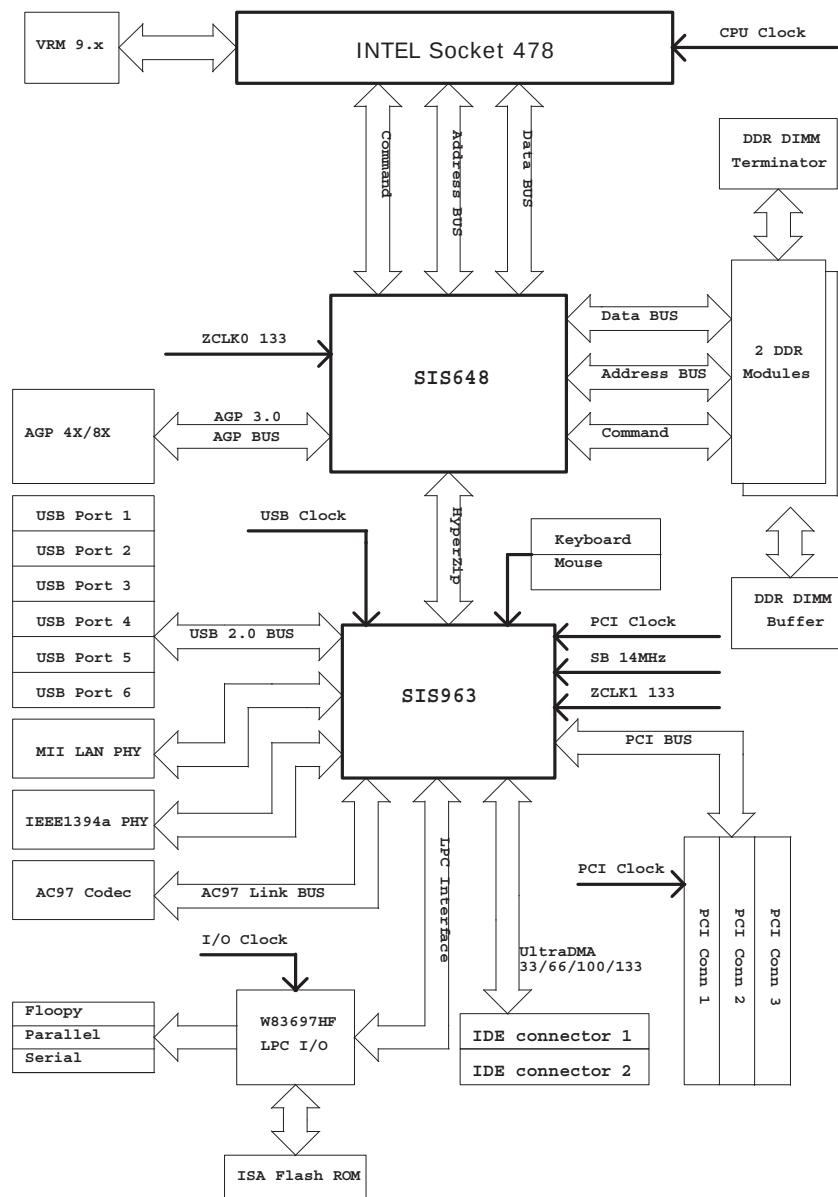


MS-6703 Ver:0D



CPU:

Pentium4 socket-478 Processor

System Chipset:

SIS648 (NB) + SIS963 (SB)

On Board Function Chip:

LPC I/O-W83697HF

IEEE1394a PHY Realtek 8801B

MII LAN PHY Realtek 8201BL

Audio Codec-Realtek ALC650/AD1980

Expansion Slot:

AGP3.0 Slot*1

PCI2.2 Slot*3

01-Block drigrane & Cover sheet
02-Power Div & Specification
03-Intel socket 478 CPU part 1
04-Intel socket 478 CPU part 2
05-Main Clock Gen & Clock buffer.
06-SIS648-1 Host & AGP
07-SIS648-2 Memory
08-SIS648-3/4 Power & HyperZip
09-DIMM 1 & 2
10-DDR Terminator
11-AGP slot & Pull-UP/DN resistor
12-SIS963-1 PCI & IDE & HyperZip
13-SIS963-2 MISC.
14-SIS963-3/4 USB & Power
15-IDE 1/2 & PS2
16-PCI slot 1 & 2 & 3
17-USB port
18-IEEE1394a PHY
19-MII LAN PHY
20-W83697HF & BIOS & HW Monitor
21-Com/Parallel port
22-AC97 Codec
23-ATX & F-Panel
24-MS5 ACPI Controller
25-VRM 9.0
26-CNR slot
27-Manual Parts
28-History

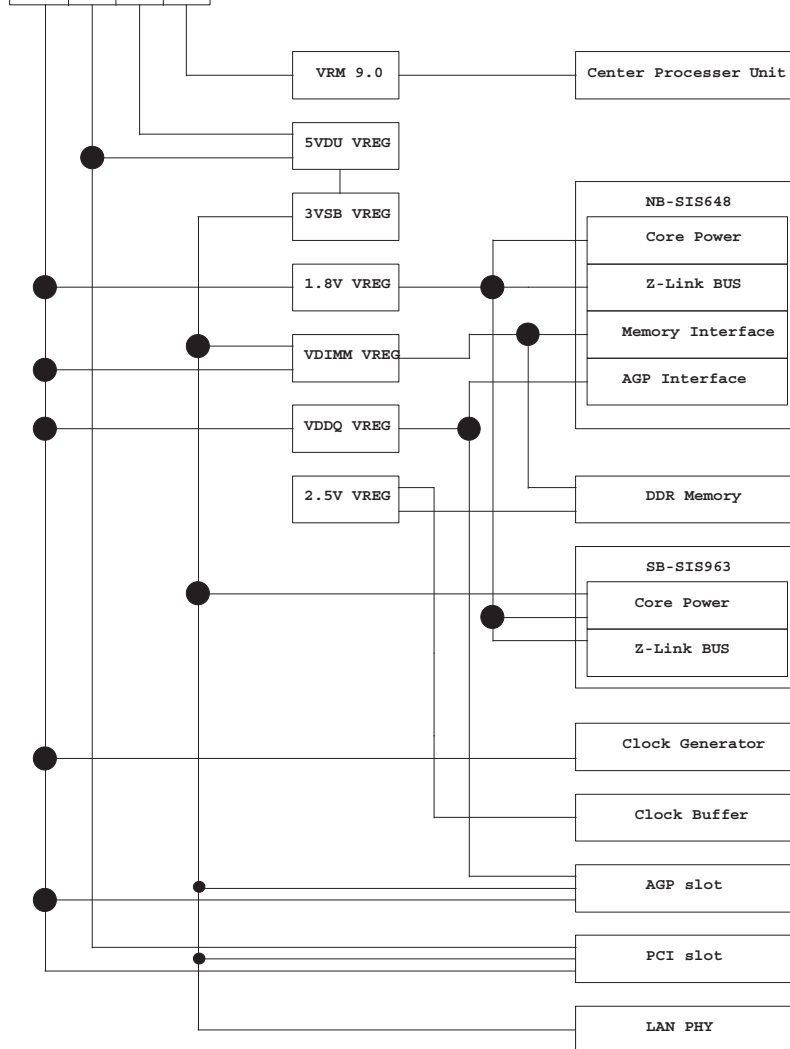
Clock Gen	
CPU Clock	CPU Clock
NB Clock	NB Clock
ZCLK0 133	ZCLK0 133
ZCLK1 133	ZCLK1 133
AGP Clock66	AGP Clock66
PCI Clock	PCI Clock
USB Clock	USB Clock
I/O Clock	I/O Clock
SB 14MHz	SB 14MHz

MICRO-STAR	
Cover Sheet & Block Diagram	
Size	Document Number
MS-6703	
Date	Tuesday, October 22, 2002
Sheet	1 of 27

ATX POWER Supply

3.3V	5V	5VSB 1A	12V
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Power Delivery Map



SIS963 GPIO Function Define

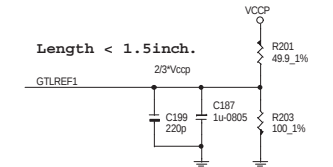
GPIO_0	I/O	MAIN	M/B ID0
GPIO_1	I/O	MAIN	M/B ID1
GPIO_2	I/O	MAIN	THERM#
GPIO_3	I/O	MAIN	M/B ID2
GPIO_4	I/O	MAIN	M/B ID3
GPIO_5	I/O	MAIN	CLEAR CMOS
GPIO_6	I/O	MAIN	CLEAR PASSWORD
GPIO_7	I	RESUME	Flash ROM Protection H: Enable ; L: Disabled.
GPIO_8	I	RESUME	RESERVED
GPIO_9	I	RESUME	RESERVED
GPIO_10	I	RESUME	RESERVED
GPIO_11	I/O	RESUME	RESERVED
GPIO_12	I/O	RESUME	RESERVED
GPIO_13	I/O	RESUME	RESERVED
GPIO_14	I/O	RESUME	RESERVED
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

PCI

DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 1	INT#B INT#C INT#D INT#A	AD17	PREQ#0 PGNT#0	PCICLK1
PCI SLOT 2	INT#C INT#D INT#A INT#B	AD18	PREQ#1 PGNT#1	PCICLK2
PCI SLOT 3	INT#D INT#A INT#B INT#C	AD19	PREQ#2 PGNT#2	PCICLK3

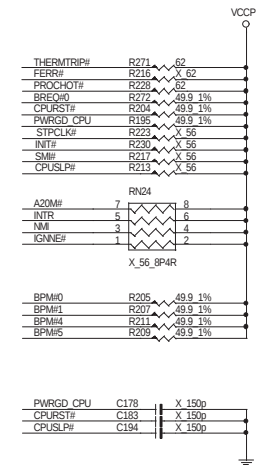
Socket478-1

CPU GTL REFERENCE VOLTAGE BLOCK

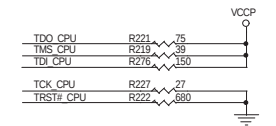


Every pin put one 220pF cap near it.
Trace Width 15mils, Space 15mils.
Keep the voltage dividers within 1.5 inches of the first GTLREF Pin

CPU STRAPPING RESISTORS CLOSED TO SOCKET478

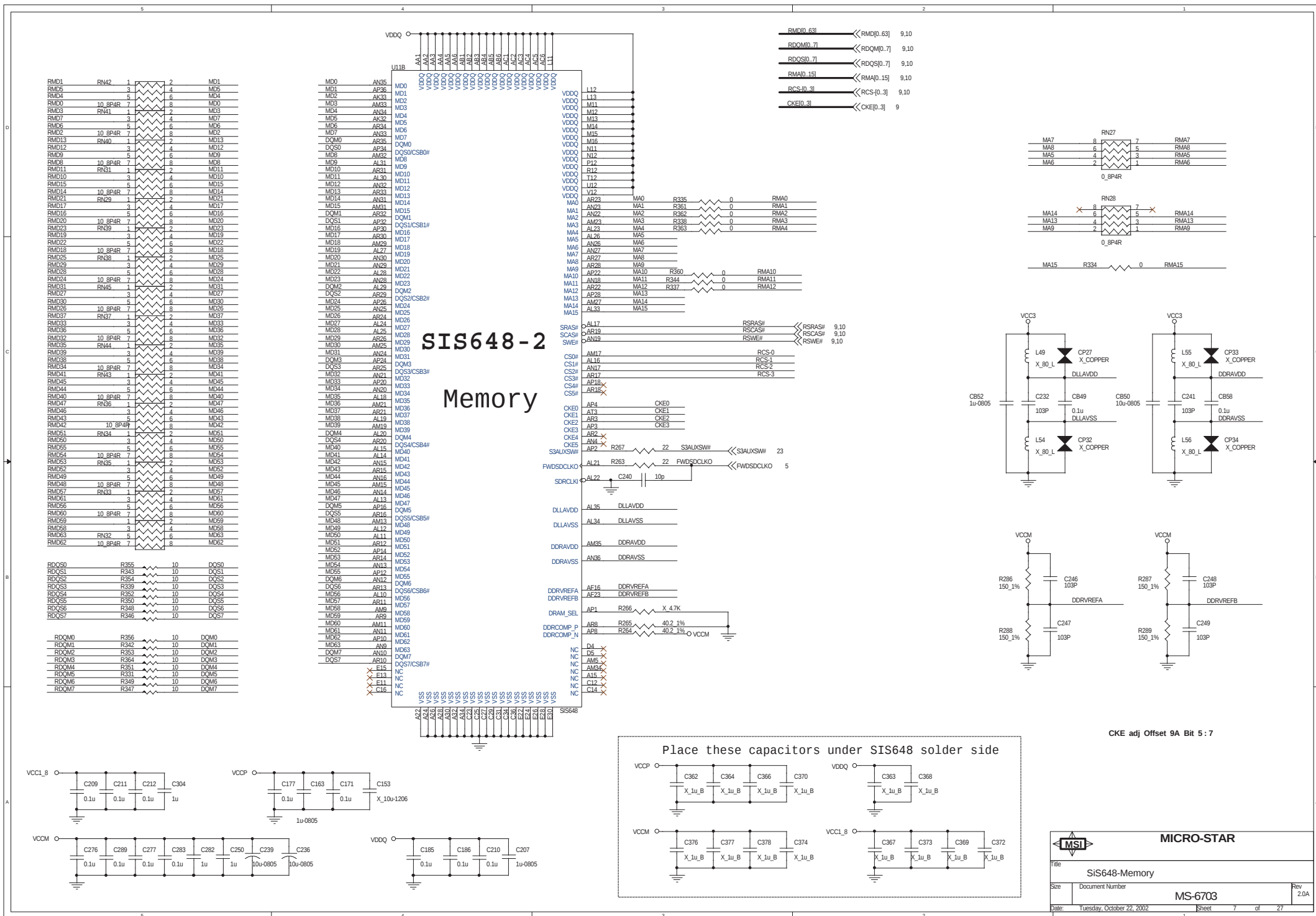


CPU ITP BLOCK CLOSED TO SOCKET478



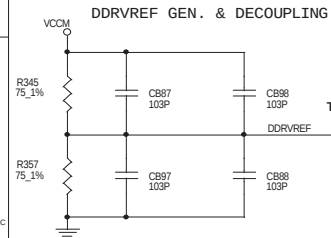
MICRO-STAR

Title			FCPGA478-1		
Size	Document Number		MS-6703		Rev 2.0A
Date:	Tuesday, October 22, 2002	Sheet	3	of	27

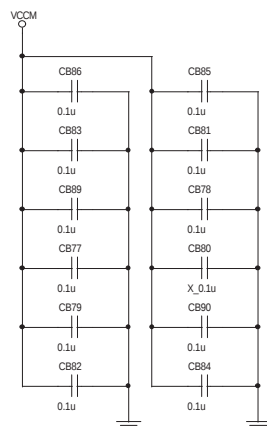


DDR DIMM1 & DIMM2

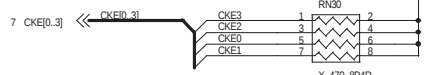
7.10 RMD[0..63] << RMA[0..15]
7.10 RMA[0..15] << RDQM[0..7]
7.10 RDQM[0..7] << RDQS[0..7]



DIMM DECOUPLING



7.10 RCS[0..3] << RCS[0..3]
5 DDRCLK[0..5] << DDRCLK[0..5]
5 DDRCLK[0..5] << DDRCLK[0..5]



7.10 RSRAS# << RSCAS#
7.10 RSCAS# << RSW#

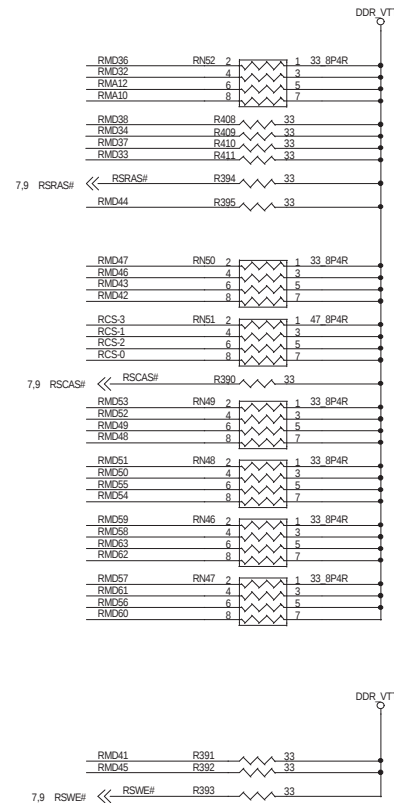
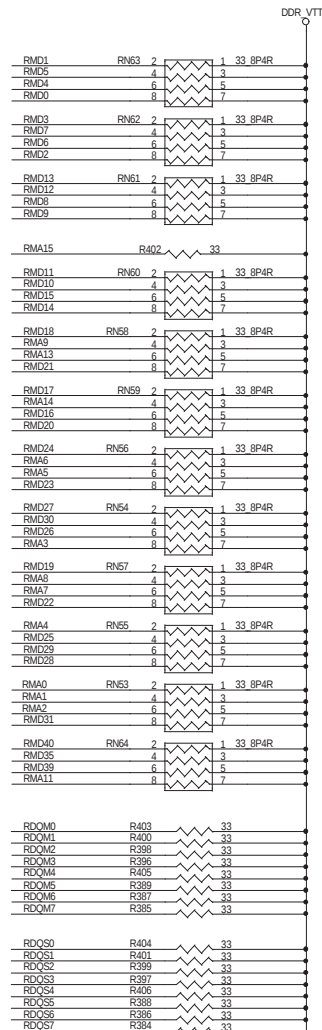
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RCS-784 941
RCS-785 942
RCS-786 943
RCS-787 944
RCS-788 945
RCS-789 946
RCS-790 947
RCS-791 948
RCS-792 949
RCS-793 950
RCS-794 951
RCS-795 952
RCS-796 953
RCS-797 954
RCS-798 955
RCS-799 956
RCS-800 957
RCS-801 958
RCS-802 959
RCS-803 960
RCS-804 961
RCS-805 962
RCS-806 963
RCS-807 964
RCS-808 965
RCS-809 966
RCS-810 967
RCS-811 968
RCS-812 969
RCS-813 970
RCS-814 971
RCS-815 972
RCS-816 973
RCS-817 974
RCS-818 975
RCS-819 976
RCS-820 977
RCS-821 978
RCS-822 979
RCS-823 980
RCS-824 981
RCS-825 982
RCS-826 983
RCS-827 984
RCS-828 985
RCS-829 986
RCS-830 987
RCS-831 988
RCS-832 989
RCS-833 990
RCS-834 991
RCS-835 992
RCS-836 993
RCS-837 994
RCS-838 995
RCS-839 996
RCS-840 997
RCS-841 998
RCS-842 999
RCS-843 1000
RCS-844 1001
RCS-845 1002
RCS-846 1003
RCS-847 1004
RCS-848 1005
RCS-849 1006
RCS-850 1007
RCS-851 1008
RCS-852 1009
RCS-853 1010
RCS-854 1011
RCS-855 1012
RCS-856 1013
RCS-857 1014
RCS-858 1015
RCS-859 1016
RCS-860 1017
RCS-861 1018
RCS-862 1019
RCS-863 1020
RCS-864 1021
RCS-865 1022
RCS-866 1023
RCS-867 1024
RCS-868 1025
RCS-869 1026
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RCS-874 1031
RCS-875 1032
RCS-876 1033
RCS-877 1034
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RCS-915 1072
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RCS-917 1074
RCS-918 1075
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RCS-925 1082
RCS-926 1083
RCS-927 1084
RCS-928 1085
RCS-929 1086
RCS-930 1087
RCS-931 1088
RCS-932 1089
RCS-933 1090
RCS-934 1091
RCS-935 1092
RCS-936 1093
RCS-937 1094
RCS-938 1095
RCS-939 1096
RCS-940 1097
RCS-941 1098
RCS-942 1099
RCS-943 1100
RCS-944 1101
RCS-945 1102
RCS-946 1103
RCS-947 1104
RCS-948 1105
RCS-949 1106
RCS-950 1107
RCS-951 1108
RCS-952 1109
RCS-953 1110
RCS-954 1111
RCS-955 1112
RCS-956 1113
RCS-957 1114
RCS-958 1115
RCS-959 1116
RCS-960 1117
RCS-961 1118
RCS-962 1119
RCS-963 112

DDR TERMINATOR

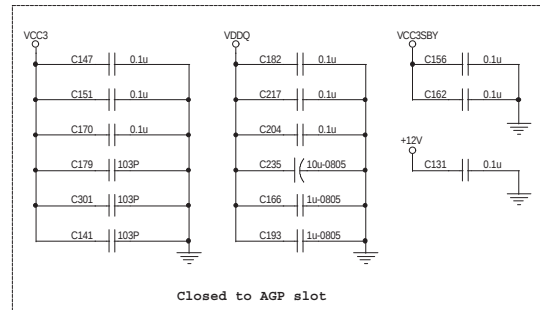
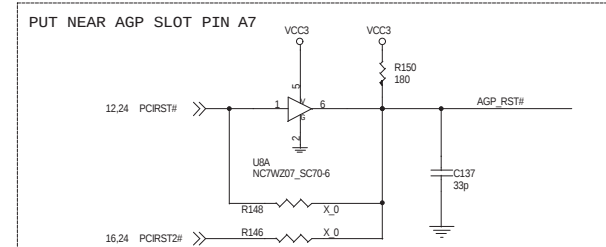
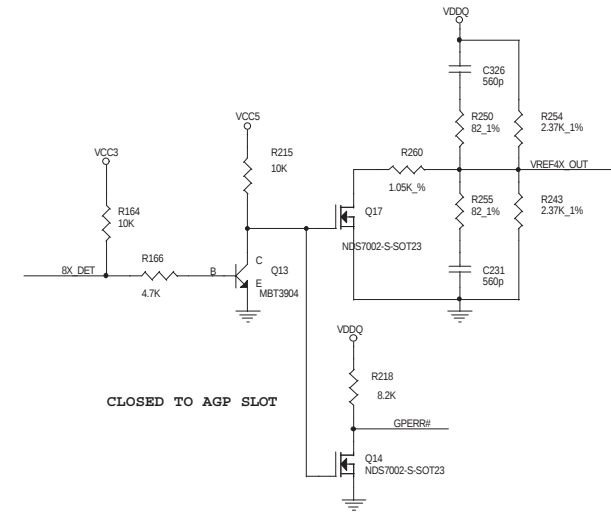
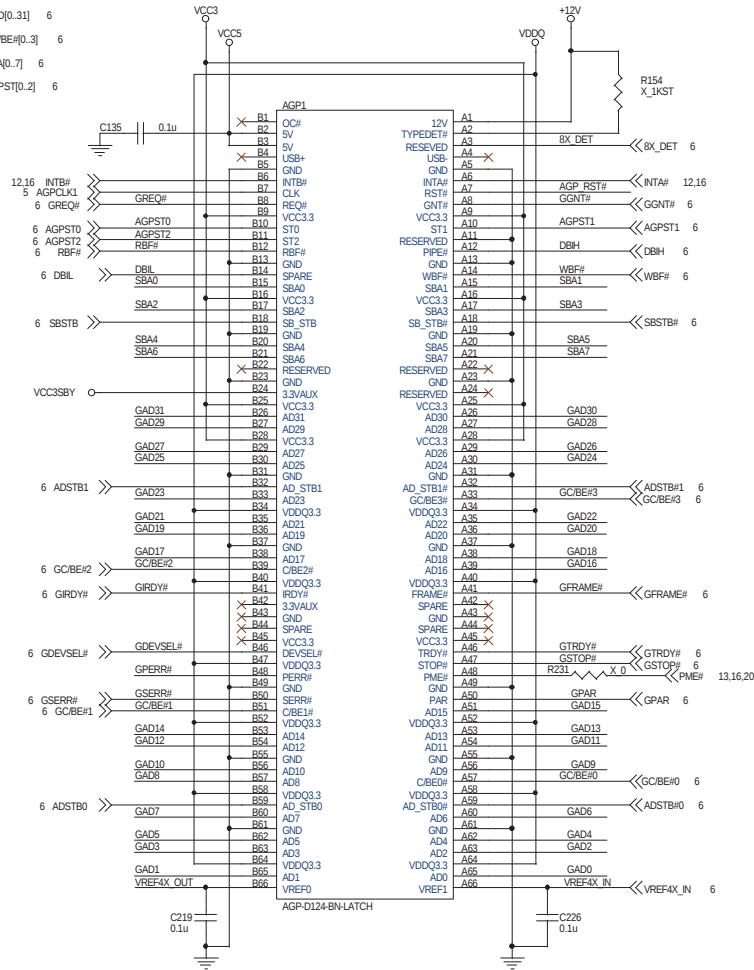
SSTL-2 Termination Resistors

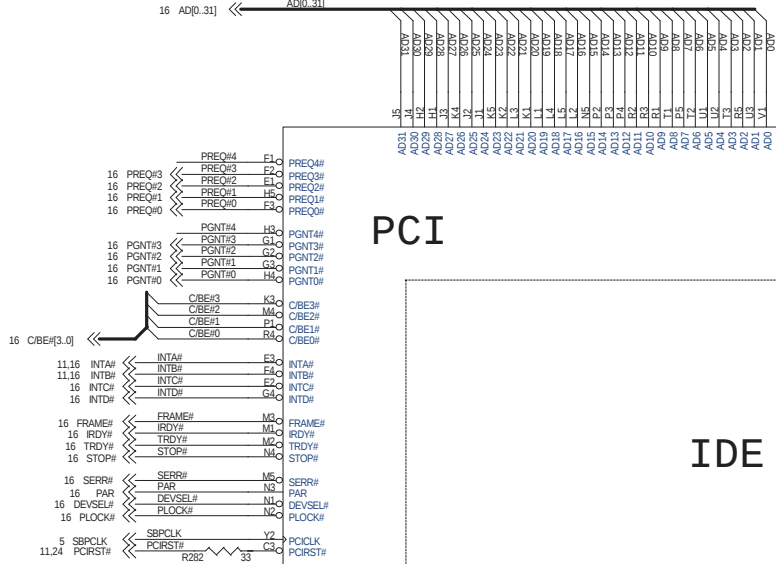
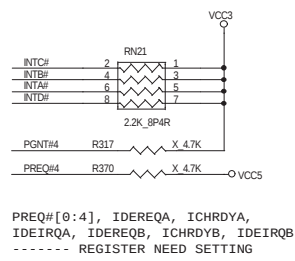
RMD[0..63]	7.9
RDOM[0..7]	7.9
RDOS[0..7]	7.9
RMA[0..15]	7.9
RCS[0..3]	7.9

	SDR	RS	DDR	RS	RTT
RD/DQM(/DQS)	LV-CMOS	9/10/-	SSTL-2	10	93
RA/control	LV-CMOS	10	SSTL-2	9	93
CS	LV-CMOS	9	SSTL-2	9	47
CKE	DD 3.3V		DD 2.5V		



GAD[0..31] << GAD[0..31] 6
 GCBE#[0..3] << GCBE#[0..3] 6
 SBA[0..7] << SBA[0..7] 6
 AGPST[0..2] << AGPST[0..2] 6



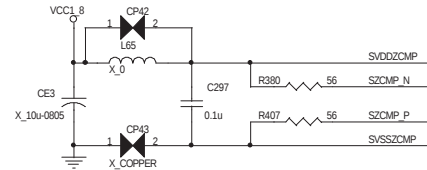
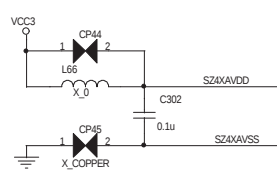
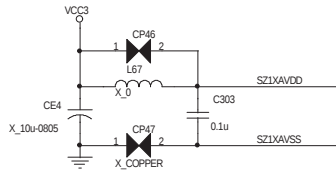
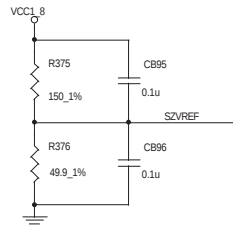
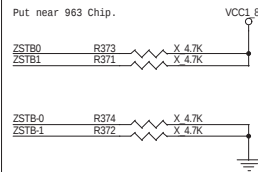
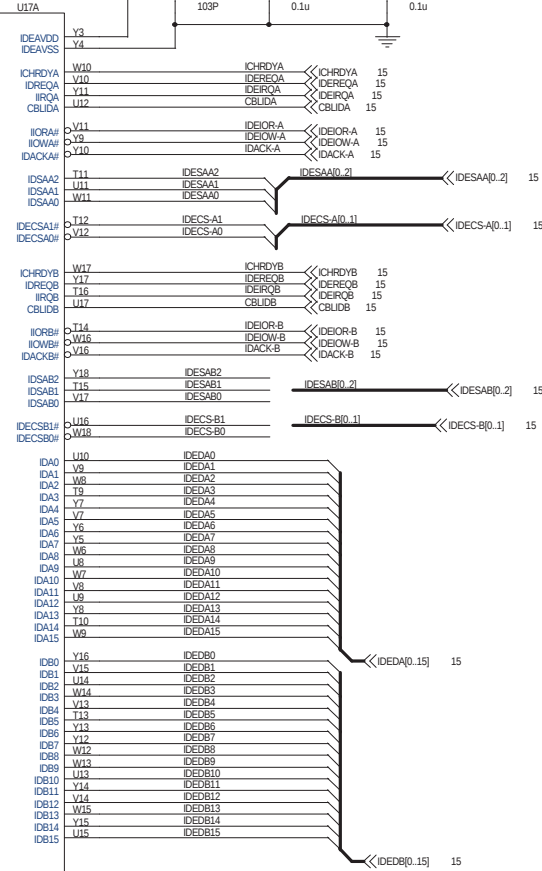


PCI

IDE

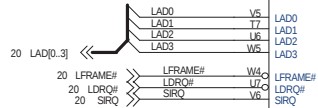
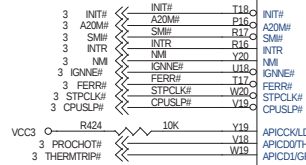
963-1

HyperZip



Analog Power supplies of Transzip function for 963 Chip.

Programmable on-die pull-high strength for CPU_S:
(Infinite, 150, 110, 56 Ohm)



CPU_S

APIC

LPC

RTC

963-2

GPIO

AC97

ACPI
/others

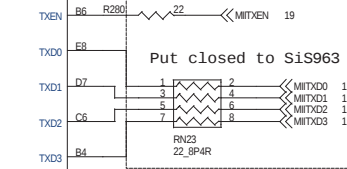
GPIO

KBC
/geyserville

MII

OSC25MH-
OSC25MH+
TXCLK
TXEN
TXD0
TXD1
TXD2
TXD3

Trace Width 10mils.

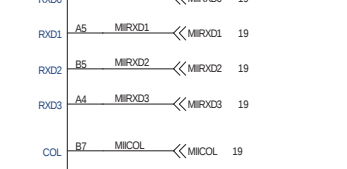


RXCCLK << MIRXCLK 19
RXDV << MIRXDV 19
RXER << MIRXER 19
RXD0 << MIRXD0 19
RXD1 << MIRXD1 19
RXD2 << MIRXD2 19
RXD3 << MIRXD3 19
COL << MIICOL 19
CRS << MICRS 19
MDC << MIMDC 19
MDIO << MIMDIO 19
MIAVDD << FB19 80S L0805 VCC3SBY
MIAVSS << C234 103P C256 0.1u C222 10u-0805
GPIO0 << MB_ID0

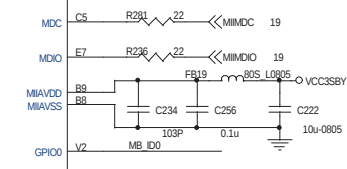
GPIO1 << MB_ID1
GPIO2 << THERM# << THERM# 20
GPIO3 << MB_ID2
GPIO4 << MB_ID3
GPIO5 << GPIO5
GPIO6 << GPIO6
GPIO7 << GPIO7 20
GPIO8 << RING# << RING# 21
GPIO9 << AC_SGIN2
GPIO10 << AC_SGIN3
GPIO11 << IOST25MSTP_PC#
GPIO12 << CPUSTP#

SIS963

Trace Width 10mils.



Trace Width 10mils.



OSC32KH-
OSC32KH+
BATOK
PWRGD
RTCVDD
RTCVSS

GPIO20 << SMBDAT B2
GPIO19 << SMBCLK A1

AC_SGIN0 << AC_SGIN0 A2
AC_SGIN1 << AC_SGIN1 D6
AC_SGIN2 << AC_SGIN2 W2
AC_SGIN3 << AC_SGIN3 W2
AC_RST# << AC_RST# D6
AC_BITCLK << AC_BITCLK V1

SB14MHZ << SENTEST W3
SPK << SPK V3
PWRBTTN# << PWRBTTN# A14
PME# << PME# B14
PSON# << PSON# D14
AUXOK << AUXOK A3
AUXOK << AUXOK A15
C273 X_103P

GPIO13 << B1
GPIO14 << E5
KBDAT << KBDAT E13
KBCLK << KBCLK A16
MSDAT << MSDAT D13
MSCLK << MSCLK B15

GPIO15 << KBDAT
GPIO16 << KBCLK
GPIO17 << MSDAT
GPIO18 << MSCLK

GPIO19 << SMBCLK
GPIO20 << SMBDAT

GPIO21 << THERM#

GPIO22 << MB_ID2

GPIO23 << MB_ID3

GPIO24 << GPIO5

GPIO25 << GPIO6

GPIO26 << GPIO7

GPIO27 << RING#

GPIO28 << AC_SGIN2

GPIO29 << AC_SGIN3

GPIO30 << IOST25MSTP_PC#

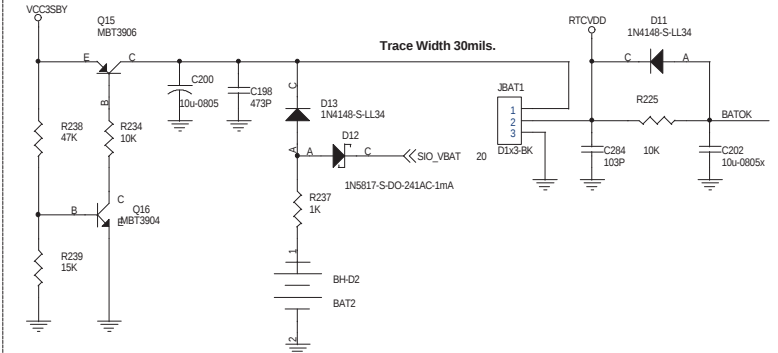
GPIO31 << CPUSTP#

SIS963

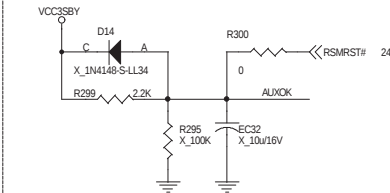
Trace Width 10mils.

Trace Width 10mils.

BATTERY BLOCK

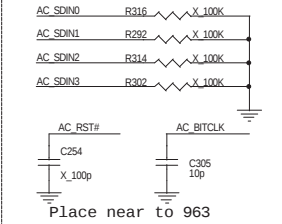


RSMRST

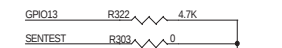
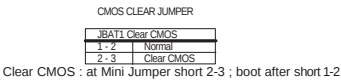
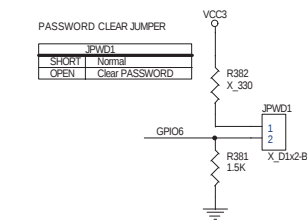


AC'97 Pull-Down:

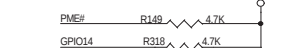
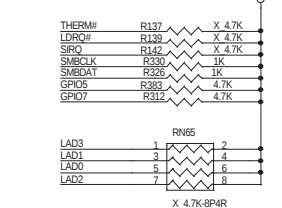
In order to stabilize 963 AC'97 controller, pull-down resistors on SDAT1 and SDAT8 can not be removed.



NEED NOT to place close to SIS963



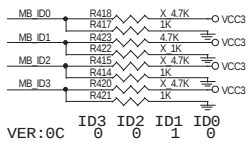
LAD[0:3], LDRQ#, SIRQ
-----REGISTER NEED SETTING



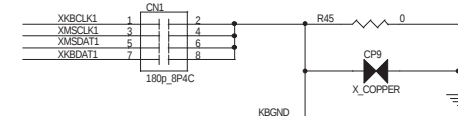
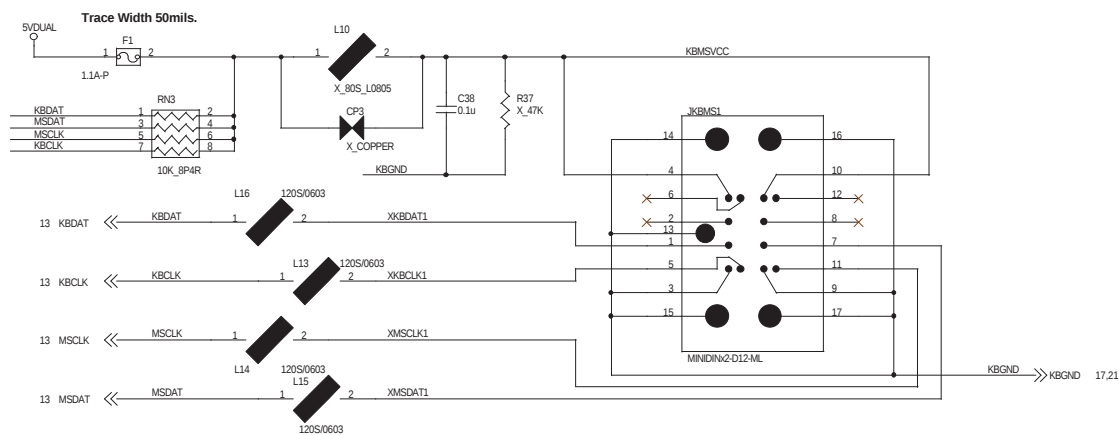
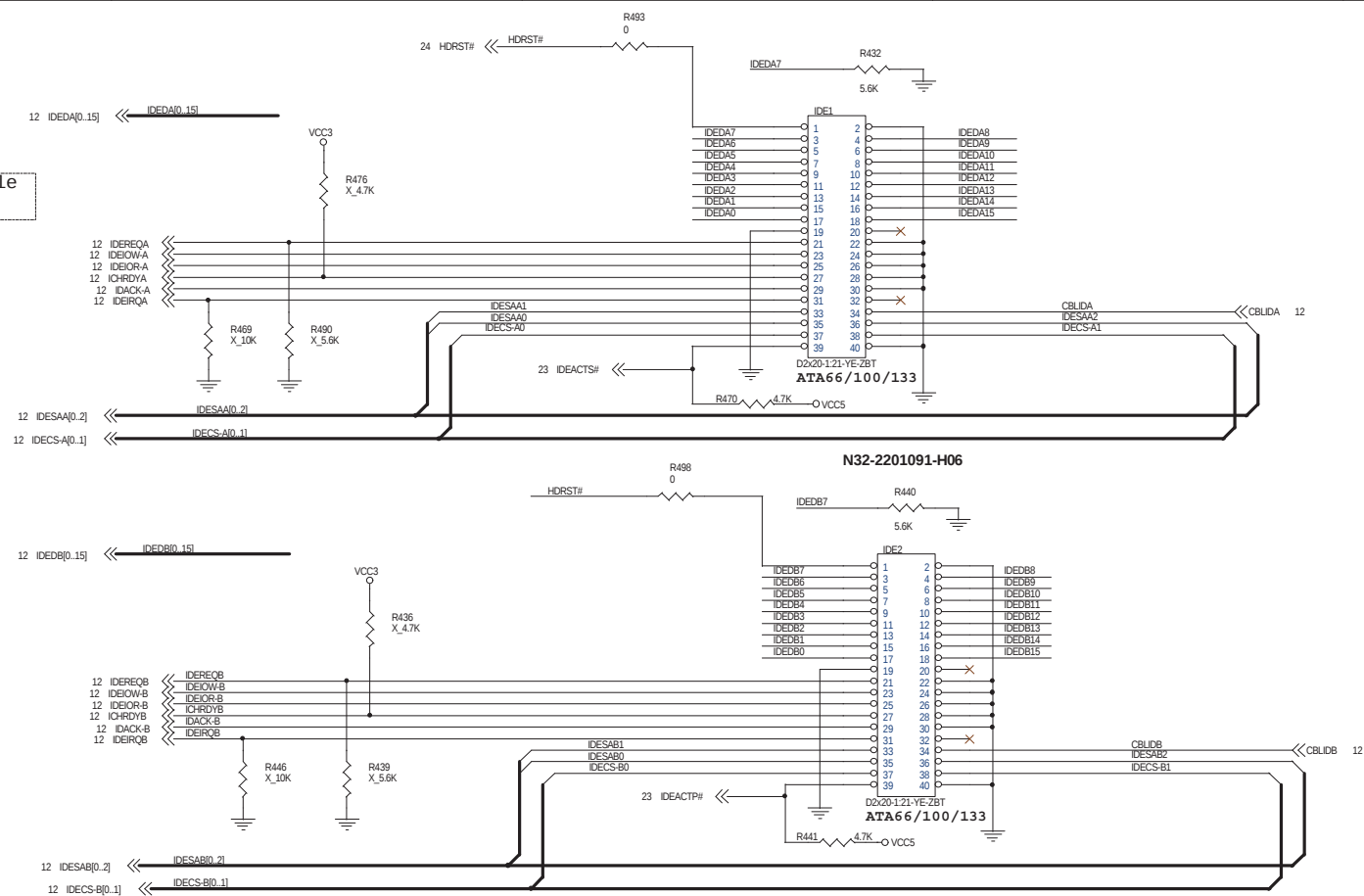
MICRO-STAR

Title				SiS963-2 MSIC	
Size		Document Number		MS-6703	
Date		Tuesday, October 22, 2002		Sheet 13 of 27	

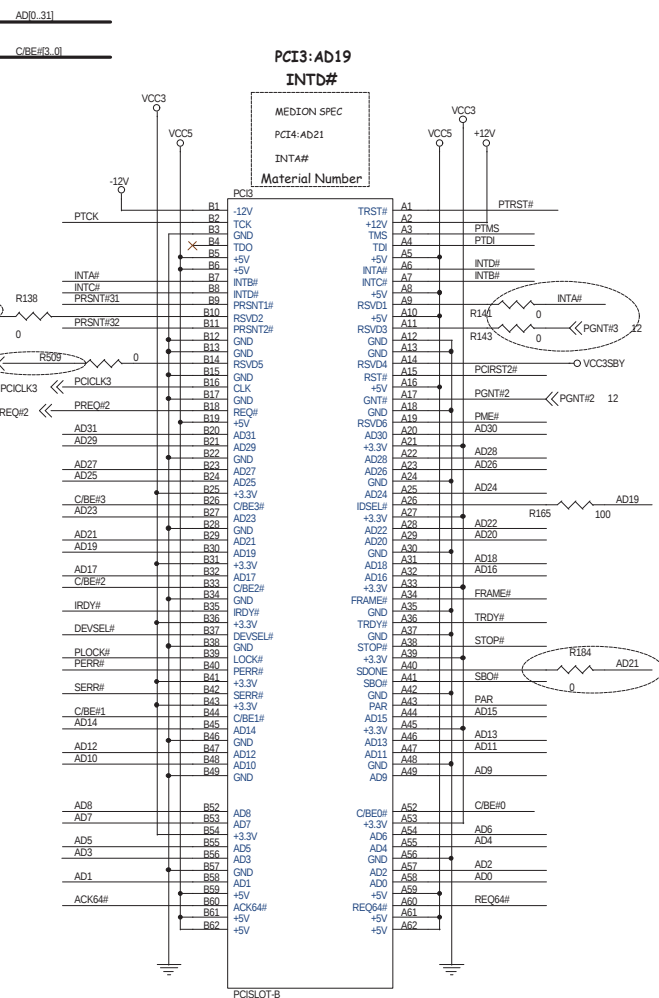
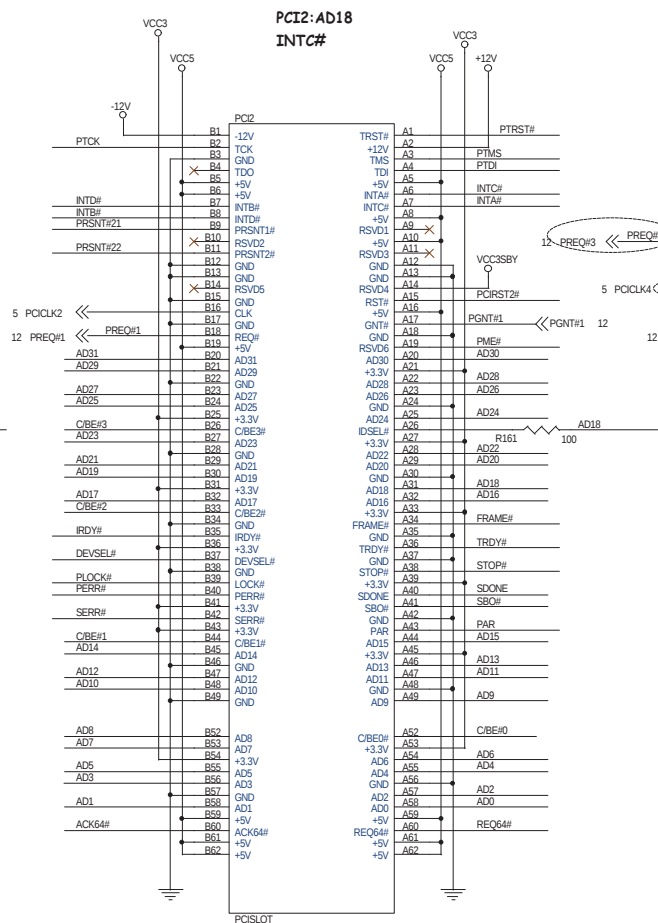
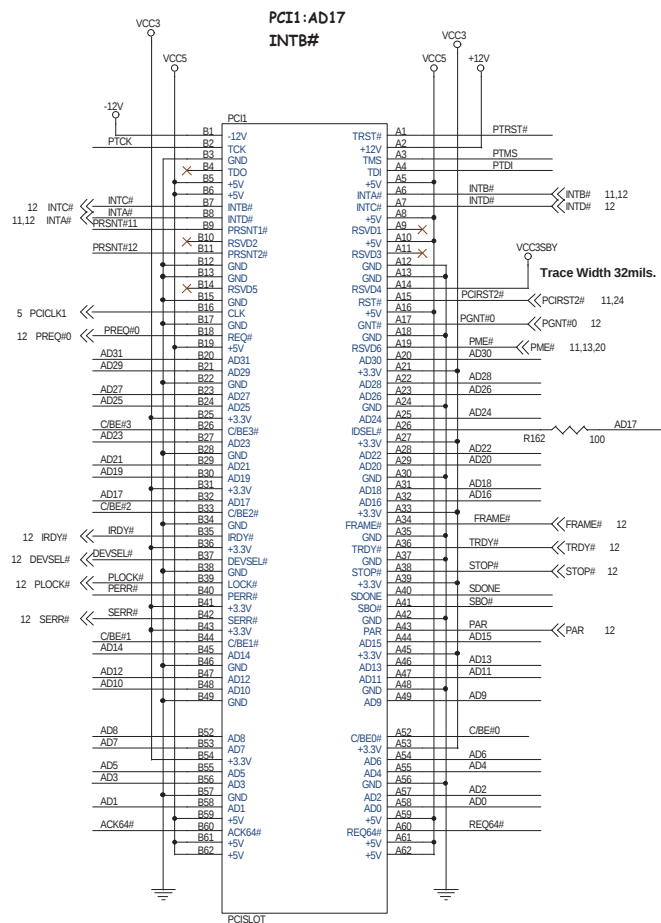
M/B Revision ID



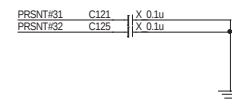
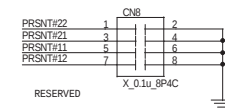
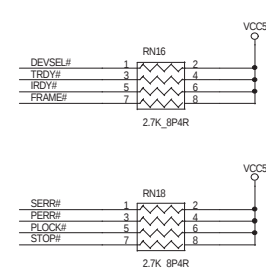
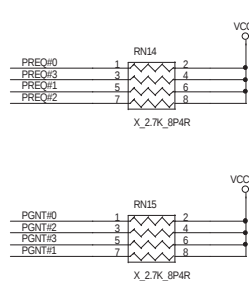
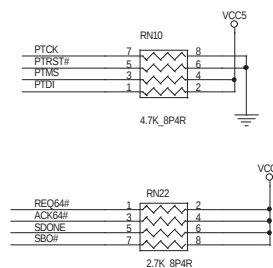
Reference a963004.PDF file
Removed R Value



PCI SLOT 1,2,3 (PCI VER:2.2 COMPLY)



PCI BUS PULL-UP

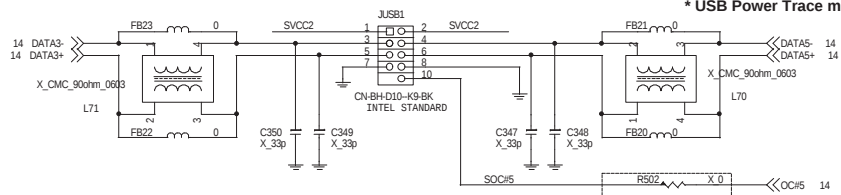


MICRO-STAR

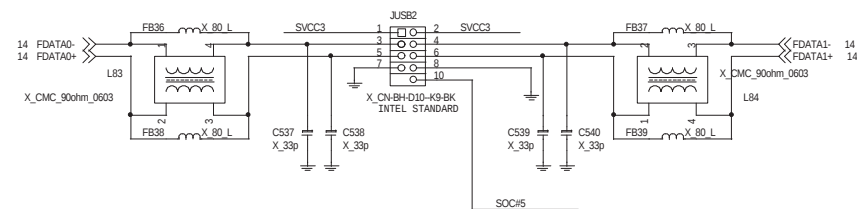
Title			
PCI Slot 1 & 2 & 3			
Size	Document Number	Rev	
	MS-6703	2.0A	
Date:	Tuesday, October 22, 2002	Sheet	16 of 27

USB PORT

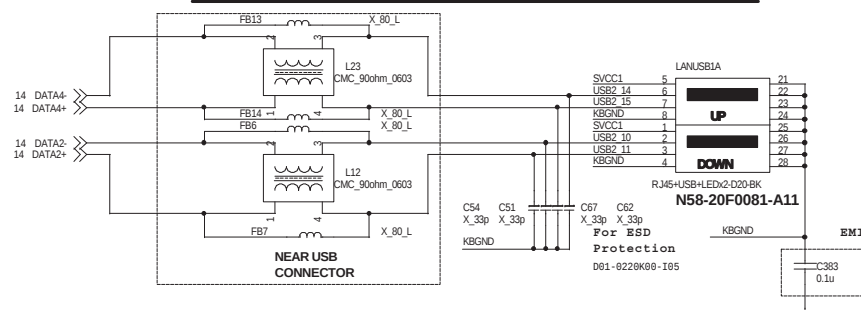
FRONT PANEL USB CONNECTOR FOR USB PORT 3,5



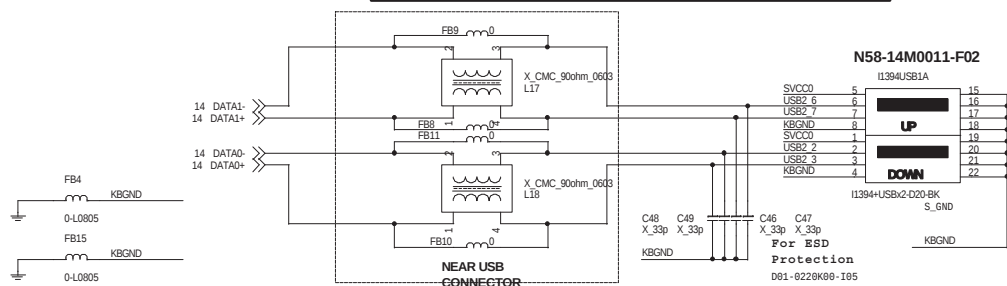
- * USB Trace width : 7 mils
- * USB Trace Spacing : 20 mils
- * Differential USB Signal Trace, Spacing : 6 mils
- * USB Power Trace must be 50mils width



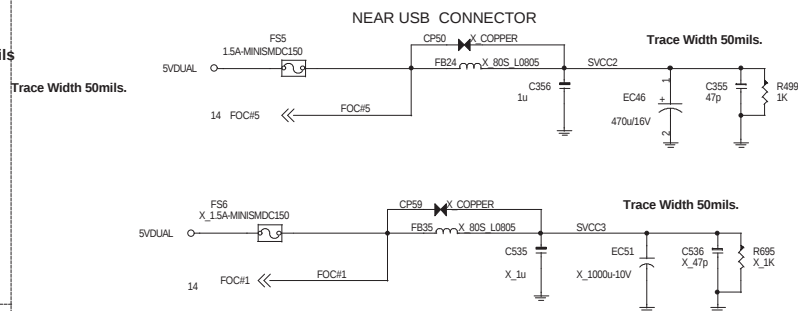
REAR PANEL LAN_USB CONNECTOR FOR USB PORT 2,4



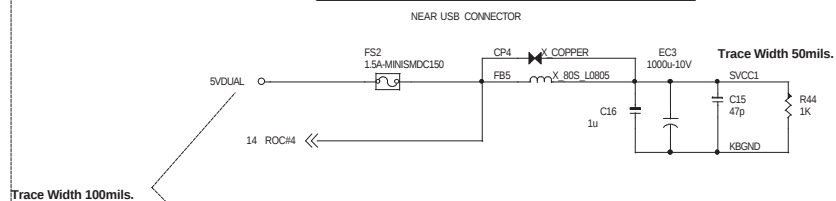
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



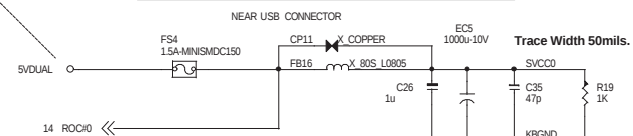
POWER CIRCUIT FOR USB PORT 3,5



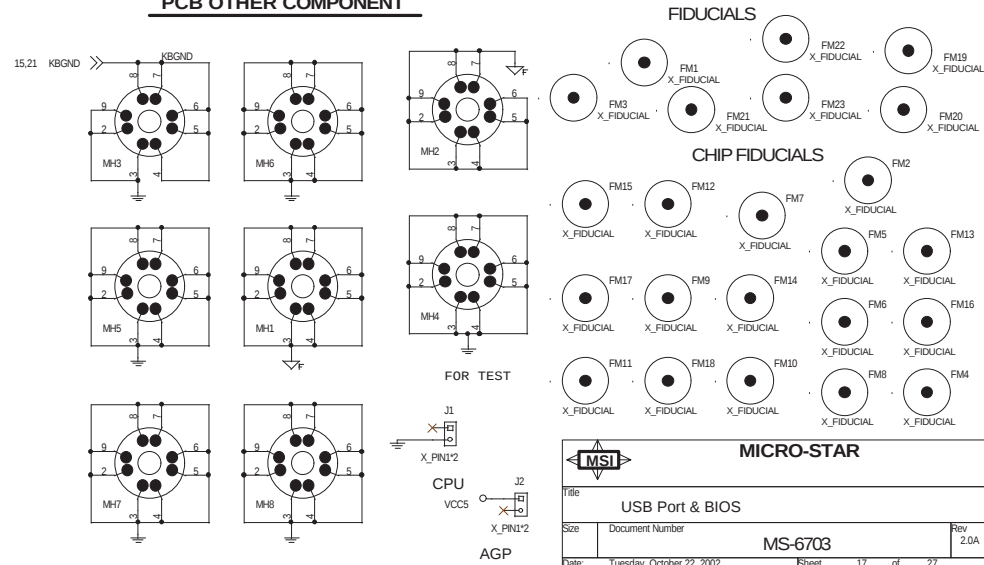
POWER CIRCUIT FOR USB PORT 2,4



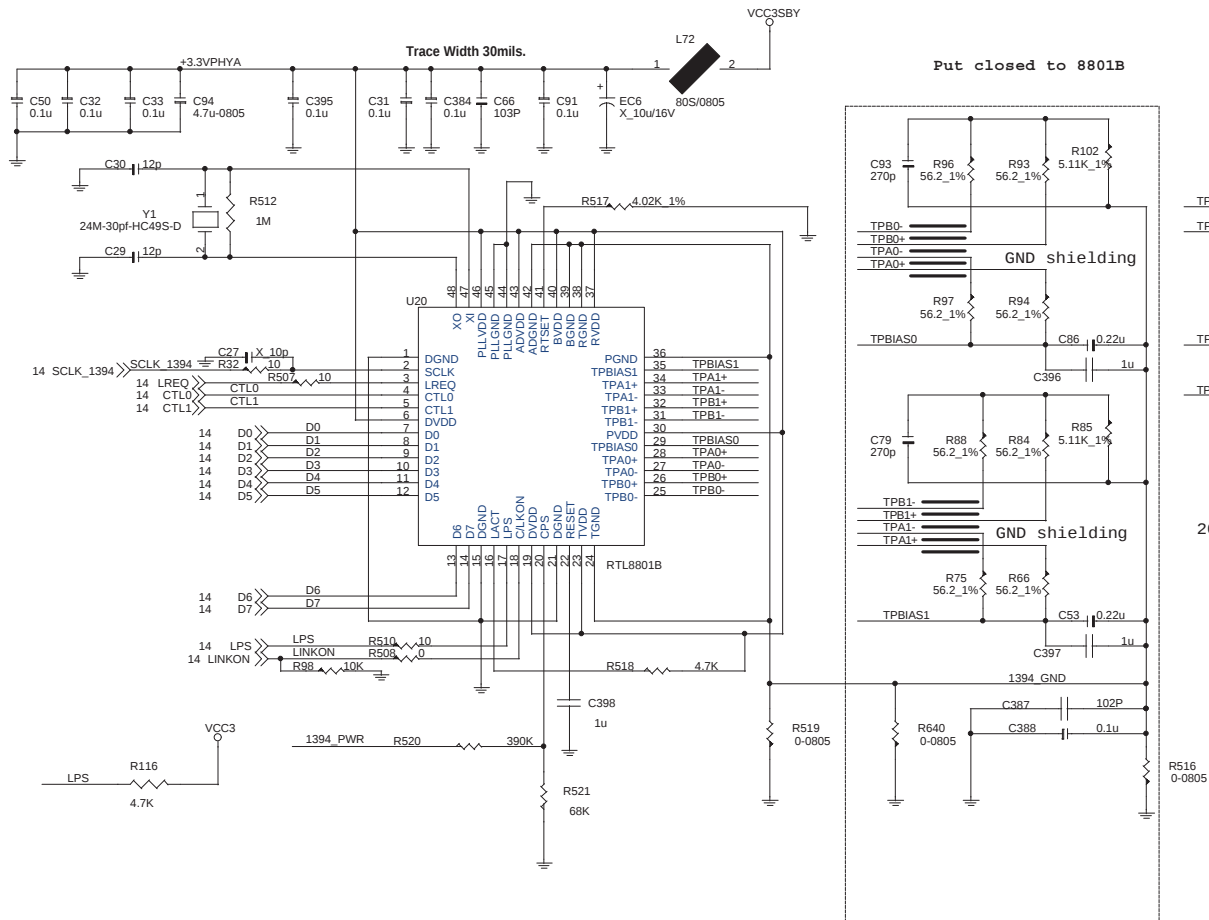
POWER CIRCUIT FOR USB PORT 0,1



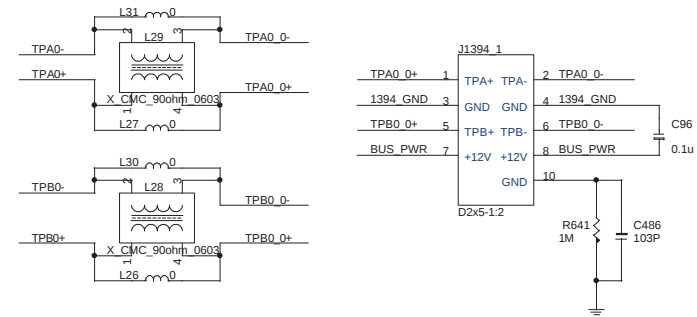
PCB OTHER COMPONENT



Realtek IEEE 1394a PHY RTL8801B

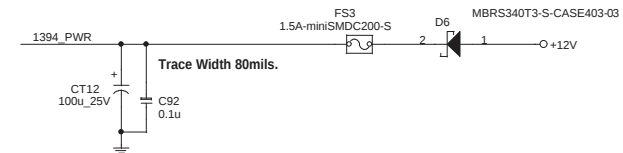
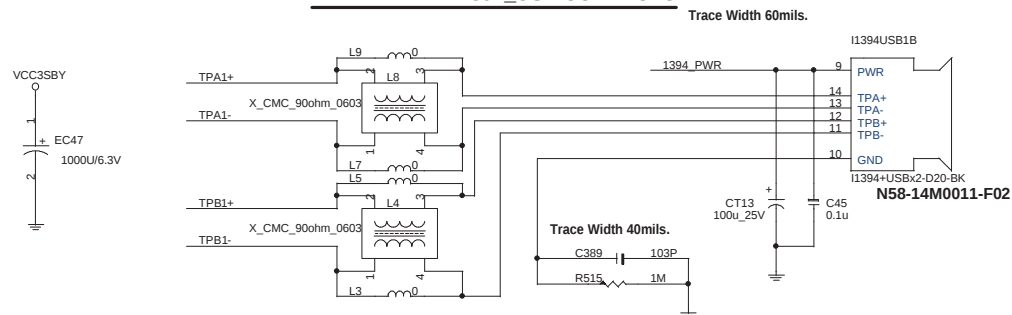


FRONT PANEL IEEE 1394 CONNECTORS



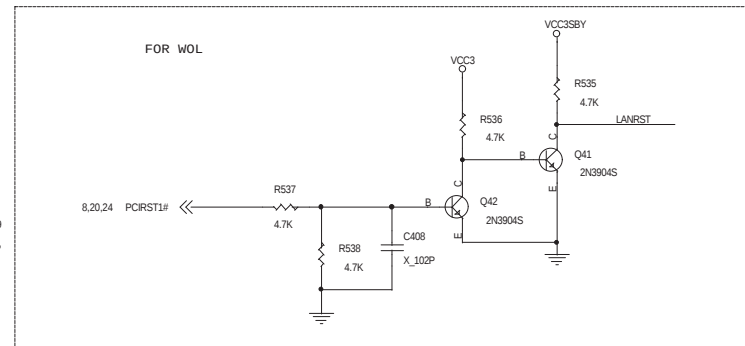
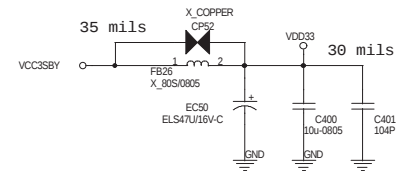
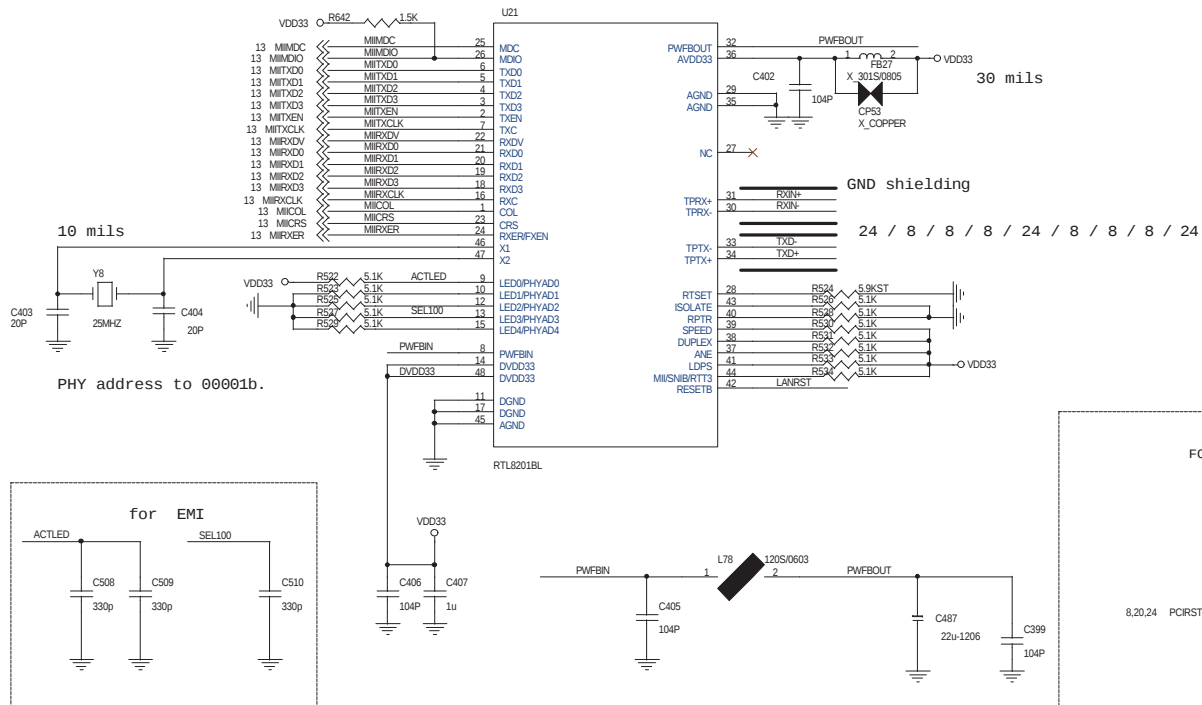
20 / 10 / 10 / 10 / 20

REAR PANEL I1394_USB CONNECTOR



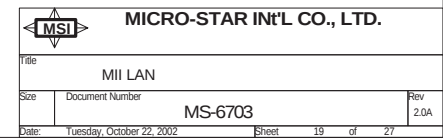
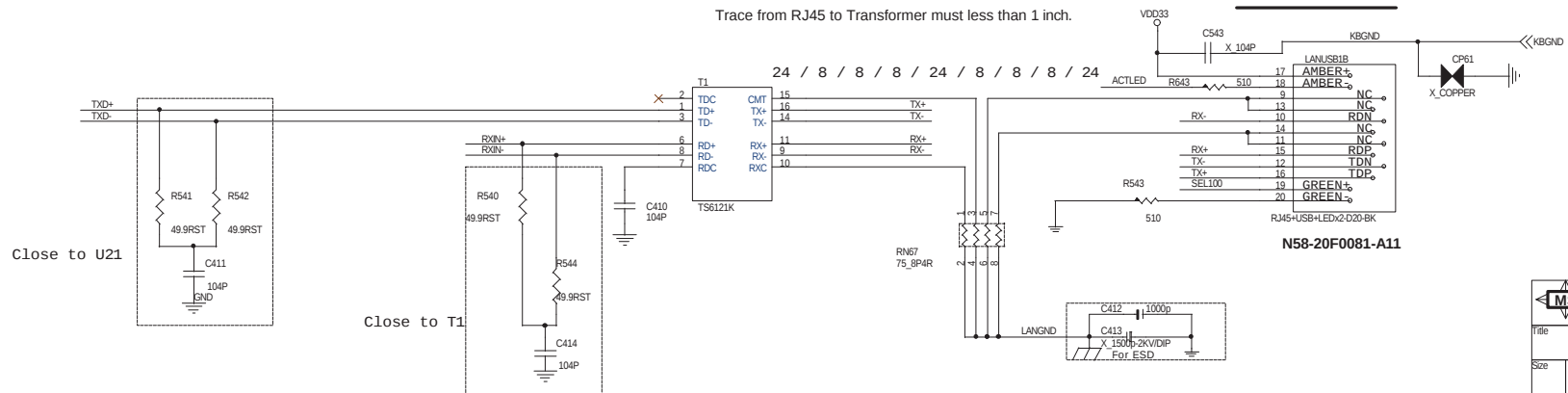
REALTEK 8201BL MII PHY

MIITXCLK , MIIRXCLK 14 / 7 / 14
7 / 7

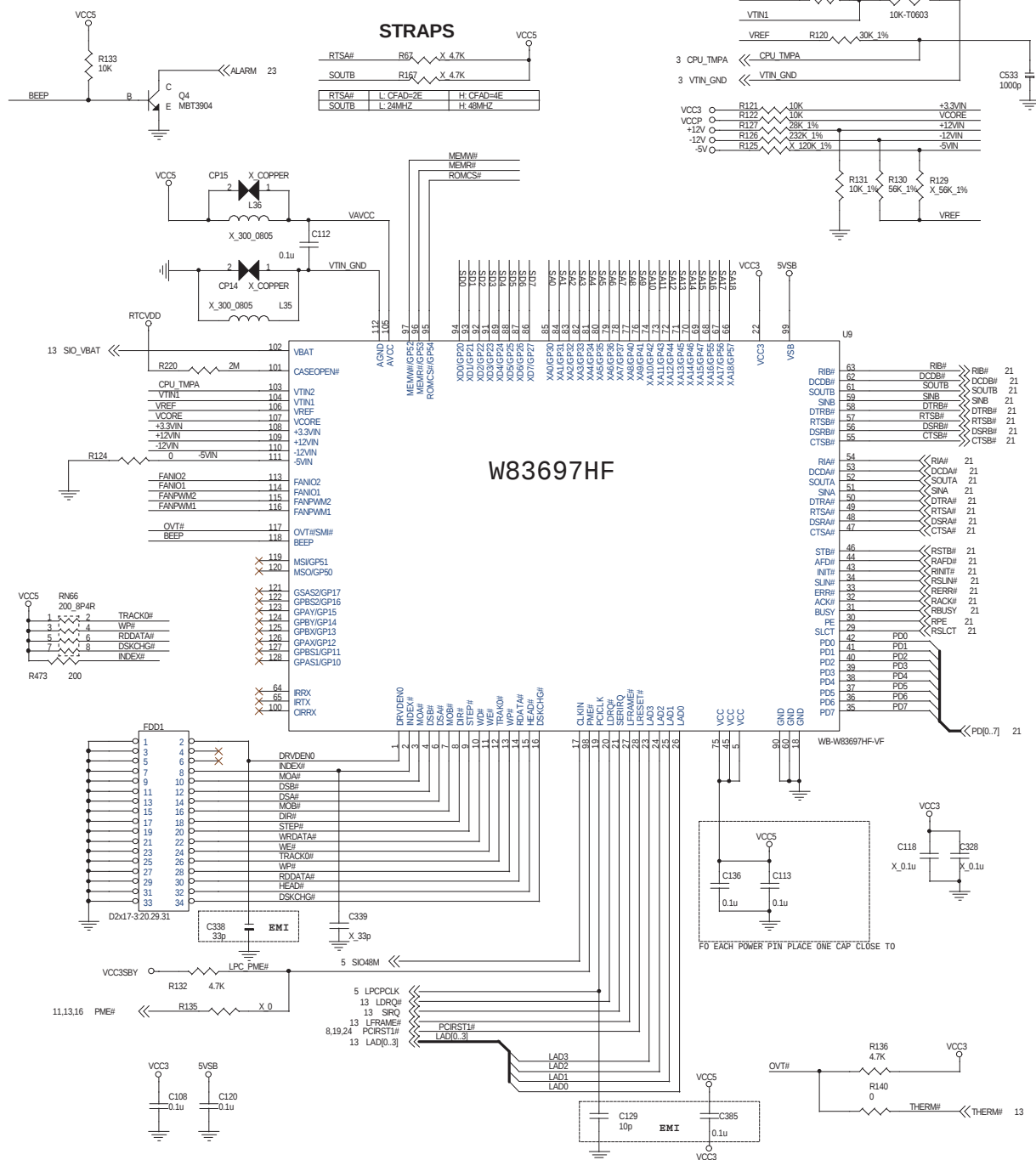


RJ45 Connector

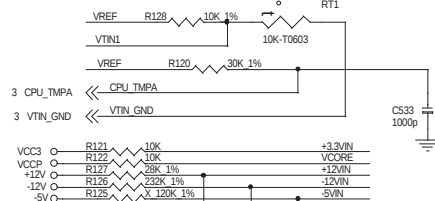
Trace from RJ45 to Transformer must less than 1 inch.



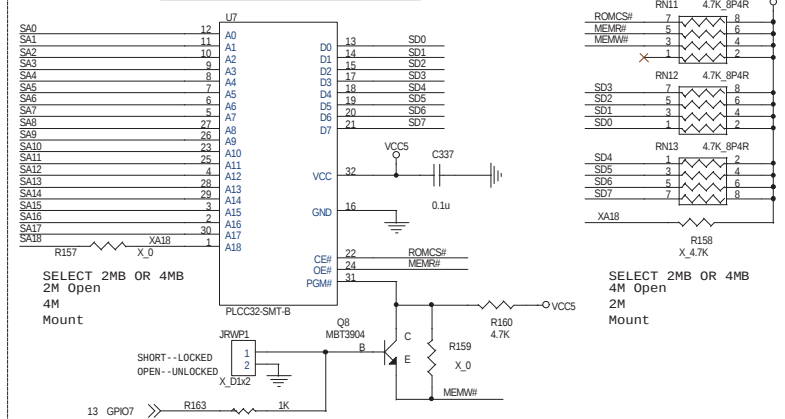
SUPER I/O



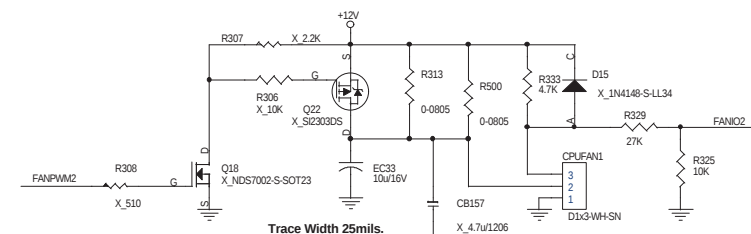
Hardware Monitor



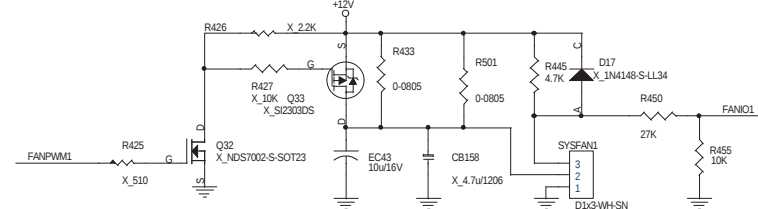
Flash Rom



CPU FAN



SYSTEM FAN



MICRO-STAR INT'L CO., LTD.

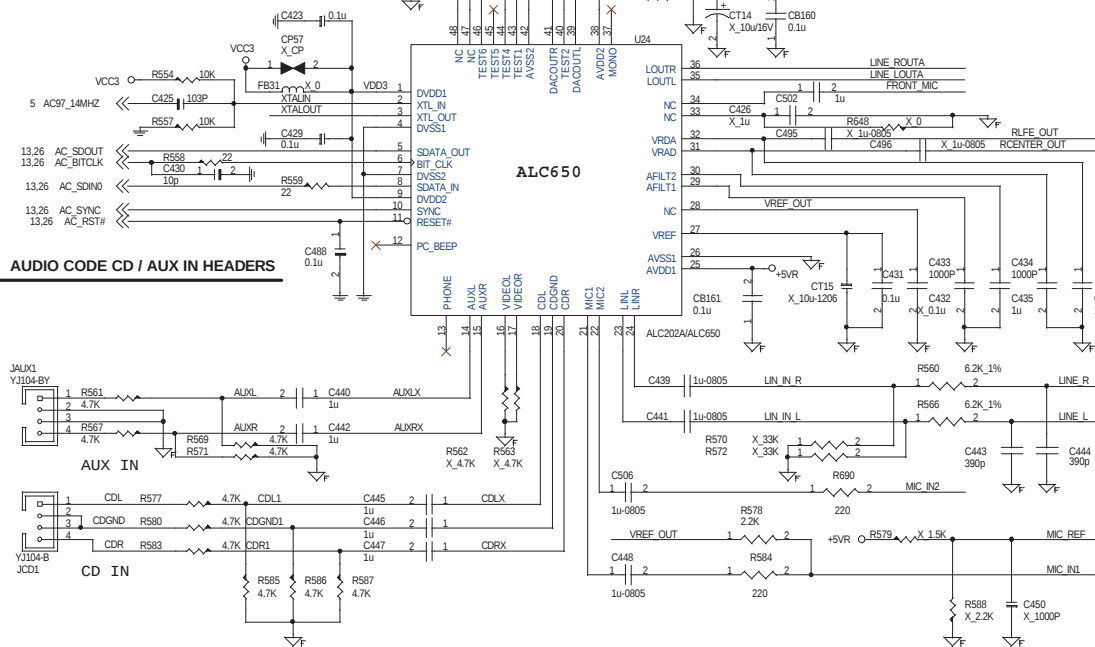
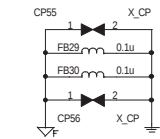
Title W83697HF I/O & H/W MONITOR

Size	Document Number
	MS-6703

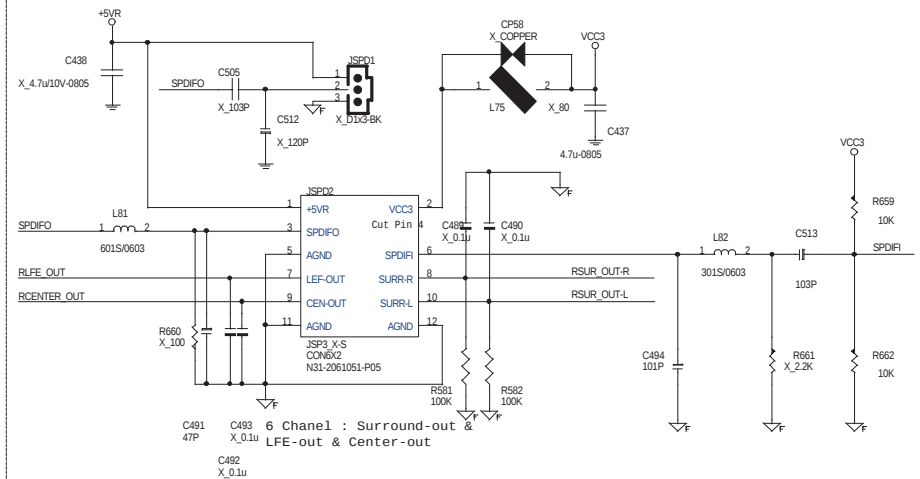
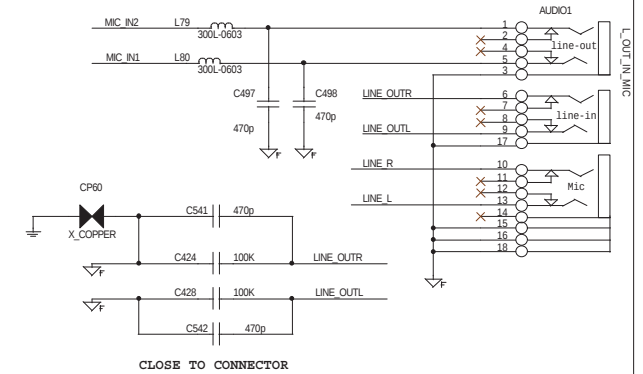
MS-8703

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DECOUPLING CAPACITOR

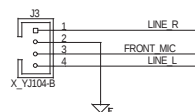


NAME	ALC650/E	AD11980	ALC282A
R644	X	V	X
R645	X	V	X
R646	X	V	X
R647	X	V	X
R648	X	V	X
C495	X	V	X
C496	X	V	X
C415	V	X	X
C416	V	X	X
R547	V	V	X
C417	V	V	X
C419	V	V	X
R564	V	V	X
R568	V	V	X
R573	V	V	X
R574	V	V	X
R575	V	V	X
R576	V	V	X
R581	V	V	X
R582	V	V	X
JSPD1	V	V	X
JSPD2	V	V	X

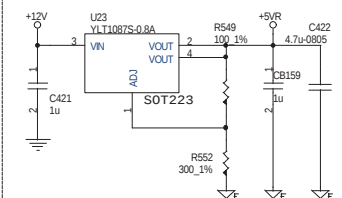


SPEAKER R R598 1  2 X 0 LINE OUTR

SPEAKER L R600 1 2 X 0 LINE OUTL



AUDIO CODE REGULATORS



MICRO-STAR

AC'97 AUDIO

MS-6703

Rev
2.0A

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[illegible]

ATX CONNECTOR

VCC3

-12V

5VSB

POK

VCC5

VCCS

PWR_OK

5VSB

+12V

VCC3BY

SLP_S5#

SLP_S3#

PSQN#

S3AUXSW#

	S0	S3	S5
S3AUXSW#	1	0	1
PSQN#	0	1	1
SLP_S5#	1	1	0
SLP_S3#	1	0	0

FRONT PANEL

IDE LED

FP_RST#

IDEACTP#

IDEACTS#

PLED1

PLED2

PWRBTN#

SPK

BZ1 BUZZER

	S0	S3	S5
S3AUXSW#	1	0	1
PSQN#	0	1	1
SLP_S5#	1	1	0
SLP_S3#	1	0	0

ATX CONNECTOR

VCC3

-12V

5VSB

POK

VCC5

VCCS

PWR_OK

5VSB

+12V

VCC3BY

SLP_S5#

SLP_S3#

S3AUXSW#

PSON#

	S0	S3	S5
S3AUXSW#	1	0	1
PSON#	0	1	1
SLP_S5#	1	1	0
SLP_S3#	1	0	0

FRONT PANEL

IDEACTP#

IDEACTS#

FP_RST#

IDE LED

PLED1

PLED2

PWRBTN#

SPK

BZ1 BUZZER

ATX CONNECTOR

VCC3

-12V

5VSB

POK

VCC5

VCCS

PWR_OK

5VSB

+12V

VCC3BY

SLP_S5#

SLP_S3#

S3AUXSW#

PSON#

	S0	S3	S5
S3AUXSW#	1	0	1
PSON#	0	1	1
SLP_S5#	1	1	0
SLP_S3#	1	0	0

FRONT PANEL

IDEACTP#

IDEACTS#

FP_RST#

IDE LED

PLED1

PLED2

PWRBTN#

SPK

BZ1 BUZZER

System Decoupling Capacitors

VCC5

EC10
X_470u/16V

C295 0.1u

C203 0.1u

C184 0.1u

VCC3

EC8
X_10u/16V

C109 0.1u

C105 0.1u

C334 0.1u

C357 0.1u

C208 0.1u

C335 0.1u

C117 0.1u

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

High Freq. return current decoupling

VCC5

C144 1000p

C122 1000p

C196 X_1000p

C142 X_1000p

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

C315 0.1u

5VSB

C346 0.1u

C330 X_0.1u

EMI RESERVED

EMI ISSUE

EMI issues

VCC5

C206 X_0.1u

C81 0.1u

C126 0.1u

C143 0.1u

C134 0.1u

C205 X_0.1u

C63 0.1u

C80 X_0.1u

C201 X_0.1u

VCC3

C313 103P

C133 103P

VCC2.5V

C310 0.1u

VCC3

VCC3SBY

EC7
X_10u/16V

C88 0.1u

C95 0.1u

C99 X_0.1u

C106 X_0.1u

C127 0.1u

C259 0.1u

C138 0.1u

C352 0.1u

C213 0.1u

C331 0.1u

The schematic illustrates various decoupling capacitor networks across multiple PCB layers.

System Decoupling Capacitors

- VCC5:** EC10 (X_470u/16V) series combination; parallel network of C295, C203, and C184 (all 0.1u).
- +12V:** EC8 (X_10u/16V) series combination; parallel network of C109 and C105 (both 0.1u).
- VCCS:** Parallel network of C334, C357, C208, C335, and C117 (all 0.1u).
- 12V:** EC7 (X_10u/16V) series combination; parallel network of C88 and C95 (both 0.1u); EMI RESERVED area containing C99 (X_0.1u) and C106 (X_0.1u).
- VCC3SBY:** Parallel network of C127, C259, C138, and C352 (all 0.1u).
- VCC3:** Parallel network of C213, C331, and C315 (all 0.1u); EMI RESERVED area containing C138 (X_0.1u) and C197 (X_0.1u).
- 5VSB:** Parallel network of C346 and C330 (both 0.1u); EMI RESERVED label.
- VCC3SBY:** Parallel network of C360 and C261 (both 0.1u).
- +12V:** Parallel network of C110 and C288 (both 0.1u).

High Freq. return current decoupling

- VCC5/VCC3:** Parallel network of C144, C122, C196, and C142 (all 1000pF); EMI ISSUE label.
- VCC5/VCC3:** Parallel network of C313 and C133 (both 103P).
- VCC2.5V/VCC3:** Series combination of C310 and 0.1u capacitor.
- VCC3/VCC1_8:** Series combination of C258 and X_0.1u capacitor.
- VCCM/VCC3:** Parallel network of C299, C280, C265, and X_0.1u capacitor.
- VDDQ/VCC3:** Series combination of C238 and 1000pF capacitor; EMI issues label.
- VCCM:** Series combination of C270 and X_0.1u capacitor; EMI issue label.
- reserved:** Large decoupling network between VCC5 and ground, including C206, C81, C126, C143, C134, C205 (X_0.1u), C63, C80 (X_0.1u), and C201 (X_0.1u). Includes EMI issues and EMI labels.

MICRO-STAR INT'L CO., LTD.			
File		ATX & F-Panel	
Size	Document Number	Rev	
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[illegible]

This diagram illustrates the power supply decoupling and high-frequency return current decoupling for a system, divided into two main sections: System Decoupling Capacitors and High Freq. return current decoupling.

System Decoupling Capacitors:

- VCC5:** EC10 (X_470u/16V) in series with a 1 ohm resistor, followed by parallel capacitors C295 (0.1u), C203 (0.1u), and C184 (0.1u) to ground.
- +12V:** EC8 (X_10u/16V) in series with a 1 ohm resistor, followed by parallel capacitors C109 (0.1u) and C105 (0.1u) to ground.
- VCC3:** EC37 (X_1000u/6.3V) in series with a 1 ohm resistor, followed by parallel capacitors C314 (0.1u), C195 (0.1u), and C318 (0.1u) to ground.
- VCC3SBY:** C360 (0.1u) in series with a 1 ohm resistor, followed by C261 (0.1u) to ground.
- +12V:** C110 (0.1u) in series with a 1 ohm resistor, followed by C288 (0.1u) to ground.
- 12V:** EC7 (X_10u/16V) in series with a 1 ohm resistor, followed by parallel capacitors C88 (0.1u) and C95 (0.1u) to ground.
- VCC3SBY:** C127 (0.1u) in series with a 1 ohm resistor, followed by parallel capacitors C259 (0.1u), C138 (0.1u), and C352 (0.1u) to ground.
- 5VSB:** C346 (0.1u) in series with a 1 ohm resistor, followed by C330 (X_0.1u) to ground.
- VCC3:** EC48 (10000u/6.3V) in series with a 1 ohm resistor, followed by parallel capacitors C359 (0.1u), C164 (0.1u), C165 (0.1u), and C139 (0.1u) to ground.
- VCC3:** C213 (0.1u) in series with a 1 ohm resistor, followed by parallel capacitors C331 (0.1u) and C315 (0.1u) to ground.
- VCC3:** C138 (X_0.1u) in series with a 1 ohm resistor, followed by C197 (X_0.1u) to ground.
- VCC3:** C299 (X_0.1u) in series with a 1 ohm resistor, followed by parallel capacitors C280 (X_0.1u), C265 (X_0.1u), and C258 (X_0.1u) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.

High Freq. return current decoupling:

- VCC5:** C144 (1000p) in series with a 1 ohm resistor, followed by C122 (1000p) to ground.
- VCC3:** C196 (X_1000p) in series with a 1 ohm resistor, followed by C142 (X_1000p) to ground.
- VCC5:** C206 (X_0.1u) in series with a 1 ohm resistor, followed by C81 (0.1u) to ground.
- VCC3:** C63 (0.1u) in series with a 1 ohm resistor, followed by C80 (X_0.1u) to ground.
- VCC3:** C201 (X_0.1u) in series with a 1 ohm resistor, followed by C205 (X_0.1u) to ground.
- VCC3:** C270 (X_0.1u) in series with a 1 ohm resistor, followed by C238 (1000p) to ground.
- VCC3:** C270 (X_0.1u) in series with a 1 ohm resistor, followed by C238 (1000p) to ground.
- VCC3:** C270 (X_0.1u) in series with a 1 ohm resistor, followed by C238 (1000p) to ground.

EMI Issues:

- VCC3:** C138 (X_0.1u) in series with a 1 ohm resistor, followed by C197 (X_0.1u) to ground.
- VCC3:** C213 (0.1u) in series with a 1 ohm resistor, followed by C331 (0.1u) and C315 (0.1u) to ground.
- VCC3:** C299 (X_0.1u) in series with a 1 ohm resistor, followed by C280 (X_0.1u), C265 (X_0.1u), and C258 (X_0.1u) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.
- VCC3:** C310 (0.1u) in series with a 1 ohm resistor, followed by C313 (103P) and C133 (103P) to ground.

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

ATX & F-Panel

MS-6703

Rev 2.0A

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[illegible][illegible][illegible][illegible][illegible]

This diagram illustrates the power supply decoupling and high-frequency return current decoupling for a system, divided into two main sections: System Decoupling Capacitors and High Freq. return current decoupling.

System Decoupling Capacitors:

- VCC5:** EC10 (X 470u/16V) in series with a 1 ohm resistor. Decoupling capacitors C295 (0.1u), C203 (0.1u), and C184 (0.1u) are connected to ground.
- +12V:** EC8 (X 10u/16V) in series. Decoupling capacitors C109 (0.1u) and C105 (0.1u) are connected to ground.
- 12V:** EC7 (X 10u/16V) in series. Decoupling capacitors C88 (0.1u) and C95 (0.1u) are connected to ground. A dashed box labeled "EMI RESERVED" contains capacitors C99 (X 0.1u) and C106 (X 0.1u).
- VCC3:** EC48 (10000u/6.3V) in series. Decoupling capacitors C359 (0.1u), C164 (0.1u), C165 (0.1u), and C139 (0.1u) are connected to ground.
- VCC3SBY:** Decoupling capacitors C127 (0.1u), C259 (0.1u), C138 (0.1u), and C352 (0.1u) are connected to ground.
- 5VSB:** Decoupling capacitors C346 (0.1u) and C330 (X 0.1u) are connected to ground. A dashed box labeled "EMI RESERVED" is shown.
- VCC3:** EC37 (X 1000u/6.3V) in series. Decoupling capacitors C314 (0.1u), C195 (0.1u), and C318 (0.1u) are connected to ground.
- +12V:** Decoupling capacitors C110 (0.1u) and C288 (0.1u) are connected to ground.
- VCC3SBY:** Decoupling capacitors C360 (0.1u) and C261 (0.1u) are connected to ground.

High Freq. return current decoupling:

- VCC5:** C144 (1000p) and C122 (1000p) are connected to VCC3. A dashed box labeled "EMI ISSUE" contains capacitors C196 (X 1000p) and C142 (X 1000p).
- VCC3:** C313 (103P) and C133 (103P) are connected to VCC5. A dashed box labeled "EMI ISSUE" contains capacitors C310 (0.1u) and C310 (0.1u).
- VCC2.5V:** C310 (0.1u) is connected to VCC3.
- VCC3:** C299 (X 0.1u), C280 (X 0.1u), C265 (X 0.1u), and C258 (X 0.1u) are connected to VCC1_8.
- VCC3:** C238 (1000p) is connected to VDDQ. A dashed box labeled "EMI issues" contains capacitors C238 (1000p) and C270 (X 0.1u).
- VCC3:** C270 (X 0.1u) is connected to VCCM. A dashed box labeled "EMI issue" is shown.
- VCC3:** C206 (X 0.1u), C81 (0.1u), C126 (0.1u), C143 (0.1u), C134 (0.1u), C205 (X 0.1u), C63 (0.1u), C80 (X 0.1u), and C201 (X 0.1u) are connected to VCC5. A dashed box labeled "EMI" contains capacitors C63 (0.1u), C80 (X 0.1u), and C201 (X 0.1u).
- VCC3:** C213 (0.1u) and C331 (0.1u) are connected to VCC5. A dashed box labeled "EMI issues" contains capacitors C138 (X 0.1u) and C197 (X 0.1u).
- VCC3:** C213 (0.1u) and C331 (0.1u) are connected to VCC5. A dashed box labeled "EMI issues" is shown.
- VCC3:** C213 (0.1u) and C331 (0.1u) are connected to VCC5. A dashed box labeled "EMI issues" is shown.

Legend:

- MSI: MICRO-STAR INT'L CO., LTD.
- ATX & F-Panel
- Size: Document Number
- Rev: 2.0A
- Date: Tuesday, October 22, 2002
- Sheet: 23 of 27

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

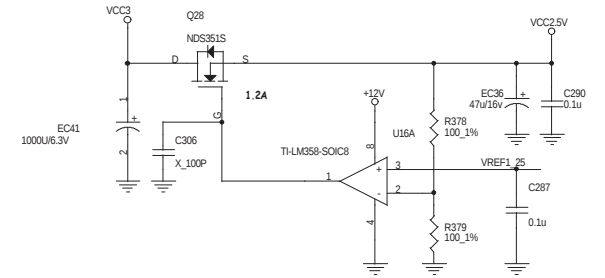
FOR 3VDUAL ** SETTING 3VSTR THEN VRAM_2.5
SETTING BY BECOME TO 1.25 VREF
SEL1

SEL0	5VUSB
H	2 MOSFET
L	1 MOSFET

5VUSB USE 2 MOSFET

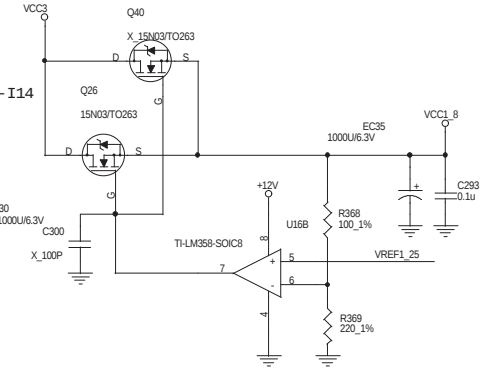
Low RDS ON MOSFET

2.5V POWER TRANSLATOR

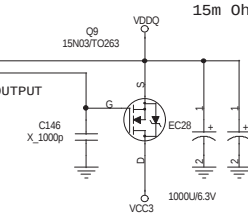


1.8V POWER TRANSLATOR

D03-3055LSB-N03=T0263 90m Ohm

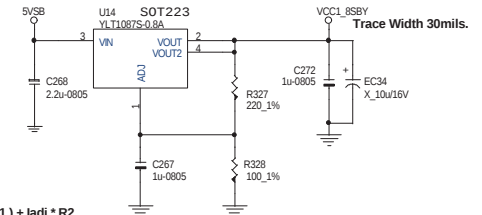


D03-15N030B-I14
15m Ohm



Trace Width 20mils.

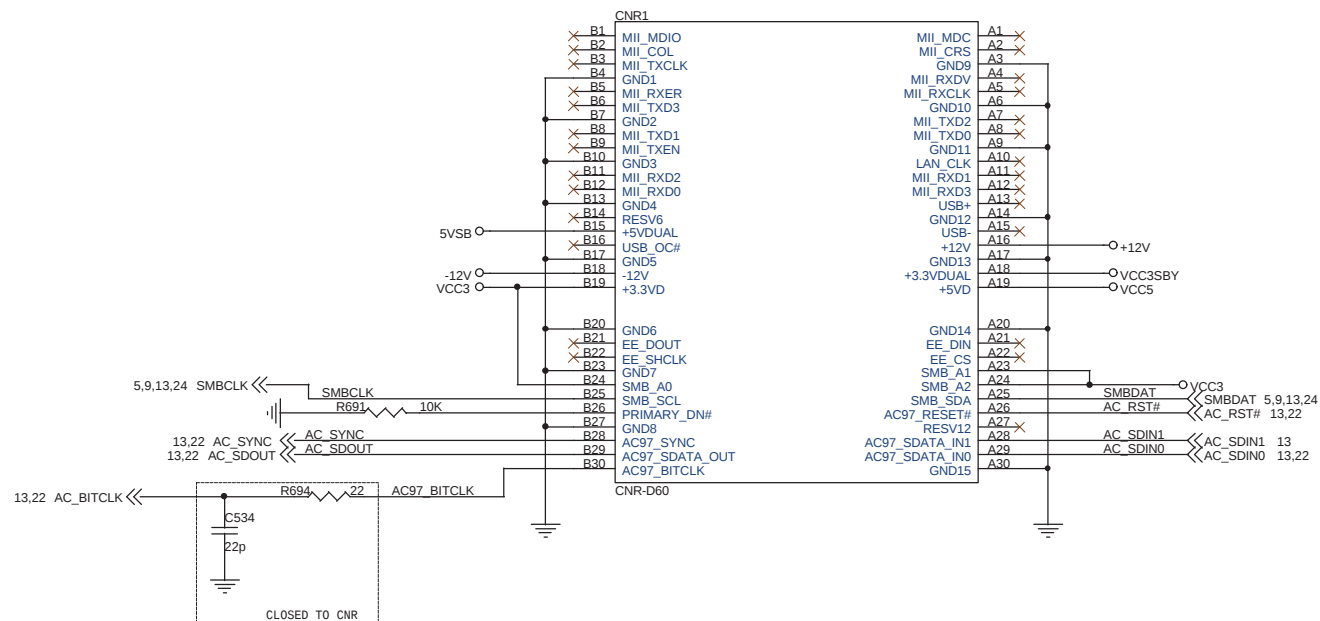
Trace Width 35mils.



$$V_o = V_{ref} (1 + R_2 / R_1) + I_{adj} * R_2$$

$$V_o = 1.25 (1 + R_2 / R_1) + 50\mu A * R_2$$

MICRO-STAR INT'L CO., LTD.			
Title MS-5 ACPI Controller			
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MANUAL PART



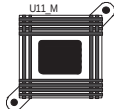
BAT2_M
BATTERY



U7_M
4 Mega
N31-29040P8-W03
M31-3904008-S20



PCB
MS-6703-20A



U11_M
NB-Heat Sink
E31-0400070-A02
E31-0400070-K08
E31-0400070-E25



Q53-Q54
MOS-HEATSINK



Q55-Q56
MOS-HEATSINK



JBAT1(1-2)
JC-D2-GN
CMOS CLEAR(1-2)



JPWD1(1-2)
X_JC-D2-GN
CLEAR PassWord(1-2)



JAUD1(5-6)
JC-D2-GN



JAUD1(9-10)
JC-D2-GN



U12_M
478-FAN
Retention
Module
CPU_Retention



U12_MB
X_BACK PLATE



U12_M1
X_SCREW



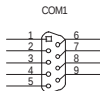
U12_M2
X_SCREW



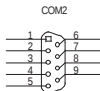
U12_M3
X_SCREW



U12_M4
X_SCREW



COM1
COMport



COM2
COMport

Jumper

Description

JAUD1 AUDIO FRONT PANEL HEADPHONE JACK HEADER

JBAT1

CLEAR CMOS

1-2

NORMAL

(Default)

2-3

CLEAR CMOS

JPWD1

CLEAR PASSWORD

1-2(SHORT)

NORMAL

(Default)

1-2(OPEN)

CLEAR PASSWORD



MICRO-STAR

Title

Manual Parts

Size

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