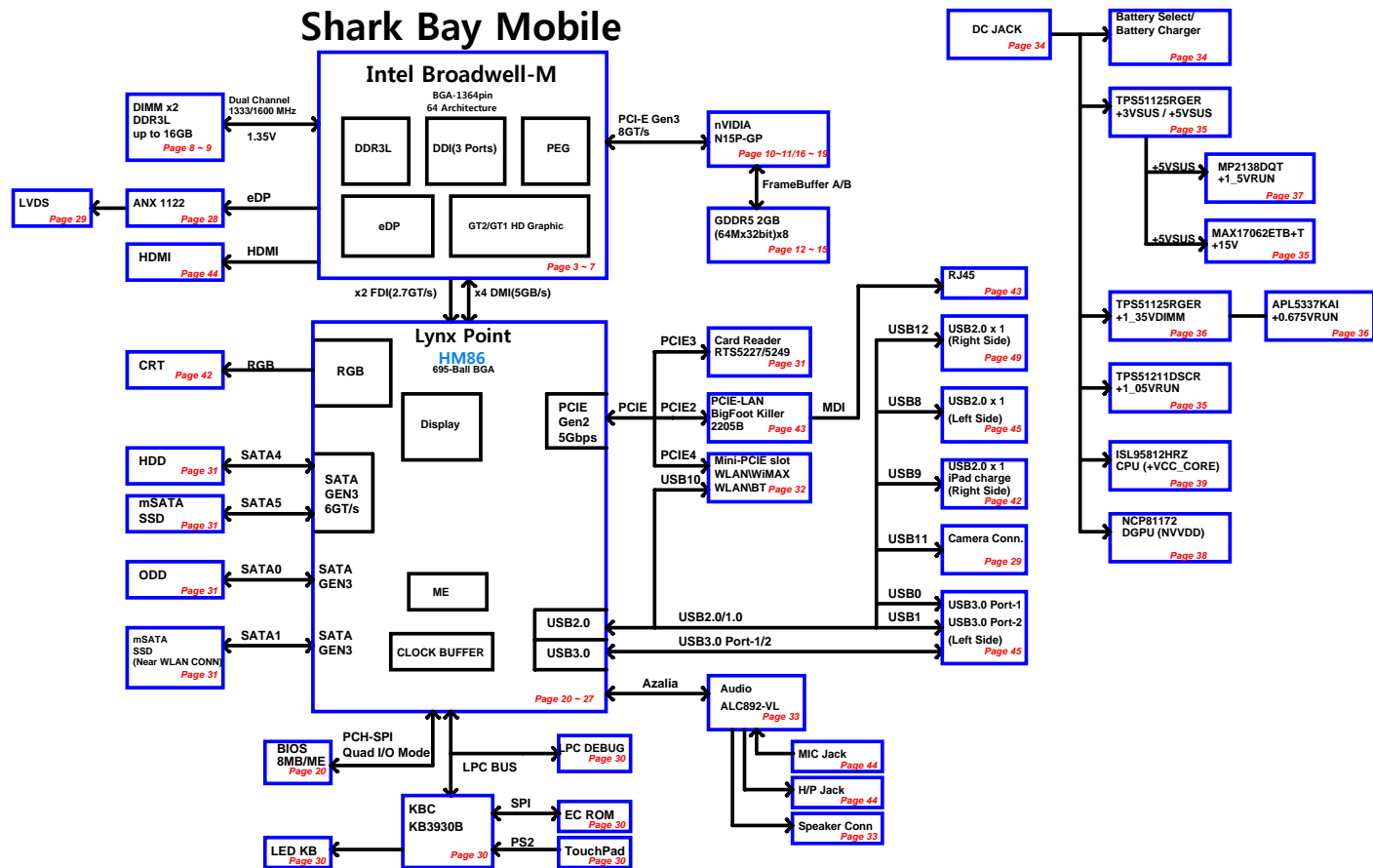


Shark Bay Mobile



SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

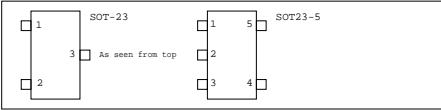
Voltage Rails

Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
+5VALW	5.0V always on power rail	PWR_SRC
+3VALW	3.3V always on power rail	PWR_SRC
+5VSUS	5.0V power rail	SUS_ON
+3VSUS	3.3V power rail	SUS_ON
+1_35VDIMM	1.35V DDR3L power rail (off in S4-S5)	PM_SLP_S4#
+0_675VRUN	0.675V DDR3L Termination voltage (off in S3-S5)	PM_SLP_S3#
+5VRUN	5.0V switched power rail (off in S3-S5)	PM_SLP_S3#
+3VRUN	3.3V switched power rail (off in S3-S5 / M0)	PM_SLP_S3#
+1_5VRUN	1.5V switched power rail (off in S3-S5)	PM_SLP_S3#
+VCC_CORE	1.8V Core Voltage for Processor	VR_ON
+1_05VRUN	1.05V rail for Processor	PM_SLP_S3#
NVVD	0.6-1.2V(VBoot:0.9V)Core Voltage for nVIDIA N14E-GE DGPU	GPIO11_GPUVID
+3V3_NV	3.3V GPU I/O power rail (off in Optimus OFF)	DGPU_PWR_EN#
FBVDDQ	1.35V FB / GDDR5 power rail (off in Optimus OFF)	GPU_PWRGD
PEX_VDD	1.05V PLL power rail (off in Optimus OFF)	GPU_PWRGD

Net Naming Conventions

Suffix
= Active Low Signal
Prefix
H = Host
M = DDR Memory
TP = Test Point (does not connect anywhere else)

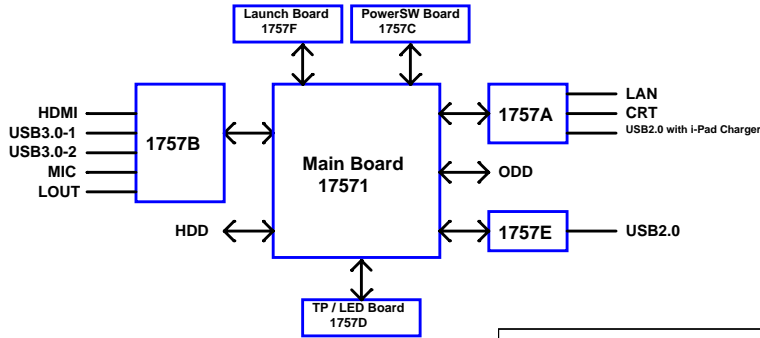
PCB Footprints



POWER STATES

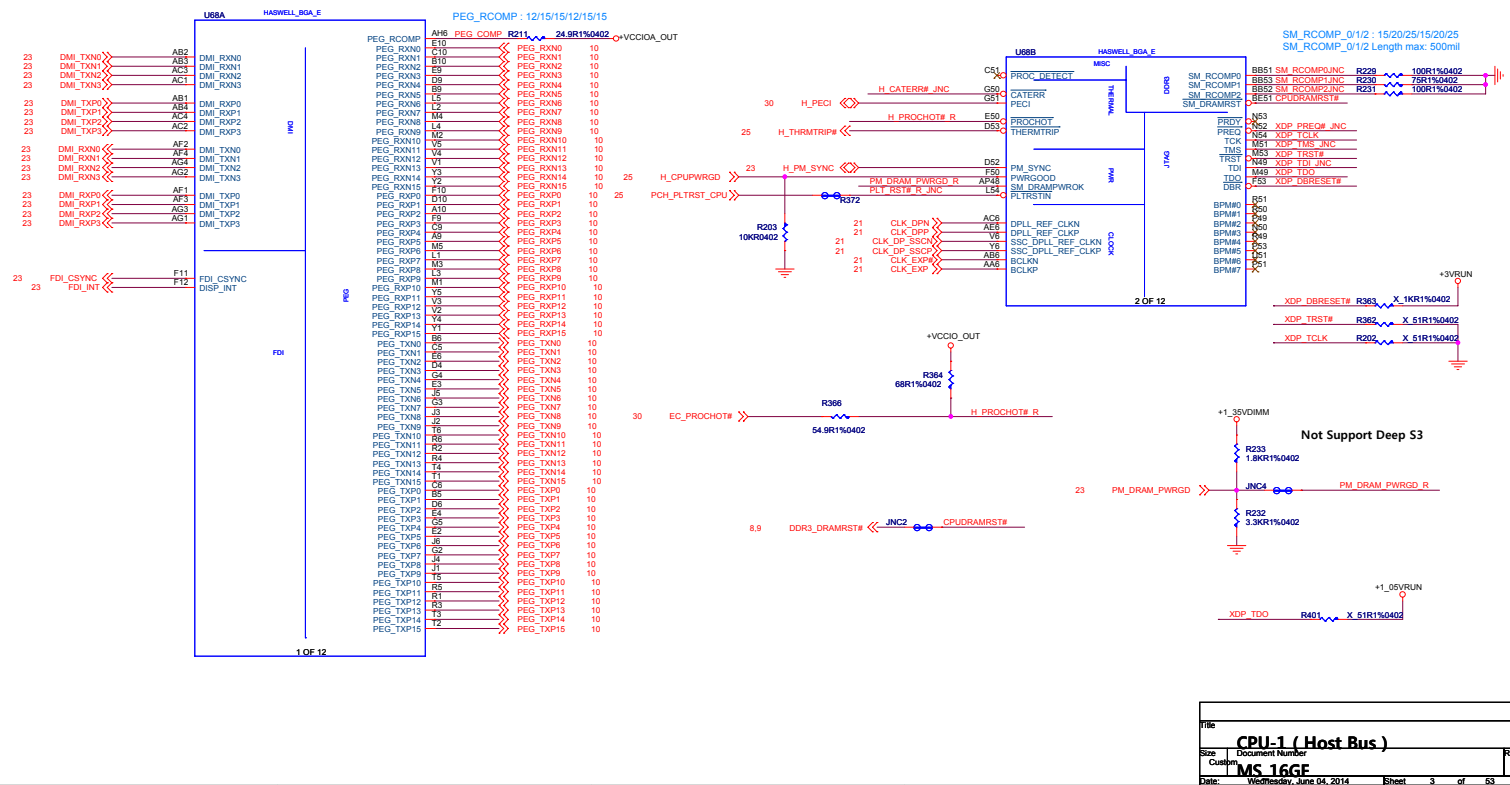
STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALW	+V*SUS	+V*VRUN	Clocks
S0(Full ON)	HIGH	HIGH	HIGH	ON	ON	ON	ON
S3(Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4(Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	ON	OFF	OFF	OFF

Note : WHEN AC MODE , System turn on then +V*SUS will always keep high



File	Platform	
Size	Document Number	Rev
Cust	MS 16GE	10
Date	Wednesday, June 04, 2014	Sheet 2 of 53

Haswell (CLK,MISC,JTAG)

SM_RCOMP_0/1/2 : 15/20/25/15/20/25
SM_RCOMP_0/1/2 Length max: 500mil

Haswell (DDR3L)

SODIMM#B

SODIMM#A

HASWELL_BGA_E

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

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U88Z

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U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

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U88A

U88B

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U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

U88U

U88V

U88W

U88X

U88Y

U88Z

U88A

U88B

U88C

U88D

U88E

U88F

U88G

U88H

U88I

U88J

U88K

U88L

U88M

U88N

U88O

U88P

U88Q

U88R

U88S

U88T

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U88C

U88D

U88E

U88F

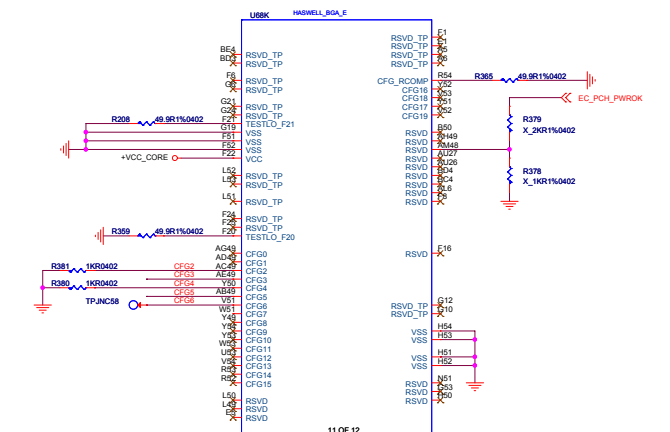
U88G

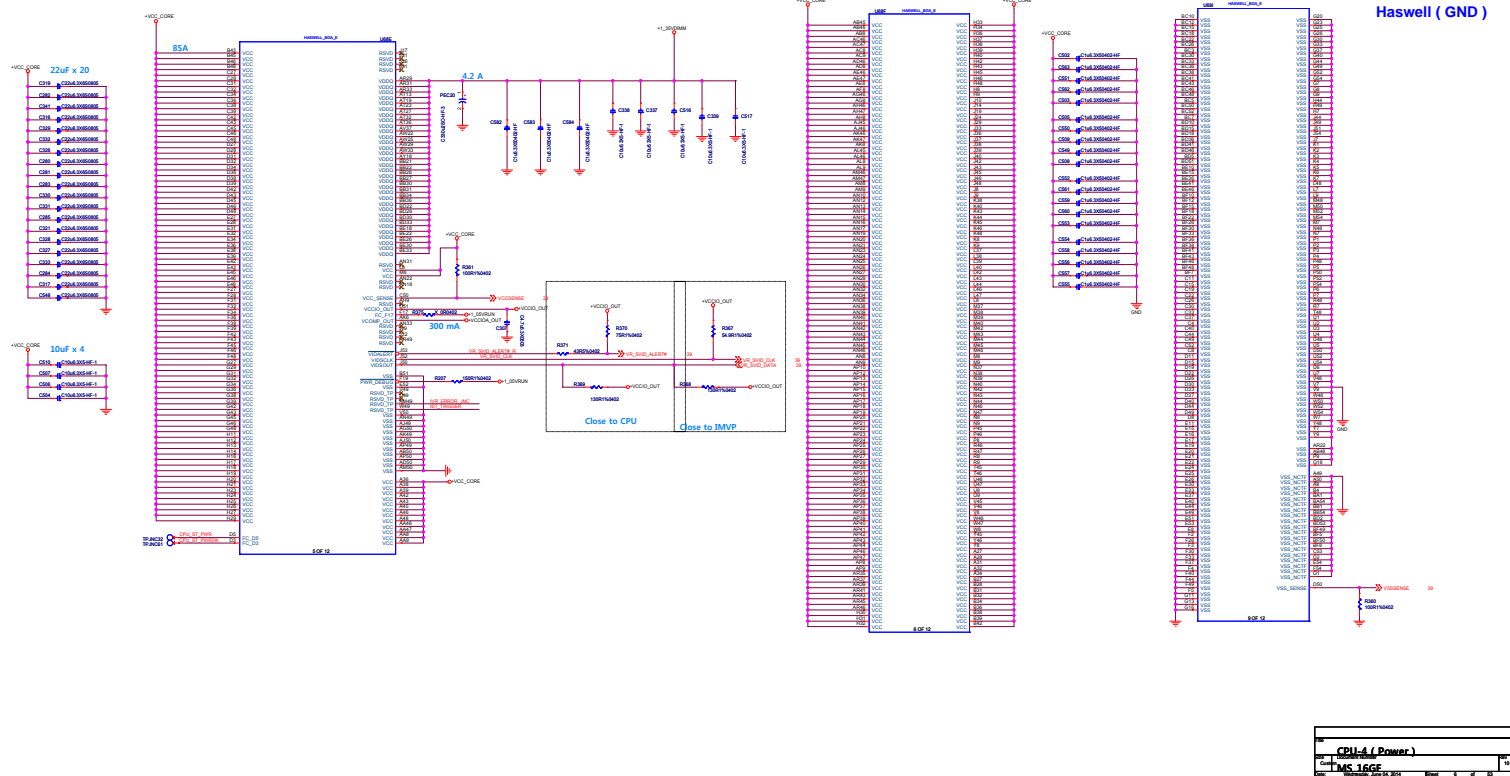
U88H

U88I

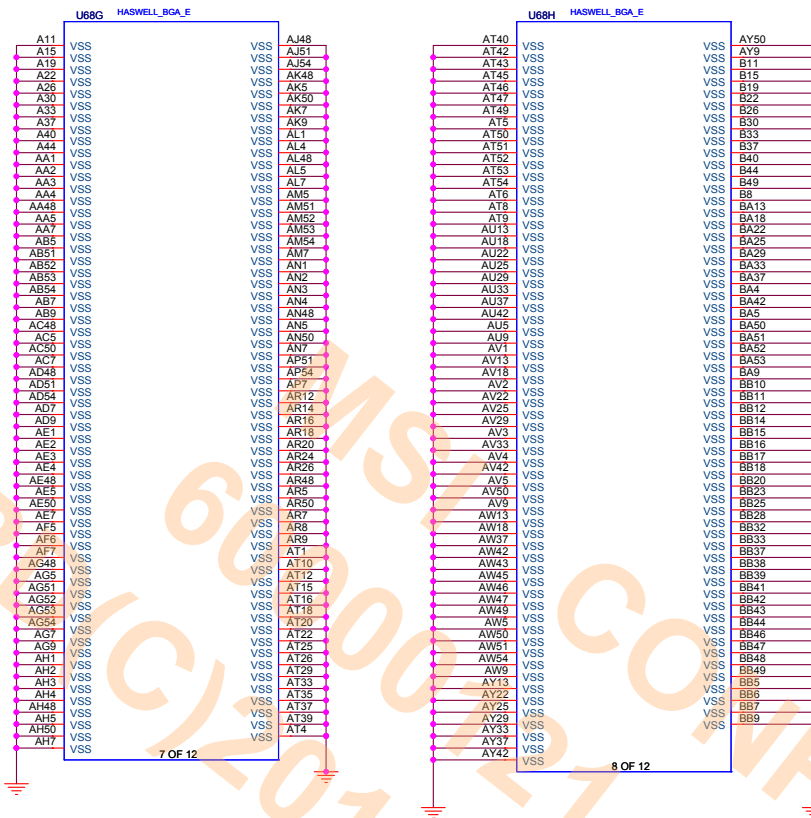
U88J

Haswell (Reserved)

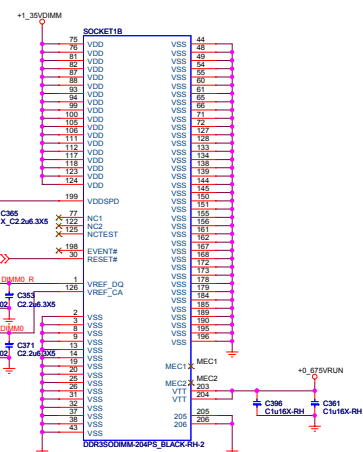
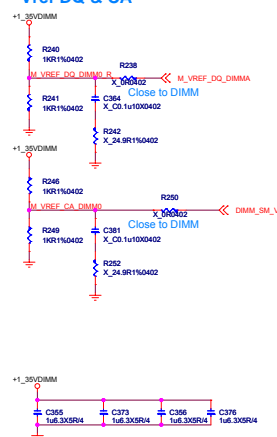
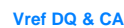
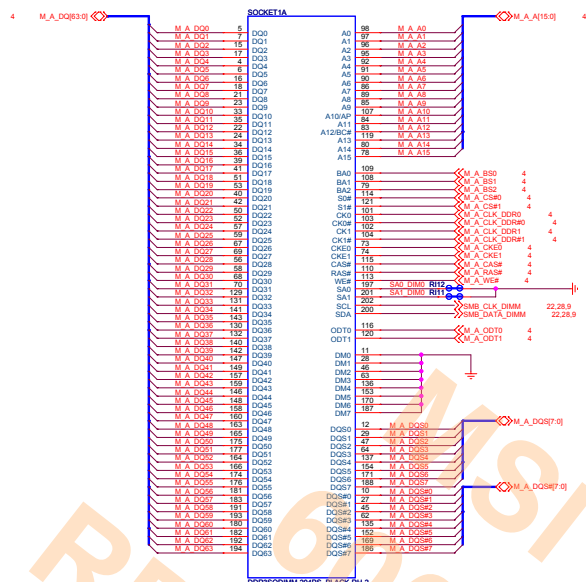




Haswell (GND)

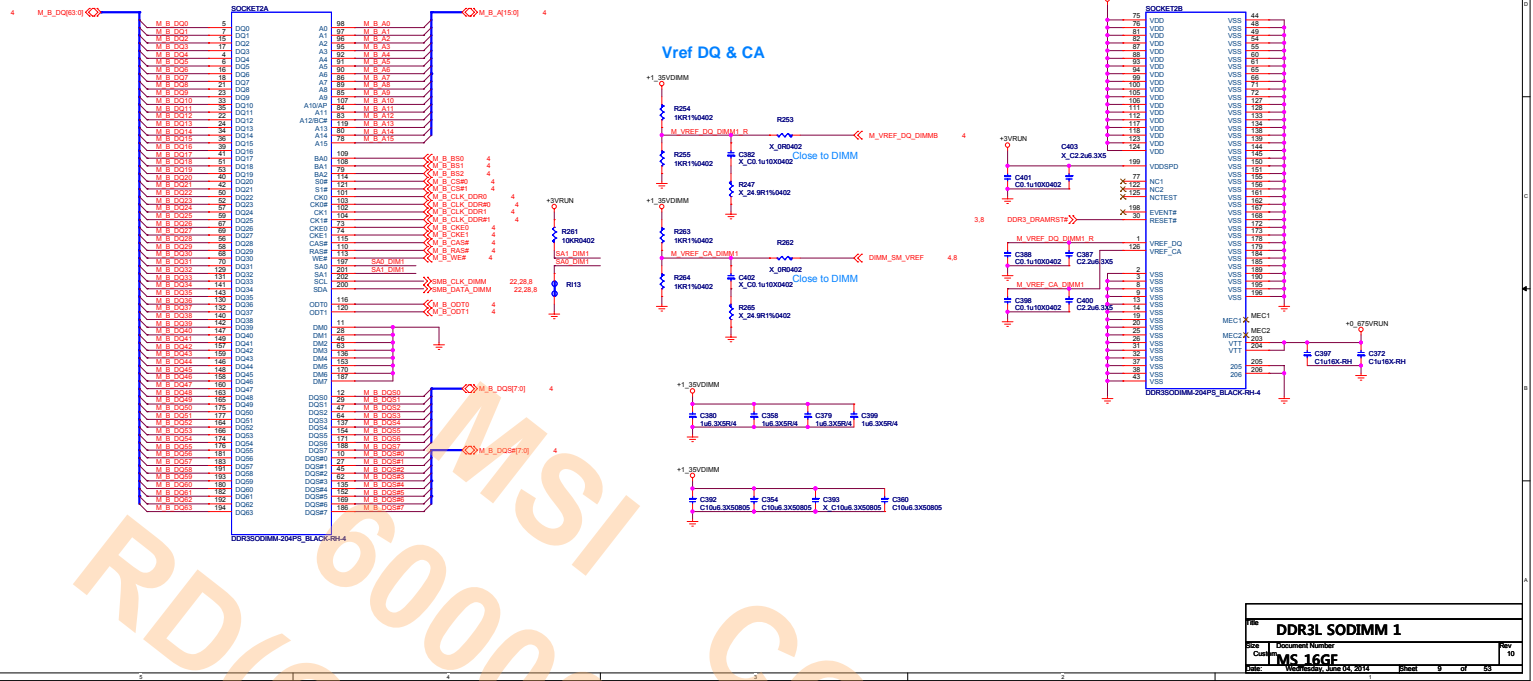


Title		
CPU-5 (GND)		
Size	Document Number	Rev
Custom	MS 16GE	10
Date	Wednesday, June 04, 2014	Sheet 1 of 53

SODIMM#A

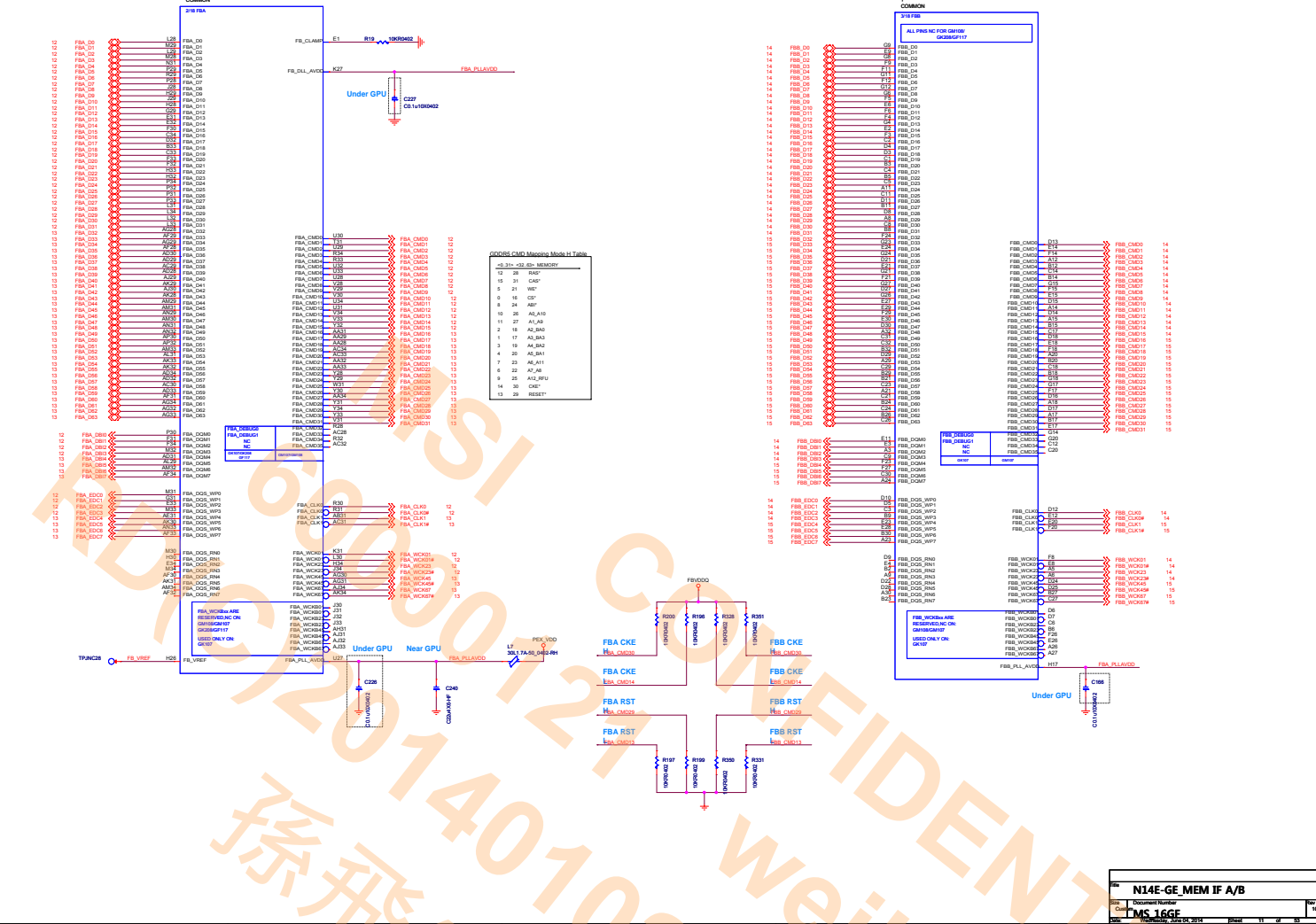
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Size	Document Number				
Custom	MS 16GE				
Date: 2014-04-20 14:04		Version: 0.0		Page: 1 of 1	

SODIMM#B



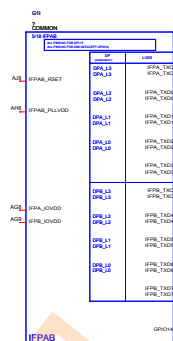
DDR3L SODIMM 1			
Doc	Document Number		Rev
MSI	MSI 166F		10
Date	Wednesday, June 04, 2014	Sheet	9 of 55

N14E-GE(Frame Buffer Interface)

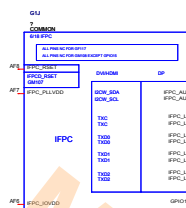


N14E-GE(Display IF)

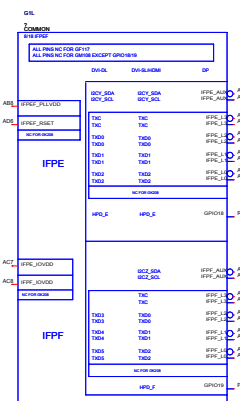
IFP A/B LVDS Dual Link



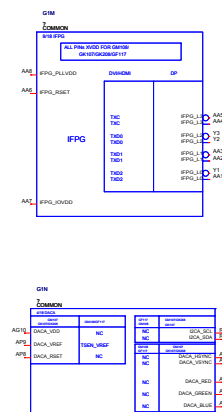
IFP C Native HDMI OR DP

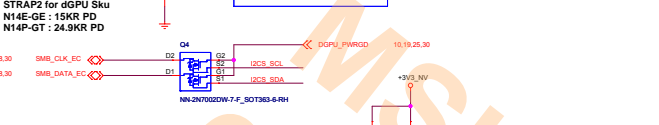
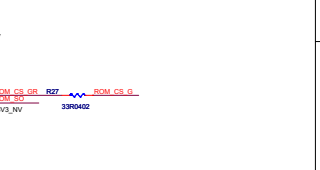
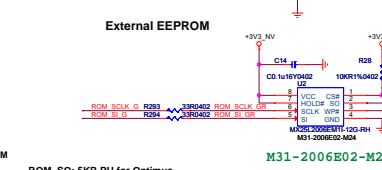
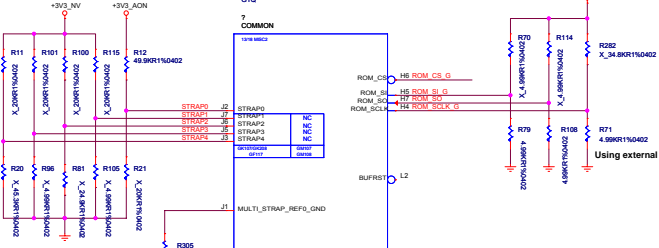
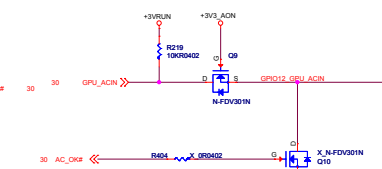
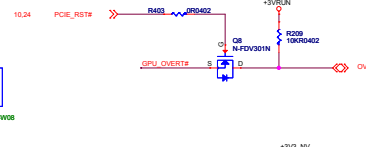
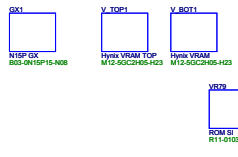


IFP E/F Dual Link TMDS DVI-I



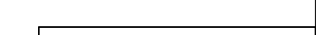
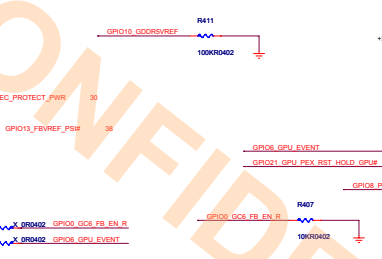
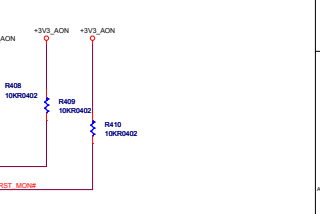
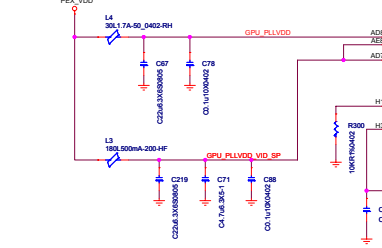
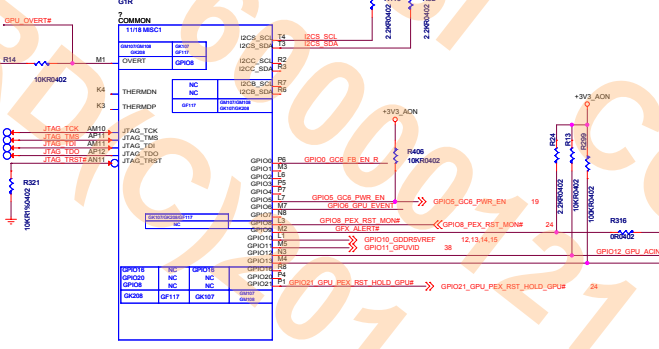
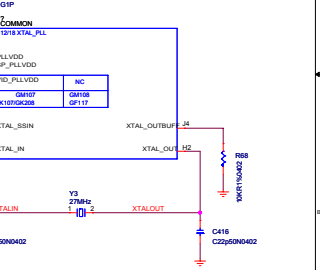
DAC A VGA





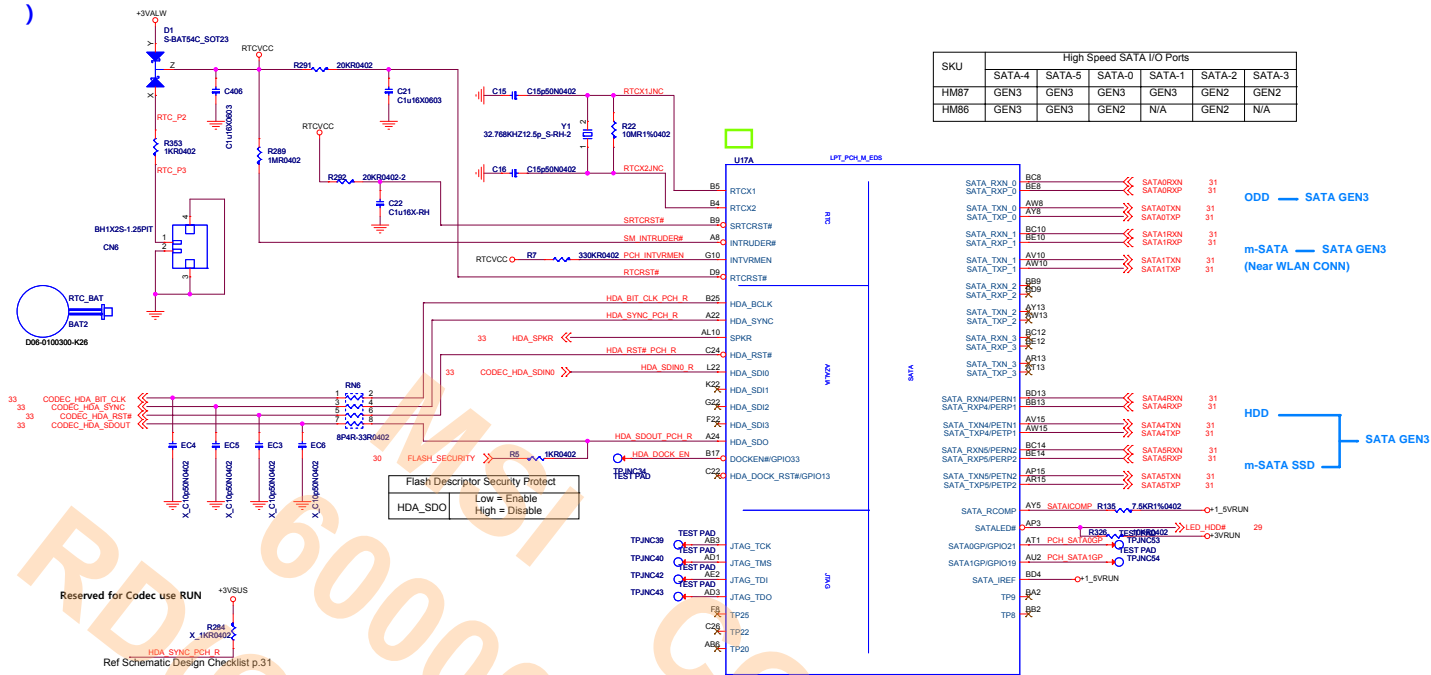
External EEPROM

ROM, SO: 5KR PU for Optimus
 ROM, SI for VRAM BOM Option
 Hynix VRAM : 34.5KR PD
 Samsung VRAM : 45.3KR PD
 Hynix GDDR5 : M12-5GQ2H85-H2
 Samsung GDDR5 : M12-2032565-S02



File	N14E-GE Thermal & GPIO
Size	Document Number
Class	MS 166F
Date	Ver: 1.0, June 24, 2014
Sheet	17 of 53

Lynx Point (HDA,JTAG,SATA)



File	PCH-1 (HDA/JTAG/SATA)	
Size	Document Number	Rev
Cur	MS 166E	10
Date	Wednesday, June 04, 2014	Sheet 20 of 83

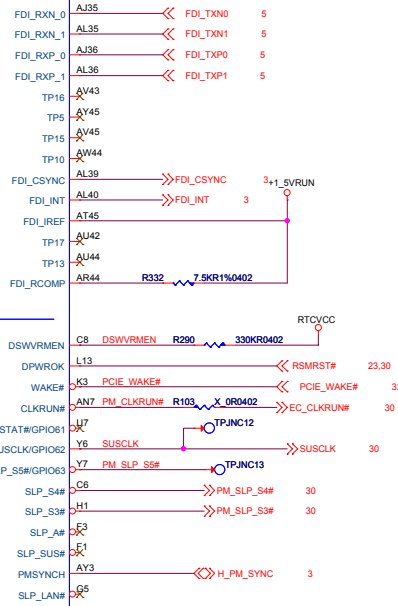
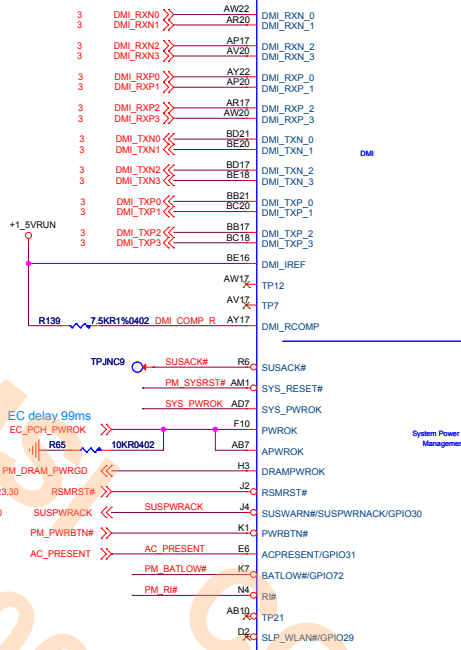
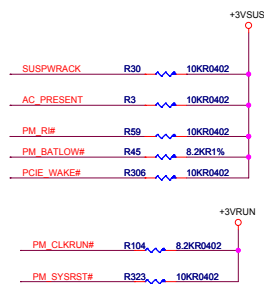
CONFIDENTIAL

weilu(盧偉)

客戶服務部

孫飛(60010839)

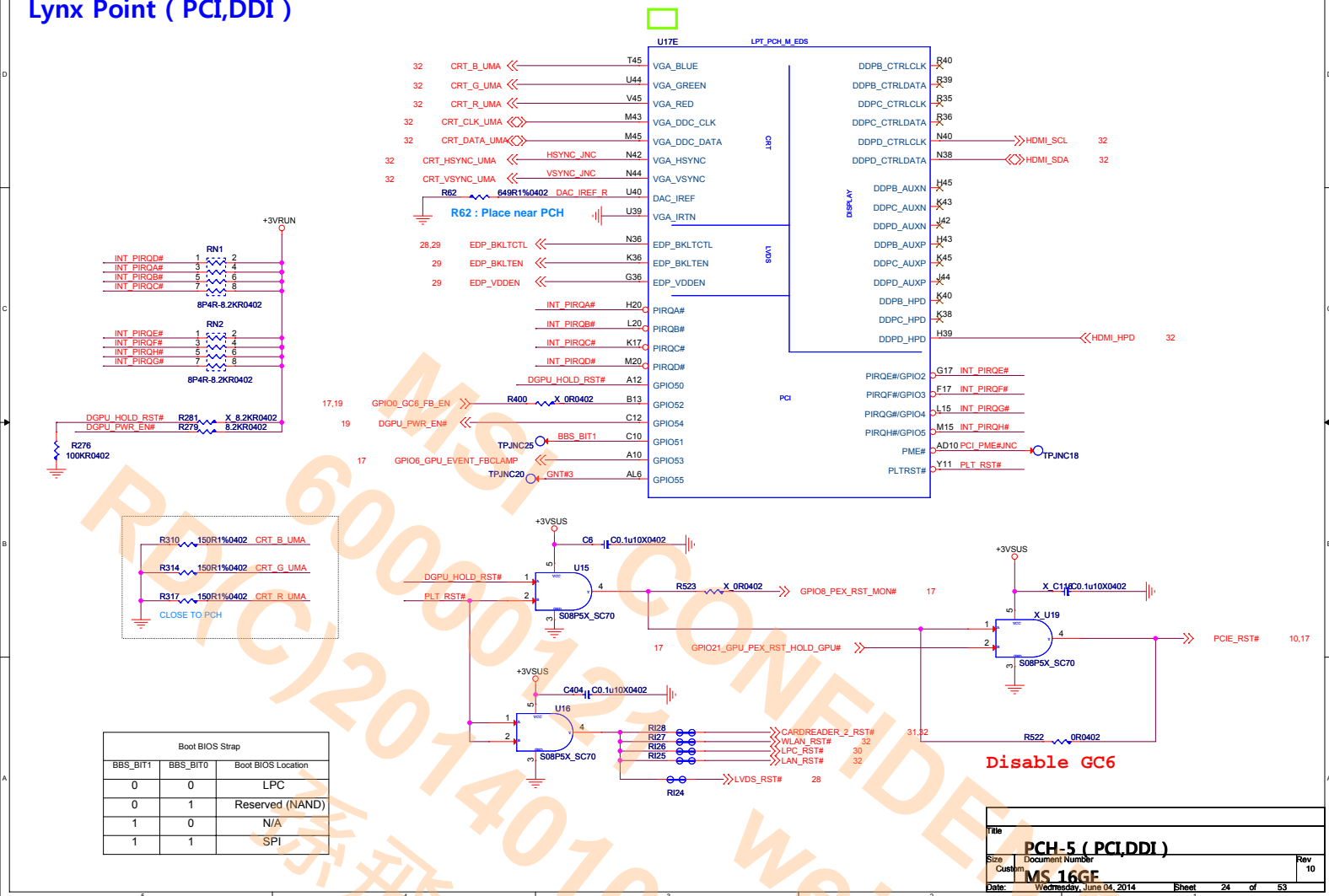
Lynx Point (DMI,FDI)



APWROK not supporting Intel AMT , it can be connected to PWROK
GPIO31 : If not used,require pull up +3VSUS
DSWODVREN - On Die DSW VR Enable HIGH : Enable internal 1.05V regulator LOW : Disable
DPWROK Without deep s4/s5 support tied together with RSMRST#

File	PCH-4 (DMI,FDI)		
Size	Customer	Document Number	Rev
		MS 16GE	10
Date	Wednesday, June 04, 2014	Sheet	23 of 53

Lynx Point (PCI,DDI)

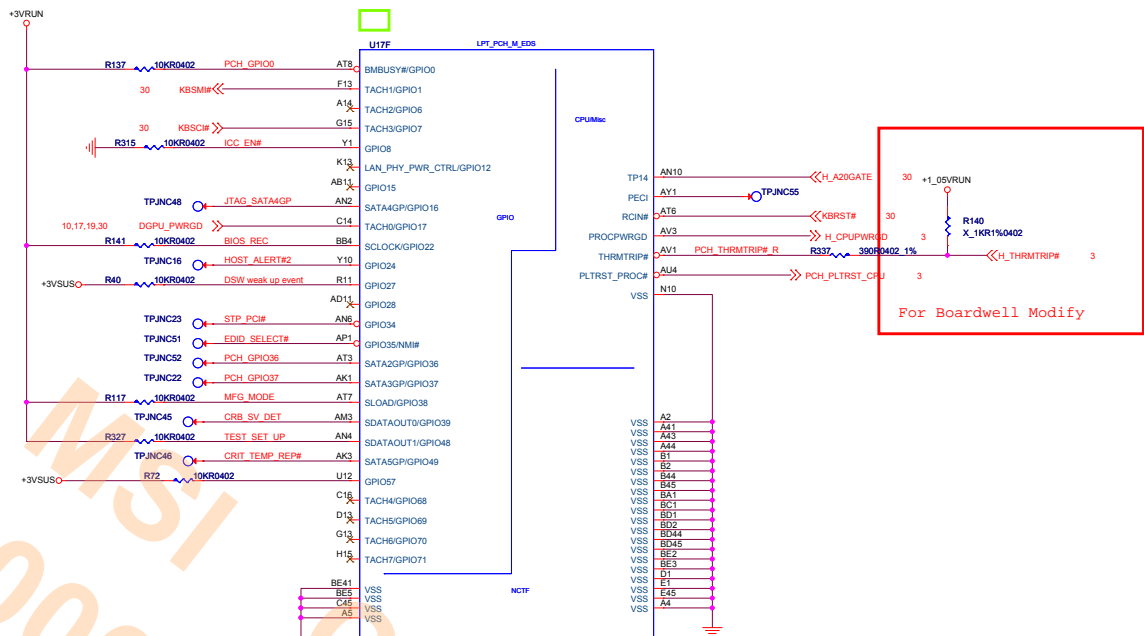


Title		
PCH-5 (PCI,DDI)		
Size	Document Number	Rev
Custom	MS 16GE	10
Date	Wednesday, June 04, 2014	Sheet 24 of 53

Lynx Point (GPIO,MISC)

GPIO Setting : Ref 486708_LPT_EDS Section2.24

PLL ON DIE VR_ENABLE	
GPIO28	Internal pull high (Enable)
	Low: Disable



File		PCH-6 (GPIO,MISC)	
Size	Document Number	MS 16GE	
Class	Rev	10	
Date	Wednesday, June 04, 2014	Sheet	26 of 53

Lynx Point (PCIE,USB)

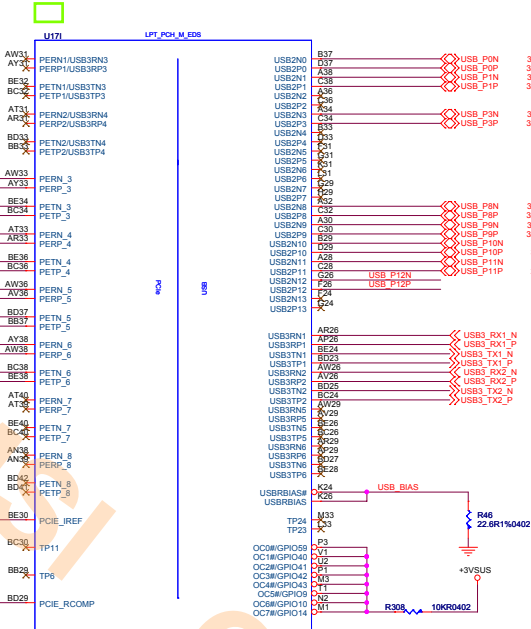
Card Reader for 1757

LAN

Card Reader for 166C

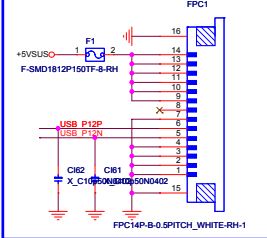
WLAN

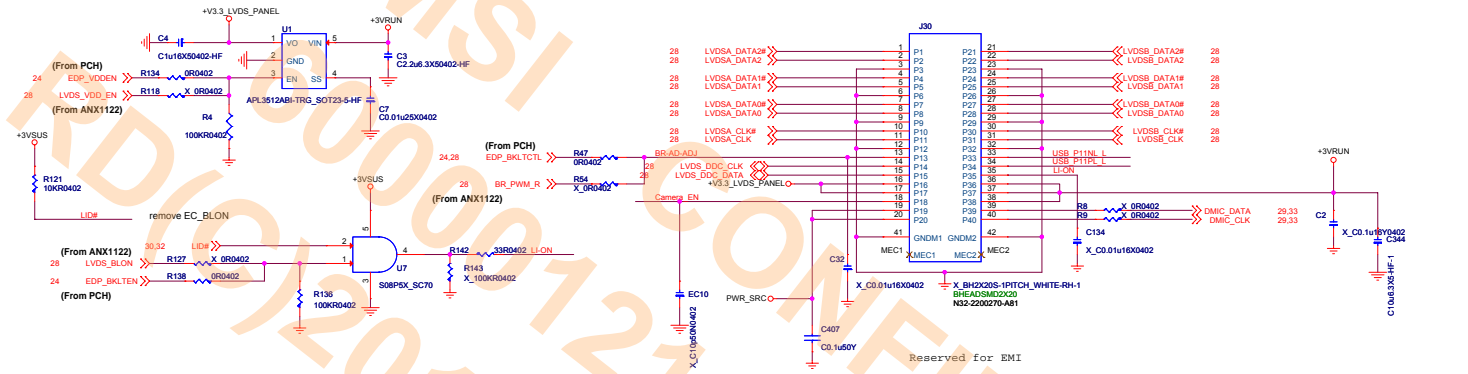
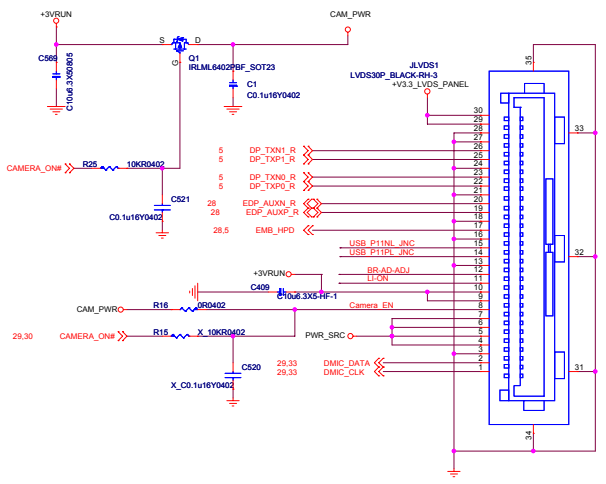
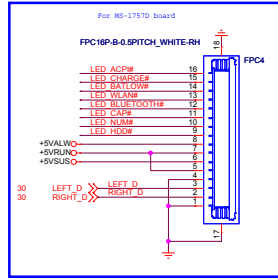
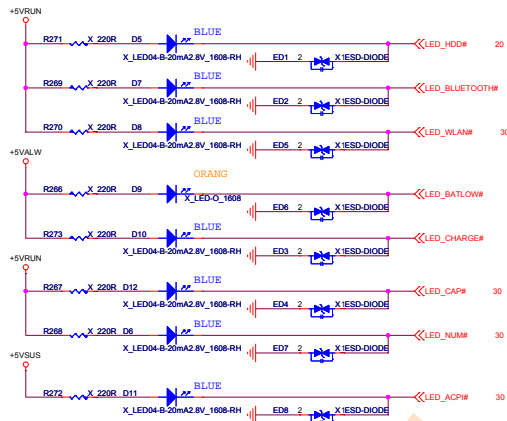
Close to device



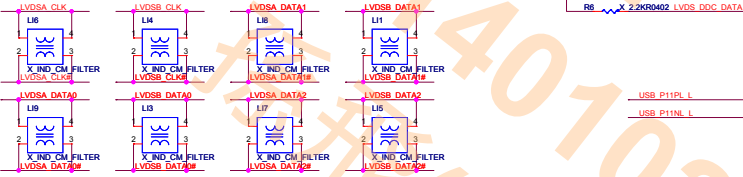
USB			
USB 2.0	USB 3.0	Device	Note
0	1	USB 3.0 Port 1	(16GCB/1757B)
1	2	USB 3.0 Port 2	(16GCB/1757B)
2			NC
3			NC
4			NC
5			NC
6			NC
7			NC
8		USB 2.0 Port	(16GCB)
9		USB 2.0 Port	(16GCA/1757A)
10		WLAN	
11		WebCam	
12		USB 2.0 Port	(1757E)
13			NC
	3		NC
	4		NC
	5		NC
	6		NC

For MS-1757E Board

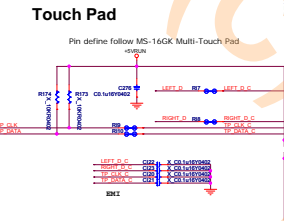
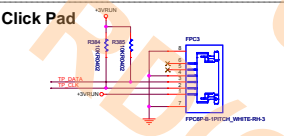
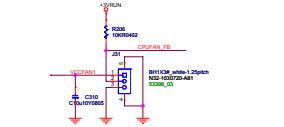
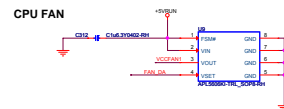
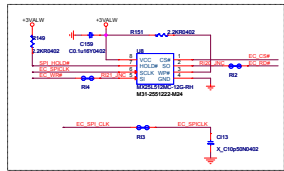
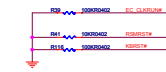




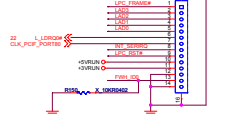
Reserved for EMI



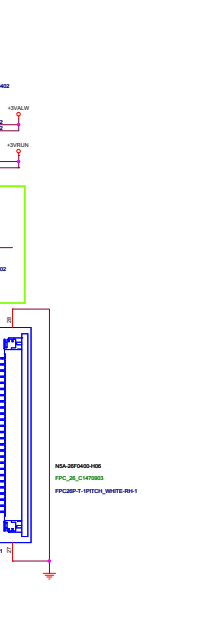
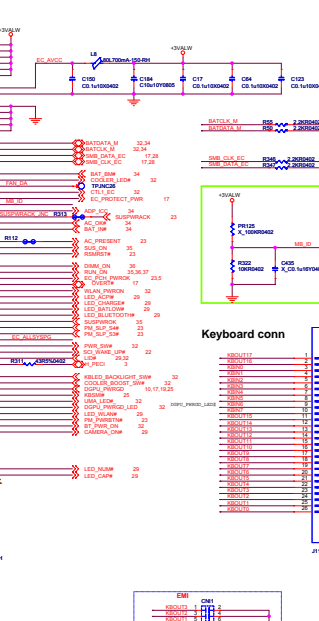
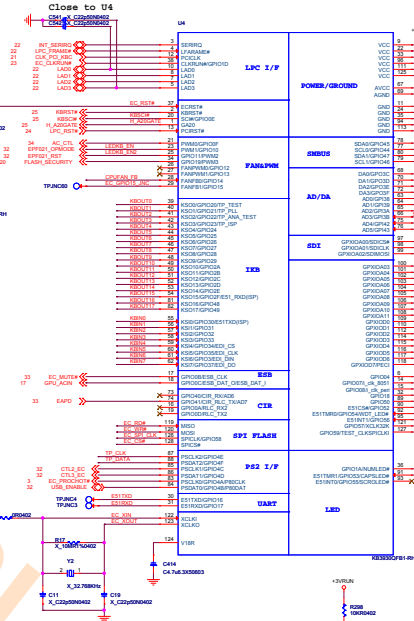
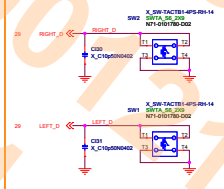
File	FAN/ED/LVDS	Rev	10
Size	Document Number	Rev	
Customer	MS 16GE	Rev	
Date	Wednesday, June 04, 2014	Sheet	29 of 58



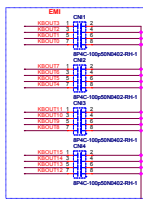
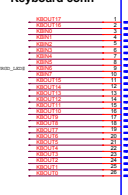
For SW Debug (LPC)



For 16GC1

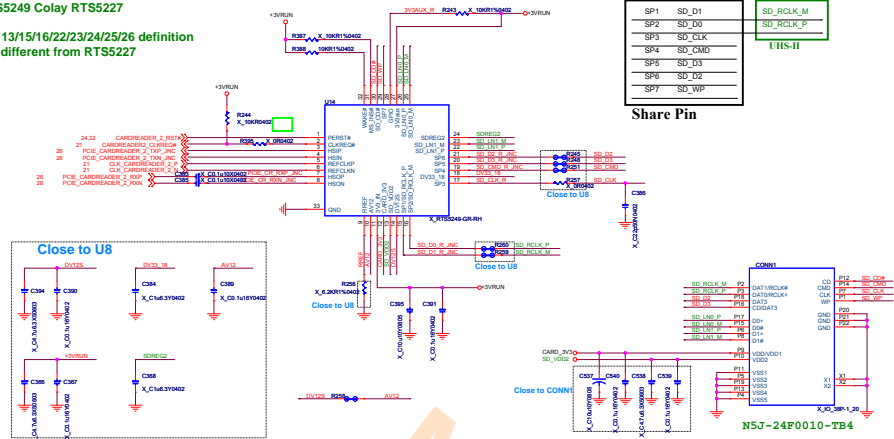


Keyboard conn

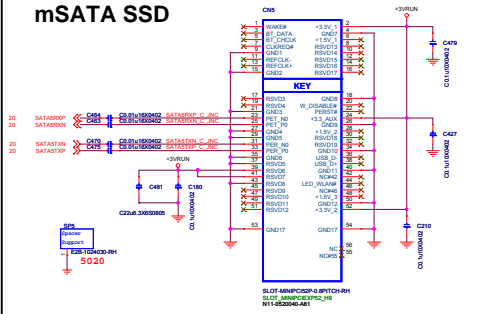


CardReader
RTS5249 Colay RTS5227

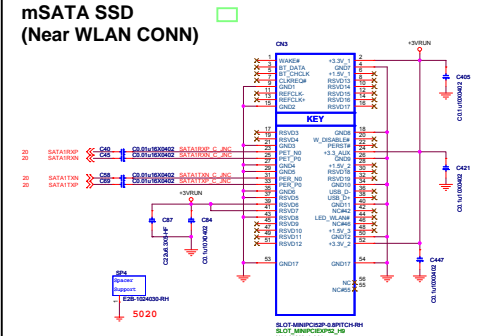
Pin 13/15/16/22/23/24/25/26 definition
are different from RTS5227



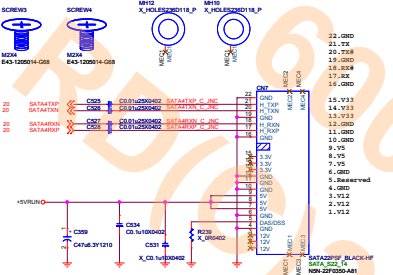
mSATA SSD



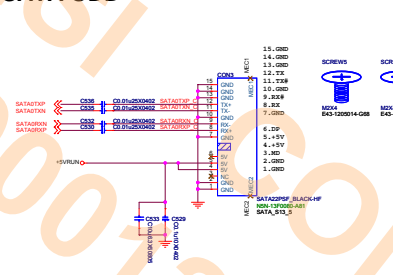
mSATA SSD
(Near WLAN CONN)



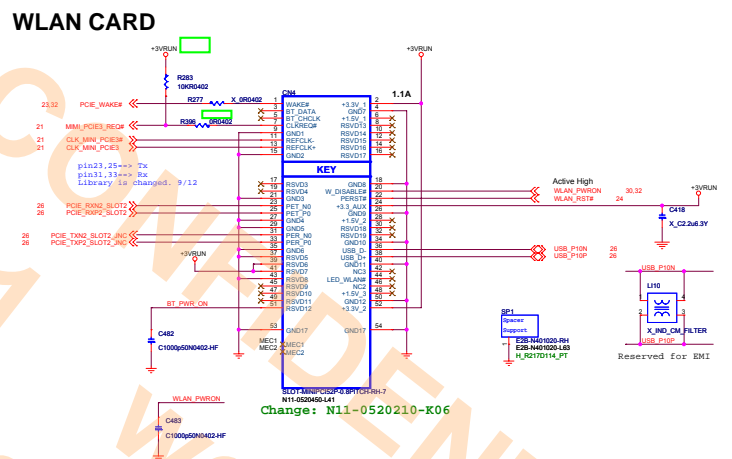
SATA HDD



SATA ODD

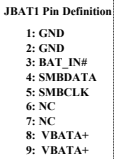


Board A - CRT/USB/WLAN/BT/LAN

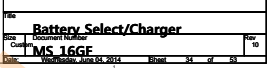


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Size: Document Number
Custom: **MS 16GE** Rev: 10
Date: Wednesday, June 04, 2014 Sheet: 32 of 53

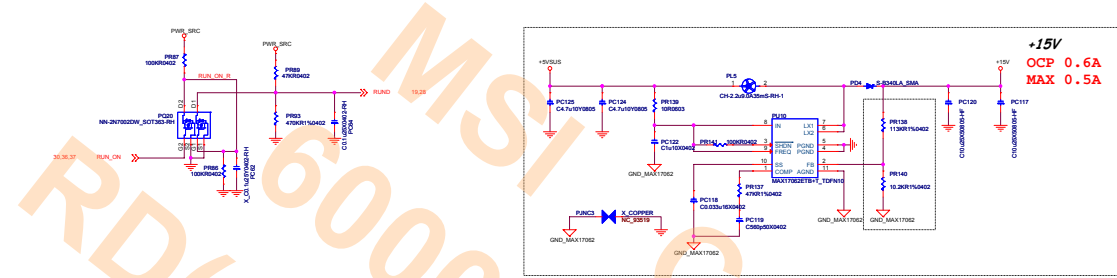
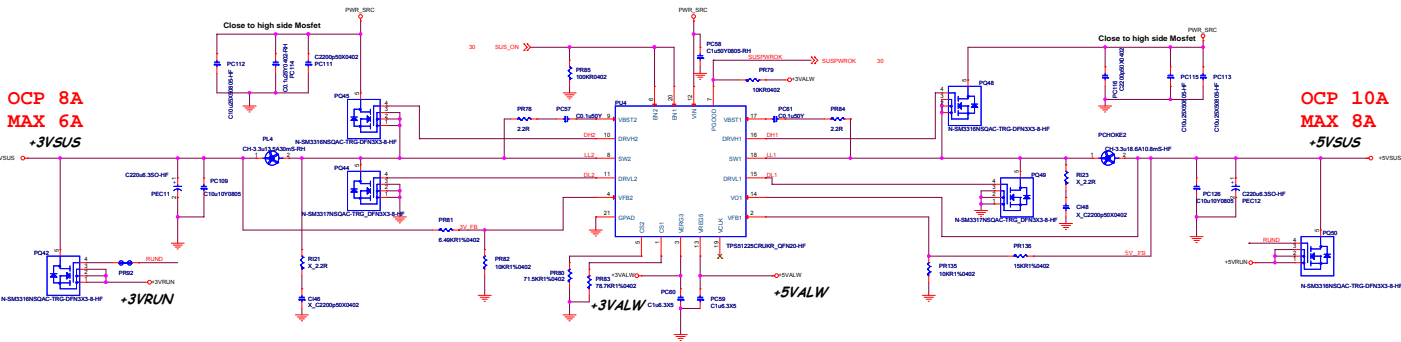
Battery Select



Battery Charger

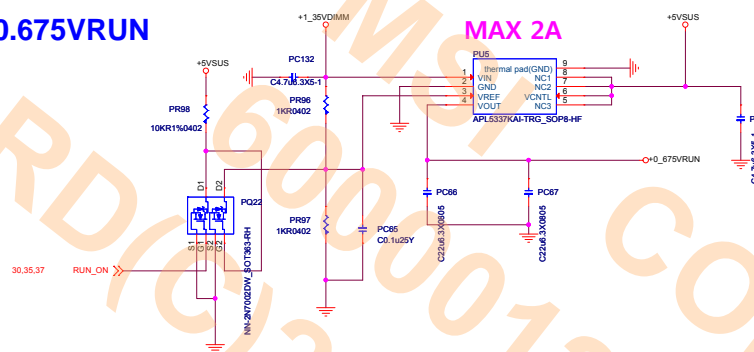
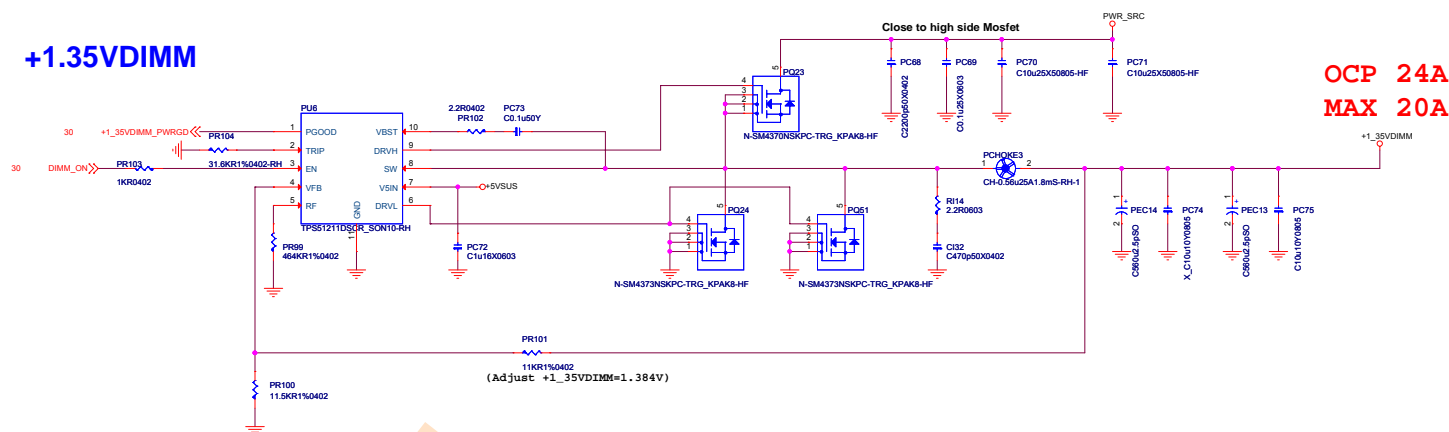


System Power



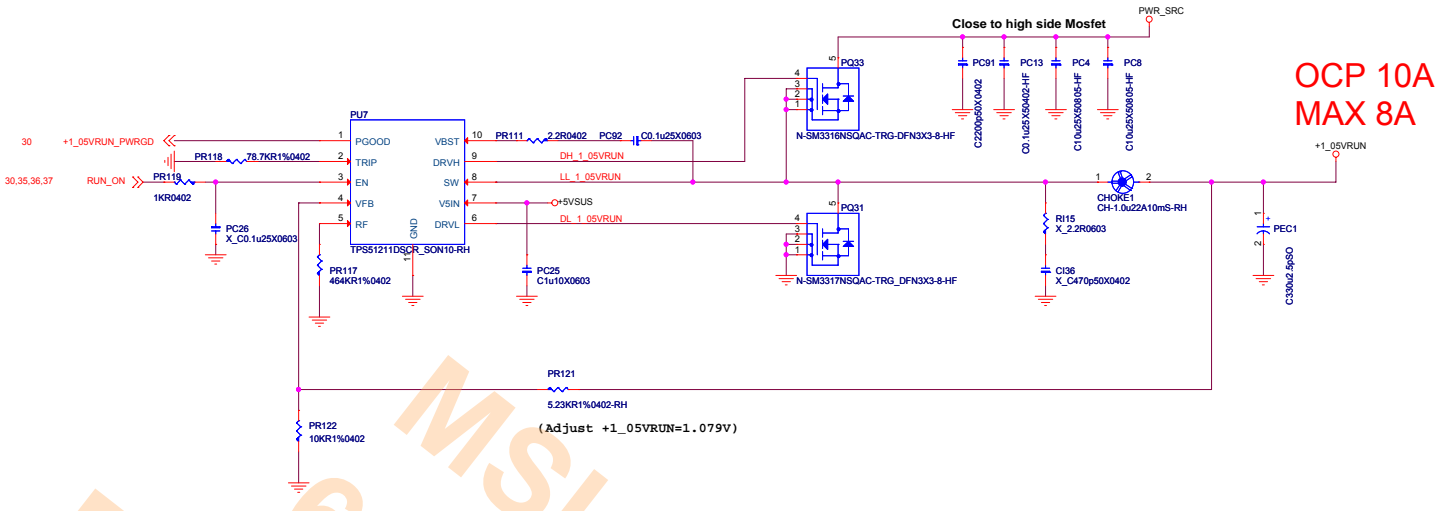
Rev	System Power
1	MS 166E
2	MS 166E
3	MS 166E
4	MS 166E
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7	MS 166E
8	MS 166E
9	MS 166E
10	MS 166E

+0.675VRUN

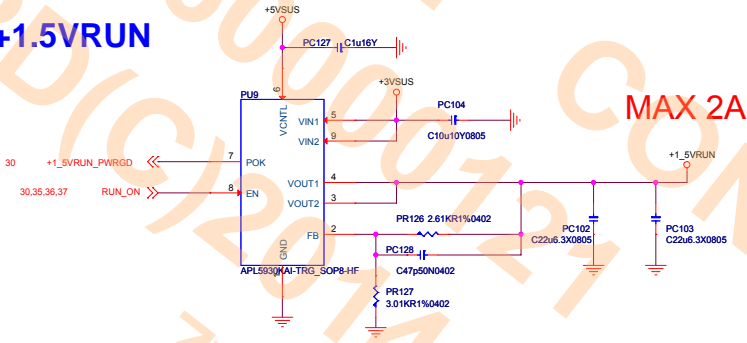


File					+1 35VDIMM/+0_675VRUN					Rev 10	
Size		Document Number									
Custom		MS 16GE									
Date		Wednesday, June 04, 2014		School		St. of		PA			

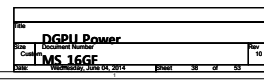
+1.05VRUN



+1.5VRUN

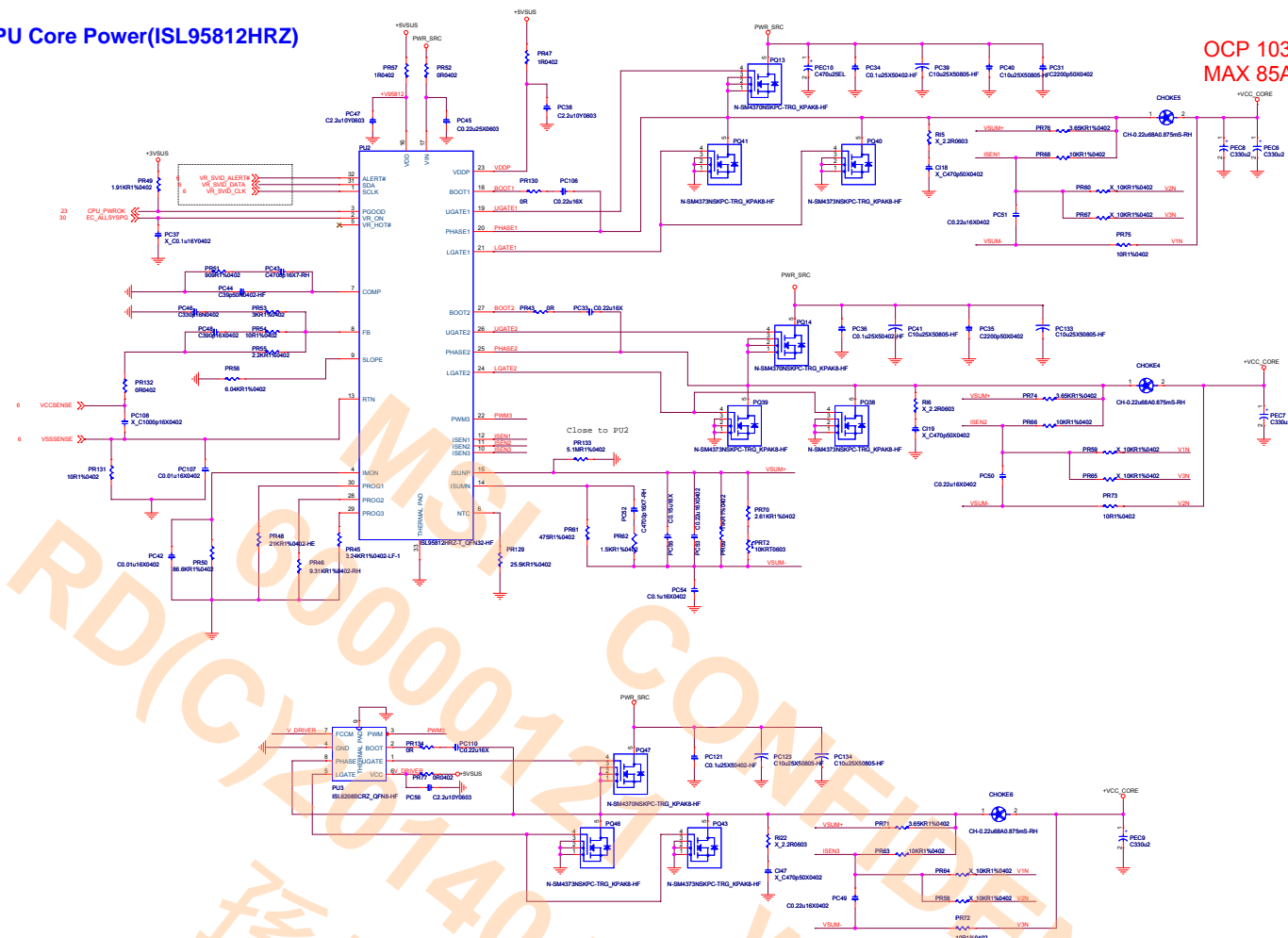


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Size	Document Number		
Custom	MS 16GE		
Date:	Wednesday, June 04, 2014	Sheet	37 of 53



CPU Core Power(ISL95812HRZ)

OCP 103A
MAX 85A



Rev	1.0
Doc	CPU Power
Part	ISL95812HRZ
Rev	MS 16GF
Rev	1.0

Top Spring

PAD6
X_HS-MS1011-RH
E23-1011040-CA7

PAD11
X_HS-MS1011-RH
E23-5551040-CA7

PAD1
X_HS-MS1011-RH
E23-5551040-CA7

PWR_SRC

Close to PQ31, PQ34

SDC_IN+

+5VSUS

PWR_SRC

+5VRUN

BOT Spring

PAD12
X_HS-MS1011-RH
E23-1011040-CA7

PAD15
X_HS-MS1011-RH
E23-1011040-CA7

PAD3
X_HS-MS1011-RH
E23-5551040-CA7

PAD10
X_HS-MS1011-RH
E23-5551040-CA7

+VBATA

+3VRUN

+1_35VDIMM

FBVDDQ

+3VSUS

45 OHM

J16 2 L3 6mil 45 Ohm
X_H1X2M_BLACK-RH

80 OHM

J9 2 L1 DIFF 5/4,5/5 80 Ohm+
X_H1X2M_BLACK-RH

J7 2 L3 DIFF 5/4/5 80 Ohm+
X_H1X2M_BLACK-RH

J24 2 L6 DIFF 5/4,5/5 80 Ohm+
X_H1X2M_BLACK-RH

J4 2 L4 6mil 45 Ohm
X_H1X2M_BLACK-RH

J6 2 L1 DIFF 5/4,5/5 80 Ohm-
X_H1X2M_BLACK-RH

J8 2 L3 DIFF 5/4/5 80 Ohm-
X_H1X2M_BLACK-RH

J23 2 L6 DIFF 5/4,5/5 80 Ohm-
X_H1X2M_BLACK-RH

J3 2 L6 5mil 45 Ohm
X_H1X2M_BLACK-RH

85 OHM

J12 2 L1 DIFF 4/4/4 85 Ohm+
X_H1X2M_BLACK-RH

J15 2 L3 DIFF 4/4/4 85 Ohm+
X_H1X2M_BLACK-RH

J25 2 L4 DIFF 4/4/4 85 Ohm+
X_H1X2M_BLACK-RH

J28 2 L6 DIFF 4/4/4 85 Ohm+
X_H1X2M_BLACK-RH

J13 2 L3 4.5mil 50 Ohm
X_H1X2M_BLACK-RH

J10 2 L1 DIFF 4/4/4 85 Ohm-
X_H1X2M_BLACK-RH

J14 2 L3 DIFF 4/4/4 85 Ohm-
X_H1X2M_BLACK-RH

J27 2 L4 DIFF 4/4/4 85 Ohm-
X_H1X2M_BLACK-RH

J26 2 L6 DIFF 4/4/4 85 Ohm-
X_H1X2M_BLACK-RH

J22 2 L4 4.5mil 50 Ohm
X_H1X2M_BLACK-RH

90 OHM

J19 2 L1 DIFF 4/5/4 90 Ohm+
X_H1X2M_BLACK-RH

J18 2 L3 DIFF 4/5/4 90 Ohm+
X_H1X2M_BLACK-RH

J1 2 L6 DIFF 4/5/4 90 Ohm+
X_H1X2M_BLACK-RH

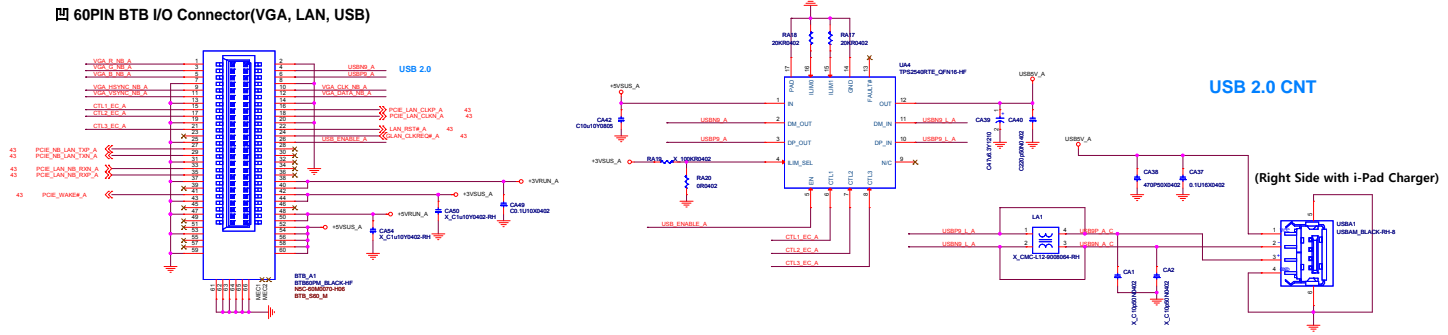
J20 2 L1 DIFF 4/5/4 90 Ohm-
X_H1X2M_BLACK-RH

J17 2 L3 DIFF 4/5/4 90 Ohm-
X_H1X2M_BLACK-RH

J2 2 L6 DIFF 4/5/4 90 Ohm-
X_H1X2M_BLACK-RH

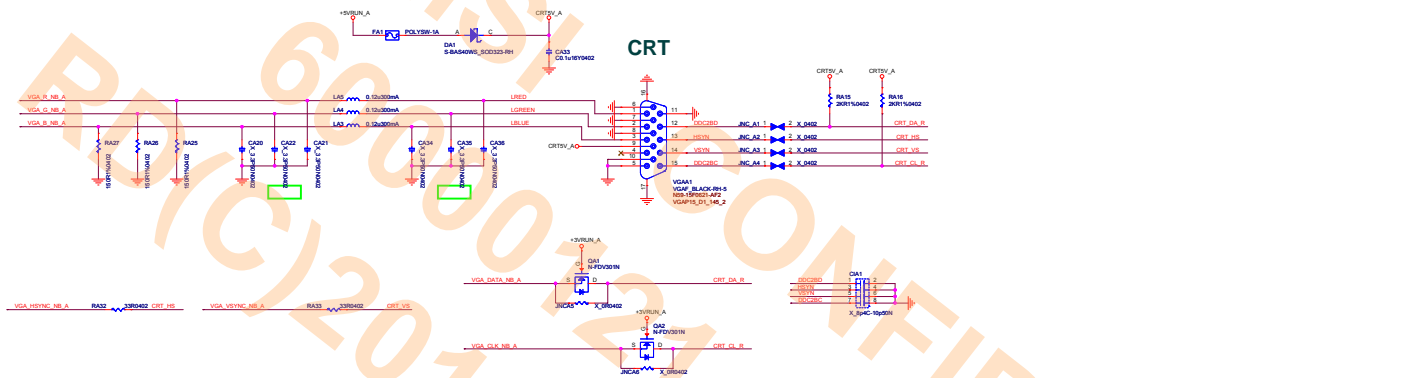
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FMI				
Size	Document Number			Rev
Custom	MS 16GE			10
Date:	Wednesday, June 04, 2014	Sheet	41 of 53	

四 60PIN BTB I/O Connector(VGA, LAN, USB)

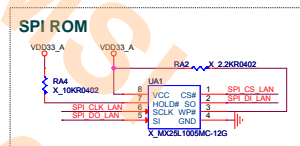
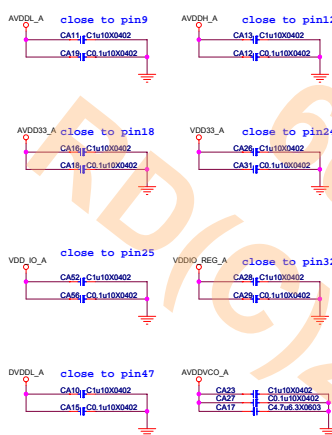
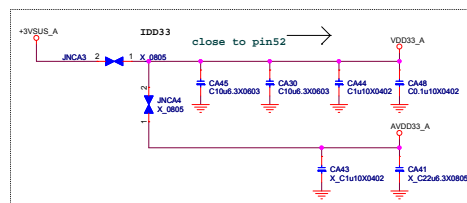
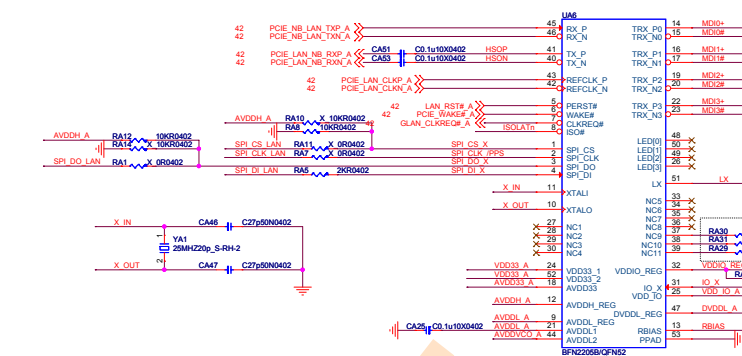


BTB STANDOFF (16GMA)

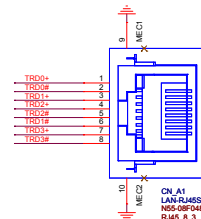
SCREW HOLE



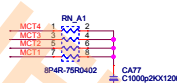
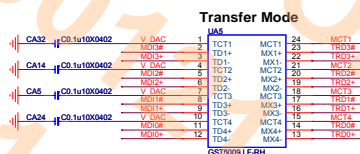
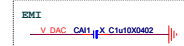
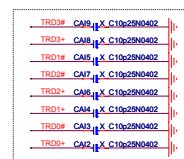
GIGA LAN(BFN2200A)



FLASH TYPE NOTE:
SST25VF010A
PM25LV010/020/040
AT25FS010, AT25f1024
MX25L1005/2006

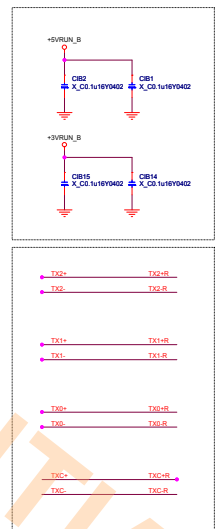
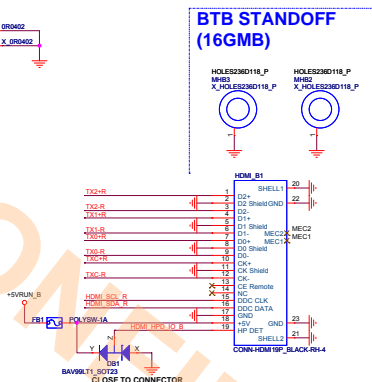
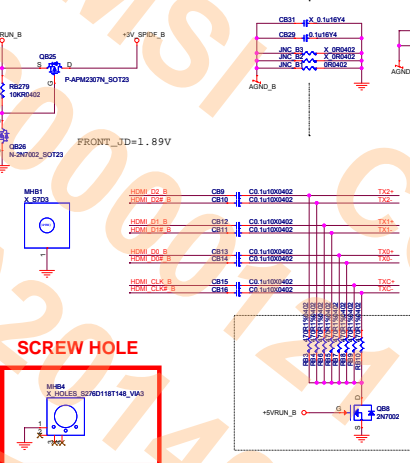
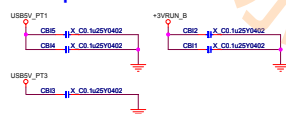
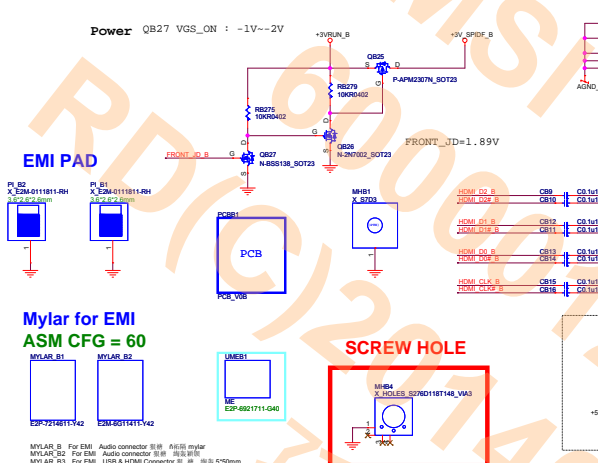
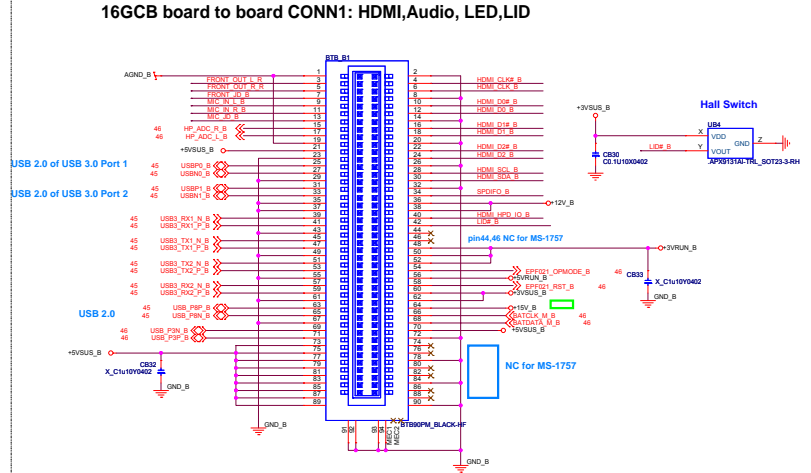
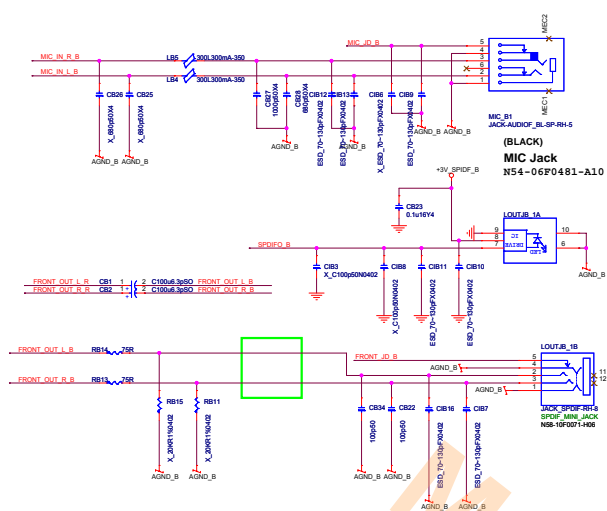


ENSWREG:ENABLE SWITCH LDO



Transfer Mode			
1	UAS		
2	TC1T1	MC1T1	24
3	TD1+	MX1+	23
4	TD1-	MX1-	22
5	TC1T2	MC1T2	21
6	TD2+	MX2+	20
7	TD2-	MX2-	19
8	TC3T3	MC3T3	18
9	TD3+	MX3+	17
10	TD3-	MX3-	16
11	TC4T4	MC4T4	15
12	TD4+	MX4+	14
		MX4-	13

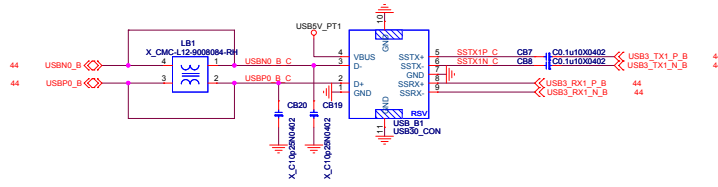
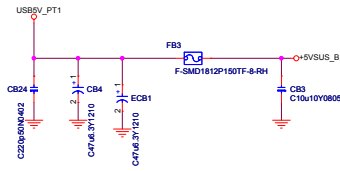
16GCB board to board CONN1: HDMI,Audio, LED,LID



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Size: document Number
Customer: MS 16GE
Date: Wednesday, June 04, 2014 Sheet: 44 of 50 Rev: 10

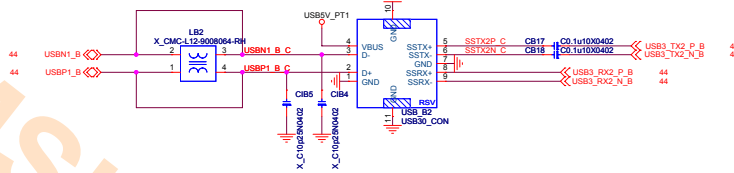
USB 3.0 CNT1

(USB3.0 Left Side - UP)



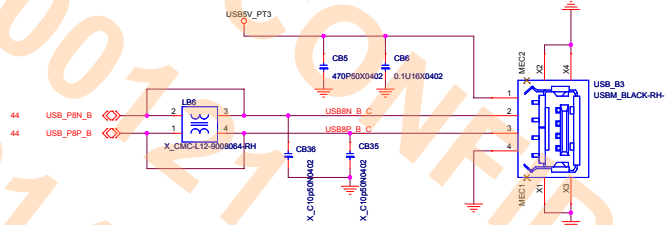
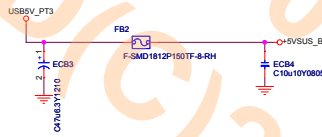
USB 3.0 CNT 2

(USB3.0 Left Side - Down)

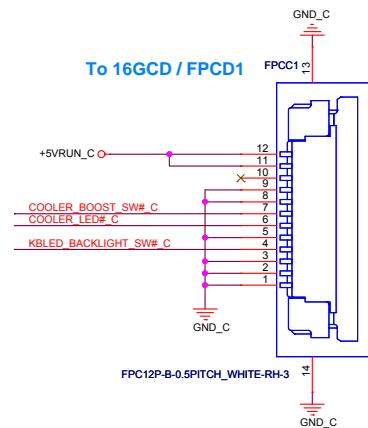
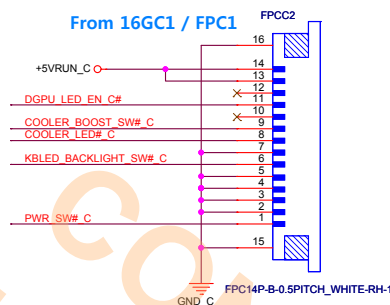
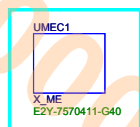
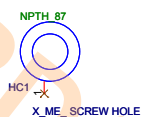
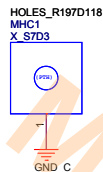
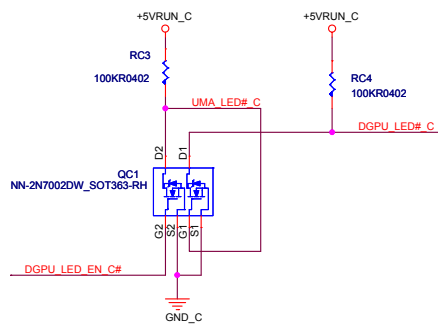
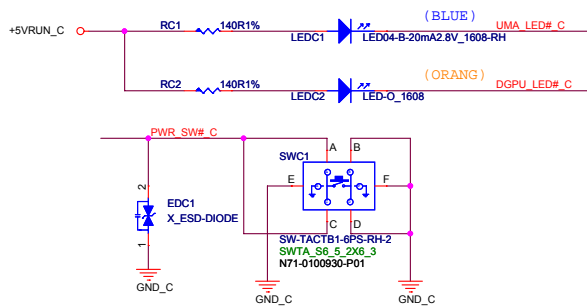


USB 2.0 CNT

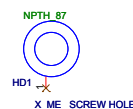
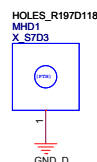
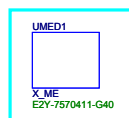
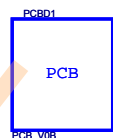
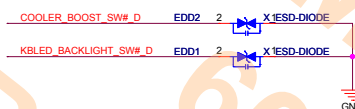
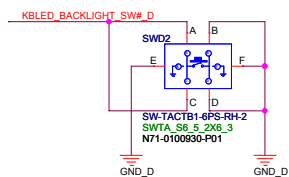
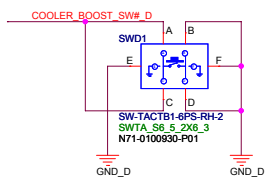
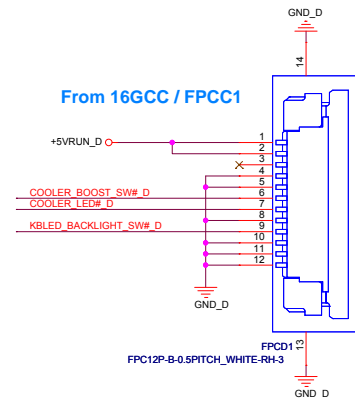
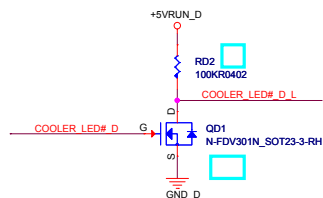
(Left Side)



File	[B] USB3.0x2/USB2.0x1/LED KB
Size	10
Sheet	MS 16GE
Date	2014-04-04
Sheet	45 of 50



Title			
IC1 Power SW Board			
Size	Document Number	Rev	
Custom	MS 16GE	10	
Date:	Wednesday, June 04, 2014	Sheet	47 of 50



Title		JDI Launch Board	
Size	Document Number	Rev	
Custom	MS 16GE	10	
Date:	Wednesday, June 04, 2014	Sheet	48 of 50

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4

3

2

1

D

C

B

A

Title

[D] Launch Board

Size

A

Document Number

MS 16GF

Rev

10

Date:

Wednesday, June 04, 2014

Sheet

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2

1

5

4

3

5

4

3

2

1

D

C

B

A

Title

[D] Launch Board

Size

A

Document Number

MS 16GF

Rev

10

Date:

Wednesday, June 04, 2014

Sheet

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of

53

2

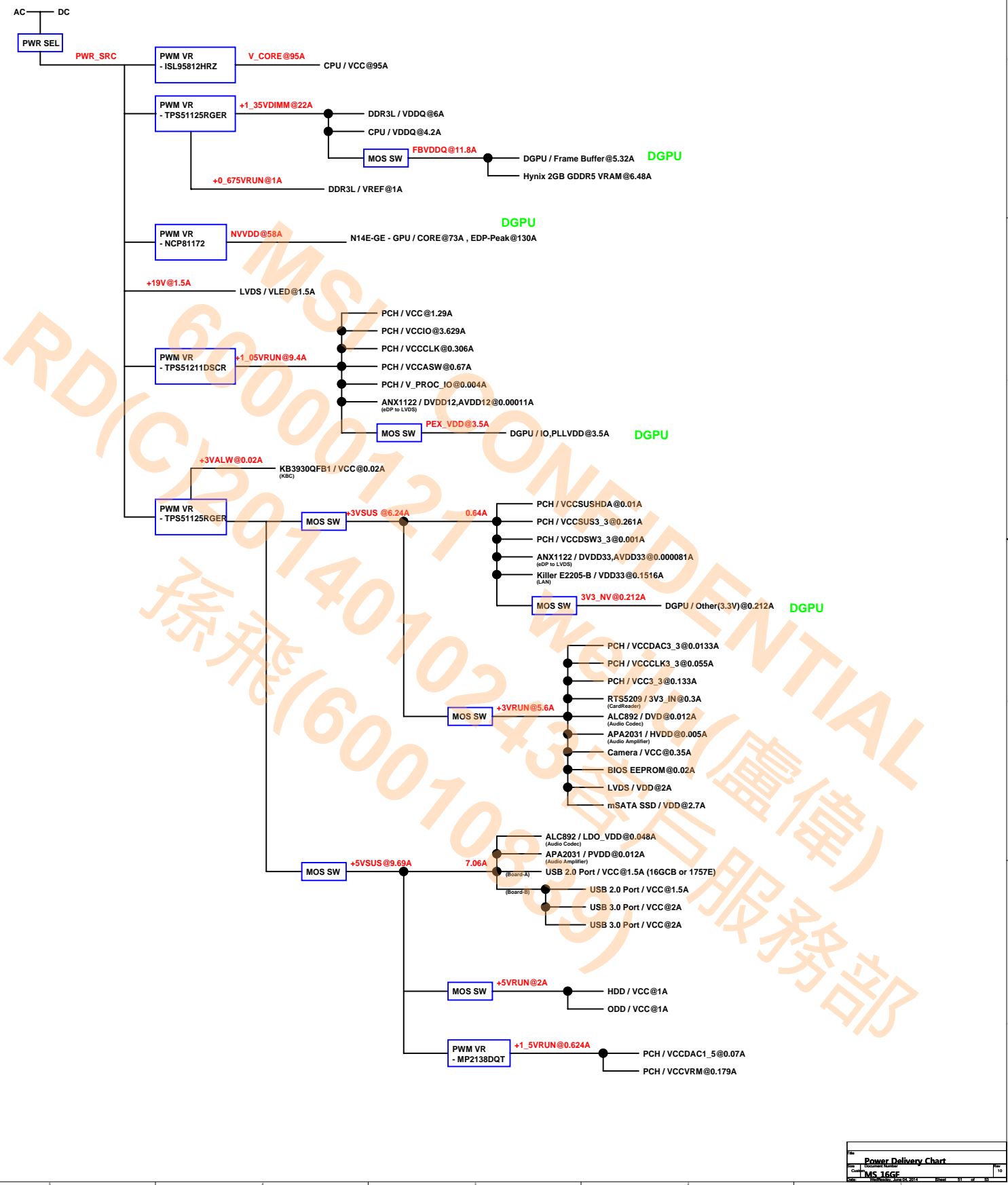
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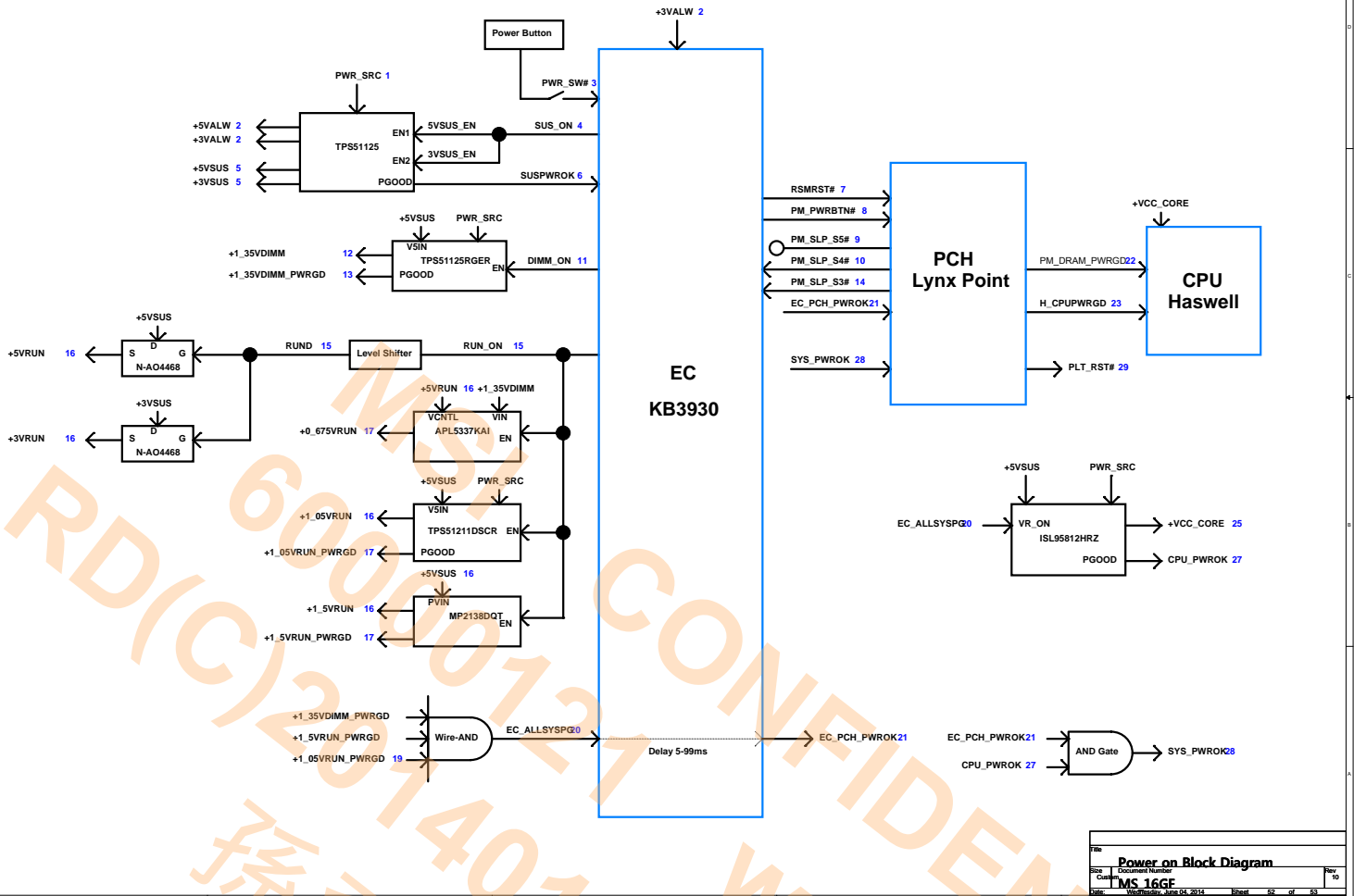
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3

1757 Power Delivery Chart

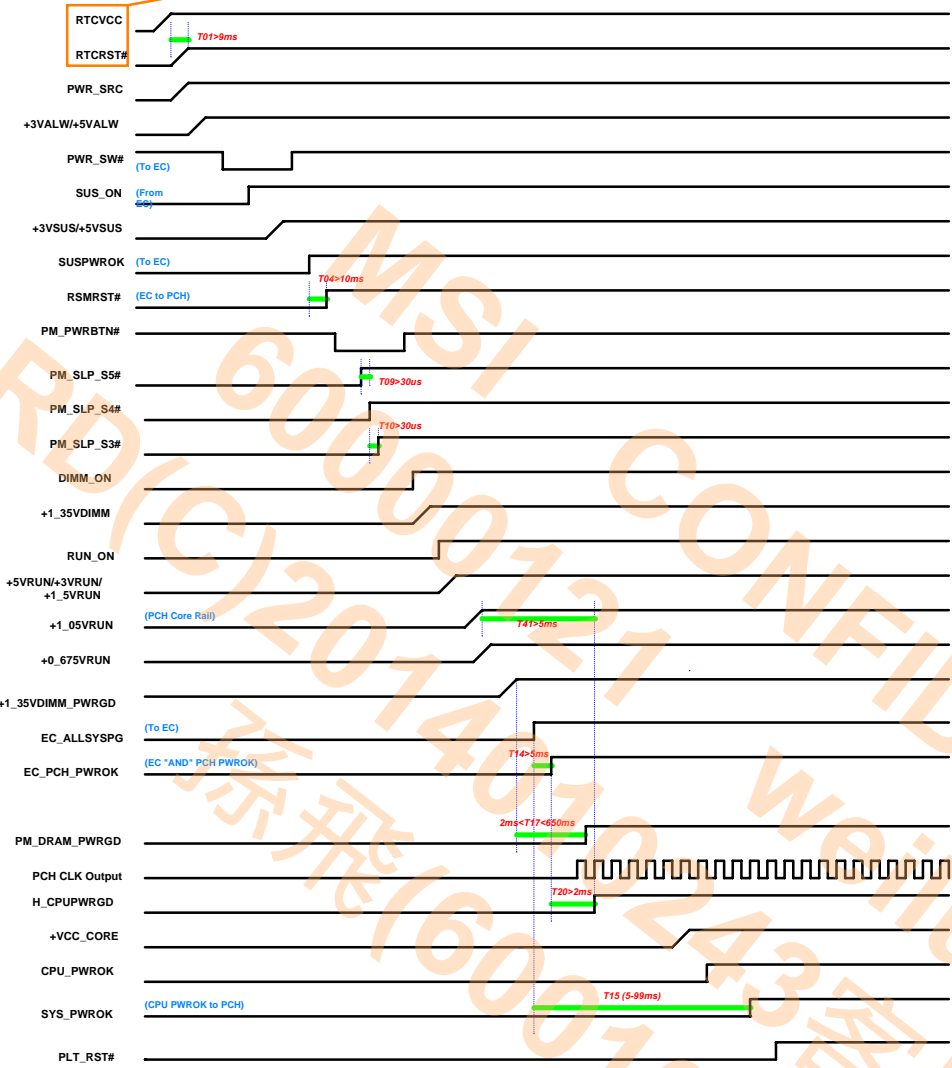


1757 Power on Block Diagram



Power on Sequence

G3 -> S0



Title			
Power on Sequence			
Doc No.	Document Number	Rev	
MS-166F		10	
Date	2014.06.14	Sheet	53 of 53