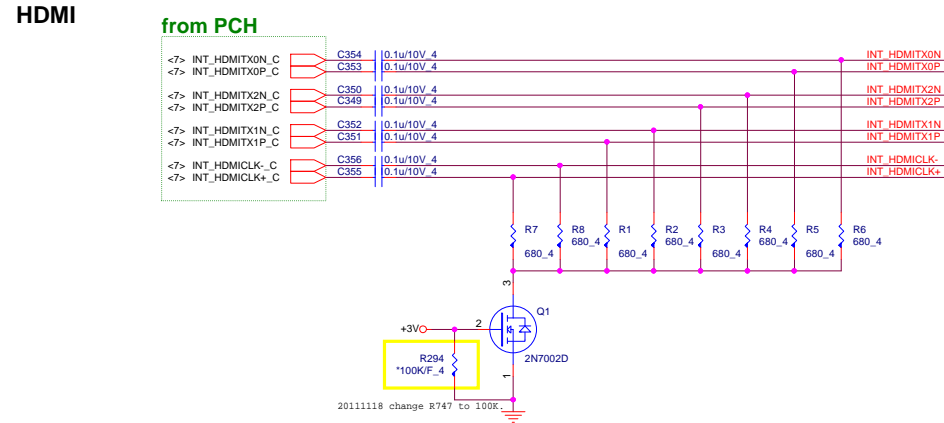
## LCD Power



### Backlight Control

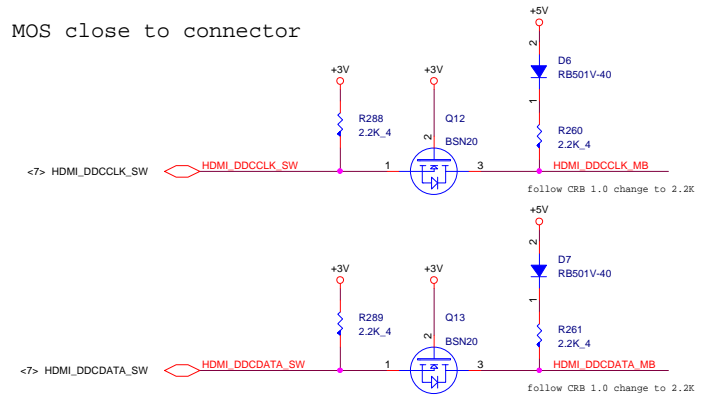


# HDMI

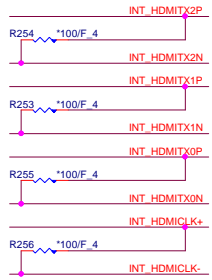


## I2C

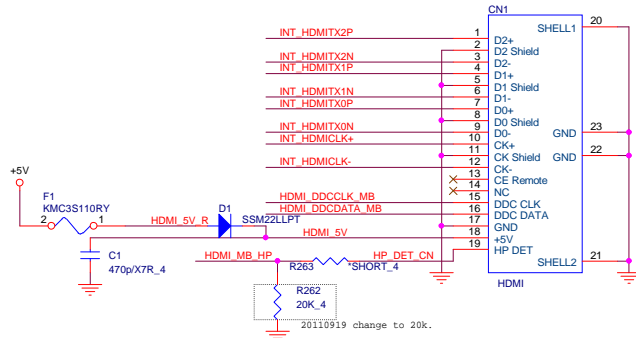
MOS close to connector



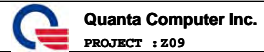
## EMI



## HDMI connector

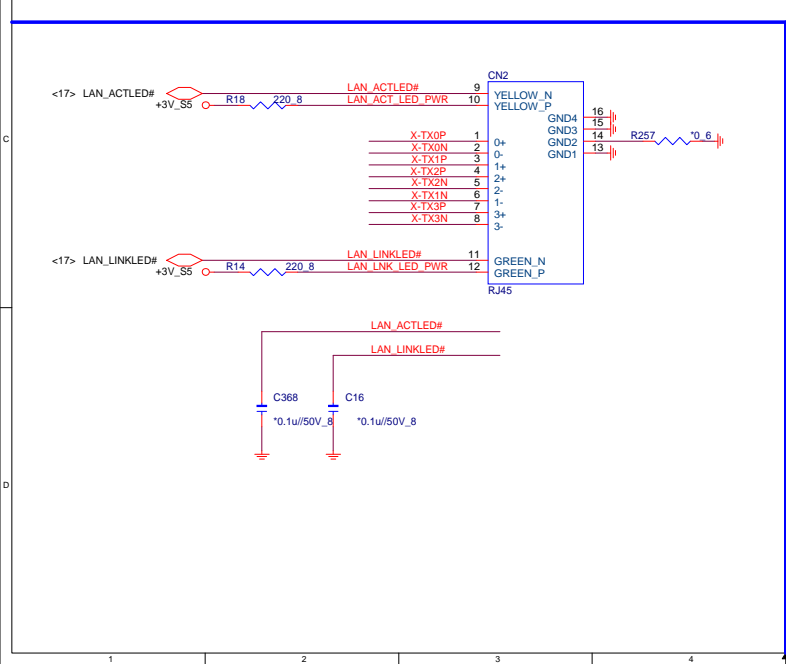
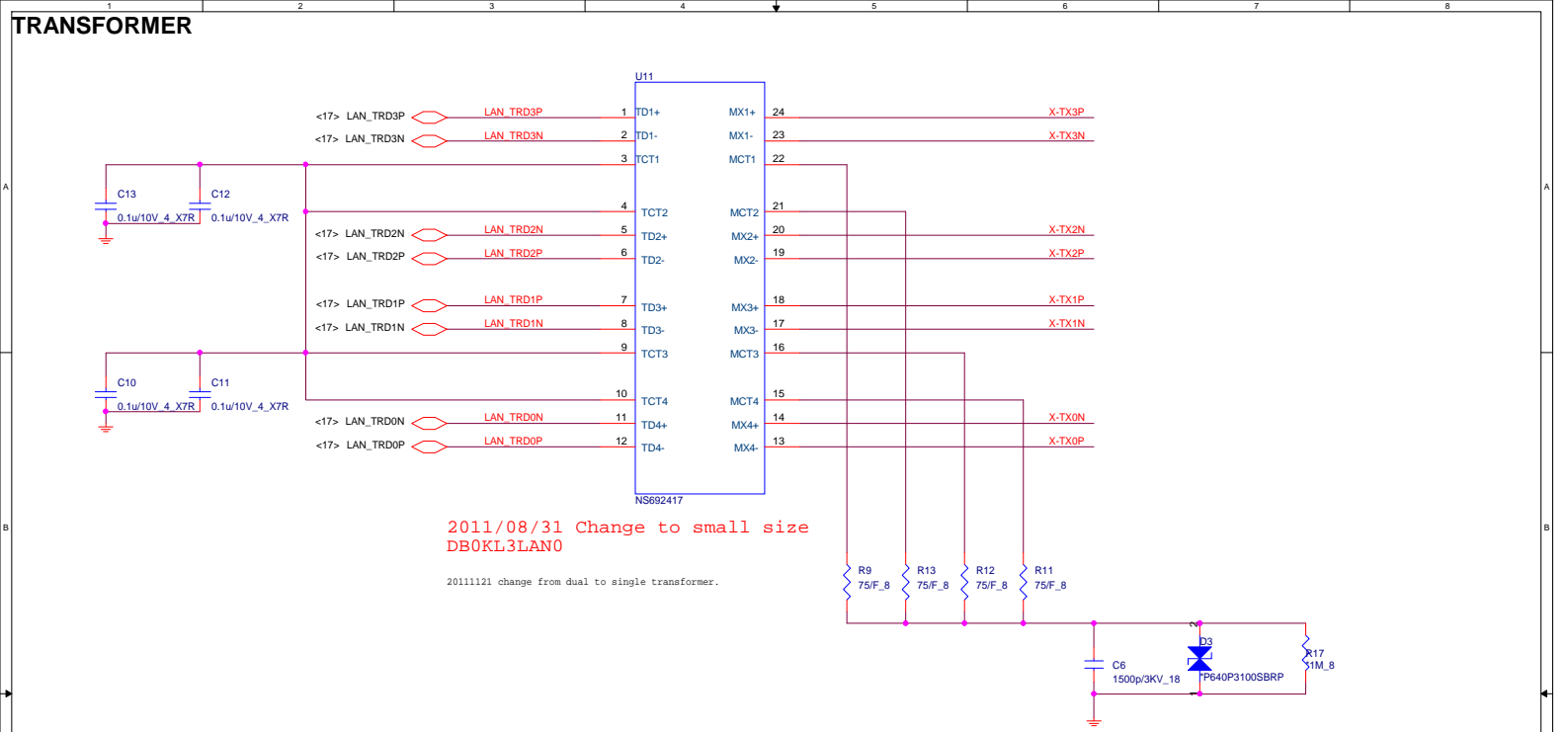




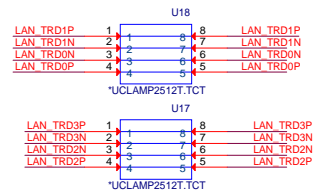



EEPROM Type	EECLK	EEDATA
24LC02	1	1
Internal	1	0

TRANSFORMER



For EMI





**Quanta Computer Inc.**  
**PROJECT : Z09**  
**LAN Transformer and RJ45**

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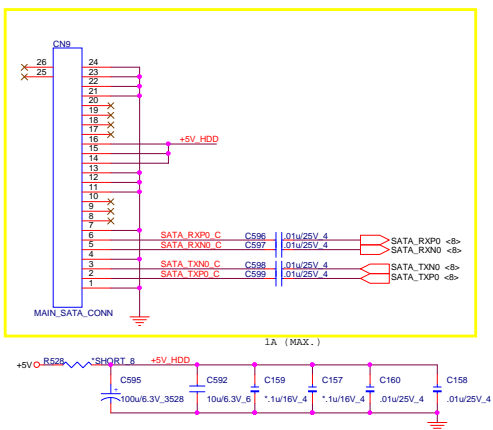
+3.3V: 1000mA  
+3.3Vaux:330mA  
+1.5V:500mA

\_\_\_\_\_

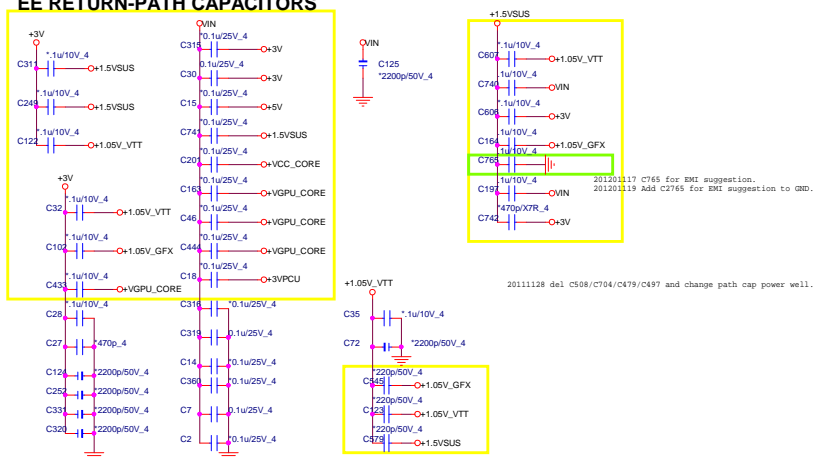


MAIN SATA HDD RE-DRIVER

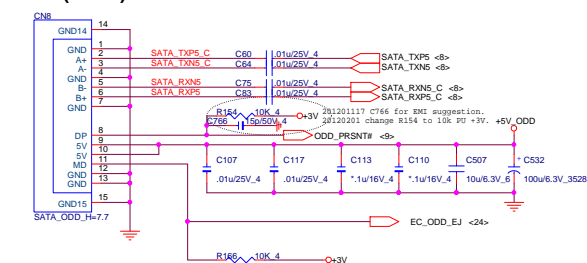
MAIN SATA HDD 21111207 change Cn12 Pin Define following Z8A.



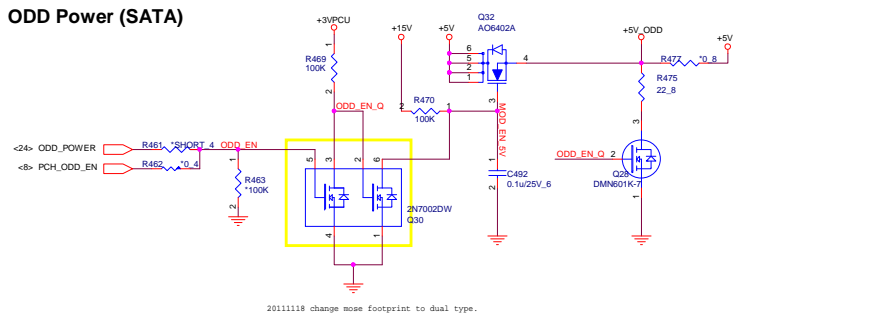
EE RETURN-PATH CAPACITORS



ODD (SATA)

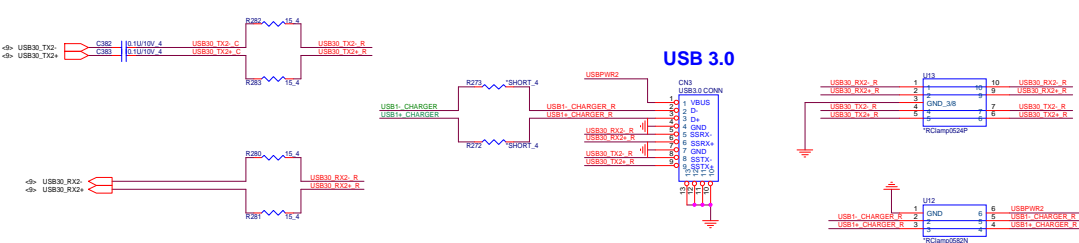


ODD Power (SATA)

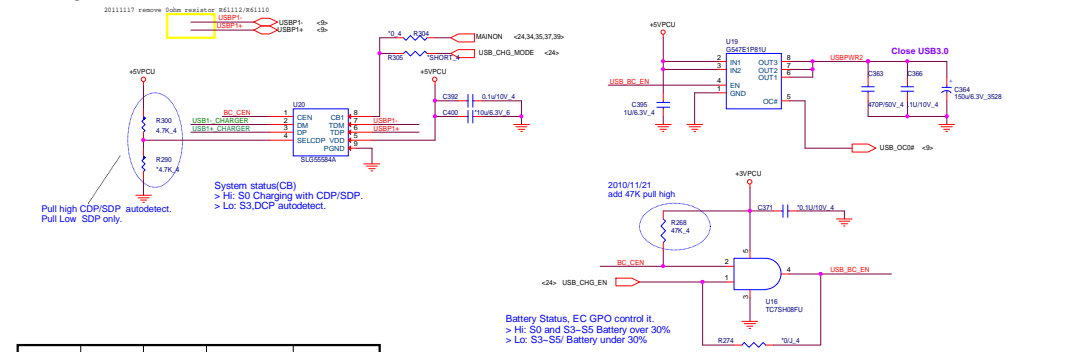




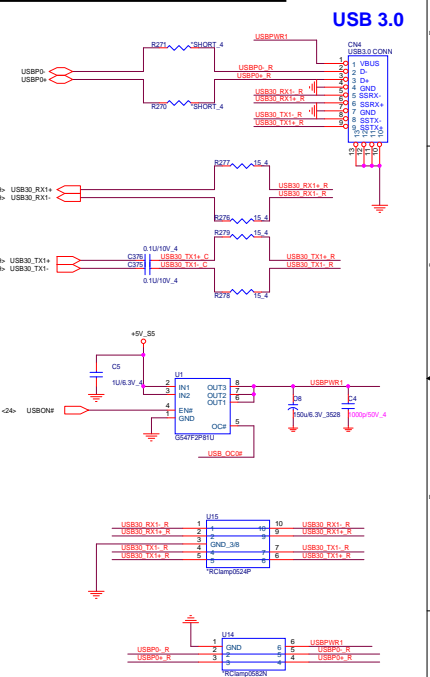
USB3.0 CONN



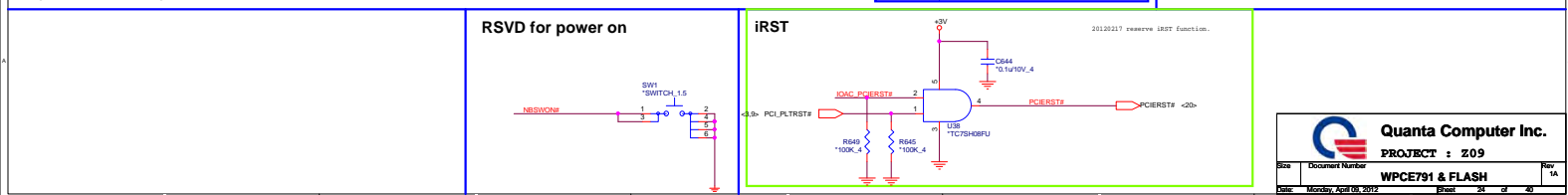
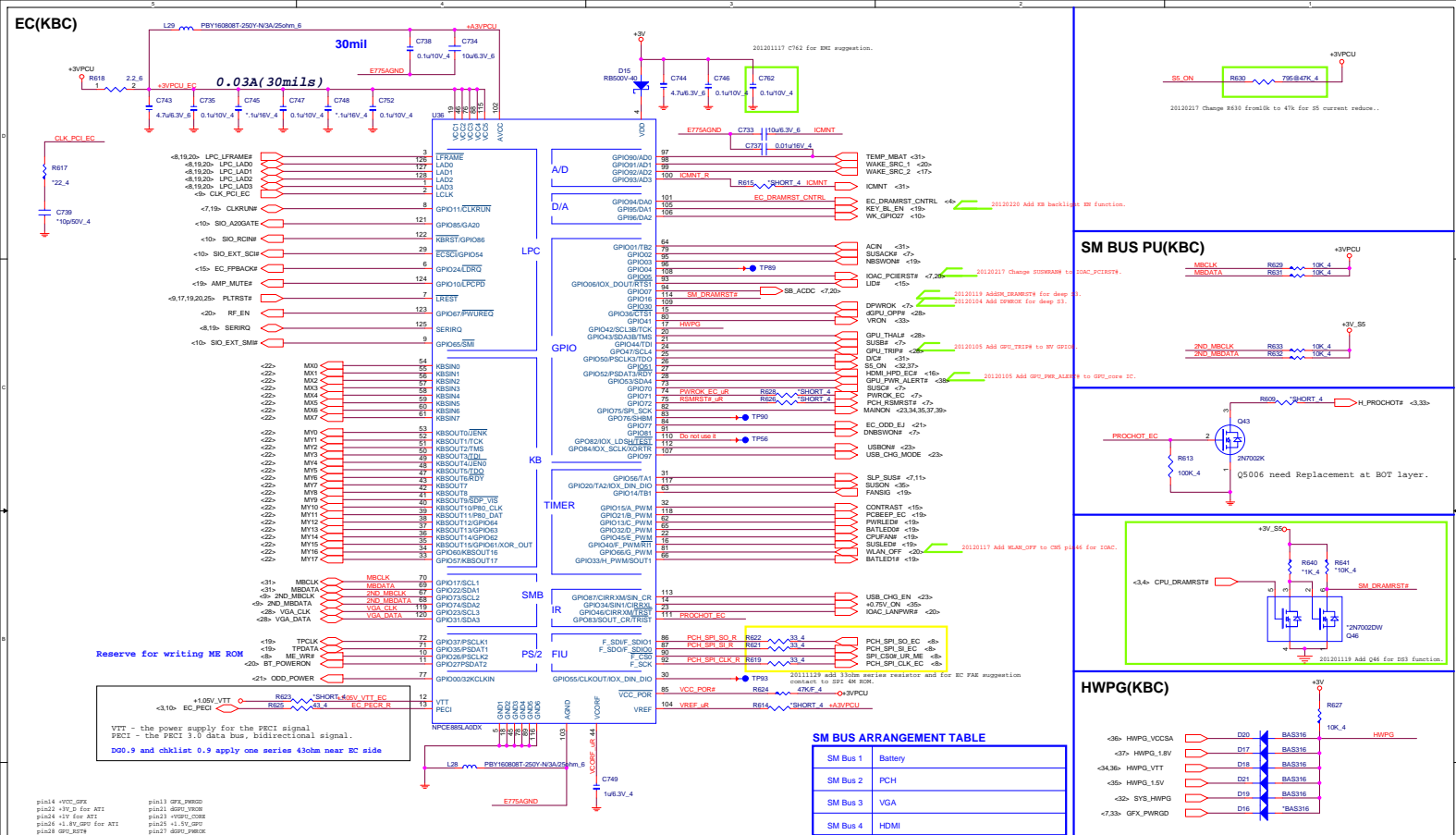
USB charger



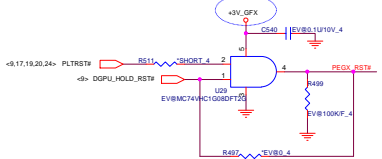
Name	USB data	State	Max Current	Apple Device
SDP	YES	S0-S3	500mA	500mA
CDP	YES	S0-S3	1500mA	500mA
DCP_Auto	NO	S4-S5	1800mA	1800mA

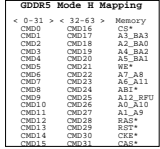


## EC(KBC)

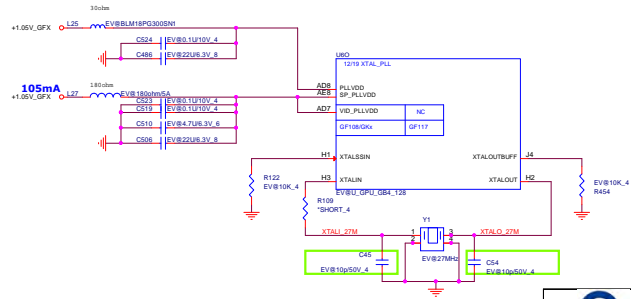
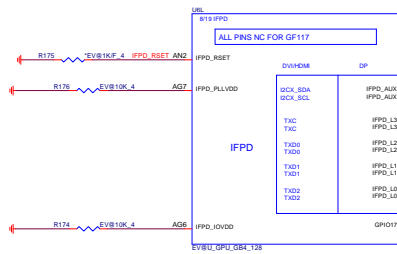
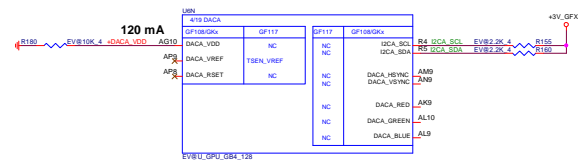
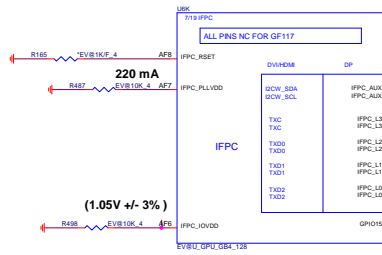
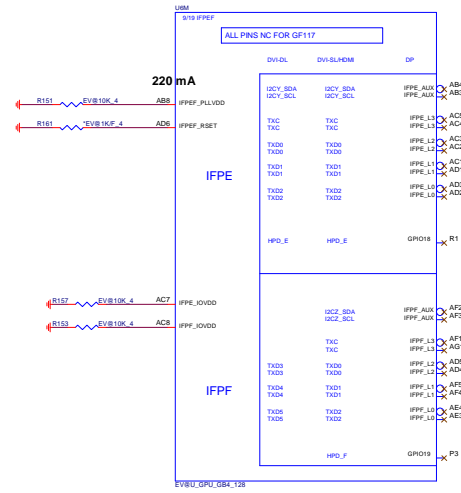
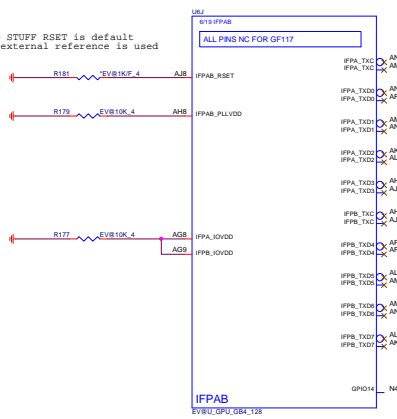






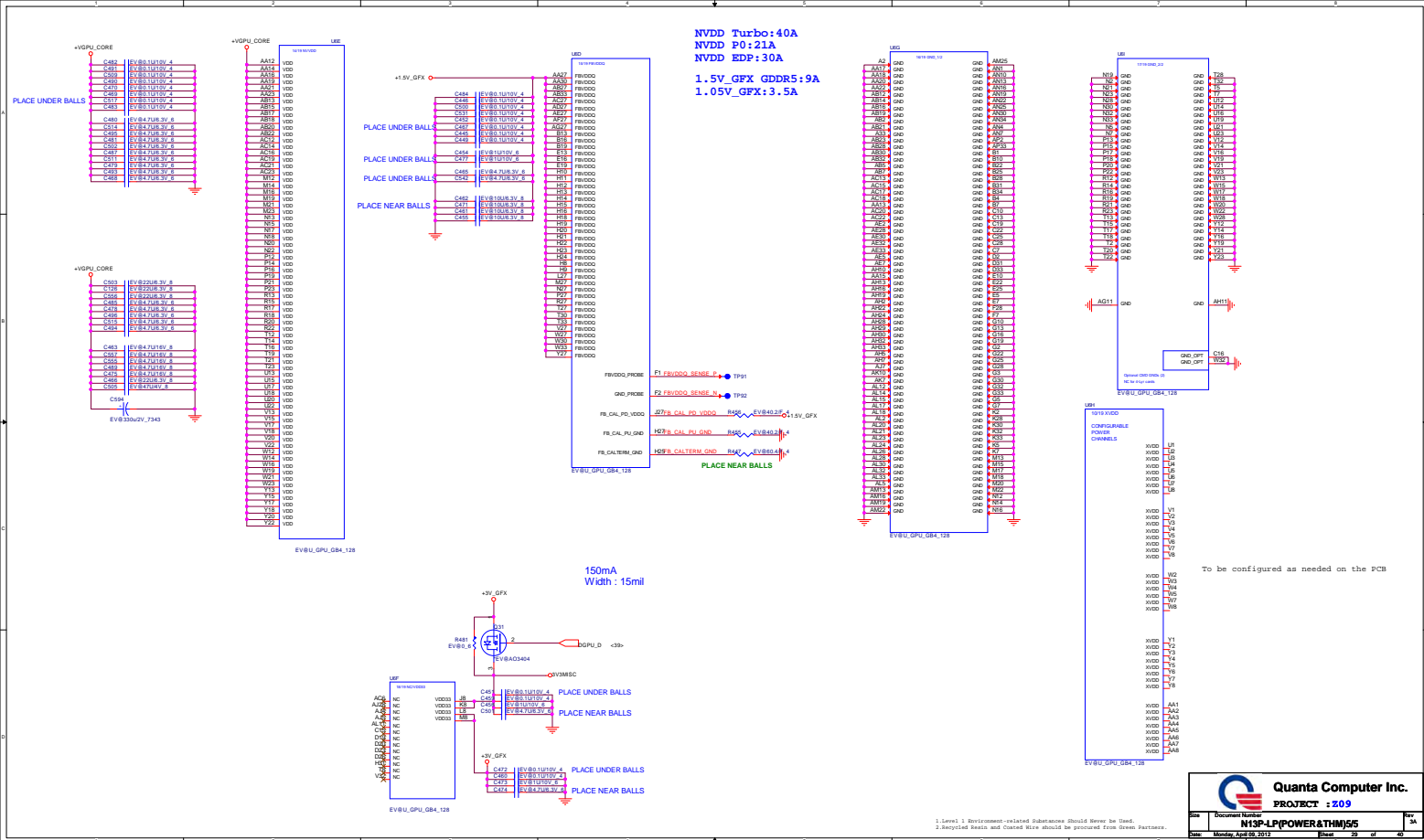


IFPAB ONLY: NO STUFF RSET is default  
Required when external reference is used



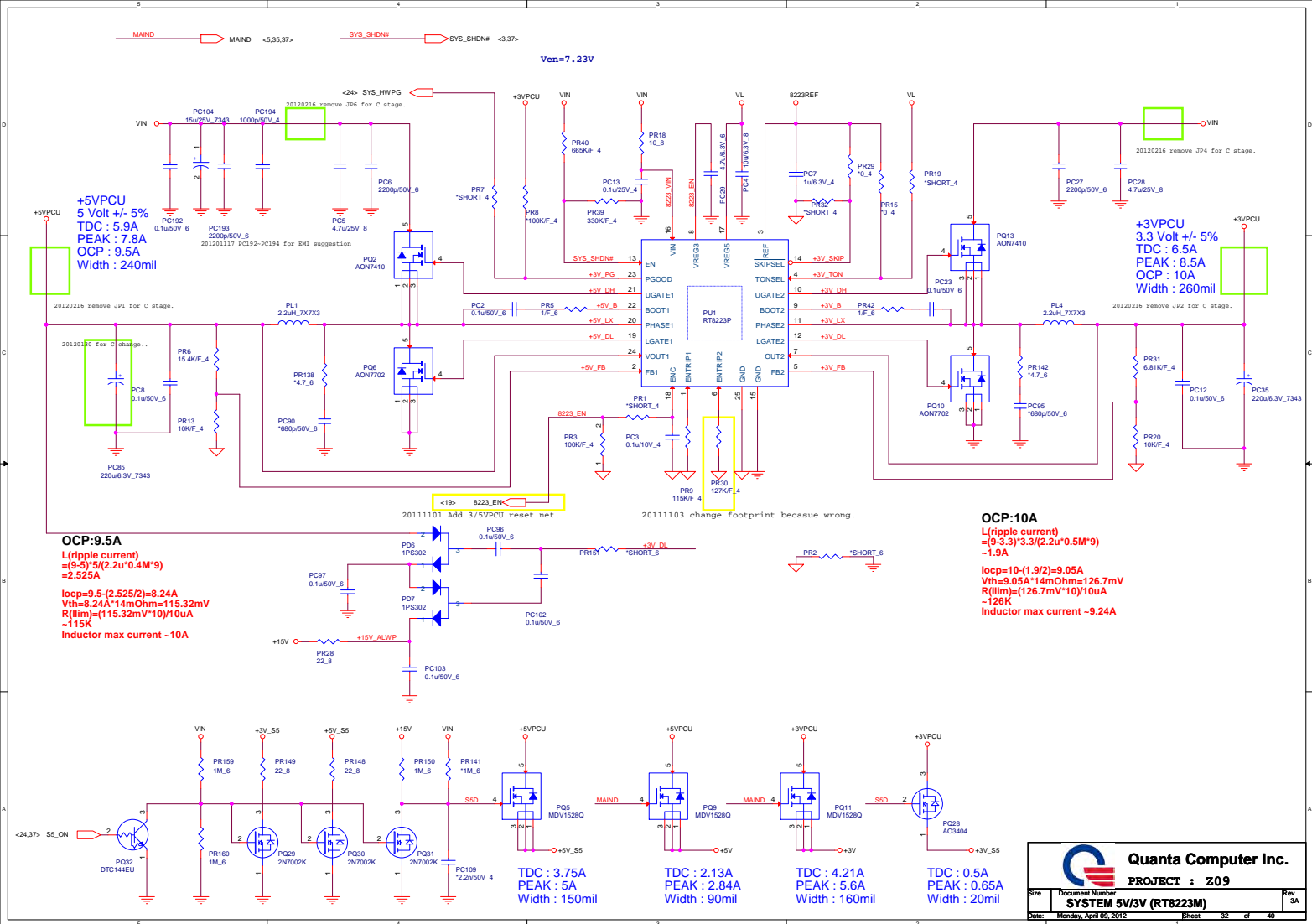
20120201 Change CAP from 27p to 10p.



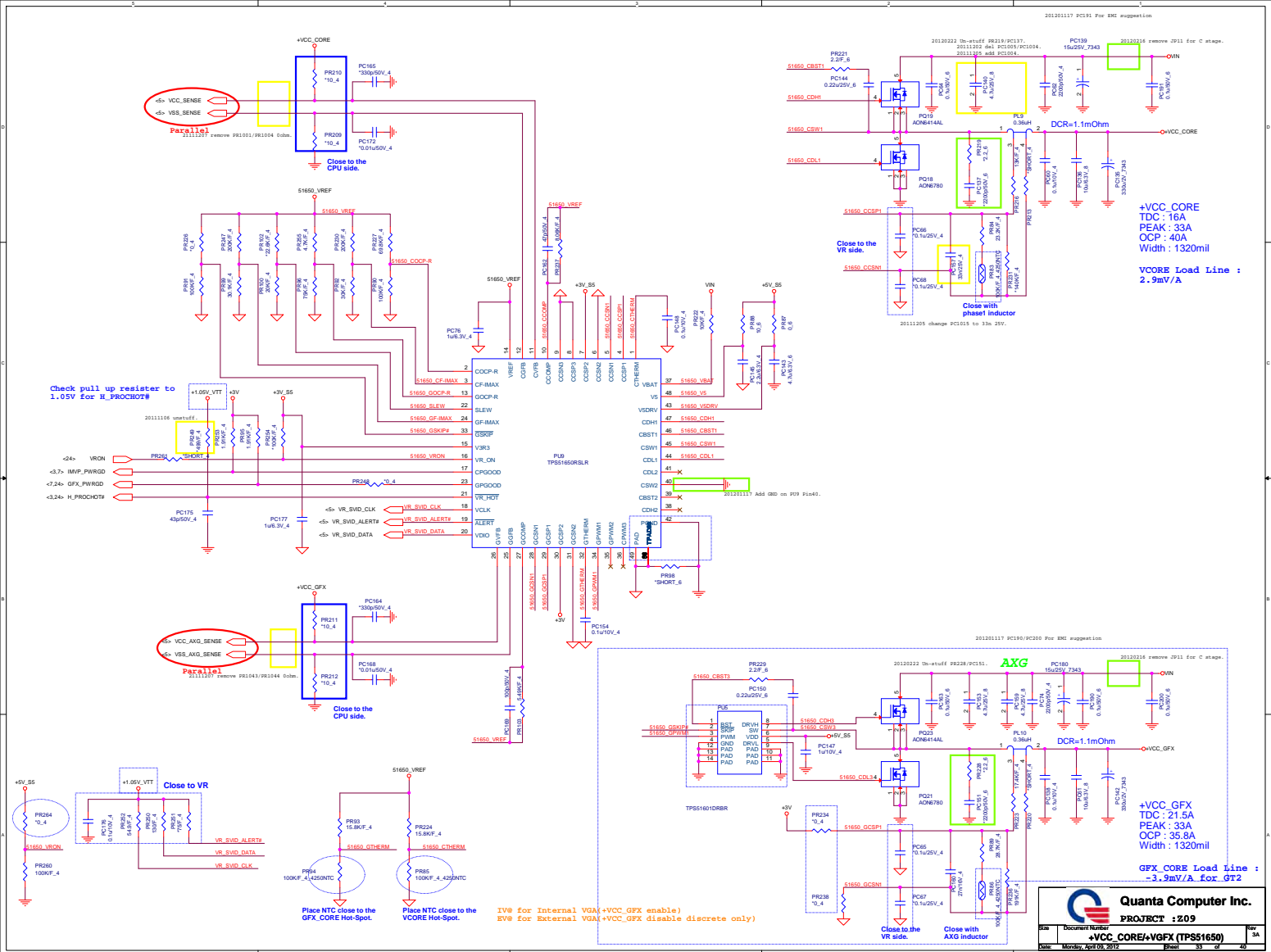


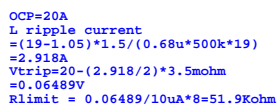













 <b>Quanta Computer Inc.</b> <b>PROJECT : Z09</b>		
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TDC : 0.75A  
PEAK : 1A  
Width : 40mil

TDC : 0.38A  
PEAK : 0.5A  
Width : 20mil

+SMDR\_VREF

PC181  
0.22u/10V\_4

PR259  
100K/F\_4

20120130 for A2 change...  
VREF=1.8V

PC174  
0.1u/10V\_4

PR194  
10K/F\_4

20120130 for A2 change...  
PC241  
60.4K/F\_4

PC171  
0.01u/25V\_4

PC184  
10u/6.3V\_8

PC185  
10u/6.3V\_8

PC183  
10u/6.3V\_8

PC161  
1u/10V\_4

PC156  
0.1u/50V\_6

PC152  
4.7u/25V\_8

PC149  
4.7u/25V\_8

PC141  
330u/2V\_7343

PC146  
1000p/50V\_4

PC141  
330u/2V\_7343

PC146  
1000p/50V\_4

PC141  
330u/2V\_7343

20111109 remove PC2002  
20111116 Add PC2002

20120209 change power plant from +5V\_85 to +5VPCU.

20111109 remove Jump.

20111109 remove Jump.

20120117 PC146 for EMI suggestion

20120130 for A2 change...

20120130 for A2 change...

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

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If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

20111101 add  
If S3 power reduce then stuff PR2012 else stuff PR2002

Close to IC

Greater than or equal 40mil

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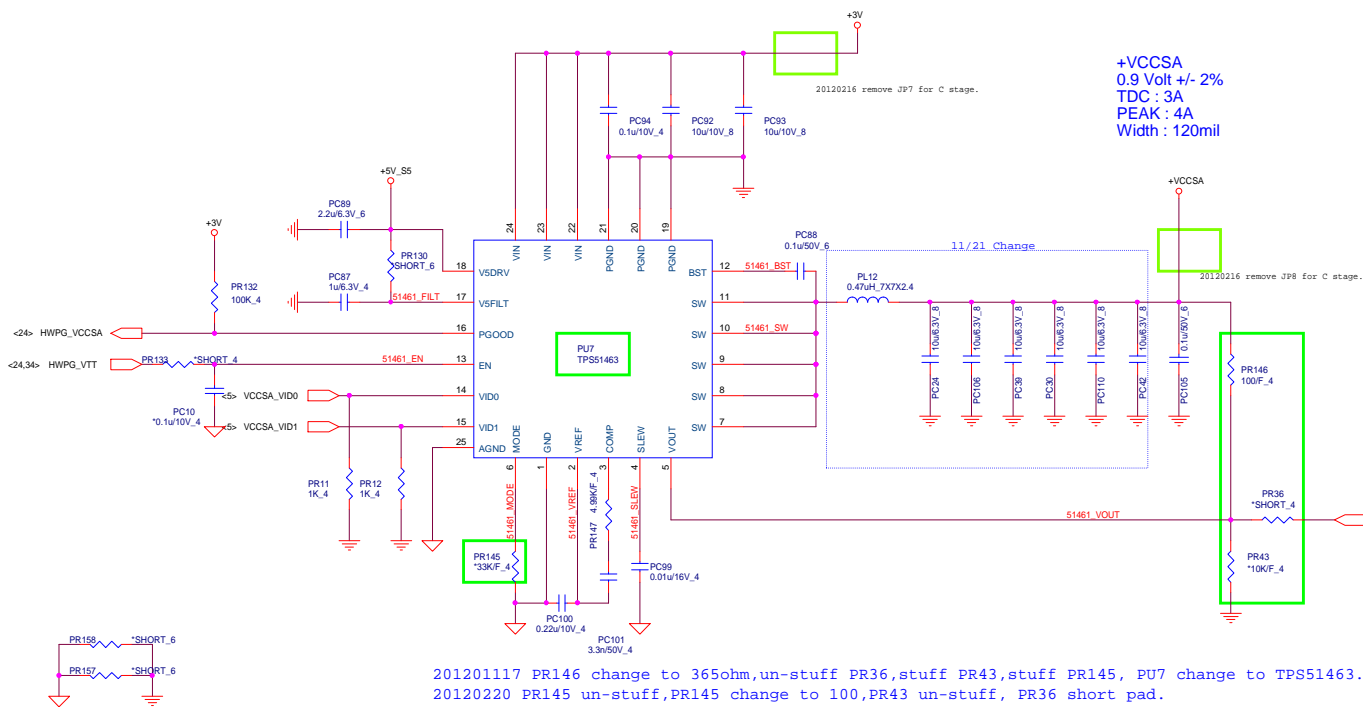
Close to output cap

Close to output cap

OCP=20A  
L ripple current  
=(19-1.5)\*1.5/(0.68u\*400k\*19)  
=5.079A  
Vtrip=20-(5.079/2)\*3.5mohm  
=0.06111V  
Rlimit=0.06111/10uA\*8=48.88Kohm

	S3	S5	+1.5VSUS	REF	VTT
S0	1	1	ON	ON	ON
S3 (mainon off)	0	1	ON	ON	OFF
S4/S5	0	0	OFF	OFF	OFF

Quanta Computer Inc.  
PROJECT : Z09  
Size Document Number  
DDR 1.5V(TPSS1216)  
Date: Monday, April 09, 2012 Sheet 35 of 40



20120117 PR146 change to 365ohm,un-stuff PR36,stuff PR43,stuff PR145, P7 change to TPS51463.  
20120220 PR145 un-stuff,PR145 change to 100,PR43 un-stuff, PR36 short pad.

VID0	VID1	+VCCSA
0	0	0.9V
0	1	0.85V
1	0	0.775V
1	1	0.75V

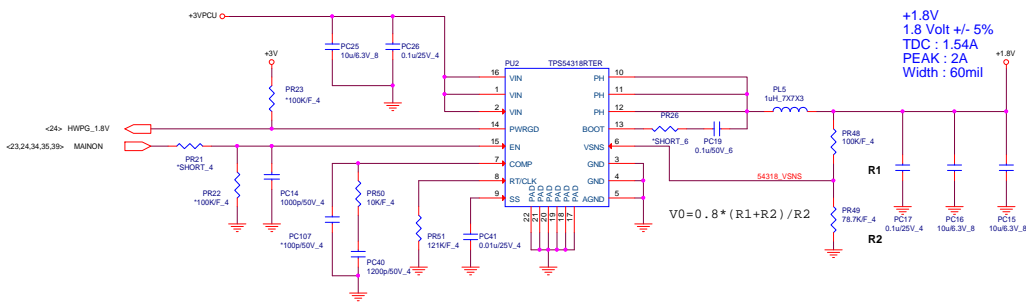
default 0.9V

PR145 33kohm  
PR146 change to 365ohm  
PR36 nc  
PR43 10kohm  
P7 Change to 51463

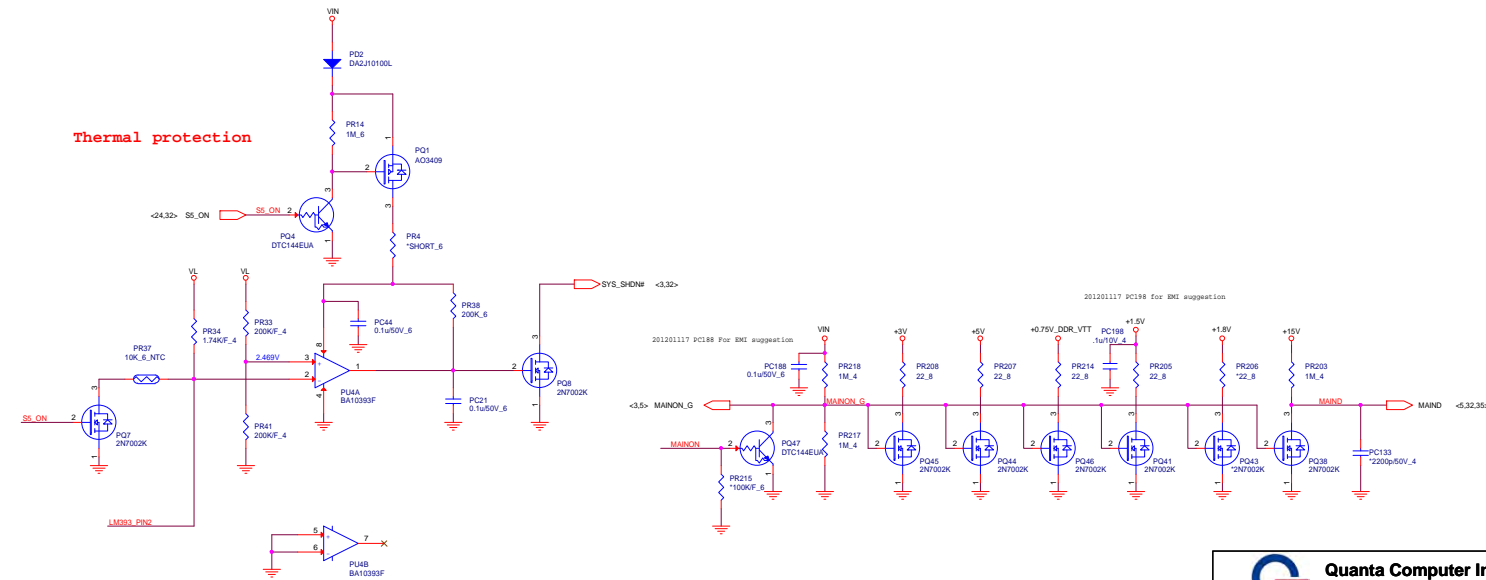
**Quanta Computer Inc.**  
**PROJECT : Z09**

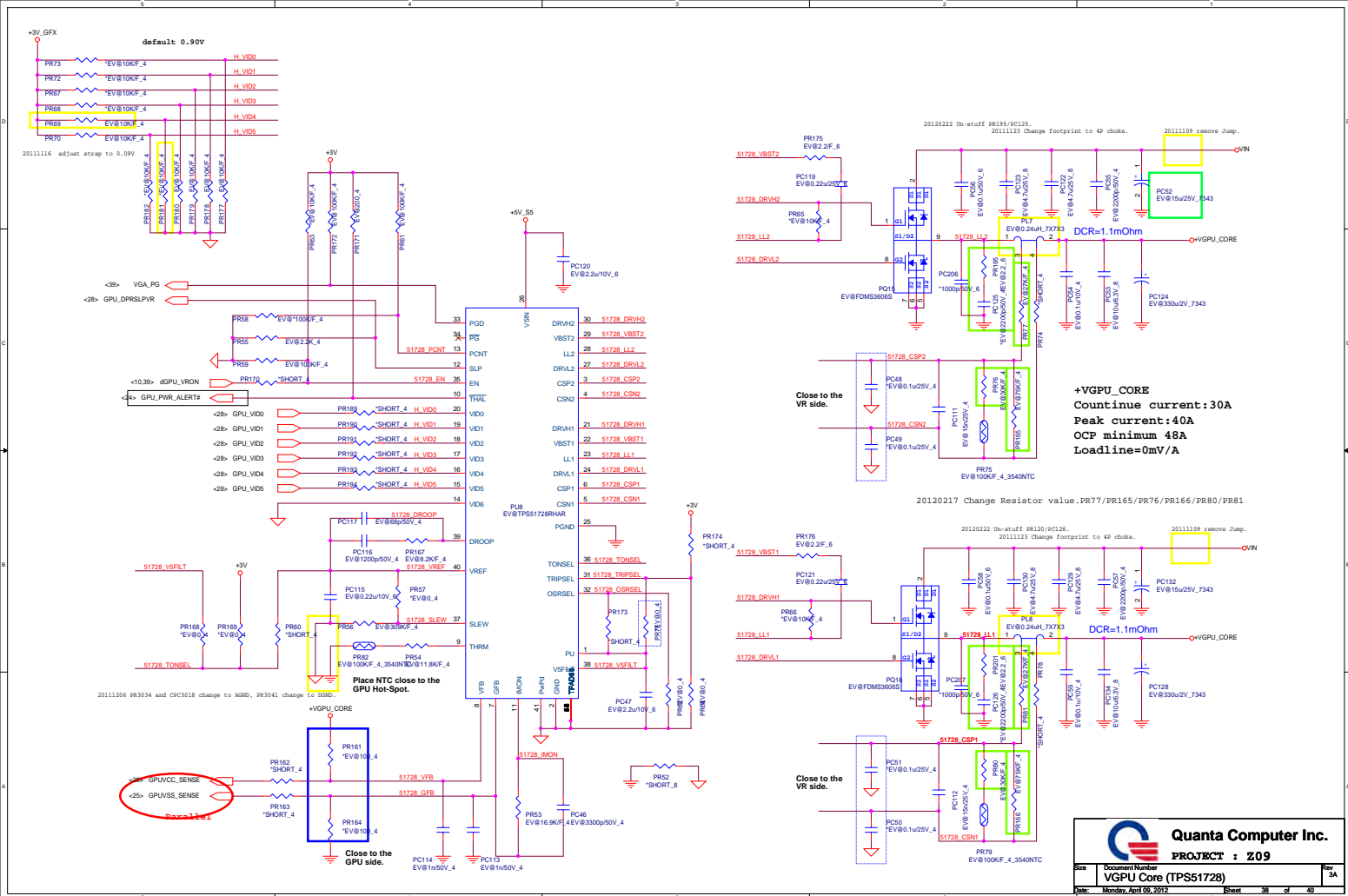
Size Document Number  
**VCCSA(TPS51461)**

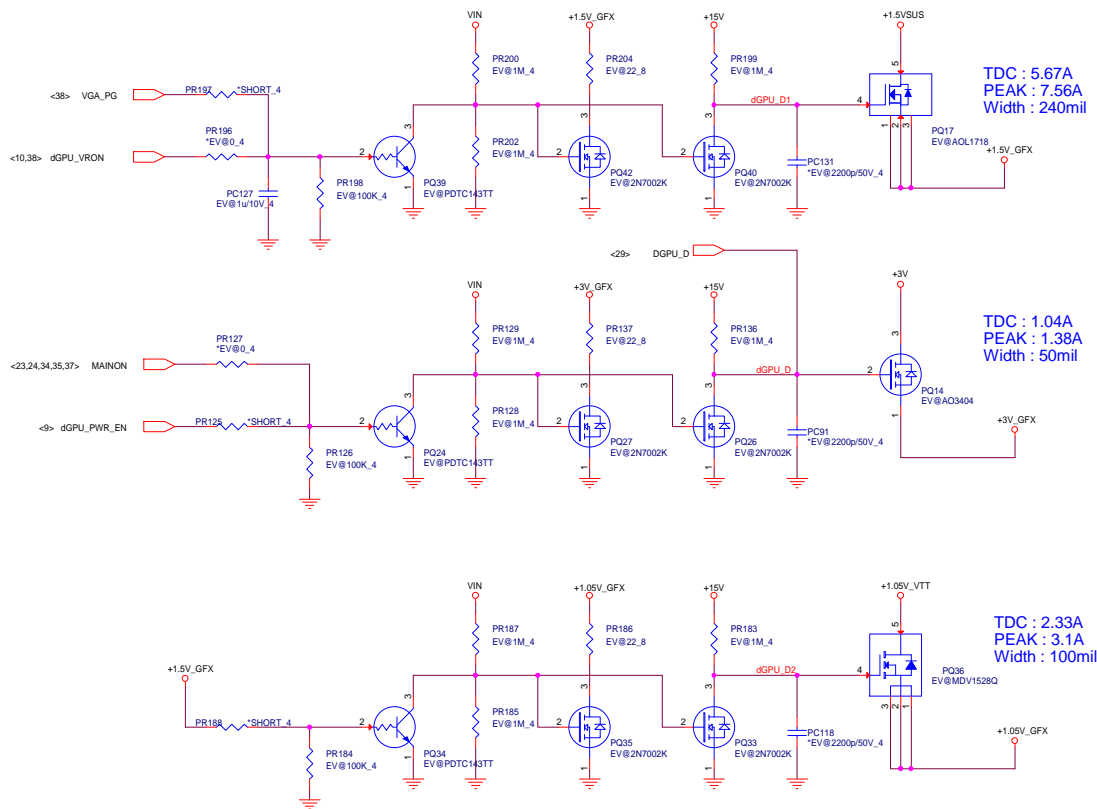
Date: Monday, April 09, 2012 Sheet 36 of 40 Rev 3A



# Thermal protection







Model	REV	CHANGE LIST		MODEL	
		10.28	FROM	Z09	To
Z09	1A	<div>1. 20111101 Modify USB symbol(Add USB pad*) 2. 20111101 Page 19 Add USB/Outboard con. (only Power and Battery) 3. 20111101 Page 20/21 remove addWdrWdr_MCU re-driver IC. 4. 20111101 Page4 Change U5010 USB power switch power well from +VDD5 to +VU_5V. 5. 20111101 Page 24 U6-stuff U508(-): resistor because it at reserve only debug use. 6. 20111101 Page 11 Add Q4110 sense for SW circuit. 7. 20111101 Page 07 Remove U508 sense circuit. 8. 20111101 Page 03 Add Resistor R512/R515. 9. 20111101 Page 10 stuff R516 for SW power. 10. 20111101 Page 20-40 Power upgrade circuit. 11. 20111101 Page17 Change R516 from 10k to 2.1k for prevent SW sense. 12. 20111101 del R516 13. 20111101 Page17 R51 and SW reverse. 14. 20111101 Page17 R517 stuff for SW sense reverse. 15. 20111101 Page1 R51 comment test point. 16. 20111101 Update connector list without 070H/08H/09H/10H/11H/12H/13H/14H/15H/16H/17H/18H/19H/20H/21H/22H/23H/24H/25H/26H/27H/28H/29H/30H/31H/32H/33H/34H/35H/36H/37H/38H/39H/40H/41H/42H/43H/44H/45H/46H/47H/48H/49H/50H/51H/52H/53H/54H/55H/56H/57H/58H/59H/60H/61H/62H/63H/64H/65H/66H/67H/68H/69H/70H/71H/72H/73H/74H/75H/76H/77H/78H/79H/80H/81H/82H/83H/84H/85H/86H/87H/88H/89H/90H/91H/92H/93H/94H/95H/96H/97H/98H/99H/100H/101H/102H/103H/104H/105H/106H/107H/108H/109H/110H/111H/112H/113H/114H/115H/116H/117H/118H/119H/120H/121H/122H/123H/124H/125H/126H/127H/128H/129H/130H/131H/132H/133H/134H/135H/136H/137H/138H/139H/140H/141H/142H/143H/144H/145H/146H/147H/148H/149H/150H/151H/152H/153H/154H/155H/156H/157H/158H/159H/160H/161H/162H/163H/164H/165H/166H/167H/168H/169H/170H/171H/172H/173H/174H/175H/176H/177H/178H/179H/180H/181H/182H/183H/184H/185H/186H/187H/188H/189H/190H/191H/192H/193H/194H/195H/196H/197H/198H/199H/200H/201H/202H/203H/204H/205H/206H/207H/208H/209H/210H/211H/212H/213H/214H/215H/216H/217H/218H/219H/220H/221H/222H/223H/224H/225H/226H/227H/228H/229H/230H/231H/232H/233H/234H/235H/236H/237H/238H/239H/240H/241H/242H/243H/244H/245H/246H/247H/248H/249H/250H/251H/252H/253H/254H/255H/256H/257H/258H/259H/260H/261H/262H/263H/264H/265H/266H/267H/268H/269H/270H/271H/272H/273H/274H/275H/276H/277H/278H/279H/280H/281H/282H/283H/284H/285H/286H/287H/288H/289H/290H/291H/292H/293H/294H/295H/296H/297H/298H/299H/300H/301H/302H/303H/304H/305H/306H/307H/308H/309H/310H/311H/312H/313H/314H/315H/316H/317H/318H/319H/320H/321H/322H/323H/324H/325H/326H/327H/328H/329H/330H/331H/332H/333H/334H/335H/336H/337H/338H/339H/340H/341H/342H/343H/344H/345H/346H/347H/348H/349H/350H/351H/352H/353H/354H/355H/356H/357H/358H/359H/360H/361H/362H/363H/364H/365H/366H/367H/368H/369H/370H/371H/372H/373H/374H/375H/376H/377H/378H/379H/380H/381H/382H/383H/384H/385H/386H/387H/388H/389H/390H/391H/392H/393H/394H/395H/396H/397H/398H/399H/400H/401H/402H/403H/404H/405H/406H/407H/408H/409H/410H/411H/412H/413H/414H/415H/416H/417H/418H/419H/420H/421H/422H/423H/424H/425H/426H/427H/428H/429H/430H/431H/432H/433H/434H/435H/436H/437H/438H/439H/440H/441H/442H/443H/444H/445H/446H/447H/448H/449H/450H/451H/452H/453H/454H/455H/456H/457H/458H/459H/460H/461H/462H/463H/464H/465H/466H/467H/468H/469H/470H/471H/472H/473H/474H/475H/476H/477H/478H/479H/480H/481H/482H/483H/484H/485H/486H/487H/488H/489H/490H/491H/492H/493H/494H/495H/496H/497H/498H/499H/500H/501H/502H/503H/504H/505H/506H/507H/508H/509H/510H/511H/512H/513H/514H/515H/516H/517H/518H/519H/520H/521H/522H/523H/524H/525H/526H/527H/528H/529H/530H/531H/532H/533H/534H/535H/536H/537H/538H/539H/540H/541H/542H/543H/544H/545H/546H/547H/548H/549H/550H/551H/552H/553H/554H/555H/556H/557H/558H/559H/560H/561H/562H/563H/564H/565H/566H/567H/568H/569H/570H/571H/572H/573H/574H/575H/576H/577H/578H/579H/580H/581H/582H/583H/584H/585H/586H/587H/588H/589H/590H/591H/592H/593H/594H/595H/596H/597H/598H/599H/600H/601H/602H/603H/604H/605H/606H/607H/608H/609H/610H/611H/612H/613H/614H/615H/616H/617H/618H/619H/620H/621H/622H/623H/624H/625H/626H/627H/628H/629H/630H/631H/632H/633H/634H/635H/636H/637H/638H/639H/640H/641H/642H/643H/644H/645H/646H/647H/648H/649H/650H/651H/652H/653H/654H/655H/656H/657H/658H/659H/660H/661H/662H/663H/664H/665H/666H/667H/668H/669H/670H/671H/672H/673H/674H/675H/676H/677H/678H/679H/680H/681H/682H/683H/684H/685H/686H/687H/688H/689H/690H/691H/692H/693H/694H/695H/696H/697H/698H/699H/700H/701H/702H/703H/704H/705H/706H/707H/708H/709H/710H/711H/712H/713H/714H/715H/716H/717H/718H/719H/720H/721H/722H/723H/724H/725H/726H/727H/728H/729H/730H/731H/732H/733H/734H/735H/736H/737H/738H/739H/740H/741H/742H/743H/744H/745H/746H/747H/748H/749H/750H/751H/752H/753H/754H/755H/756H/757H/758H/759H/760H/761H/762H/763H/764H/765H/766H/767H/768H/769H/770H/771H/772H/773H/774H/775H/776H/777H/778H/779H/780H/781H/782H/783H/784H/785H/786H/787H/788H/789H/790H/791H/792H/793H/794H/795H/796H/797H/798H/799H/800H/801H/802H/803H/804H/805H/806H/807H/808H/809H/810H/811H/812H/813H/814H/815H/816H/817H/818H/819H/820H/821H/822H/823H/824H/825H/826H/827H/828H/829H/830H/831H/832H/833H/834H/835H/836H/837H/838H/839H/840H/841H/842H/843H/844H/845H/846H/847H/848H/849H/850H/851H/852H/853H/854H/855H/856H/857H/858H/859H/860H/861H/862H/863H/864H/865H/866H/867H/868H/869H/870H/871H/872H/873H/874H/875H/876H/877H/878H/879H/880H/881H/882H/883H/884H/885H/886H/887H/888H/889H/890H/891H/892H/893H/894H/895H/896H/897H/898H/899H/900H/901H/902H/903H/904H/905H/906H/907H/908H/909H/910H/911H/912H/913H/914H/915H/916H/917H/918H/919H/920H/921H/922H/923H/924H/925H/926H/927H/928H/929H/930H/931H/932H/933H/934H/935H/936H/937H/938H/939H/940H/941H/942H/943H/944H/945H/946H/947H/948H/949H/950H/951H/952H/953H/954H/955H/956H/957H/958H/959H/960H/961H/962H/963H/964H/965H/966H/967H/968H/969H/970H/971H/972H/973H/974H/975H/976H/977H/978H/979H/980H/981H/982H/983H/984H/985H/986H/987H/988H/989H/990H/991H/992H/993H/994H/995H/996H/997H/998H/999H/1000H/1001H/1002H/1003H/1004H/1005H/1006H/1007H/1008H/1009H/1010H/1011H/1012H/1013H/1014H/1015H/1016H/1017H/1018H/1019H/1020H/1021H/1022H/1023H/1024H/1025H/1026H/1027H/1028H/1029H/1030H/1031H/1032H/1033H/1034H/1035H/1036H/1037H/1038H/1039H/1040H/1041H/1042H/1043H/1044H/1045H/1046H/1047H/1048H/1049H/1050H/1051H/1052H/1053H/1054H/1055H/1056H/1057H/1058H/1059H/1060H/1061H/1062H/1063H/1064H/1065H/1066H/1067H/1068H/1069H/1070H/1071H/1072H/1073H/1074H/1075H/1076H/1077H/1078H/1079H/1080H/1081H/1082H/1083H/1084H/1085H/1086H/1087H/1088H/1089H/1090H/1091H/1092H/1093H/1094H/1095H/1096H/1097H/1098H/1099H/1100H/1101H/1102H/1103H/1104H/1105H/1106H/1107H/1108H/1109H/1110H/1111H/1112H/1113H/1114H/1115H/1116H/1117H/1118H/1119H/1120H/1121H/1122H/1123H/1124H/1125H/1126H/1127H/1128H/1129H/1130H/1131H/1132H/1133H/1134H/1135H/1136H/1137H/1138H/1139H/1140H/1141H/1142H/1143H/1144H/1145H/1146H/1147H/1148H/1149H/1150H/1151H/1152H/1153H/1154H/1155H/1156H/1157H/1158H/1159H/1160H/1161H/1162H/1163H/1164H/1165H/1166H/1167H/1168H/1169H/1170H/1171H/1172H/1173H/1174H/1175H/1176H/1177H/1178H/1179H/1180H/1181H/1182H/1183H/1184H/1185H/1186H/1187H/1188H/1189H/1190H/1191H/1192H/1193H/1194H/1195H/1196H/1197H/1198H/1199H/1200H/1201H/1202H/1203H/1204H/1205H/1206H/1207H/1208H/1209H/1210H/1211H/1212H/1213H/1214H/1215H/1216H/1217H/1218H/1219H/1220H/1221H/1222H/1223H/1224H/1225H/1226H/1227H/1228H/1229H/1230H/1231H/1232H/1233H/1234H/1235H/1236H/1237H/1238H/1239H/1240H/1241H/1242H/1243H/1244H/1245H/1246H/1247H/1248H/1249H/1250H/1251H/1252H/1253H/1254H/1255H/1256H/1257H/1258H/1259H/1260H/1261H/1262H/1263H/1264H/1265H/1266H/1267H/1268H/1269H/1270H/1271H/1272H/1273H/1274H/1275H/1276H/1277H/1278H/1279H/1280H/1281H/1282H/1283H/1284H/1285H/1286H/1287H/1288H/1289H/1290H/1291H/1292H/1293H/1294H/1295H/1296H/1297H/1298H/1299H/1300H/1301H/1302H/1303H/1304H/1305H/1306H/1307H/1308H/1309H/1310H/1311H/1312H/1313H/1314H/1315H/1316H/1317H/1318H/1319H/1320H/1321H/1322H/1323H/1324H/1325H/1326H/1327H/1328H/1329H/1330H/1331H/1332H/1333H/1334H/1335H/1336H/1337H/1338H/1339H/1340H/1341H/1342H/1343H/1344H/1345H/1346H/1347H/1348H/1349H/1350H/1351H/1352H/1353H/1354H/1355H/1356H/1357H/1358H/1359H/1360H/1361H/1362H/1363H/1364H/1365H/1366H/1367H/1368H/1369H/1370H/1371H/1372H/1373H/1374H/1375H/1376H/1377H/1378H/1379H/1380H/1381H/1382H/1383H/1384H/1385H/1386H/1387H/1388H/1389H/1390H/1391H/1392H/1393H/1394H/1395H/1396H/1397H/1398H/1399H/1400H/1401H/1402H/1403H/1404H/1405H/1406H/1407H/1408H/1409H/1410H/1411H/1412H/1413H/1414H/1415H/1416H/1417H/1418H/1419H/1420H/1421H/1422H/1423H/1424H/1425H/1426H/1427H/1428H/1429H/1430H/1431H/1432H/1433H/1434H/1435H/1436H/1437H/1438H/1439H/1440H/1441H/1442H/1443H/1444H/1445H/1446H/1447H/1448H/1449H/1450H/1451H/1452H/1453H/1454H/1455H/1456H/1457H/1458H/1459H/1460H/1461H/1462H/1463H/1464H/1465H/1466H/1467H/1468H/1469H/1470H/1471H/1472H/1473H/1474H/1475H/1476H/1477H/1478H/1479H/1480H/1481H/1482H/1483H/1484H/1485H/1486H/1487H/1488H/1489H/1490H/1491H/1492H/1493H/1494H/1495H/1496H/1497H/1498H/1499H/1500H/1501H/1502H/1503H/1504H/1505H/1506H/1507H/1508H/1509H/1510H/1511H/1512H/1513H/1514H/1515H/1516H/1517H/1518H/1519H/1520H/1521H/1522H/1523H/1524H/1525H/1526H/1527H/1528H/1529H/1530H/1531H/1532H/1533H/1534H/1535H/1536H/1537H/1538H/1539H/1540H/1541H/1542H/1543H/1544H/1545H/1546H/1547H/1548H/1549H/1550H/1551H/1552H/1553H/1554H/1555H/1556H/1557H/1558H/1559H/1560H/1561H/1562H/1563H/1564H/1565H/1566H/1567H/1568H/1569H/1570H/1571H/1572H/1573H/1574H/1575H/1576H/1577H/1578H/1579H/1580H/1581H/1582H/1583H/1584H/1585H/1586H/1587H/1588H/1589H/1590H/1591H/1592H/1593H/1594H/1595H/1596H/1597H/1598H/1599H/1600H/1601H/1602H/1603H/1604H/1605H/1606H/1607H/1608H/1609H/1610H/1611H/1612H/1613H/1614H/1615H/1616H/1617H/1618H/1619H/1620H/1621H/1622H/1623H/1624H/1625H/1626H/1627H/1628H/1629H/1630H/1631H/1632H/1633H/1634H/1635H/1636H/1637H/1638H/1639H/1640H/1641H/1642H/1643H/1644H/1645H/1646H/1647H/1648H/1649H/1650H/1651H/1652H/1653H/1654H/1655H/1656H/1657H/1658H/1659H/1660H/1661H/1662H/1663H/1664H/1665H/1666H/1667H/1668H/1669H/1670H/1671H/1672H/1673H/1674H/1675H/1676H/1677H/1678H/1679H/1680H/1681H/1682H/1683H/1684H/1685H/1686H/1687H/1688H/1689H/1690H/1691H/1692H/1693H/1694H/1695H/1696H/1697H/1698H/1699H/1700H/1701H/1702H/1703H/1704H/1705H/1706H/1707H/1708H/1709H/1710H/1711H/1712H/1713H/1714H/1715H/1716H/1717H/1718H/1719H/1720H/1721H/1722H/1723H/1724H/1725H/1726H/1727H/1728H/1729H/1730H/1731H/1732H/1733H/1734H/1735H/1736H/1737H/1738H/1739H/1740H/1741H/1742H/1743H/1744H/1745H/1746H/1747H/1748H/1749H/1750H/1751H/1752H/1753H/1754H/1755H/1756H/1757H/1758H/1759H/1760H/1761H/1762H/1763H/1764H/1765H/1766H/1767H/1768H/1769H/1770H/1771H/1772H/1773H/1774H/1775H/1776H/1777H/1778H/1779H/1780H/1781H/1782H/1783H/1784H/1785H/1786H/1787H/1788H/1789H/1790H/1791H/1792H/1793H/1794H/1795H/1796H/1797H/1798H/1799H/1800H/1801H/1802H/1803H/1804H/1805H/1806H/1807H/1808H/1809H/1810H/1811H/1812H/1813H/1814H/1815H/1816H/1817H/1818H/1819H/1820H/1821H/1822H/1823H/1824H/1825H/1826H/1827H/1828H/1829H/1830H/1831H/1832H/1833H/1834H/1835H/1836H/1837H/1838H/1839H/1840H/1841H/1842H/1843H/1844H/1845H/1846H/1847H/1848H/1849H/1850H/1851H/1852H/1853H/1854H/1855H/1856H/1857H/1858H/1859H/1860H/1861H/1862H/1863H/1864H/1865H/1866H/1867H/1868H/1869H/1870H/1871H/1872H/1873H/1874H/1875H/1876H/1877H/1878H/1879H/1880H/1881H/1882H/1883H/1884H/1885H/1886H/1887H/1888H/1889H/1890H/1891H/1892H/1893H/1894H/1895H/1896H/1897H/1898H/1899H/1900H/1901H/1902H/1903H/1904H/1905H/1906H/1907H/1908H/1909H/1910H/1911H/1912H/1913H/1914H/1915H/1916H/1917H/1918H/1919H/1920H/1921H/1922H/1923H/1924H/1925H/1926H/1927H/1928H/1929H/1930H/1931H/1932H/1933H/1934H/1935H/1936H/1937H/1938H/1939H/1940H/1941H/1942H/1943H/1944H/1945H/1946H/1947H/1948H/1949H/1950H/1951H/1952H/1953H/1954H/1955H/1956H/1957H/1958H/1959H/1960H/1961H/1962H/1963H/1964H/1965H/1966H/1967H/1968H/1969H/1970H/1971H/1972H/1973H/1974H/1975H/1976H/1977H/1978H/1979H/1980H/1981H/1982H/1983H/1984H/1985H/1986H/1987H/1988H/1989H/1990H/1991H/1992H/1993H/1994H/1995H/1996H/1997H/1998H/1999H/2000H/2001H/2002H/2003H/2004H/2005H/2006H/2007H/2008H/2009H/2010H/2011H/2012H/2013H/2014H/2015H/2016H/2017H/2018H/2019H/2020H/2021H/2022H/2023H/2024H/2025H/2026H/2027H/2028H/2029H/2030H/2031H/2032H/2033H/2034H/2035H/2036H/2037H/2038H/2039H/2040H/2041H/2042H/2043H/2044H/2045H/2046H/2047H/2048H/2049H/2050H/2051H/2052H/2053H/2054H/2055H/2056H/2057H/2058H/2059H/2060H/2061H/2062H/2063H/2064H/2065H/2066H/2067H/2068H/2069H/2070H/2071H/2072H/2073H/2074H/2075H/2076H/2077H/2078H/2079H/2080H/2081H/2082H/2083H/2084H/2085H/2086H/2087H/2088H/2089H/2090H/2091H/2092H/2093H/2094H/2095H/2096H/2097H/2098H/2099H/2100H/2101H/2102H/2103H/2104H/2105H/2106H/2107H/2108H/2109H/2110H/2111H/2112H/2113H/2114H/2115H/2116H/2117H/2118H/2119H/2120H/2121H/2122H/2123H/2124H/2125H/2126H/2127H/2128H/2129H/2130H/2131H/2132H/2133H/2134H/2135H/2136H/2137H/2138H/2139H/2140H/2141H/2142H/2143H/2144H/2145H/2146H/2147H/2148H</div>			