MS-6533 *VERSION:2.0*

SIS 645/650 CHIPSET
Willamette/Northwood 478pin mPGA-B Processor Schematics

CPU:
Willamette/Northwood mPGA-478B Processor

System Brookdale Chipset:
SIS 645/650 (North Bridge)
+961A (South Bridge)

On Board Chipset:

LPC Super I/O -- W83697HF

Expansion Slots:

AGP2.0 SLOT * 1
PCI2.2 SLOT* 3
CNR SLOT * 1

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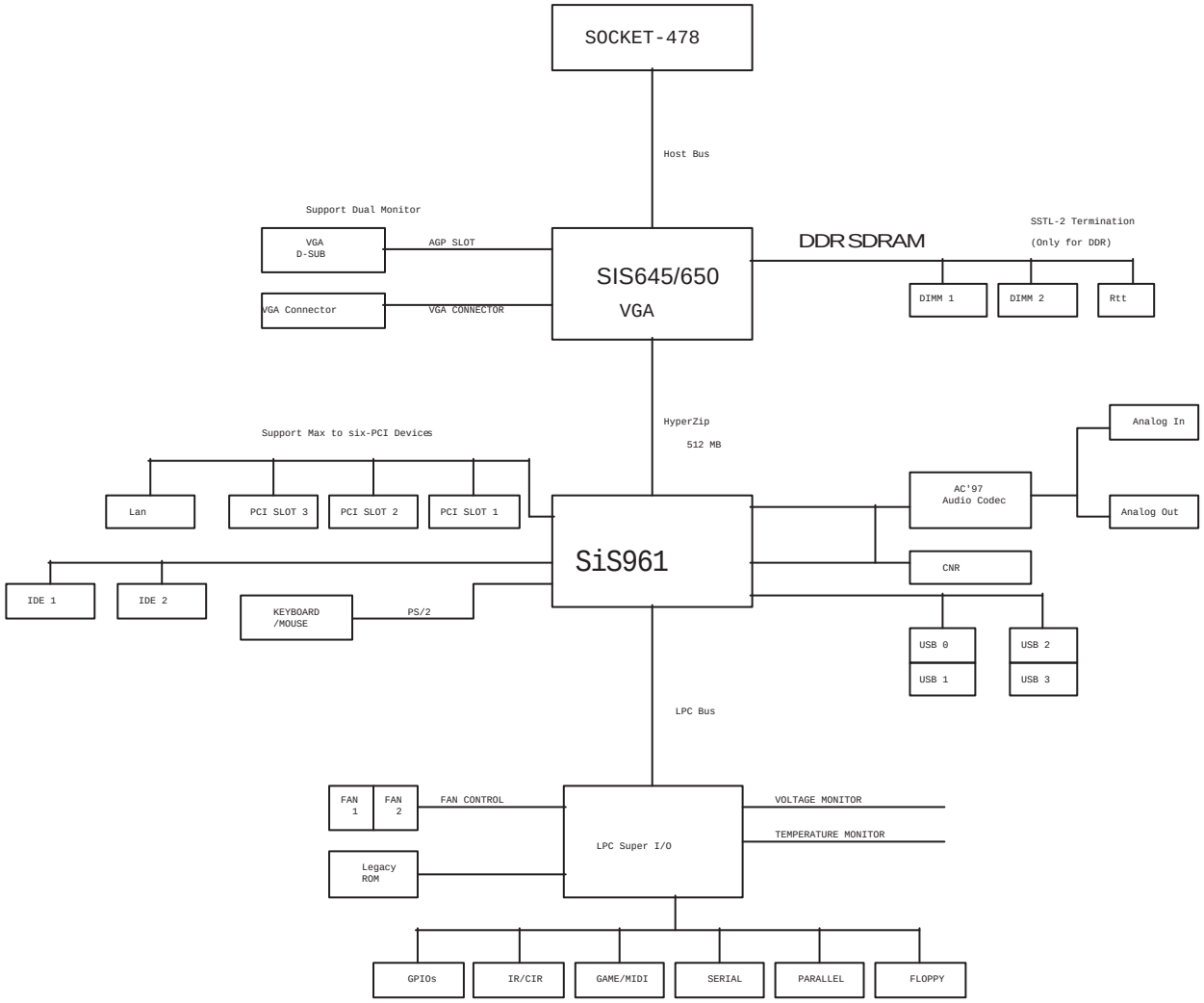
System Block Diagram



GPIO Table on SIS961

GPIO_0	I/O	MAIN	Pull-Down
GPIO_1	I/O	MAIN	Pull-Down
GPIO_2	I/O	MAIN	THERM#
GPIO_3	I/O	MAIN	EXTSMI#
GPIO_4	I/O	MAIN	Pull-Down
GPIO_5	I/O	MAIN	PREQ#5(Pull-Up)
GPIO_6	I/O	MAIN	PGNT#5(Pull-Up)
GPI_7	I/O	RESUME	Pull-Down
GPI_8	I	RESUME	RING
GPI_9	I	RESUME	RESERVED
GPI_10	I	RESUME	Pull-Down
GPIO_11	I/O	RESUME	RESERVED
GPIO_12	I/O	RESUME	Pull-Down
GPIO_13	I/O	RESUME	Flash Rom protection H: Disable, L: Enable
GPIO_14	I/O	RESUME	LAN_WAKE#
GPIO_15	I/O	RESUME	KBDAT
GPIO_16	I/O	RESUME	KBCLK
GPIO_17	I/O	RESUME	MSDAT
GPIO_18	I/O	RESUME	MSCLK
GPIO_19	I/O	RESUME	SMBCLK
GPIO_20	I/O	RESUME	SMBDAT

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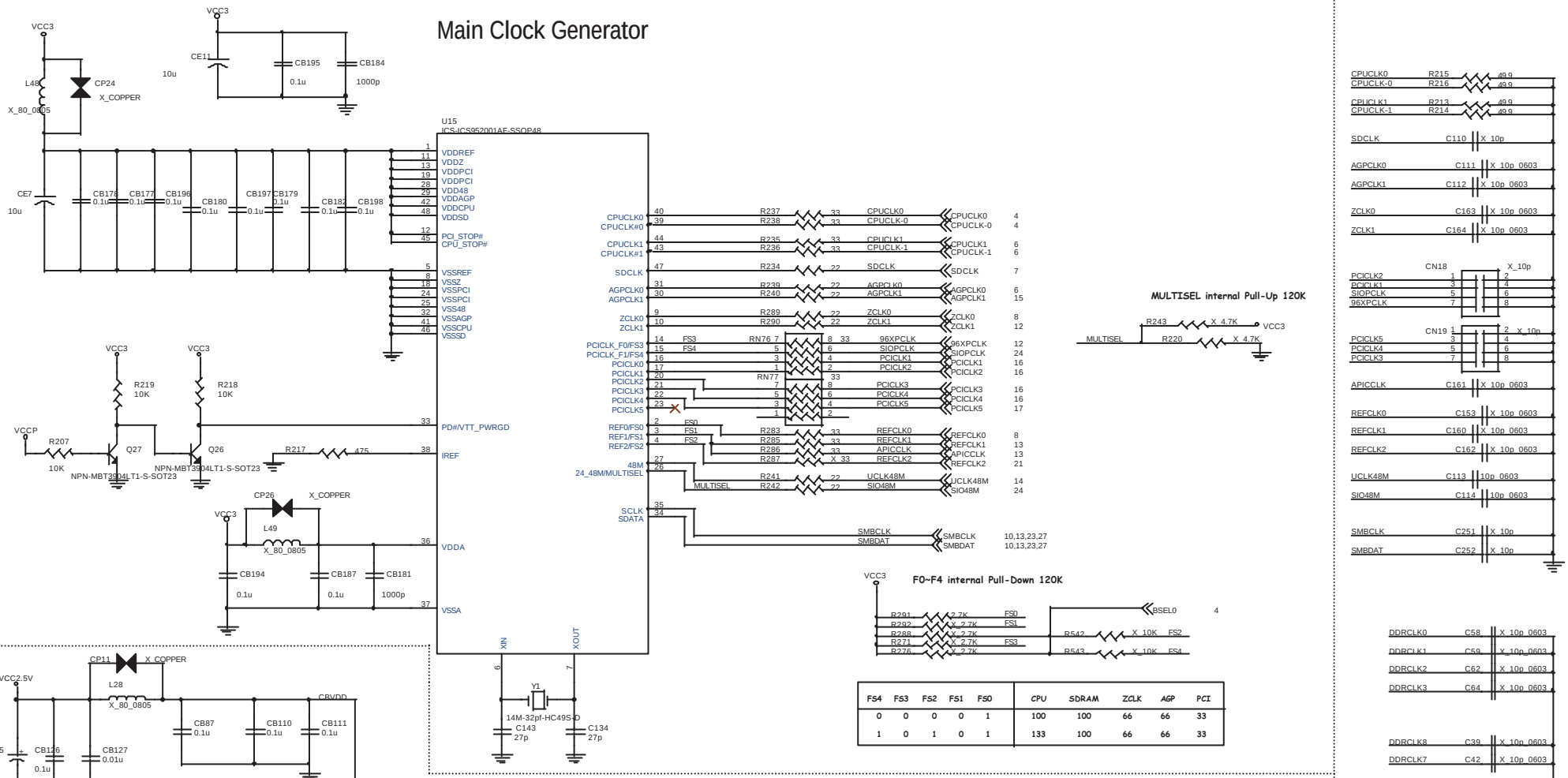
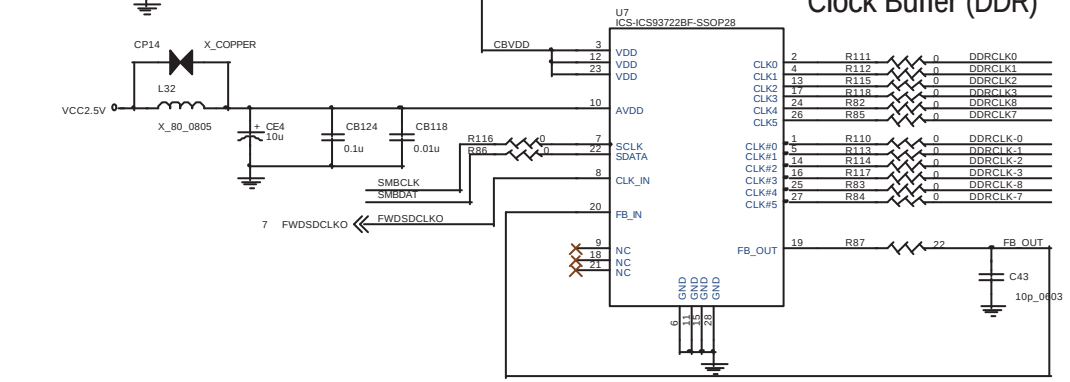
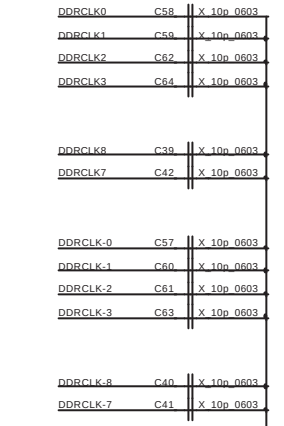
Main Clock Generator



Clock Buffer (DDR)





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Title	MAIN CLOCK GEN & BUFFER
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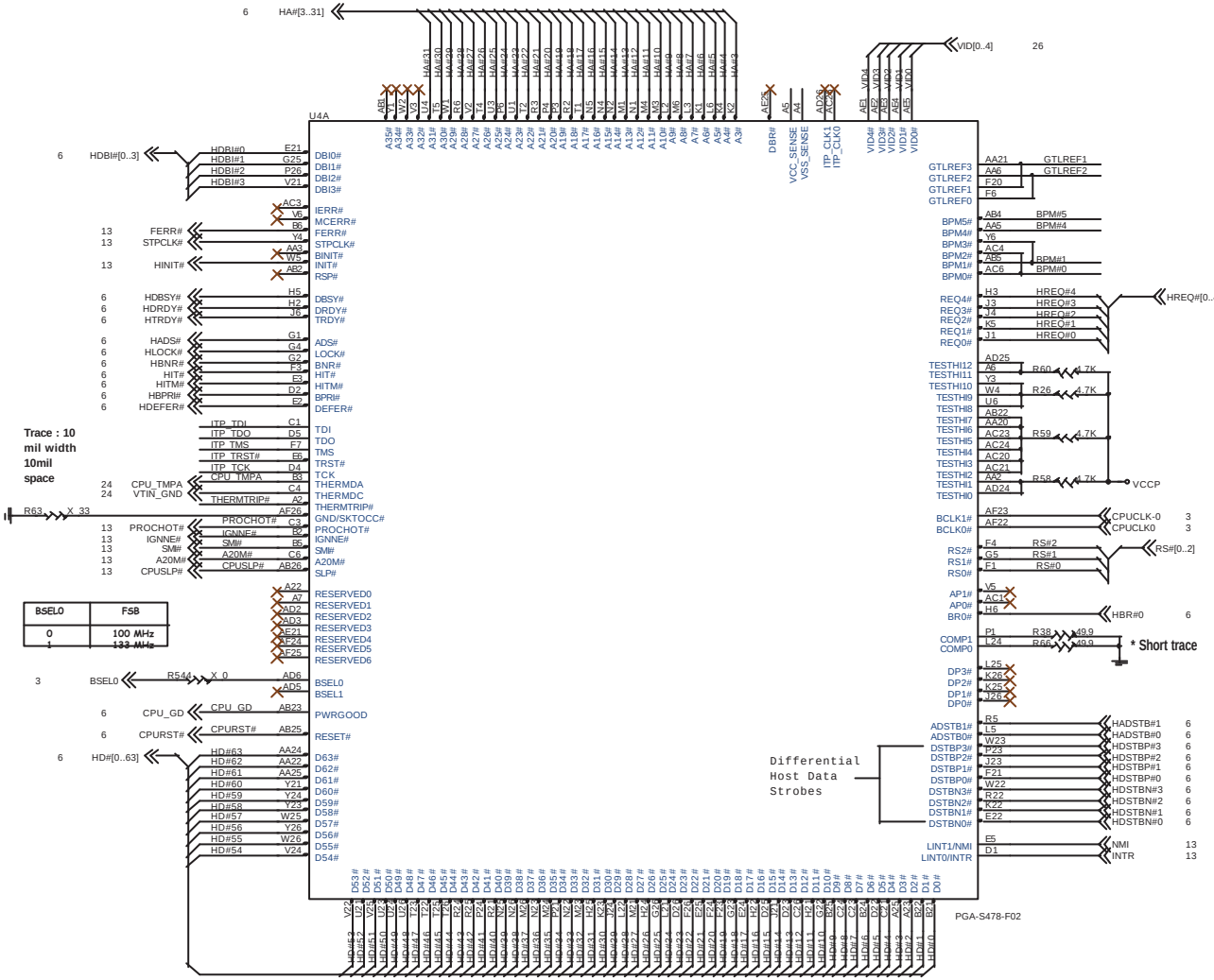
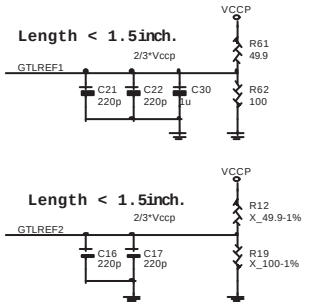
CPU SIGNAL BLOCK

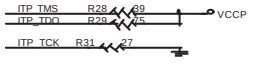


CPU GTL REFERENCE VOLTAGE BLOCK

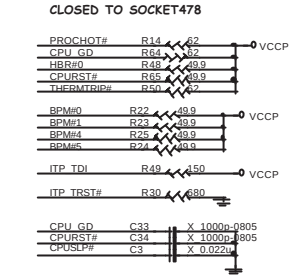


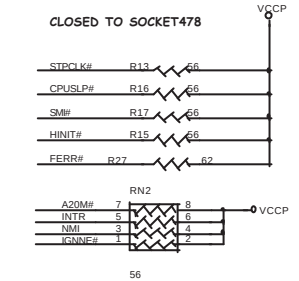
Every pin put one 220pF cap near it.
Trace Width 15mils, Space 15mils.
Keep the voltage dividers within 1.5 inches of the first GTLREF Pin

CPU ITP BLOCK



CPU STRAPPING RESISTORS





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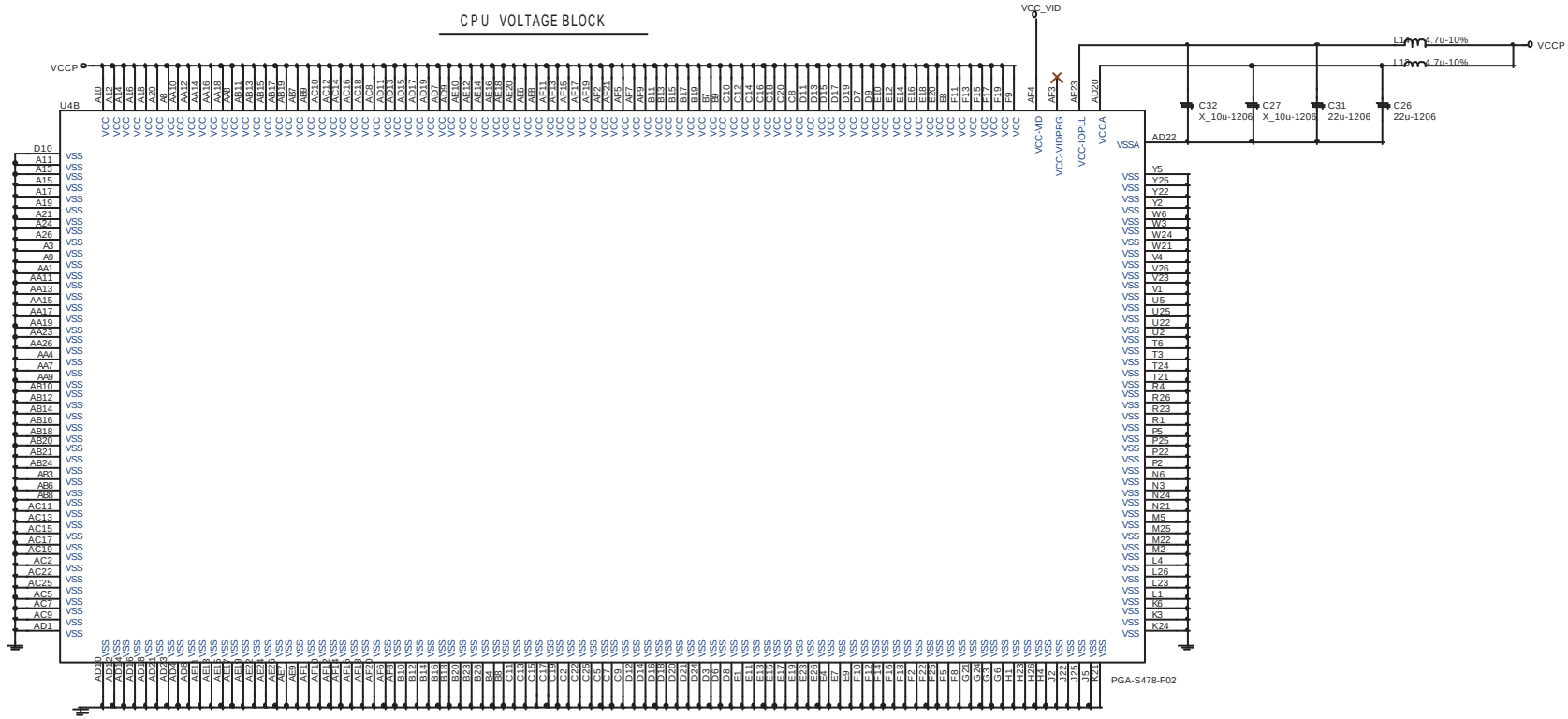
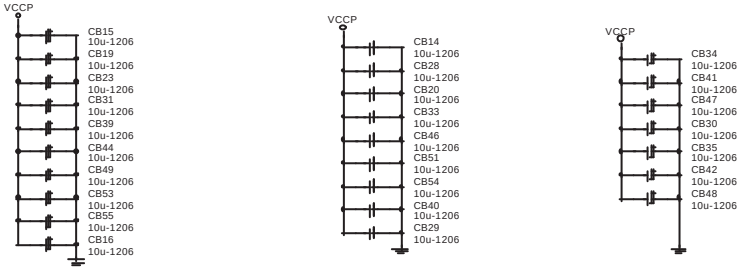
CPU VOLTAGE BLOCK



CPU DECOUPLING CAPACITORS



PLACE CAPS WITHIN CPU CAVITY

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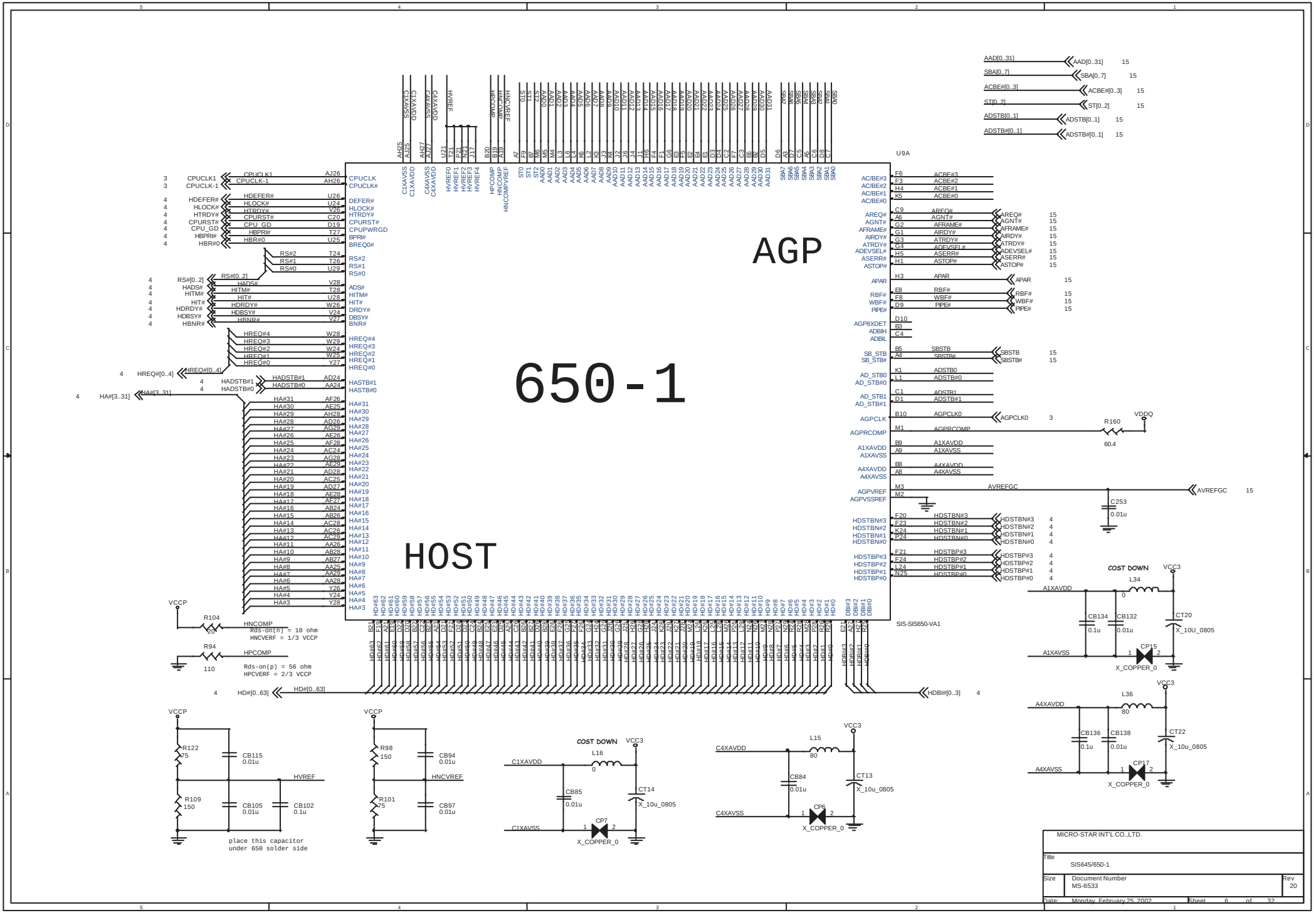
650-1
HOST
AGP
U9A
SIS-SIS650-VA1
CPUCLK1
CPUCLK-1
HDEFER#
HLOCK#
HTRDY#
CPURST#
CPU_GD
HBPRI#
HBR#0
RS#[0..2]
HADS#
HITM#
HIT#
HDRDY#
HDBSY#
HBNR#
HREQ#[0..4]
HADSTB#1
HADSTB#0
HA#[3..31]
HD#[0..63]
HDBI#[0..3]
HDSTBN#3
HDSTBN#2
HDSTBN#1
HDSTBN#0
HDSTBP#3
HDSTBP#2
HDSTBP#1
HDSTBP#0
AD_STB0
AD_STB1
SB_STB
AGPCLK
AGPRCOMP
AGPVREF
AGPVSSREF
A1XAVDD
A1XAVSS
A4XAVDD
A4XAVSS
AD#[0..31]
SBA[0..7]
ACBE#[0..3]
ST[0..2]
ADSTB#[0..1]
AREQ#
AGNT#
AFRAME#
AIRDY#
ATRDY#
ADEVSEL#
ASERR#
ASTOP#
APAR
RBF#
WBF#
PIPE#
SBSTB
SBSTB#
AGPCLK0
AVREFGC
HNCOMP
HPCOMP
R104
R94
R160
60.4
VDDQ
VCCP
VCC3
COST DOWN
L34
L36
L16
L15
CB115
CB105
CB102
CB84
CB85
CB94
CB97
CB98
CB101
CB132
CB134
CB136
CB138
CT20
CT22
CT13
CT14
CP15
CP17
CP6
CP7
X_10U_0805
X_10u_0805
X_COPPER_0
HVREF
HNCVREF
place this capacitor
under 650 solder side
C253
0.01u
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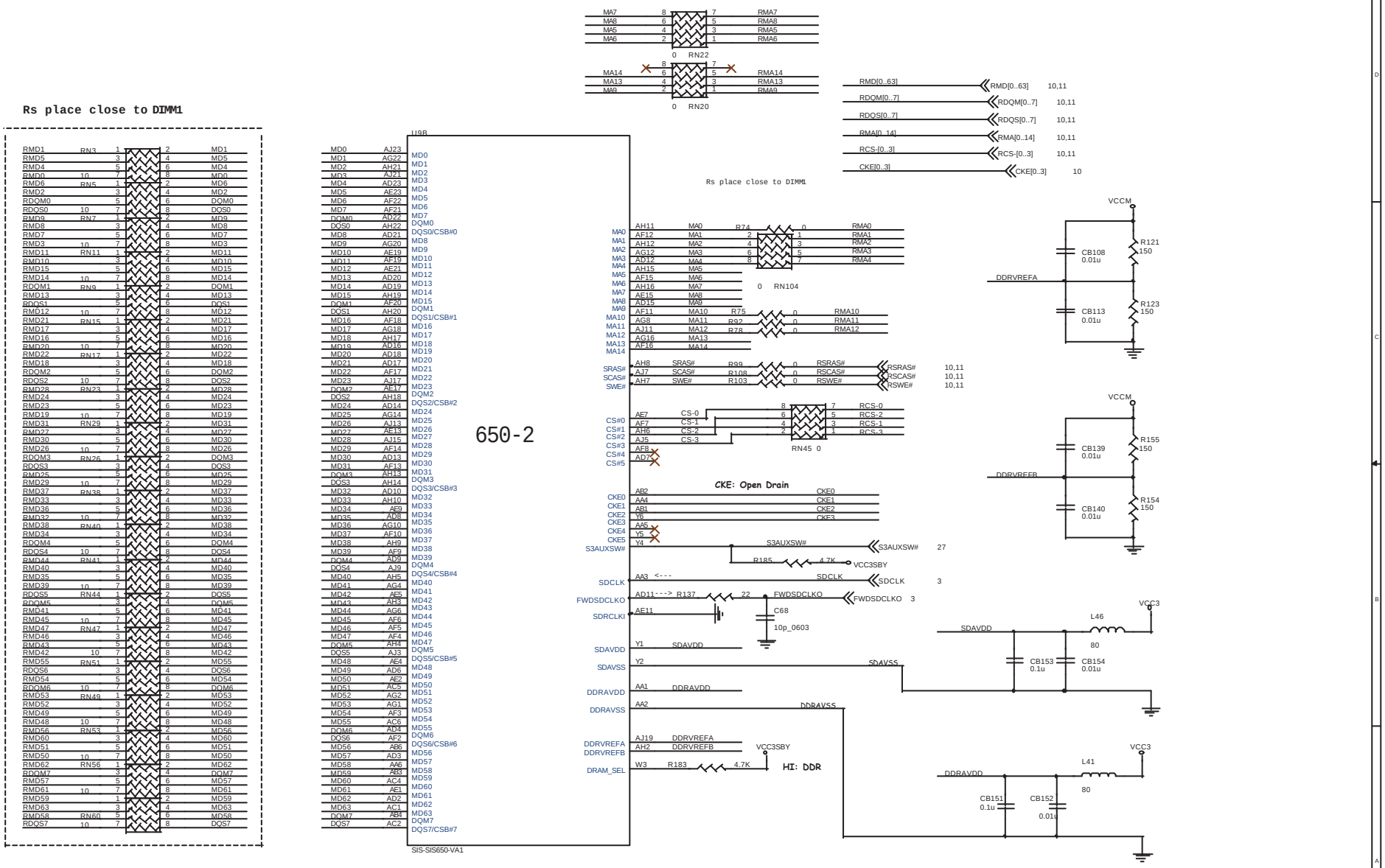
Rs place close to DIMM1
RMD1 RN3 1 2 MD1
RMD5 3 4 MD5
RMD4 5 6 MD4
RMD0 10 7 8 MD0
RMD6 RN5 1 2 MD6
RMD2 3 4 MD2
RDQM0 5 6 DQM0
RDQS0 10 7 8 DQS0
RMD9 RN7 1 2 MD9
RMD8 3 4 MD8
RMD7 5 6 MD7
RMD3 10 7 8 MD3
RMD11 RN11 1 2 MD11
RMD10 3 4 MD10
RMD15 5 6 MD15
RMD14 10 7 8 MD14
RDQM1 RN9 1 2 DQM1
RMD13 3 4 MD13
RDQS1 5 6 DQS1
RMD12 10 7 8 MD12
RMD21 RN15 1 2 MD21
RMD17 3 4 MD17
RMD16 5 6 MD16
RMD20 10 7 8 MD20
RMD22 RN17 1 2 MD22
RMD18 3 4 MD18
RDQM2 5 6 DQM2
RDQS2 10 7 8 DQS2
RMD28 RN23 1 2 MD28
RMD24 3 4 MD24
RMD23 5 6 MD23
RMD19 10 7 8 MD19
RMD31 RN29 1 2 MD31
RMD27 3 4 MD27
RMD30 5 6 MD30
RMD26 10 7 8 MD26
RDQM3 RN26 1 2 DQM3
RDQS3 3 4 DQS3
RMD25 5 6 MD25
RMD29 10 7 8 MD29
RMD32 RN38 1 2 MD32
RMD33 3 4 MD33
RMD36 5 6 MD36
RMD32 10 7 8 MD32
RMD38 RN40 1 2 MD38
RMD34 3 4 MD34
RDQM4 5 6 DQM4
RDQS4 10 7 8 DQS4
RMD44 RN41 1 2 MD44
RMD40 3 4 MD40
RMD35 5 6 MD35
RMD39 10 7 8 MD39
RDQS5 RN44 1 2 DQS5
RDQM5 3 4 DQM5
RMD41 5 6 MD41
RMD45 10 7 8 MD45
RMD47 RN47 1 2 MD47
RMD46 3 4 MD46
RMD43 5 6 MD43
RMD42 10 7 8 MD42
RMD55 RN51 1 2 MD55
RDQS6 3 4 DQS6
RMD54 5 6 MD54
RDQM6 10 7 8 DQM6
RMD53 RN49 1 2 MD53
RMD52 3 4 MD52
RMD49 5 6 MD49
RMD48 10 7 8 MD48
RMD56 RN53 1 2 MD56
RMD60 3 4 MD60
RMD51 5 6 MD51
RMD50 10 7 8 MD50
RMD62 RN56 1 2 MD62
RDQM7 3 4 DQM7
RMD57 5 6 MD57
RMD61 10 7 8 MD61
RMD59 1 2 MD59
RMD63 3 4 MD63
RMD58 RN60 5 6 MD58
RDQS7 10 7 8 DQS7
U9B
650-2
SIS-SIS650-VA1
MD0 AJ23
MD1 AG22
MD2 AH21
MD3 AJ21
MD4 AD23
MD5 AE23
MD6 AF22
MD7 AF21
DQM0 AD22
DQS0 AH22
MD8 AD21
MD9 AG20
MD10 AE19
MD11 AF19
MD12 AE21
MD13 AD20
MD14 AD19
MD15 AH19
DQM1 AF20
DQS1 AH20
MD16 AF18
MD17 AG18
MD18 AH17
MD19 AD16
MD20 AD18
MD21 AD17
MD22 AF17
MD23 AJ17
DQM2 AE17
DQS2 AH18
MD24 AD14
MD25 AG14
MD26 AJ13
MD27 AE13
MD28 AJ15
MD29 AF14
MD30 AD13
MD31 AF13
DQM3 AH13
DQS3 AH14
MD32 AD10
MD33 AH10
MD34 AF9
MD35 AD8
MD36 AG10
MD37 AF10
MD38 AH9
MD39 AF9
DQM4 AD9
DQS4 AJ9
MD40 AH5
MD41 AG4
MD42 AE5
MD43 AH3
MD44 AG6
MD45 AF6
MD46 AF5
MD47 AF4
DQM5 AH4
DQS5 AJ3
MD48 AE4
MD49 AD6
MD50 AE2
MD51 AC5
MD52 AG2
MD53 AG1
MD54 AF3
MD55 AC6
DQM6 AD4
DQS6 AF2
MD56 AB6
MD57 AD3
MD58 AA6
MD59 AB3
MD60 AC4
MD61 AE1
MD62 AD2
MD63 AC1
DQM7 AB4
DQS7 AC2
MD0 MD1 MD2 MD3 MD4 MD5 MD6 MD7 DQM0 DQS0/CSB#0 MD8 MD9 MD10 MD11 MD12 MD13 MD14 MD15 DQM1 DQS1/CSB#1 MD16 MD17 MD18 MD19 MD20 MD21 MD22 MD23 DQM2 DQS2/CSB#2 MD24 MD25 MD26 MD27 MD28 MD29 MD30 MD31 DQM3 DQS3/CSB#3 MD32 MD33 MD34 MD35 MD36 MD37 MD38 MD39 DQM4 DQS4/CSB#4 MD40 MD41 MD42 MD43 MD44 MD45 MD46 MD47 DQM5 DQS5/CSB#5 MD48 MD49 MD50 MD51 MD52 MD53 MD54 MD55 DQM6 DQS6/CSB#6 MD56 MD57 MD58 MD59 MD60 MD61 MD62 MD63 DQM7 DQS7/CSB#7
MA7 8 7 RMA7
MA8 6 5 RMA8
MA5 4 3 RMA5
MA6 2 1 RMA6
0 RN22
MA14 6 5 RMA14
MA13 4 3 RMA13
MA9 2 1 RMA9
0 RN20
RMD[0..63] RMD[0..63] 10,11
RDQM[0..7] RDQM[0..7] 10,11
RDQS[0..7] RDQS[0..7] 10,11
RMA[0..14] RMA[0..14] 10,11
RCS-[0..3] RCS-[0..3] 10,11
CKE[0..3] CKE[0..3] 10
Rs place close to DIMM1
MA0 MA1 MA2 MA3 MA4 MA5 MA6 MA7 MA8 MA9 MA10 MA11 MA12 MA13 MA14
AH11 MA0 AF12 MA1 AH12 MA2 AG12 MA3 AD12 MA4 AH15 MA5 AF15 MA6 AH16 MA7 AE15 MA8 AD15 MA9 AF11 MA10 AG8 MA11 AJ11 MA12 AG16 MA13 AF16 MA14
R74 0 1 2 3 4 5 6 7 8
RMA0 RMA1 RMA2 RMA3 RMA4
0 RN104
R75 R92 R78 0 0 0
RMA10 RMA11 RMA12
SRAS# SCAS# SWE#
AH8 SRAS# AJ7 SCAS# AH7 SWE#
R99 R108 R103 0 0 0
RSRAS# RSCAS# RSWE#
RSRAS# 10,11
RSCAS# 10,11
RSWE# 10,11
CS#0 CS#1 CS#2 CS#3 CS#4 CS#5
AE7 CS-0 AF7 CS-1 AH6 CS-2 AJ5 CS-3 AF8 AD7
8 6 4 2 7 5 3 1
RCS-0 RCS-2 RCS-1 RCS-3
RN45 0
CKE: Open Drain
CKE0 CKE1 CKE2 CKE3 CKE4 CKE5
AB2 AA4 AB1 Y6 AA5 Y5 Y4
CKE0 CKE1 CKE2 CKE3
S3AUXSW#
S3AUXSW# 27
R185 4.7K
VCC3SBY
SDCLK
AA3 <--- SDCLK
SDCLK 3
FWDSDCLKO
AD11 ---> R137 22
FWDSDCLKO 3
SDRCLKI
AE11
C68
10p_0603
SDAVDD
Y1 SDAVDD
SDAVSS
Y2 SDAVSS
DDRAVDD
AA1 DDRAVDD
DDRAVSS
AA2 DDRAVSS
DDRVREFA
DDRVREFB
DRAM_SEL
AJ19 DDRVREFA
AH2 DDRVREFB
VCC3SBY
W3 R183 4.7K
HI: DDR
VCCM
CB108 0.01u
R121 150
DDRVREFA
CB113 0.01u
R123 150
VCCM
CB139 0.01u
R155 150
DDRVREFB
CB140 0.01u
R154 150
VCC3
L46
SDAVDD
80
CB153 0.1u
CB154 0.01u
VCC3
L41
DDRAVDD
80
CB151 0.1u
CB152 0.01u
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NOTE: This page is for universal PCB design(suitable for both 645 or 650)

NB Hardware Trap Table

	0	1	Default	embedded pull-low (30~50K Ohm)
DLLEN#	enable PLL	disable PLL	0	yes
DRAM_SEL	SDR	DDR	1(DDR)	yes
TRAP0	normal	NB debug mode	0	yes
TRAP1	TV selection, NTSC/PAL(0/1)		0	
CSYNC	enable VB		0	
RSYNC	enable VGA interface		1	
LSYNC	enable panel link		0	

for 650 only

VCC3

RSYNC R158 4.7K

TRAP1 R146 4.7K

CSYNC R159 4.7K

LSYNC R161 4.7K

12 ZAD[0..15] ZAD[0..15]

12 ZSTB[0..1] ZSTB[0..1]

12 ZSTB-[0..1] ZSTB-[0..1]

U9C

SIS-SIS650-VA1

VGA

Stereo Glass

HyperZip

650-3

3 ZCLK0 — ZCLK0 V3 — ZCLK

12 ZUREQ — ZUREQ U6 — ZUREQ

12 ZDREQ — ZDREQ U1 — ZDREQ

ZSTB0 T3 — ZSTB0

ZSTB-0 T1 — ZSTB#0

ZSTB1 P1 — ZSTB1

ZSTB-1 P3 — ZSTB#1

ZAD0 T4 — ZAD0

ZAD1 R3 — ZAD1

ZAD2 T5 — ZAD2

ZAD3 T6 — ZAD3

ZAD4 R2 — ZAD4

ZAD5 R6 — ZAD5

ZAD6 R1 — ZAD6

ZAD7 R4 — ZAD7

ZAD8 P4 — ZAD8

ZAD9 N3 — ZAD9

ZAD10 P5 — ZAD10

ZAD11 P6 — ZAD11

ZAD12 N1 — ZAD12

ZAD13 N6 — ZAD13

ZAD14 N2 — ZAD14

ZAD15 N4 — ZAD15

ZVREF U3 — ZVREF

VDDZCMP V5 — VDDZCMP

ZCMP_N U4 — ZCMP_N

ZCMP_P U2 — ZCMP_P

Z1XAVDD W1 — Z1XAVDD

Z1XAVSS W2 — Z1XAVSS

Z4XAVDD V2 — Z4XAVDD

Z4XAVSS V1 — Z4XAVSS

VOSCI C15 — REFCLK0 — REFCLK0 3

ROUT A12 R478 0 — ROUT — ROUT 28

GOUT B13 R479 0 — GOUT — GOUT 28

BOUT A13 R480 0 — BOUT — BOUT 28

C292 X_47p C293 X_47p C294 47p

HSYNC F13 R132 33 — HSYNC — HSYNC 28

VSYNC E13 R128 33 — VSYNC — VSYNC 28

VGPIO0 D13 R129 100 — DDC1CLK — DDC1CLK 28

VGPIO1 D12 R554 100 — DDC1DATA — DDC1DATA 28

INT#A B11 — INT# — INT# 12,15,16

CSYNC E12 — CSYNC — CSYNC 15

RSYNC A11 — RSYNC — RSYNC 15

LSYNC F12 — LSYNC — LSYNC 15

VCOMP E14 — VCOMP

VRSET D14 — VRSET

VVBWN F14 — VVBWN

DACAVDD1 B12 — DACAVDD1

DACAVSS1 C12 — DACAVSS1

DACAVDD2 C13 — DACAVDD1

DACAVSS2 C14 — DACAVSS1

DCLKAVDD B15 — DCLKAVDD

DCLKAVSS A15 — DCLKAVSS

ECLKAVDD B14 — ECLKAVDD

ECLKAVSS A14 — ECLKAVSS

ENTEST R142 4.7K

PWRGD C92 0.1u

AUXOK C254 0.1u

PCIRST# Y3

PWROK W4

AUXOK W5

TRAP1 D11

TRAP0 E10

TESTMODE2 A10

TESTMODE1 F11

TESTMODE0 C11

DLLEN# E11

ENTEST F10

24,27 PCIRST1# — PCIRST1#

13,27 PWRGD — PWRGD

13 AUXOK — AUXOK

VCC1_8

R168 150 CB155 0.1u

ZVREF

R164 150 CB150 0.1u

VSSZCMP

Z1XAVSS

Z4XAVSS

VCC3 L42 COST DOWN 0 C83 0.1u Z1XAVDD Z1XAVSS

VCC3 L39 COST DOWN 0 C85 0.1u Z4XAVDD Z4XAVSS

VCC1_8 L40 COST DOWN 0 C89 0.1u

R165 56 ZCMP_N

R167 56 ZCMP_P

VDDZCMP

VSSZCMP

DCLKAVDD L24 80 VCC3 CB119 0.1u CP9 CE2 X_10u_0805 DCLKAVSS X_80_0603 L25

ECLKAVDD L26 80 VCC3 CB120 0.1u CP10 CE3 X_10u_0805 ECLKAVSS L27 X_80_0603

VVBWN CB104 0.1u

VCOMP CB100 0.1u

VRSET R127 130

DACAVDD1 L31 80 VCC1_8 CB128 0.1u CP13 CE6 X_10u_0805 DACAVSS1 X_80_0603 130

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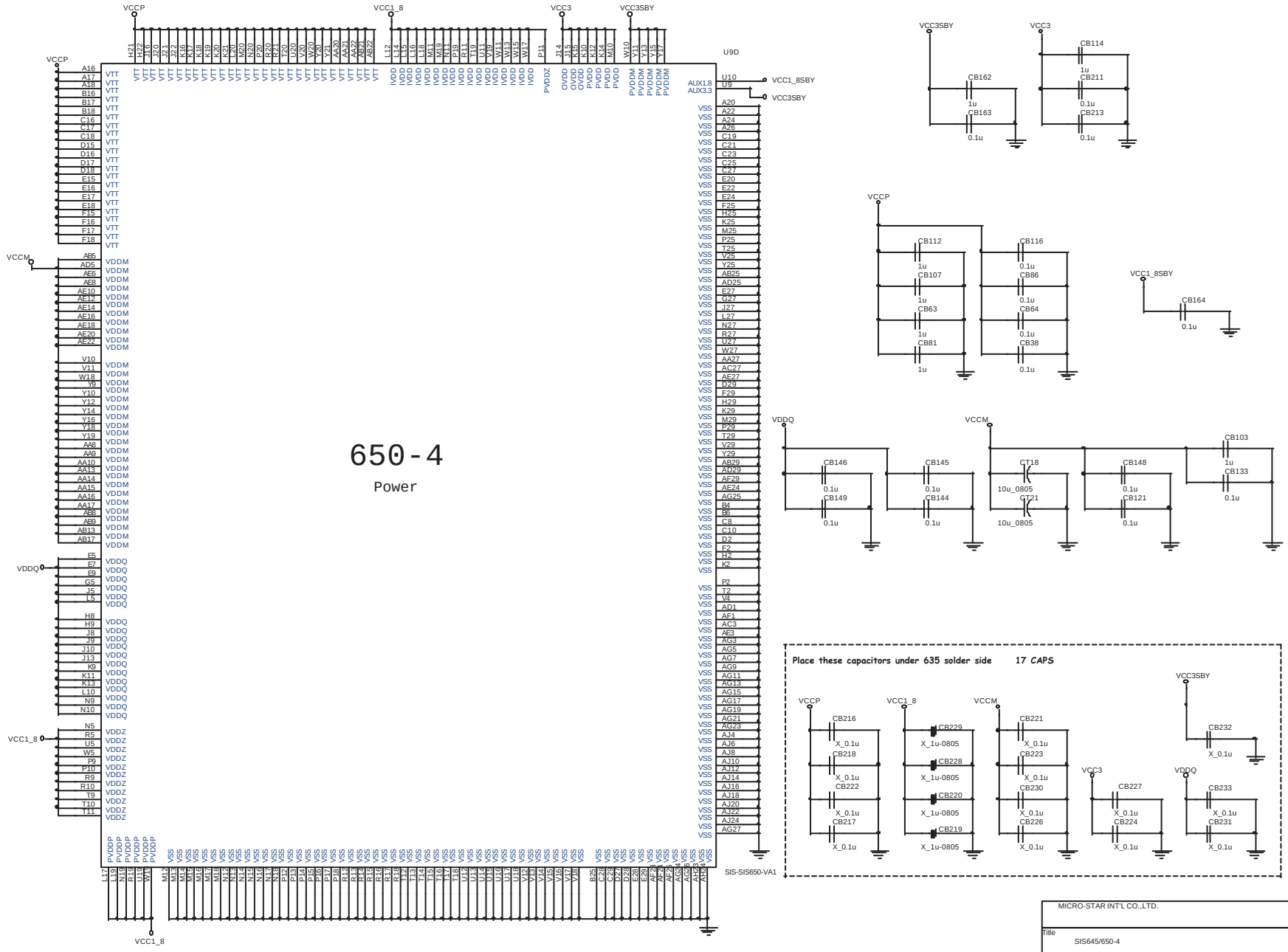

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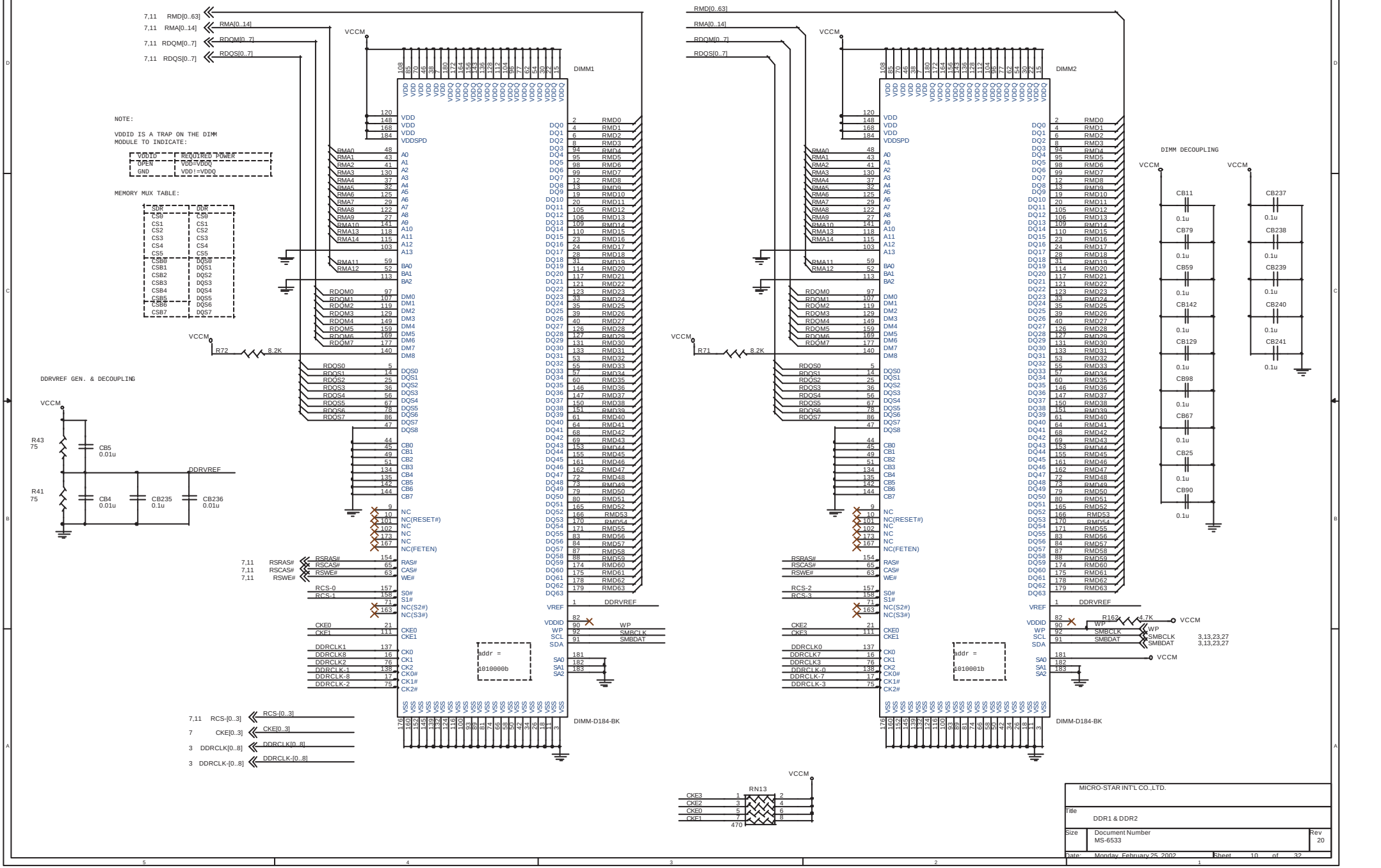
7,11 RMD[0..63]
7,11 RMA[0..14]
7,11 RDQM[0..7]
7,11 RDQS[0..7]
RMD[0..63]
RMA[0..14]
RDQM[0..7]
RDQS[0..7]
VCCM
DIMM1
DIMM2
NOTE:
VDDID IS A TRAP ON THE DIMM MODULE TO INDICATE:
VDDID | REQUIRED POWER
OPEN | VDD=VDDQ
GND | VDD!=VDDQ
MEMORY MUX TABLE:
SDR | DDR
CS0 | CS0
CS1 | CS1
CS2 | CS2
CS3 | CS3
CS4 | CS4
CS5 | CS5
CSB0 | DQS8
CSB1 | DQS1
CSB2 | DQS2
CSB3 | DQS3
CSB4 | DQS4
CSB5 | DQS5
CSB6 | DQS6
CSB7 | DQS7
R72 8.2K
R71 8.2K
DDRVREF GEN. & DECOUPLING
R43 75
R41 75
CB5 0.01u
CB4 0.01u
CB235 0.1u
CB236 0.01u
DDRVREF
RSRAS#
RSCAS#
RSWE#
RAS#
CAS#
WE#
RCS-0
RCS-1
RCS-2
RCS-3
S0#
S1#
NC(S2#)
NC(S3#)
CKE0
CKE1
CKE2
CKE3
DDRCLK0
DDRCLK1
DDRCLK2
DDRCLK3
DDRCLK7
DDRCLK8
DDRCLK-0
DDRCLK-1
DDRCLK-2
DDRCLK-3
DDRCLK-7
DDRCLK-8
CK0
CK1
CK2
CK0#
CK1#
CK2#
NC
NC(RESET#)
NC(FETEN)
VREF
VDDID
WP
SCL
SDA
SMBCLK
SMBDAT
SA0
SA1
SA2
addr = 1010000b
addr = 1010001b
R162 4.7K
3,13,23,27
3,13,23,27
DIMM-D184-BK
DIMM DECOUPLING
CB11 0.1u
CB79 0.1u
CB59 0.1u
CB142 0.1u
CB129 0.1u
CB98 0.1u
CB67 0.1u
CB25 0.1u
CB90 0.1u
CB237 0.1u
CB238 0.1u
CB239 0.1u
CB240 0.1u
CB241 0.1u
RN13
470
7,11 RCS-[0..3]
7 CKE[0..3]
3 DDRCLK[0..8]
3 DDRCLK-[0..8]
MICRO-STAR INT'L CO.,LTD.
Title
DDR1 & DDR2
Size
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20
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SSTL-2 Termination Resistors

RMD[0..63] → RMD[0..63] 7,10
RDQM[0..7] → RDQM[0..7] 7,10
RDQS[0..7] → RDQS[0..7] 7,10
RMA[0..14] → RMA[0..14] 7,10
RCS-[0..3] → RCS-[0..3] 7,10

	SDR	Rs	DDR	Rs	Rtt
MD/DQM(/DQS)	LV-CMOS	0/10/-	SSTL-2	10	47
MA/Control	LV-CMOS	10	SSTL-2	0	47
CS	LV-CMOS	0	SSTL-2	0	47
CKE	OD 3.3V		OD 2.5V		

DDR_VTT

RN4: RMD1, RMD5, RMD4, RMD0
RN6: RMD6, RMD2, RDQM0, RDQS0
RN8: RMD9, RMD8, RMD3, RMD7
RN10: RDQM1, RMD13, RDQS1, RMD12
RN12: RMD11, RMD10, RMD15, RMD14
RN16: RDQM2, RMA13, RDQS2, RMD21
RN14: RMD17, RMA14, RMD16, RMD20
RN21: RMD45, RMD23, RMD19, RMA8
RN30: RMD27, RMD30, RMD26, RMA3
RN28: RDQM3, RMA4, RDQS3, RMD25
RN18: RMA7, RMD22, RMD18, RMA9
RN25: RMD29, RMD28, RMD24, RMA6
RN32: RMA0, RMA1, RMA2, RMD31
RN37: RMD39, RMA11, RMD38, RMD34

RN34: RMD36, RMD32, RMA12, RMA10
RN36: RDQM4, RDQS4, RMD37, RMD33
7,10 RSRAS# → RN39: RSRAS#, RMD44, RMD40, RMD35
RN48: RMD47, RMD46, RMD43, RMD42
RN43: RCS-3, RCS-2
7,10 RSCAS# → RSCAS#
RN50: RMD53, RMD52, RMD49, RMD48
RN52: RMD55, RDQS6, RMD54, RDQM6
RN62: RMD59, RMD63, RMD58, RDQS7
RN54: RMD56, RMD60, RMD51, RMD50
RN59: RMD62, RDQM7, RMD57, RMD61

DDR_VTT

RN46: RDQS5, RDQM5, RCS-1

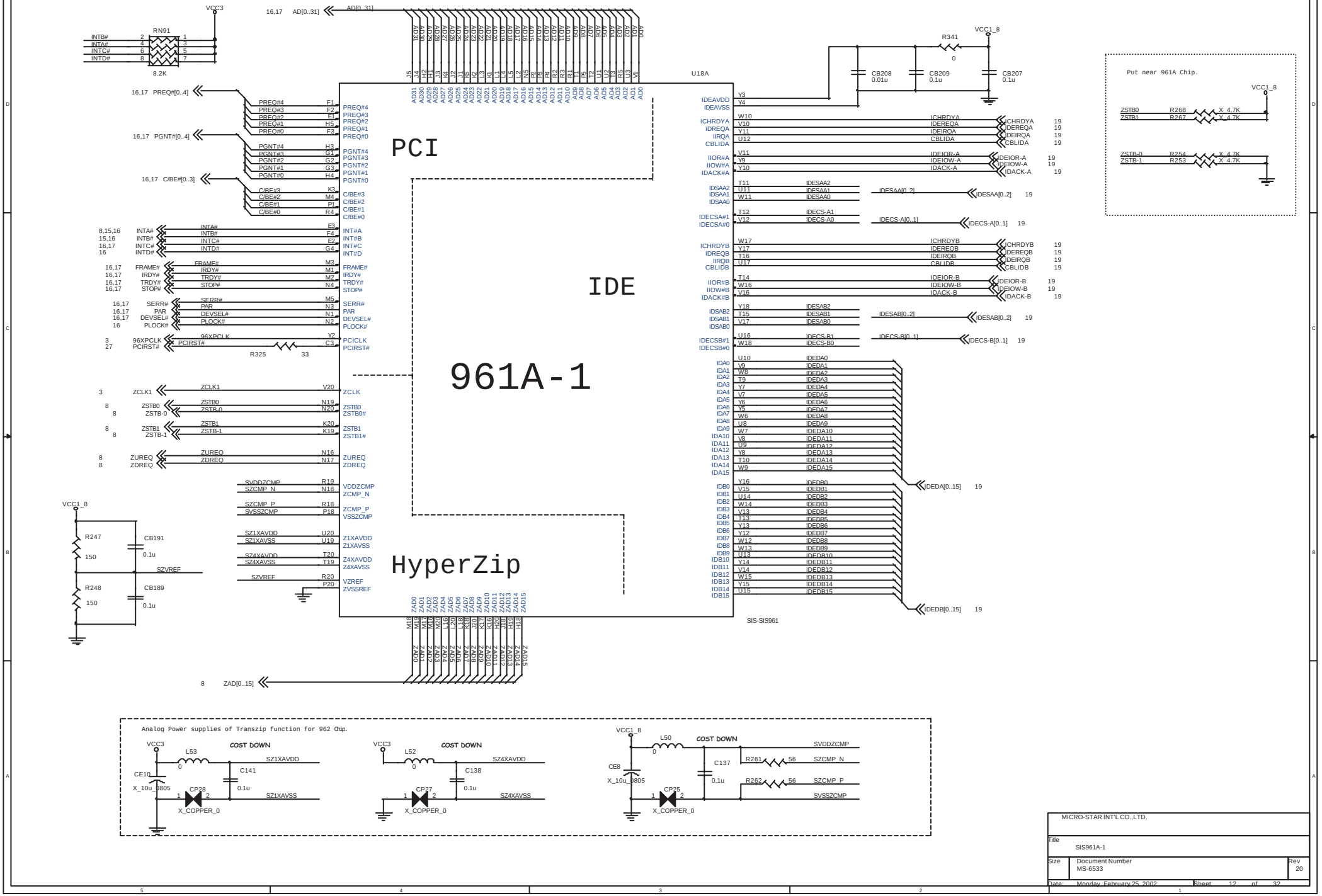
RN42: RCS-0, RMD41, RMD45, RSWE#
7,10 RSWE# → RSWE#

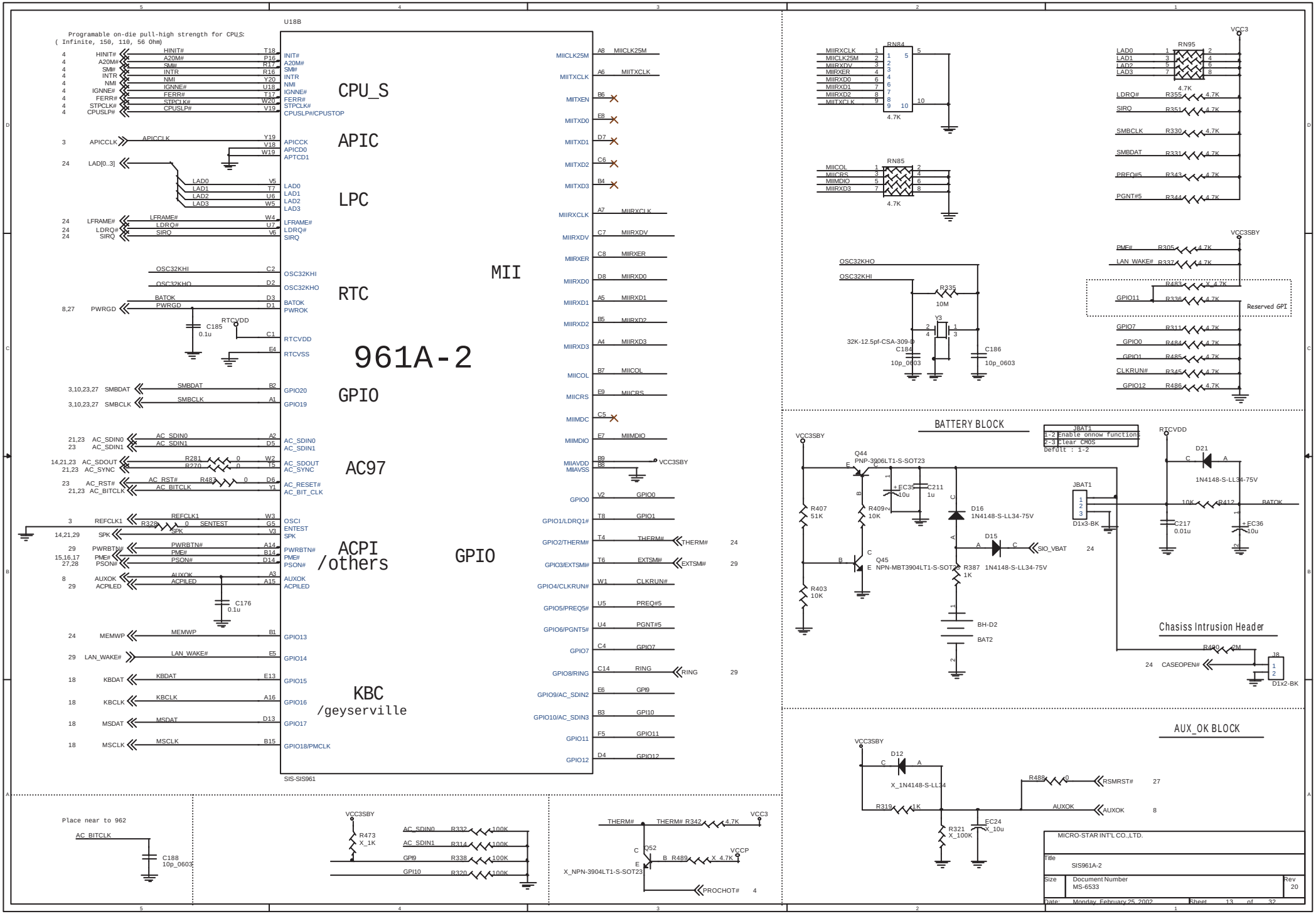
DDR_VTT

DECOUPLING CAPACITOR FOR SSTL-2 END TERMIANTION VTT ISLAND
0603 Package placed within 200mils of VTT Termination R-packs

CB73, CB85, CB141, CB76
CB117, CB17, CB109, CB8
CB101, CB13, CB82, CB76
CB66, CB83, CB56, CB125
CB70, CB62, CB50, CB131
CB147, CB45, CB125, CB78
CB61, CB58, CB82, CB26
CB122, CB137, CB9, CB89
(all 0.1u)

MICRO-STAR INT'L CO.,LTD.			
Title: DDR TERMINATOR			
Size	Document Number: MS-6533		Rev: 20
Date: Monday, February 25, 2002	Sheet 11 of 32		


961A-1
PCI
IDE
HyperZip
U18A
SIS-SIS961
Put near 961A Chip.
Analog Power supplies of Transzip function for 962 Chip.
COST DOWN
MICRO-STAR INT'L CO.,LTD.
SIS961A-1
Document Number
MS-6533
Monday, February 25, 2002


U18B
Programable on-die pull-high strength for CPUS:
(Infinite, 150, 110, 56 Ohm)
CPU_S
APIC
LPC
RTC
961A-2
GPIO
AC97
ACPI
/others
KBC
/geyserville
MII
GPIO
SIS-SIS961
BATTERY BLOCK
JBAT1
1-2 Enable onnow functions
2-3 Clear CMOS
Default : 1-2
Chasiss Intrusion Header
AUX_OK BLOCK
MICRO-STAR INT'L CO.,LTD.
Title
SIS961A-2
Size
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20
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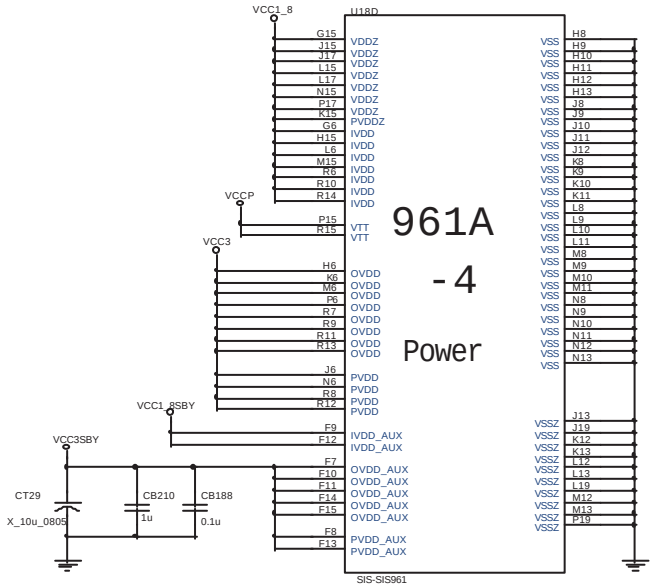
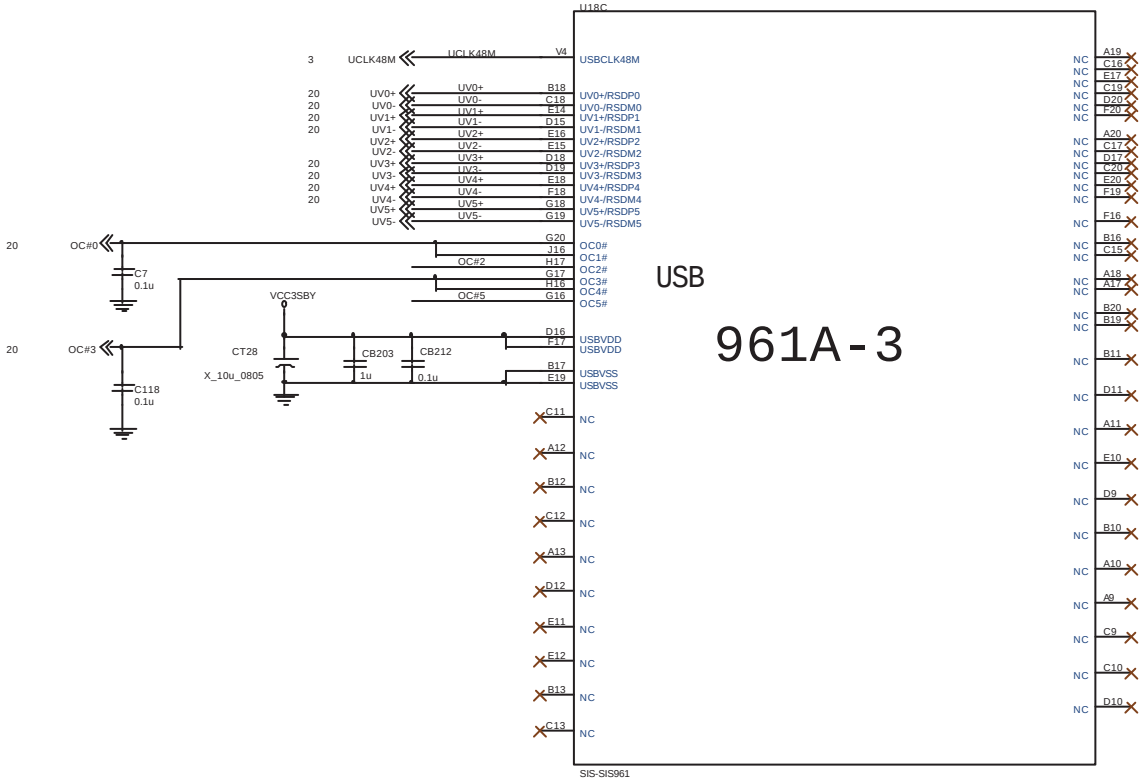
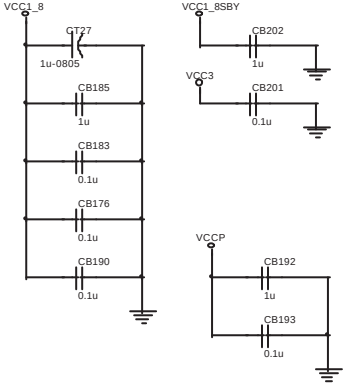
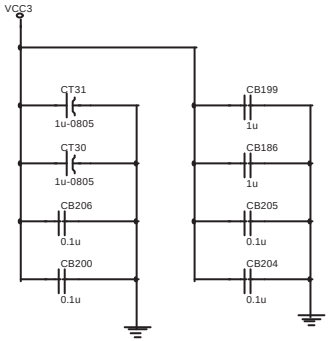
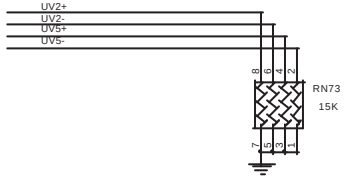
Sheet 13 of 32



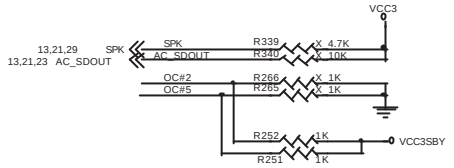








SB Hardware Trap



	0	1	Default	embedded pull-low (30~50K Ohm)
SPKR(LPC addr mapping)	disable	enable	0	yes
SDAT0(PCICLK PLL)	enable	disable	0	yes
OC2-(SB debug mode)	enable	disable	1	yes
OC5-(Trap mode)	PCI AD	ROM	1	yes

MICRO-STAR INT'L CO.,LTD.		
Title: SIS961A-3,4		
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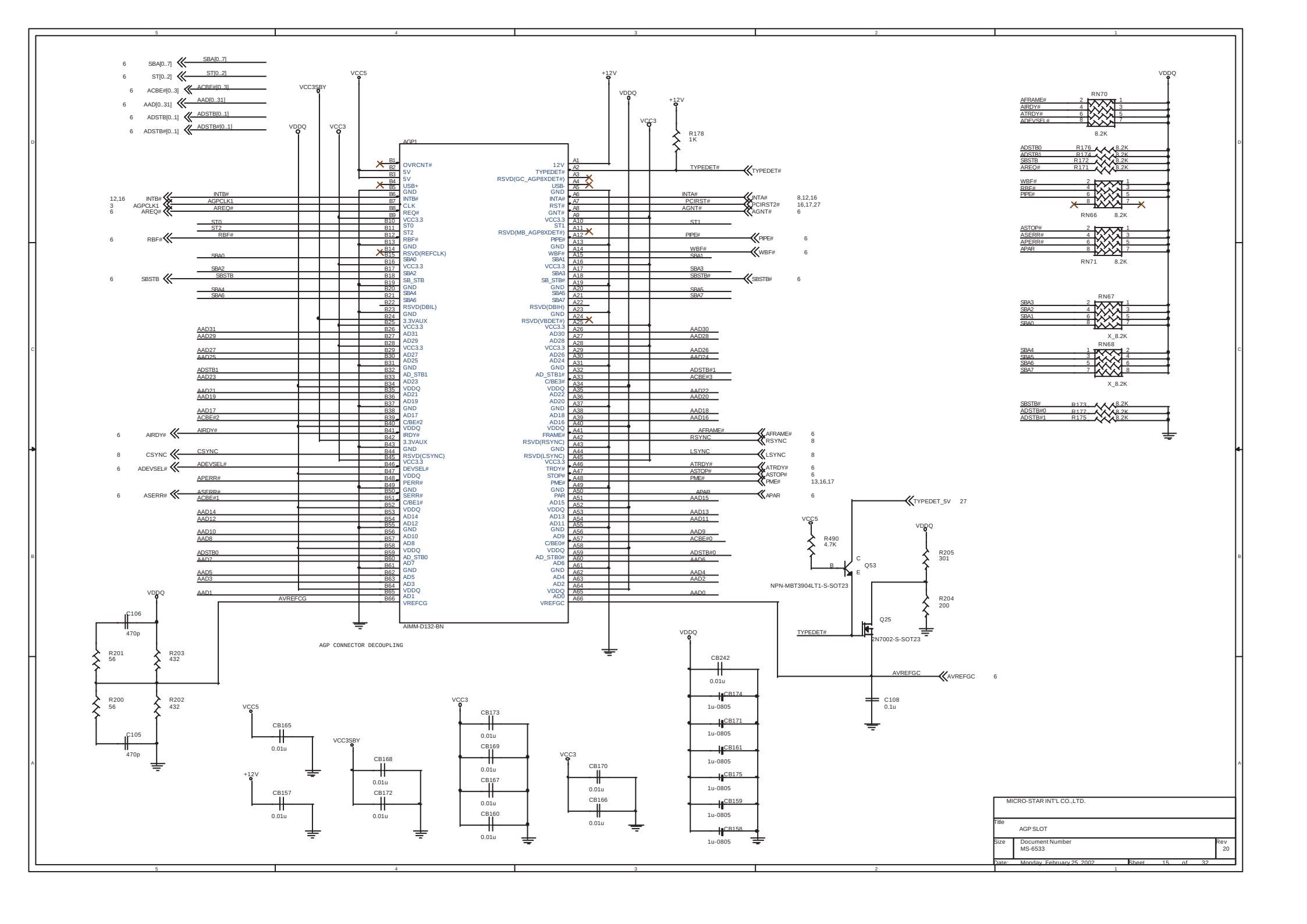
AGP1
AIMM-D132-BN
AGP CONNECTOR DECOUPLING
R178 1K
RN70
RN71
RN66
RN67
RN68
8.2K
X_8.2K
R490 4.7K
Q53
NPN-MBT3904LT1-S-SOT23
Q25
2N7002-S-SOT23
R205 301
R204 200
C108 0.1u
R201 56
R203 432
R200 56
R202 432
C106 470p
C105 470p
CB242 0.01u
CB174 1u-0805
CB171 1u-0805
CB161 1u-0805
CB175 1u-0805
CB159 1u-0805
CB158 1u-0805
CB165 0.01u
CB157 0.01u
CB168 0.01u
CB172 0.01u
CB173 0.01u
CB169 0.01u
CB167 0.01u
CB160 0.01u
CB170 0.01u
CB166 0.01u
MICRO-STAR INT'L CO.,LTD.
AGP SLOT
Document Number MS-6533
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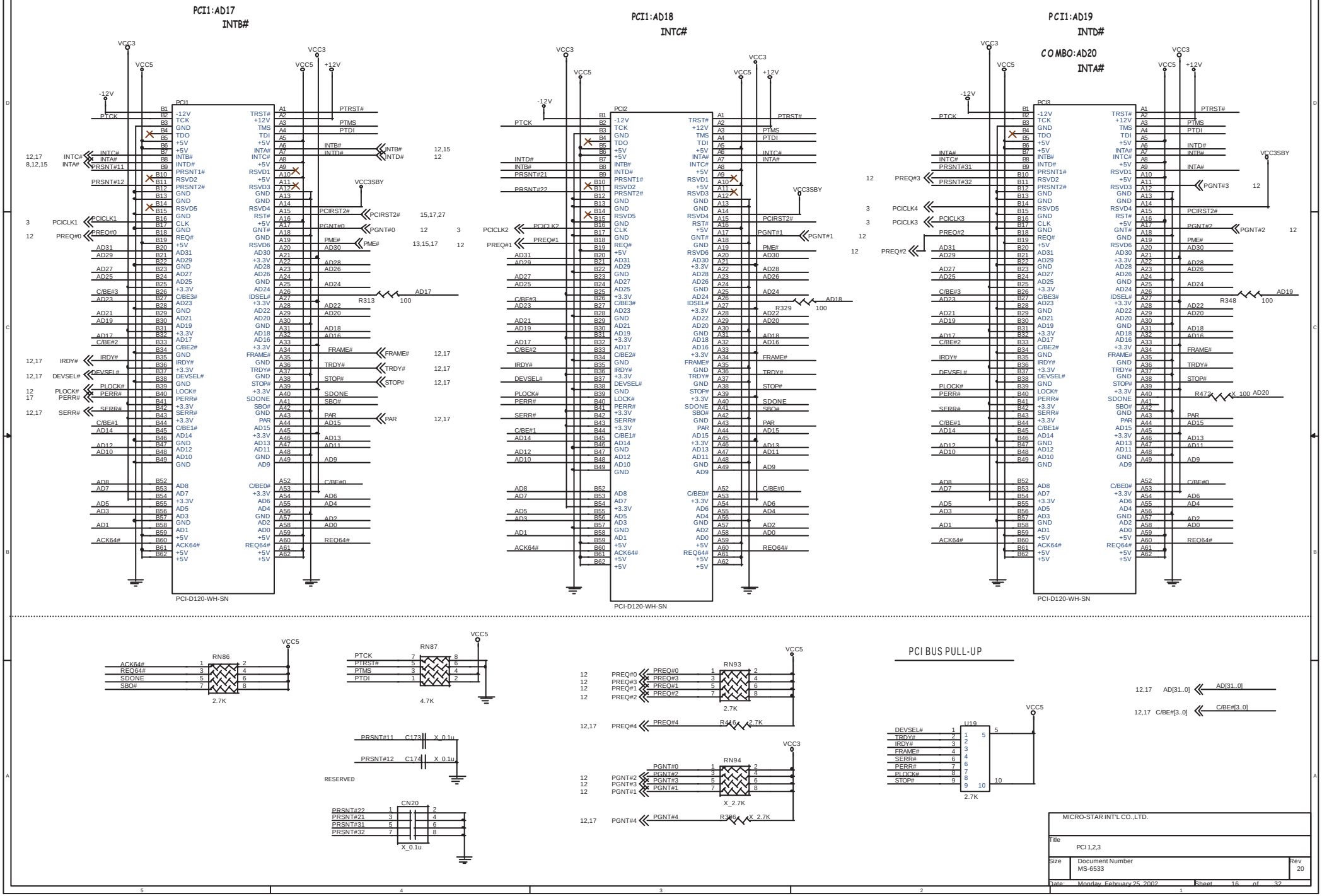
PCI1:AD17
INTB#
PCI1:AD18
INTC#
PCI1:AD19
INTD#
COMBO:AD20
INTA#
PCI1
PCI2
PCI3
PCI-D120-WH-SN
PCI BUS PULL-UP
RN86
RN87
RN93
RN94
U19
CN20
MICRO-STAR INT'L CO.,LTD.
Title
PCI 1,2,3
Size
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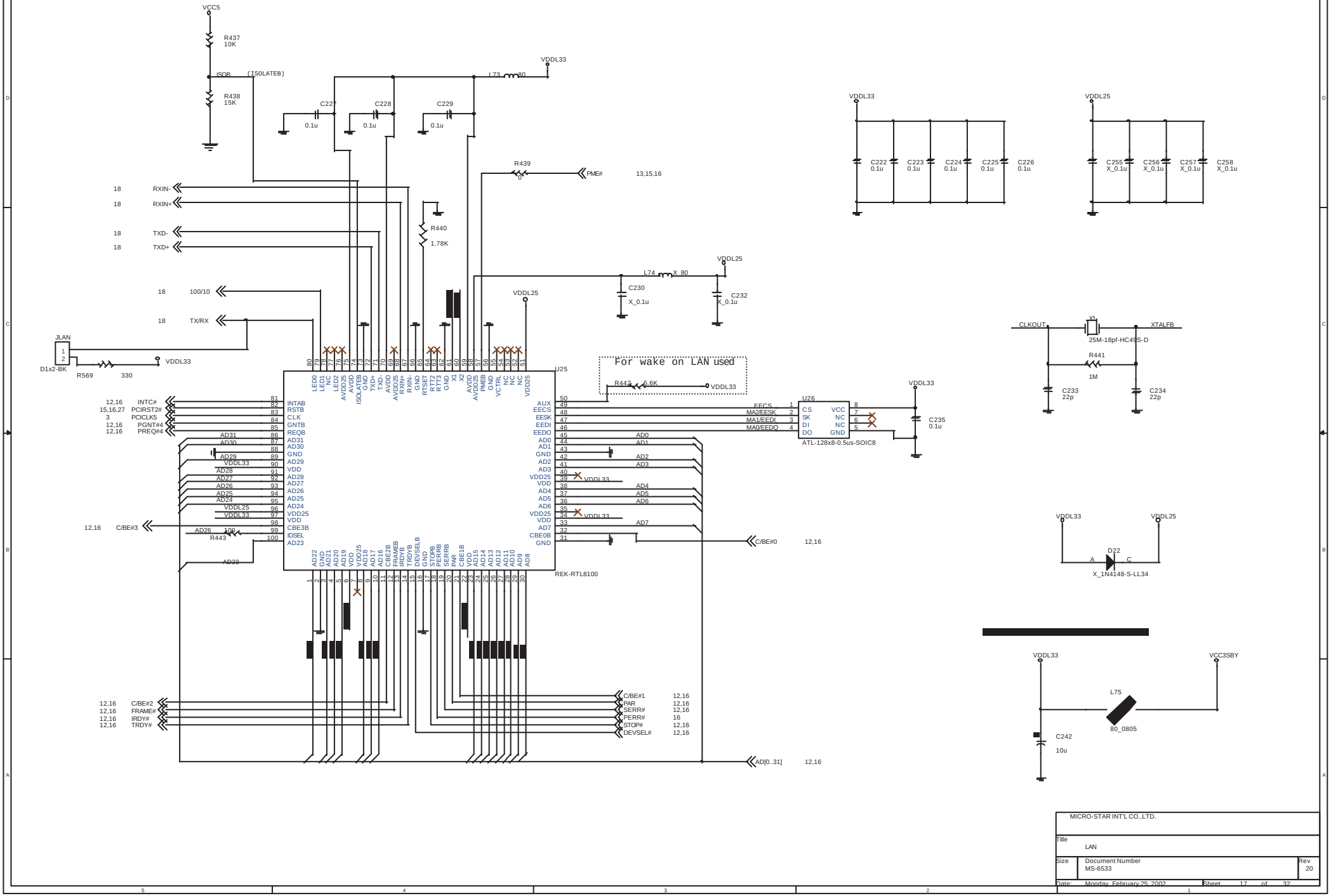
VCC5
R437
10K
ISOB
(ISOLATEB)
R438
15K
C227
C228
C229
0.1u
L73
80
VDDL33
R439
0
PME#
13,15,16
R440
1.78K
18 RXIN-
18 RXIN+
18 TXD-
18 TXD+
18 100/10
18 TX/RX
JLAN
D1x2-BK
R569
330
VDDL33
VDDL25
L74
X_80
C230
X_0.1u
C232
X_0.1u
U25
REK-RTL8100
For wake on LAN used
R442
5.6K
U26
ATL-128x8-0.5us-SOIC8
C235
0.1u
C/BE#3
C/BE#0
C/BE#1
C/BE#2
PAR
FRAME#
IRDY#
TRDY#
SERR#
PERR#
STOP#
DEVSEL#
AD[0..31]
C222
C223
C224
C225
C226
C255
C256
C257
C258
X_0.1u
CLKOUT
XTALFB
X1
25M-18pf-HC49S-D
R441
1M
C233
22p
C234
22p
D22
X_1N4148-S-LL34
L75
80_0805
C242
10u
MICRO-STAR INT'L CO.,LTD.
Title
LAN
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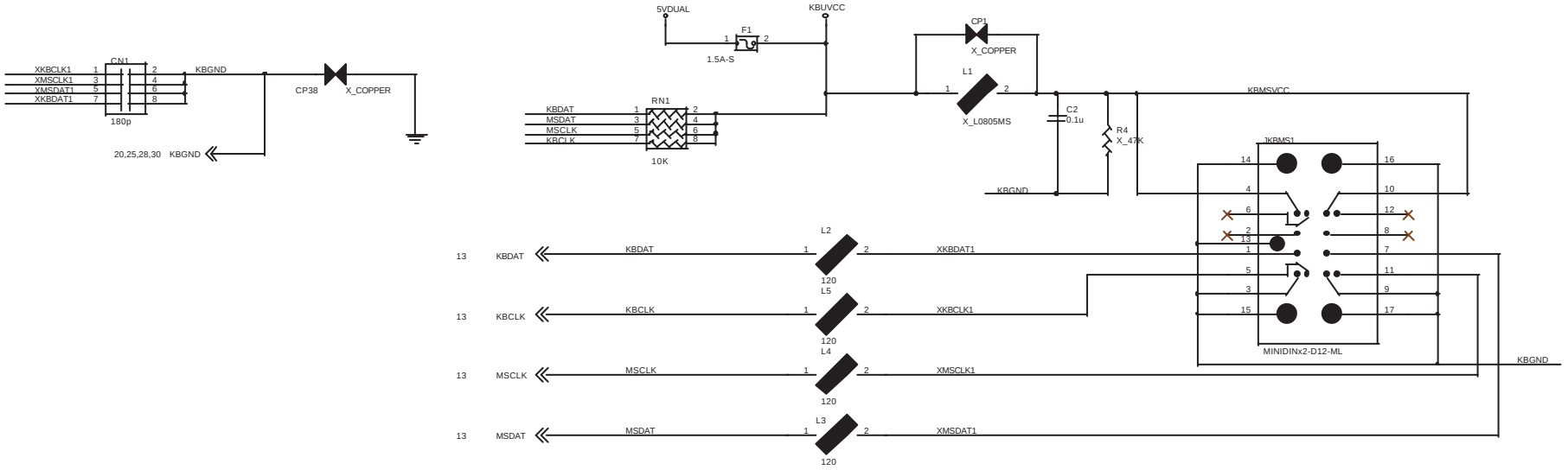
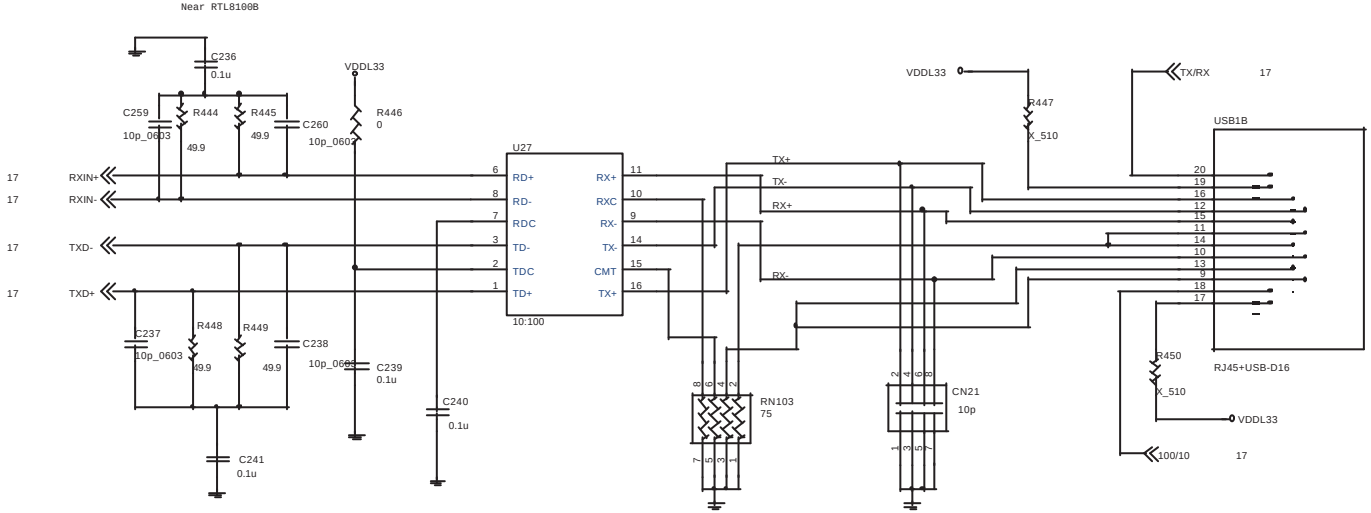
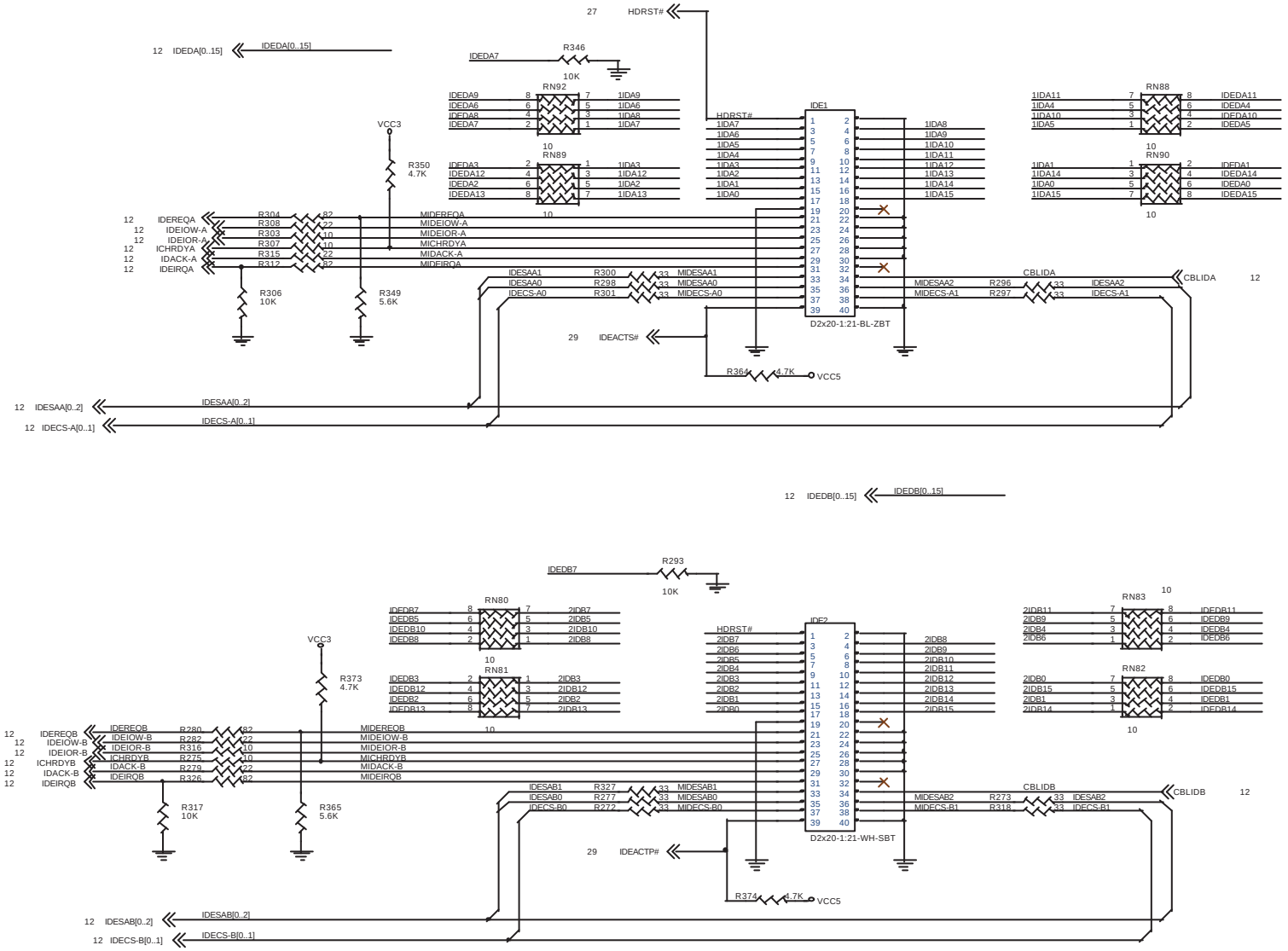
KEYBOARD/MOUSE PORTS



RJ45 CONNECTOR



MICRO-STAR INT'L CO.,LTD.		
Title: RJ45 & PS/2		
Size	Document Number: MS-6533	Rev: 20
Date: Monday, March 04, 2002	Sheet 18 of 32	



MICRO-STAR INT'L CO.,LTD.		
Title: IDE CONNECTOR		
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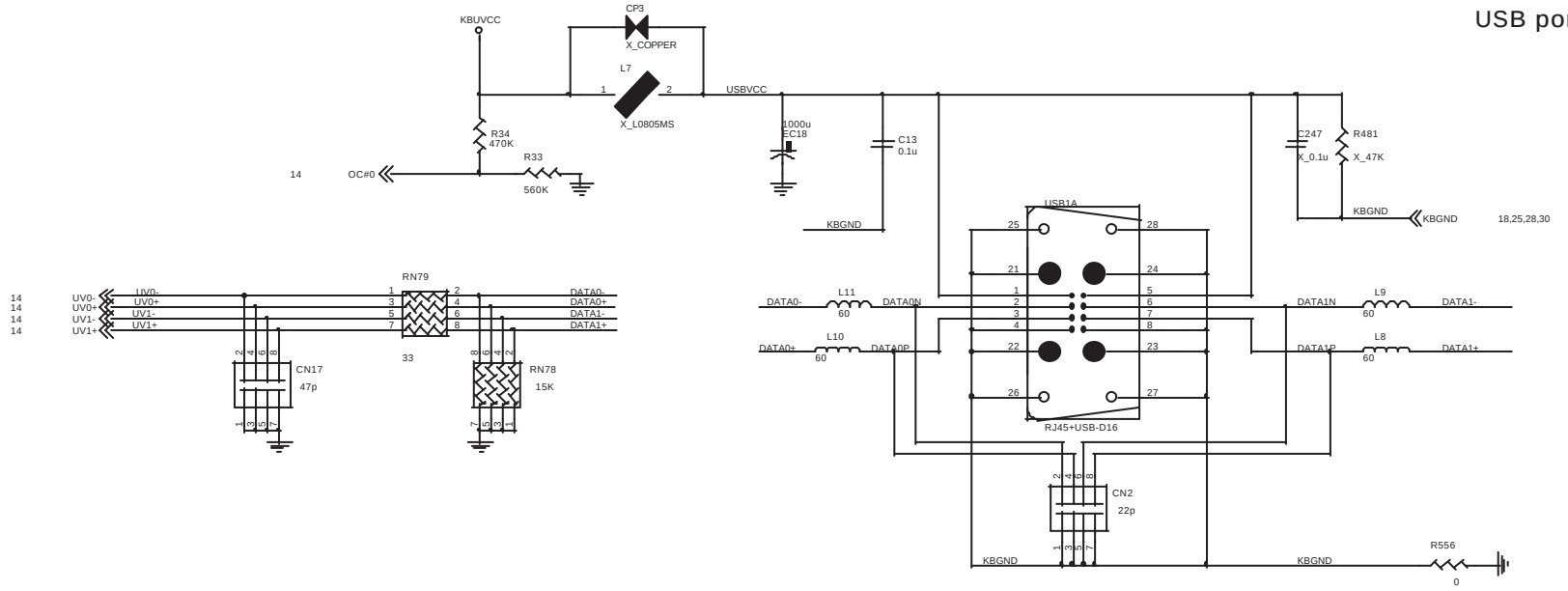
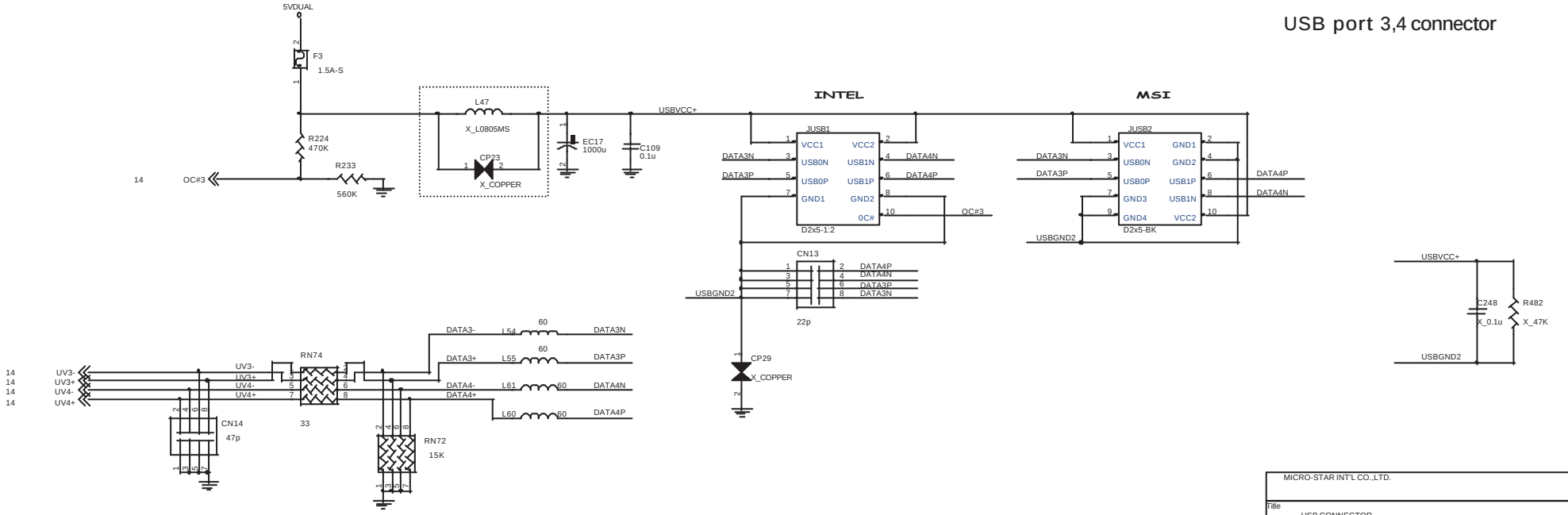
USB port 1,2 connector



USB port 3,4 connector



MICRO-STAR INT'L CO.,LTD.	
Title	USB CONNECTOR
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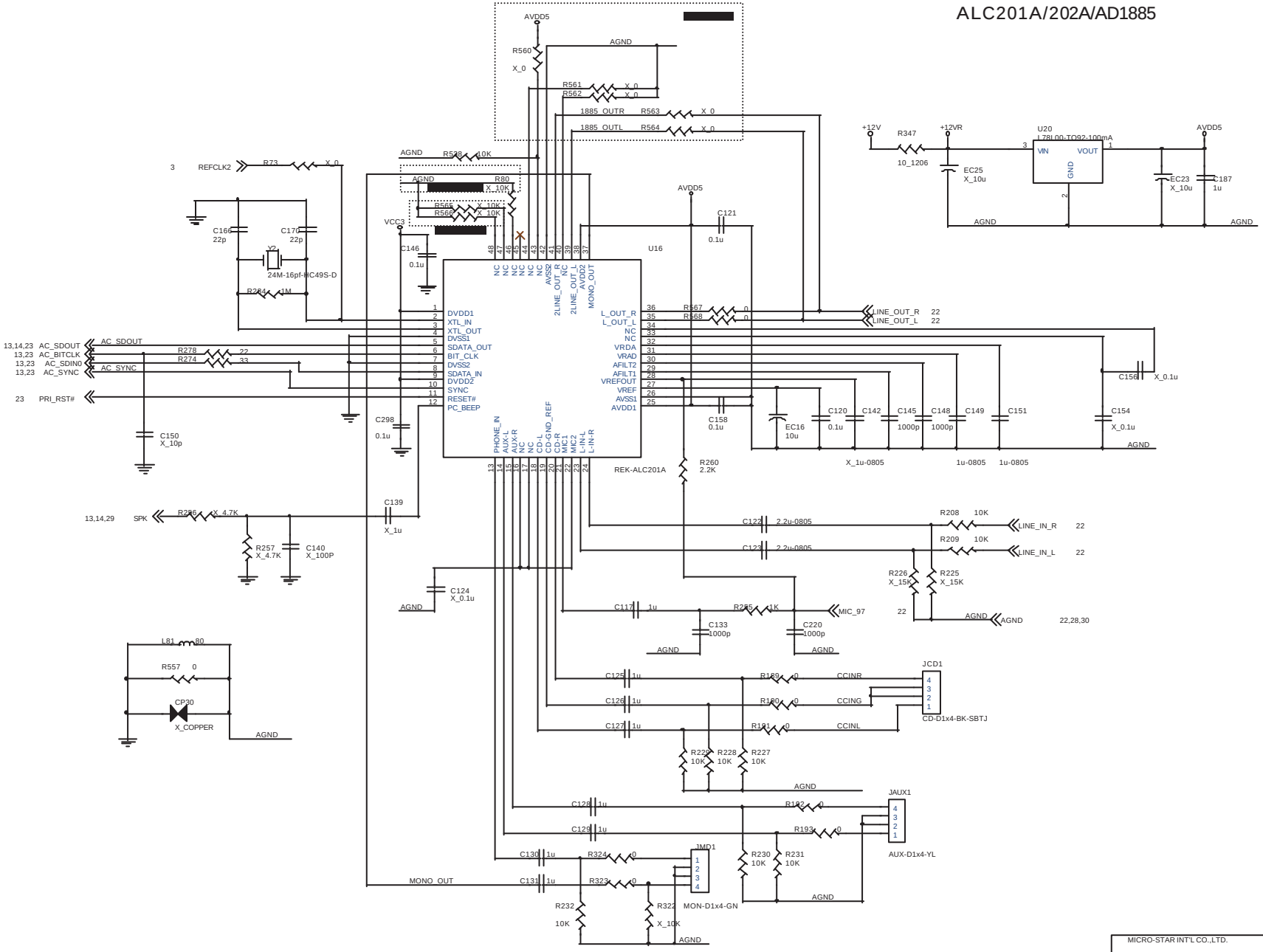
ALC201A/202A/AD1885



MICRO-STAR INT'L CO.,LTD.		
Title: AC'97 CODEC		
Size	Document Number: MS-6533	Rev: 20
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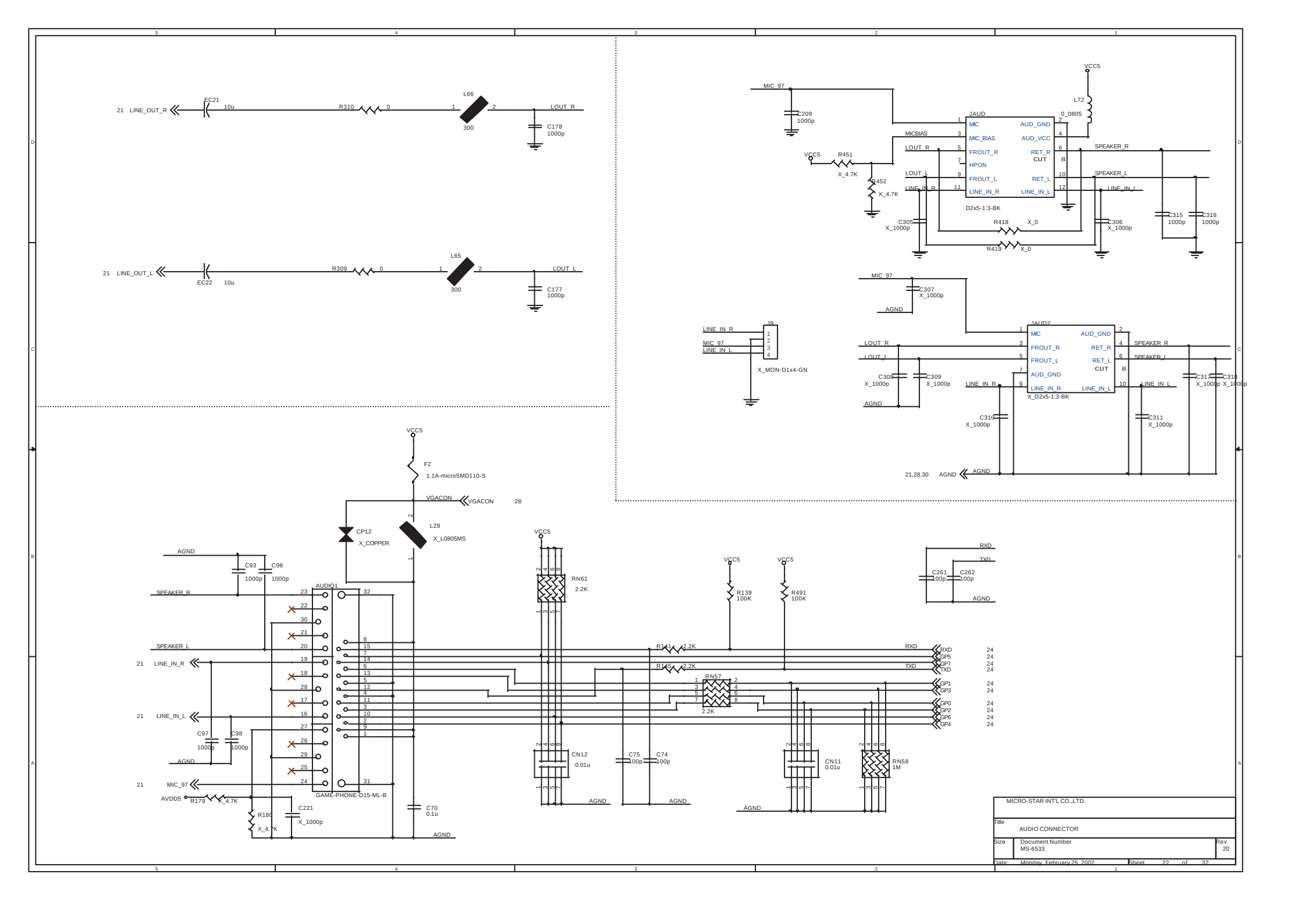
21 LINE_OUT_R
EC21
10u
R310
0
L66
300
LOUT_R
C178
1000p
21 LINE_OUT_L
EC22
10u
R309
0
L65
300
LOUT_L
C177
1000p
MIC_97
C209
1000p
VCC5
L72
0_0805
JAUD
MIC
AUD_GND
MICBIAS
MIC_BIAS
AUD_VCC
LOUT_R
FROUT_R
RET_R
CUT
HPON
LOUT_L
FROUT_L
RET_L
LINE_IN_R
LINE_IN_L
D2x5-1:3-BK
R451
X_4.7K
R452
X_4.7K
SPEAKER_R
SPEAKER_L
LINE_IN_L
C305
X_1000p
R418
X_0
R419
X_0
C306
X_1000p
C315
1000p
C316
1000p
J9
LINE_IN_R
MIC_97
LINE_IN_L
X_MON-D1x4-GN
C307
X_1000p
AGND
JAUD2
C308
X_1000p
C309
X_1000p
C310
X_1000p
C311
X_1000p
C317
X_1000p
C318
X_1000p
X_D2x5-1:3-BK
21,28,30
F2
1.1A-microSMD110-S
VGACON
28
CP12
X_COPPER
L29
X_L0805MS
C93
1000p
C96
1000p
AUDIO1
GAME-PHONE-D15-ML-B
C97
1000p
C98
1000p
R179
X_4.7K
R180
X_4.7K
C221
X_1000p
C70
0.1u
RN61
2.2K
CN12
0.01u
C75
100p
C74
100p
R139
100K
R491
100K
R141
2.2K
R145
2.2K
RN57
2.2K
CN11
0.01u
RN58
1M
RXD
TXD
C261
100p
C262
100p
GP1
GP3
GP0
GP2
GP6
GP4
MICRO-STAR INT'L CO.,LTD.
AUDIO CONNECTOR
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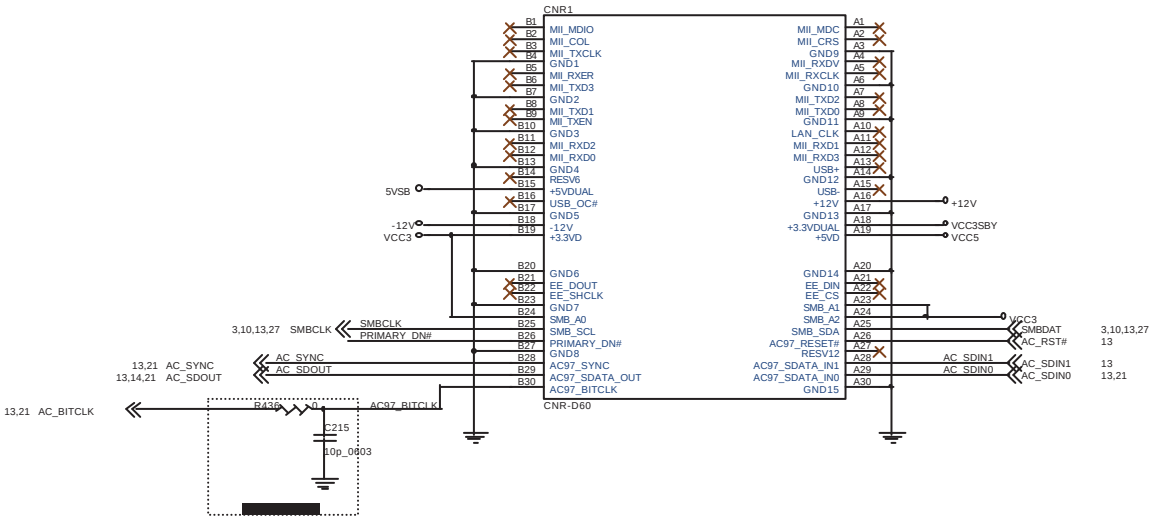
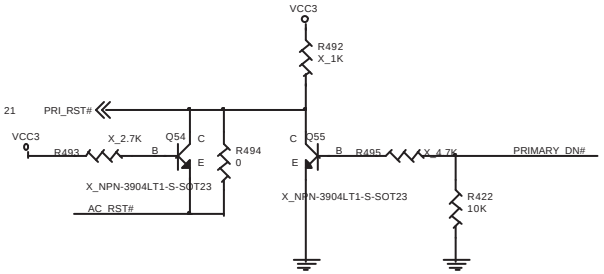
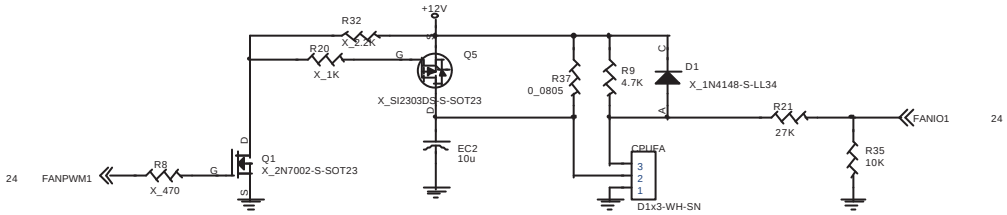
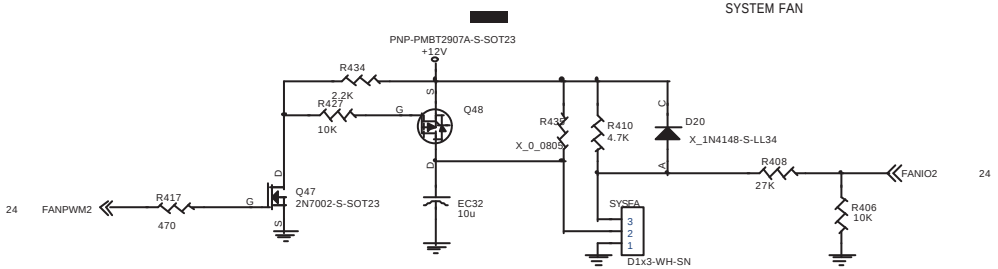




CPU FAN



SYSTEM FAN



MICRO-STAR INT'L CO.,LTD.		
Title: CNR & FAN		
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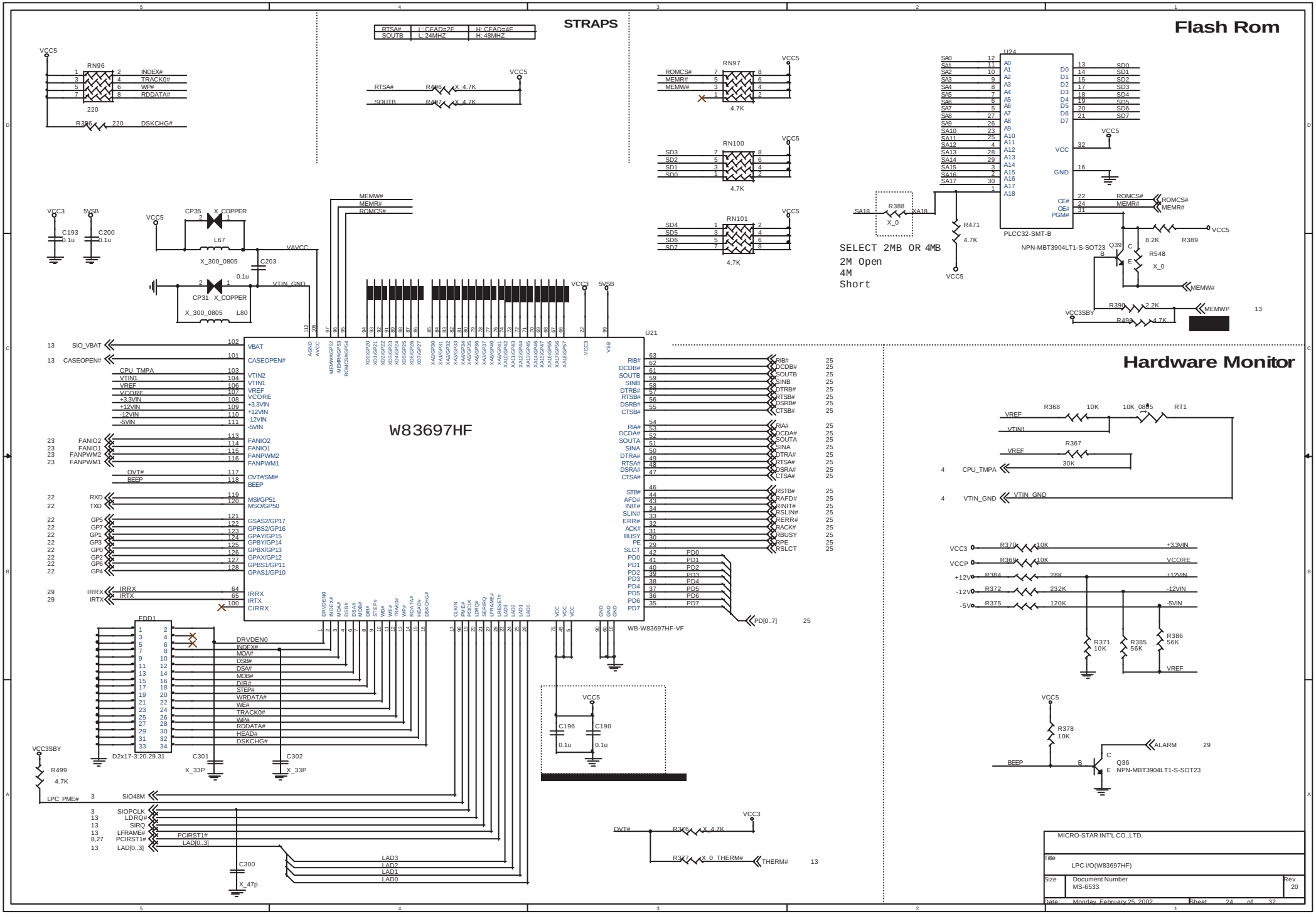
STRAPS
RTSA# | L: CFAD=2F | H: CFAD=4F
SOUTB | L: 24MHZ | H: 48MHZ
Flash Rom
SELECT 2MB OR 4MB
2M Open
4M
Short
W83697HF
WB-W83697HF-VF
Hardware Monitor
MICRO-STAR INT'L CO.,LTD.
Title
LPC I/O(W83697HF)
Size
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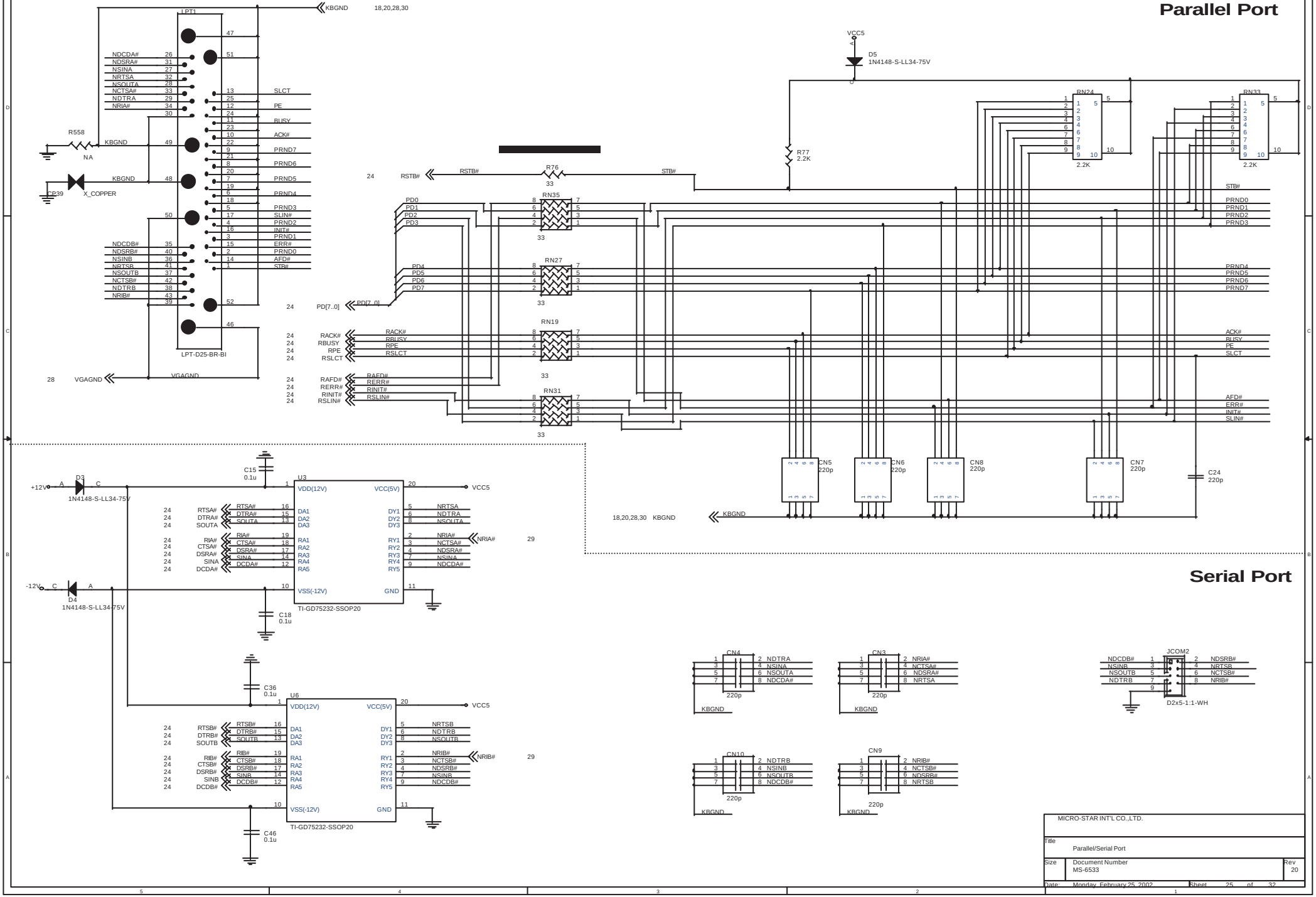
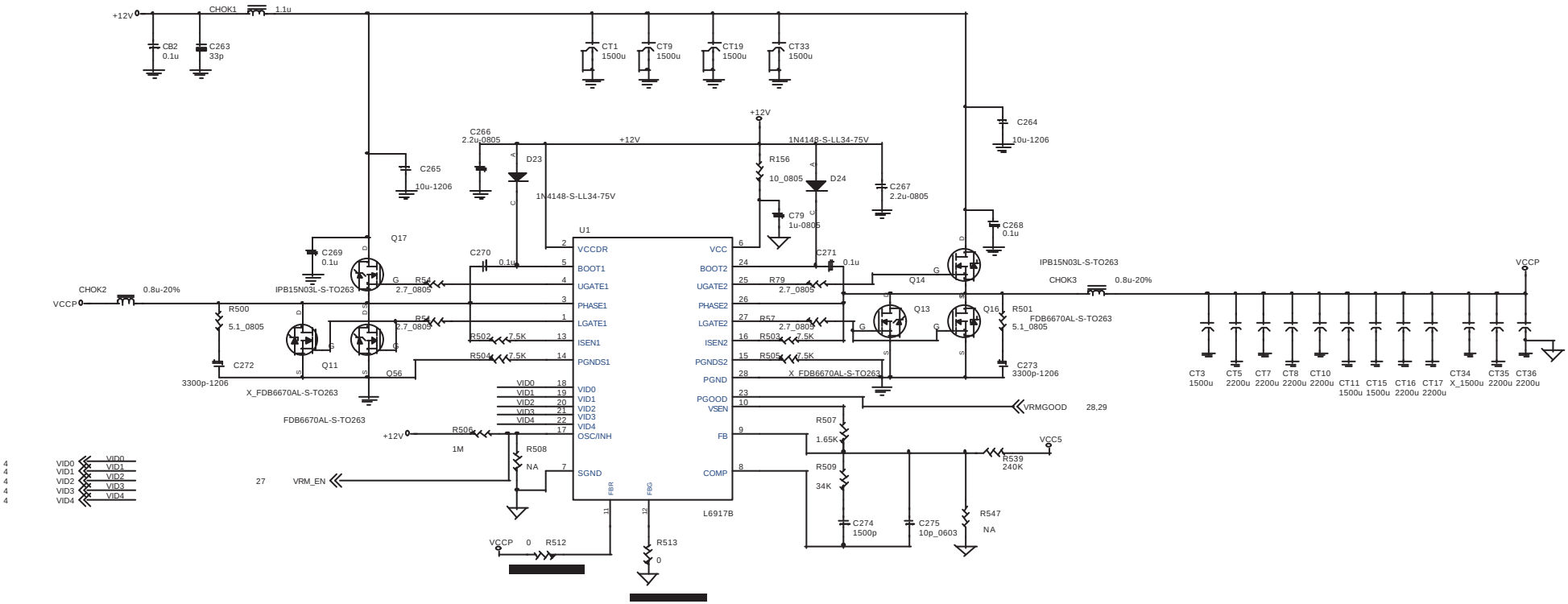
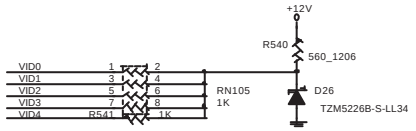
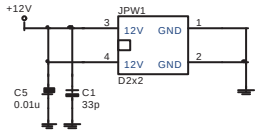

Parallel Port
Serial Port
LPT1
LPT-D25-BR-BI
KBGND
18,20,28,30
VCC5
D5
1N4148-S-LL34-75V
R77
2.2K
R76
33
RN24
RN33
RN35
RN27
RN19
RN31
PD[7..0]
RSTB#
STB#
PRND0
PRND1
PRND2
PRND3
PRND4
PRND5
PRND6
PRND7
ACK#
BUSY
PE
SLCT
AFD#
ERR#
INIT#
SLIN#
RACK#
RBUSY
RPE
RSLCT
RAFD#
RERR#
RINIT#
RSLIN#
R558
NA
CP39
X_COPPER
VGAGND
CN5 220p
CN6 220p
CN8 220p
CN7 220p
C24 220p
D3
1N4148-S-LL34-75V
D4
1N4148-S-LL34-75V
+12V
-12V
C15 0.1u
C18 0.1u
U3
VDD(12V)
VCC(5V)
VSS(-12V)
GND
TI-GD75232-SSOP20
RTSA#
DTRA#
SOUTA
RIA#
CTSA#
DSRA#
SINA
DCDA#
NRTSA
NDTRA
NSOUTA
NRIA#
NCTSA#
NDSRA#
NSINA
NDCDA#
C36 0.1u
C46 0.1u
U6
RTSB#
DTRB#
SOUTB
RIB#
CTSB#
DSRB#
SINB
DCDB#
NRTSB
NDTRB
NSOUTB
NRIB#
NCTSB#
NDSRB#
NSINB
NDCDB#
CN4
CN3
CN10
CN9
220p
JCOM2
D2x5-1:1-WH
MICRO-STAR INT'L CO.,LTD.
Parallel/Serial Port
Document Number
MS-6533
Rev
20
Date: Monday, February 25, 2002
Sheet 25 of 32



VID PULL-UP RESISTORS



ATX12V POWER CONNECTOR



MICRO-STAR INT'L CO.,LTD.		
Title: VRM 9.0		
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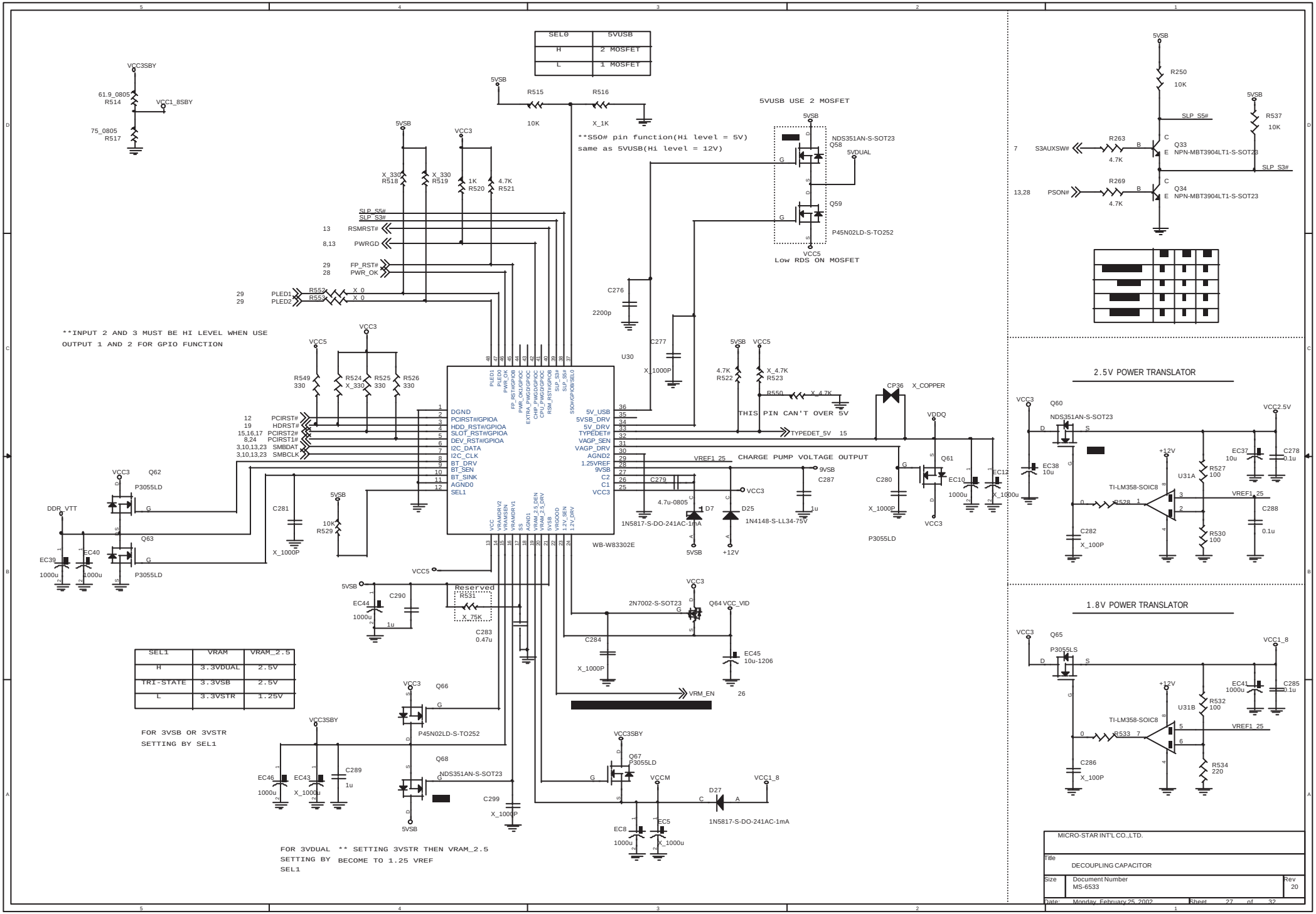
SEL0 | 5VUSB
H | 2 MOSFET
L | 1 MOSFET
5VUSB USE 2 MOSFET
**S5O# pin function(Hi level = 5V)
same as 5VUSB(Hi level = 12V)
Low RDS ON MOSFET
NDS351AN-S-SOT23
P45N02LD-S-TO252
**INPUT 2 AND 3 MUST BE HI LEVEL WHEN USE
OUTPUT 1 AND 2 FOR GPIO FUNCTION
THIS PIN CAN'T OVER 5V
CHARGE PUMP VOLTAGE OUTPUT
WB-W83302E
SEL1 | VRAM | VRAM_2.5
H | 3.3VDUAL | 2.5V
TRI-STATE | 3.3VSB | 2.5V
L | 3.3VSTR | 1.25V
FOR 3VSB OR 3VSTR
SETTING BY SEL1
FOR 3VDUAL ** SETTING 3VSTR THEN VRAM_2.5
SETTING BY BECOME TO 1.25 VREF
SEL1
2.5V POWER TRANSLATOR
1.8V POWER TRANSLATOR
MICRO-STAR INT'L CO.,LTD.
DECOUPLING CAPACITOR
Size
Document Number
MS-6533
Rev
20
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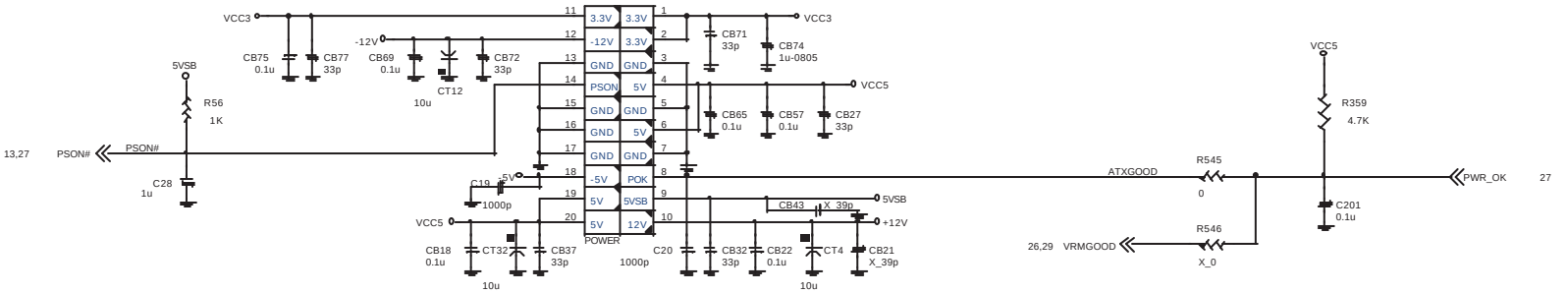
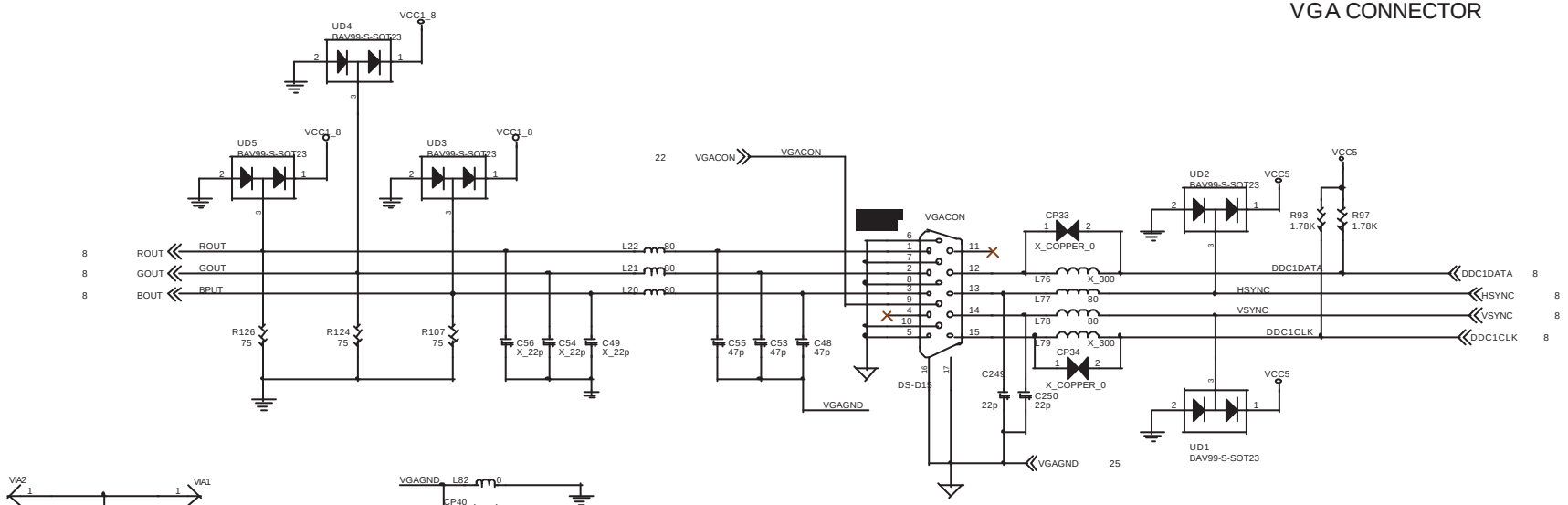
ATX CONNECTOR



VGA CONNECTOR



MICRO-STAR INT'L CO.,LTD.		
Title: ATX Power Conn. & VGA Conn.		
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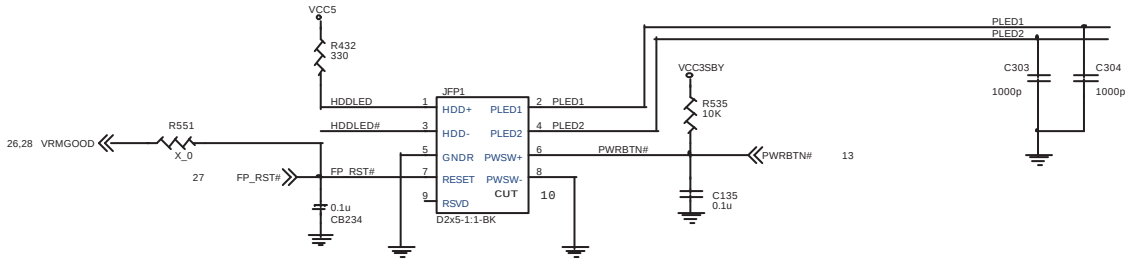
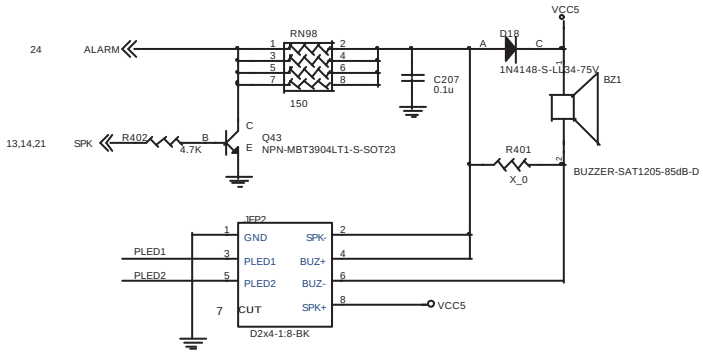
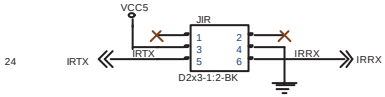
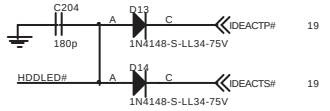
MSI



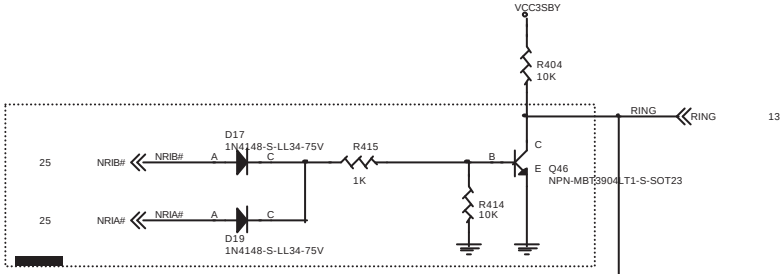


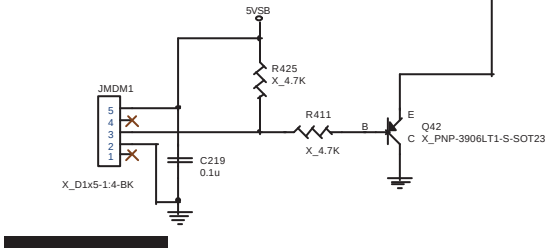
INTEL IR



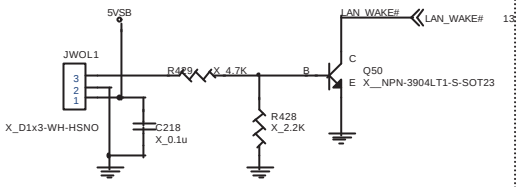


Wake by Modem

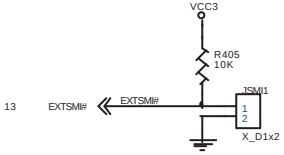




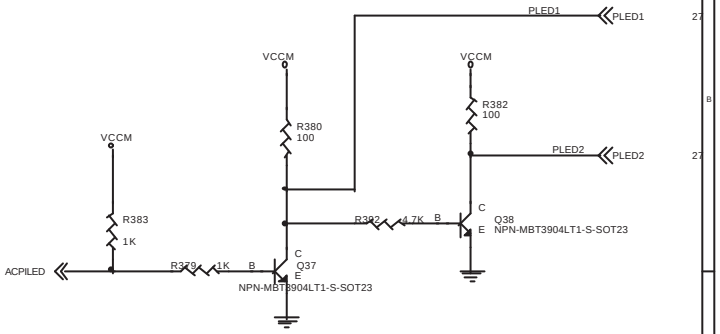
Wake by LAN



Sleep Button



Dual Color LED Block



MICRO-STAR INT'L CO.,LTD.		
Title: FRONT PANEL		
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PCBOTHERCOMPONENT

BS1_X1 BS2_X1 BS3_X1 BS4_X1 BS5_X1

MH1 MH6 MH5 MH2 MH4 MH3

18,20,25,28 KBGND

AGND

AGND 21,22,28

J1 X_PIN1*2 CPU

J2 VCC5 X_PIN1*2 AGP

FM1 FM2 FM3 FM4 FM5 FM6 FM7 FM8 X_FM

System Decoupling Capacitors

+12V: EC30 10u; C198 0.1u; C182 0.1u

-12V: EC27 10u; C195 0.1u; C172 0.1u

VCC3SBY: C179 0.1u; C197 0.1u

5VSB: C194 0.1u; C116 0.1u

VCC5: EC29 10u; C205 0.1u; C193 0.1u; C133 0.1u; C181 0.1u; C199 0.1u; C295 0.1u; C296 0.1u; C297 0.1u; C312 X_0.1u; C313 X_0.1u; C314 X_0.1u

VCC3: EC28 10u; C180 0.1u; C191 0.1u; C206 0.1u; C189 0.1u

VCC3: C175 0.1u; C157 0.1u; C212 0.1u

High Freq. return current decoupling

VCC5 VCC3: C80 1000p; C84 1000p

VCC3: X_1000u EC47; 1000u EC48

Monday, February 25, 2002

6533 0A->1.0 HISTORY

Item	Page	Description	Component Change
1	3	Fix dos time too slow	Y1=>32pF, C134,C143=>27p
2	8	DDC1CLK,DDC1DATA damping res 100 Ohm	SiS Ap note
3	17	Fix LAN can't wake up by PME#	ISOLATEB pull-up to VCC5
4	20	Improve USB signal quality	
5	21	Line-In audio precision	R208,R209=>33K
6	21	Improve ACBITCLK signal quality	R278=>22 Ohm
7	27	HDRST# pull-up to VCC5	
8	27	1.8V regulator change to TO263	
9	28	DDC1CLK,DDC1DATA Pull-Up to 1.78K	

6533 1.0->1.0A HISTORY

Item	Page	Description	Component Change
1	21	Reserve AD1885 optional circuits	
2	22	Remove audio AMP circuits	
3	22	Add front audio connectors for MEDION	

6533 1.0A->2.0 HISTORY

Item	Page	Description	Component Change
1	13	MIITXCLK pull-down	SiS Ap note
2	20	Improve USB signal quality	USB damping RES->33 Ohm, BEAD->60
3	28	Improve RGB signal quality	L82-> 0 Ohm

[redacted]

Tuesday, January 15, 2002

SIS645

SIS-SIS645-VA1

SIS961A2

SIS-SIS961-VA2

USB900

Q17-Q56

_

Q14-Q16

_

U9_H

_

U4_R

_

COM1

COM2

PCB

JBAT1(1-2)
JC-D2-GN

JAU(5-6)
JC-D2-GN

JAU(9-10)
JC-D2-GN

JFP2(4-6)
JC-D2-GN

RUB1
JC-D2-GN

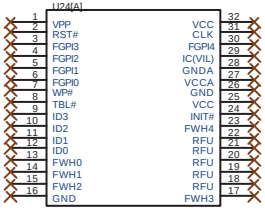
RUB2
JC-D2-GN

RUB3
JC-D2-GN

BAT1[A]

BAT-CR2032-3V-210mAh

U24[A]



ATL-256Kx8-PLCC32

{Title}

Custom{Doc}

Friday, March 22, 2002