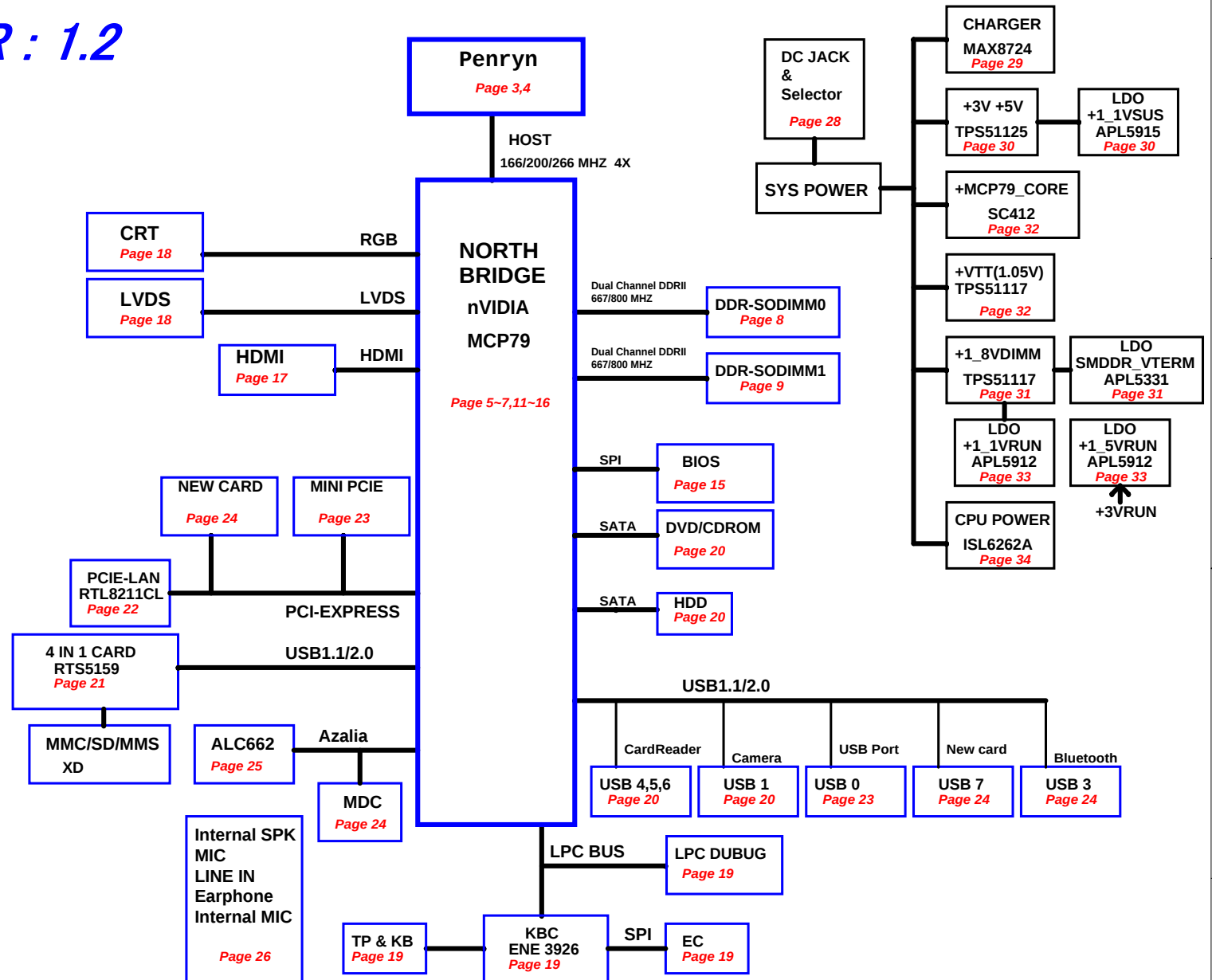


MS-1683 VER : 1.2

- 01 : BLOCK DIAGRAM
- 02 : PLATFORM
- 03 : Penryn-1 (HOST BUS)
- 04 : Penryn-2 (POWER/GND)
- 05 : MCP79-1 (FSB)
- 06 : MCP79-2 (MEM)
- 07 : MCP79-3 (MEM POWER)
- 08 : DDR2 SODIMM 0
- 09 : DDR2 SODIMM 1
- 10 : DDR2 TERMINATION
- 11 : MCP79-4 (PCIE)
- 12 : MCP79-5 (LVDS)
- 13 : MCP79-6 (PCI & LPC)
- 14 : MCP79-7 (SATA & USB)
- 15 : MCP79-8 (HDA & MISC)
- 16 : MCP79-9 (POWER)
- 17 : HDMI Connector
- 18 : CRT & LVDS
- 19 : KBC/EC/uP ENE3926
- 20 : HDD, CDROM & USB CONN.
- 21 : CardReader (RTS5158E)
- 22 : PCIE LAN (RTL8211CL)
- 23 : Mini_PCIE, FAN, LED
- 24 : Fan & MDC CONN
- 25 : CODEC (ALC662) & Amp
- 26 : Audio Jacks
- 27 : Powergood & Power switch
- 28 : BATTERY SELECT
- 29 : BATTERY CHARGER
- 30 : SYSTEM POWER 3V, 5V & +1.1VSUS
- 31 : DDR2 RAM POWER
- 32 : MCP79_CORE & VTT POWER
- 33 : +1.5VRUN & +1.1VRUN
- 34 : CPU POWER
- 35 : Screw & EMI
- 36 : Non_Footprint for BOM
- 37 : Power on Sequency
- 38 : Lanuch Board
- 39 : USB Daughter Board



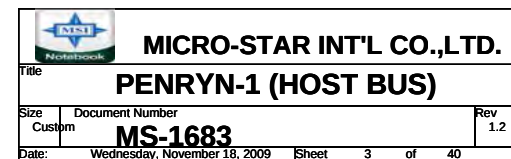
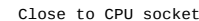
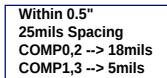
Voltage Rails

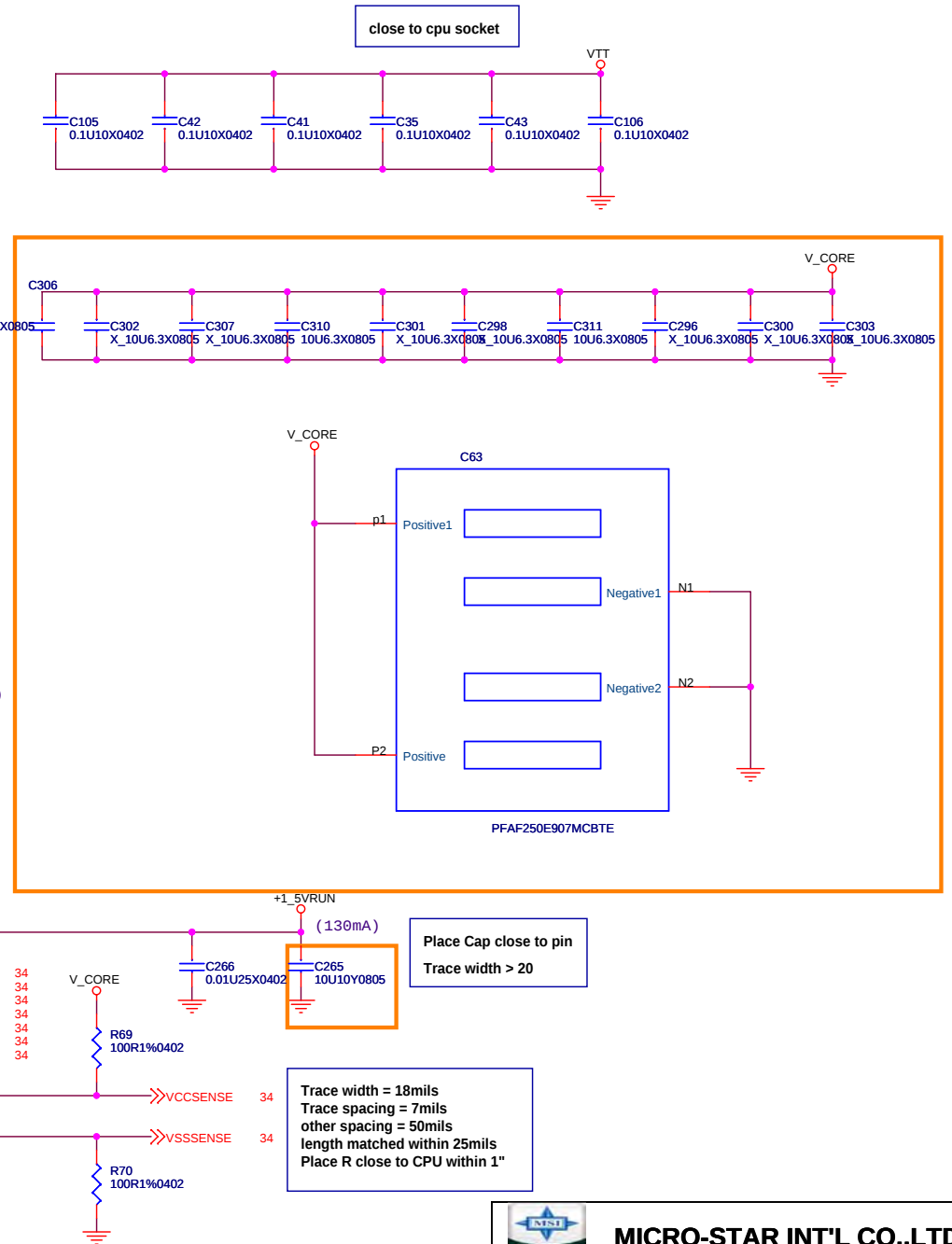
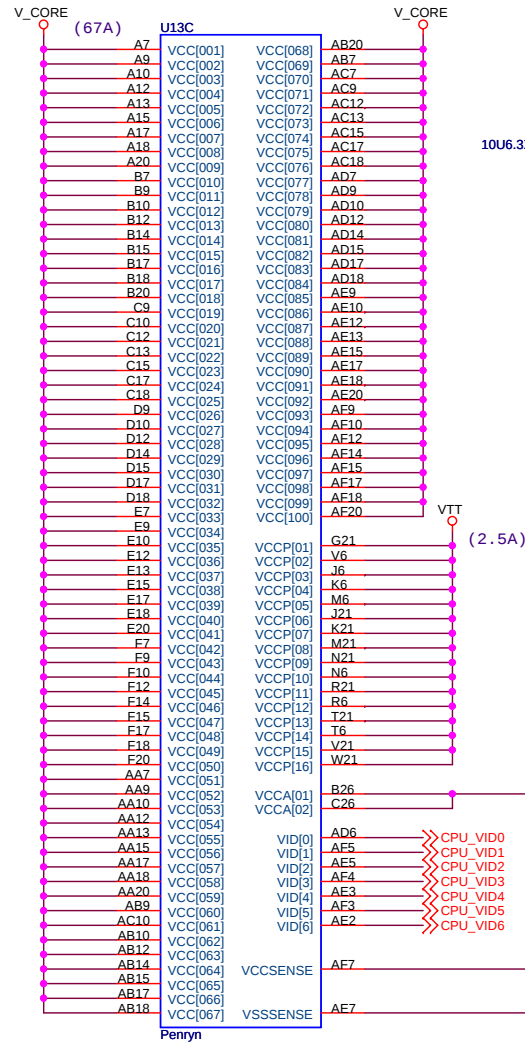
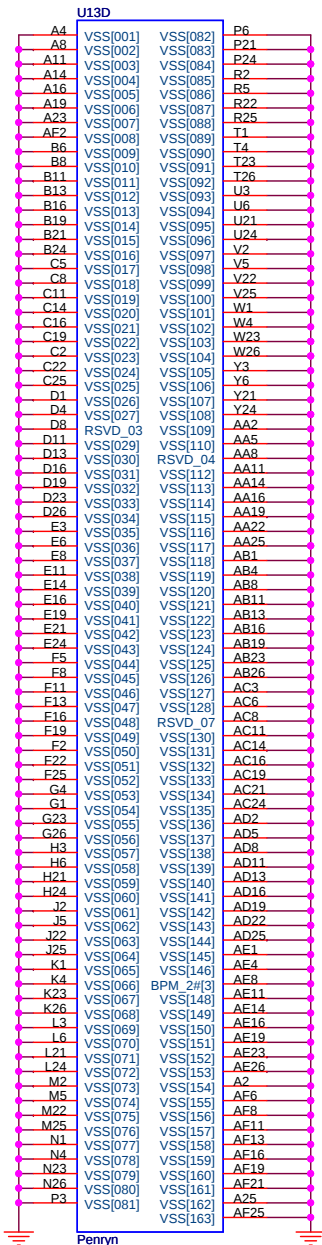
Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
V_CORE	Core Voltage for Processor	VR_ON
+VTT	1.05 rail for Processor & 945GM I/O	CPUVDD_EN
+1_5VRUN	1.5V switched power rail(off in S3-S5)	RUN_POWER (RUN_ON)
+3VRUN	3.3V switched power rail(off in S3-S5)	RUND (RUN_ON)
+5VRUN	5.0V switched power rail(off in S3-S5)	RUND (RUN_ON)
SMDDR_VTERM	0.9V DDR Termination voltage (off in S4-S5)	STR_EN#
+1_8VDIMM	1.8V power rail DDR (off in S4-S5)	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
ADD5V	5.0V Power rail Audio codec(off in S3-S5)	RUND
+1_2VSUS	Core Voltage For RTL8111C	+3VSUS
+1_1VSUS	1.1V power rail (off in S4-S5)	SUS_ON
+1_1VRUN	1.1V power rail (off in S3-S5)	RUN_POWER (RUN_ON)
MCP79_CORE	Core Voltage for MCP79	RUN_ON

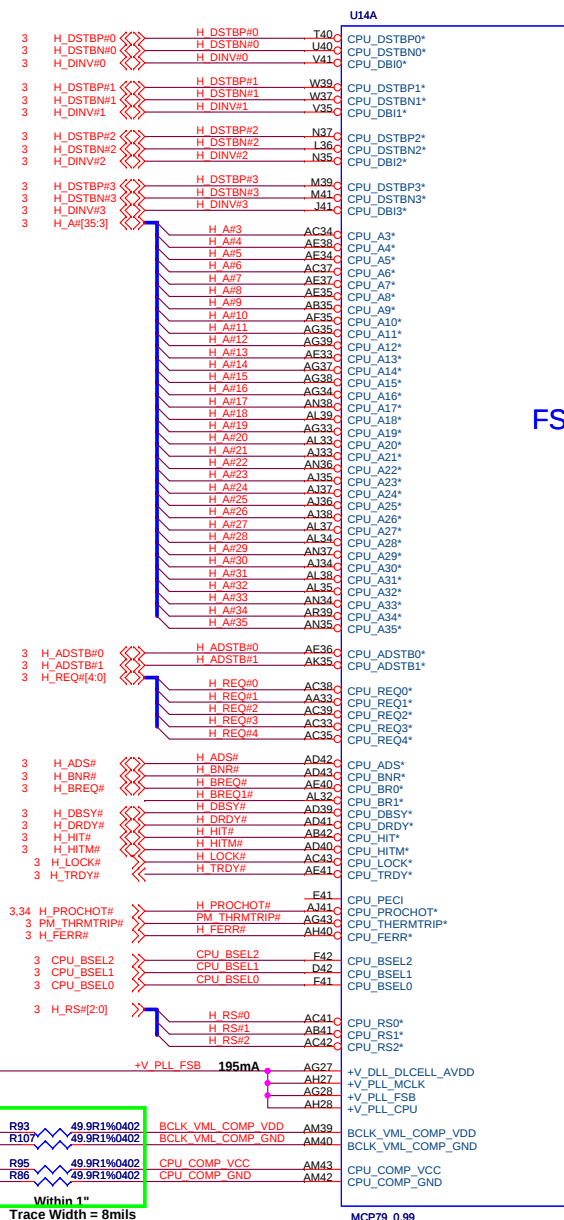
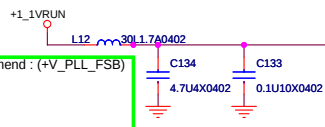
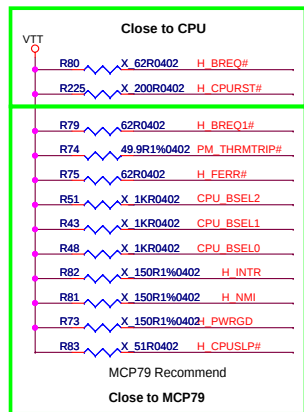
POWER STATES

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

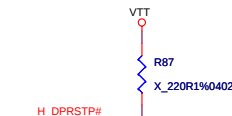
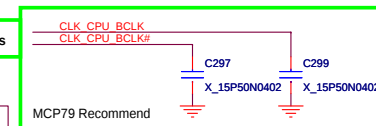
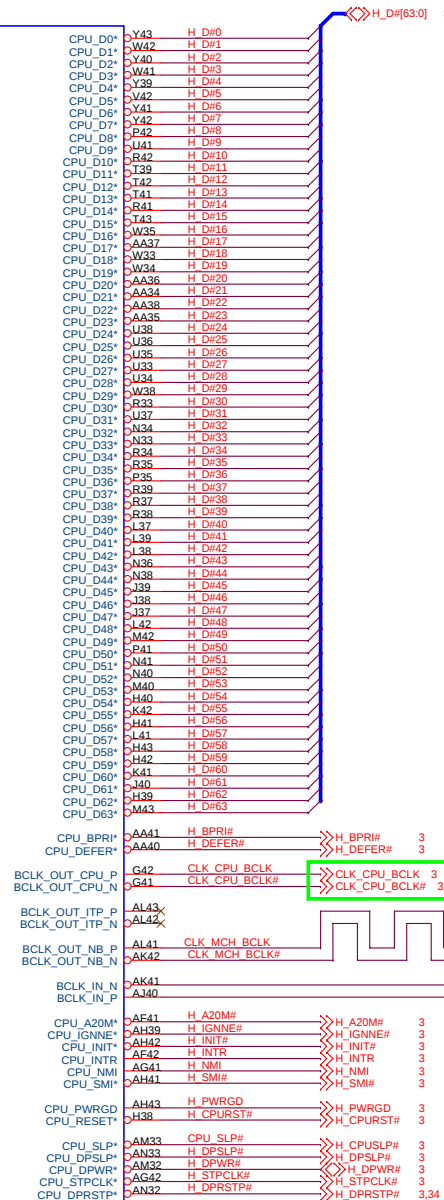
Note : WHEN AC MODE , System turn on then +V*SUS will always keep high



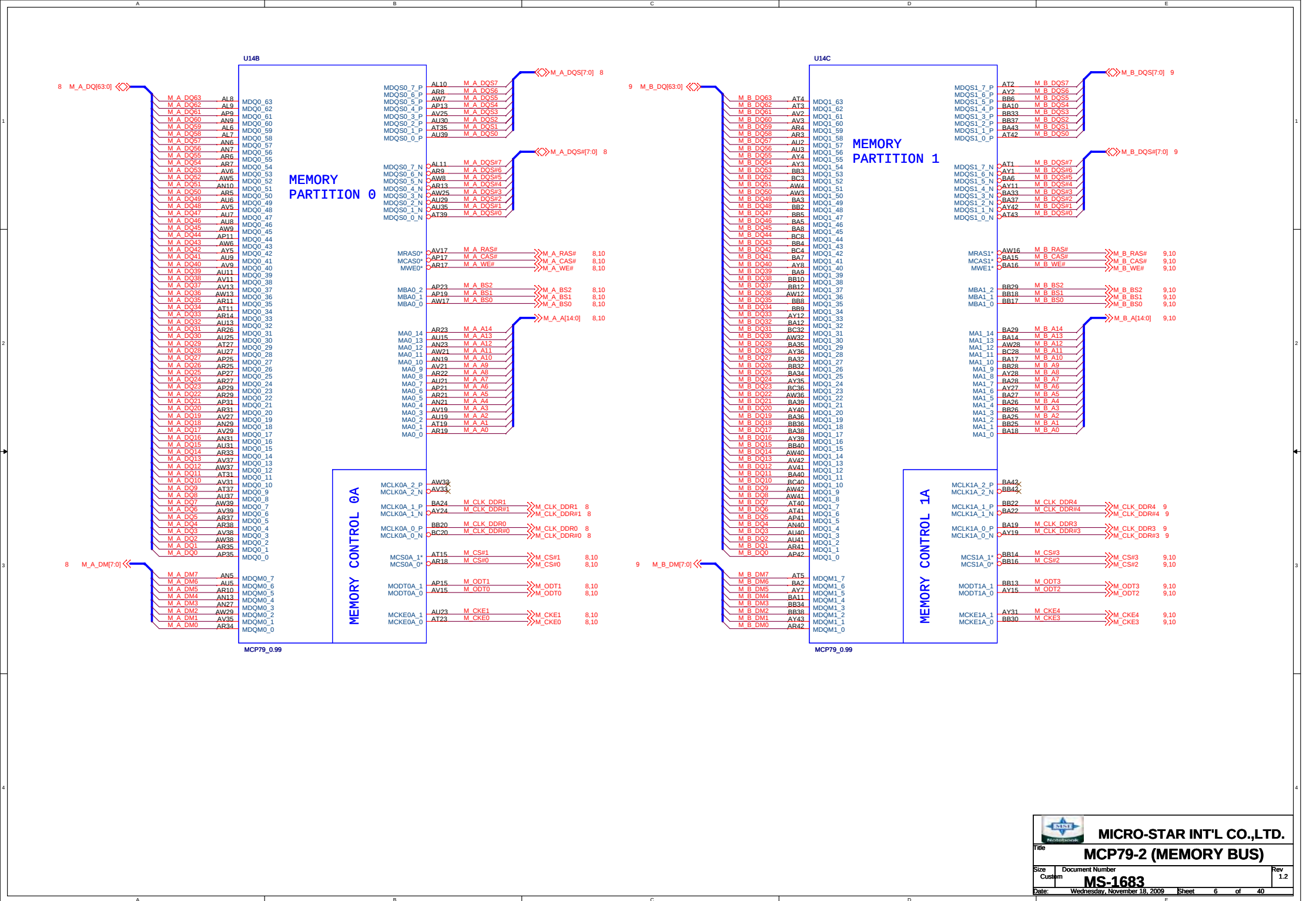


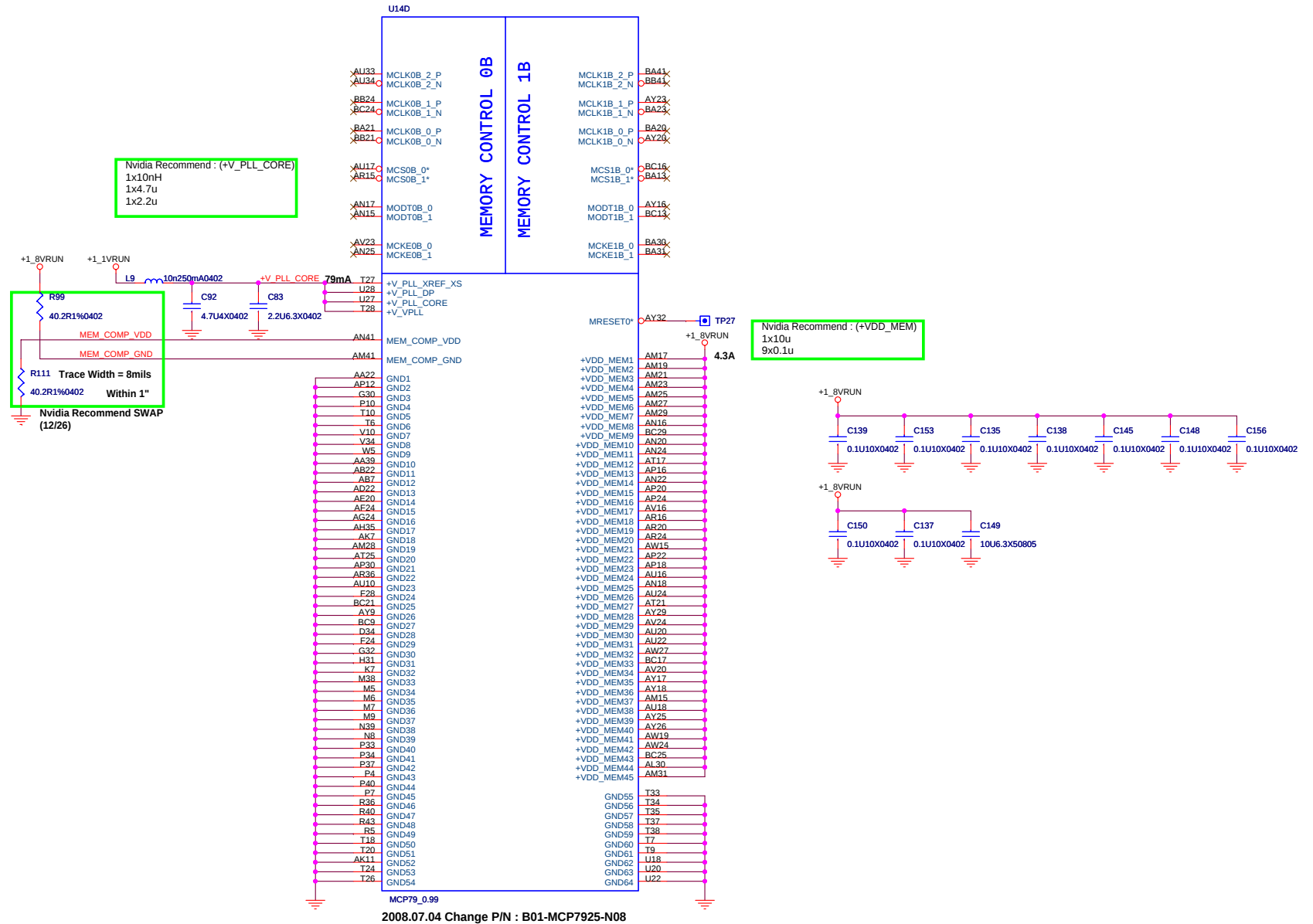


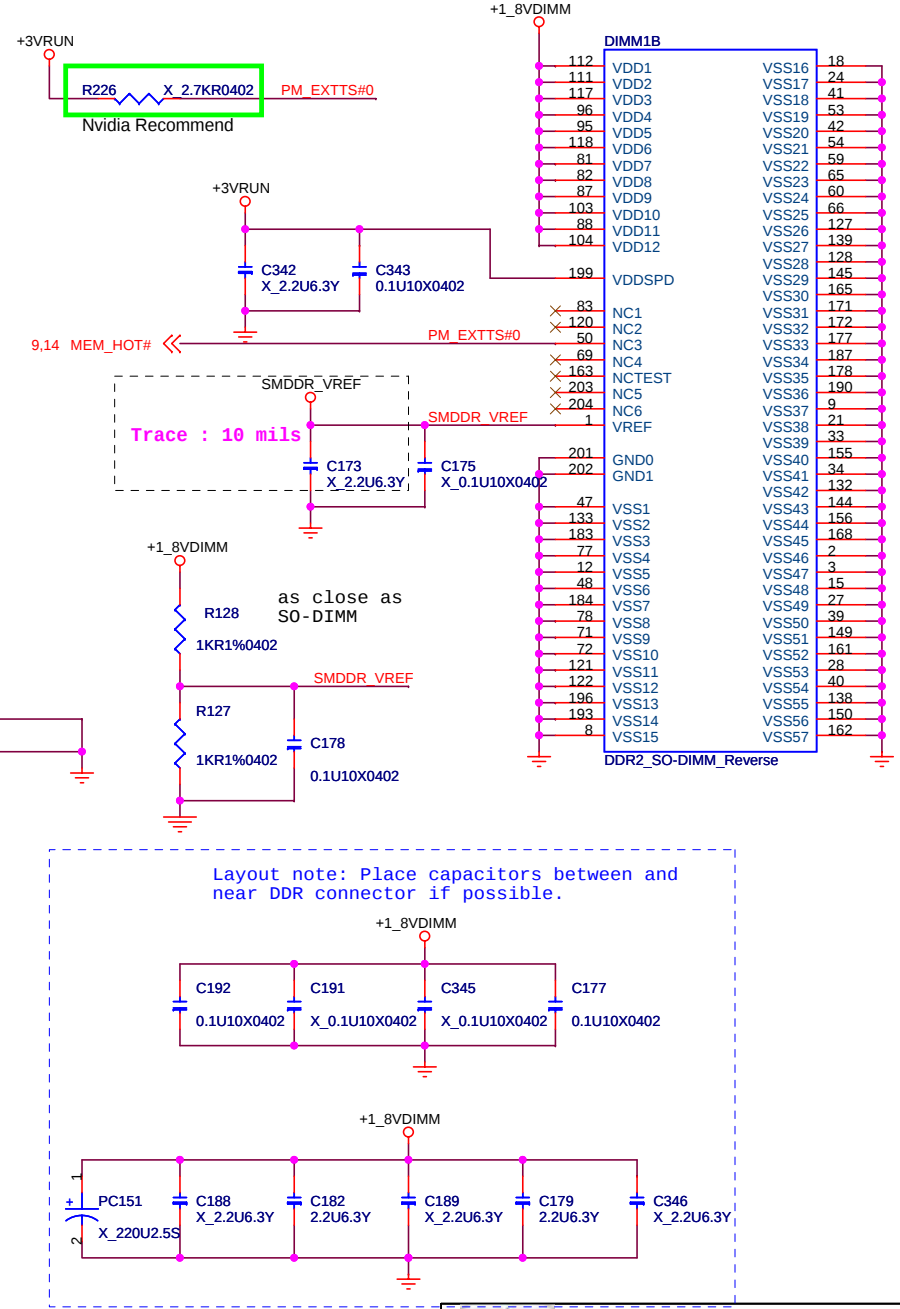
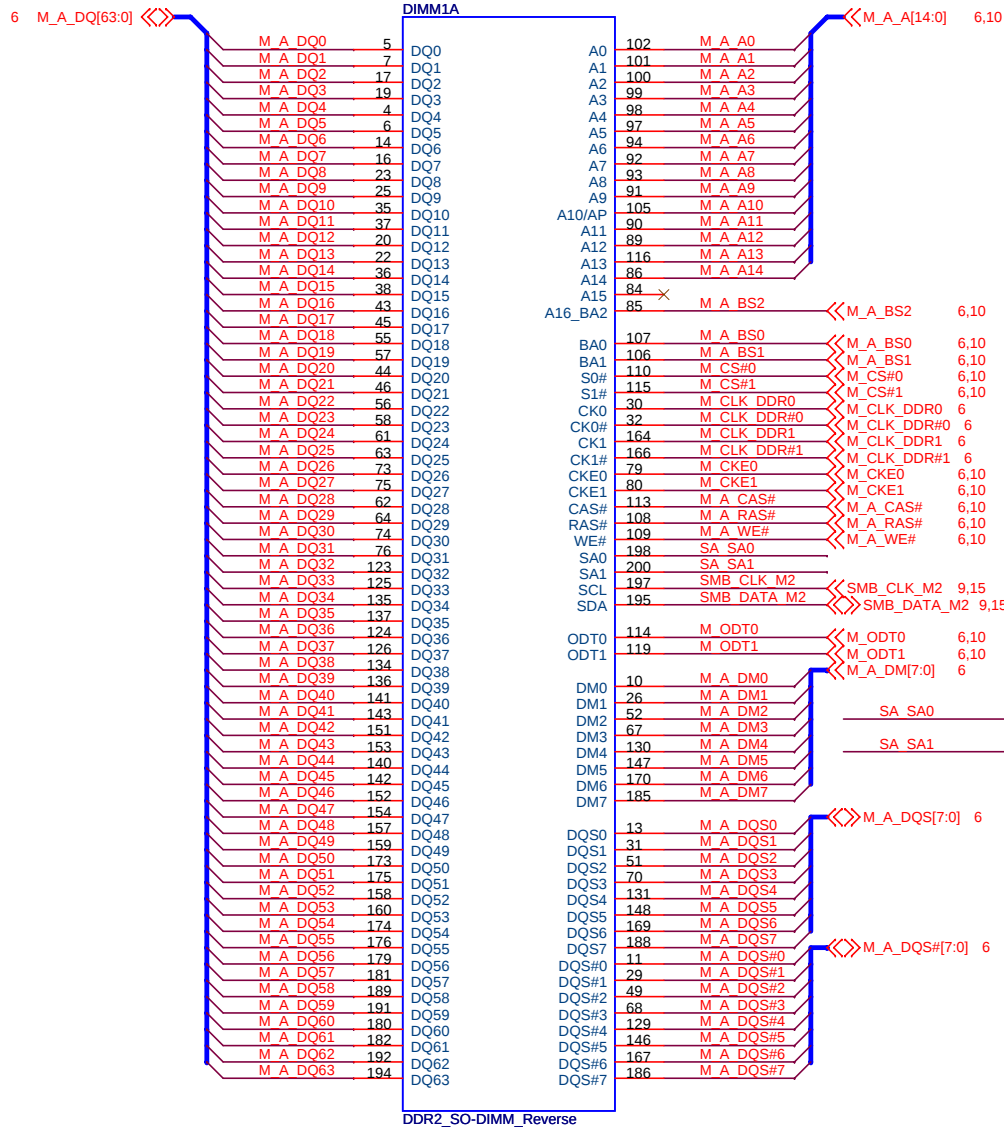
FSB



2008.07.04 Change P/N : B01-MCP7925-N08

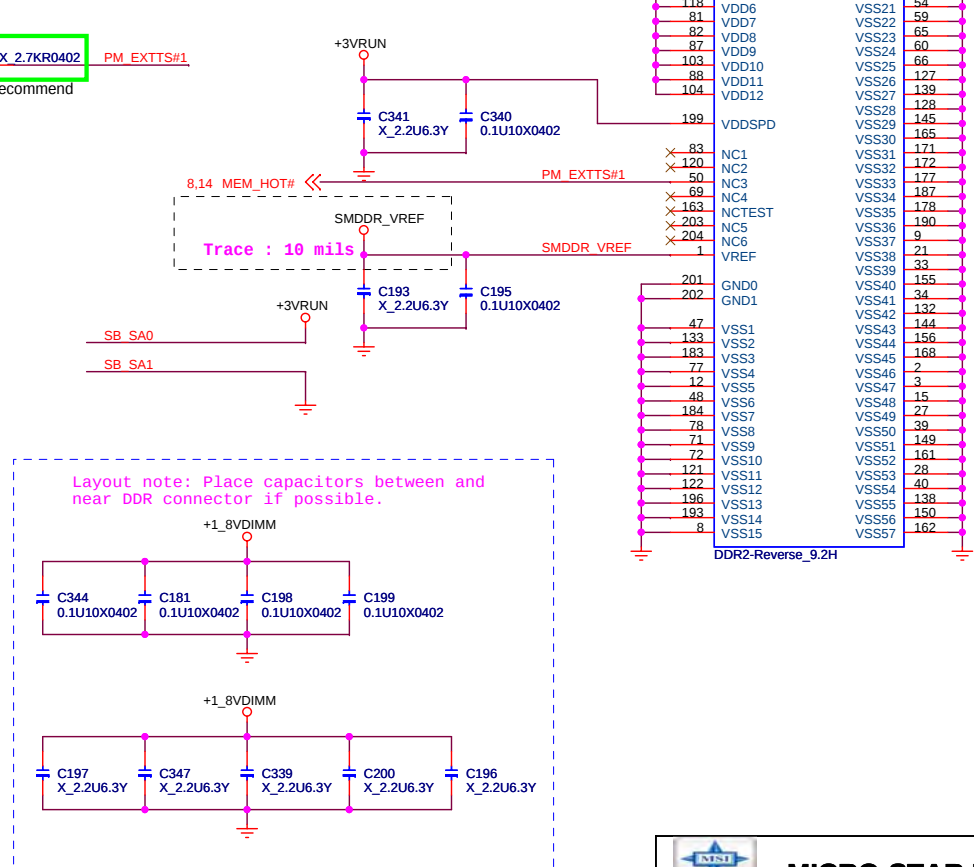
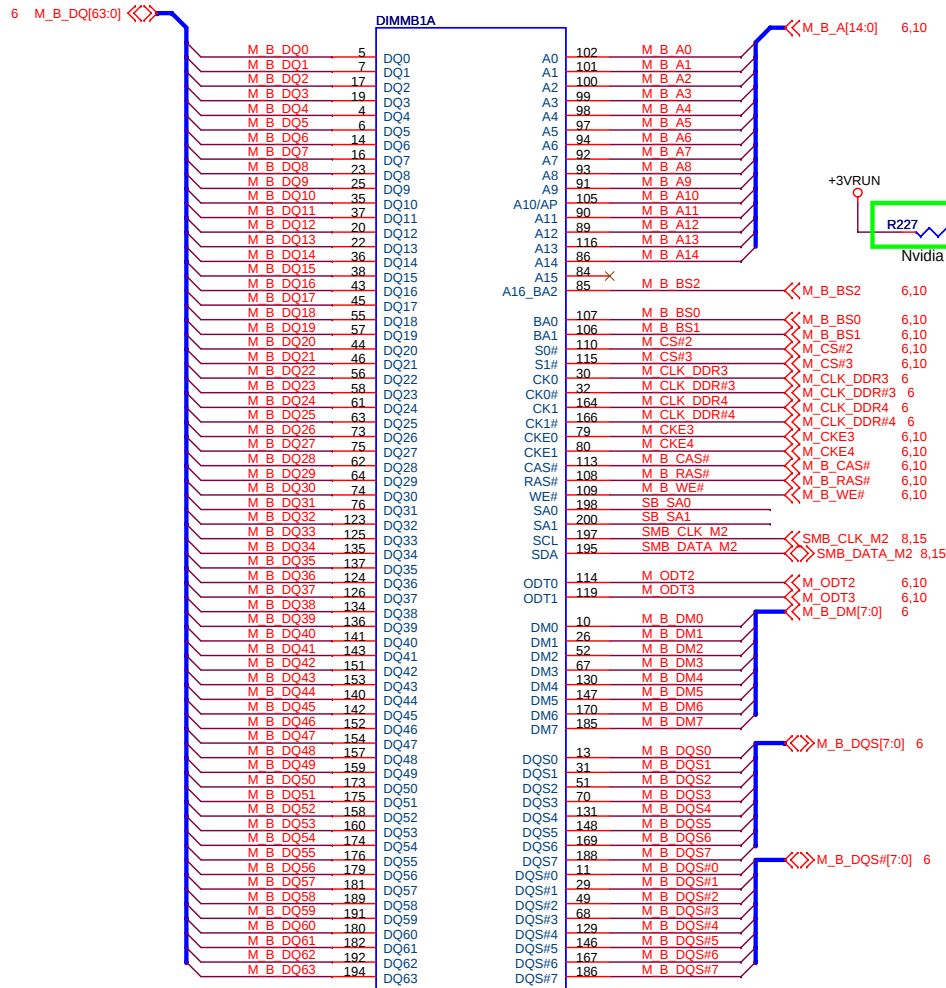




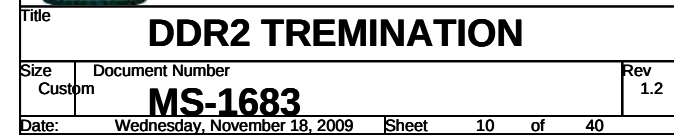
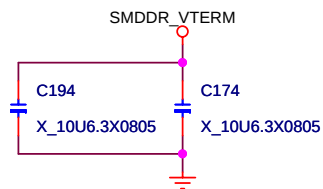
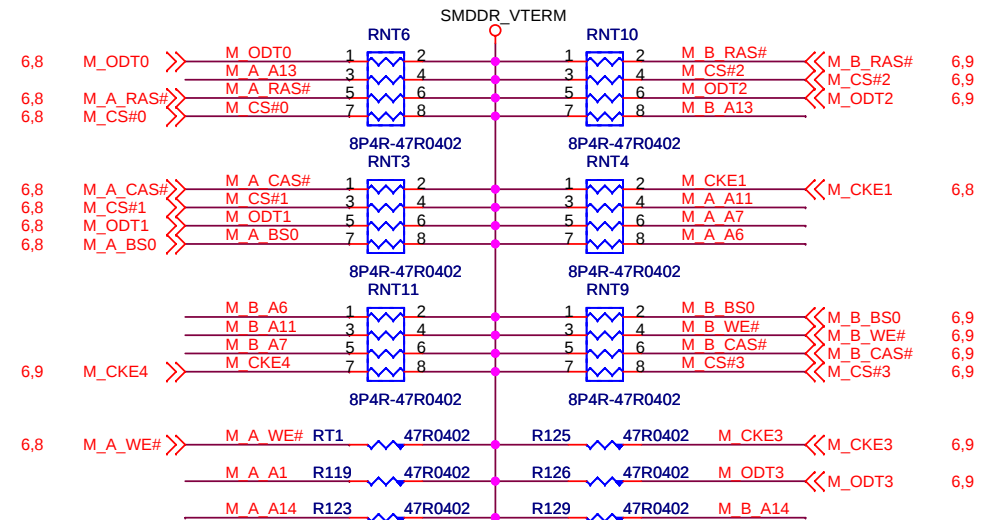


MICRO-STAR INT'L CO.,LTD.

Title			DDR2 SODIMM 0
Size	Document Number	Rev	
Custom	MS-1683	1.2	
Date:	Wednesday, November 18, 2009	Sheet	8 of 40



		MICRO-STAR INT'L CO.,LTD.	
Title			
DDR2 SODIMM 1			
Size	Document Number		Rev
Custom	MS-1683		1.2
Date:	Wednesday, November 18, 2009	Sheet	9 of 40





Nvidia Recommend : (+DVDD_PEX)

1x4.7u

2x1u

2x0.1u

Nvidia Recommend : (+V_PLL_PEX)

1x10nH

1x4.7u

1x2.2u

Nvidia Recommend : (+AVDD_PEX)

1xBead

1x10u

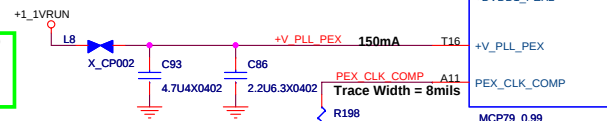
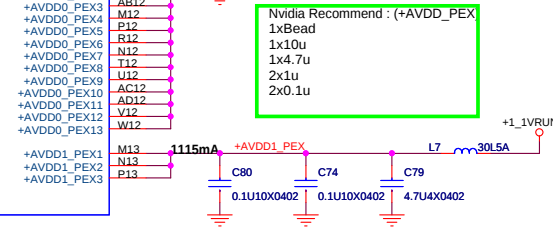
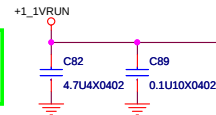
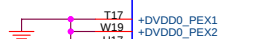
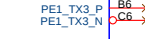
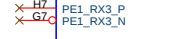
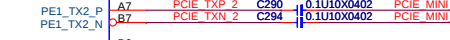
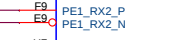
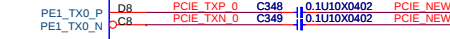
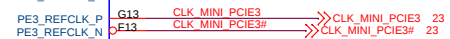
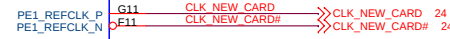
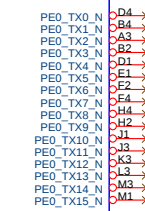
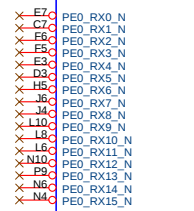
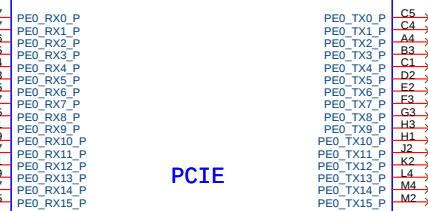
1x4.7u

2x1u

2x0.1u

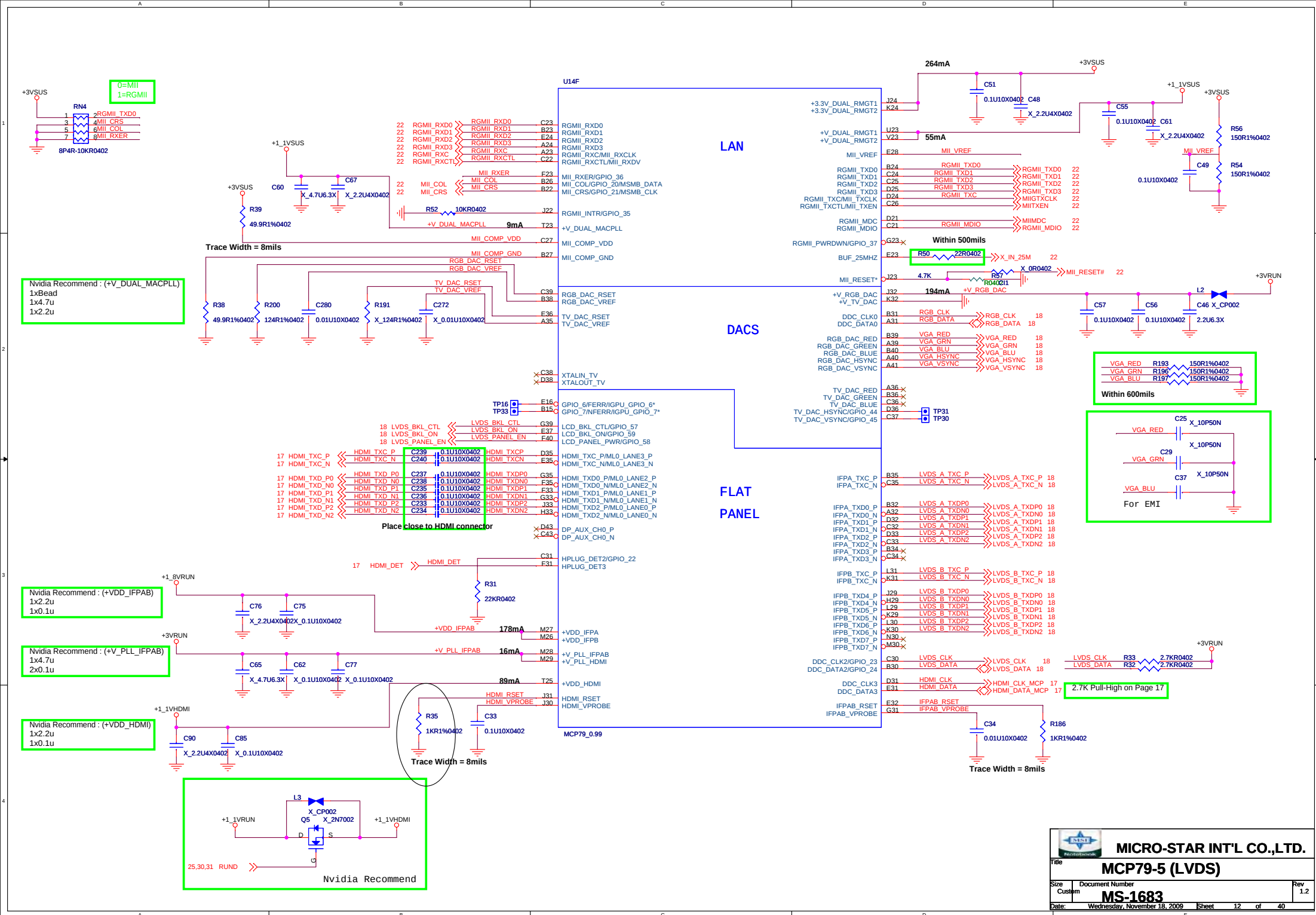
U14E

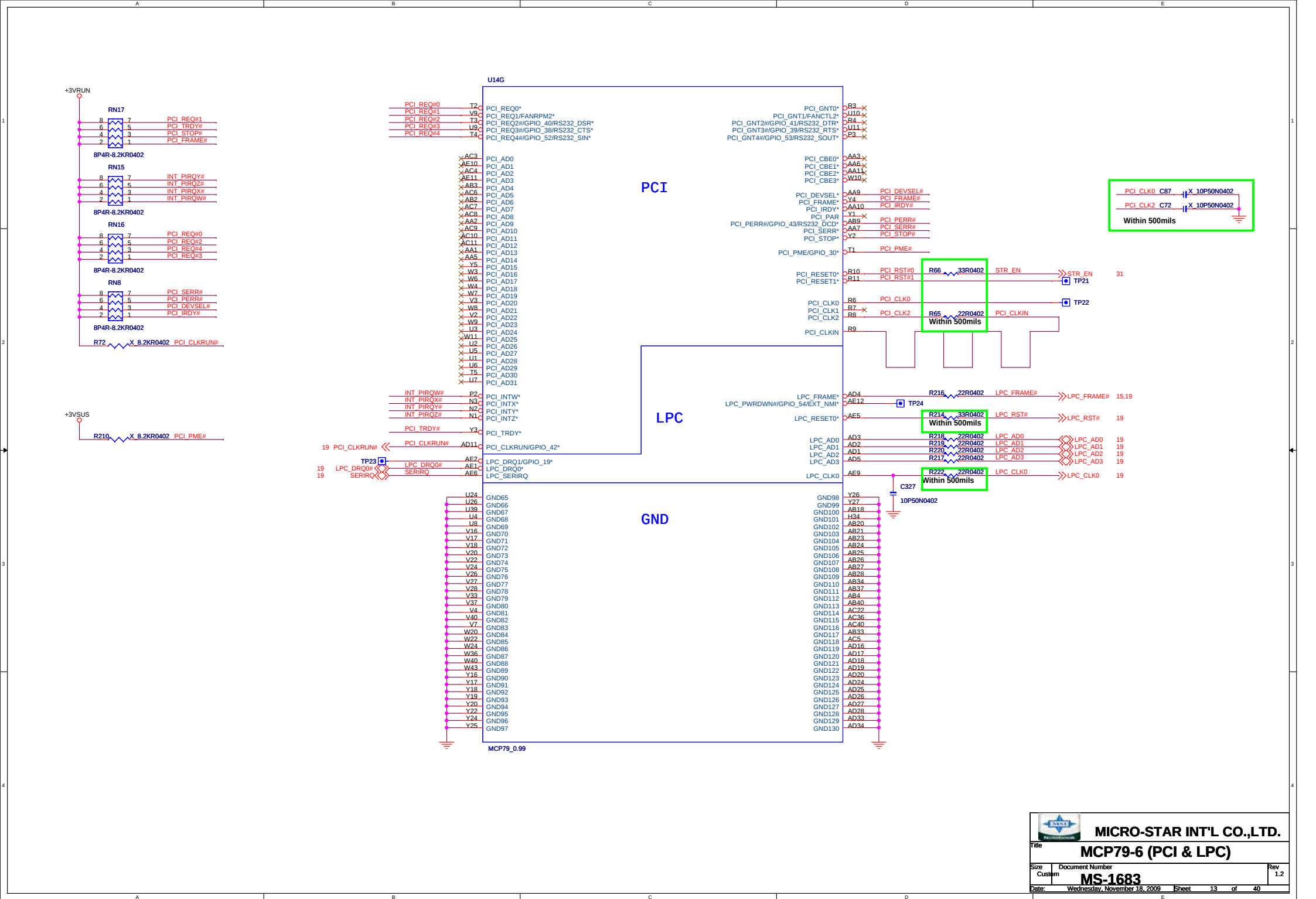
PCIE

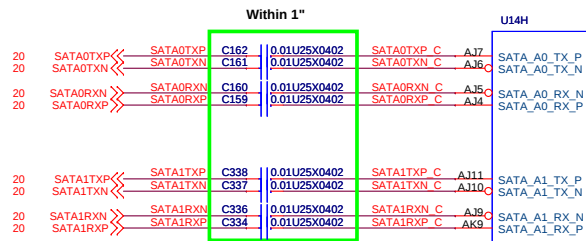


MCP79_0_99

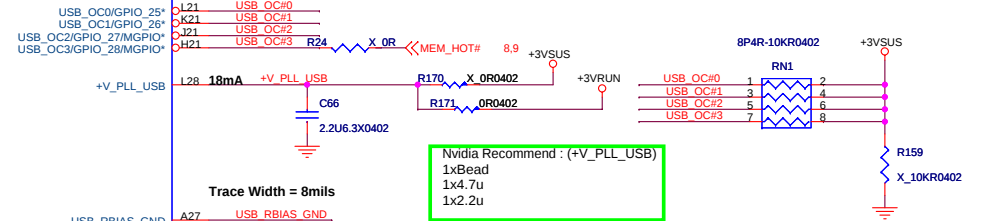
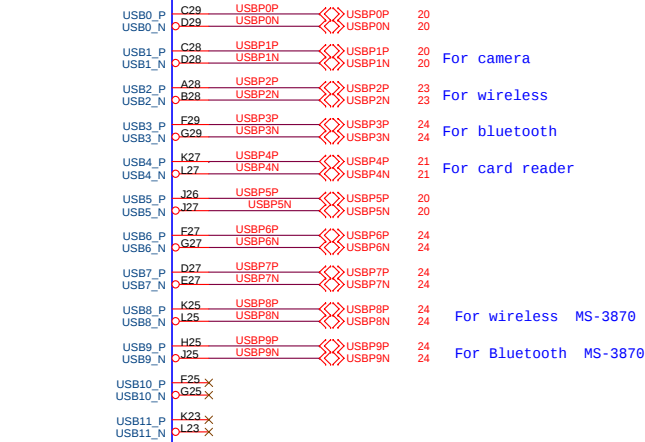
2008.07.04 Change P/N : B01-MCP7925-N08







SATA USB



Nvidia Recommend : (+V_PLL_SATA)
1x10nH
1x4.7u
1x2.2u

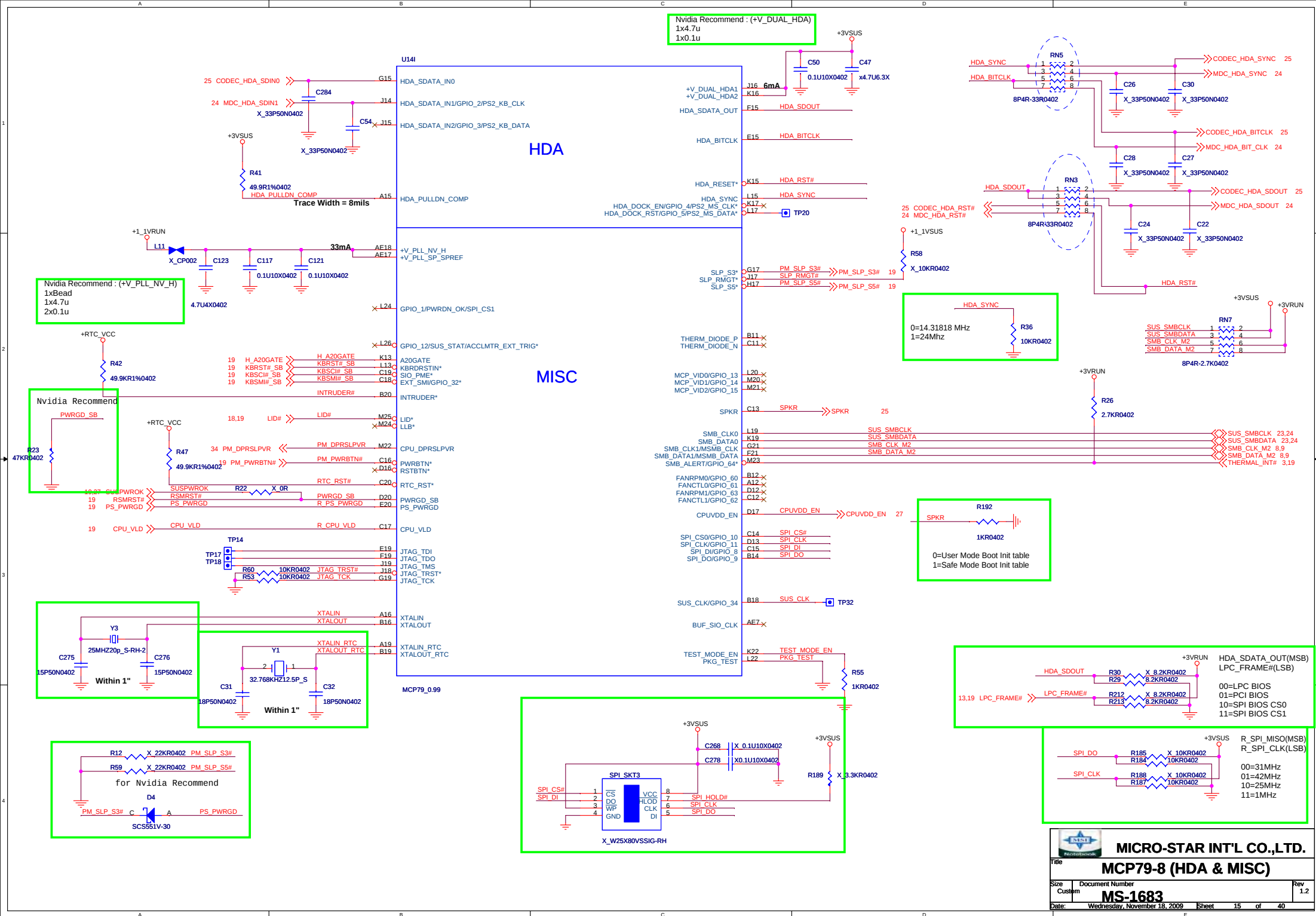
Nvidia Recommend : (+V_PLL_USB)
1xBead
1x4.7u
1x2.2u

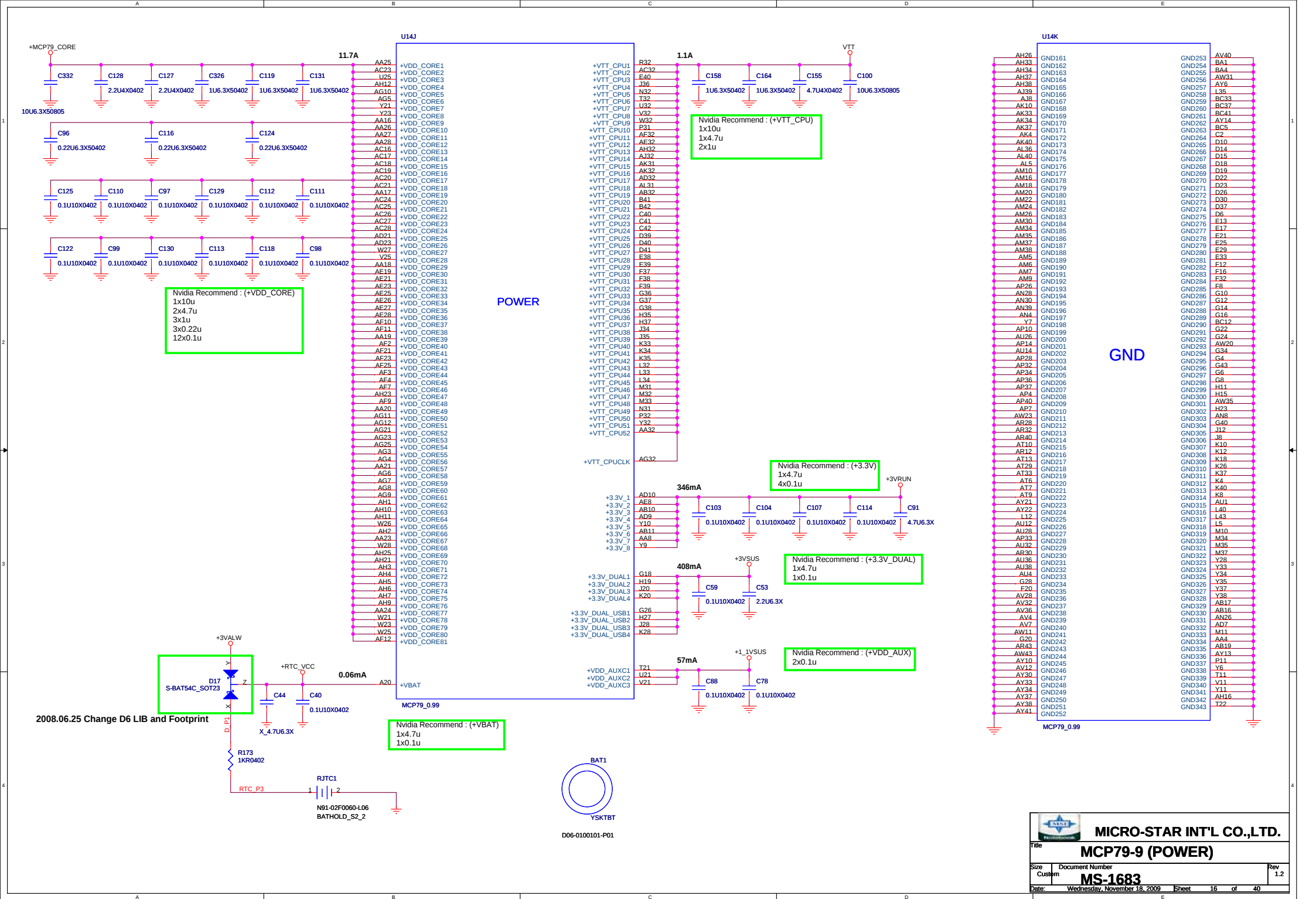


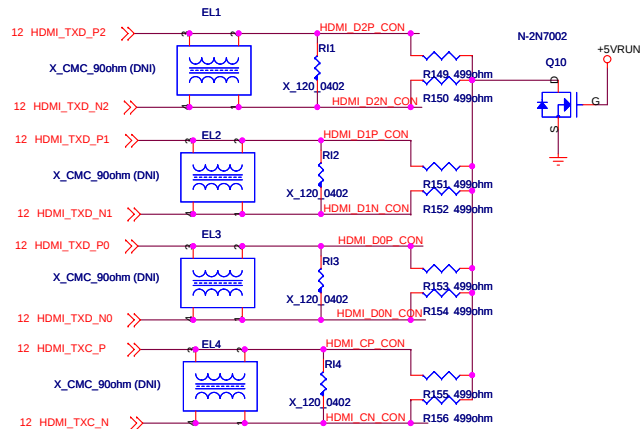
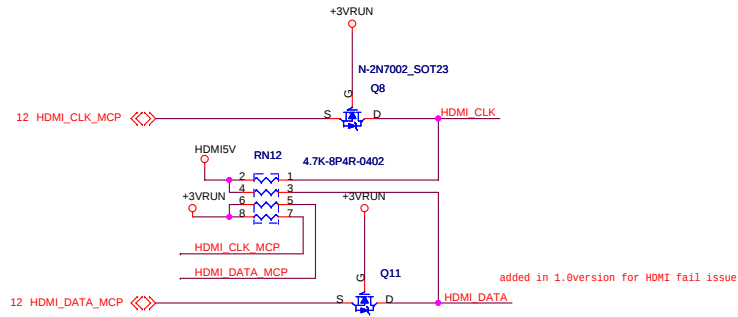
MICRO-STAR INT'L CO.,LTD.

MCP79-7 (SATA & USB)

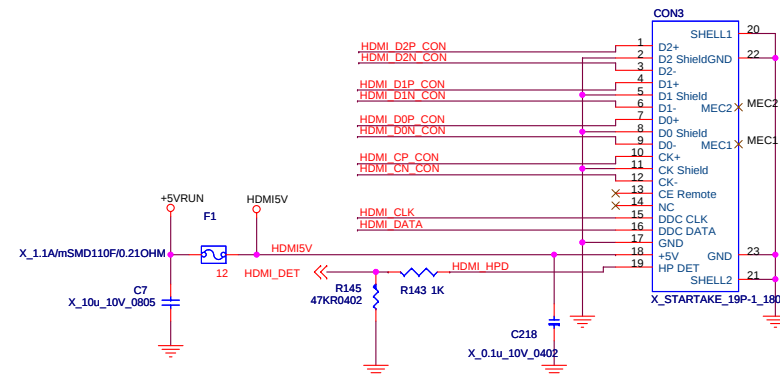
Size Custom MS-1683
Date: Wednesday, November 18, 2009 Sheet 14 of 40

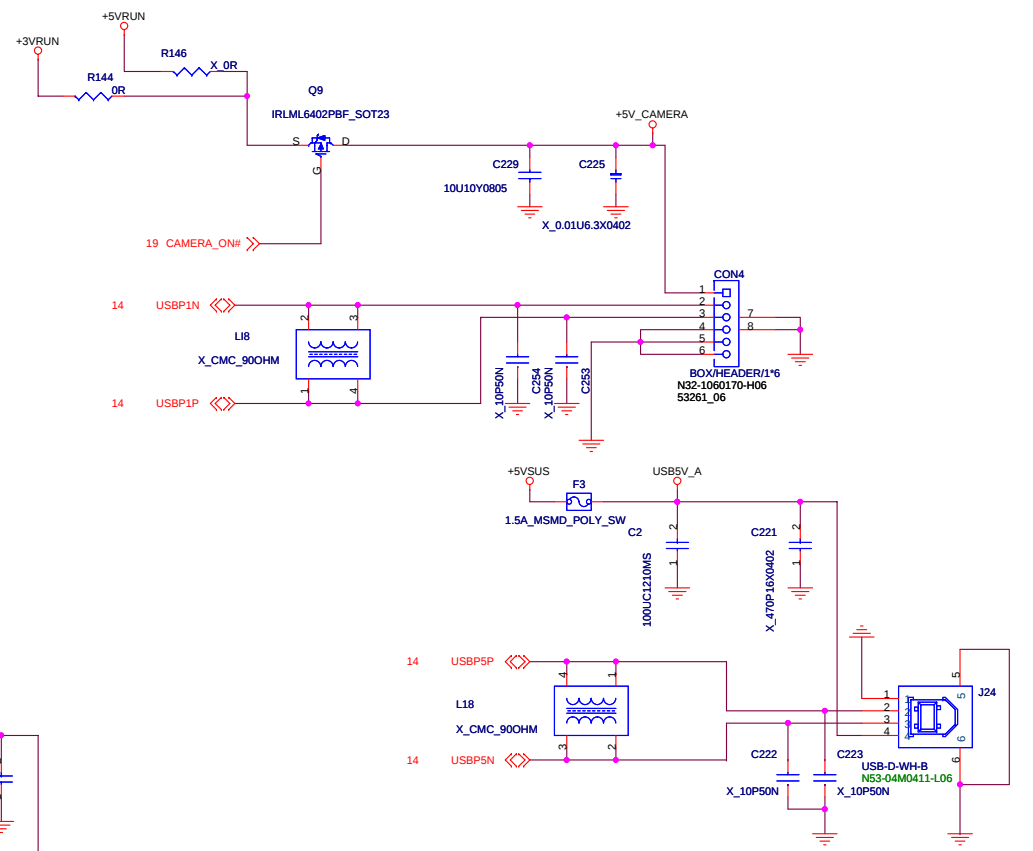
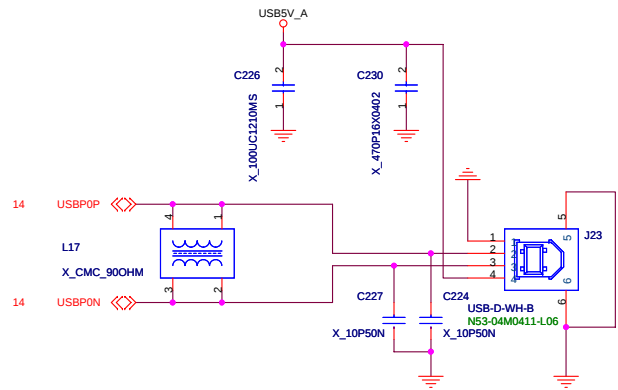
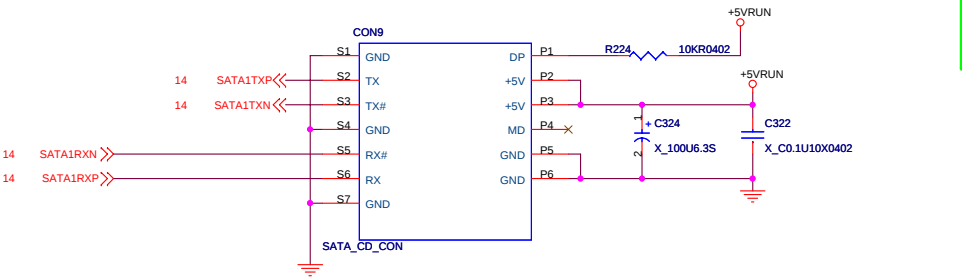
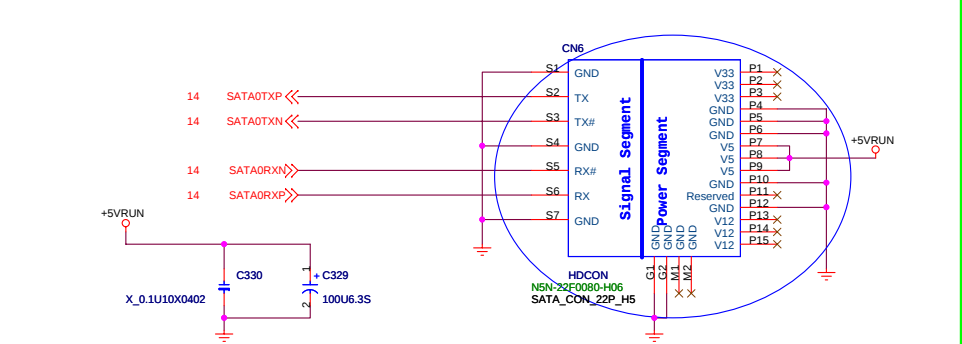


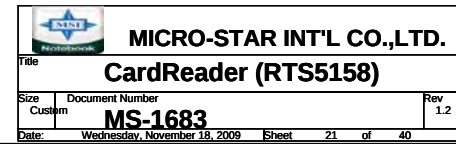


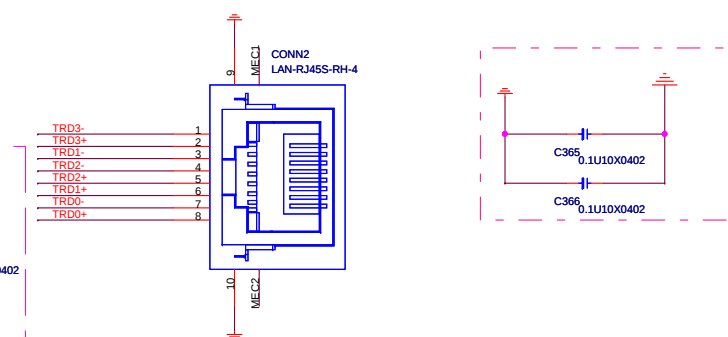
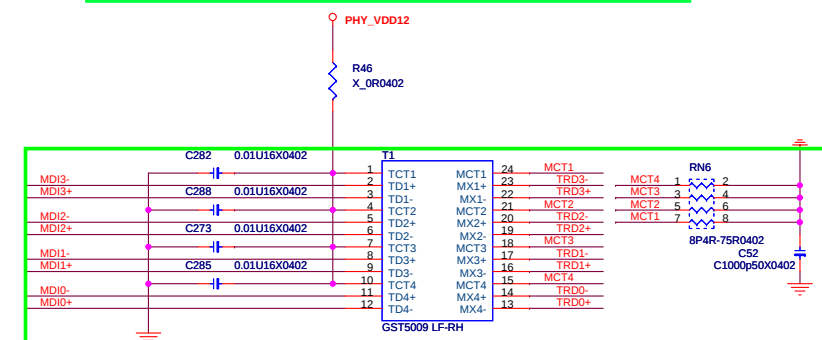
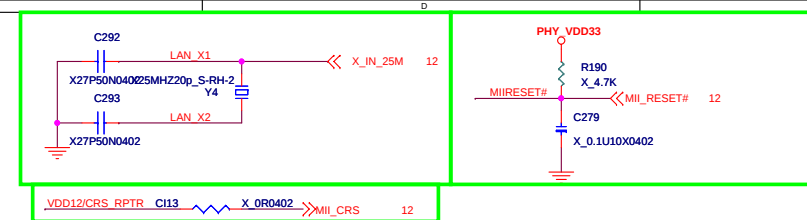


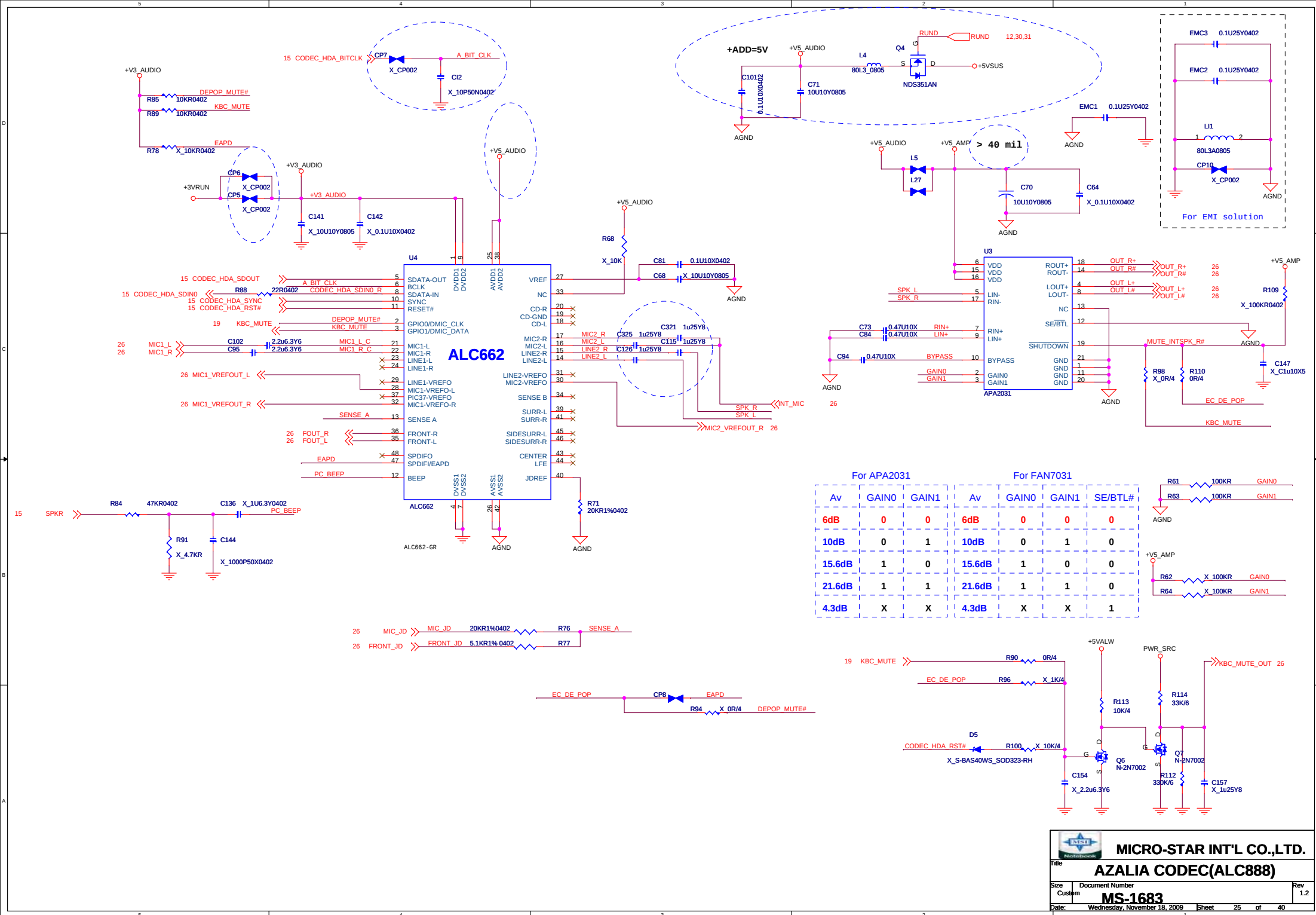
HP_DET(0E#)	IN_D Termination	Out_D Outputs
0	50 ohm	Active
1	>100K ohm	High-Z

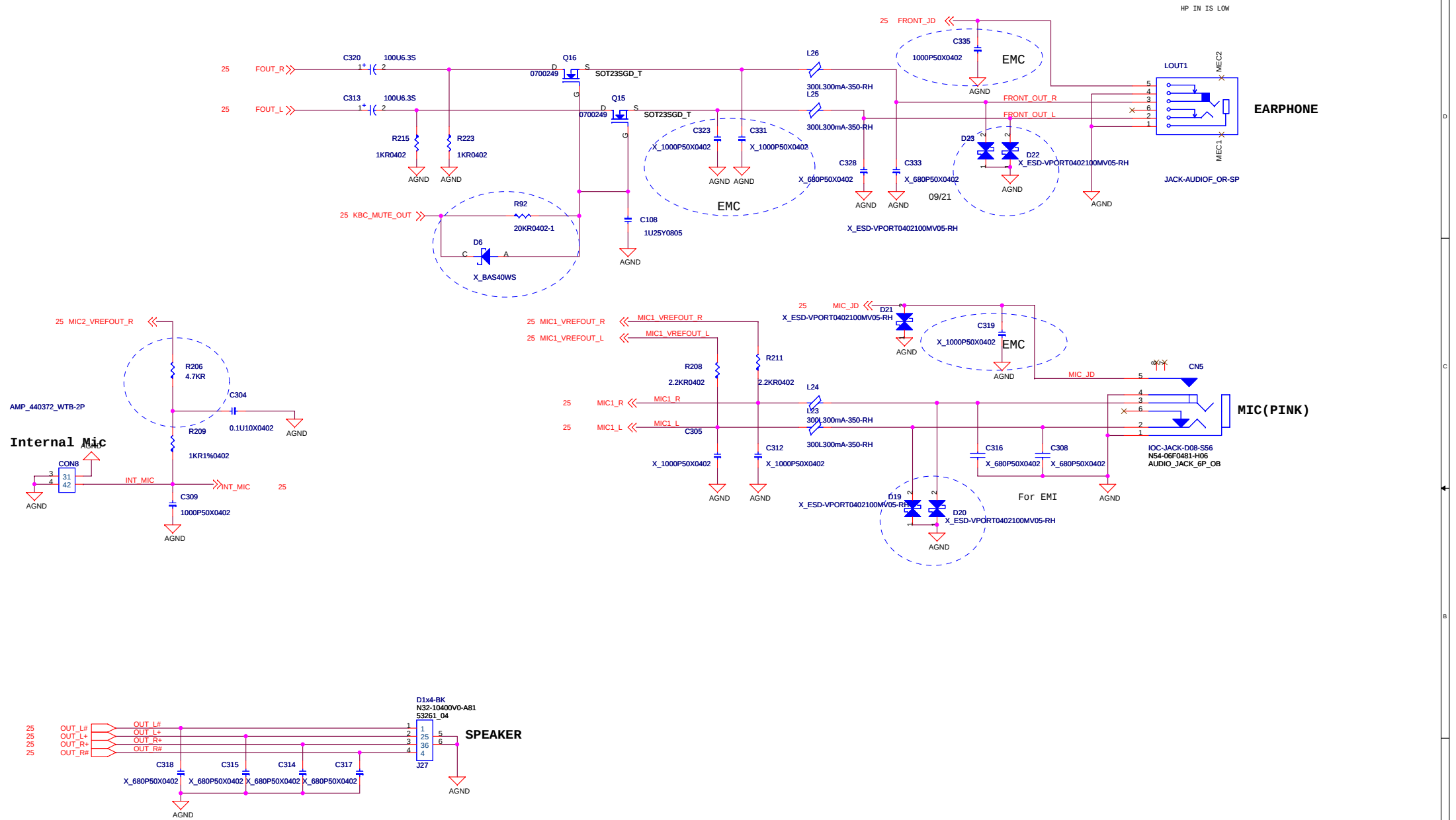


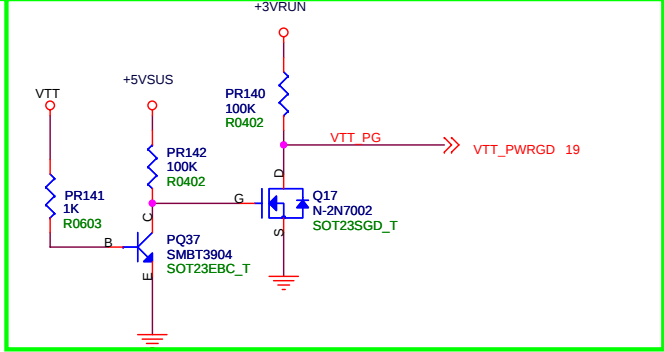
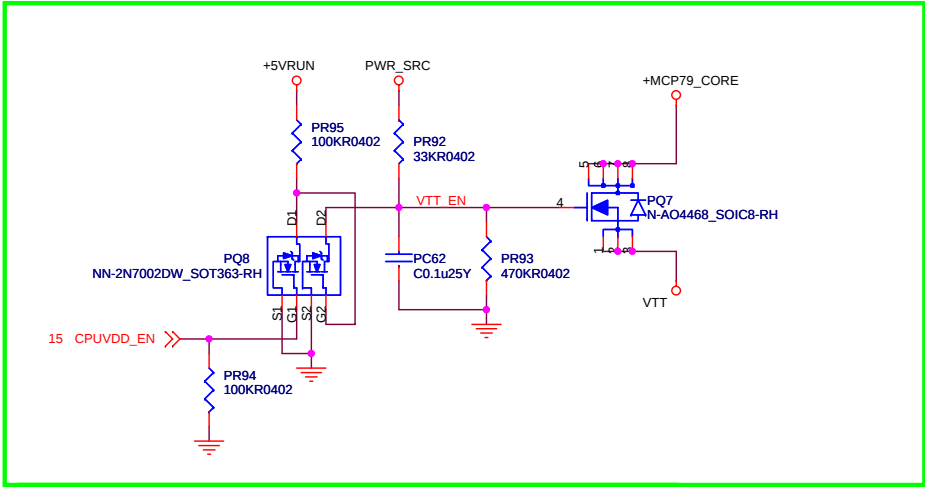
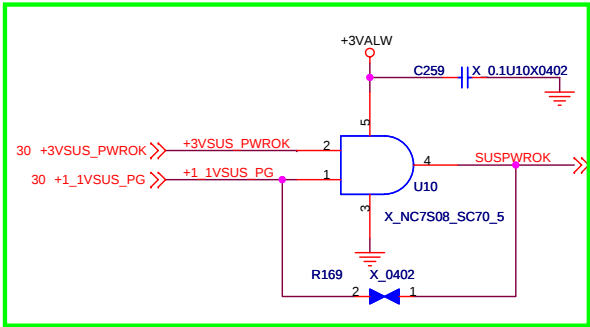
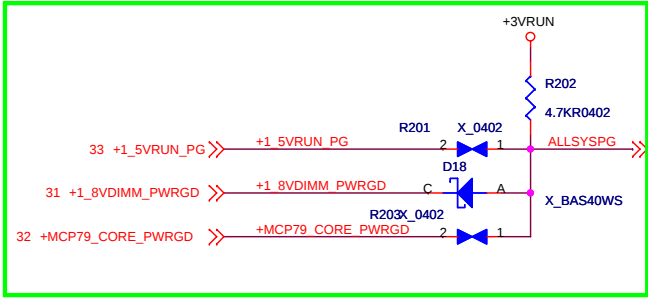


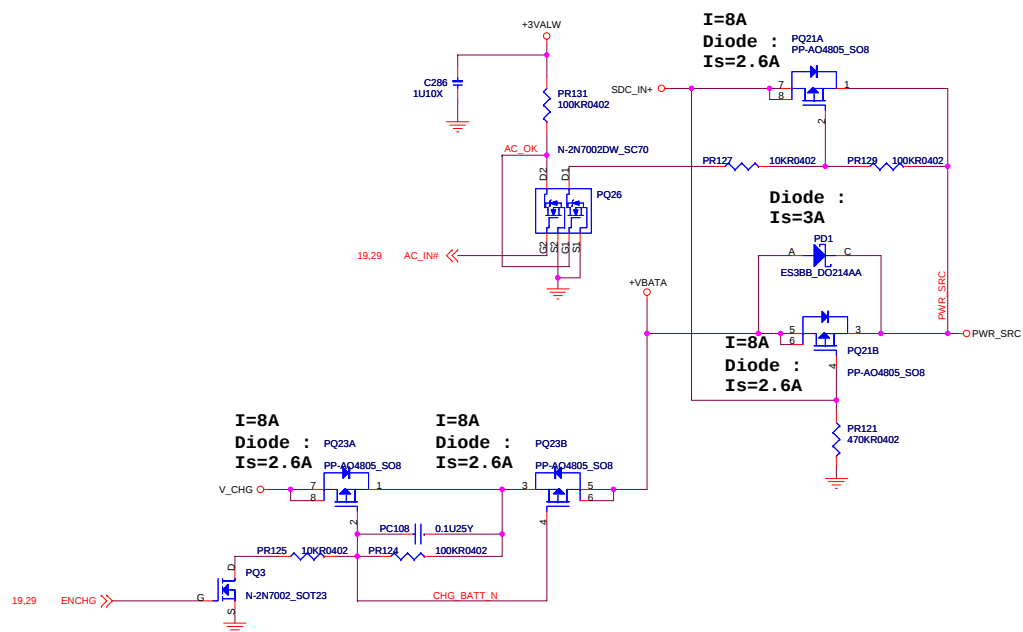
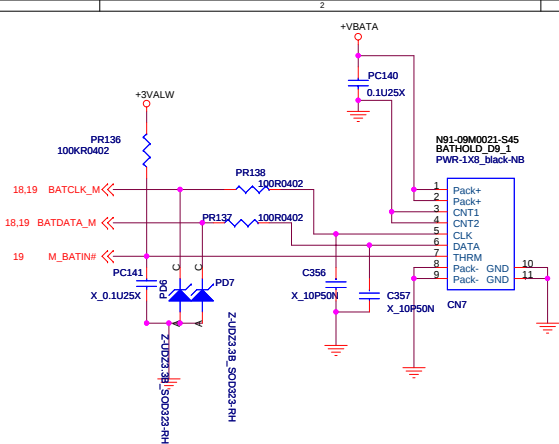








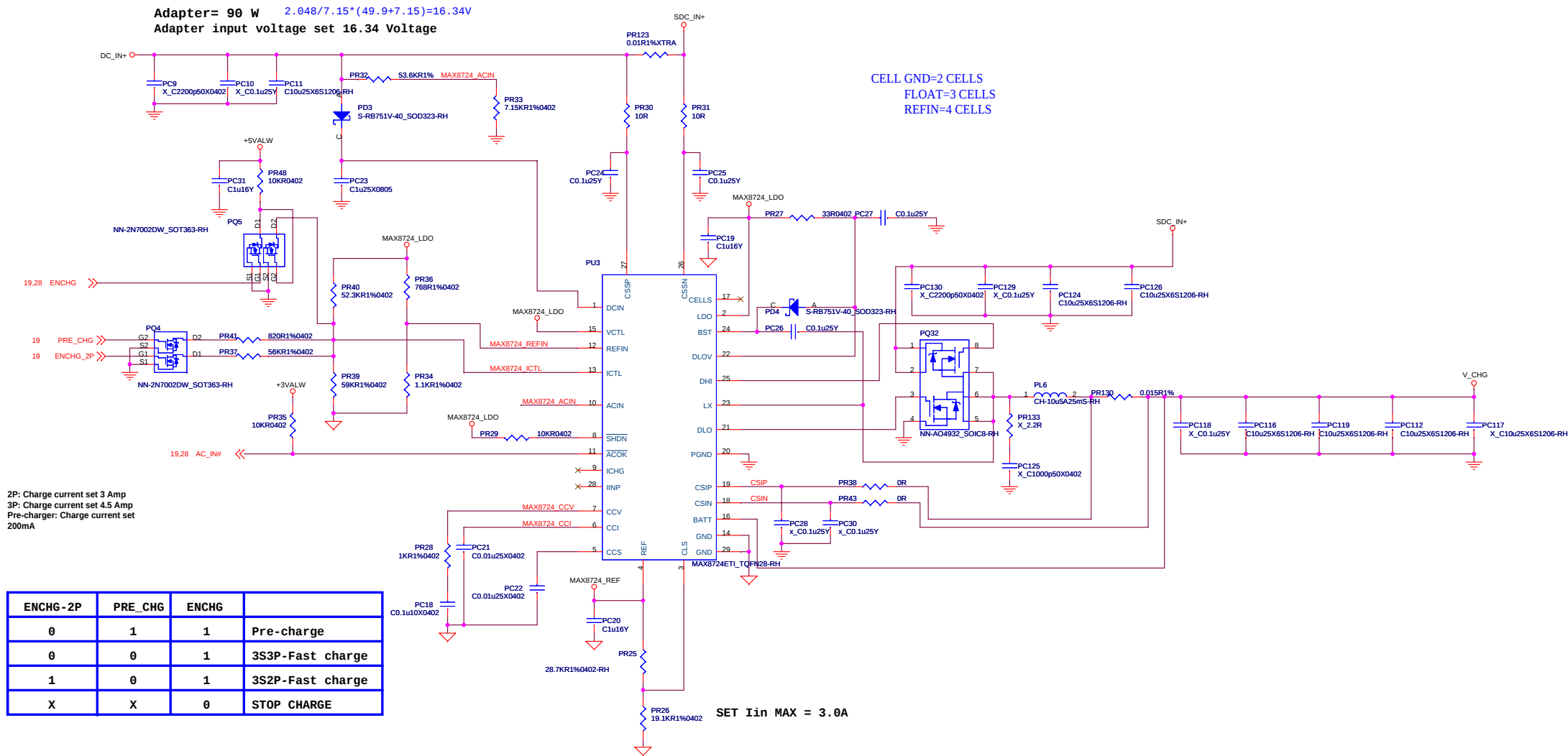




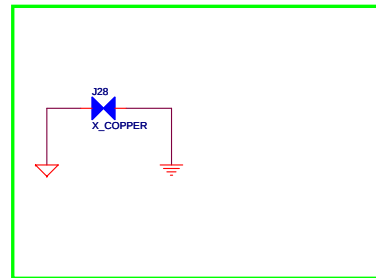
MSI CORPORATION			
Title			
Battery Select			
Size	Document Number	Rev	
Custom	MS583	1.2	
Date:	Wednesday, November 18, 2009	Sheet	28 of 40

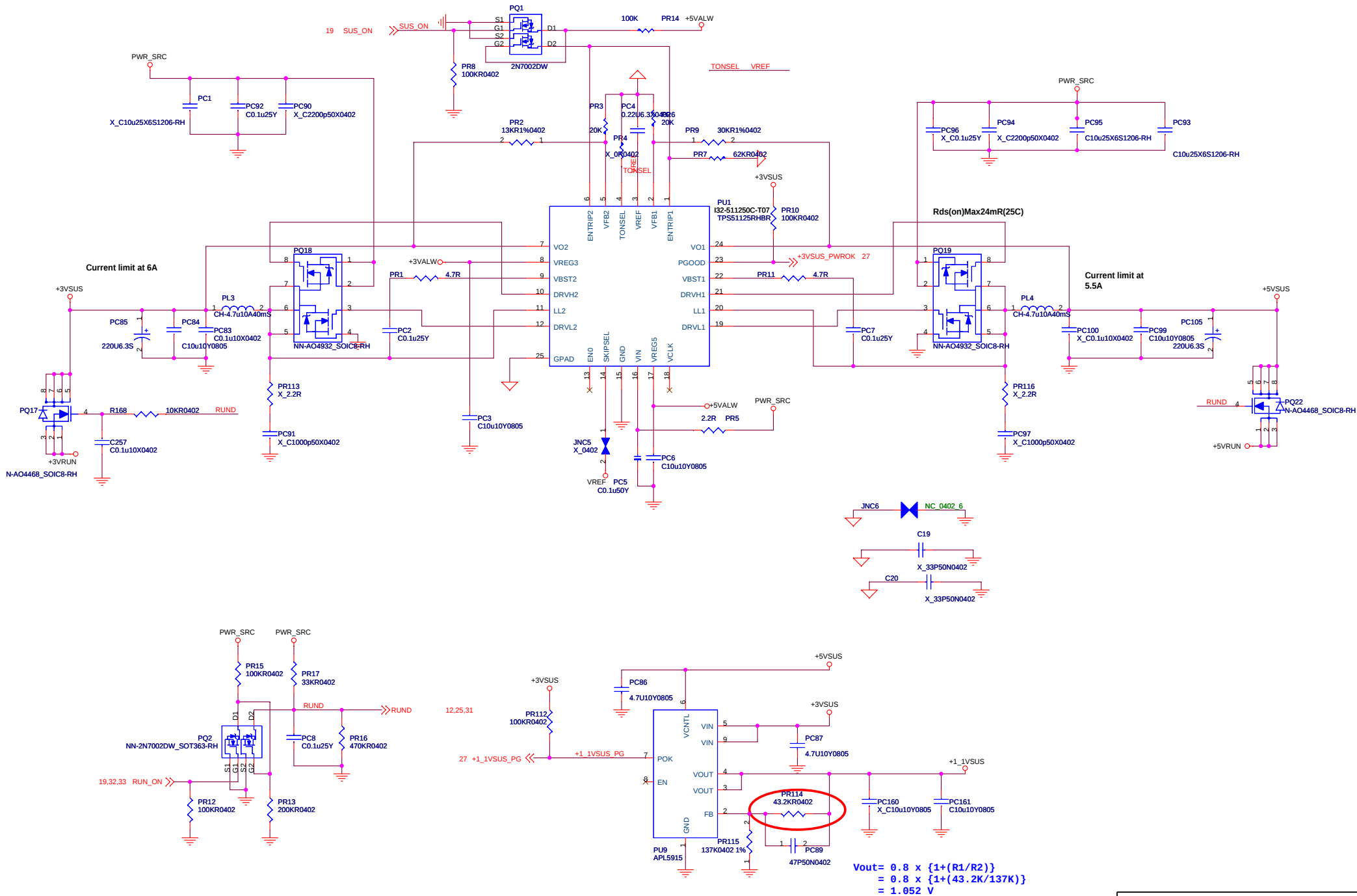
Adapter= 90 W $2.048/7.15 \times (49.9+7.15)=16.34V$
 Adapter input voltage set 16.34 Voltage

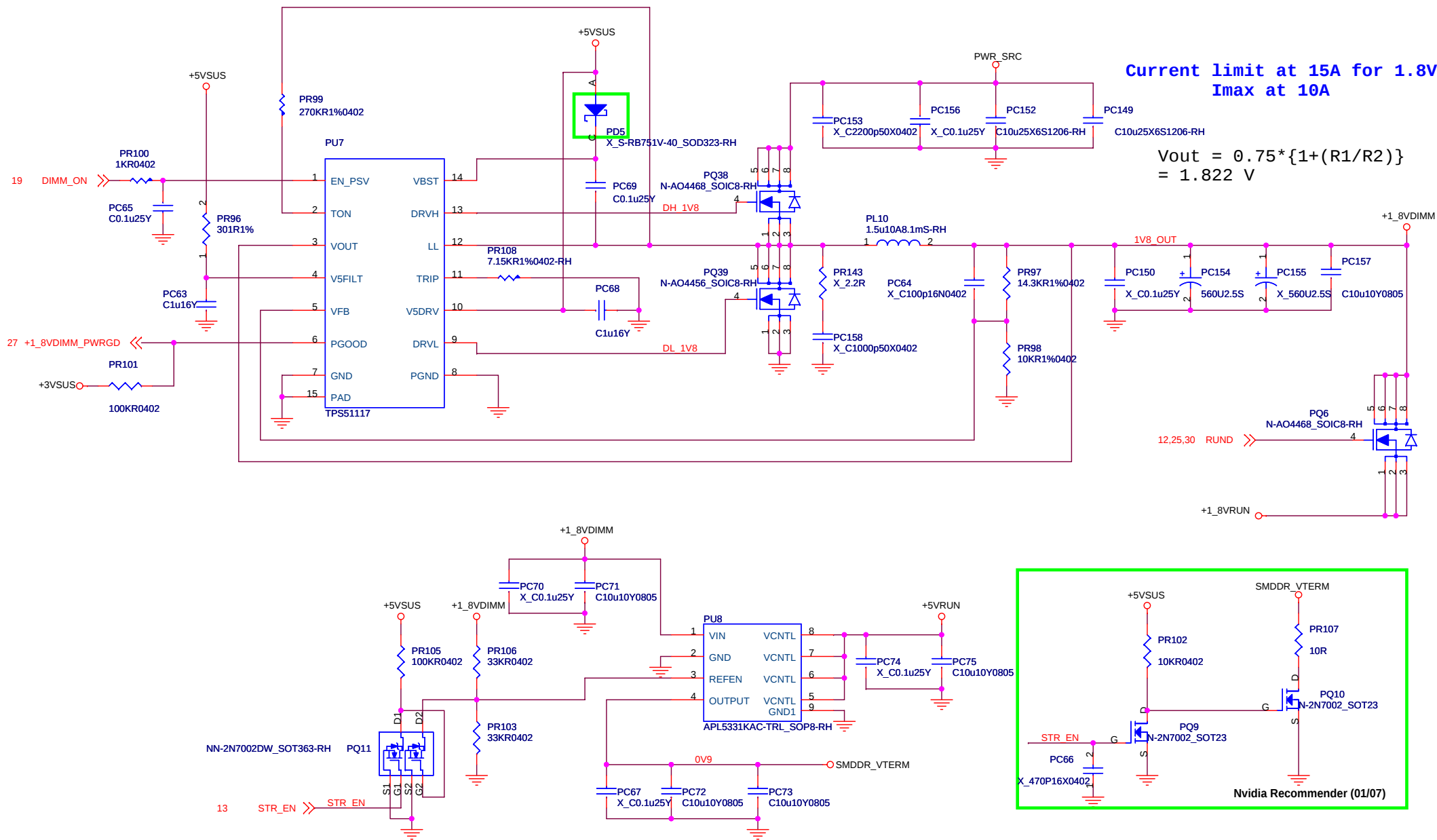
CELL GND=2 CELLS
 FLOAT=3 CELLS
 REFIN=4 CELLS



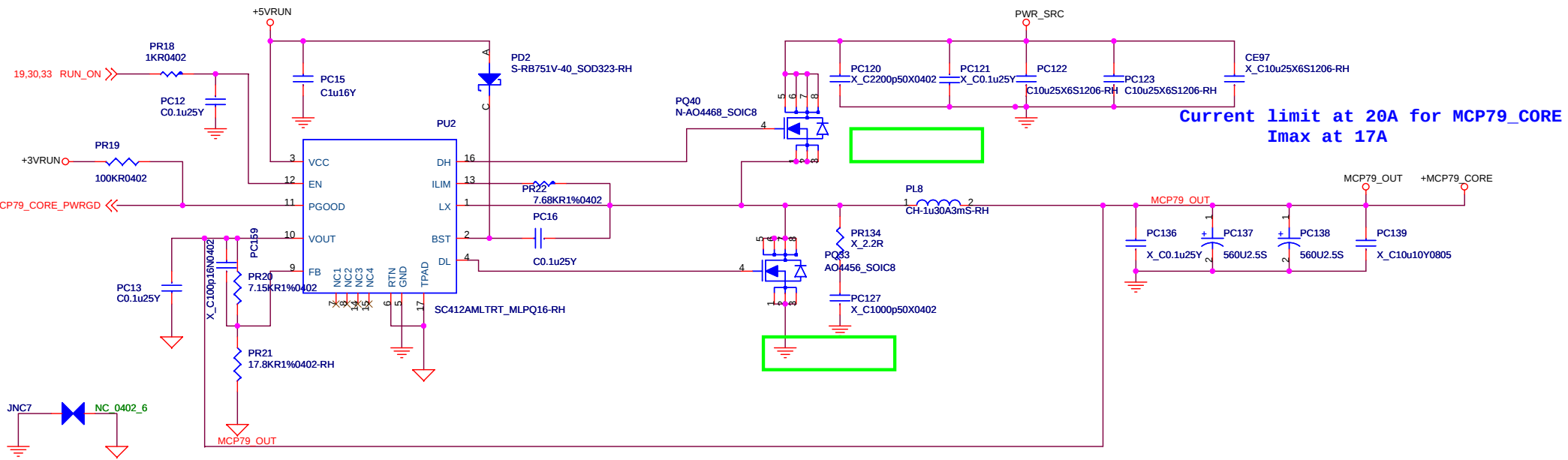
ENCHG - 2P	PRE_CHG	ENCHG	
0	1	1	Pre-charge
0	0	1	3S3P-Fast charge
1	0	1	3S2P-Fast charge
X	X	0	STOP CHARGE



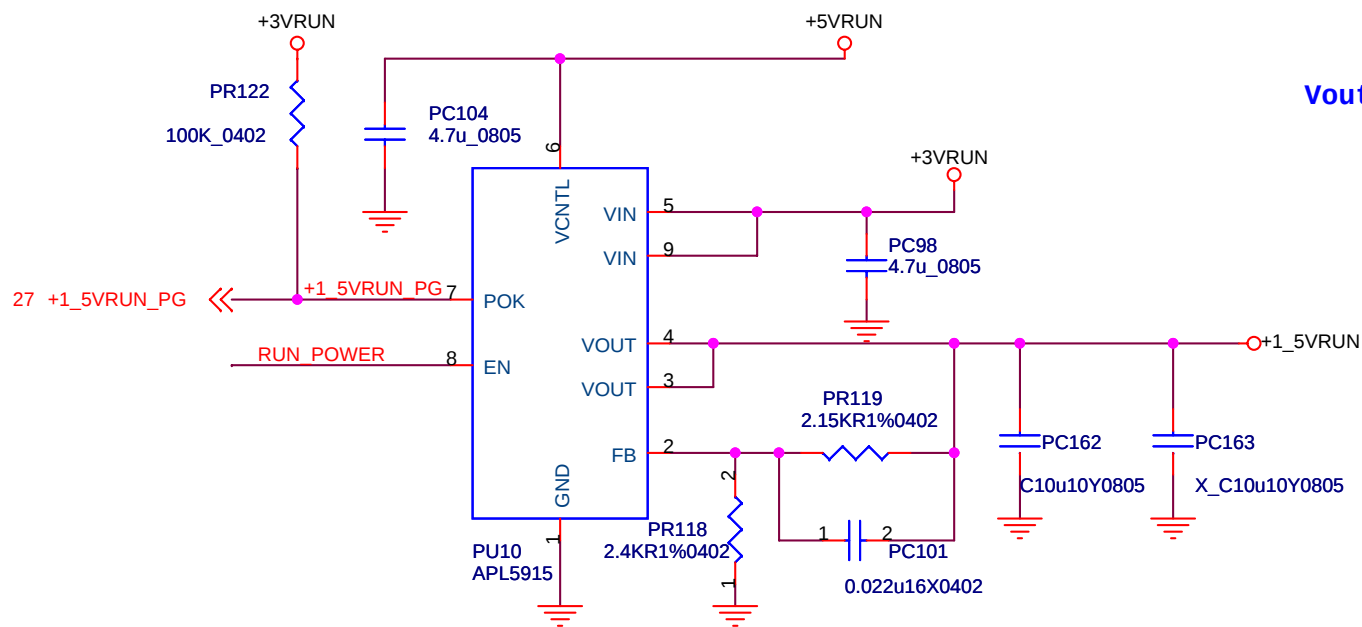




MSI CORPORATION			
Title		DDR2 RAM POWER	
Size	Document Number	Rev	
Custom	MS-1683	1.2	
Date:	Wednesday, November 18, 2009	Sheet	31 of 40

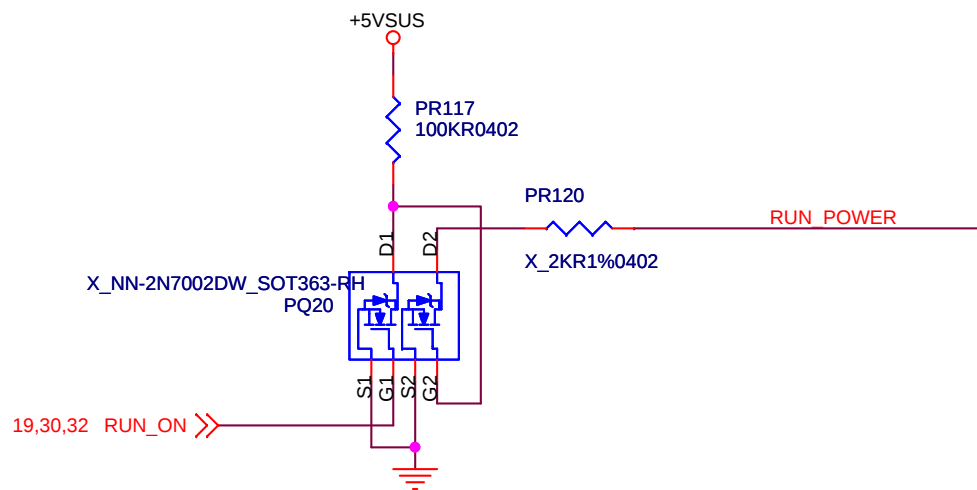


MSI CORPORATION			
Title			
MCP79_CORE , VTT POWER			
Size	Document Number		Rev
B	MS-1683		1.2
Date:	Wednesday, November 18, 2009	Sheet	32 of 40



$$V_{out} = 0.8 \times \{1 + (R1/R2)\} = 1.516 \text{ V}$$

$$V_{out} = 0.8 \times \{1 + (R1/R2)\} = 1.053 \text{ V}$$



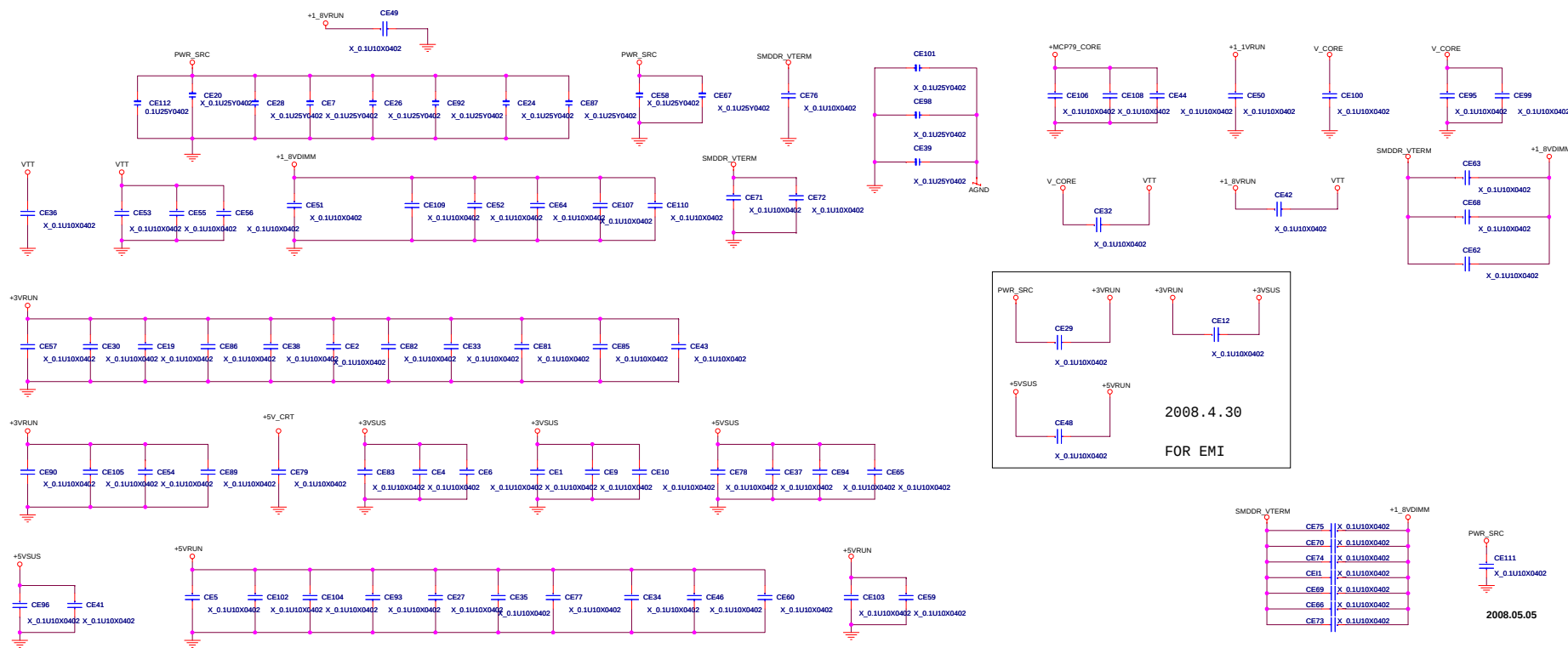
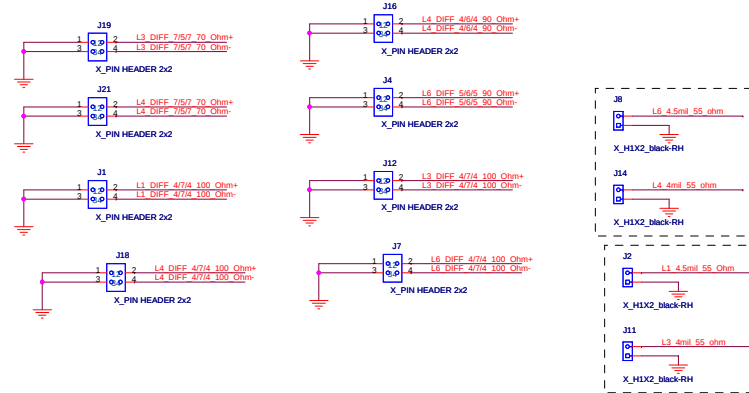
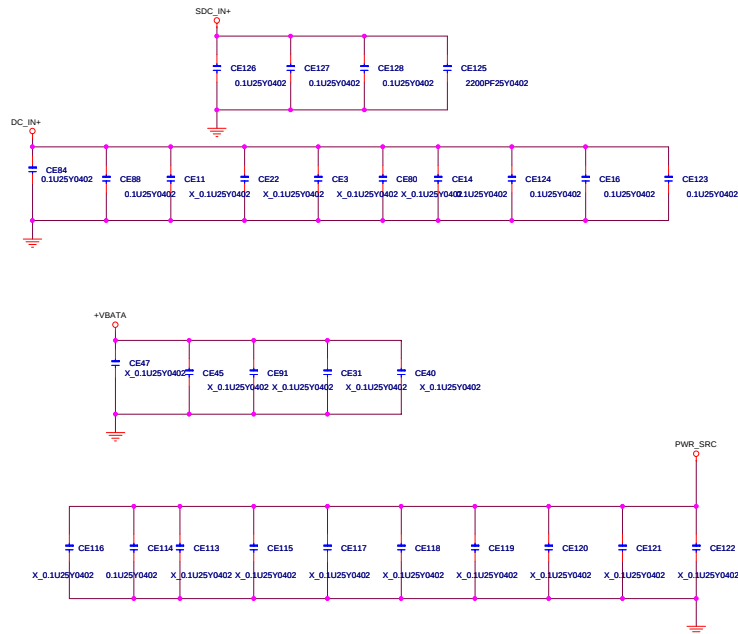
MSI CORPORATION			
Title			
+1_5VRUN , +1_1VRUN			
Size	Document Number		Rev
A	MS-1683		1.2
Date:	Wednesday, November 18, 2009	Sheet	33 of 40

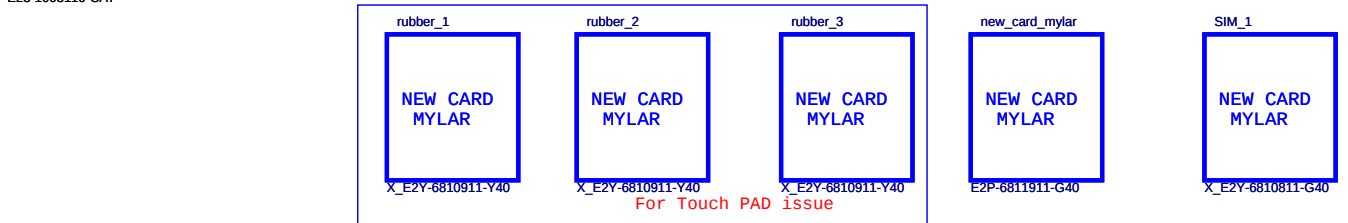
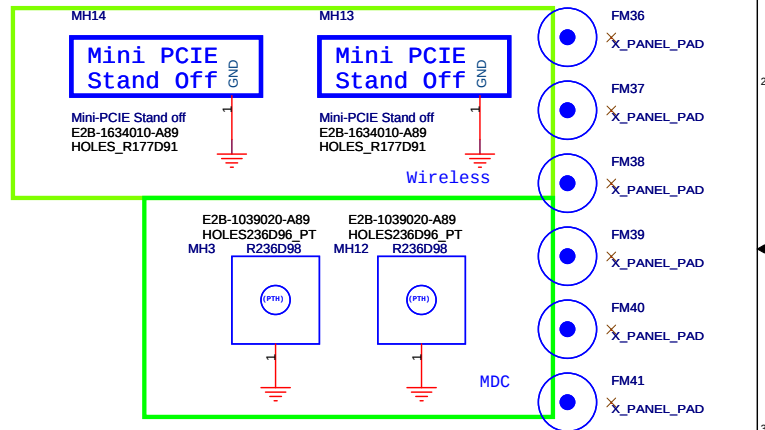
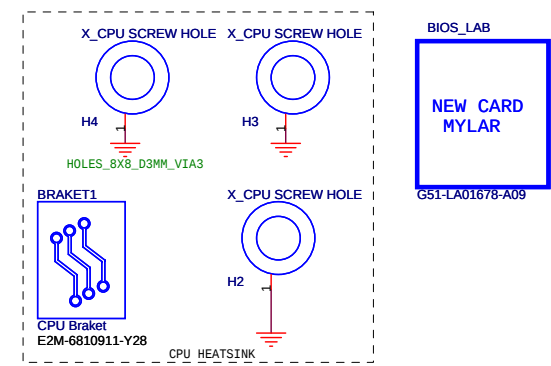
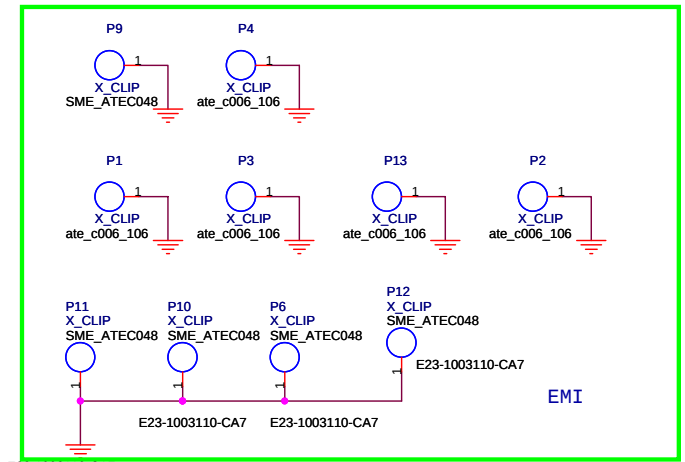
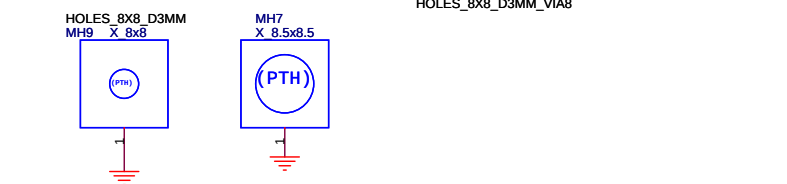
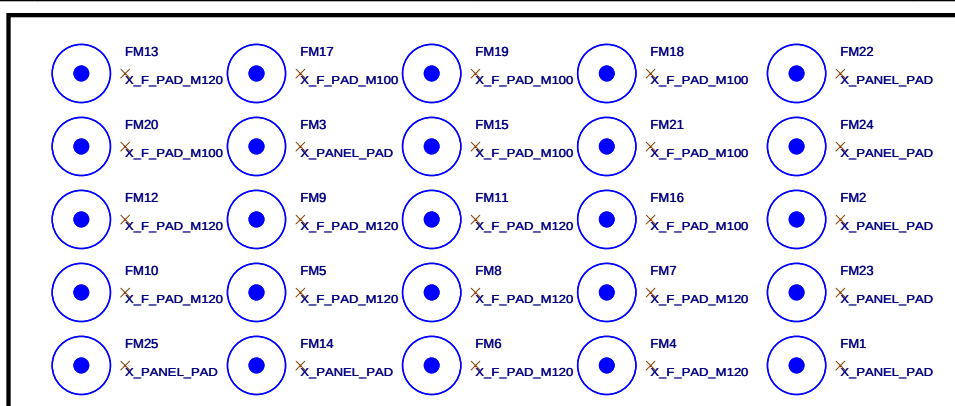
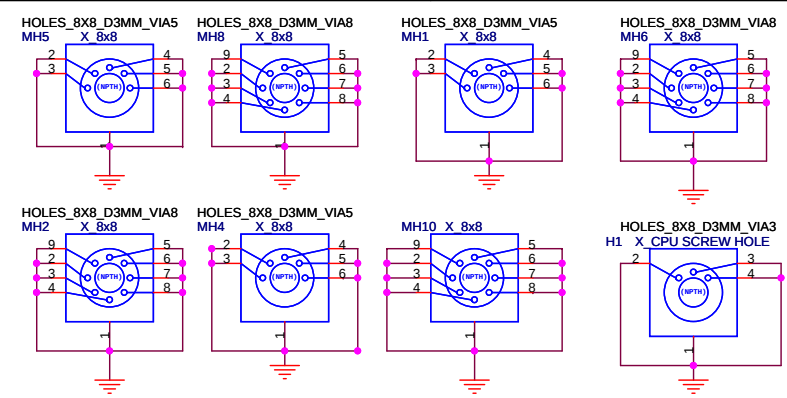
Throttling temp.
105 degree C

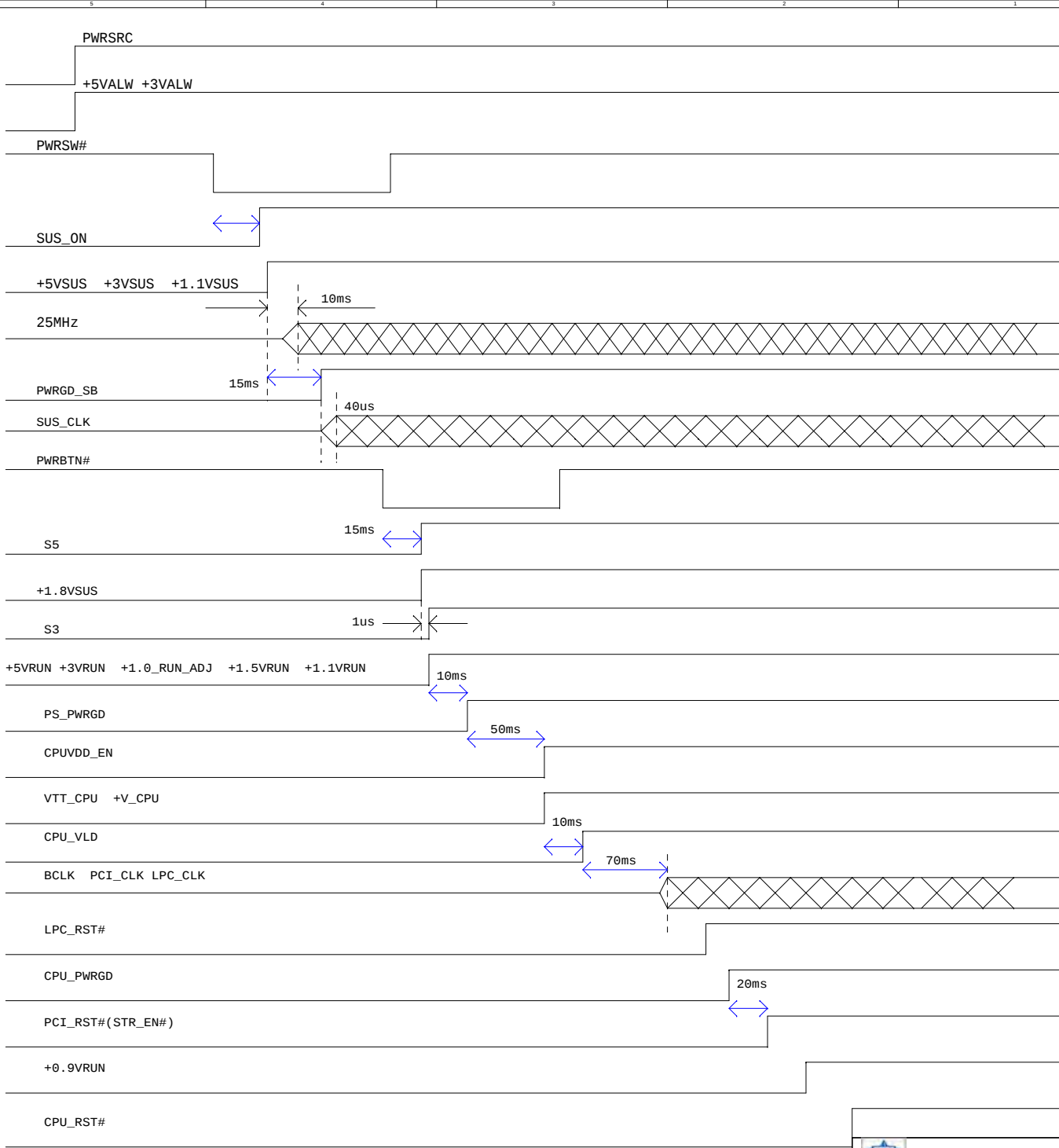
Iocset*Roc=Iocp*Rdroop
 $R143 = Roc = 55A * 2.1m\ \Omega = 11.5K$
 Where :
 Rdroop is Intel spec : -2.1m Ohms
 Iocp is desire over current
 Iocset is recommendation 10uA from Rbias

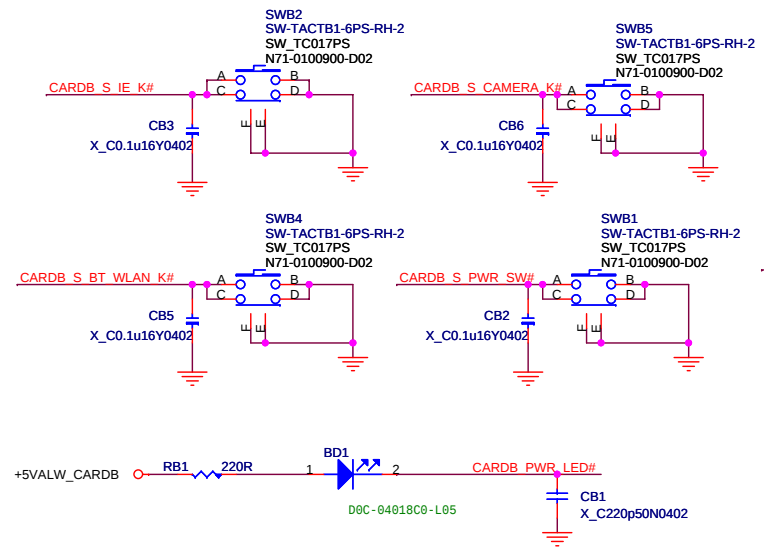
$Rdroop2 = [N * Rdroop / (DCR * G) - 1] * R_{in}$
 $R52 = [2 * 2.1m / (1.8m * 0.83) - 1] * 1K = 1.8K$
 Rdroop: Intel spec. -2.1m Ohms

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

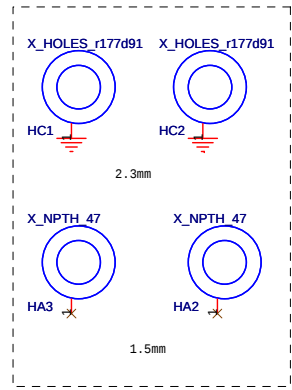
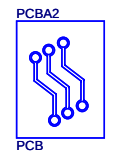
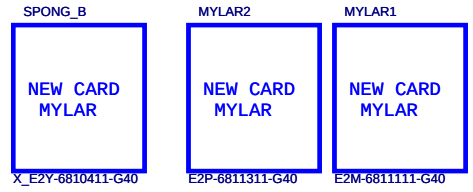
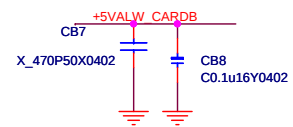
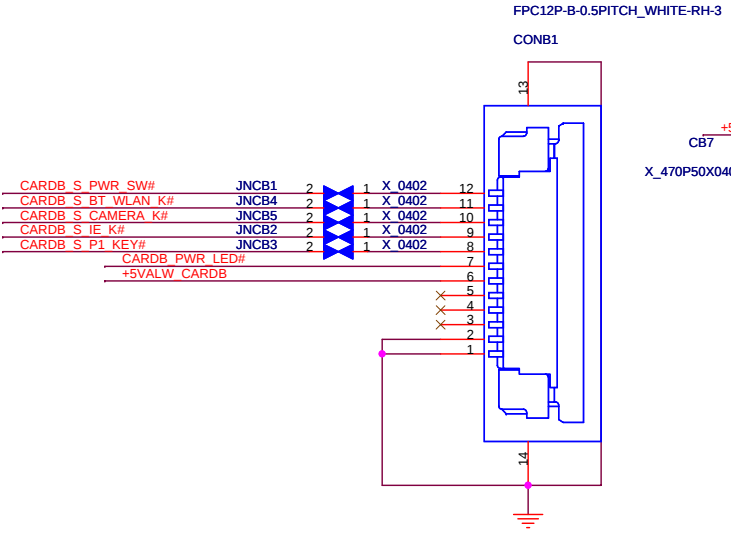


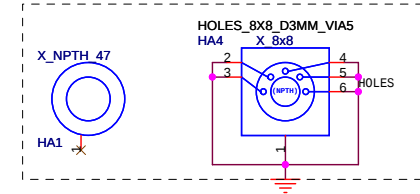
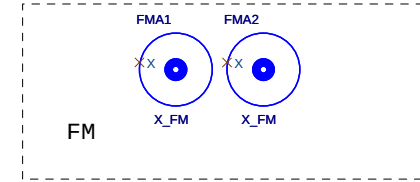
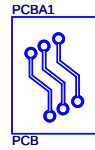
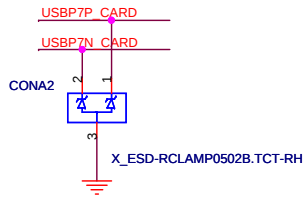
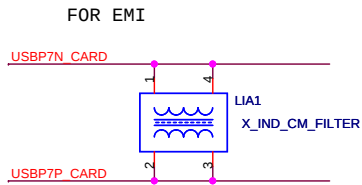
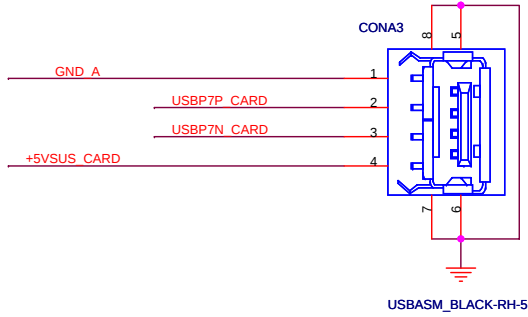
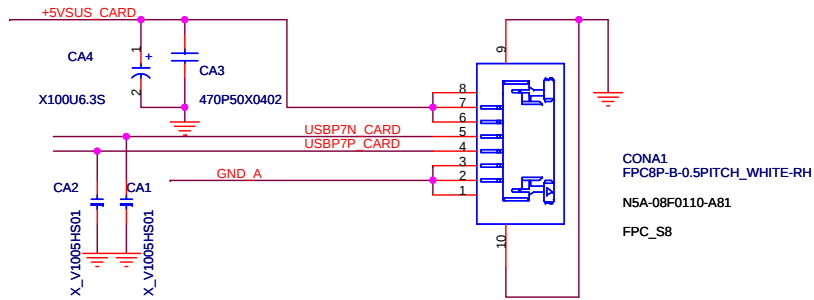






CARD_B_ BOTTOM





Nov.10 1> add E-SATA Function
2>Change HDMI Solution (del level shift IC)
3>Change KBC3926 GPIO Define (refence 1675)

090821:THIS BOM FOR LED PANEL,BASE ON607-16831-03S, ADD CON18 FOR MS-3870 USB BT&WLAN MODULE
091118: THIS BOM FOR MS-1683B, E2P-6811311-/G40 CHANGE TO E2P-6811312-G40 PREVIOUS BOM 091112