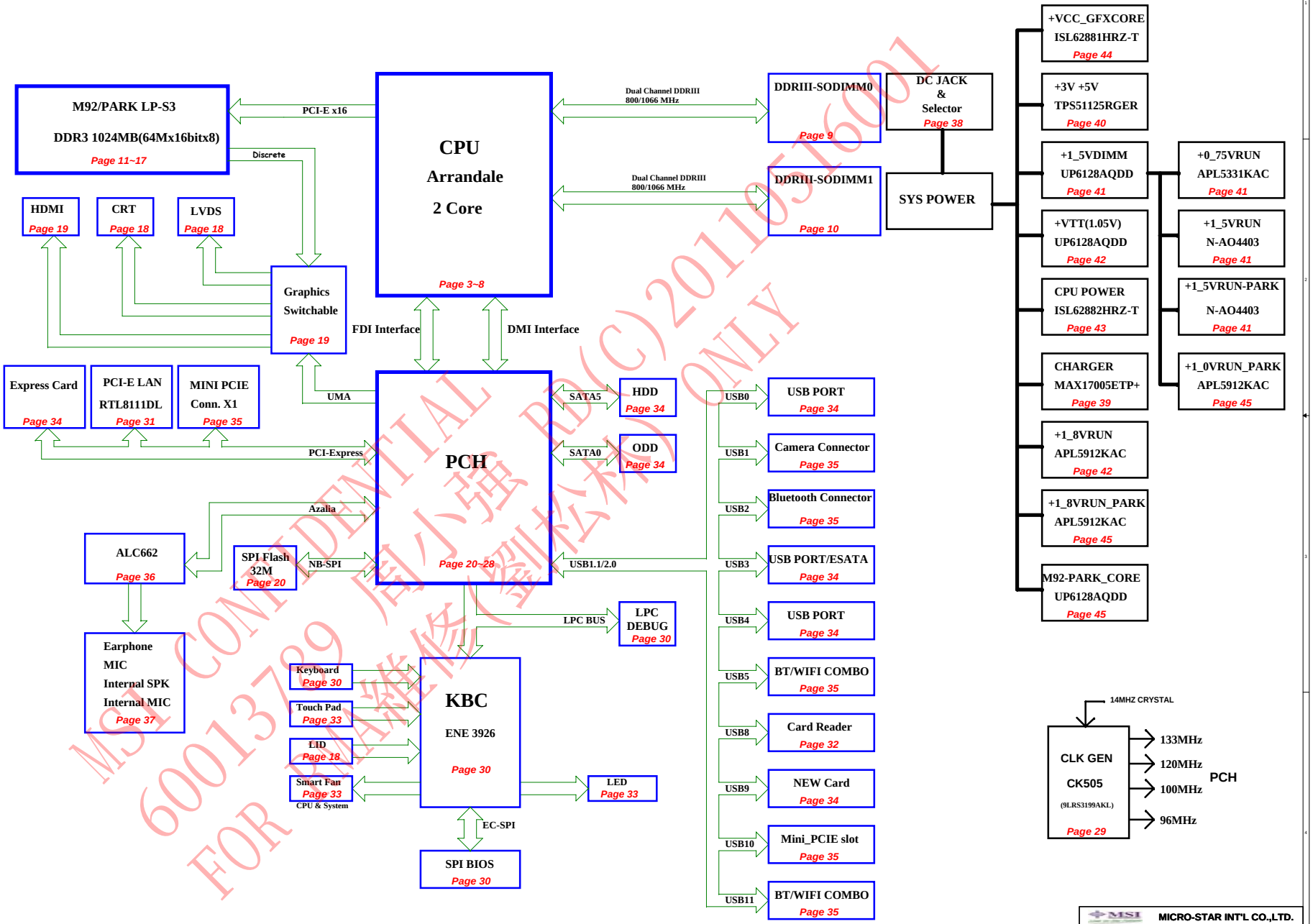
MS-1688 Ver : 0B

Calpella Platform

Table of Contents



MICRO-STAR INT'L CO.,LTD.

Title: BLOCK DIAGRAM

Size: Custom | Document Number: MS-1688 | Rev: 0A

Date: Thursday, November 26, 2009 | Sheet 1 of 52

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails

POWER PLANE	VOLTAGE	ACTIVE IN	DESCRIPTION
PWR_SRC	19V	S0,(S3-S5)	
+5VALW	5V	S0,(S3-S5)	
+5VRUN	5V	S0	
+5VSUS	5V	S0	
+3VALW	3.3V	S0,(S3-S5)	
+3VSUS	3.3V	S0,(S3-S5)	LAN
+3VRUN	3.3V	S0	
+1_5VDIMM	1.5V	S0,S3	DDRIII core
+1_5VRUN	1.5V	S0	
VTT	1.05V	S0	PCH
+0_75VRUN	0.75V	S0	DDRIII command & control pull up.
+VCC_CORE	1.05V-1.1V	S0	CPU core rail
+VCC_GFXCORE	1.1V	S0	Graphics core rail (Dual Core only)
M92S_VDD_CORE	0.95V	S0	GPU core power
+1_8VRUN_PARK	1.8V	S0	GPU PCIE power
+1_5VRUN_PARK	1.5V	S0	GPU DDR3 power
+1_0VRUN_PARK	1.0V	S0	GPU PCIE power
VDDR3	3.3V	S0	GPU I/O and DAC power

Net Naming Conventions

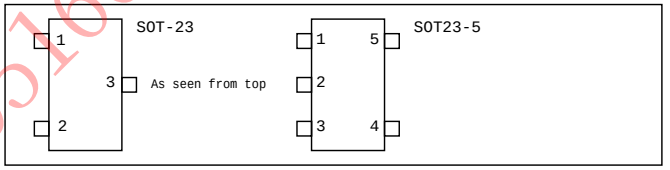
Suffix

\# = Active Low Signal

Prefix

H = Host
M = DDR Memory
TP = Test Point (does not connect anywhere else)

PCB Footprints



AC Mode

Power States	SLP_S3#	SLP_S4#	SLP_S5#	SLP_LAN#	+V*ALWAYS	+V*SUS	+V*RUN	CLK
S0 (Full on)	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S3 (Suspend to RAM)	LOW	HIGH	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S5 (Soft Off)	LOW	LOW	LOW	HIGH	ON	ON	OFF	OFF

Battery Mode

Power States	SLP_S3#	SLP_S4#	SLP_S5#	SLP_LAN#	+V*ALWAYS	+V*SUS	+V*RUN	CLK
S0 (Full on)	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S3 (Suspend to RAM)	LOW	HIGH	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	HIGH	HIGH	ON	OFF	OFF	OFF
S5 (Soft Off)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF

MICRO-STAR INT'L CO.,LTD.

Title: PLATFORM

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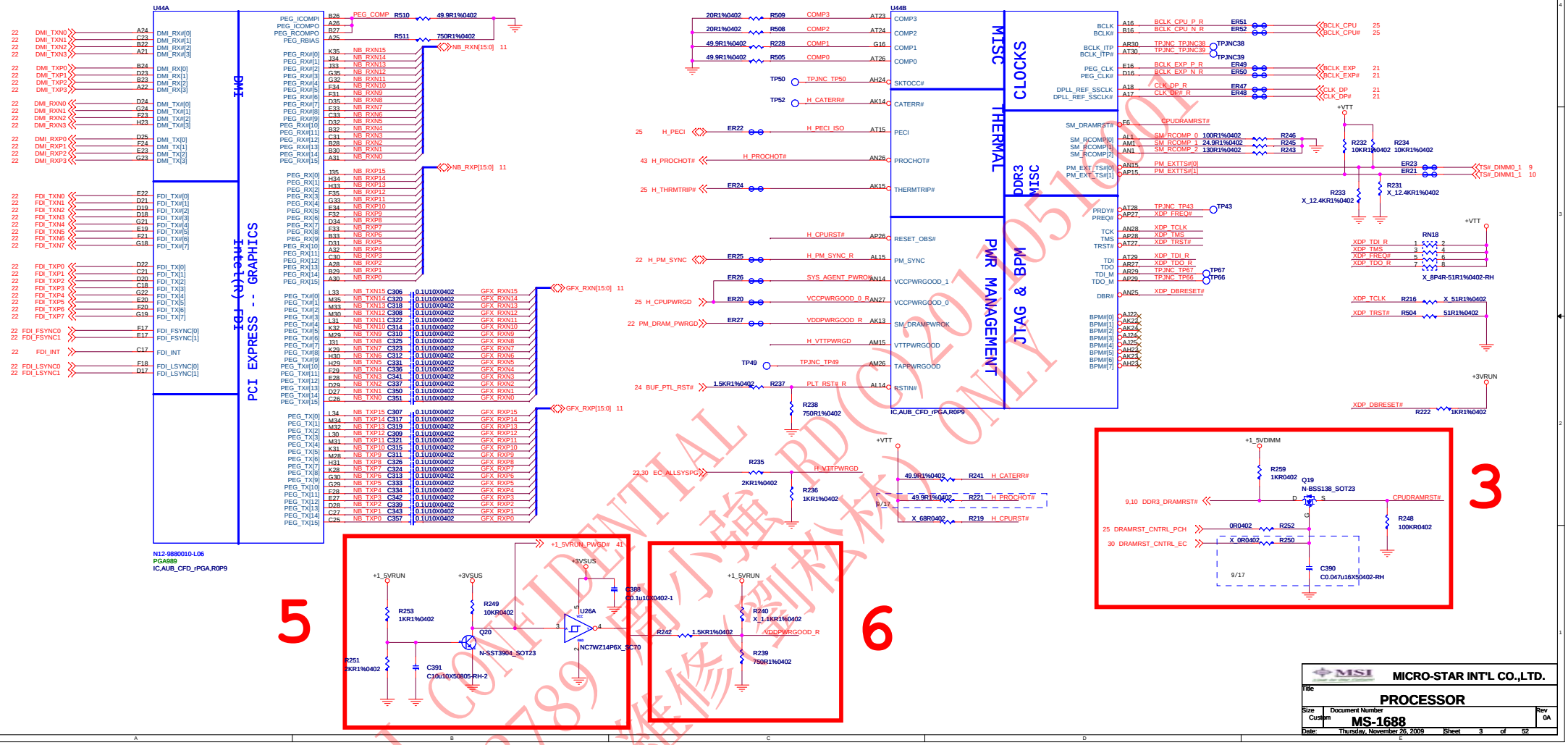
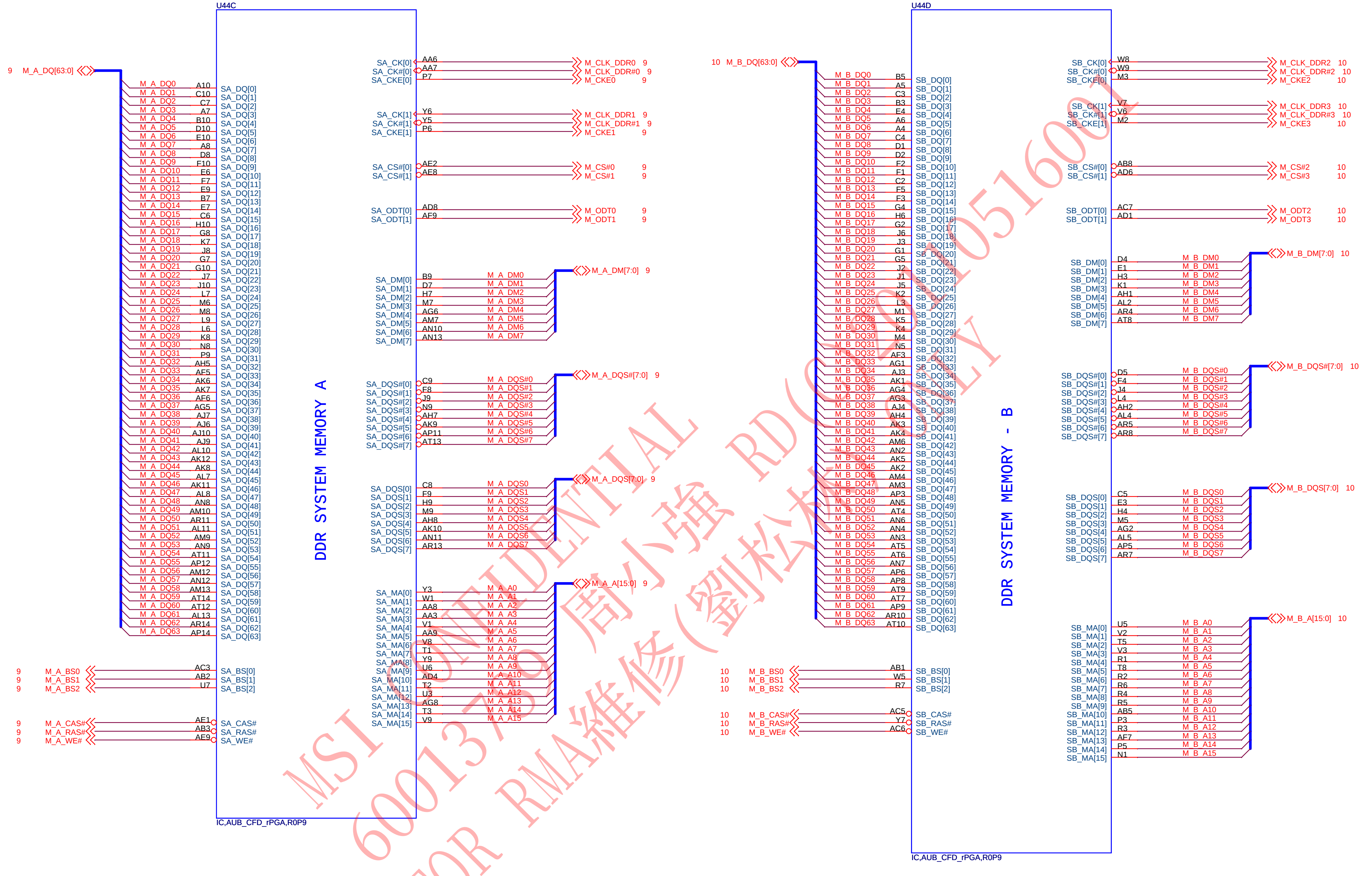
ARRANDALE PROCESSOR (CLK,MISC,JTAG)



ARRANDALE PROCESSOR (DDR3)



MICRO-STAR INT'L CO.,LTD.

Title	DDR3	
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Date: Thursday, November 26, 2009	Sheet 4 of 52	

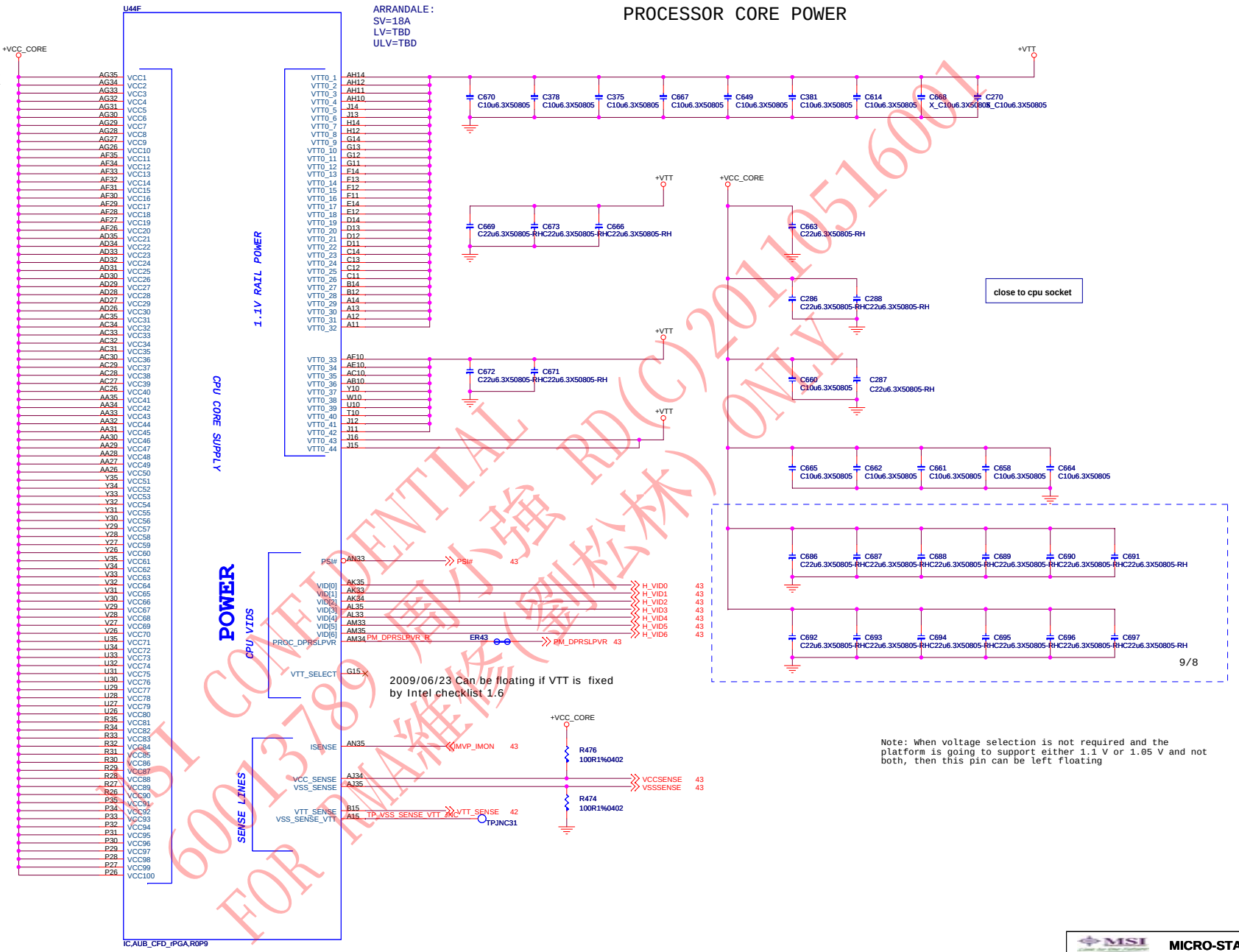
ARRANDALE PROCESSOR (POWER)

ARRANDALE:
SV=48A
LV=35A
ULV=27A

PROCESSOR CORE POWER

ARRANDALE:
SV=18A
LV=TBD
ULV=TBD

PROCESSOR CORE POWER



MICRO-STAR INT'L CO.,LTD.

Title: PROCESSOR POWER

Size: Custom | Document Number: MS-1688 | Rev: 0A

Date: Thursday, November 26, 2009 | Sheet 5 of 52

ARRANDALE PROCESSOR (GRAPHICS POWER)

ARRANDALE:
SV=15A
LV=TBD
ULV=TBD

I=14A

+VCC_GFXCORE

C674 X_C22u6.3X50805-RH
C359 X_C22u6.3X50805-RH
C361 X_C22u6.3X50805-RH
C675 X_C22u6.3X50805-RH
C656 C22u6.3X50805-RH
C655 C22u6.3X50805-RH
C373 C10u6.3X50805
C657 C10u6.3X50805

U44G

VAXG1 VAXG2 VAXG3 VAXG4 VAXG5 VAXG6 VAXG7 VAXG8 VAXG9 VAXG10 VAXG11 VAXG12 VAXG13 VAXG14 VAXG15 VAXG16 VAXG17 VAXG18 VAXG19 VAXG20 VAXG21 VAXG22 VAXG23 VAXG24 VAXG25 VAXG26 VAXG27 VAXG28 VAXG29 VAXG30 VAXG31 VAXG32 VAXG33 VAXG34 VAXG35 VAXG36

GRAPHICS

VAXG_SENSE
VSSAXG_SENSE

SENSE LINES

AR22 AT22

VCC_AXG_SENSE 44
VSS_AXG_SENSE 44

GFX_VID[0] GFX_VID[1] GFX_VID[2] GFX_VID[3] GFX_VID[4] GFX_VID[5] GFX_VID[6]

GRAPHICS VIDs

AM22 AP22 AN22 AP23 AM23 AP24 AN24

GFXVR_VID_0 44
GFXVR_VID_1 44
GFXVR_VID_2 44
GFXVR_VID_3 44
GFXVR_VID_4 44
GFXVR_VID_5 44
GFXVR_VID_6 44

GFX_VR_EN
GFX_DPRSLPVR
GFX_IMON

AR25 AT25 AM24

GFXVR_DPRSLPVR_R 0R0402 R506

GFXVR_EN 44
GFXVR_DPRSLPVR 44
GFXVR_IMON 44

1

ARRANDALE:
3A

+1_5VRUN

VDDQ1 VDDQ2 VDDQ3 VDDQ4 VDDQ5 VDDQ6 VDDQ7 VDDQ8 VDDQ9 VDDQ10 VDDQ11 VDDQ12 VDDQ13 VDDQ14 VDDQ15 VDDQ16 VDDQ17 VDDQ18

AJ1 AF1 AE7 AF4 AC1 AB7 AB4 Y1 W7 W4 U1 T7 T4 P1 N7 N4 L1 H1

C385 C1u16X-RH
C384 C1u16X-RH
C382 C1u16X-RH
C377 C1u16X-RH
C380 C1u16X-RH
C386 C22u6.3X50805-RH
C383 C22u6.3X50805-RH
C389 C330u2.5pSO-1

DDR3 - 1.5V RAILS

+VTT

C363 C22u6.3X50805-RH
C364 C22u6.3X50805-RH

J24 J23 H25

VTT1_45 VTT1_46 VTT1_47

FDI

POWER

VTT0_59 VTT0_60 VTT0_61 VTT0_62

P10 N10 L10 K10

+VTT

C362 C10u6.3X5-RH
C371 C10u6.3X5-RH

VTT1_63 VTT1_64 VTT1_65 VTT1_66 VTT1_67 VTT1_68

J22 J20 J18 H21 H20 H19

+VTT

C367 C22u6.3X50805-RH
C368 C22u6.3X50805-RH

1.1V

+VTT

C360 C22u6.3X50805-RH
C376 C22u6.3X50805-RH
C659 C22u6.3X50805-RH
C652 C22u6.3X50805-RH

K26 J27 J26 J25 H27 G28 G27 G26 F26 E26 E25

VTT1_48 VTT1_49 VTT1_50 VTT1_51 VTT1_52 VTT1_53 VTT1_54 VTT1_55 VTT1_56 VTT1_57 VTT1_58

PEG & DMI

VCCPLL1 VCCPLL2 VCCPLL3

L26 L27 M26

+1_8VRUN

C345 C1u16X-RH
C346 C1u16X-RH
C347 C2.2u6.3X5
C348 C4.7u6.3X
C349 C22u6.3X50805-RH

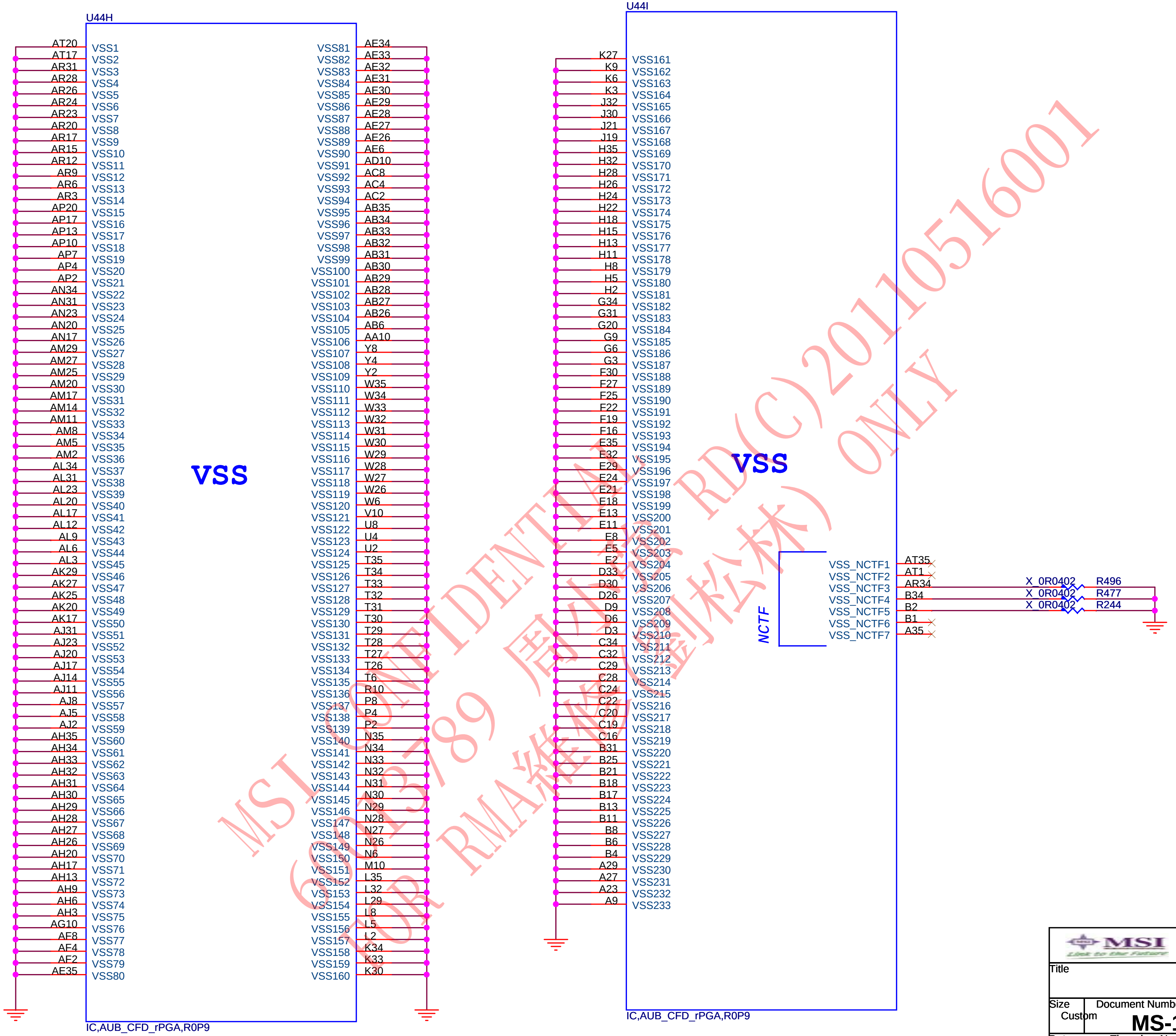
1.8V

ARRANDALE:
0.6A

IC_AUB_CFD_rPGA_R0P9

MSI	MICRO-STAR INT'L CO.,LTD.		
Title	GRAPHICS POWER		
Size: Custom	Document Number: MS-1688	Rev: 0A	
Date: Thursday, November 26, 2009	Sheet 6 of 52		

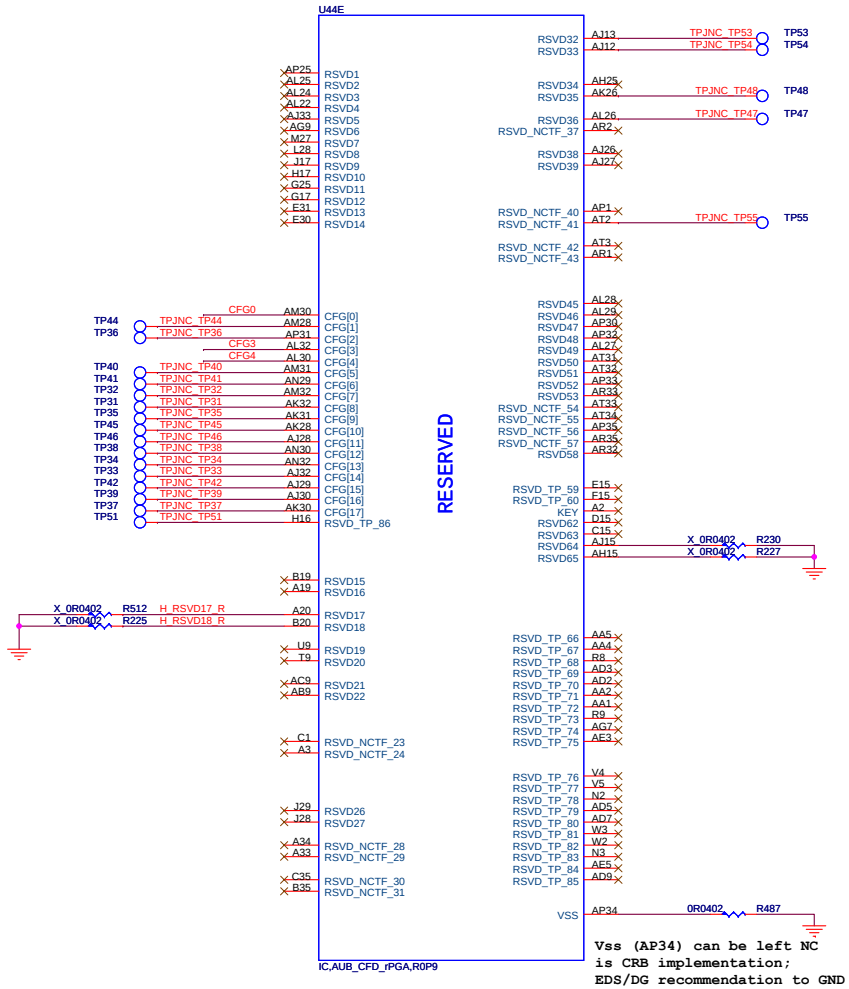
ARRANDALE PROCESSOR (GND)



MICRO-STAR INT'L CO.,LTD.

Title	PROCESSOR GND	
Size: Custom	Document Number: MS-1688	Rev: 0A
Date: Thursday, November 26, 2009	Sheet 7 of 52	

ARRANDALE PROCESSOR (RESERVED)



PCI-Express Configuration Select	
CFG0	1:Single PEG 0:Bifurcation enabled

CFG0
NO_STUFF
R212
X_3.01KR1%0402

CFG3 - PCI-Express Static Lane Reversal	
CFG3	1 :Normal Operation 0 :Lane Numbers Reversed 15 -> 0, 14 -> 1, ...

CFG3
STUFF
R213
3.01KR1%0402

CFG[3] – PCI Express* Static Lane Numbering Reversal. Lane Reversal will be applied across all 16 Lanes.
- 1: No lane reversal
- 0: Reversal

CFG4 - Display Port Presence	
CFG4	1:Disabled; No Physical Display Port attached to Embedded Display Port 0:Enabled; An external Display Port device is connected to the Embedded Display Port

CFG4
NO_STUFF
R214
X_3.01KR1%0402

Layout Note:
Location of all CFG strap resistors needs to be close to trace to minimize stub

MICRO-STAR INT'L CO.,LTD.

Title: PROCESSOR RESERVED

Size	Document Number	Rev
Custom	MS-1688	0A

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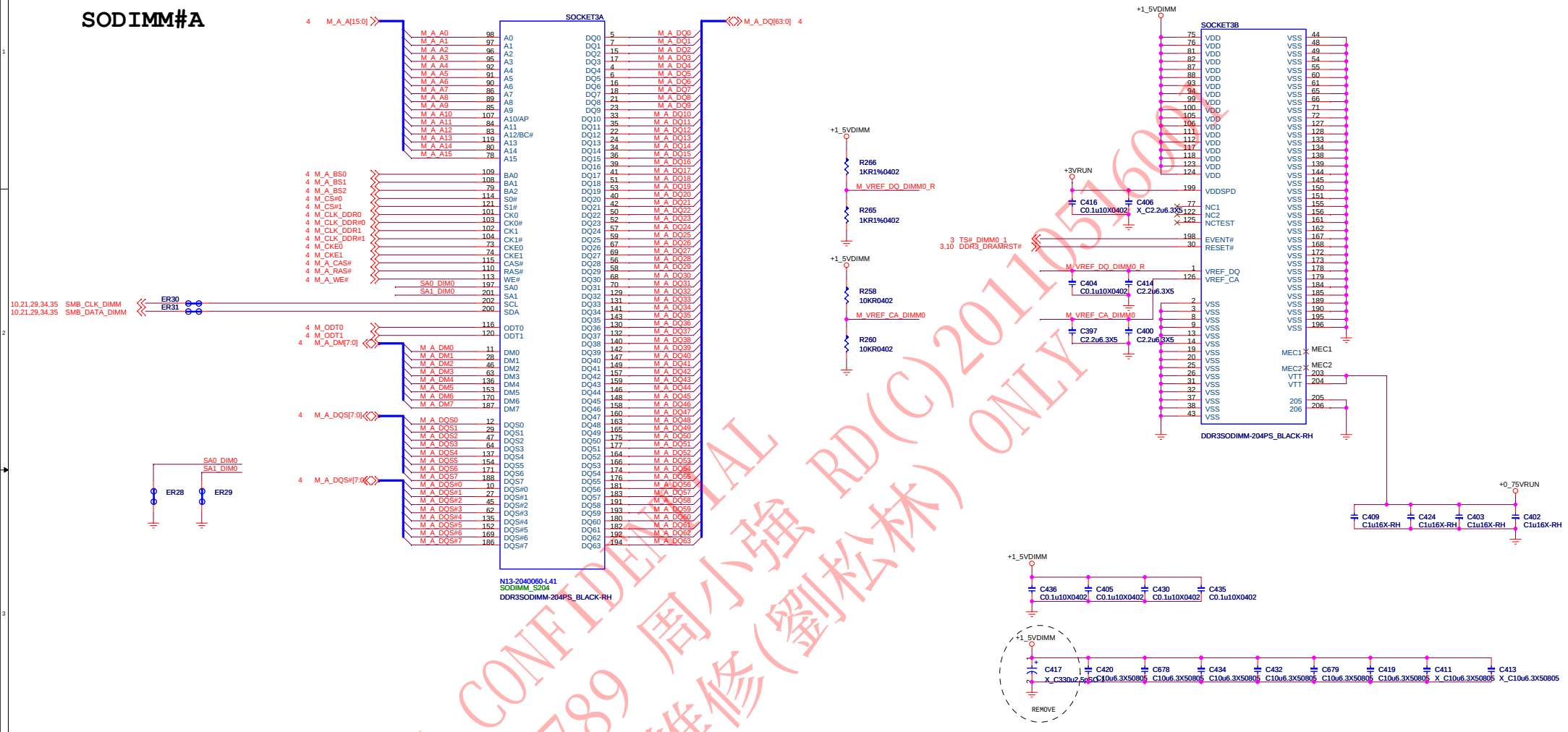
SODIMM#A



MSI	MICRO-STAR INT'L CO.,LTD.	
Title	DDR3 SODIMM0	
Size: Custom	Document Number: MS-1688	Rev: 0A
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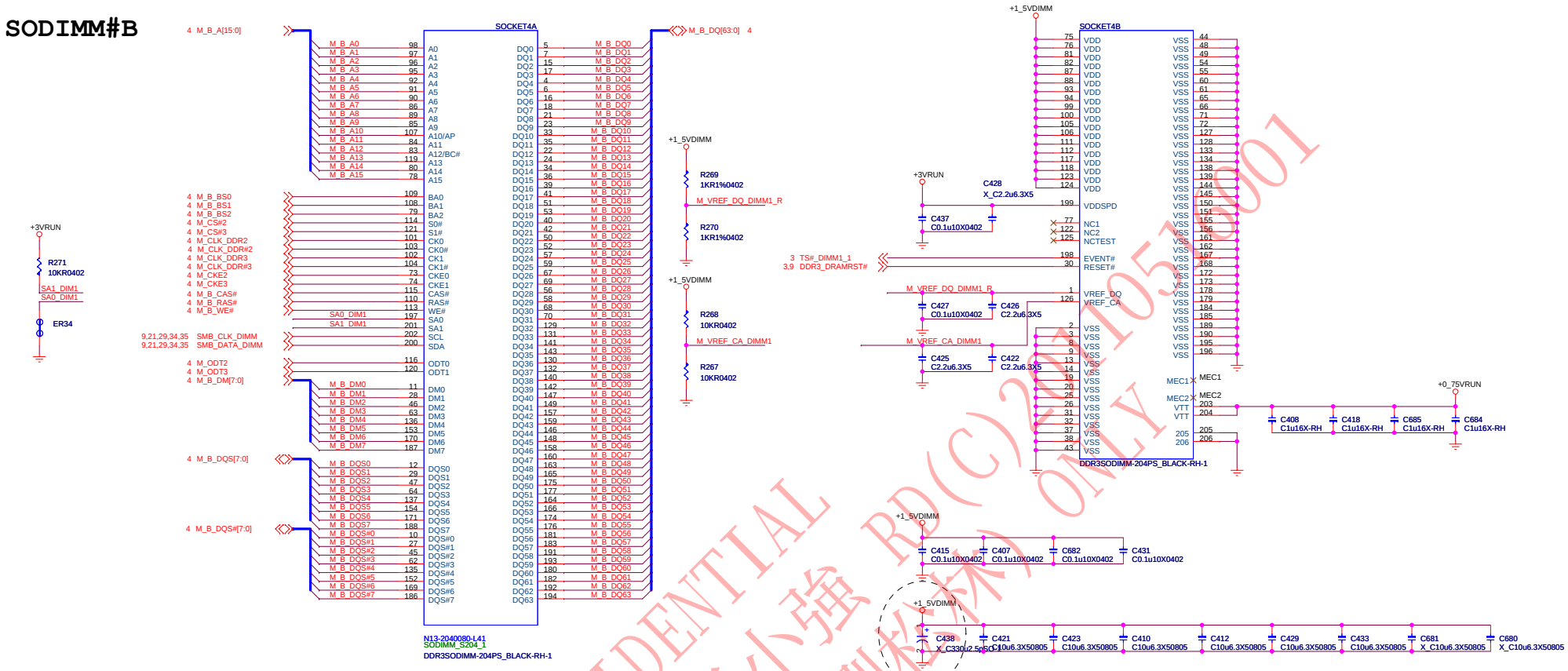
SODIMM#B



MICRO-STAR INT'L CO.,LTD.

Title: DDR3 SODIMM1

Size: Custom | Document Number: MS-1688 | Rev: 0A

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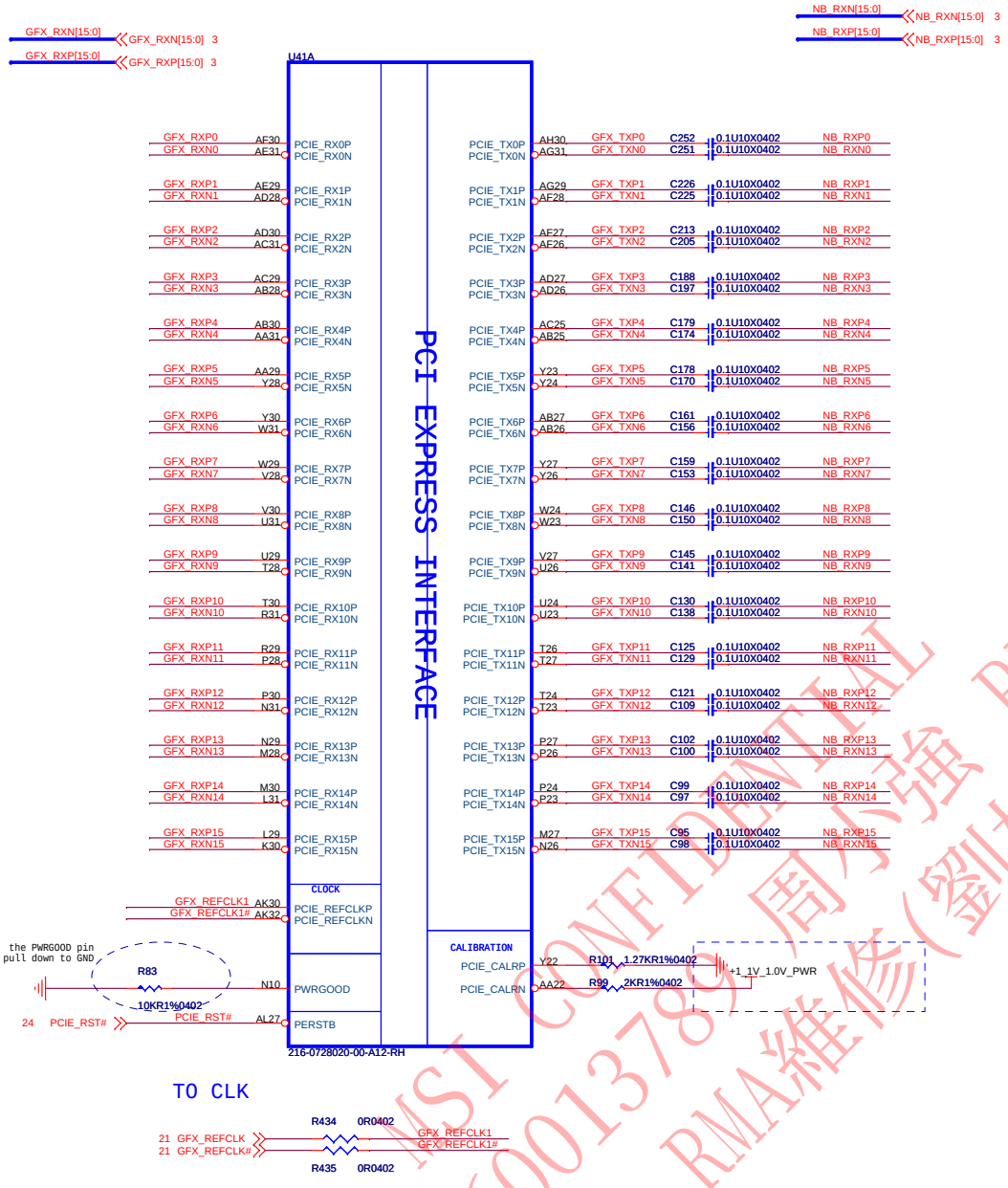
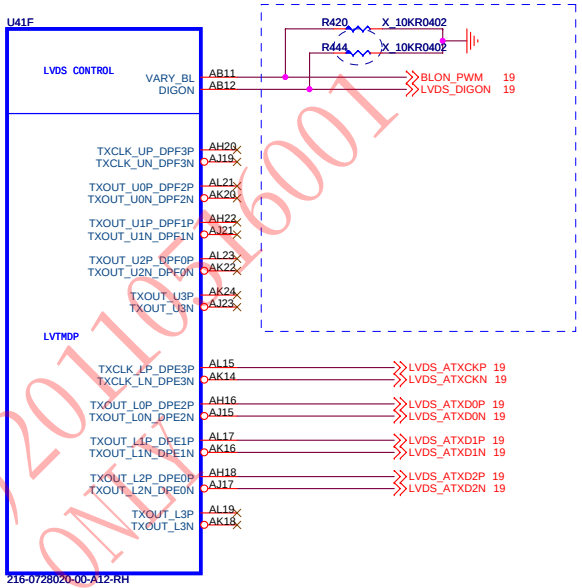


LVDS Interface



DisplayPort E Configuration

TO CLK

R434 0R0402
R435 0R0402

MSI CORPORATION			
Title: PARK-HOST/LVDS			
Size: Custom	Document Number: MS-1688		Rev: 1.0
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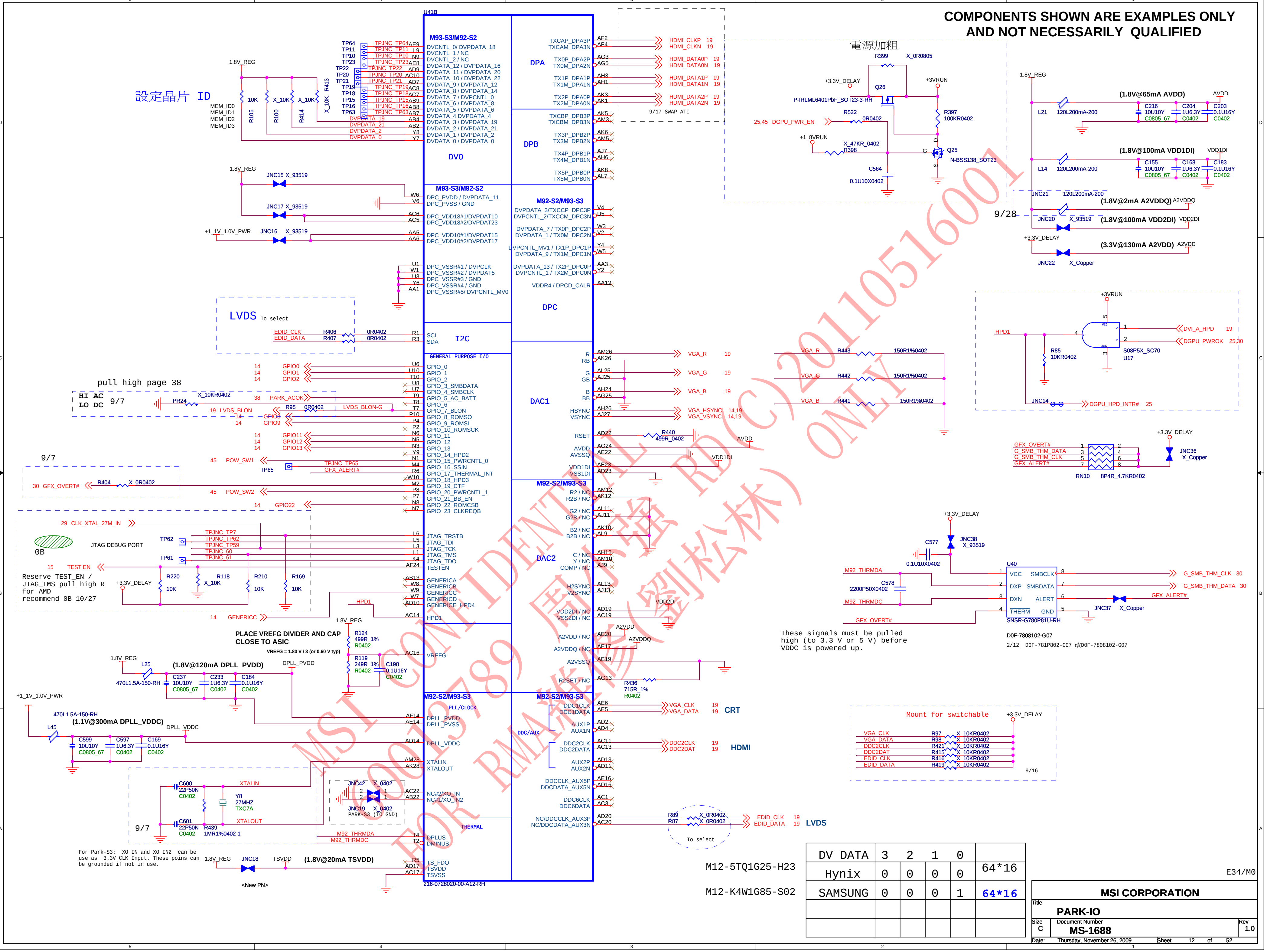

DV DATA	3	2	1	0	
Hynix	0	0	0	0	64*16
SAMSUNG	0	0	0	1	64*16

M12-5TQ1G25-H23

M12-K4W1G85-S02

E34/M0

MSI CORPORATION

Title: PARK-IO

Size: C | Document Number: MS-1688 | Rev: 1.0

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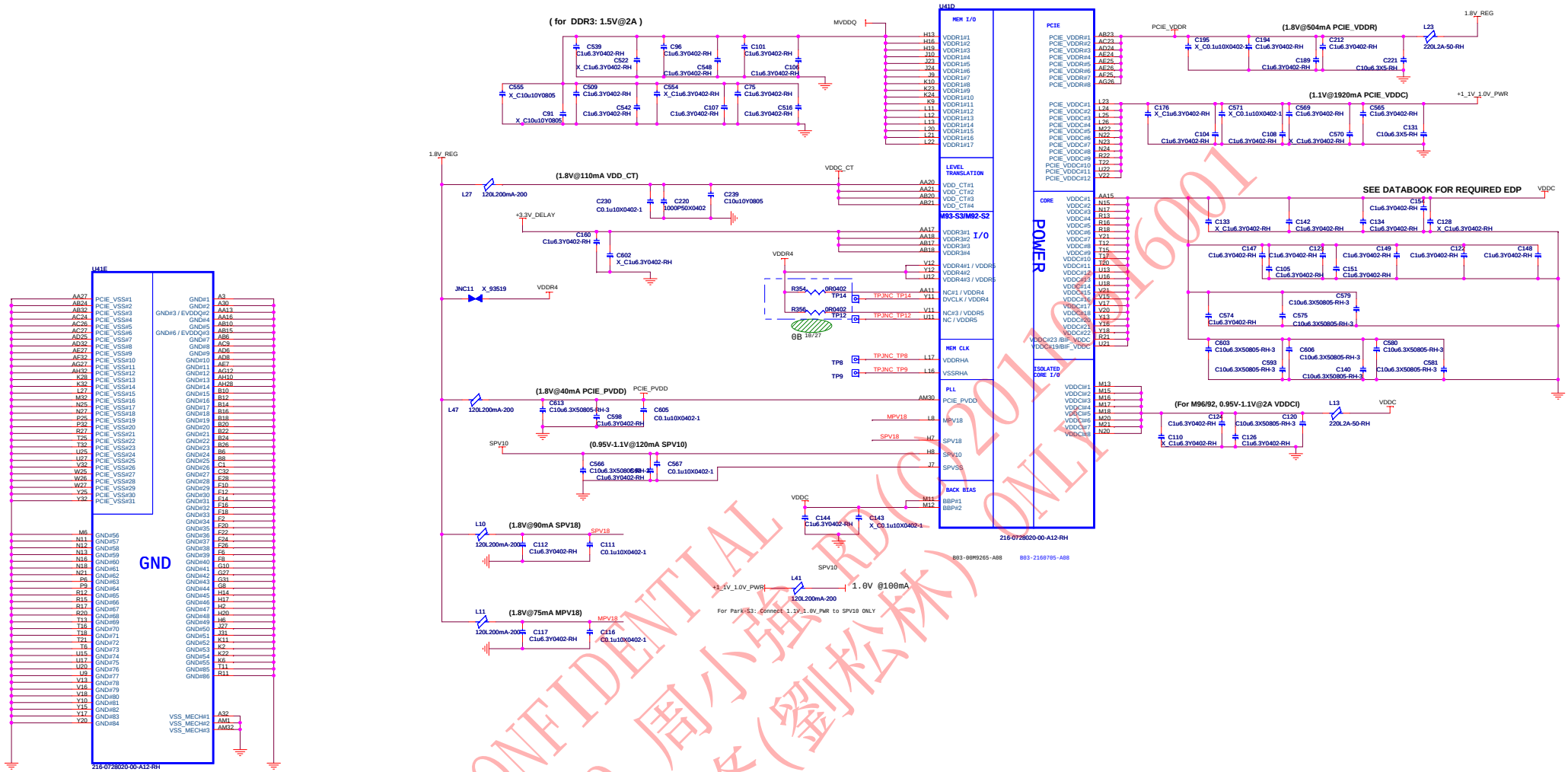

E69/M0

MSI CORPORATION			
Title: PARK-POWER			
Size: Custom	Document Number: MS-1688		Rev: 1.0
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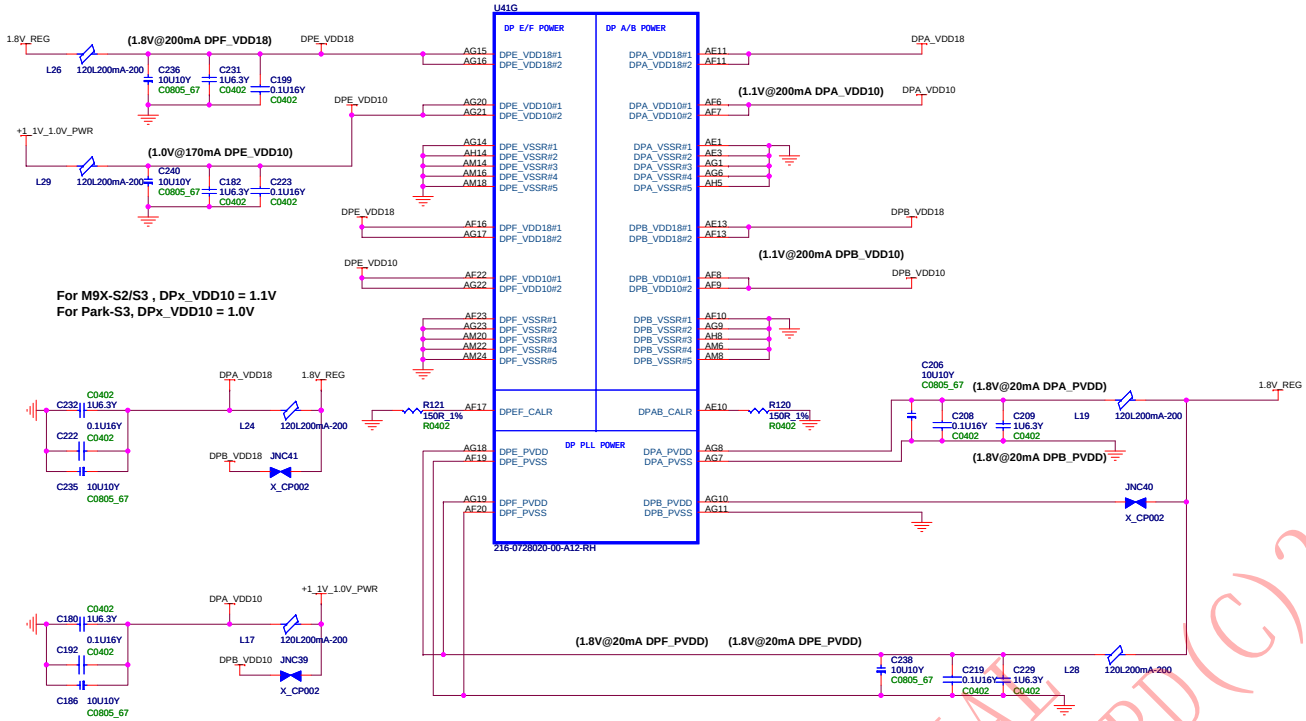
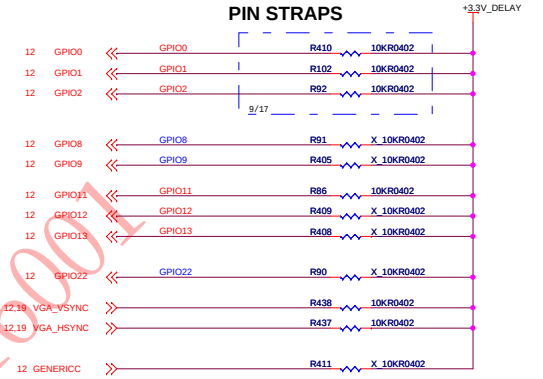


PIN STRAPS



CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

RECOMMENDED SETTINGS
0= DO NOT INSTALL RESISTOR
1 = INSTALL 10K RESISTOR
X = DESIGN DEPENDANT
NA = NOT APPLICABLE

STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	X
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	X
BIF_GEN2_EN_A	GPIO2	PCIE GEN2 ENABLED	X
RSVD BIF_VGA_DIS RSVD	GPIO8 GPIO9 GPIO21	VGA ENABLED	0 0 0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	X
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	X X X
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	X
RSVD AUD[1] AUD[0]	GENERICC HSYNC VSYNC	AUD[1] AUD[0] 0 0 No audio function 0 1 Audio for DisplayPort and HDMI if dongle is detected 1 0 Audio for DisplayPort only 1 1 Audio for both DisplayPort and HDMI	0 0 X X

GPIO 13 12 11

Size of the primary memory apertures	CONFIG[2:0]
128 MB	000
256 MB	001
64 MB	010
512 MB 1G MB	001

Due to memory management constraints, the aperture size should be the same size as the frame buffer for 64 MB, 128 MB
and 256 MB. For frame buffers larger than 256 MB (e.g. 512 MB, 1 GB) the aperture size should be 256 MB.

AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

H2SYNC GENERICC

PULLUP PADS ARE NOT REQUIRED FOR THESE STRAPS BUT IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

GPIO21_BB_EN

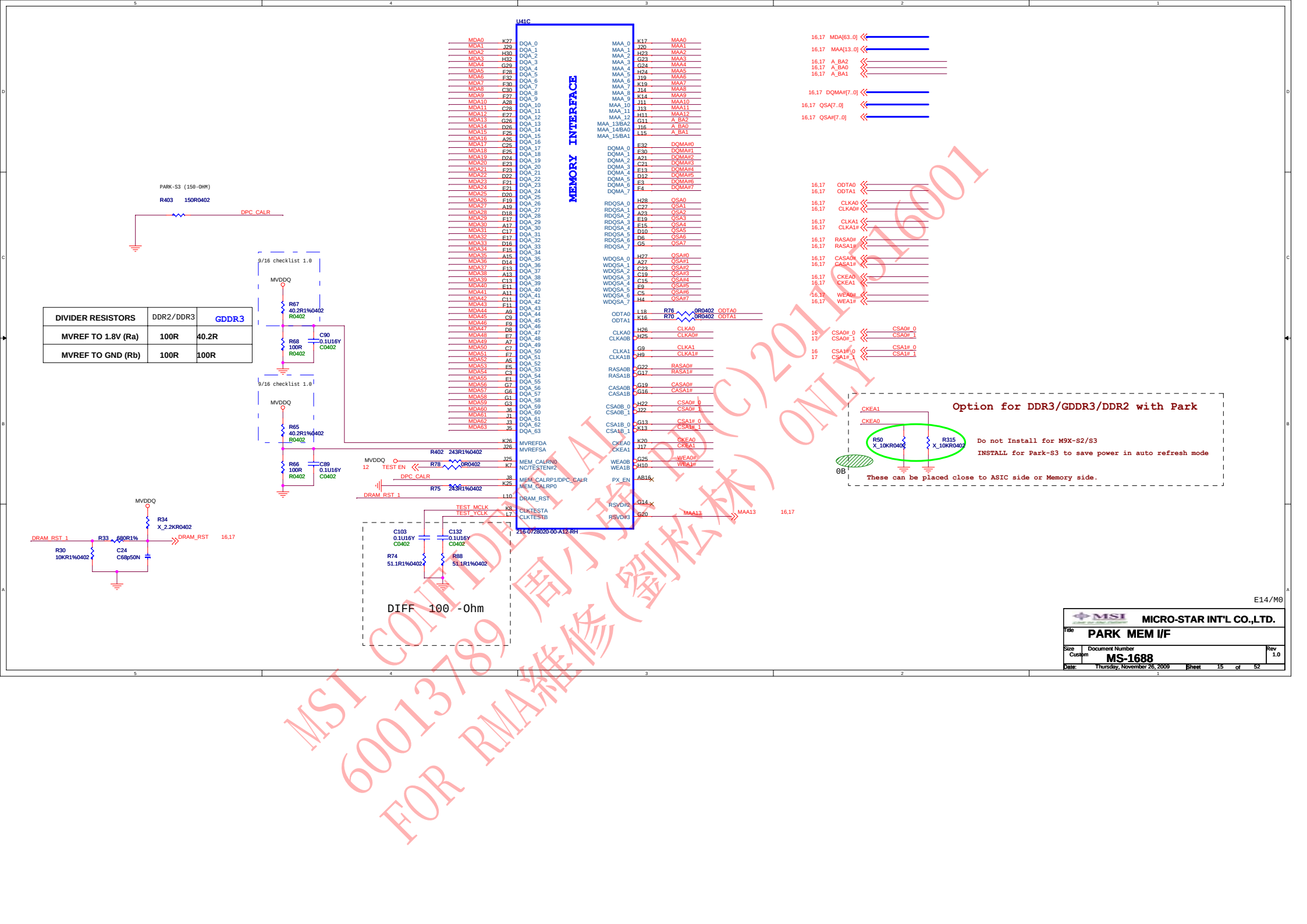
E23/M0

MSI CORPORATION

Title: **PARK-power straps**

Size: Custom | Document Number: **MS-1688** | Rev: 1.0

Date: Thursday, November 26, 2009 | Sheet 14 of 52



DIVIDER RESISTORS	DDR2/DDR3	GDDR3
MVREF TO 1.8V (Ra)	100R	40.2R
MVREF TO GND (Rb)	100R	100R

Title	PARK MEM I/F
Company	MICRO-STAR INT'L CO.,LTD.
Size	Custom
Document Number	MS-1688
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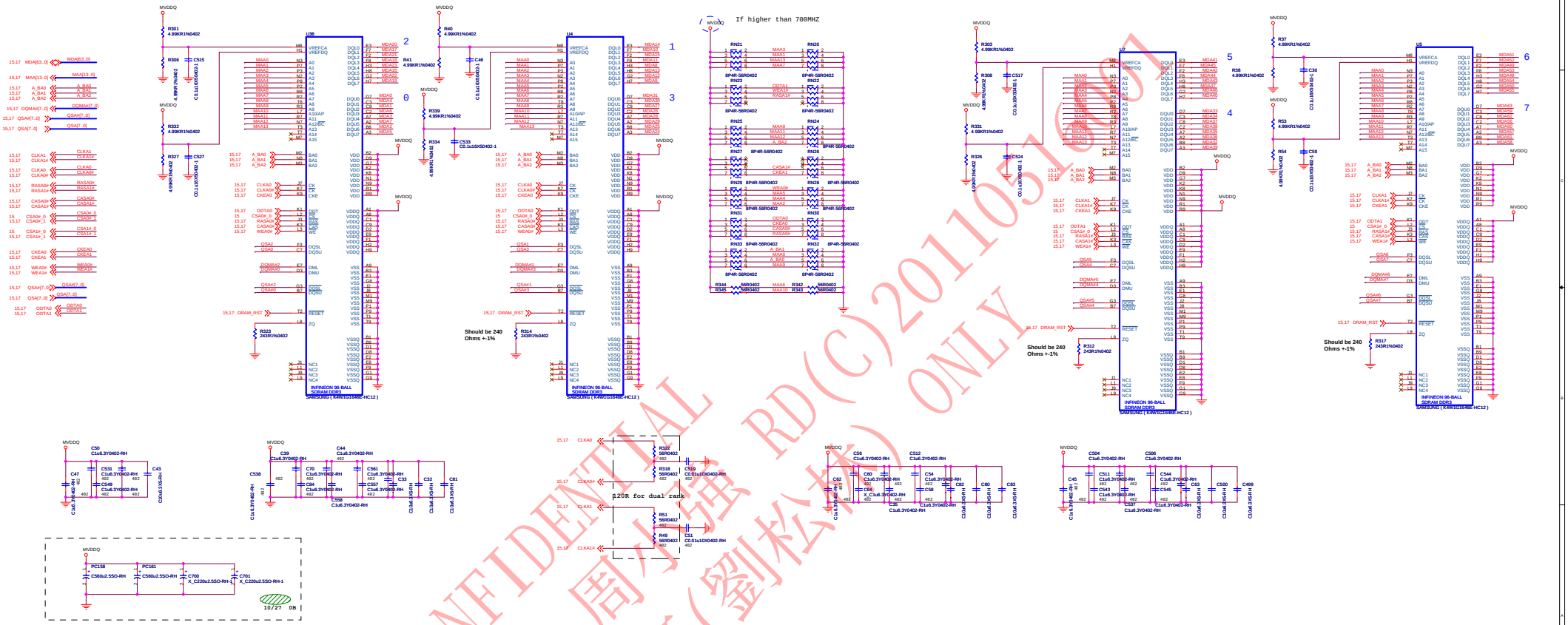
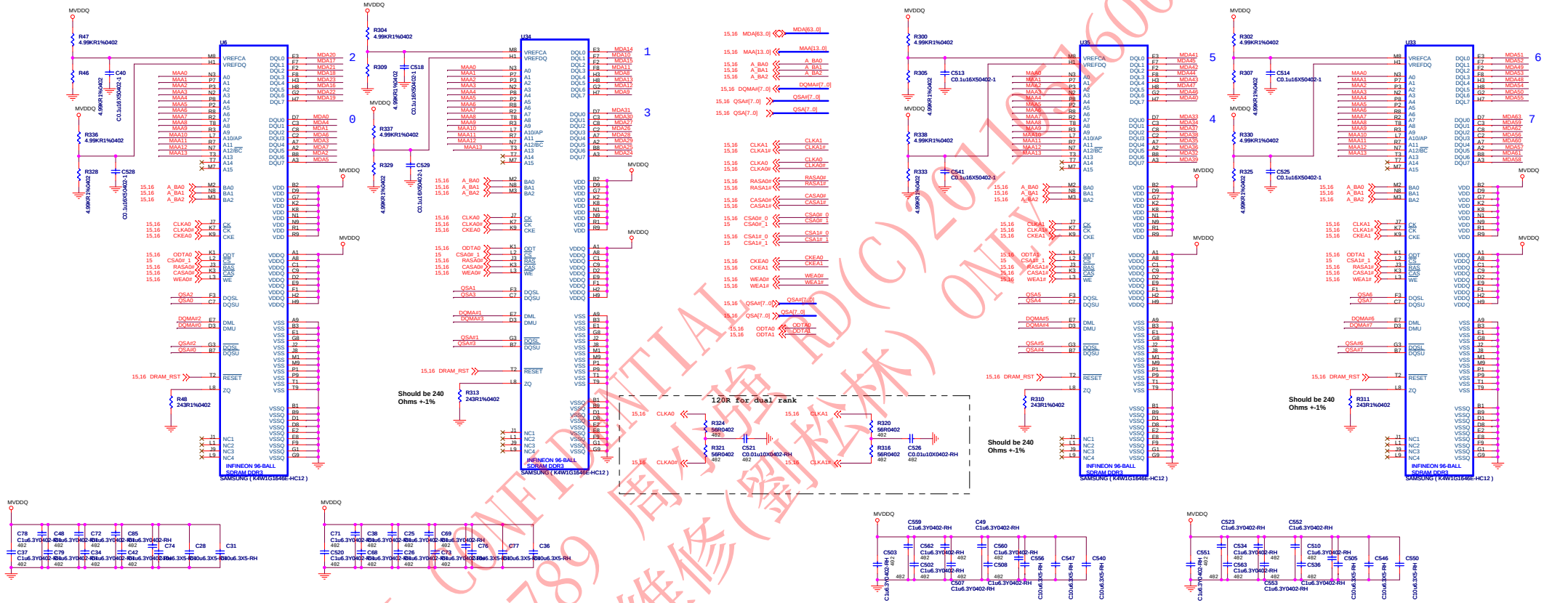
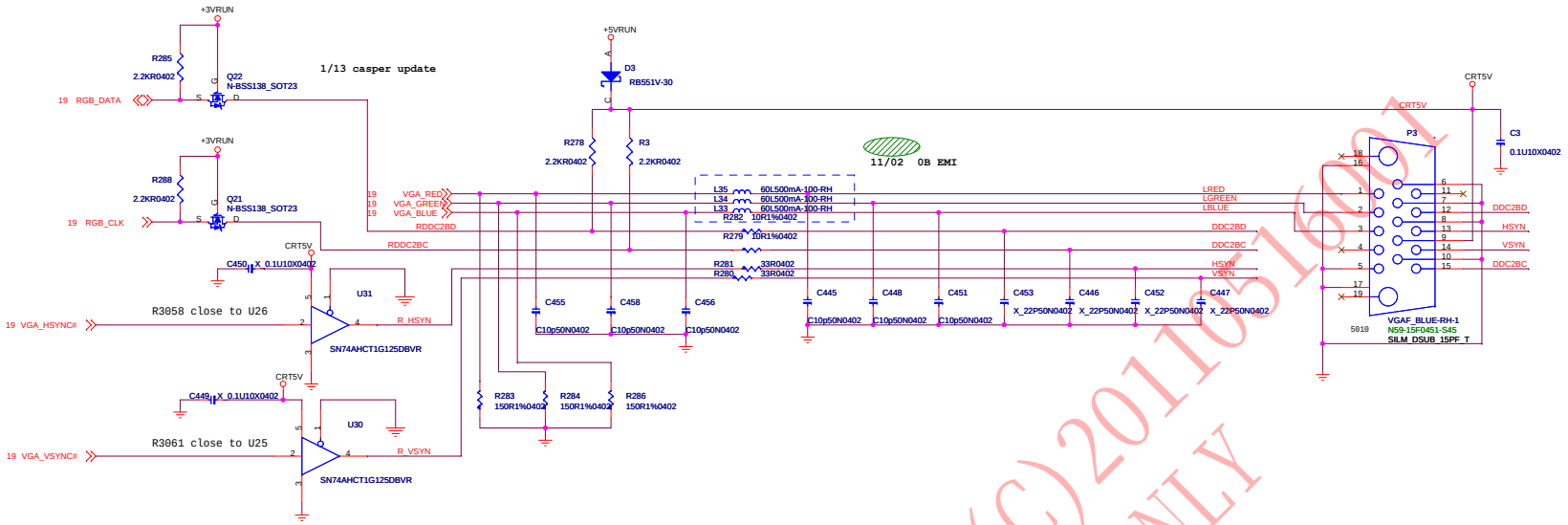
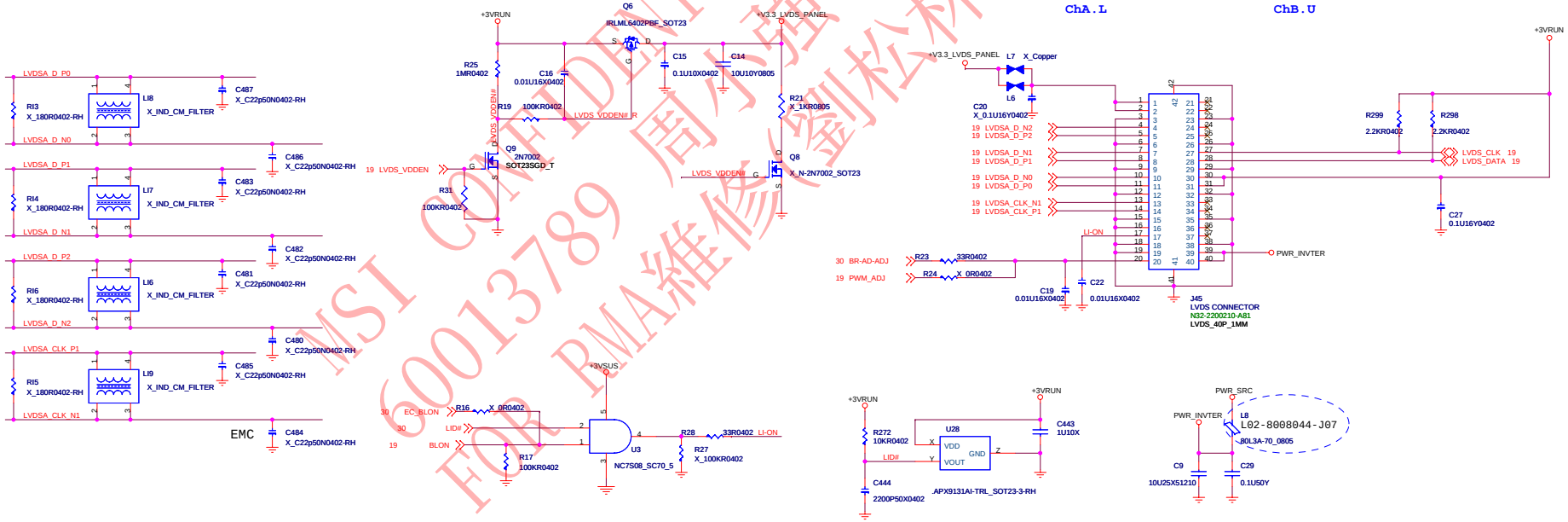




MICRO-STAR INT'L CO.,LTD.	
Title	PARK MEM DDR3 A1
Size: Custom	Document Number: MS-1688
Rev	1.0
Date: Thursday, November 26, 2009	Sheet 17 of 52





MSI	MICRO-STAR INT'L CO.,LTD.		
Title	CRT,LVDS connector & LID		
Size	Document Number		Rev
Custom	MS-1688		0A
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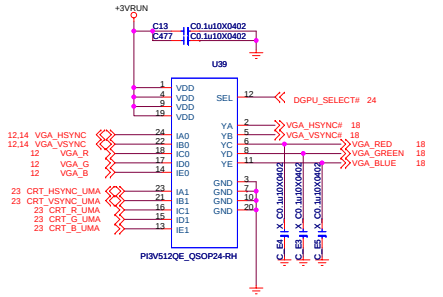
CRT Switch

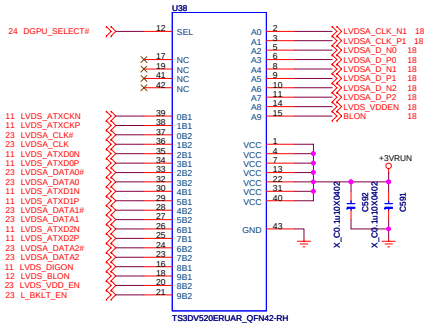
Logic Input	Function
0	S2 PORT
1	S1 PORT

BR-ADJ

MXM only	1. MXM 2. EC
Switchable	1. MXM 2. iGPU 3. EC

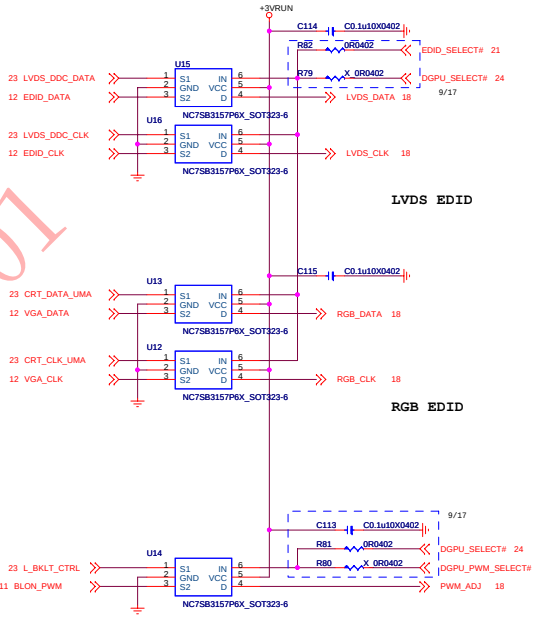


LVDS Switch



TS3DV520ERUAR

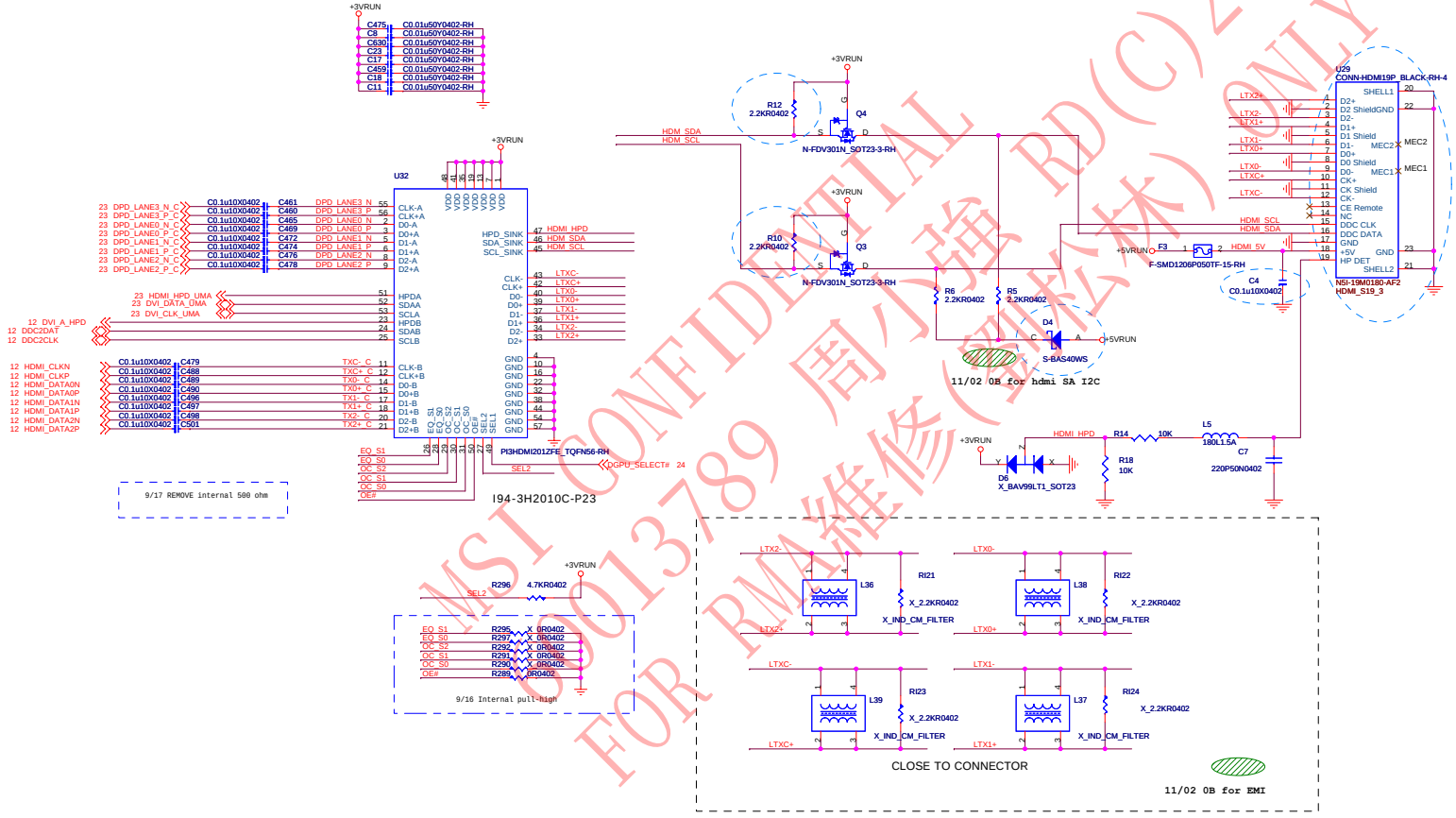
EDID Switch (CRT,LVDS)



Logic Input	Function
0	PORT 1
1	PORT 2

HDMI Switch

Logic Input	Function
0	B PORT
1	A PORT



MICRO-STAR INT'L CO.,LTD.	
Title	SWITCH&HDMI
Size: Custom	Document Number: MS-1688
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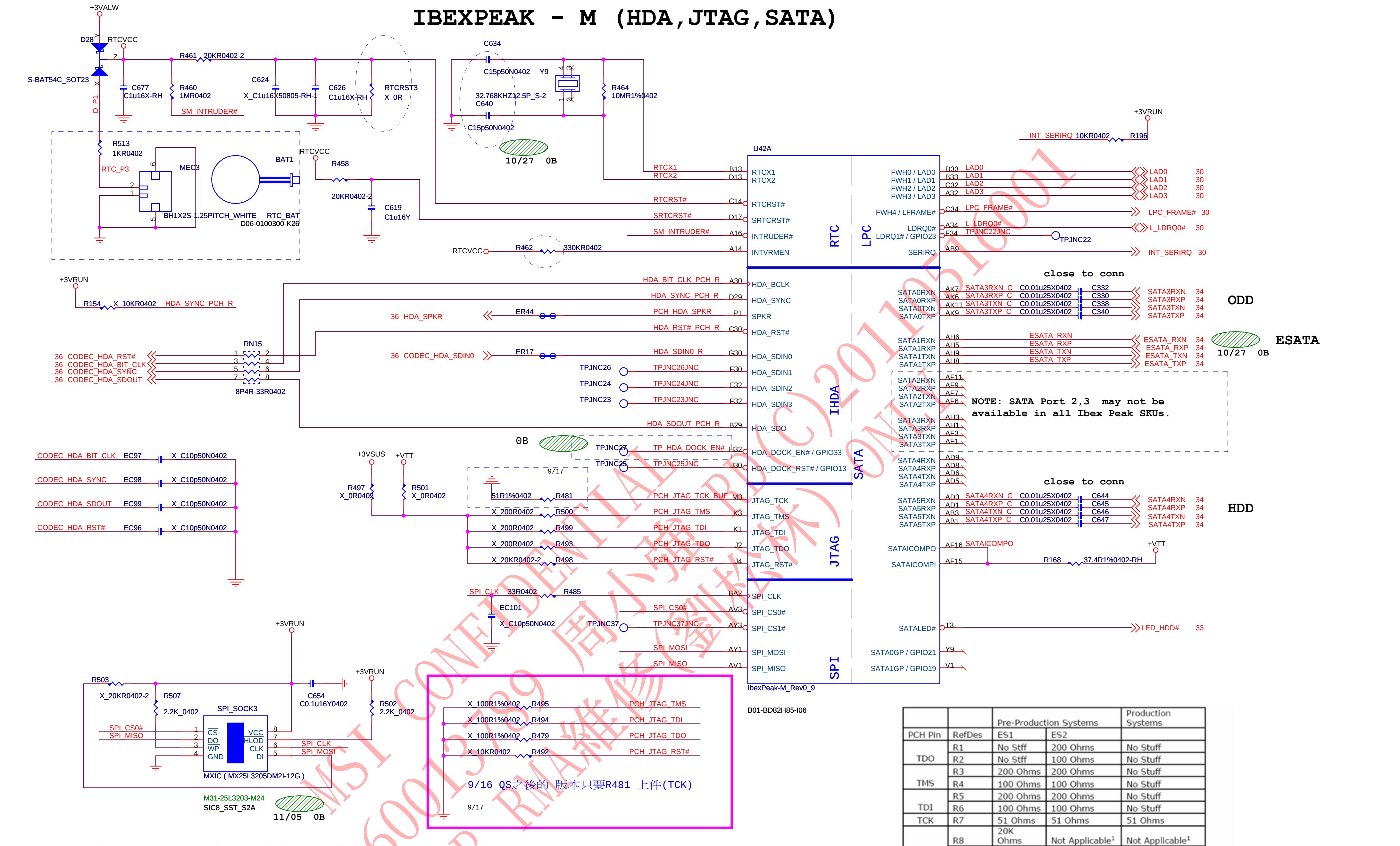
IBEXPEAK - M (HDA,JTAG,SATA)

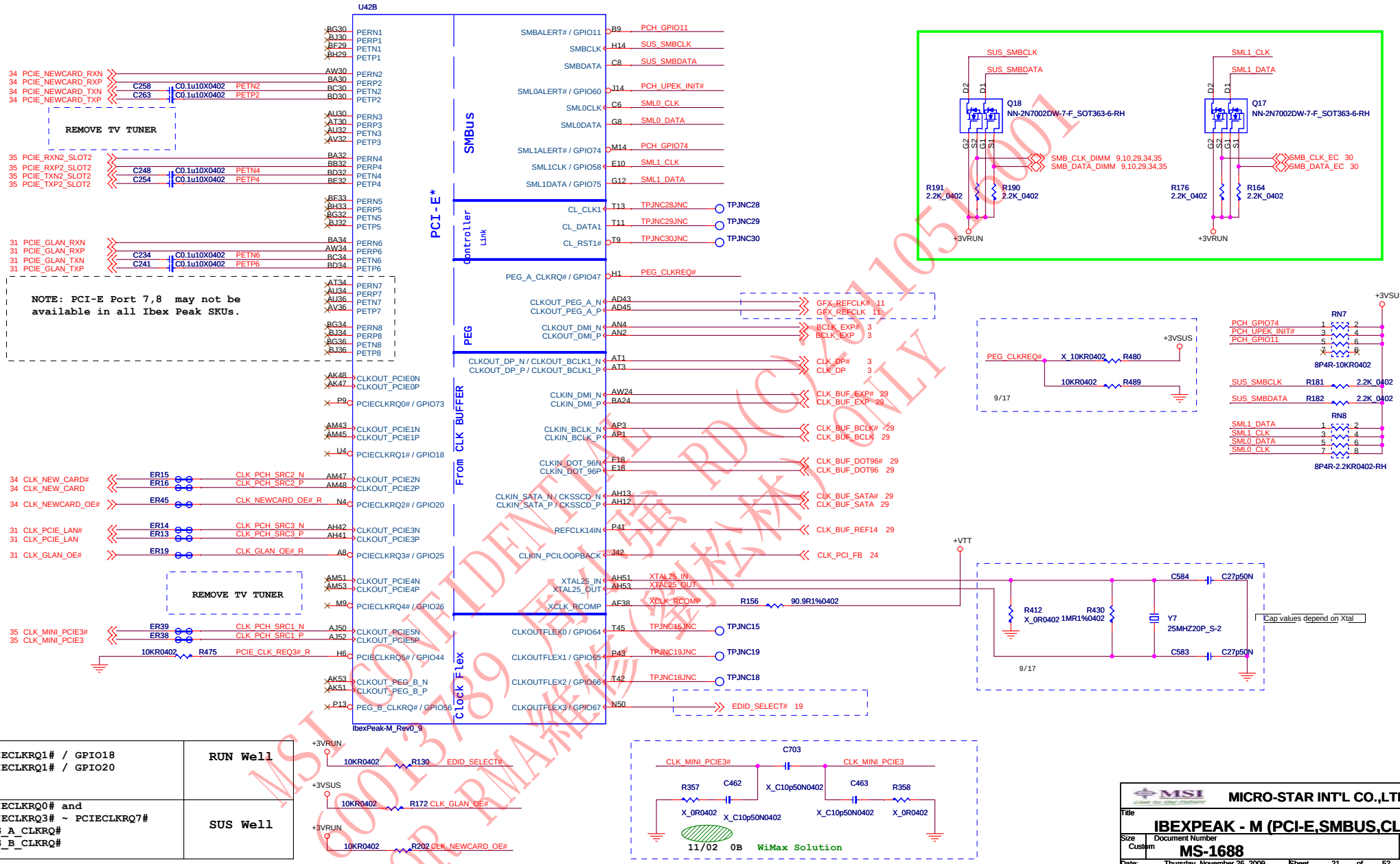


SPI_MOSI :Enable iTPM: Connect to Vcc3_3 with 8.2-kΩ weak pull-up resistor
Disable iTPM: Left floating, no pull-down required.

PCH Pin	RefDes	Pre-Production Systems ES1	ES2	Production Systems
TDO	R1	No Stff	200 Ohms	No Stuff
	R2	No Stff	100 Ohms	No Stuff
TMS	R3	200 Ohms	200 Ohms	No Stuff
	R4	100 Ohms	100 Ohms	No Stuff
TDI	R5	200 Ohms	200 Ohms	No Stuff
	R6	100 Ohms	100 Ohms	No Stuff
TCK	R7	51 Ohms	51 Ohms	51 Ohms
TRST#	R8	20K Ohms	Not Applicable[1]	Not Applicable[1]
	R9	10K Ohms	Not Applicable[1]	Not Applicable[1]

Note 1: For IBX ES2 and later, TRST# does not require an external pull-up; but should be routed to a test point pad for PCH JTAG debug purposes

IBEXPEAK - M (PCI-E,SMBUS,CLK)



PCIECLKRQ1# / GPIO18 PCIECLKRQ1# / GPIO20	RUN Well
PCIECLKRQ0# and PCIECLKRQ3# ~ PCIECLKRQ7# PEG_A_CLKRQ# PEG_B_CLKRQ#	SUS Well

MSI	MICRO-STAR INT'L CO.,LTD.
Title	IBEXPEAK - M (PCI-E,SMBUS,CLK)
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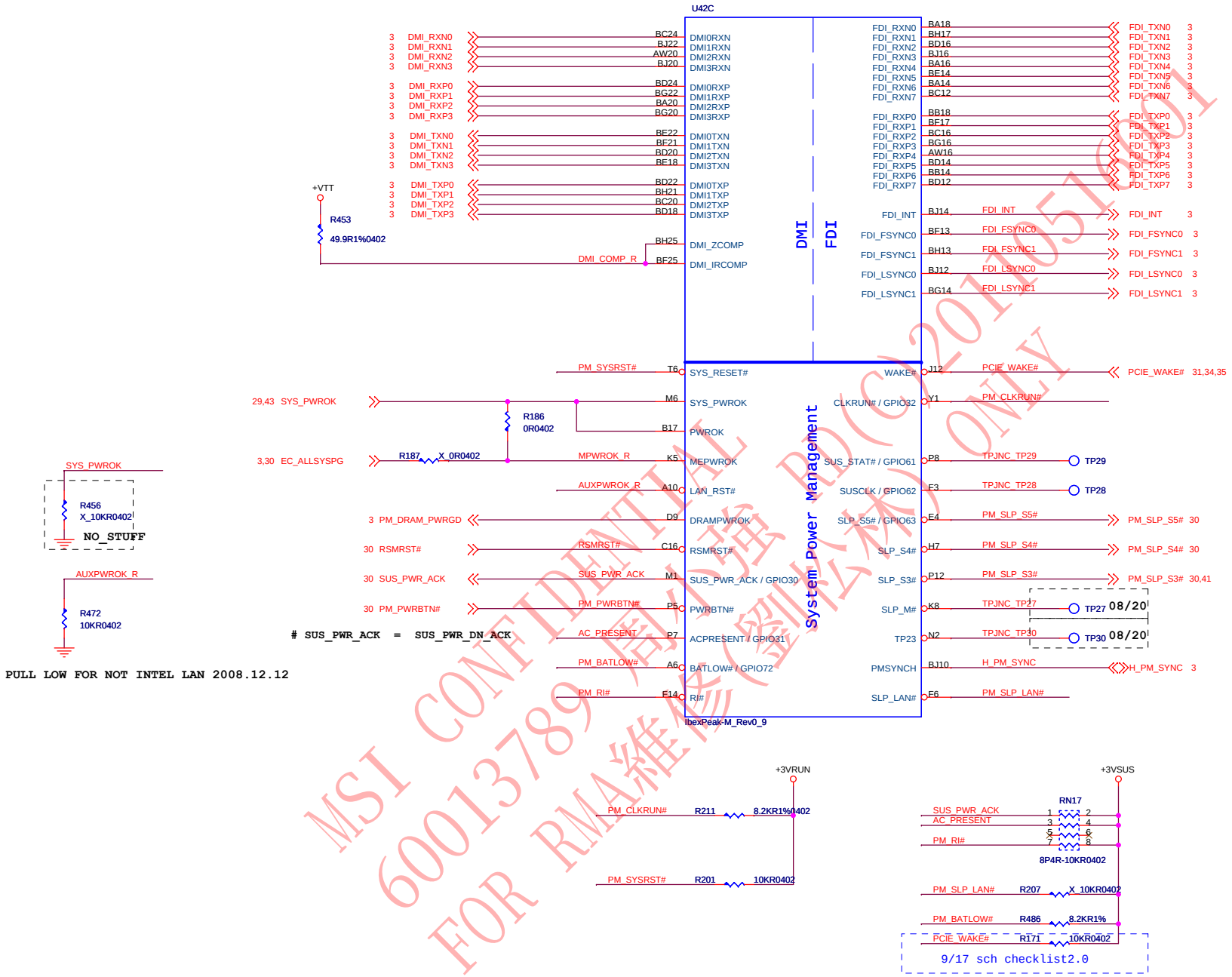
IBEXPEAK - M (DMI,FDI,GPIO)



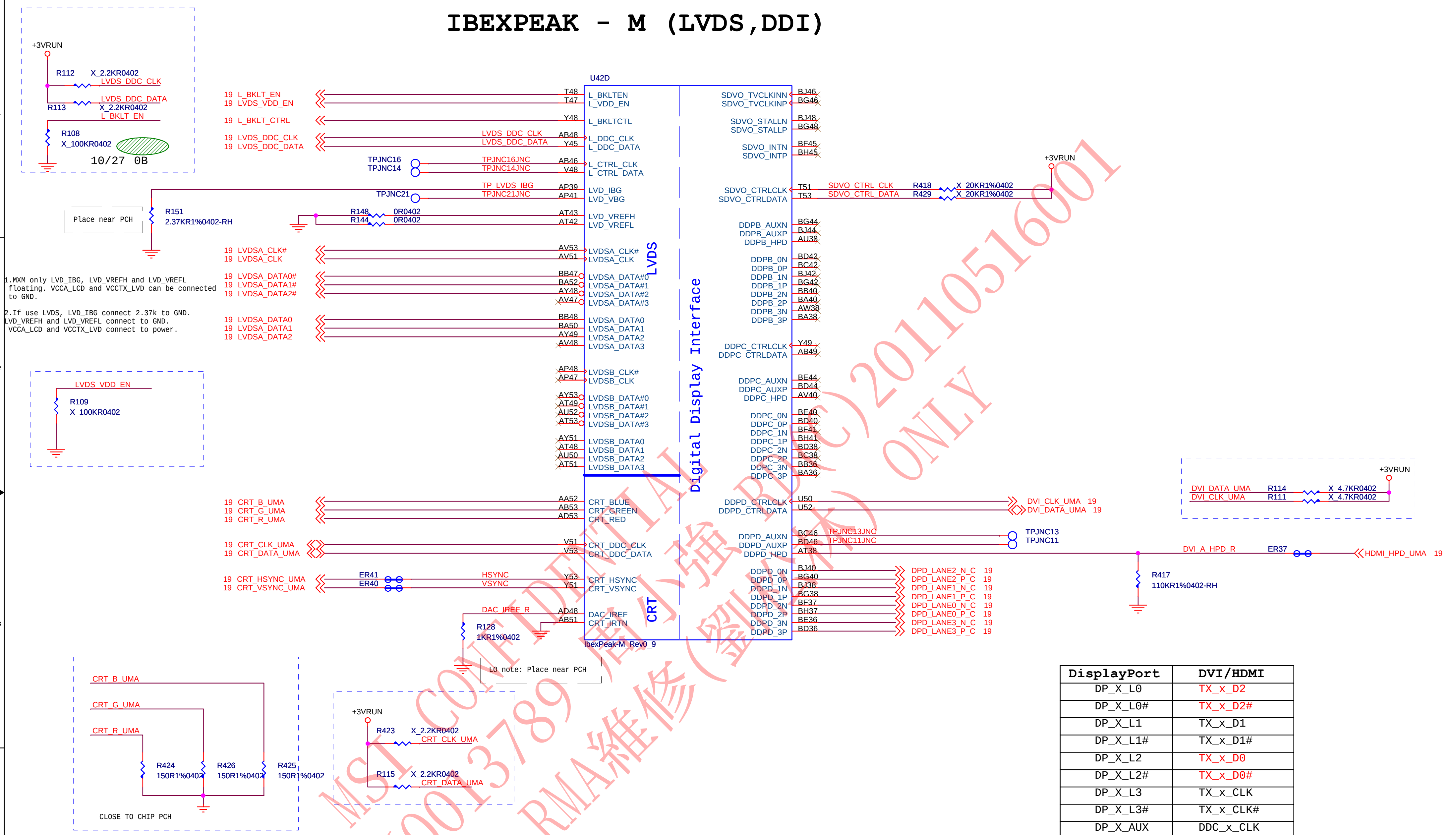
MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (DMI,FDI,GPIO)

Size: Custom | Document Number: MS-1688 | Rev: 0A

Date: Thursday, November 26, 2009 | Sheet 22 of 52

IBEXPEAK - M (LVDS,DDI)



DisplayPort	DVI/HDMI
DP_X_L0	TX_x_D2
DP_X_L0#	TX_x_D2#
DP_X_L1	TX_x_D1
DP_X_L1#	TX_x_D1#
DP_X_L2	TX_x_D0
DP_X_L2#	TX_x_D0#
DP_X_L3	TX_x_CLK
DP_X_L3#	TX_x_CLK#
DP_X_AUX	DDC_x_CLK
DP_X_AUX#	DDC_x_DATA

MSI MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (LVDS,DDI)

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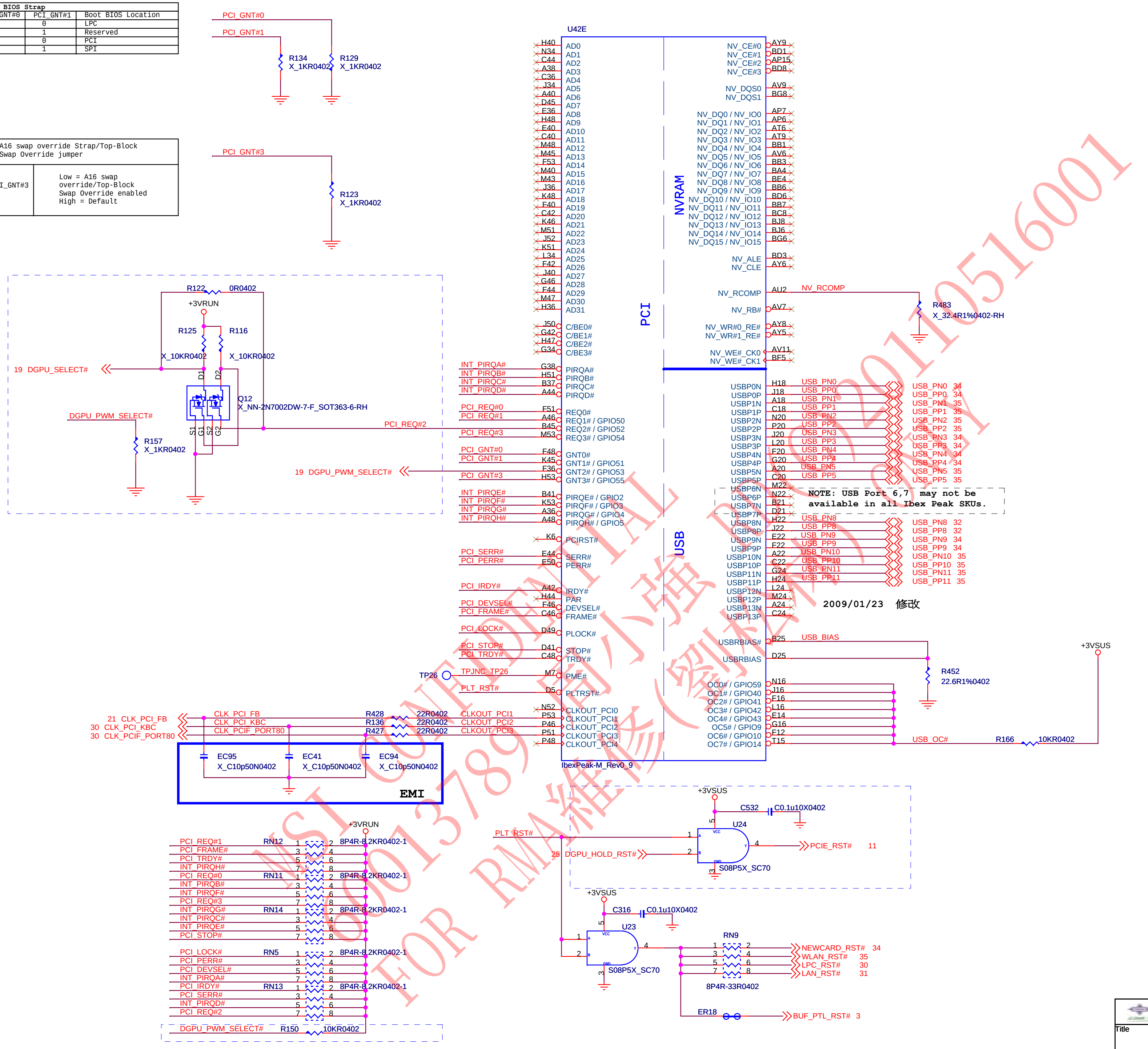
IBEXPEAK - M (PCI,USB,NVRAM)

Boot BIOS Strap

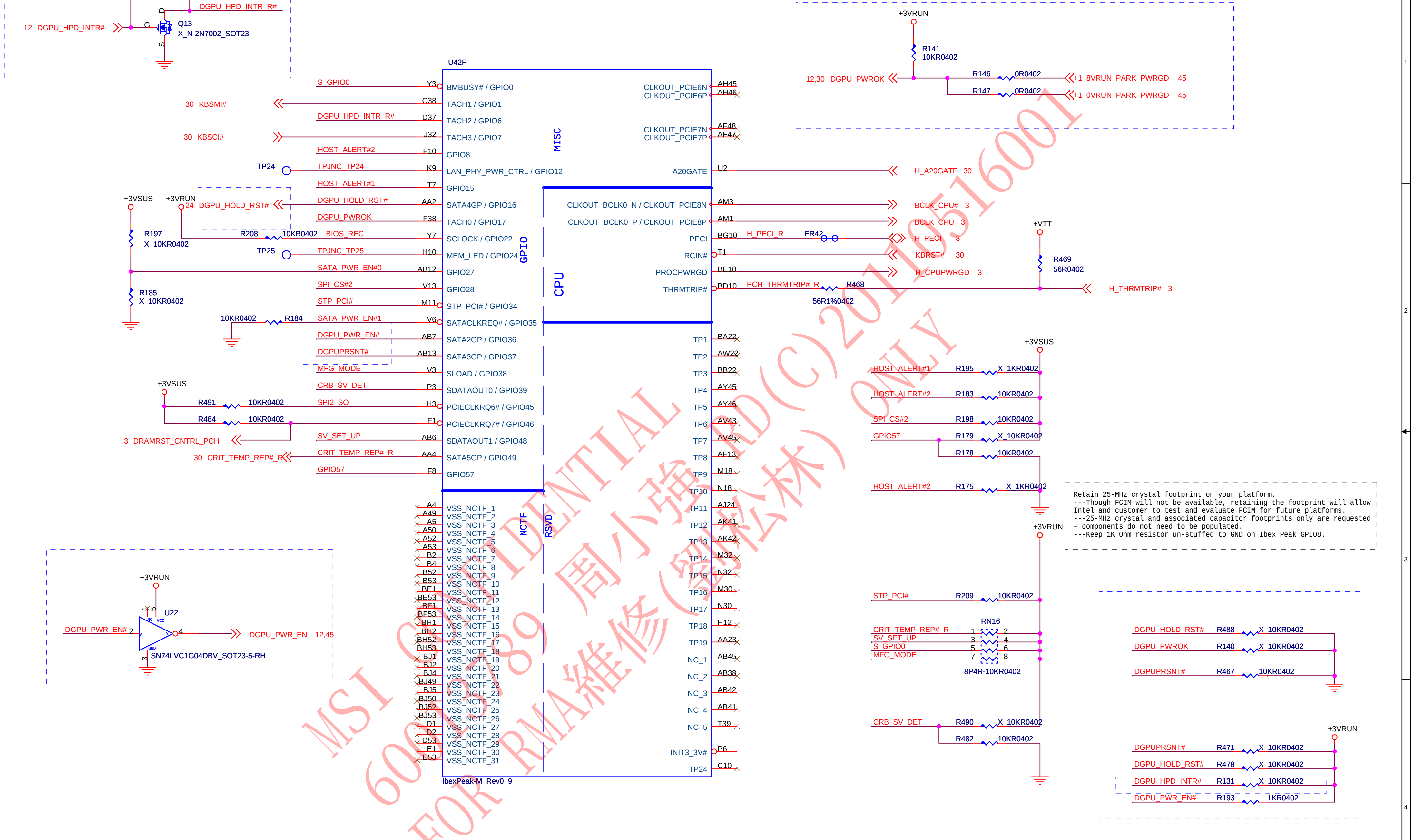
PCI_GNT#0	PCI_GNT#1	Boot BIOS Location
0	0	LPC
0	1	Reserved
1	0	PCI
1	1	SPI

A16 swap override Strap/Top-Block Swap Override jumper	
PCI_GNT#3	Low = A16 swap override/Top-Block Swap Override enabled High = Default



U42E
IbexPeak-M_Rev0_9
PCI
NVRAM
USB
AD0 AD1 AD2 AD3 AD4 AD5 AD6 AD7 AD8 AD9 AD10 AD11 AD12 AD13 AD14 AD15 AD16 AD17 AD18 AD19 AD20 AD21 AD22 AD23 AD24 AD25 AD26 AD27 AD28 AD29 AD30 AD31
C/BE0# C/BE1# C/BE2# C/BE3#
PIRQA# PIRQB# PIRQC# PIRQD#
REQ0# REQ1# / GPIO50 REQ2# / GPIO52 REQ3# / GPIO54
GNT0# GNT1# / GPIO51 GNT2# / GPIO53 GNT3# / GPIO55
PIRQE# / GPIO2 PIRQF# / GPIO3 PIRQG# / GPIO4 PIRQH# / GPIO5
PCIRST# SERR# PERR# IRDY# PAR DEVSEL# FRAME# PLOCK# STOP# TRDY# PME# PLTRST#
CLKOUT_PCI0 CLKOUT_PCI1 CLKOUT_PCI2 CLKOUT_PCI3 CLKOUT_PCI4
NV_CE#0 NV_CE#1 NV_CE#2 NV_CE#3 NV_DQS0 NV_DQS1
NV_DQ0 / NV_IO0 … NV_DQ15 / NV_IO15
NV_ALE NV_CLE NV_RCOMP NV_RB# NV_WR#0_RE# NV_WR#1_RE# NV_WE#_CK0 NV_WE#_CK1
USBP0N … USBP13P USBRBIAS# USBRBIAS
OC0# / GPIO59 OC1# / GPIO40 OC2# / GPIO41 OC3# / GPIO42 OC4# / GPIO43 OC5# / GPIO9 OC6# / GPIO10 OC7# / GPIO14
NOTE: USB Port 6,7 may not be available in all Ibex Peak SKUs.
2009/01/23 修改
R134 X_1KR0402
R129 X_1KR0402
R123 X_1KR0402
R483 X_32.4R1%0402-RH
R452 22.6R1%0402
R166 10KR0402
USB_OC#
+3VSUS
R122 0R0402
+3VRUN
R125 X_10KR0402
R116 X_10KR0402
Q12 X_NN-2N7002DW-7-F_SOT363-6-RH
19 DGPU_SELECT#
DGPU_PWM_SELECT#
R157 X_1KR0402
19 DGPU_PWM_SELECT#
PCI_REQ#2
TP26 TPJNC_TP26
21 CLK_PCI_FB
30 CLK_PCI_KBC
30 CLK_PCIF_PORT80
R428 22R0402 CLKOUT_PCI1
R136 22R0402 CLKOUT_PCI2
R427 22R0402 CLKOUT_PCI3
EC95 X_C10p50N0402
EC41 X_C10p50N0402
EC94 X_C10p50N0402
EMI
RN12 8P4R-8.2KR0402-1
RN11 8P4R-8.2KR0402-1
RN14 8P4R-8.2KR0402-1
RN5 8P4R-8.2KR0402-1
RN13 8P4R-8.2KR0402-1
R150 10KR0402
C532 C0.1u10X0402
U24 S08P5X_SC70
PLT_RST#
25 DGPU_HOLD_RST#
PCIE_RST# 11
C316 C0.1u10X0402
U23 S08P5X_SC70
RN9 8P4R-33R0402
NEWCARD_RST# 34
WLAN_RST# 35
LPC_RST# 30
LAN_RST# 31
ER18
BUF_PTL_RST# 3

IBEXPEAK - M (GPIO,VSS_NCTF,RSVD)



MICRO-STAR INT'L CO.,LTD.

Title	IBEXPEAK-M(GPIO,VSS_NCTF,RSVD)
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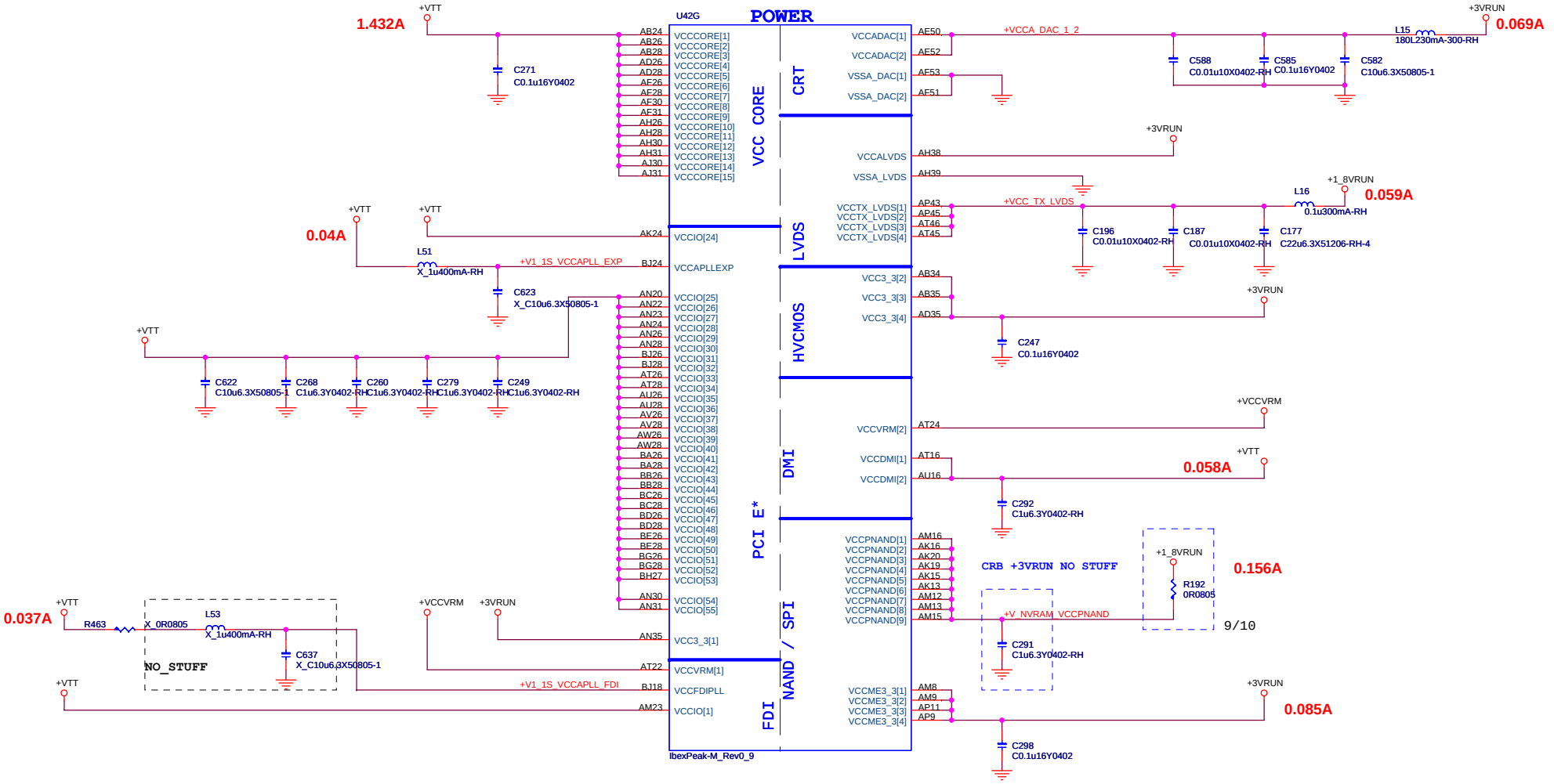
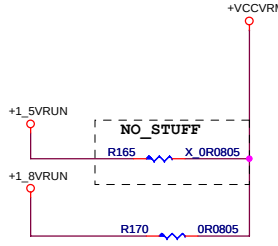
IBEXPEAK - M (POWER)



The VCCVRM rail (1.8 V/1.5 V) powers an internal voltage regulator module (VRM) that regulates clean 1.05-V voltage supply for analog rails (VCCACLk, VccapllEXP, VCCFDIPLL, and VCCSATAPLL). This solution will allow us to remove the LC filter requirements for those rails, thereby reducing platform BOM cost. VCCVRM is enabled by default via internal pull up to GPIO27, therefore GPIO27 should be left as No Connect. The following diagram shows implementation details on how to enable and disable VccVRM.



MICRO-STAR INT'L CO.,LTD.

Title	IBEXPEAK - M (POWER)	
Size: Custom	Document Number: MS-1688	Rev: 0A
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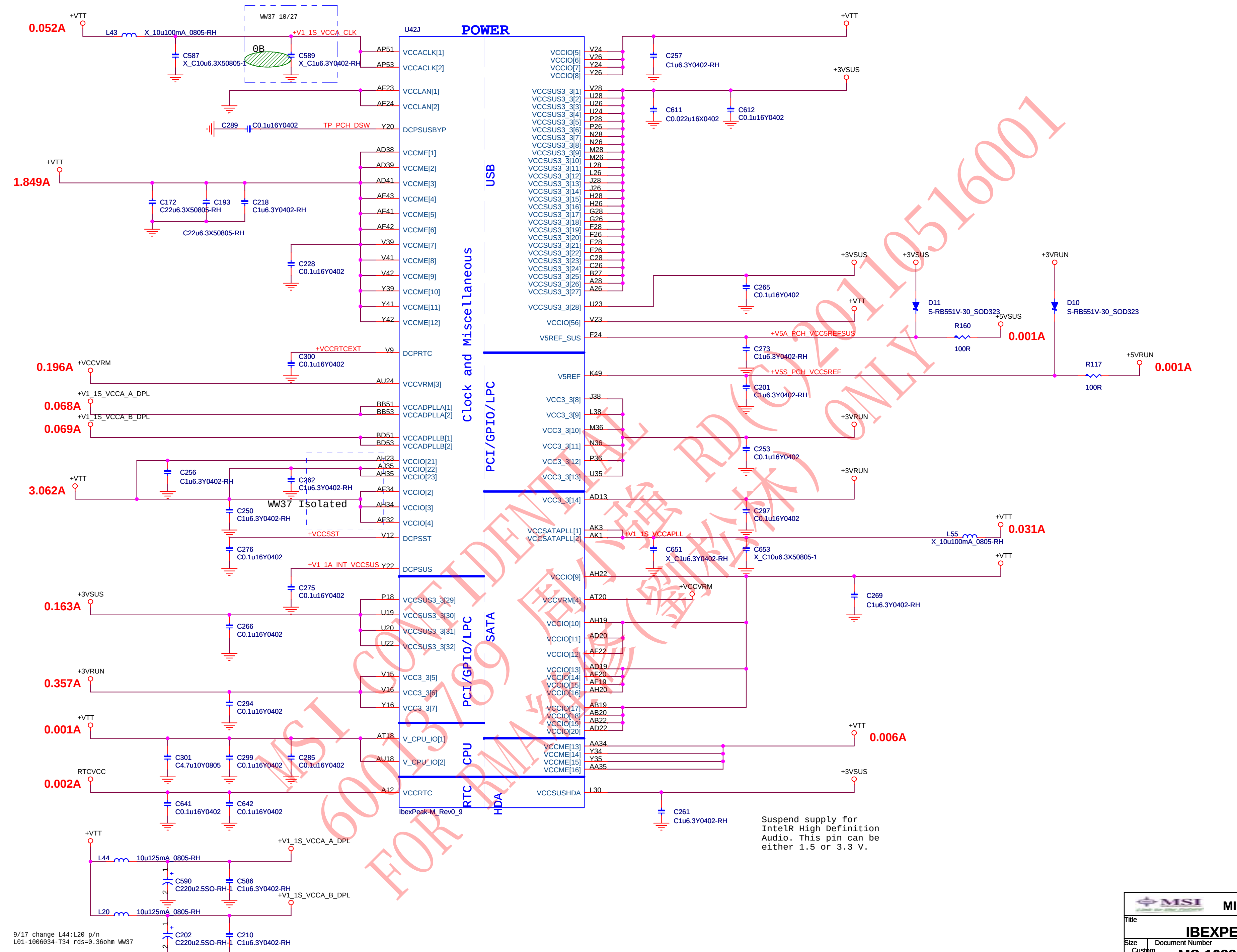
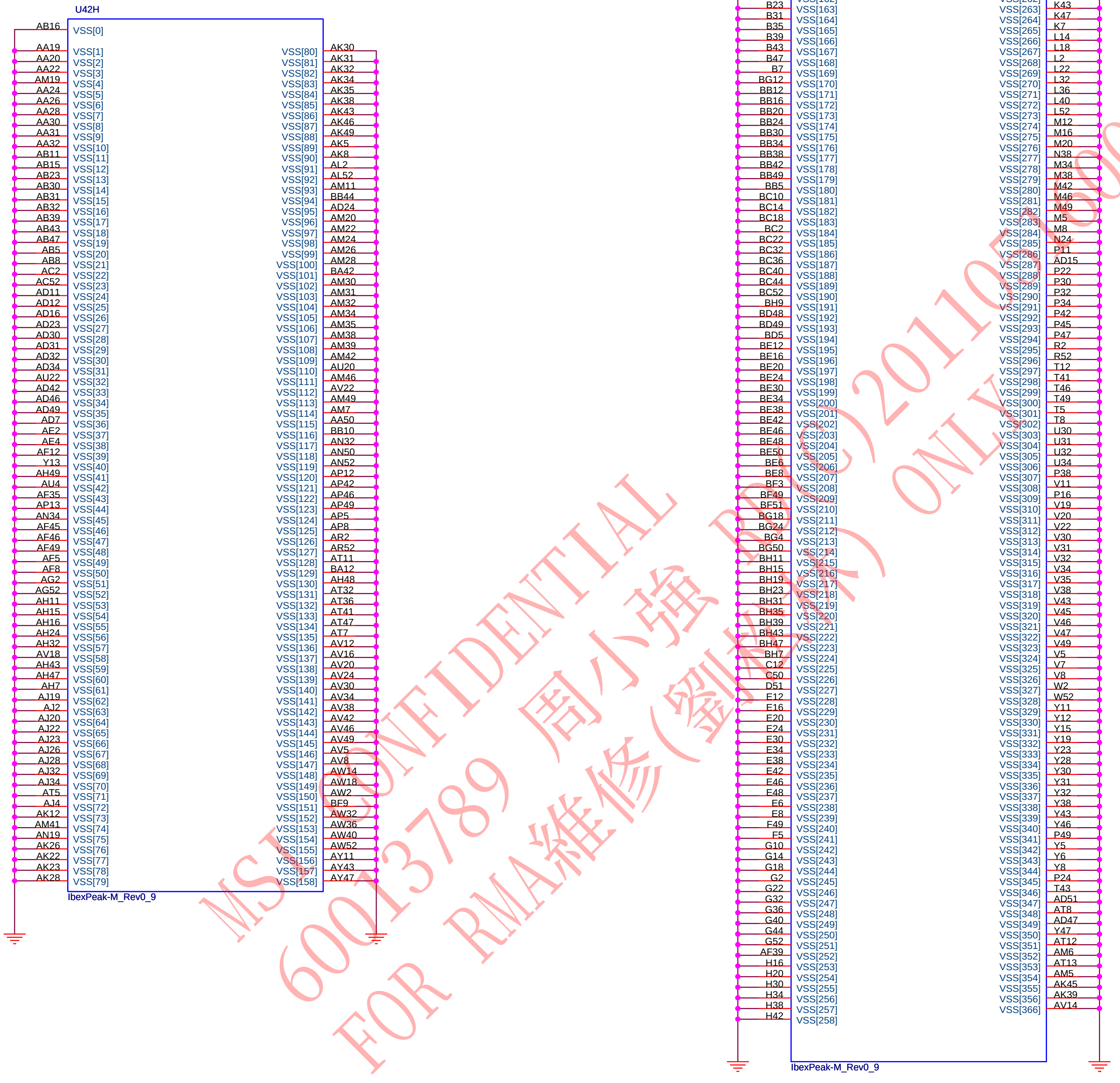
VccLAN may be grounded if Intel LAN is disabled.

IBEXPEAK - M (POWER)



Suspend supply for IntelR High Definition Audio. This pin can be either 1.5 or 3.3 V.

IBEXPEAK - M (GND)



MICRO-STAR INT'L CO.,LTD.

Title: **IBEXPEAK - M (GND)**

Size	Document Number	Rev
Custom	MS-1688	0A

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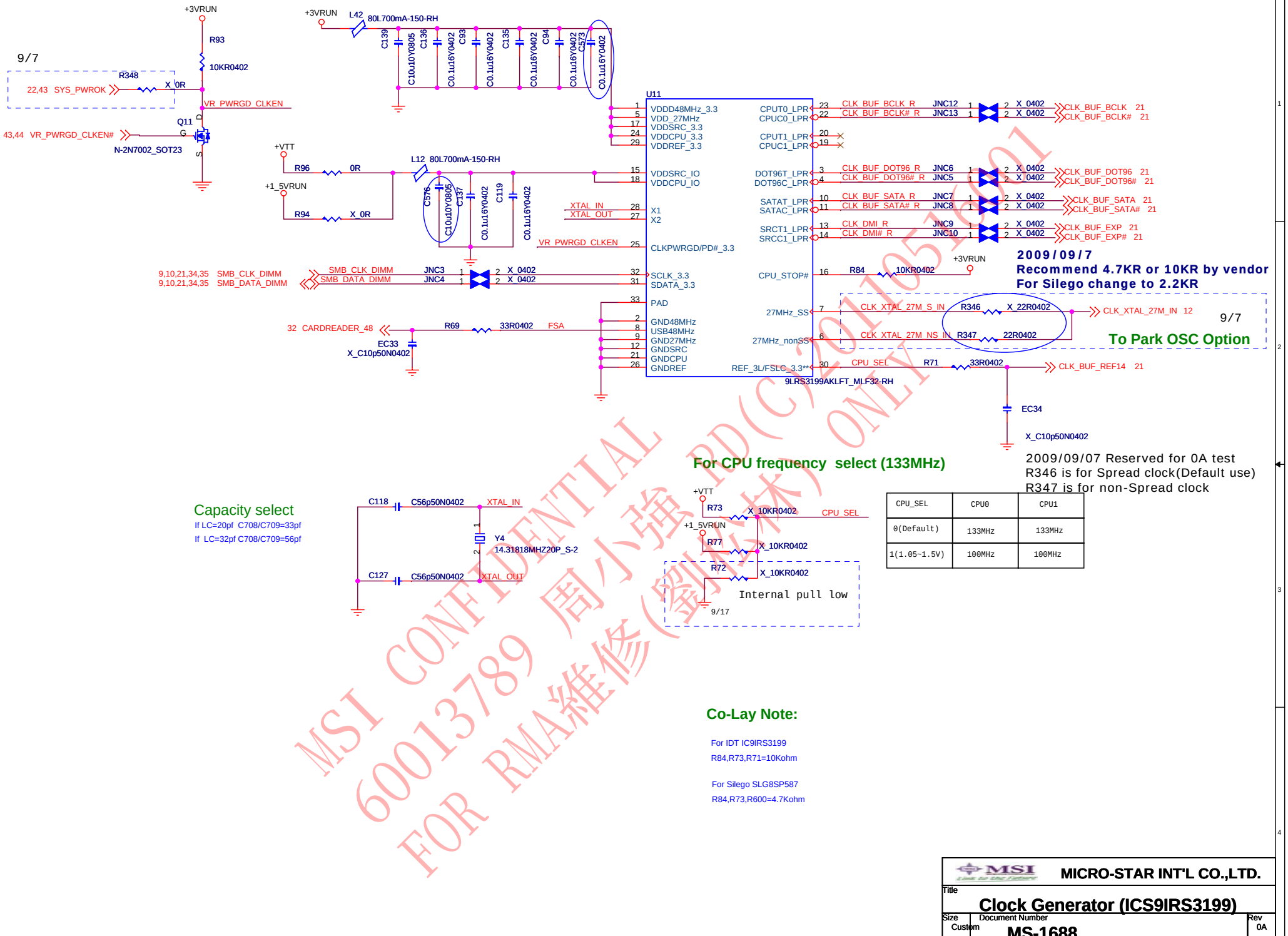

CPU_SEL	CPU0	CPU1
0(Default)	133MHz	133MHz
1(1.05~1.5V)	100MHz	100MHz

MICRO-STAR INT'L CO.,LTD.

Title: Clock Generator (ICS9IRS3199)

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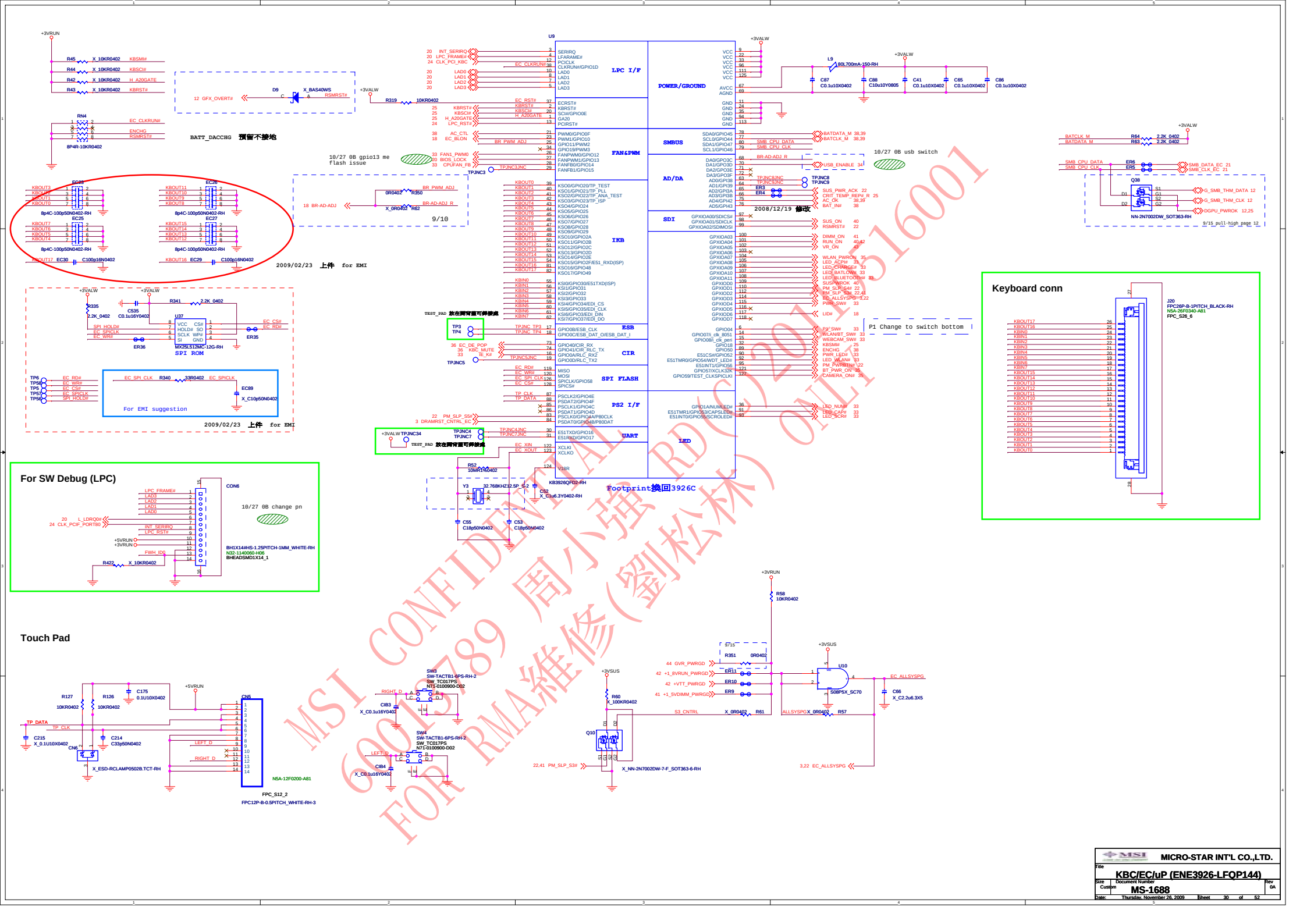

MICRO-STAR INT'L CO.,LTD.	
Title	KBC/EC/uP (ENE3926-LFQP144)
Size: Custom	Document Number: MS-1688
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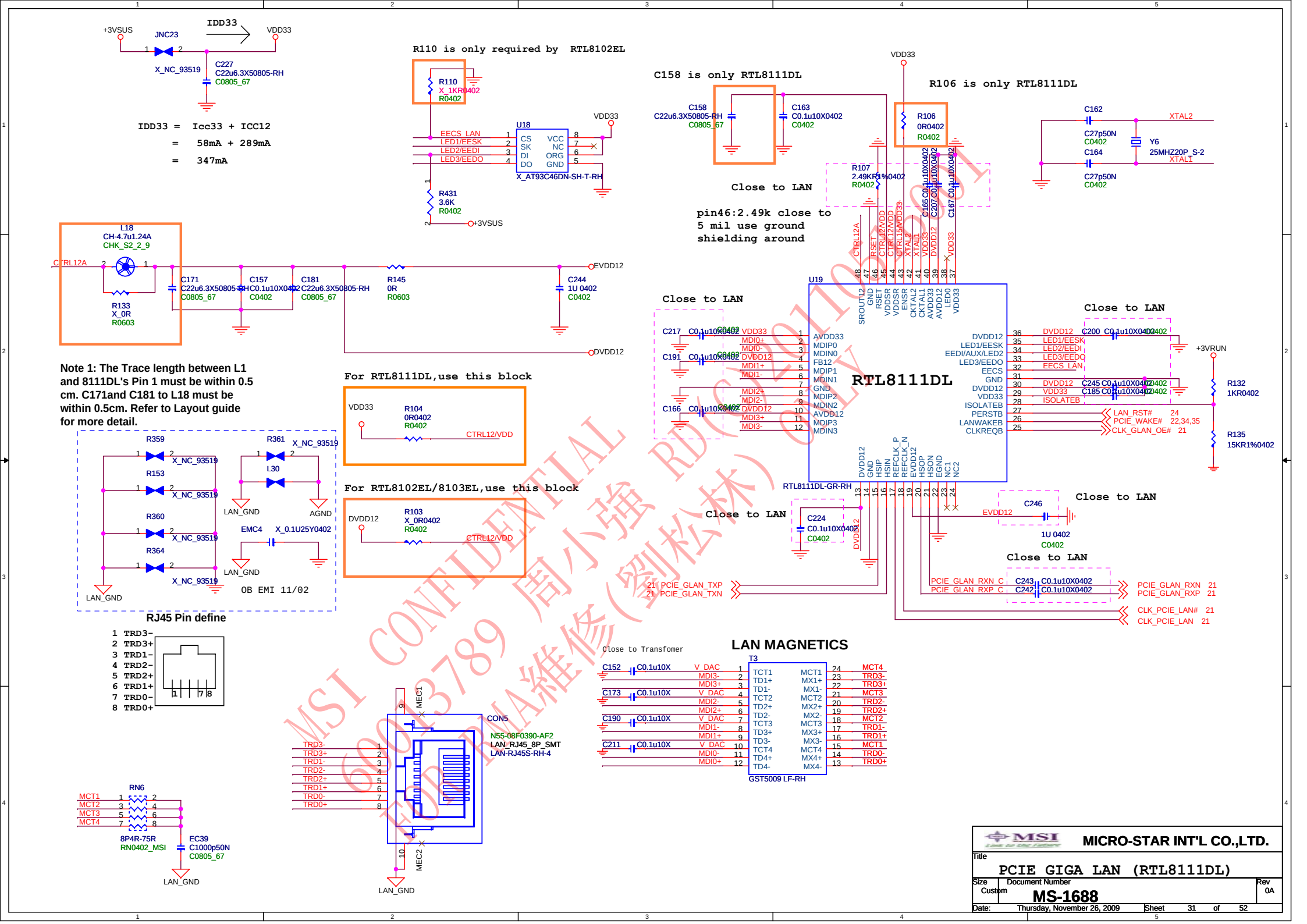
Date: Thursday, November 26, 2009	Sheet 30 of 52



MICRO-STAR INT'L CO.,LTD.			
Title: PCIE GIGA LAN (RTL8111DL)			
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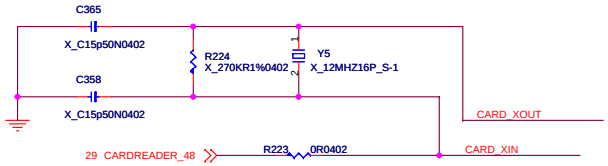
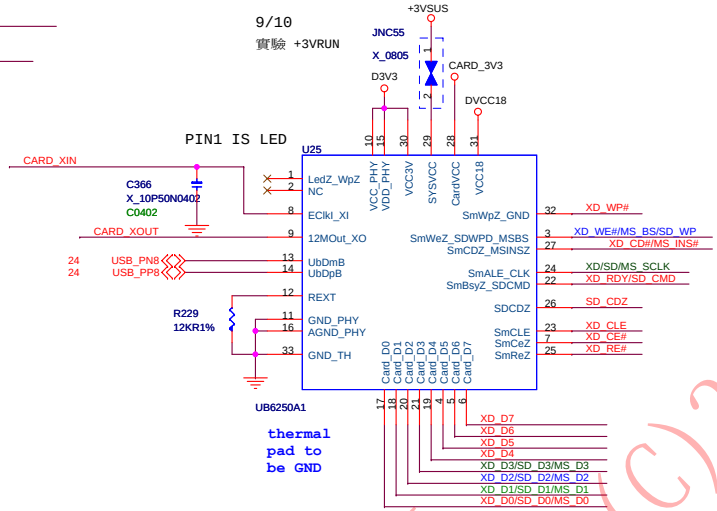
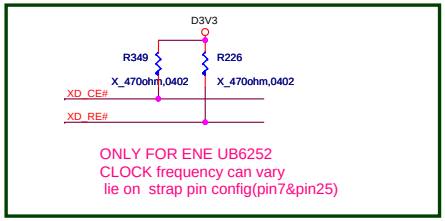


9/10
實驗 +3VRUN



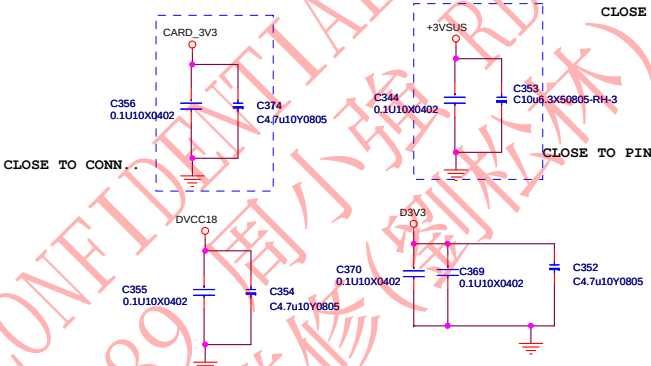
ENE UB6250 USB20 Flash Card Reader Controller
Pins for SD, MMC, MS, and xD memory cards

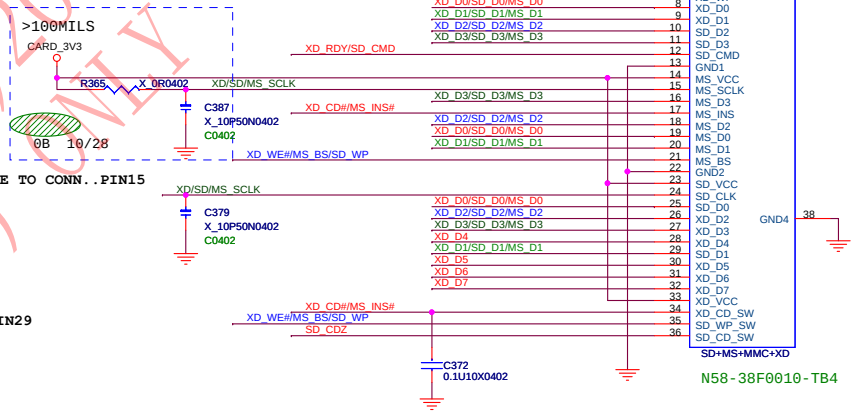
Name	No	I/O	XD	SD	MMC	MS
xDCeZ	7	O	xD card EN			
xDCle	23	O	xD CMD latch EN			
xDAle	24	O	xD ADDR latch EN	SD clock	MMC clock	MS serial clock
xDBsyZ	22	B	xD Ready/busy	SD CMD/response	MMC CMD/response	
xDData0	17	B	xD D0	SD D0	MMC D0	MS D0
xDData1	18	B	xD D1	SD D1	MMC D1	MS D1
xDData2	20	B	xD D2	SD D2	MMC D2	MS D2
xDData3	21	B	xD D3	SD D3	MMC D3	MS D3
xDData4	19	B	xD D4		MMC D4	MS D4
xDData5	4	B	xD D5		MMC D5	MS D5
xDData6	5	B	xD D6		MMC D6	MS D6
xDData7	6	B	xD D7		MMC D7	MS D7
xDWeZ	3	B	xD W EN	SD WP		MS Busy
xDReZ	25	O	xD R EN			
xDWpZ	32	O	xD WP			
SdCdZ	26	I		SD CD	MMC CD	
xDCdZ	27	I	xD CD			MS CD



Configurations for Clock Source Selection:

4.7K Pull-high Resistor on		Frequency of external clock source to EClkin pin
xDReZ	xDCeZ	
NC	NC	48MHz
NC	O	24MHz
O	NC	12MHz





MICRO-STAR INT'L CO.,LTD.

Title: Cardreader(UB6250)

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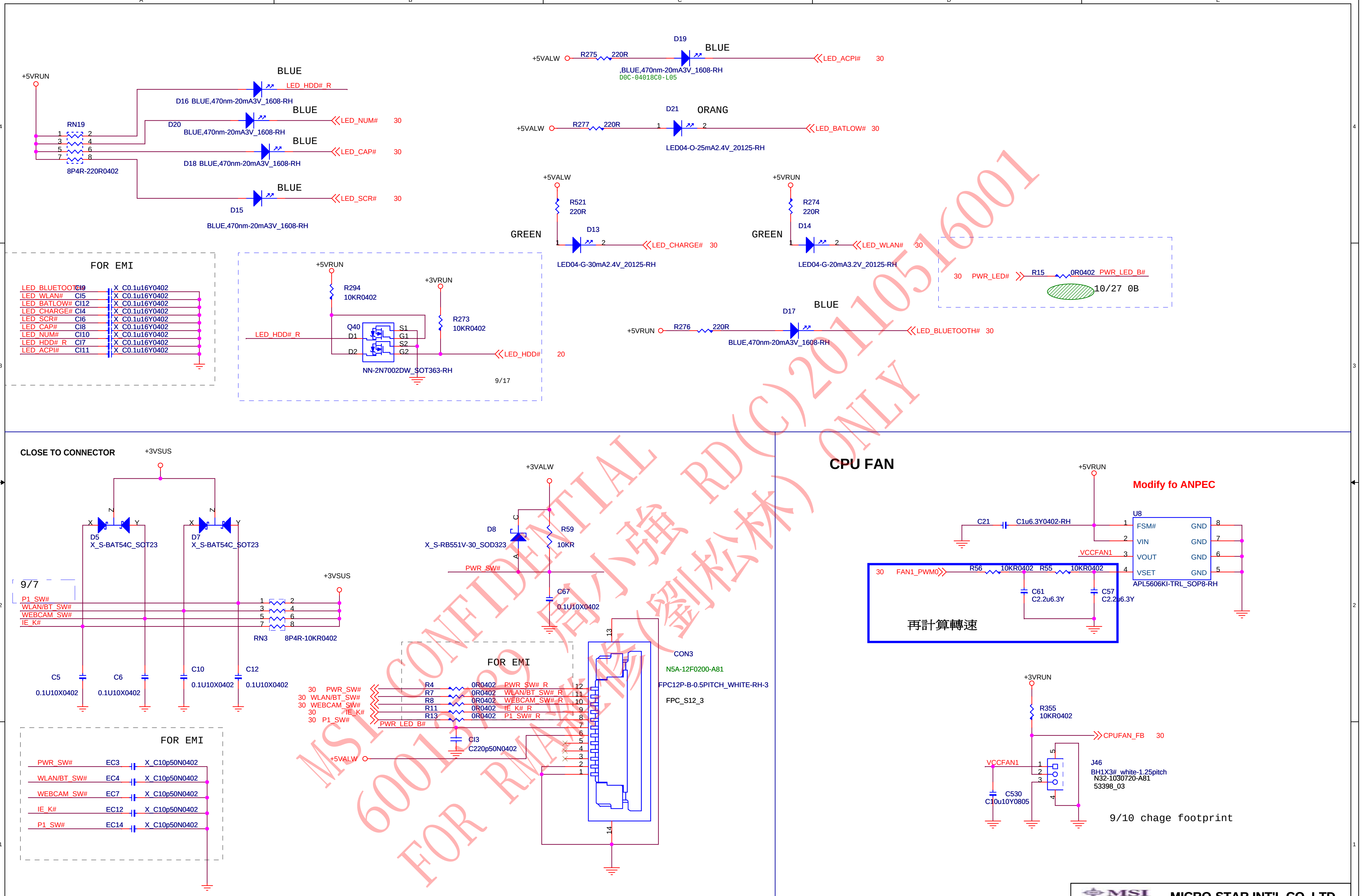

BLUE
LED_HDD#_R
D16 BLUE,470nm-20mA3V_1608-RH
+5VRUN
RN19
8P4R-220R0402
D20
BLUE,470nm-20mA3V_1608-RH
LED_NUM# 30
D18 BLUE,470nm-20mA3V_1608-RH
LED_CAP# 30
D15
LED_SCR# 30
BLUE,470nm-20mA3V_1608-RH
D19
+5VALW R275 220R
,BLUE,470nm-20mA3V_1608-RH
D0C-04018C0-L05
LED_ACPI# 30
D21 ORANG
+5VALW R277 220R
LED_BATLOW# 30
LED04-O-25mA2.4V_20125-RH
+5VALW R521 220R
GREEN D13
LED_CHARGE# 30
LED04-G-30mA2.4V_20125-RH
+5VRUN R274 220R
GREEN D14
LED_WLAN# 30
LED04-G-20mA3.2V_20125-RH
FOR EMI
LED_BLUETOOTH# CI9
LED_WLAN# CI5
LED_BATLOW# CI12
LED_CHARGE# CI4
LED_SCR# CI6
LED_CAP# CI8
LED_NUM# CI10
LED_HDD#_R CI7
LED_ACPI# CI11
X_C0.1u16Y0402
+5VRUN R294 10KR0402
+3VRUN R273 10KR0402
Q40 D1 D2 S1 G1 S2 G2
NN-2N7002DW_SOT363-RH
LED_HDD# 20
9/17
30 PWR_LED# R15 0R0402 PWR_LED_B#
10/27 0B
D17 BLUE
+5VRUN R276 220R
BLUE,470nm-20mA3V_1608-RH
LED_BLUETOOTH# 30
CLOSE TO CONNECTOR
+3VSUS
D5 X_S-BAT54C_SOT23
D7 X_S-BAT54C_SOT23
9/7
P1_SW#
WLAN/BT_SW#
WEBCAM_SW#
IE_K#
RN3 8P4R-10KR0402
C5 0.1U10X0402
C6 0.1U10X0402
C10 0.1U10X0402
C12 0.1U10X0402
FOR EMI
PWR_SW# EC3 X_C10p50N0402
WLAN/BT_SW# EC4 X_C10p50N0402
WEBCAM_SW# EC7 X_C10p50N0402
IE_K# EC12 X_C10p50N0402
P1_SW# EC14 X_C10p50N0402
+3VALW
D8 X_S-RB551V-30_SOD323
R59 10KR
PWR_SW#
C67 0.1U10X0402
FOR EMI
30 PWR_SW# R4 0R0402 PWR_SW#_R
30 WLAN/BT_SW# R7 0R0402 WLAN/BT_SW#_R
30 WEBCAM_SW# R8 0R0402 WEBCAM_SW#_R
30 IE_K# R11 0R0402 IE_K#_R
30 P1_SW# R13 0R0402 P1_SW#_R
PWR_LED_B#
CI3 C220p50N0402
+5VALW
CON3
N5A-12F0200-A81
FPC12P-B-0.5PITCH_WHITE-RH-3
FPC_S12_3
CPU FAN
+5VRUN
Modify fo ANPEC
U8
C21 C1u6.3Y0402-RH
FSM# VIN VOUT VSET GND
VCCFAN1
30 FAN1_PWM0 R56 10KR0402 R55 10KR0402
C61 C2.2u6.3Y
C57 C2.2u6.3Y
APL5606KI-TRL_SOP8-RH
再計算轉速
+3VRUN
R355 10KR0402
CPUFAN_FB 30
VCCFAN1
J46
BH1X3#_white-1.25pitch
N32-1030720-A81
53398_03
C530 C10u10Y0805
9/10 chage footprint

MICRO-STAR INT'L CO.,LTD.

Title: FAN,LED,Lauch board conn

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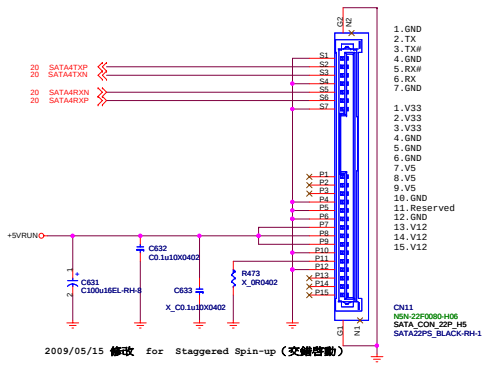
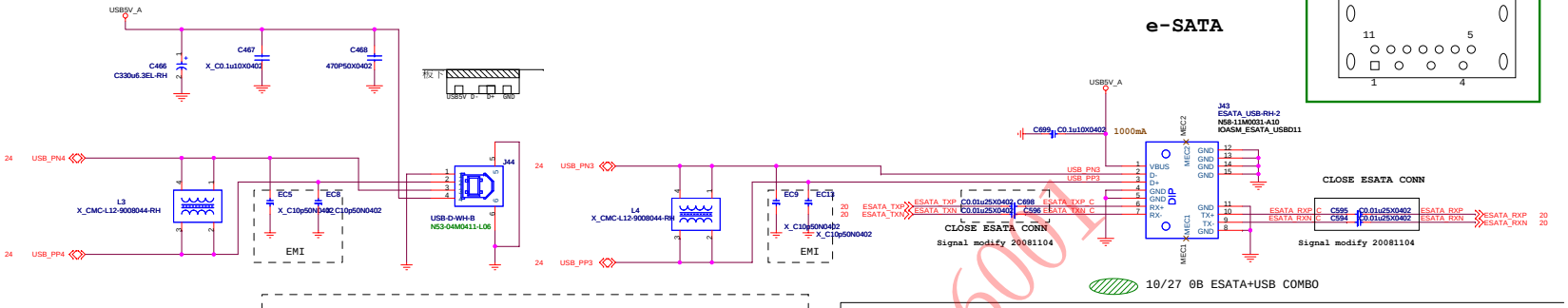
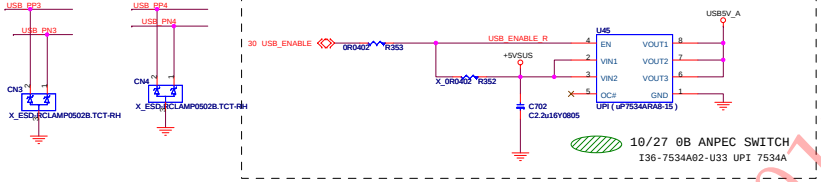
SATA HDD

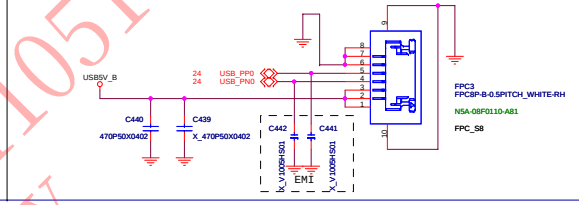


USB Port

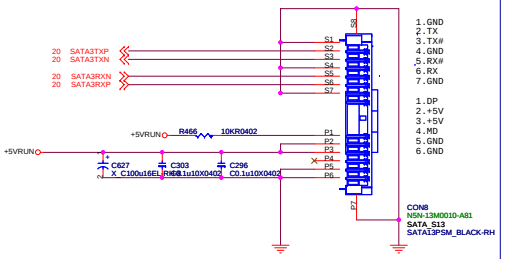




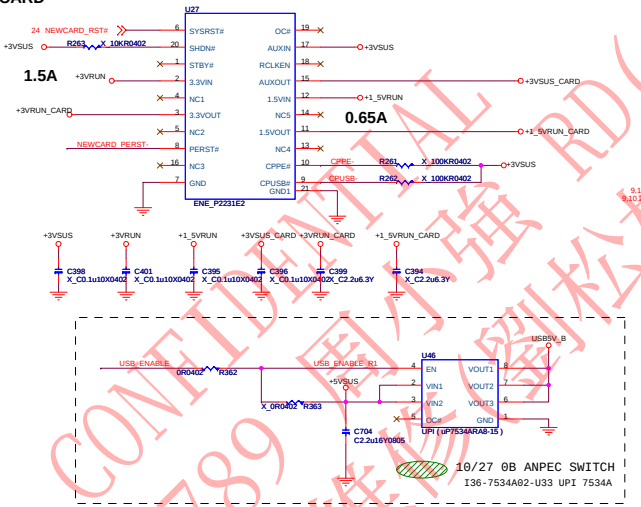
USB Port (to daughter board)

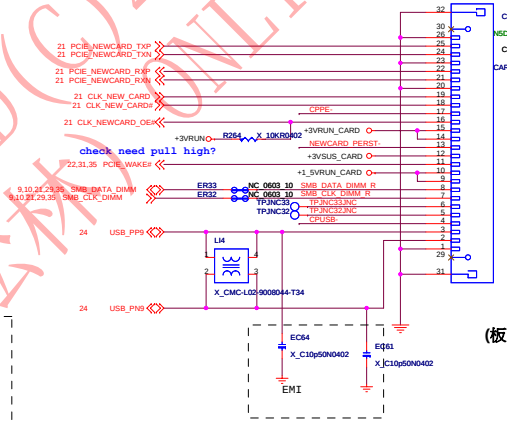


SATA ODD



NEW CARD





MICRO-STAR INT'L CO.,LTD.

Title: HDD,CDROM,USB,ESATA,NEW CARD

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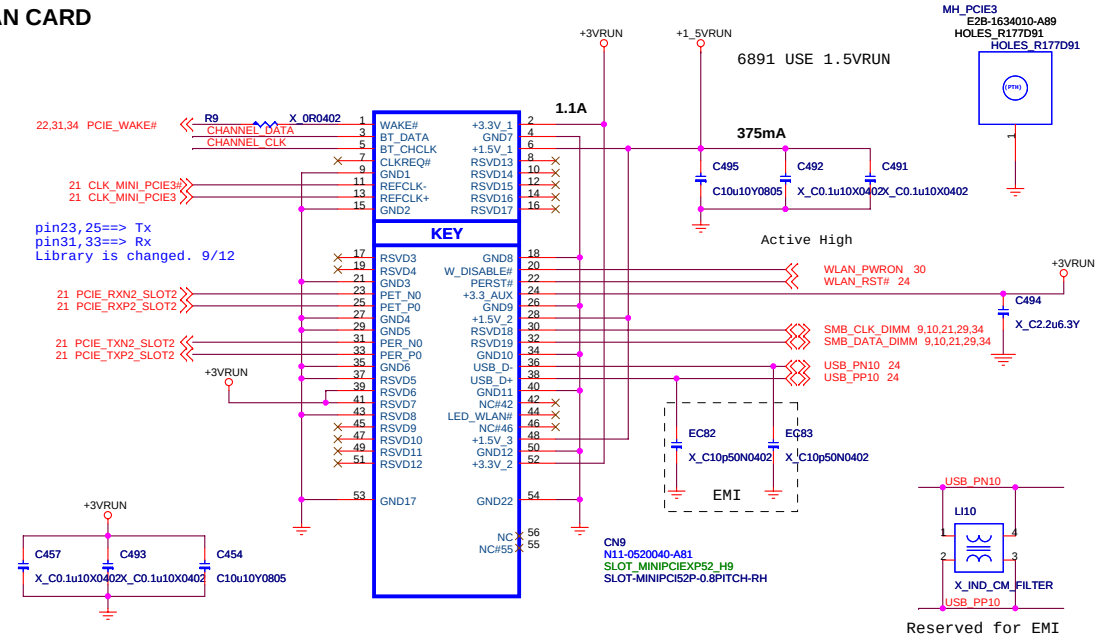
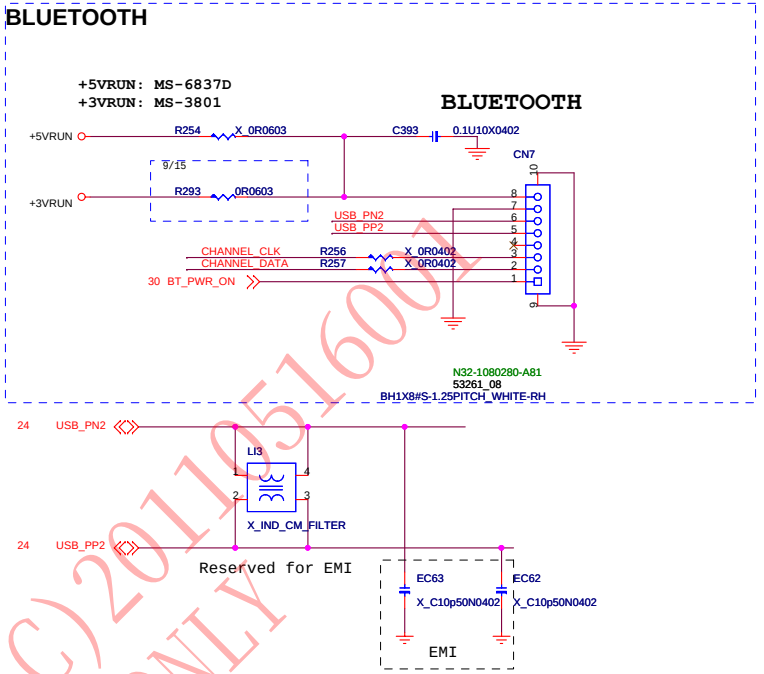
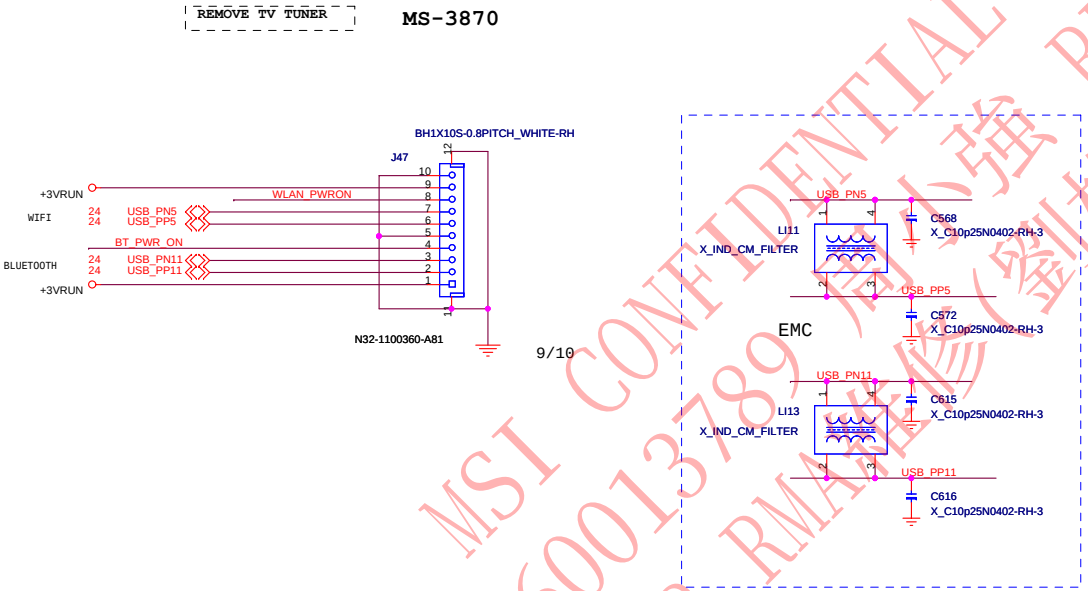
WLAN CARD



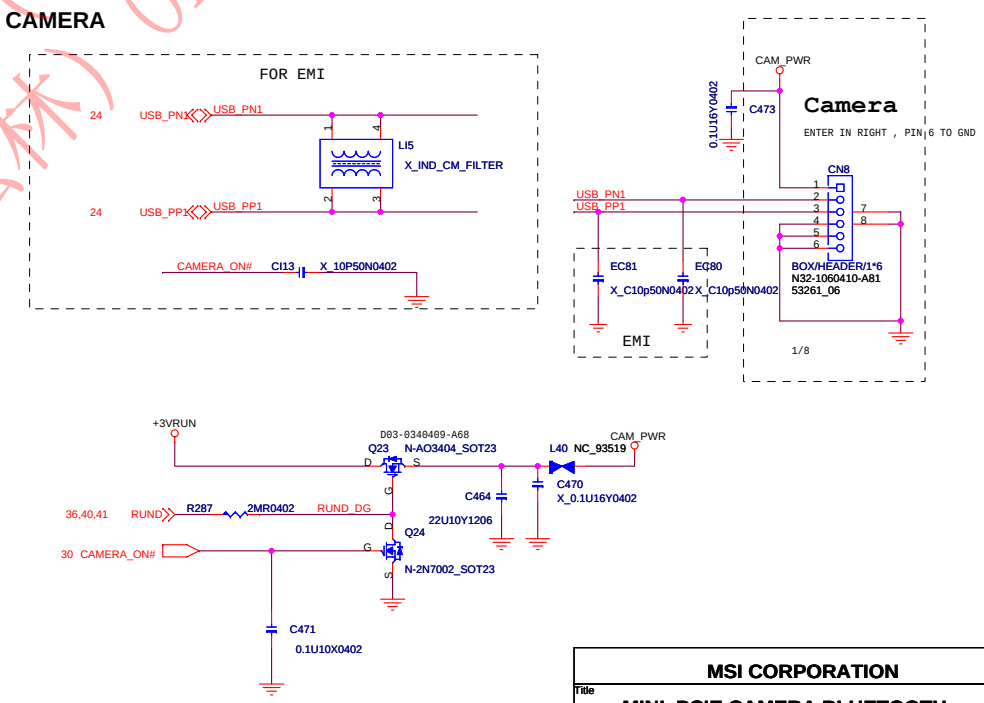
BLUETOOTH



MS-3870



CAMERA



MSI CORPORATION		
Title: MINI_PCIE,CAMERA,BLUETOOTH		
Size: Custom	Document Number: MS-1688	Rev: 0A
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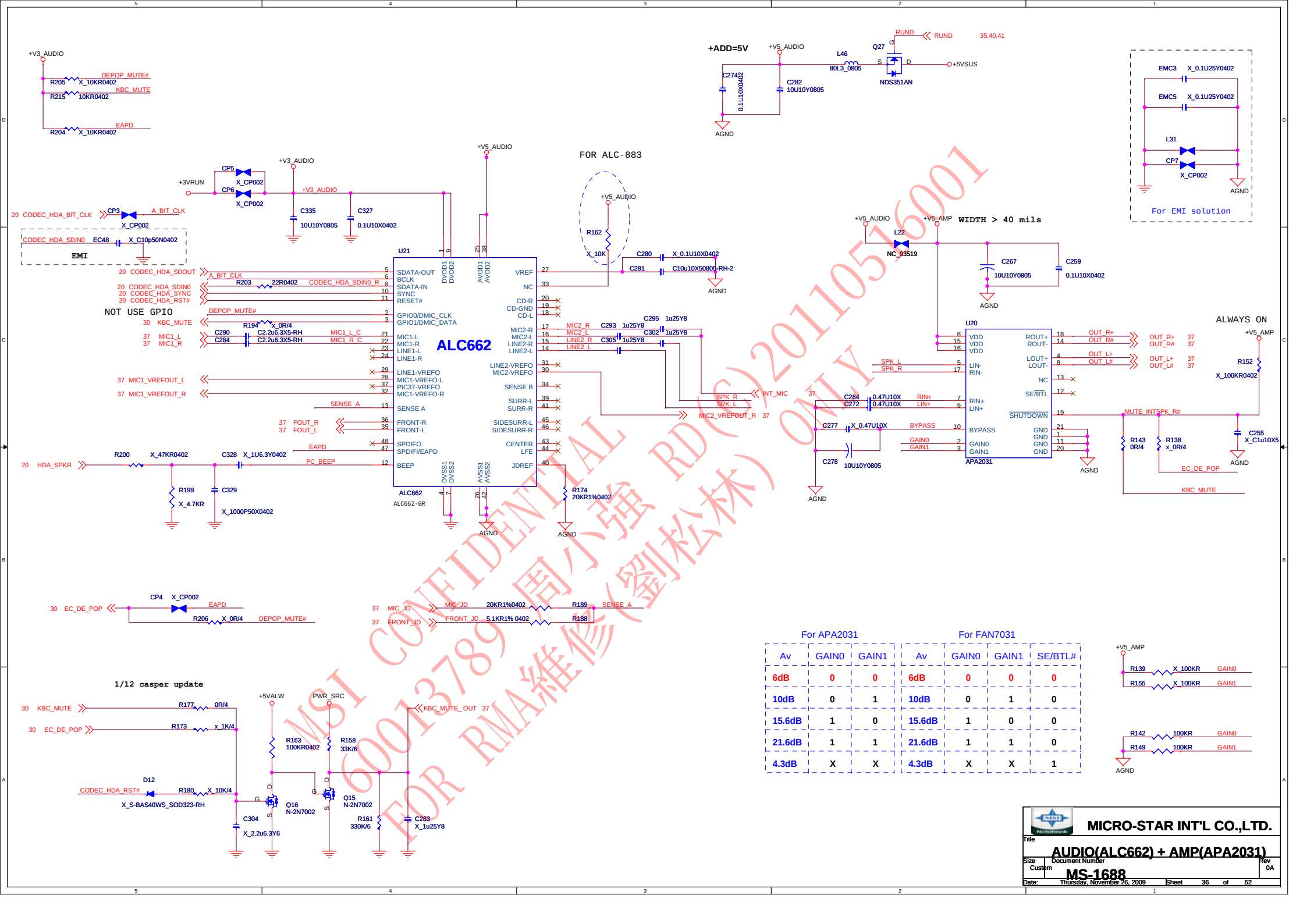
+V3_AUDIO
DEPOP_MUTE#
R205 X_10KR0402
KBC_MUTE
R215 10KR0402
EAPD
R204 X_10KR0402
+ADD=5V
+V5_AUDIO
L46
80L3_0805
Q27
NDS351AN
RUND
RUND
35,40,41
+5VSUS
C274
0.1U10X0402
C282
10U10Y0805
AGND
EMC3 X_0.1U25Y0402
EMC5 X_0.1U25Y0402
L31
CP7
X_CP002
AGND
For EMI solution
+3VRUN
CP5
CP6
X_CP002
+V3_AUDIO
C335
10U10Y0805
C327
0.1U10X0402
20 CODEC_HDA_BIT_CLK
CP3
A_BIT_CLK
X_CP002
CODEC_HDA_SDIN0 EC48 X_C10p50N0402
EMI
FOR ALC-883
R162
X_10K
C280 X_0.1U10X0402
C281 C10u10X50805-RH-2
AGND
U21
ALC662
ALC662-GR
20 CODEC_HDA_SDOUT
20 CODEC_HDA_SDIN0
20 CODEC_HDA_SYNC
20 CODEC_HDA_RST#
A_BIT_CLK
R203 22R0402
CODEC_HDA_SDIN0_R
SDATA-OUT
BCLK
SDATA-IN
SYNC
RESET#
GPIO0/DMIC_CLK
GPIO1/DMIC_DATA
NOT USE GPIO
DEPOP_MUTE#
30 KBC_MUTE
R194 x_0R/4
37 MIC1_L
37 MIC1_R
C290 C2.2u6.3X5-RH
C284 C2.2u6.3X5-RH
MIC1_L_C
MIC1_R_C
MIC1-L
MIC1-R
LINE1-L
LINE1-R
37 MIC1_VREFOUT_L
37 MIC1_VREFOUT_R
LINE1-VREFO
MIC1-VREFO-L
PIC37-VREFO
MIC1-VREFO-R
SENSE_A
SENSE A
37 FOUT_R
37 FOUT_L
FRONT-R
FRONT-L
EAPD
SPDIFO
SPDIFI/EAPD
PC_BEEP
BEEP
DVDD1
DVDD2
AVDD1
AVDD2
VREF
NC
CD-R
CD-GND
CD-L
MIC2-R
MIC2-L
LINE2-R
LINE2-L
LINE2-VREFO
MIC2-VREFO
SENSE B
SURR-L
SURR-R
SIDESURR-L
SIDESURR-R
CENTER
LFE
JDREF
DVSS1
DVSS2
AVSS1
AVSS2
MIC2_R C293 1u25Y8
MIC2_L C302 1u25Y8
LINE2_R C305 1u25Y8
LINE2_L
C295 1u25Y8
INT_MIC
MIC2_VREFOUT_R 37
SPK_R
SPK_L
R174 20KR1%0402
R200 X_47KR0402
C328 X_1U6.3Y0402
20 HDA_SPKR
R199 X_4.7KR
C329
X_1000P50X0402
+V5_AMP
WIDTH > 40 mils
L22
NC_93519
C267 10U10Y0805
C259 0.1U10X0402
AGND
U20
APA2031
VDD
ROUT+
ROUT-
LOUT+
LOUT-
LIN-
RIN-
NC
SE/BTL
SHUTDOWN
BYPASS
GAIN0
GAIN1
GND
SPK_L
SPK_R
C264 0.47U10X
C272 0.47U10X
C277 X_0.47U10X
C278 10U10Y0805
OUT_R+
OUT_R#
OUT_L+
OUT_L#
ALWAYS ON
+V5_AMP
R152 X_100KR0402
C255 X_C1u10X5
R143 0R/4
R138 x_0R/4
MUTE_INTSPK_R#
EC_DE_POP
KBC_MUTE
CP4 X_CP002
30 EC_DE_POP
EAPD
R206 X_0R/4
DEPOP_MUTE#
37 MIC_JD
37 FRONT_JD
MIC_JD 20KR1%0402 R189 SENSE_A
FRONT_JD 5.1KR1% 0402 R188
1/12 casper update
+5VALW
PWR_SRC
30 KBC_MUTE
30 EC_DE_POP
R177 0R/4
R173 x_1K/4
KBC_MUTE_OUT 37
R163 100KR0402
R158 33K/6
D12
CODEC_HDA_RST#
R180 X_10K/4
X_S-BAS40WS_SOD323-RH
Q16 N-2N7002
Q15 N-2N7002
C304 X_2.2u6.3Y6
R161 330K/6
C283 X_1u25Y8
For APA2031
For FAN7031
Av GAIN0 GAIN1
6dB 0 0
10dB 0 1
15.6dB 1 0
21.6dB 1 1
4.3dB X X
Av GAIN0 GAIN1 SE/BTL#
6dB 0 0 0
10dB 0 1 0
15.6dB 1 0 0
21.6dB 1 1 0
4.3dB X X 1
+V5_AMP
R139 X_100KR GAIN0
R155 X_100KR GAIN1
R142 100KR GAIN0
R149 100KR GAIN1
AGND
MSI CONFIDENTIAL
600013789 周小强 RD(C)20110516001
FOR RMA維修(劉松林) ONLY
MICRO-STAR INT'L CO.,LTD.
Title
AUDIO(ALC662) + AMP(APA2031)
Size Custom
Document Number MS-1688
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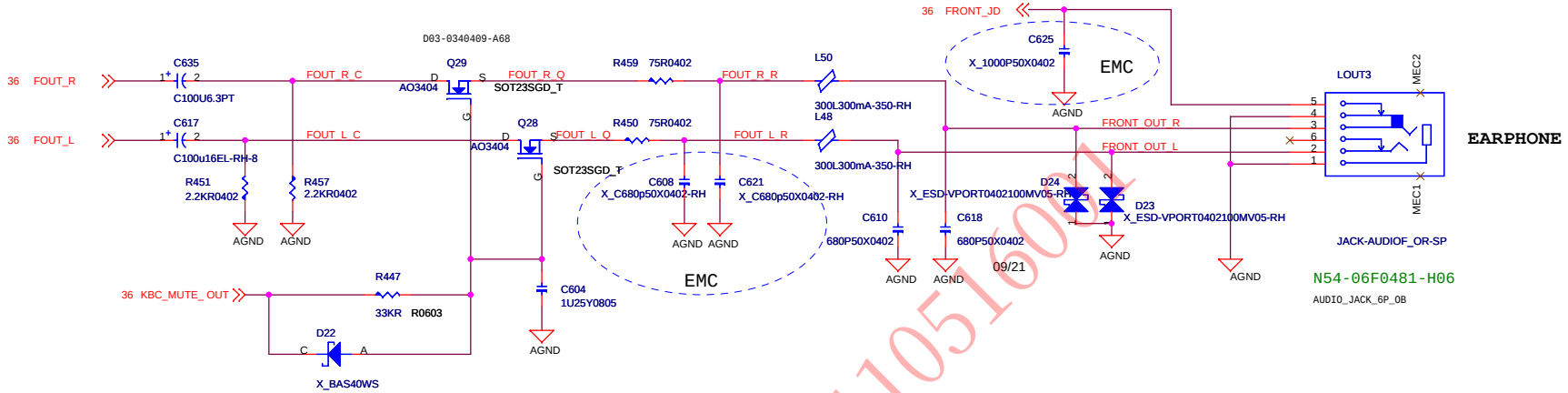
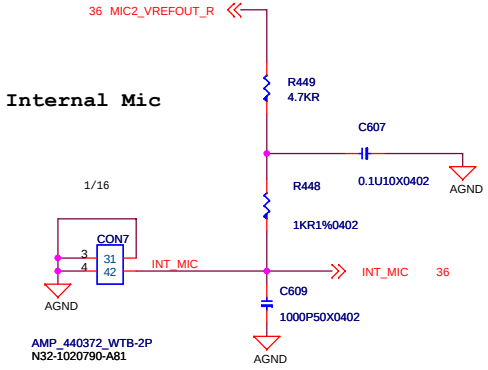
Date: Thursday, November 26, 2009
Sheet 36 of 52

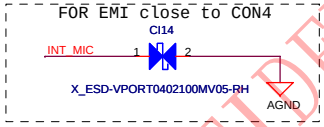
1/20 EAPD DELAY 650ms

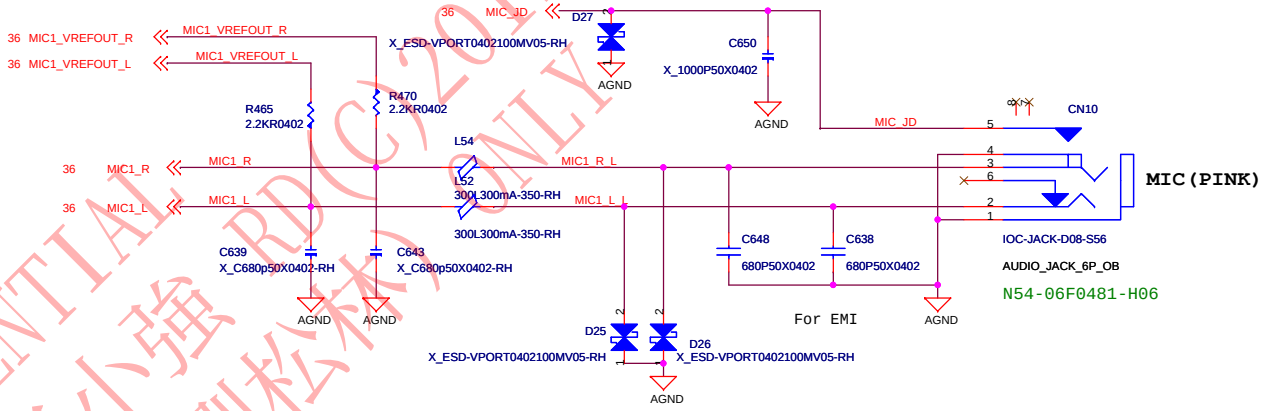
HP IN IS LOW

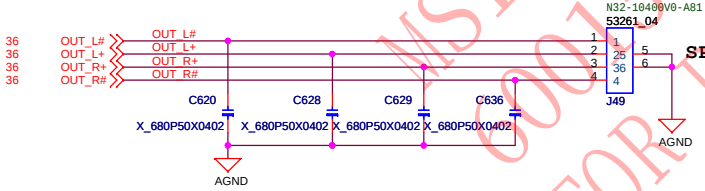
D03-0340409-A68











MICRO-STAR INT'L CO.,LTD.

Title: SPK / HP / MIC — E28/M0

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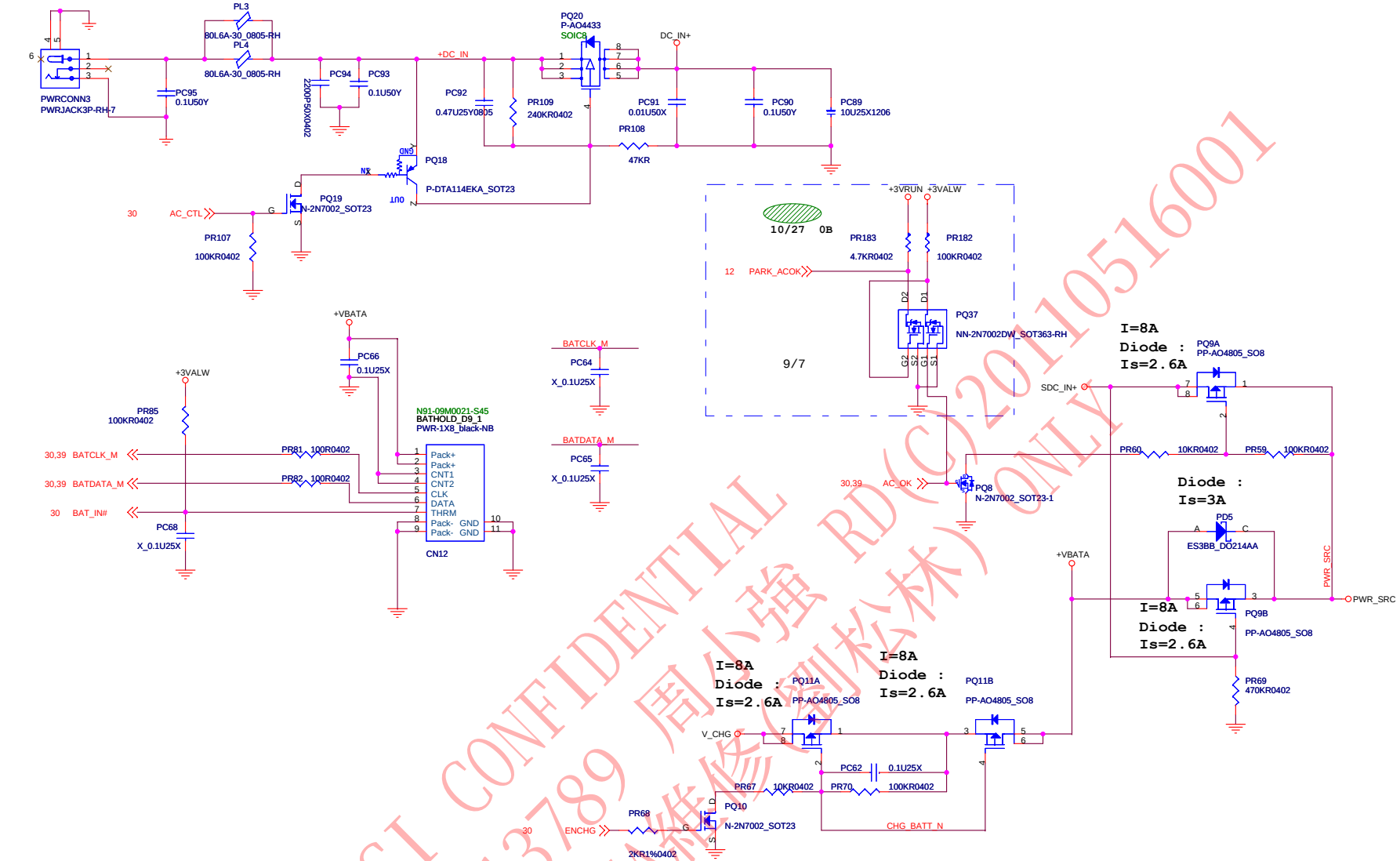
N92-03M0351-AF2



MICRO-STAR INT'L CO.,LTD.

Title: Battery select

E39/M0

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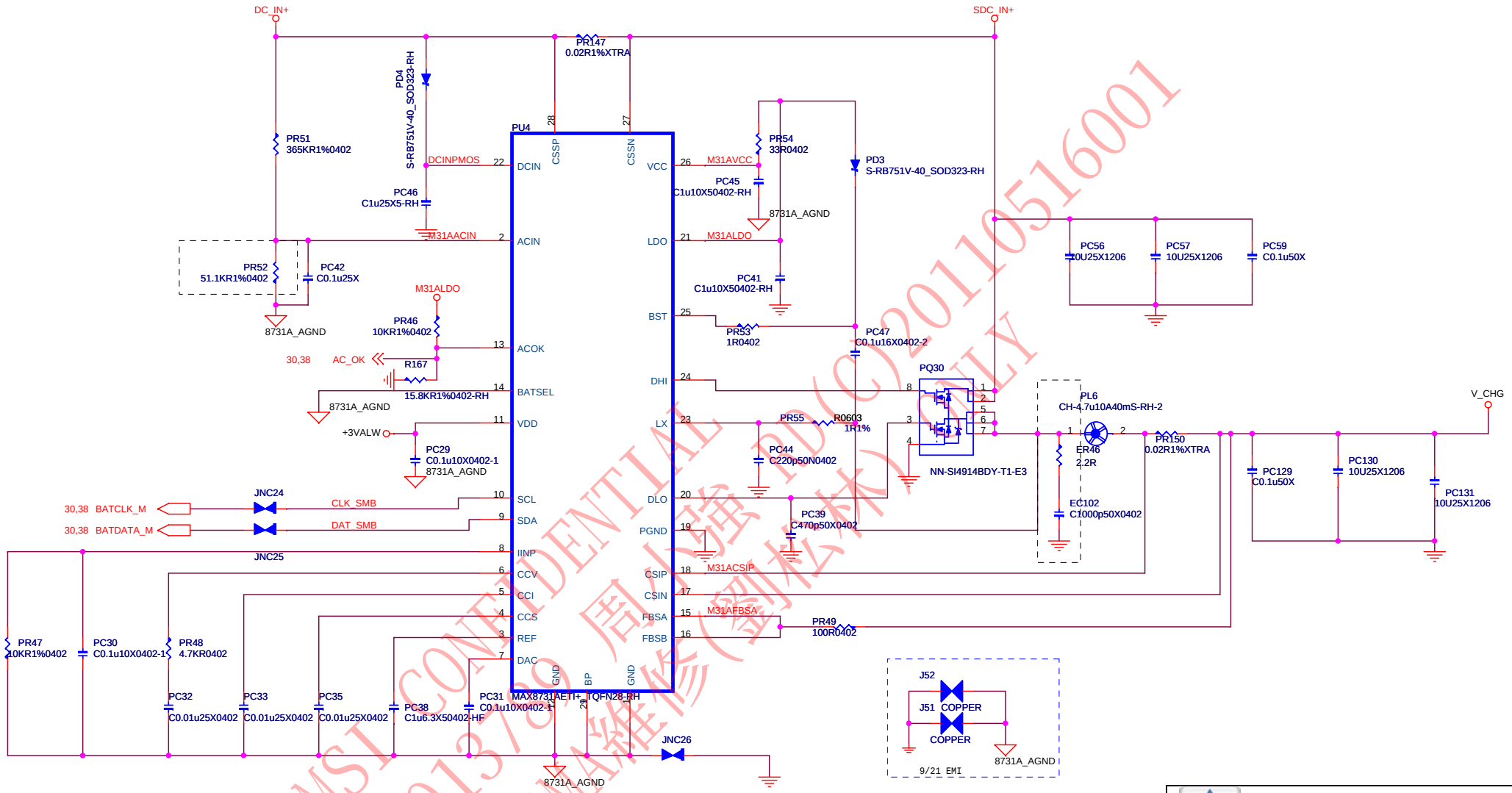
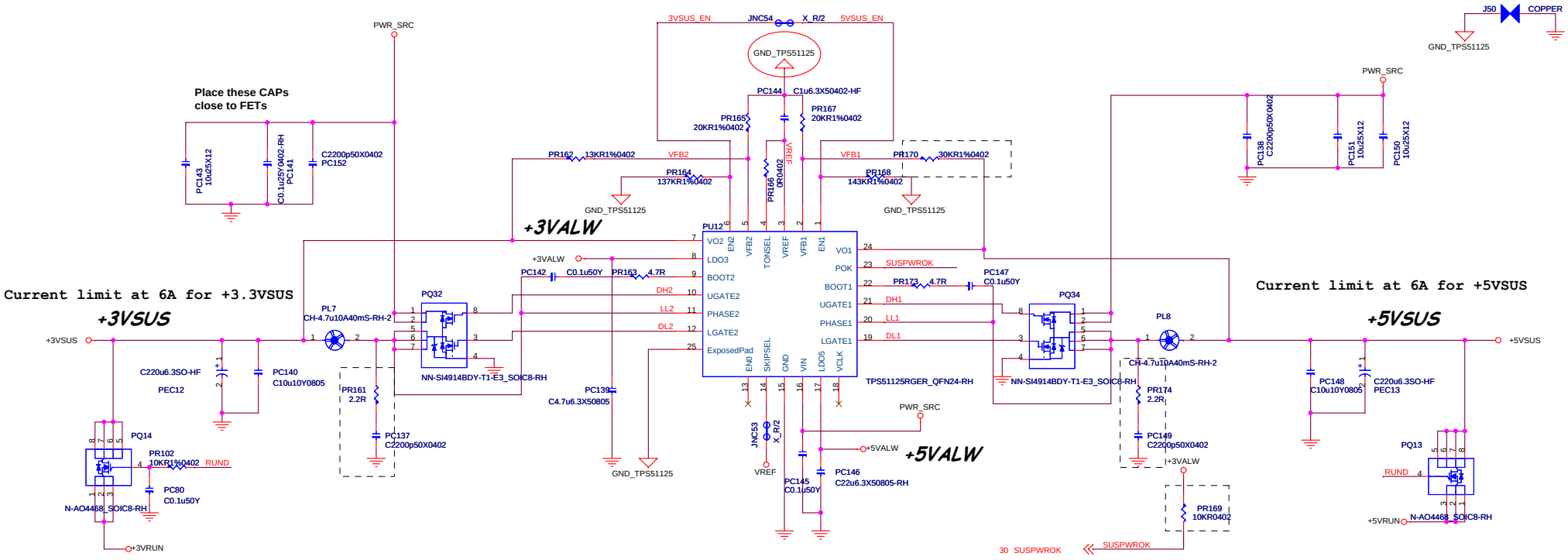
Adapter input voltage set 19 Voltage



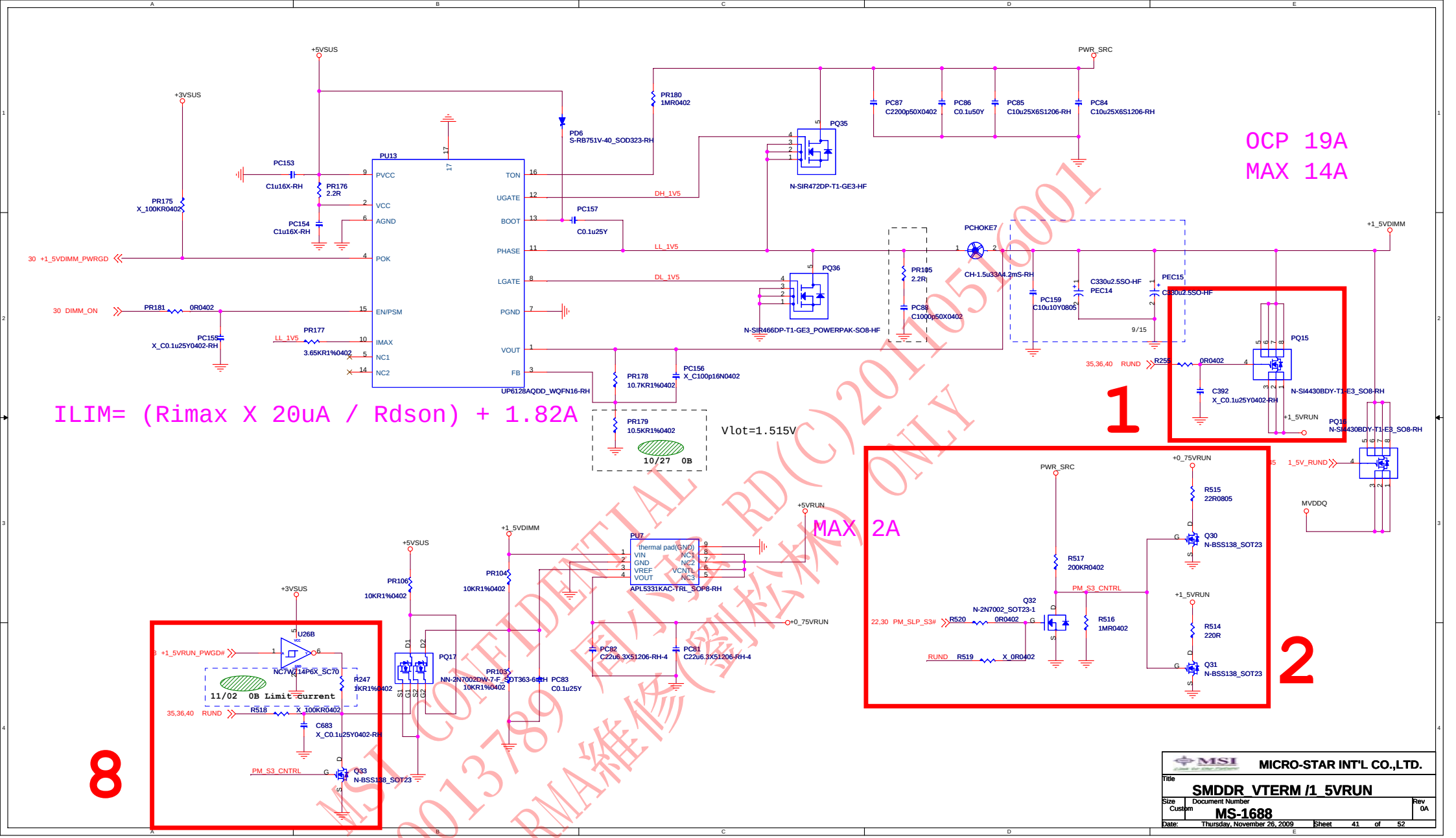
IINP :

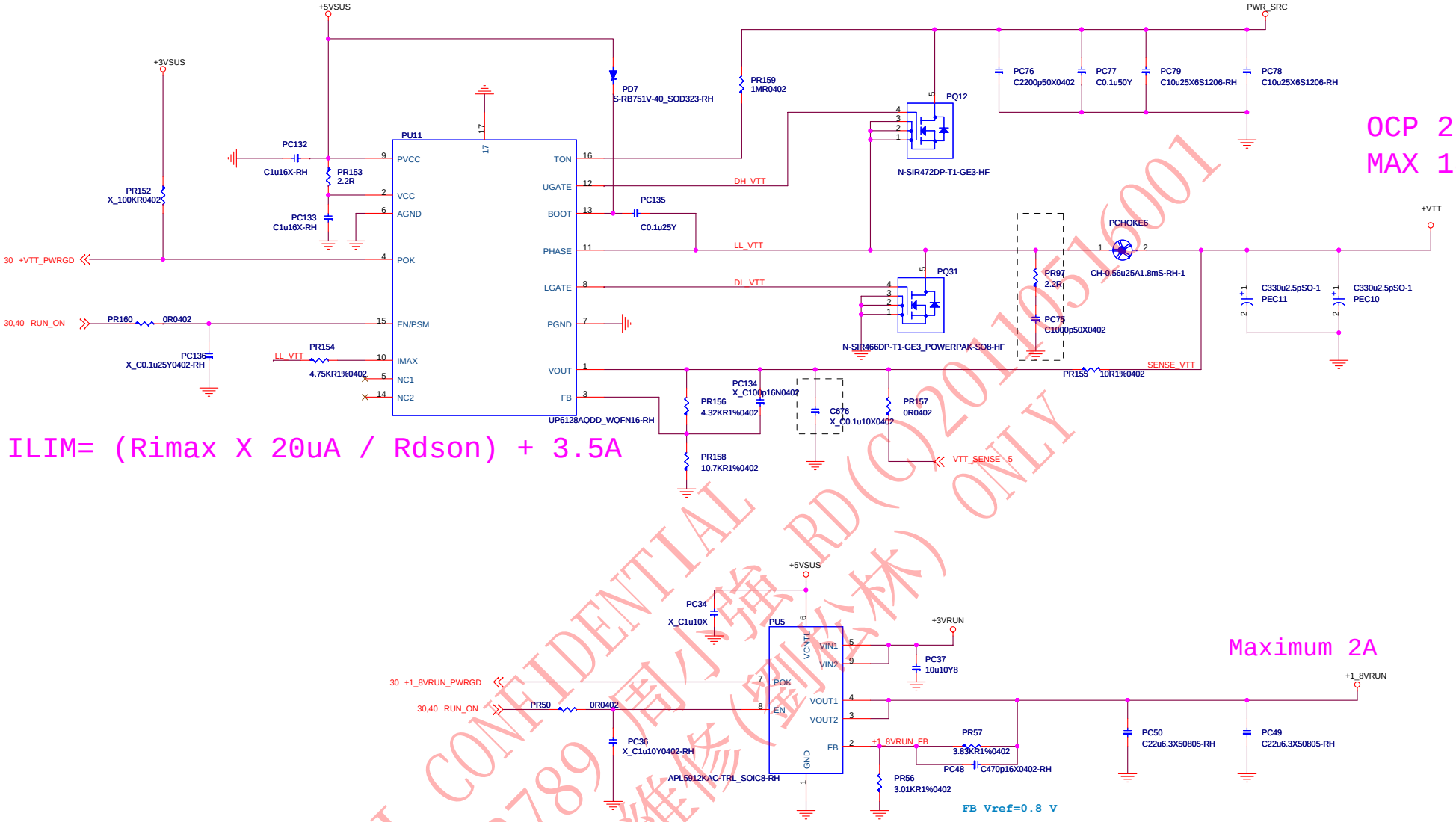
1. The transconductance from (CSSP - CSSN) to IINP is 3mA/V.
2. V_IINP = IINPUT x RS1 x 3mA/V x PR25

MICRO-STAR INT'L CO.,LTD.		
Title: Battery Charger		E51/M0
Size: B	Document Number: MS-1688	Rev: 1.0
Date: Thursday, November 26, 2009	Sheet 39 of 52	



MSI	MICRO-STAR INT'L CO.,LTD.	
Title: System power		
Size: Custom	Document Number: MS-1688	Rev: 0A
Date: Thursday, November 26, 2009	Sheet 40 of 52	





MICRO-STAR INT'L CO.,LTD.

Title: VTT Power,+1.8VRUN

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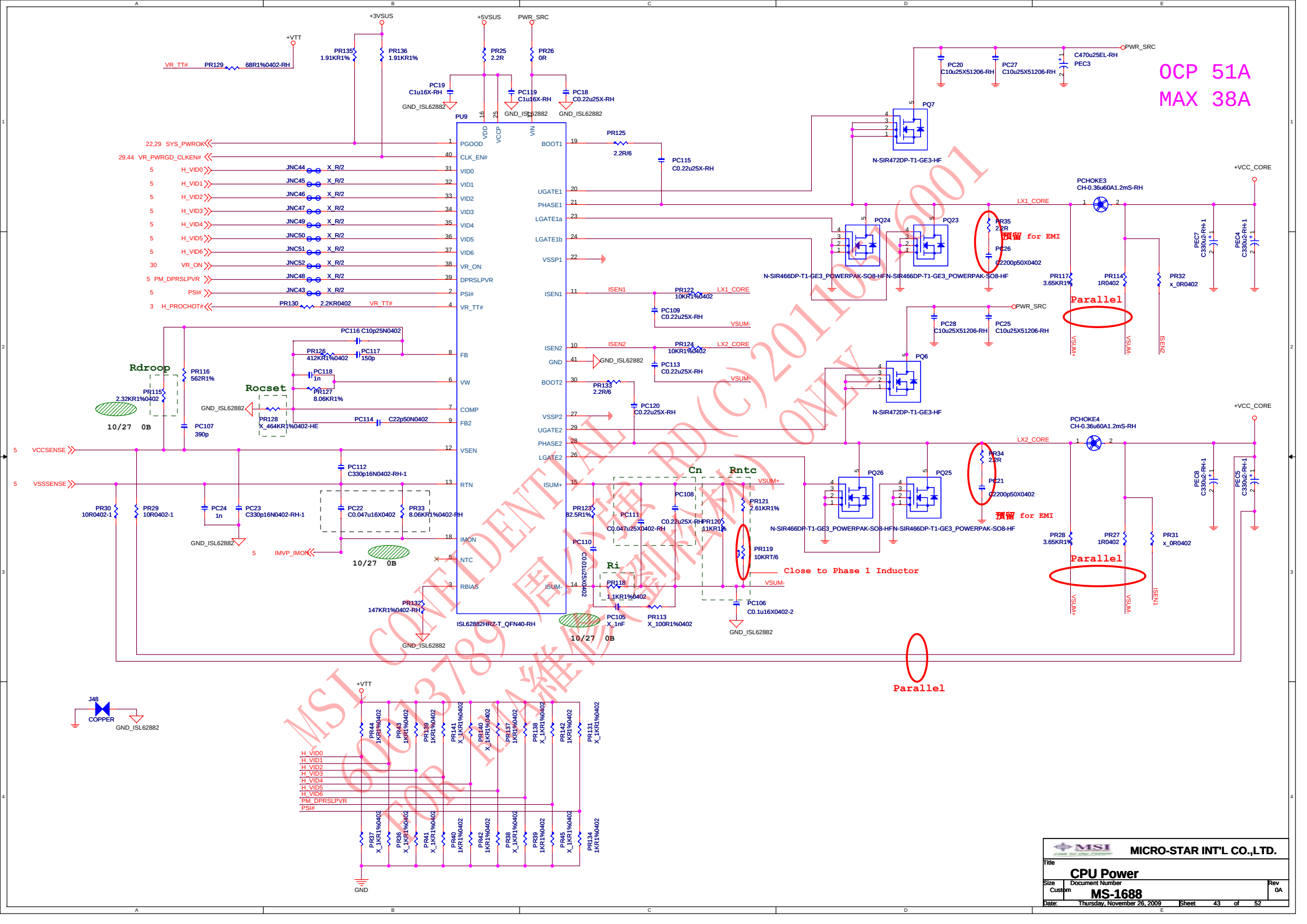
OCP 51A
MAX 38A
ISL62882HRZ-T_QFN40-RH
N-SIR472DP-T1-GE3-HF
N-SIR466DP-T1-GE3_POWERPAK-SO8-HF
Rdroop
Rocset
Cn
Rntc
Ri
Close to Phase 1 Inductor
Parallel
預留 for EMI
PCHOKE3 CH-0.36u60A1.2mS-RH
PCHOKE4 CH-0.36u60A1.2mS-RH
C470u25EL-RH PEC3
C330u2-RH-1
MICRO-STAR INT'L CO.,LTD.
CPU Power
MS-1688
Thursday, November 26, 2009
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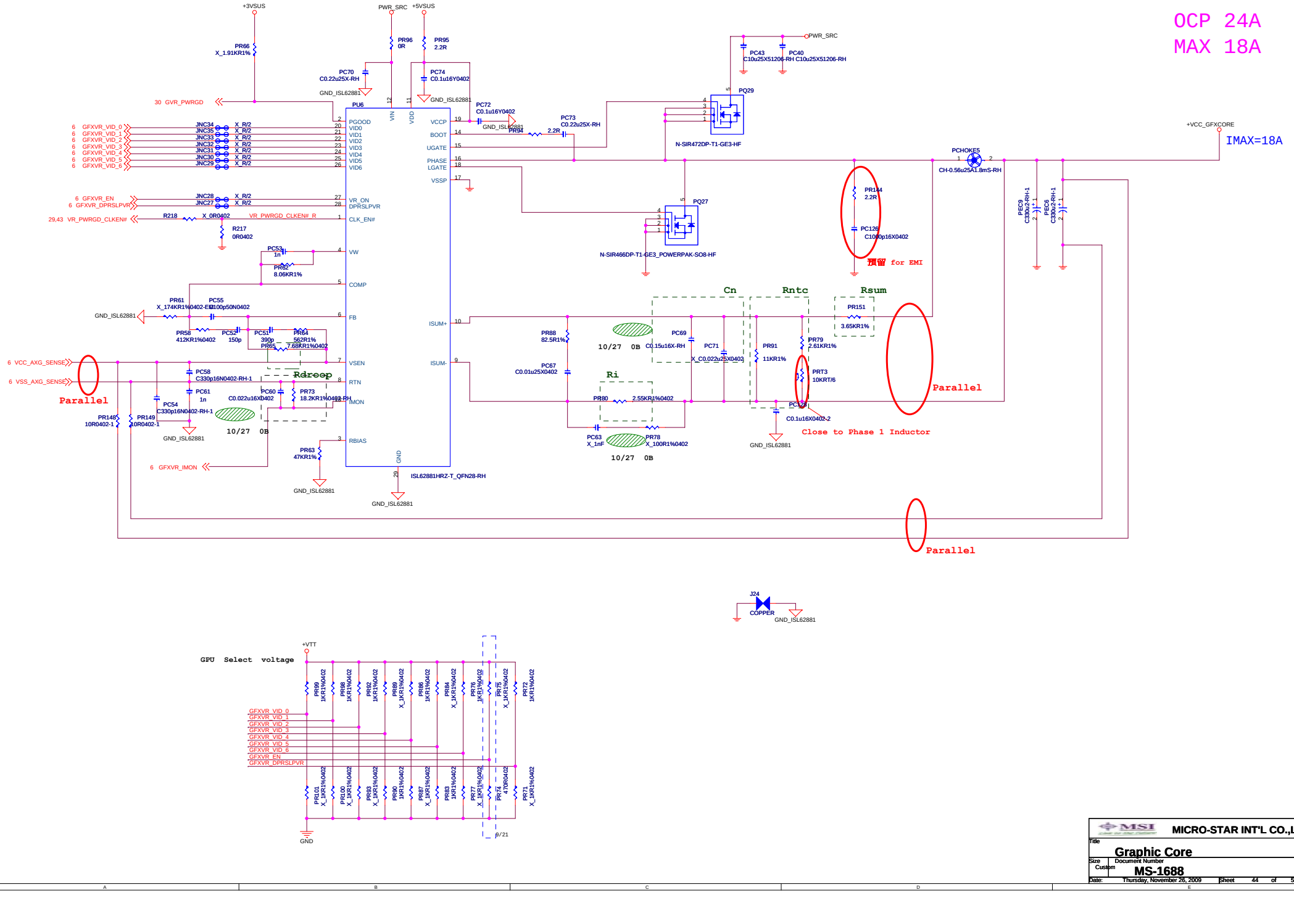
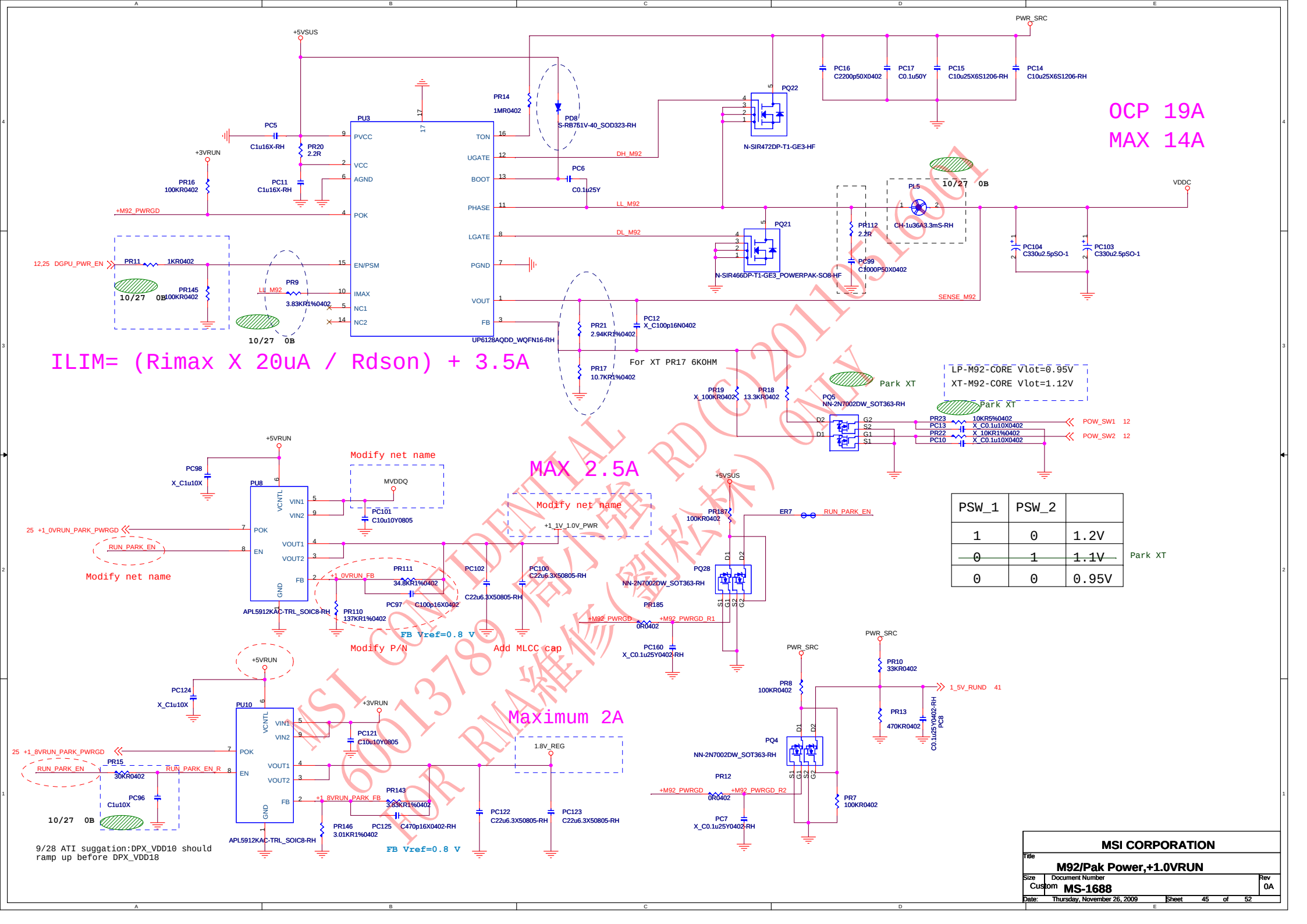

OCP 24A
MAX 18A
IMAX=18A
+3VSUS
PWR_SRC
+5VSUS
PU6
ISL62881HRZ-T_QFN28-RH
N-SIR472DP-T1-GE3-HF
N-SIR466DP-T1-GE3_POWERPAK-SO8-HF
+VCC_GFXCORE
PCHOKE5
CH-0.56u25A1.8mS-RH
Cn
Rntc
Rsum
Rdroop
Ri
Parallel
Parallel
Parallel
Close to Phase 1 Inductor
for EMI
10/27 0B
10/27 0B
10/27 0B
J24
COPPER
GPU Select voltage
+VTT
GND
MICRO-STAR INT'L CO.,LTD.
Graphic Core
MS-1688
Thursday, November 26, 2009



PSW_1	PSW_2	
1	0	1.2V
~~0~~	~~1~~	~~1.1V~~ Park XT
0	0	0.95V

MSI CORPORATION

Title: **M92/Pak Power,+1.0VRUN**

Size: Custom | Document Number: **MS-1688** | Rev: 0A

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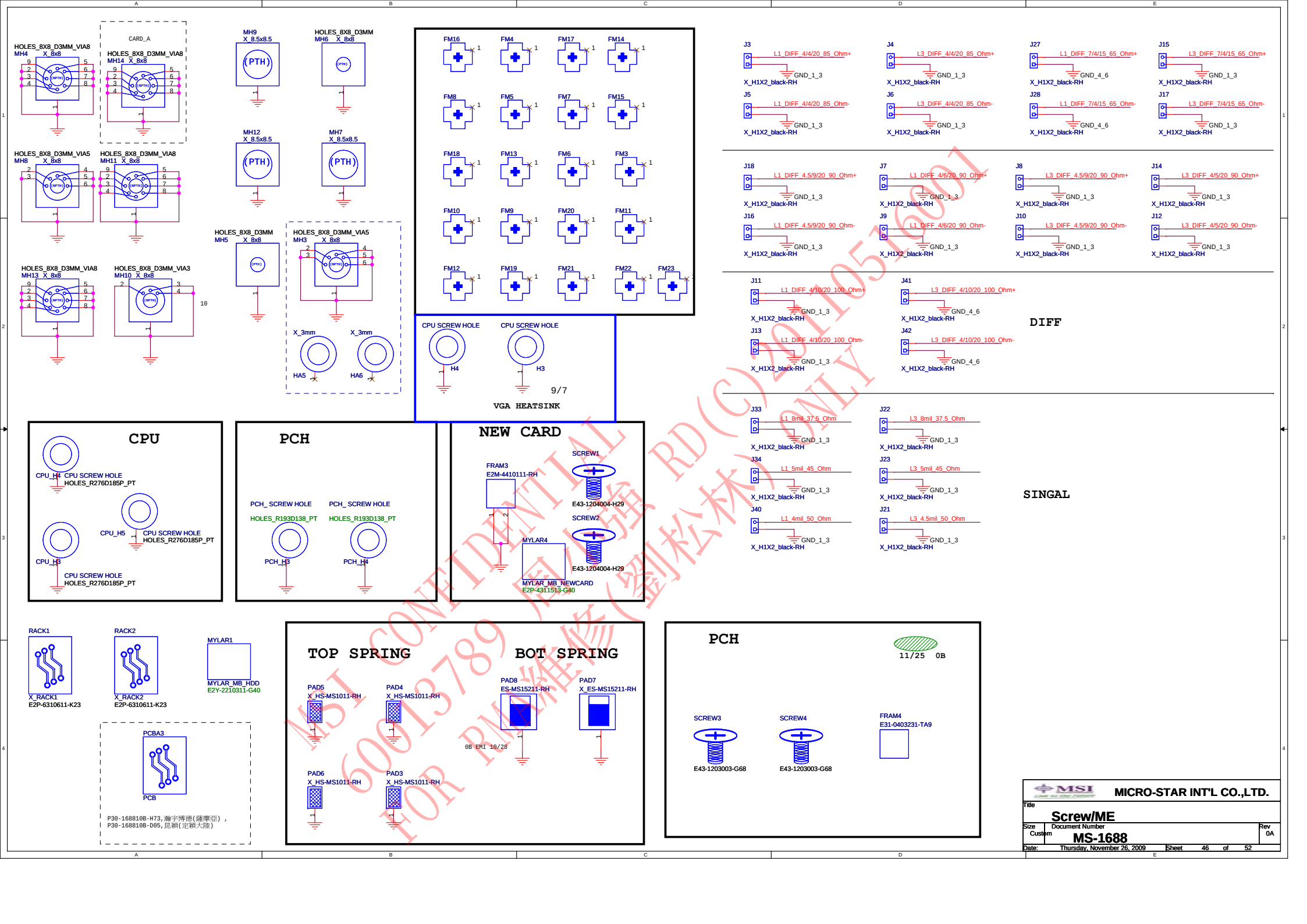
CARD_A
HOLES_8X8_D3MM_VIA8
MH4 X_8x8
HOLES_8X8_D3MM_VIA8
MH14 X_8x8
MH9
X_8.5x8.5
HOLES_8X8_D3MM
MH6 X_8x8
HOLES_8X8_D3MM_VIA5
MH8 X_8x8
HOLES_8X8_D3MM_VIA8
MH11 X_8x8
MH12
X_8.5x8.5
MH7
X_8.5x8.5
HOLES_8X8_D3MM_VIA8
MH13 X_8x8
HOLES_8X8_D3MM_VIA3
MH10 X_8x8
HOLES_8X8_D3MM
MH5 X_8x8
HOLES_8X8_D3MM_VIA5
MH3 X_8x8
X_3mm
X_3mm
HA5
HA6
FM16
FM4
FM17
FM14
FM8
FM5
FM7
FM15
FM18
FM13
FM6
FM3
FM10
FM9
FM20
FM11
FM12
FM19
FM21
FM22
FM23
CPU SCREW HOLE
CPU SCREW HOLE
H4
H3
9/7
VGA HEATSINK
J3
L1_DIFF_4/4/20_85_Ohm+
GND_1_3
X_H1X2_black-RH
J4
L3_DIFF_4/4/20_85_Ohm+
J27
L1_DIFF_7/4/15_65_Ohm+
GND_4_6
J15
L3_DIFF_7/4/15_65_Ohm+
J5
L1_DIFF_4/4/20_85_Ohm-
J6
L3_DIFF_4/4/20_85_Ohm-
J28
L1_DIFF_7/4/15_65_Ohm-
J17
L3_DIFF_7/4/15_65_Ohm-
J18
L1_DIFF_4.5/9/20_90_Ohm+
J7
L1_DIFF_4/6/20_90_Ohm+
J8
L3_DIFF_4.5/9/20_90_Ohm+
J14
L3_DIFF_4/5/20_90_Ohm+
J16
L1_DIFF_4.5/9/20_90_Ohm-
J9
L1_DIFF_4/6/20_90_Ohm-
J10
L3_DIFF_4.5/9/20_90_Ohm-
J12
L3_DIFF_4/5/20_90_Ohm-
J11
L1_DIFF_4/10/20_100_Ohm+
J41
L3_DIFF_4/10/20_100_Ohm+
DIFF
J13
L1_DIFF_4/10/20_100_Ohm-
J42
L3_DIFF_4/10/20_100_Ohm-
J33
L1_8mil_37.5_Ohm
J22
L3_8mil_37.5_Ohm
J34
L1_5mil_45_Ohm
J23
L3_5mil_45_Ohm
J40
L1_4mil_50_Ohm
J21
L3_4.5mil_50_Ohm
SINGAL
CPU
CPU_H4 CPU SCREW HOLE
HOLES_R276D185P_PT
CPU_H5
CPU SCREW HOLE
HOLES_R276D185P_PT
CPU_H3
CPU SCREW HOLE
HOLES_R276D185P_PT
PCH
PCH_ SCREW HOLE
HOLES_R193D138_PT
PCH_ SCREW HOLE
HOLES_R193D138_PT
PCH_H3
PCH_H4
NEW CARD
FRAM3
E2M-4410111-RH
SCREW1
E43-1204004-H29
SCREW2
E43-1204004-H29
MYLAR4
MYLAR_MB_NEWCARD
E2P-4311513-G40
RACK1
X_RACK1
E2P-6310611-K23
RACK2
X_RACK2
E2P-6310611-K23
MYLAR1
MYLAR_MB_HDD
E2Y-2210311-G40
PCBA3
PCB
P30-168810B-H73,瀚宇博德(薩摩亞),
P30-168810B-D05,昆穎(定穎大陸)
TOP SPRING
BOT SPRING
PAD5
X_HS-MS1011-RH
PAD4
X_HS-MS1011-RH
PAD8
ES-MS15211-RH
PAD7
X_ES-MS15211-RH
0B EMI 10/28
PAD6
X_HS-MS1011-RH
PAD3
X_HS-MS1011-RH
PCH
11/25 0B
SCREW3
E43-1203003-G68
SCREW4
E43-1203003-G68
FRAM4
E31-0403231-TA9
MSI CONFIDENTIAL
60013789 周小强 RD(C)20110516001
FOR RMA维修(劉松林) ONLY
MICRO-STAR INT'L CO.,LTD.
Title
Screw/ME
Size
Custom
Document Number
MS-1688
Rev
0A
Date: Thursday, November 26, 2009
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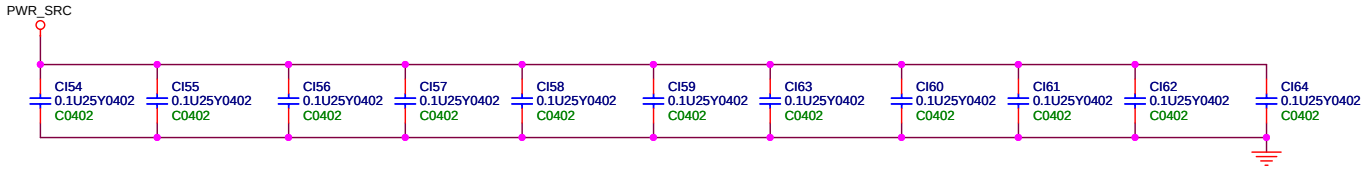

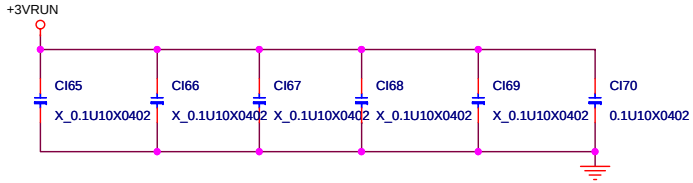

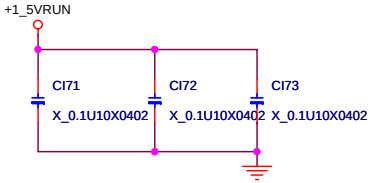

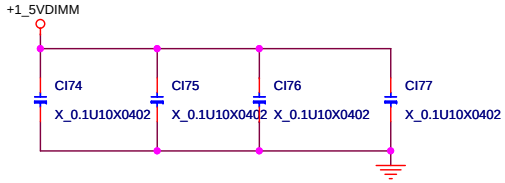

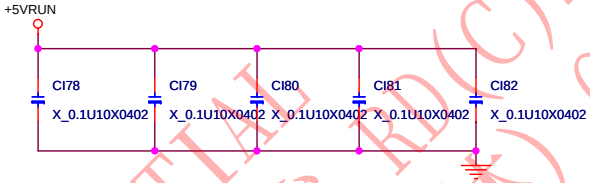

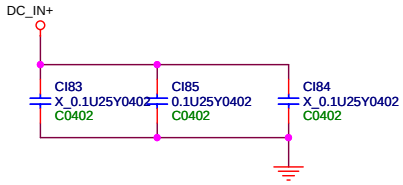

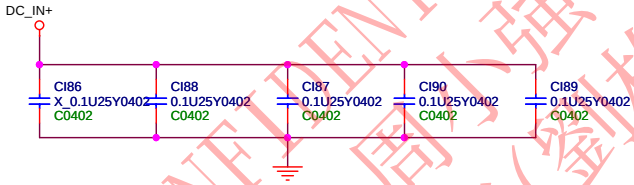

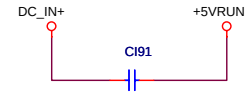

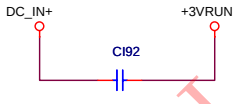

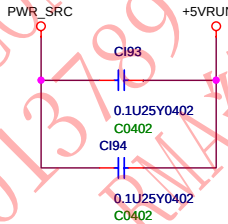

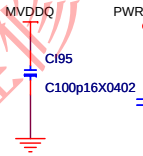

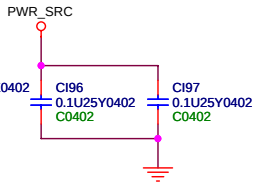

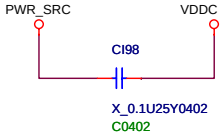

MICRO-STAR INT'L CO.,LTD.

Title: EMI

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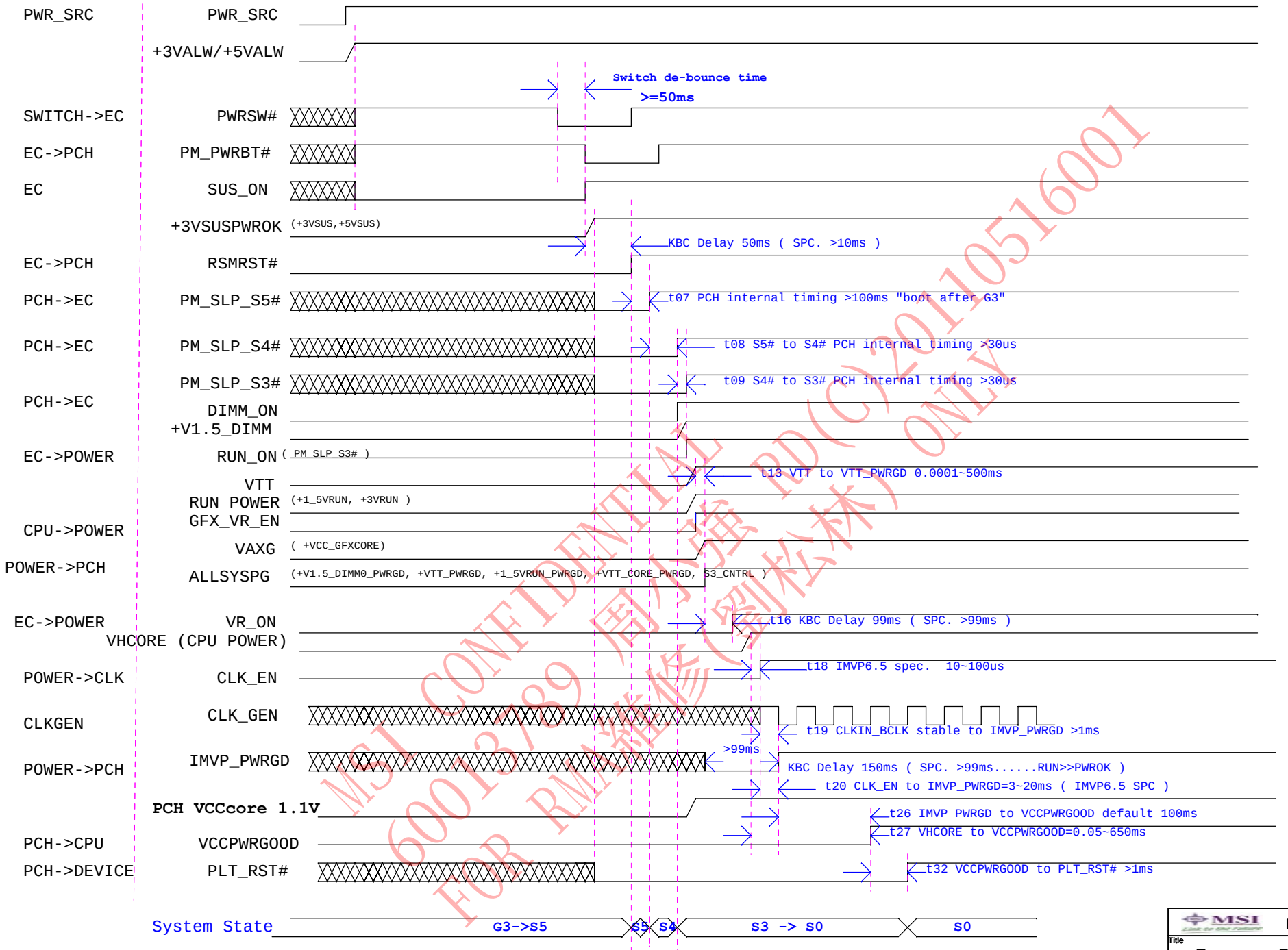
Calpella System Power on Sequence DC mode



MSI	MICRO-STAR INT'L CO.,LTD.		
Title	Power on Sequency		
Size A3	Document Number MS-1688		Rev 0A
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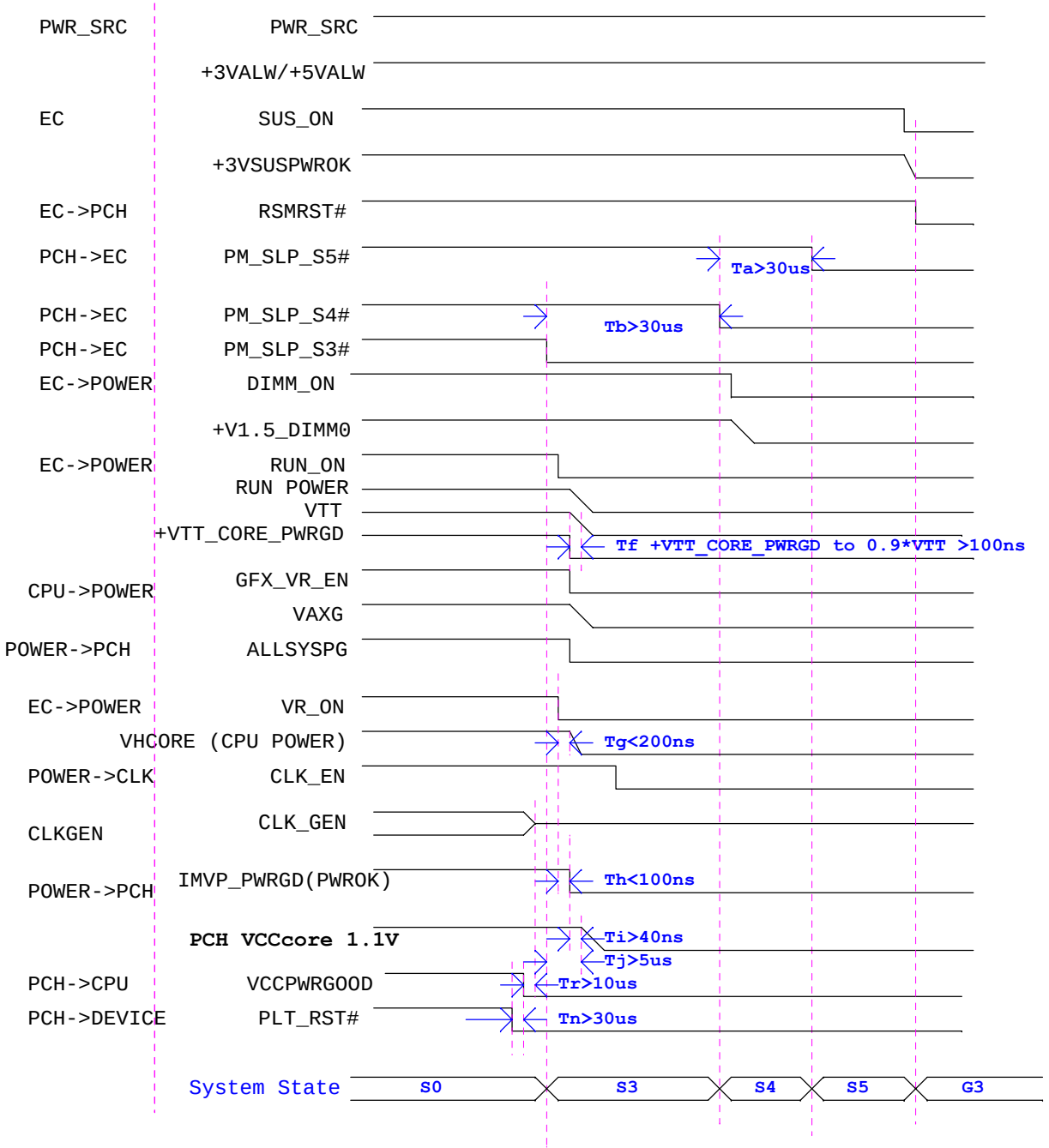
Power down Sequence DC mode S0 to G3



MICRO-STAR INT'L CO.,LTD.			
Title: Power down Sequency			
Size: A3	Document Number: MS-1688		Rev: 0A
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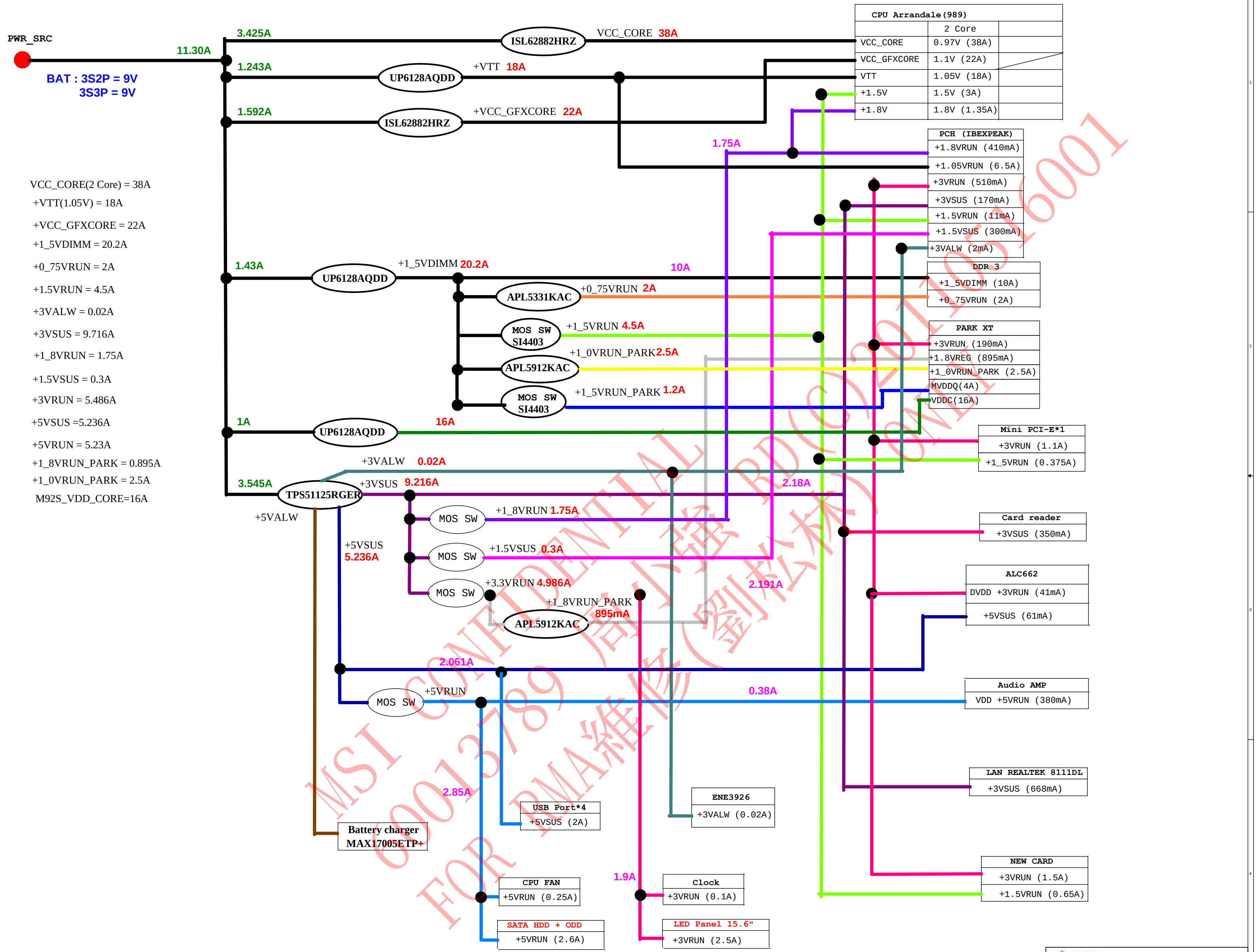
PWR_SRC
BAT : 3S2P = 9V
3S3P = 9V
11.30A
3.425A
ISL62882HRZ
VCC_CORE 38A
1.243A
UP6128AQDD
+VTT 18A
1.592A
ISL62882HRZ
+VCC_GFXCORE 22A
VCC_CORE(2 Core) = 38A
+VTT(1.05V) = 18A
+VCC_GFXCORE = 22A
+1_5VDIMM = 20.2A
+0_75VRUN = 2A
+1.5VRUN = 4.5A
+3VALW = 0.02A
+3VSUS = 9.716A
+1_8VRUN = 1.75A
+1.5VSUS = 0.3A
+3VRUN = 5.486A
+5VSUS =5.236A
+5VRUN = 5.23A
+1_8VRUN_PARK = 0.895A
+1_0VRUN_PARK = 2.5A
M92S_VDD_CORE=16A
CPU Arrandale(989)
2 Core
VCC_CORE 0.97V (38A)
VCC_GFXCORE 1.1V (22A)
VTT 1.05V (18A)
+1.5V 1.5V (3A)
+1.8V 1.8V (1.35A)
1.75A
PCH (IBEXPEAK)
+1.8VRUN (410mA)
+1.05VRUN (6.5A)
+3VRUN (510mA)
+3VSUS (170mA)
+1.5VRUN (11mA)
+1.5VSUS (300mA)
+3VALW (2mA)
1.43A
UP6128AQDD
+1_5VDIMM 20.2A
10A
DDR 3
+1_5VDIMM (10A)
+0_75VRUN (2A)
APL5331KAC
+0_75VRUN 2A
MOS SW SI4403
+1_5VRUN 4.5A
APL5912KAC
+1_0VRUN_PARK 2.5A
MOS SW SI4403
+1_5VRUN_PARK 1.2A
PARK XT
+3VRUN (190mA)
+1.8VREG (895mA)
+1_0VRUN_PARK (2.5A)
MVDDQ(4A)
VDDC(16A)
1A
UP6128AQDD
16A
Mini PCI-E*1
+3VRUN (1.1A)
+1_5VRUN (0.375A)
+3VALW 0.02A
3.545A
TPS51125RGER
+3VSUS 9.216A
2.18A
+5VALW
MOS SW
+1_8VRUN 1.75A
+5VSUS
5.236A
MOS SW
+1.5VSUS 0.3A
MOS SW
+3.3VRUN 4.986A
2.191A
+1_8VRUN_PARK
895mA
APL5912KAC
Card reader
+3VSUS (350mA)
ALC662
DVDD +3VRUN (41mA)
+5VSUS (61mA)
2.061A
MOS SW
+5VRUN
0.38A
Audio AMP
VDD +5VRUN (380mA)
LAN REALTEK 8111DL
+3VSUS (668mA)
2.85A
USB Port*4
+5VSUS (2A)
ENE3926
+3VALW (0.02A)
Battery charger
MAX17005ETP+
CPU FAN
+5VRUN (0.25A)
1.9A
Clock
+3VRUN (0.1A)
SATA HDD + ODD
+5VRUN (2.6A)
LED Panel 15.6"
+3VRUN (2.5A)
NEW CARD
+3VRUN (1.5A)
+1.5VRUN (0.65A)

MSI MICRO-STAR INT'L CO.,LTD.

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1. Page 13, Add R354, R356 0 ohm for Park VDDR4 connection

2. Page 14, Stuff R92 10K ohms for GPIO12 straps

3. Page 15, Remove R50, R315

4. Page 18, Change L33~35 for CRT RGB

5. Page 19, Change D4 to BAS40 for HDMI testing

6. Page 20, Remove BIOS1 socket

7. Page 20, Add R581 1K ohms for PCH GPIO33 to EC GPIO13 connection and remove R159

8. Page 20, Change C634, C640 to 15pF

9. Page 23, Remove R108

10. Page 30, Change CON6 to vertical type for debug card

11. Page 33, Remove Q5, Q14 for Power switch LED and change R15 to 0 ohm

12. Page 34, Change J43 to eSATA connector and add C594~596, C698, C699 for eSATA solution, Remove C462

13. Page 34, Add U45, U46, C702, C704, R353, R362 for USB power protect switch and remove F4, F5

14. Page 38, Change PR183 to 4.7K to reduce the drop voltage

15. Page 39, Stuff ER46, EC102 for V_CHG

16. Page 40, Stuff PR161, PC137 for +3VSUS, PR174, PC149 for +5VSUS

17. Page 41, Stuff R247 1K ohms, No stuff R518, Change PR179 to 10.5K, R517 to 200K

18. Page 41, Stuff PR105, PC88 for +1_5VDIMM

19. Page 42, Stuff PR97, PC75 for +VTT

20. Page 43, Stuff PR35, PC26, PR34, PC21 for +VCC_CORE

21. Page 43, Change PC22 to 0.047uF, PR33 to 8.06K, PR115 to 2.32K, PR118 to 1.1K

22. Page 44, Stuff PR144, PC126 for +VCC_GFXCORE

23. Page 44, Change PC60 to 0.022uF, PC69 to 0.15uF, PR65 to 7.68K, PR73 to 18.2K, PR80 to 2.55K

24. Page 45, Change PR9 to 3.83K

25. Page 45, Stuff PR112, PC99 for VDDC and change PL5 to 1uH for reduce noise

26. Page 45, Change PR15 to 30K and stuff PC96 1uF for 1.8V_REG delay 1.2mS after +1_1V_1.0V_PWR

27. Page 45, Change PR11 to 1K and stuff PR145 100K to reduce current leakage

28. Page 46, Stuff PAD8 for EMI and add SCREW1, 2 in BOM. Remove BRAKET1

29. Page 49, Stuff CI54~64, CI70, CI85, CI87~90, CI92~97 for EMI

30. Page 16, Add PC158, PC161, Reserve C700, C701 for MVDDQ

31. Page 12, Add ATI debug point

32. Page 31, Add EMI cooper to seperate LAN GND

33. Page 32, Reserve R365 for cardreader issue

34. Page 45, Stuff PR18 13.3K, PQ5, PR23 10K for Park XT

MSI CORPORATION		
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