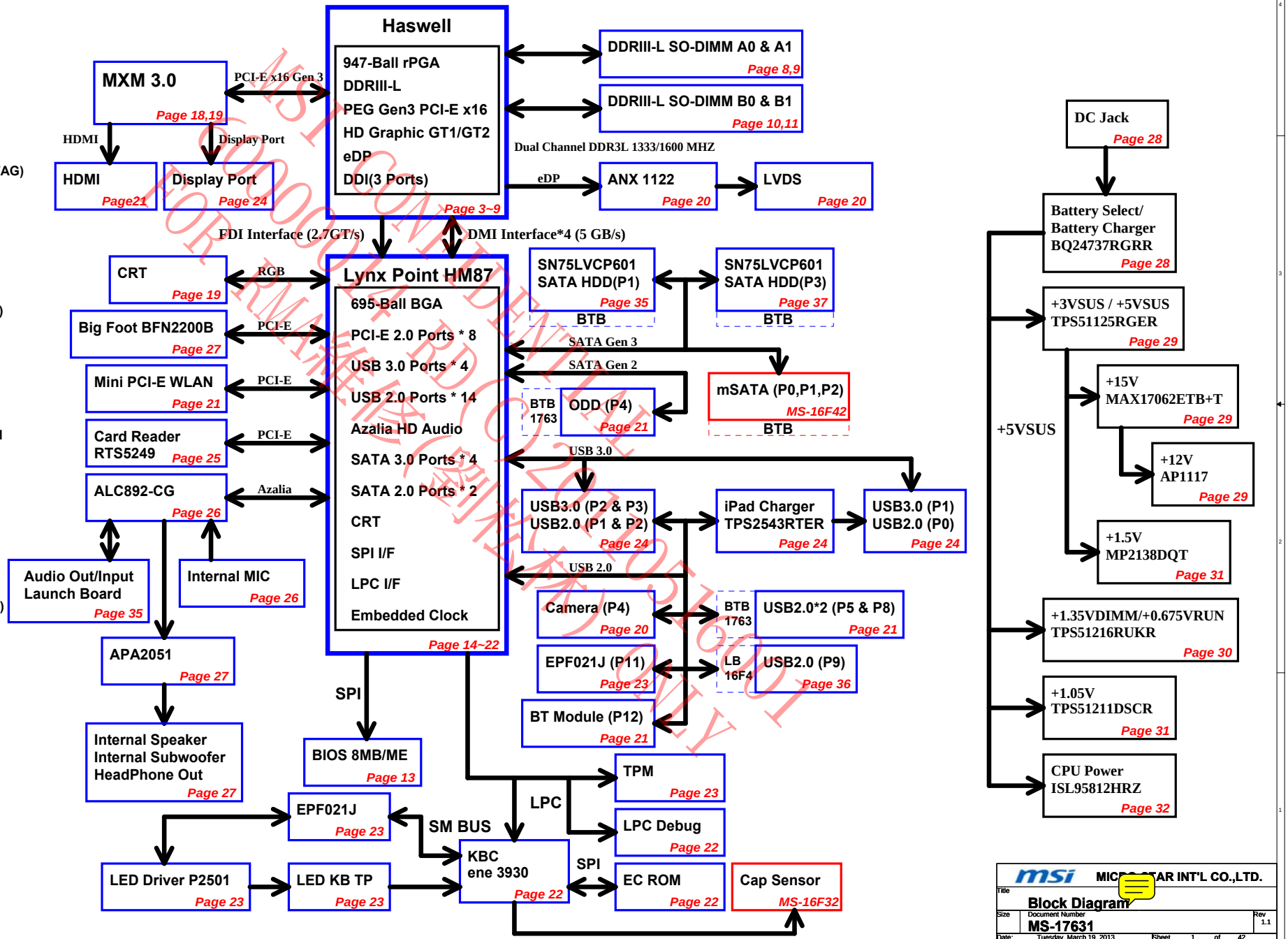
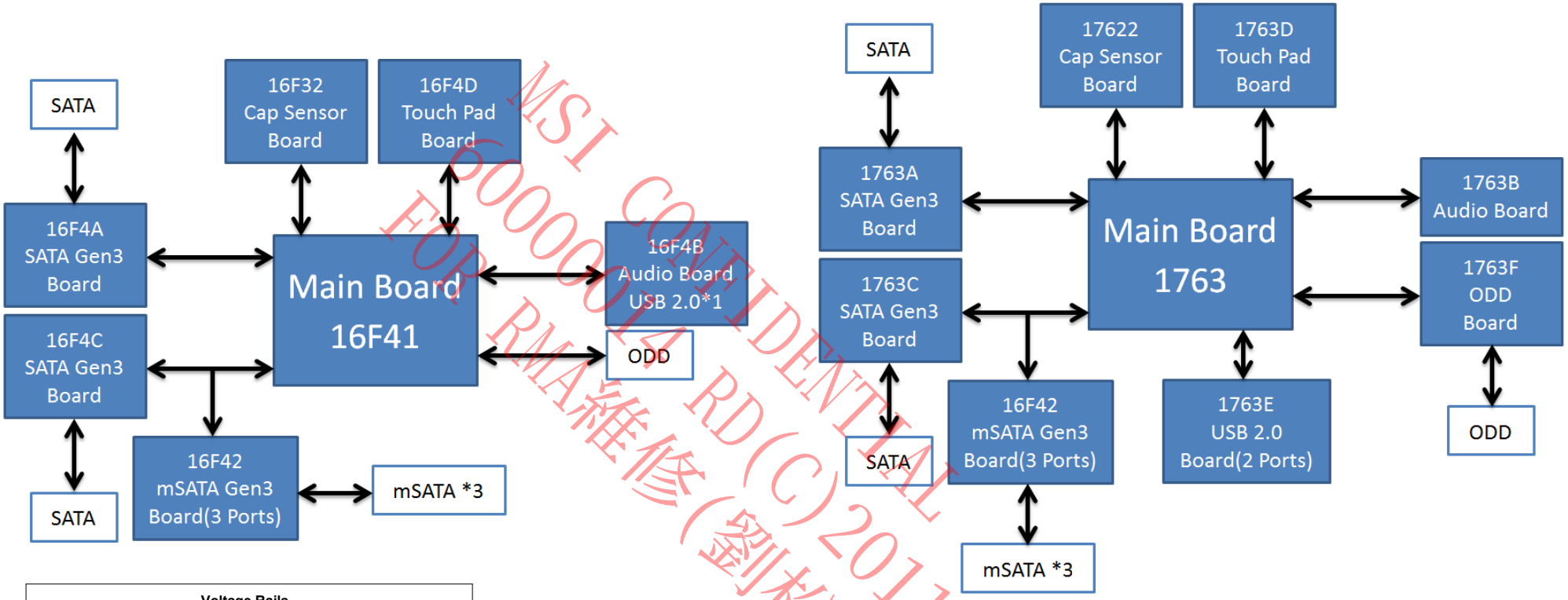
Shark Bay Platform

MS-1763 Ver 1.1 2013/03/19



msi	MICRO-STAR INT'L CO.,LTD.		
Title	Block Diagram		
Size	Document Number MS-17631		Rev 1.1
Date: Tuesday, March 19, 2013	Sheet 1 of 42		

Board Diagram

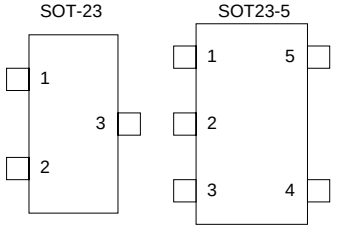


Voltage Rails			
Power Plane	**Voltage**	**Active In**	**Description**
PWR_SRC	19V or 12 V	S0, S3-S5	Power Source
+5VALW	5V	S0, S3-S5	
+3VALW	3.3V	S0, S3-S5	
+5VSUS	5V	S0, S3	
+3VSUS	3.3V	S0, S3	
+1_35VDIMM	1.35V	S0, S3	DDR3L Power
+5VRUN	5V	S0	
+3VRUN	3.3V	S0	
+1_5VRUN	1.5V	S0	PCH Power for I/O
+12V_FAN	12V	S0	Fan Power
+15V	15V	S0	LED Keyboard Power
+0_675VRUN	0.675V	S0	
+1_05VRUN	1.05V	S0	
+VCC_CORE	1.2V	S0	Processor Core Power Rail

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

Power States						
	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALW	+V*SUS	+V*RUN
S0 (Full on)	**High**	**High**	**High**	**On**	**On**	**On**
S3 (Suspend to RAM)	Low	**High**	**High**	**On**	**On**	Off
S4 (Suspend to Disk)	Low	Low	**High**	**On**	Off	Off
S5 (Soft off)	Low	Low	Low	**On**	Off	Off

PCB Footprints



MICRO-STAR INT'L CO.,LTD.

Title: **Platform**

Size | Document Number: **MS-17631** | Rev: 1.1

Date: Tuesday, March 19, 2013 | Sheet 2 of 42

MS-17631 Change List

Date	Page	Description
2012.11.20	14	R335 Unstuff
	20	Change U30 SDA & SCL Pin
2013.01.14	25	CardReader Change to RTS 5249
	18	Modify MXM 5VRUN Power
	19	Modify MXM GC6
	20	Modify ANX 1122 SMB Channel
		Ver. Change to 1.0
2013.01.21	28	PQ13 & PQ14 Change to D03-0444703-A68
		Ver. Change to 1.1
2013.03.19		Remove CPU GAP

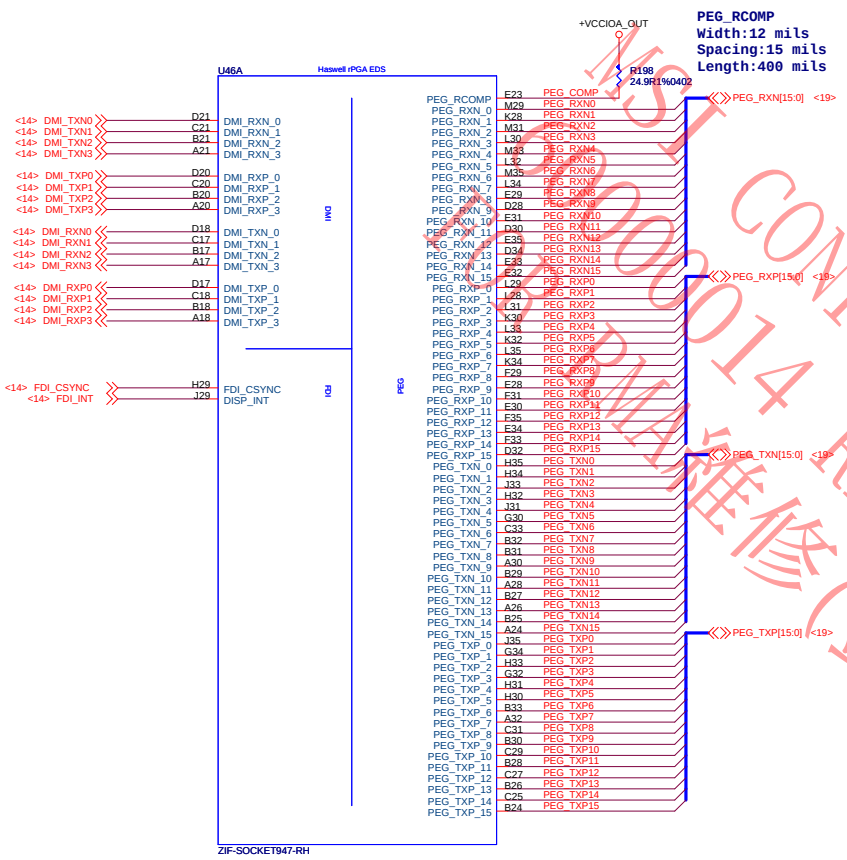
MICRO-STAR INT'L CO.,LTD.

Title: History

Size | Document Number: MS-17631 | Rev: 1.1

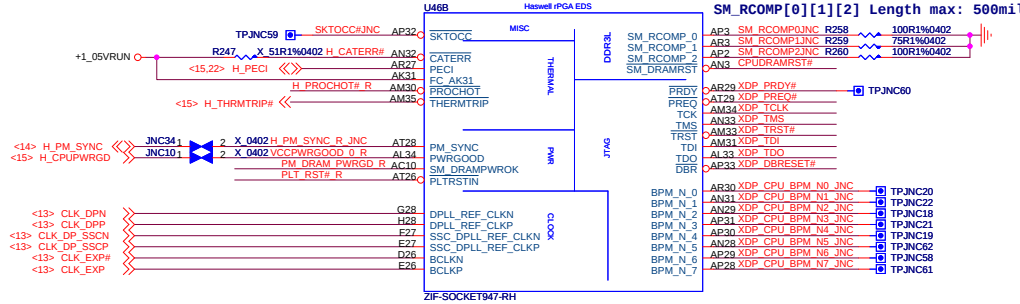
Date: Thursday, March 21, 2013 | Sheet 3 of 42

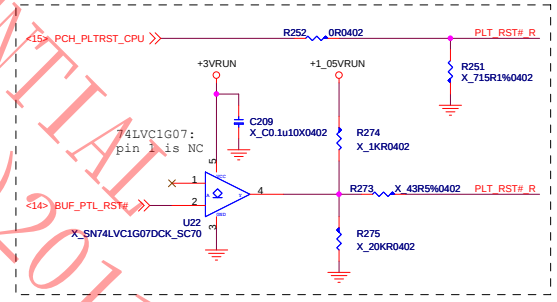
Haswell Processor (DMI,PEG,FDI)

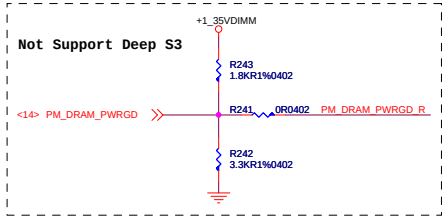


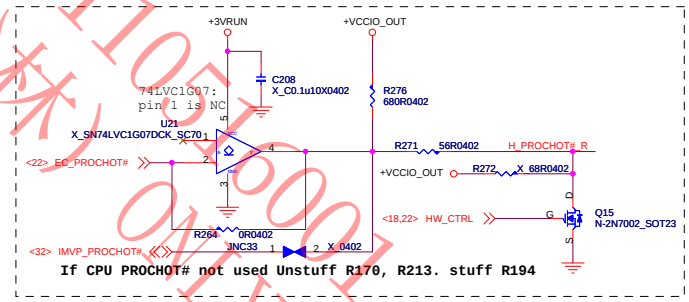
Haswell Processor (CLK,MISC,JTAG)

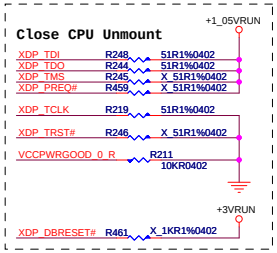
SM_RCOMP[0] Width:15mil Spacing:20mil
SM_RCOMP[1] Width:15mil Spacing:20mil
SM_RCOMP[2] Width:15mil Spacing:20mil
SM_RCOMP[0][1][2] Length max: 500mil

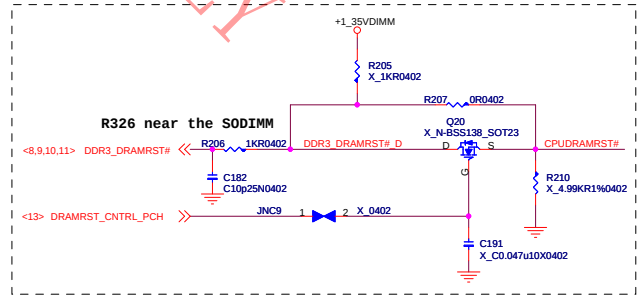






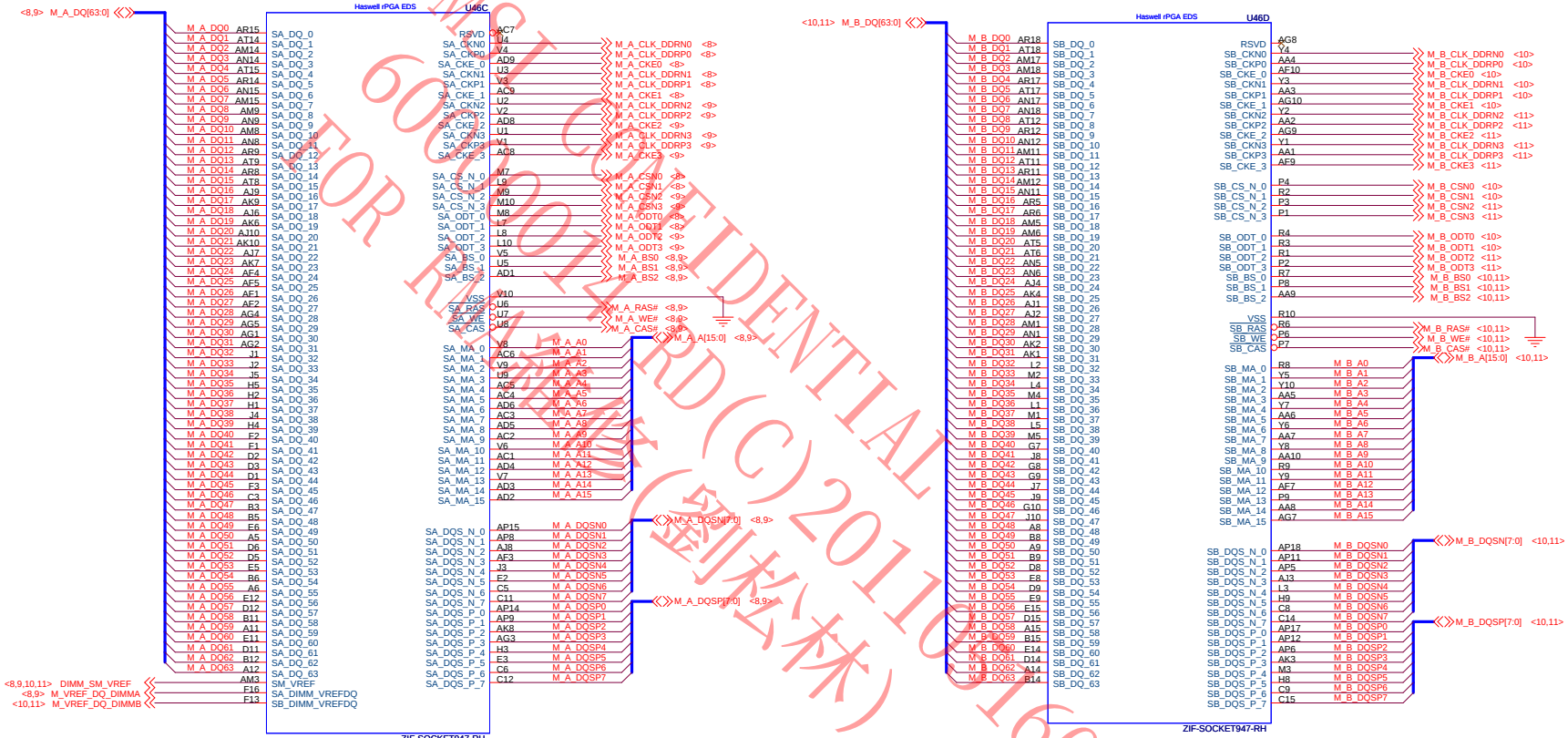






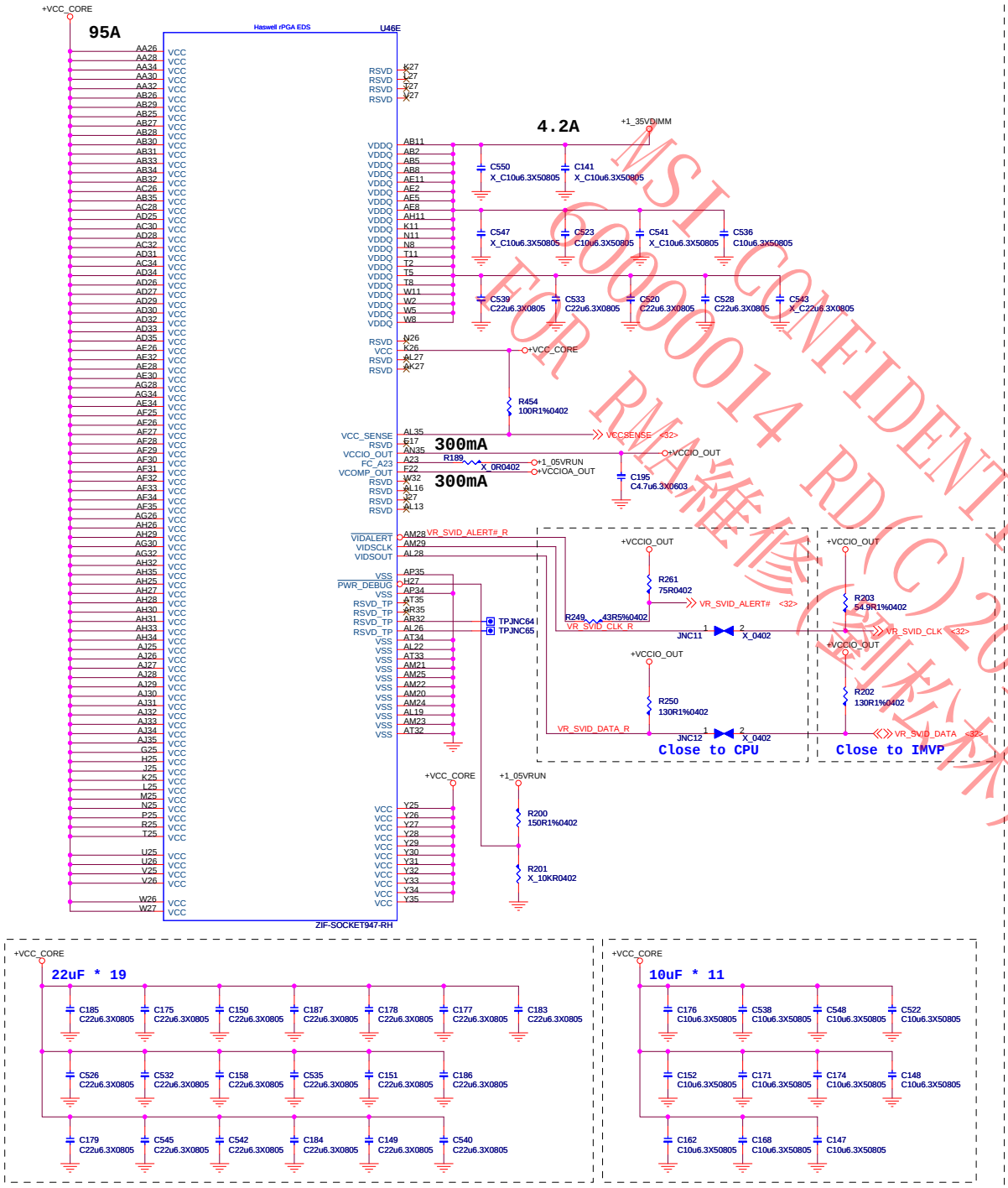
MICRO-STAR INT'L CO.,LTD.			
Title: CPU(DMI,PEG,FDI/CLK,MISC,JTAG)			
Size	Document Number: MS-17631		Rev: 1.1
Date: Thursday, March 21, 2013	Sheet 4 of 42		

Haswell Processor (DDR3)

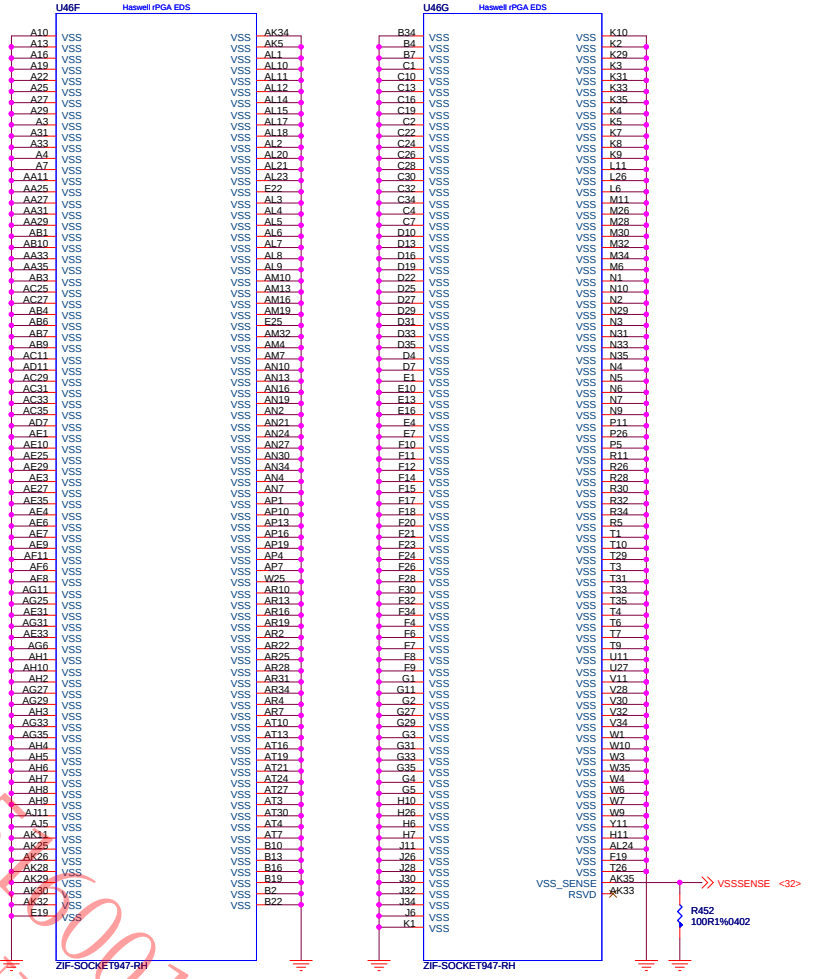


MICRO-STAR INT'L CO.,LTD.			
Title: Processor (DDR3)			
Size	Document Number: MS-17631		Rev: 1.1
Date: Thursday, March 21, 2013	Sheet 5 of 42		

Haswell Processor (Power)

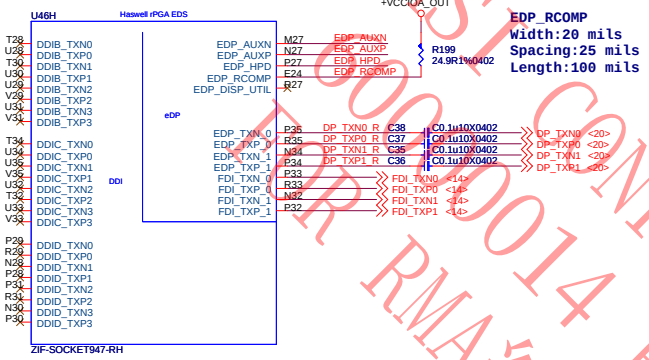


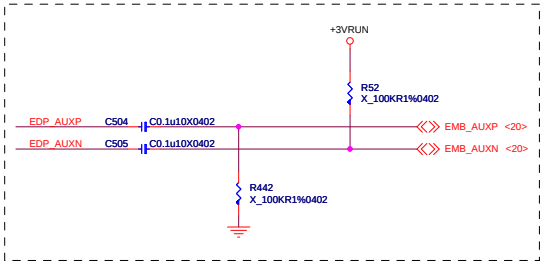
Haswell Processor (Gnd)

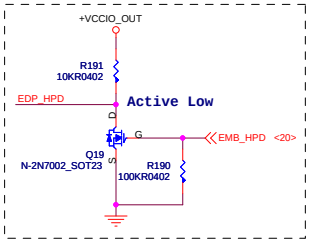


msi	MICRO-STAR INT'L CO.,LTD.	
Title	Processor (Power/Gnd)	
Size	Document Number MS-17631	Rev 1.1
Date: Thursday, March 21, 2013	Sheet 6 of 42	

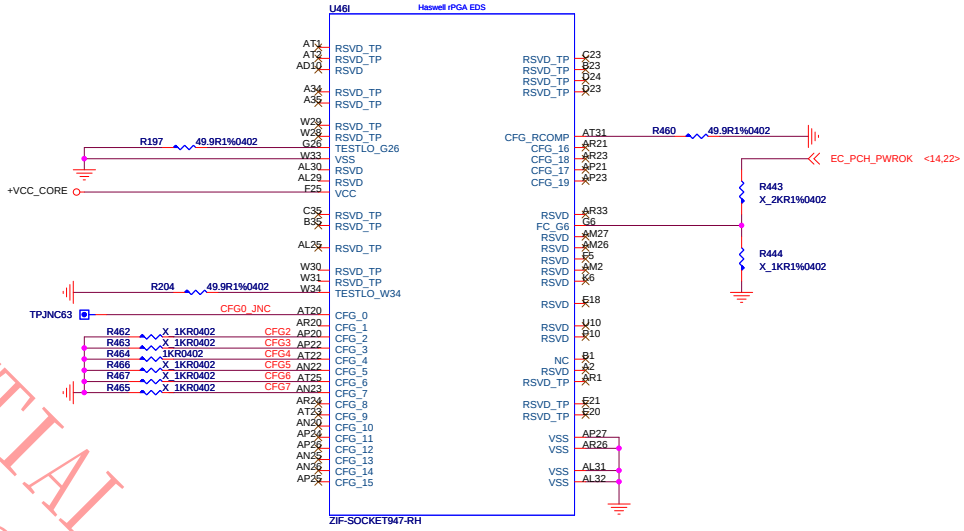
Haswell Processor (Display)







Haswell Processor (Reserved)



PCI Express* Static x16 Lane Numbering Reversal	
CFG2	1 = Normal operation 0 = Lane numbers reversed.

MSR Privacy Bit Feature	
CFG3	1 = Debug capability is determined by IA32_Debug_Interface_MSR (0xC80) bit[0] setting 0 = IA32_Debug_Interface_MSR (0xC80) bit[0] default setting overridden

eDP Enable	
CFG4	1 = Disabled 0 = Enabled

PCI Express* Bifurcation	
CFG[5:6]	00 = 1 x8, 2 x4 PCI Express 01 = reserved 10 = 2 x8 PCI Express 11 = 1 x16 PCI Express

PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training

MICRO-STAR INT'L CO.,LTD.		
Title: Processor (Display/Reserved)		
Size	Document Number: MS-17631	Rev: 1.1
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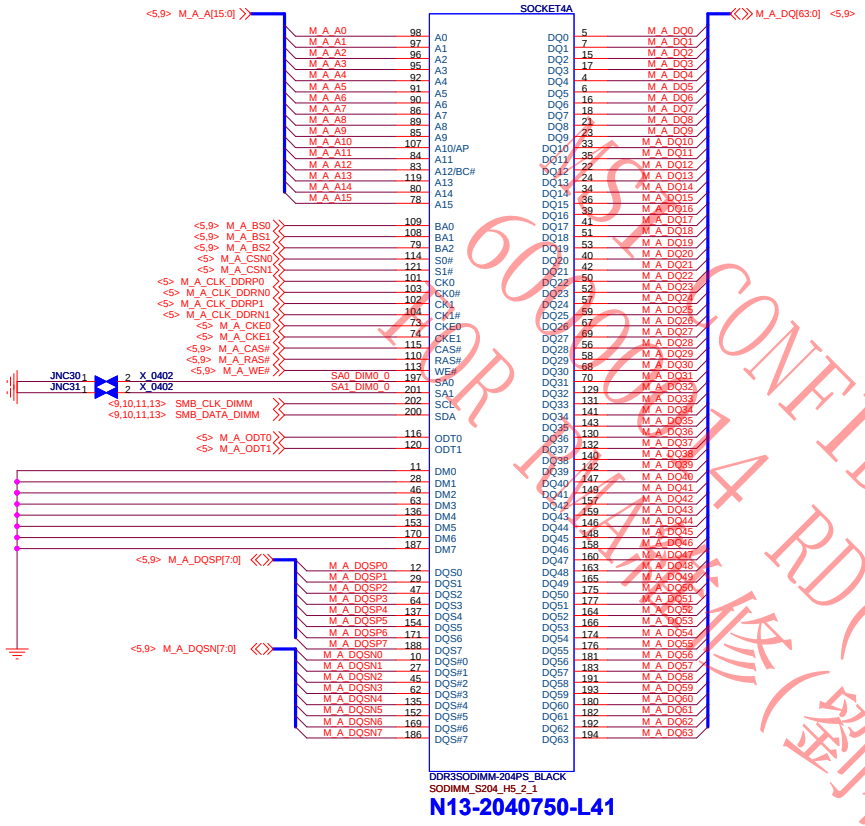
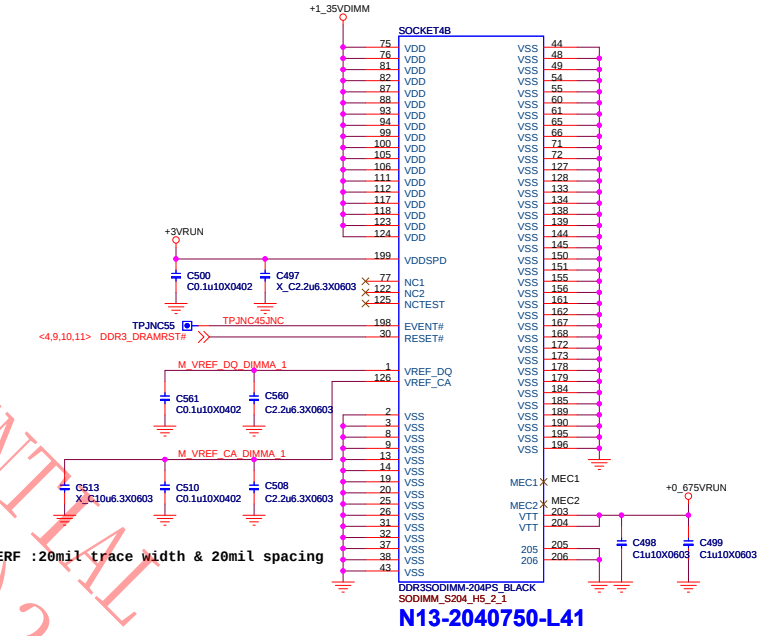
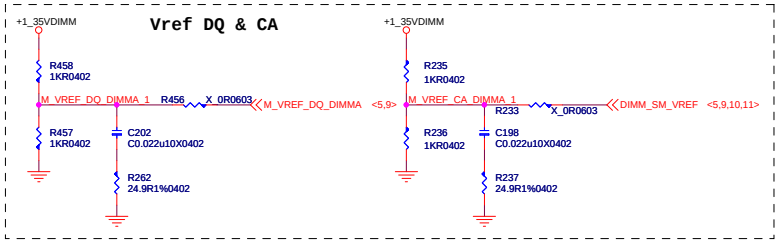
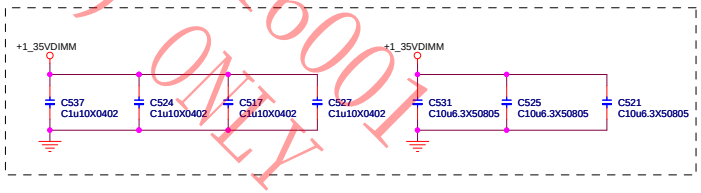
SODIMM #A0



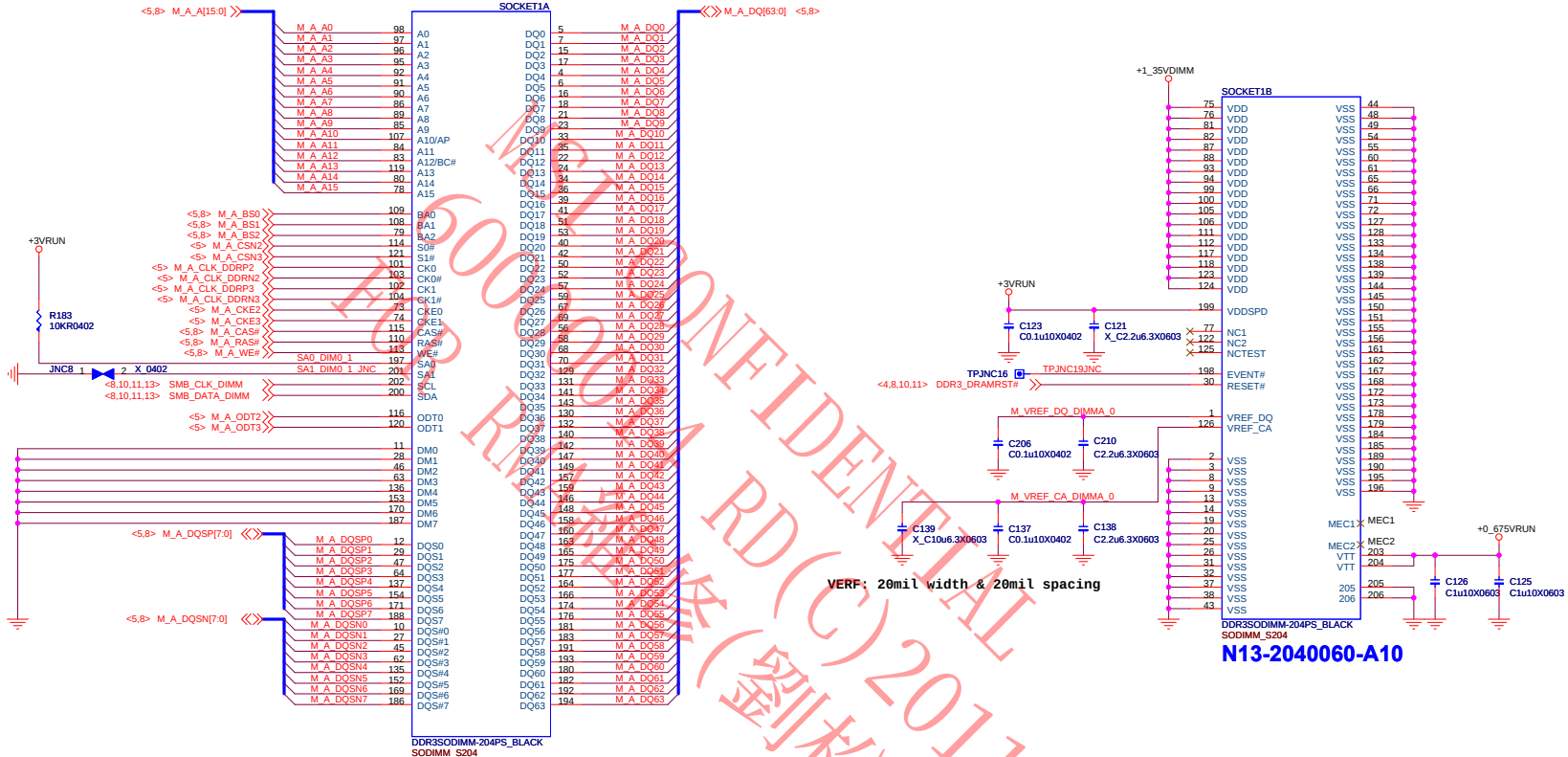


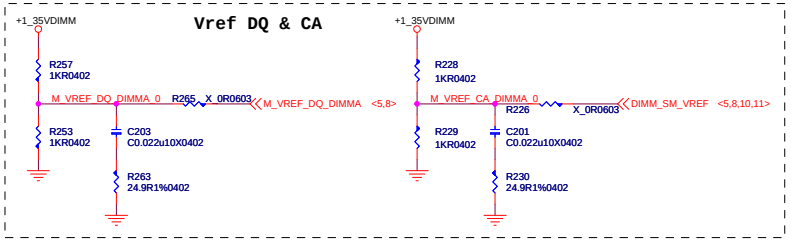


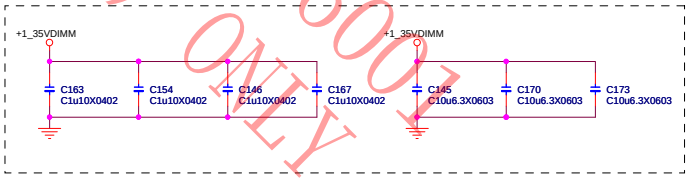


msi	MICRO-STAR INT'L CO.,LTD.	
Title	DDR3 SODIMM A0	
Size	Document Number MS-17631	Rev 1.1
Date: Thursday, March 21, 2013	Sheet 8 of 42	

SODIMM #A1

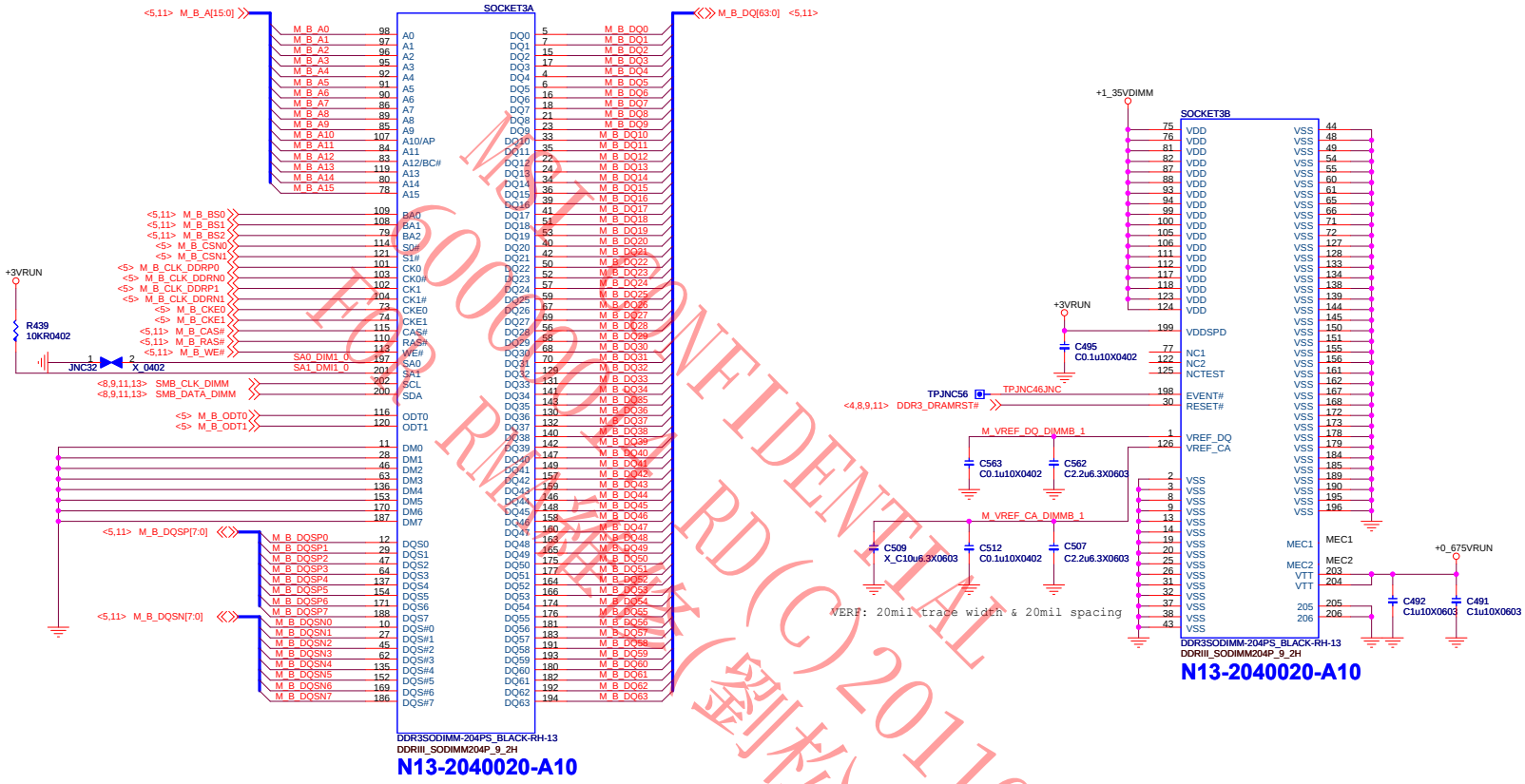


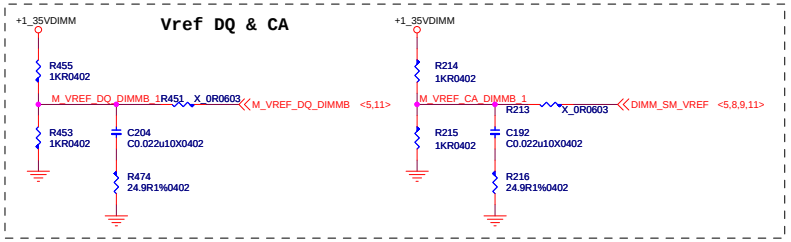


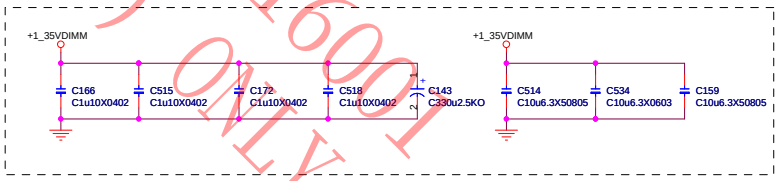


msi MICRO-STAR INT'L CO.,LTD.		
Title: DDR3 SODIMM A1		
Size	Document Number: MS-17631	Rev: 1.1
Date: Thursday, March 21, 2013	Sheet 9 of 42	

SODIMM #B0

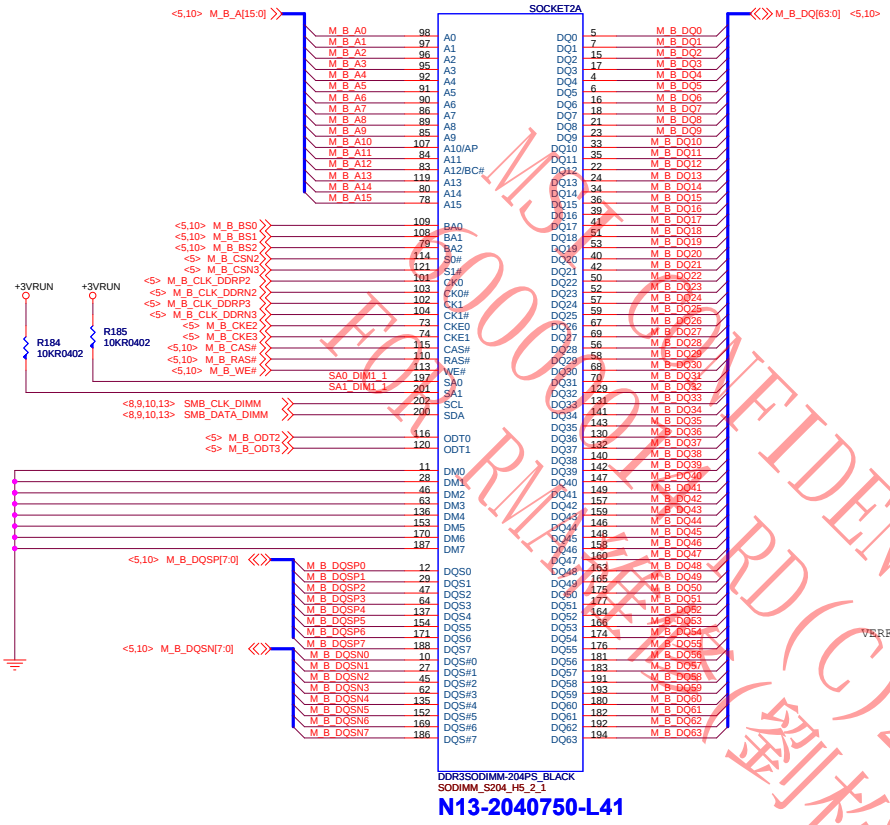




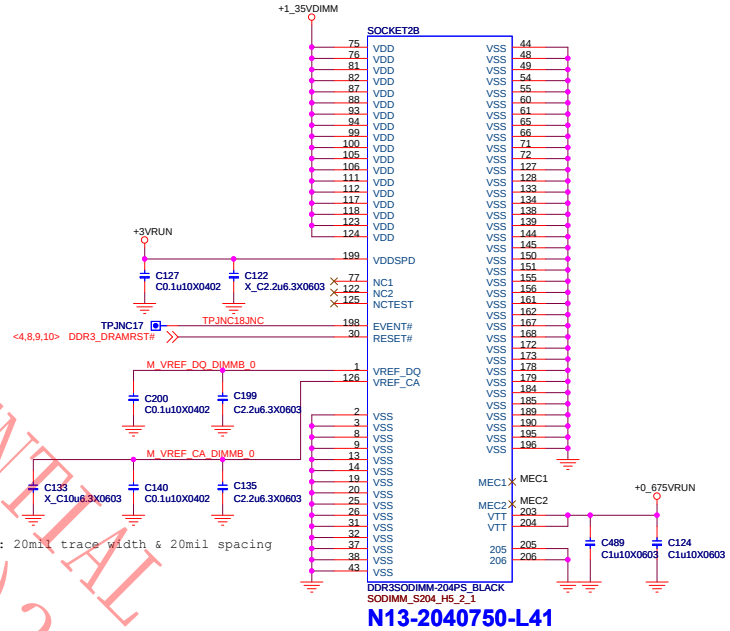


msi	MICRO-STAR INT'L CO.,LTD.		
Title	DDR3 SODIMM B0		
Size	Document Number MS-17631		Rev 1.1
Date: Thursday, March 21, 2013	Sheet 10 of 42		

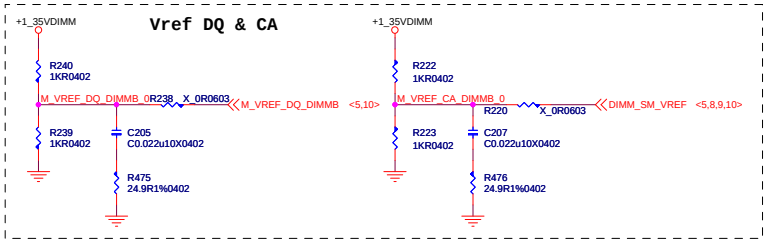
SODIMM #B1

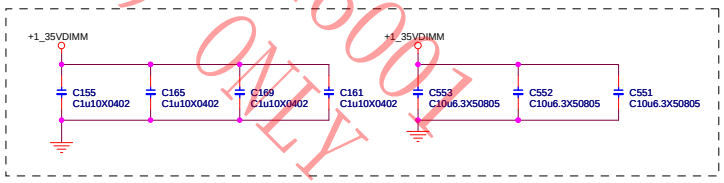


N13-2040750-L41



N13-2040750-L41





msi	MICRO-STAR INT'L CO.,LTD.	
Title	DDR3 SODIMM B1	
Size	Document Number MS-17631	Rev 1.1
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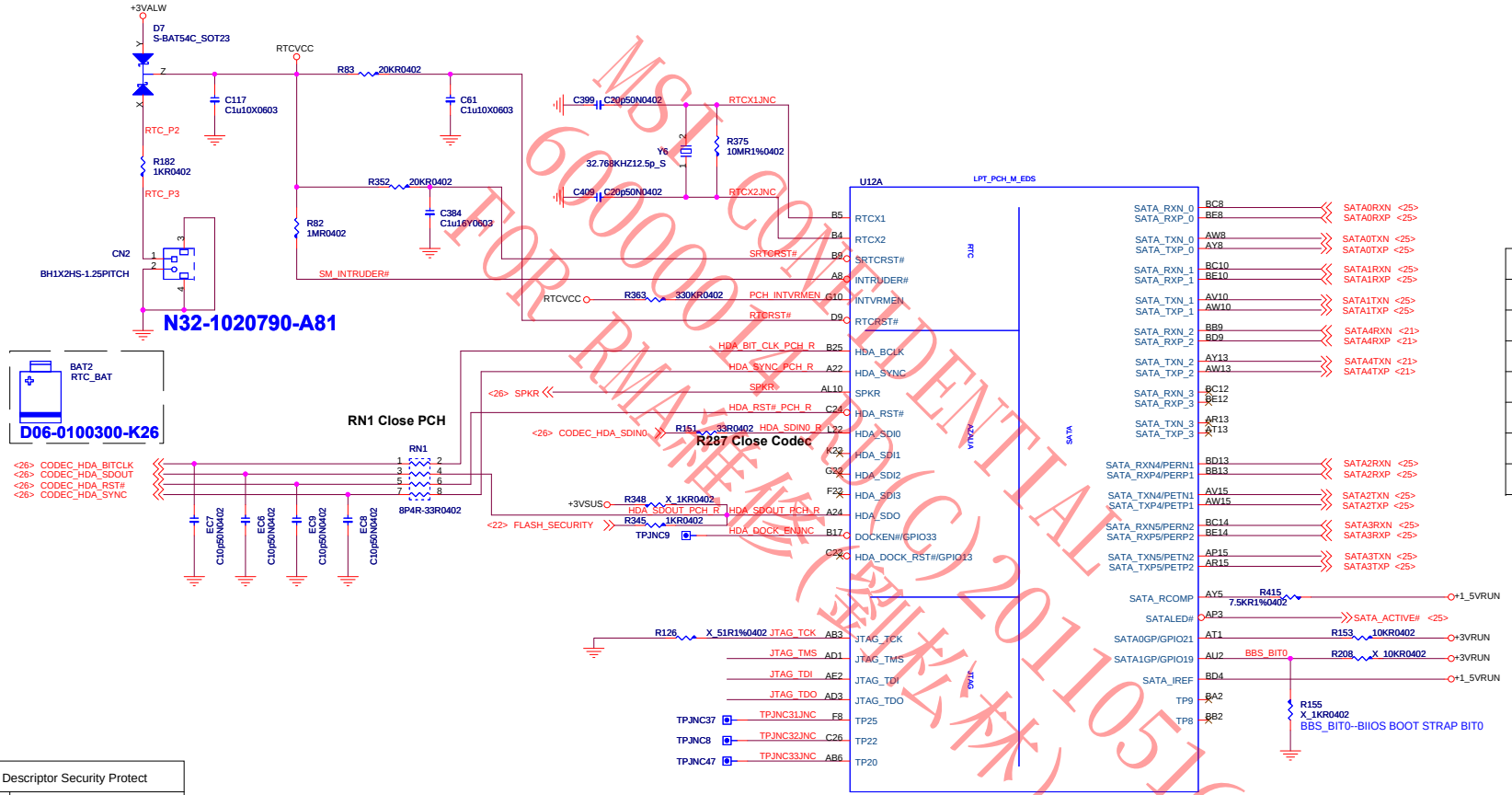
Lynx Point (HDA,JTAG,SATA)



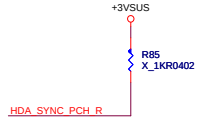
SATA	
Port	Device
0	mSATA Gen3(6Gb/s)
1	mSATA Gen3(6Gb/s)
2	ODD(Gen2)
3	NC
4	mSATA Gen3(6Gb/s)
5	To A board(Gen3)

Flash Descriptor Security Protect	
HDA_SDO	Low = Enable High = Disable

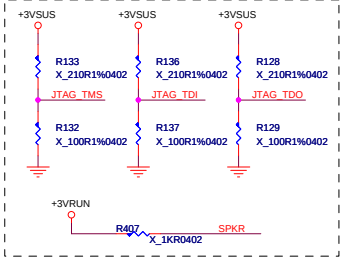
Signal has a weak internal pull-down
Note: The weak internal pull-down is disabled after PLTRST# deasserts.

SPK	The Signal has a weak internal pull-down Note: the internal pull-down is disabled after PLTRST# deasserts. If the signal is sampled high, this indicates that the system is strapped to the "No Reboot" mode (Panther Point will disable the TCO Timer system reboot feature)

Reserved for Codec use RUN.



HDA_SYNC signal also serves as a strap for selecting VRM voltage to the PCH.
The strap is sampled on the rising edge of RSMRST# signal.
Due to potential leakage on the codec (path to GND), the strap may not be able to achieve the Vihmin at PCH input.
Therefore, platform may need to isolate this signal from the codec during the strap
phase. The following example circuits maybe used to achieve this purpose.



msi	MICRO-STAR INT'L CO.,LTD.		
Title	Lynx Point (HDA,JTAG,SATA)		
Size	Document Number MS-17631		Rev 1.1
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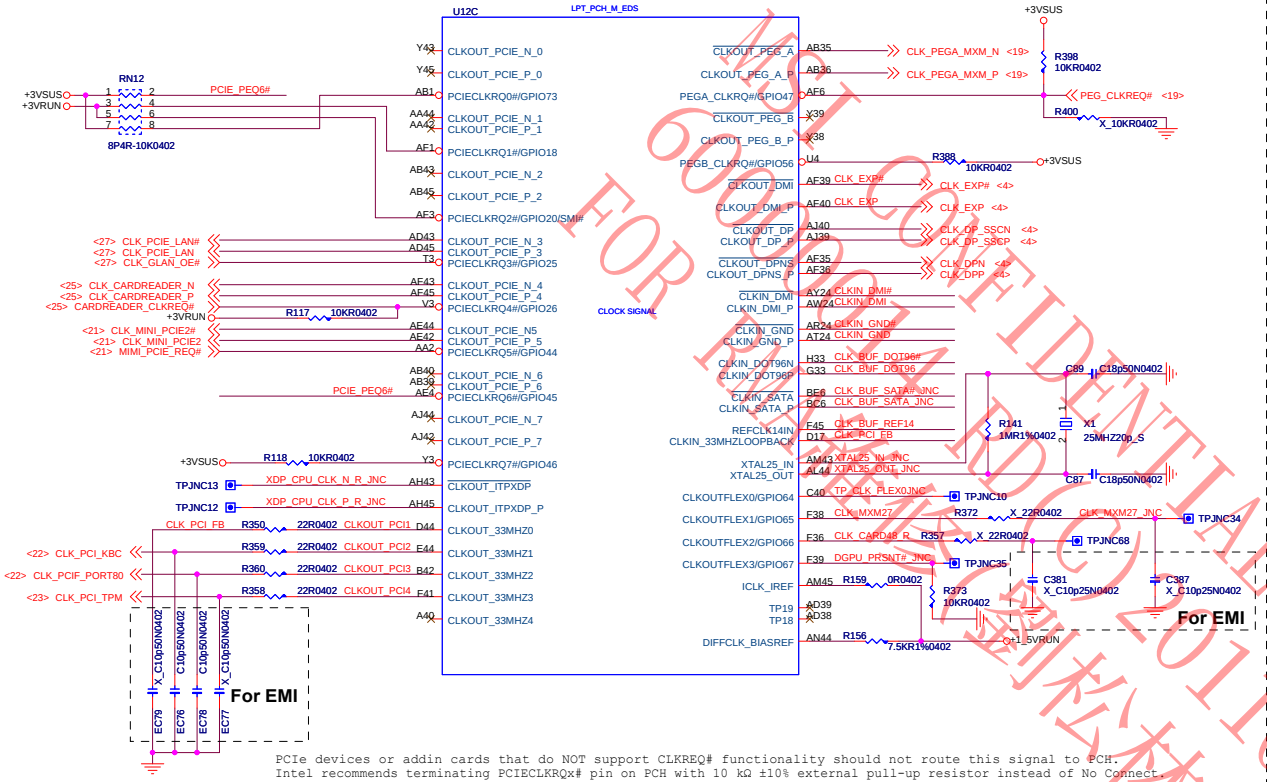
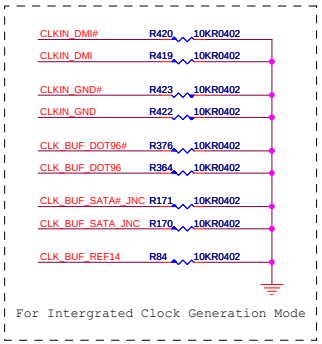
Lynx Point (Clock)

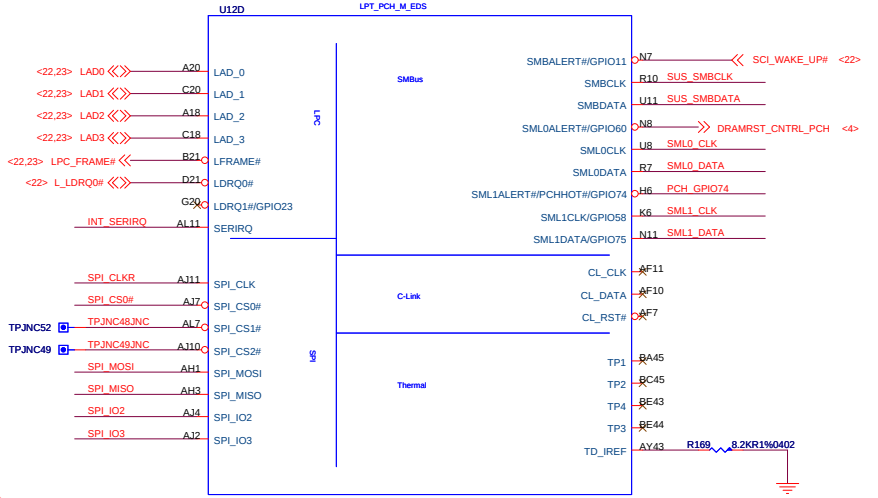


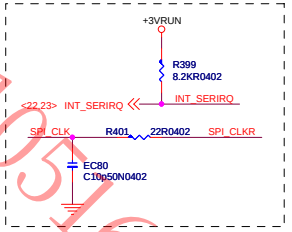
PCIe devices or addin cards that do NOT support CLKREQ# functionality should not route this signal to PCH.
Intel recommends terminating PCIECLKRQx# pin on PCH with 10 kΩ ±10% external pull-up resistor instead of No Connect.
Only PCIECLKRQ[2:1]# on PCH are core well powered. All other PCIECLKRQx# are suspend well powered.

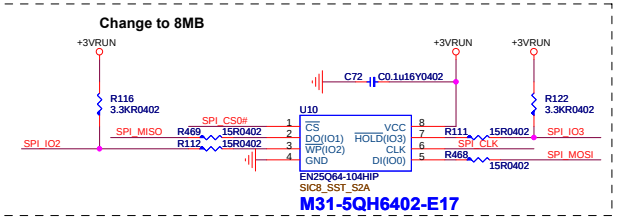


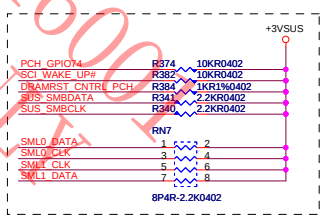
***Disable PCIE OBFF(BIOS)**

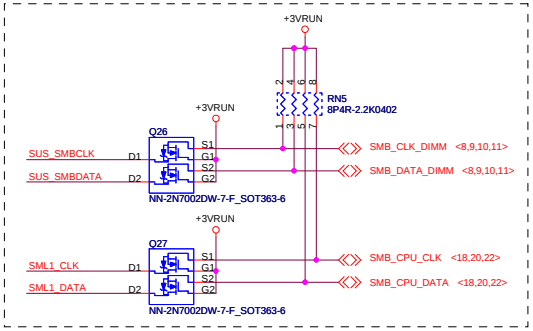
Lynx Point (LPC,SMBUS)











msi	MICRO-STAR INT'L CO.,LTD.	
Title	Lynx Point (Clock/LPC,SMBUS)	
Size	Document Number MS-17631	Rev 1.1
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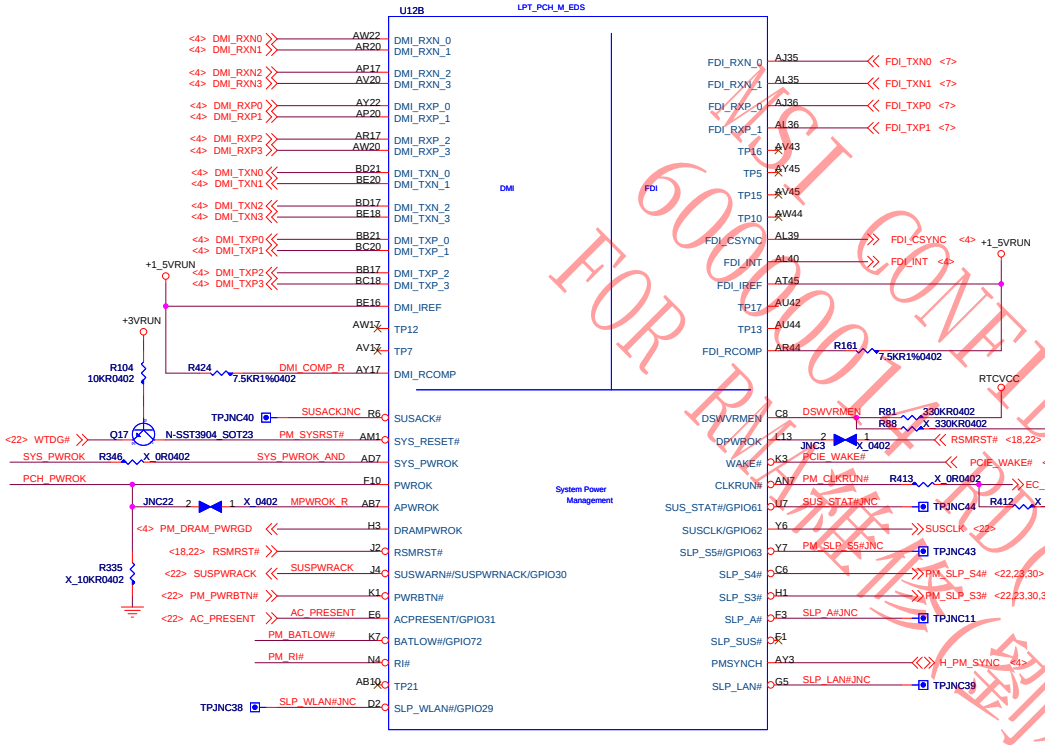
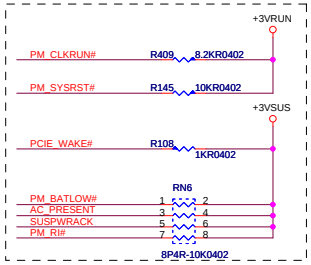
Lynx Point (DMI,FDI)





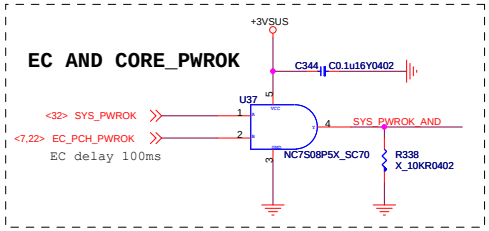
VRM (SUSCLKGPIO62)
High-Enable
Low-Disable

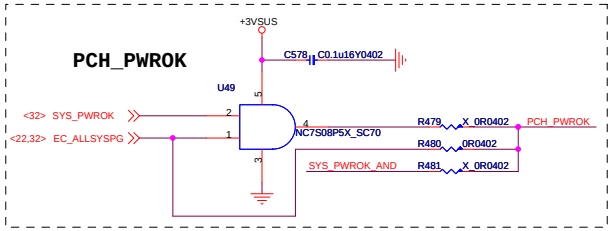
APWROK
not supporting Intel AMT
it can be connected to PWROK

GPIO31 --If not used,require pull up 3VSUS

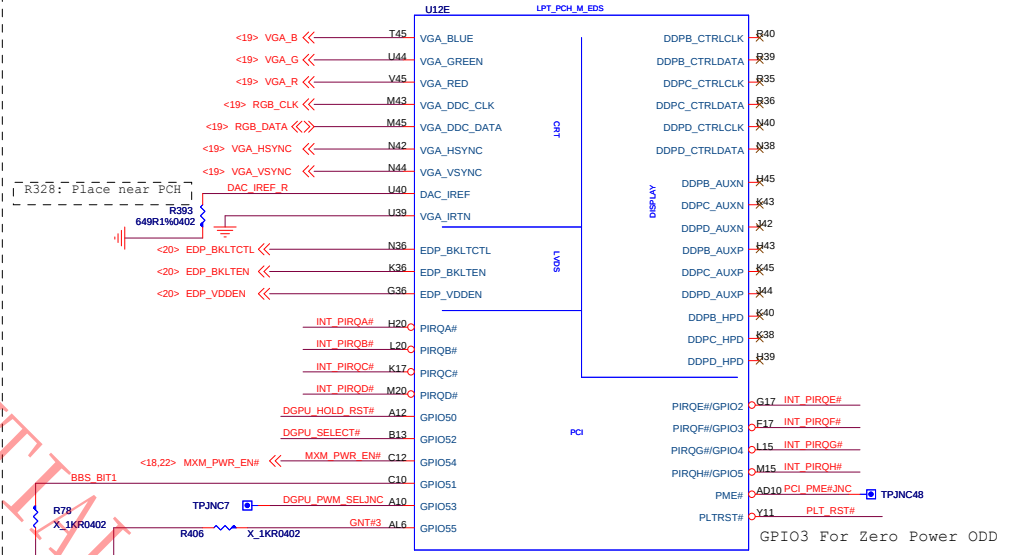
DSWODVREN - On Die DSW VR Enable
High --- Enable internal 1.05V regulator
Low --- Disable

DPWROK
Without deep s4/s5 support
tied together with RSMRST#



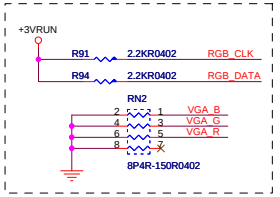


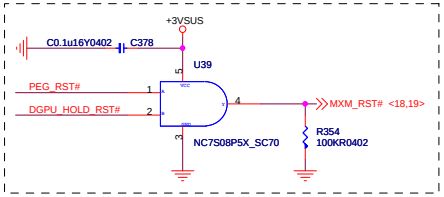
Lynx Point (PCI,DDI)

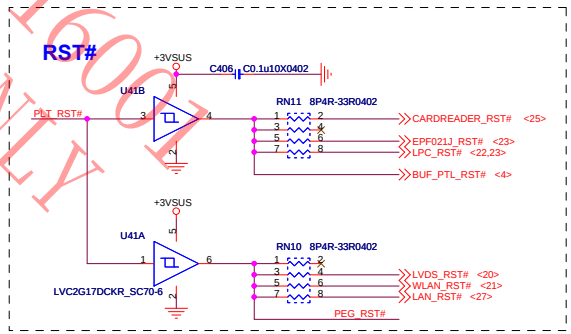


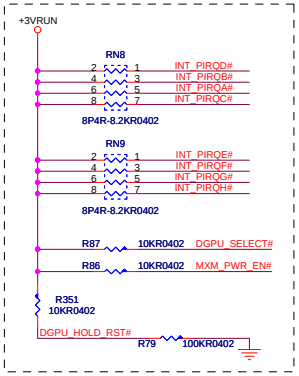
GPIO3 For Zero Power ODD

BIOS BOOT STRAP BIT		
BBS_BIT0	BBS_BIT1	BOOT BIOS LOCATION
0	0	LPC
0	1	RESERVED(NAND)
1	0	N/A
1	1	SPI









MICRO-STAR INT'L CO.,LTD.			
Title: Lynx Point (DMI,FDI/PCI,DDI)			
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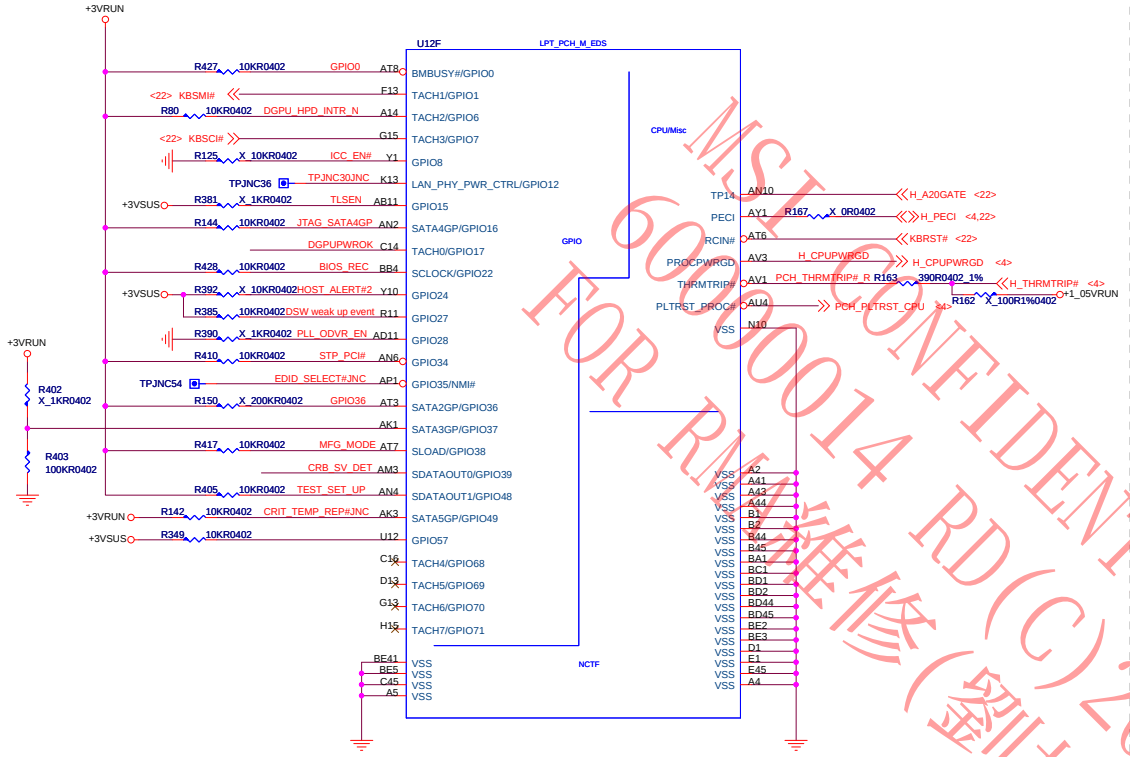
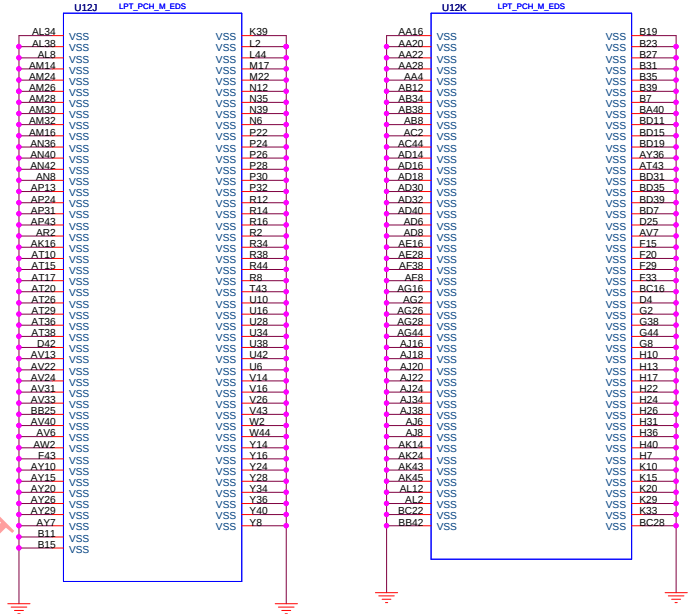
Lynx Point (GPIO,MISC)



Lynx Point (Gnd)



GPIO28 has a weak internal pull-up.
The internal pull-up is disabled after RSMRST# deasserts.

SATA3GP/GPIO37
This signal has a weak internal pull-down.
NOTE:
The internal pull-down is disabled after PLTRST# deasserts.
NOTE:
This signal should not be pulled high when strap is sampled.

This signal has a weak internal pull-down.
NOTE:
The internal pull-down is disabled after PLTRST# deasserts.

GPIO36 --CRB connector to 3V

GPIO0 & 6 & 16 & 17 & 22 & 34 & 38 & 48 --If not used,require pull up 3VRUN
GPIO57 --If not used,require pull up 3VSUS
GPIO15--Not support AMT,Transport Layer Security Disable(High is support TLS,internal pull-down)
GPIO27 is deep S4 & S5 weak up event,internal pull high.& It's VCCFDIPLL internal VRM strapping pin
GPIO35 --Define to EDID Select (If not used,require pull down)

SATA2GP/GPIO36 (net name: FDI_OVRVLTG) & SATA3GP/GPIO37 (net name: SATA_ODD_PRSNT#)
Sampled at Rising edge of PWROK.
Weak internal pull-down. (weak internal pull-down is disabled after PLTRST# de-asserts)
NOTE: This signal should NOT be pulled high when strap is sampled

MICRO-STAR INT'L CO.,LTD.

Title: Lynx Point (GPIO,MISC/Gnd)

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Lynx Point (PCIE,USB)

PCI-E	
Port	**Device**
3	Giga Lan
4	Mini PCIE-WLAN
5	Card Reader

USB			
USB 2.0	**USB 3.0**	**Device**	**Note**
0	1	USB 3.0 Port 1	
1	2	USB 3.0 Port 2	Debug Port
2	5	USB 3.0 Port 3	
3			NC
4		WebCam (LVDS)	
5		USB 2.0 Port 5 (1763)	
6			NC
7			NC
8		USB 2.0 Port 5 (1763)	
9		USB 2.0 Port 5 (16F4)	Debug Port
10		TestPad	
11		EPF LED (8051)	
12		Mini PCIE-BT	
13			NC
	3		NC
	4		NC
	6		NC

MICRO-STAR INT'L CO.,LTD.

Title: Lynx Point (PCIE,USB)

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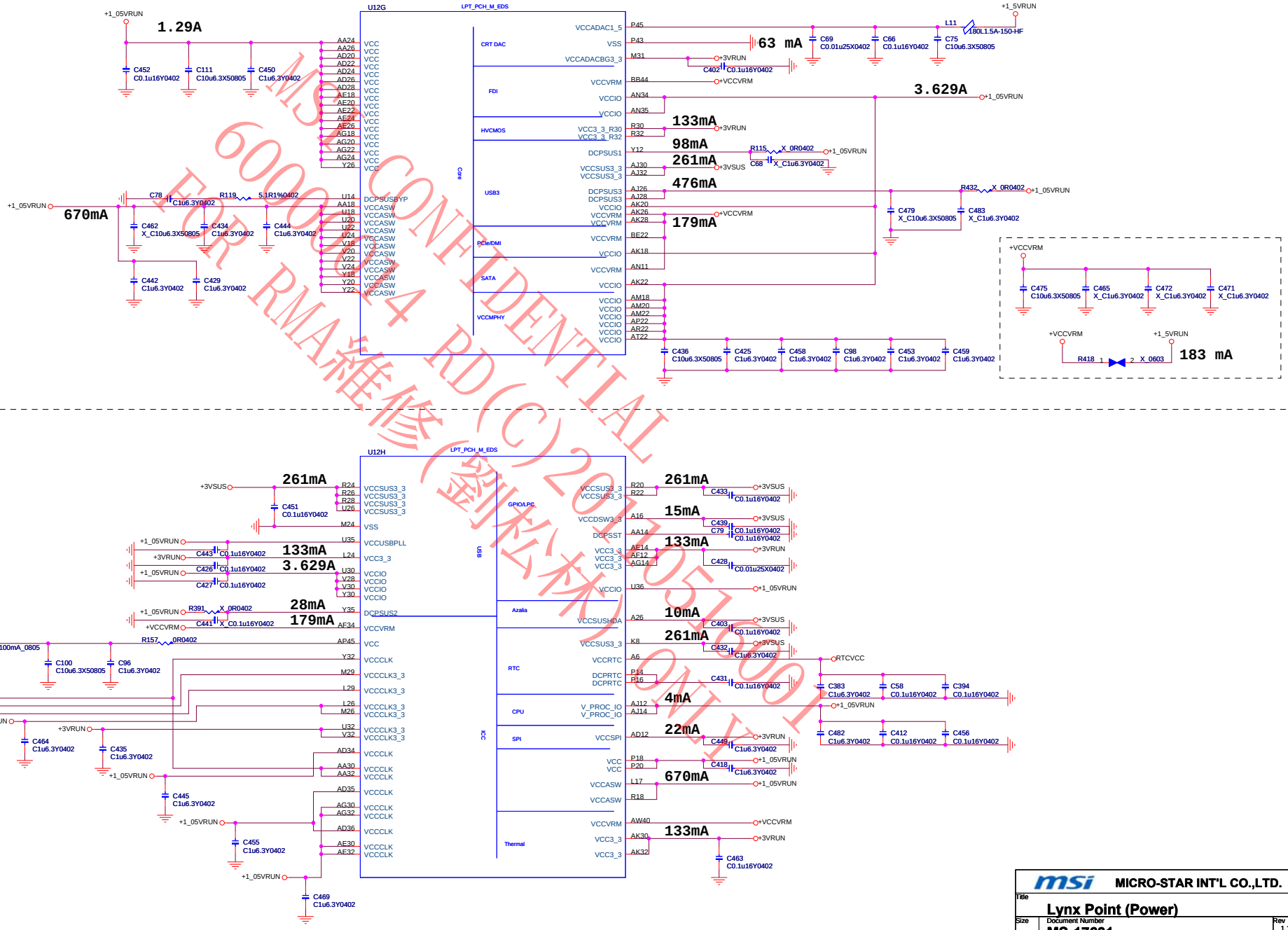
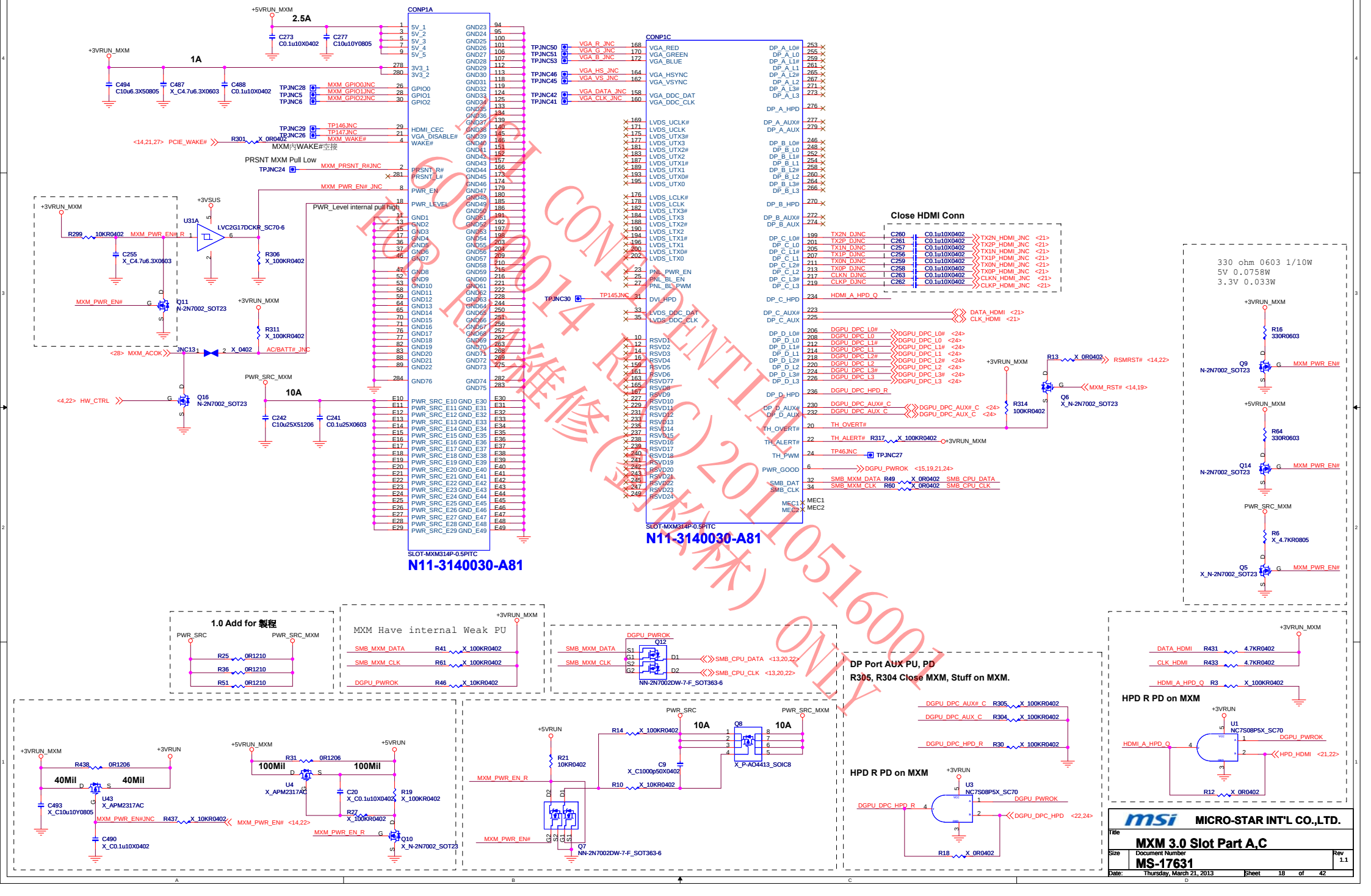
Lynx Point (Power)



MXM 3.0 (x16 PEG Gen 3)



MICRO-STAR INT'L CO.,LTD.			
Title: MXM 3.0 Slot Part A,C			
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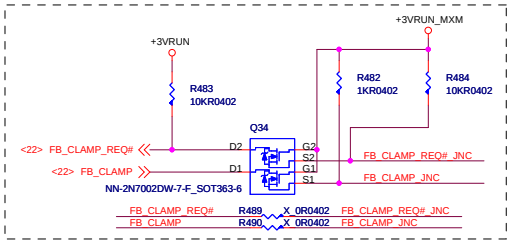
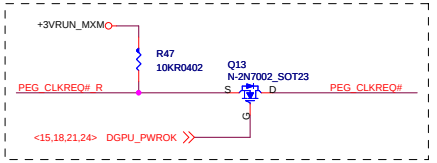
Date: Thursday, March 21, 2013		Sheet 18 of 42	

MXM 3.0 (x16 PEG Gen 3)

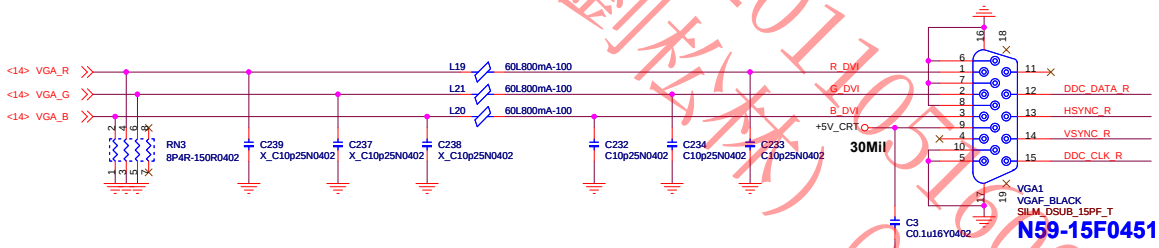
n'VIDIA Comments: NV11 can't support PCIE GEN3,so used 0.1uf CAP

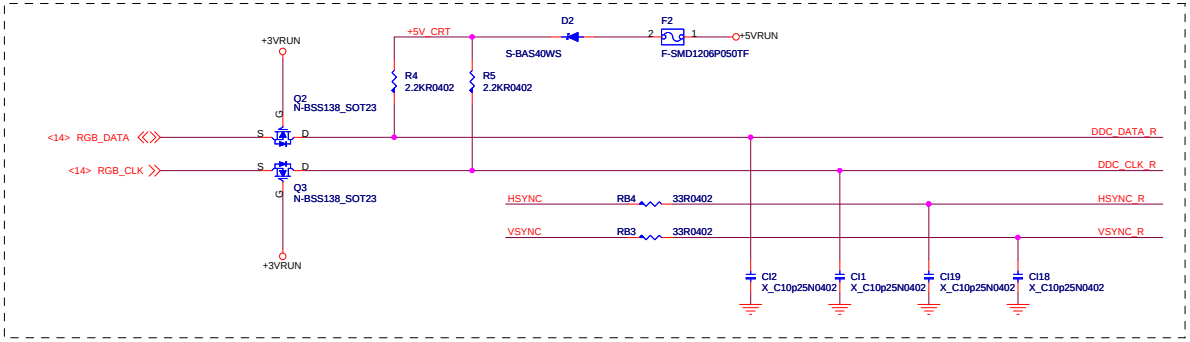
The change in AC capacitor value from 0.1uf to 0.22uf is to enable compatibility with futrue platforms having PCIE GEN3(8GT/s)

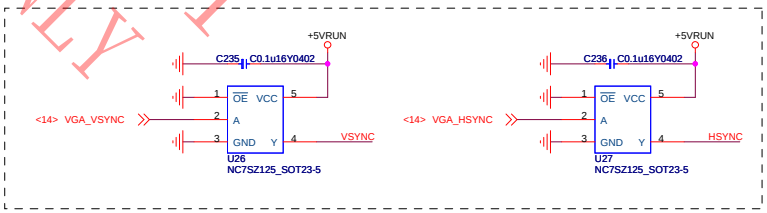




CRT







msi MICRO-STAR INT'L CO.,LTD.		
Title: MXM 3.0 Slot Part B/CRT		
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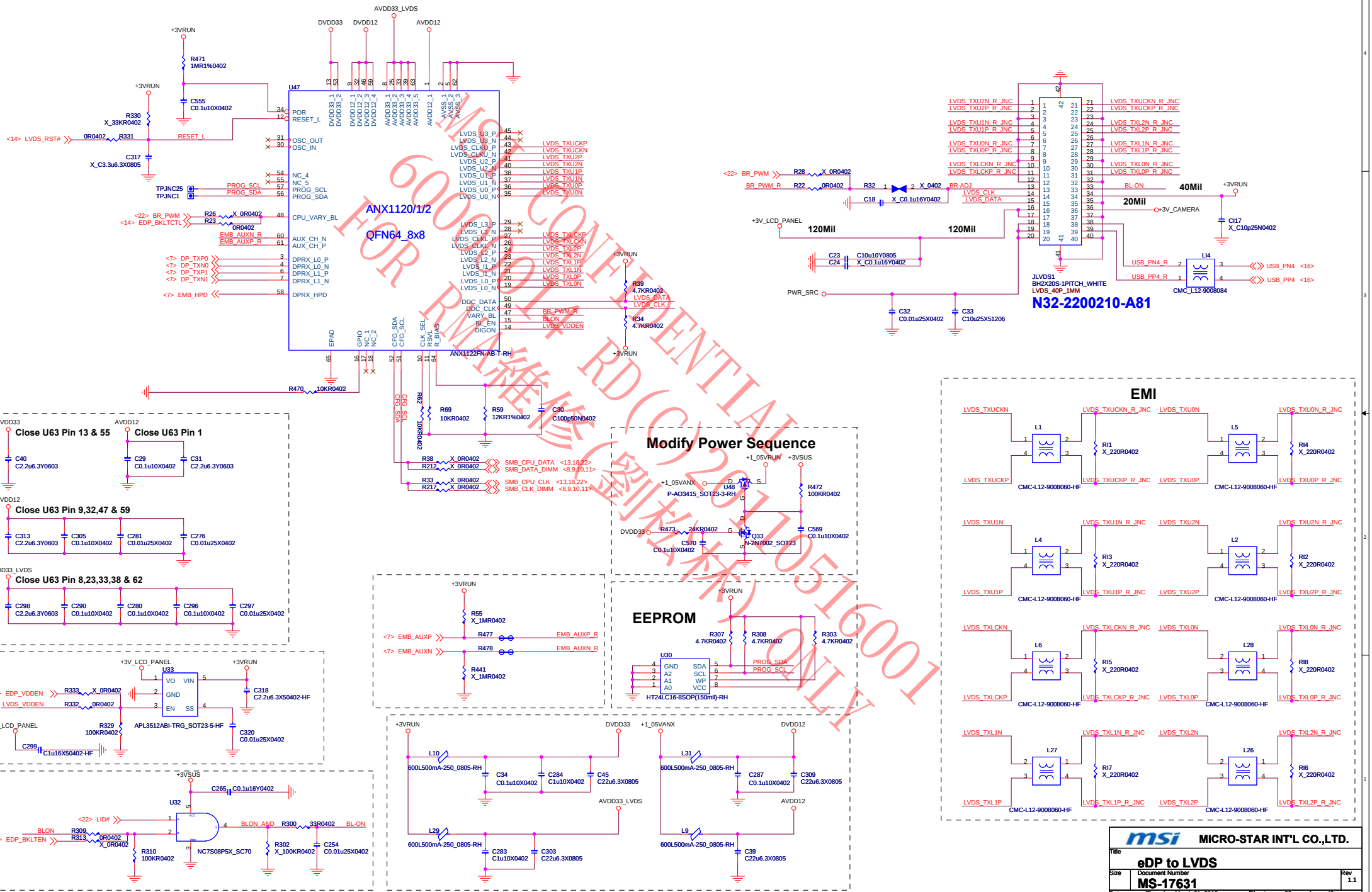
eDP to LVDS


U47
ANX1120/1/2
QFN64_8x8
ANX1122FN-AB-T-RH
AVDD33_LVDS
DVDD33
DVDD12
AVDD12
+3VRUN
R471 1MR1%0402
C555 C0.1u10X0402
R330 X_33KR0402
R331 0R0402
C317 X_C3.3u6.3X0805
TPJNC25
TPJNC1
PROG_SCL
PROG_SDA
R26 X_0R0402
R23 0R0402
EMB_AUXN_R
EMB_AUXP_R
DP_TXP0
DP_TXN0
DP_TXP1
DP_TXN1
EMB_HPD
R470 10KR0402
R69 10KR0402
R59 12KR1%0402
C30 C100p50N0402
R62 10KR0402
R38 X_0R0402
R212 X_0R0402
R33 X_0R0402
R217 X_0R0402
SMB_CPU_DATA
SMB_DATA_DIMM
SMB_CPU_CLK
SMB_CLK_DIMM
R39 4.7KR0402
R34 4.7KR0402
LVDS_DATA
LVDS_CLK
BR_PWM_R
BLON
LVDS_VDDEN
LVDS_TXUCKP
LVDS_TXUCKN
LVDS_TXU2P
LVDS_TXU2N
LVDS_TXU1P
LVDS_TXU1N
LVDS_TXU0P
LVDS_TXU0N
LVDS_TXLCKP
LVDS_TXLCKN
LVDS_TXL2P
LVDS_TXL2N
LVDS_TXL1P
LVDS_TXL1N
LVDS_TXL0P
LVDS_TXL0N
MSI CONFIDENTIAL
6006001
FOR RMA维修(刘长宏) ONLY
RD(C)20110516001
Modify Power Sequence
+1_05VRUN
+3VSUS
+1_05VANX
U48
P-AO3415_SOT23-3-RH
R472 100KR0402
R473 24KR0402
C569 C0.1u10X0402
C570 C0.1u10X0402
Q33
N-2N7002_SOT23
EEPROM
U30
HT24LC16-8SOP(150mil)-RH
R307 4.7KR0402
R308 4.7KR0402
R303 4.7KR0402
PROG_SDA
PROG_SCL
R55 X_1MR0402
R477
R478
R441 X_1MR0402
EMB_AUXP
EMB_AUXN
Close U63 Pin 13 & 55
Close U63 Pin 1
Close U63 Pin 9,32,47 & 59
Close U63 Pin 8,23,33,38 & 62
C40 C2.2u6.3Y0603
C29 C0.1u10X0402
C31 C2.2u6.3Y0603
C313 C2.2u6.3Y0603
C305 C0.1u10X0402
C281 C0.01u25X0402
C276 C0.01u25X0402
C298 C2.2u6.3Y0603
C290 C0.1u10X0402
C280 C0.1u10X0402
C296 C0.1u10X0402
C297 C0.01u25X0402
+3V_LCD_PANEL
U33
APL3512ABI-TRG_SOT23-5-HF
R333 X_0R0402
R332 0R0402
R329 100KR0402
C318 C2.2u6.3X50402-HF
C320 C0.01u25X0402
C299 C1u16X50402-HF
EDP_VDDEN
LVDS_VDDEN
+3VSUS
U32
NC7S08P5X_SC70
C265 C0.1u16Y0402
LID#
BLON
EDP_BKLTEN
R309 0R0402
R313 X_0R0402
R310 100KR0402
BLON_AND
R300 33R0402
R302 X_100KR0402
C254 C0.01u25X0402
BL-ON
L10
L29
L31
L9
600L500mA-250_0805-RH
C34 C0.1u10X0402
C284 C1u10X0402
C45 C22u6.3X0805
C283 C1u10X0402
C303 C22u6.3X0805
C287 C0.1u10X0402
C309 C22u6.3X0805
C39 C22u6.3X0805
BR_PWM
BR_PWM_R
R28 X_0R0402
R22 0R0402
R32 X_0402
C18 X_C0.1u16Y0402
BR-ADJ
LVDS_CLK
LVDS_DATA
+3V_LCD_PANEL
120Mil
C23 C10u10Y0805
C24 X_C0.1u16Y0402
PWR_SRC
C32 C0.01u25X0402
C33 C10u25X51206
JLVDS1
BH2X20S-1PITCH_WHITE
LVDS_40P_1MM
N32-2200210-A81
BL-ON
40Mil
20Mil
+3V_CAMERA
C17 X_C10p25N0402
USB_PN4_R
USB_PP4_R
LI4
CMC_L12-9008084
USB_PN4
USB_PP4
EMI
L1
L5
L4
L2
L6
L28
L27
L26
RI1 X_220R0402
RI4 X_220R0402
RI3 X_220R0402
RI2 X_220R0402
RI5 X_220R0402
RI8 X_220R0402
RI7 X_220R0402
RI6 X_220R0402
CMC-L12-9008060-HF
MICRO-STAR INT'L CO.,LTD.
Title
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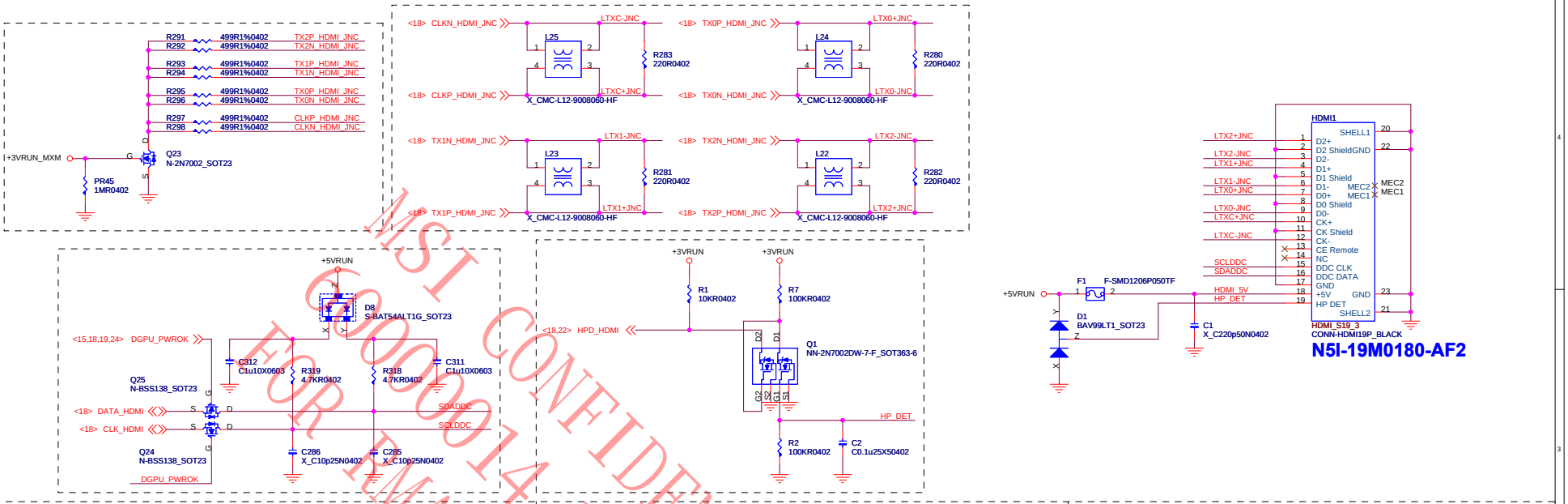
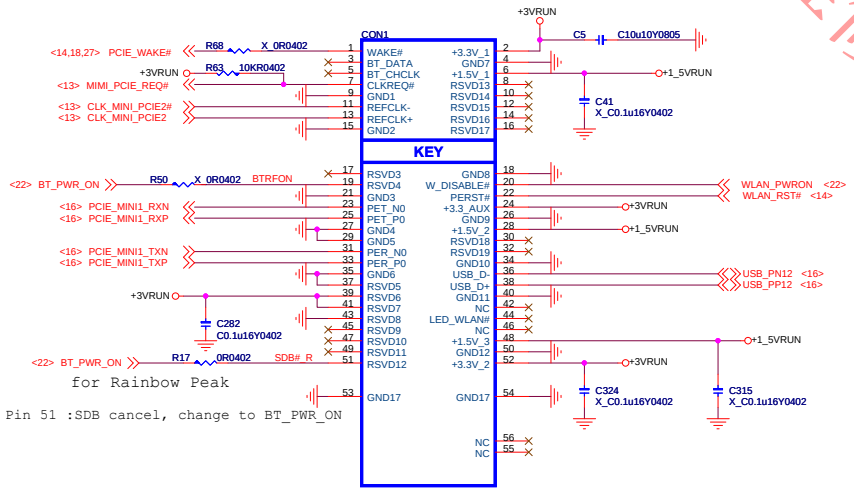
HDMI



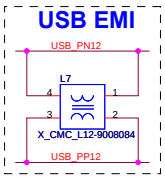
N5I-19M0180-AF2

WLAN/BT

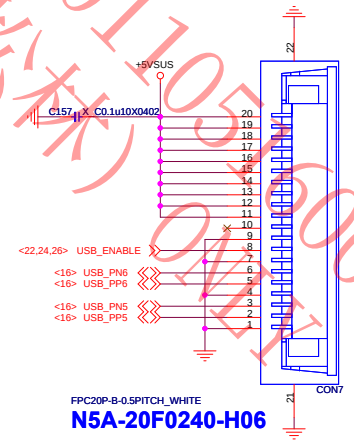


N11-0520070-A81

USB EMI

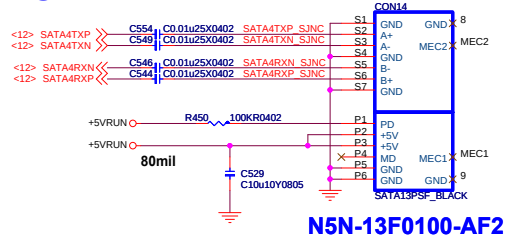


MS-1763 Co-Lay USB Port *2



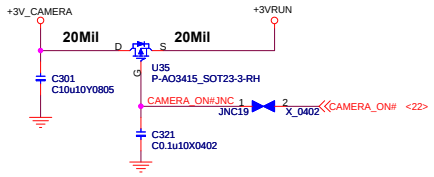
N5A-20F0240-H06

ODD



N5N-13F0100-AF2

WebCAM



msi	MICRO-STAR INT'L CO.,LTD.
Title	HDMI/WLAN/BT/USB/ODD/CAM
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KBC/EC/uP (ENE3930)

PU/PD

+3VRUN

R173 X_10KR0402 KBSMI#
R177 X_10KR0402 KBSCI#
R175 X_10KR0402 H_A20GATE
R174 X_10KR0402 KBRST#

R426 100KR0402 EC_CLKRUN#
R397 100KR0402 RSMRST#
R176 100KR0402 KBRST#

SW unmount

+3VALW

R158 10KR0402

PWR_SW#

C231 X_C0.1u16Y0402

SW1 A B E F C D

X_SW-TACTB1S
SWTA_S6_5_2X6_3

N71-0101630-D02

Capsensor Con

+5VSUS +5VRUN DGPU_EN
LED_NUM#
LED_CAP#
+3VRUN +3VSUS +3VSUS
R356 10KR0402 LID#
CAP_RST
PWR_LED
PWR_SW#
ESBDATA_R R430 0R0402 ESBDATA
ESBCLK_R R429 0R0402 ESBCLK
+3VALW
C57 C0.1u16Y0402
C56 C0.1u16Y0402
Add NUM, CAP 0608
C10p25N0402 C113 ESBDATA
C10p25N0402 C114 ESBCLK
CON4
FPC_S16_4
FPC16P-B-0.5PITCH_WHITE
上下

N5A-16F0110-A81

EC ROM

+3VALW +3VALW
R181 2.2KR0402
R180 10KR0402
U16
SPI_HOLD#
EC_SPICLK
EC_WR#
VCC CS# HOLD# SO SCLK WP# SI GND
EC_CS#
EC_RD#
Pm25LD512C2-SCE
EC_SPI_CLK ER1 22R0402 EC_SPICLK EC84 C22p50N0402

Debug Port

LPC_FRAME#
LAD3
LAD2
LAD1
LAD0
<13> L_LDRQ0#
<13> CLK_PCIF_PORT80
INT_SERIRQ
LPC_RST#
+5VRUN
+3VRUN
FWH_ID0
R436 X_10KR0402
CON11
BH1X14S-1PITCH_BLACK-HF

N32-1140160-A81

KBC/EC/uP (ENE3930)

U14

SERIRQ	LPC I/F	VCC, VCC, VCC, VCC, VCC, VCC
LFRAME#		POWER/GROUND
PCICLK		AVCC
CLKRUN#/GPIO1D		AGND
LAD0		GND, GND, GND, GND, GND
LAD1		
LAD2		
LAD3		
ECRST#		
KBRST#		
SCI#/GPIO0E		
GA20		
PCIRST#		
PWM0/GPIO0F	FAN&PWM	SMBUS
PWM1/GPIO10		SDA0/GPIO45
GPIO11/PWM2		SCL0/GPIO44
GPIO19/PWM3		SDA1/GPIO47
FANPWM0/GPIO12		SCL1/GPIO46
FANPWM1/GPIO13		
FANFB0/GPIO14		AD/DA
FANFB1/GPIO15		DA0/GPIO3C
KSO0/GPIO20/TP_TEST	IKB	DA1/GPIO3D
KSO1/GPIO21/TP_PLL		DA2/GPIO3E
KSO2/GPIO22/TP_ANA_TEST		DA3/GPIO3F
KSO3/GPIO23/TP_ISP		AD0/GPIO38
KSO4/GPIO24		AD1/GPIO39
KSO5/GPIO25		AD2/GPIO3A
KSO6/GPIO26		AD3/GPIO3B
KSO7/GPIO27		AD4/GPIO42
KSO8/GPIO28		AD5/GPIO43
KSO9/GPIO29		SDI
KSO10/GPIO2A		GPXIOA00/SDICS#
KSO11/GPIO2B		GPXIOA01/SDICLK
KSO12/GPIO2C		GPXIOA02/SDIMOSI
KSO13/GPIO2D		
KSO14/GPIO2E		GPXIOA03
KSO15/GPIO2F/E51_RXD(ISP)		GPXIOA04
KSO16/GPIO48		GPXIOA05
KSO17/GPIO49		GPXIOA06
KSI0/GPIO30/E51TXD(ISP)		GPXIOA07
KSI1/GPIO31		GPXIOA08
KSI2/GPIO32		GPXIOA09
KSI3/GPIO33		GPXIOA10
KSI4/GPIO34/EDI_CS		GPXIOA11
KSI5/GPIO35/EDI_CLK		GPXIOD0
KSI6/GPIO3D/EDI_DIN		GPXIOD1
KSI7/GPIO37/EDI_DO		GPXIOD2
GPIO0B/ESB_CLK	ESB	GPXIOD3
GPIO0C/ESB_DAT_O/ESB_DAT_I		GPXIOD4
GPIO40/CIR_RX/AD6	CIR	GPXIOD5
GPIO41/CIR_RLC_TX/AD7		GPXIOD6
GPIO0A/RLC_RX2		GPXIOD7/PECI
GPIO0D/RLC_TX2		GPIO04
MISO	SPI FLASH	GPIO07/I_clk_8051
MOSI		GPIO08/I_clk_per
SPICLK/GPIO58		GPIO18
SPICS#		GPIO50
PSCLK2/GPIO4E	PS2 I/F	E51GS#/GPIO52
PSDAT2/GPIO4F		E51TMR0/GPIO54/WDT_LED#
PSCLK1/GPIO4C		E51INT1/GPIO56
PSDAT1/GPIO4D		GPIO57/XCLK32K
PSCLK0/GPIO4A/P80CLK		GPIO59/TEST_CLKSPICLKI
PSDAT0/GPIO4B/P80DAT		
E51TXD/GPIO16	UART	GPIO1A/NUMLED#
E51RXD/GPIO17		E51TMR1/GPIO53/CAPSLED#
XCLKI		E51INT0/GPIO55/SCROLED#
XCLKO		LED
V18R		

KB3930QFB1-B1

<13,23> INT_SERIRQ
<13,23> LPC_FRAME#
<13> CLK_PCI_KBC
<14> EC_CLKRUN#
<13,23> LAD0
<13,23> LAD1
<13,23> LAD2
<13,23> LAD3
+3VALW
R178 10KR0402
D6 S-BAS40WS
C115 C1u10X0402
EC_RST#
<15> KBRST#
KBRST#
<15> KBSCI#
KBSCI#
<15> H_A20GATE
H_A20GATE
<14,23> LPC_RST#
Change to High Active
<28> AC_CTL
<14> AC_PRESENT
<20> BR_PWM
<12> FLASH_SECURITY
<28> FAN_DA
<28> CPUFAN_FB
<14,18> MXM_PWR_EN#
DGPU_EN
KBOUT0 KBOUT1 KBOUT2 KBOUT3 KBOUT4 KBOUT5 KBOUT6 KBOUT7 KBOUT8 KBOUT9 KBOUT10 KBOUT11 KBOUT12 KBOUT13 KBOUT14 KBOUT15 KBOUT16 KBOUT17
KBIN0 KBIN1 KBIN2 KBIN3 KBIN4 KBIN5 KBIN6 KBIN7
ESBCLK_R
ESBDATA_R
CAP_RST
H_PECI_R
<26> EC_DE_POP
<19> FB_CLAMP_REQ#
<19> FB_CLAMP
JNC28 2 X_0402
EC_RD#
EC_WR#
EC_SPI_CLK
EC_CS#
<25> TP_CLK
<25> TP_DATA
<24> CTL2_EC
<24> CTL3_EC
<4> EC_PROCHOT#
TP_CLK
TP_DATA
<21,24,26> USB_ENABLE
TPJNC14
TPJNC15
TPJNC12JNC
TPJNC13JNC
<14> SUSCLK
EC_XIN_JNC
EC_XOUT_JNC
R168 0R0402
R172 680KR0402
X_ER1 X_22R0402
C109 X_C22p50N0402
Y2 X_32.768KHZ12.5p_S
C94 X_C22p50N0402
C97 X_C22p50N0402
C477 C4.7u6.3X0603

USE SUSCLK:R100、 R101 Stuff ;
Y2、C94、C97 No Stuff
USE Crystal:R100、 R101 No Stuff ;
Y2、C94、C97 Stuff

+3VALW
C114 C0.1u10X0402
C481 C0.1u10X0402
C113 C0.1u10X0402
C71 C0.1u16Y0402
C67 C0.1u16Y0402

BATDATA_M <23,28>
BATCLK_M <23,28>
SMB_CPU_DATA <13,18,20>
SMB_CPU_CLK <13,18,20>

MB_ID
JNC4 1 2 X_0402
ADP_ICC <28>
SUSPWRACK <14>
AC_OK# <28>
BAT_IN# <28>

AC_INTERRUPT
EPF021_RST <23>
EPF021_OPMODE <23>
AC_INTERRUPT <28>
CTL1_EC <24>
HPD_HDMI <18,21>

WTDG#_JNC 1 2 X_0402
JNC5
WTDG# <14>
SUS_ON <29>
RSMRST# <14,18>

DIMM_ON <30>
RUN_ON <29,31>
EC_PCH_PWROK <7,14>
TPLED <25>
WLAN_PWRON <21>
LED_ACPI# <25>
LED_CHARGE# <25>
LED_BATLOW# <25>
LED_BLUETOOTH# <25>
SUSPWROK <29>
PM_SLP_S4# <14,23,30>
PM_SLP_S3# <14,23,30,31>

EC_ALLSYSPG
PWR_SW#
SCI_WAKE_UP# <13>
LID# <20>
H_PECI <4,15>
R414 43R5%0402
C470 X_C47p50N0402

DGPU_DPC_HPD <18,24>
TP-OFF_SW# <25>
MUTE# <27>
KBSMI# <15>
AC_INTERRUPT_AND
PWR_LED

LED_WLAN# <25>
PM_PWRBTN# <14>
BT_PWR_ON <21>
CAMERA_ON# <21>

LED_NUM#
LED_CAP#

KB

+3VALW
BATCLK_M R107 4.7KR0402
BATDATA_M R106 4.7KR0402

CN1

KBOUT17 KBOUT16 KBIN0 KBIN1 KBIN2 KBIN3 KBIN4 KBIN5 KBIN6 KBIN7 KBOUT15 KBOUT14 KBOUT13 KBOUT12 KBOUT11 KBOUT10 KBOUT9 KBOUT8 KBOUT7 KBOUT6 KBOUT5 KBOUT4 KBOUT3 KBOUT2 KBOUT1 KBOUT0

FPC26P-B-1PITCH_BLACK
FPC_S26_6

N5A-26F0340-A81

For EMI

KBOUT17 EC11 C100p16N0402
KBOUT16 EC12 C100p16N0402

EC15 KBOUT7 KBOUT6 KBOUT5 KBOUT4
8p4C-100p50N0402

EC16 KBOUT3 KBOUT2 KBOUT1 KBOUT0
8p4C-100p50N0402

EC14 KBOUT11 KBOUT10 KBOUT9 KBOUT8
8p4C-100p50N0402

EC13 KBOUT15 KBOUT14 KBOUT13 KBOUT12
8p4C-100p50N0402

MotherBoard ID

+3VALW
R100 X_10KR0402
MB_ID
R105 0R0402

Reserved

WLAN_PWRON C120 X_C10p25N0402
BT_PWR_ON C115 X_C10p25N0402
CAMERA_ON# C116 X_C10p25N0402

Solve AC Shutdown HW Control

+3VRUN
C55 C0.1u16Y0402
U8
AC_INTERRUPT_AND
AC_INTERRUPT
74AHC1G09GV_SC74A5
+3VRUN
R77 10KR0402
HW_CTRL <4,18>
C54 C0.1u16Y0402

All SYS PWRGD

+3VRUN
<31> +1_05VRUN_PWRGD
<30> +1_35VDIMM_PWRGD
<31> +1_5VRUN_PWRGD
+3VRUN
R90 0R0402
R96 0R0402
R98 0R0402
R89 100KR0402
D10 S-BAS40WS
C577 C0.22u16X0402
R92 10KR0402
+3VSUS
C62 C0.1u16Y0402
U9
74AHC1G09GV_SC74A5
R209 10KR0402
EC_ALLSYSPG <14,32>

msi	MICRO-STAR INT'L CO.,LTD.		
Title	KBC/EC/uP (ene3930)		
Size	Document Number MS-17631		Rev 1.1
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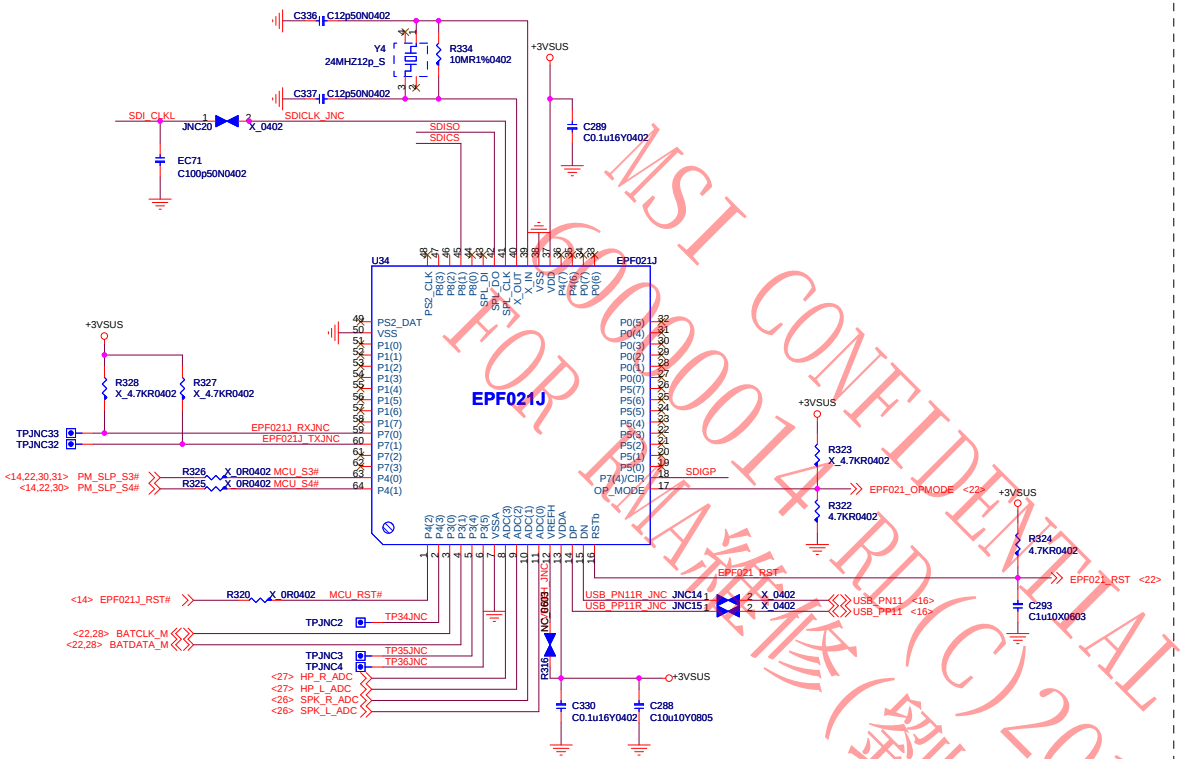
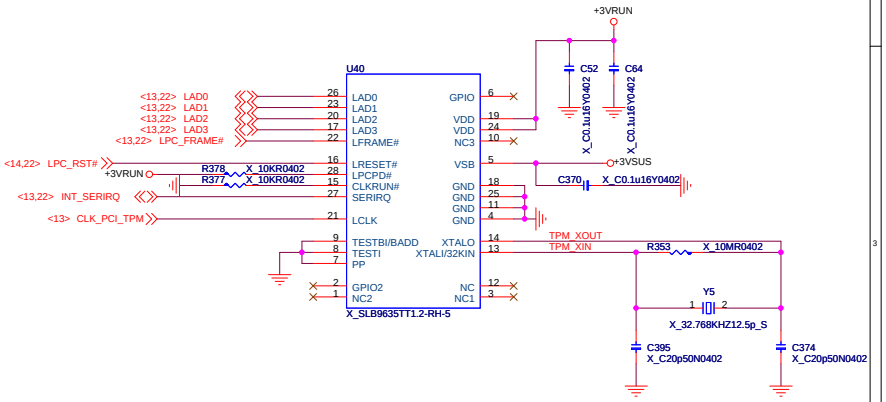
LED 8051 Controller(EPF021J)



TPM



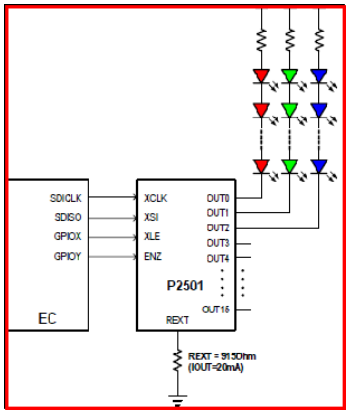
LED Driver IC

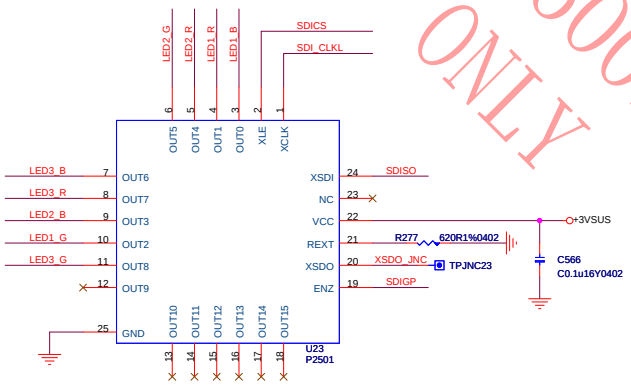
LED Forward Voltage	
R_Max	2.4V x 4 pcs = 9.6V
G_Max	3.3V x 4 pcs = 13.2V
B_Max	3.3V x 4 pcs = 13.2V

Constant current programing through the R258 resistor	
REXT	IOUT=(Vrext / Rext) x 15 30mA=(1.22 / 620) x 15

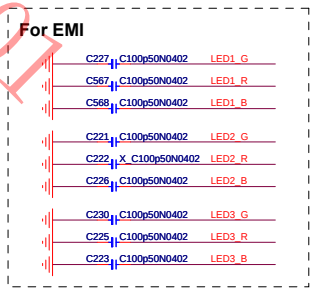
BR1	BR0	Average_ I OUT (ON/OFF)
0	0	3.75mA
0	1	11.25mA
1	0	18.75mA
1	1	26.25mA

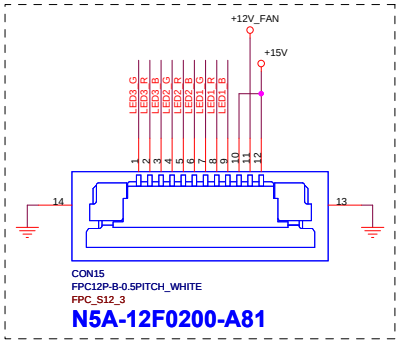
LED Keyboard Pin Define	
Pin 1	VCC_G
Pin 2	VCC_R
Pin 3	VCC_B
Pin 4	LED1_B
Pin 5	LED1_R
Pin 6	LED1_G
Pin 7	LED2_B
Pin 8	LED2_R
Pin 9	LED2_G
Pin 10	LED3_B
Pin 11	LED3_R
Pin 12	LED3_G





For EMI





MICRO-STAR INT'L CO.,LTD.

Title: LED Driver IC/Controller/TPM

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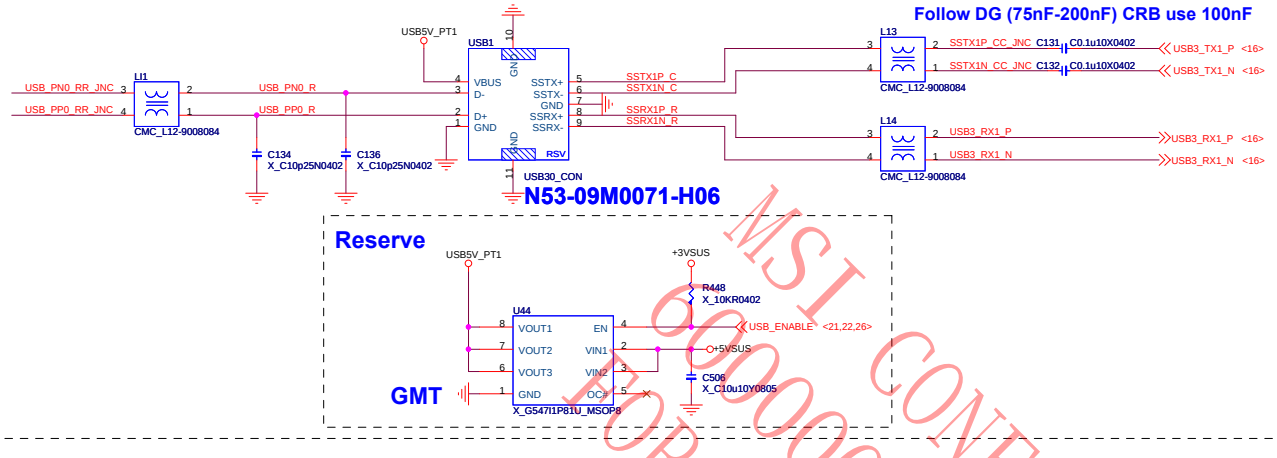
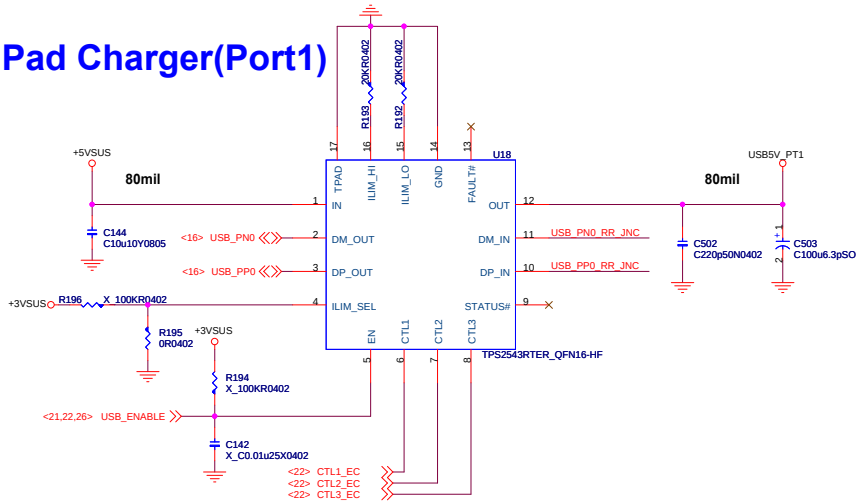
USB3.0 Port 1

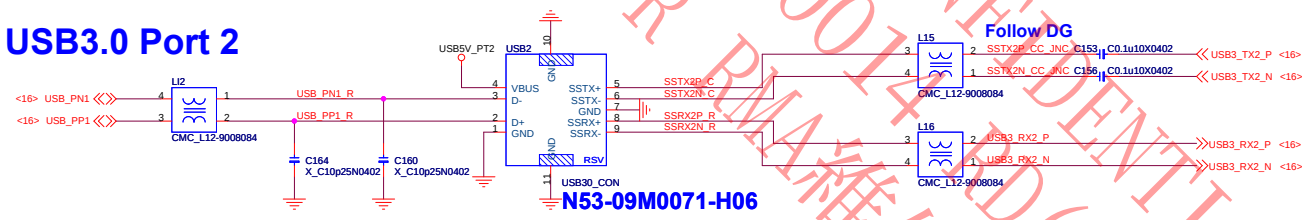


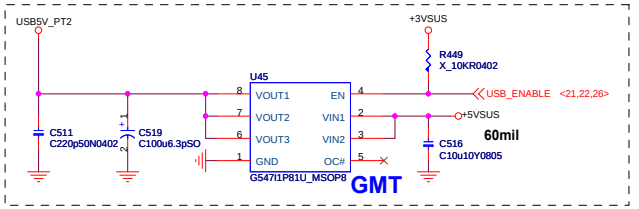
Reserve

iPad Charger(Port1)

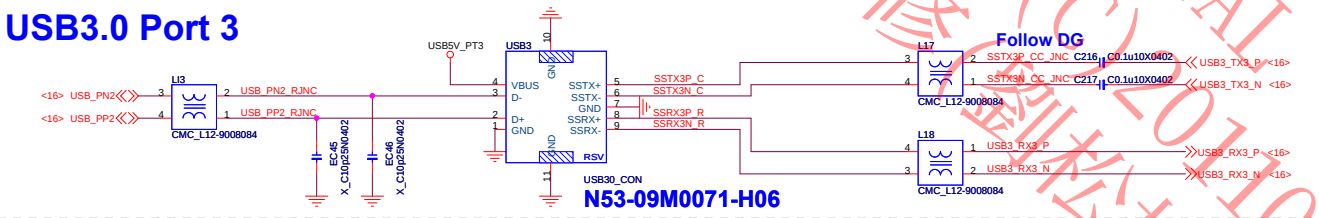


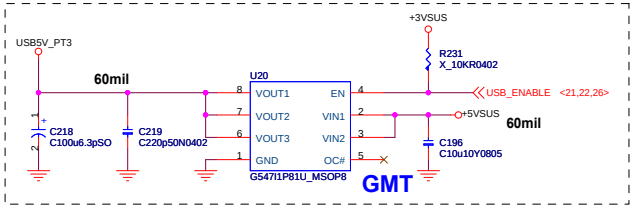
USB3.0 Port 2



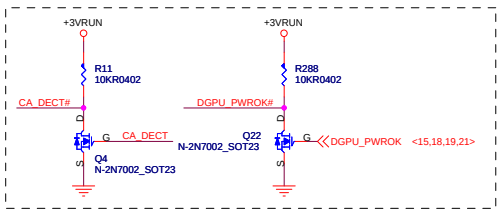


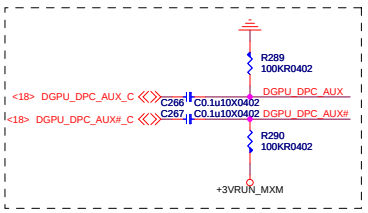
USB3.0 Port 3



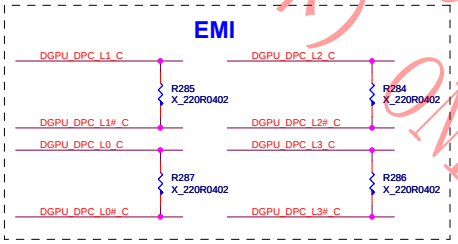


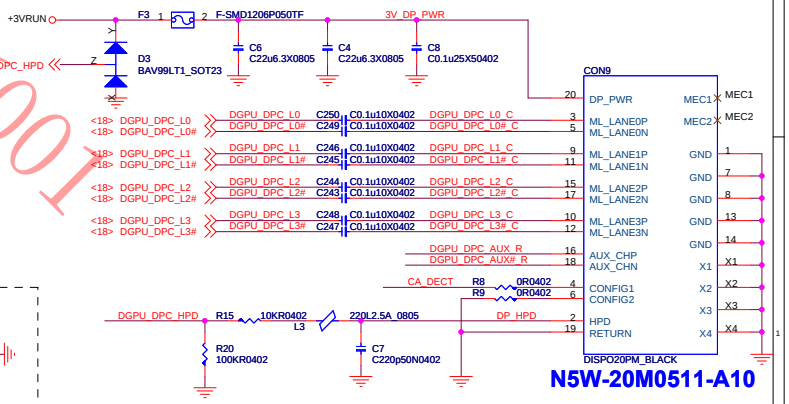
Display Port

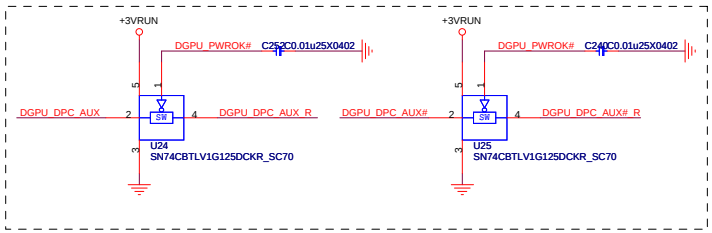




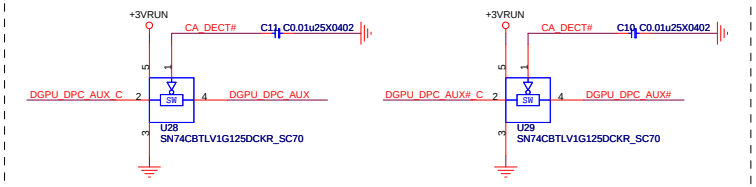
EMI







Dual Mode Switch



msi	MICRO-STAR INT'L CO.,LTD.	
Title	USB3.0/iPAD Charger/DP	
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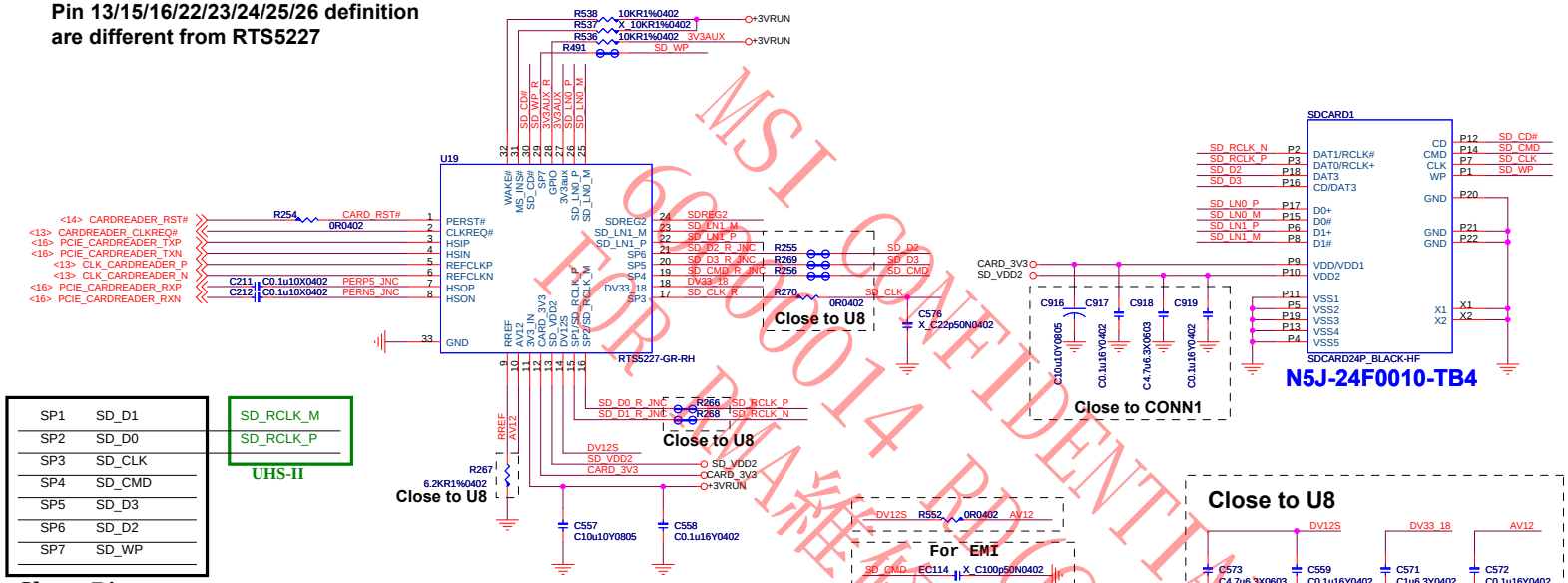
Card Reader(RTS5227)

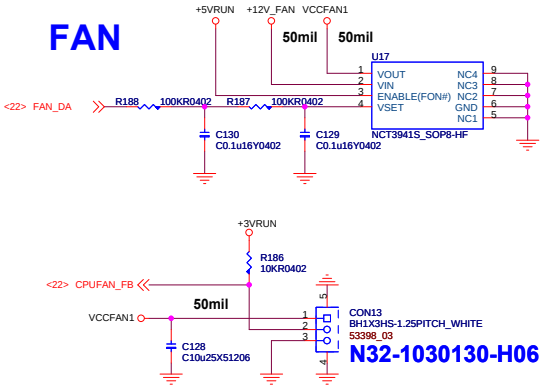
RTS5249 Colay RTS5227
Pin 13/15/16/22/23/24/25/26 definition are different from RTS5227



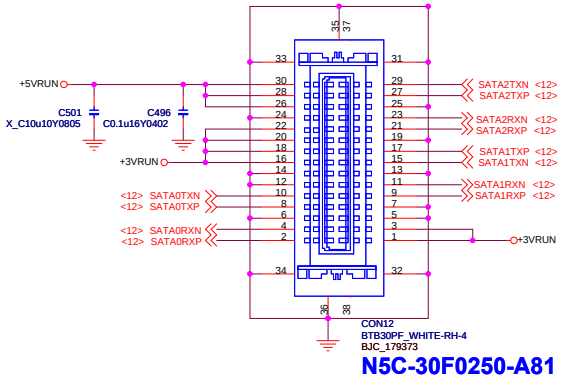
SP1	SD_D1
SP2	SD_D0
SP3	SD_CLK
SP4	SD_CMD
SP5	SD_D3
SP6	SD_D2
SP7	SD_WP

Share Pin

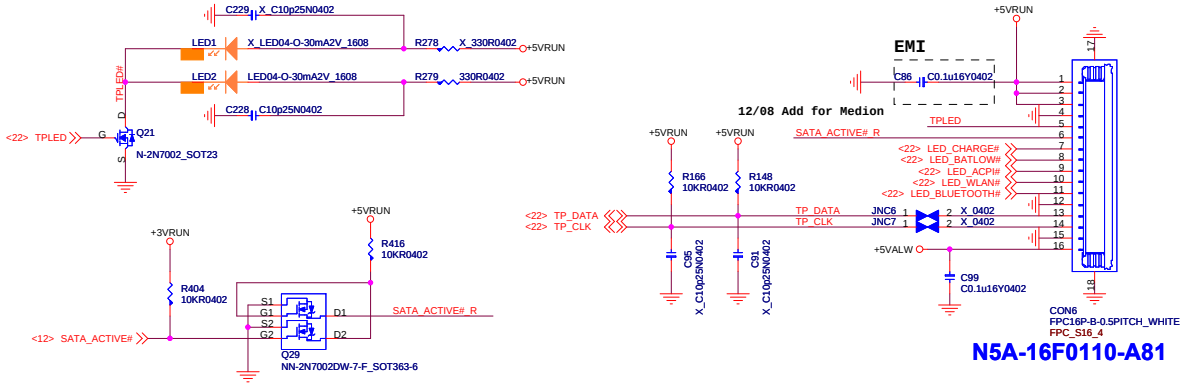
FAN



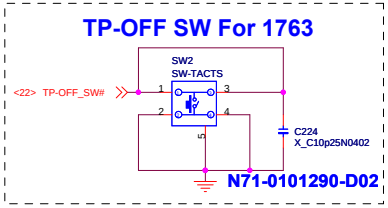
SATA HDD2 From Port 0,1,2



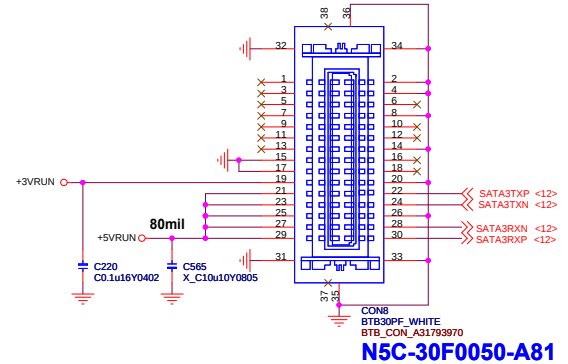
Touch Pad L/R-LED (Unmount)



TP-OFF SW For 1763



SATA HDD1 From Port 3



msi	MICRO-STAR INT'L CO.,LTD.		
Title	Card Reader/TP/HDD/FAN		
Size	Document Number		Rev
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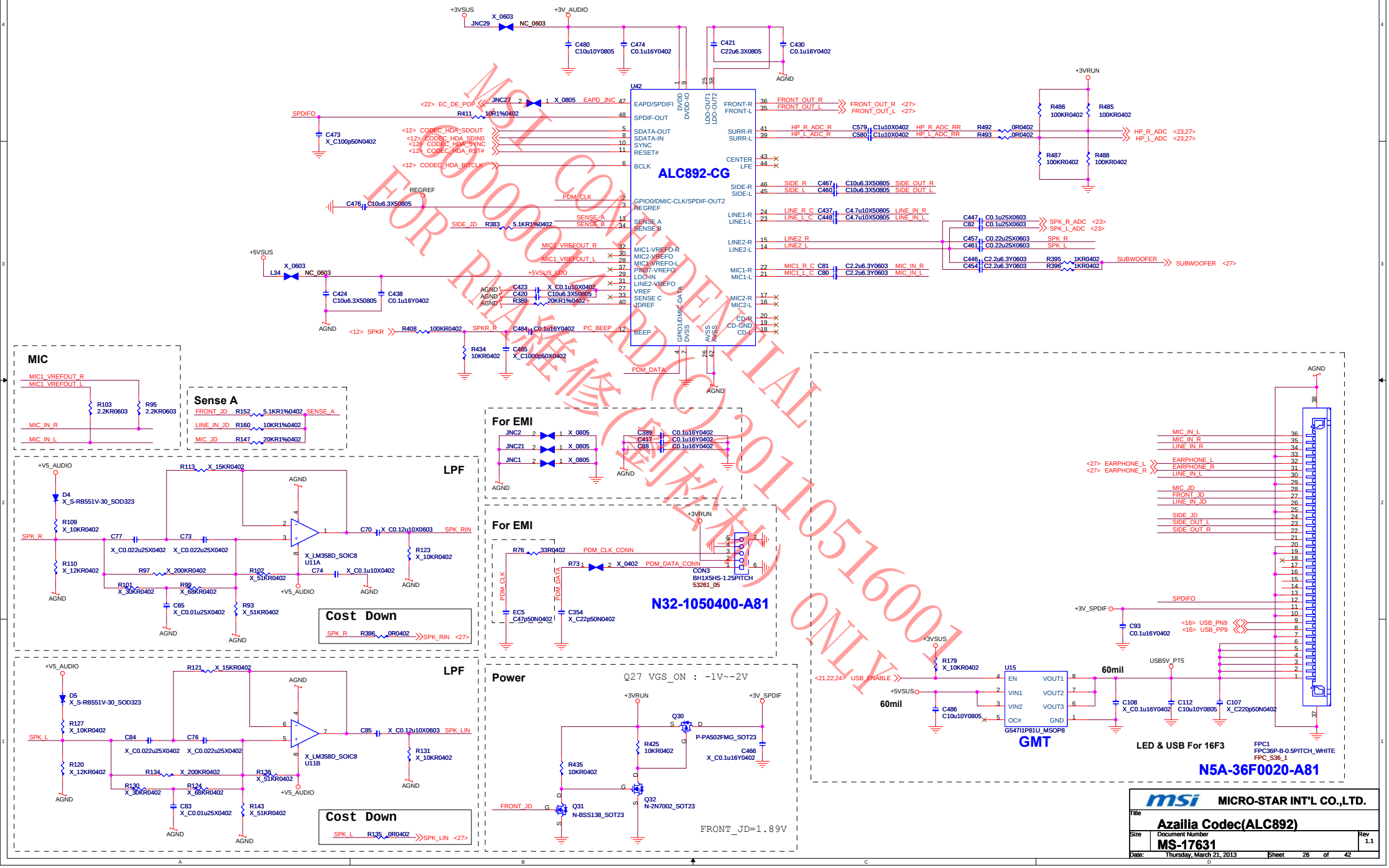
Azailia Codec(ALC892)



Title	Azailia Codec(ALC892)
Size	Document Number: MS-17631
Rev	1.1
Date:	Thursday, March 21, 2013
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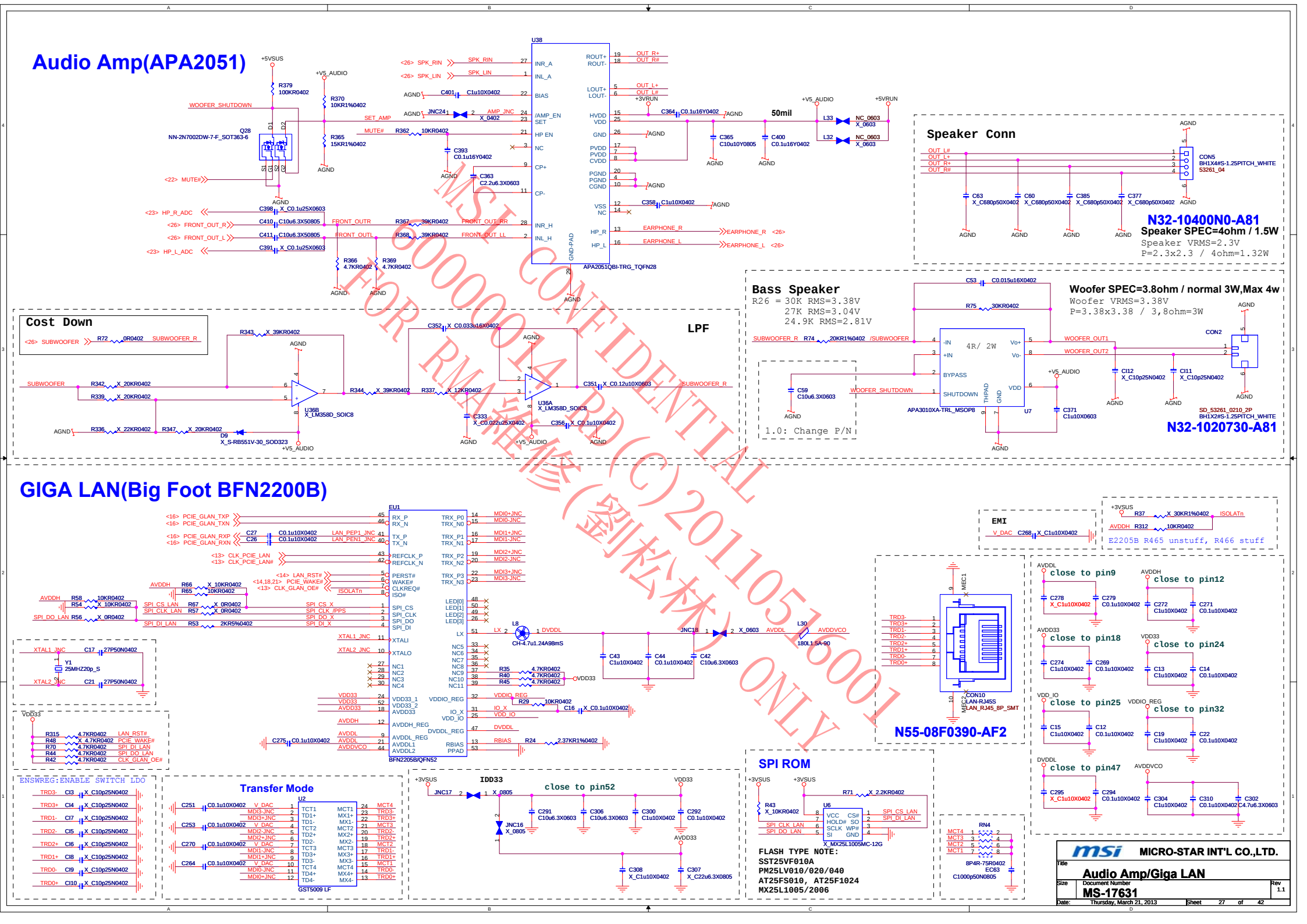
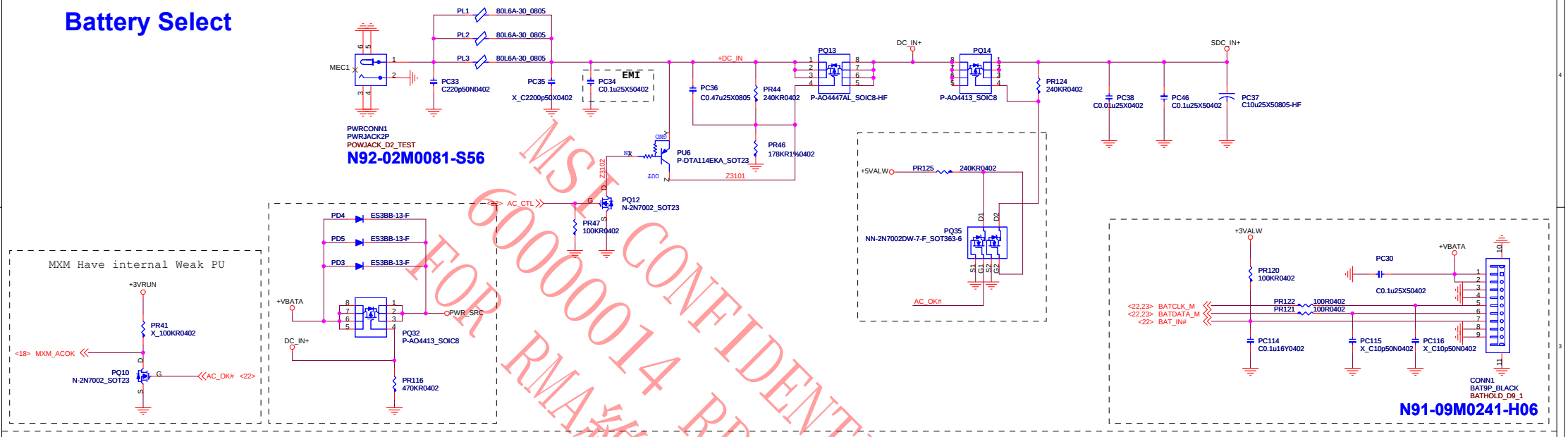
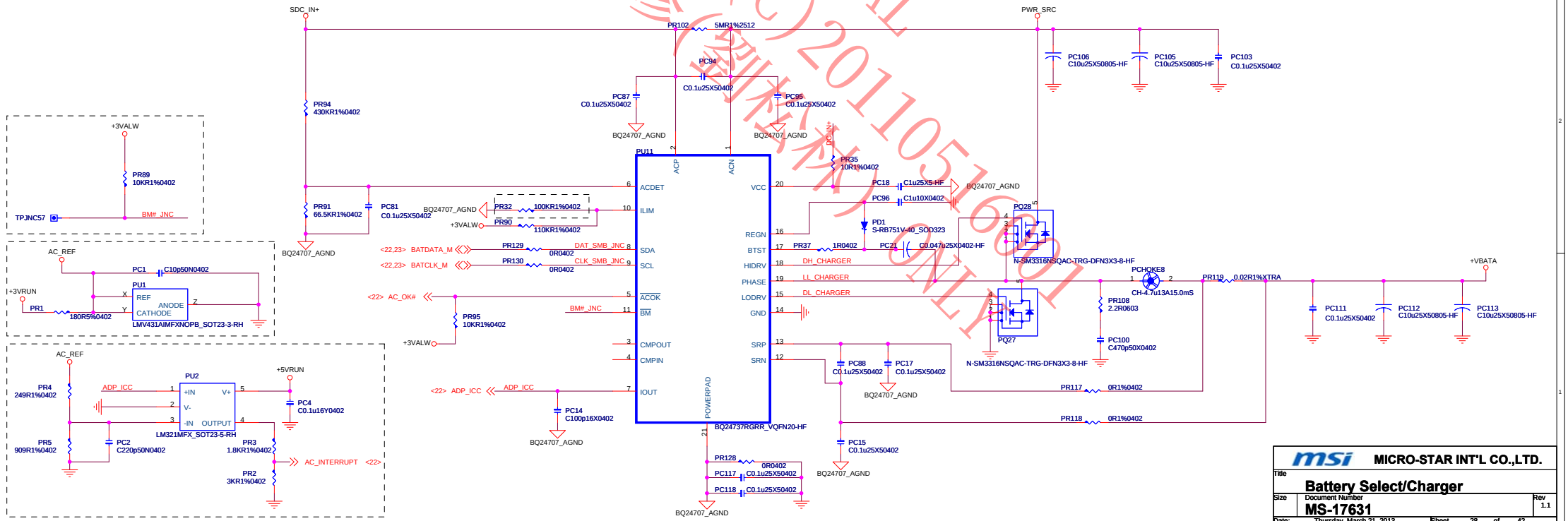
MICRO-STAR INT'L CO.,LTD.



Battery Select



Battery Charger



msi	MICRO-STAR INT'L CO.,LTD.	
Title	Battery Select/Charger	
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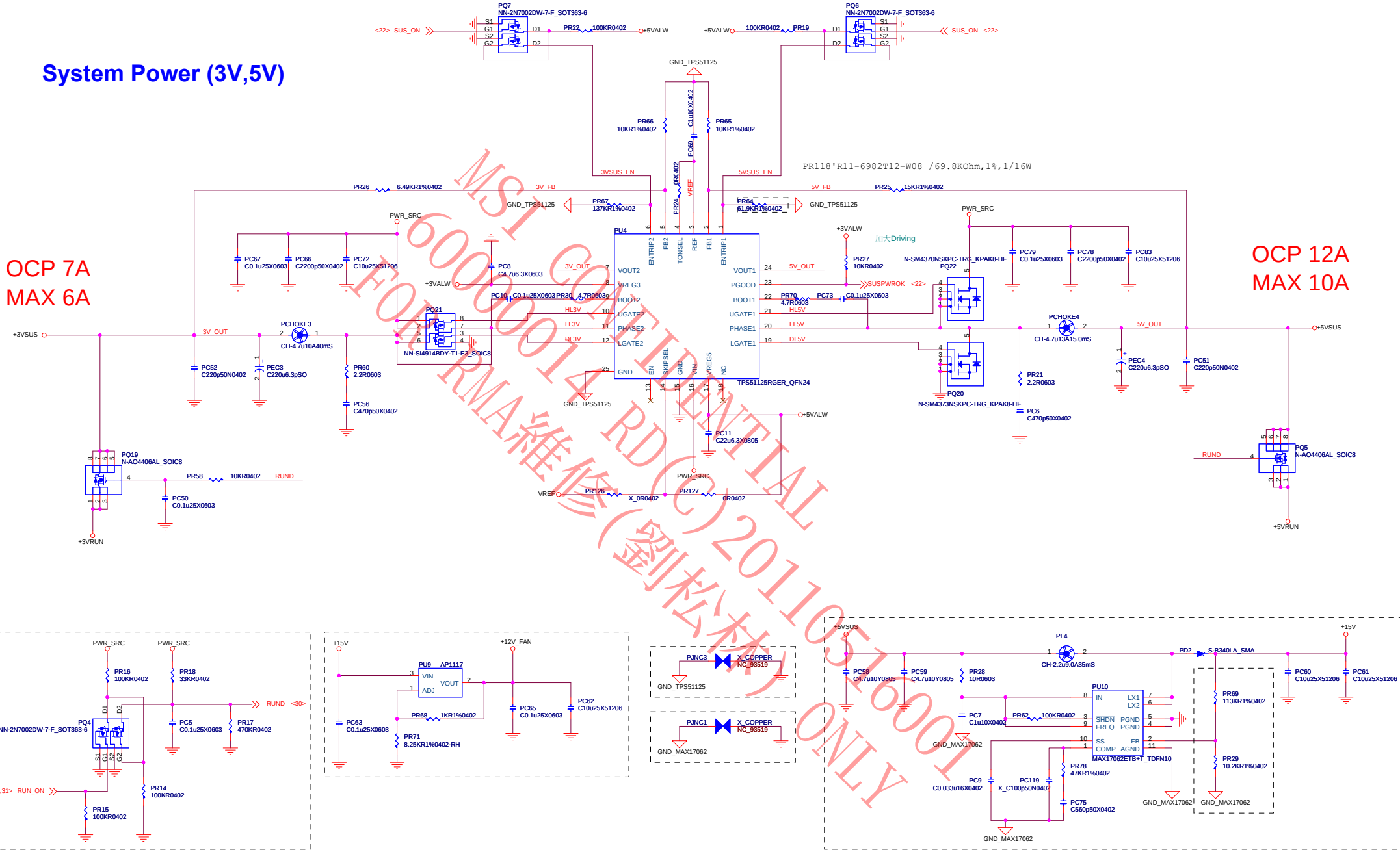
System Power (3V,5V)

OCP 7A
MAX 6A

OCP 12A
MAX 10A



msi	MICRO-STAR INT'L CO.,LTD.		
Title	System Power		
Size	Document Number MS-17631		Rev 1.1
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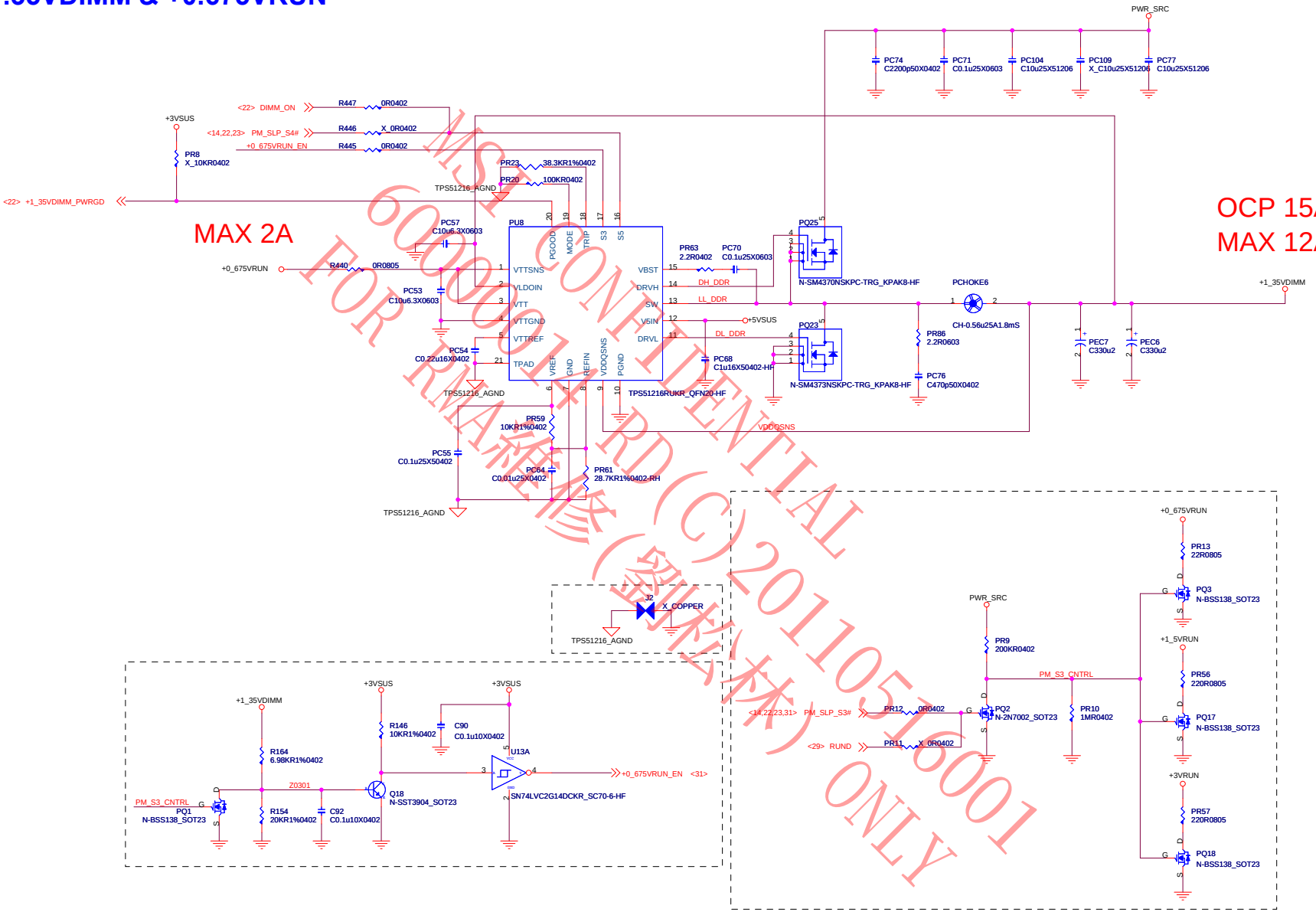
+1.35VDIMM & +0.675VRUN



msi	MICRO-STAR INT'L CO.,LTD.	
Title	+1.35VDIMM/+0.675VRUN	
Size	Document Number MS-17631	Rev 1.1
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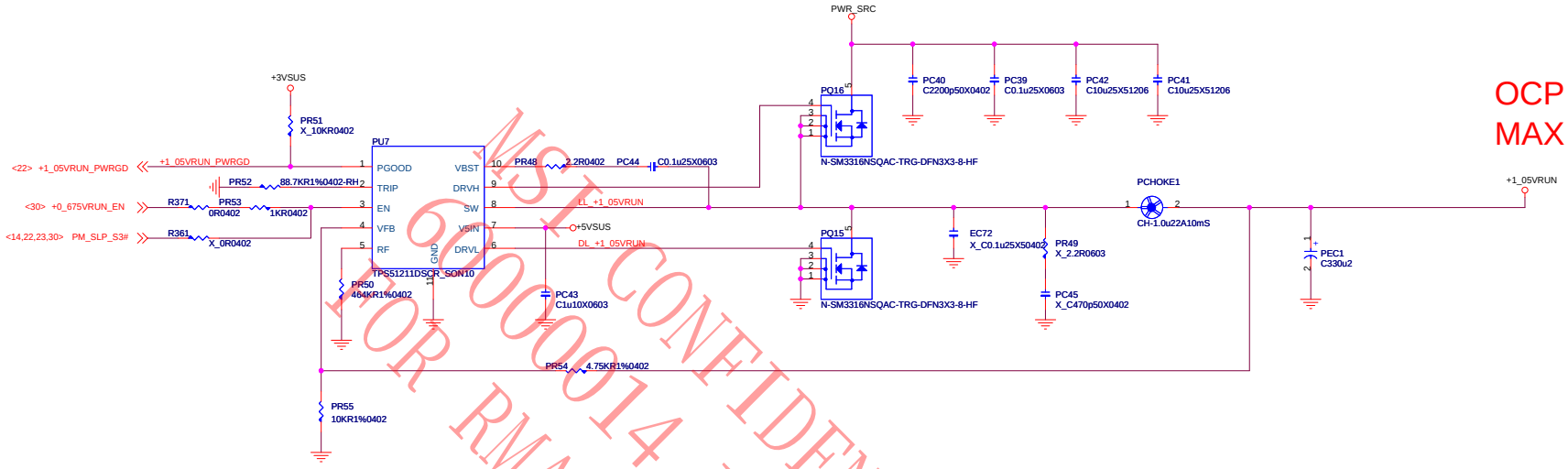
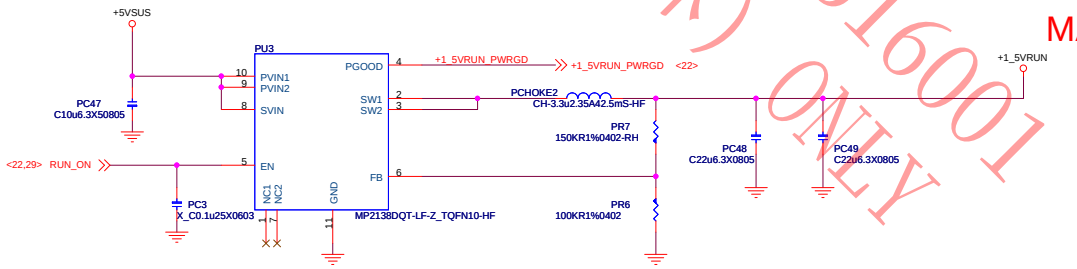
+1.05VRUN



OCP 8A
MAX 6A

+1.5VRUN



OCP 4A
MAX 1.5A

msi	MICRO-STAR INT'L CO.,LTD.	
Title	+1.05VRUN/+1.5VRUN	
Size	Document Number MS-17631	Rev 1.1
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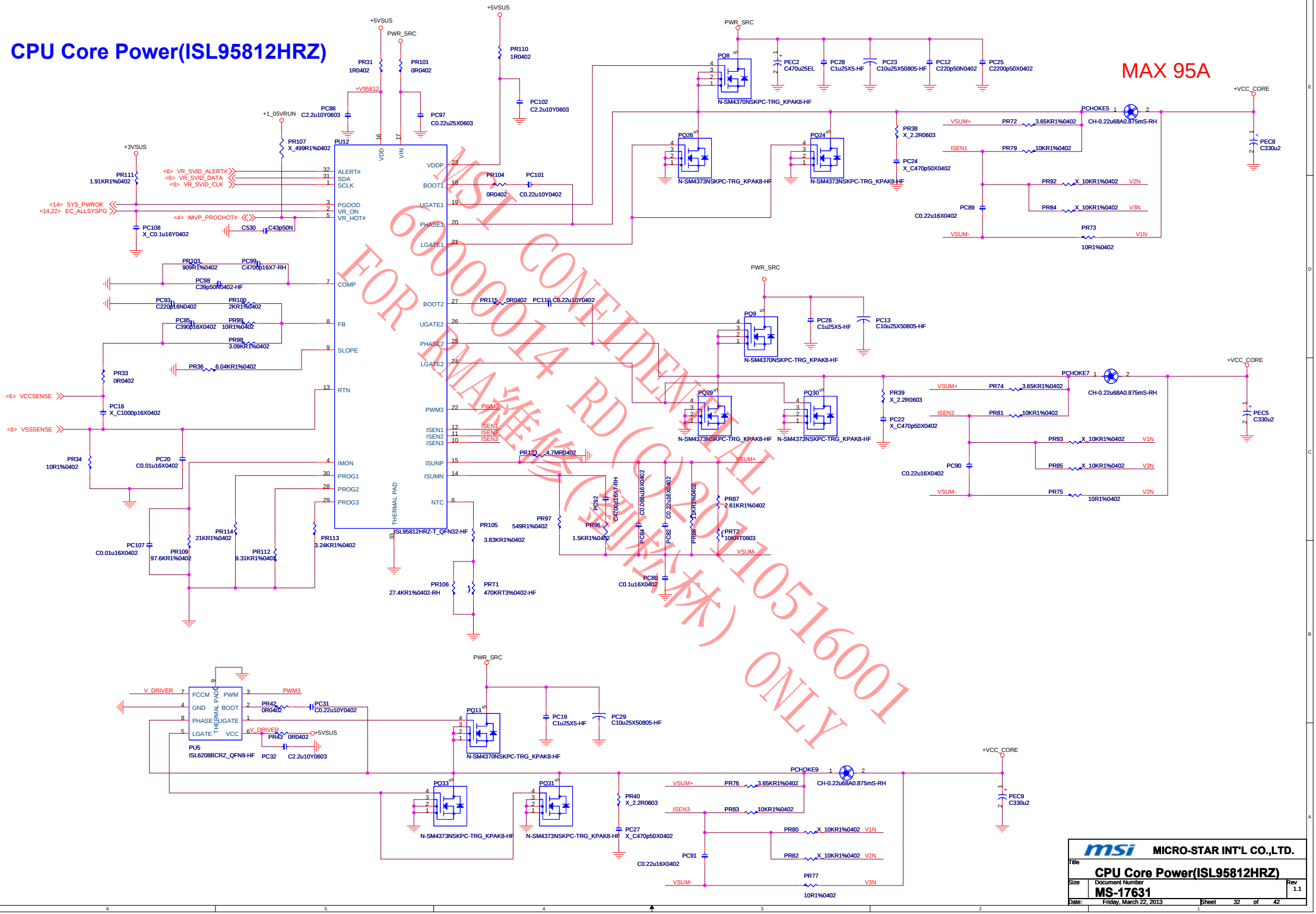
CPU Core Power(ISL95812HRZ)

MAX 95A



msi	MICRO-STAR INT'L CO.,LTD.		
Title	CPU Core Power(ISL95812HRZ)		
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EMI

+5VSUS
EC27 C0.1u10X0402
EC36 X_C0.1u10X0402
EC47 X_C0.1u10X0402
EC104 C0.1u10X0402
EC100 C0.1u10X0402
EC50 X_C0.1u10X0402
EC19 C0.1u10X0402
EC25 C0.1u10X0402
EC26 C0.1u10X0402
EC43 X_C0.1u10X0402
EC48 C0.1u10X0402
EC23 C0.1u10X0402

+3VSUS
EC49 X_C0.1u10X0402
EC44 X_C0.1u10X0402
EC74 X_C0.1u10X0402
EC18 X_C0.1u10X0402
C335 X_C0.1u16Y0402

PWR_SRC_MXM
EC56 C0.1u25X0603
EC55 C0.1u25X0603
EC66 C0.1u25X0603
EC57 C0.1u25X0603
EC62 C0.1u25X0603
EC67 C0.1u25X0603

+3VRUN
EC95 X_C0.1u25X50402
EC92 X_C0.1u25X50402
EC60 X_C0.1u10X0402
EC75 X_C0.1u10X0402
EC85 X_C0.1u10X0402
EC20 C0.1u10X0402
EC64 X_C0.1u10X0402
EC4 X_C0.1u10X0402

+5VALW
EC21 C0.1u10X0402

+1_5VRUN
EC3 C0.1u10X0402
EC81 X_C0.1u10X0402

SDC_IN+
EC98 C0.1u25X50402

DC_IN+
EC68 C0.1u25X50402

+1_35VDIMM
EC32 C0.1u10X0402
EC29 C0.1u10X0402
EC35 C0.1u10X0402
EC99 C0.1u10X0402
EC101 C0.1u10X0402
EC105 C0.1u10X0402
EC107 C0.1u10X0402
EC33 C0.1u10X0402
EC37 C0.1u10X0402
EC28 C0.1u10X0402
EC102 C0.1u10X0402
EC31 C0.1u10X0402

+5VRUN
EC53 X_C0.1u10X0402
EC73 X_C0.1u10X0402
EC52 C0.1u10X0402
EC1 X_C0.1u10X0402
EC10 C0.1u10X0402
EC17 C0.1u10X0402
EC123 C0.1u10X0402
EC51 C0.1u10X0402
EC109 C0.1u10X0402
EC2 X_C0.1u10X0402
EC83 X_C0.1u10X0402
EC120 C0.1u10X0402
EC93 C0.1u10X0402
EC97 X_C0.1u10X0402
EC94 X_C0.1u10X0402
EC122 C0.1u10X0402
EC121 C0.1u10X0402
EC113 C0.1u10X0402
EC119 C0.1u10X0402
EC124 C0.1u10X0402
EC70 C0.1u10X0402
EC108 X_C0.1u10X0402
EC61 C0.1u10X0402
EC58 X_C0.1u10X0402
EC54 X_C0.1u10X0402

PWR_SRC
EC40 C0.1u25X0603
EC112 X_C0.1u25X0603
EC103 C0.1u25X0603
EC96 C0.1u25X0603
EC59 C0.1u25X0603
EC82 C0.1u25X0603
EC39 C0.1u25X0603
EC118 C0.1u25X0603
EC65 X_C0.1u25X0603
EC117 C0.1u25X0603
EC106 C0.1u25X0603
EC38 C0.1u25X0603
EC22 C0.1u25X0603
EC41 C0.1u25X0603
EC34 C0.1u25X0603
EC30 C0.1u25X0603
EC24 C0.1u25X0603

+3V_LCD_PANEL
EC69 X_C0.1u10X0402

Screw

GPU Hold
GPUH1 E2B-1676010-L63 HOLES_R276D185P_PT E2B-1676010-L63
GPUH3 E2B-1676010-L63 HOLES_R276D185P_PT E2B-1676010-L63
GPUH2 E2B-1676010-L63 HOLES_R276D185P_PT E2B-1676010-L63
GPUH5 E2B-1676010-L63 HOLES_R276D185P_PT E2B-1676010-L63
GPUH4 E2B-1676010-L63 HOLES_R276D185P_PT E2B-1676010-L63

PAD4 X_E23-1029060 ATE_C006_106
PAD1 X_E23-1029060 ATE_C006_106
PAD3 MS1719 SME_ATEC048 EMI
PAD2 MS1003 SME_ATEC048 EMI

MiniCard
BTBH1 E2B-1034020 HOLES_R177D91 H=4.4

HDD1
BTBH2 E2B-1634020 HOLES_R177D91 H=3

MH3 X_NPTH_98 NPTH_98
MH10 X_NPTH_98 NPTH_98
MH13 X_NPTH_98 NPTH_98

CPU Hold
CPUH3 E2B-16F4010-L63 E2B-16F4010-L63 HOLES_R276D185P_PT
CPUH1 E2B-16F4010-L63 E2B-16F4010-L63 HOLES_R276D185P_PT
CPUH2 E2B-16F4010-L63 HOLES_R276D185P_PT E2B-16F4010-L63

Board Hold
MH1 X_ME_ SCREW HOLE X NPTH118
MH2 X_ME_ SCREW HOLE X NPTH118
MH15 X_ME_ SCREW HOLE X NPTH118
MH16 X_ME_ SCREW HOLE X NPTH118

HDD2
BTBH3 HOLES_R177D91 HOLES_R177D91
BTBH4 HOLES_R177D91 HOLES_R177D91

ODD
SCREW3 E43-1205003-H29
SCREW4 E43-1205003-H29

PCH Hold
PCHH2 E2B-163B010-L63 HOLES_R193D138_PT E2B-163B010-L63
PCHH1 E2B-163B010-L63 HOLES_R193D138_PT E2B-163B010-L63
THERMAL1 THERMAL_PCH E31-0403231-TA9
SCREW1 E43-1203003-H29
SCREW2 E43-1203003-H29

FM
FM2 FM1 FM3 FM5 FM7 FM8 FM6 FM10 FM9 FM11 FM12 FM14 FM17 FM16 FM15 FM4 FM13
X_FM

MH4 HOLES_8X8_D3MM_VIA5 X_8x8
MH7 HOLES_8X8_D3MM_VIA3
MH8 HOLES_8X8_D3MM_VIA5 X_8x8
MH9 HOLES_8X8_D3MM_VIA5 X_8x8
MH11 HOLES_8X8_D3MM_VIA5 X_8x8
MH5 HOLES_8X8_D3MM_VIA3
MH6 HOLES_8X8_D3MM_VIA3
MH14 HOLES_8X8_D3MM_VIA3
MH12 X_8x8 HOLES_8X8_D3MM

MYLAR
MYLAR1 MYLAR E2P-1212311-G40
MYLAR2 MYLAR E2Y-6F30211-Y40
MYLAR3 MYLAR E2P-6F13011-G40
MYLAR4 MYLAR E2P-7621411-Y42
MYLAR5 MYLAR E2P-5220111-G40
MYLAR6 MYLAR E2P-6921011-G40
MYLAR7 MYLAR E2P-6921011-G40
MYLAR8 RTC_MYLAR E2Y-0114812-Y42
MYLAR9 MIC_MYLAR E2P-7615012-G40
MYLAR10 MIC_MYLAR E2M-7612512-G40

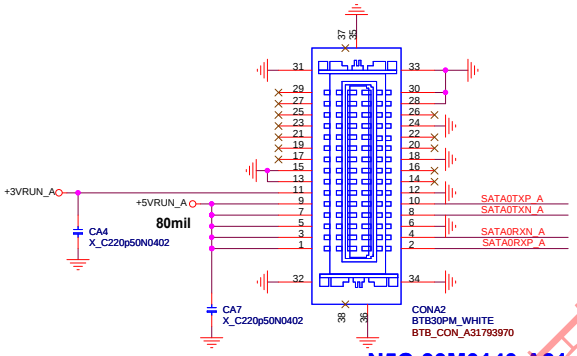
GASKET & RUBBER
GASKET1 USB_GASKET E2Y-X029911-CA7
GASKET2 USB_GASKET E2Y-X029911-CA7
GASKET3 DP_GASKET E2Y-X002311-CA7
GASKET4 HDMI_GASKET E2Y-X010911-CA7
GASKET5 DC_GASKET E2Y-X010911-CA7
GASKET6 LAN_GASKET E2Y-X010911-CA7
RUBBER1 MXM_RUBBER E2Y-6F11611-Y40
RUBBER2 MXM_RUBBER E2Y-6F11711-Y40
RUBBER5 MXM_RUBBER E2Y-6G12311-Y42
RUBBER6 CARD_RUBBER E2Y-6FK0111-Y40
RUBBER7 KEY_RUBBER E2Y-7611911-Y40
RUBBER3 KEY_1_RUBBER E2Y-7312411-Y40
RUBBER4 KEY_1_RUBBER E2Y-7312411-Y40
RUBBER8 KEY_1_RUBBER E2Y-7312411-Y40
RUBBER9 KEY_1_RUBBER E2Y-7312411-Y40
RUBBER10 KEY_1_RUBBER E2Y-7312411-Y40
RUBBER11 KEY_1_RUBBER E2Y-7312411-Y40

MP
UME7 BIOS LABEL BIOS_LABEL
UME8 HDMI LABEL HDMI_LABEL

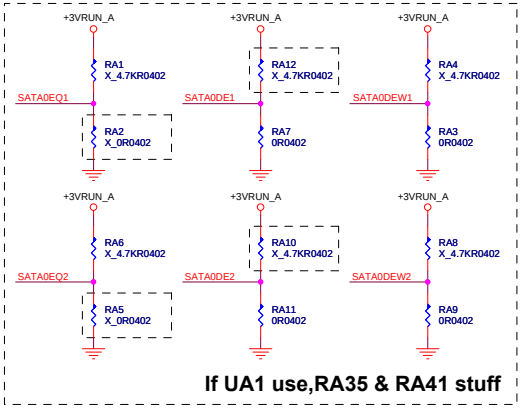
PCB1
P30-1763111-H73

MICRO-STAR INT'L CO.,LTD.
Title: EMI/Screw
Size: Document Number: MS-17631 Rev: 1.1
Date: Monday, March 25, 2013 Sheet 33 of 44

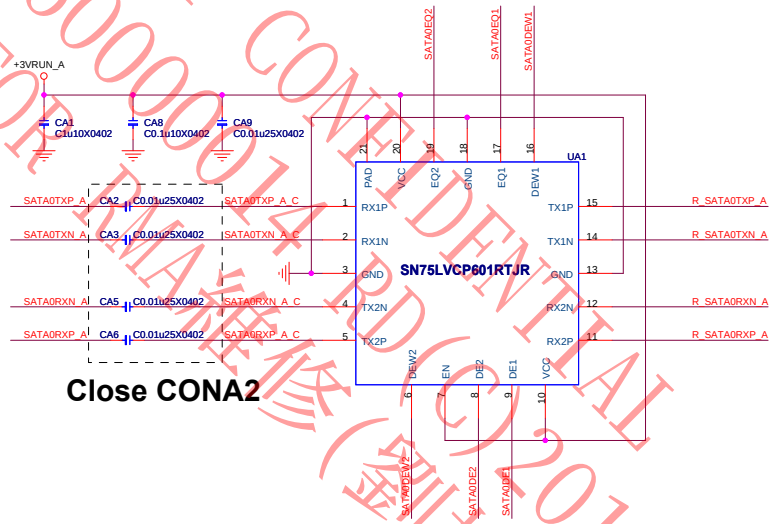
BTB Conn From Port 3



N5C-30M0140-A81

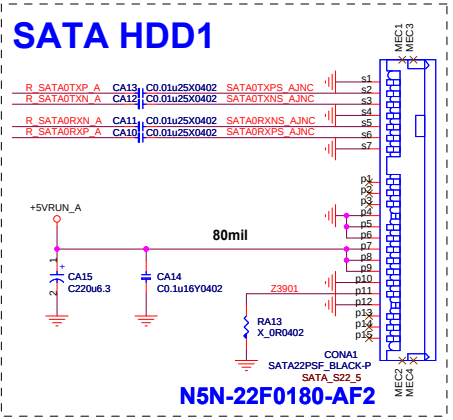


If UA1 use,RA35 & RA41 stuff

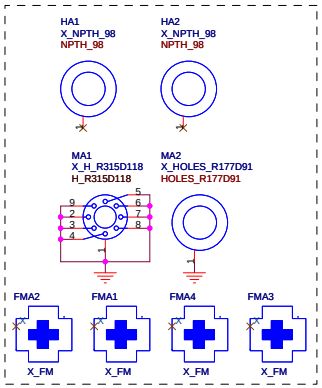


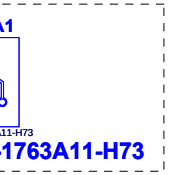
Close CONA2

SATA HDD1



N5N-22F0180-AF2





TI SN75LVCP601RTJR HW Setting

EQ1/EQ2	CH1/CH2Equalization dB (@6Gbps)
NC (*default*)	0
0	7
1	14

DE1/DE2	CH1/CH2De-Emphasis dB(@6Gbps
NC (*default*)	-6
0	0
1	-3

DEW1/DEW2	Device Function→ DE Width for CH1/CH2
0	De-Emphasis Pulse Width Short (recommended setting when link operates at SATA 1.5/3.0/6.0 Gbps)
1 (*default*)	De-Emphasis Pulse Width Long (recommended setting when link operates at SATA 1.5/3.0 Gbps speed only)

MS-1763A Change List

Date	Page	Description	Date	Page	Description	Date	Page	Description

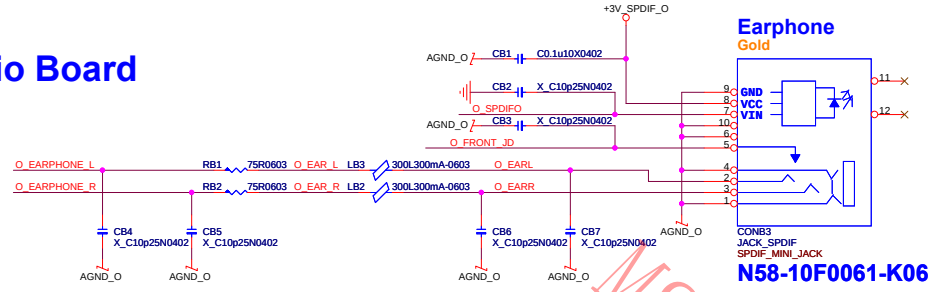
MICRO-STAR INT'L CO.,LTD.

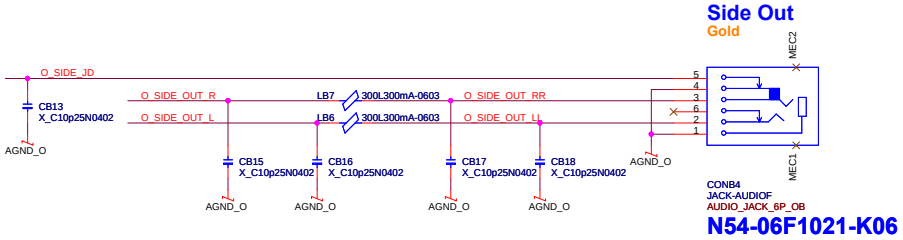
Title: HDD1

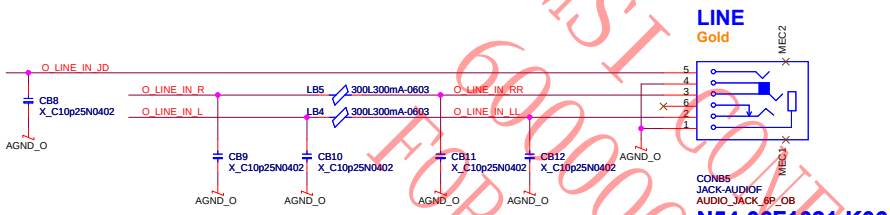
Size | Document Number: MS-1763A | Rev: 1.1

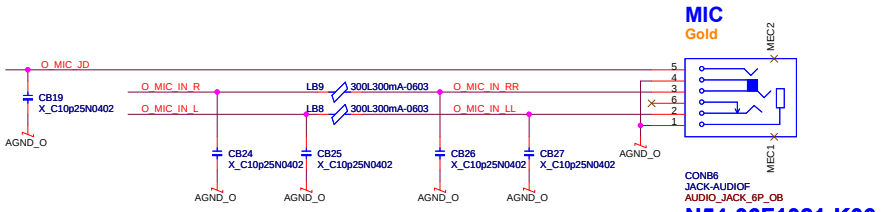
Date: Thursday, March 21, 2013 | Sheet 34 of 44

Audio Board

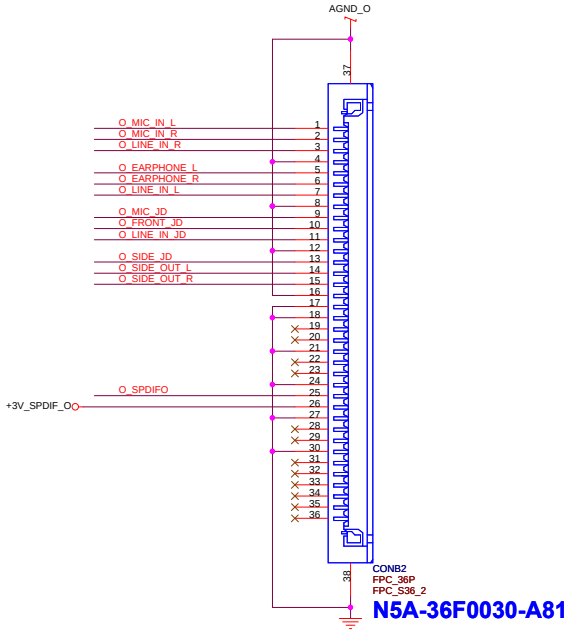


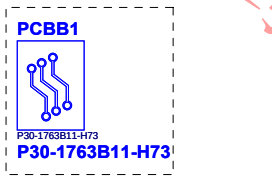


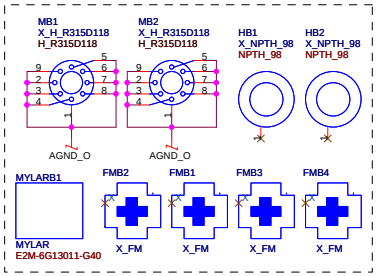


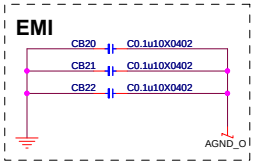


IO









MS-1763B Change List

Date	Page	Description	Date	Page	Description

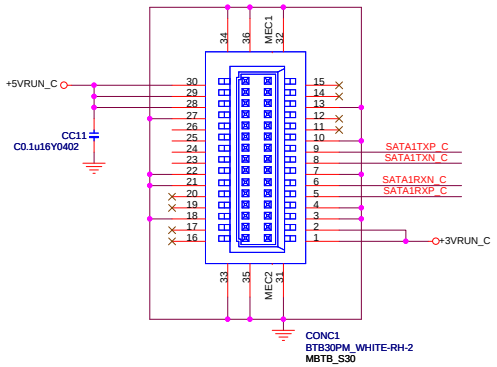
MICRO-STAR INT'L CO.,LTD.

Title: IO/Audio Board

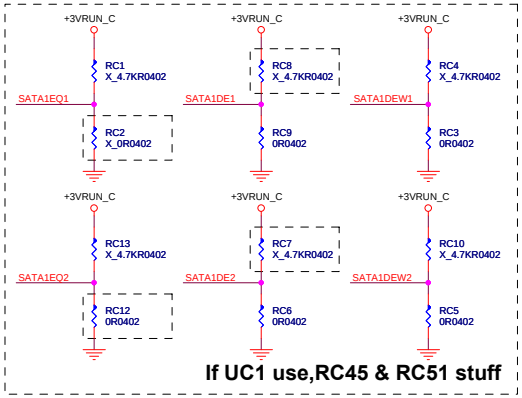
Size | Document Number: MS-1763B | Rev: 1.1

Date: Thursday, March 21, 2013 | Sheet 35 of 44

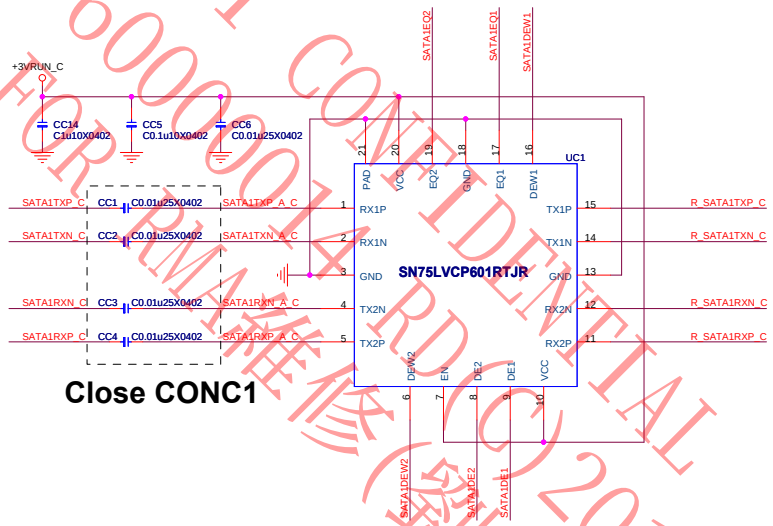
BTB Conn From Port 1



N5C-30M0170-A81

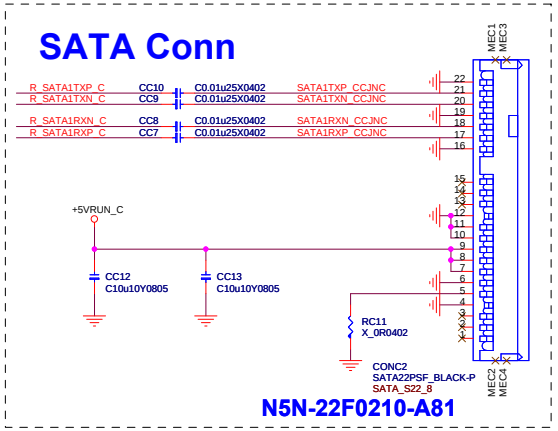


If UC1 use,RC45 & RC51 stuff



Close CONC1

SATA Conn

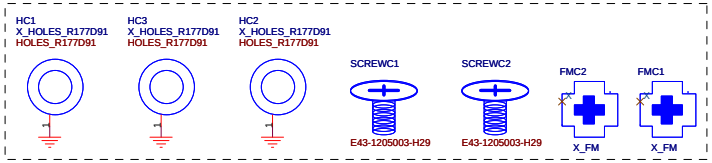


N5N-22F0210-A81

PCBC1

P30-1763C11-H73

P30-1763C11-H73



TI SN75LVCP601RTJR HW Setting

EQ1/EQ2	CH1/CH2Equalization dB (@6Gbps)
NC (*default*)	0
0	7
1	14

DE1/DE2	CH1/CH2De-Emphasis dB(@6Gbps
NC (*default*)	-6
0	0
1	-3

DEW1/DEW2	Device Function→ DE Width for CH1/CH2
0	De-Emphasis Pulse Width Short (recommended setting when link operates at SATA 1.5/3.0/6.0 Gbps)
1 (*default*)	De-Emphasis Pulse Width Long (recommended setting when link operates at SATA 1.5/3.0 Gbps speed only)

MS-1763C Change List

Date	Page	Description

Date	Page	Description

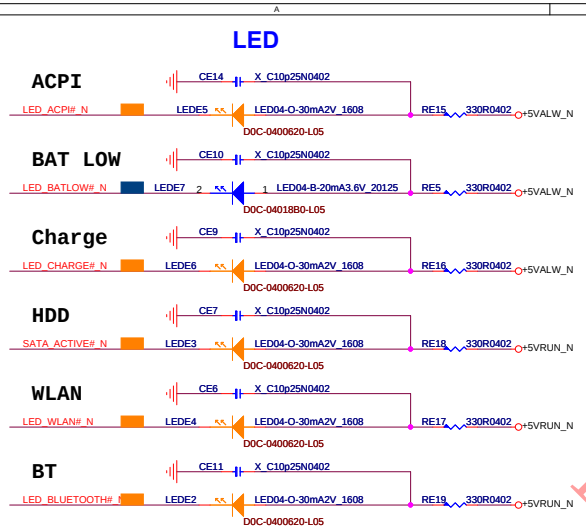
Date	Page	Description

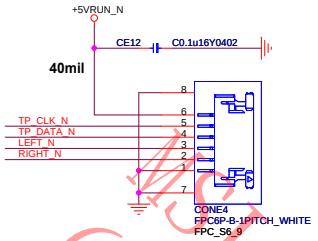
MICRO-STAR INT'L CO.,LTD.

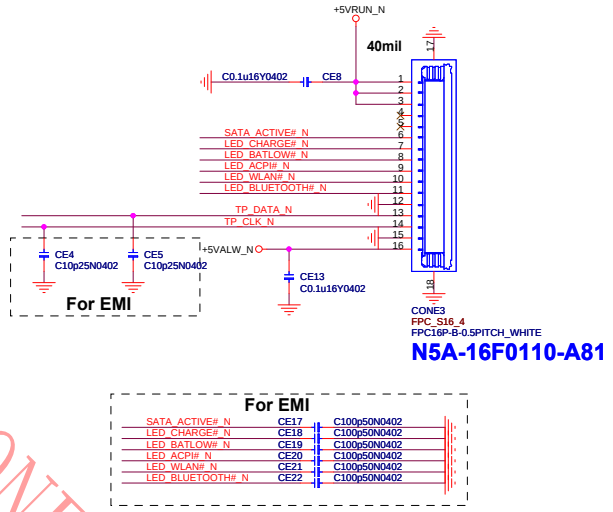
Title: HDD2

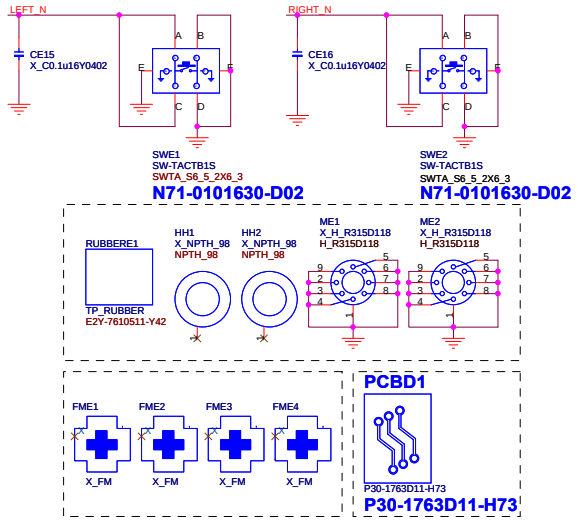
Size | Document Number: MS-1763C | Rev: 1.1

Date: Friday, March 22, 2013 | Sheet 36 of 44









MS-1763D Change List

Date	Page	Description

Date	Page	Description

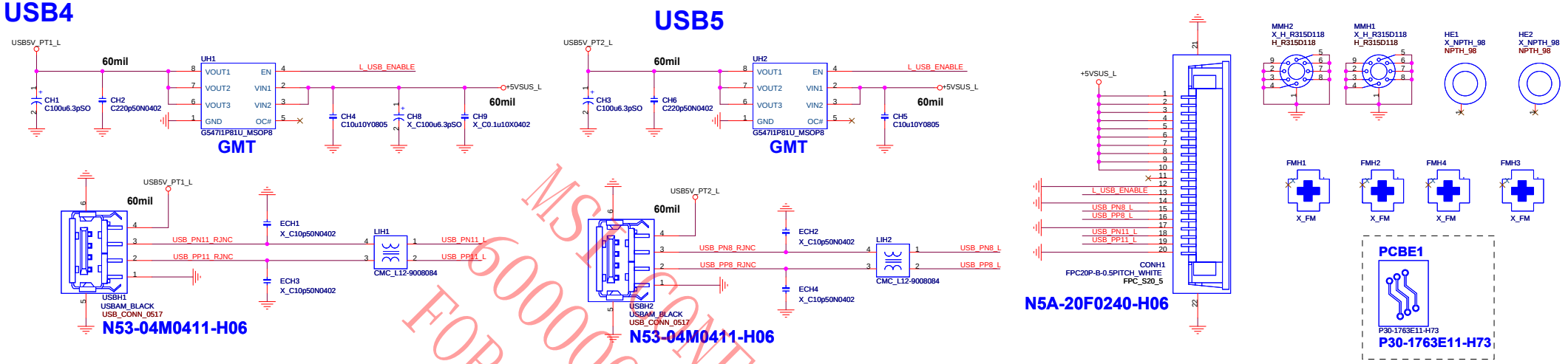
Date	Page	Description

MICRO-STAR INT'L CO.,LTD.

Title: Touch Pad L/R Key

Size | Document Number: MS-1763D | Rev: 1.1

Date: Thursday, March 21, 2013 | Sheet 37 of 44



MS-1763E Change List

Date	Page	Description

Date	Page	Description

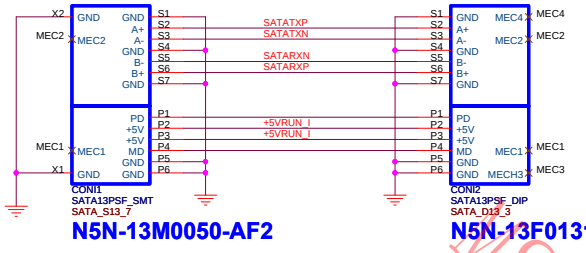
Date	Page	Description

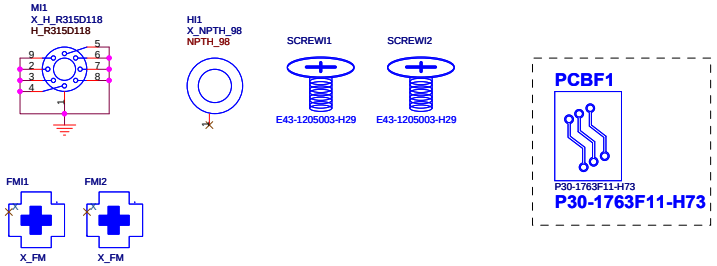
MICRO-STAR INT'L CO.,LTD.

Title: USB Connector

Size | Document Number: MS-1763E | Rev: 1.1

Date: Thursday, March 21, 2013 | Sheet 38 of 44





MS-1763F Change List

Date	Page	Description

Date	Page	Description

Date	Page	Description

MICRO-STAR INT'L CO.,LTD.

Title: ODD Board

Size | Document Number: MS-1763F | Rev: 1.1

Date: Thursday, March 21, 2013 | Sheet 39 of 44

Impedance

Single End

35 ohm

J41 L1_9mil_35_Ohm GND2 X_H1X2M_BLACK	J39 L8_9mil_35_Ohm GND7 X_H1X2M_BLACK	J16 L3_9.5mil_35_Ohm GND2 X_H1X2M_BLACK	J40 L6_8.5mil_35_Ohm GND7 X_H1X2M_BLACK

40 ohm

J42 L1_7mil_40_Ohm GND2 X_H1X2M_BLACK	J20 L3_7mil_40_Ohm GND2 X_H1X2M_BLACK	J38 L6_7mil_40_Ohm GND7 X_H1X2M_BLACK	J4 L8_7mil_40_Ohm GND7 X_H1X2M_BLACK

42 ohm

J35 L1_6.5mil_42_Ohm GND2 X_H1X2M_BLACK	J10 L3_6.5mil_42_Ohm GND2 X_H1X2M_BLACK	J34 L6_6mil_42_Ohm GND7 X_H1X2M_BLACK	J6 L8_6.5mil_42_Ohm GND7 X_H1X2M_BLACK

50 ohm

J7 L1_4.5mil_50_Ohm GND2 X_H1X2M_BLACK	J25 L3_4.5mil_50_Ohm GND2 X_H1X2M_BLACK	J1 L4_4.5mil_50_Ohm GND5 X_H1X2M_BLACK	J29 L6_4.5mil_50_Ohm GND7 X_H1X2M_BLACK / J11 L8_4.5mil_50_Ohm GND7 X_H1X2M_BLACK

Differential

75 ohm

J9 L1_DIFF_6/4/12_75_Ohm+ L1_DIFF_6/4/12_75_Ohm- GND2 X_H1X4_black-RH	J27 L3_DIFF_6/4/12_75_Ohm+ L3_DIFF_6/4/12_75_Ohm- GND2 X_H1X4_black-RH	J26 L8_DIFF_6/4/12_75_Ohm+ L8_DIFF_6/4/12_75_Ohm- GND7 X_H1X4_black-RH	J23 L6_DIFF_6/4/12_75_Ohm+ L6_DIFF_6/4/12_75_Ohm- GND7 X_H1X4_black-RH

80 ohm

J28 L1_DIFF_5/4/15_80_Ohm+ L1_DIFF_5/4/15_80_Ohm- GND2 X_H1X4_black-RH	J36 L8_DIFF_5/4/15_80_Ohm+ L8_DIFF_5/4/15_80_Ohm- GND7 X_H1X4_black-RH	J14 L6_DIFF_4/3.5/15_80_Ohm+ L6_DIFF_4/3.5/15_80_Ohm- GND7 X_H1X4_black-RH

85 ohm

J19 L1_DIFF_4/4/15_85_Ohm+ L1_DIFF_4/4/15_85_Ohm- GND2 X_H1X4_black-RH	J17 L8_DIFF_4/4/15_85_Ohm+ L8_DIFF_4/4/15_85_Ohm- GND7 X_H1X4_black-RH	J37 L3_DIFF_4/4.5/15_85_Ohm+ L3_DIFF_4/4.5/15_85_Ohm- GND2 X_H1X4_black-RH	J5 L4_DIFF_4/4.5/15_85_Ohm+ L4_DIFF_4/4.5/15_85_Ohm- GND5 X_H1X4_black-RH
J21 L6_DIFF_4/4.5/15_85_Ohm+ L6_DIFF_4/4.5/15_85_Ohm- GND7 X_H1X4_black-RH			

88 ohm

J33 L1_DIFF_4.5/5/25_88_Ohm+ L1_DIFF_4.5/5/25_88_Ohm- GND2 X_H1X4_black-RH	J32 L3_DIFF_4.5/5/25_88_Ohm+ L3_DIFF_4.5/5/25_88_Ohm- GND2 X_H1X4_black-RH	J31 L8_DIFF_4.5/5/25_88_Ohm+ L8_DIFF_4.5/5/25_88_Ohm- GND7 X_H1X4_black-RH	J30 L6_DIFF_4.5/5.5/25_88_Ohm+ L6_DIFF_4.5/5.5/25_88_Ohm- GND7 X_H1X4_black-RH

90 ohm

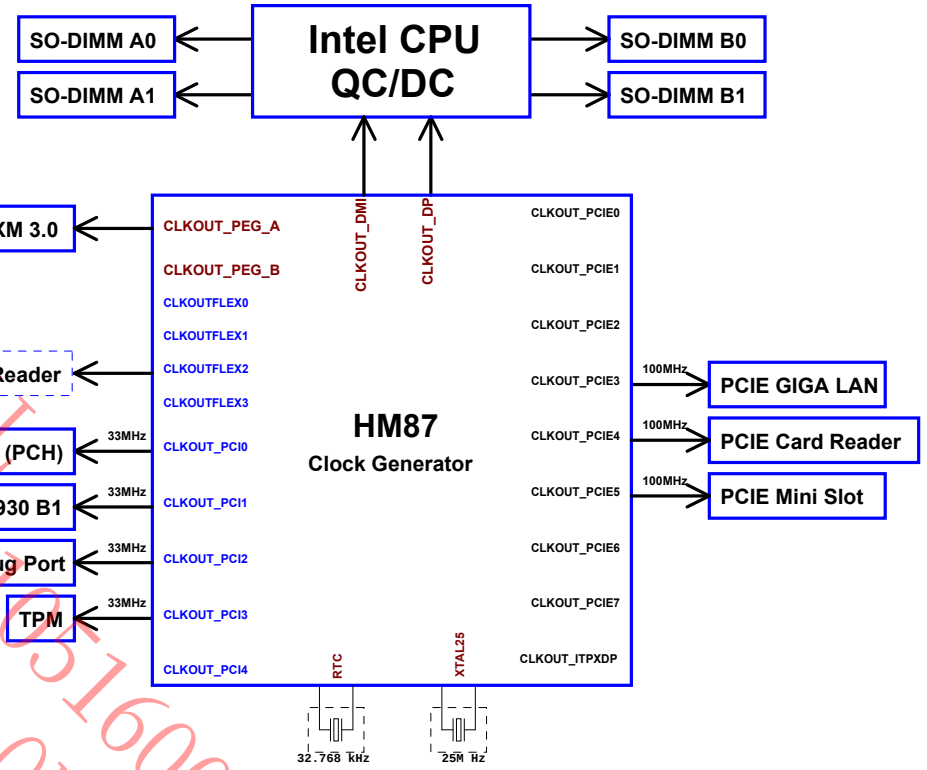
J24 L1_DIFF_4/6/15_90_Ohm+ L1_DIFF_4/6/15_90_Ohm- GND2 X_H1X4_black-RH	J18 L3_DIFF_4/6/15_90_Ohm+ L3_DIFF_4/6/15_90_Ohm- GND2 X_H1X4_black-RH	J3 L4_DIFF_4/6/15_90_Ohm+ L4_DIFF_4/6/15_90_Ohm- GND5 X_H1X4_black-RH	J13 L6_DIFF_4/6/15_90_Ohm+ L6_DIFF_4/6/15_90_Ohm- GND7 X_H1X4_black-RH
J22 L8_DIFF_4/6/15_90_Ohm+ L8_DIFF_4/6/15_90_Ohm- GND7 X_H1X4_black-RH			

100 ohm

J15 L1_DIFF_3.5/7.5/16_100_Ohm+ L1_DIFF_3.5/7.5/16_100_Ohm- GND2 X_H1X4_black-RH	J8 L3_DIFF_3.5/7.5/16_100_Ohm+ L3_DIFF_3.5/7.5/16_100_Ohm- GND2 X_H1X4_black-RH	J12 L8_DIFF_3.5/7.5/16_100_Ohm+ L8_DIFF_3.5/7.5/16_100_Ohm- GND7 X_H1X4_black-RH

Clock Distribution

Internal Clock Mode



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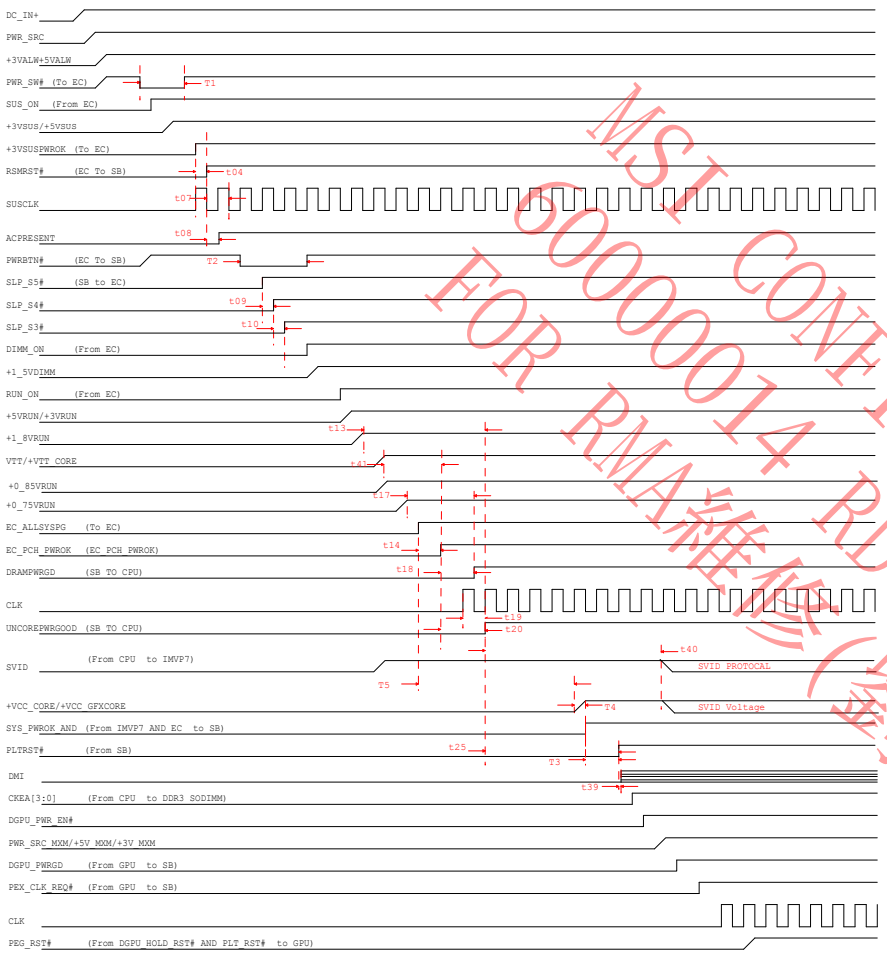
Power on Sequence

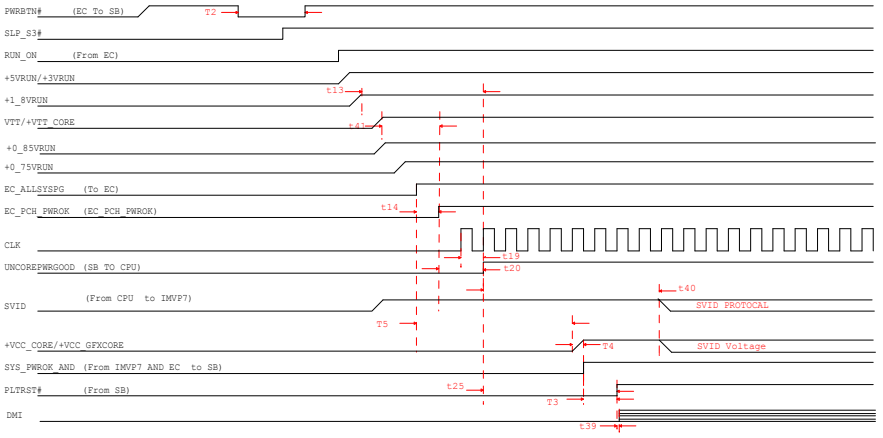
S5-S0

EC programming timing



S3-S0

EC programming timing



	Min	Max	Unit	Description
T1	150		mS	
T2	16		mS	
T3	1		mS	Timing set by PCH
t04	10		mS	
t07	100		mS	
t08		90	mS	
t09	30		uS	
t10	30		uS	
t13	5	650	mS	
t14	99		mS	EC Delay
t17	2	650	mS	
t18	1		mS	Timing set by PCH
t19	41		mS	Timing set by PCH
t20	2		mS	Timing set by PCH
t25	1	100	mS	
T5		800	uS	Follow MVP Spec
T4	2.5		mV/uS	Follow MVP Spec
t39		200	uS	
t40		500	uS	
t41	10		mS	

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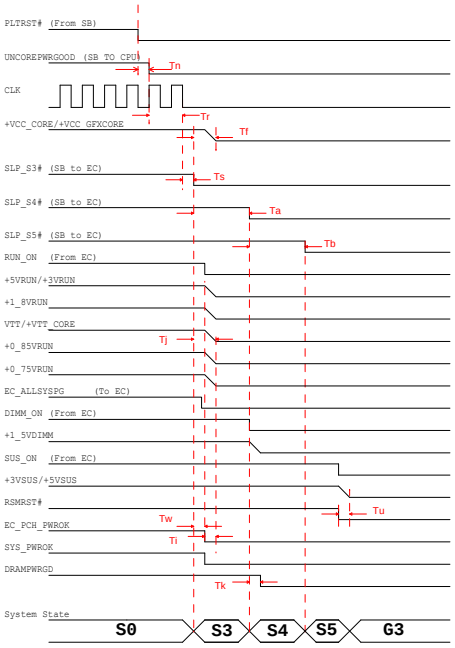
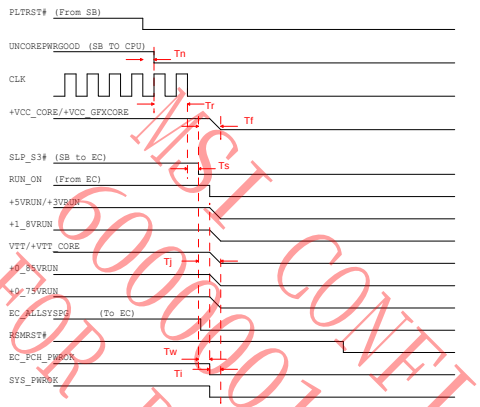
Power down Sequence

S0-S5

EC programming timing

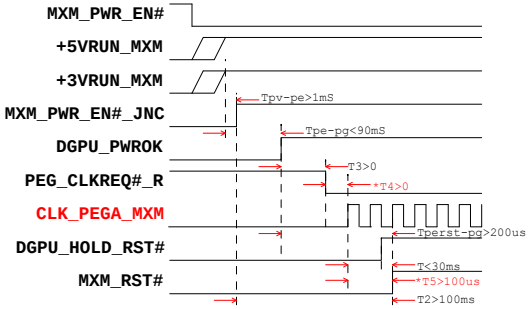


S0-S3



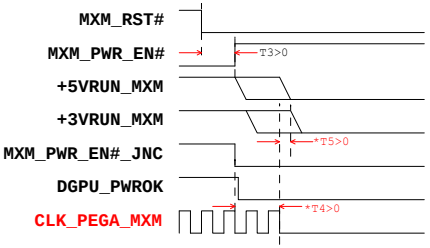
	Min	Max	Unit	Description
Ta	30		uS	
Tb	30		uS	
Tf		500	mS	
Ti	40		nS	
Tj	5		uS	
Tk	100		nS	
Tn	30		uS	
Tp	500		uS	Sx-RSMRST#
Tr	10		uS	
Ts	1		uS	
Tu	40		nS	
Tw	0		mS	

Power-Up Sequence For Optimus On MXM



P.S. Clock alway on

Power-Down Sequence For Optimus On MXM



P.S. Clock alway on

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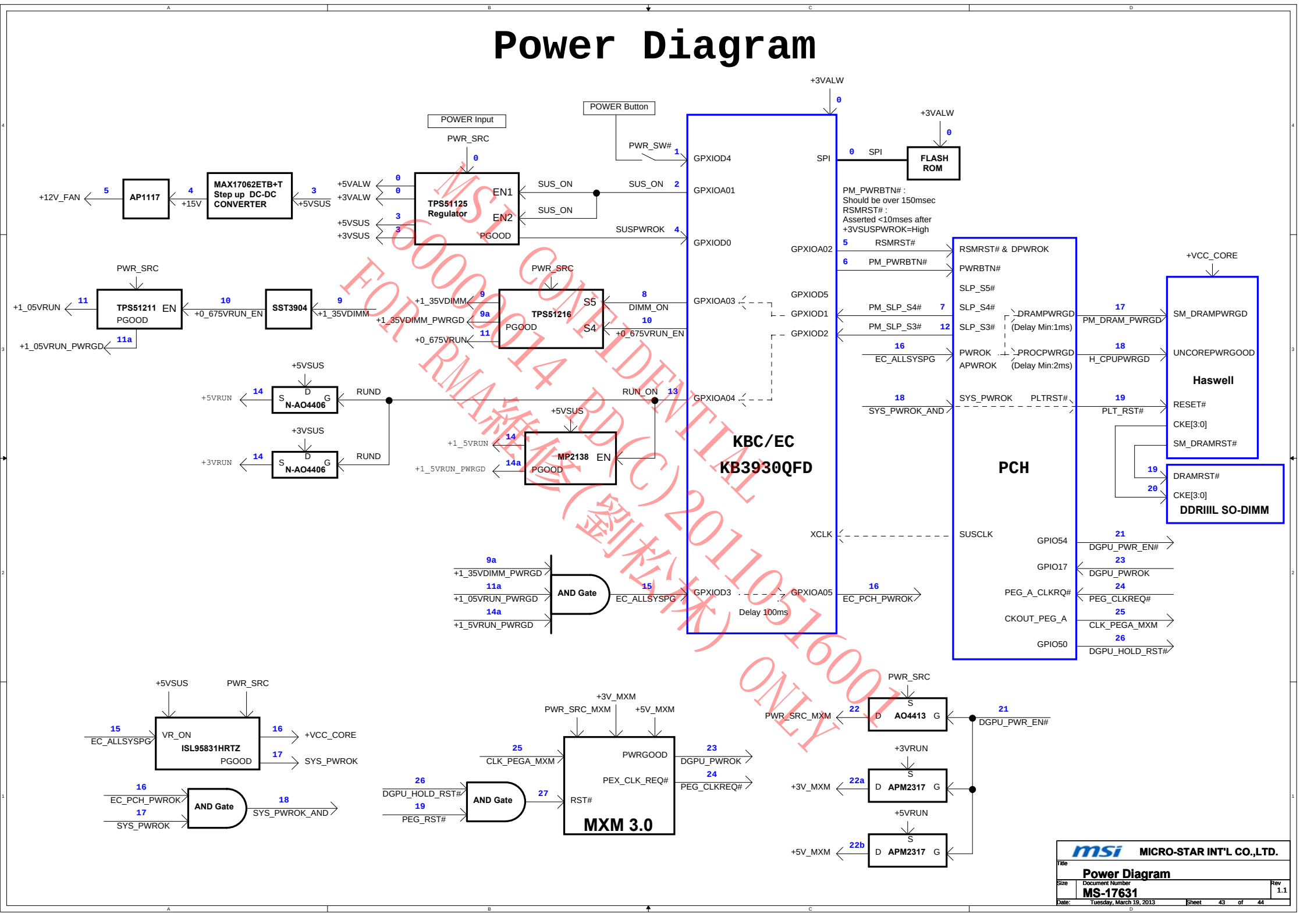
Power Diagram



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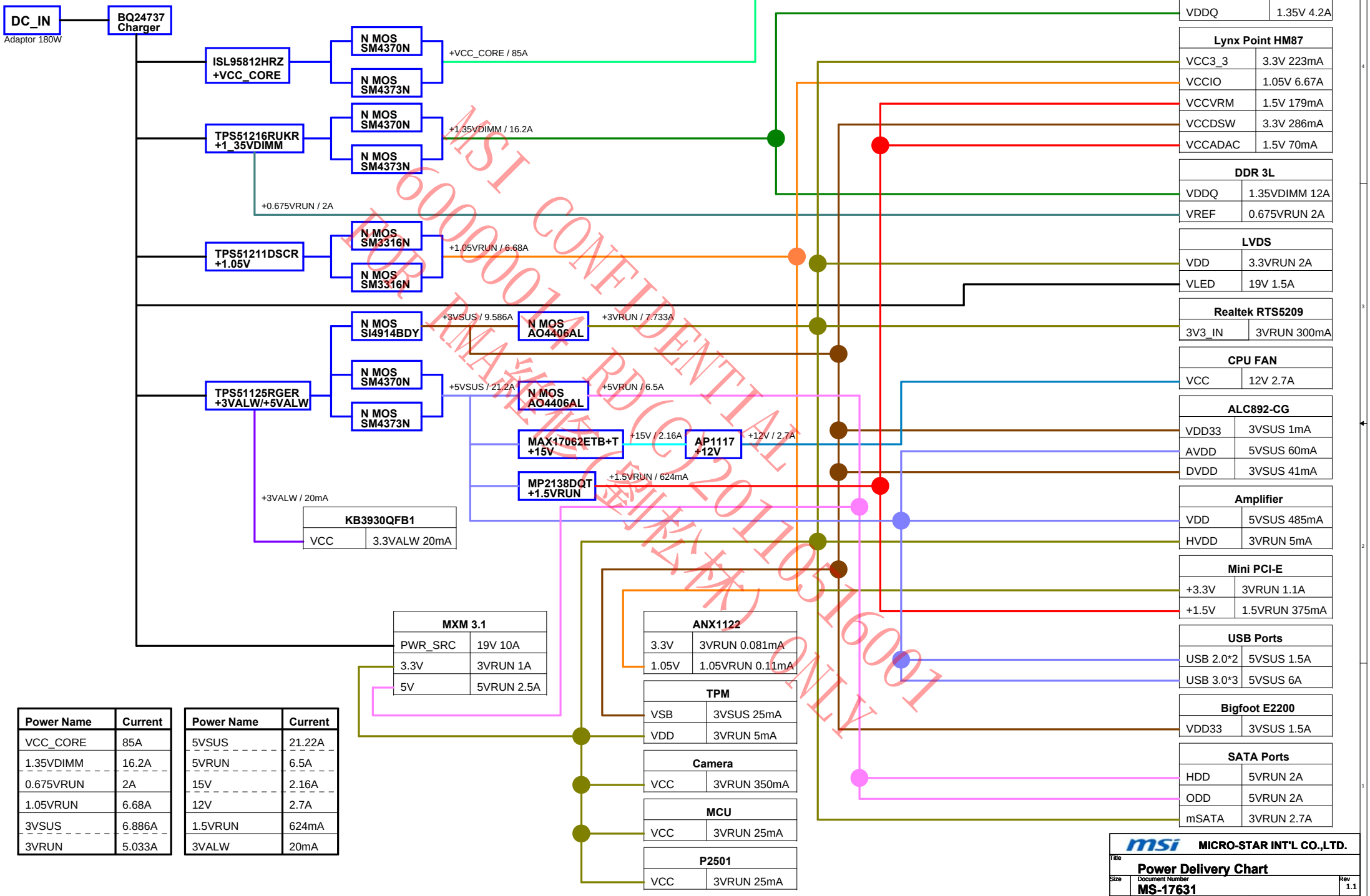

Power Name	Current
VCC_CORE	85A
1.35VDIMM	16.2A
0.675VRUN	2A
1.05VRUN	6.68A
3VSUS	6.886A
3VRUN	5.033A

Power Name	Current
5VSUS	21.22A
5VRUN	6.5A
15V	2.16A
12V	2.7A
1.5VRUN	624mA
3VALW	20mA

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Title: Power Delivery Chart

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