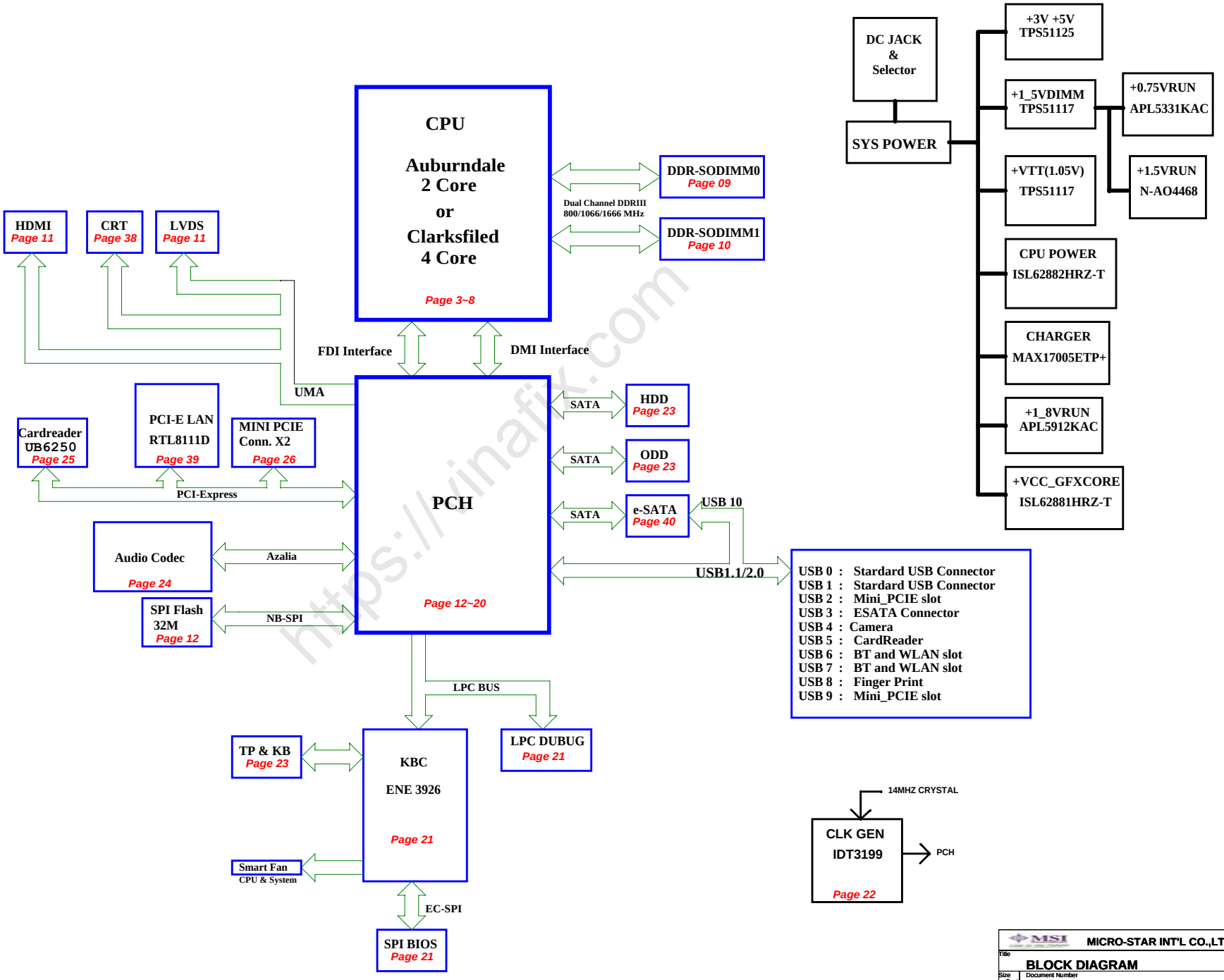
MS-16D31 Ver : 0B

Calpella Platform



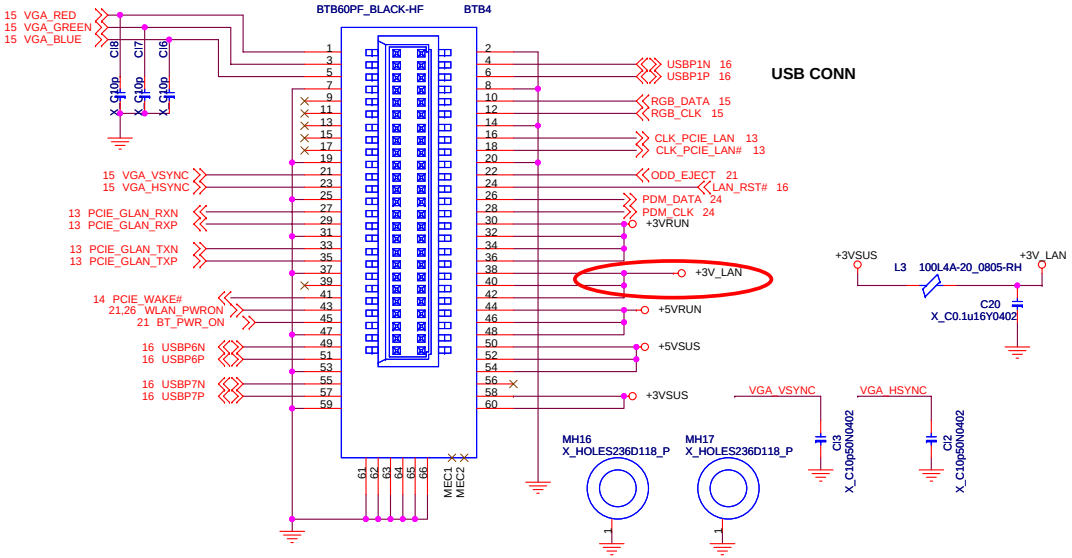
MICRO-STAR INT'L CO.,LTD.

Title: BLOCK DIAGRAM

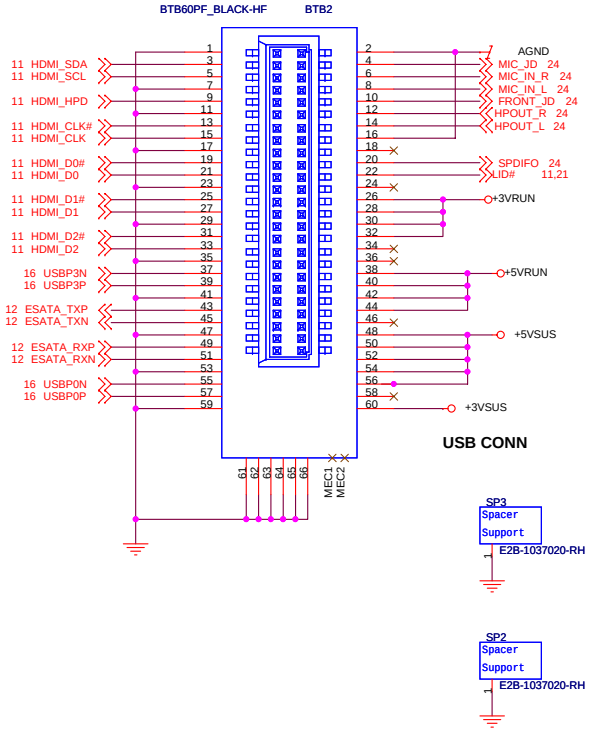
Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, December 01, 2009 | Sheet 1 of 43

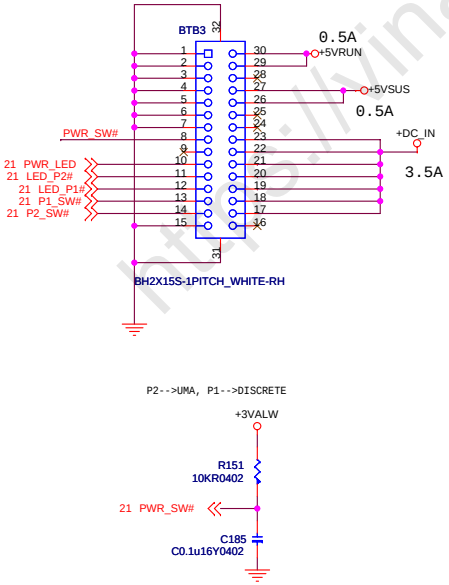
凹 60PIN BTB I/O Connector(VGA, USBX1, LAN,BT)



オ 凹 60PIN BTB I/O Con (HDMI,Audio,ESATA) ,ARRAY,USB)



オ 凹30PIN BTB I/O Conn(AC IN LID,Power Switch)



MSI CORPORATION		
Title: HDD, CON,MINI_PCIE		
Size: Custom	Document Number: MS-16D3	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 27 of 43	

1. 2010.01.28 by leozhang
   a. Base on summer's SCH to add ME mylar which would be located SD/MMC connecter (MYLAR16)

2. 2010.01.29 by leozhang
   a. Base on 0129 SCH to modify PC81's assembly level.

3. 2010.02.01 by leozhang
   a. Base on 0129 SCH to add ME's mylar (Mylar 17)

4. 2010.02.23 by leozhang
   a. Base on 0201 SCH to remove G-senser

5. 2010.03.02 by leozhang
   a. Base on 0223 SCH to remove JNC17,JNC18 for power components
   b. Base on 0223 SCH to add R244 and C150 for webcam power on issue.
   c. Modify footprint of PC69,PC70,PC99,PC74,PC72,PC73,PC75 and remove PC28,PC40,PC100,PC103,PC96,PC107 for power noise issue

Title <Title>		
Size A	Document Number <Doc>	Rev <RevCode>
Date: Wednesday, March 03, 2010	Sheet 1 of 1	

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails

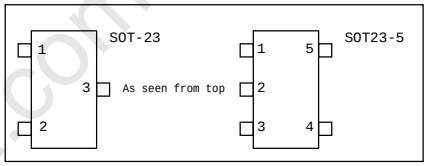
POWER PLANE	VOLTAGE	ACTIVE IN	DESCRIPTION
PWR_SRC	12V	S0, (S3-S5)	
+5VALW	5V	S0, (S3-S5)	
+5VRUN	5V	S0, S3	
+5VSUS	5V	S0	
+3VALW	3.3V	S0, (S3-S5)	
+3VRUN_CK505	3.3V	S0	Clock, MCH
+3VSUS	3.3V	S0, S3	
+3VRUN	3.3V	S0	
+1_5VDIMM	1.5V	S0, (S3-S4)	DDR core
+1_5VSUS	1.5V	S0	
+1_5VRUN	1.5V	S0	
VTT	1.05V	S0	PCH
+0_75VRUN	0.75V	S0	DDR command & control pull up.
+VCC_CORE	1.05V-1.1V	S0	CPU core rail
+VCC_GFXCORE	1.1V	S0	GMCH Graphics core rail

Net Naming Conventions

Suffix
= Active Low Signal

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

PCB Footprints



Power States

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

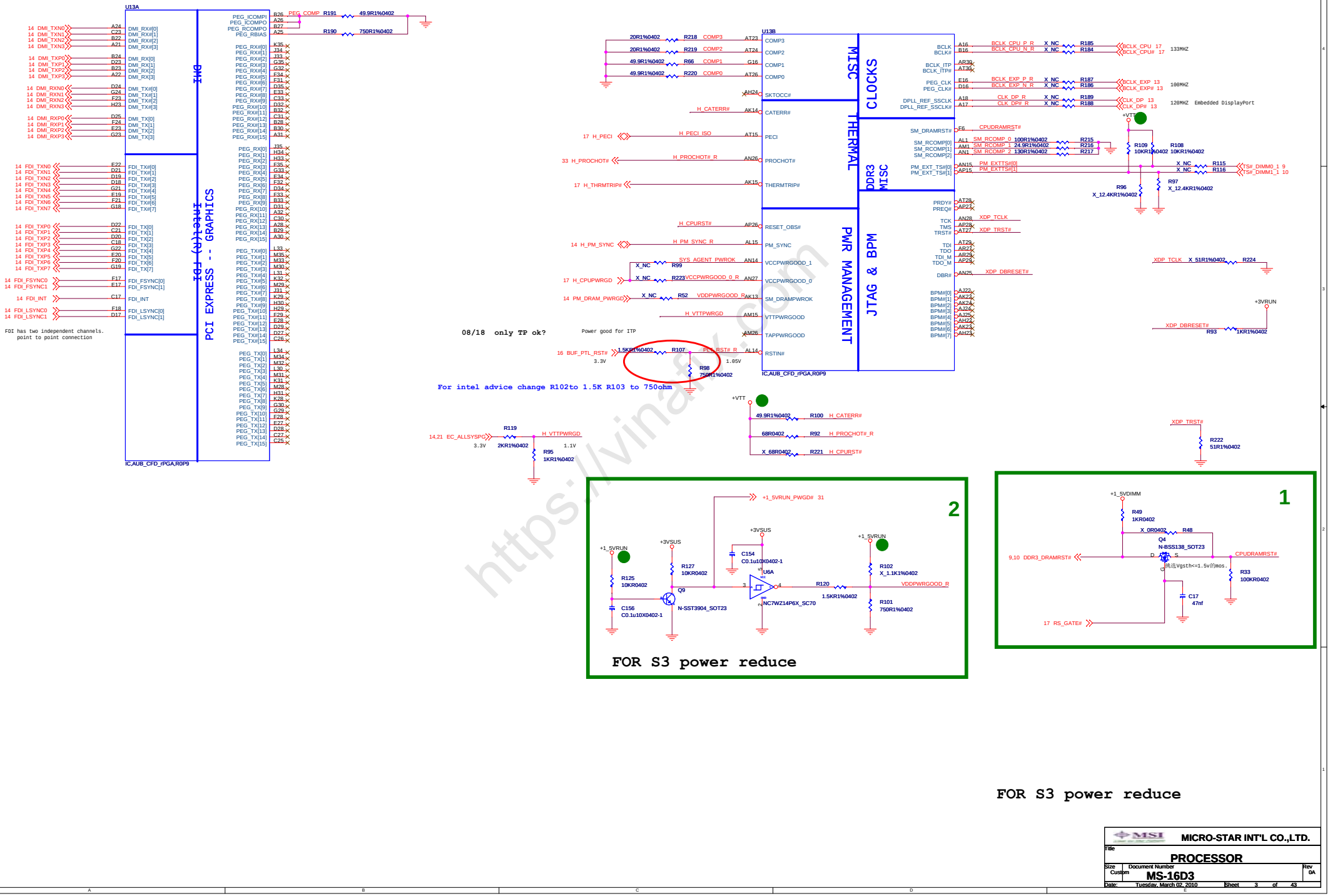
MICRO-STAR INT'L CO.,LTD.

Title: PLATFORM

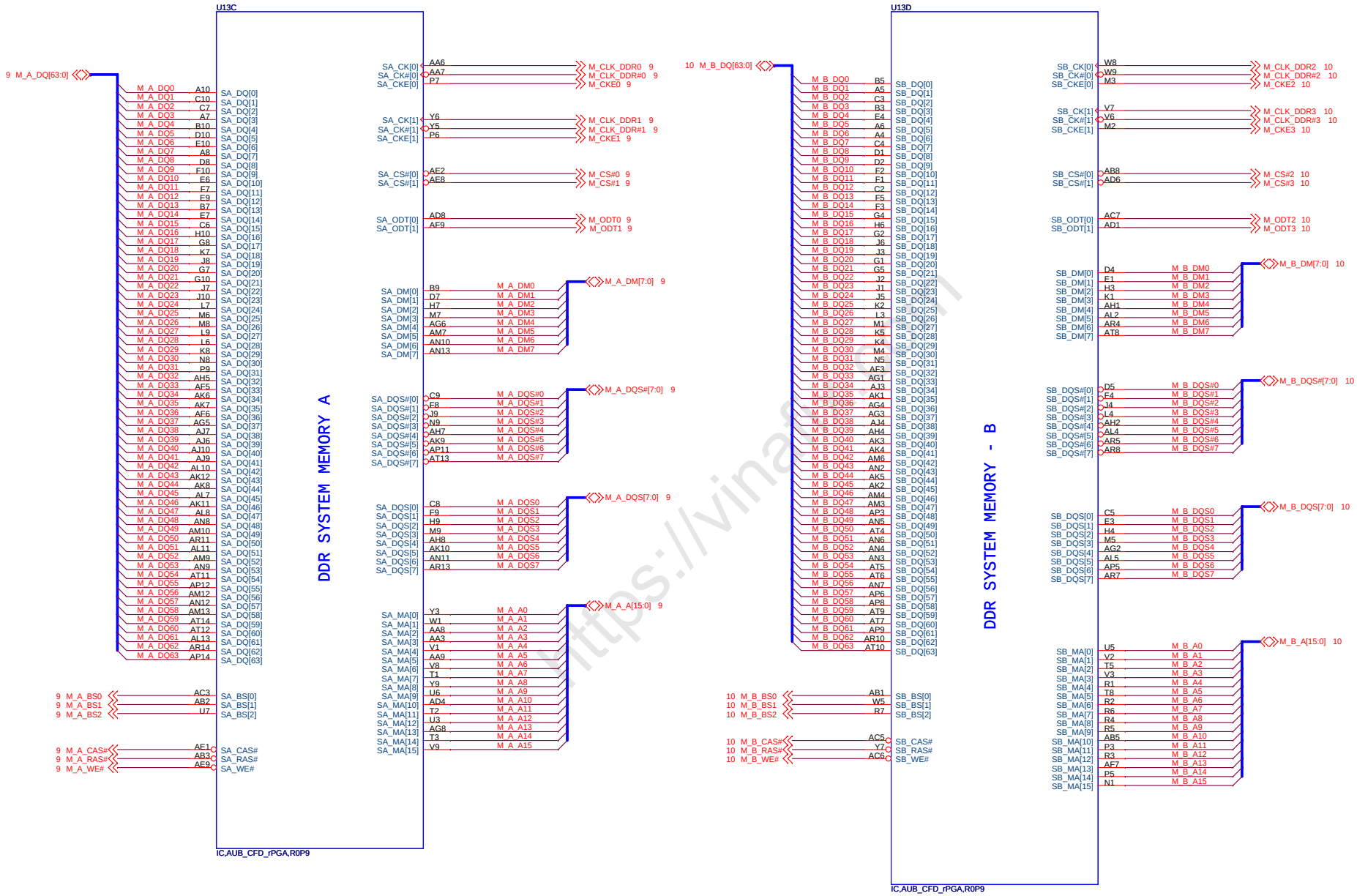
Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Wednesday, November 11, 2009 | Sheet 2 of 43

AUBURNDALE/CLARKSFIELD PROCESSOR (CLK,MISC,JTAG)



AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)



MICRO-STAR INT'L CO.,LTD.

Title: DDR3

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 4 of 43

AUBURNDALE/CLARKSFIELD PROCESSOR (POWER)

PROCESSOR CORE POWER

PROCESSOR CORE POWER

IccMax: SV=48A, LV=35A, ULV=27A

IccMax_VTT: SV=18A, LV=16A, ULV=16A

U13F

+VCC_CORE

+VTT

1.1V RAIL POWER

CPU CORE SUPPLY

POWER

CPU VIDS

SENSE LINES

close to cpu socket

VTT rail voltage for Auburndale/Arrandale is 1.05 V and for Clarksfield is 1.1 V.

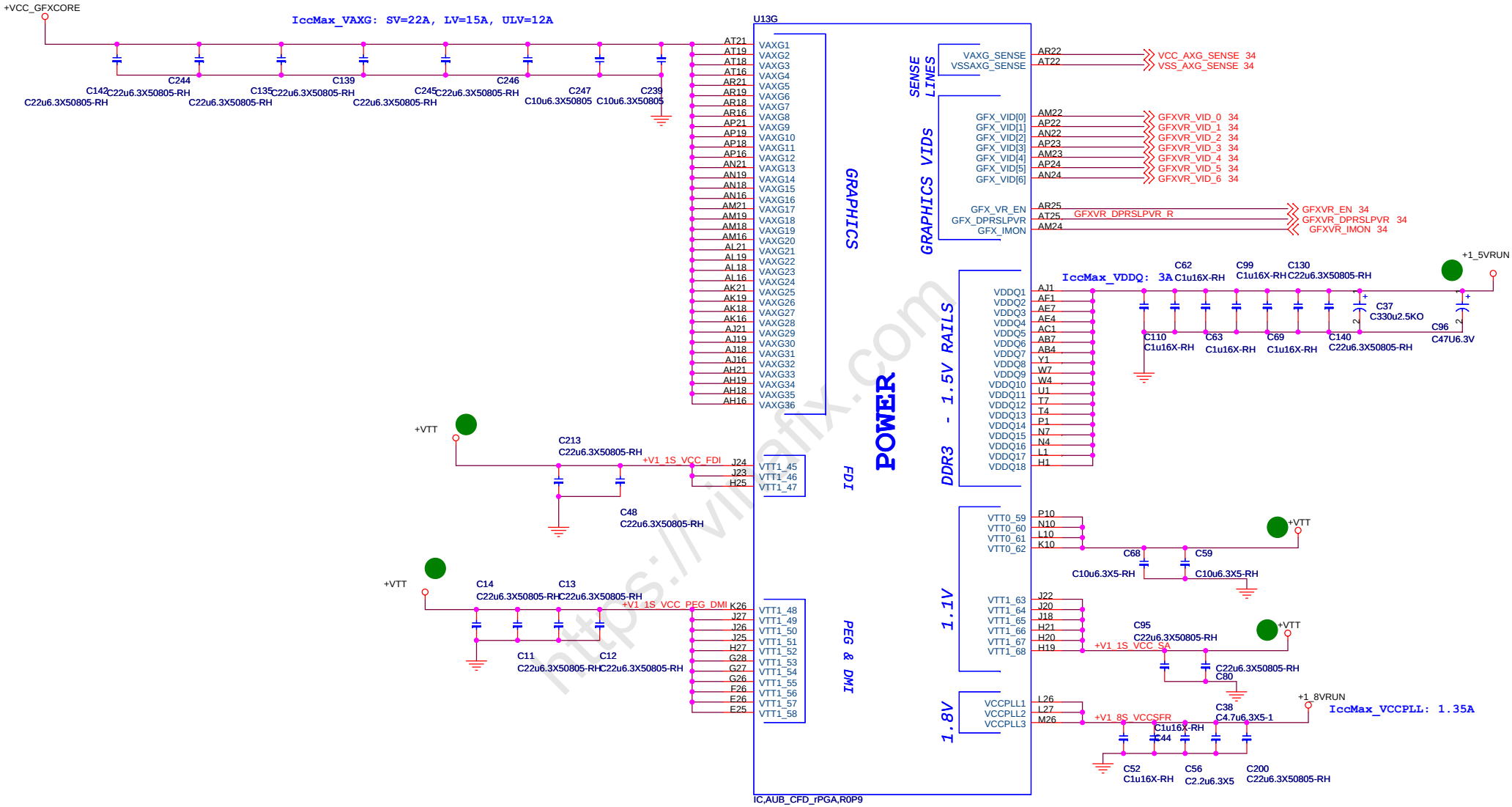
TP60:
1:Chklst:Connect VSS_SENSE_VTT to GND. (Need to confirm)
2:CRB:TP
ukimao1008

IC,AUB_CFD_rPGA,R0P9

Title	PROCESSOR POWER
Size	Custom
Document Number	MS-16D3
Rev	0A
Date:	Tuesday, March 02, 2010
Sheet	5 of 43

MICRO-STAR INT'L CO.,LTD.

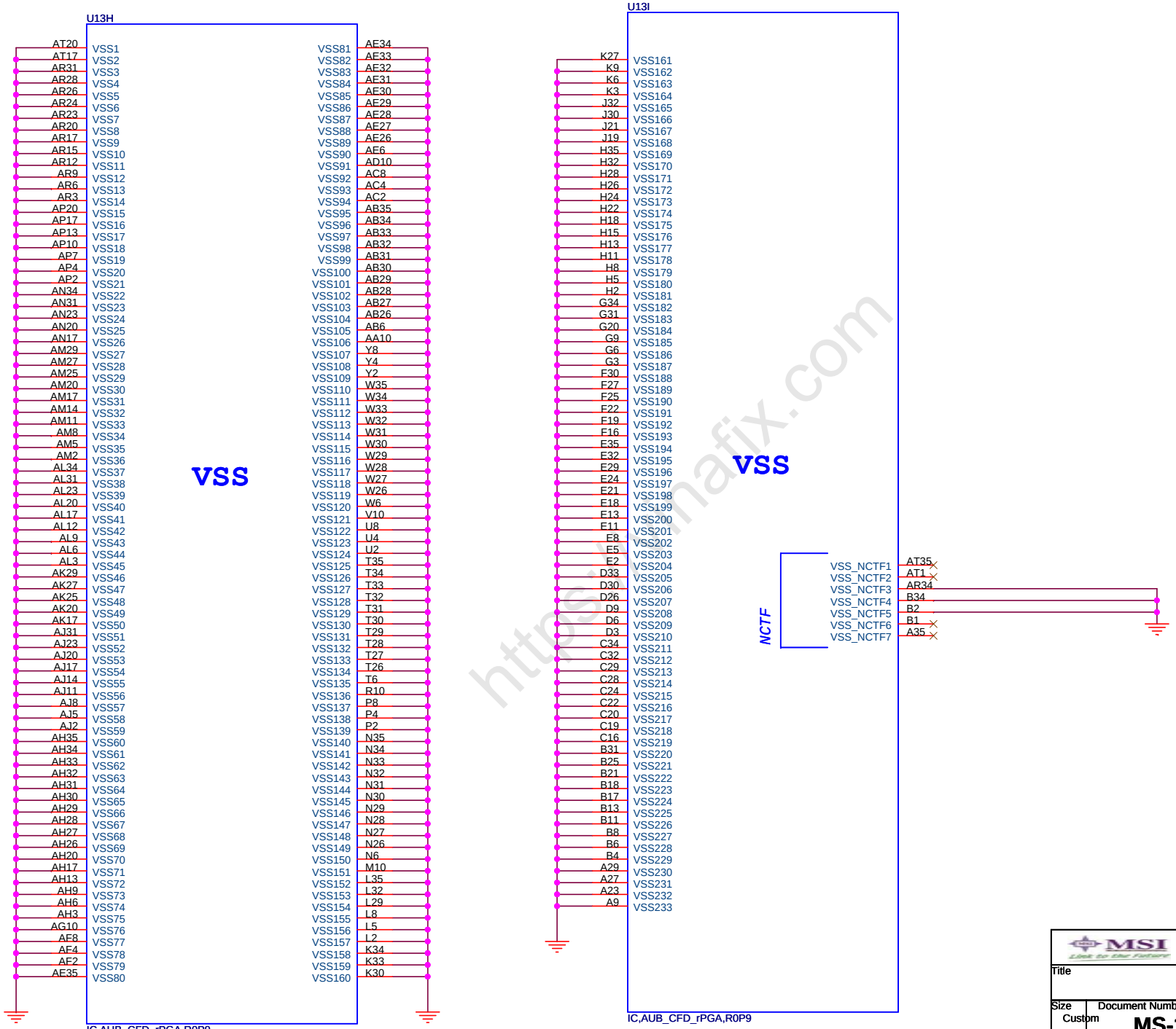
AUBURNDALE/CLARKSFIELD PROCESSOR (GRAPHICS POWER)



MICRO-STAR INT'L CO.,LTD.

Title	GRAPHICS POWER	
Size: Custom	Document Number: MS-16D3	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 6 of 43	

AUBURNDALE/CLARKSFIELD PROCESSOR (GND)



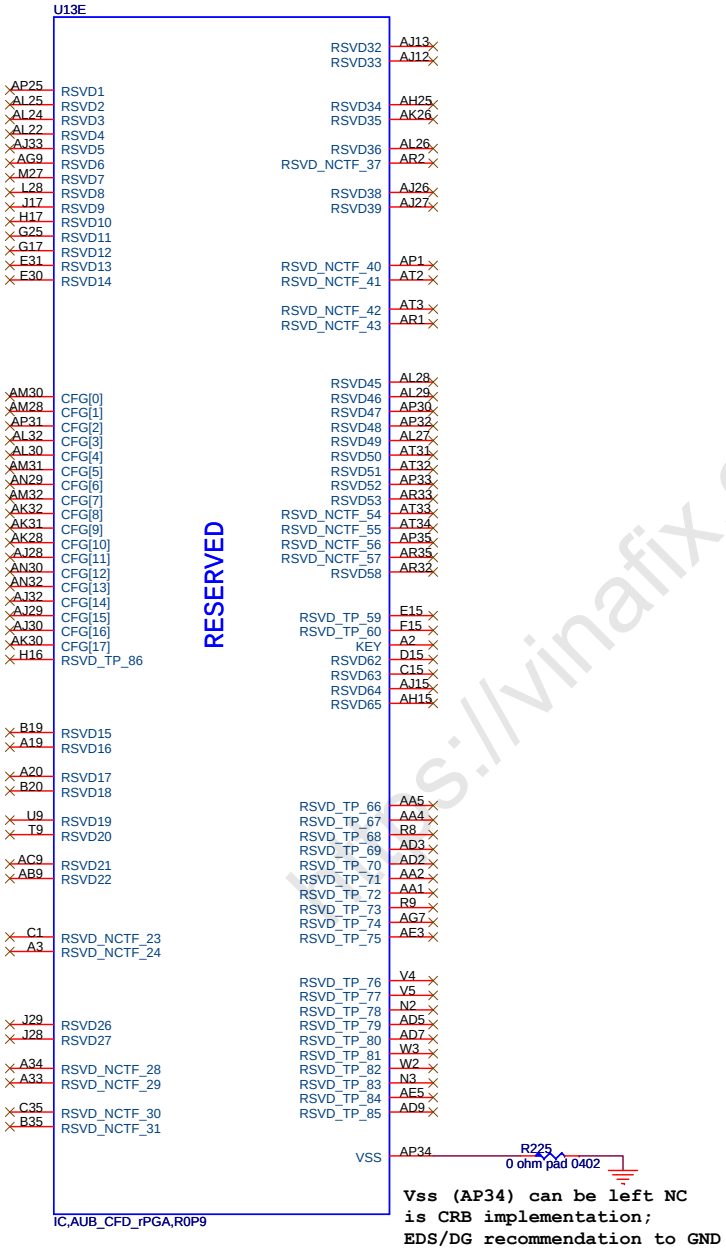
MICRO-STAR INT'L CO.,LTD.

Title: PROCESSOR GND

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Thursday, November 26, 2009 | Sheet 7 of 43

AUBURNDALE/CLARKSFIELD PROCESSOR (RESERVED)



Vss (AP34) can be left NC
is CRB implementation;
EDS/DG recommendation to GND

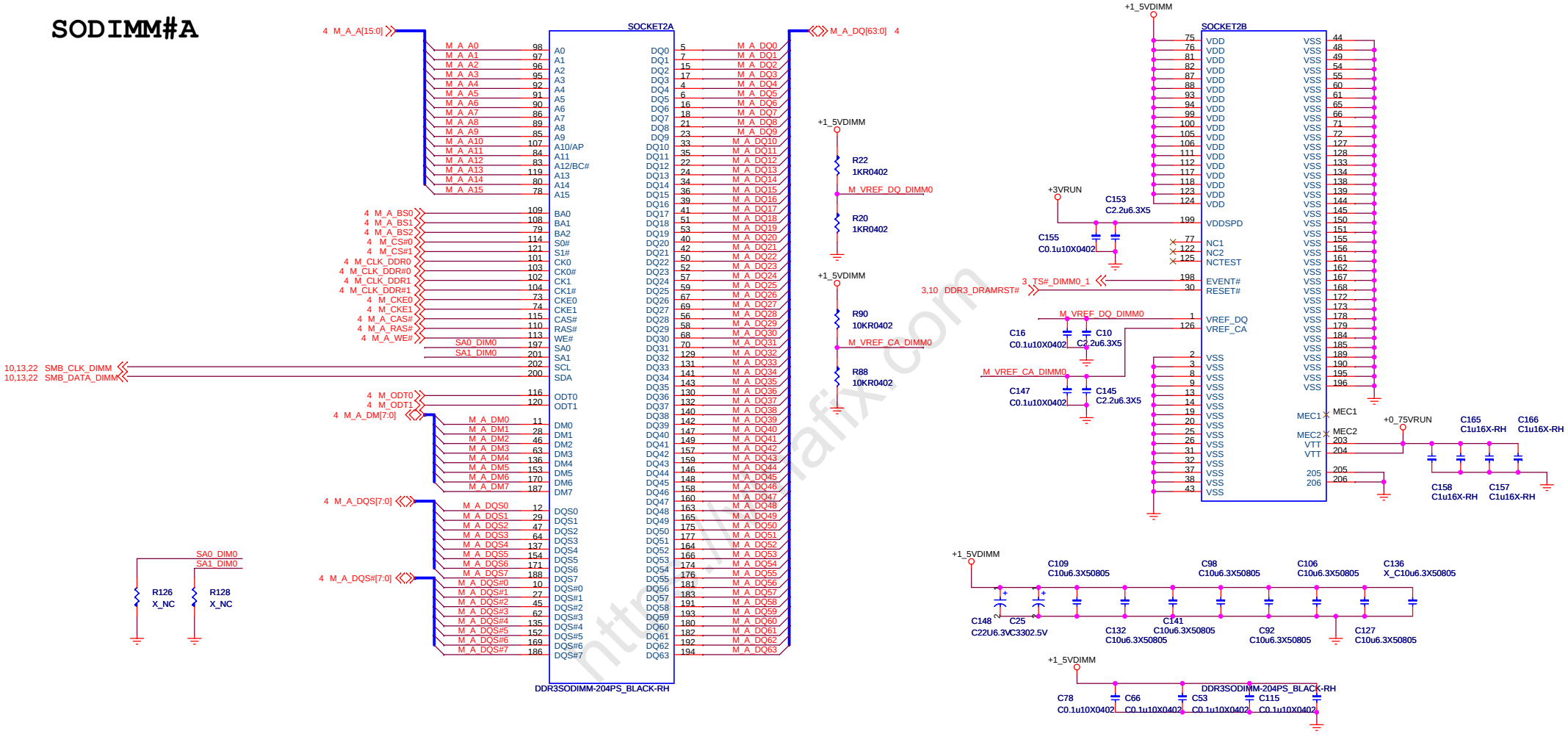
MICRO-STAR INT'L CO.,LTD.

Title: PROCESSOR RESERVED

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, January 05, 2010 | Sheet 8 of 43

SODIMM#A



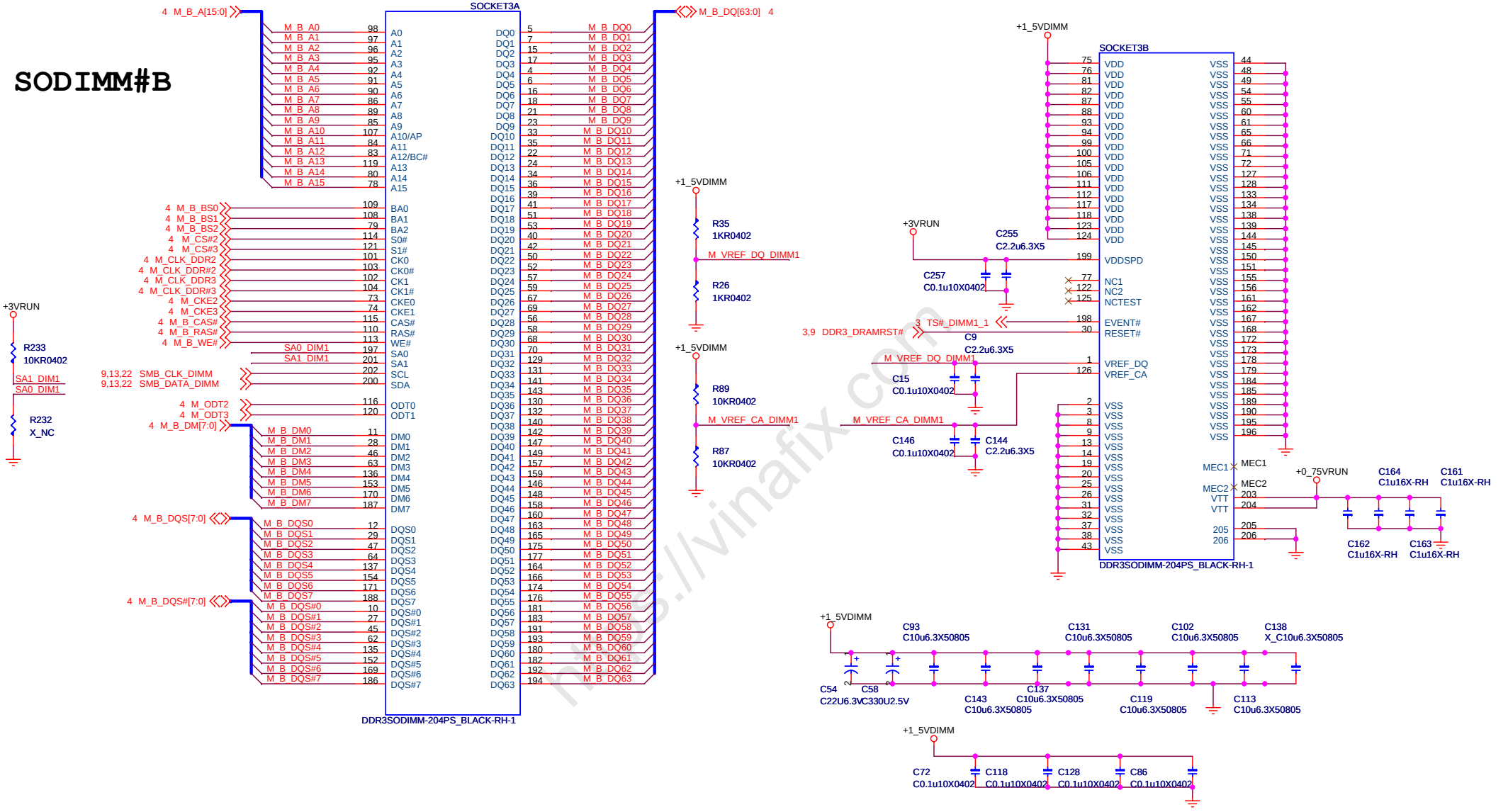
MICRO-STAR INT'L CO.,LTD.

Title: DDR3 SODIMM0

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 9 of 43

SODIMM#B



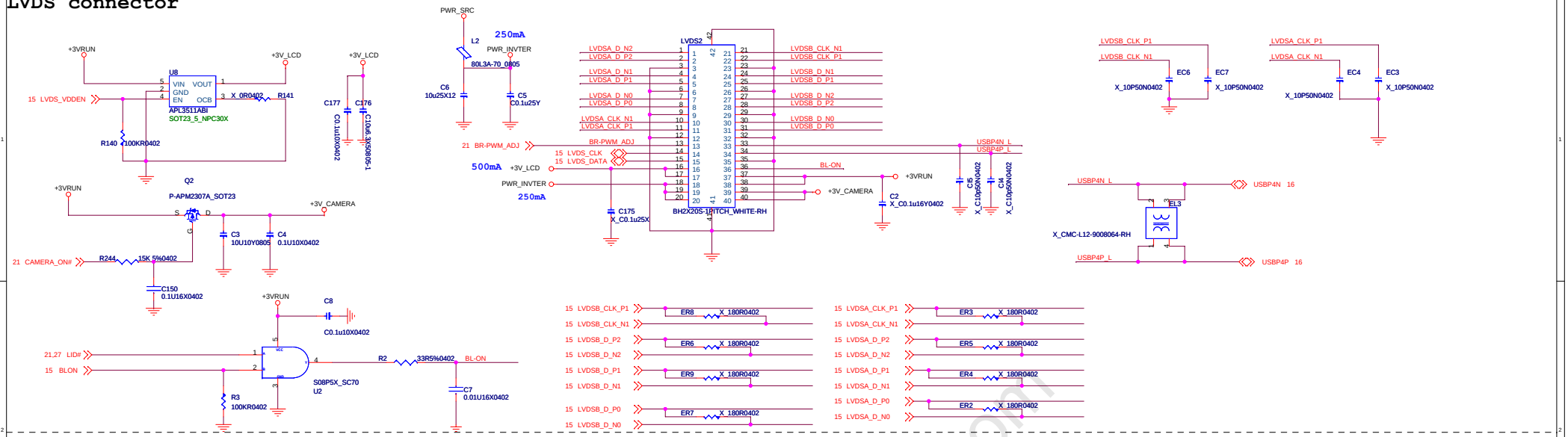
MICRO-STAR INT'L CO.,LTD.

Title: DDR3 SODIMM1

Size: Custom | Document Number: MS-16D3 | Rev: 0A

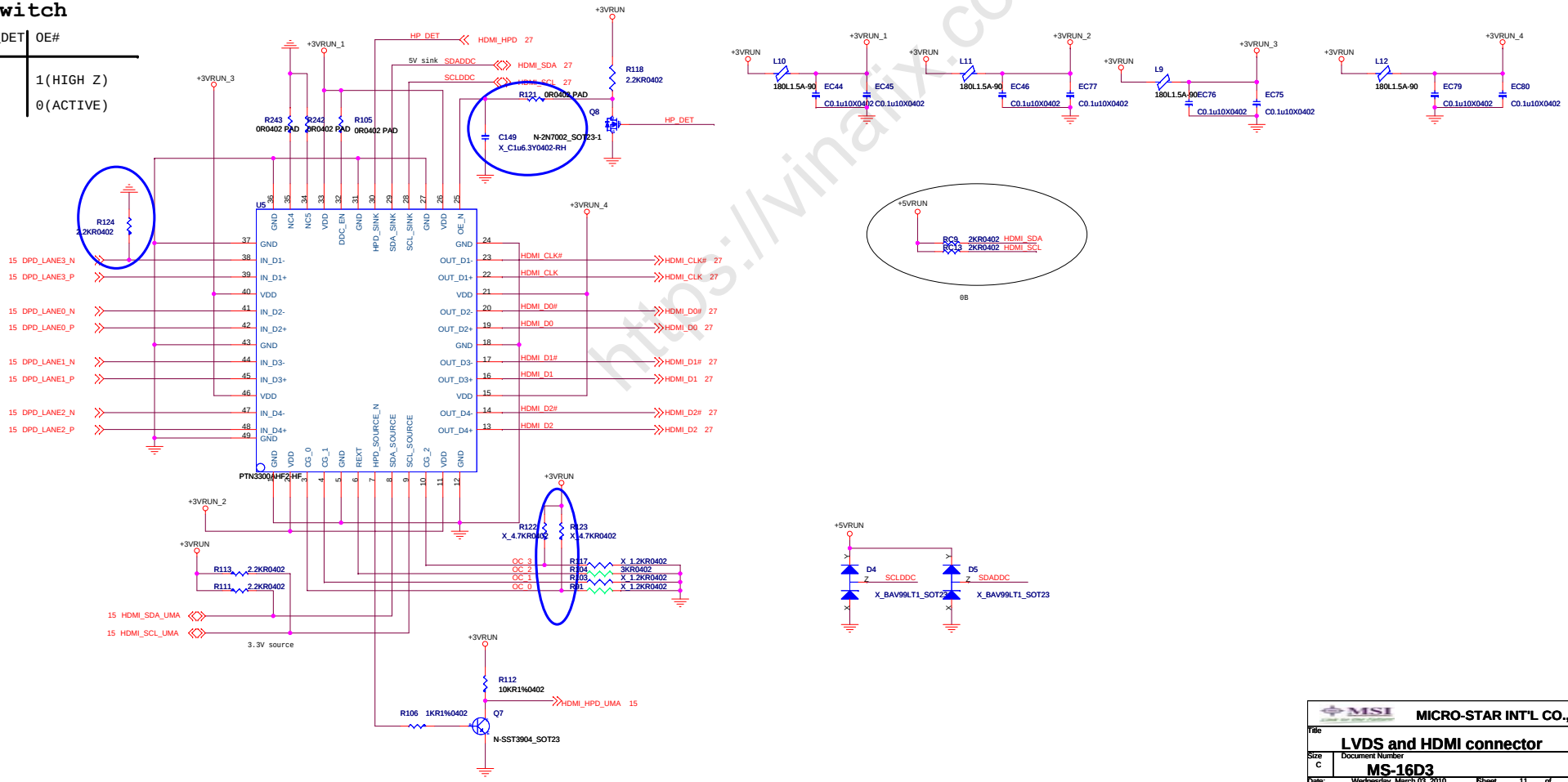
Date: Tuesday, March 02, 2010 | Sheet 10 of 43

LVDS connector



HDMI Switch

	HP_DET	OE#
UNPLUG	0	1(HIGH Z)
PLUG	1	0(ACTIVE)



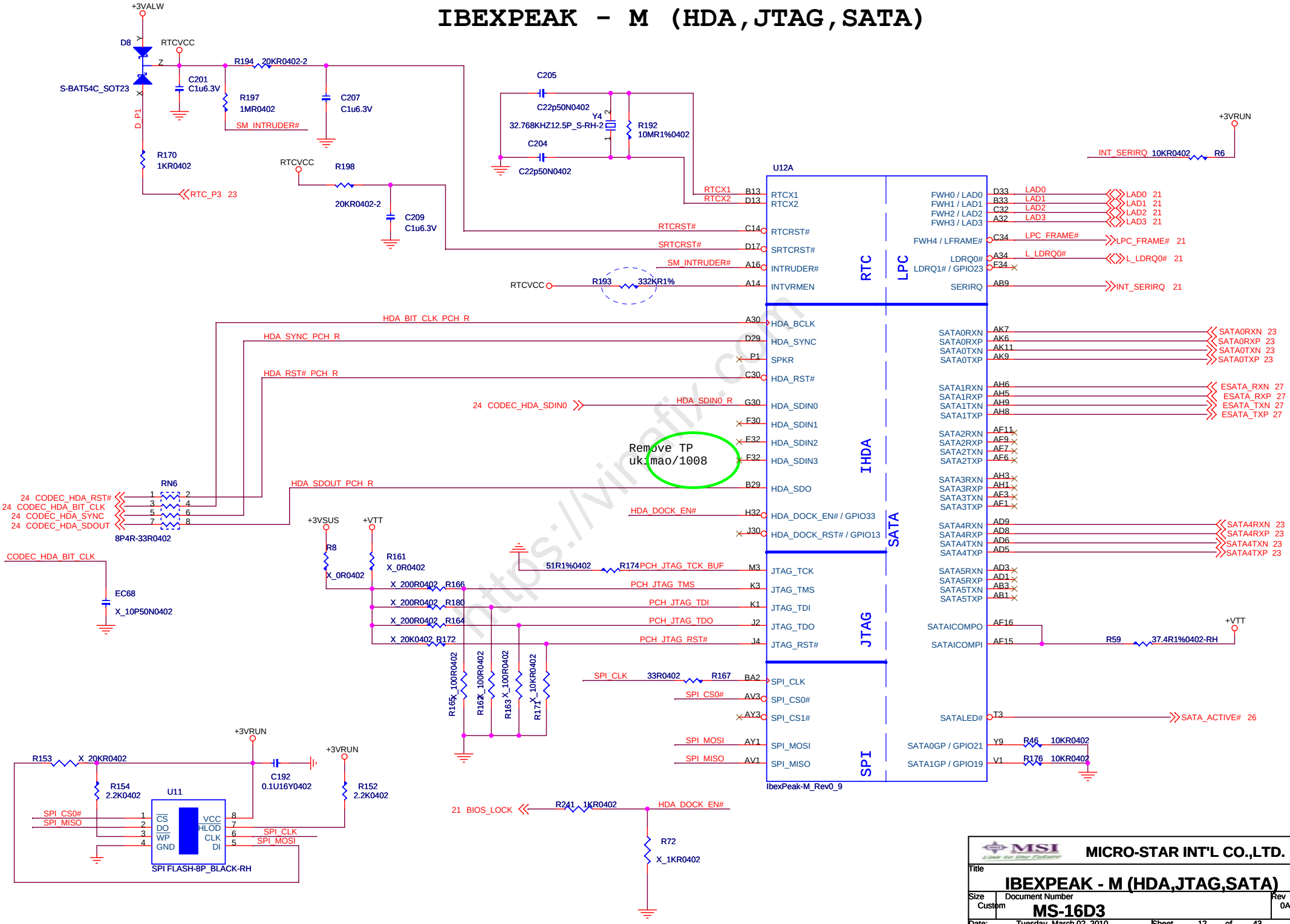
MSI MICRO-STAR INT'L CO.,LTD.

Title: LVDS and HDMI connector

Size	Document Number	Rev
C	MS-16D3	0A

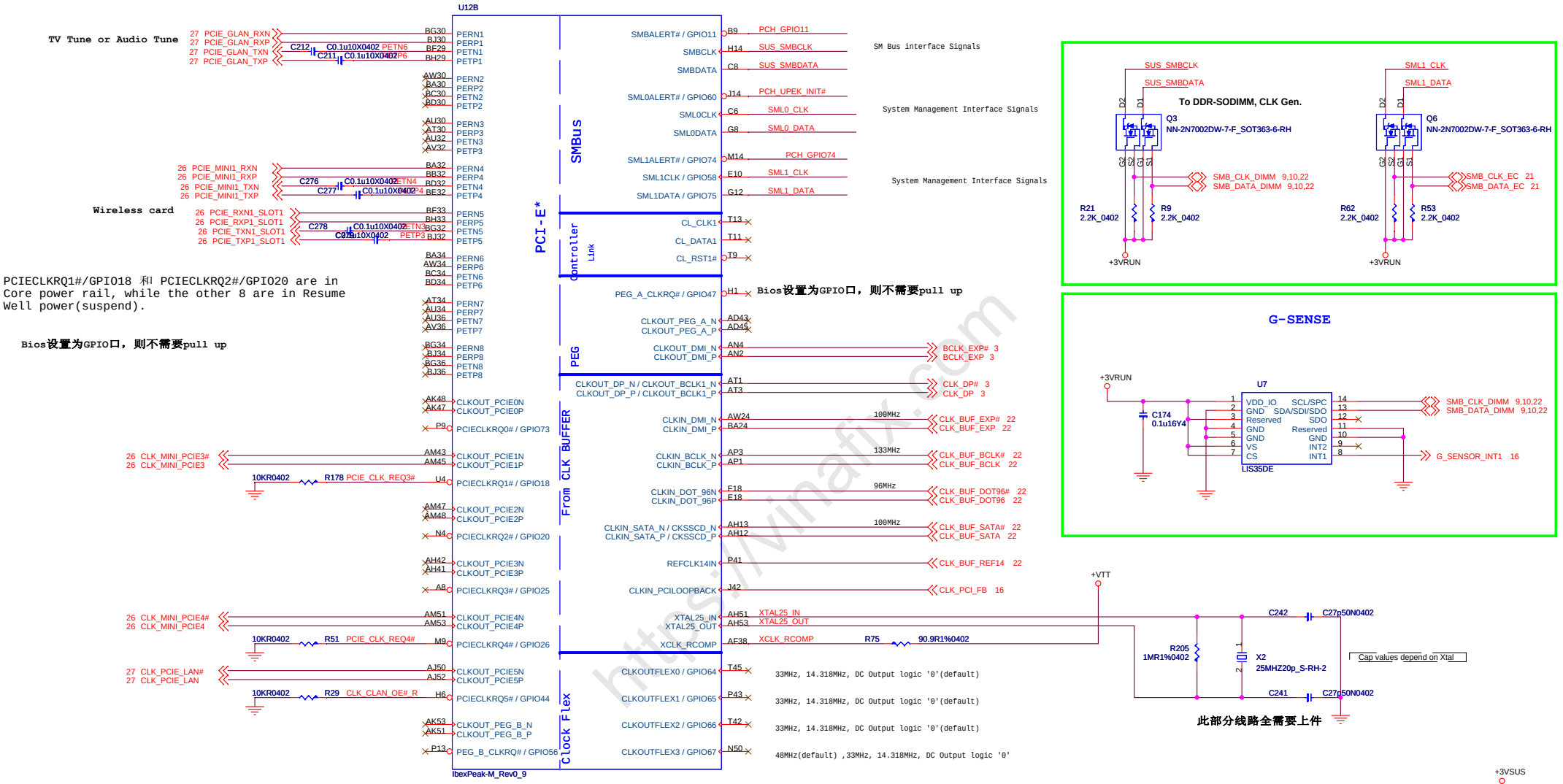
Date: Wednesday, March 03, 2010 Sheet 11 of 43

IBEXPEAK - M (HDA,JTAG,SATA)



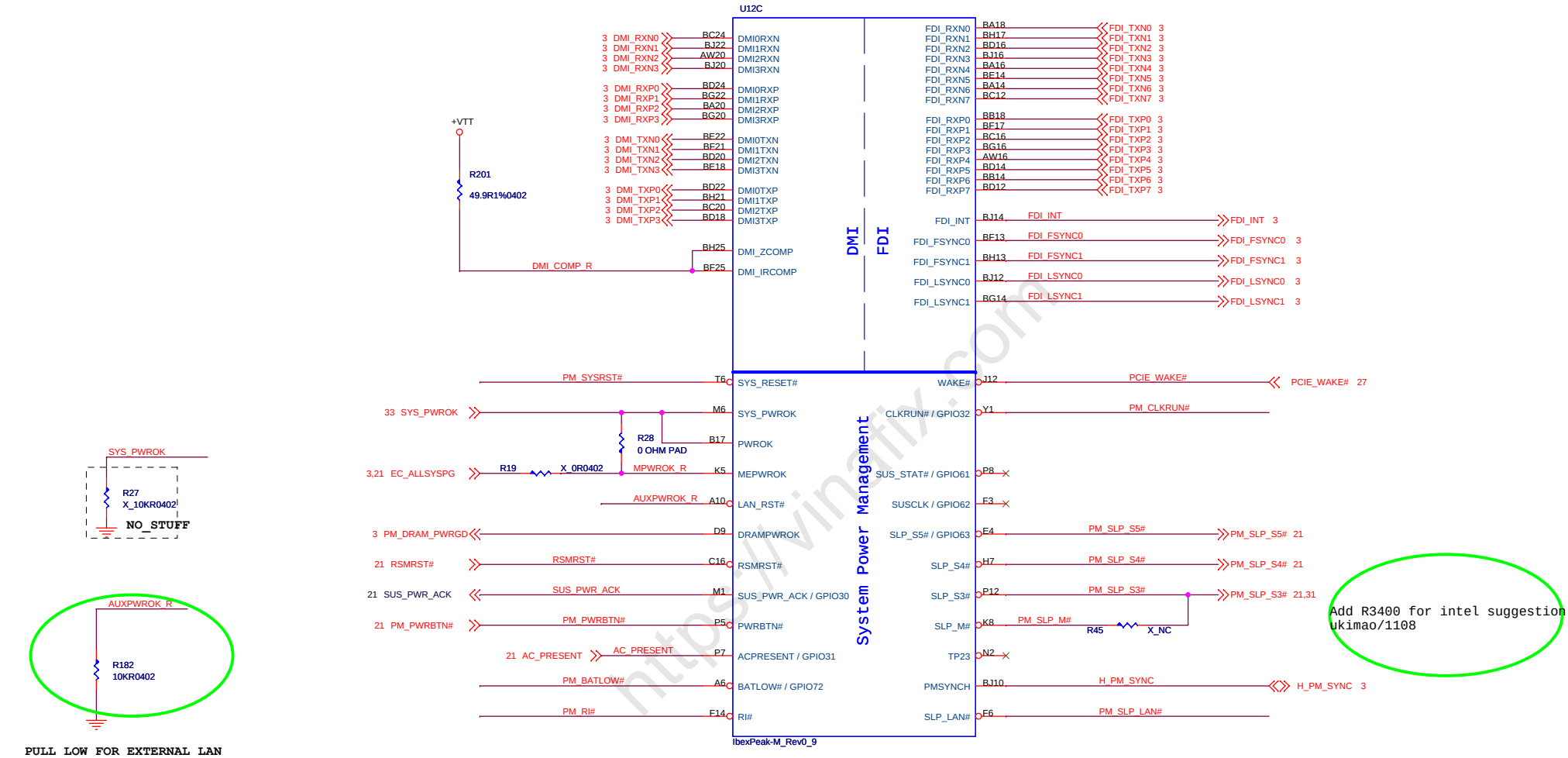
MSI	MICRO-STAR INT'L CO.,LTD.	
Title	IBEXPEAK - M (HDA,JTAG,SATA)	
Size: Custom	Document Number: MS-16D3	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 12 of 43	

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



Company	MICRO-STAR INT'L CO.,LTD.
Title	IBEXPEAK - M (PCI-E,SMBUS,CLK)
Size	Custom
Document Number	MS-16D3
Rev	0A
Date	Tuesday, March 02, 2010
Sheet	13 of 43

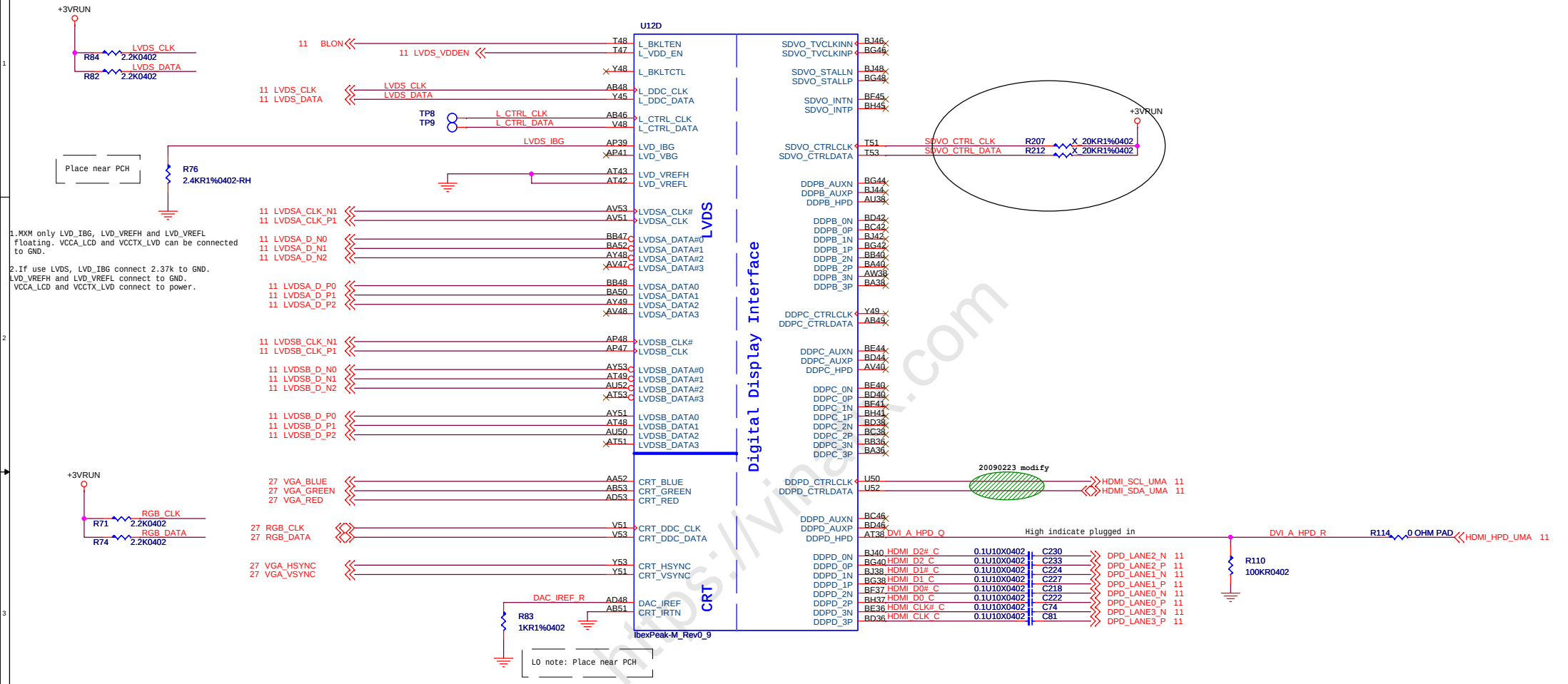
IBEXPEAK - M (DMI,FDI,GPIO)



Title	IBEXPEAK - M (DMI,FDI,GPIO)
Size	Custom
Document Number	MS-16D3
Rev	0A
Date:	Tuesday, March 02, 2010
Sheet	14 of 43

MICRO-STAR INT'L CO.,LTD.

IBEXPEAK - M (LVDS,DDI)



MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (LVDS,DDI)

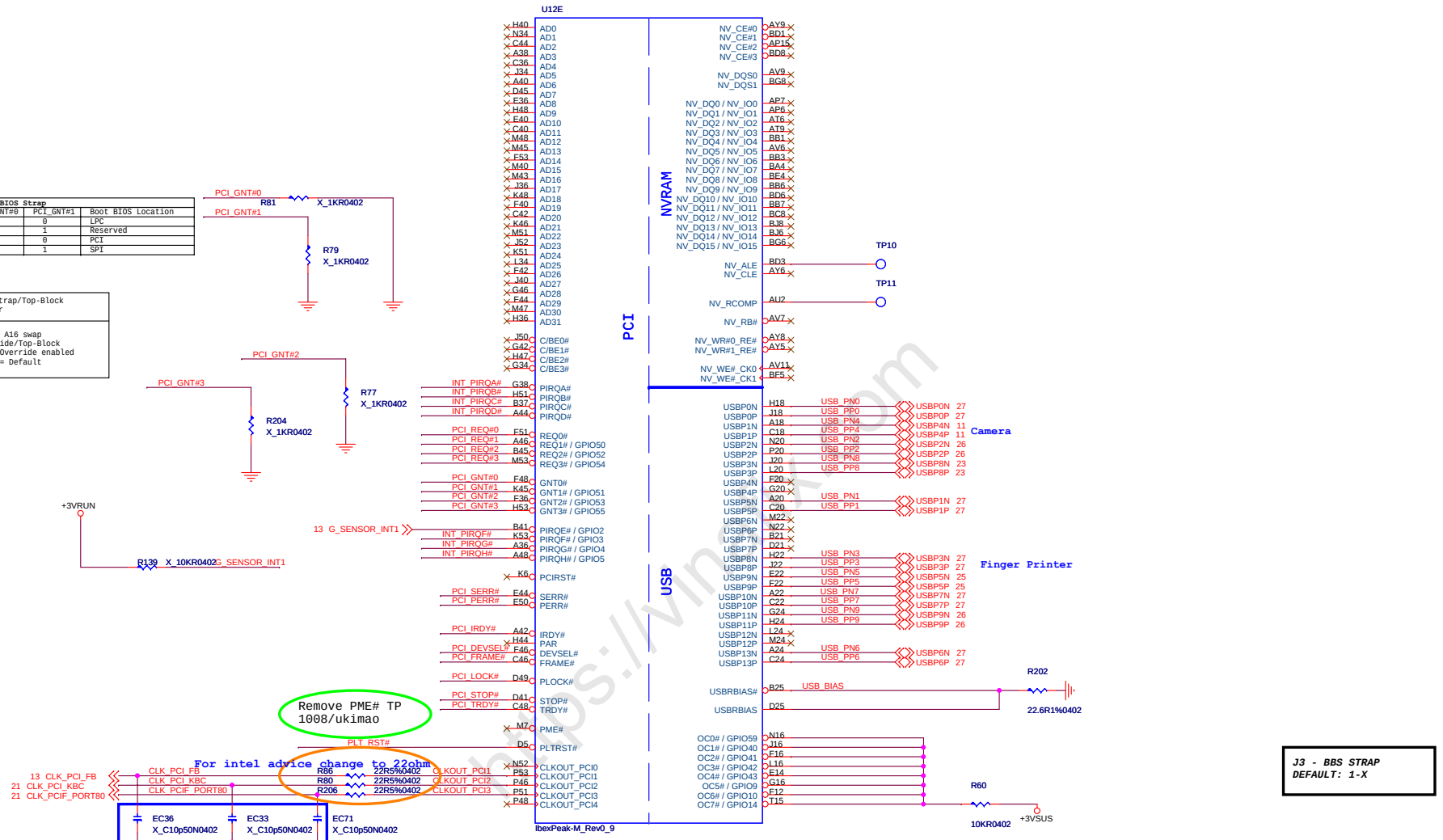
Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 15 of 43

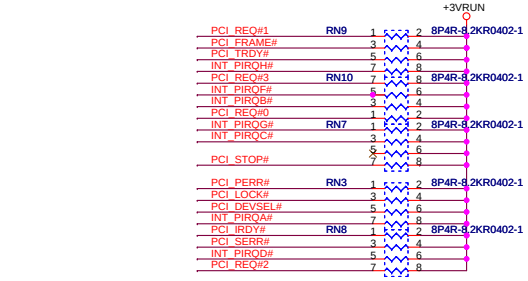
IBEXPEAK - M (PCI,USB,NVRAM)

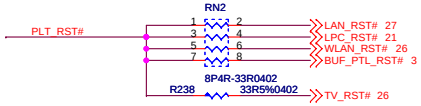
Boot BIOS Strap		
PCI_GNT#0	PCI_GNT#1	Boot BIOS Location
0	0	LPC
0	1	Reserved
1	0	PCI
1	1	SPI

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



J3 - BBS STRAP
DEFAULT: 1-X





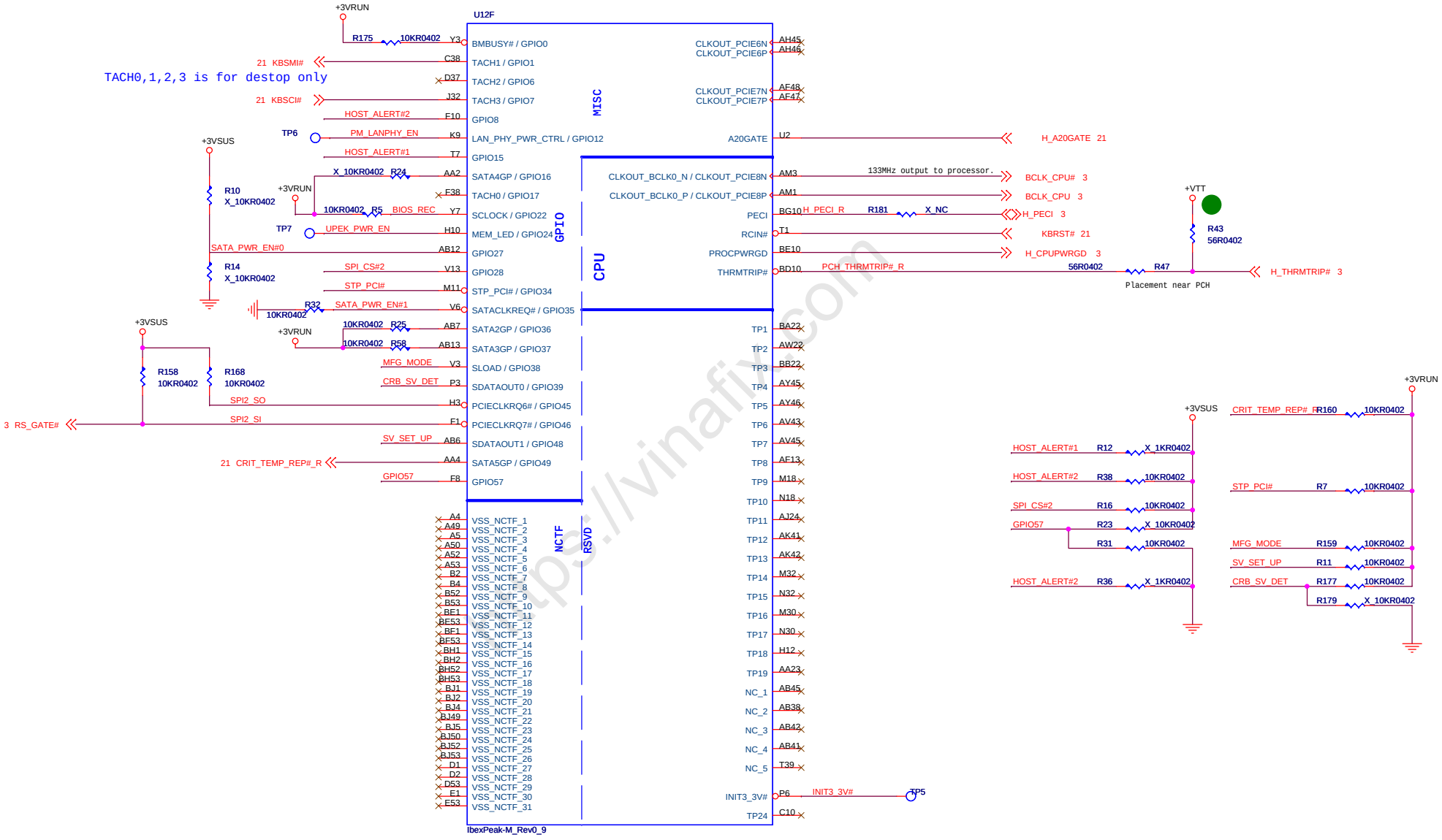
MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (PCI,USB,NVRAM)

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 16 of 43

IBEXPEAK - M (GPIO,VSS_NCTF,RSVD)



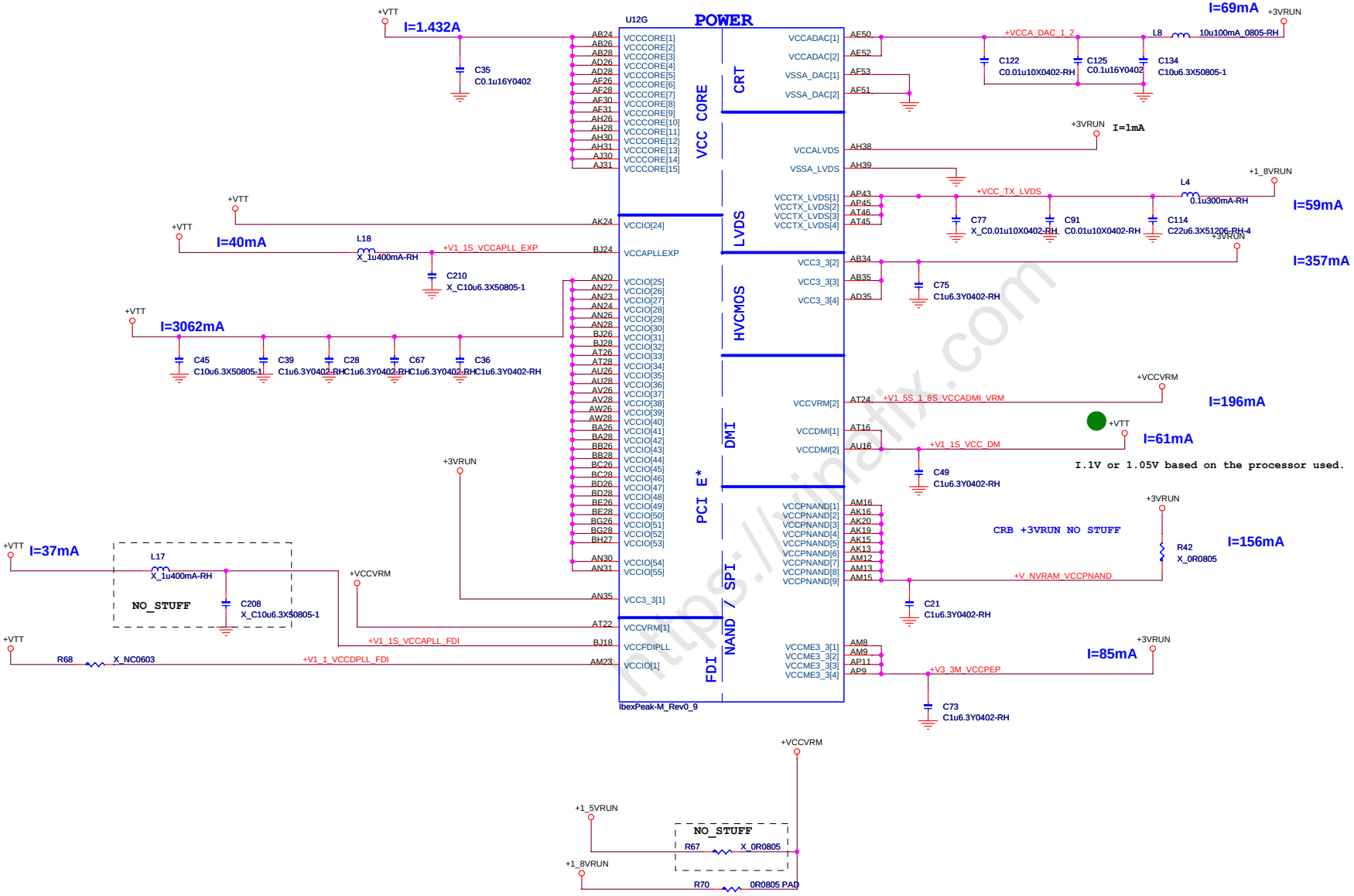
MICRO-STAR INT'L CO.,LTD.

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

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 17 of 43

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.

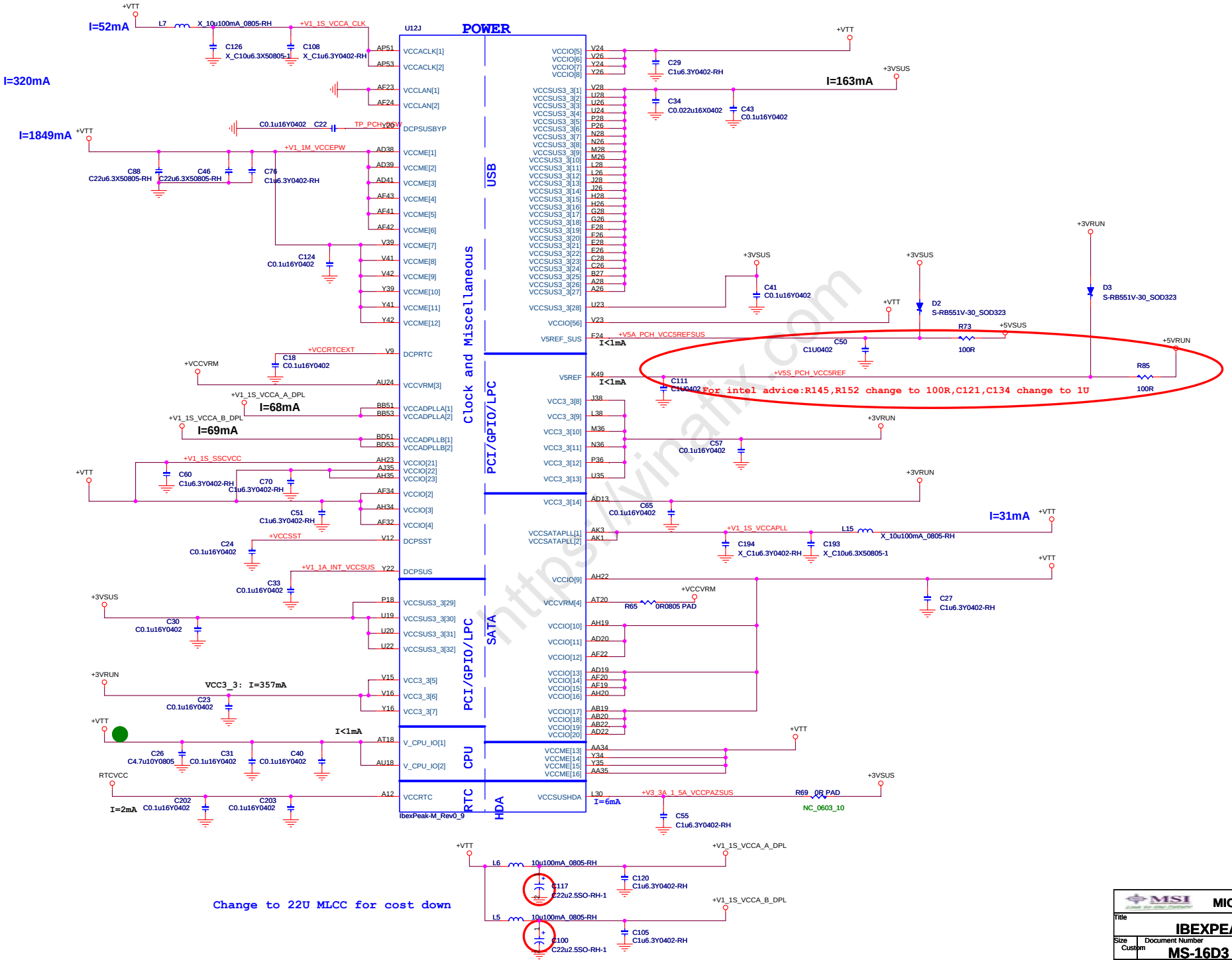
MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (POWER)

Size: Custom | Document Number: MS-16D3 | Rev: 0A

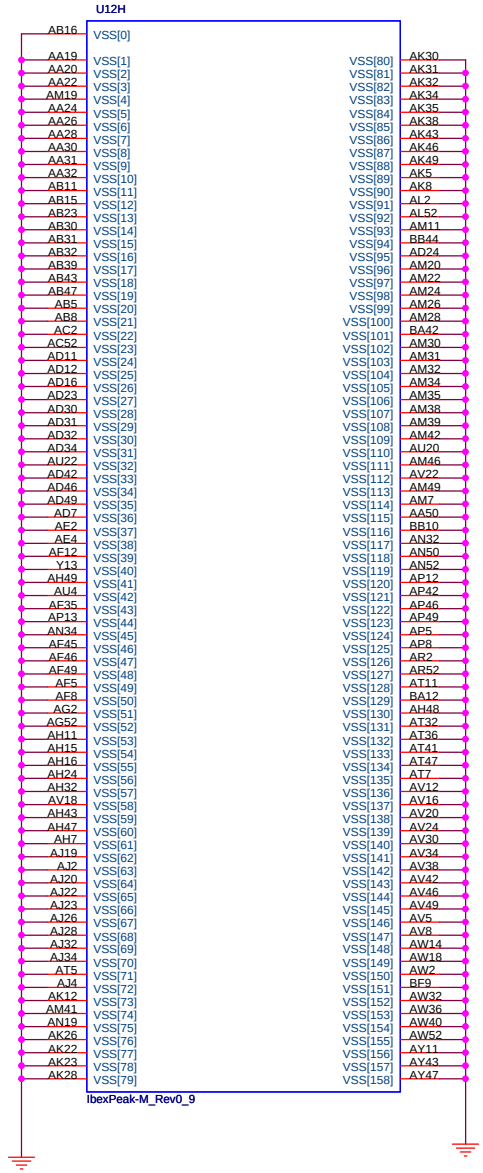
Date: Tuesday, January 05, 2010 | Sheet 18 of 43

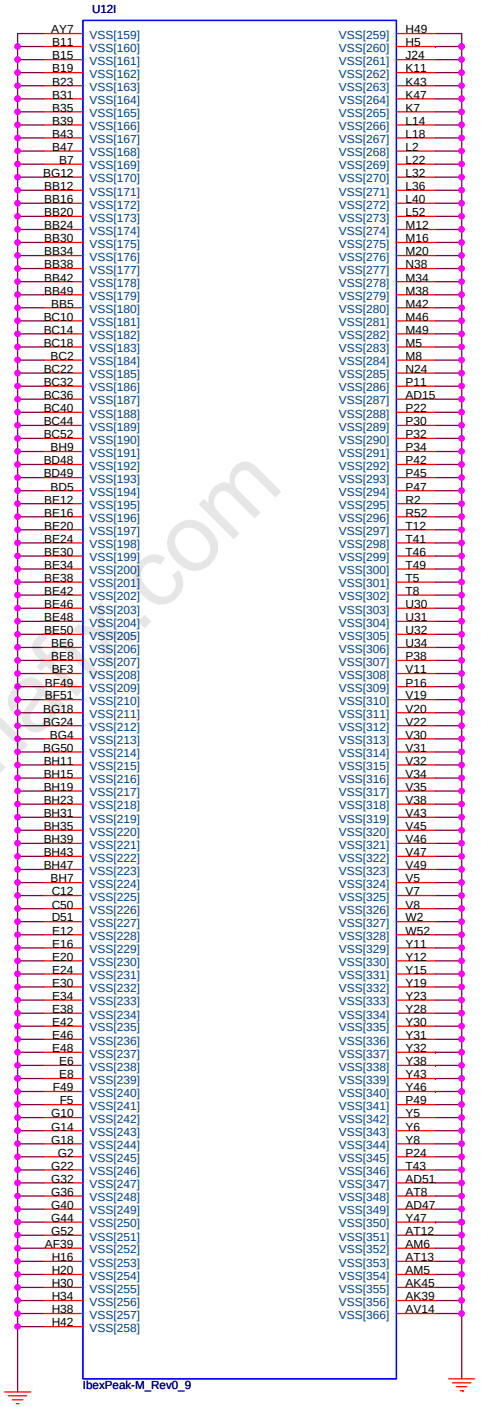
IBEXPEAK - M (POWER)



MSI	MICRO-STAR INT'L CO.,LTD.
Title	IBEXPEAK - M (POWER)
Size	Custom
Document Number	MS-16D3
Rev	0A
Date:	Tuesday, January 05, 2010
Sheet	19 of 43

IBEXPEAK - M (GND)



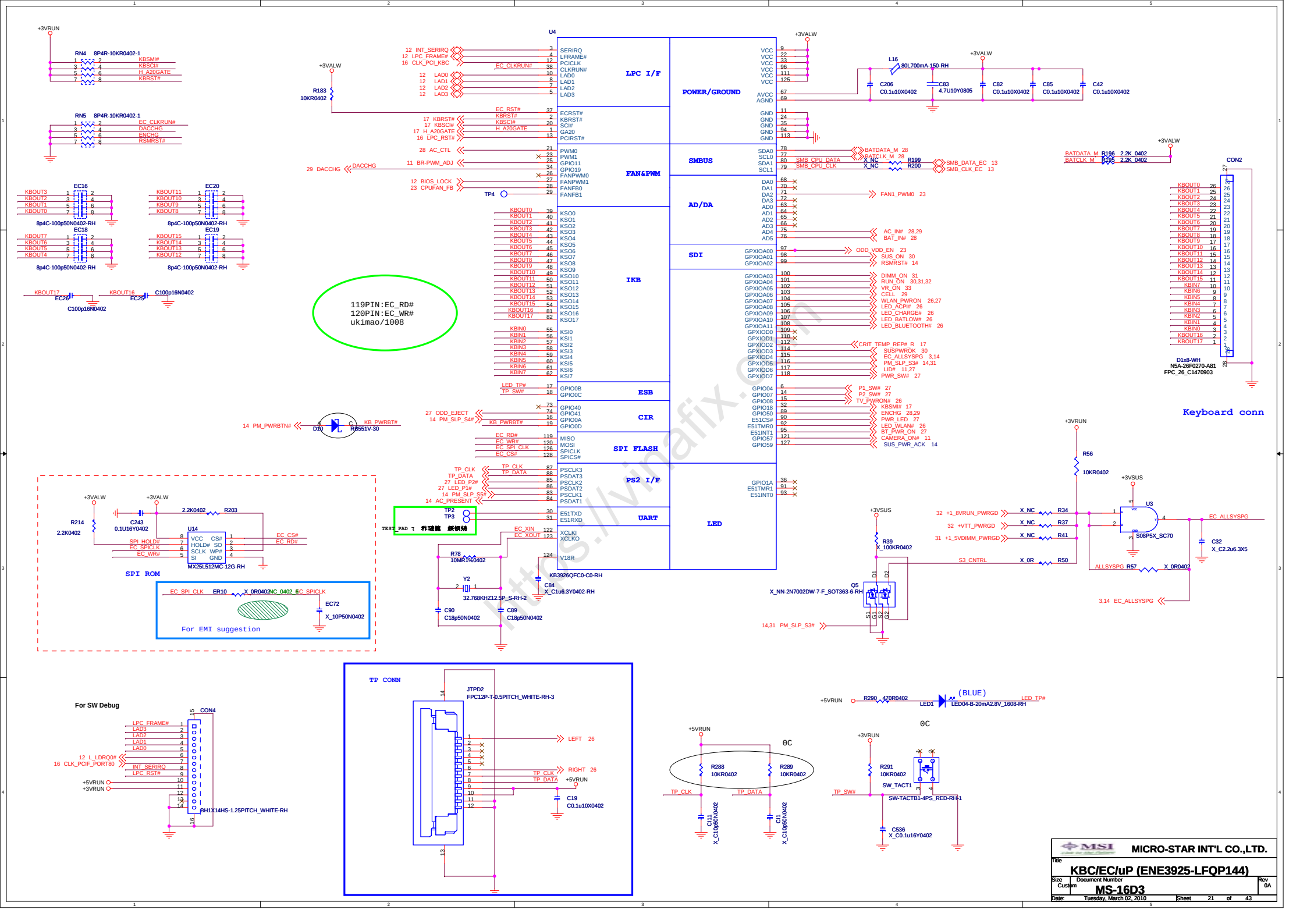


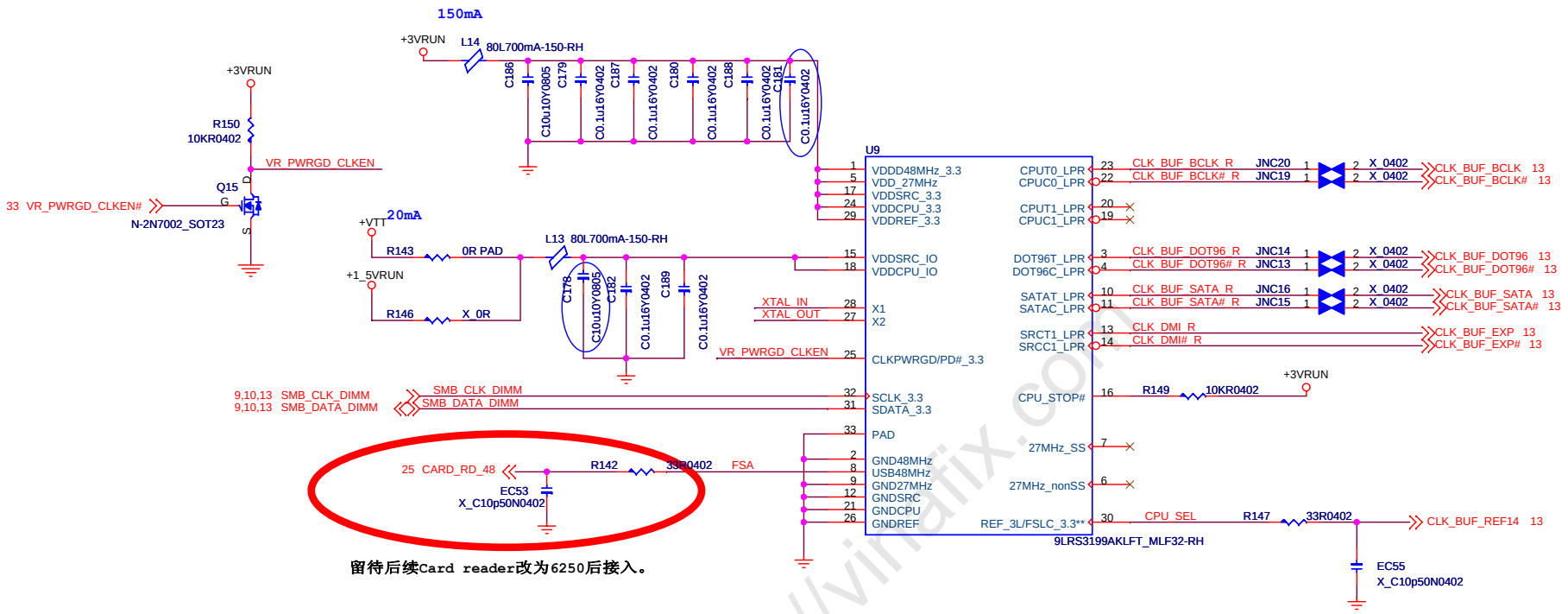
MICRO-STAR INT'L CO.,LTD.

Title: IBEXPEAK - M (GND)

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Thursday, November 26, 2009 | Sheet 20 of 43


U4
LPC I/F
POWER/GROUND
FAN&PWM
SMBUS
AD/DA
SDI
IKB
ESB
CIR
SPI FLASH
PS2 I/F
UART
LED
KB3926QFC0-C0-RH
119PIN:EC_RD#
120PIN:EC_WR#
ukimao/1008
Keyboard conn
SPI ROM
MX25L512MC-12G-RH
For EMI suggestion
TP CONN
JTPD2
FPC12P-T-0.5PITCH_WHITE-RH-3
For SW Debug
CON4
BH1X14HS-1.25PITCH_WHITE-RH
CON2
D1x8-WH
N5A-26F0270-A81
FPC_26_C1470903
SW-TACTB1-4PS_RED-RH-1
S08P5X_SC70
LED04-B-20mA2.8V_1608-RH
MICRO-STAR INT'L CO.,LTD.
KBC/EC/uP (ENE3925-LFQP144)
MS-16D3
Tuesday, March 02, 2010
21 of 43

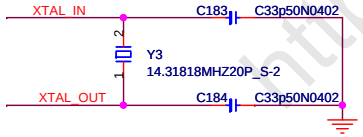


留待后续Card reader改为6250后接入。

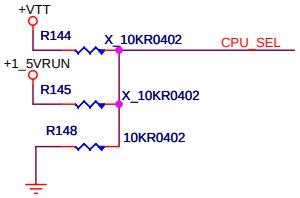
Capacity select

If LC=20pf C708/C709=33pf

If LC=32pf C708/C709=56pf



For CPU frequency select (133MHz)



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

Co-Lay Note:

For IDT IC9lRS3199

R598,R599,R600=10Kohm

For Silego SLG8SP587

R598,R599,R600=4.7Kohm

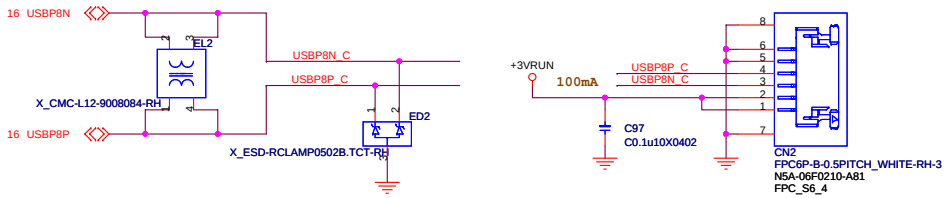
MICRO-STAR INT'L CO.,LTD.

Title: Clock Generator (ICS9LPR113)

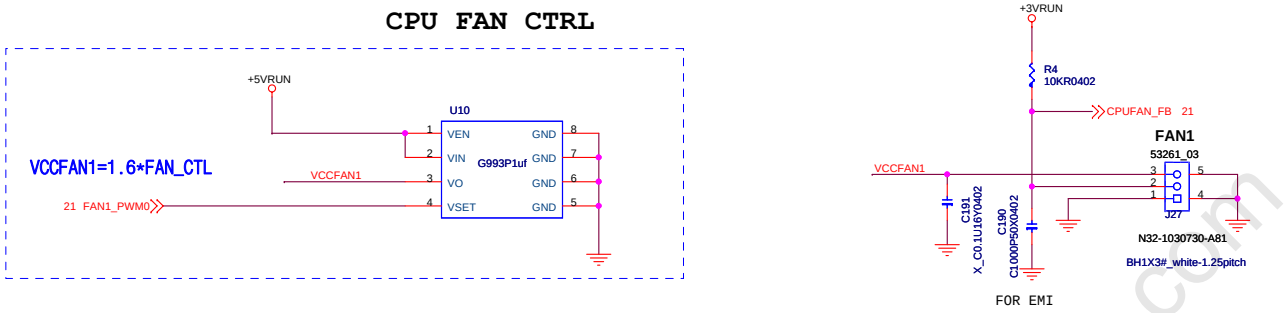
Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 22 of 43

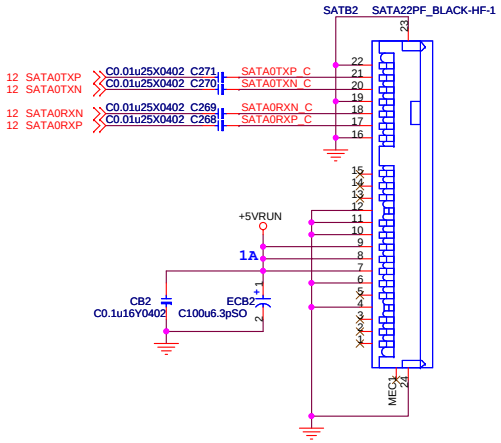
FINGER PRINT



CPU FAN CTRL

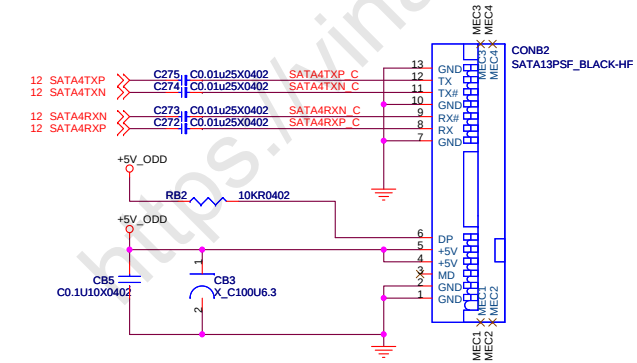


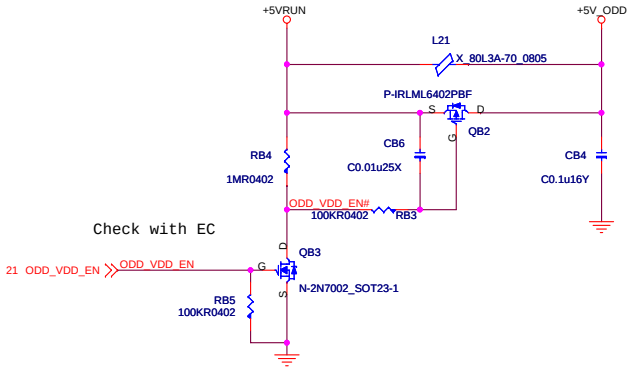
SATA HDD Connector



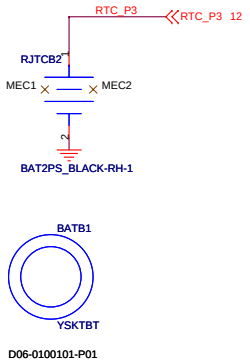
SATA ODD Connector

The PD (P1) pin is for host GIO to detect if the ODD is present or not. In the drive, the pin is "pull-low". So when host side detects this pin as high,then no device; when host side detect this pin as low, then the device present.





RTC Connector

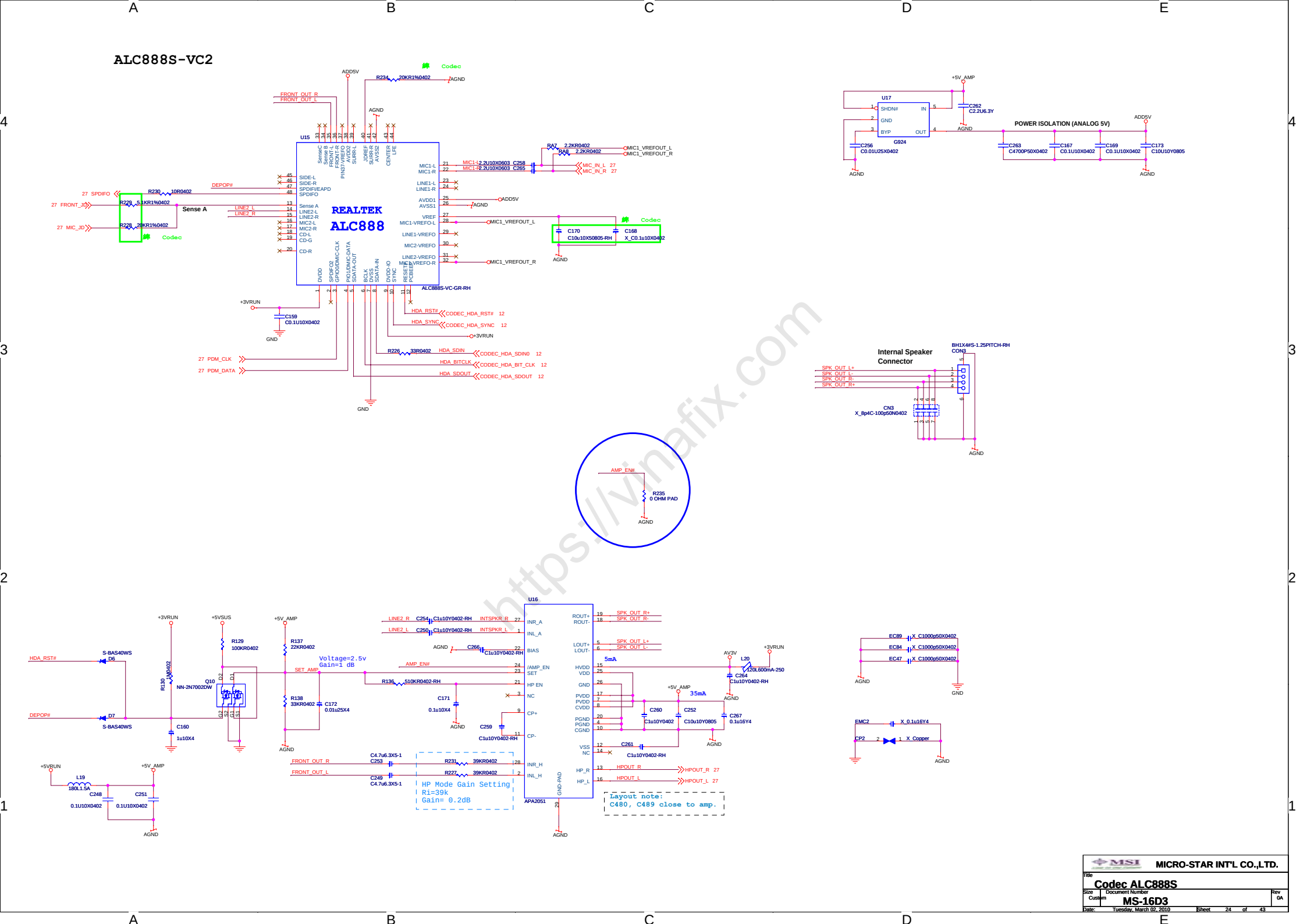


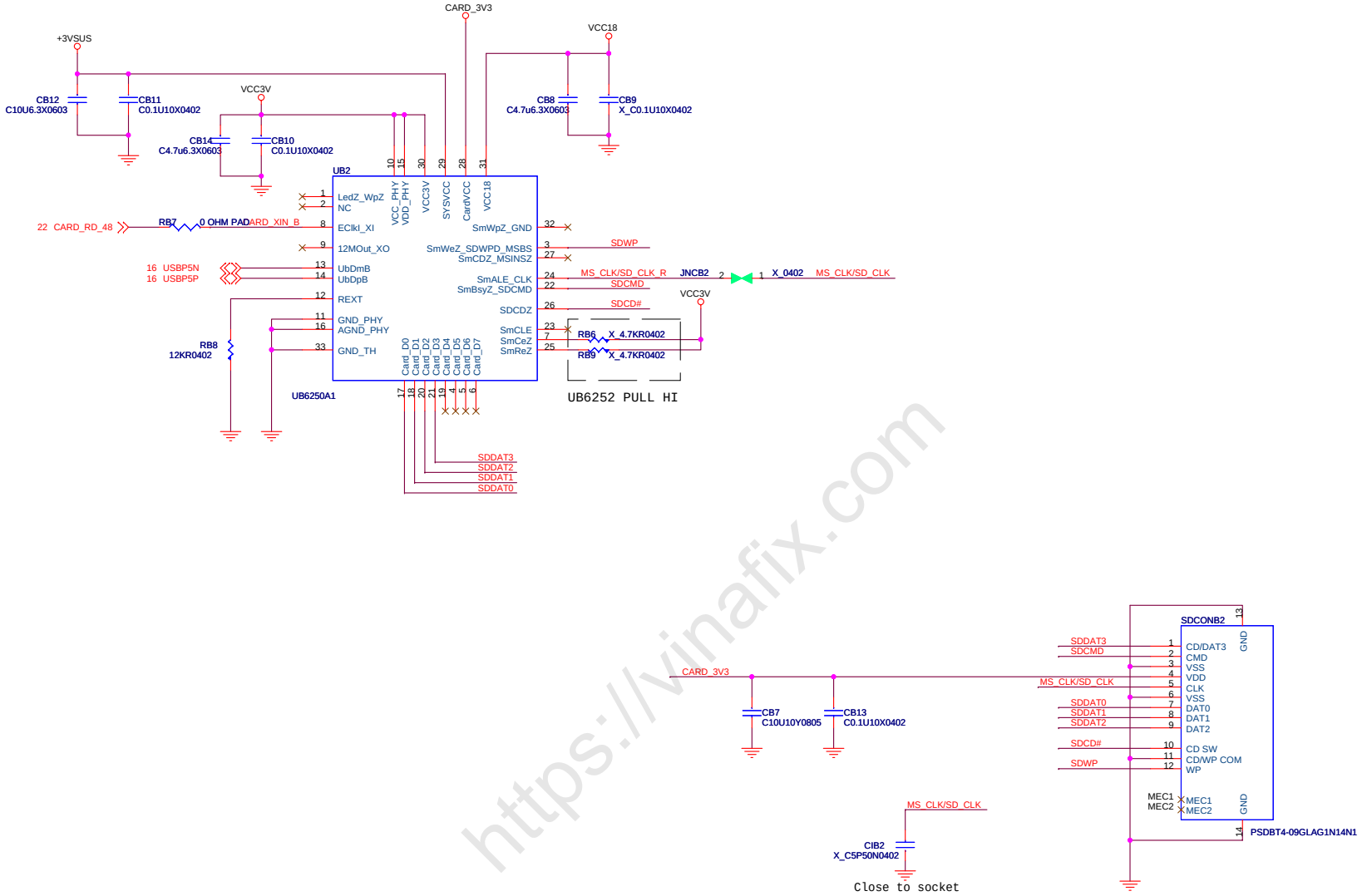
MICRO-STAR INT'L CO.,LTD.

Title: NEWCARD,MDC,FAN

Size: Custom | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 23 of 43





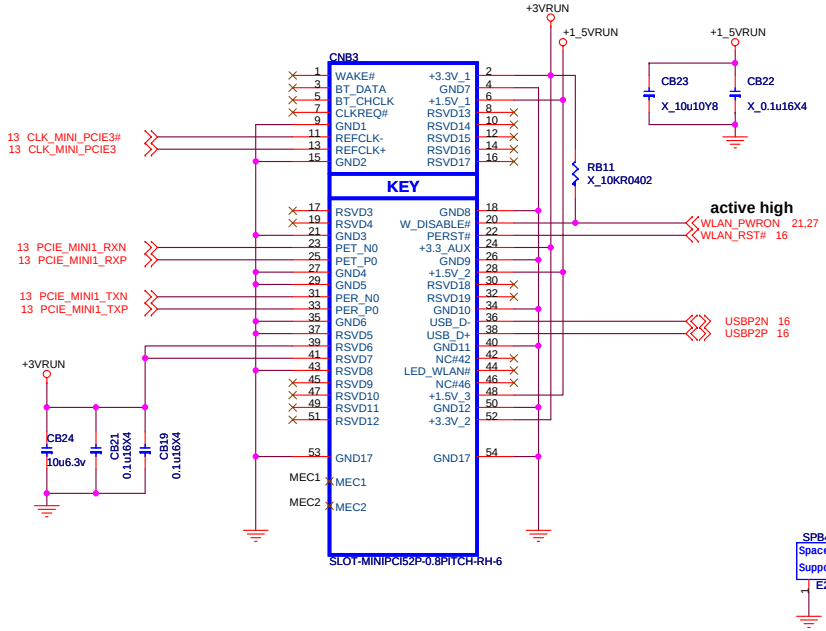
MICRO-STAR INT'L CO.,LTD.

Title: Audio Jacks

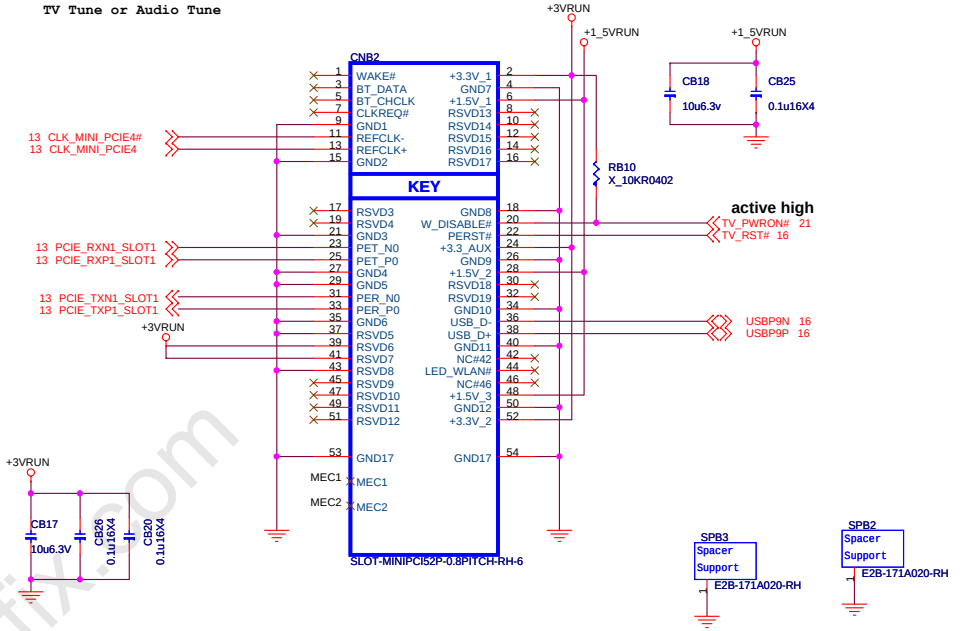
Size: Custom | Document Number: MS-16D3 | Rev: 0A

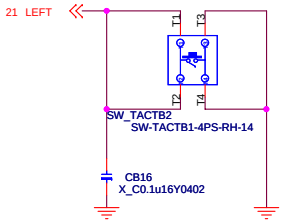
Date: Tuesday, March 02, 2010 | Sheet 25 of 43

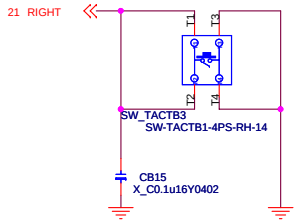
MINI PCIE Connector

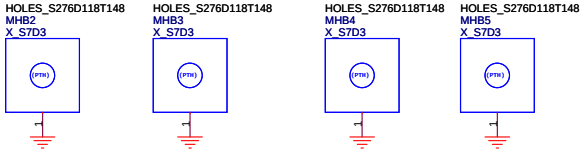


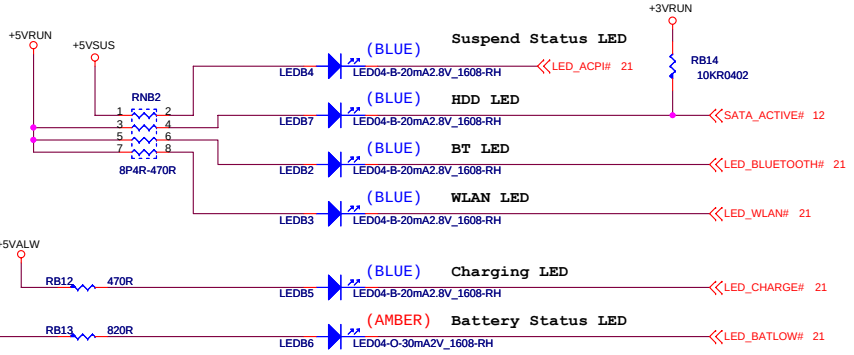
MINI PCIE Connector



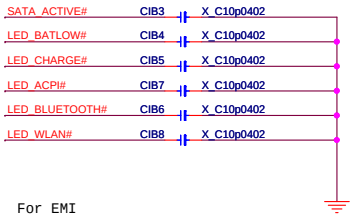






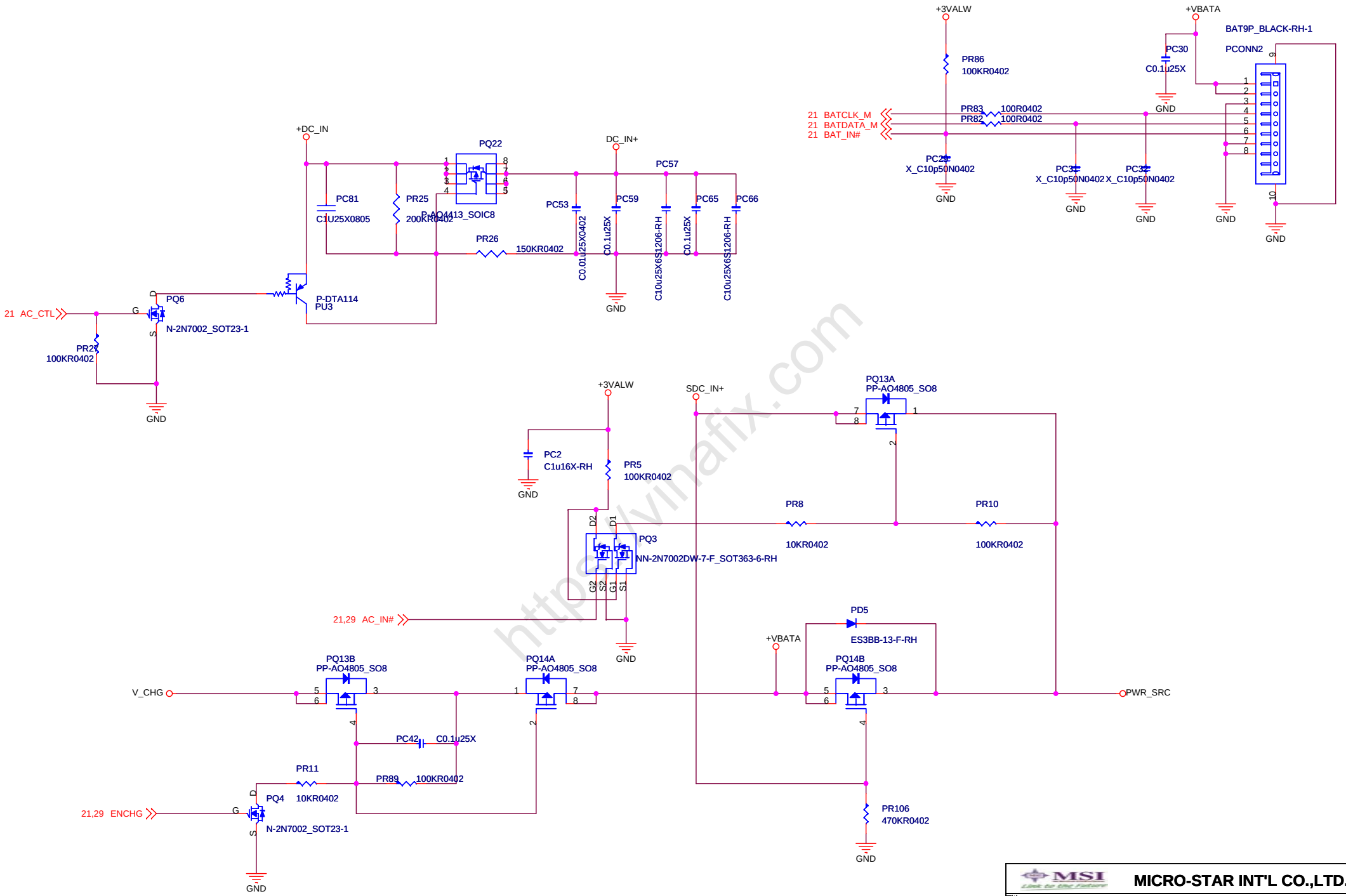


Battery Low (5%): RED
Error: RED Blinking
Charging: GREEN
Battery Full/ Discharge: OFF



For EMI

MICRO-STAR INT'L CO.,LTD		
MS-16D3		
Size: Custom	Document Description: MINI PCIE / TP / LED	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 26 of 43	



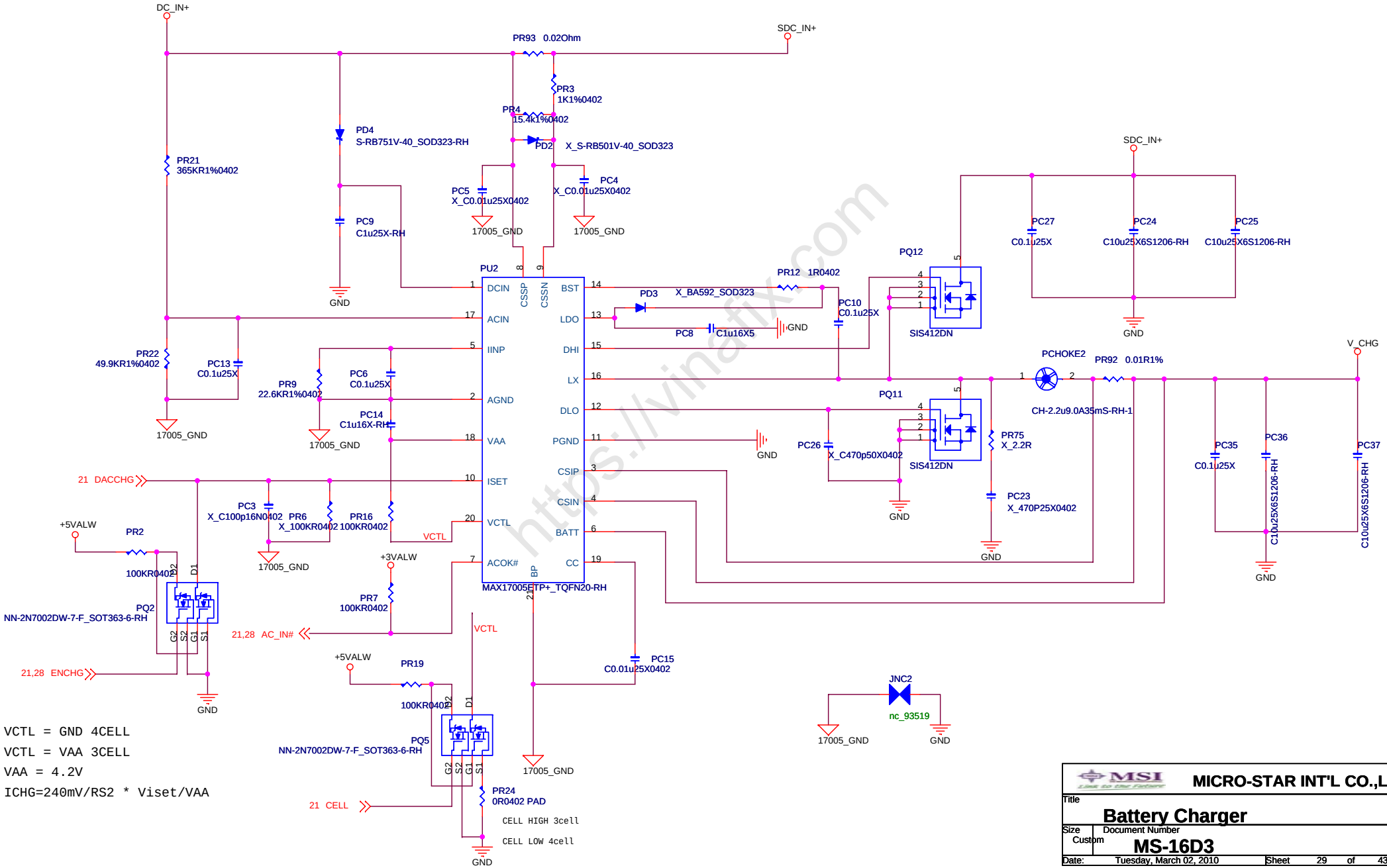
MSI Link to the Future

MICRO-STAR INT'L CO.,LTD.

Title: **Battery Select**

Size	Document Number	Rev
Custom	MS-16D3	0A

Date: Tuesday, March 02, 2010 Sheet 28 of 43

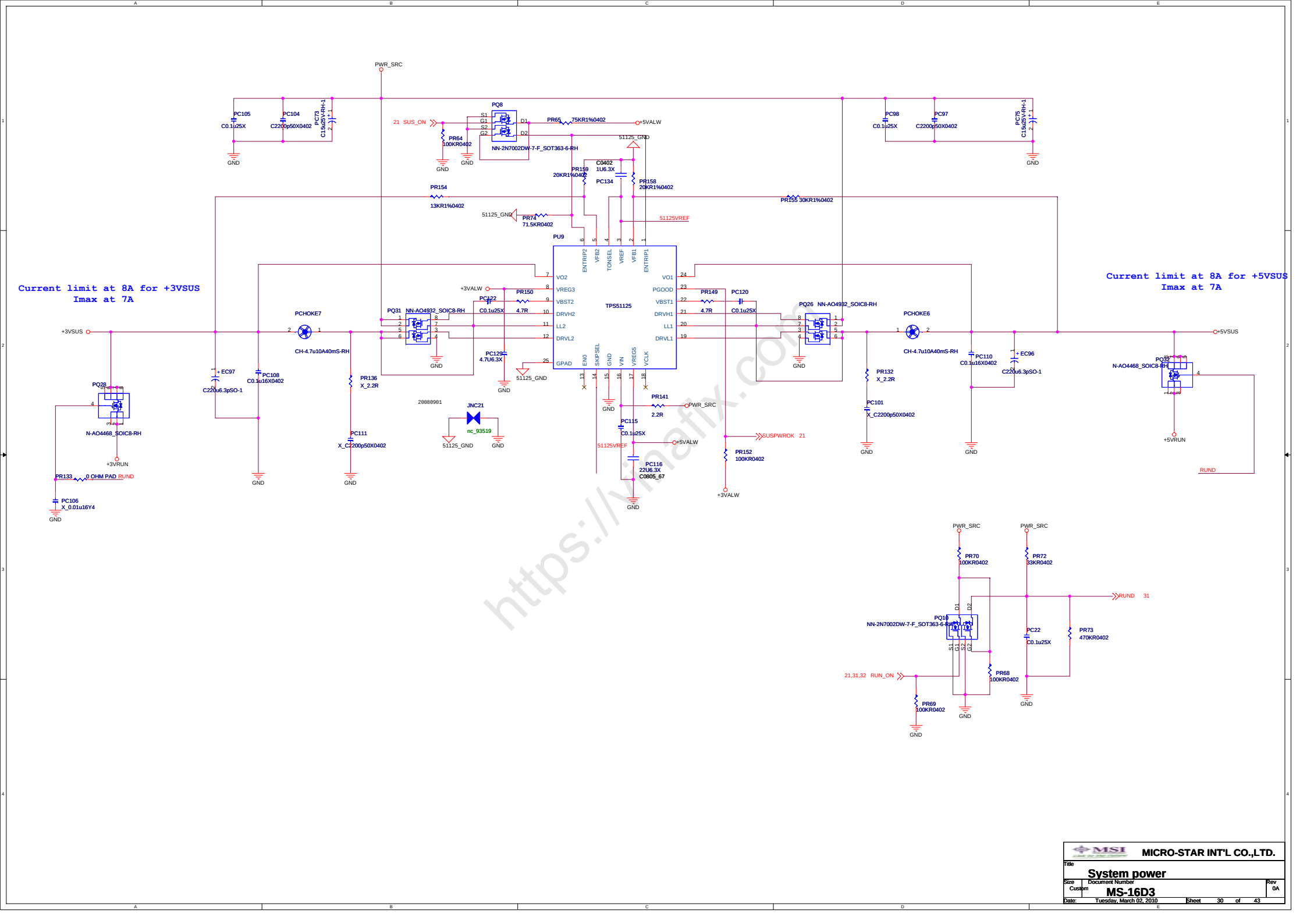


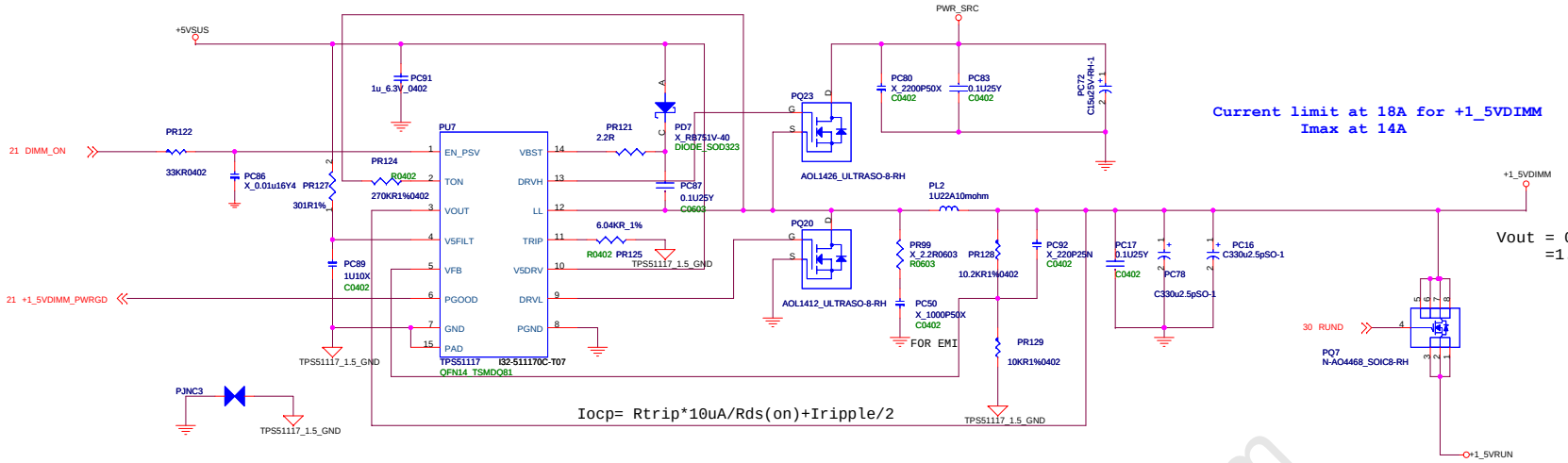
MICRO-STAR INT'L CO.,LTD.

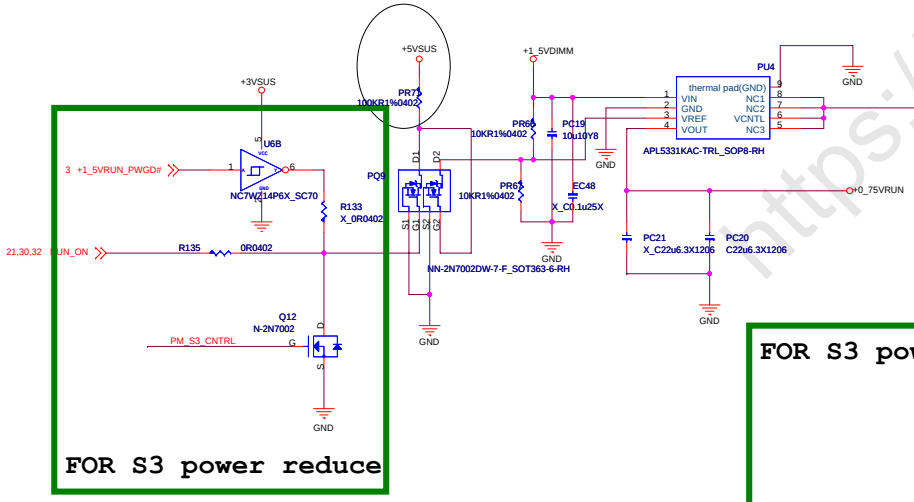
Title: Battery Charger

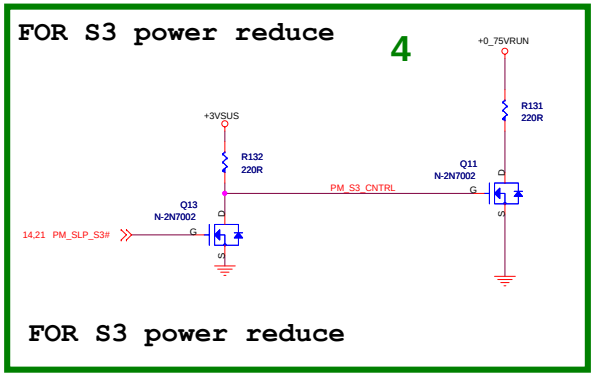
Size: Custom | Document Number: MS-16D3 | Rev: 0A

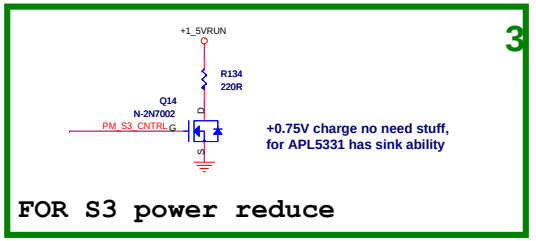
Date: Tuesday, March 02, 2010 | Sheet 29 of 43


Current limit at 8A for +3VSUS
Imax at 7A
Current limit at 8A for +5VSUS
Imax at 7A
PWR_SRC
PU9
TPS51125
PQ8
NN-2N7002DW-7-F_SOT363-6-RH
PQ31
NN-AO4932_SOIC8-RH
PQ26
NN-AO4932_SOIC8-RH
PQ28
N-AO4468_SOIC8-RH
PQ32
N-AO4468_SOIC8-RH
PQ10
NN-2N7002DW-7-F_SOT363-6-RH
PCHOKE7
CH-4.7u10A40mS-RH
PCHOKE6
CH-4.7u10A40mS-RH
JNC21
nc_93519
20080901
+3VSUS
+5VSUS
+3VALW
+5VALW
+3VRUN
+5VRUN
51125VREF
51125_GND
GND
RUND
21 SUS_ON
SUSPWROK 21
21,31,32 RUN_ON
RUND 31
PC105 C0.1u25X
PC104 C2200p50X0402
PC73 C15u25V-RH-1
PC98 C0.1u25X
PC97 C2200p50X0402
PC75 C15u25V-RH-1
PR64 100KR0402
PR65 75KR1%0402
PR154 13KR1%0402
PR74 71.5KR0402
PR159 20KR1%0402
C0402 1U6.3X
PC134
PR158 20KR1%0402
PR155 30KR1%0402
PR150 4.7R
PC122 C0.1u25X
PC129 4.7U6.3X
PR149 4.7R
PC120 C0.1u25X
PR141 2.2R
PC115 C0.1u25X
PC116 22U6.3X C0805_67
PR152 100KR0402
PR132 X_2.2R
PC101 X_C2200p50X0402
PC110 C0.1u16X0402
EC96 C220u6.3pSO-1
EC97 C220u6.3pSO-1
PC108 C0.1u16X0402
PR136 X_2.2R
PC111 X_C2200p50X0402
PR133 0 OHM PAD
PC106 X_0.01u16Y4
PR70 100KR0402
PR72 33KR0402
PC22 C0.1u25X
PR73 470KR0402
PR68 100KR0402
PR69 100KR0402
VO2
VREG3
VBST2
DRVH2
LL2
DRVL2
GPAD
ENTRIP2
VFB2
TONSEL
VREF
VFB1
ENTRIP1
VO1
PGOOD
VBST1
DRVH1
LL1
DRVL1
EN0
SKIPSEL
GND
VIN
VREG5
VCLK
https://vinafix.com
MICRO-STAR INT'L CO.,LTD.
System power
MS-16D3
Size Custom
Document Number
Rev 0A
Date: Tuesday, March 02, 2010
Sheet 30 of 43







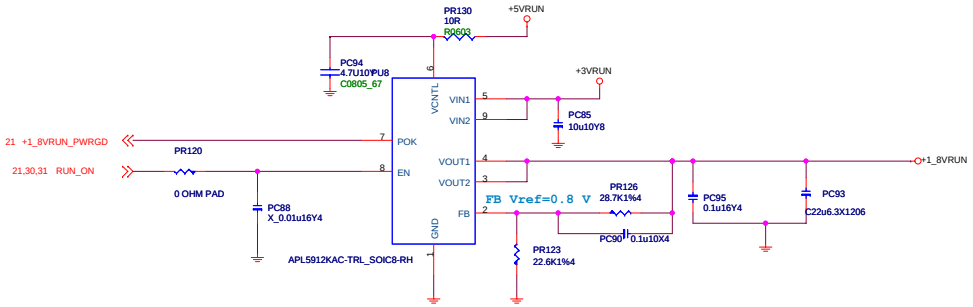


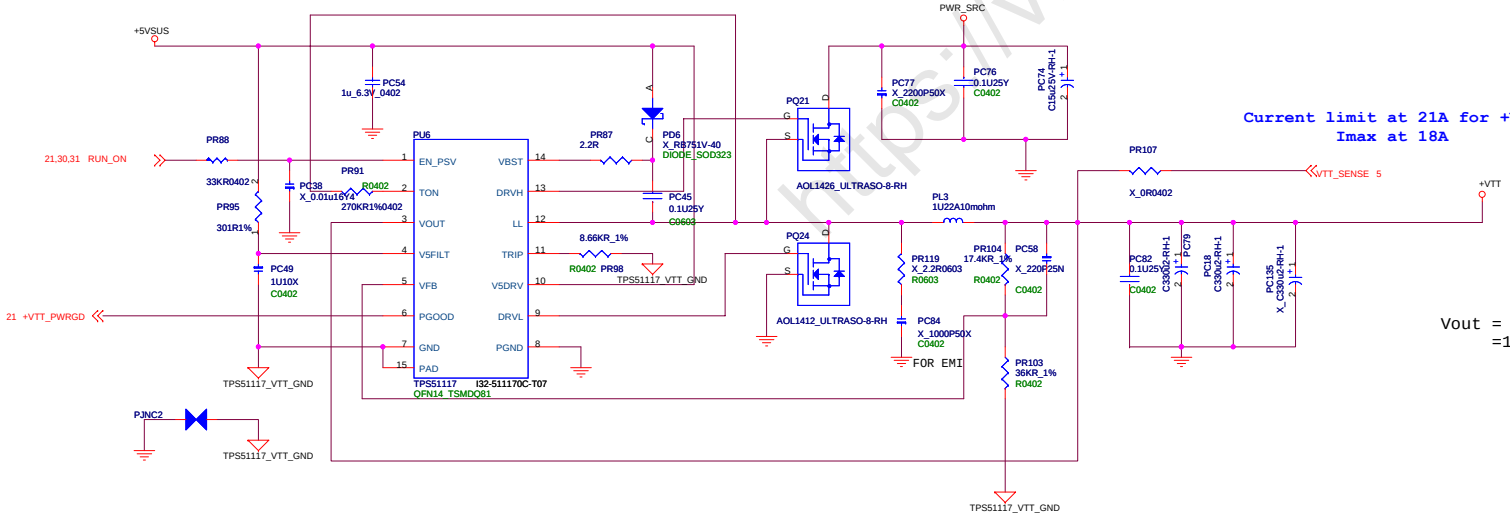
MICRO-STAR INT'L CO.,LTD.

Title: SMDDR_VTERM /1_5VRUN

Size: C | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 31 of 43





Current limit at 21A for +VTT
Imax at 18A

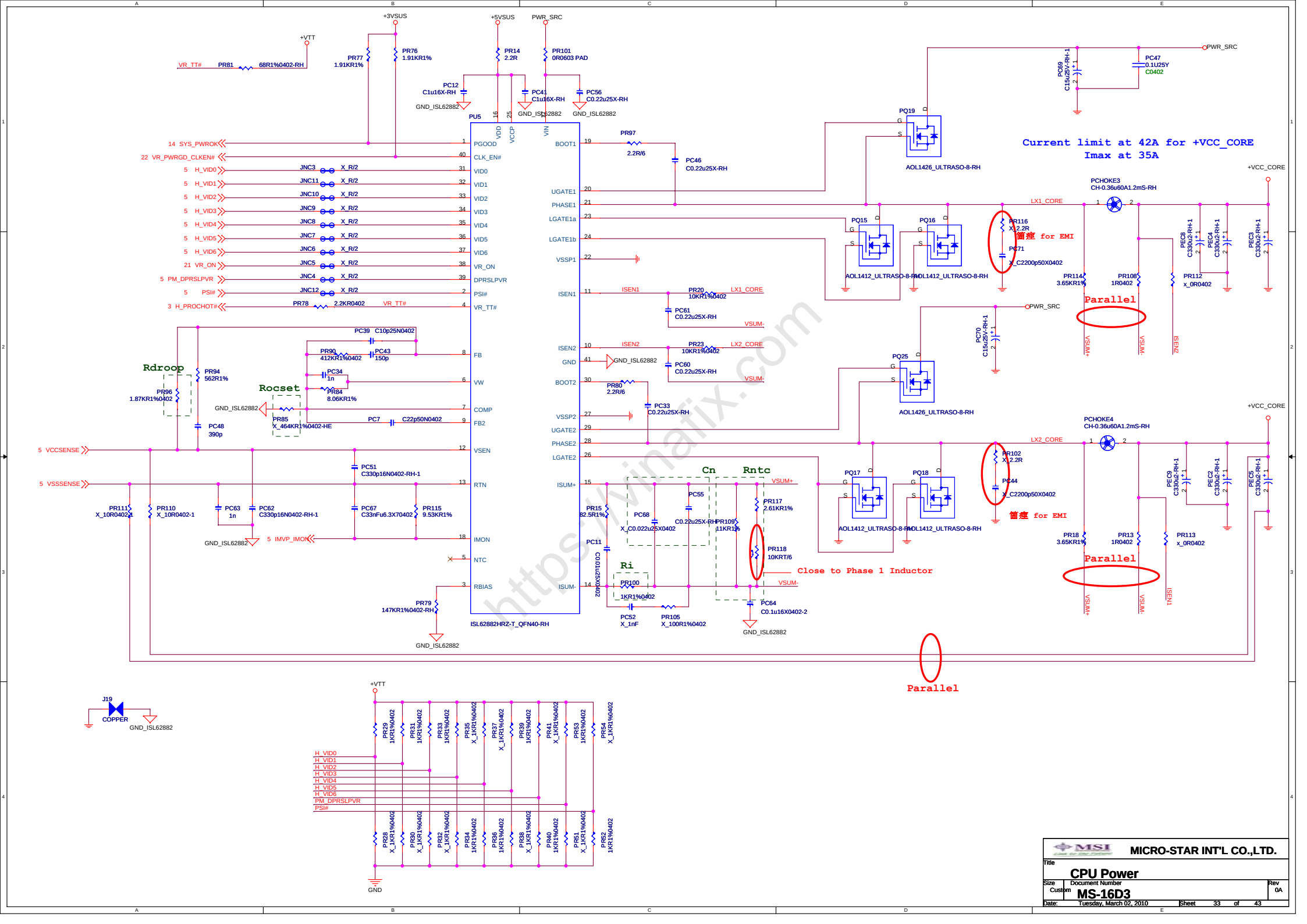
Vout = 0.75*{1+(R1/R2)}
=1.1125V

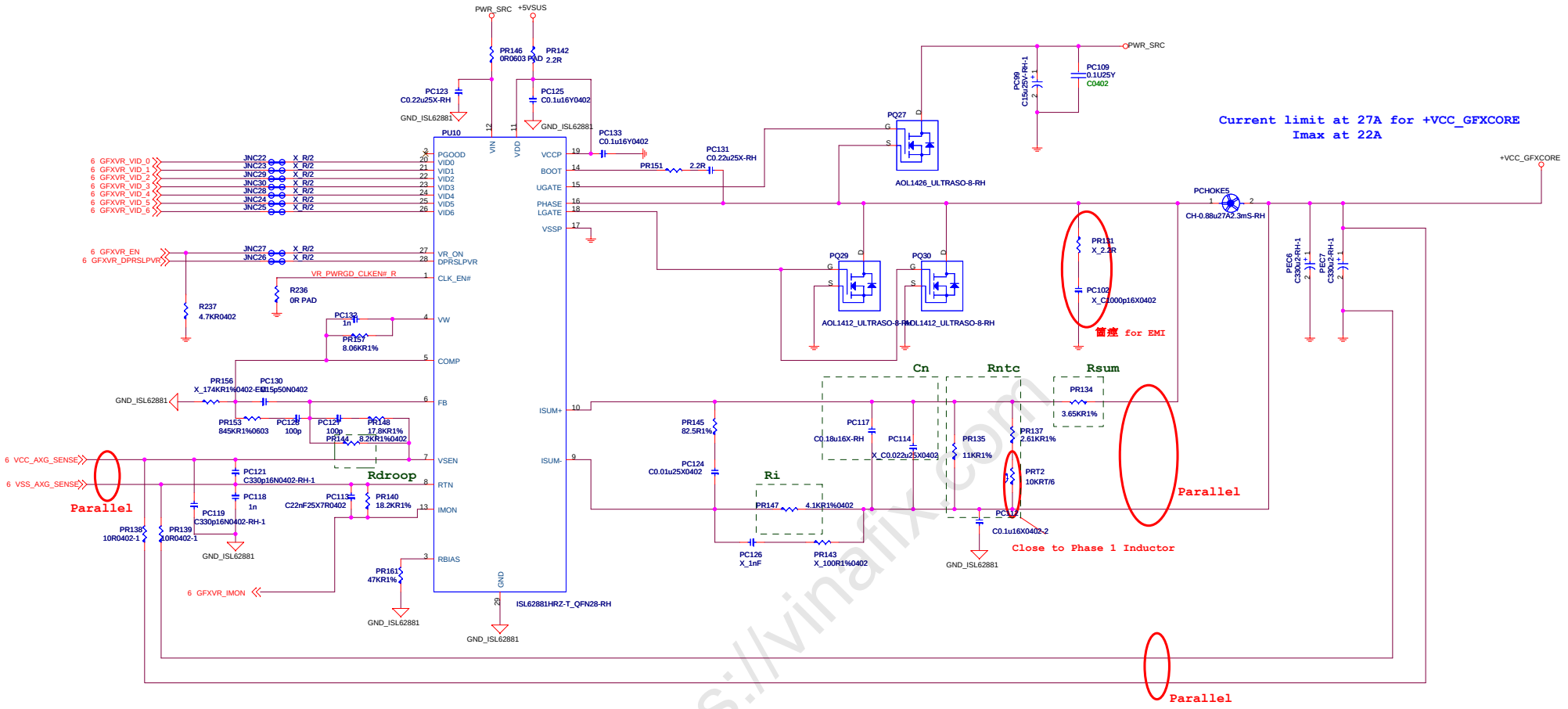
MICRO-STAR INT'L CO.,LTD.

Title: VTT Power,+1.8VRUN

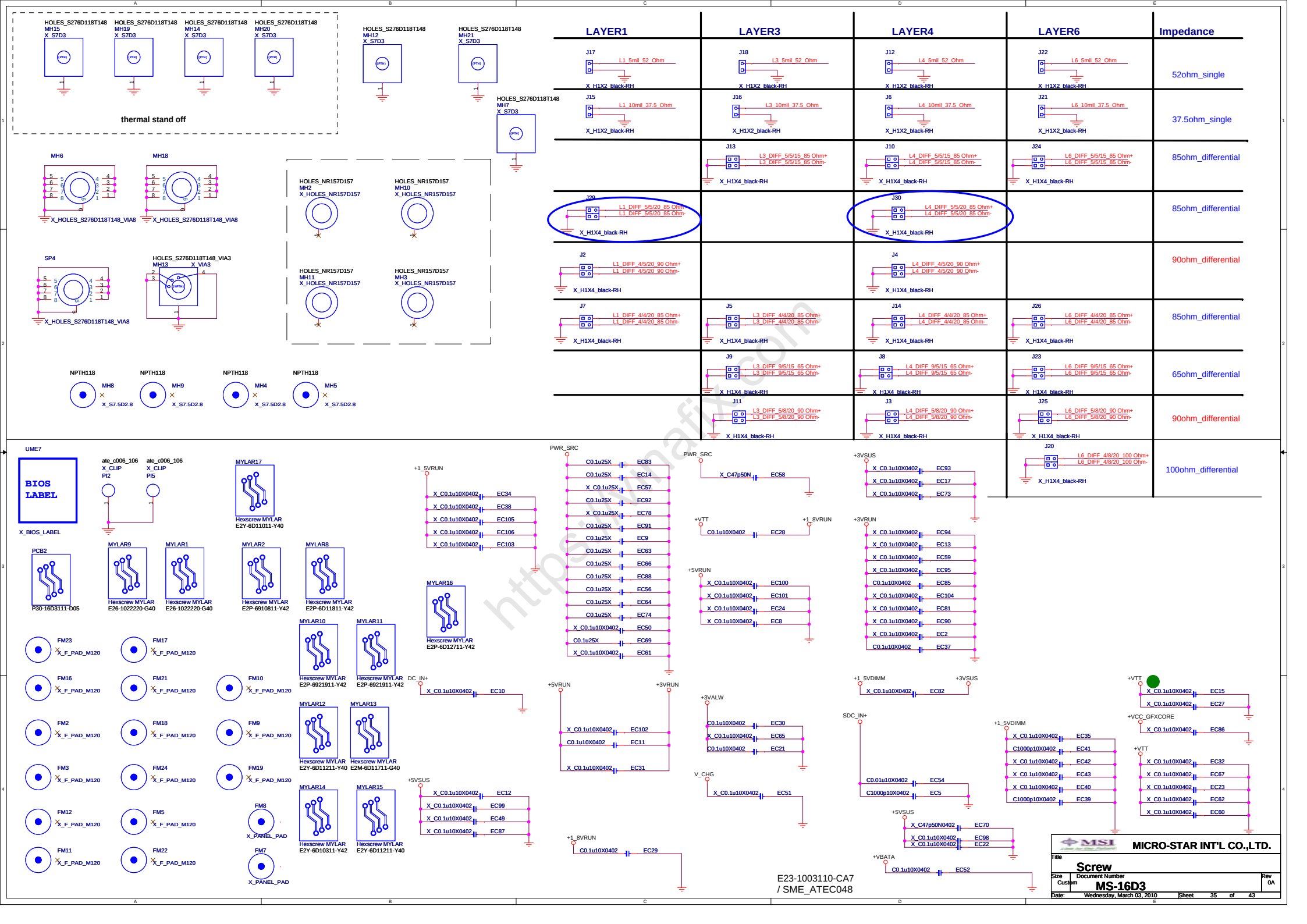
Size: C | Document Number: MS-16D3 | Rev: 0A

Date: Tuesday, March 02, 2010 | Sheet 32 of 43

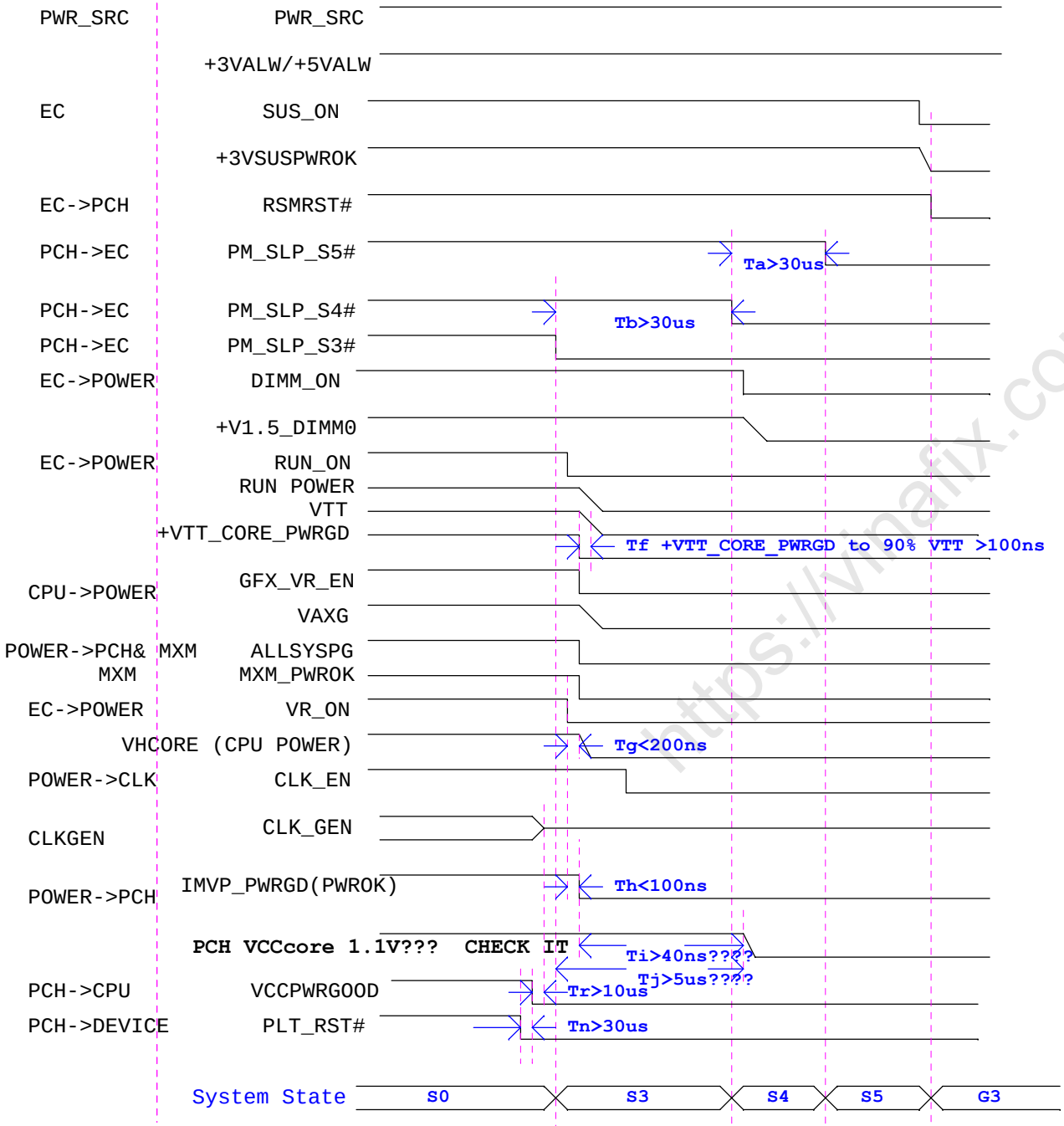

+3VSUS
+5VSUS
PWR_SRC
+VTT
PU5
ISL62882HRZ-T_QFN40-RH
AOL1426_ULTRASO-8-RH
AOL1412_ULTRASO-8-RH
Current limit at 42A for +VCC_CORE
Imax at 35A
+VCC_CORE
PCHOKE3
CH-0.36u60A1.2mS-RH
PCHOKE4
CH-0.36u60A1.2mS-RH
LX1_CORE
LX2_CORE
Parallel
Rdroop
Rocset
Cn
Rntc
Ri
Close to Phase 1 Inductor
for EMI
VSUM+
VSUM-
ISEN1
ISEN2
GND_ISL62882
COPPER
J19
MICRO-STAR INT'L CO.,LTD.
CPU Power
MS-16D3
Tuesday, March 02, 2010
33 of 43



MSI	MICRO-STAR INT'L CO.,LTD.
Title	Graphic Core
Size: Custom	Document Number: MS-16D3
Rev	0A
Date: Tuesday, March 02, 2010	Sheet 34 of 43

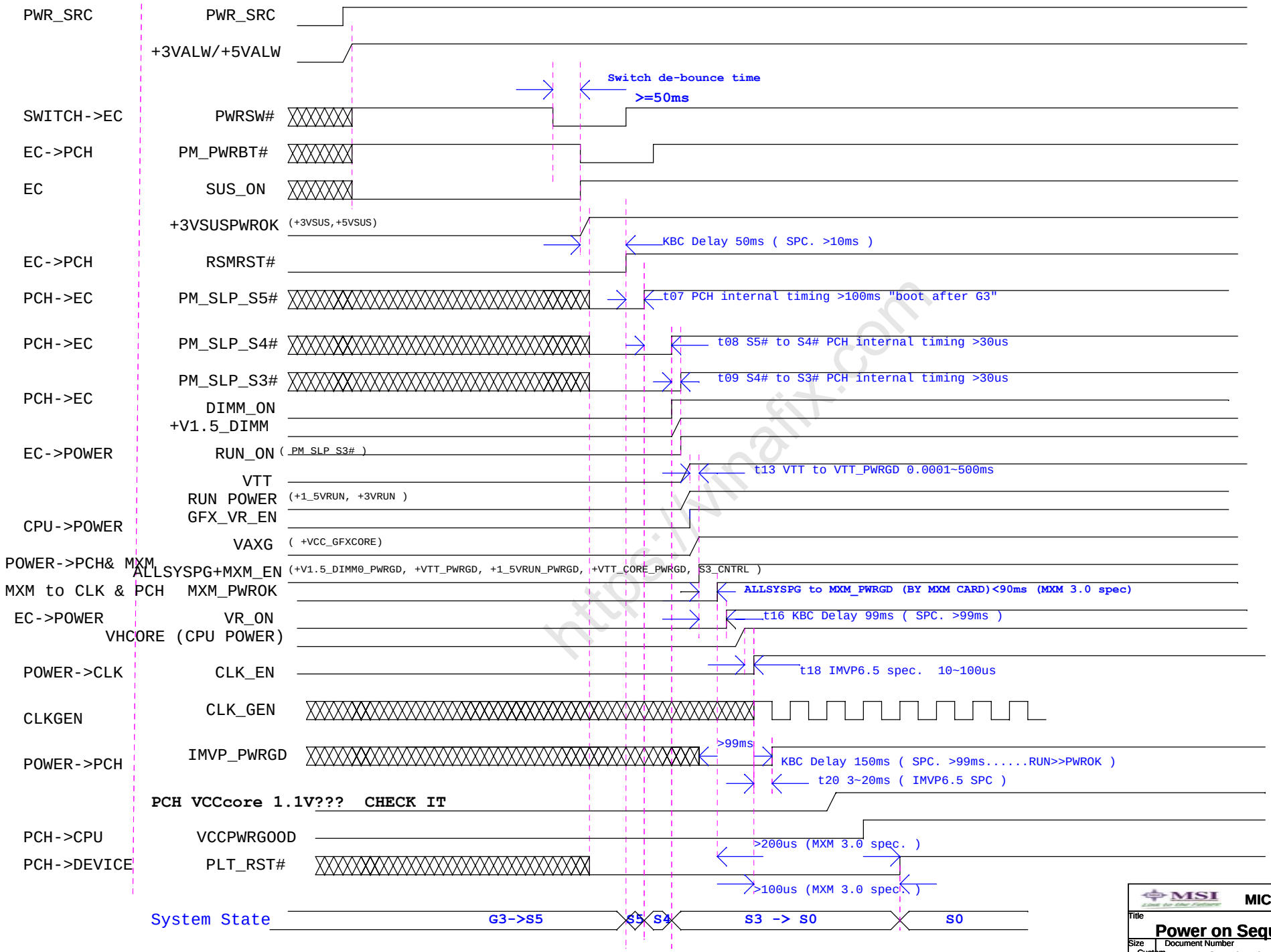

HOLES_S276D118T148 MH15 X_S7D3
HOLES_S276D118T148 MH19 X_S7D3
HOLES_S276D118T148 MH14 X_S7D3
HOLES_S276D118T148 MH20 X_S7D3
thermal stand off
HOLES_S276D118T148 MH12 X_S7D3
HOLES_S276D118T148 MH21 X_S7D3
HOLES_S276D118T148 MH17 X_S7D3
MH6
MH18
X_HOLES_S276D118T148_VIA8
X_HOLES_S276D118T148_VIA8
SP4
HOLES_S276D118T148_VIA3 MH13 X_VIA3
X_HOLES_S276D118T148_VIA8
HOLES_NR157D157 MH2 X_HOLES_NR157D157
HOLES_NR157D157 MH10 X_HOLES_NR157D157
HOLES_NR157D157 MH11 X_HOLES_NR157D157
HOLES_NR157D157 MH3 X_HOLES_NR157D157
NPTH118 MH8 X_S7.5D2.8
NPTH118 MH9 X_S7.5D2.8
NPTH118 MH4 X_S7.5D2.8
NPTH118 MH5 X_S7.5D2.8
LAYER1
LAYER3
LAYER4
LAYER6
Impedance
J17 L1_5mil_52_Ohm X_H1X2_black-RH
J18 L3_5mil_52_Ohm X_H1X2_black-RH
J12 L4_5mil_52_Ohm X_H1X2_black-RH
J22 L6_5mil_52_Ohm X_H1X2_black-RH
52ohm_single
J15 L1_10mil_37.5_Ohm X_H1X2_black-RH
J16 L3_10mil_37.5_Ohm X_H1X2_black-RH
J6 L4_10mil_37.5_Ohm X_H1X2_black-RH
J21 L6_10mil_37.5_Ohm X_H1X2_black-RH
37.5ohm_single
J13 L3_DIFF_5/5/15_85 Ohm+ L3_DIFF_5/5/15_85 Ohm- X_H1X4_black-RH
J10 L4_DIFF_5/5/15_85 Ohm+ L4_DIFF_5/5/15_85 Ohm- X_H1X4_black-RH
J24 L6_DIFF_5/5/15_85 Ohm+ L6_DIFF_5/5/15_85 Ohm- X_H1X4_black-RH
85ohm_differential
J29 L1_DIFF_5/5/20_85 Ohm+ L1_DIFF_5/5/20_85 Ohm- X_H1X4_black-RH
J30 L4_DIFF_5/5/20_85 Ohm+ L4_DIFF_5/5/20_85 Ohm- X_H1X4_black-RH
85ohm_differential
J2 L1_DIFF_4/5/20_90 Ohm+ L1_DIFF_4/5/20_90 Ohm- X_H1X4_black-RH
J4 L4_DIFF_4/5/20_90 Ohm+ L4_DIFF_4/5/20_90 Ohm- X_H1X4_black-RH
90ohm_differential
J7 L1_DIFF_4/4/20_85 Ohm+ L1_DIFF_4/4/20_85 Ohm- X_H1X4_black-RH
J5 L3_DIFF_4/4/20_85 Ohm+ L3_DIFF_4/4/20_85 Ohm- X_H1X4_black-RH
J14 L4_DIFF_4/4/20_85 Ohm+ L4_DIFF_4/4/20_85 Ohm- X_H1X4_black-RH
J26 L6_DIFF_4/4/20_85 Ohm+ L6_DIFF_4/4/20_85 Ohm- X_H1X4_black-RH
85ohm_differential
J9 L3_DIFF_9/5/15_65 Ohm+ L3_DIFF_9/5/15_65 Ohm- X_H1X4_black-RH
J8 L4_DIFF_9/5/15_65 Ohm+ L4_DIFF_9/5/15_65 Ohm- X_H1X4_black-RH
J23 L6_DIFF_9/5/15_65 Ohm+ L6_DIFF_9/5/15_65 Ohm- X_H1X4_black-RH
65ohm_differential
J11 L3_DIFF_5/8/20_90 Ohm+ L3_DIFF_5/8/20_90 Ohm- X_H1X4_black-RH
J3 L4_DIFF_5/8/20_90 Ohm+ L4_DIFF_5/8/20_90 Ohm- X_H1X4_black-RH
J25 L6_DIFF_5/8/20_90 Ohm+ L6_DIFF_5/8/20_90 Ohm- X_H1X4_black-RH
90ohm_differential
J20 L6_DIFF_4/8/20_100 Ohm+ L6_DIFF_4/8/20_100 Ohm- X_H1X4_black-RH
100ohm_differential
UME7
BIOS LABEL
X_BIOS_LABEL
ate_c006_106 X_CLIP PI2
ate_c006_106 X_CLIP PI5
MYLAR17 Hexscrew MYLAR E2Y-6D11011-Y40
PCB2 P30-16D3111-D05
MYLAR9 Hexscrew MYLAR E26-1022220-G40
MYLAR1 Hexscrew MYLAR E26-1022220-G40
MYLAR2 Hexscrew MYLAR E2P-6910811-Y42
MYLAR8 Hexscrew MYLAR E2P-6D11811-Y42
MYLAR16 Hexscrew MYLAR E2P-6D12711-Y42
MYLAR10 Hexscrew MYLAR E2P-6921911-Y42
MYLAR11 Hexscrew MYLAR E2P-6921911-Y42
MYLAR12 Hexscrew MYLAR E2Y-6D11211-Y40
MYLAR13 Hexscrew MYLAR E2M-6D11711-G40
MYLAR14 Hexscrew MYLAR E2Y-6D10311-Y42
MYLAR15 Hexscrew MYLAR E2Y-6D11211-Y40
FM23 FM17 FM16 FM21 FM10 FM2 FM18 FM9 FM3 FM24 FM19 FM12 FM5 FM11 FM22
X_F_PAD_M120
FM8 X_PANEL_PAD
FM7 X_PANEL_PAD
+1_5VRUN
PWR_SRC
+3VSUS
+VTT
+1_8VRUN
+5VRUN
+3VRUN
DC_IN+
+3VALW
V_CHG
+1_5VDIMM
SDC_IN+
+5VSUS
+VBATA
+VCC_GFXCORE
X_C0.1u10X0402
C0.1u25X
C0.01u10X0402
C1000p10X0402
X_C47p50N
C0.1u10X0402
X_C47p50N0402
E23-1003110-CA7
/ SME_ATEC048
MICRO-STAR INT'L CO.,LTD.
Title
Screw
Size Custom
Document Number MS-16D3
Rev 0A
Date: Wednesday, March 03, 2010
Sheet 35 of 43

Power down Sequence DC mode S0 to G3



MSI	MICRO-STAR INT'L CO.,LTD.	
Title: Power on Sequency		
Size: Custom	Document Number: MS-16D3	Rev: 0A
Date: Wednesday, November 11, 2009	Sheet 36 of 43	

Calpella System Power on Sequence DC mode



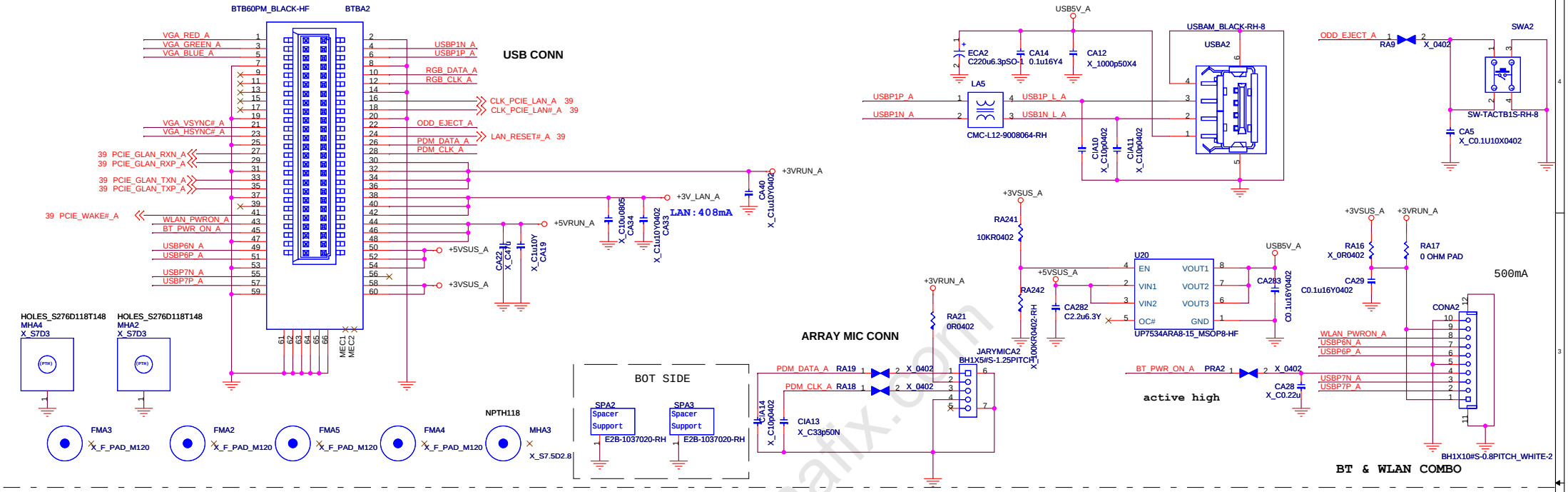
MICRO-STAR INT'L CO.,LTD.

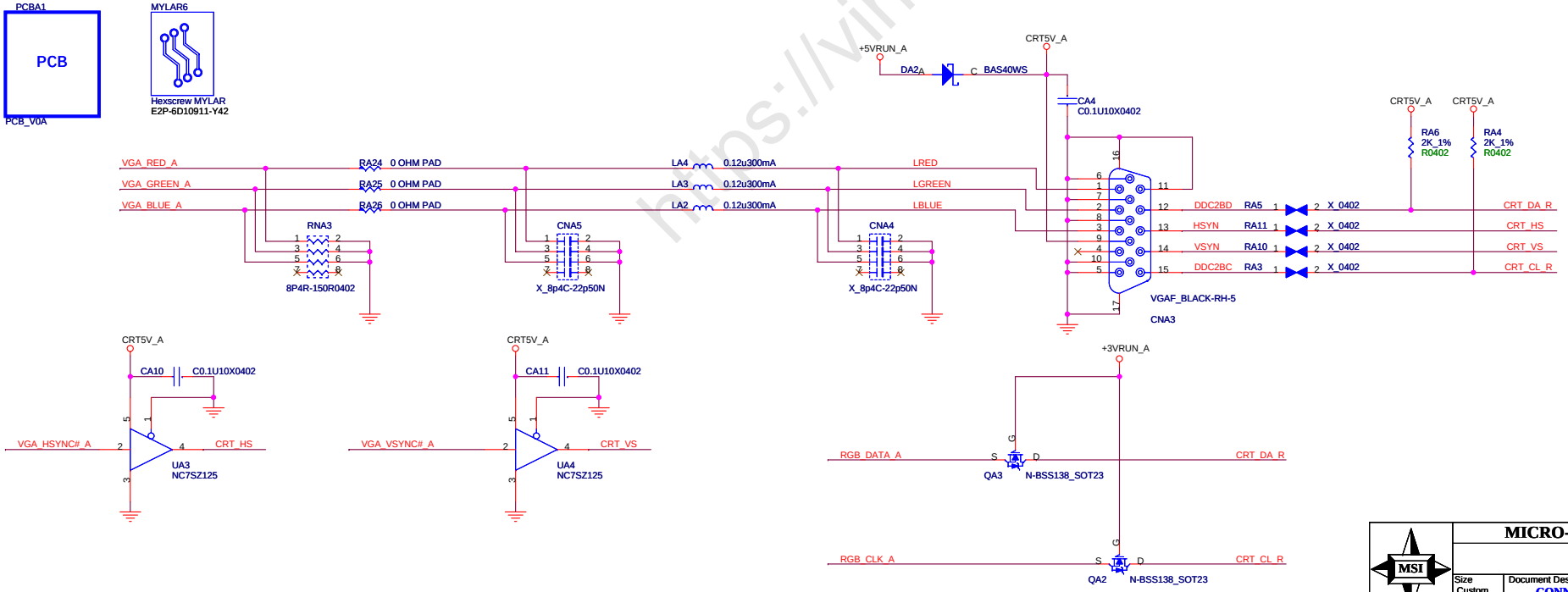
Title: Power on Sequency

Size: Custom | Document Number: MS-16D3 | Rev: 0A

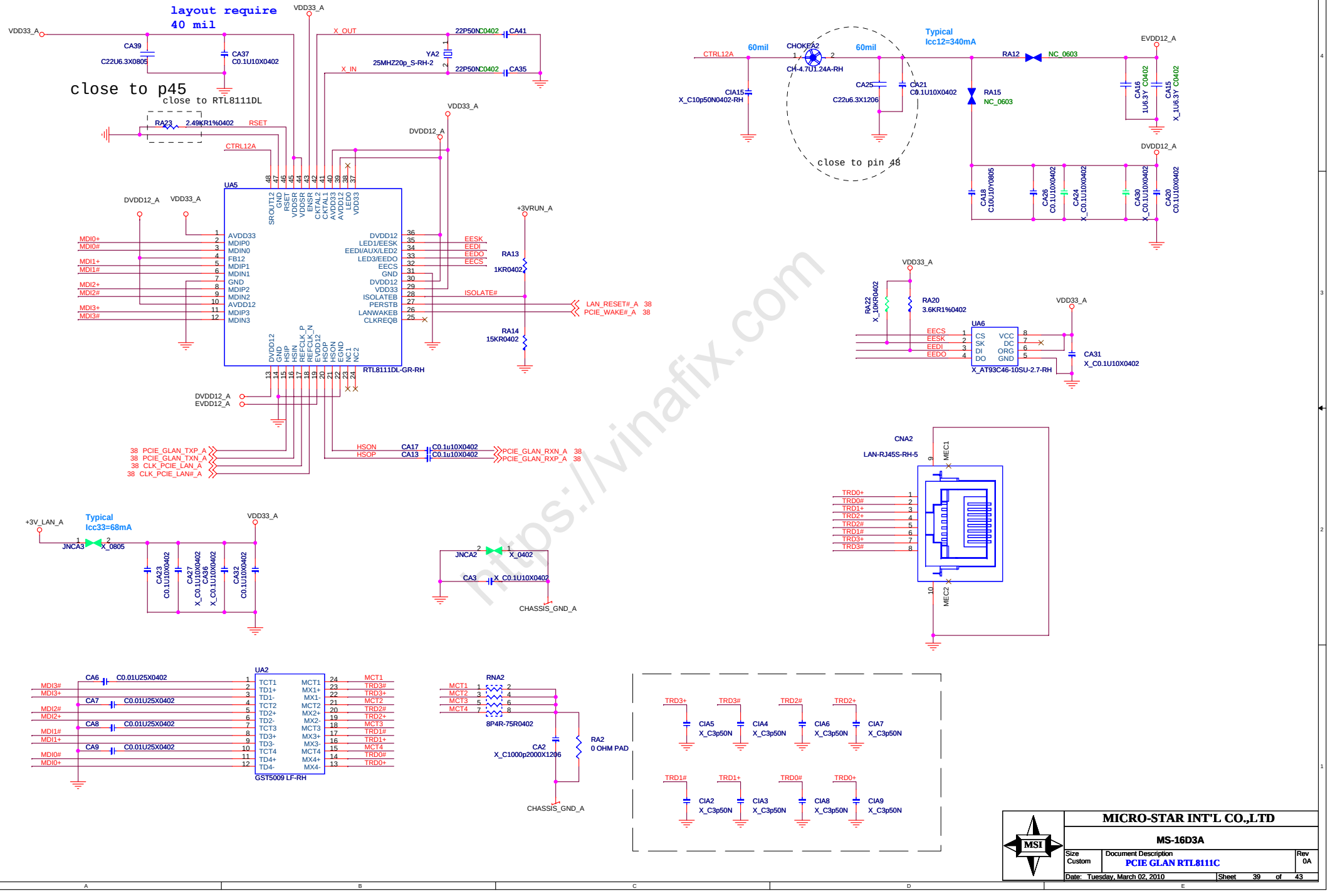
Date: Wednesday, November 11, 2009 | Sheet 37 of 43

凹 60PIN BTB I/O Connector(VGA, USBX1, LAN,BT,ARRAY MIC)

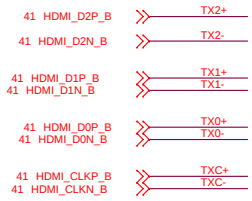


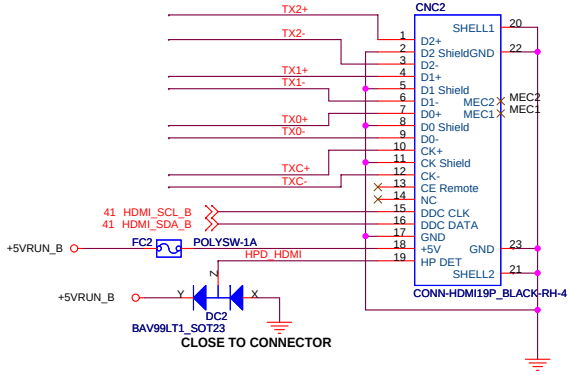


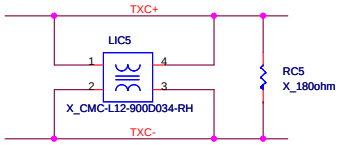
MICRO-STAR INT'L CO.,LTD	
MS-16D3A	
Size: Custom	Document Description: CONNECTOR
Rev: 0A	
Date: Tuesday, March 02, 2010	Sheet 38 of 43

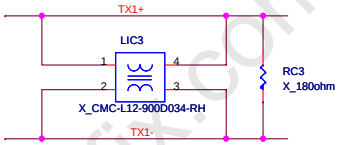

layout require
40 mil
close to p45
close to RTL8111DL
close to pin 48
Typical
Icc12=340mA
Typical
Icc33=68mA
UA5
RTL8111DL-GR-RH
UA6
X_AT93C46-10SU-2.7-RH
UA2
GST5009 LF-RH
CNA2
LAN-RJ45S-RH-5
RNA2
8P4R-75R0402
CHASSIS_GND_A
MICRO-STAR INT'L CO.,LTD
MS-16D3A
PCIE GLAN RTL8111C
Date: Tuesday, March 02, 2010
Sheet 39 of 43

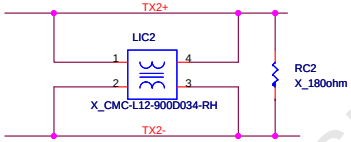
HDMI

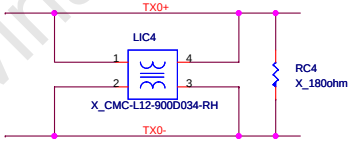


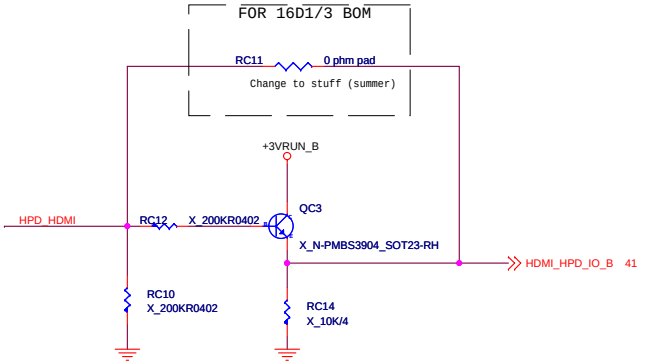




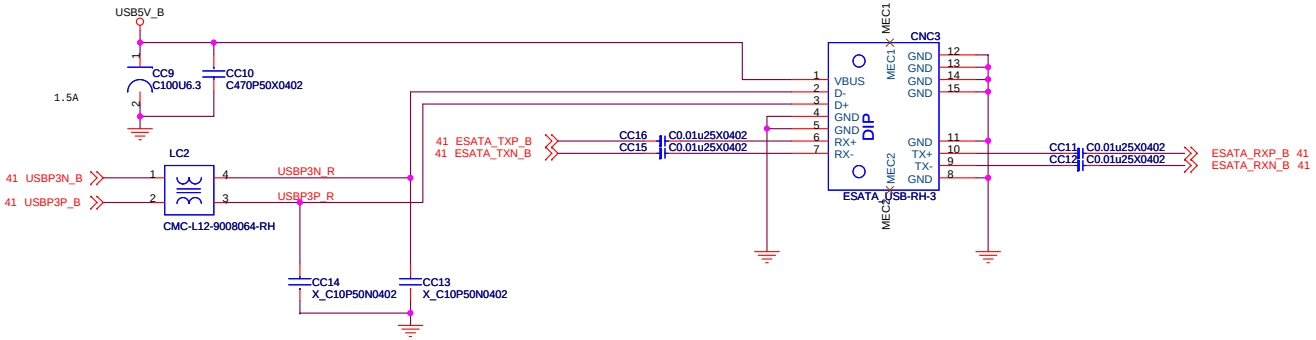


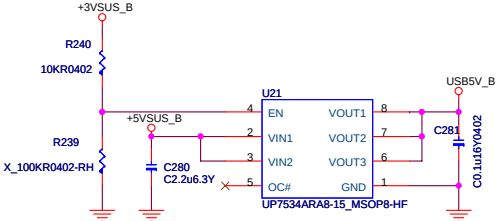




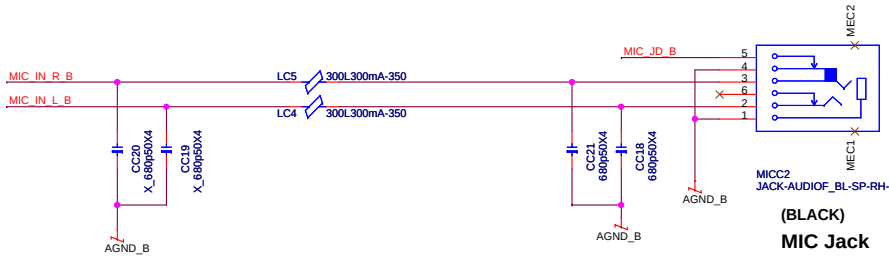


ESATA





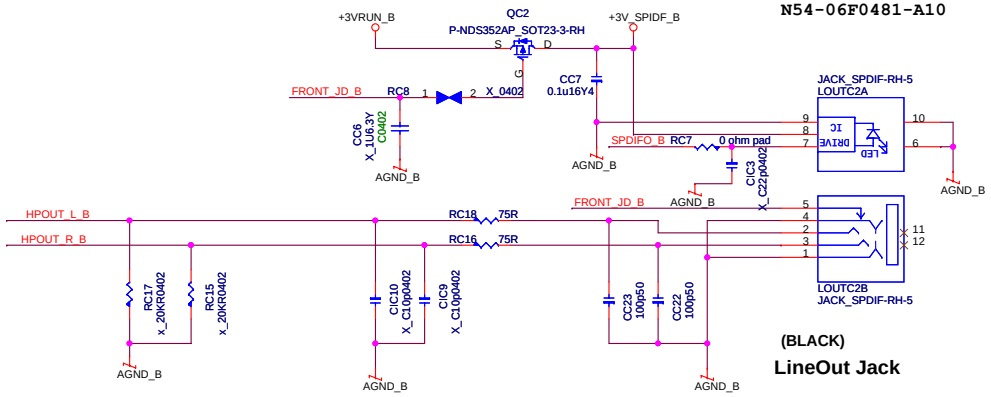
MSI	MICRO-STAR INT'L CO.,LTD	
	MS-16D3B	
Size: Custom	Document Description: HDMI/ ESATA	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 40 of 43	



(BLACK)

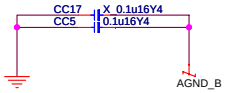
MIC Jack

N54-06F0481-A10



(BLACK)

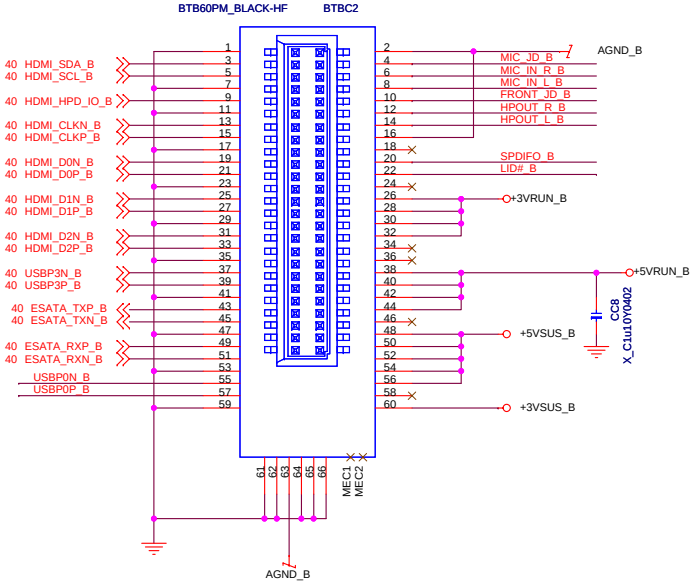
LineOut Jack

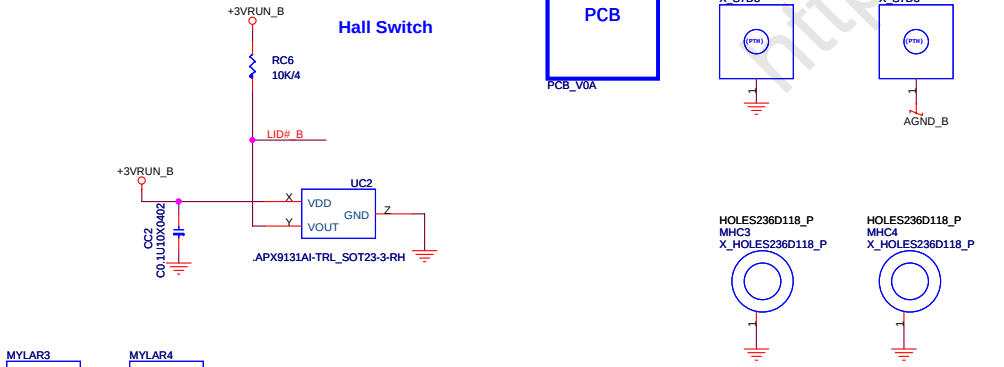


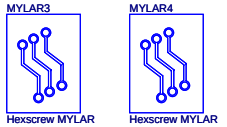
凹60PIN BTB I/O Connector(HDMI,ESATA, Audio) USBX1)

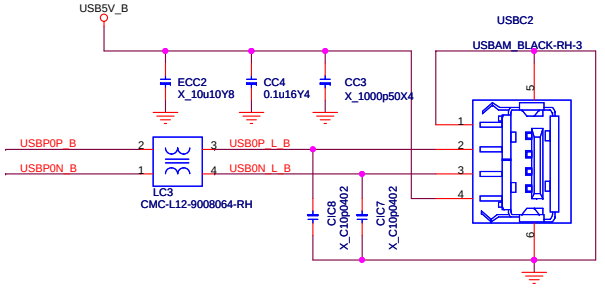
ESATA CONN

USB CONN





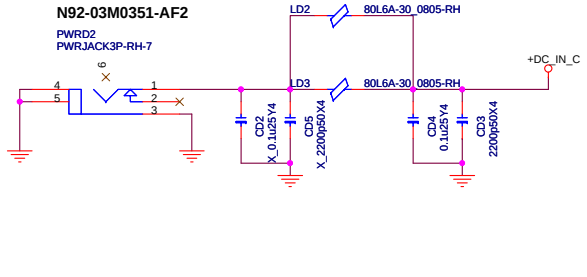


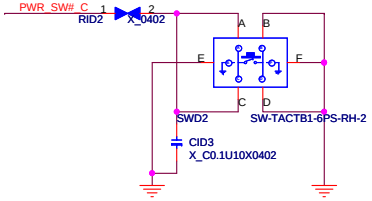


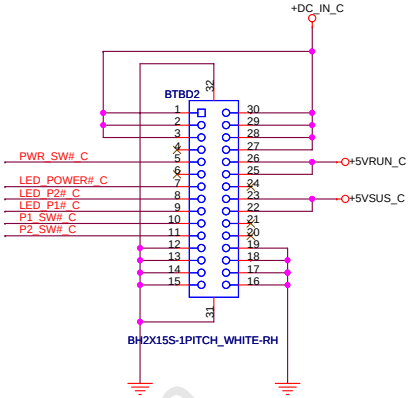
USB REVERSE

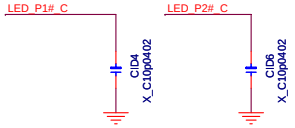
MICRO-STAR INT'L CO.,LTD		
MS-16D3B		
Size: Custom	Document Description: AUDIO JACK/USB	Rev: 0A
Date: Tuesday, March 02, 2010	Sheet 41 of 43	

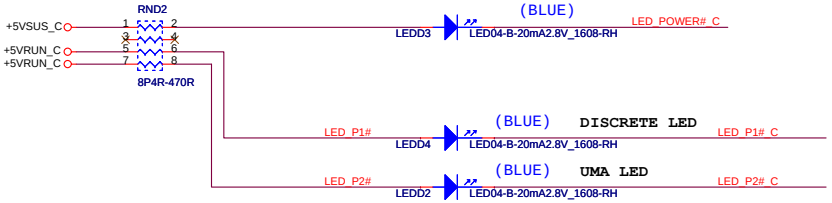
オ 凹30PIN BTB I/O Connector(AC IN ,Switch(Power ,UMA,Discrete)

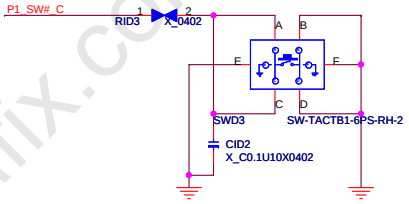


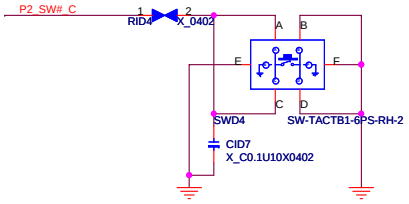


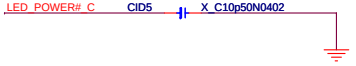


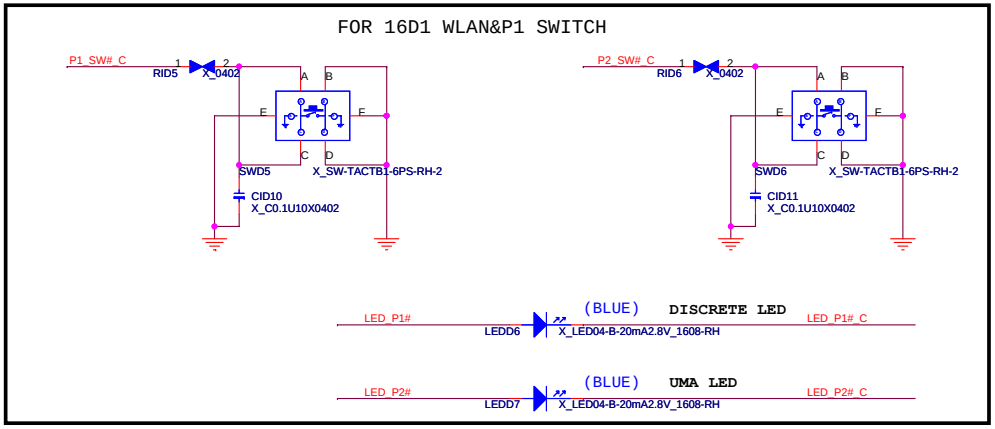


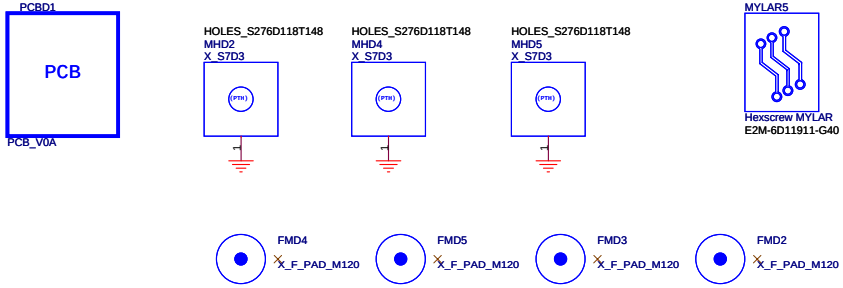










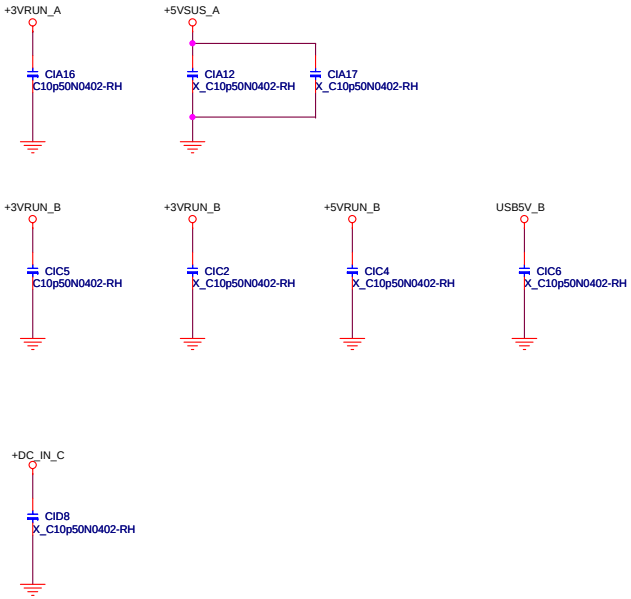


MICRO-STAR INT'L CO.,LTD

MS-16D3C

Size	Document Description	Rev
Custom	DCIN/SW/CONN	0A

Date: Tuesday, January 19, 2010 Sheet 42 of 43



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-16D3C	
Size: Custom	Document Description: Non footprint	Rev: 0A
Date: Thursday, November 26, 2009	Sheet 43 of 43	