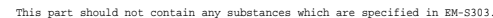
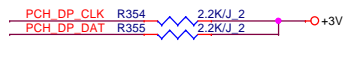
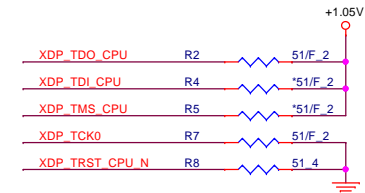


Page	Title of schematic page	Rev.	Date
01	Page List		
02	Block Diagram		
03	Change List		
04	BDW MCP(DISPLAY/Sideband)		
05	BDW MCP(MEMORY/GND)		
06	BDW MCP(CFG/PwrMGT)		
07	BDW MCP(POWER)		
08	BDW PCH(RTC/HDA/SATA)		
09	BDW PCH(PCIE/USB/Power M)		
10	BDW PCH(CLK/LPC/SPI/SMB)		
11	BDW PCH(GPIO/LPIO/MISC)		
12	BDW PCH(POWER)		
13	DDR3L MEMORY_x16(CH-A)		
14	DDR3L MEMORY_x16(CH-B)		
15	DDR3L TERMINATION		
16	HOLE/EMI/KB		
17	NPCE985L & FLASH		
18	eDP\TS\Camera		
19	To CARD READER BOARD		
20	HDMI/Thermal		
21	USB/USB repeater		
22	LAN RTL8111GS		
23	WLAN/KB-BL		
24	SSD/TP/FAN		
25	AUDIO(ALC233-CG)HP&MIC		
26	LED/PS/DMIC/TPM		
27	DP to VGA (PTN3355)		
28	Green Clock(SLG3NB3454)		
29	POWER +VCC_CORE (NCP81101)		
30	POWER 3.3V/5V-NB671L/NB670		
31	POWER 1.35VSUS/VTT_MEM		
32	POWER +1.05V /Thermal/+1.5V		
33	POWER CHARGER (ISL88732)		
34	POWER(BAT IN / ADA IN/ UL)		
35	IO PORT LIST		
36	Power Design Diagram		

Page	Title of schematic page	Rev.	Date

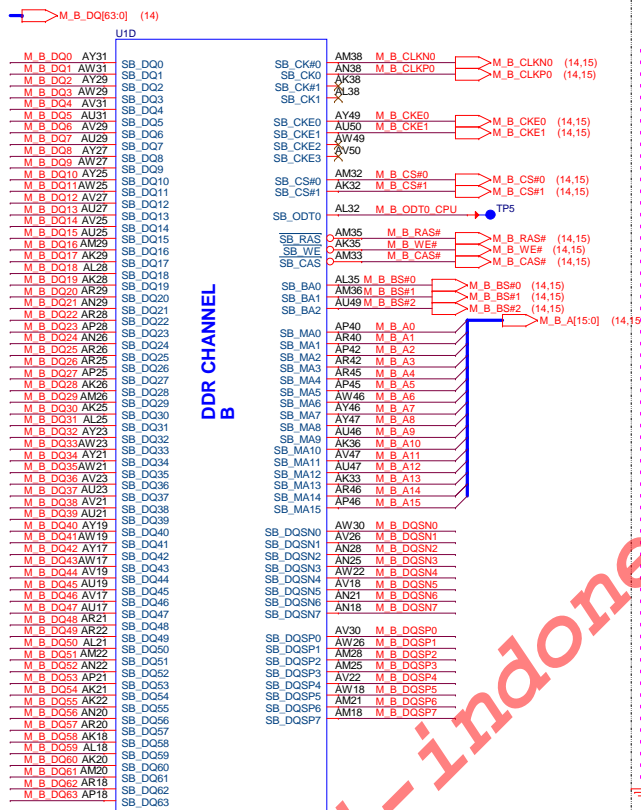
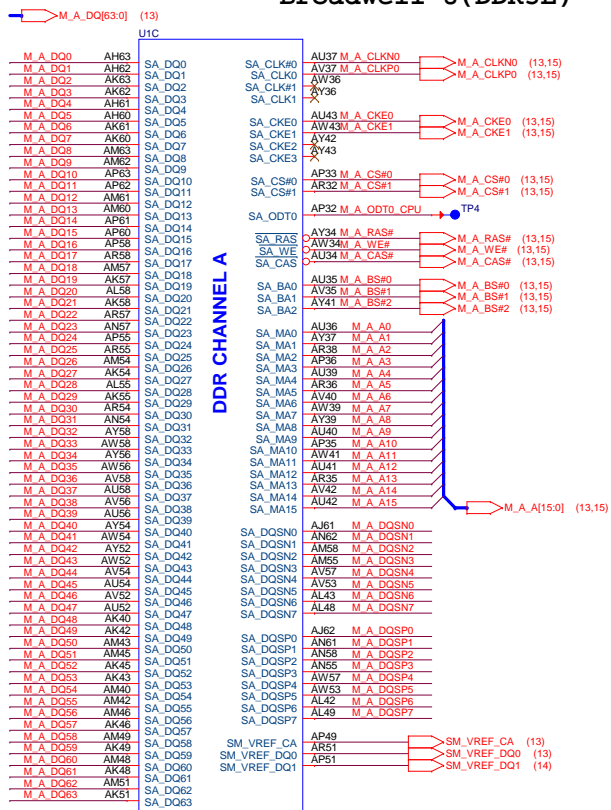
* : No mount
L@ : For LVDS output
D@ : For eDP output
E@ : For DIS GFX
I@ : For UMA

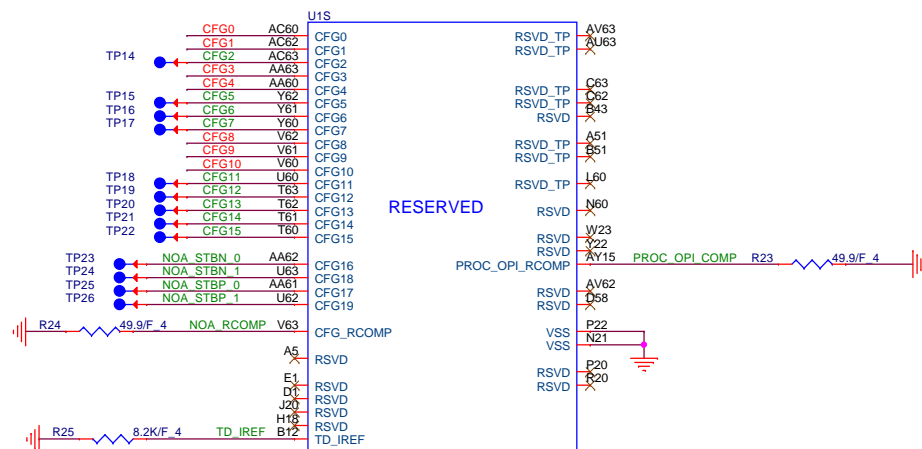




Size	Document Number	Rev
	BDW MCP(Display/eDP)	1/
Date:	Wednesday, December 24, 2014	Sheet 4 of 36

Broadwell U(DDR3L)





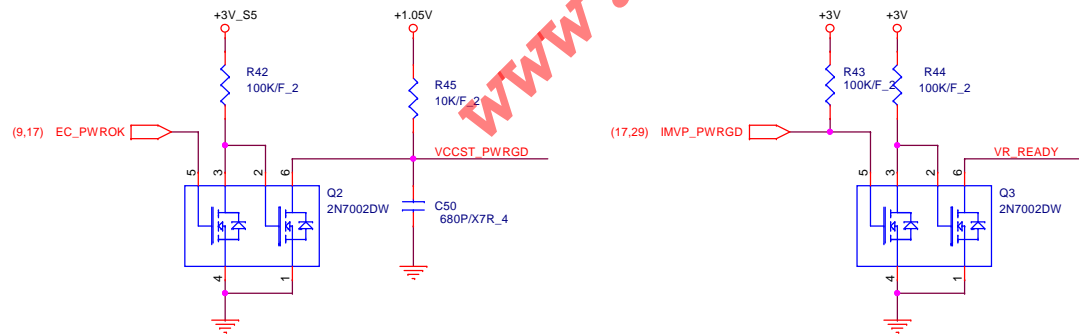
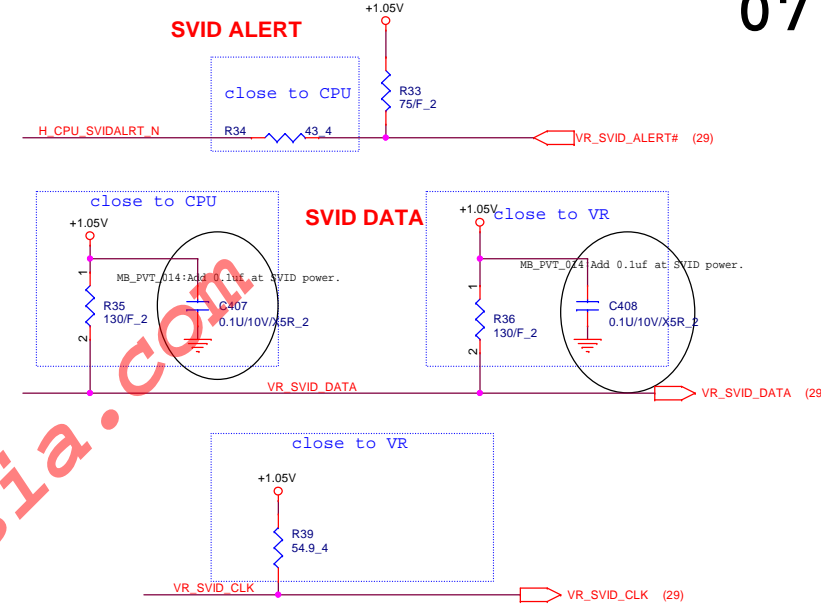
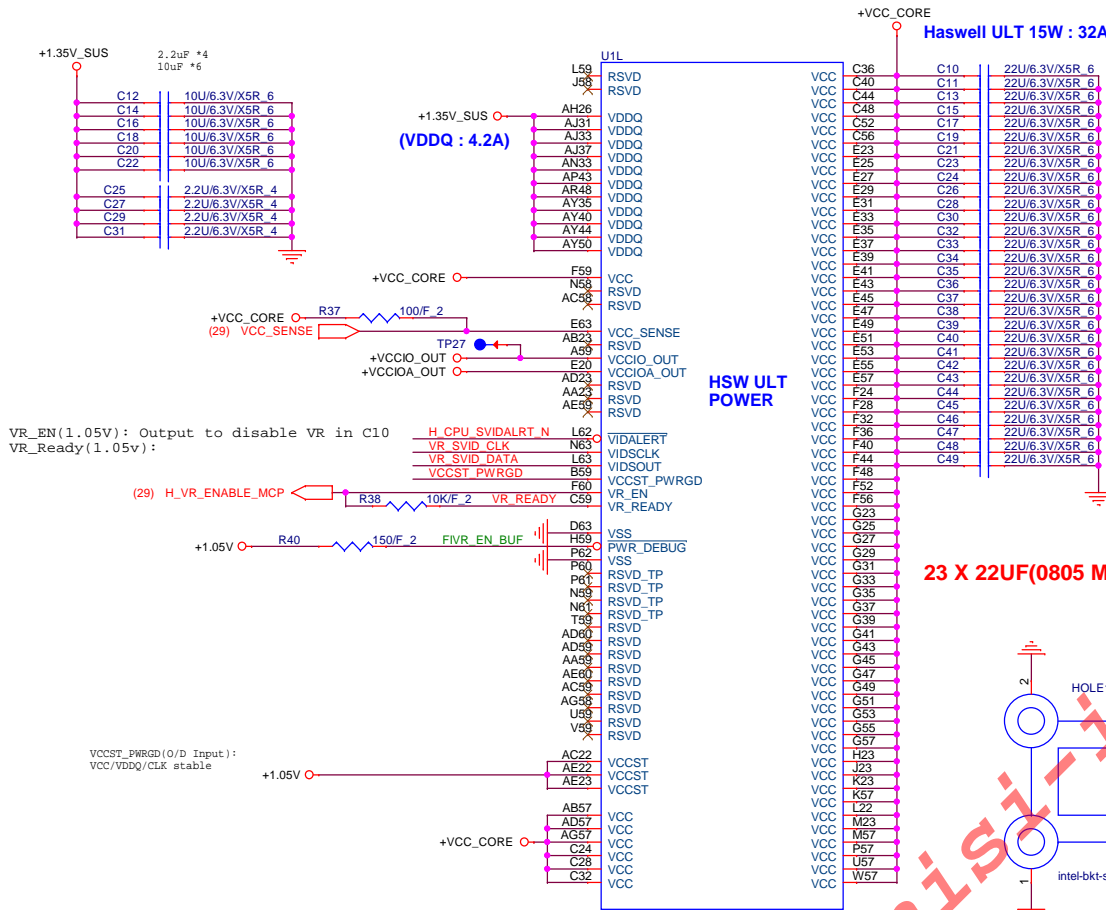
Processor Strapping

	1	0	
CFG0 EAR-STALL/NOT STALL RESET SEQUENCE AFTER PCU PLL IS LOCKED	(DEFAULT) NORMAL OPERATION; NO STALL	STALL	
CFG1 PCH/ PCH LESS MODE SELECTION	(DEFAULT) NORMAL OPERATION	PCH-LESS MODE	
CFG3 PHYSICAL_DEBUG_ENABLED (DFX PRIVACY)	DISABLED	ENABLED SET DFX ENABLED BIT IN DEBUG INTERFACE MSR	
CFG4 DISPLAY PORT PRESENCE STRAP	DISABLED NO PHYSICAL DISPLAY PORT ATTACHED TO EMBEDDED DISPLAY PORT	ENABLED; NOA WILL BE AVAILABLE REGARDLESS OF THE LOCKING OF THE UNIT	
CFG 8 ALLOW THE USE OF NOA ON LOCKED UNITS	DISABLED(DEFAULT); IN THIS CASE, NOA WILL BE DISABLED IN LOCKED UNITS AND ENABLED IN UN-LOCKED UNITS	ENABLED AN EXTERNAL DISPLAY PORT DEVICE IS CONNECTED TO THE EMBEDDED DISPLAY PORT	
CFG9 NO SVID PROTOCOL CAPABLE VR CONNECTED	VRS SUPPORTING SVID PROTOCOL ARE PRESENT	NO VR SUPPORTING SVID IS PRESENT. THE CHIP WILL NOT GENERATE (OR RESPOND TO) SVID ACTIVITY	
CFG10 SAFE MODE BOOT	POWER FEATURES ACTIVATED DURING RESET	POWER FEATURES (ESPECIALLY CLOCK GATINE ARE NOT ACTIVATED	



Broadwell U MCP(POWER)

07

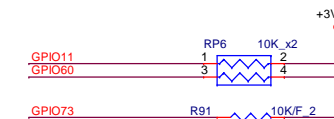
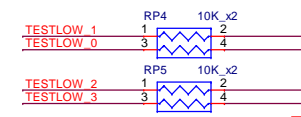
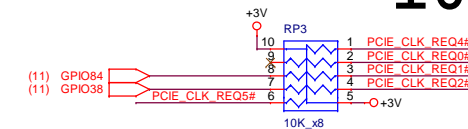
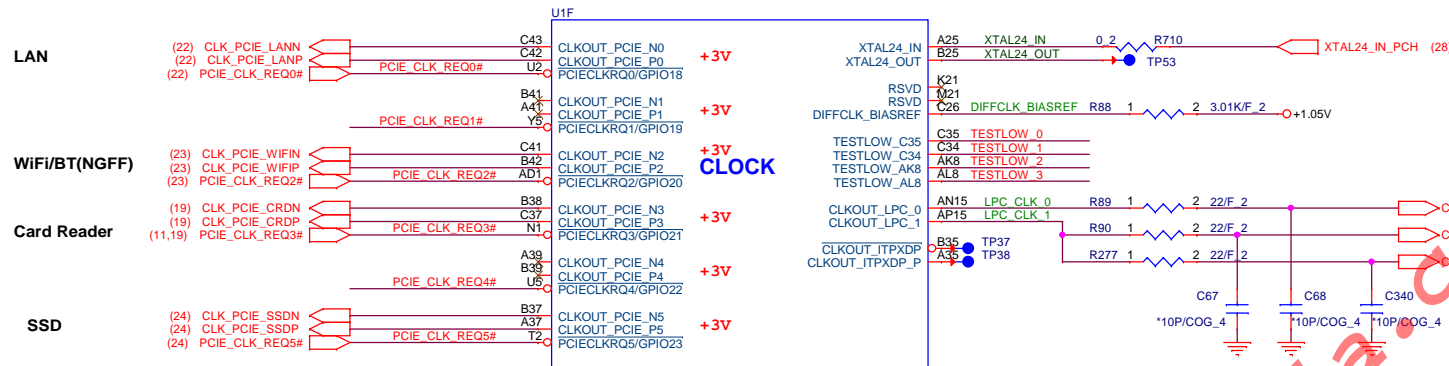


This part should not contain any substances which are specified in EM-S303.

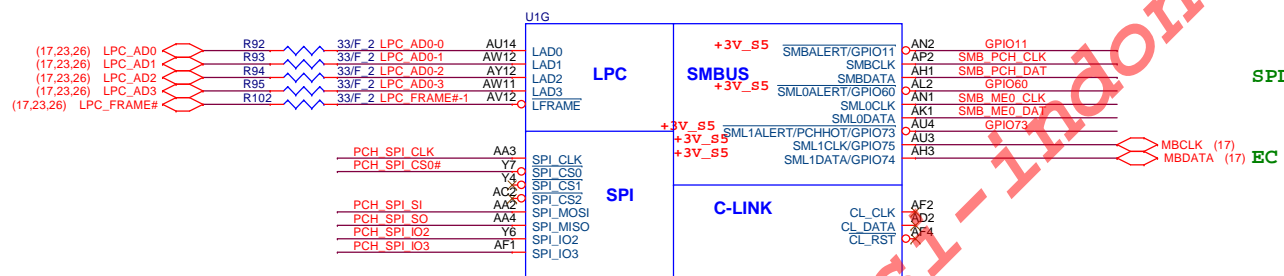
Broadwell U(PCIE,USB)



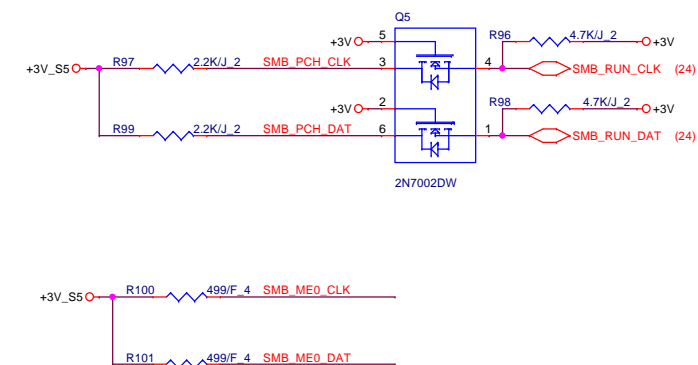
Broadwell U(CLK)



Broadwell U(LPC/SPI/SMB/CLINK)

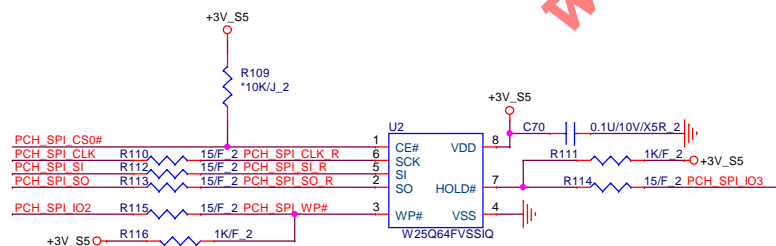


SMBus/Pull-up(CLG)



For NPCE985L Using

SPI FLASH



This part should not contain any substances which are specified in EM-S303.

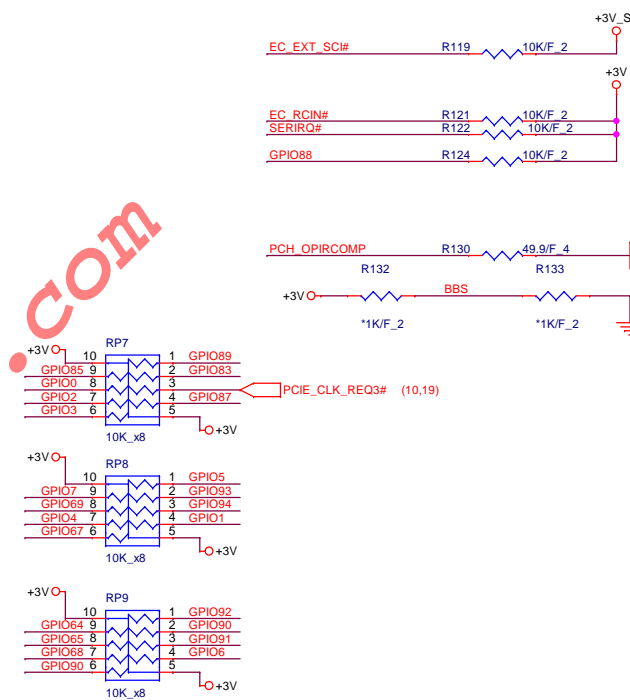


Quanta Computer Inc.
PROJECT : MS8

With Intel LAN:
Connect to LANWAKE# pin on the LAN controller
Without Intel LAN:
Used to wake event from DSx

Broadwell U(GPIO,LPIO,MISC)


GPIO Pull-up/Pull-down(CLG)

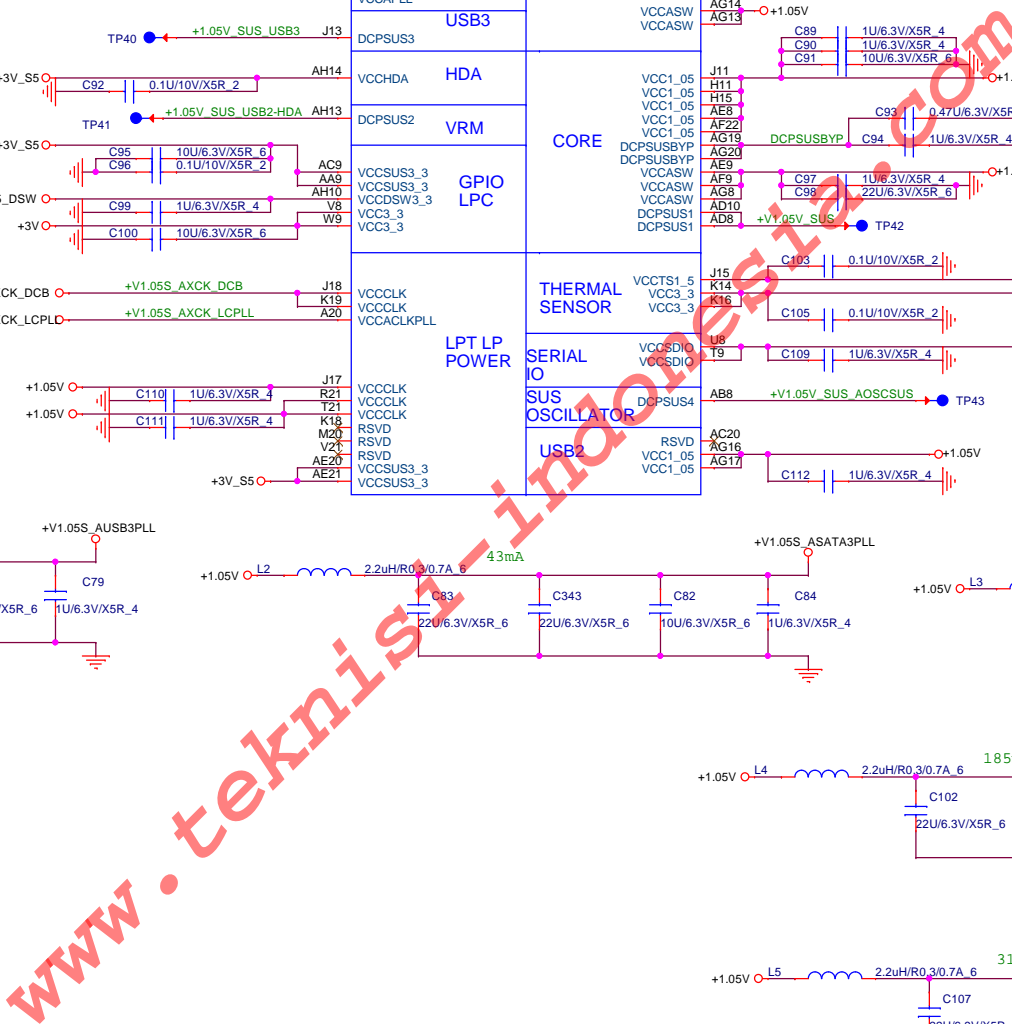



GPIO66 Top-Block Swap	
PU	Enable
PD	Disable(Default) internal weak pull-dpwn

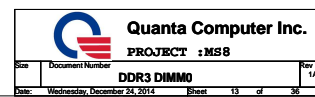
No Reboot Strap(GPIO81)	
NC	Default
PU	EN

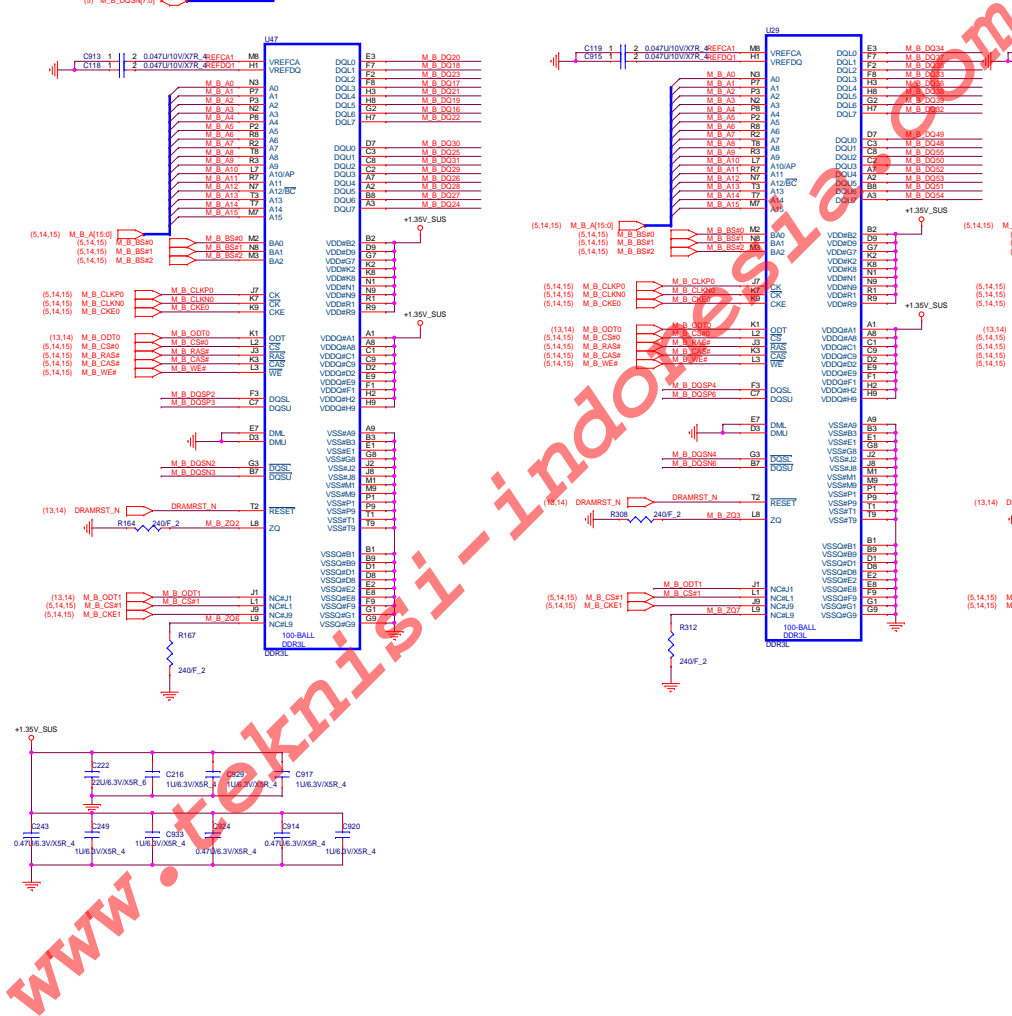
TLS CONFIDENTIALITY STRAP(GPIO15)	
NC	Default
PU	EN

		Quanta Computer Inc. PROJECT : MS8	
Size	Document Number	BDW PCH(GPIO/MISC)	Rev 1A
Date:	Wednesday, December 24, 2014	Sheet 11 of 36	

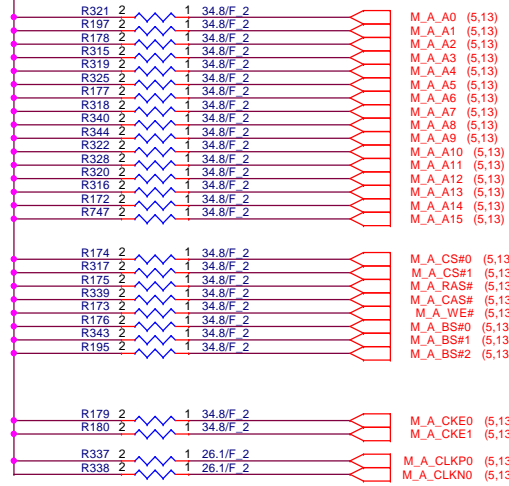


 <div> Quanta Computer Inc. PROJECT : MS8 </div>		Rev 1A
Size	Document Number	
BDW PCH(Power)		
Date:	Wednesday, December 24, 2014	Sheet 12 of 36

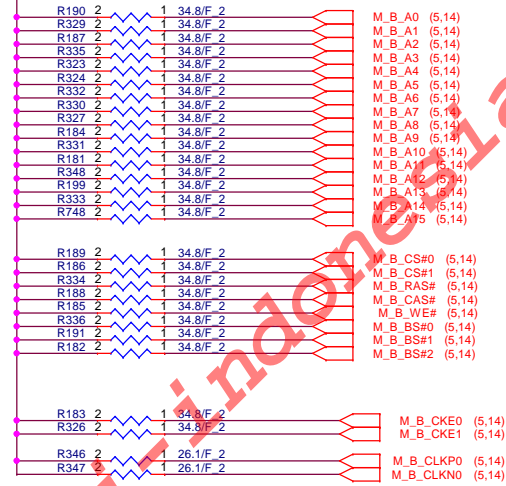




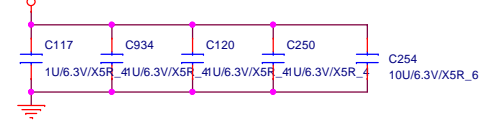
+0.675V_DDR_VTT



+0.675V_DDR_VTT



+0.675V_DDR_VTT



This part should not contain any substances which are specified in EM-S303.

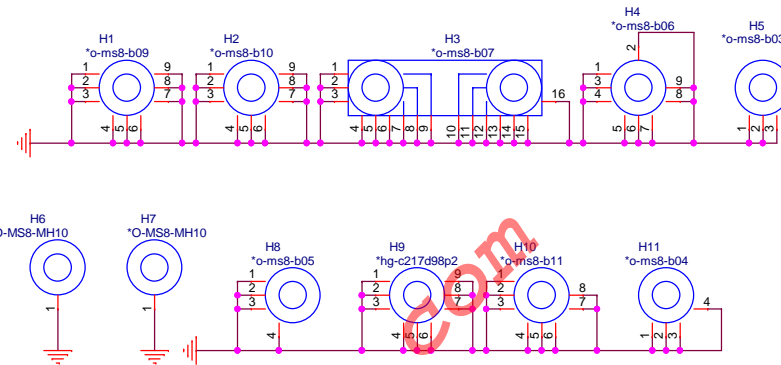
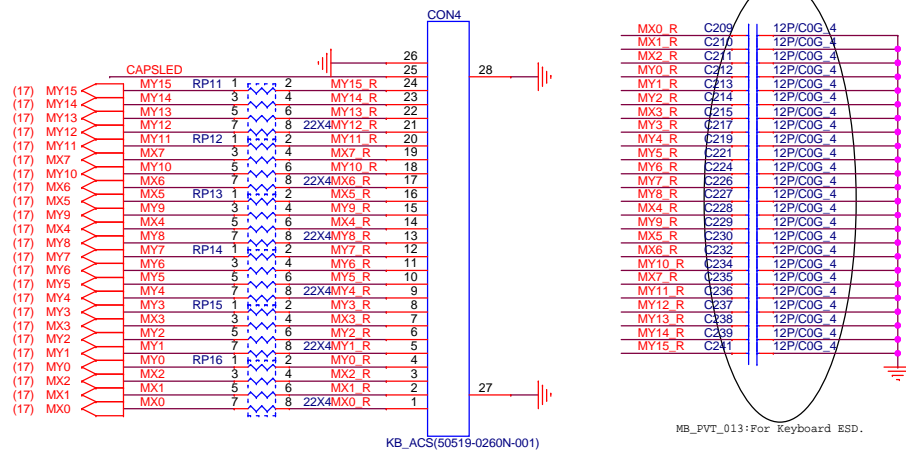


Quanta Computer Inc.

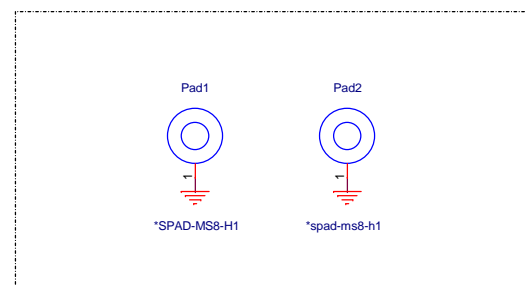
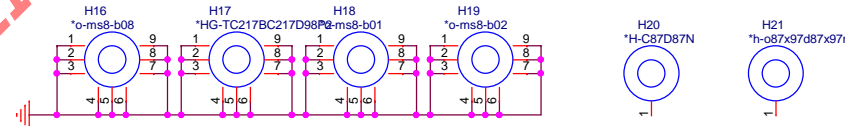
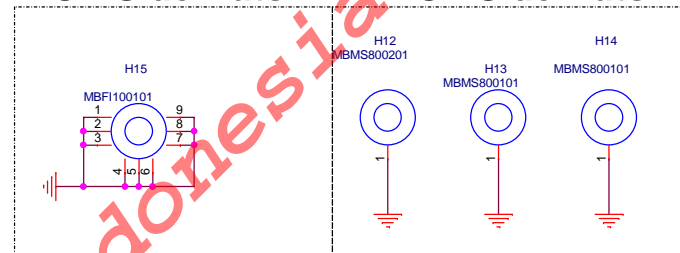
PROJECT : MS8

Size	Document Number	Rev
	DDR3L TERMINATION	1A
Date:	Wednesday, December 24, 2014	Sheet 15 of 36

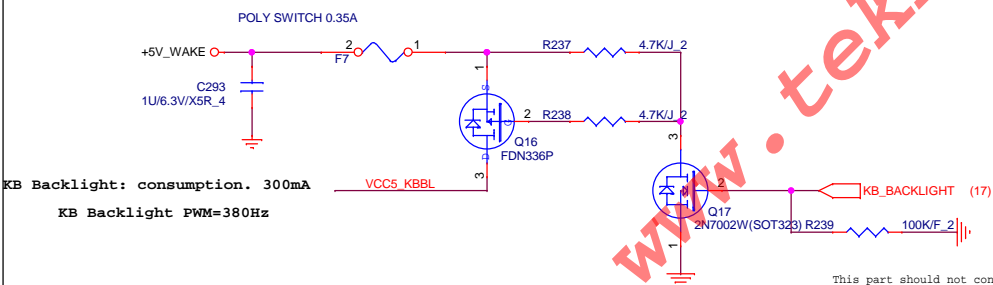
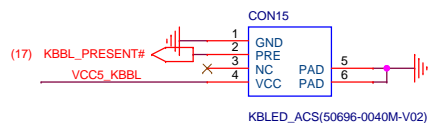
KEY BOARD Connector




TOP Side Nuts BOT Side Nuts

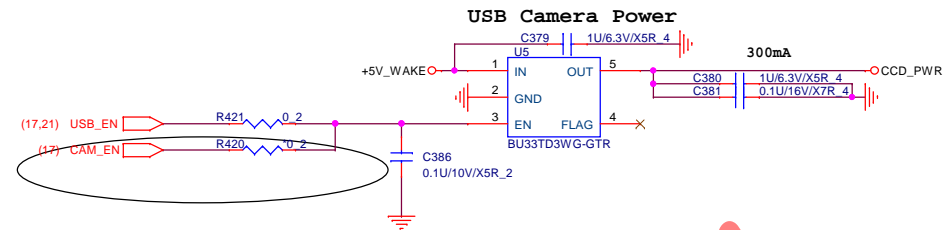


KB BACKLIGHT

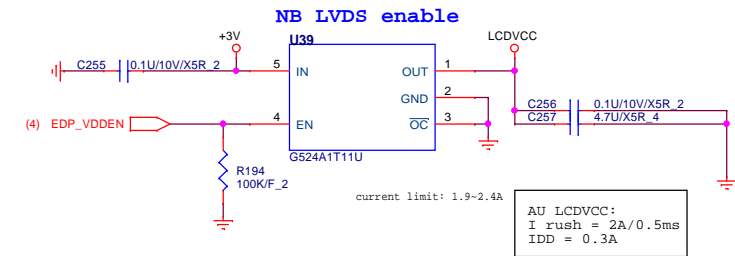
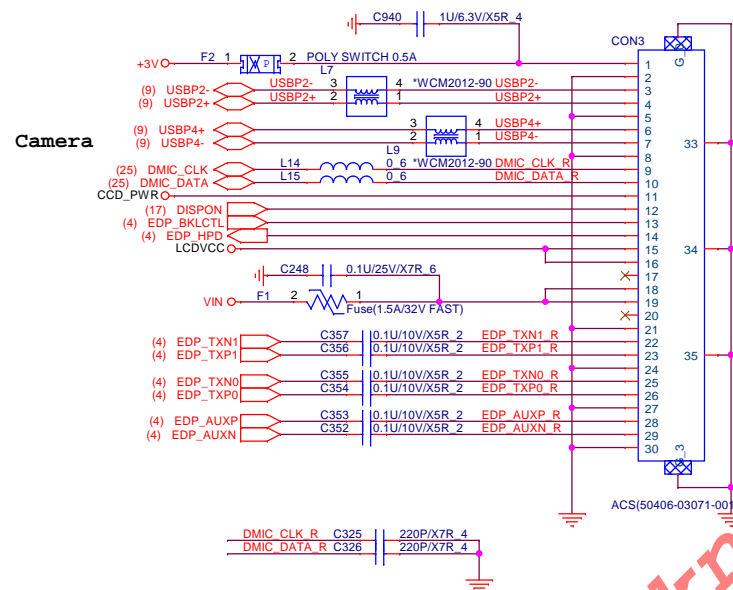


This part should not contain any substances which are specified in EM-S303.

 Quanta Computer Inc. PROJECT : MS8		
Size	Document Number	Rev
	HOLE/EMI/KB	2A
Date:	Wednesday, December 24, 2014	Sheet 16 of 36



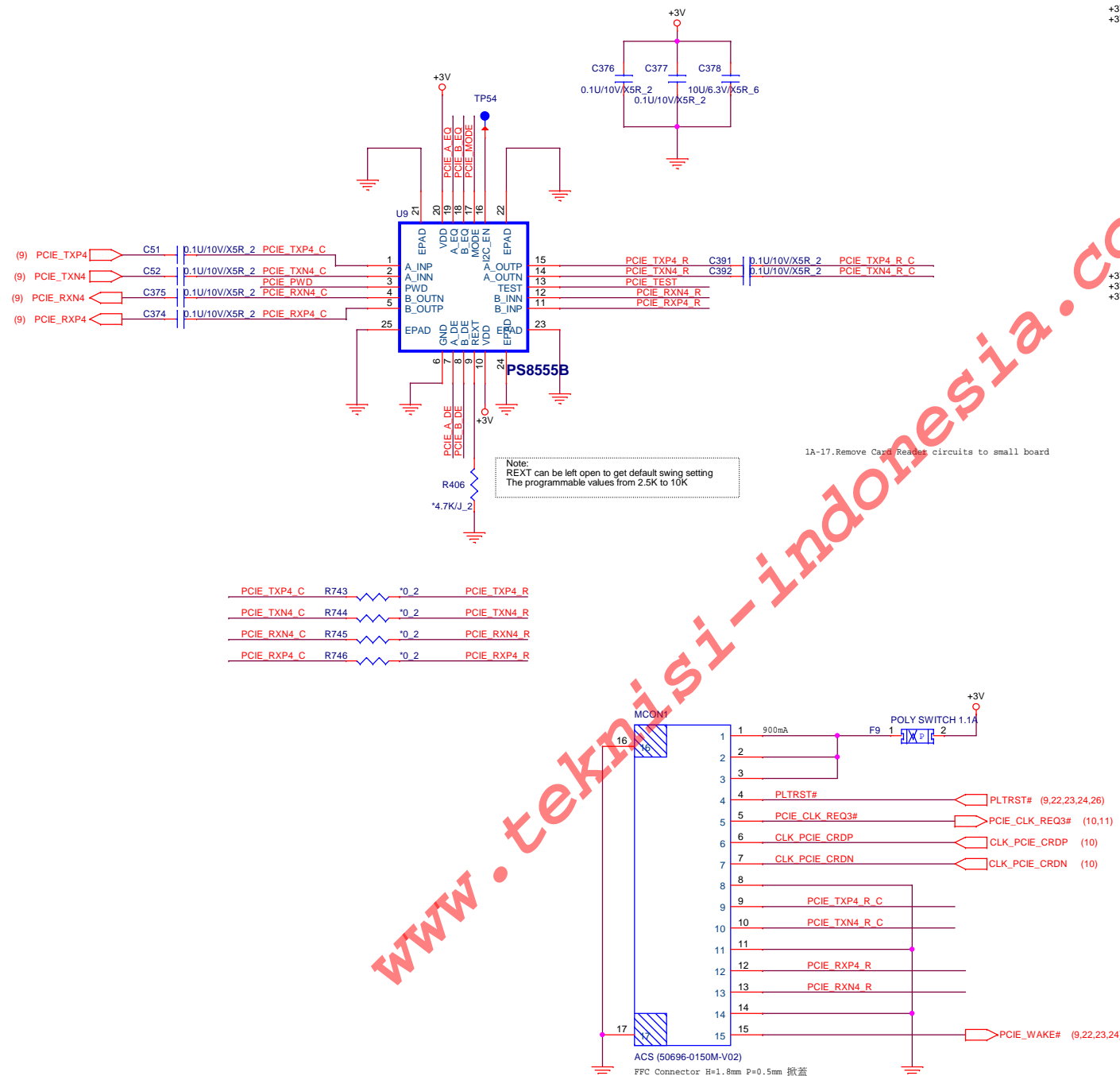
eDP+Touch Scean+Camera



GND Pin Distribute

	Pin number
TouchScreen	Pin2&Pin5
Camera	Pin8
Backlight of Panel	Pin21&Pin24
Logic circuits of Panel	Pin27&Pin30

This part should not contain any substances which are specified in EM-S303



+3V R407 *4.7K/J 2 PCIE_A_DE
+3V R408 *4.7K/J 2 PCIE_B_DE

Programmable output de-emphasis level setting for channel A/B at pin control mode. 3.3V tolerant. Internally pulled down at ~150K.
[A/B_DE] ==
L: 1.5dB de-emphasis(default)
H: 3.5dB de-emphasis

PCIE_A_EQ R415 *4.7K/J 2
PCIE_B_EQ R416 *4.7K/J 2

Equalizer control and program for channel A/B at pin control mode. 3.3V tolerant.
Internally pulled up at ~150K.
[A/B_EQ] ==
L: program EQ for channel loss up to 4.5dB
H: program EQ for channel loss up to 13dB(default)

+3V R411 4.7K/J 2 PCIE_MODE
+3V R412 *4.7K/J 2 PCIE_TEST
+3V R413 *4.7K/J 2 PCIE_PWD

Mode selection. 3.3V tolerant. Internally pulled down at ~150K.
MODE ==
L: SATA operation mode (default)
H: PCIe operation mode

Compliance testing configuration. 3.3V tolerant. Internally pulled down at ~150K.
TEST ==
L: Normal operation (default)
H: Compliance Testing mode enable

Chip power down. 3.3V tolerant. Internally pulled down at ~150K.
PWD ==
L: Normal operation (default)
H: Chip power down.



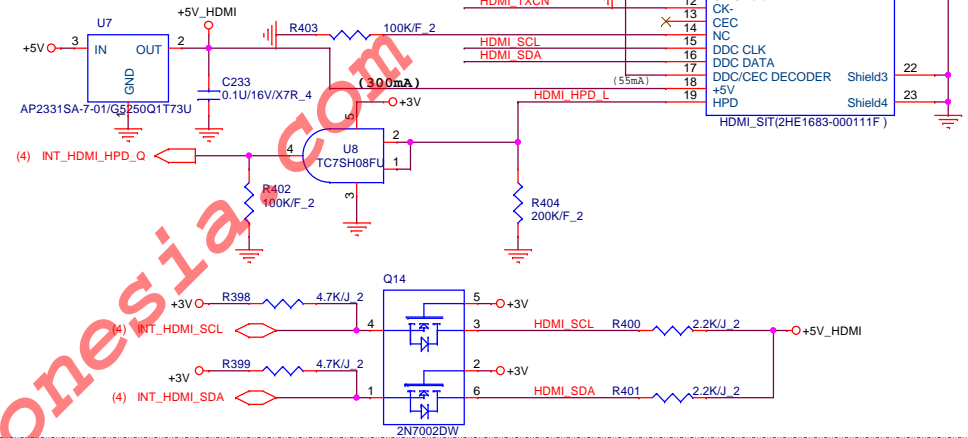
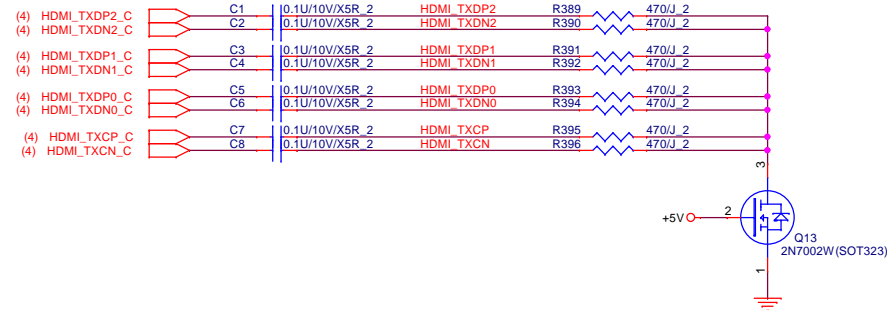
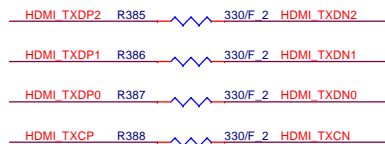
Quanta Computer Inc.

PROJECT : MS8

Size	Document Number	Rev
		1A
Date:	Wednesday, December 24, 2014	Sheet 19 of 36

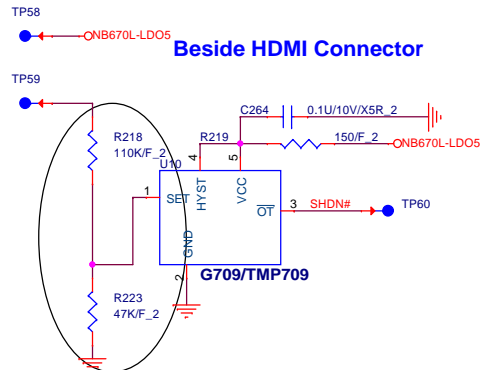
Cared Reader SamII Board

This part should not contain any substances which are specified in EM-S303.



H/W Thermal Protect

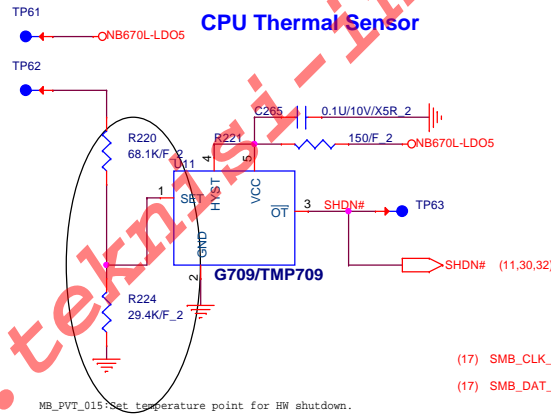
CPU Thermal Sensor



MB_PVT_015:Set temperature point for HW shutdown.

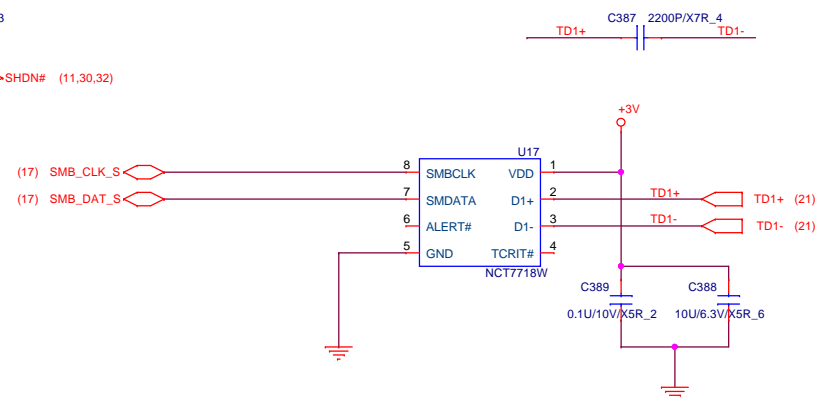
$$RSET(k\Omega) = 0.0012T2 - 0.9308T + 96.147$$

57	47K
80	29.4K
107	10.3K
110	8.2K



MB_PVT_015:Set temperature point for HW shutdown.

H/W Thermal sensor



UMA SKU

Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp		R223=10K		105	105
Near AUDIO sensor temp		R224=10K		105	105

This part should not contain any substances which are specified in EM-S303.



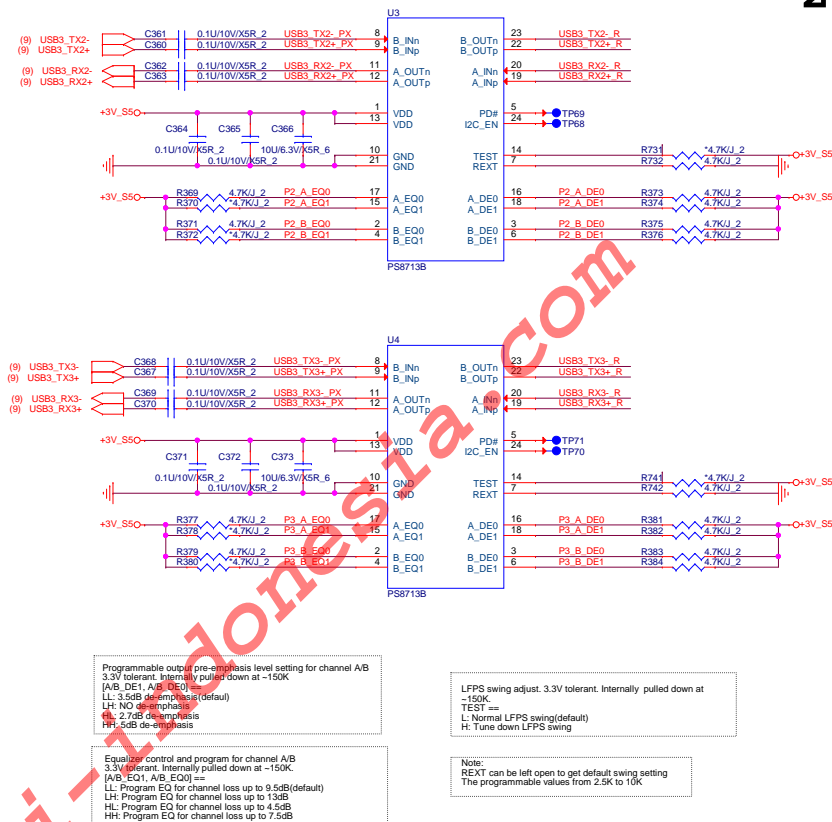
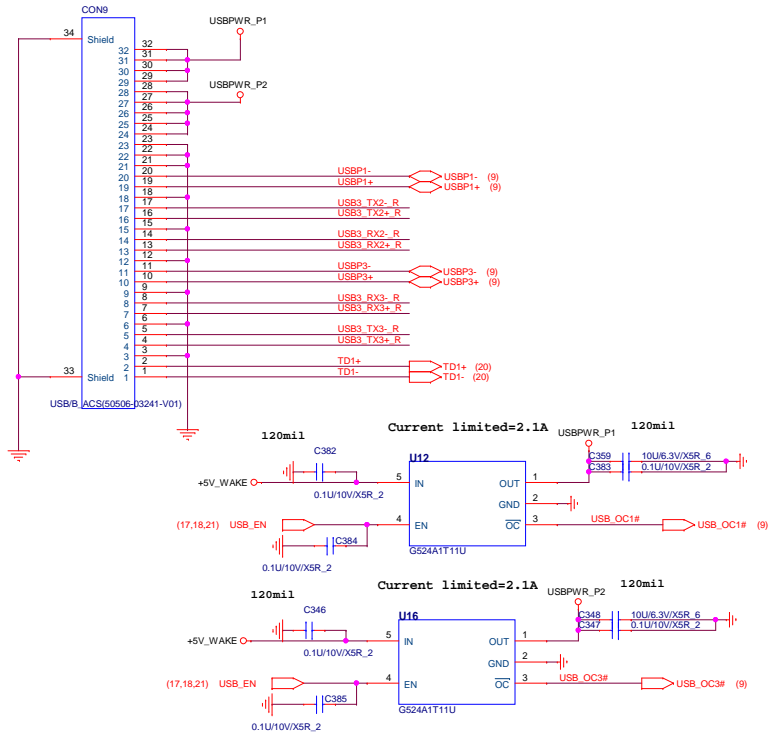
Quanta Computer Inc.

PROJECT : MS8

HDMI/Thermal IC

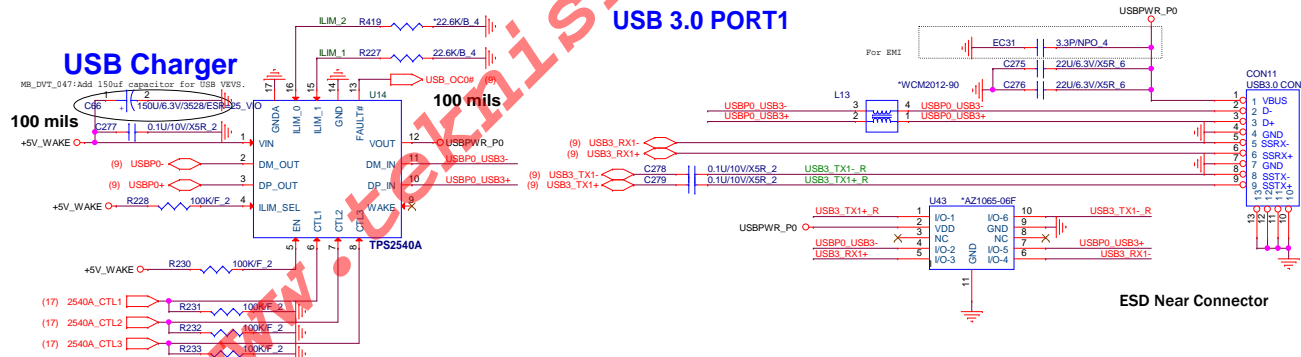
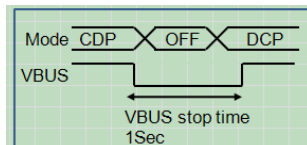
Size	Document Number	Rev
		2A

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	TPS2540A		
ILIM_SEL	Pin15	Pin16	
High	V		
Low		V	

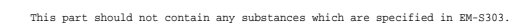
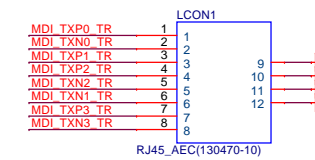
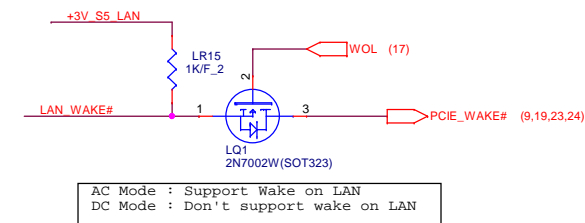
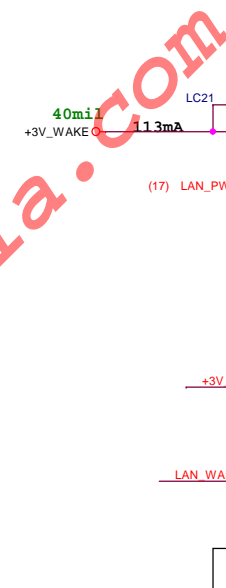
SDP : Standard Downstream Port
CDP : Charging downstream port
DCP : Dedicated Charging Port
Enable/Disable : setting by BIOS



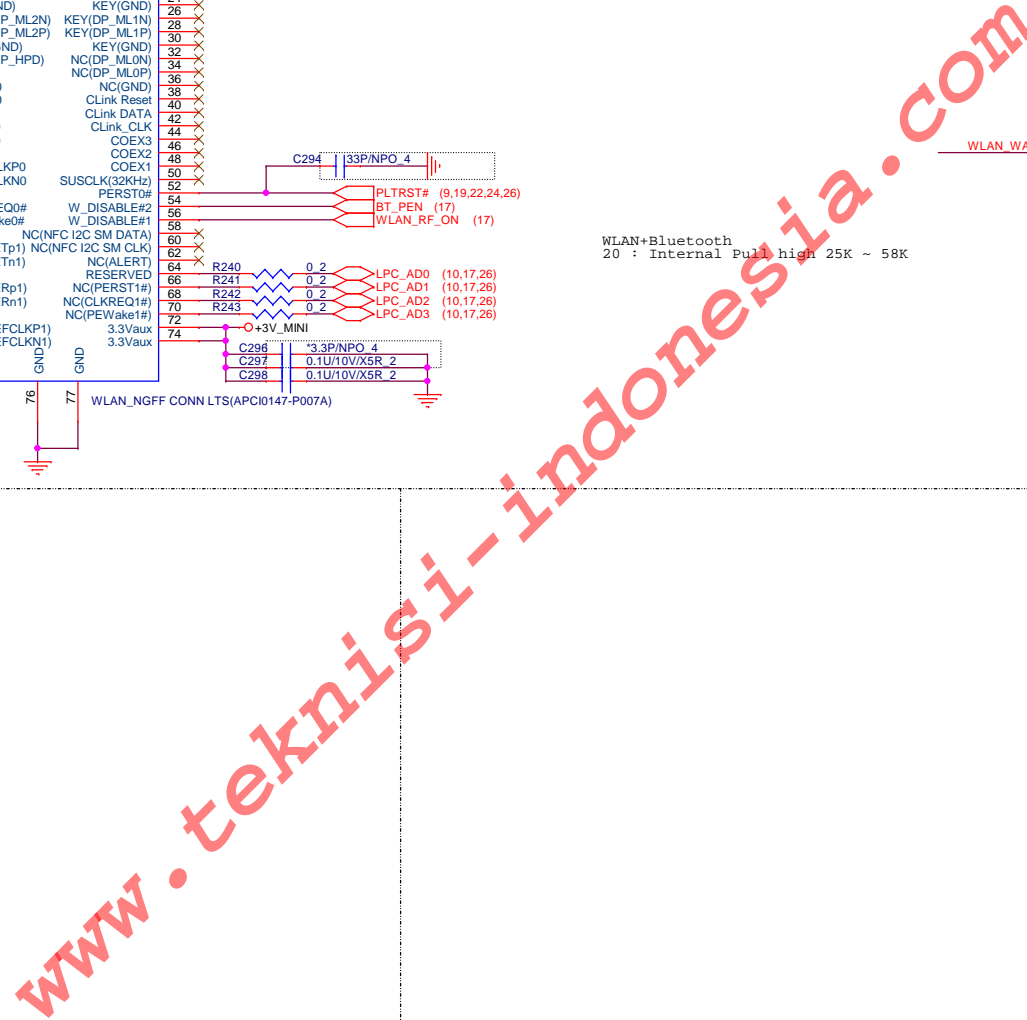
CTL_1	CTL_2	CTL_3	TPS 2540A Truth Table
0	0	0	OUT discharge, power switch OFF
0	X	1	DCP, Auto-detect (S3/S4/S5, 1.5A)
X	1	0	SDP, USB2.0 mode (S0, 0.5A)
1	0	0	DCP, BC SPEC1.2 only (S3/Deep standby/S4/S5, 1.5A)
1	0	1	DCP, Divider mode only (S3/S4/S5, 1.5A)
1	1	1	CDP (S0, 1.5A)

System State	USB Battery Charging Setting			
	Disable	C(1 2 3)	Enable	C(1 2 3)
S0	SDP	(X 1 0)	CDP	(1 1 1)
S3	SDP	(X 1 0)	DCP BC	(1 0 0)
DS3	Charger OFF	(0 0 0)	DCP BC	(1 0 0)
S4	Charger OFF	(0 0 0)	DCP BC	(1 0 0)
S5	Charger OFF	(0 0 0)	DCP BC	(1 0 0)

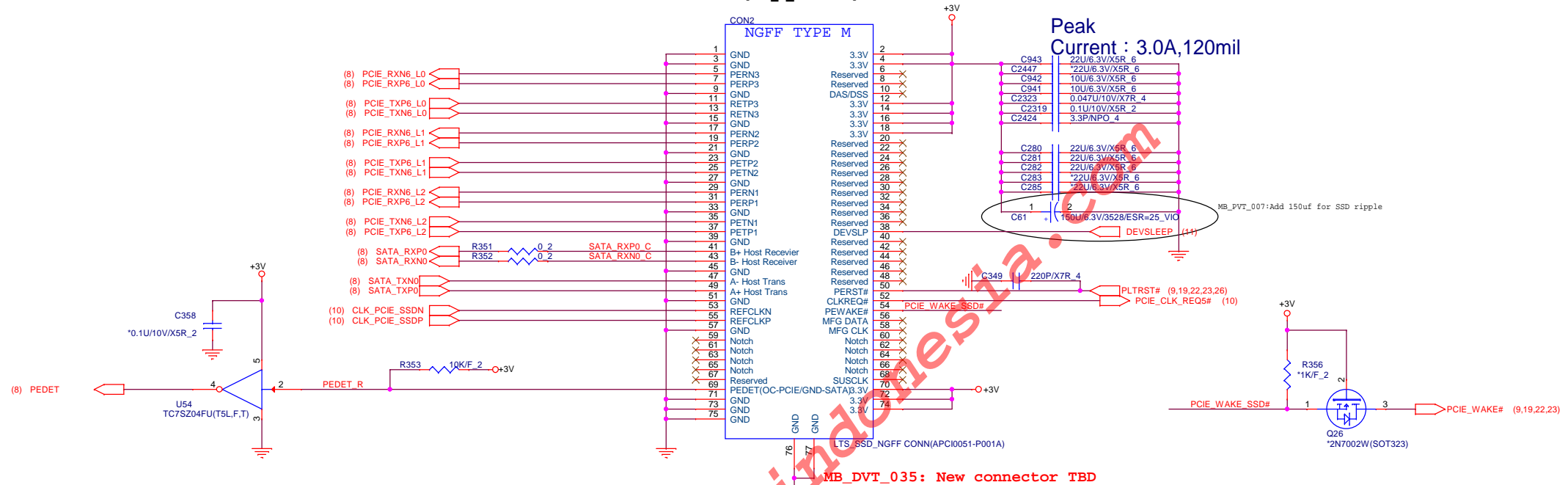
ILIM_SEL (I LIMIT(A)= 48000/R)		
HI	I_LIM_1	
LO	I_LIM_0	48000/22.6K=2.123A



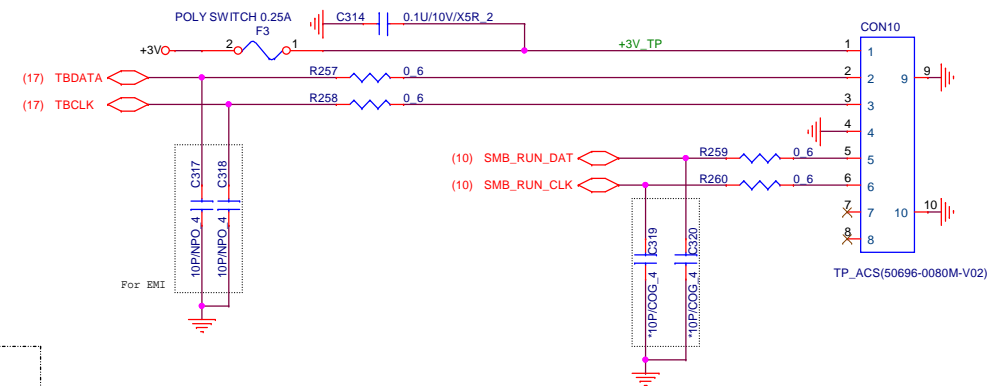
Size	Document Number	Rev
	Giga LAN RTL8111GS	2A
Date:	Wednesday, December 24, 2014	Sheet 22 of 36



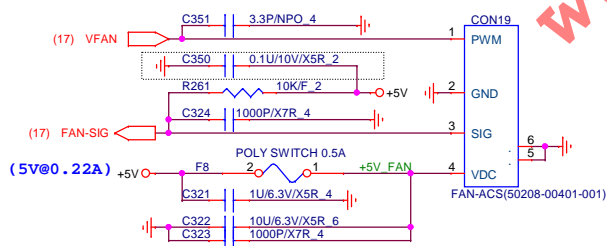
SSD CONNECTOR (Type M)



T/P Board to T/P



MAIN FAN



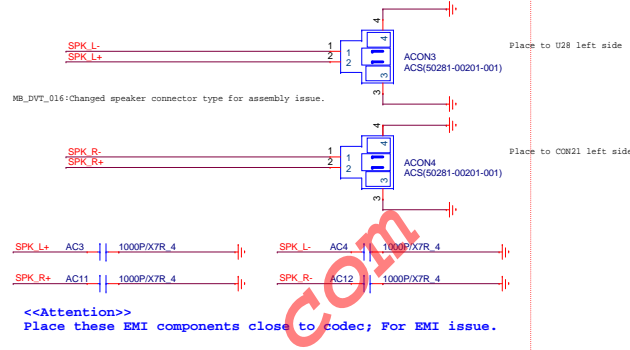
Pin No.	Signal	Note	Lead Color
1	PWM	---	WHITE
2	GND	---	BLACK
3	SIG	FG OUT (2Pulses/rev) (Open Collector)	GRAY
4	VDC	+5V	RED

This part should not contain any substances which are specified in EM-S303.

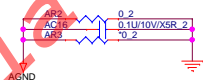


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PROJECT : MS8

SPEAKER CON. SPK L+ L- R+ R- trace width
Speaker 4 ohm ==> 40 mils

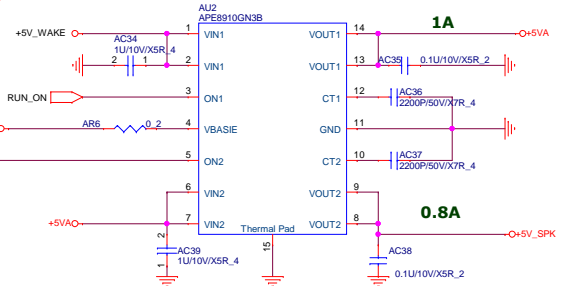


For EMI



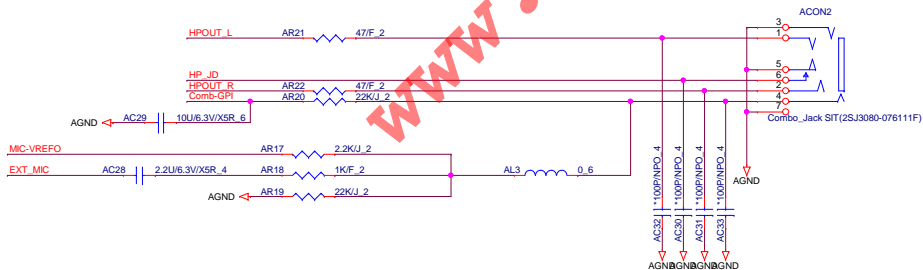
Analog

Digital



	DC_DET
Assert	Floting
De-assert	Pull down to GND

Combo Jack



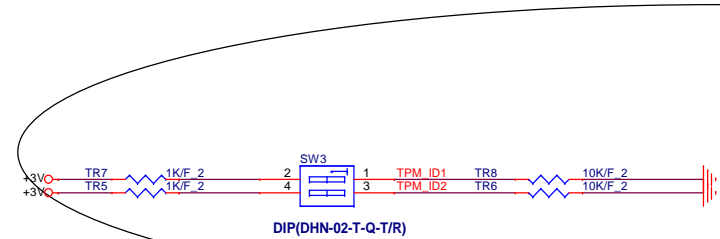
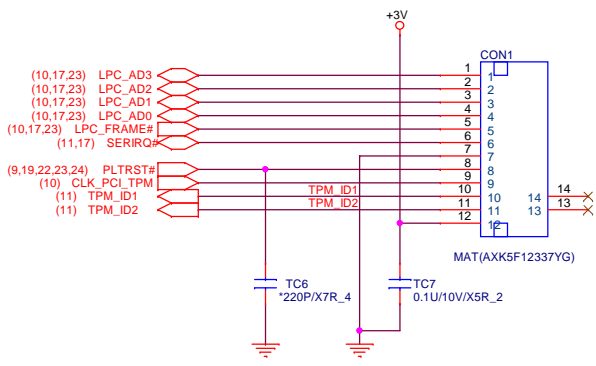
This part should not contain any substances which are specified in MM-6303.

TPM BTB

TPM

MB_PVT_005:Remove TPM circuits on motherboard.

MB_PVT_021:Define TPM configuration



MB_PVT_006:Add TPM Switch for TPM version.

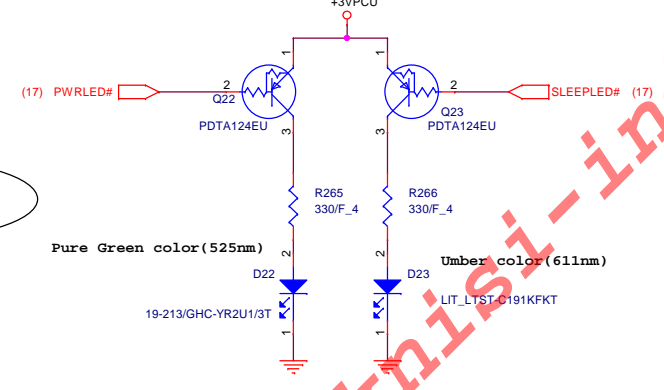
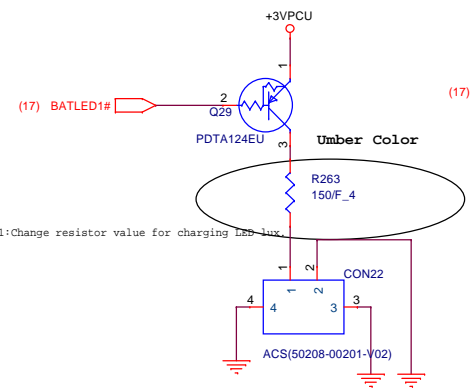
TPM_ID1	FW_VER
0	V1.2
1	V2.0

TPM_ID2	FW_VER
0	W/O TPM
1	W TPM

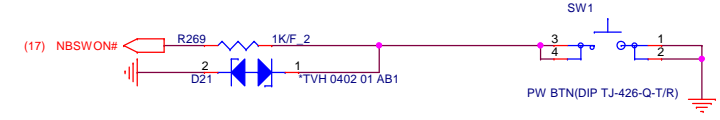
BATTERY LED

TPM BTB

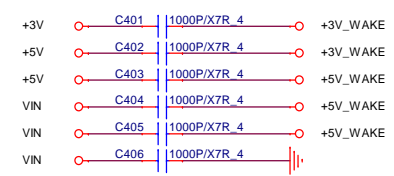
Power/Sleep LED



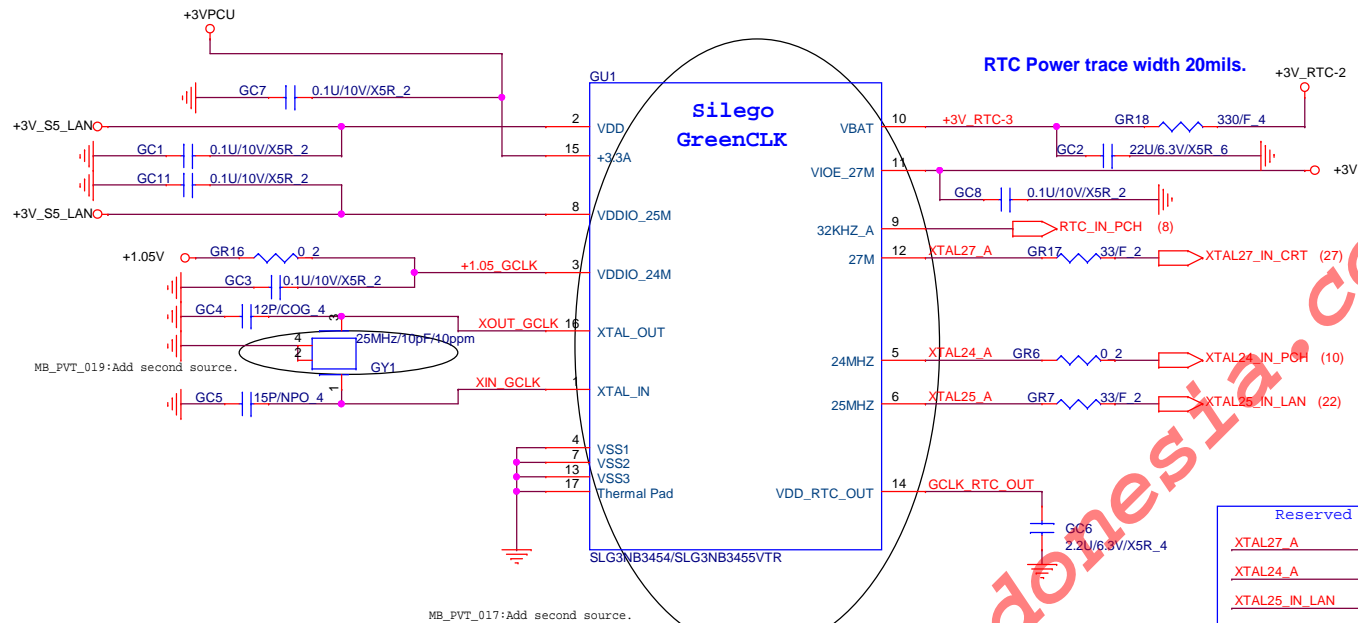
Power SW



Cross Power Plane Capacitors



This part should not contain any substances which are specified in EM-S303.



MB_PVT_017: Add second source.

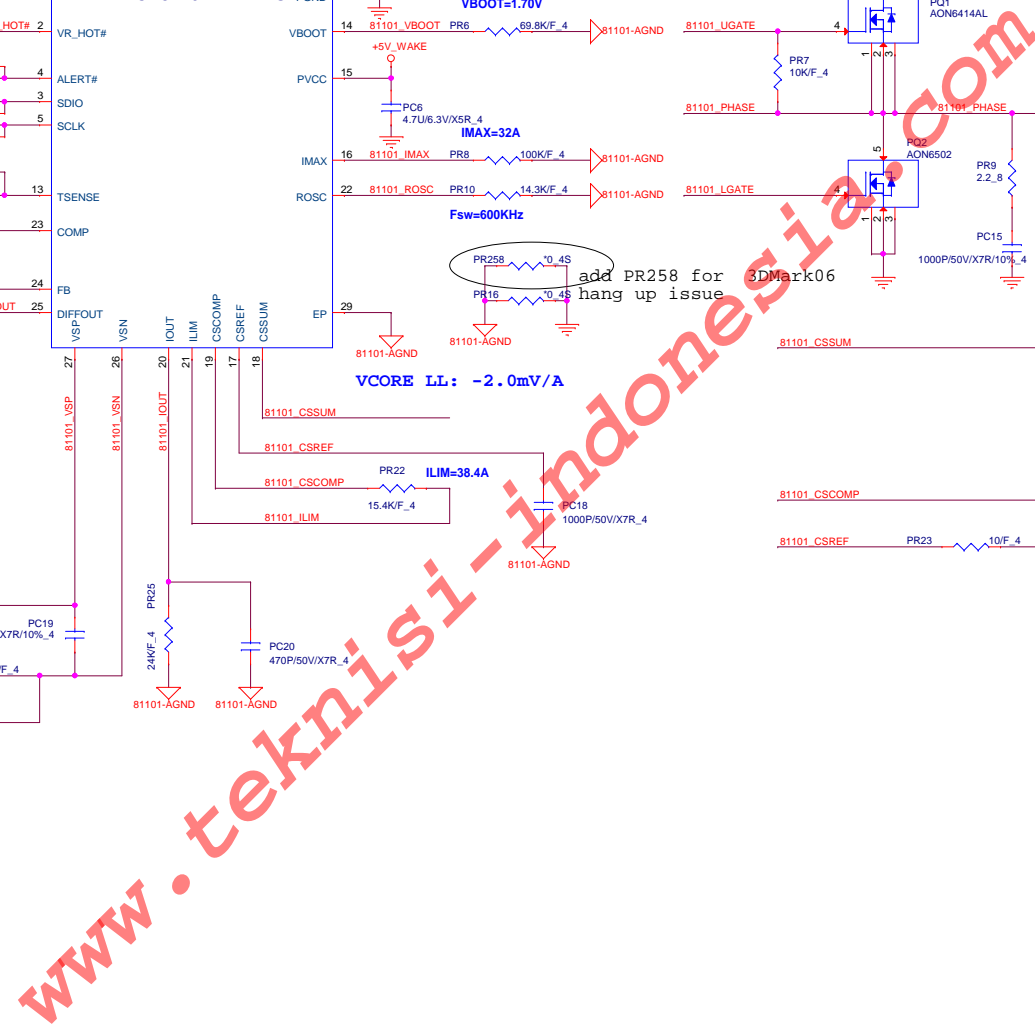
This part should not contain any substances which are specified in EM-S303.

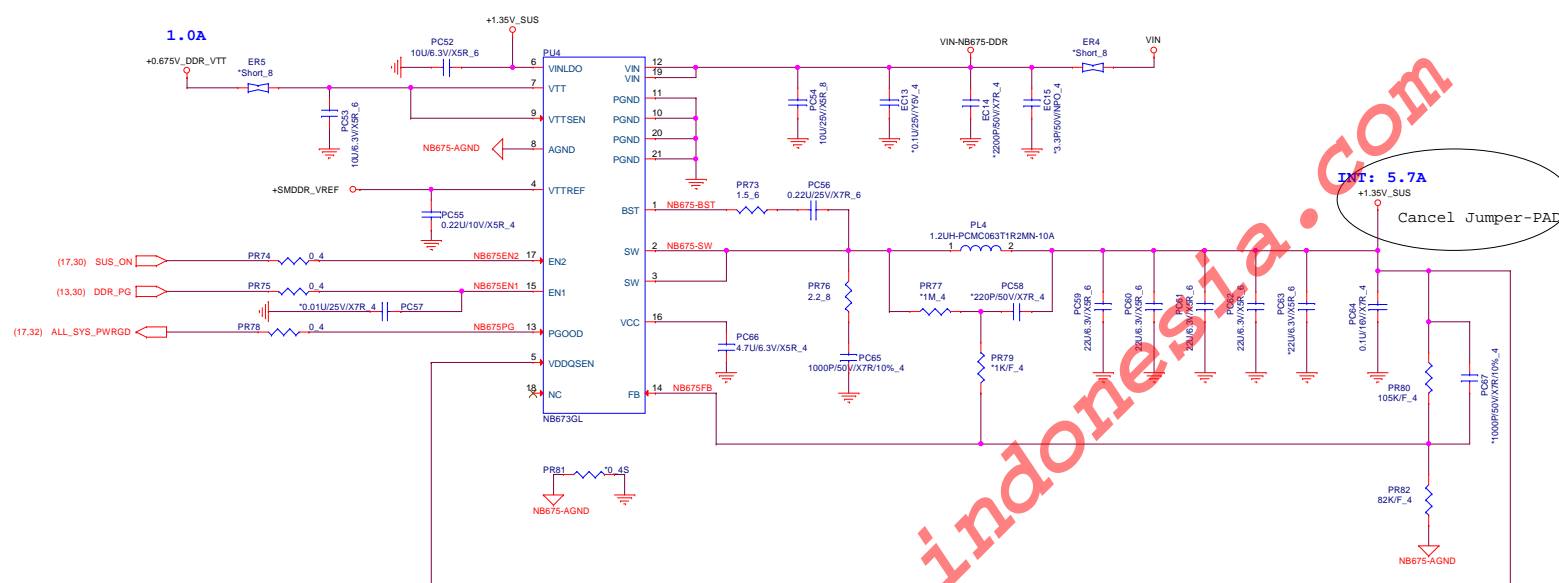


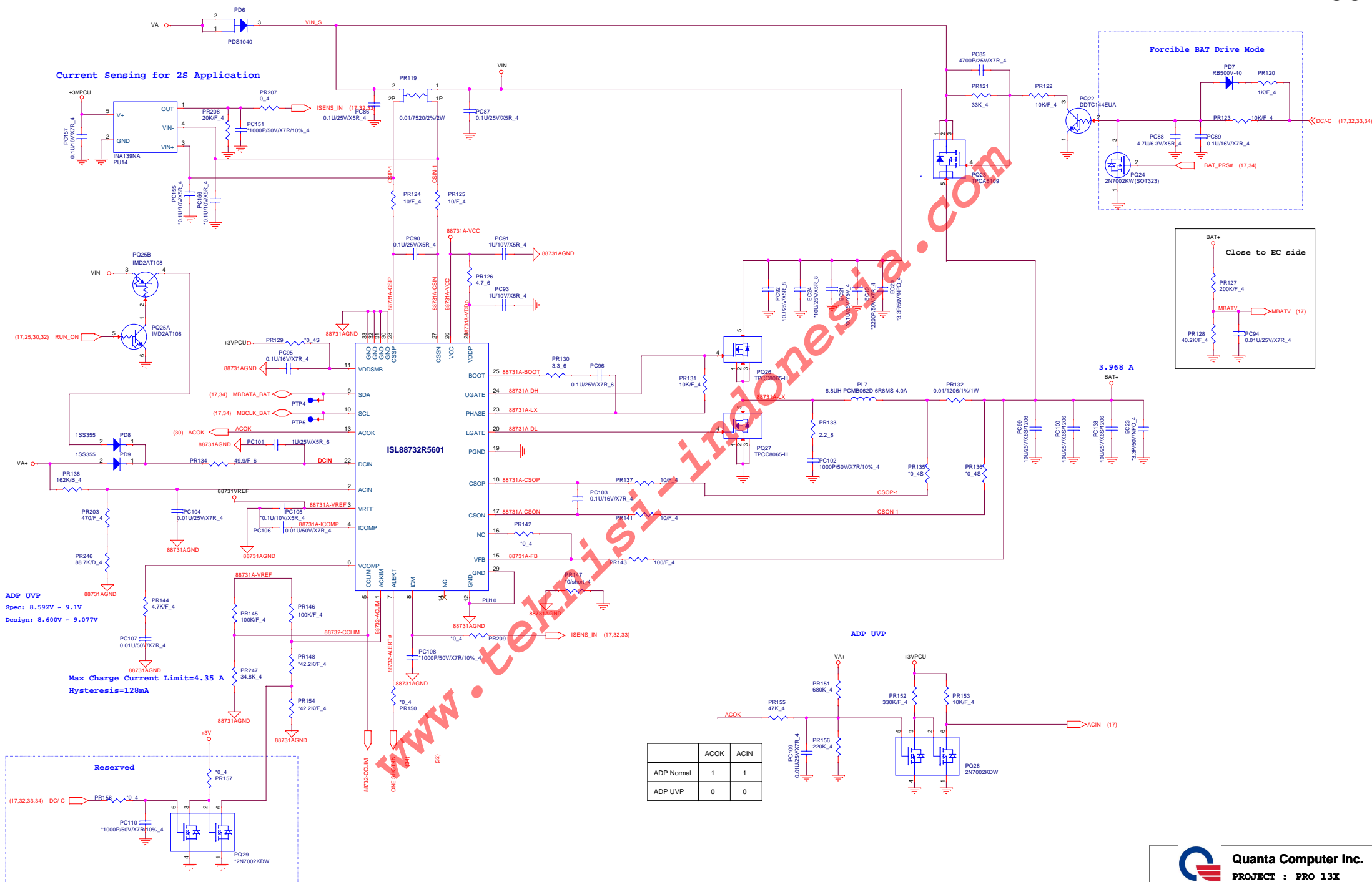
Quanta Computer Inc.

PROJECT :

Size	Document Number	Rev
	GreenCLK(SLG3NB3454)	2A
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HSW Power-Up Sequencing



SM BUS	MBCLK/MBDATA	WRITE	READ	Function
ISL88731CHRTZ	0001 001X	0001 0010	0001 0011	Charger
LIS331DL	0011 101X	0011 1010	0011 1011	G Sensor

SM BUS	MBCLK_BAT/MBDATA_BAT	WRITE	READ	Function
VGP-SPS35A	0001 011X	0001 0110	0001 0111	Battery

SM BUS	SMB_PCH_CLK/SMB_PCH_DAT	WRITE	READ	Function
DIMM Module0	1010 000X	1010 0000	1010 0001	DDRIII
DIMM Module 1	1010 010X	1010 0100	1010 0101	DDRIII
Synaptics	0010 110X	0010 1100	0010 1101	Click PAD

Not support "DC only"

OS status	S0	S3	DS3	(Soft OFF)	(Soft OFF)	(Soft OFF)	(Soft OFF)	(Soft OFF)
H/W status	S0	S3	DS3	S4 (Win8 off) RTC wake Enable WLAN Enable	S4 (Win8 off) RTC wake Disable WLAN Disable	S5 Charge Enable	S5 Charge Disable Wol Disable	S5 Wol Enable
RUN_ON	H	L	L	L	L	L	L	L
+3V	H	L	L	L	L	L	L	L
+5V	H	L	L	L	L	L	L	L
+0.675V_DDR_VTT	H	L	L	L	L	L	L	L
+1.5V	H	L	L	L	L	L	L	L
+1.05V	H	L	L	L	L	L	L	L
+VCC_CORE	H	L	L	L	L	L	L	L
SUS_ON	H	H	H	L	L	L	L	L
+1.35V_SUS	H	H	H	L	L	L	L	L
S5_ON	H	H	L	H	L	L	L	H
+5V_S5	H	H	L	H	L	L	L	H
+3V_S5	H	H	L	H	L	L	L	H
EC_WAKE_ON	H	H	H	H	L	H	L	H
+3V_WAKE	H	H	H	H	L	H	L	H
+5V_WAKE	H	H	H	H	L	H	L	H
DEEP_EC_EN	H	H	H	H	L	L	L	L
+3V_S5_DSW	H	H	H	H	L	L	L	L

SATA BUS
PORT 0 HDD
PORT 1 N/A
PORT 2 N/A
PORT 3 N/A
PORT 4 ODD
PORT 5 N/A

PCIe BUS
PORT 1 WLAN Port
PORT 2 CARD READER
PORT 3 GLAN(RTL811G)
PORT 4 N/A
PORT 5 N/A
PORT 6 N/A
PORT 7 N/A
PORT 8 N/A

USB PORT Architecture
PORT 0 USB3.0
PORT 1 USB3.0
PORT 2 USB2.0
PORT 3 USB2.0
PORT 4 N/A
PORT 5 N/A
PORT 6 N/A
PORT 7 N/A
PORT 8 N/A
PORT 9 WiMax/BT
PORT 10 Camera
PORT 11 Card Reader
PORT 12 Touch Screen
PORT 13 N/A

This part should not contain any substances which are specified in EN-6303.

