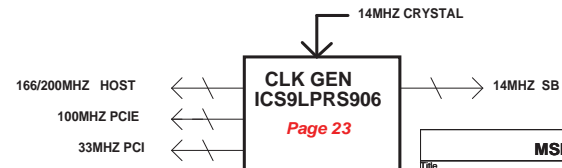
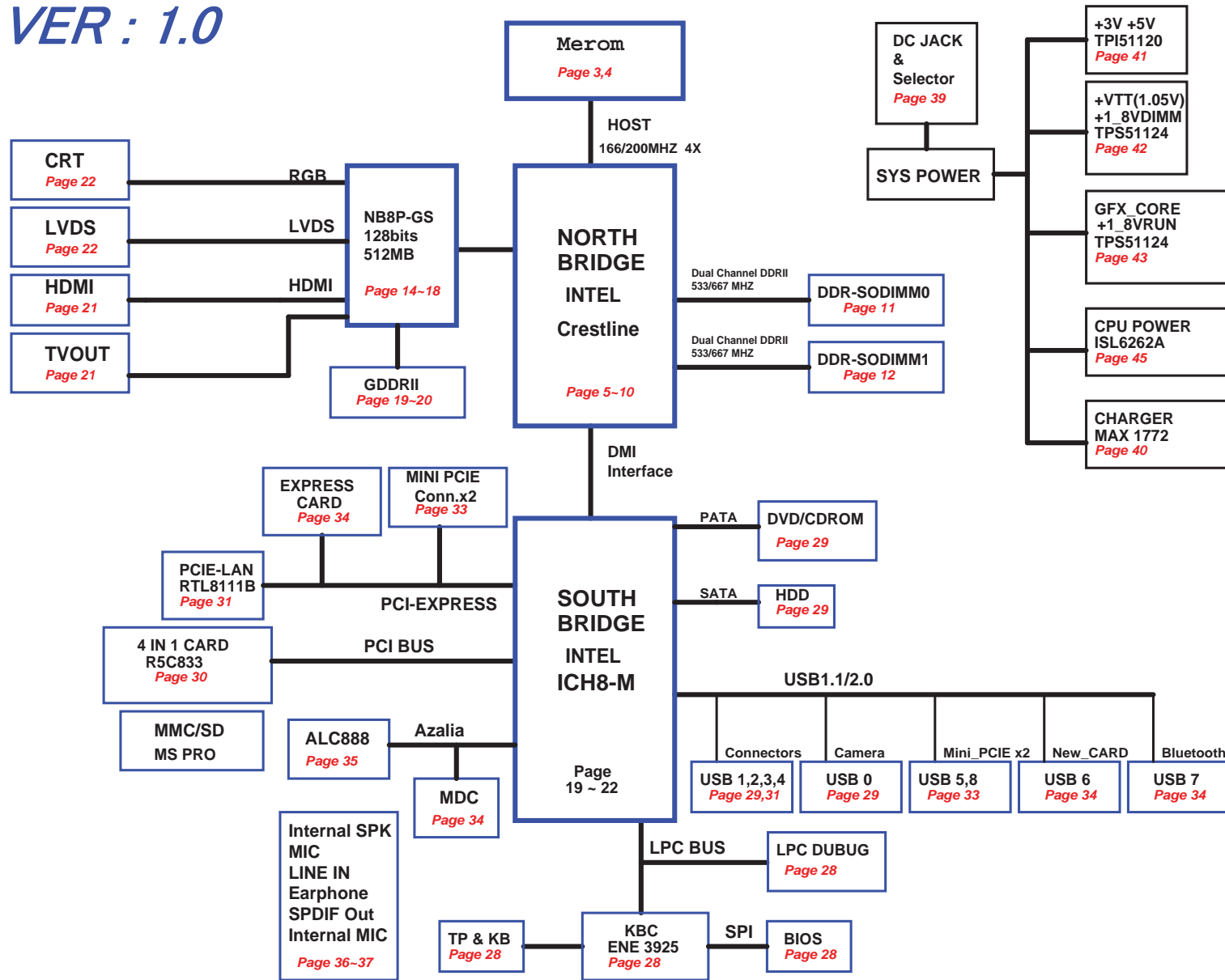


MS-163A VER : 1.0

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- 02 : PLATFORM
- 03 : Merom-1 (HOST BUS)
- 04 : Merom-2 (POWER/GND)
- 05 : CRESTLINE-1 (HOST BUS)
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- 11 : DDR2_SODIMM0
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- 21 : [VIDEO] HDMI & TVOUT
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- 23 : CLK GEN [ICS9LPRS514]
- 24 : ICH8M-1 (CPU/IDE/Azalia)
- 25 : ICH8M-2 (PCI/USB/PCIE/DMI)
- 26 : ICH8M-3 (SM BUS/GPIO)
- 27 : ICH8M-4 (POWER/GND)
- 28 : KBC/EC/uP [ENE3925-LFQP144]
- 29 : HDD, ODD, CAMERA & USB CONN
- 30 : CardReader (Ricoh-R5C833)
- 31 : PCIE LAN (RTL8111B)
- 32 : ESATA (SIL3531)
- 33 : Mini_PCIEx2 & FAN
- 34 : NEWCARD & MDC & BT
- 35 : [AUDIO] CODEC ALC888
- 36 : [AUDIO] AMP & JACKS
- 37 : [AUDIO] Array Mic (FM2010)
- 38 : LED & FPC
- 39 : M_Battery select
- 40 : M_Battery Charger
- 41 : M_System Power
- 42 : VTT(NB/SB), 1.8VDIMM, VTERM
- 43 : +G73M_CORE, 1.8VRUN
- 44 : +1.2VGFX, +1.25VRUN, +1.5VRUN
- 45 : M_CPU power
- 46 : Screw
- 47 : Manual Part
- 48 : EMI
- 49 : Power Sequence
- 50 : KBC_CTR_PWR
- 51 : AC/Battery timing 1
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MSI CORPORATION			
File: BLOCK DIAGRAM			
Size: C	Document Number: MS-163A	Rev: 0C	
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Voltage Rails

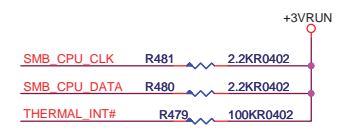
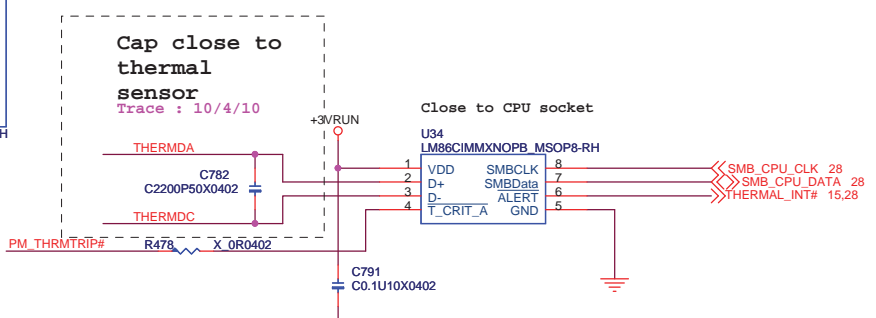
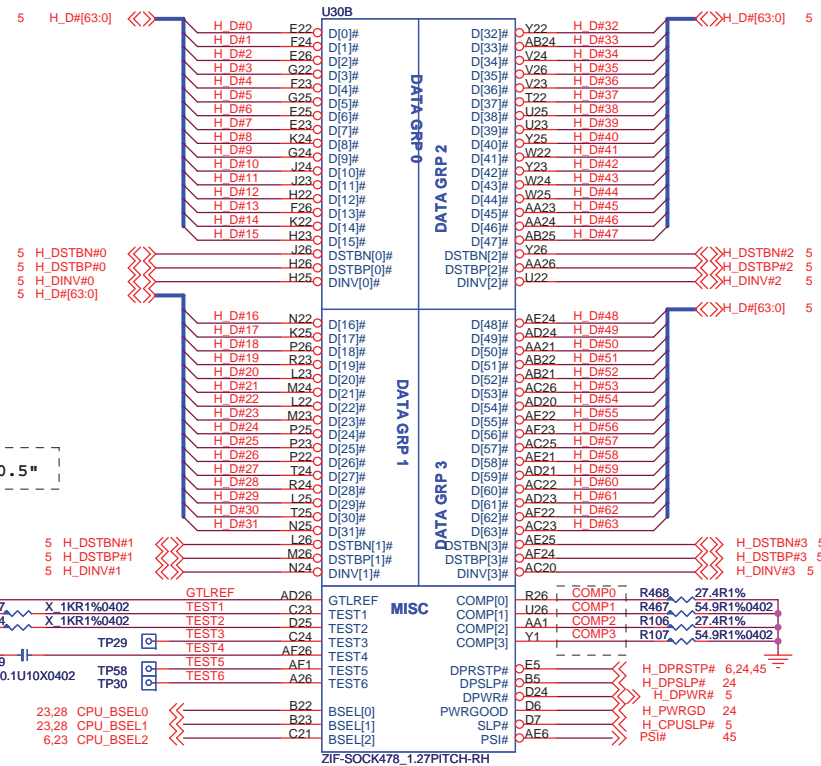
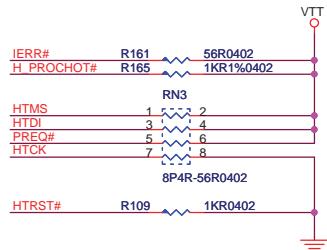
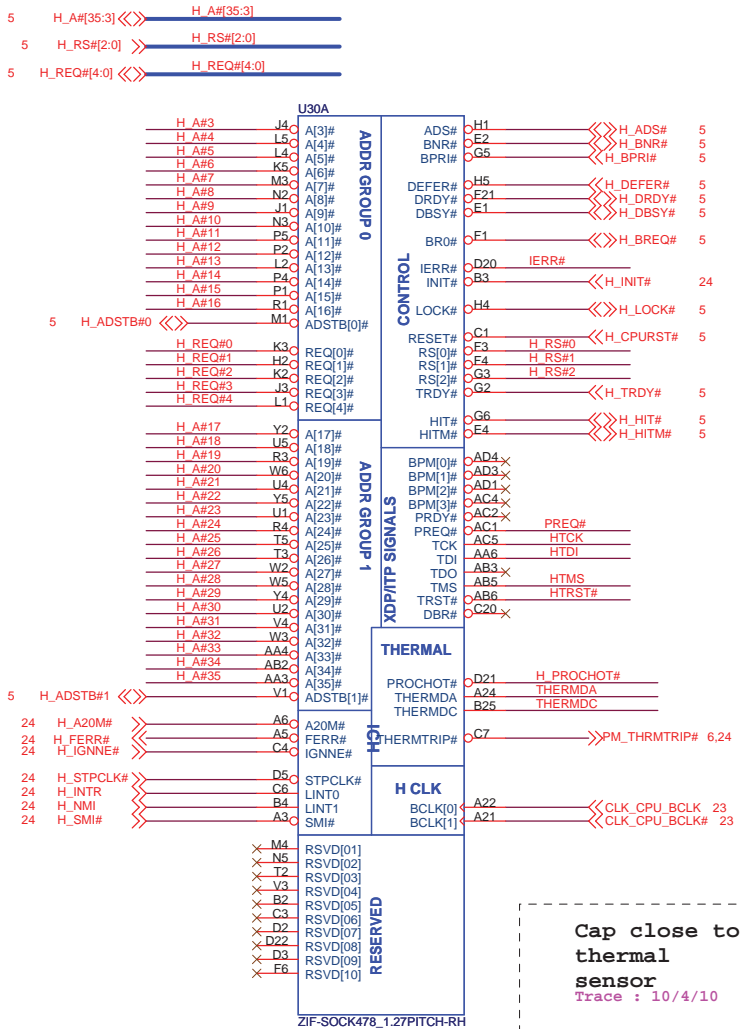
Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
VHORE	Core Voltage for Processor	VR_ON
+VTT	1.05V rail for Processor & 965PM & ICH8M	PM_SLP_S3# (RUN_ON)
+1_5VRUN	1.5V LDO power rail(off in S3-S5)	PM_SLP_S3# (RUN_ON)
+1_25VRUN	1.25V power rail NB PLL and PXE (off in S3-S5)	+1_5VRUN
+3VRUN	3.3V switched power rail(off in S3-S5)	RUND (RUN_ON)
+5VRUN	5.0V switched power rail(off in S3-S5)	RUND (RUN_ON)
SMDDR_VTERM	0.9V DDR Termination voltage (off in S4-S5)	PM_SLP_S3# (RUN_ON)
+1_8VDIMM	1.8V power rail DDR (off in S4-S5)	PM_SLP_S4# (DIMM_ON)
+3VSUS	3.3V power rail (off in S4-S5)	SUS_ON
+5VSUS	5.0V power rail (off in S4-S5)	SUS_ON
+3VALW	3.3V always on power rail	PWR_SRC
+5VALW	5.0V always on power rail	PWR_SRC
+V5_AUDIO	5.0V Power rail Audio codec(off in S3-S5)	RUND

POWER STATES

STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALWAYS	+V*SUS	+V*RUN	Clocks
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	HIGH	HIGH	HIGH	ON	ON	ON	LOW
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

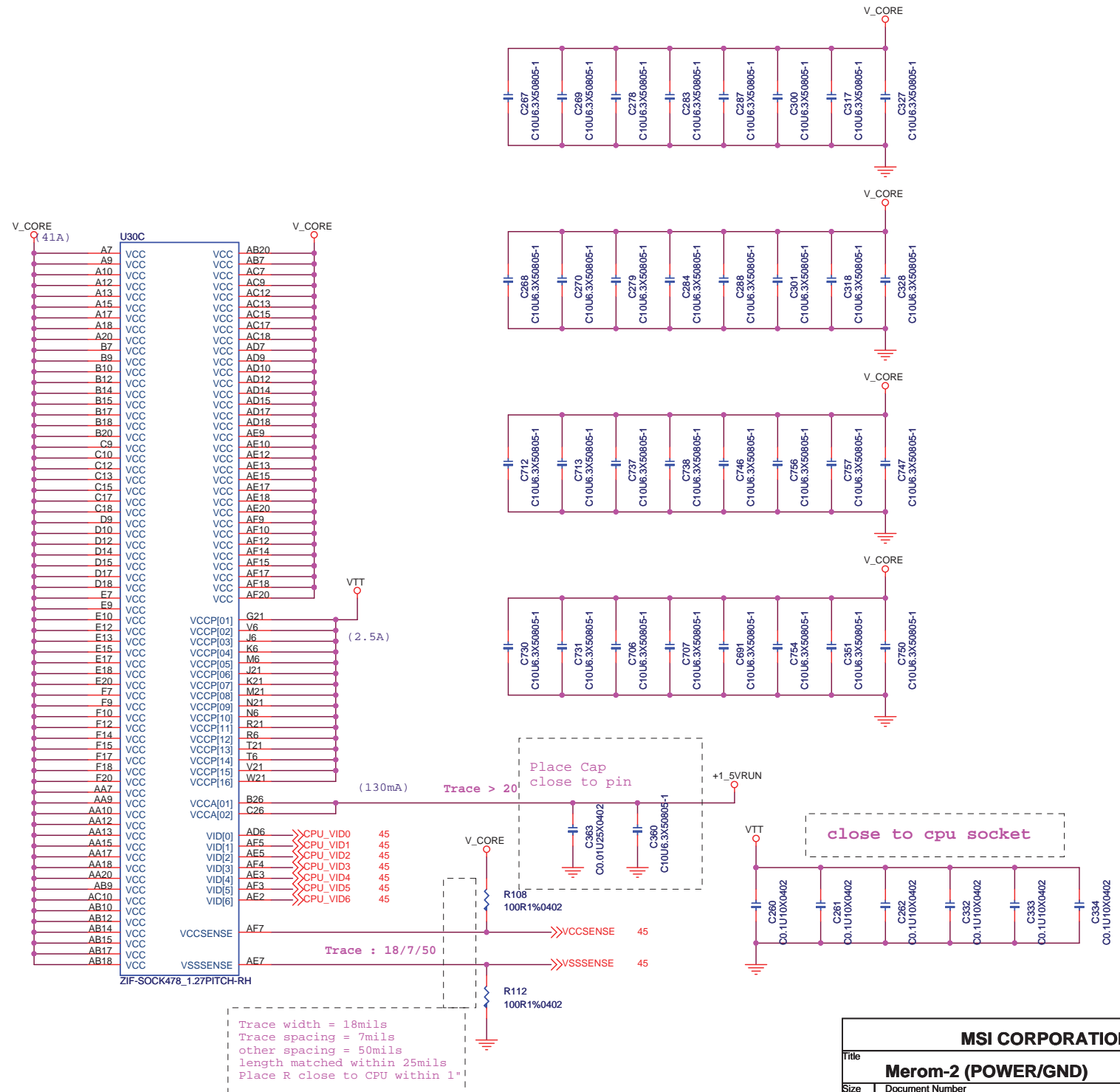
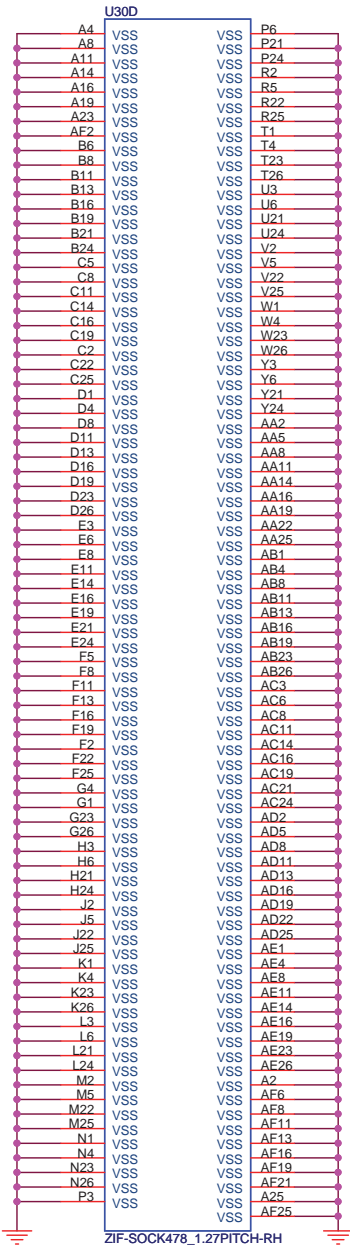
Note : WHEN AC MODE , System turn on then +V*SUS will always keep high

MSI CORPORATION		
Title	PLATFORM	
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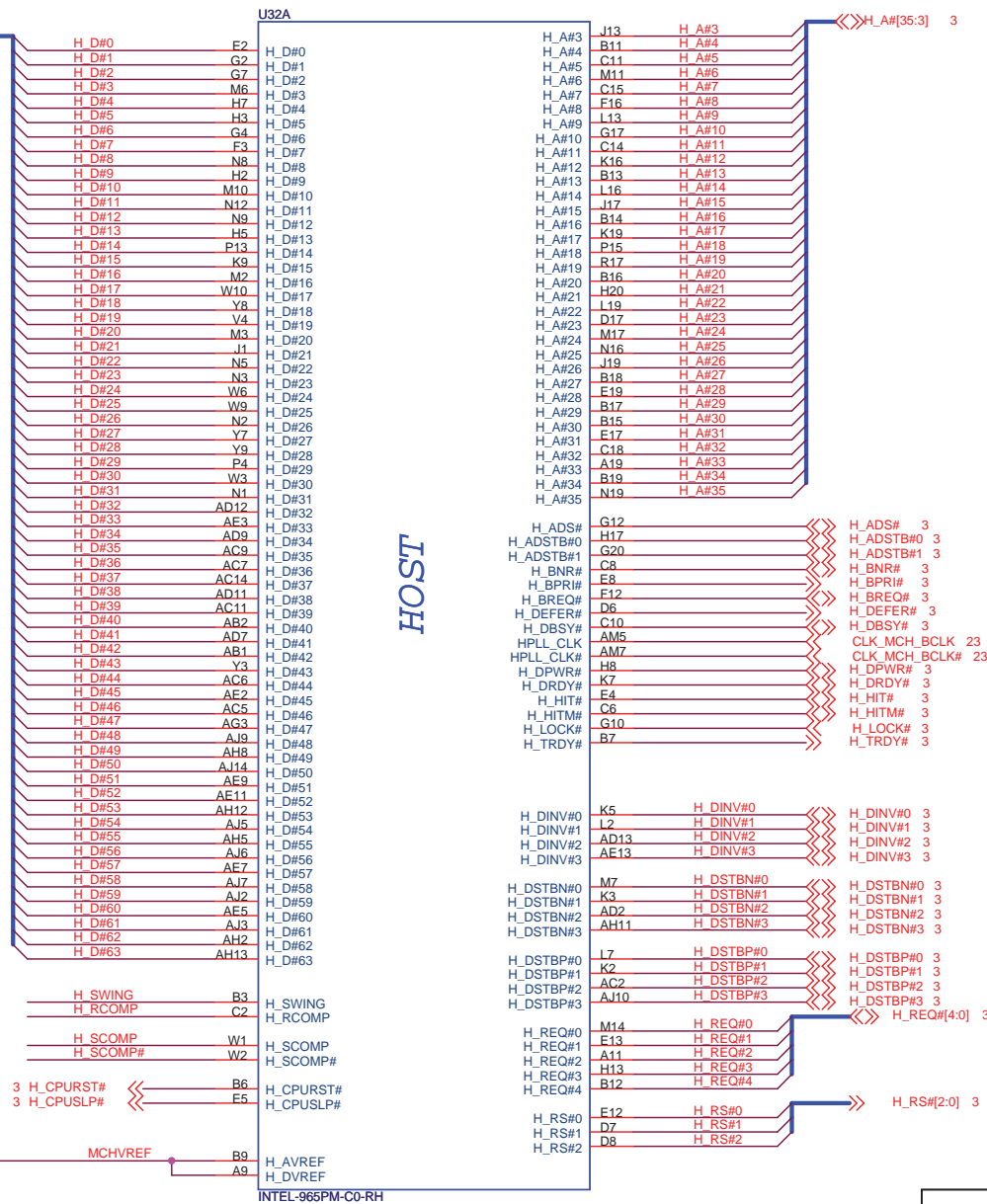
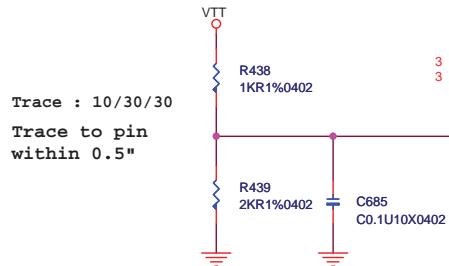
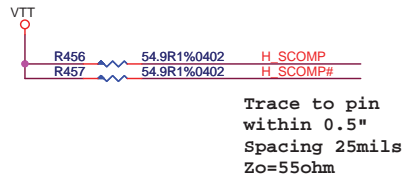
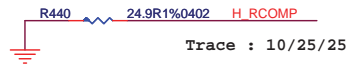
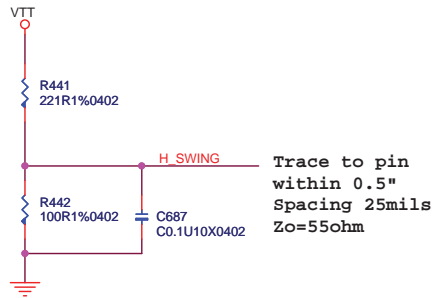
Within 0.5"
25mils Spacing
COMP0,2 --> 18mils
COMP1,3 --> 5mils

MSI CORPORATION			
Title Merom-1 (HOST BUS)			
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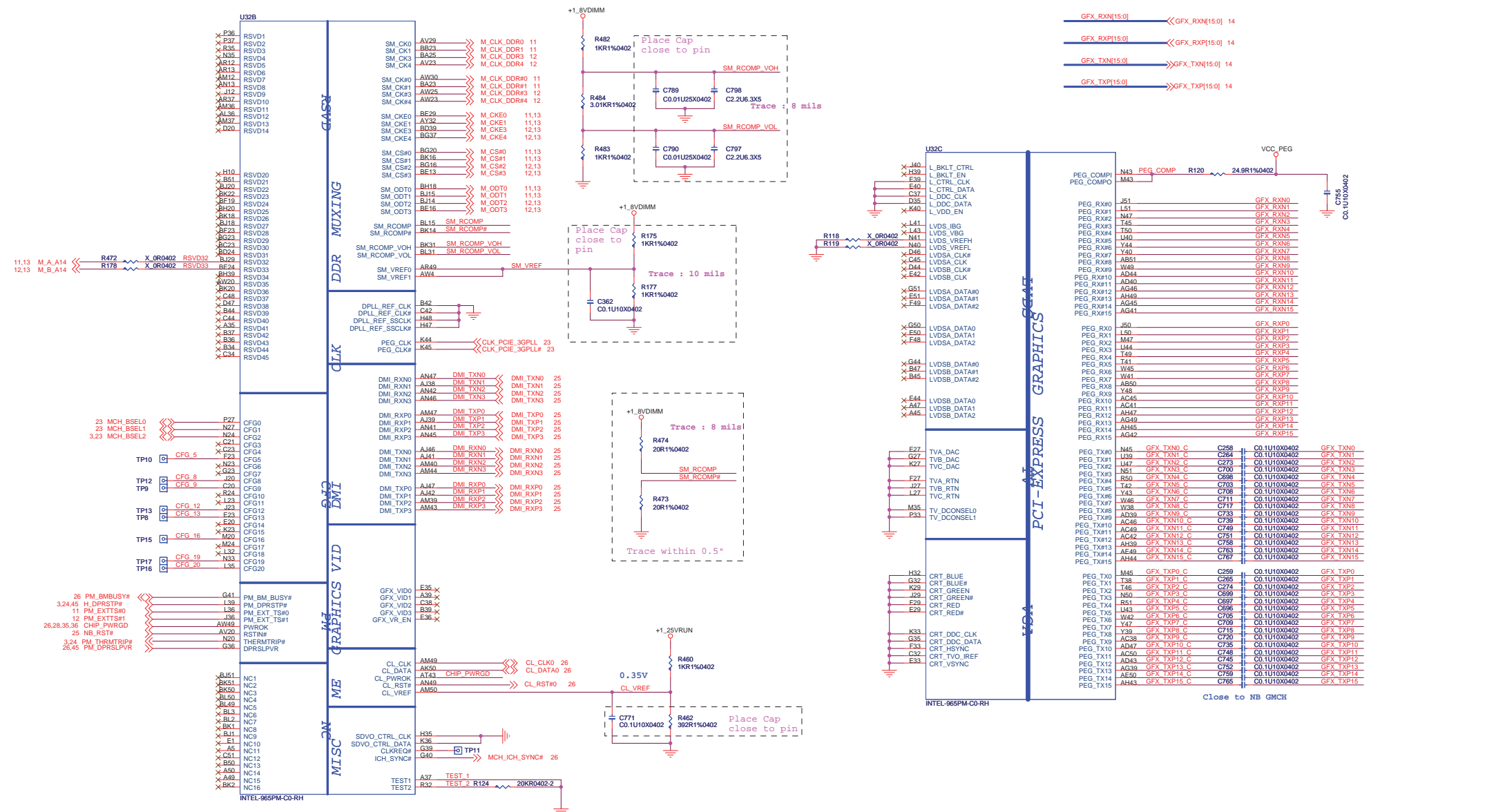


Trace width = 18mils
 Trace spacing = 7mils
 other spacing = 50mils
 length matched within 25mils
 Place R close to CPU within 1"

MSI CORPORATION		
Title		
Merom-2 (POWER/GND)		
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MSI CORPORATION		
Title CRESTLINE-1 (HOST BUS)		
Size B	Document Number MS-163A	Rev OC
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Strapping Configuration

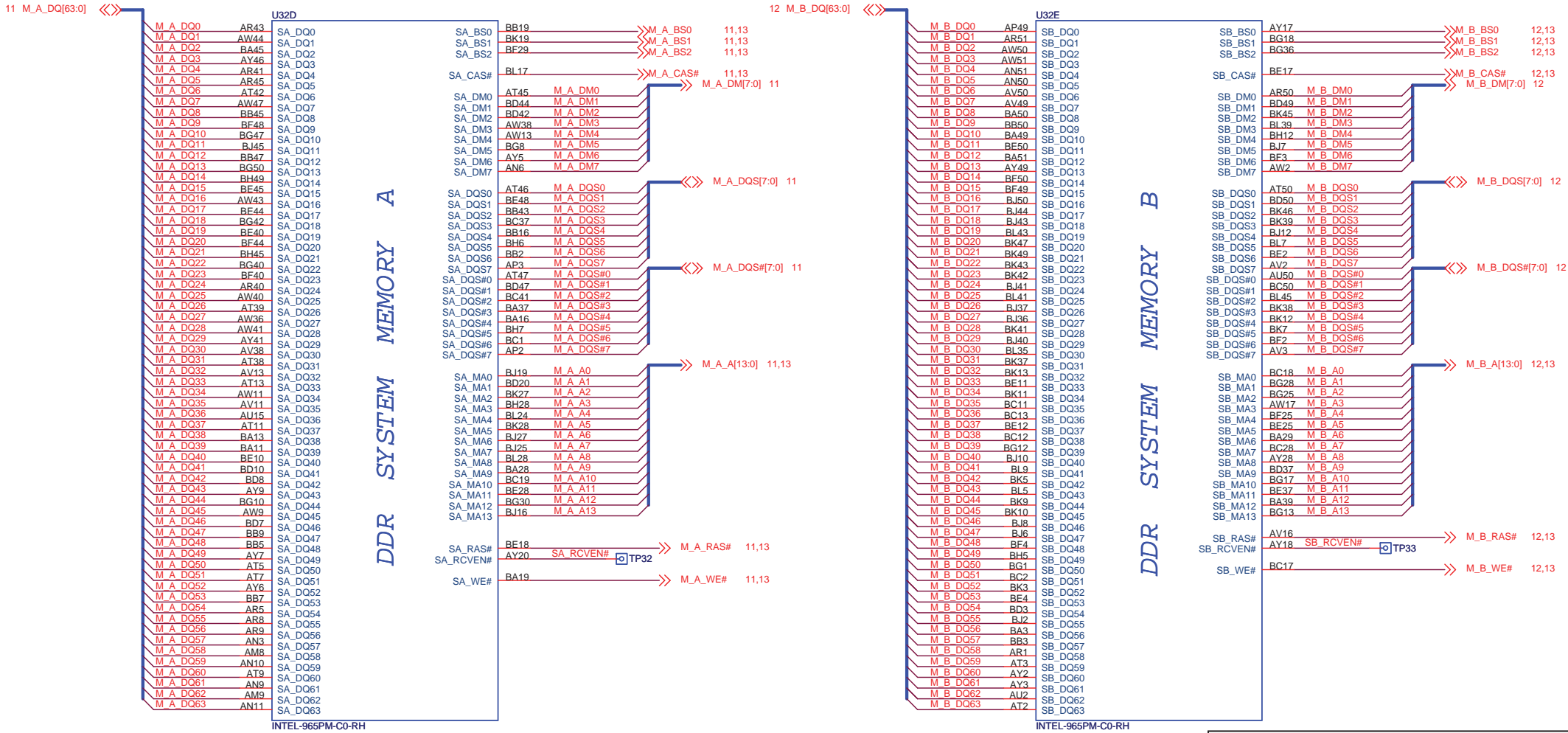
CFG5 (Default=High)	CFG9 (Default=High)	CFG16 (Default=High)	CFG19 (Default=Low)	CFG20 (Default=Low)
0= DMI x2 1= DMI x4 (default)	0= Reverse Lanes 1= Normal (default) PCIE X16	0=Dynamic ODT Disabled 1=Dynamic ODT Enabled (default)	0= Normal (default) 1= Lanes Reversed DMI	Only SDVO or PCIE is operational

MSI CORPORATION

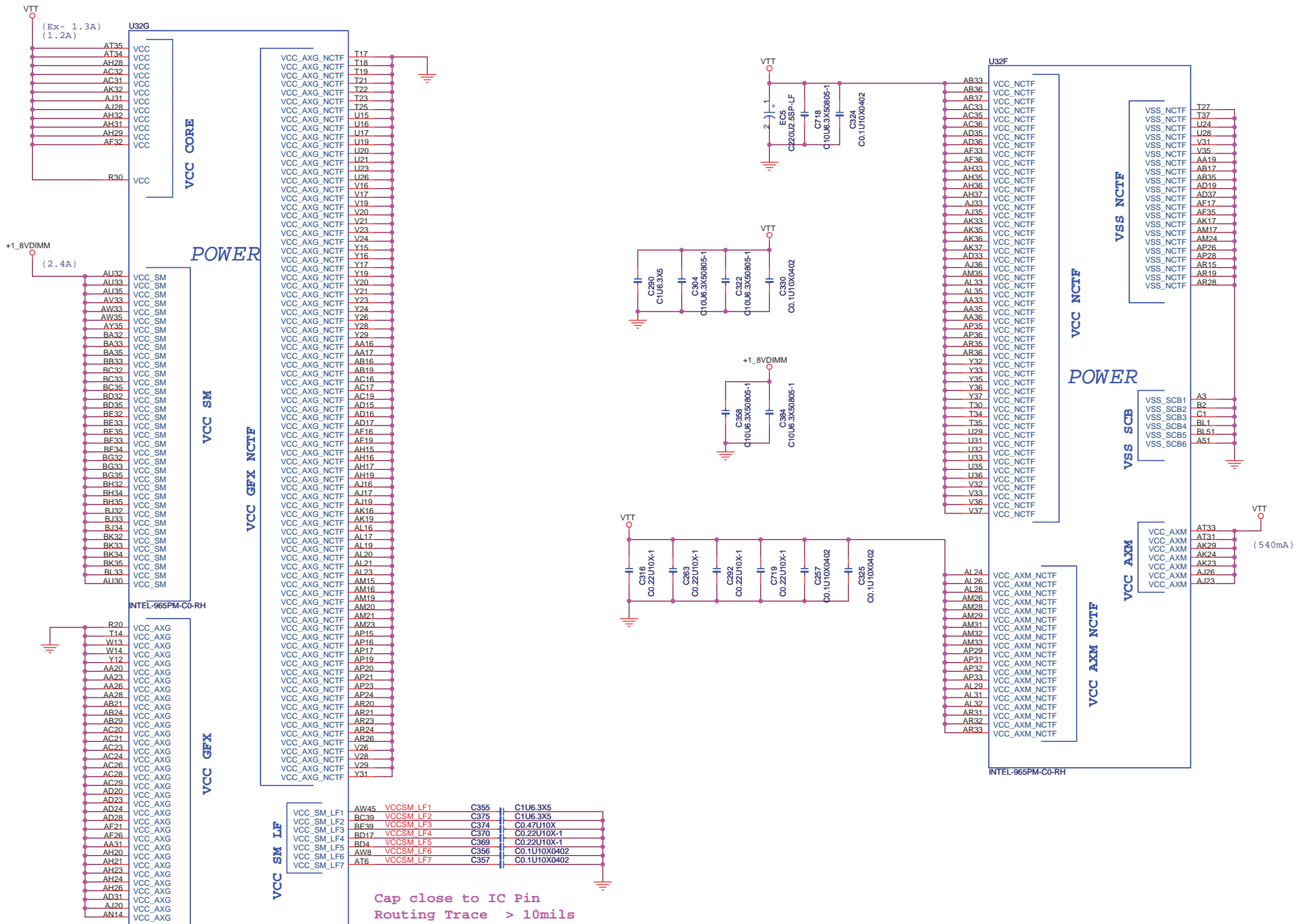
File: **CRESTLINE-2 (DMI/VGA)**

Size: Document Number
Custom: **MS-163A**

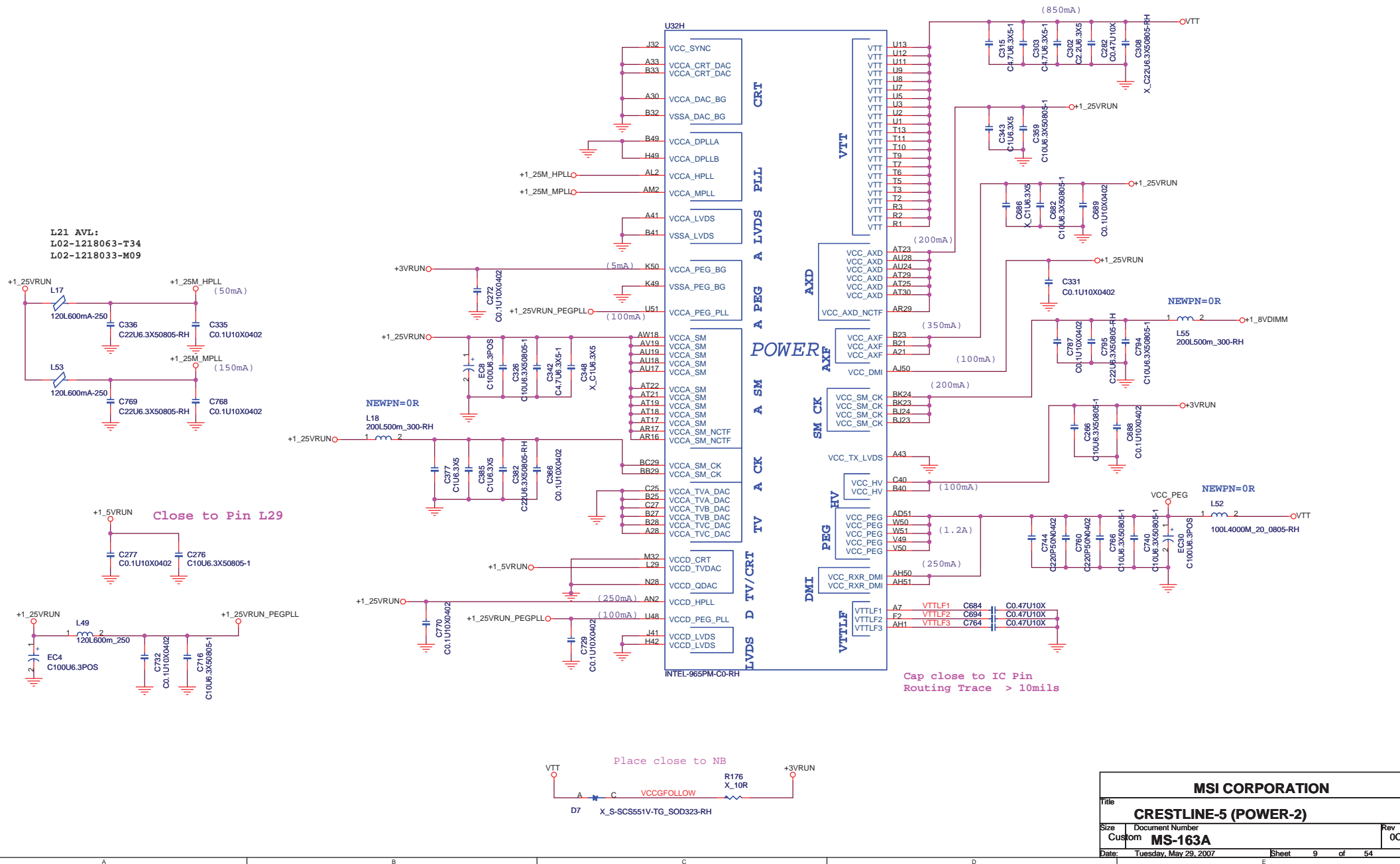
Date: Wednesday, July 11, 2007 Sheet 6 of 54

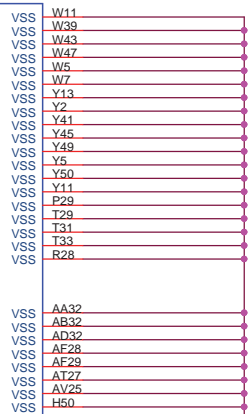
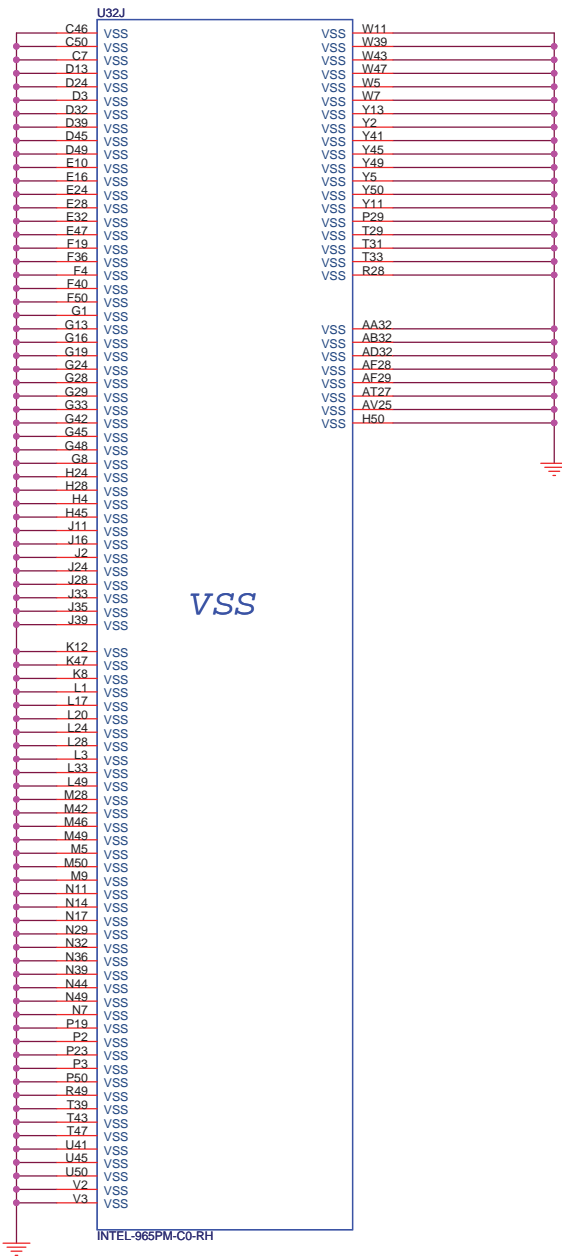
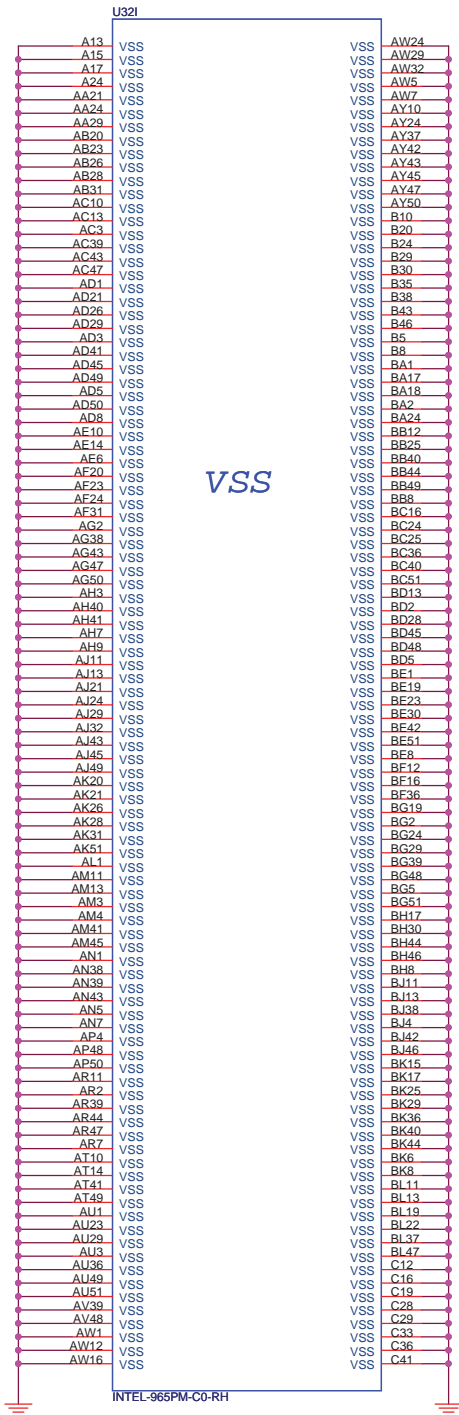


MSI CORPORATION		
Title		
CRESTLINE-3 (DDR)		
Size	Document Number	Rev
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MSI CORPORATION		
File CRESTLINE-4 (POWER-1)		
Size	Document Number	Rev
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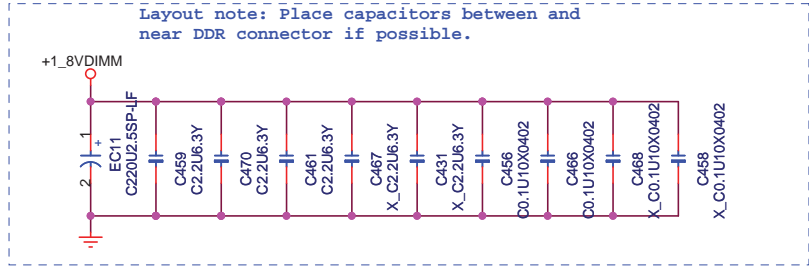
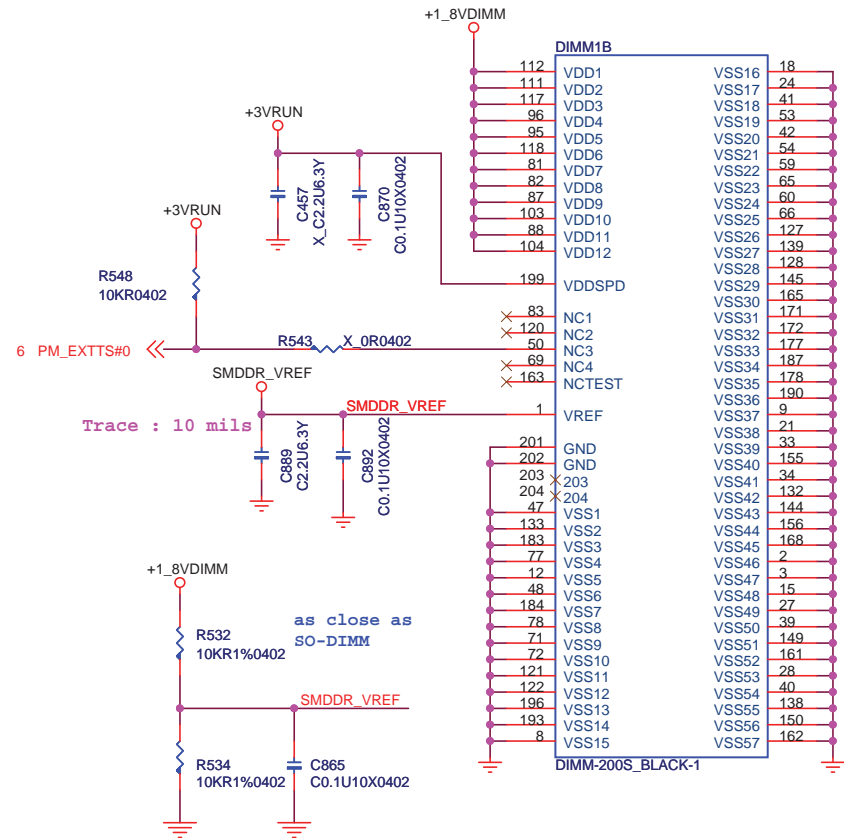
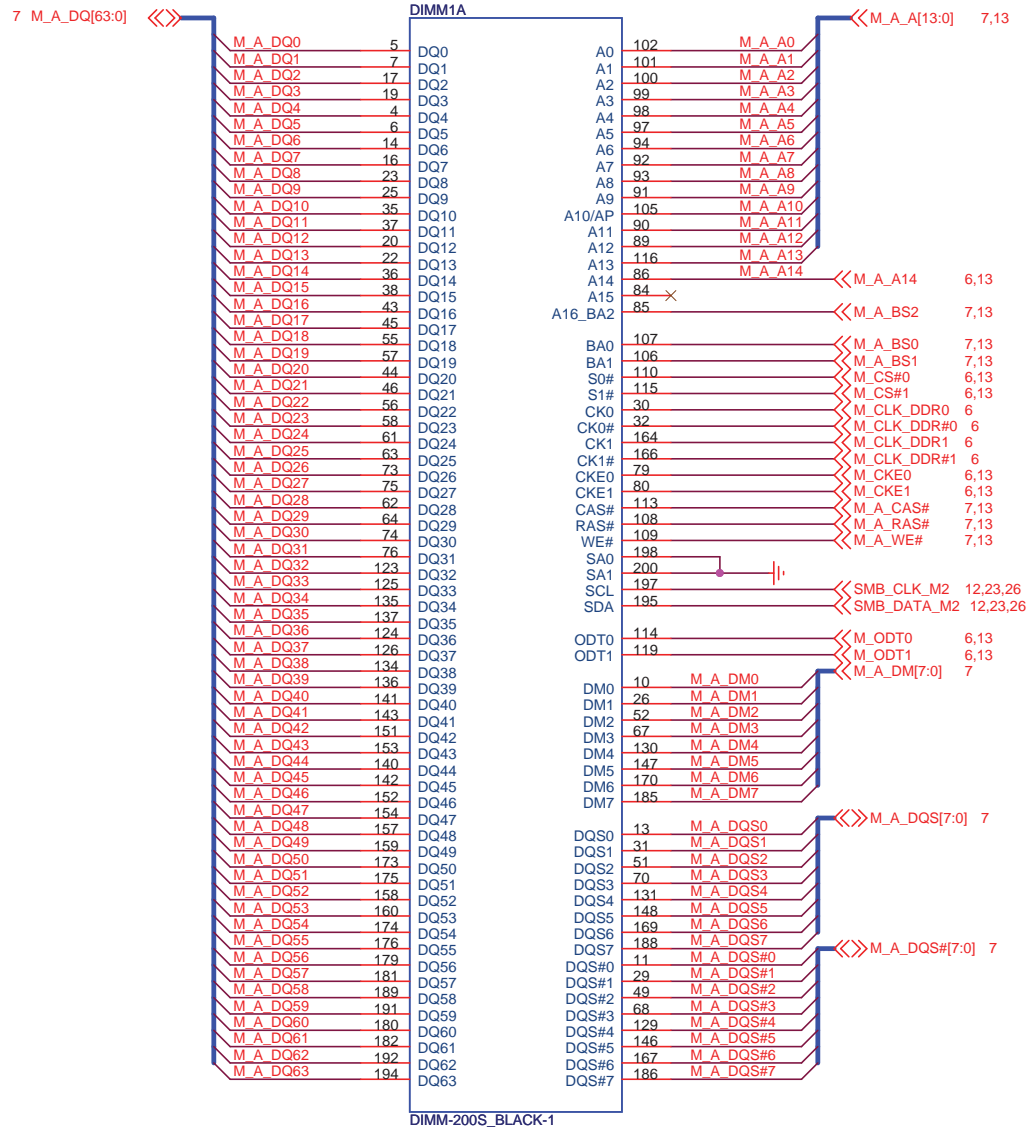


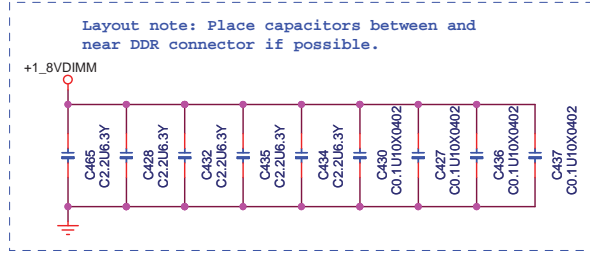
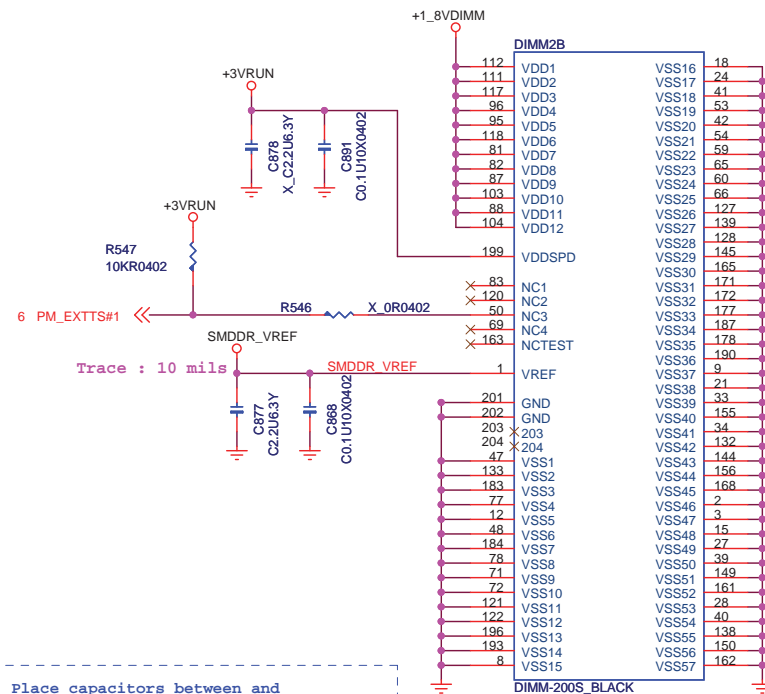
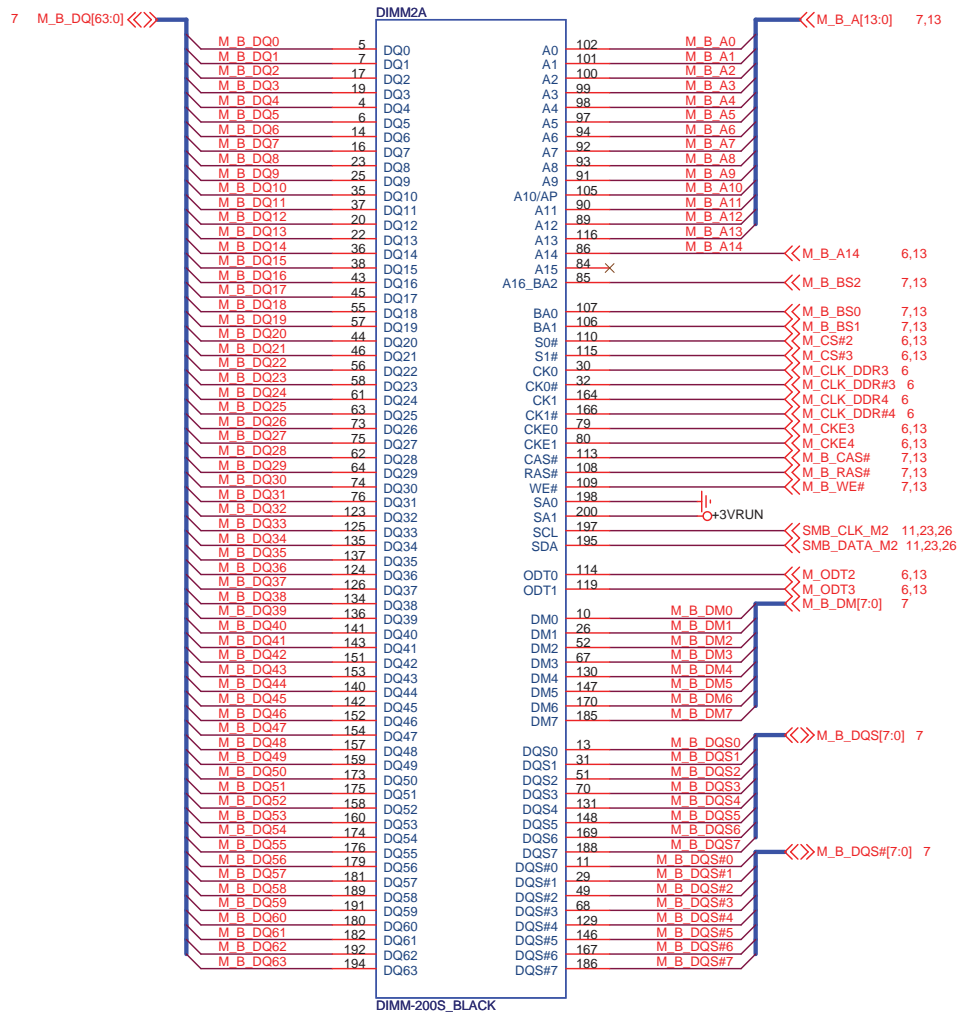


MSI CORPORATION

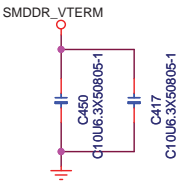
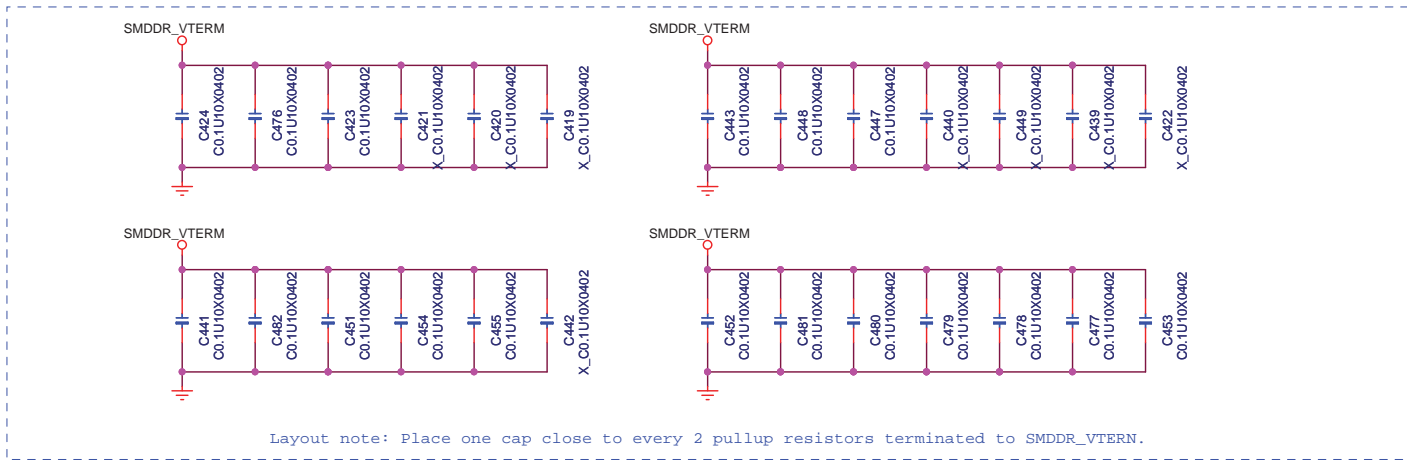
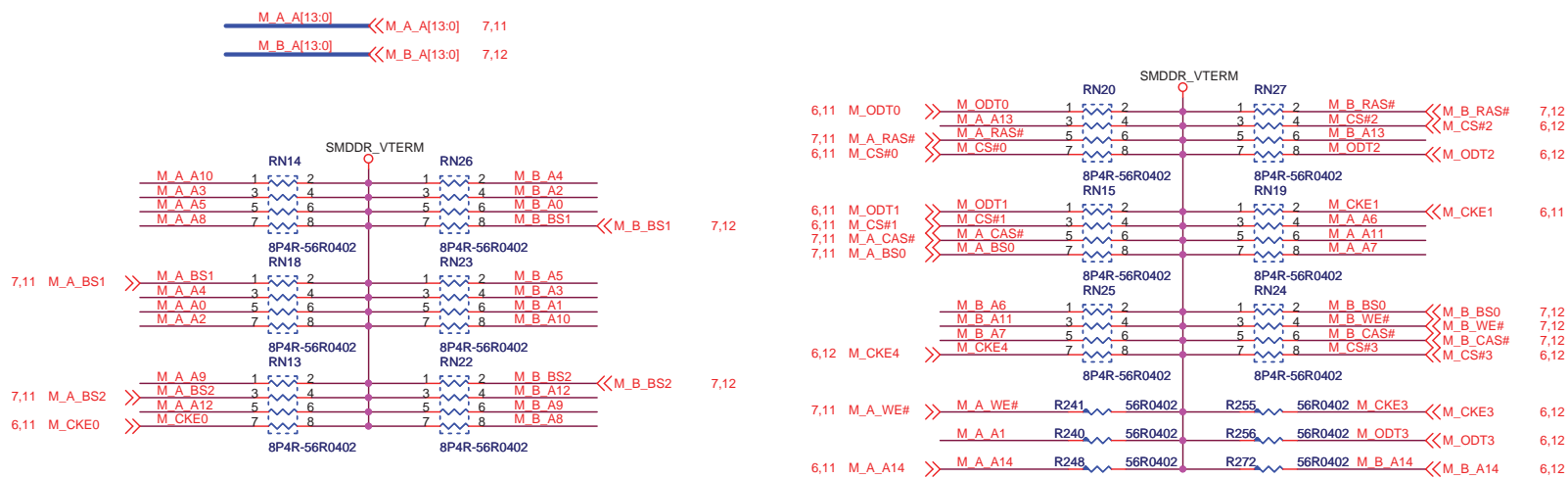
Title: **CRESTLINE-6 (VSS)**

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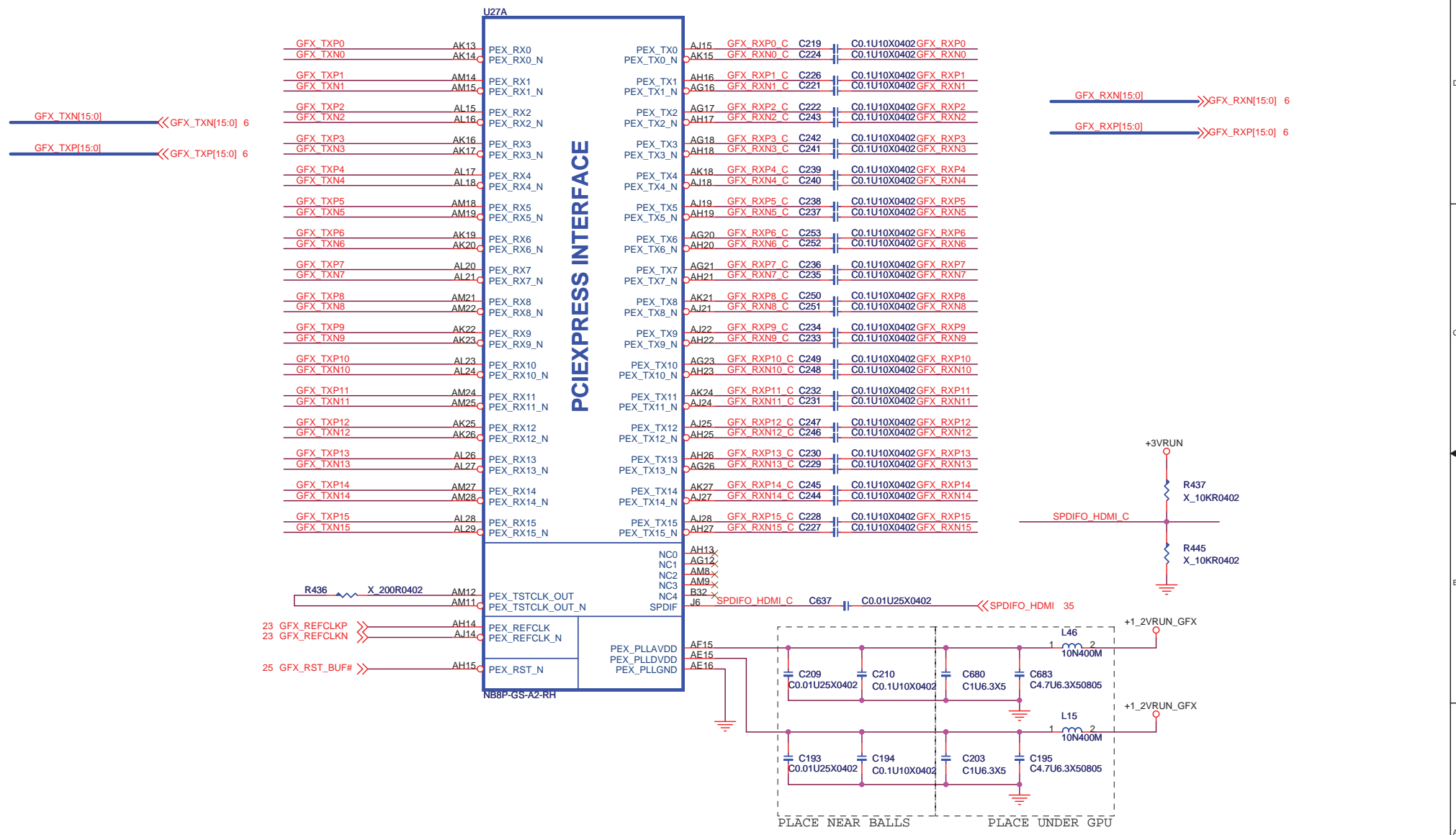




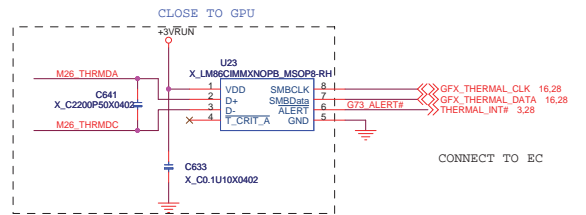
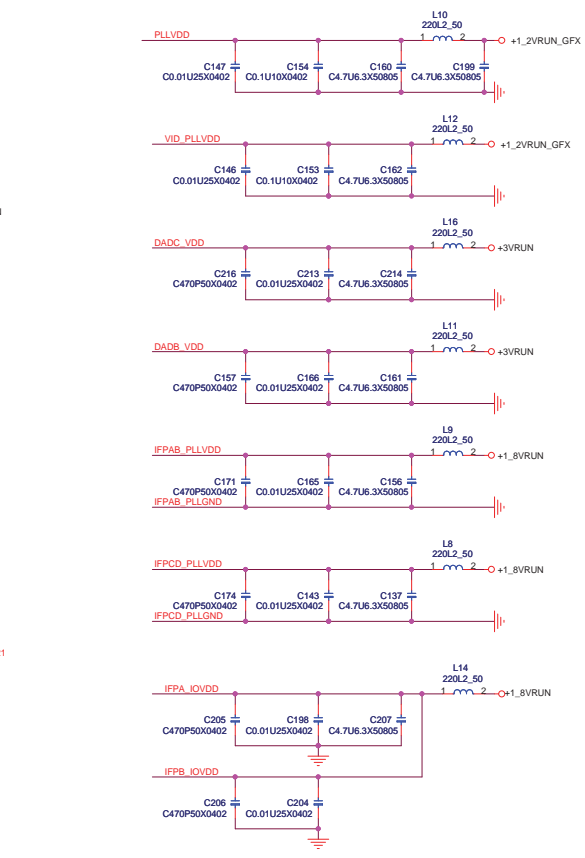
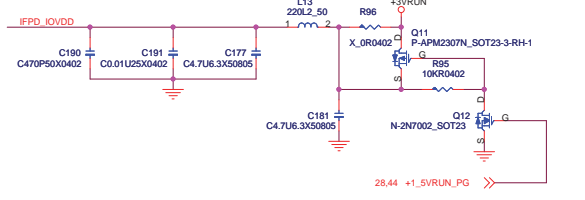
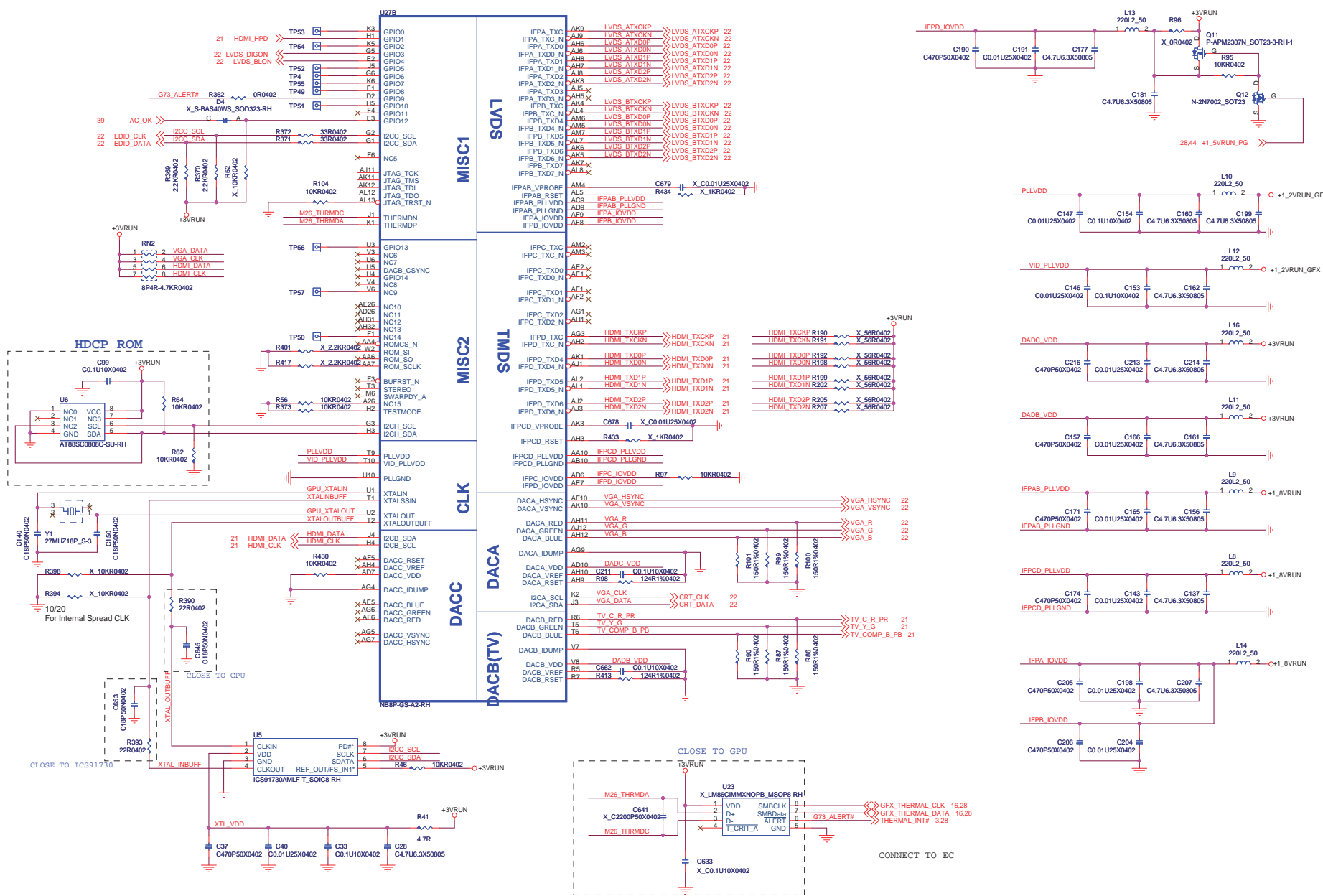
MSI CORPORATION		
Title		
DDR2 SODIMM 1		
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MSI CORPORATION		
Title DDR2 TREMINATION		
Size B	Document Number MS-163A	Rev OC
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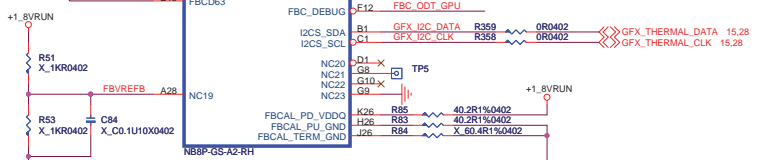
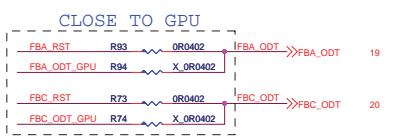
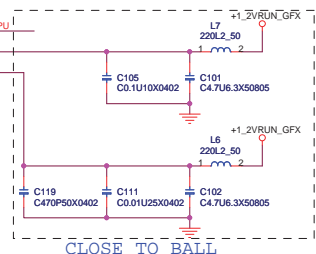
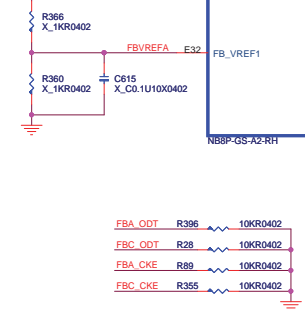
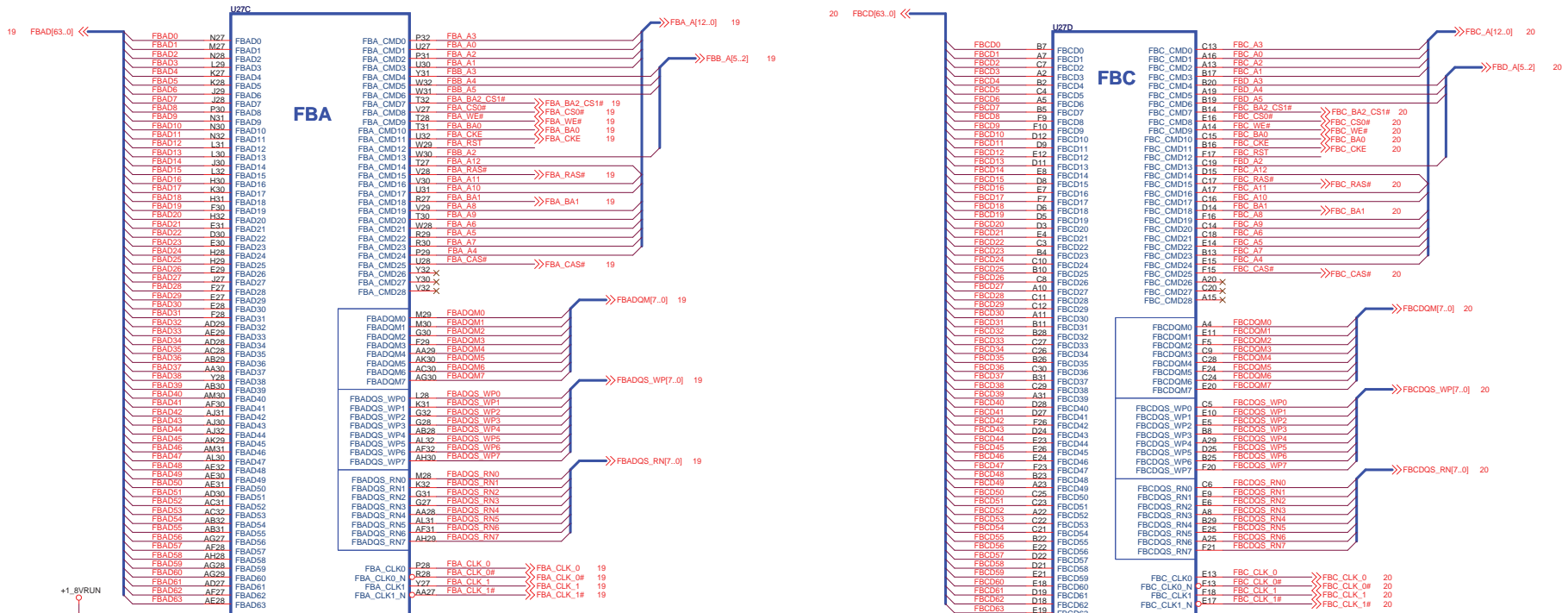


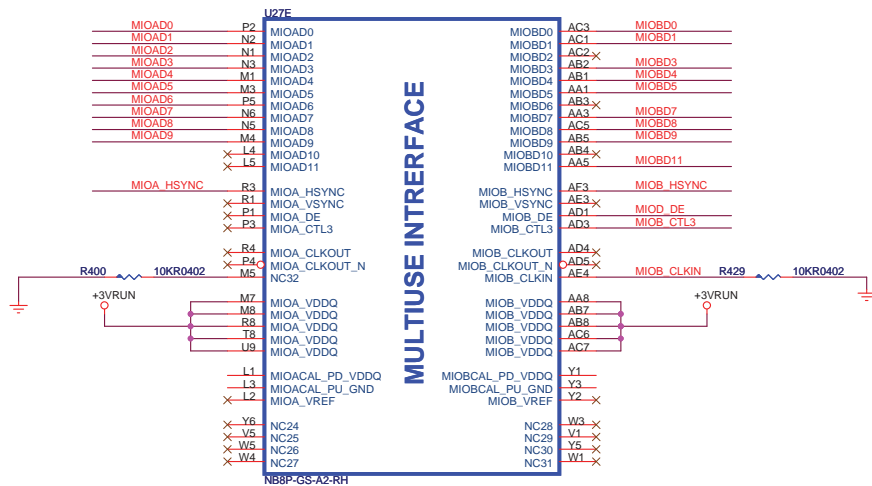
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Title		
NB8P: Host Interface		
Size	Document Number	Rev
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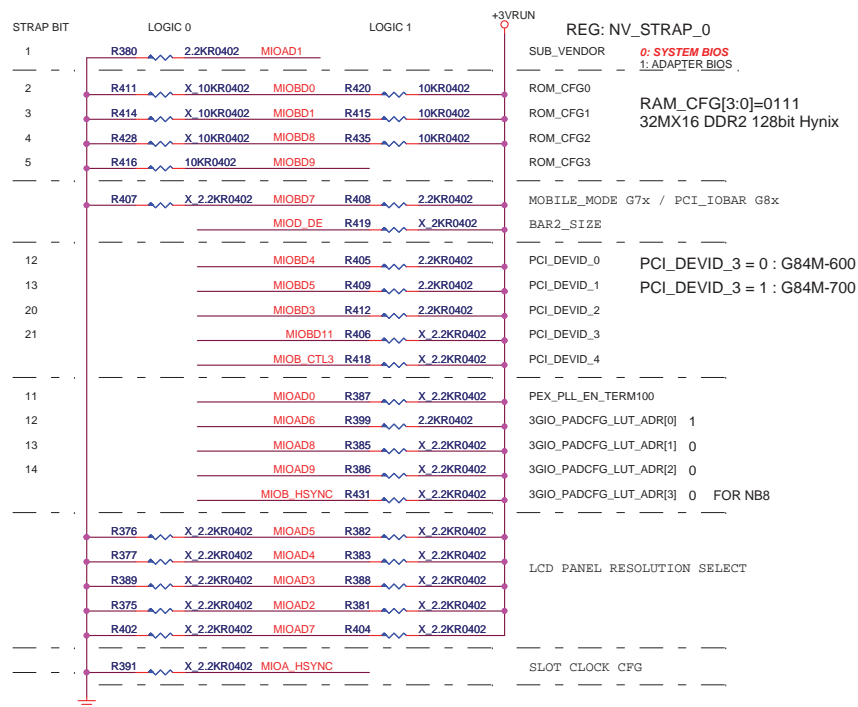
MSI CORPORATION		
File	NB8P: IO Interface	
Size	Document Number	Rev
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<http://laptop-motherboard-schematic.blogspot.com/>

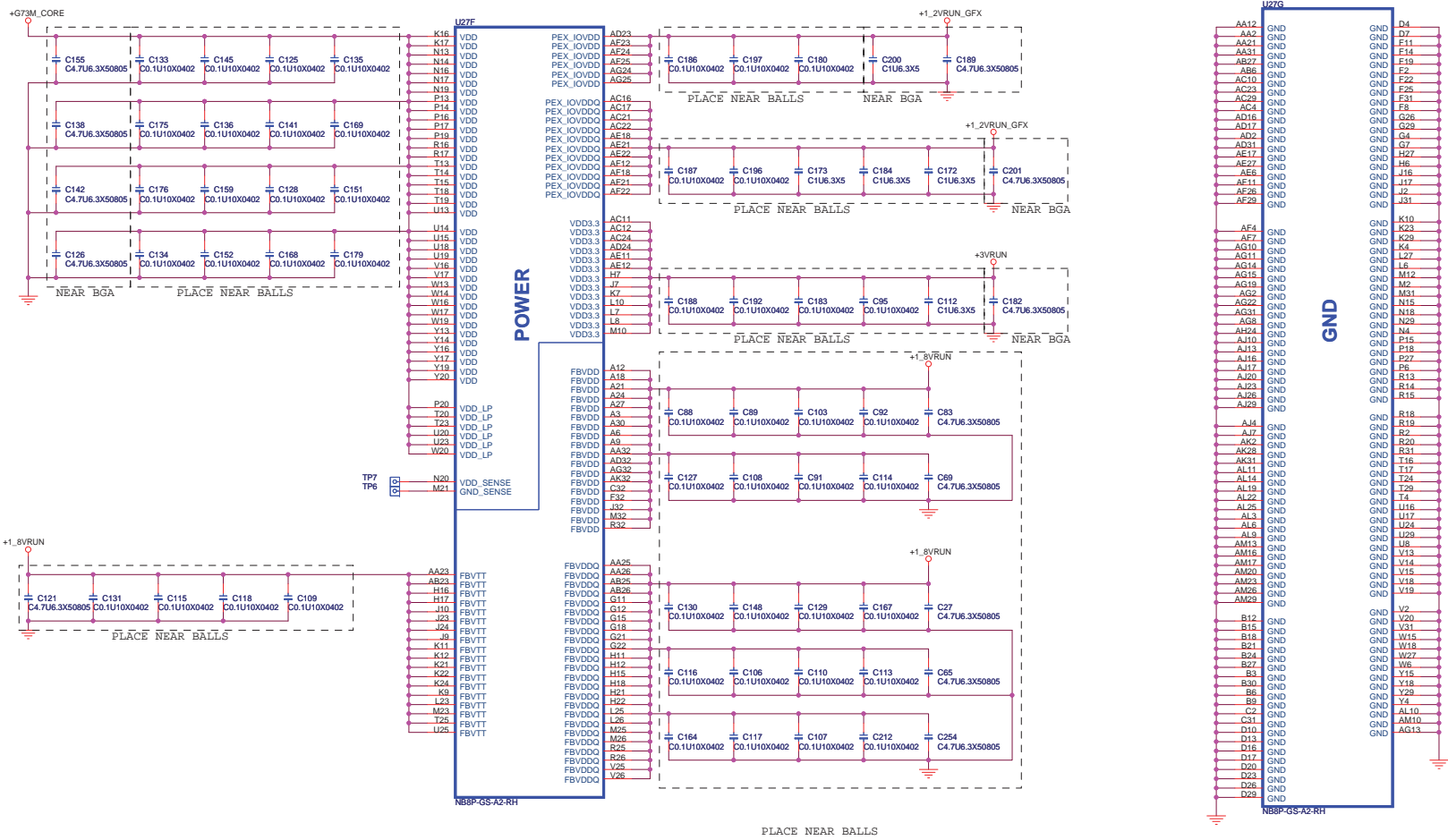




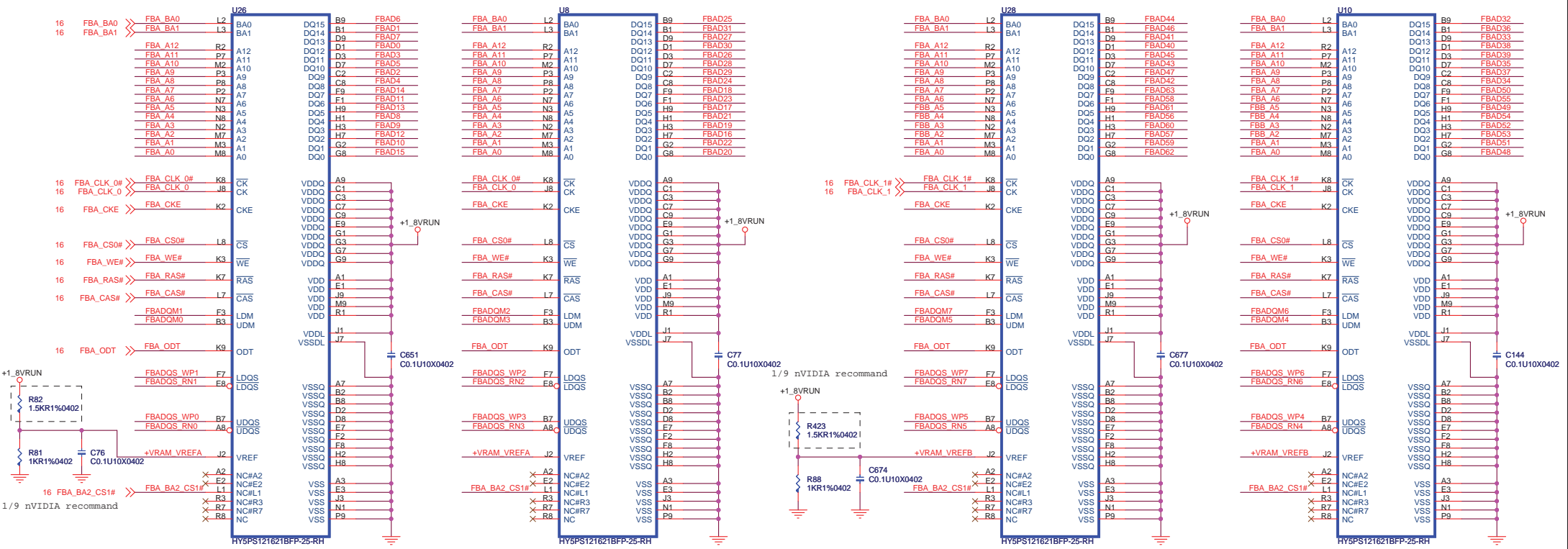
PIN NAME	G8X FUNCTION	DEFAULT	VBIOS ROM NOT PRESENT	NB8
MIOBD2	CRYSTAL	0	NOT REQUIRED	0
MIOAD7	TVMODE0	1	NOT REQUIRED	X
MIOAD10	TVMODE1	0	NOT REQUIRED	0
MIOBD6	TVMODE2	0	NOT REQUIRED	0
MIOBD4	PCI_DEVID_0	0	2K PULL-UP RECOMMENDED	X
MIOBD5	PCI_DEVID_1	0	2K PULL-UP RECOMMENDED	X
MIOBD3	PCI_DEVID_2	0	2K PULL-UP RECOMMENDED	X
MIOBD11	PCI_DEVID_3	0	2K PULL-UP RECOMMENDED	X
MIOB_CTL3	PCI_DEVID_4	0	2K PULL-UP RECOMMENDED	X
MIOAD6	3GIO_PADCFG0	0	2K PULL-UP RECOMMENDED	1
MIOAD8	3GIO_PADCFG1	0	2K PULL-UP RECOMMENDED	0
MIOAD9	3GIO_PADCFG2	0	2K PULL-UP RECOMMENDED	0
MIOB_HSYNC	3GIO_PADCFG3	0	2K PULL-UP RECOMMENDED	0
MIOBD7	PCI_I0BAR	1	NOT REQUIRED	1
MIOB_DE	BAR2_SIZE	0	NOT REQUIRED	0



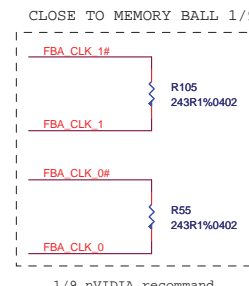
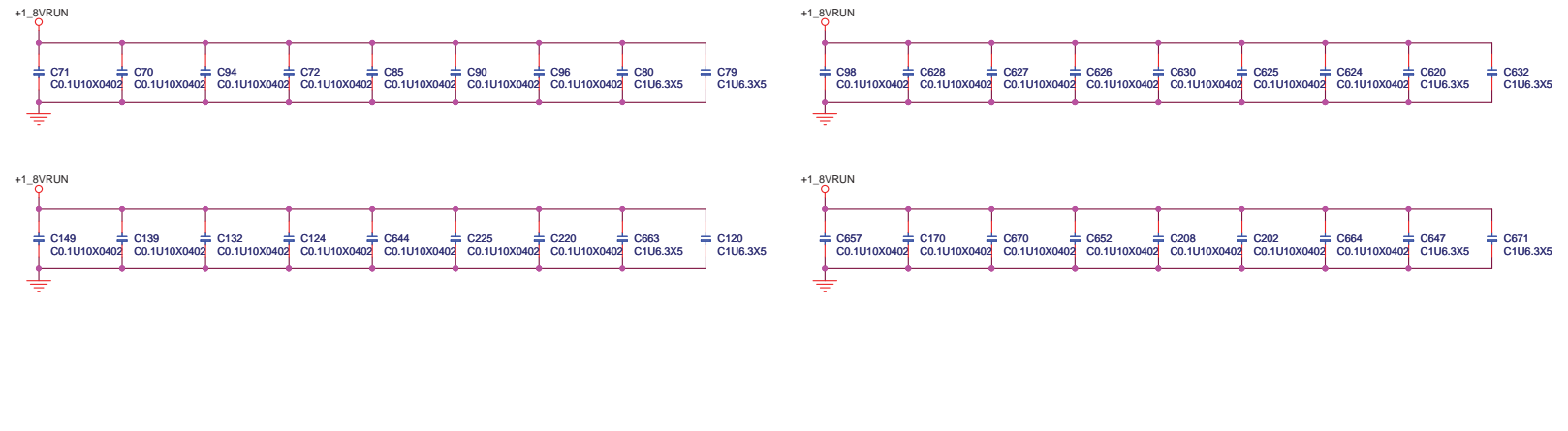
MSI CORPORATION		
Title	NB8P: STRAP	
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512 M GDDRII Channels A

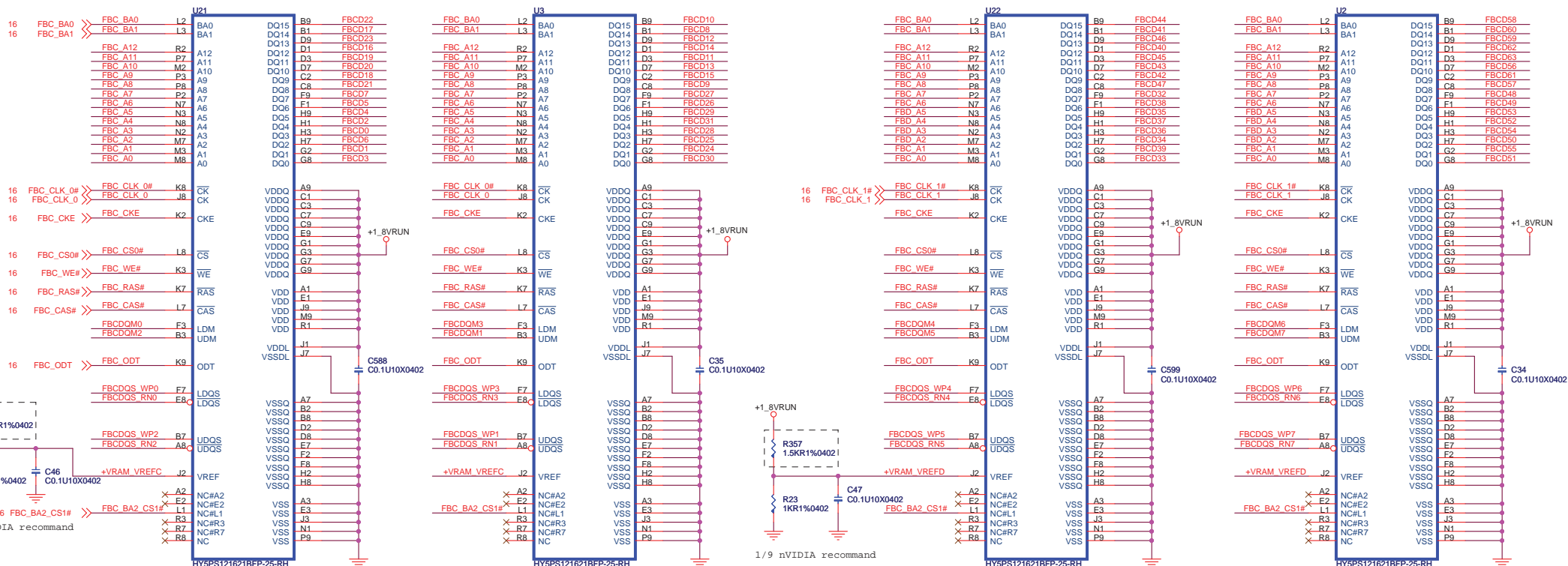


- 16 FBB_A[5..2] >> FBB_A[5..2]
- 16 FBAD[63..0] >> FBAD[63..0]
- 16 FBA_A[12..0] >> FBA_A[12..0]
- 16 FBADQS_WP[7..0] >> FBADQS_WP[7..0]
- 16 FBADQS_RN[7..0] >> FBADQS_RN[7..0]
- 16 FBADQM[7..0] >> FBADQM[7..0]

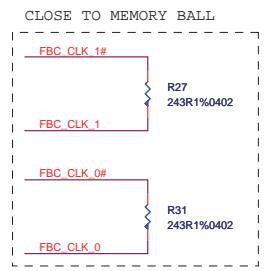


MSI CORPORATION		
Title	GDDRII_32Mx16_BGA_A	
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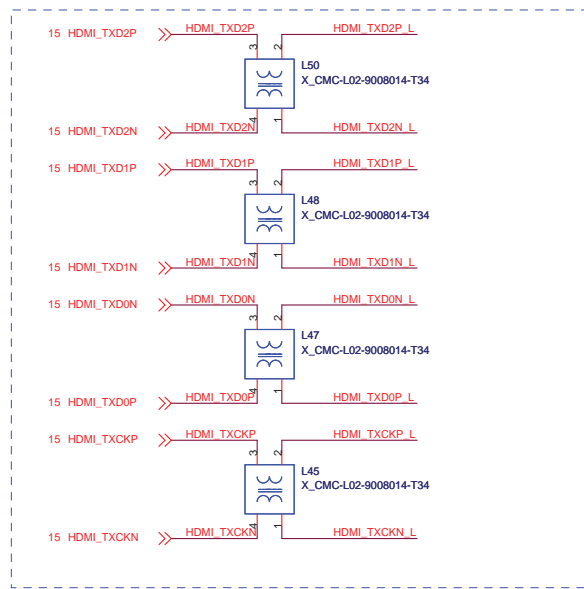
512 M GDDRII Channels B



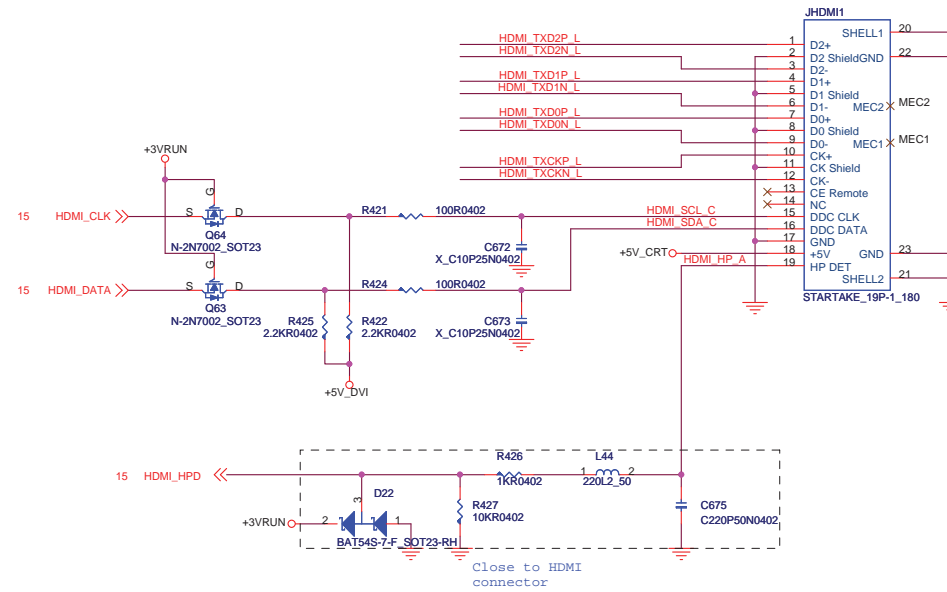
- 16 FBD_A[5..2] >> FBD_A[5..2]
- 16 FBCD[63..0] >> FBCD[63..0]
- 16 FBC_A[12..0] >> FBC_A[12..0]
- 16 FBCDQS_WP[7..0] >> FBCDQS_WP[7..0]
- 16 FBCDQS_RN[7..0] >> FBCDQS_RN[7..0]
- 16 FBCDQM[7..0] >> FBCDQM[7..0]



MSI CORPORATION		
Title GDDRII 32Mx16 BGA B		
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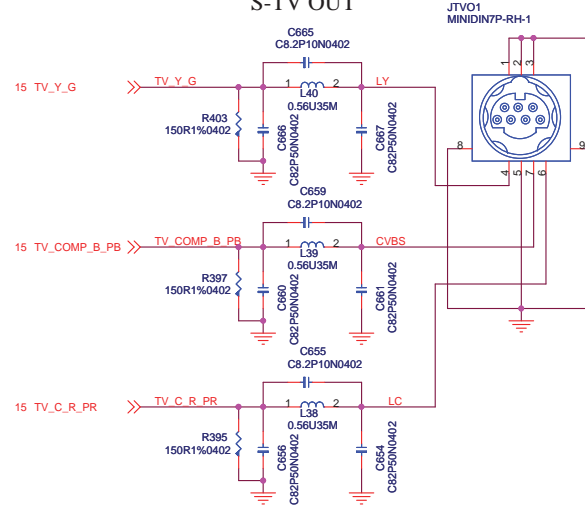


CLOSE TO CONNECTOR

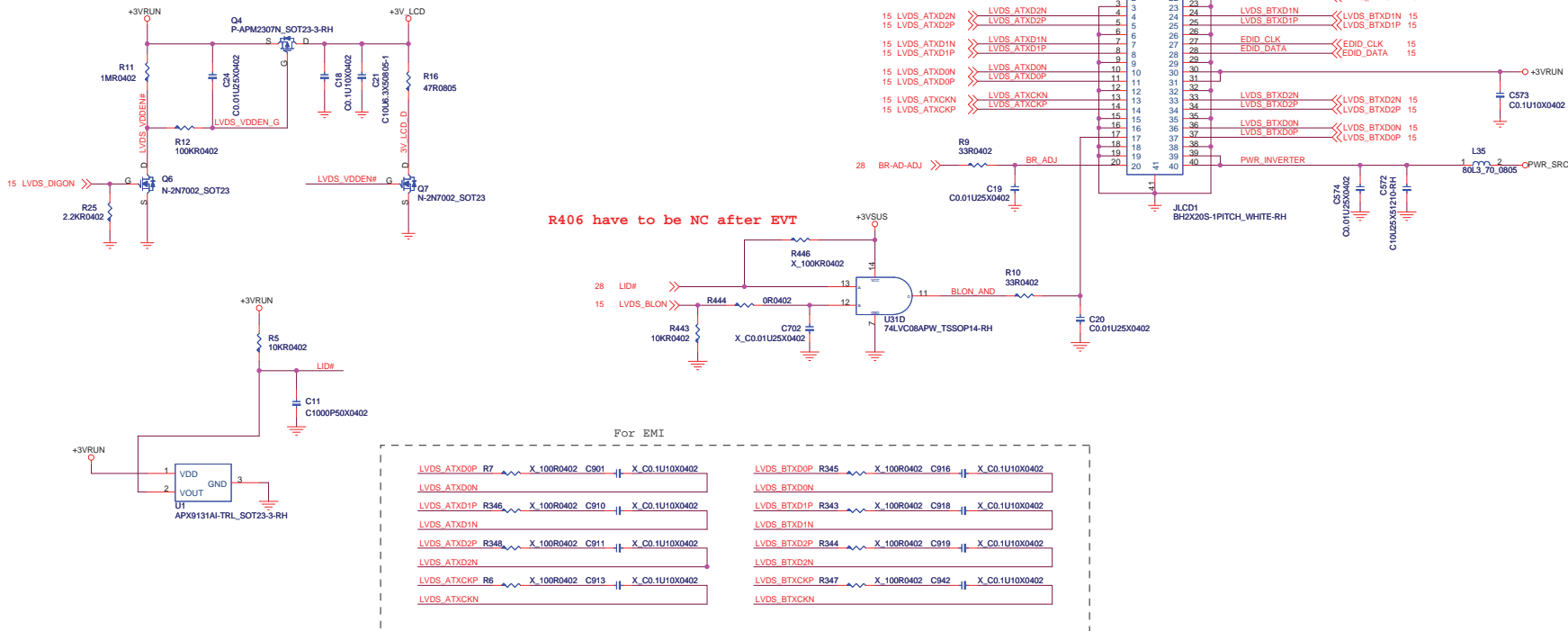
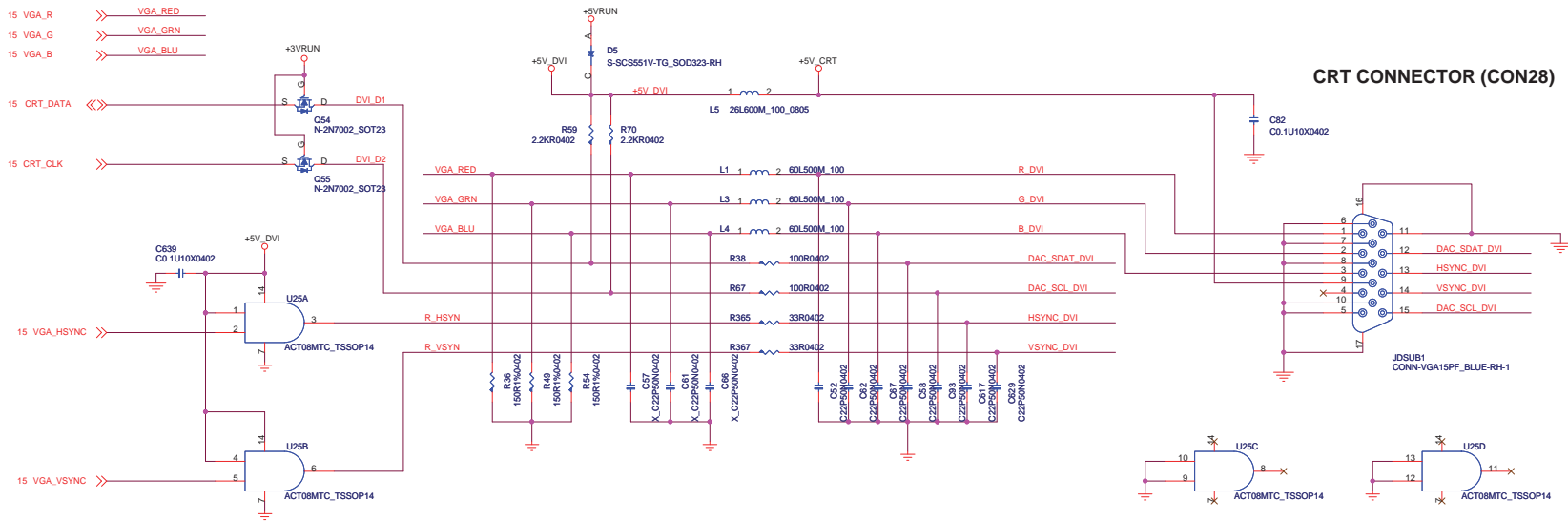


Close to HDMI connector

S-TV OUT

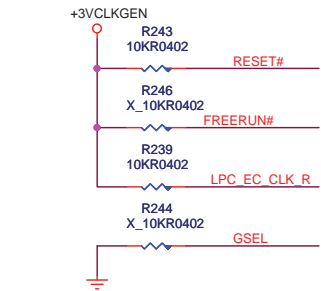


MSI CORPORATION		
Title HDMI & TV connector		
Size Custom	Document Number MS-163A	Rev 0A
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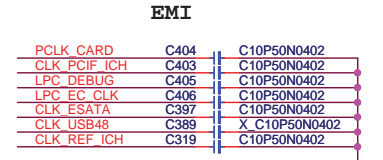
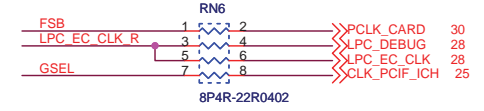
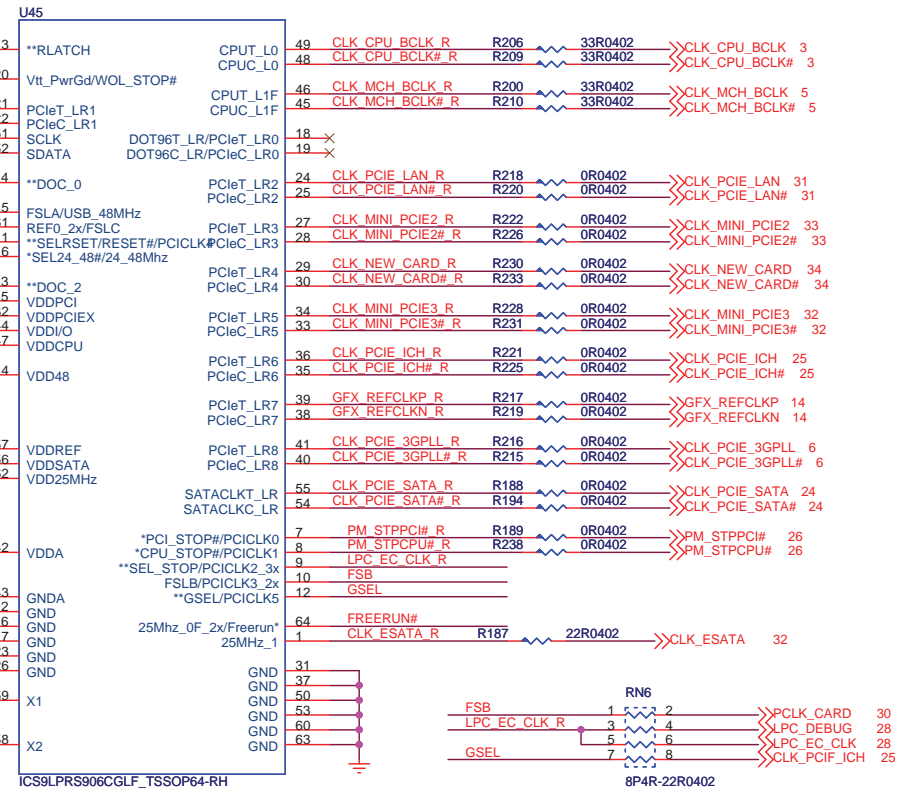
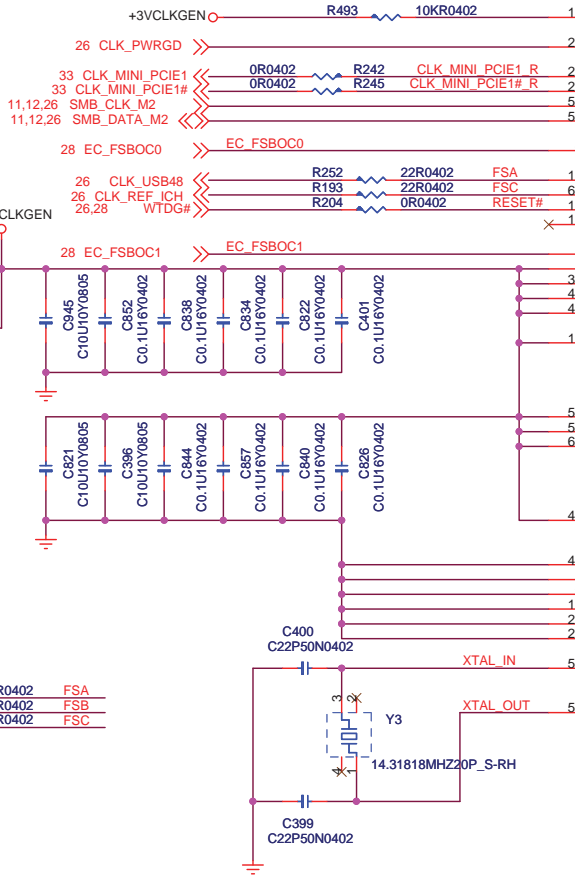
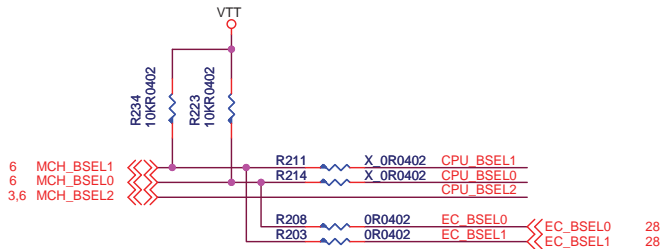
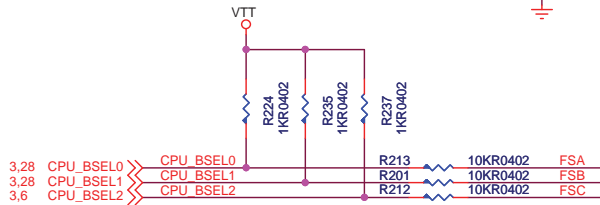
For EMI

LVDS_ATXD0P	R7	X 100R0402	C801	X C0.1U10X0402	LVDS_BTXD0P	R345	X 100R0402	C916	X C0.1U10X0402
LVDS_ATXD0N					LVDS_BTXD0N				
LVDS_ATXD1P	R346	X 100R0402	C810	X C0.1U10X0402	LVDS_BTXD1P	R343	X 100R0402	C918	X C0.1U10X0402
LVDS_ATXD1N					LVDS_BTXD1N				
LVDS_ATXD2P	R348	X 100R0402	C811	X C0.1U10X0402	LVDS_BTXD2P	R344	X 100R0402	C919	X C0.1U10X0402
LVDS_ATXD2N					LVDS_BTXD2N				
LVDS_ATXCKP	R6	X 100R0402	C913	X C0.1U10X0402	LVDS_BTXCCKP	R347	X 100R0402	C942	X C0.1U10X0402
LVDS_ATXCKN					LVDS_BTXCCKN				



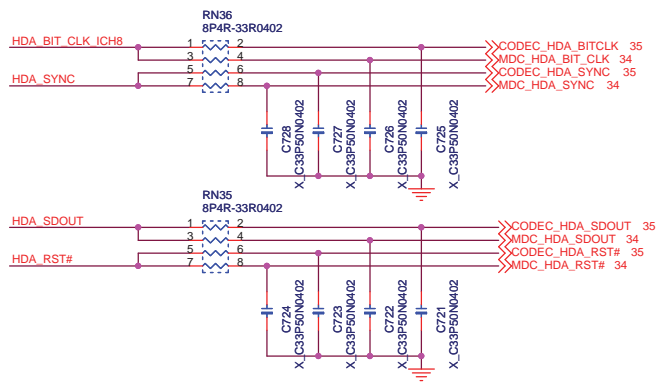
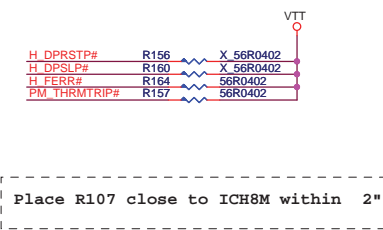
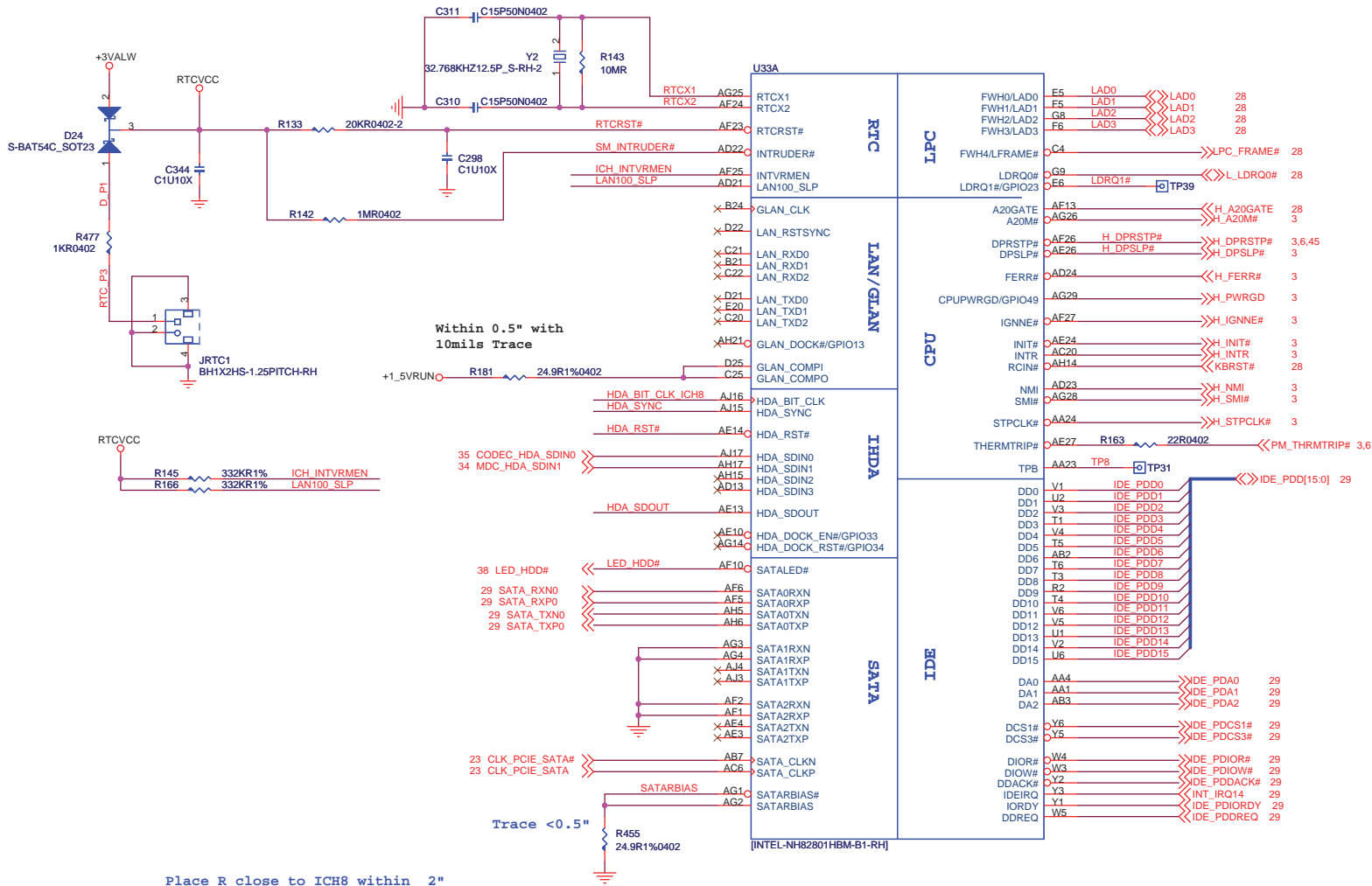
PIN 7,8 FUNCTION	PIN 9 STRAP
CPU/PCI STOP	1
PCICLK	0

PIN 18,19 FUNCTION	PIN 12 STRAP
96M	1
PCIe	0



CPU Table			FSB Freq (MHz)
BSEL[2]	BSEL[1]	BSEL[0]	
L	H	H	667 MHz
L	H	L	800 MHz

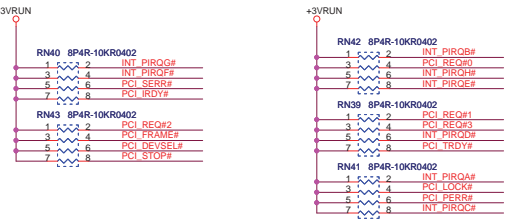
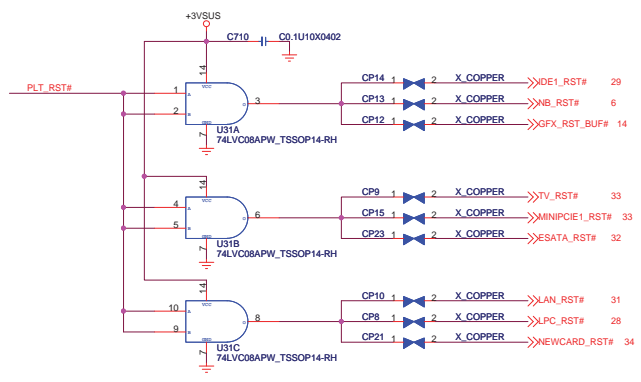
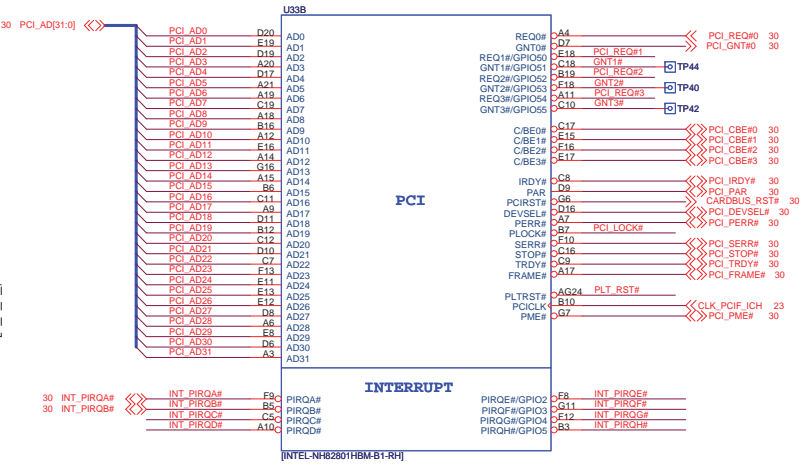
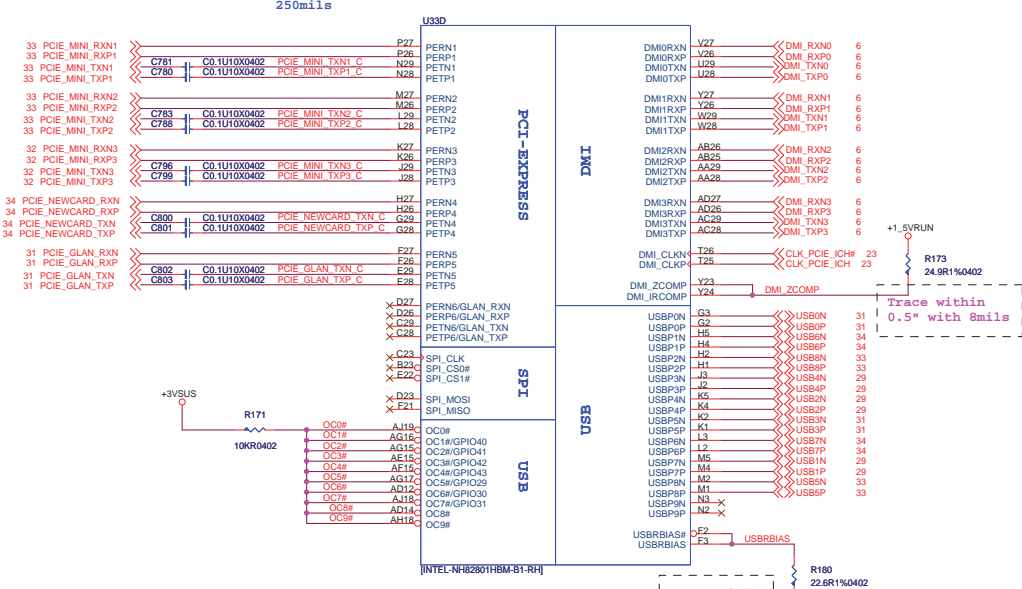
MSI CORPORATION		
Title CLK GEN [ICS9LPRS514]		
Size Custom	Document Number MS-163A	Rev 0A
Date: Tuesday, July 10, 2007	Sheet 23	of 54

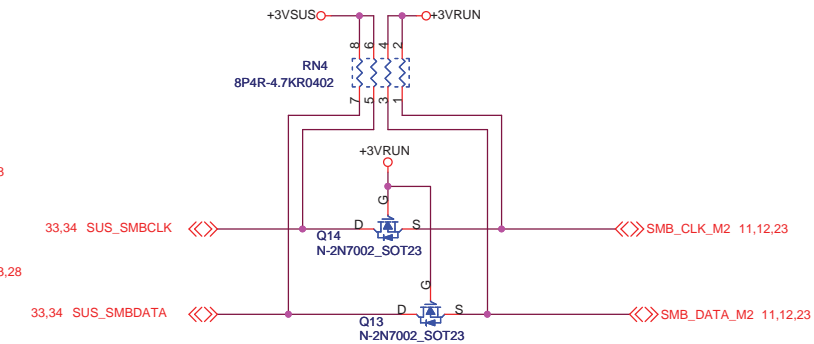
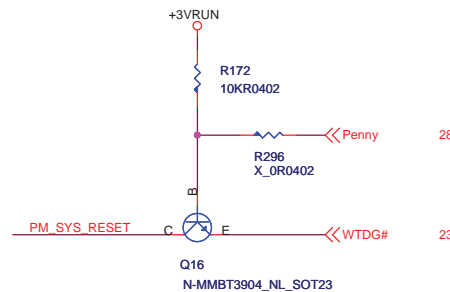
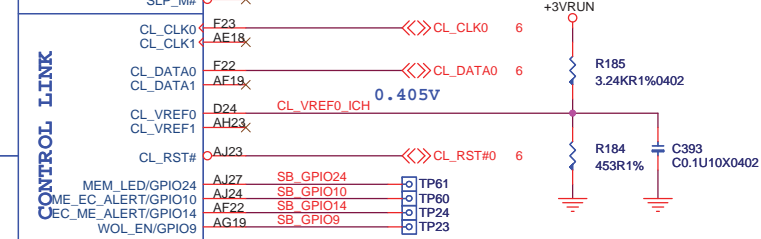
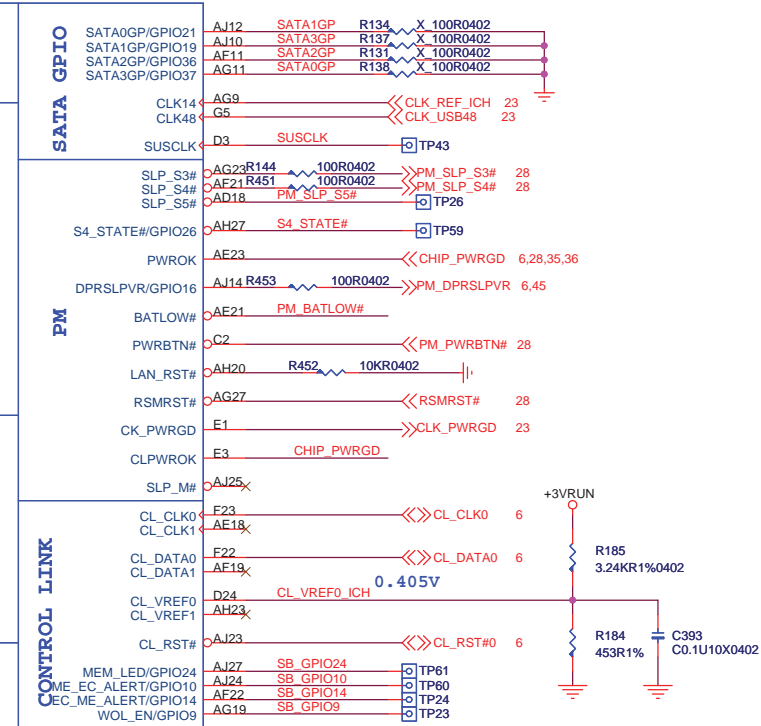
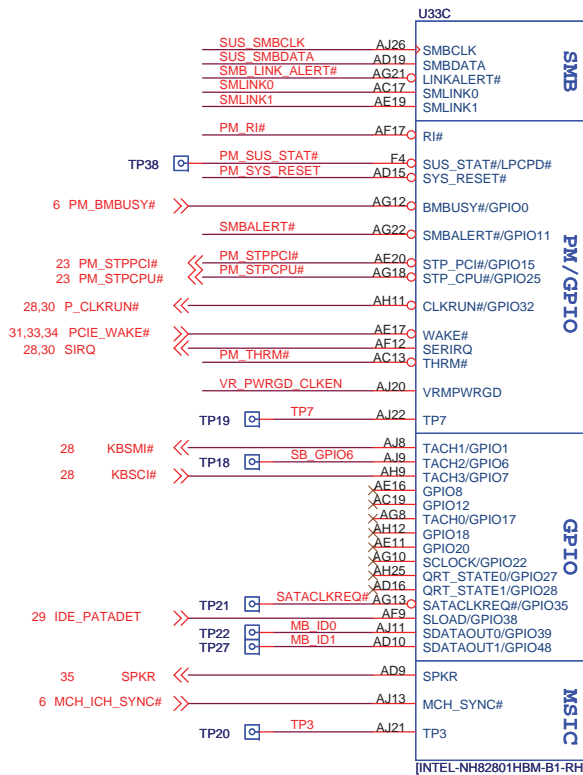
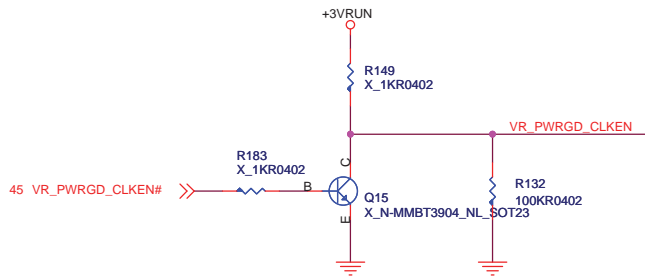
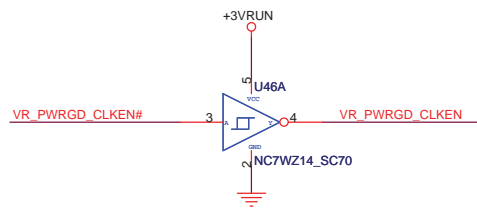
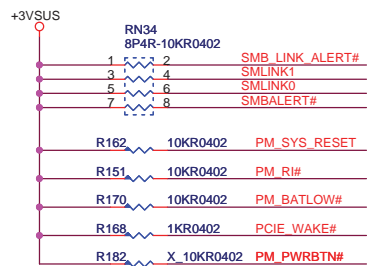
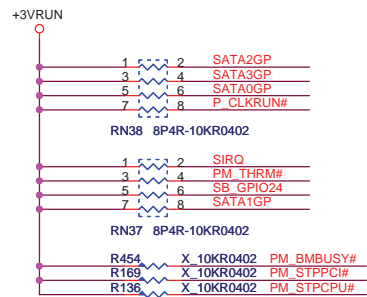


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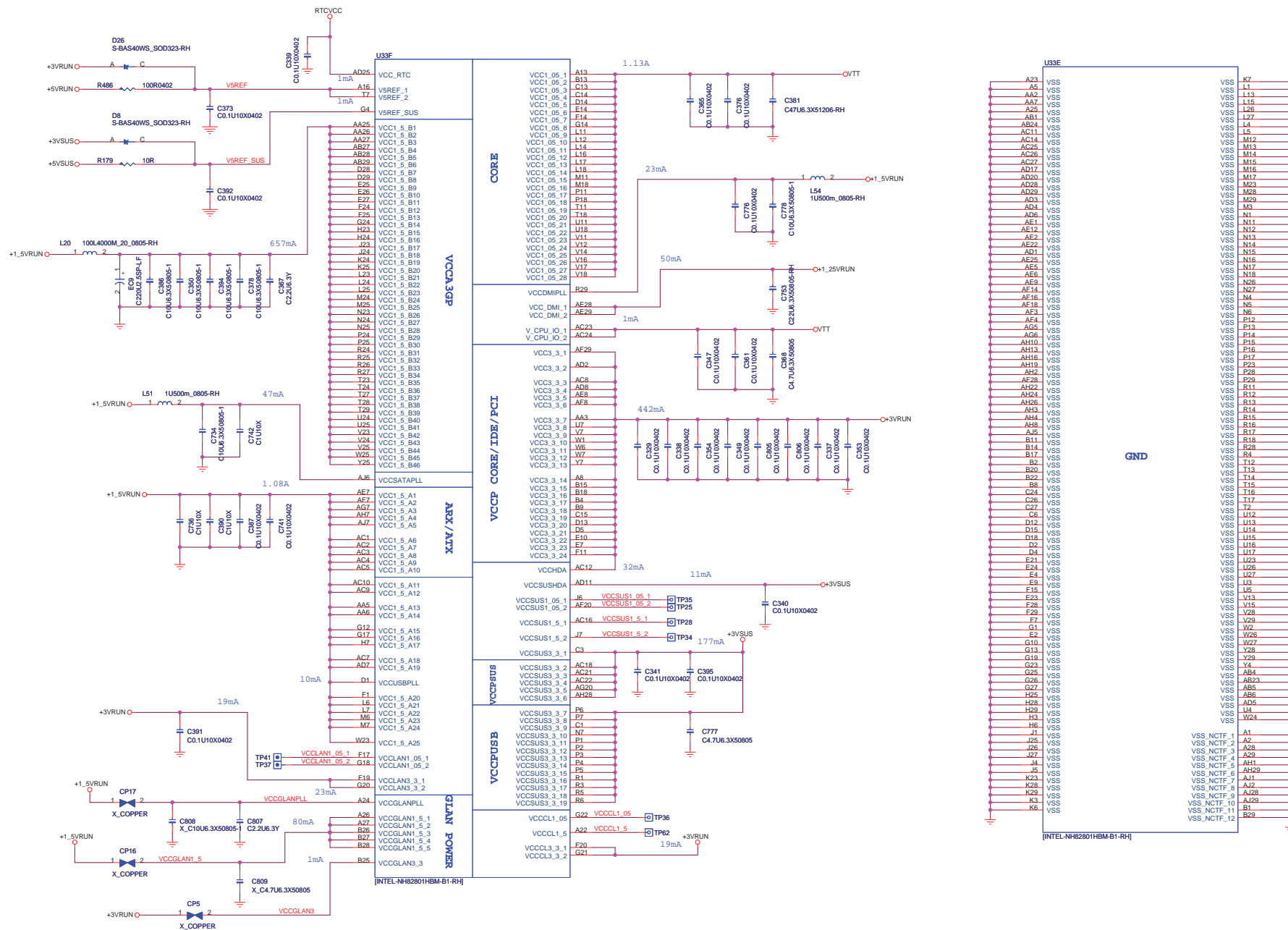
MSI CORPORATION		
Title ICH8M-1 (CPU/IDE/Azalia)		
Size	Document Number	Rev
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place Cap
close to
IC#8 within
250mils



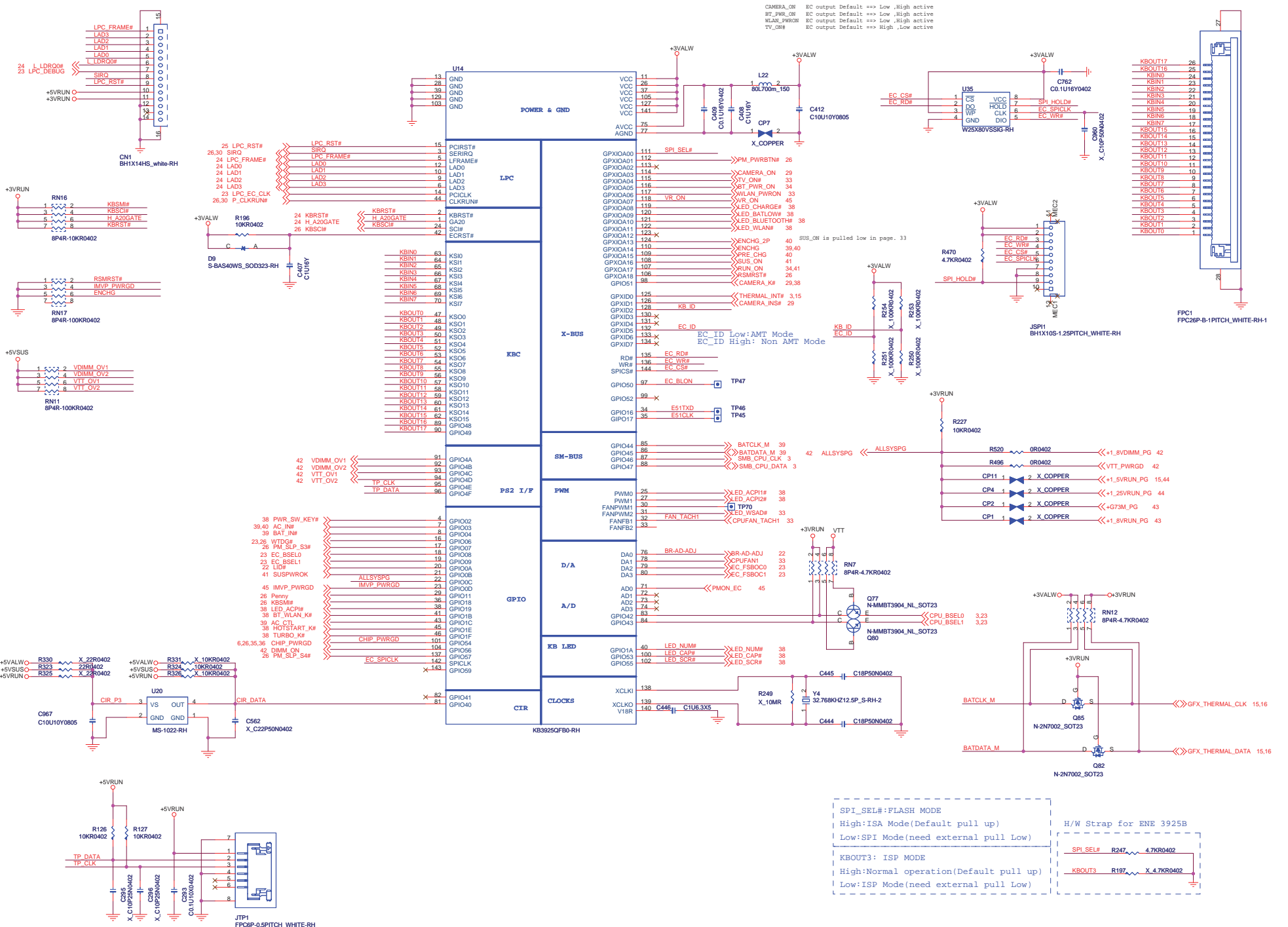


MSI CORPORATION			
ICH8M-3 (SM BUS/GPIO)			
Title			
Size	Document Number	Rev	
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MSI CORPORATION		
File		
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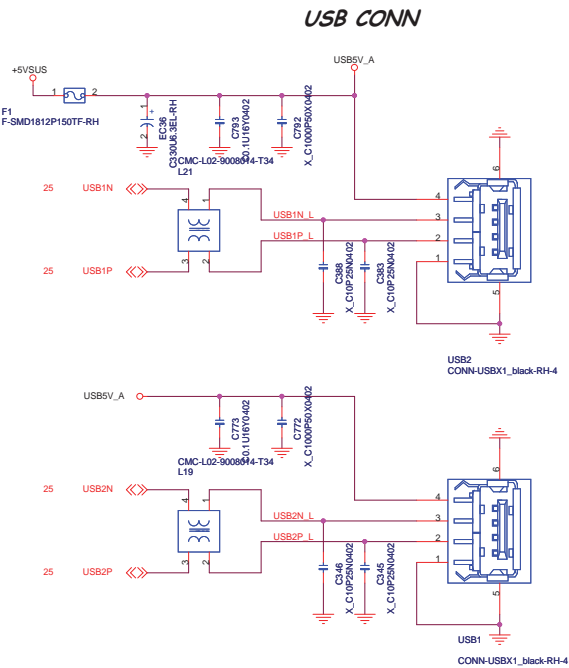
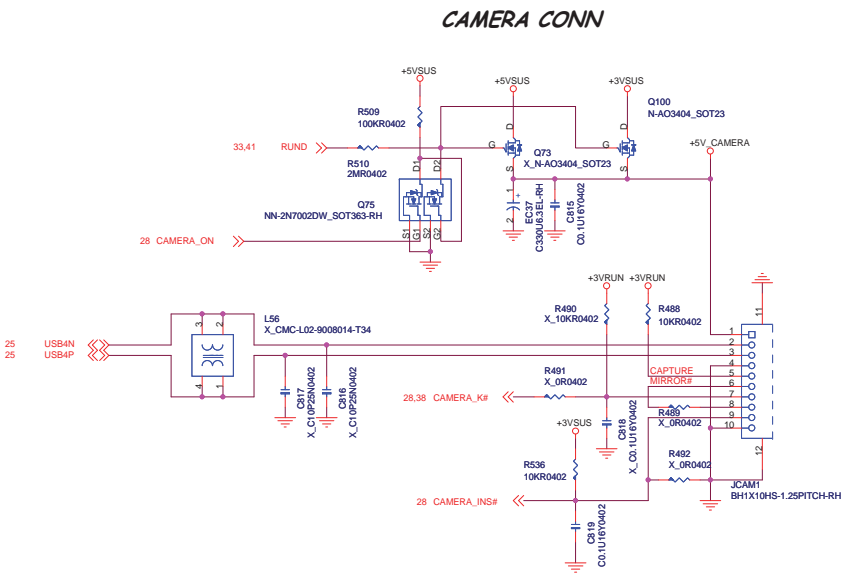
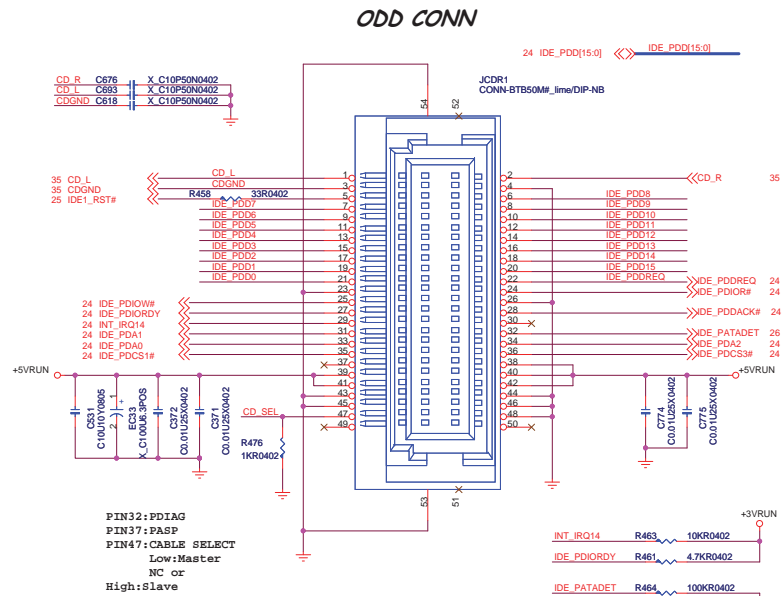
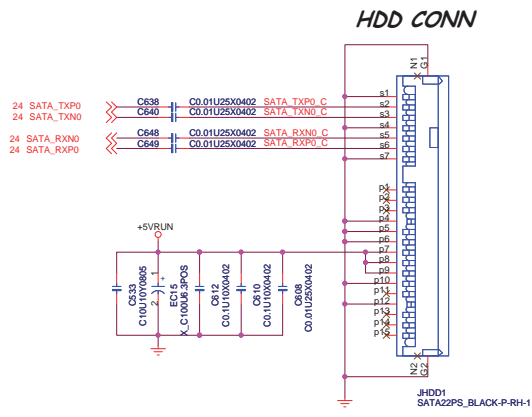
SPI_SEL# : FLASH MODE
 High : ISA Mode (Default pull up)
 Low : SPI Mode (need external pull Low)

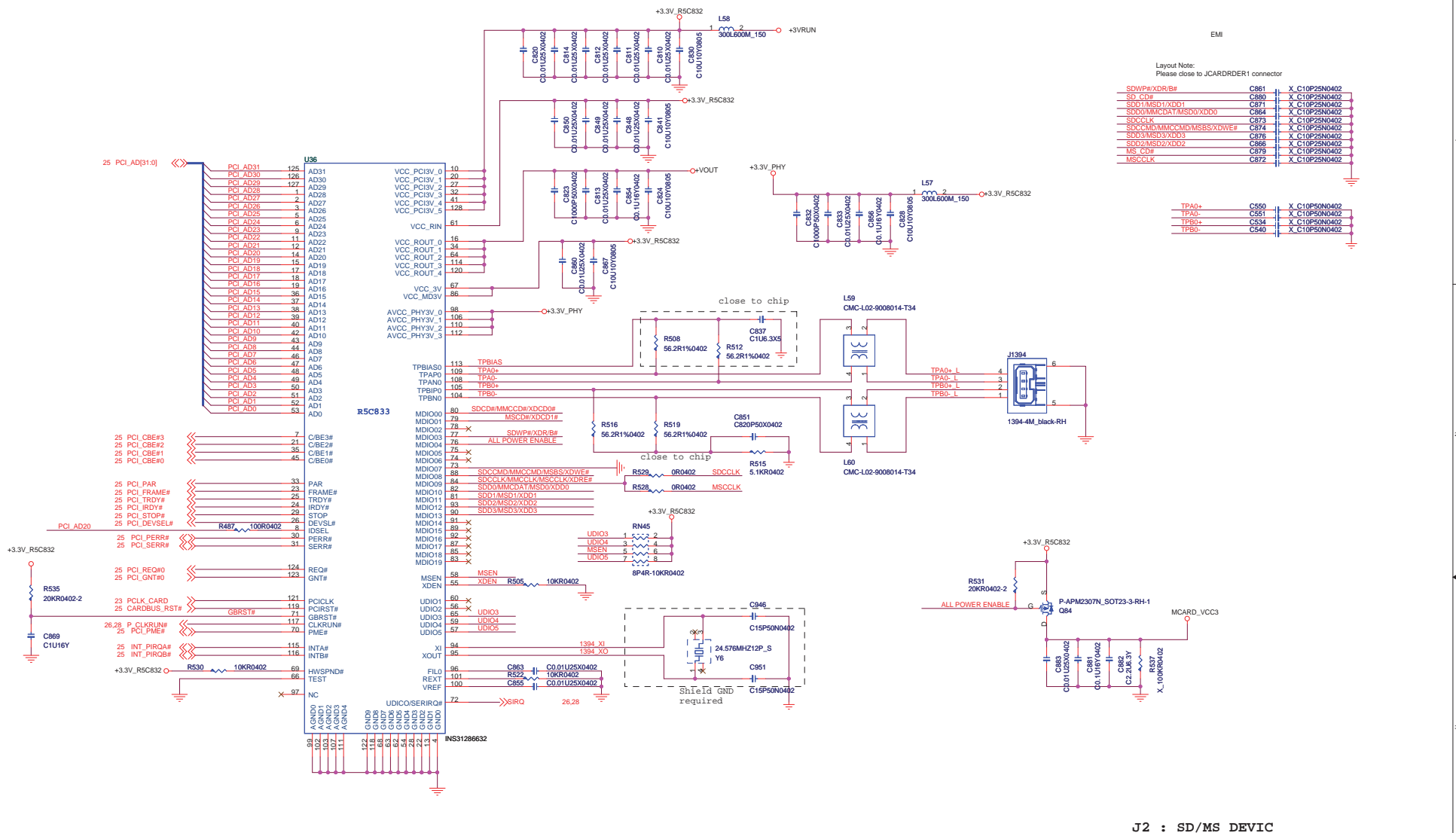
KBOUT3# : ISP MODE
 High : Normal operation (Default pull up)
 Low : ISP Mode (need external pull Low)

H/W Strap for ENE 3925B

SPI_SEL# R247 4.7KR0402
 KBOUT3# R187 X 4.7KR0402

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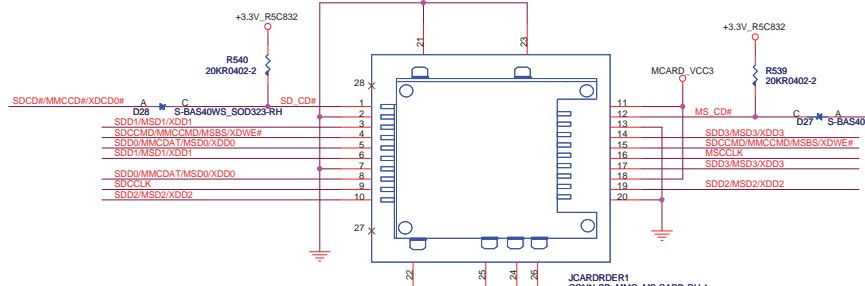
Layout Note:
Please close to JCARDRDR1 connector

SDWP#XDR/B#	C861	X	C10P25N0402
SD_CD#	C880	X	C10P25N0402
SD01MSD1/XDD1	C871	X	C10P25N0402
SD00MMCDAT/MSD0/XDD0	C864	X	C10P25N0402
SDCLCK	C873	X	C10P25N0402
SD03MSD3/XDD3	C874	X	C10P25N0402
SD02MSD2/XDD2	C866	X	C10P25N0402
MS_CD#	C819	X	C10P25N0402
MSCCLK	C872	X	C10P25N0402
TPAD+	C550	X	C10P50N0402
TPAD-	C551	X	C10P50N0402
TPBD+	C554	X	C10P50N0402
TPBD-	C540	X	C10P50N0402

J2 : SD/MS DEVIC

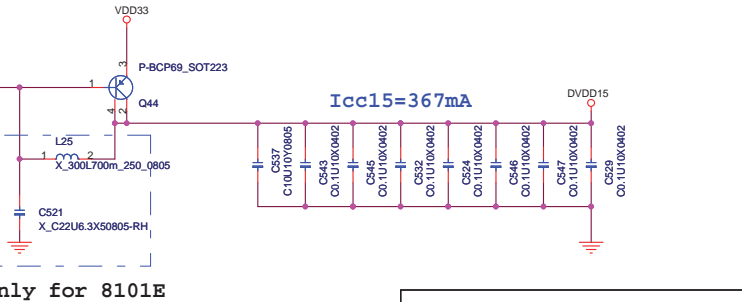
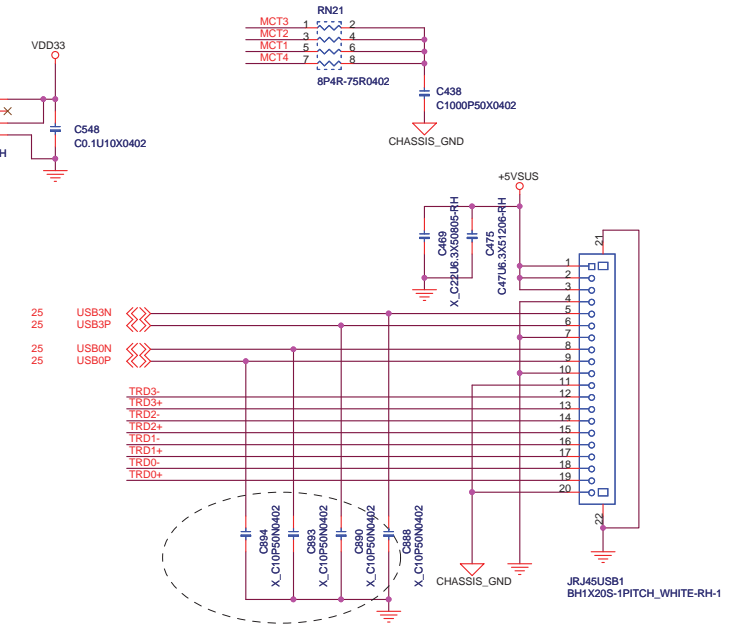
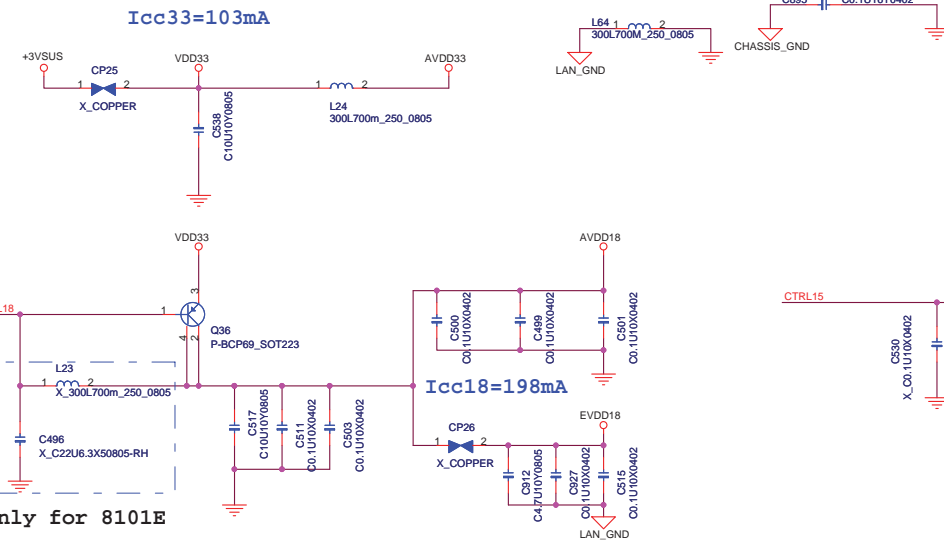
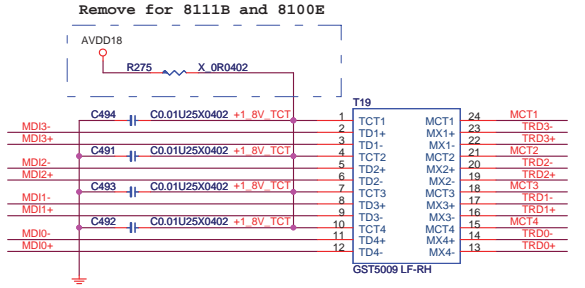
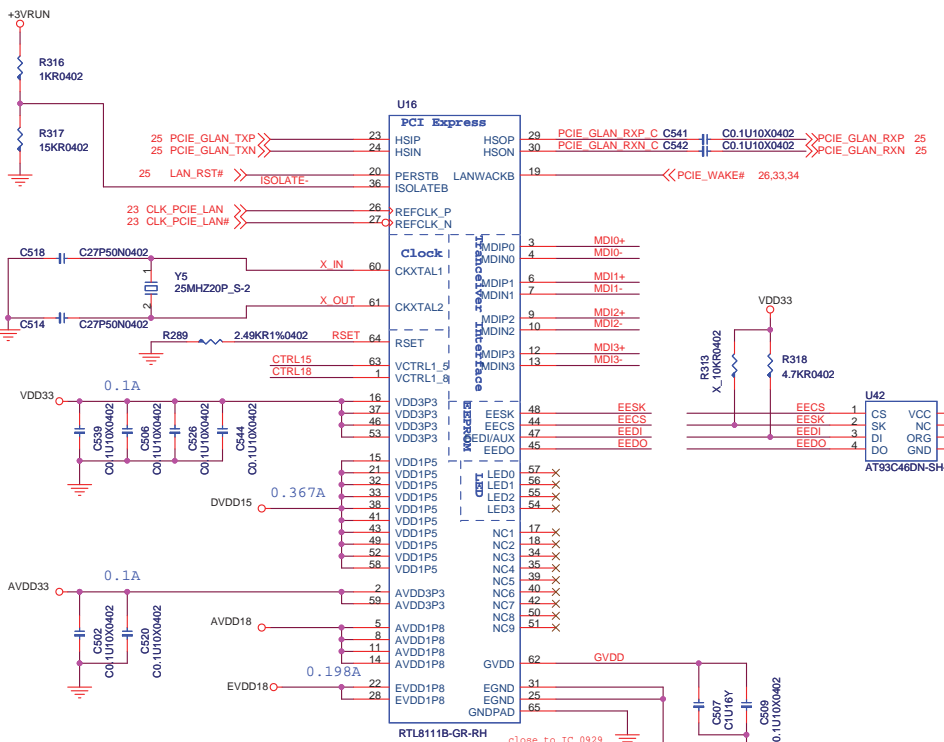
Pin	Description	Pin	Description
1	Card Detect SW	2	MS VSS
3	SD Data1	4	MS BS
5	SD Data0	6	MS Data1
7	SD VSS	8	MS Data0
9	SD CLK	10	MS Data2
11	SD VDD	12	MS INS
13	SD VSS	14	MS Data3
15	SD CMD	16	MS CLK
17	SD Data3	18	MS VDD
19	SD Data2	20	MS VSS
		26	SD_WP

MSD1A	SD	MMC	MS	MS
MDIO00	SDCD#	MMCDD#	MSCD#	XDCD#
MDIO01			MSCD#	XDCD#
MDIO02	SDWP#			XDCP#
MDIO03	SDWP#	MMCWP#	MSWP#	XDP#
MDIO04	SDWP#	MMCWP#	MSWP#	XDP#
MDIO05	SDWP#	MMCWP#	MSWP#	XDP#
MDIO06	SDWP#	MMCWP#	MSWP#	XDP#
MDIO07	SDWP#	MMCWP#	MSWP#	XDP#
MDIO08	SDWP#	MMCWP#	MSWP#	XDP#
MDIO09	SDWP#	MMCWP#	MSWP#	XDP#
MDIO10	SDWP#	MMCWP#	MSWP#	XDP#
MDIO11	SDWP#	MMCWP#	MSWP#	XDP#
MDIO12	SDWP#	MMCWP#	MSWP#	XDP#
MDIO13	SDWP#	MMCWP#	MSWP#	XDP#
MDIO14	SDWP#	MMCWP#	MSWP#	XDP#
MDIO15	SDWP#	MMCWP#	MSWP#	XDP#
MDIO16	SDWP#	MMCWP#	MSWP#	XDP#
MDIO17	SDWP#	MMCWP#	MSWP#	XDP#
MDIO18	SDWP#	MMCWP#	MSWP#	XDP#
MDIO19	SDWP#	MMCWP#	MSWP#	XDP#



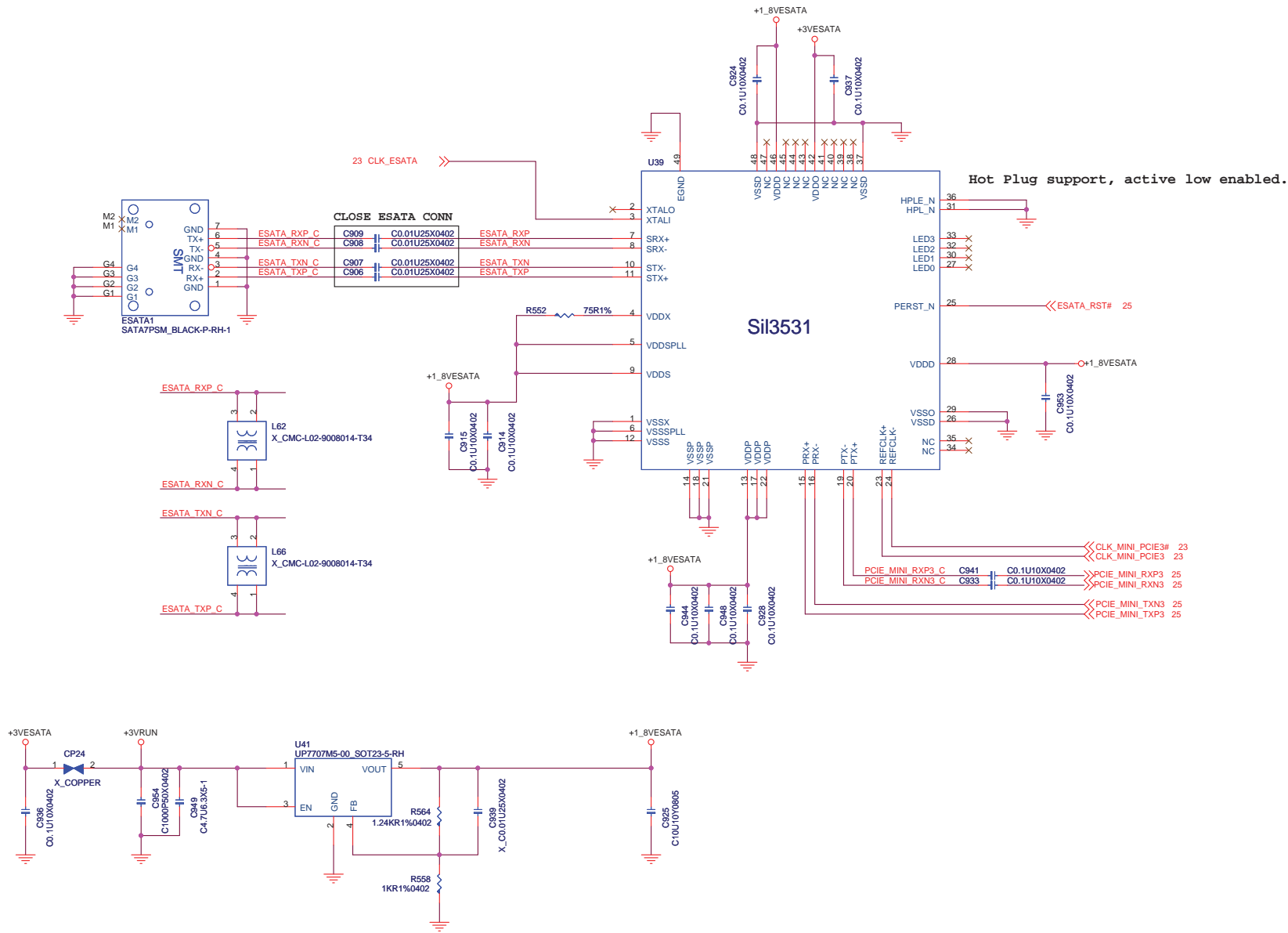
UDIO3	UDIO4	MSEN	XDEN	FUNCTION (ENABLE)
HIGH	HIGH	HIGH	LOW	SD, MMC, MSCARD

MSI CORPORATION			
CardReader (Ricoch-R5C833)			
File	MS-163A		
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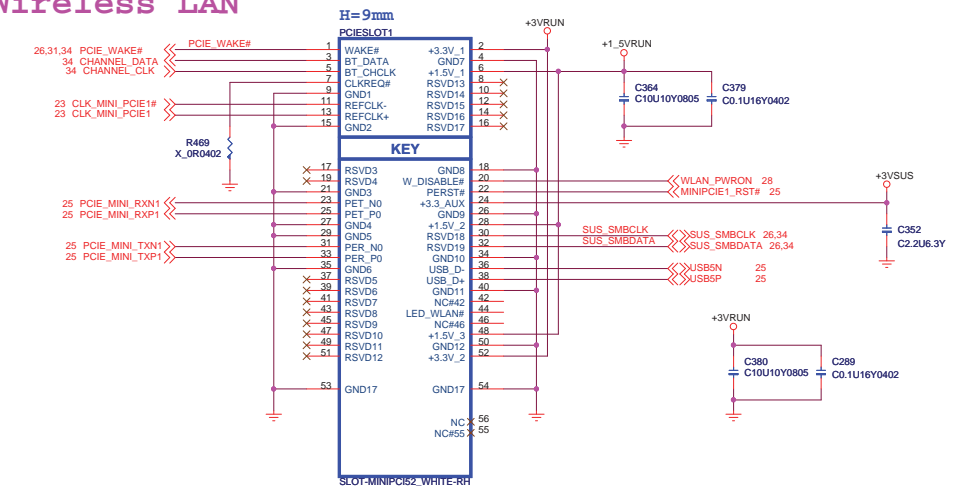
MSI CORPORATION		
PCIe LAN (RTL 8111B)		
Title	Document Number	Rev
Size	Custom	MS-163A
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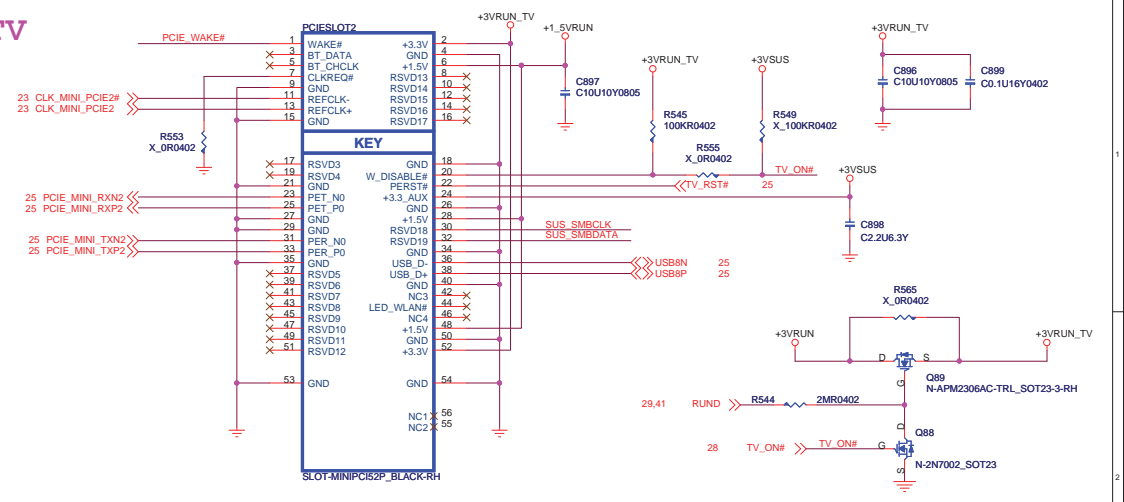


MSI CORPORATION		
Title ESATA (SIL3531)		
Size Custom	Document Number MS-163A	Rev 0A
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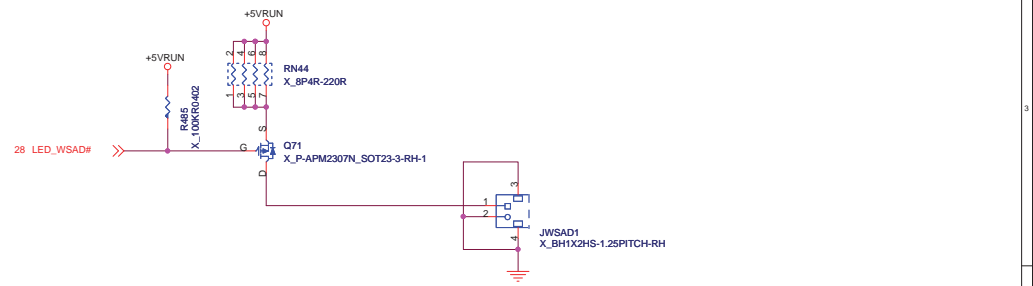
Wireless LAN



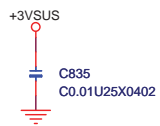
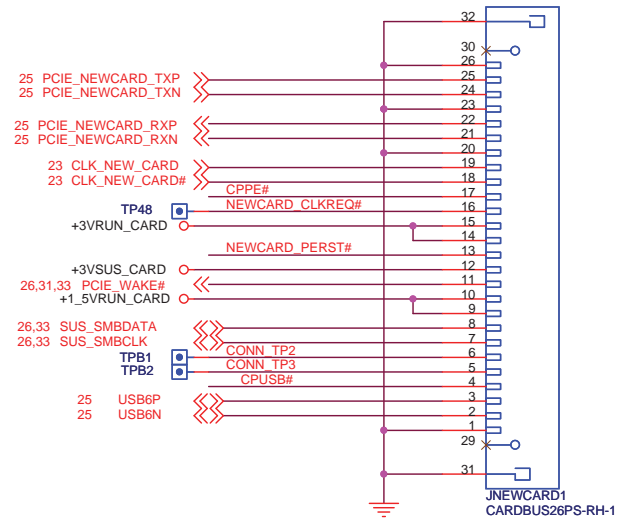
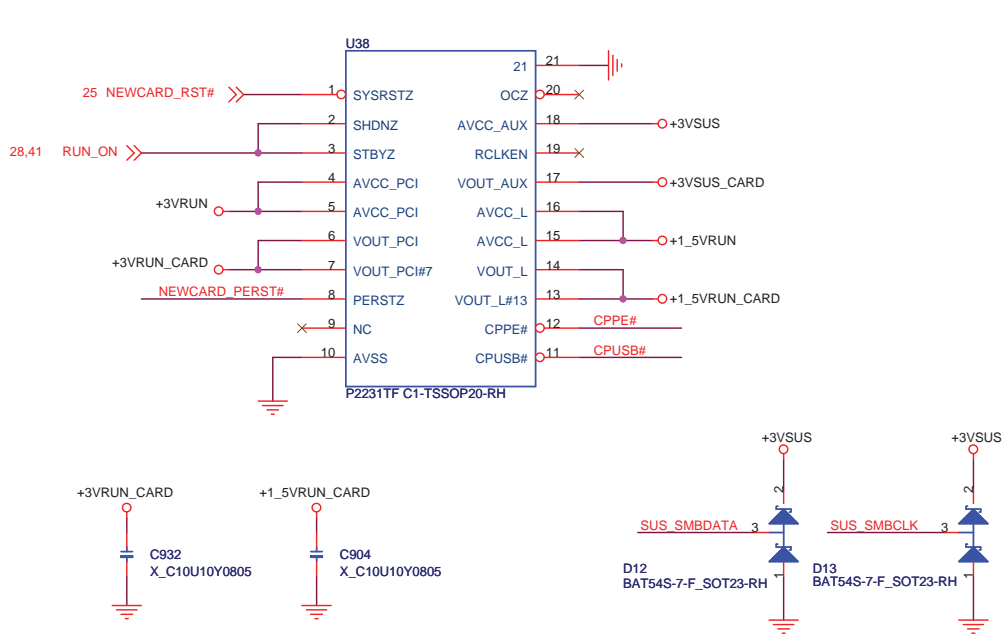
TV



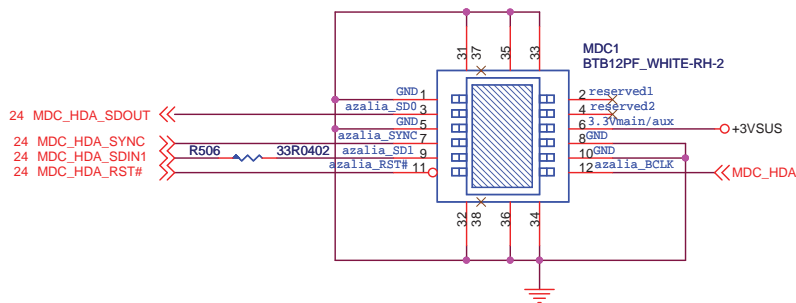
KB-LED



MSI CORPORATION			
File	MINI_PCIE / CPUFAN / KB_LED		
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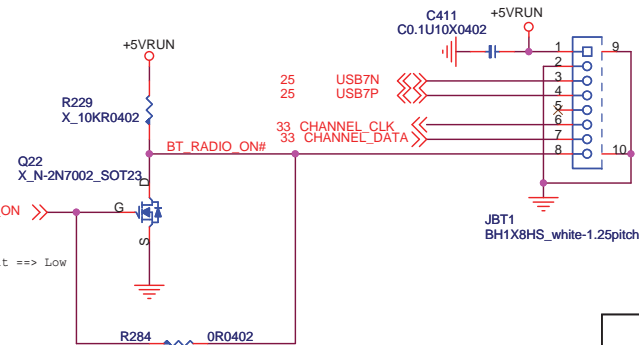


MDC Connector Ver 1.5



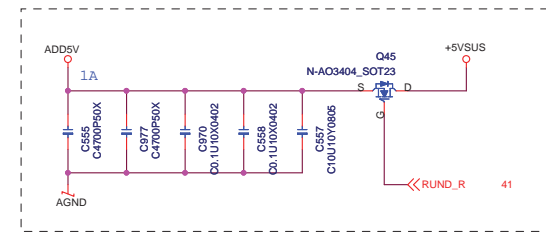
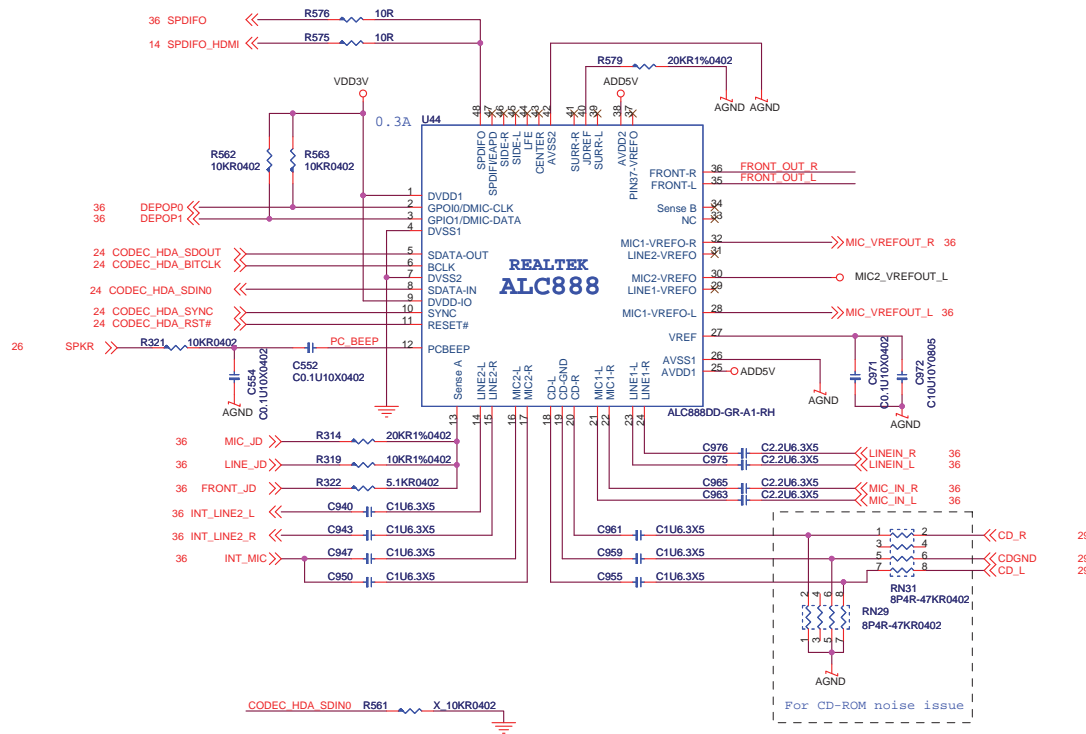
EC output Default ==> Low
 ,High active

BLUETOOTH

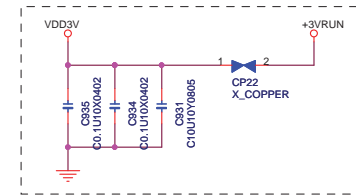


MSI CORPORATION

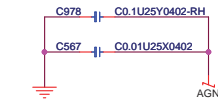
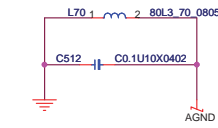
Title			NEWCARD & MDC & BT		
Size	Document Number	Rev			
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POWER ISOLATION (ANALOG 5V)

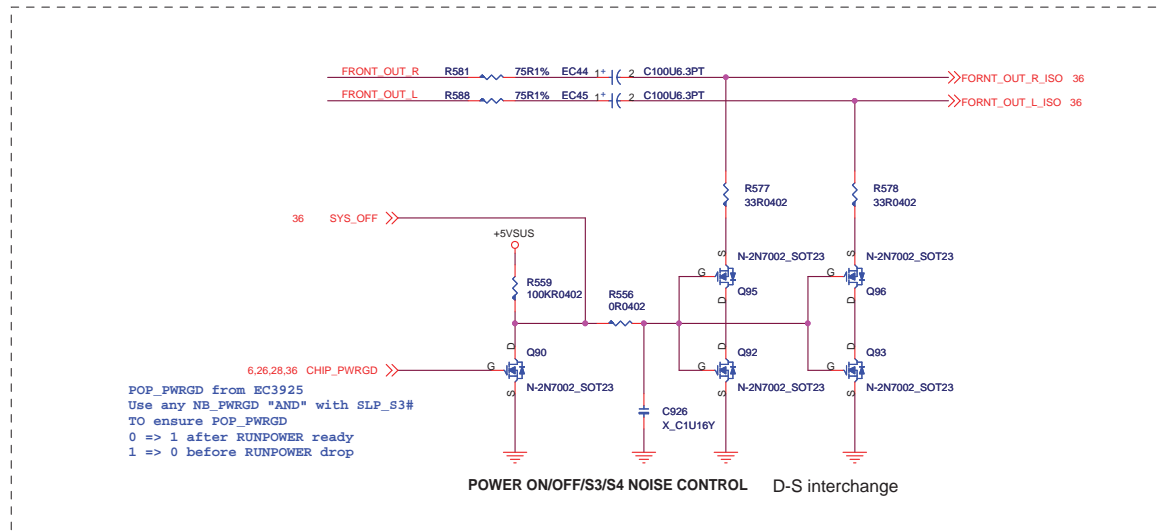


POWER ISOLATION (CODEC 3V)



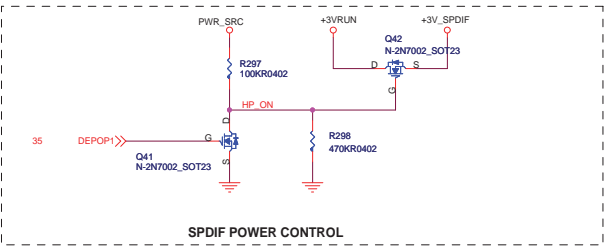
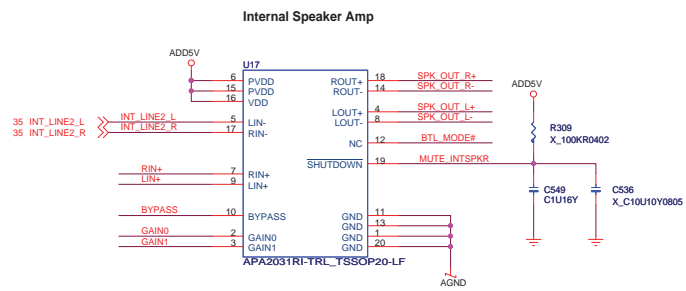
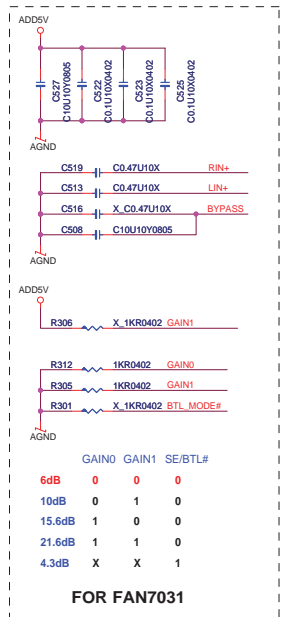
For EMI solution

ANTIPOP CIRCUIT



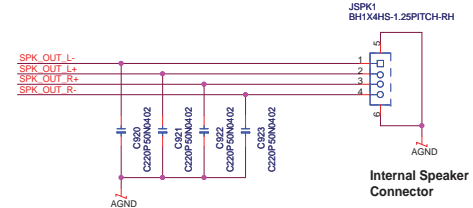
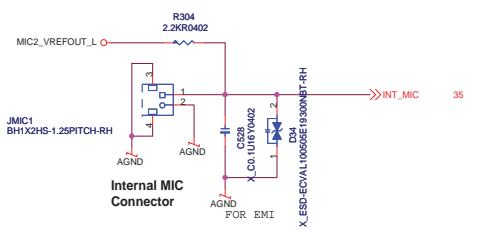
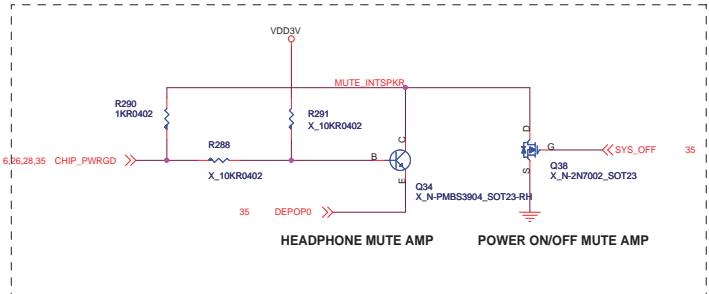
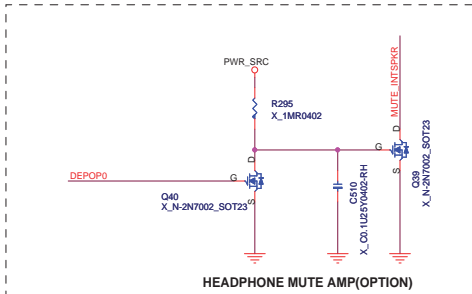
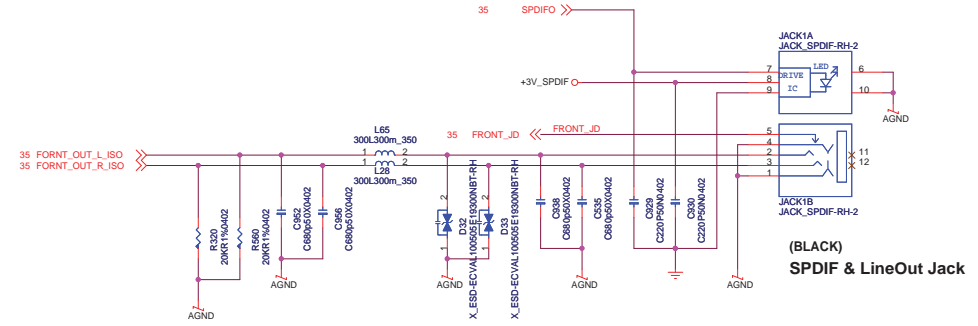
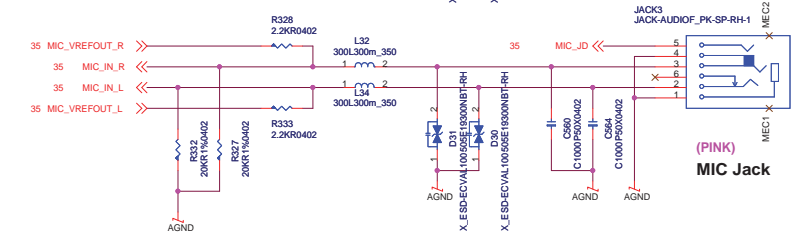
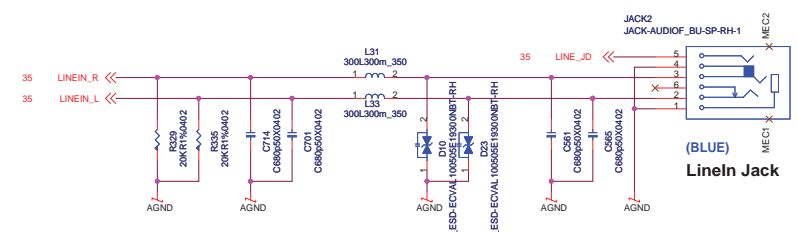
POWER ON/OFF/S3/S4 NOISE CONTROL D-S interchange

MSI CORPORATION			
Title	AZALIA CODEC(ALC888)		
Size	Document Number	Rev	OA
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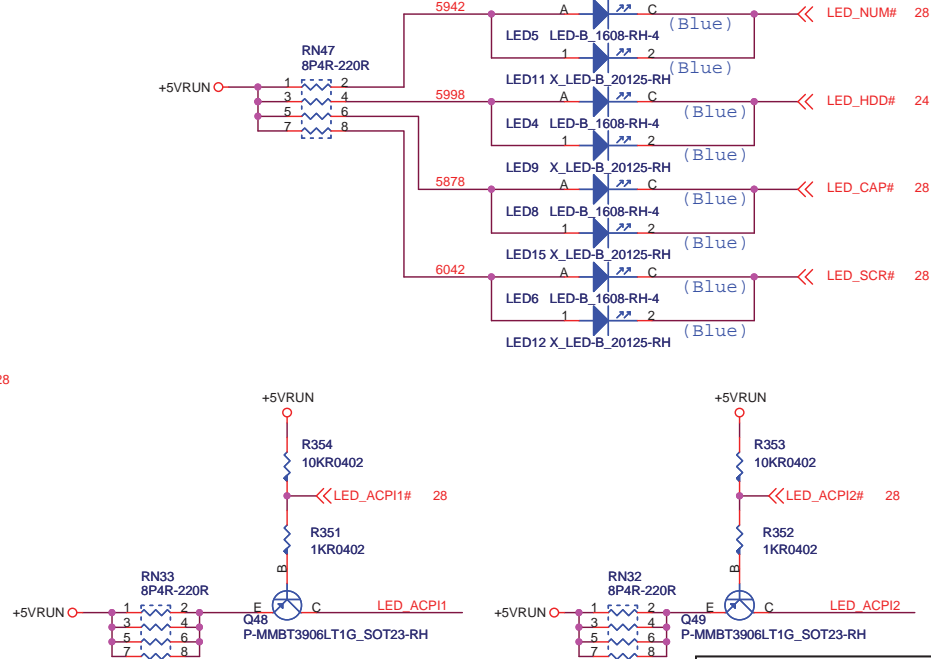
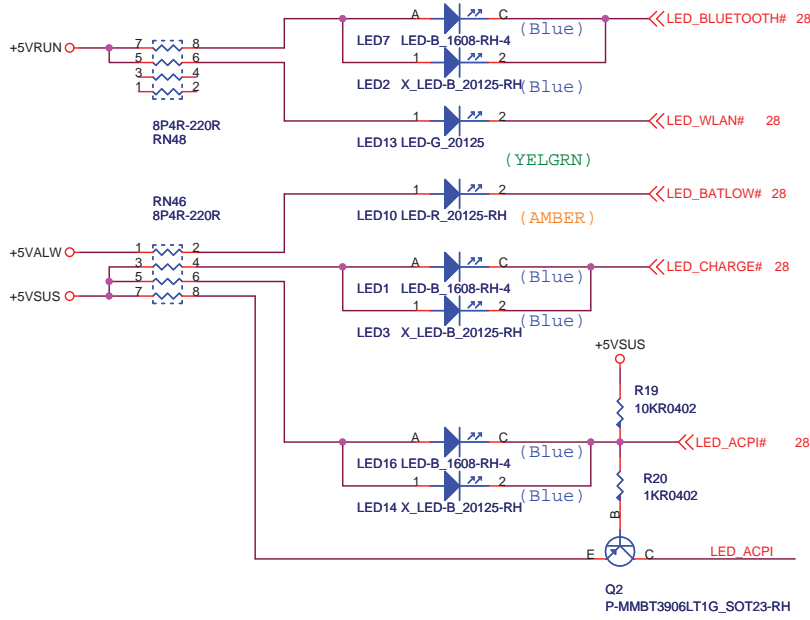
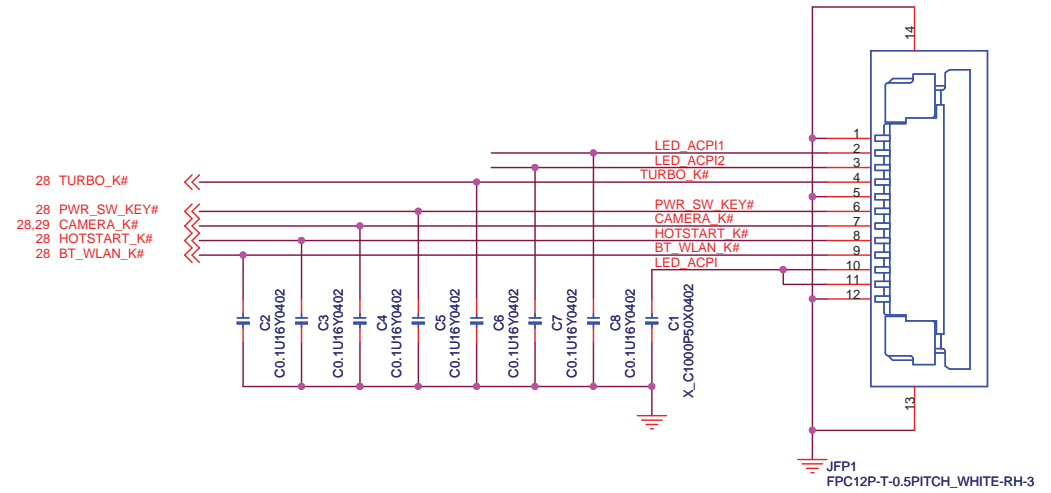
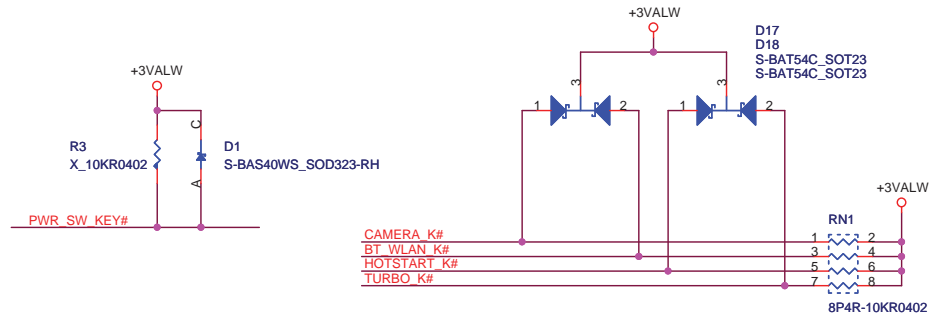
GAIN0	GAIN1	SE/BTL#
6dB	0	0
10dB	0	1
15.6dB	1	0
21.6dB	1	1
4.3dB	X	X

FOR FAN7031

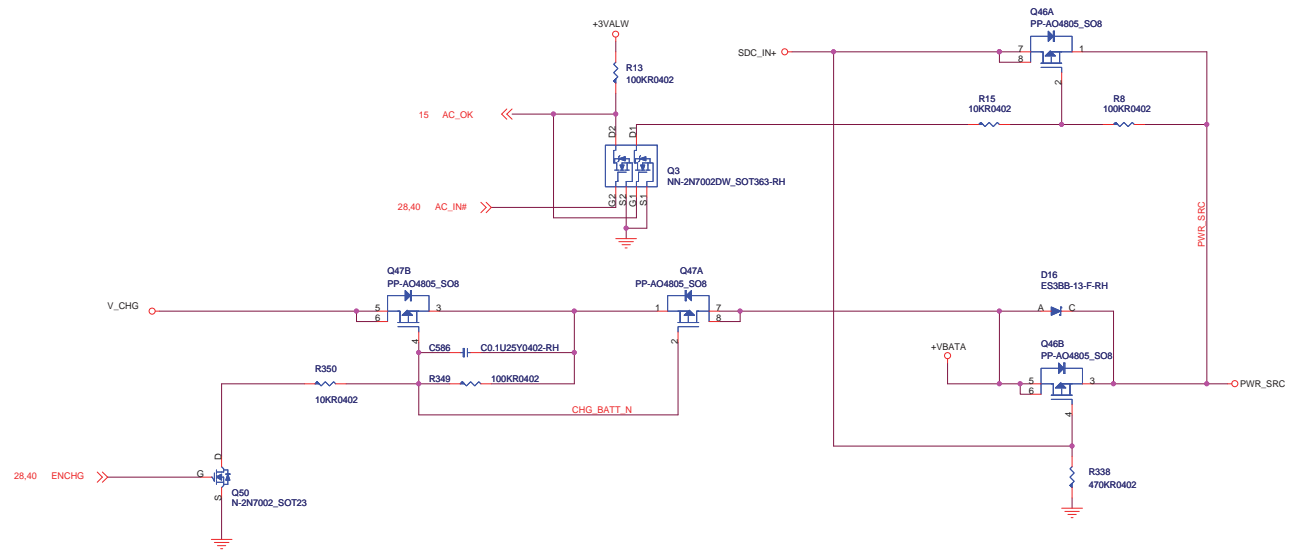
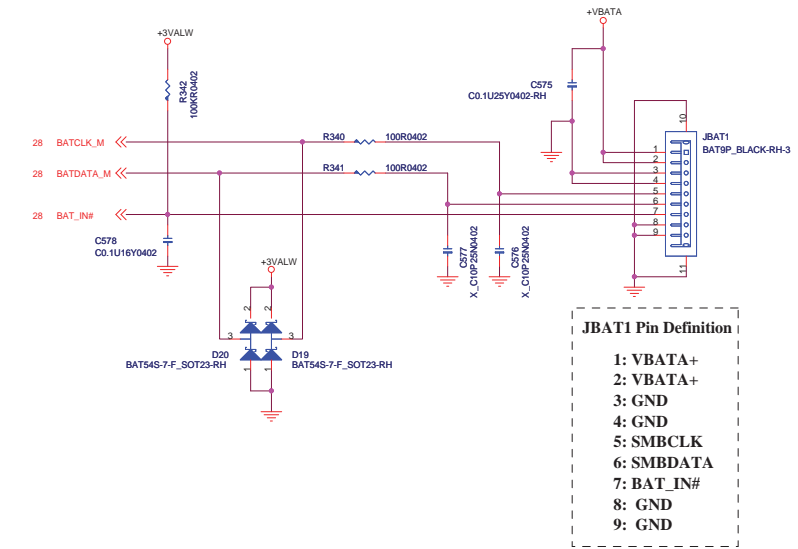
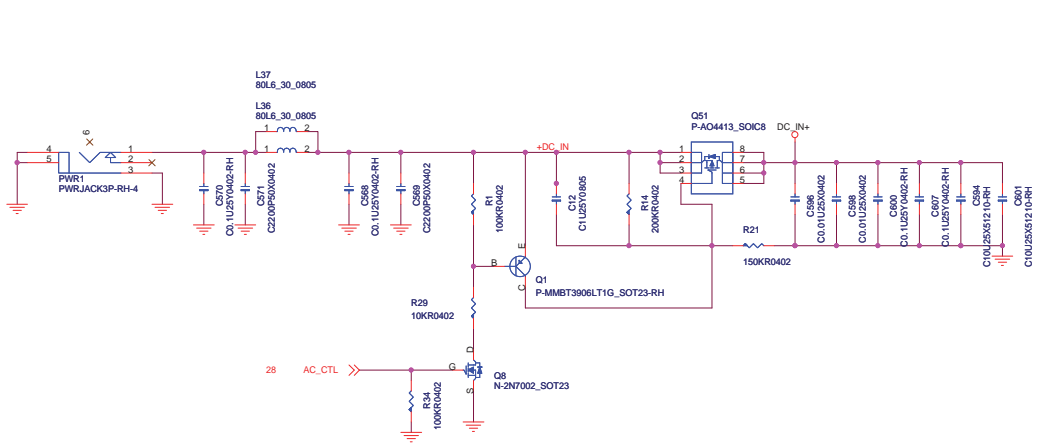


MSI CORPORATION		
File	Audio Amp. & Jacks	
Size	Document Number	Rev
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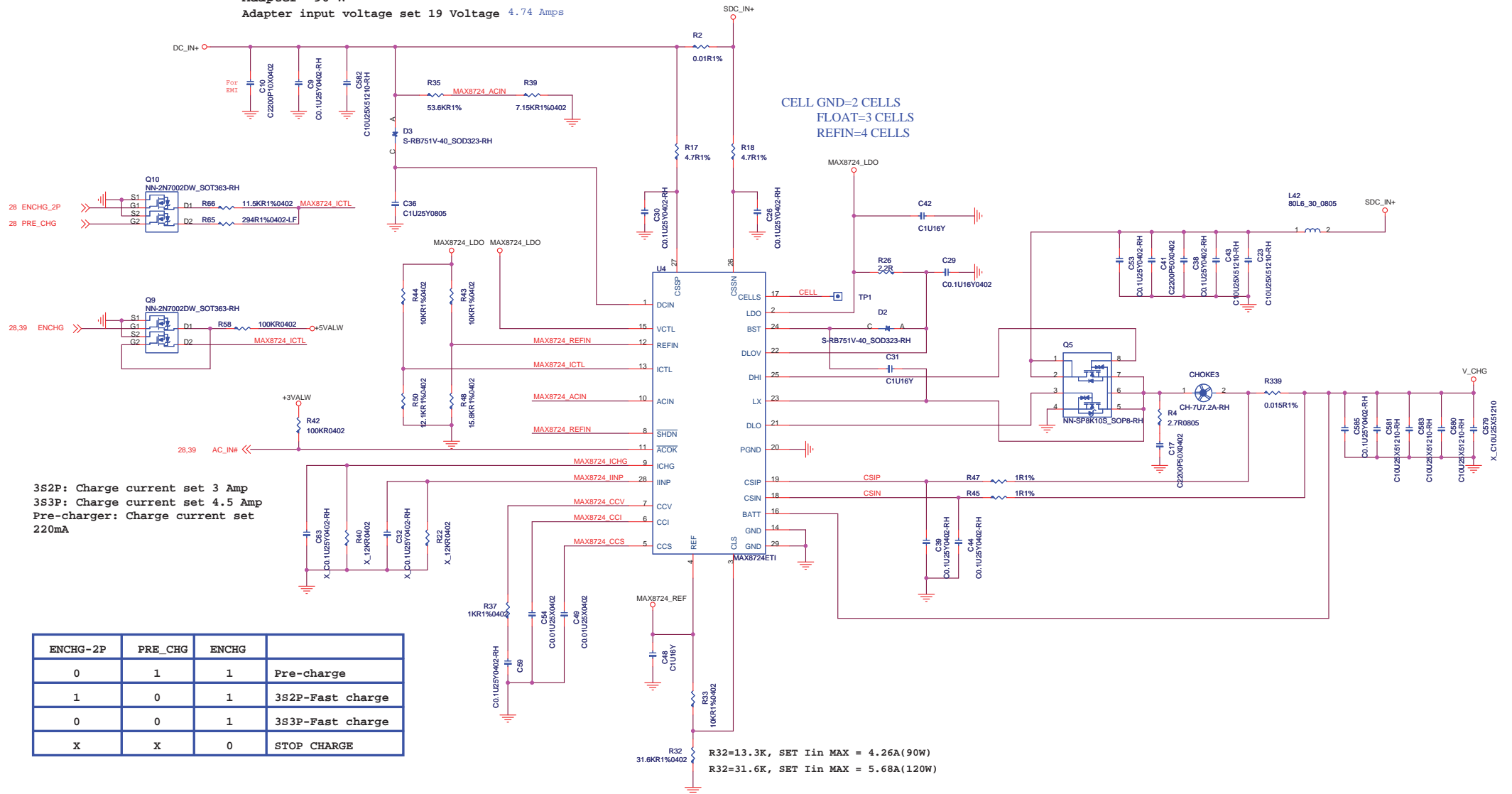


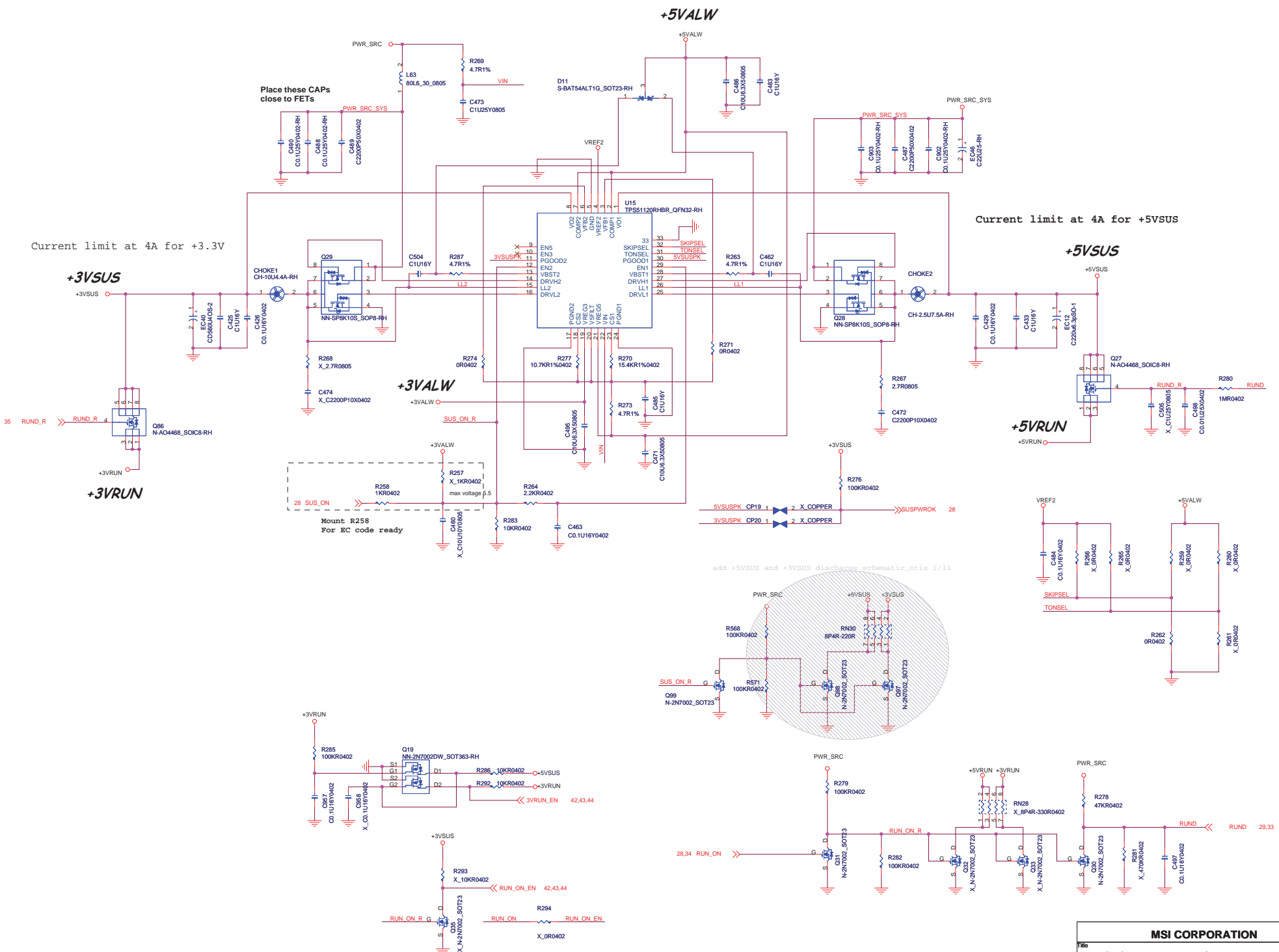
MSI CORPORATION		
Title		
LED & FPC		
Size	Document Number	Rev
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<http://laptop-motherboard-schematic.blogspot.com/>

Adapter= 120 W
 Adapter input voltage set 19 Voltage 6.32 Amps
 Adapter= 90 W
 Adapter input voltage set 19 Voltage 4.74 Amps





Current limit at 4A for +3VSUS

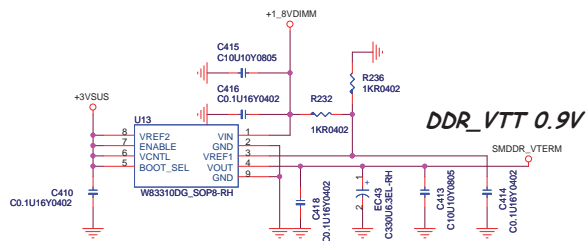
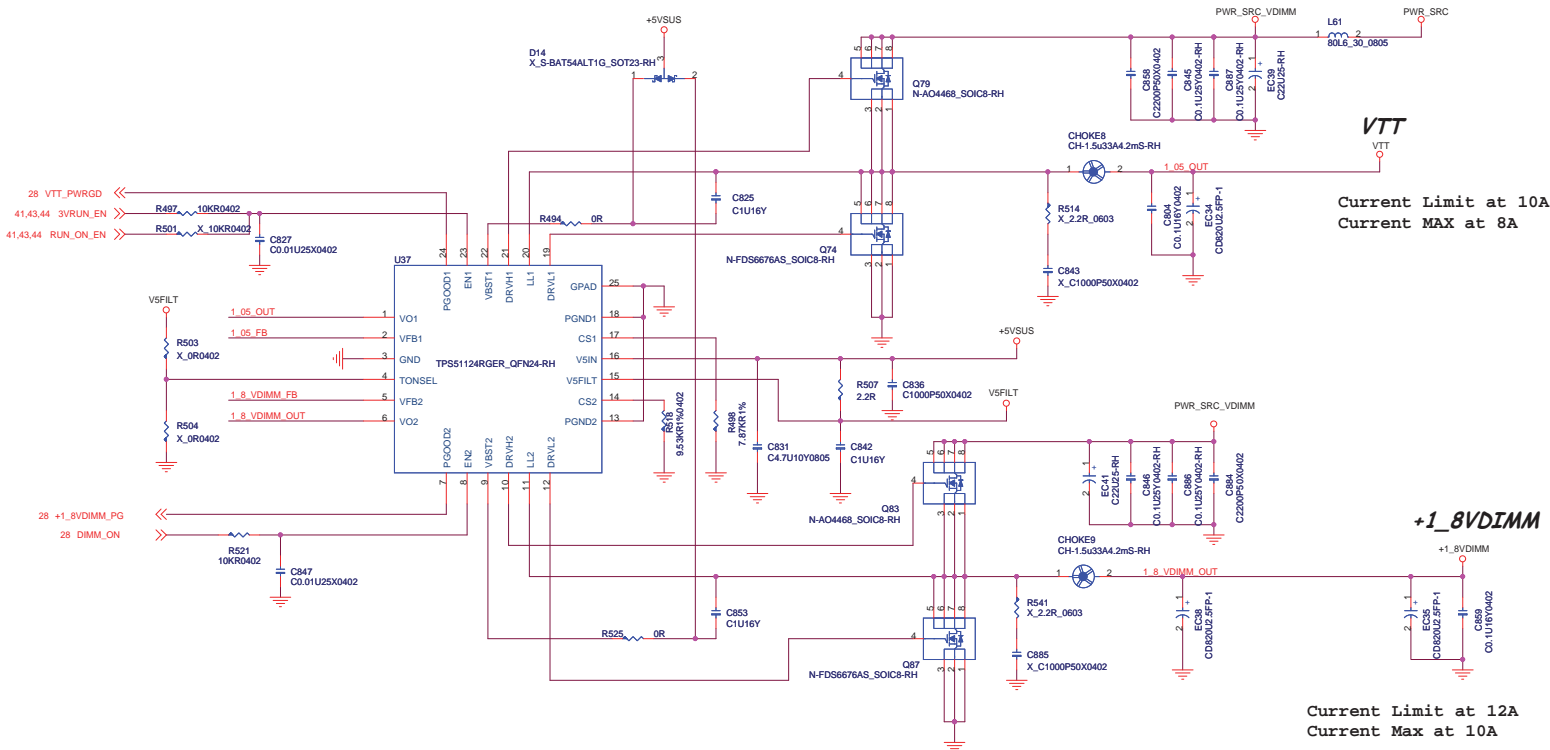
Current limit at 4A for +5VSUS

Mount R258 For EC code ready

add +5VSUS and +3VSUS discharge schematic_otis 1/11

<http://laptop-motherboard-schematic.blogspot.com/>

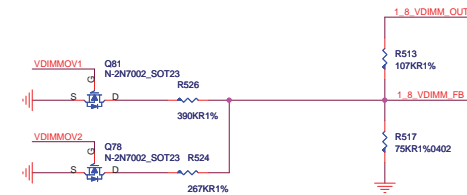
MSI CORPORATION		
File	SYSTEM POWER 3/5V	
Size	Document Number	Rev
C	MS-163A	0A
Date:	Wednesday, July 11, 2007	Sheet 41 of 54



VTT OC



VDIMM OC



VTT OverVoltage TABLE

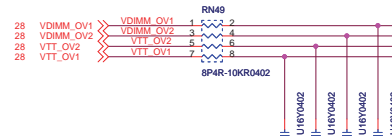
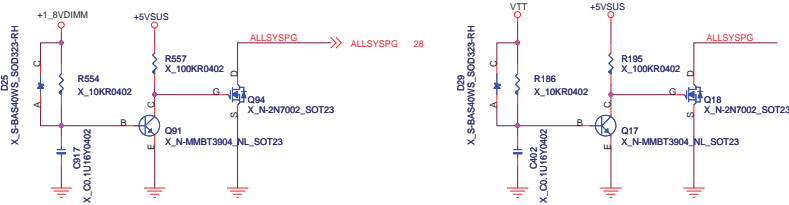
OV1	OV2	VTT OverVoltage
0	0	1.05V(default)
1	0	1.15V
0	1	1.25V

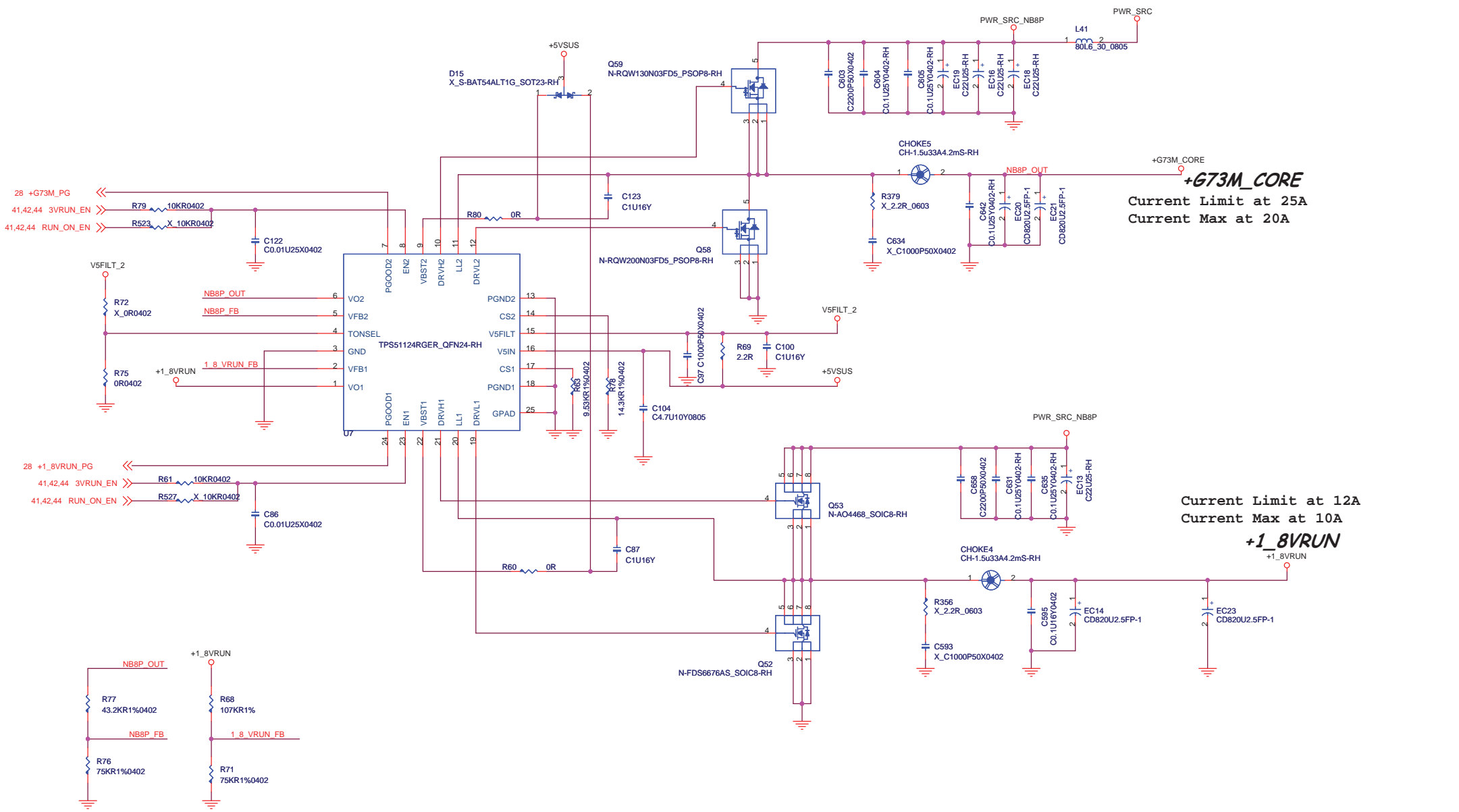
Note:
 1=> HIGH
 0=> LOW

VDIMM OverVoltage TABLE

OV1	OV2	VDIMM OverVoltage
0	0	1.85V(default)
1	0	2V
0	1	2.15V

Note:
 1=> HIGH
 0=> LOW

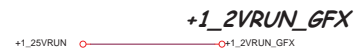
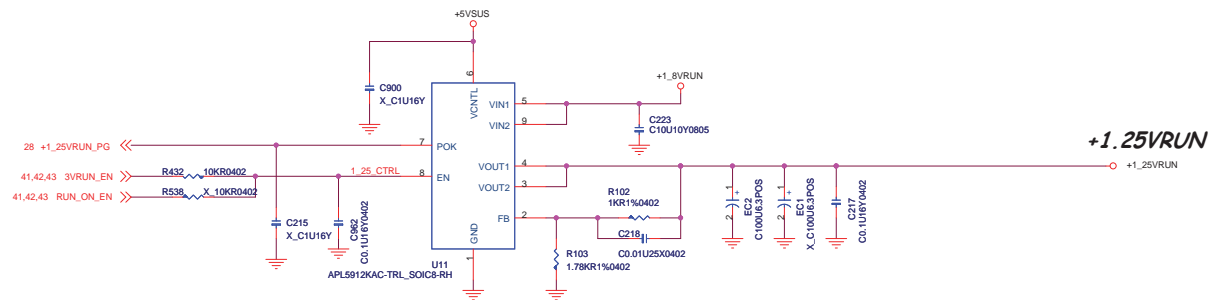
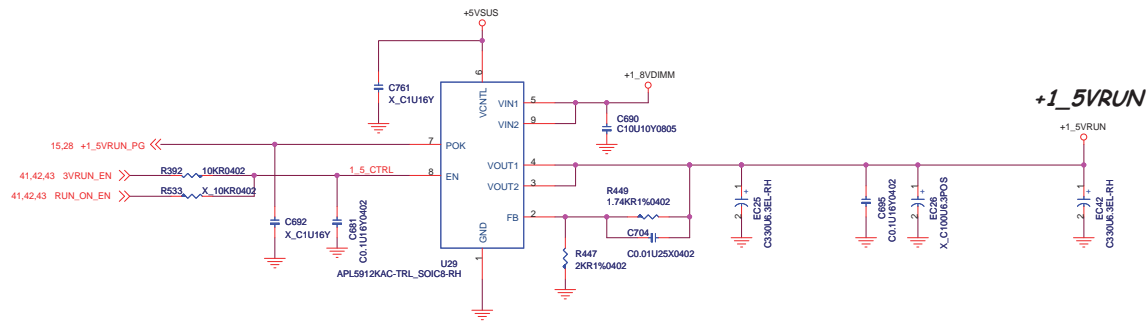




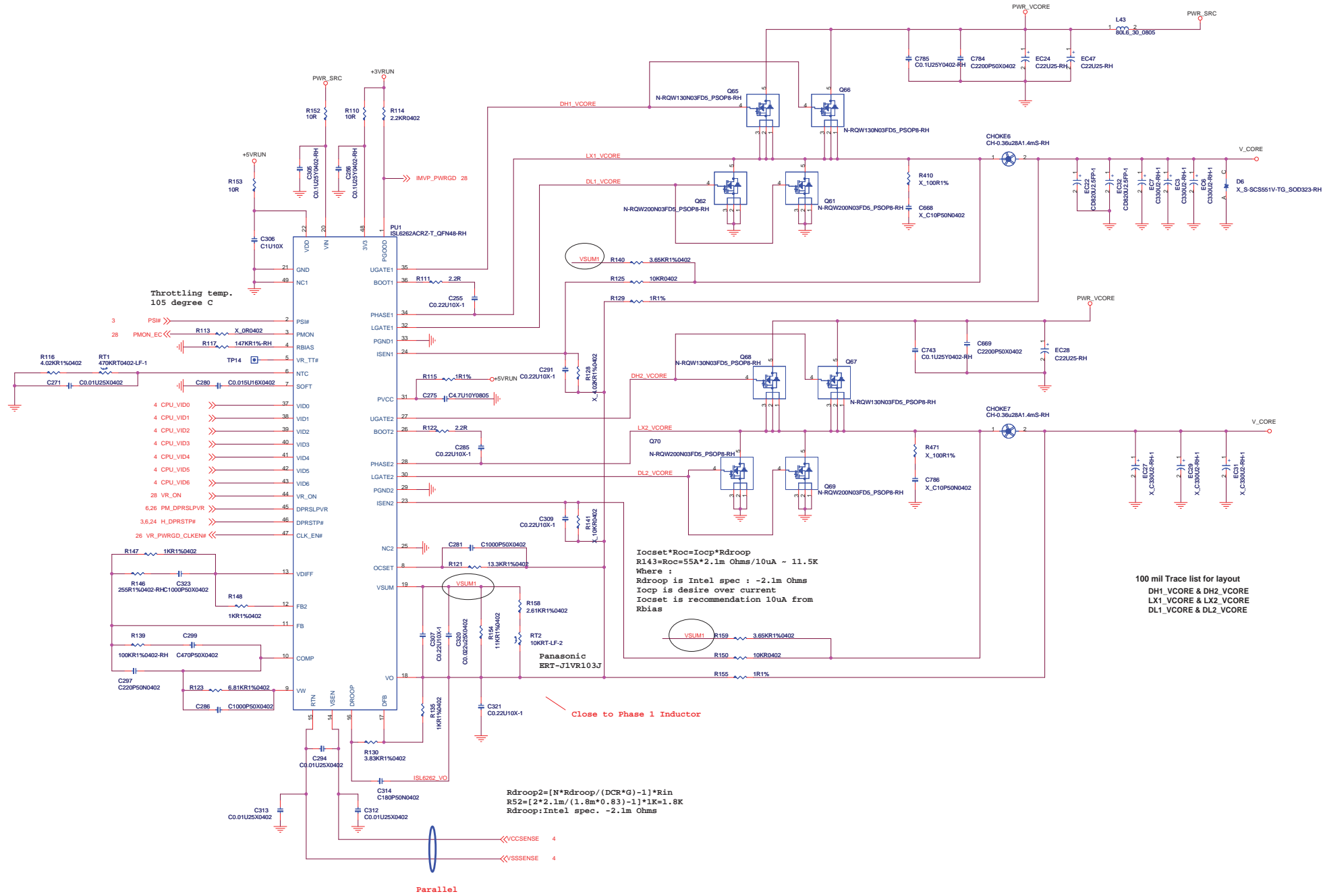
+G73M_CORE
 Current Limit at 25A
 Current Max at 20A

+1.8VRUN
 Current Limit at 12A
 Current Max at 10A

MSI CORPORATION		
Title: +G73M_CORE,1.8VRUN		
Size: Custom	Document Number: MS-163A	Rev: 0A
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MSI CORPORATION		
File: +1.2VGFX,+1.25VRUN,+1.5VRUN		
Size: C	Document Number: MS-163A	Rev: 0A
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Throttling temp.
105 degree C

- 3 PSW#
- 28 PMON_EC
- 5 VR_T#
- 6 NTC
- 7 SOFT
- 4 CPU_VID0
- 4 CPU_VID1
- 4 CPU_VID2
- 4 CPU_VID3
- 4 CPU_VID4
- 4 CPU_VID5
- 4 CPU_VID6
- 28 VR_ON
- 6.26 PM DPRSLPVR
- 3.6.24 H DPRSTPW
- 26 VR_PWRGD_CLKEN#

$I_{ocset} * R_{oc} = I_{ocp} * R_{droop}$
 $R_{143} = R_{oc} = 55A * 2.1m\ Ohms / 10\ \mu A \sim 11.5K$
 Where :
 R_{droop} is Intel spec : -2.1m Ohms
 I_{ocp} is desire over current
 I_{ocset} is recommendation 10uA from Rbias

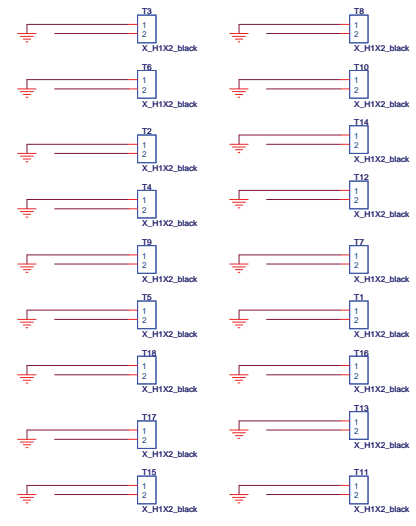
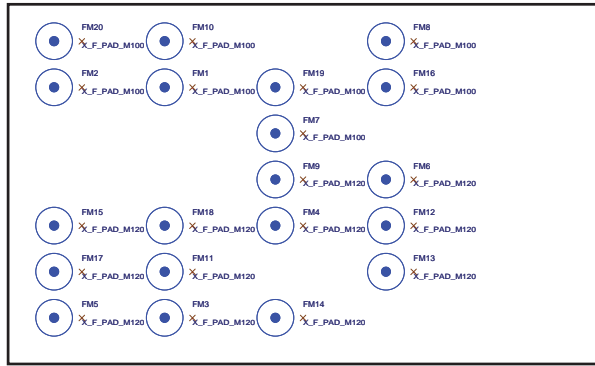
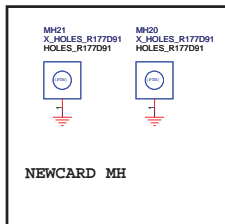
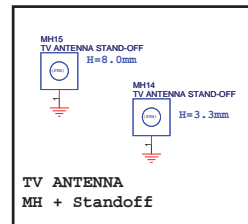
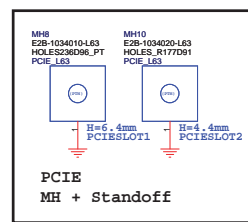
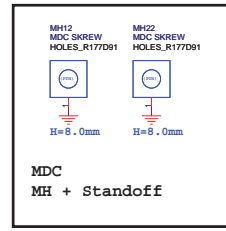
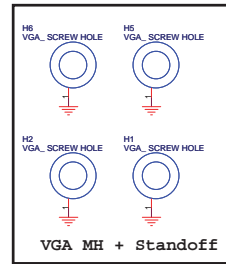
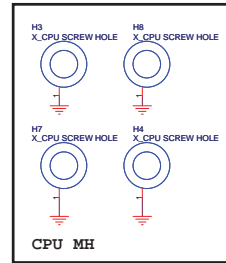
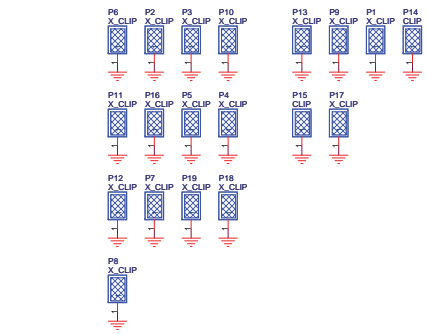
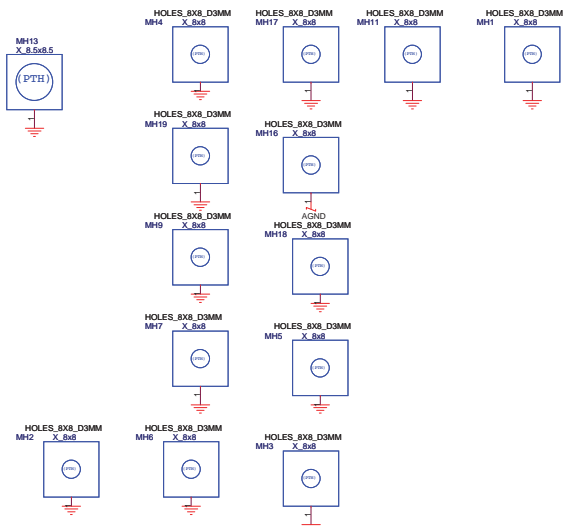
$R_{droop2} = [N * R_{droop} / (DCR * G) - 1] * R_{in}$
 $R_{52} = [2 * 2.1m / (1.8m * 0.83) - 1] * 1K = 1.8K$
 R_{droop} : Intel spec. -2.1m Ohms

100 mil Trace list for layout
 DH1_VCORE & DH2_VCORE
 LX1_VCORE & LX2_VCORE
 DL1_VCORE & DL2_VCORE

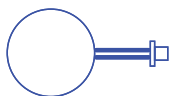
Close to Phase 1 Inductor

Parallel

MSI CORPORATION		
CPU POWER		
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JBAT2



BAT-CR2032

JMDC1_1
X_MODEM_CARD



MDC改為機構料

PCB1



P30-163A110-D05

FOR MDC

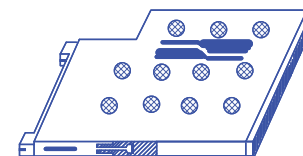


X_SCREW_M4.5X2X3 mm



X_SCREW_M4.5X2X3 mm

JPE1_1
NEW_CARD



另加上PCI
EXPRESS 鐵件:
E2M-6310711-SH4

FOR NEWCARD



SCREW_M4.5X2X3 mm



SCREW_M4.5X2X3 mm

FOR PCIE



SCREW_M4.5X2X3 mm



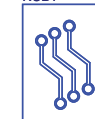
SCREW_M4.5X2X3 mm

FOR TV ANTENNA



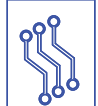
SCREW_M4.5X2X3 mm

RUB1



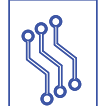
rubber

JPE1_4



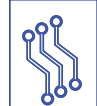
NEW_CARD_MYLAR

Y4_1



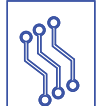
TOP SIZE Y4_MYLAR

JACK1_1



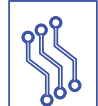
TOP SIZE LINE OUT_MYLAR

U9_3



MDC_BACK_MYLAR

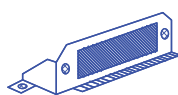
J2_1



CARDREADER_MYLAR

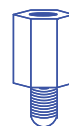
FOR D-SUB

JVGA1_1



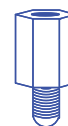
CRT SHIELDING
E2M-6312511-Y28

JVGA1_2



SCREW_4.75X4.9 mm

JVGA1_3



SCREW_4.75X4.9 mm

MSI CORPORATION

Title

Manual Part

Size

Document Number

B

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Rev

0A

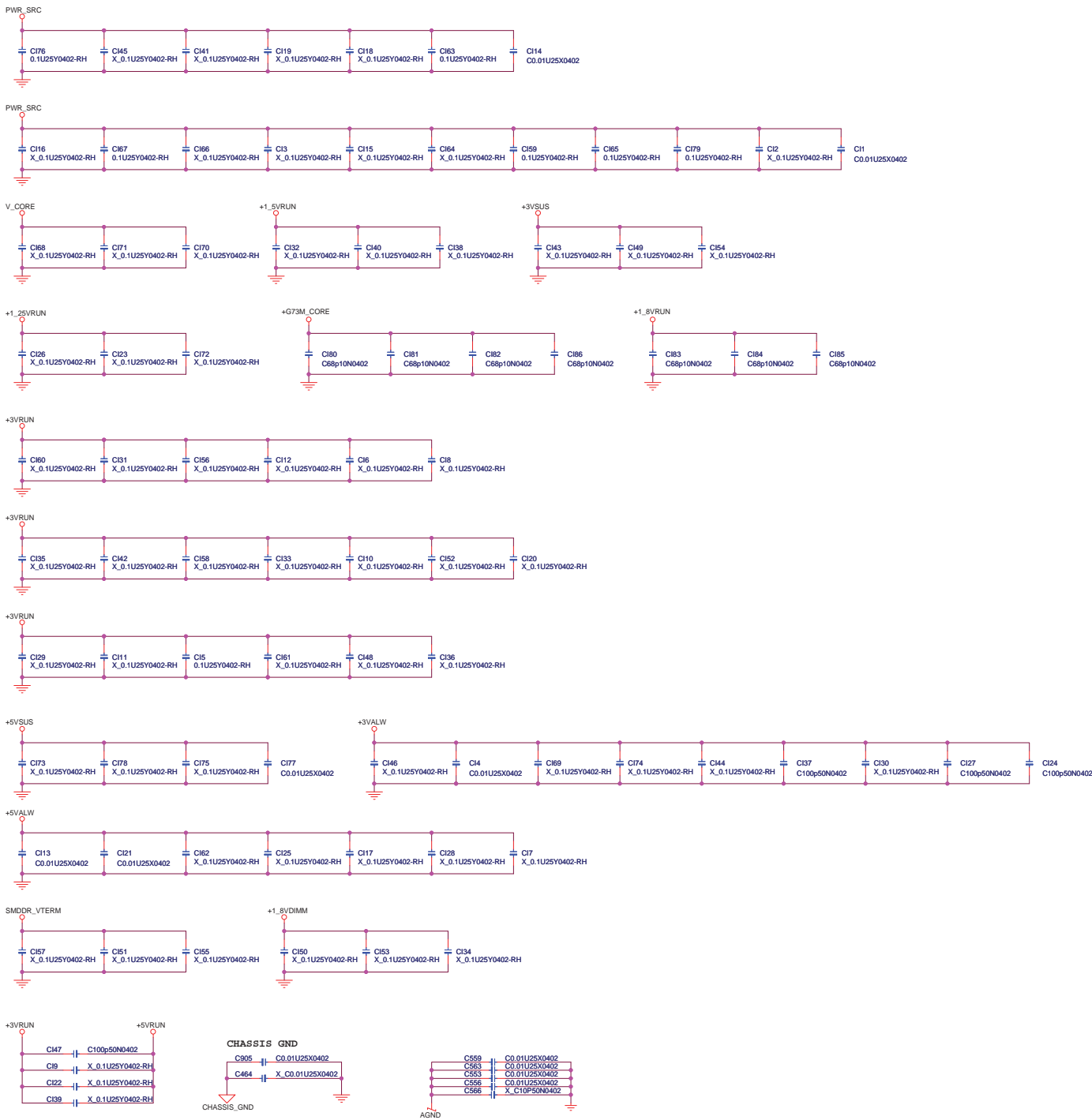
Date:

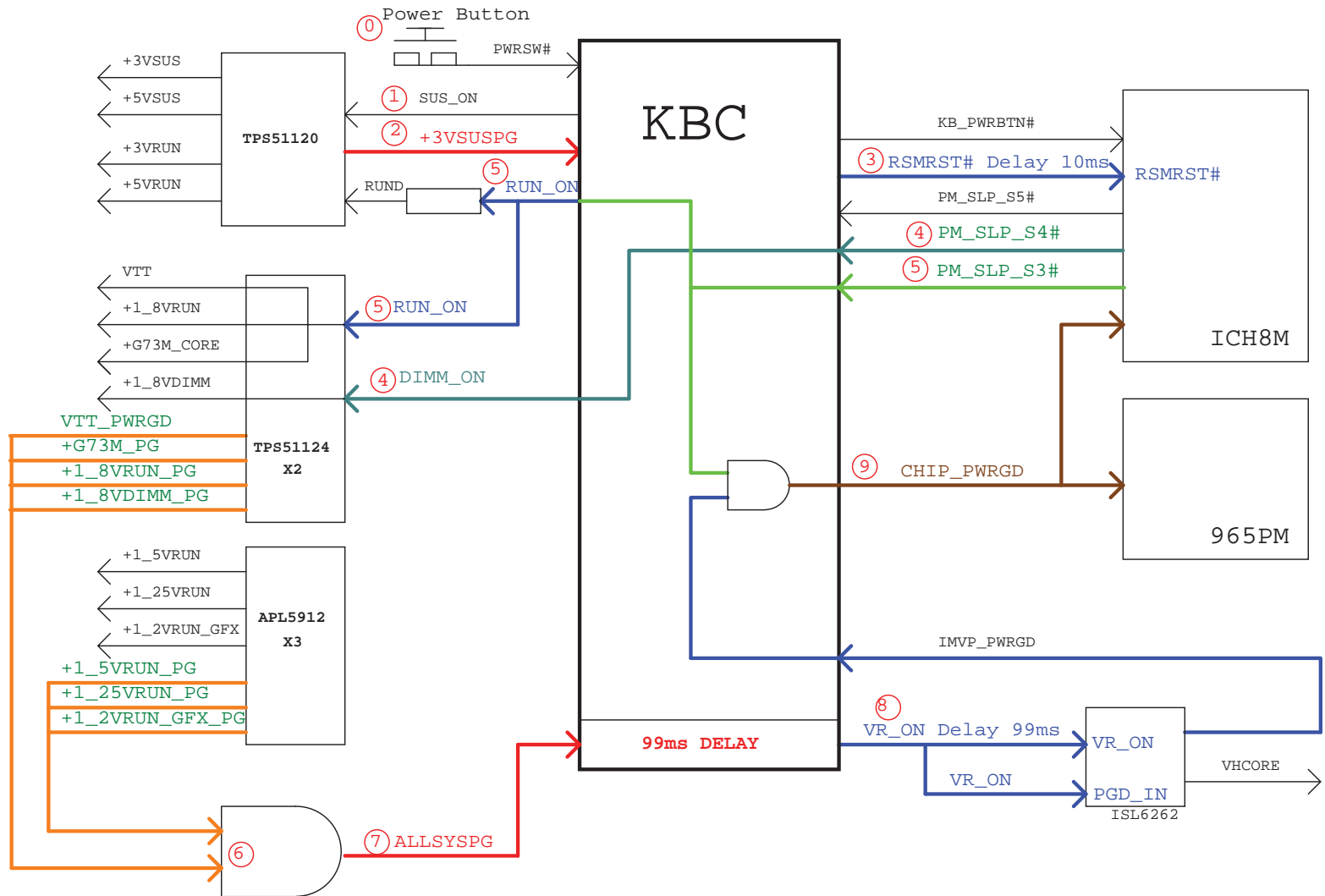
Tuesday, July 10, 2007

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E

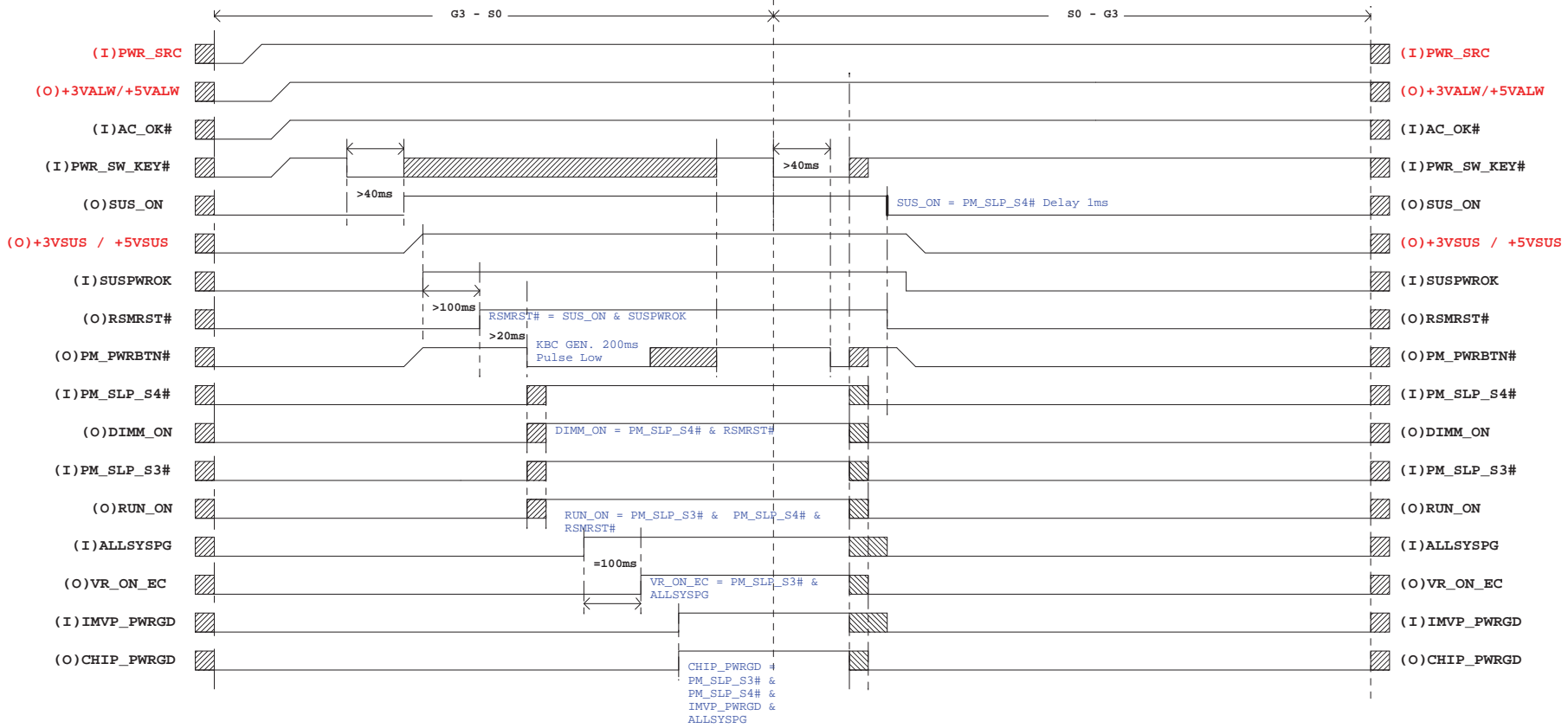




MSI CORPORATION			
Title			
KBC_CTR_PWR			
Size	Document Number		Rev
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RED: POWER
BLACK: KBC

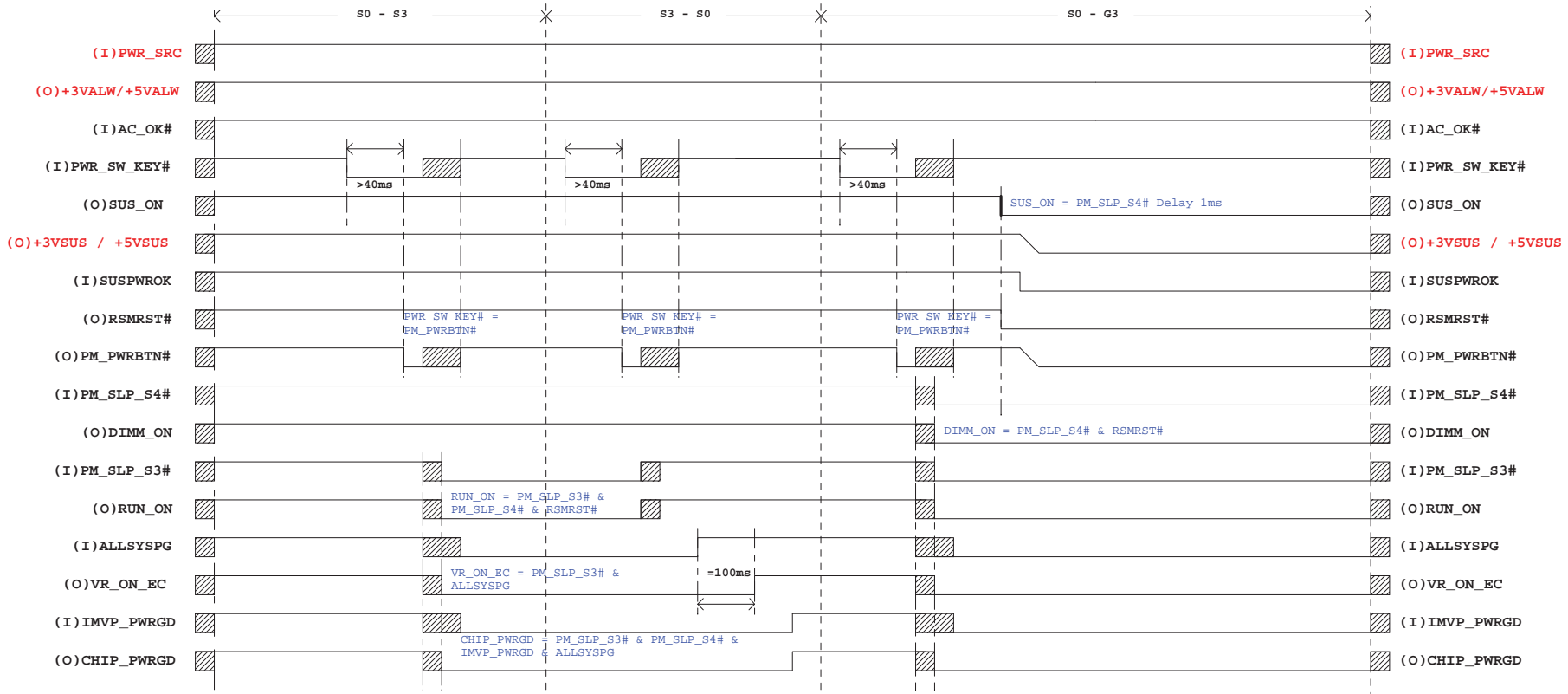
Battery Mode G3 - S0 - G3



MSI CORPORATION		
File: AC/Battery timing 1		
Size: Custom	Document Number: MS-163A	Rev: 0A
Date: Monday, May 07, 2007	Sheet: 50 of 54	

RED: POWER
BLACK: KBC

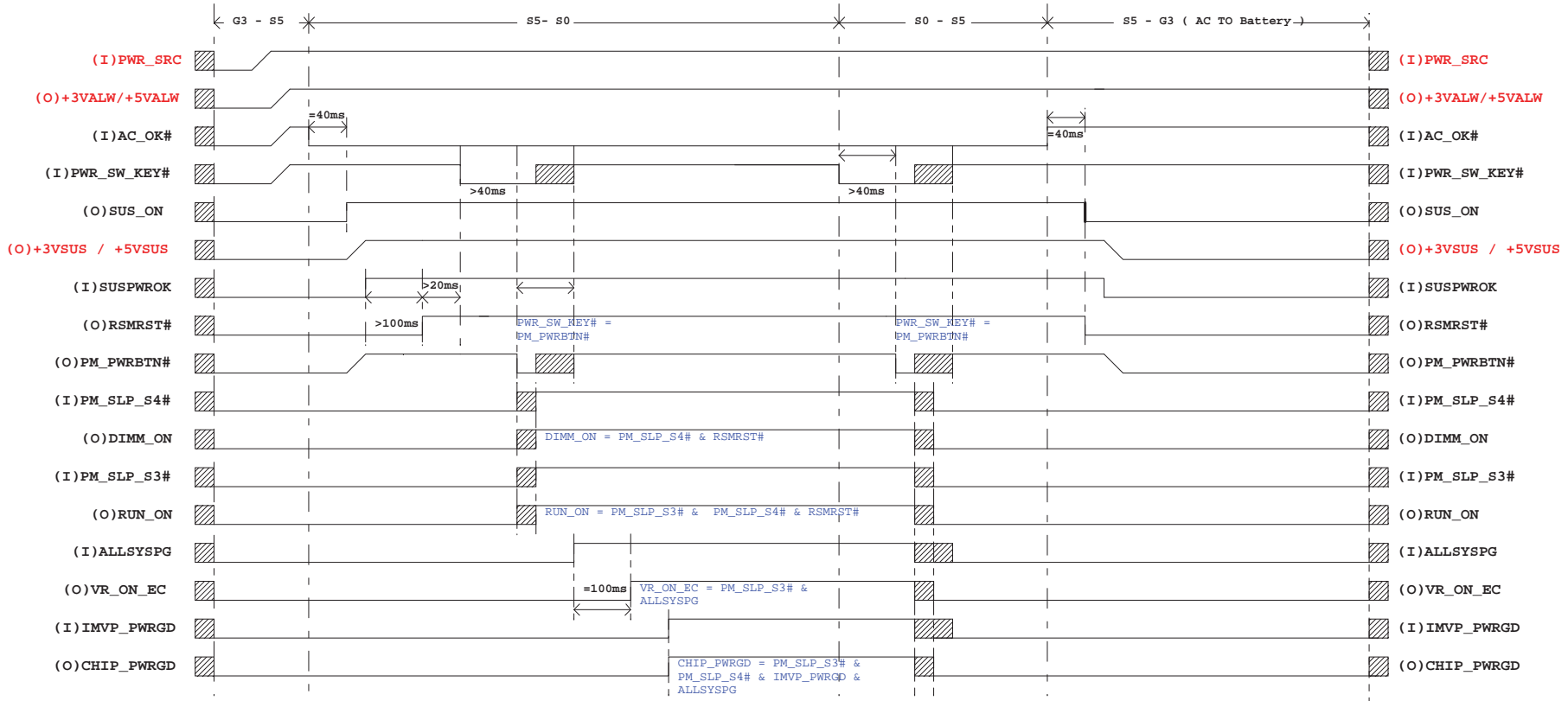
Battery Mode S0 - S3 - S0



MSI CORPORATION			
File AC/Battery timing 2			
Size Custom	Document Number MS-163A	Rev 0A	
Date: Monday, May 07, 2007	Sheet 51 of 54		

RED: POWER
BLACK: KBC

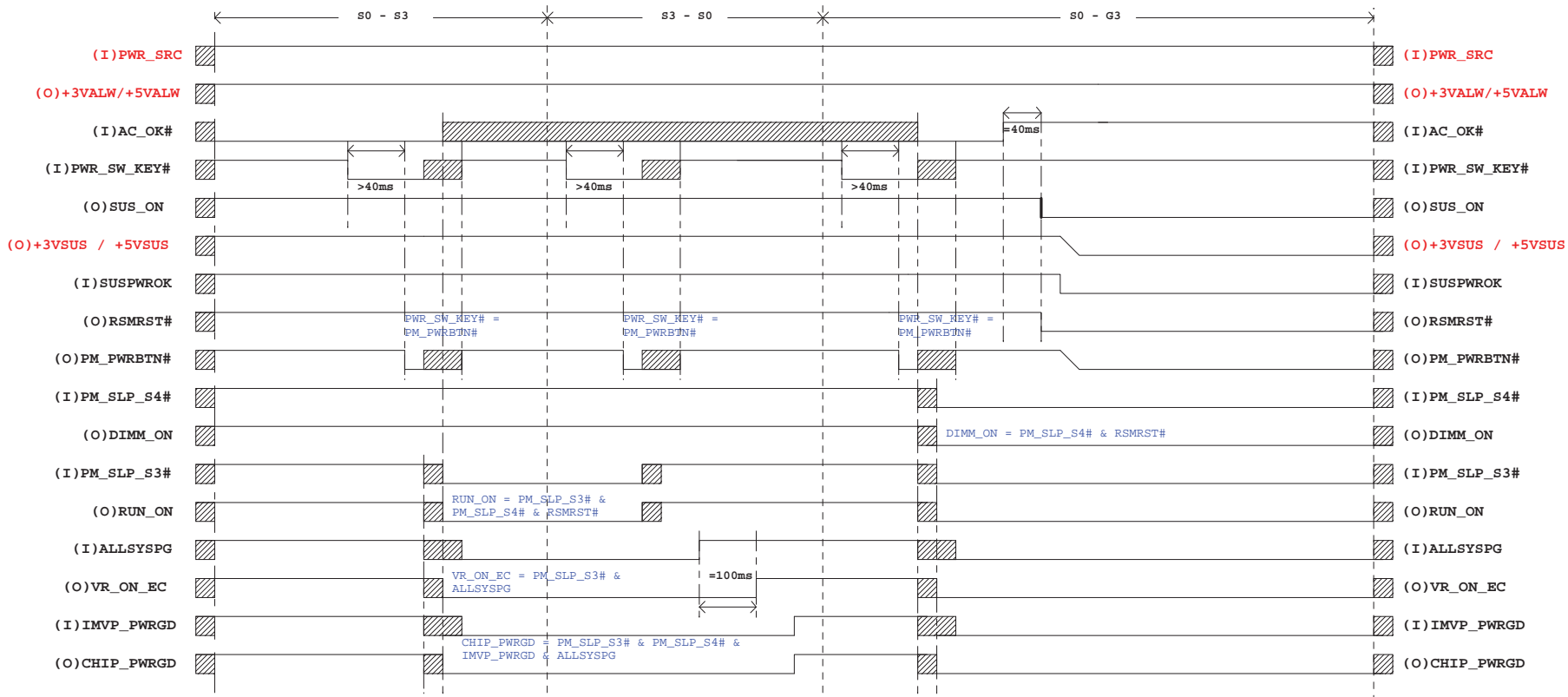
AC Mode G3 - S5 - S0 - S5 - G3



MSI CORPORATION			
File AC/Battery timing 3			
Size	Document Number	Rev	
Custom	MS-163A	0C	
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RED: POWER
BLACK: KBC

AC Mode S0 - S3 - S0



MSI CORPORATION			
AC/Battery timing 4			
File			
Size	Document Number	Rev	
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