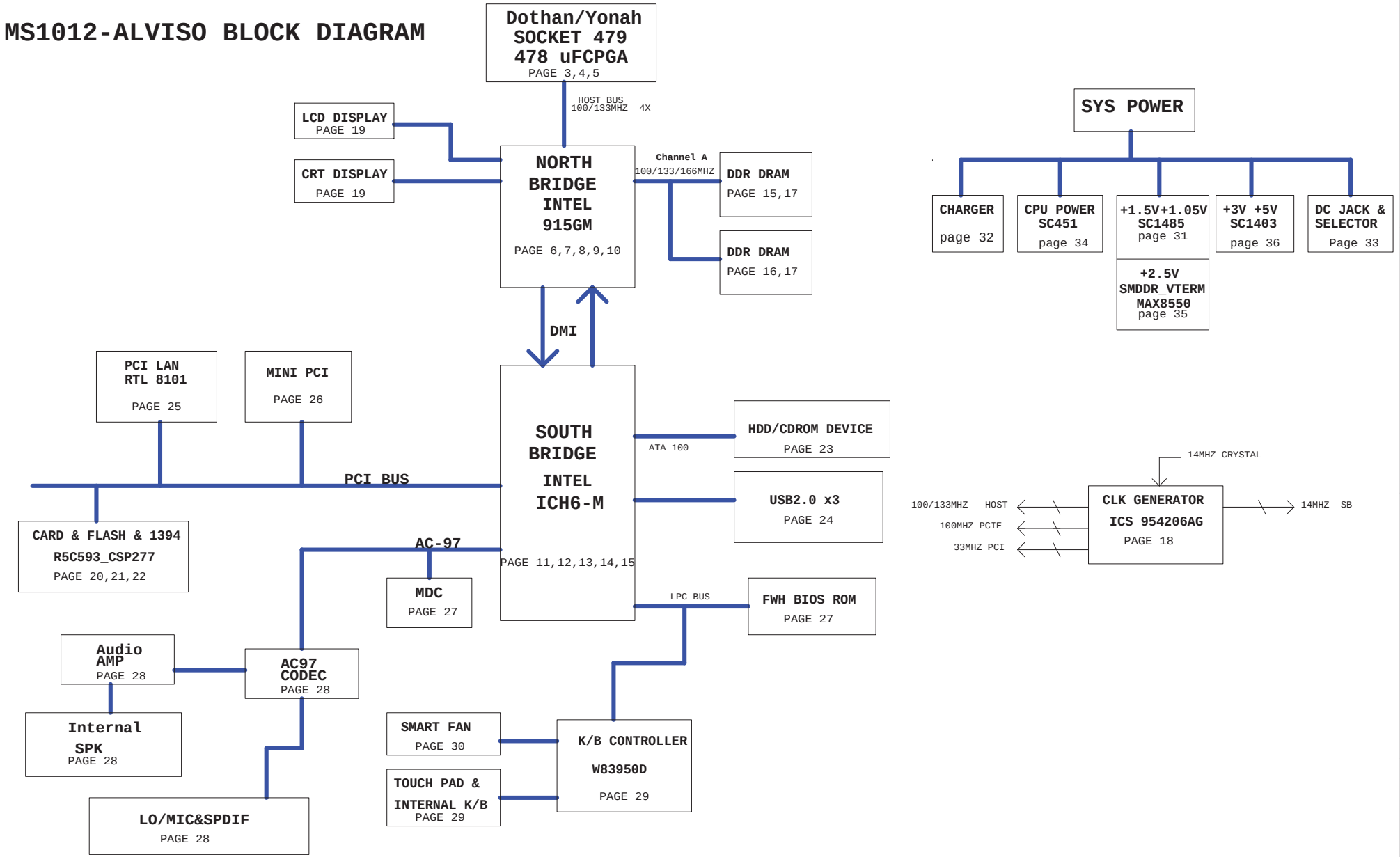
MS1012-ALVISO BLOCK DIAGRAM



MICRO-STAR INT'L CO.,LTD.

Title: BLOCK DIAGRAM

Size: C | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 1 of 39

Voltage Rails

Voltage	Description	Control Signal
PWR_SRC	AC ADAPTER OR BATTERY IN	
VHCORE	Core Voltage for Processor	GME_PWRGD
VTT	1.05 rail for Processor & Alviso I/O	RUNPWROK
SMDDR_VTERM	1.25V DDR Termination voltage (off in S4-S5)	+5VRUN
+1_5VSUS	1.5V power rail (off in S4-S5)	SUS_ON
+1_5VRUN	1.5V switched power rail(off in S3-S5)	RUN_ON
+1_8VRUN	1.8V switched power rail(off in S3-S5)	RUN_ON
+2_5VSUS	2.5V power rail DDR (off in S4-S5)	+5VSUS
+2_5VRUN	2.5V switched power rail(off in S3-S5)	RUN_ON
+3VALW	3.3V always on power rail	PWR_SRC
+3VSUS	3.3V power rail (off in S4-S5)	SUS_ON
+3VRUN	3.3V switched power rail(off in S3-S5)	RUN_ON
+5VALW	5.0V always on power rail	PWR_SRC
+5VSUS	5.0V power rail (off in S4-S5)	SUS_ON
+5VRUN	5.0V switched power rail(off in S3-S5)	RUN_ON

Voltage	Description	Control Signal
+V5_AUDIO	5.0V Power rail Audio codec(off in S3-S5)	+5VRUN

GND	DIGTIAL GROUD	
AGND	AUDIO GND	
PGND	POWER Analogy GND	

POWER STATES

STATE \ SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+V*ALWAYS	+V*SUS	+V*RUN	Clocks
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1M(Power On Suspend)	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3(Suspend to RAM)	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4(Suspend to Disk)	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 / Soft OFF	LOW	LOW	LOW	ON	OFF	OFF	OFF

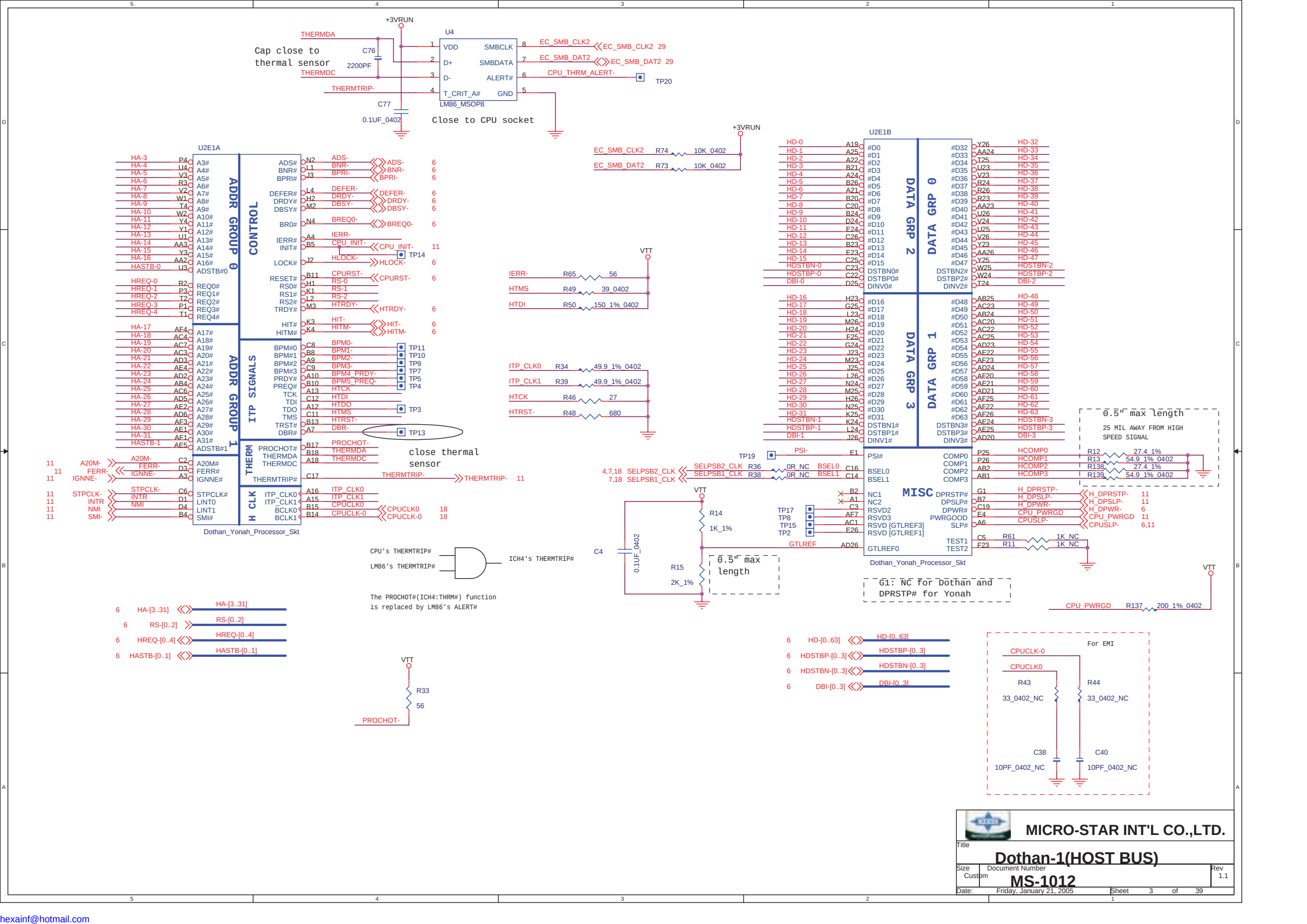
*Note : WHEN AC MODE , System turn on then +V*SUS will always keep high*

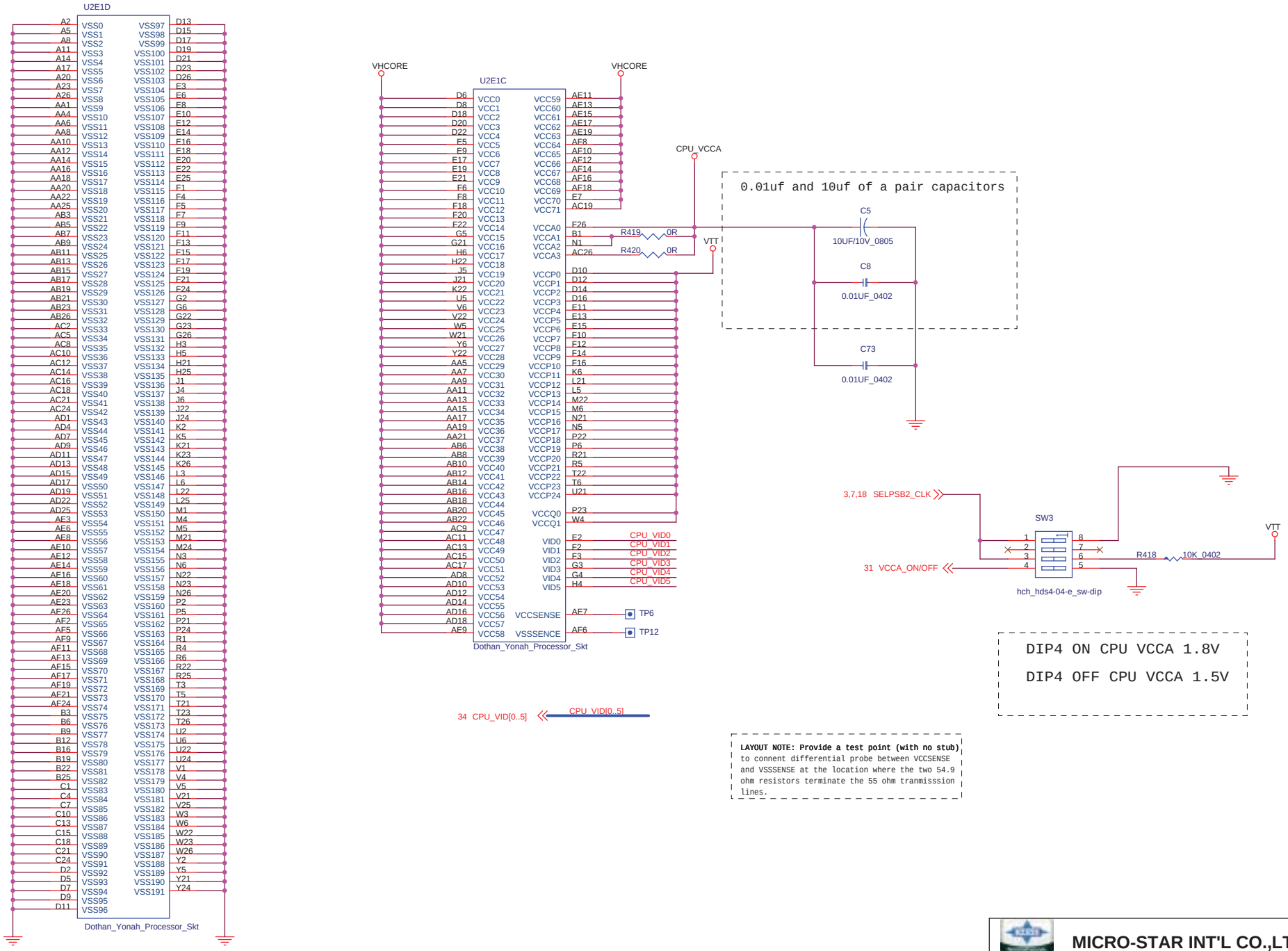
MICRO-STAR INT'L CO.,LTD.

Title: PLATFORM

Size: B | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 2 of 39



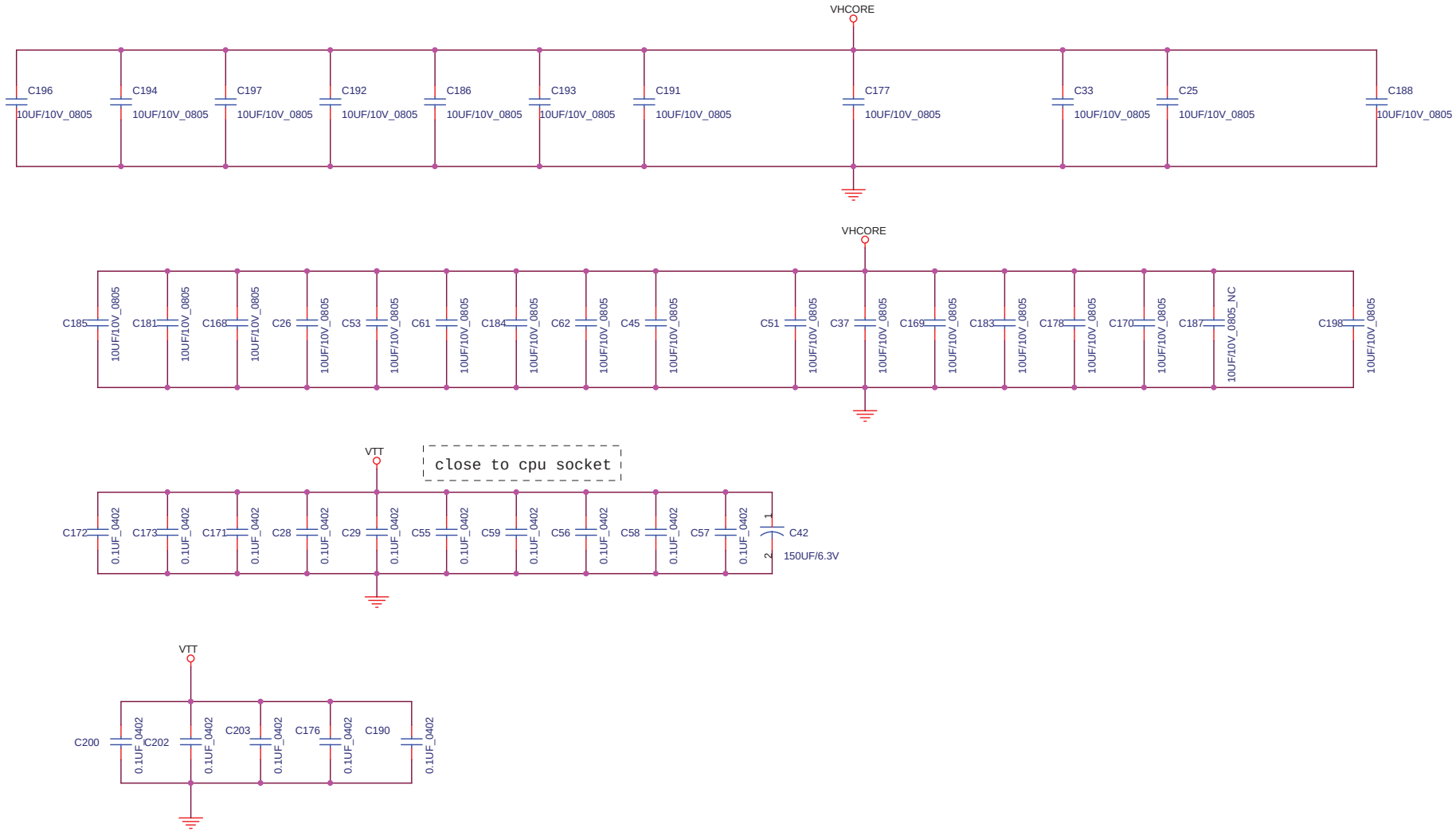


MICRO-STAR INT'L CO.,LTD.

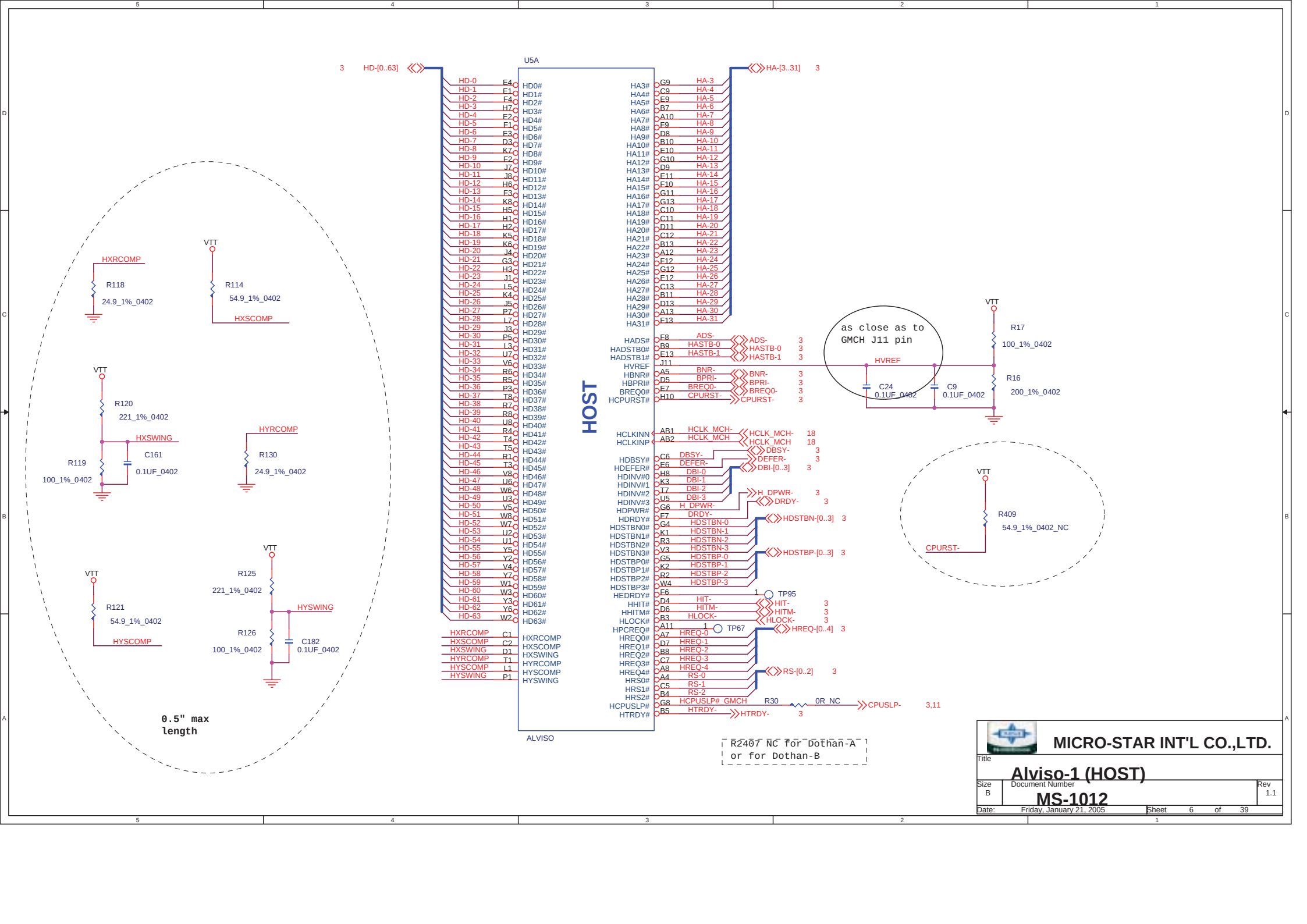
Title: Dothan-2 (Power / GND)

Size: Custom | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 4 of 39



MICRO-STAR INT'L CO.,LTD.		
Title: Dothan-3		
Size: B	Document Number: MS-1012	Rev: 1.1
Date: Friday, January 21, 2005	Sheet 5 of 39	


U5A
HOST
ALVISO
HD-[0..63]
HA-[3..31]
HXRCOMP
R118
24.9_1%_0402
R114
54.9_1%_0402
HXSCOMP
VTT
R120
221_1%_0402
HXSWING
R119
100_1%_0402
C161
0.1UF_0402
HYRCOMP
R130
24.9_1%_0402
R121
54.9_1%_0402
HYSCOMP
R125
221_1%_0402
HYSWING
R126
100_1%_0402
C182
0.1UF_0402
0.5" max length
as close as to GMCH J11 pin
HVREF
R17
100_1%_0402
R16
200_1%_0402
C24
0.1UF_0402
C9
0.1UF_0402
R409
54.9_1%_0402_NC
CPURST-
R30
0R_NC
CPUSLP-
TP95
TP67
R2407 NC for Dothan-A
or for Dothan-B
MICRO-STAR INT'L CO.,LTD.
Title
Alviso-1 (HOST)
Size B
Document Number MS-1012
Rev 1.1
Date: Friday, January 21, 2005
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CFG[3:17] have internal pullup resistors

CFG[18:19] have internal pulldown resistors

U5C

DMI

CFG/RSVD

DDR MUXING

PM

CLK

NC

ALVISO

U5F

MISC

TV

VGA

LVDS

PCI-EXPRESS GRAPHICS

ALVISO

Rote as short as possible

It's point to point, 55ohm trace,keep as short as possible.

as close as 915GM(ALVISO)

LOW=DDR2
HIGH=DDR1

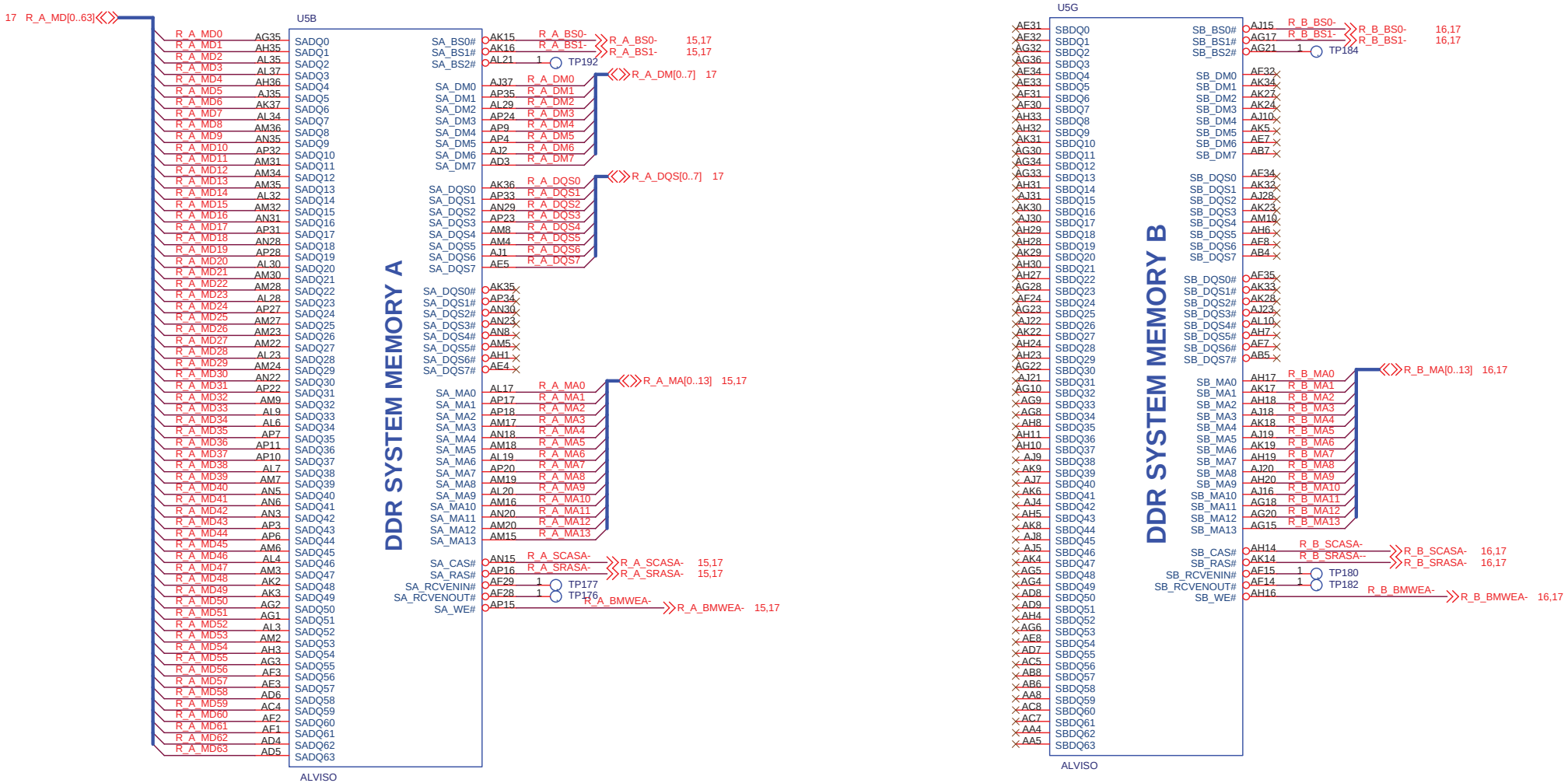
LOW=DMIX2
HIGH=DMIX4

MICRO-STAR INT'L CO.,LTD.

Title: Alviso-2 (DMI/VGA)

Size: Custom | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 7 of 39

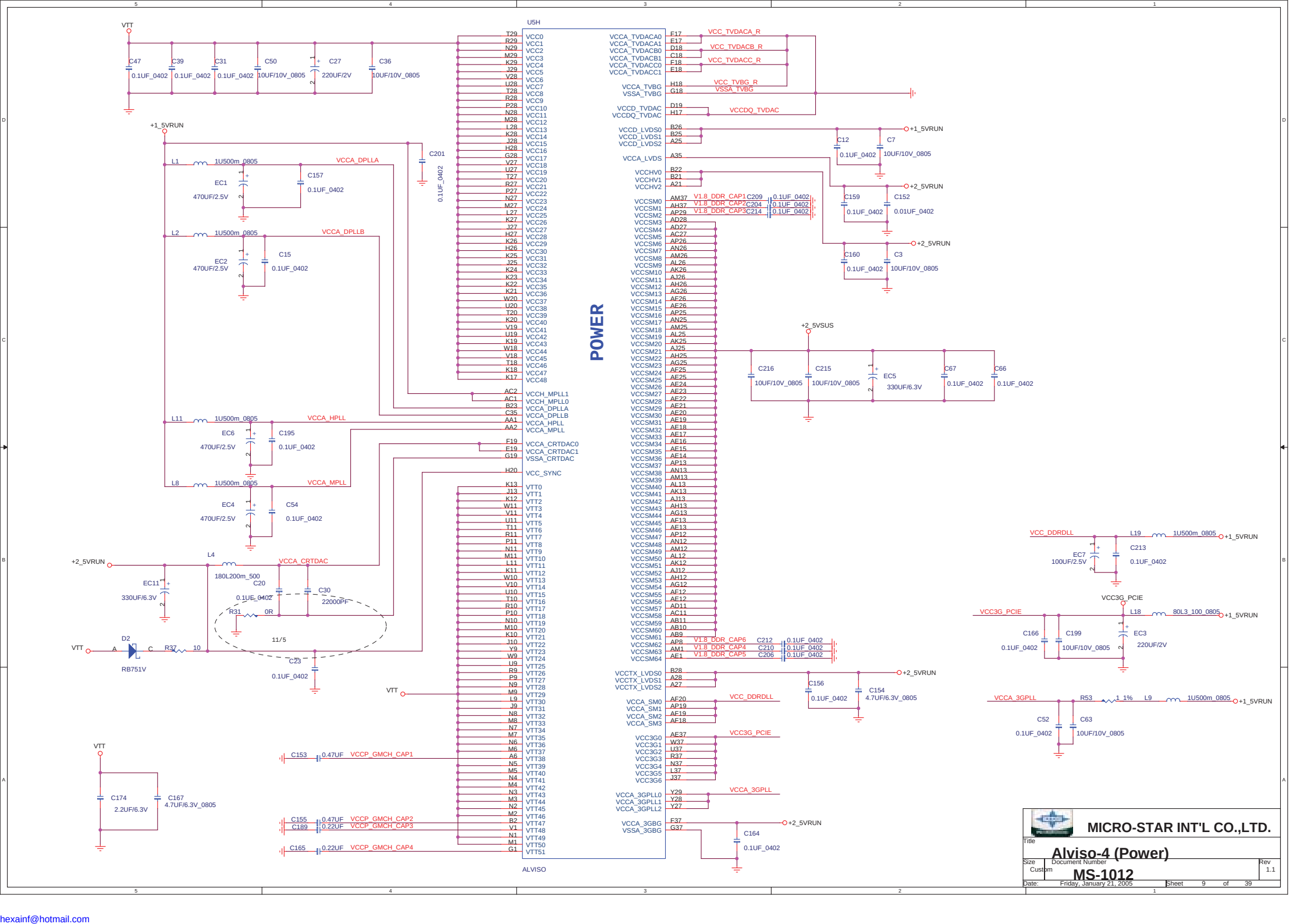


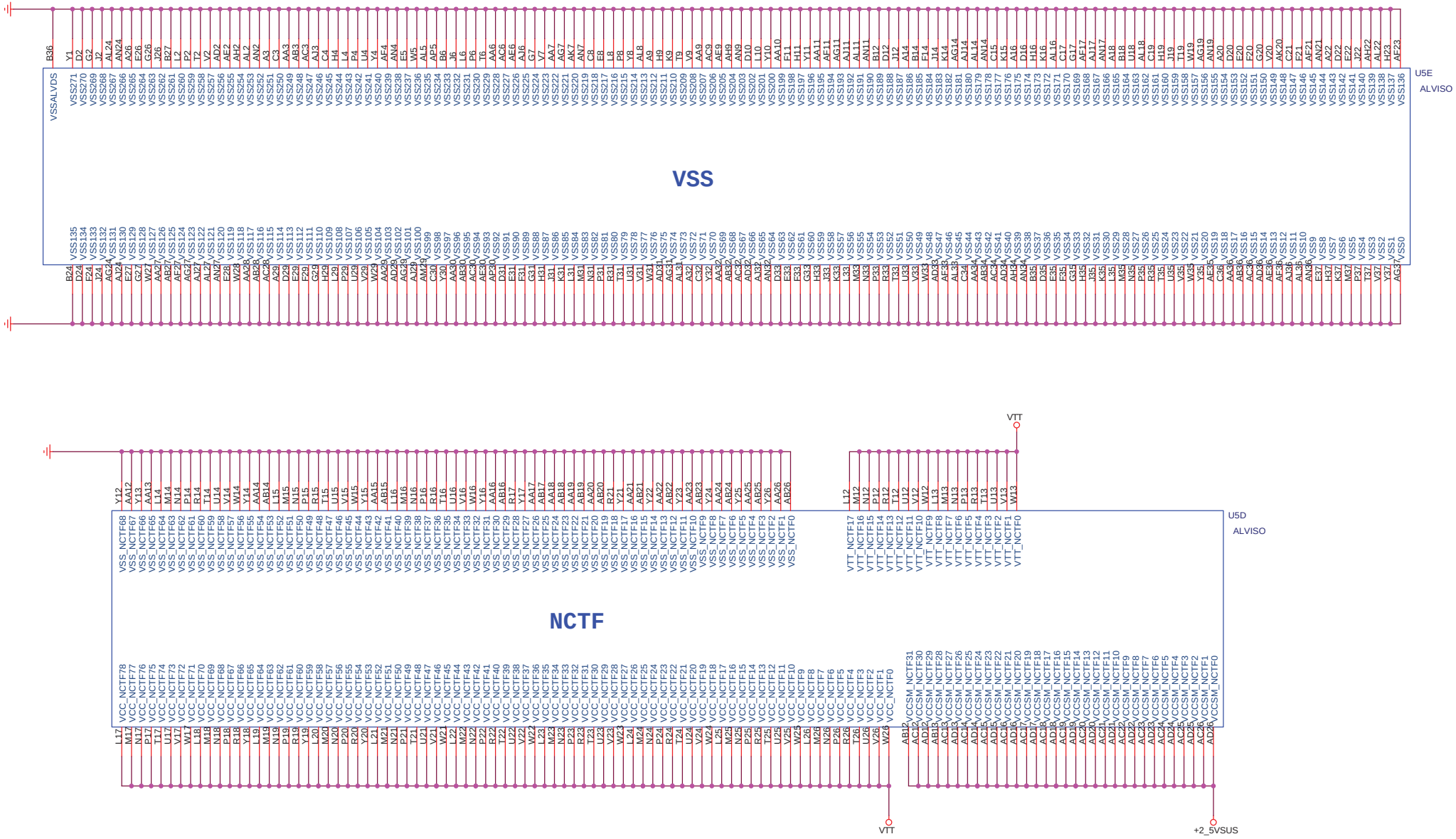
MICRO-STAR INT'L CO.,LTD.

Title: Alviso-3 (DDR)

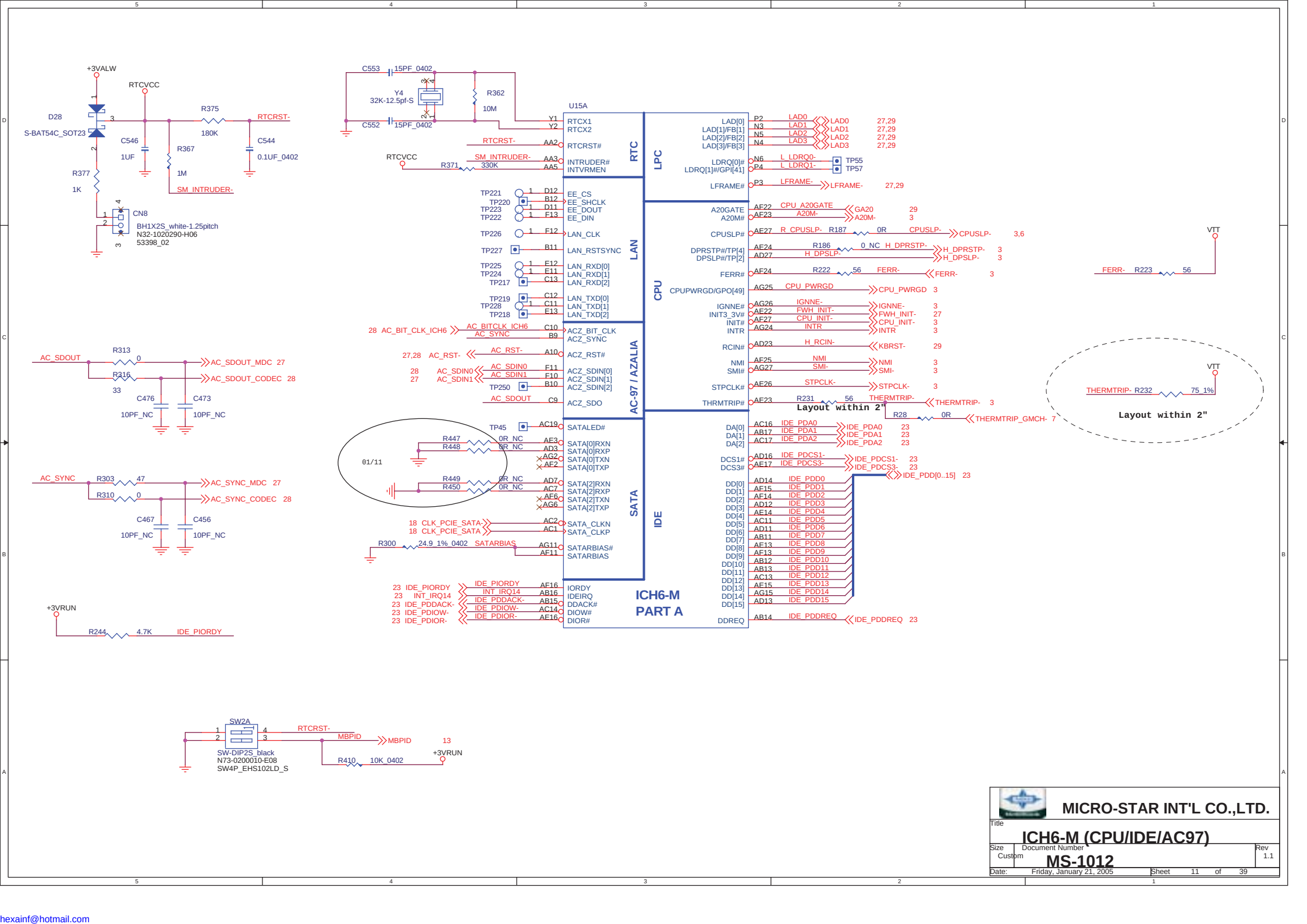
Size: B | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 8 of 39

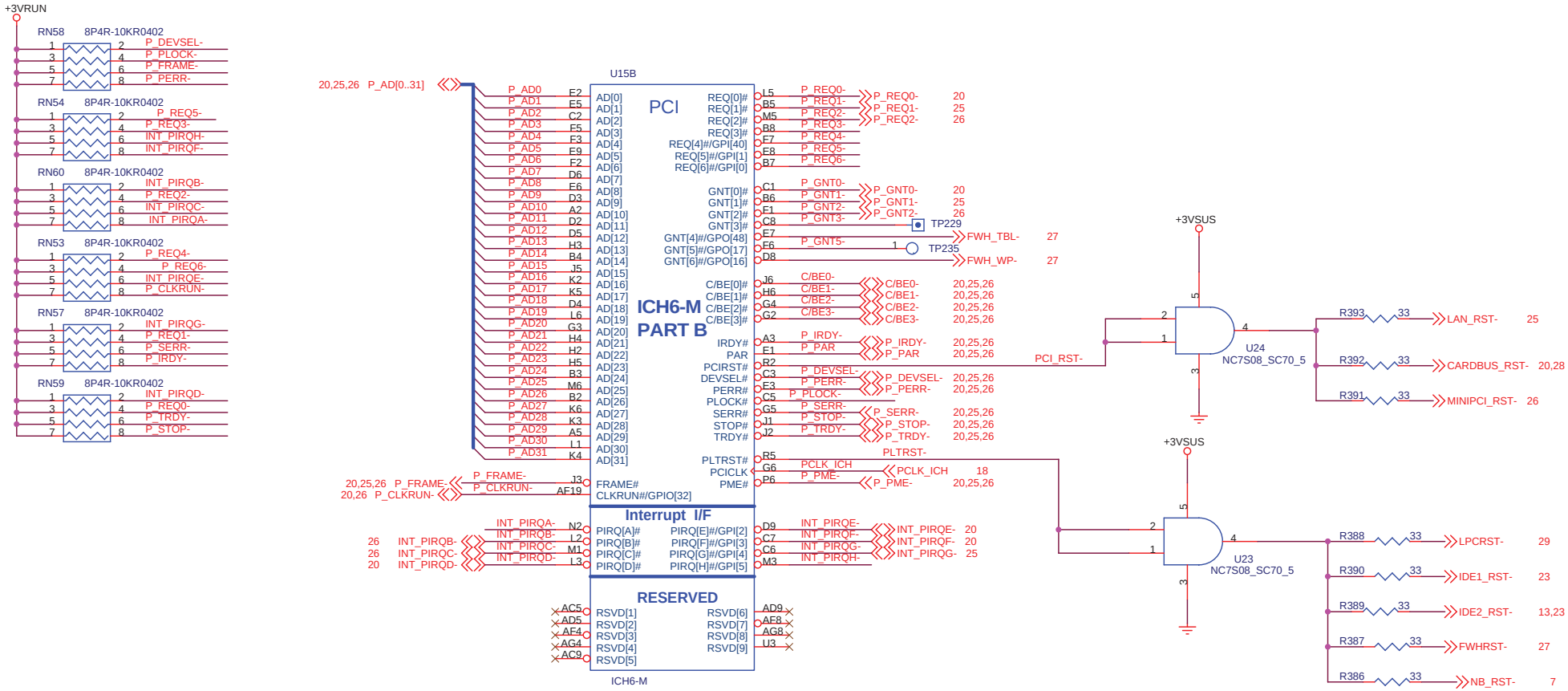

U5H
POWER
ALVISO
VTT
+1_5VRUN
+2_5VRUN
+2_5VSUS
VCC_TVDACA_R
VCC_TVDACB_R
VCC_TVDACC_R
VCC_TVBG_R
VSSA_TVBG
VCCDQ_TVDAC
VCCA_DPLLA
VCCA_DPLLB
VCCA_HPLL
VCCA_MPLL
VCCA_CRTDAC
VCC_DDRDLL
VCC3G_PCIE
VCCA_3GPLL
VCCP_GMCH_CAP1
VCCP_GMCH_CAP2
VCCP_GMCH_CAP3
VCCP_GMCH_CAP4
V1.8_DDR_CAP1
V1.8_DDR_CAP2
V1.8_DDR_CAP3
V1.8_DDR_CAP6
V1.8_DDR_CAP4
V1.8_DDR_CAP5
MICRO-STAR INT'L CO.,LTD.
Alviso-4 (Power)
MS-1012
Size Custom
Document Number
Rev 1.1
Date: Friday, January 21, 2005
Sheet 9 of 39
hexainf@hotmail.com



MICRO-STAR INT'L CO.,LTD.		
Title: Alviso-5 (GND)		
Size: Custom	Document Number: MS-1012	Rev: 1.1
Date: Friday, January 21, 2005	Sheet 10 of 39	



MICRO-STAR INT'L CO.,LTD.			
Title: ICH6-M (CPU/IDE/AC97)			
Size: Custom	Document Number: MS-1012		Rev: 1.1
Date: Friday, January 21, 2005	Sheet 11 of 39		

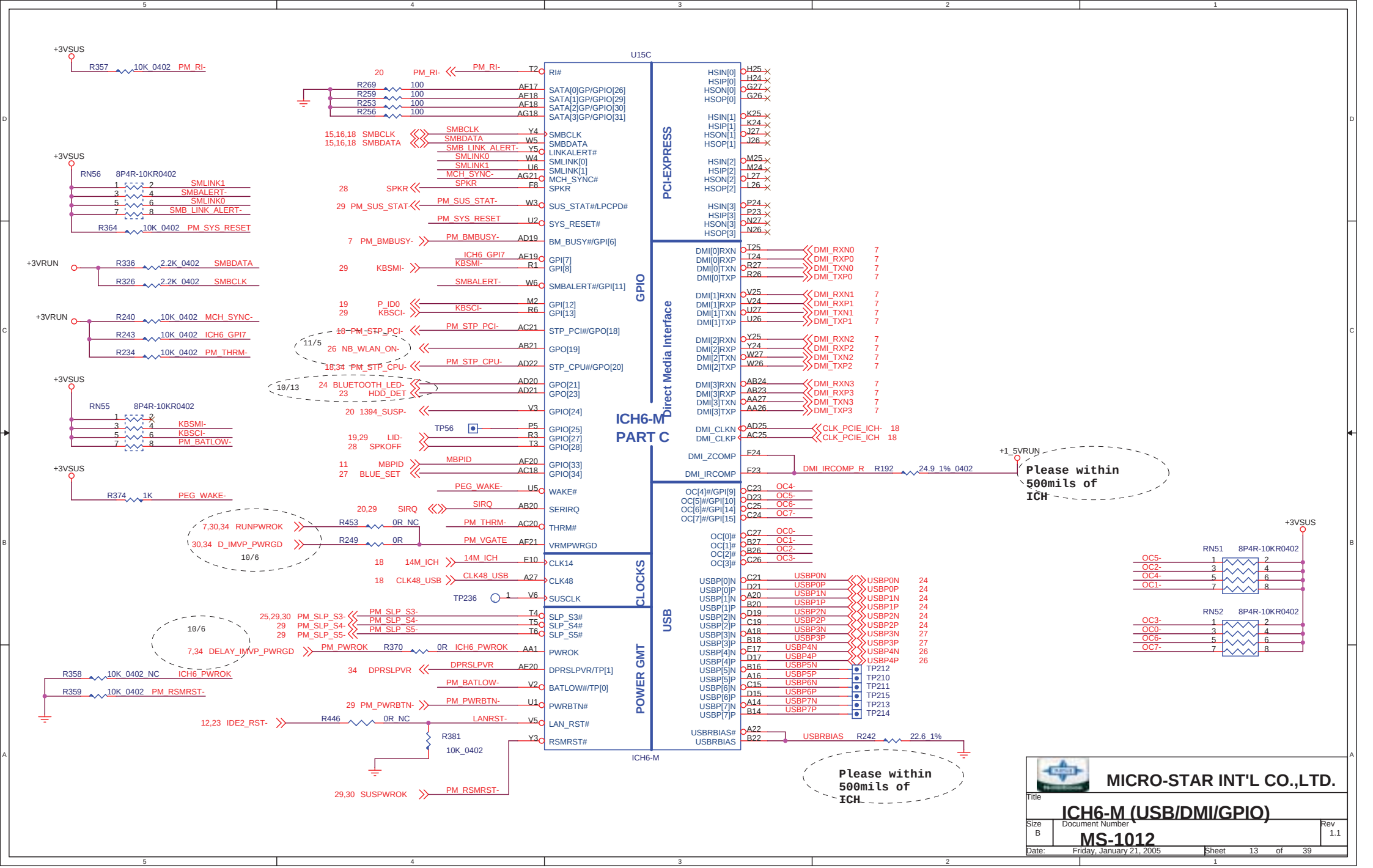


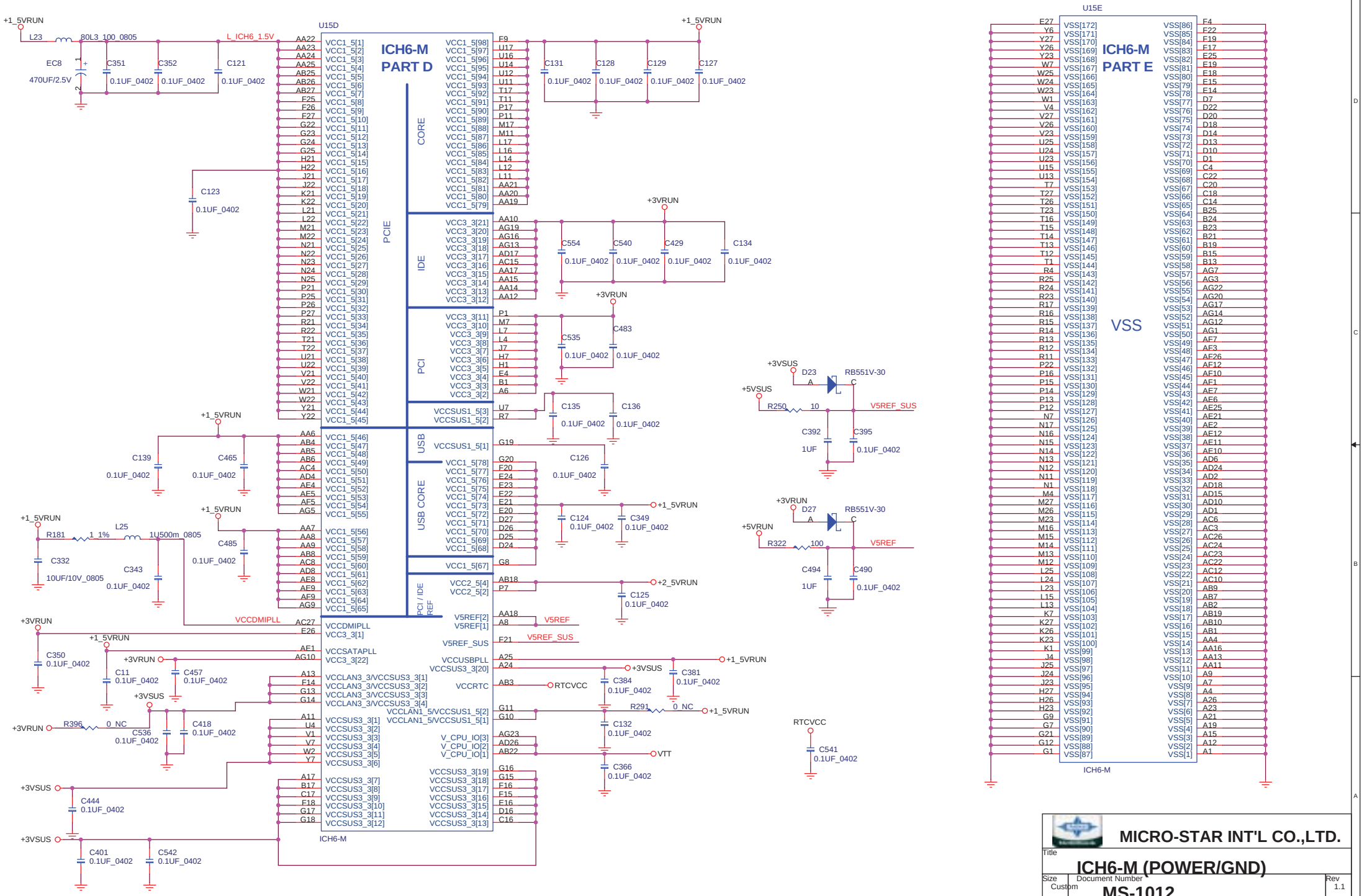
MICRO-STAR INT'L CO.,LTD.

Title: ICH6-M (PCI BUS)

Size: B | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 12 of 39





Title	ICH6-M (POWER/GND)
Size	Custom
Document Number	MS-1012
Rev	1.1
Date:	Friday, January 21, 2005
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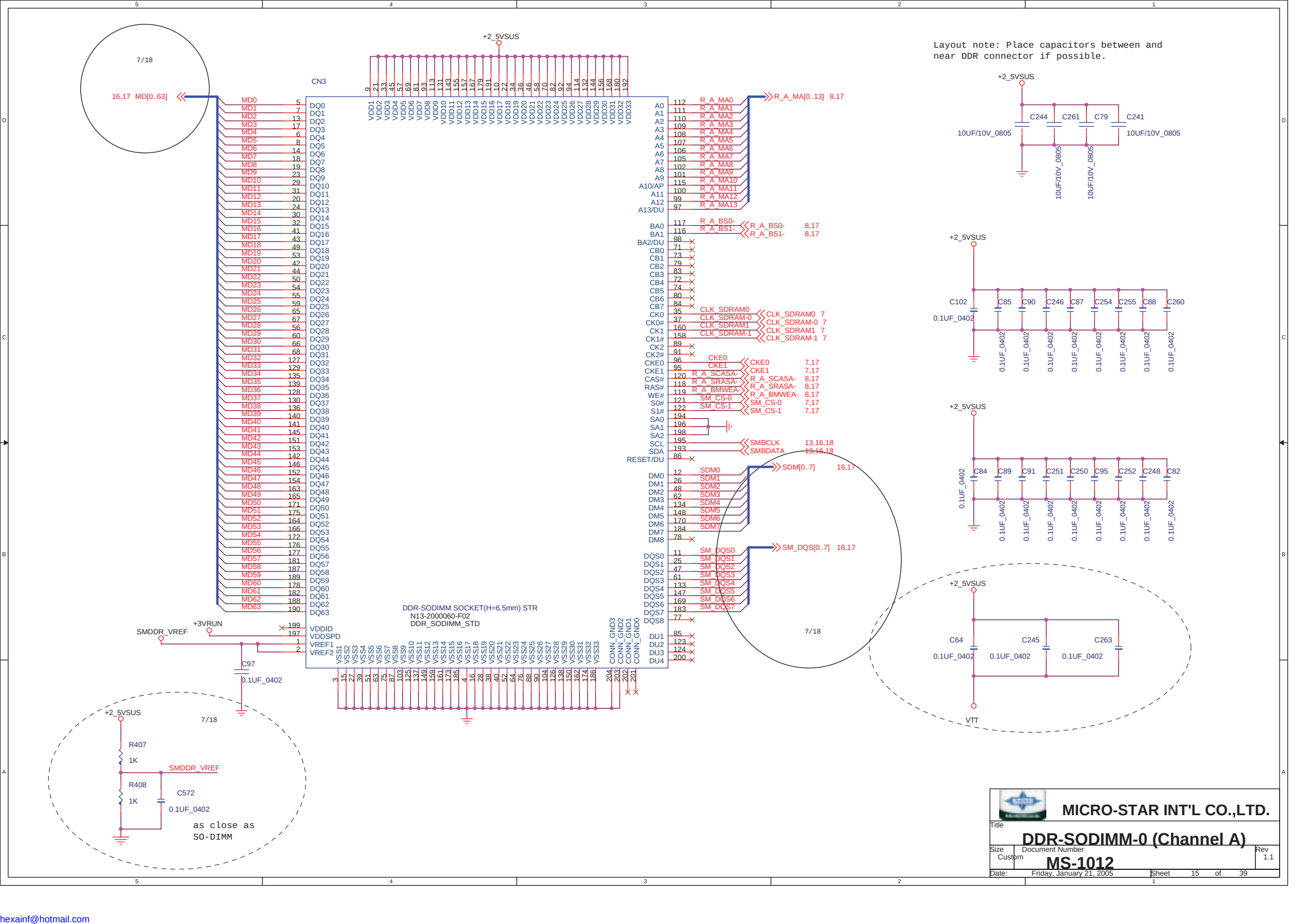
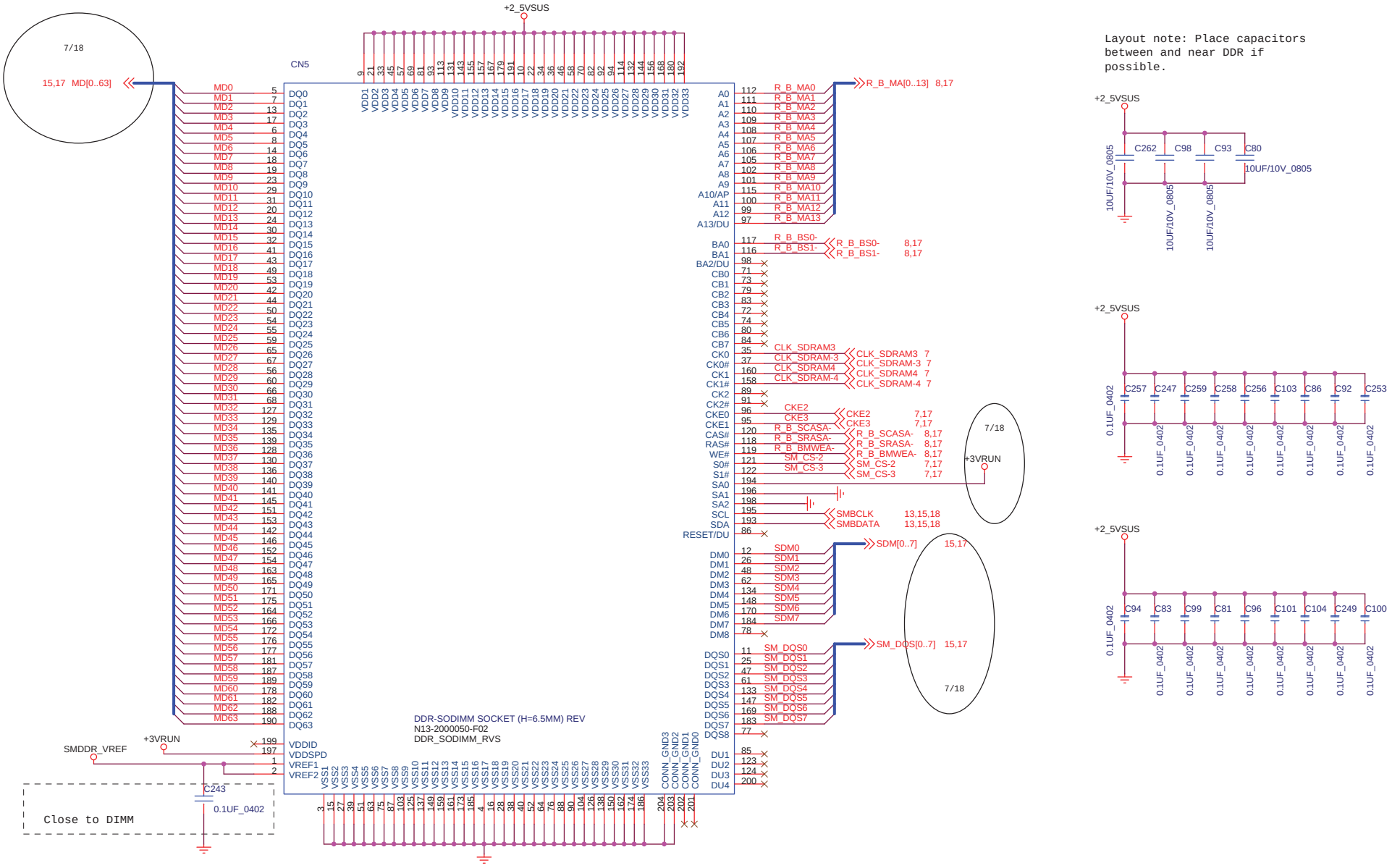
MICRO-STAR INT'L CO.,LTD.





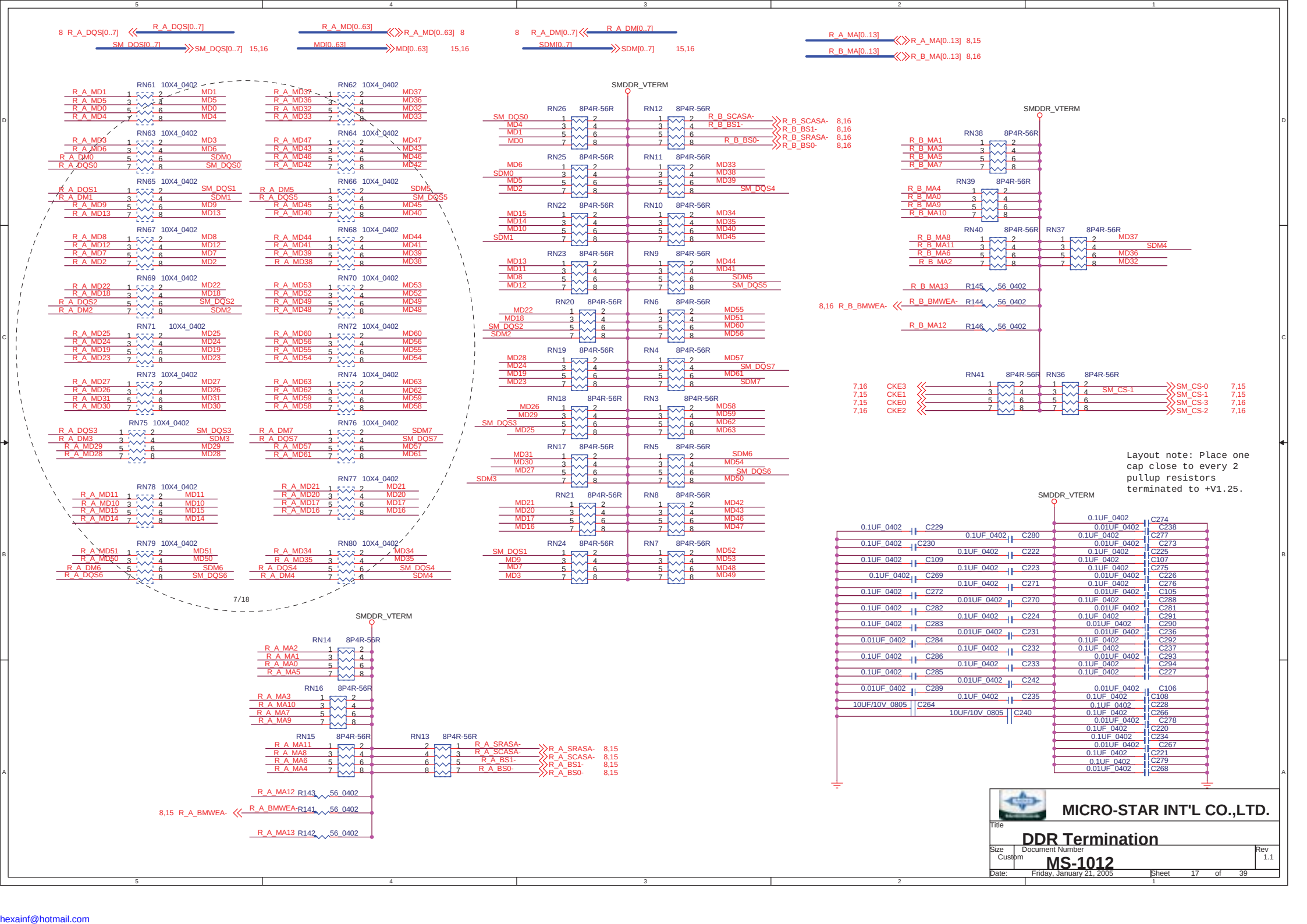
Layout note: Place capacitors between and near DDR if possible.

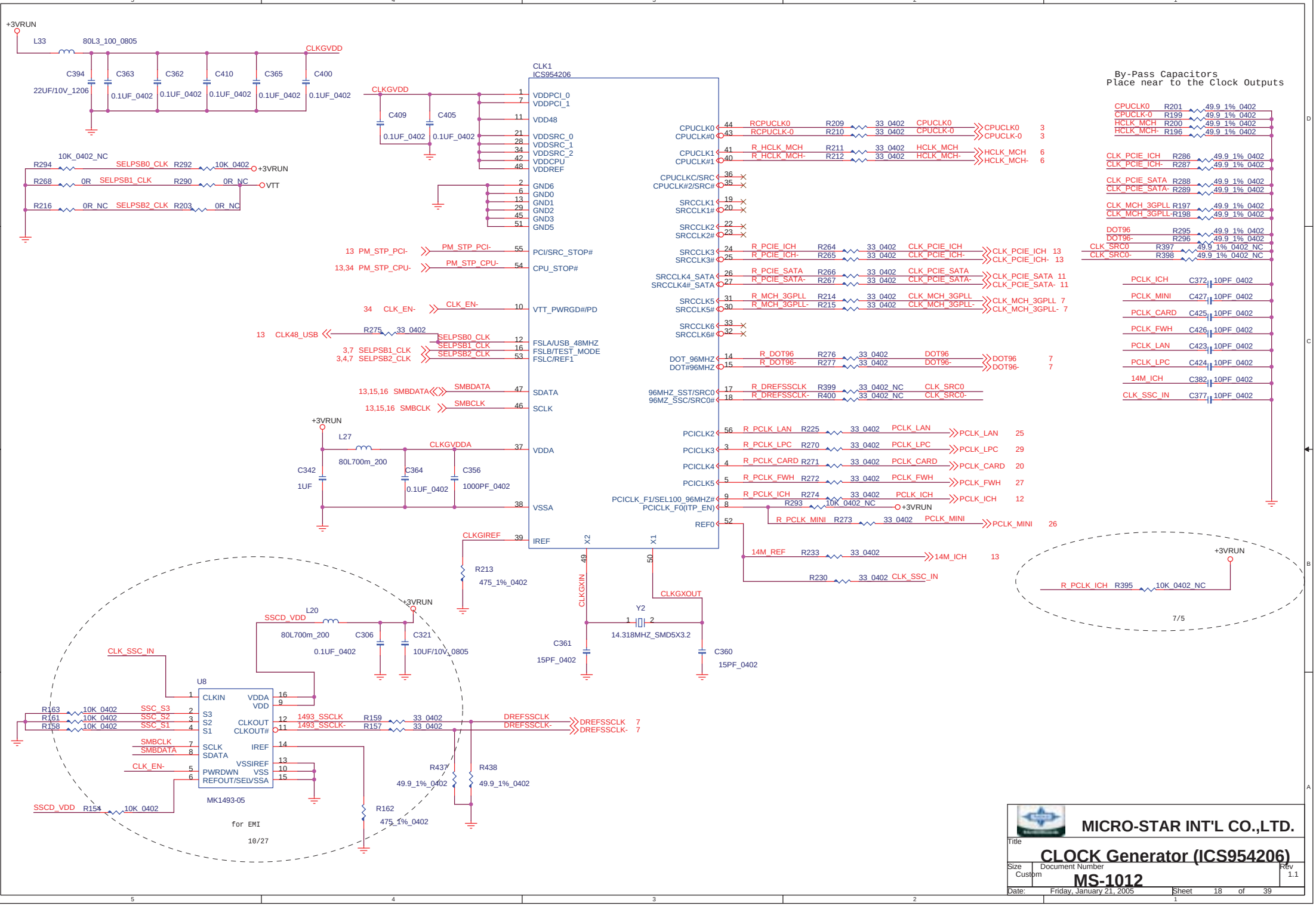
MICRO-STAR INT'L CO.,LTD.

Title: DDR-SODIMM-1 (Channel B)

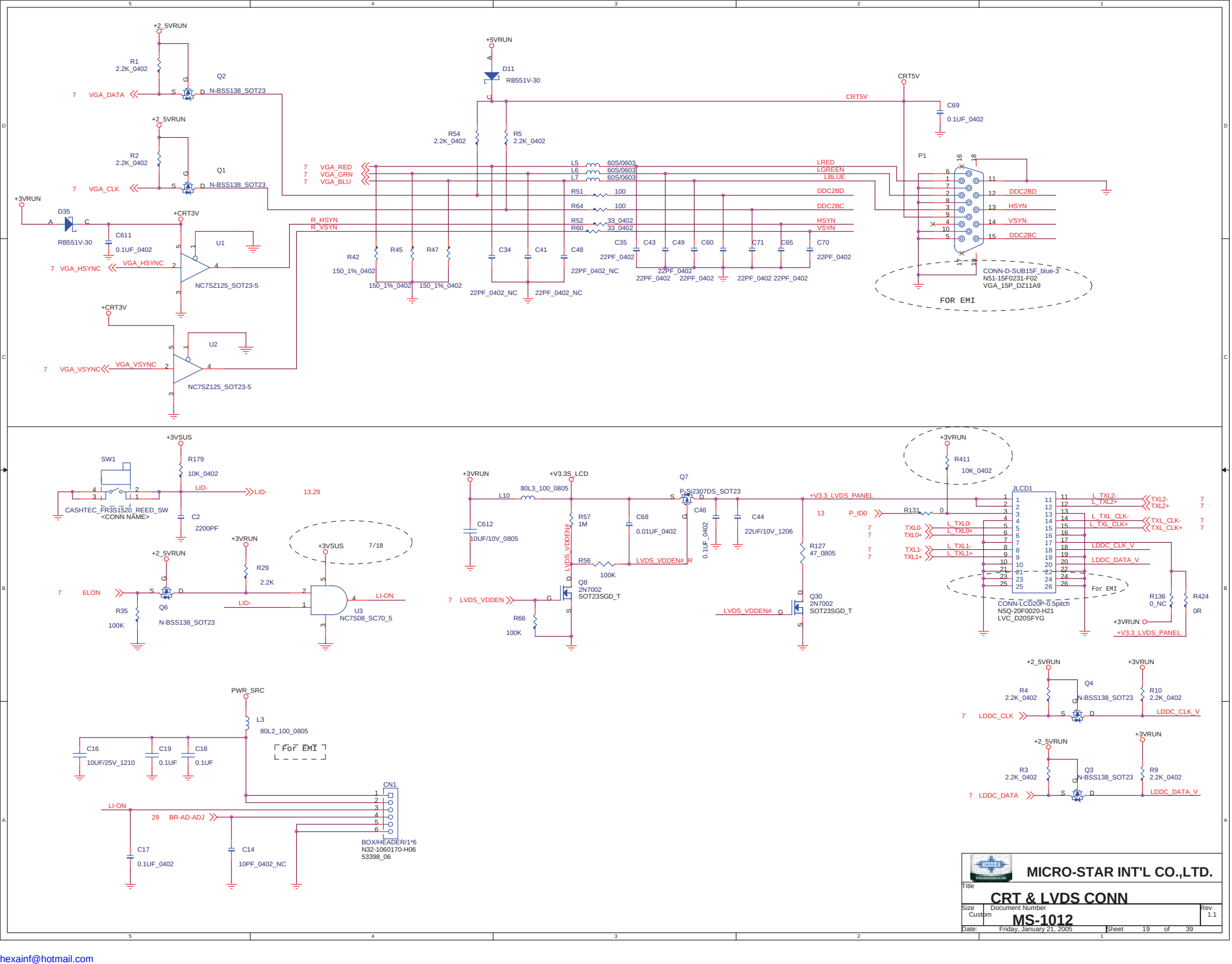
Size: Custom | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 16 of 39





Company	MICRO-STAR INT'L CO.,LTD.
Title	CLOCK Generator (ICS954206)
Size	Custom
Document Number	MS-1012
Rev	1.1
Date:	Friday, January 21, 2005
Sheet	18 of 39

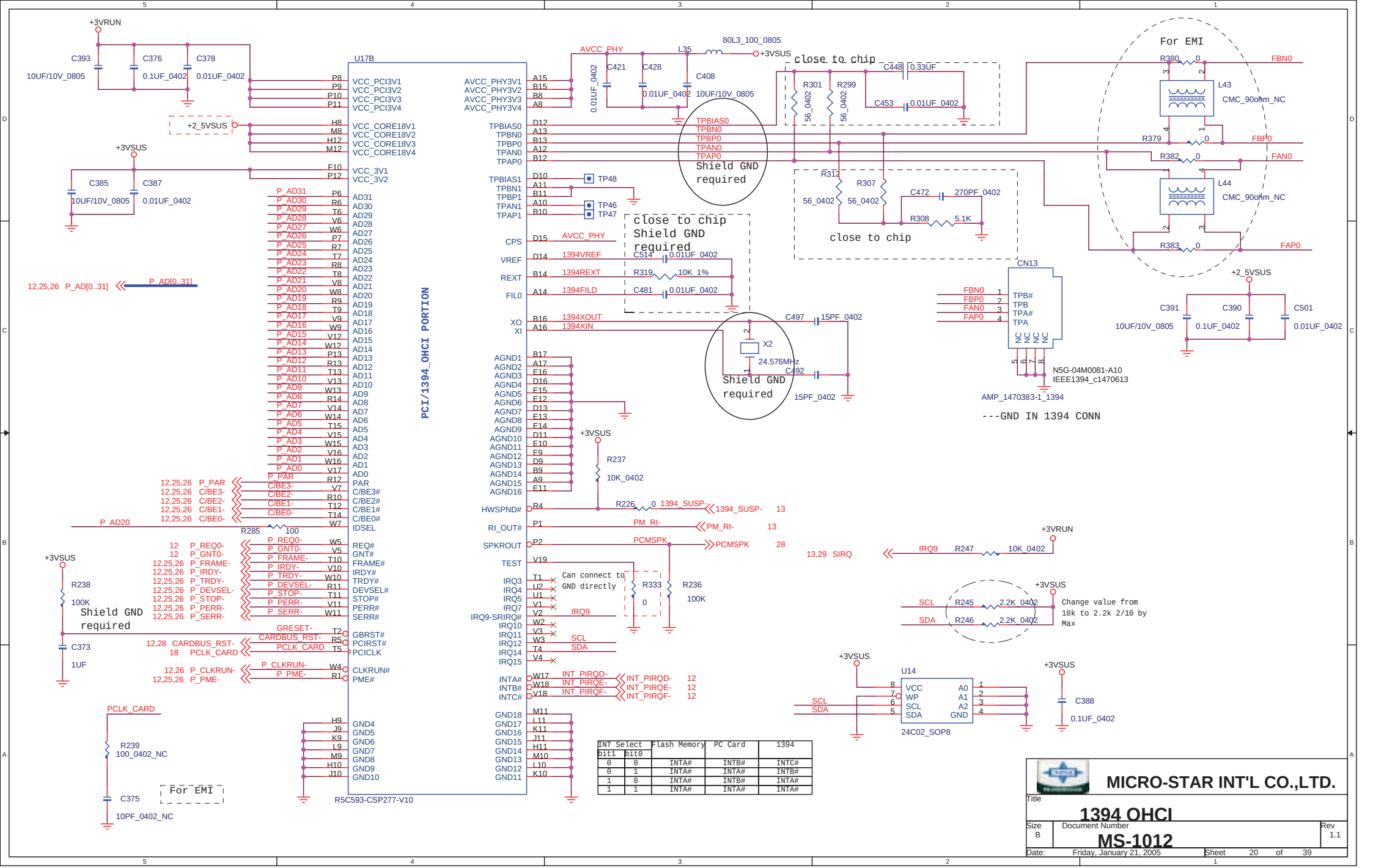


MICRO-STAR INT'L CO.,LTD.

Title: CRT & LVDS CONN

Size: Custom | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 19 of 39


U17B
PCI/1394_OHCI PORTION
R5C593-CSP277-V10
VCC_PCI3V1
VCC_PCI3V2
VCC_PCI3V3
VCC_PCI3V4
VCC_CORE18V1
VCC_CORE18V2
VCC_CORE18V3
VCC_CORE18V4
VCC_3V1
VCC_3V2
AVCC_PHY3V1
AVCC_PHY3V2
AVCC_PHY3V3
AVCC_PHY3V4
TPBIAS0
TPBN0
TPBP0
TPAN0
TPAP0
TPBIAS1
TPBN1
TPBP1
TPAN1
TPAP1
CPS
VREF
REXT
FIL0
XO
XI
AGND1
AGND2
AGND3
AGND4
AGND5
AGND6
AGND7
AGND8
AGND9
AGND10
AGND11
AGND12
AGND13
AGND14
AGND15
AGND16
HWSPND#
RI_OUT#
SPKROUT
TEST
IRQ3
IRQ4
IRQ5
IRQ7
IRQ9-SRIRQ#
IRQ10
IRQ11
IRQ12
IRQ14
IRQ15
INTA#
INTB#
INTC#
GND18
GND17
GND16
GND15
GND14
GND13
GND12
GND11
GND4
GND5
GND6
GND7
GND8
GND9
GND10
AD31
AD30
AD29
AD28
AD27
AD26
AD25
AD24
AD23
AD22
AD21
AD20
AD19
AD18
AD17
AD16
AD15
AD14
AD13
AD12
AD11
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
AD0
PAR
C/BE3#
C/BE2#
C/BE1#
C/BE0#
IDSEL
REQ#
GNT#
FRAME#
IRDY#
TRDY#
DEVSEL#
STOP#
PERR#
SERR#
GBRST#
PCIRST#
PCICLK
CLKRUN#
PME#
P_AD[0..31]
P_PAR
P_REQ0-
P_GNT0-
P_FRAME-
P_IRDY-
P_TRDY-
P_DEVSEL-
P_STOP-
P_PERR-
P_SERR-
GRESET-
CARDBUS_RST-
PCLK_CARD
P_CLKRUN-
P_PME-
+3VRUN
+2_5VSUS
+3VSUS
C393
C376
C378
10UF/10V_0805
0.1UF_0402
0.01UF_0402
C385
C387
C421
C428
C408
AVCC_PHY
L35
80L3_100_0805
close to chip
Shield GND required
TP48
TP46
TP47
C514
R319
10K_1%
C481
1394VREF
1394REXT
1394FILD
1394XOUT
1394XIN
C497
15PF_0402
X2
24.576MHz
C492
R237
10K_0402
R226
0_1394_SUSP-
PM_RI-
PCMSPK
R333
R236
100K
Can connect to GND directly
INT_PIRQD-
INT_PIRQE-
INT_PIRQF-
R301
R299
56_0402
C448
0.33UF
C453
R312
R307
C472
270PF_0402
R308
5.1K
For EMI
R380
R379
R382
R383
FBN0
FBP0
FAN0
FAP0
L43
L44
CMC_90ohm_NC
CN13
TPB#
TPB
TPA#
TPA
NC
N5G-04M0081-A10
IEEE1394_c1470613
AMP_1470383-1_1394
---GND IN 1394 CONN
C391
C390
C501
R285
100
R238
C373
1UF
R239
100_0402_NC
C375
10PF_0402_NC
IRQ9
R247
10K_0402
13,29 SIRQ
SCL
SDA
R245
R246
2.2K_0402
Change value from 10k to 2.2k 2/10 by Max
U14
VCC
WP
A0
A1
A2
GND
24C02_SOP8
C388
0.1UF_0402
INT Select
bit1
bit0
Flash Memory
PC Card
1394
0 0 INTA# INTB# INTC#
0 1 INTA# INTA# INTB#
1 0 INTA# INTB# INTA#
1 1 INTA# INTA# INTA#
MICRO-STAR INT'L CO.,LTD.
Title
1394 OHCI
Size B
Document Number
MS-1012
Rev 1.1
Date: Friday, January 21, 2005
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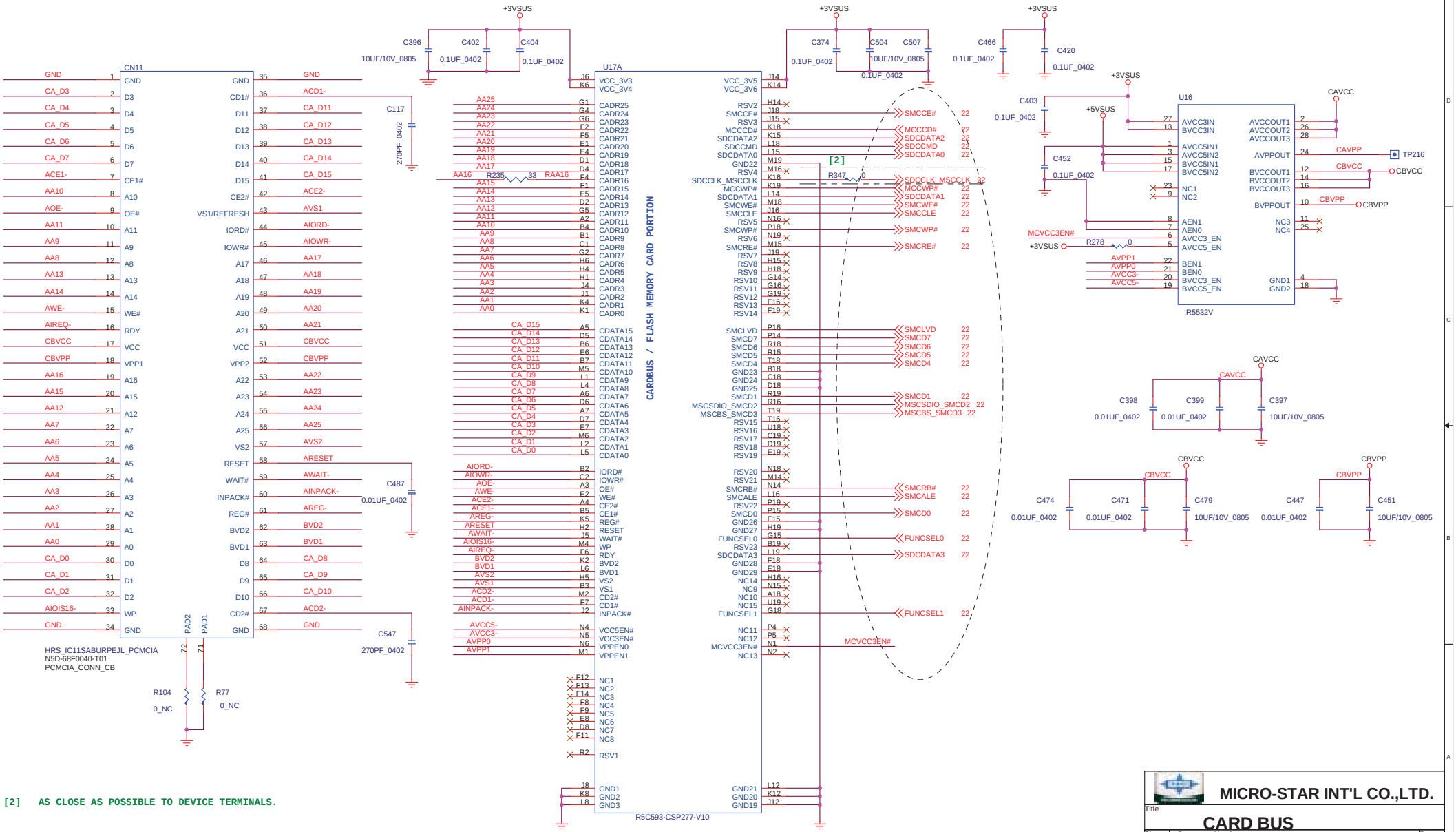

Title	CARD BUS
Size	Custom
Document Number	MS-1012
Rev	1.1
Date:	Friday, January 21, 2005
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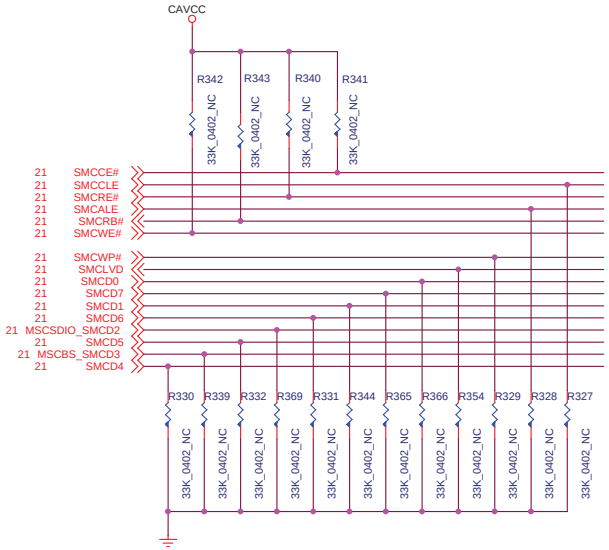
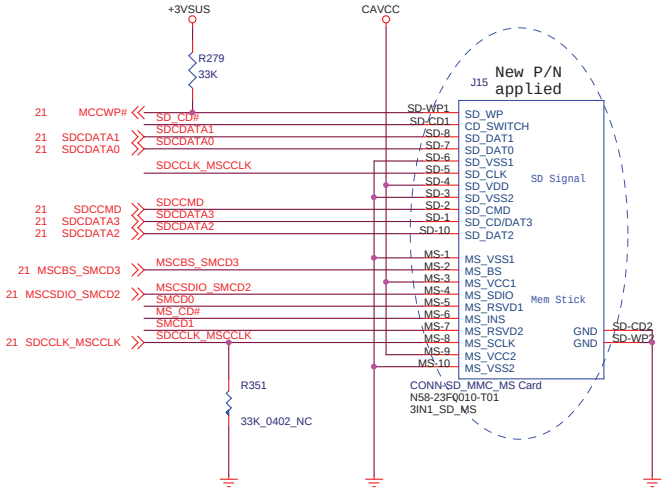
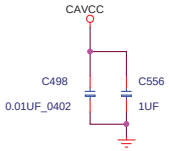
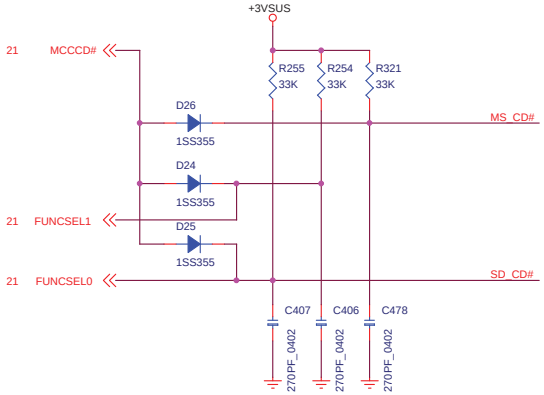
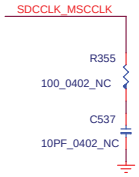
MICRO-STAR INT'L CO.,LTD.











Memory Card Detect Logic Table

MS_CD#	SM_CD#	SD_CD#		Detected Card
0	0	0	->	INHIBIT
0	0	1	->	INHIBIT
0	1	0	->	INHIBIT
0	1	1	->	MemoryStick Detected
1	0	0	->	INHIBIT
1	0	1	->	SmartMedia Detected
1	1	0	->	SD/MMC Detected
1	1	1	->	Not Detected

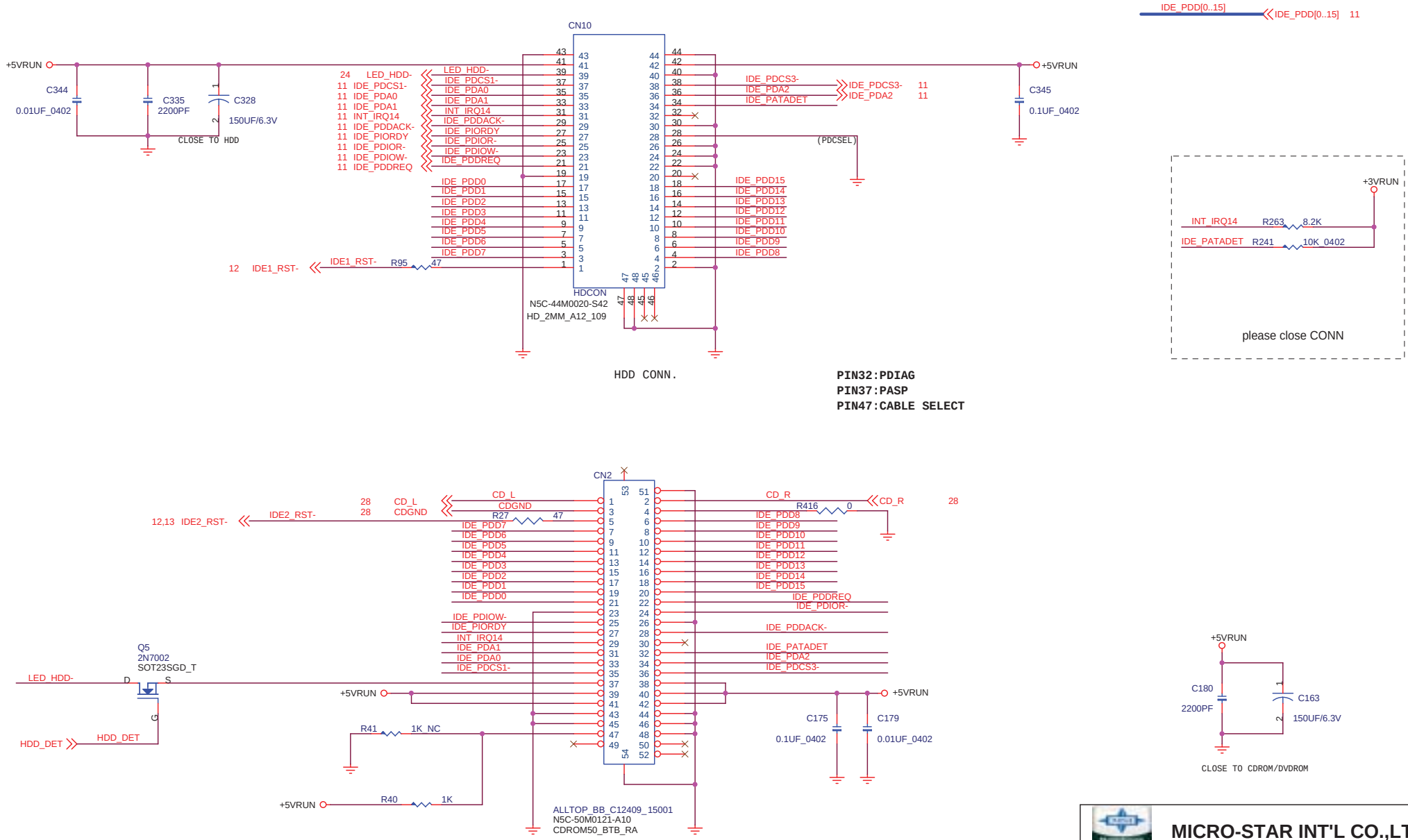
DO NOT INSERT SMARTMEDIA, SD/MMC AND MEMORYSTICK SIMULTANEOUSLY.

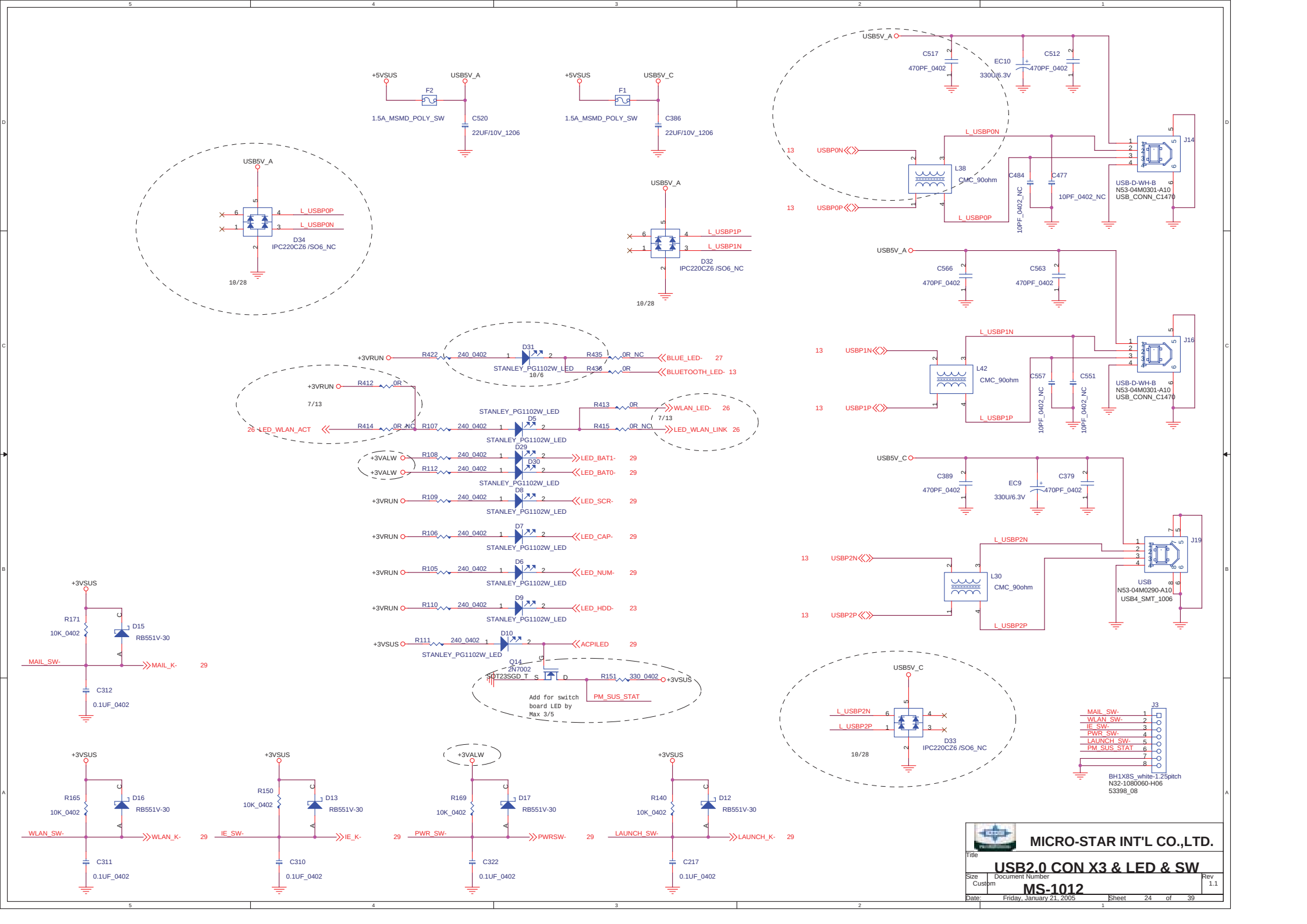
MICRO-STAR INT'L CO.,LTD.

Title: FLASH CARD CONN

Size: Custom | Document Number: MS-1012 | Rev: 1.1

Date: Friday, January 21, 2005 | Sheet 22 of 39




+5VSUS
USB5V_A
F2
1.5A_MSMD_POLY_SW
C520
22UF/10V_1206
+5VSUS
USB5V_C
F1
1.5A_MSMD_POLY_SW
C386
22UF/10V_1206
USB5V_A
L_USBP0P
L_USBP0N
D34
IPC220CZ6 /SO6_NC
10/28
USB5V_A
L_USBP1P
L_USBP1N
D32
IPC220CZ6 /SO6_NC
10/28
USB5V_A
C517
470PF_0402
EC10
330U/6.3V
C512
470PF_0402
L_USBP0N
13 USBP0N
13 USBP0P
L38
CMC_90ohm
C484
C477
10PF_0402_NC
10PF_0402_NC
L_USBP0P
J14
USB-D-WH-B
N53-04M0301-A10
USB_CONN_C1470
USB5V_A
C566
470PF_0402
C563
470PF_0402
L_USBP1N
13 USBP1N
13 USBP1P
L42
CMC_90ohm
C557
C551
10PF_0402_NC
10PF_0402_NC
L_USBP1P
J16
USB-D-WH-B
N53-04M0301-A10
USB_CONN_C1470
USB5V_C
C389
470PF_0402
EC9
330U/6.3V
C379
470PF_0402
L_USBP2N
13 USBP2N
13 USBP2P
L30
CMC_90ohm
L_USBP2P
J19
USB
N53-04M0290-A10
USB4_SMT_1006
+3VRUN
R422
240_0402
D31
STANLEY_PG1102W_LED
10/6
R435
0R_NC
BLUE_LED-
27
R436
0R
BLUETOOTH_LED-
13
+3VRUN
R412
0R
7/13
26 LED_WLAN_ACT
R414
0R_NC
R107
240_0402
D5
STANLEY_PG1102W_LED
R413
0R
WLAN_LED-
26
7/13
R415
0R_NC
LED_WLAN_LINK
26
+3VALW
R108
240_0402
D29
LED_BAT1-
29
+3VALW
R112
240_0402
D30
LED_BAT0-
29
STANLEY_PG1102W_LED
+3VRUN
R109
240_0402
D8
STANLEY_PG1102W_LED
LED_SCR-
29
+3VRUN
R106
240_0402
D7
STANLEY_PG1102W_LED
LED_CAP-
29
+3VRUN
R105
240_0402
D6
STANLEY_PG1102W_LED
LED_NUM-
29
+3VRUN
R110
240_0402
D9
STANLEY_PG1102W_LED
LED_HDD-
23
+3VSUS
R111
240_0402
D10
STANLEY_PG1102W_LED
ACPILED
29
Q14
2N7002
SOT23SGD_T
R151
330_0402
+3VSUS
Add for switch
board LED by
Max 3/5
PM_SUS_STAT
+3VSUS
R171
10K_0402
D15
RB551V-30
MAIL_SW-
MAIL_K-
29
C312
0.1UF_0402
+3VSUS
R165
10K_0402
D16
RB551V-30
WLAN_SW-
WLAN_K-
29
C311
0.1UF_0402
+3VSUS
R150
10K_0402
D13
RB551V-30
IE_SW-
IE_K-
29
C310
0.1UF_0402
+3VALW
R169
10K_0402
D17
RB551V-30
29 PWR_SW-
PWRSW-
29
C322
0.1UF_0402
+3VSUS
R140
10K_0402
D12
RB551V-30
LAUNCH_SW-
LAUNCH_K-
29
C217
0.1UF_0402
USB5V_C
L_USBP2N
L_USBP2P
D33
IPC220CZ6 /SO6_NC
10/28
J3
MAIL_SW-
WLAN_SW-
IE_SW-
PWR_SW-
LAUNCH_SW-
PM_SUS_STAT
BH1X8S_white-1.25pitch
N32-1080060-H06
53398_08
MICRO-STAR INT'L CO.,LTD.
Title
USB2.0 CON X3 & LED & SW
Size
Custom
Document Number
MS-1012
Rev
1.1
Date:
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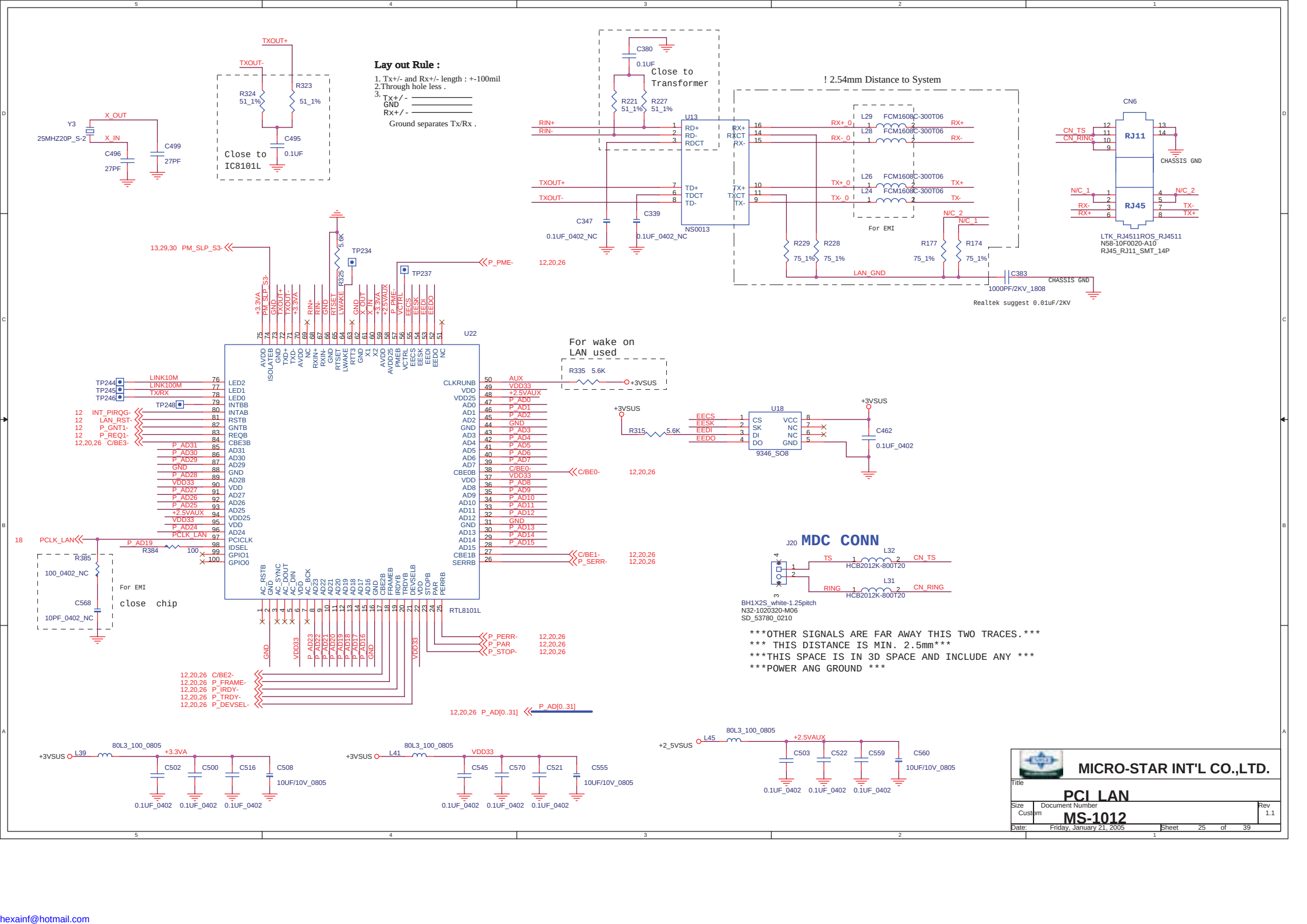
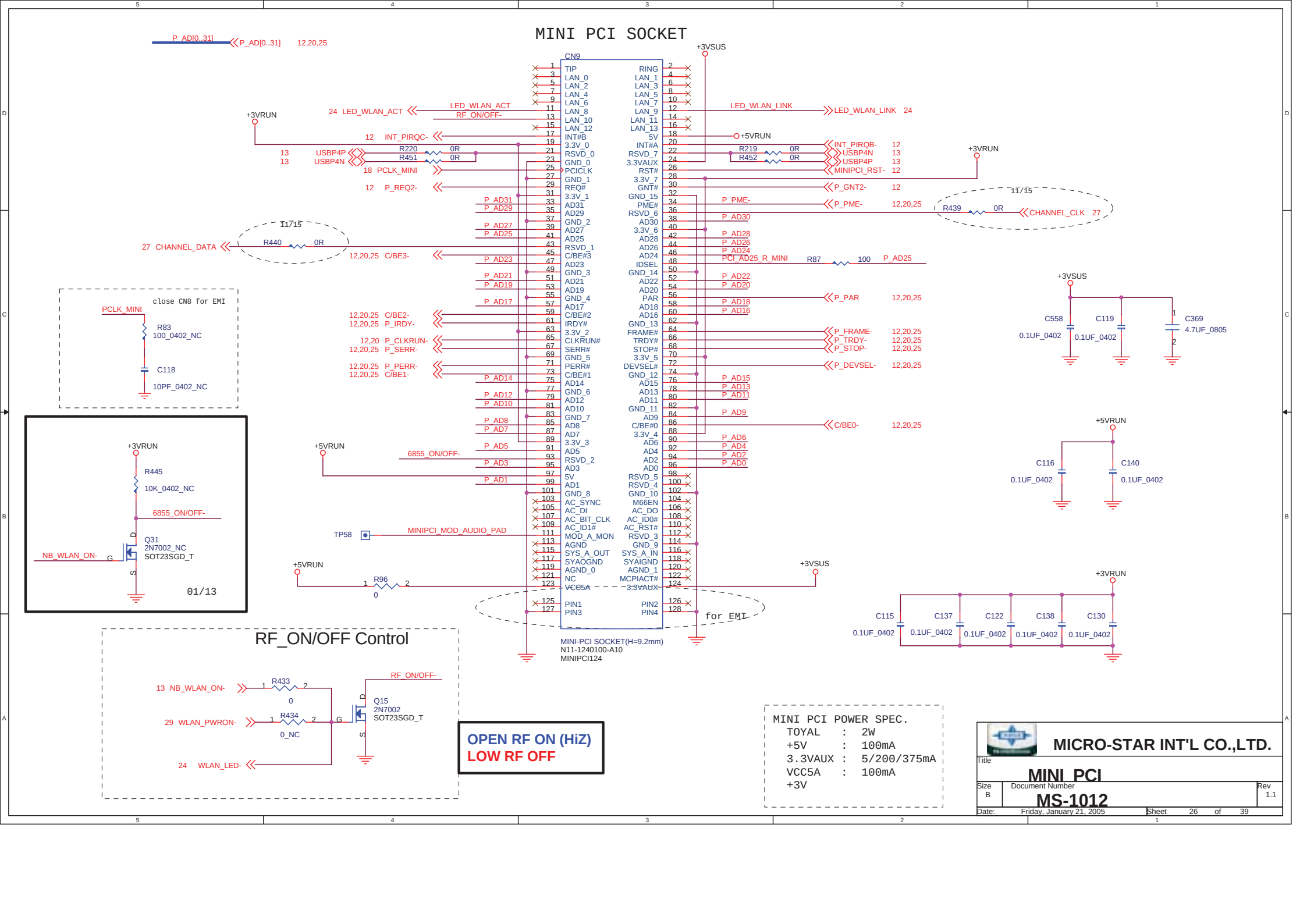
of
39



MINI PCI SOCKET



MICRO-STAR INT'L CO.,LTD.

Title: MINI PCI

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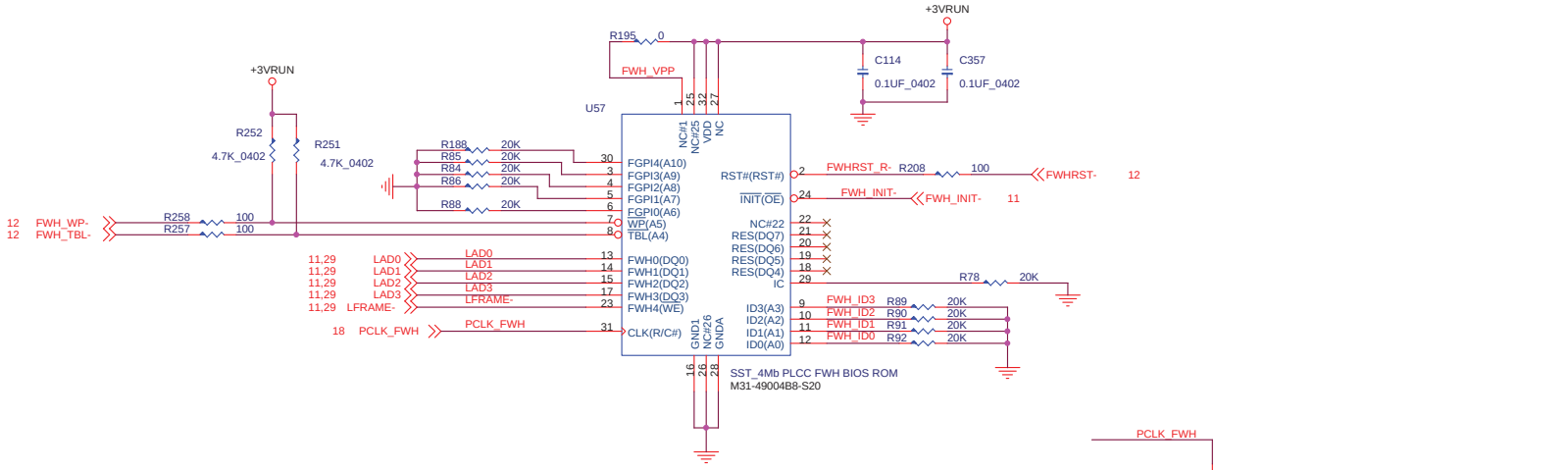
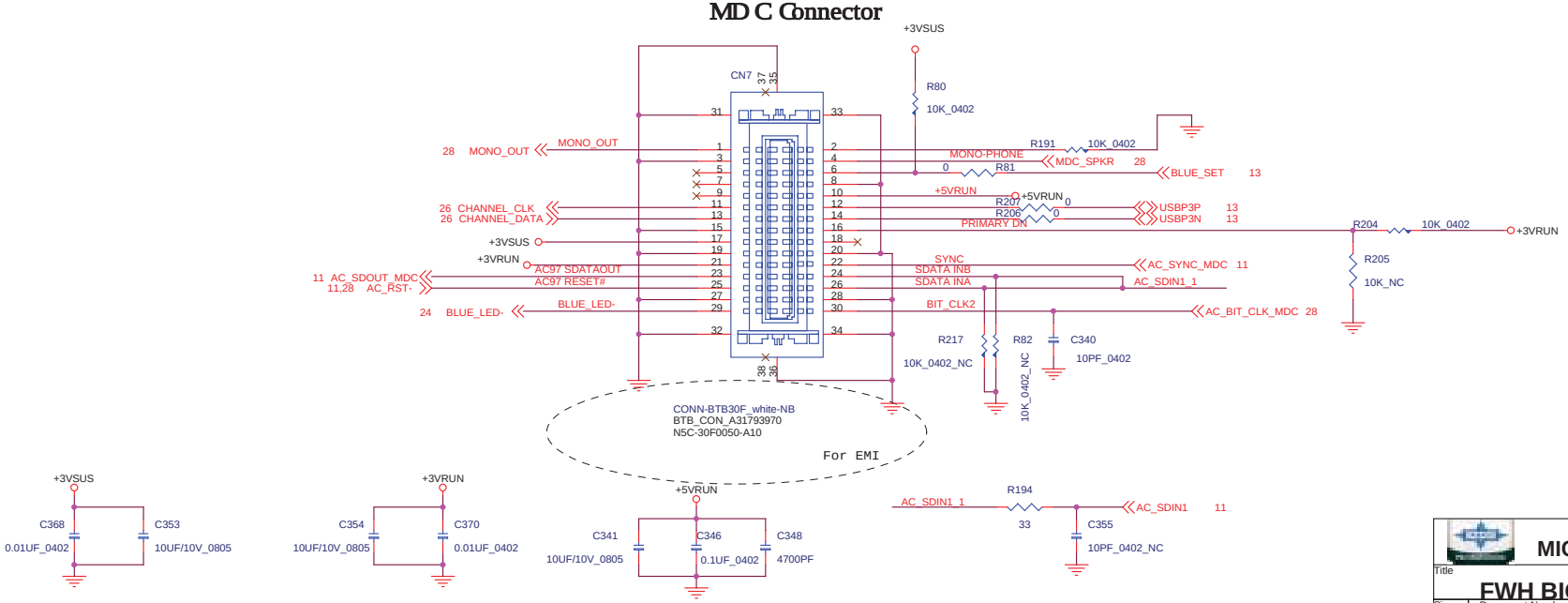


MD C Connector



MICRO-STAR INT'L CO.,LTD.		
Title: FWH BIOS & MDC CONN		
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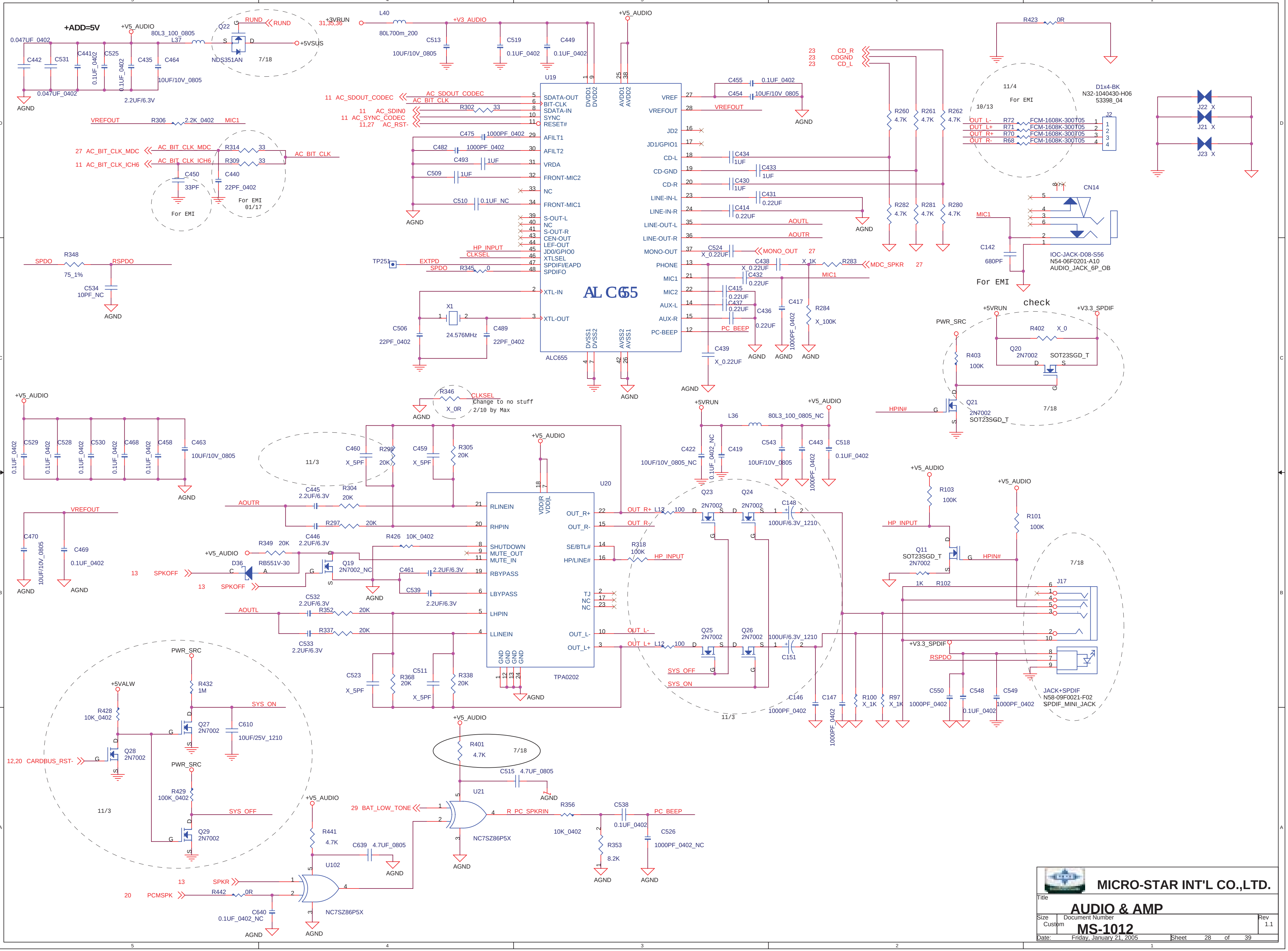

MICRO-STAR INT'L CO.,LTD.

Title: AUDIO & AMP

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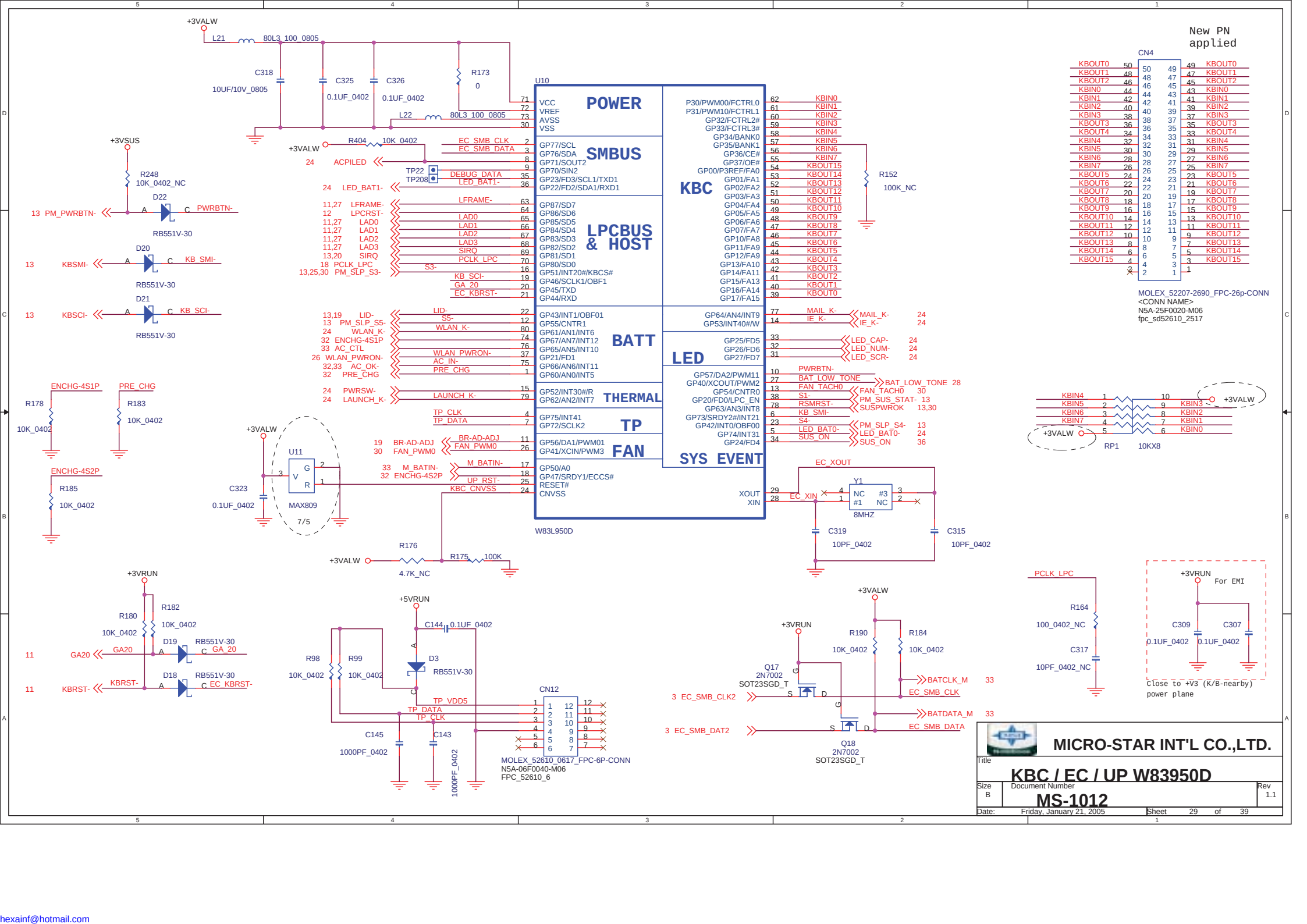
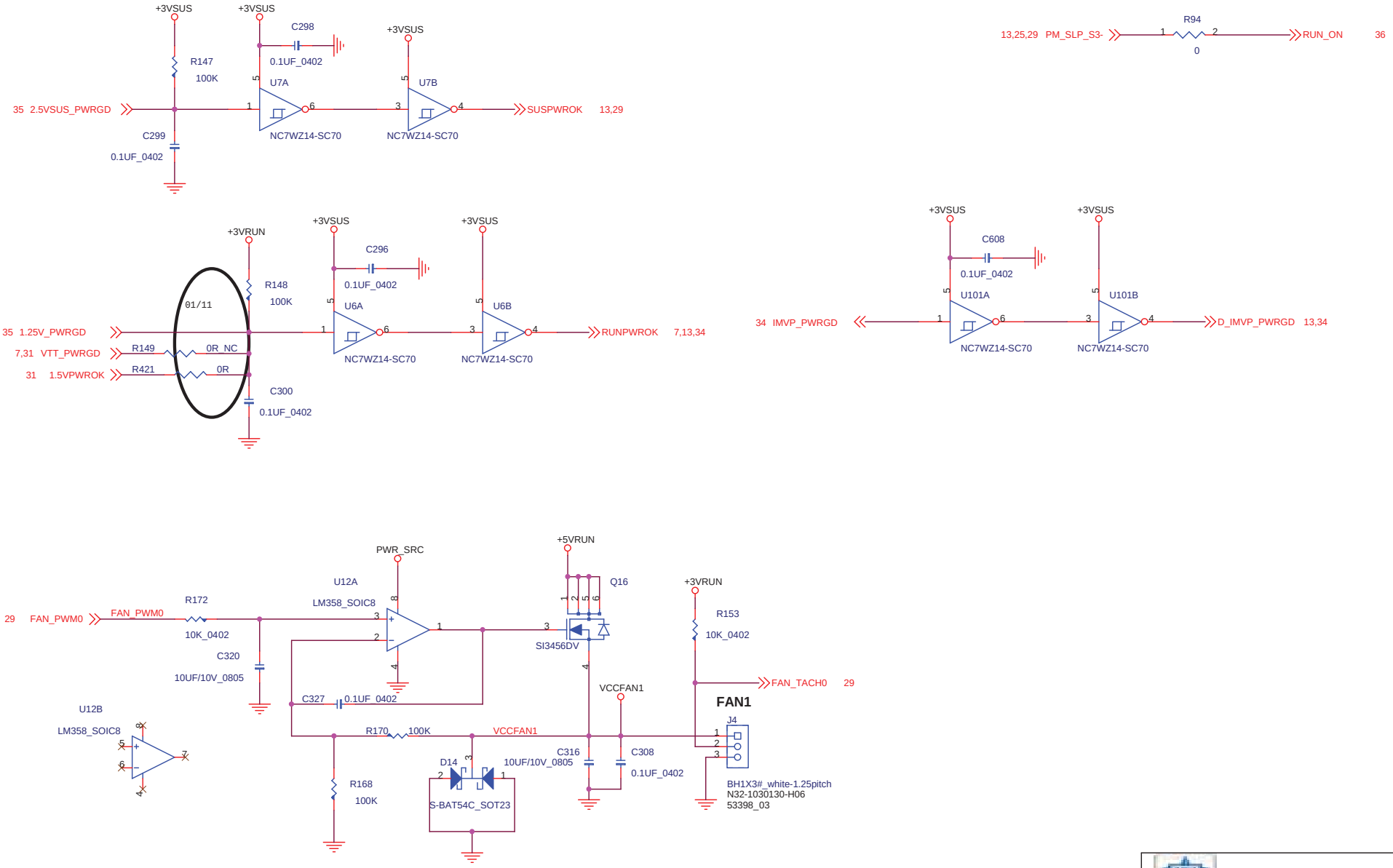


hexainf@hotmail.com



MICRO-STAR INT'L CO.,LTD.

Title: POWER GOOD & FAN

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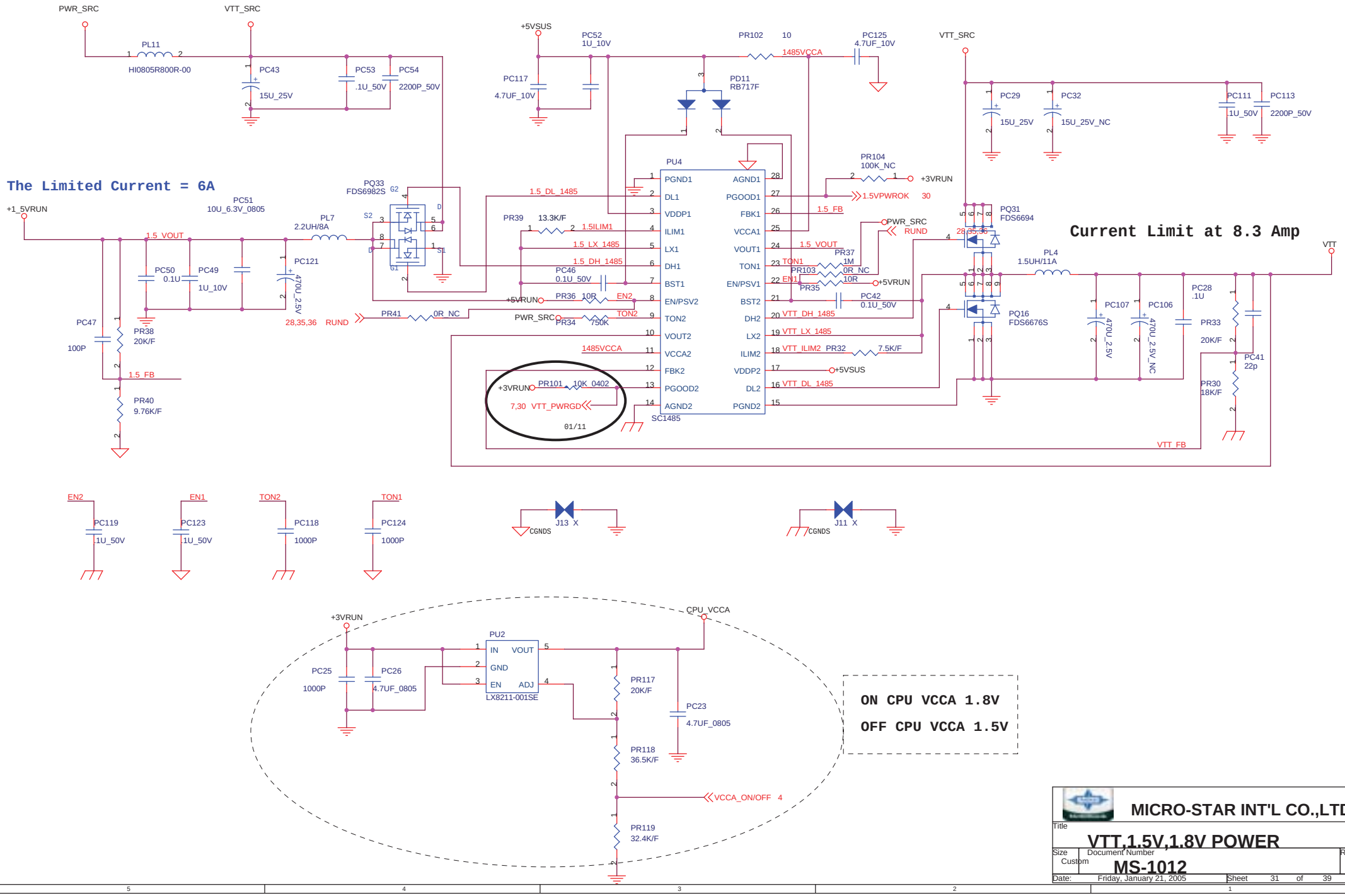
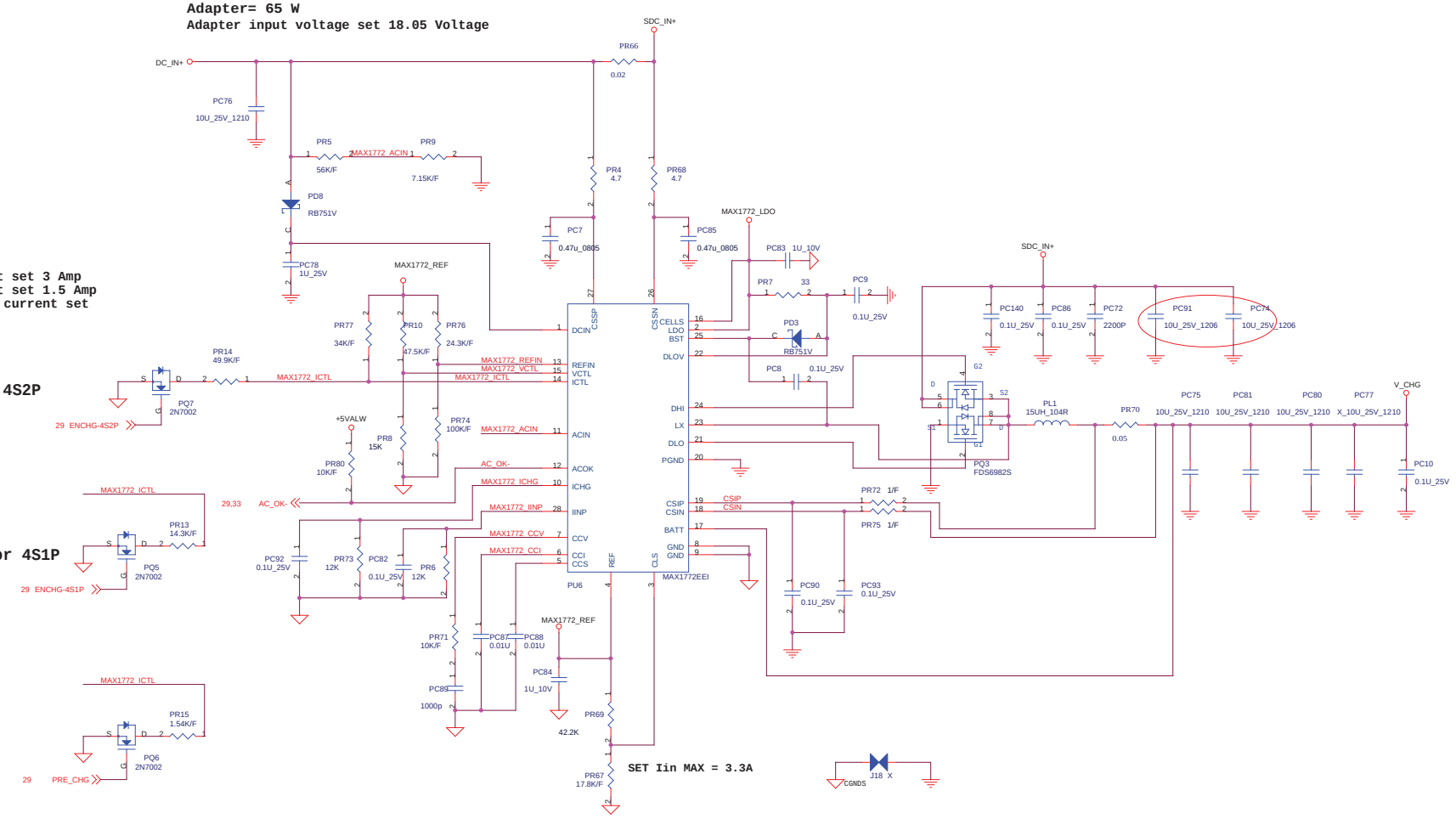


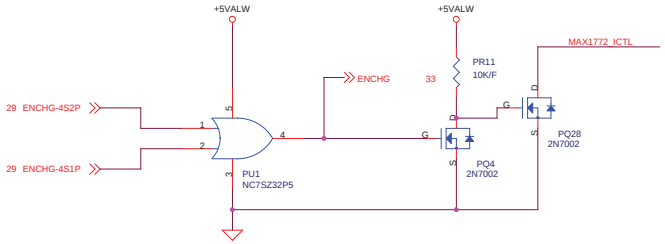
Adapter= 65 W
Adapter input voltage set 18.05 Voltage

4S2P: Charger current set 3 Amp
4S1P: Charger current set 1.5 Amp
Pre-charger: Charger current set 200mA

Charge to 3A for 4S2P

Charge to 1.5A for 4S1P





	4S1P	4S2P	Pre-changer
Pre-changer	1	0	1
Fast-changer	1	0	0
Fast-changer	0	1	0
Stop-changer	0	0	0

MICRO-STAR INT'L CO.,LTD.

Title: Battert Charger

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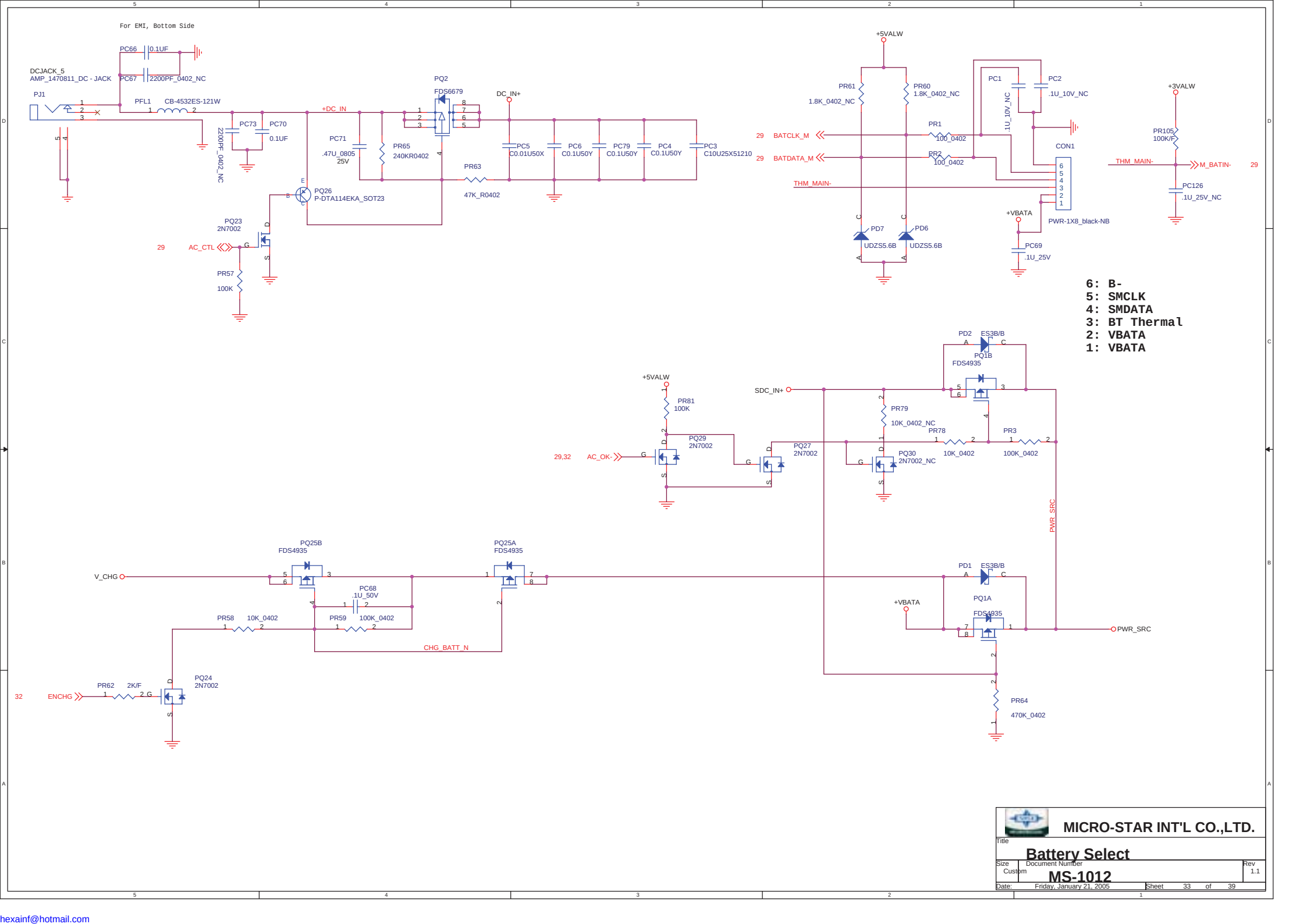

MICRO-STAR INT'L CO.,LTD.

Title: Battery Select

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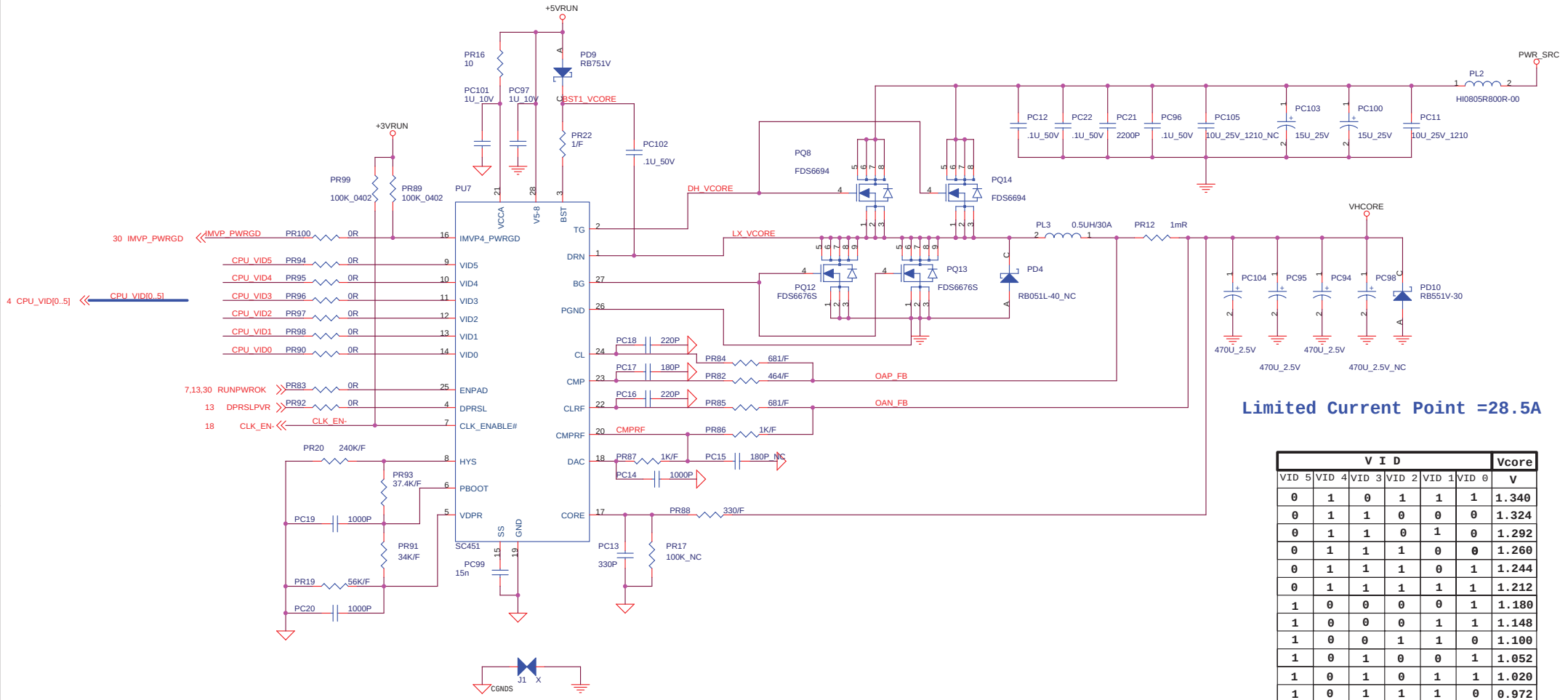

V I D						Vcore
VID 5	VID 4	VID 3	VID 2	VID 1	VID 0	V
0	1	0	1	1	1	1.340
0	1	1	0	0	0	1.324
0	1	1	0	1	0	1.292
0	1	1	1	0	0	1.260
0	1	1	1	0	1	1.244
0	1	1	1	1	1	1.212
1	0	0	0	0	1	1.180
1	0	0	0	1	1	1.148
1	0	0	1	1	0	1.100
1	0	1	0	0	1	1.052
1	0	1	0	1	1	1.020
1	0	1	1	1	0	0.972
1	1	0	0	0	0	0.940

MICRO-STAR INT'L CO.,LTD.

Title: CPU POWER

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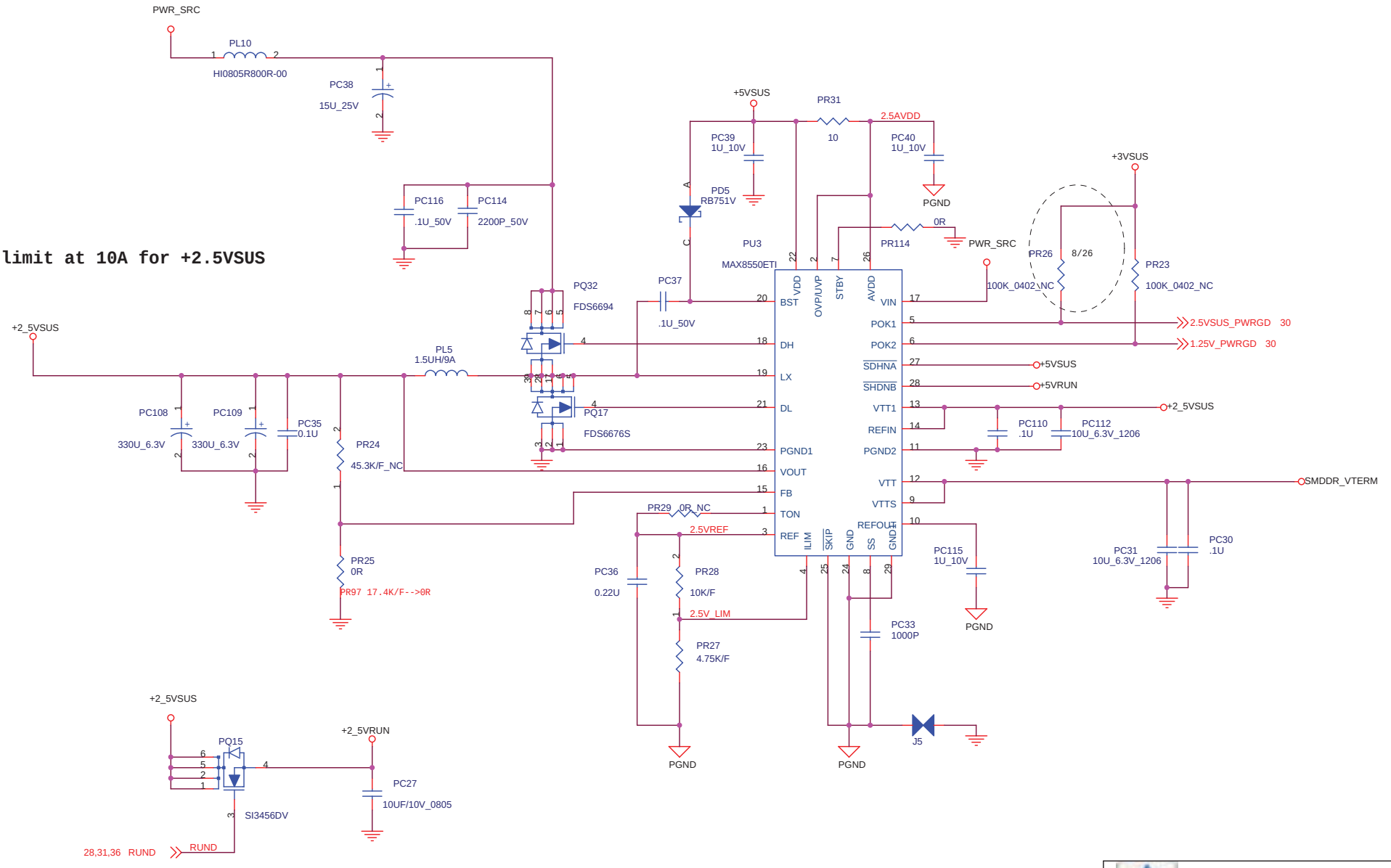

MICRO-STAR INT'L CO.,LTD.		
Title: DDR POWER		
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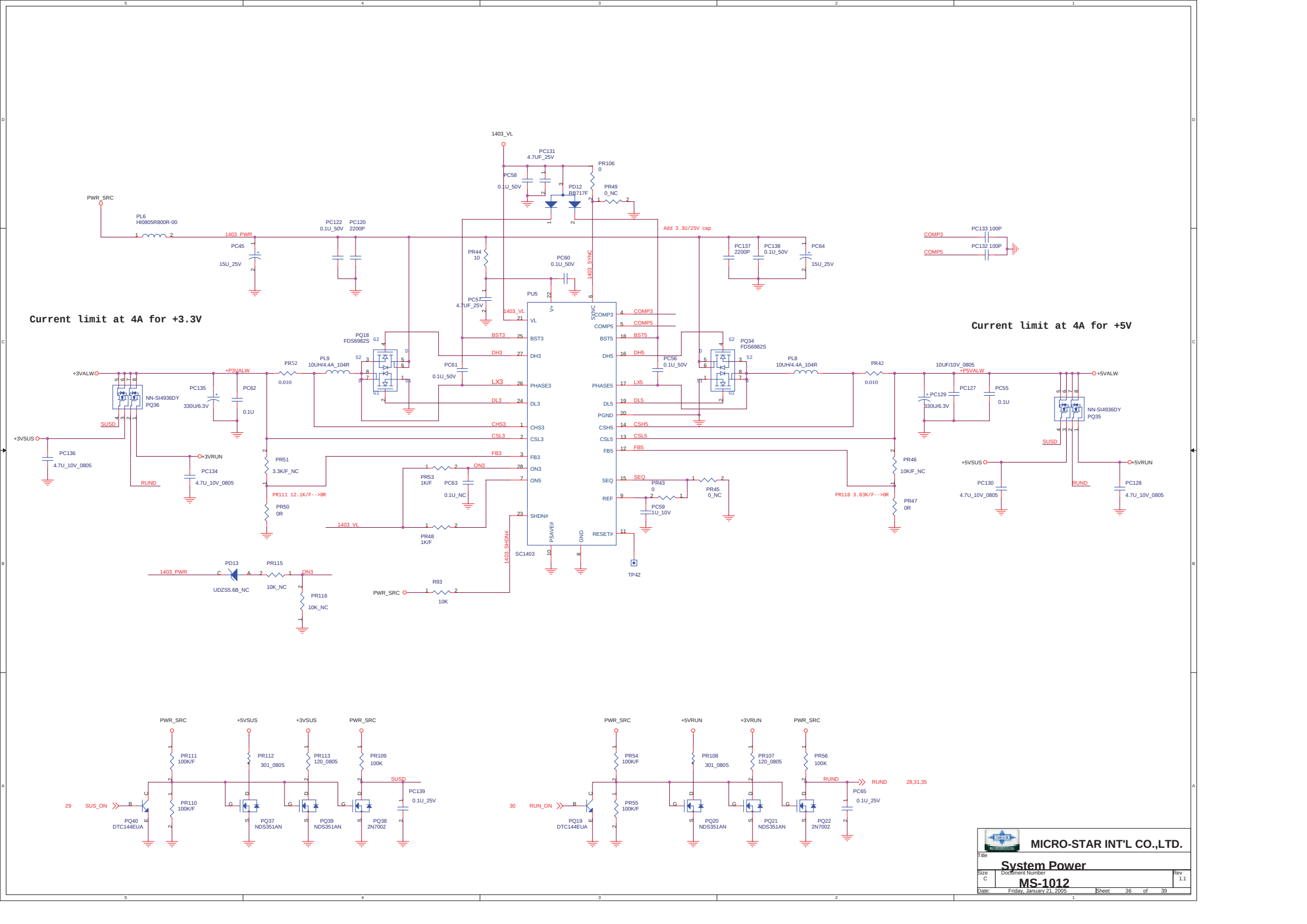
Current limit at 4A for +3.3V
Current limit at 4A for +5V
1403_VL
PWR_SRC
PL6
HI0805R800R-00
1403_PWR
PC45
15U_25V
PC122
0.1U_50V
PC120
2200P
PC131
4.7UF_25V
PC58
0.1U_50V
PD12
RB717F
PR106
0
PR49
0_NC
Add 3.3U/25V cap
PC137
2200P
PC138
0.1U_50V
PC64
15U_25V
COMP3
COMP5
PC133 100P
PC132 100P
PR44
10
PC60
0.1U_50V
1403_SYNC
PC57
4.7UF_25V
PU5
SC1403
VL
V+
SYNC
COMP3
COMP5
BST3
BST5
DH3
DH5
PHASE3
PHASE5
DL3
DL5
PGND
CHS3
CSH5
CSL3
CSL5
FB3
FB5
ON3
ON5
SEQ
REF
SHDN#
PSAVE#
GND
RESET#
LX3
LX5
PQ18
FDS6982S
PQ34
FDS6982S
PC61
0.1U_50V
PC56
0.1U_50V
PR52
0.010
PL9
10UH/4.4A_104R
PL8
10UH/4.4A_104R
PR42
0.010
+3VALW
+P3VALW
+P5VALW
10UF/10V_0805
NN-SI4936DY
PQ36
PQ35
PC135
330U/6.3V
PC62
0.1U
PC129
330U/6.3V
PC127
PC55
0.1U
SUSD
RUND
+3VSUS
+3VRUN
+5VSUS
+5VRUN
PC136
4.7U_10V_0805
PC134
4.7U_10V_0805
PC130
4.7U_10V_0805
PC128
4.7U_10V_0805
PR51
3.3K/F_NC
PR111 12.1K/F-->0R
PR50
0R
PR53
1K/F
PR63
0.1U_NC
PR48
1K/F
PR43
0
PR45
0_NC
PC59
1U_10V
PR110 3.83K/F-->0R
PR46
10K/F_NC
PR47
0R
TP42
PD13
UDZS5.6B_NC
PR115
10K_NC
PR116
10K_NC
R93
10K
1403_SHDN#
PR111
100K/F
PR112
301_0805
PR113
120_0805
PR109
100K
PC139
0.1U_25V
29
SUS_ON
PQ40
DTC144EUA
PQ37
NDS351AN
PQ39
NDS351AN
PQ38
2N7002
PR54
100K/F
PR108
301_0805
PR107
120_0805
PR56
100K
PC65
0.1U_25V
30
RUN_ON
PR55
100K/F
PQ19
DTC144EUA
PQ20
NDS351AN
PQ21
NDS351AN
PQ22
2N7002
28,31,35
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Title
System Power
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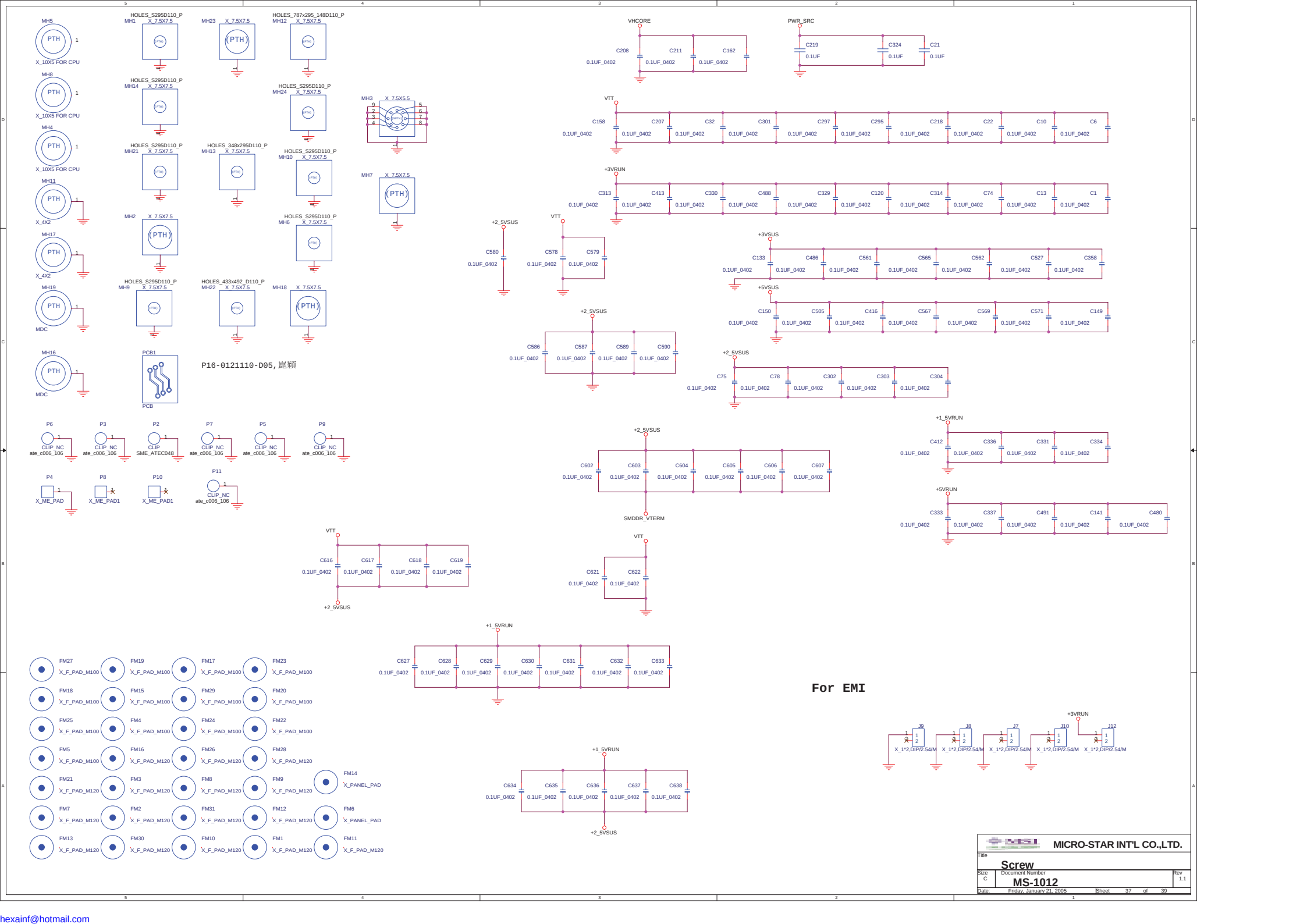

MICRO-STAR INT'L CO.,LTD.

Title: Screw

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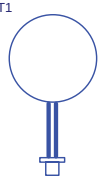
BAT1



RTC_BAT
D06-0100300-K26

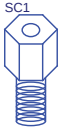
ML3

DDRMYLAR
E26-1003120-SA6

ML6

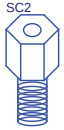
DDRMYLAR
E26-1003120-SA6

SC1



VGASC
E42-A040535-F02

SC2



VGASC
E42-A040535-F02

U100

PCMCIA
R-Eject

PCMCIA-EJECT
N5D-68M0170-T01

SHD1

PCMCIA SHIELDING
E21-1006060-Y28

SHD2

VGA SHIELDING
E21-1006020-Y28

ML1

SDMYLAR
E26-1006100-P38

ML4

KBMYLAR
E26-1006190-P38

ML5

KBMYLAR
E26-1006190-P38

ML2

KBMYLAR
E26-1006090-P38

SC3

M2X12

SC4

M2X12

SC5

M2X12

SC6

M2X12

SC7

M2X4

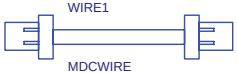
SC8

M2X4

MDC1

MDCASSB
S52-2801040-A95

WIRE1



MDCWIRE
K10-3002044-H39

ML7

HD CUSHION SPONG
E25-1012050-SE2

ML8

HD CUSHION SPONG
E25-1012050-SE2

ML9

HDD MYLAR
E26-1013010-SE2

ML10

THERMAL PAD
E26-1012040-C60

ML11

THERMAL PAD
E26-1012040-C60

11/12

ML12

CONDUCTIVE GASKET FOR RJ11
E25-1012040-CA7

ML13

CONDUCTIVE GASKET FOR 1394
E25-1012020-CA7

MICRO-STAR INT'L CO.,LTD.

Title: ME P/N

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1. Modify Page7 NB_PWRGD Link to VTT_PWRGD add R443 & R444

2. Modify Page7 Delete R58 & R55 & R59

3. Modify Page13 Add R453 & R446 0 ohm NC

4. For EMI Modify Page 17
   C270,C231,C284,C242,C289,C238,C273,C226,C105,C281,C290,C236
   C293,C106,C278,C267,C268 Change to 0.01UF_0402 CAP

5. For MSI_6855 Wireless & Bluebooth Mini_PCI
   Modify Page 26 Add R445 10K ohm & Q31 2N7002 & R451 & R452 0 ohm

6. For EMI Solution (1) Modify Page 28 R314 0 ohm change to 33 ohm
   (2) Modify Page 28 add C440 22PF CAP
   (3) Modify Page 28 add C450 33PF CAP
   (3) Modify Page 28 add short pin J23,J2,J22

7. Modify Page 28 Delete Q19 2N7002 & add D36

8. Modify Page 30 Delete R149 0 ohm

9. For EMI Solution Modify Page 32 Add PL12 & PC140

10. For EMI Solution Modify Page 31 PR101 change to 10K_0402

11. For EMI Solution Modify Page 37 Delete P5,P6,P9

12. For EMI Solution Modify Page 33 PC67 & PC70 0.1UF_0402 CAP

13. Modify Page 28 R429 Change to 100K_0402

MICRO-STAR INT'L CO.,LTD.		
Title: Revision History		
Size: A	Document Number: MS-1012	Rev: 1.1
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