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MS-7122 (MAGA3) *Version 0B*

Intel (R) Springdale (GMCH) + ICH5 Chipset
Intel Prescott LGA775 Processor

CPU:

Intel LGA775 Prescott

System Chipset:

Intel Springdale - GMCH (North Bridge)
Intel ICH5 (South Bridge)

On Board Chipset:

BIOS -- FWH EEPROM
AC'97 Codec --RealTek ALC658
LPC Super I/O -- SMSC 47M292
LAN --REALTEK LAN 8110S/8100C
CLOCK --ICS 952617

Main Memory:

DDR * 2 (Max 2GB)

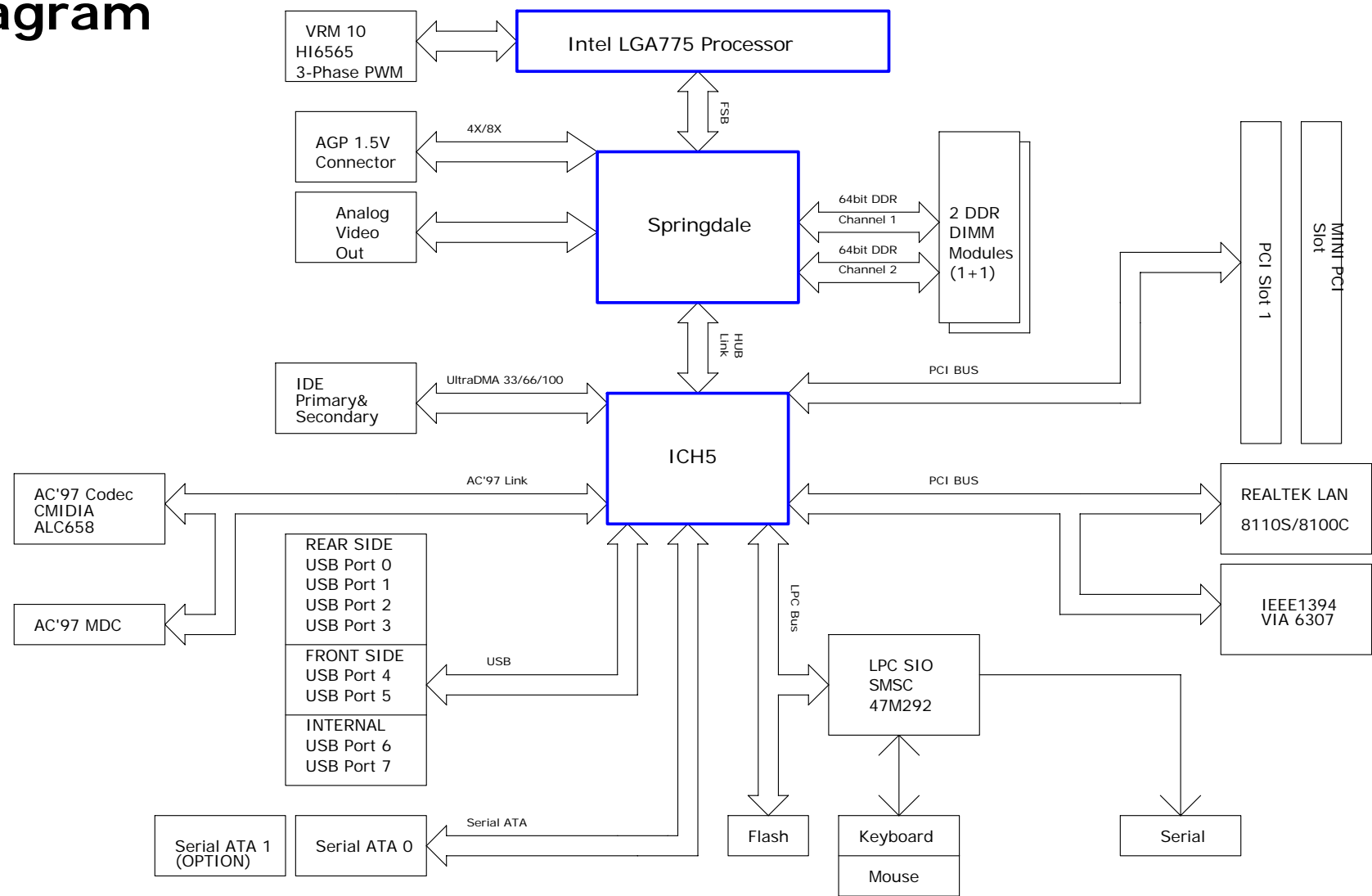
Expansion Slots:

PCI2.3 SLOT *1&MINI CPI*1

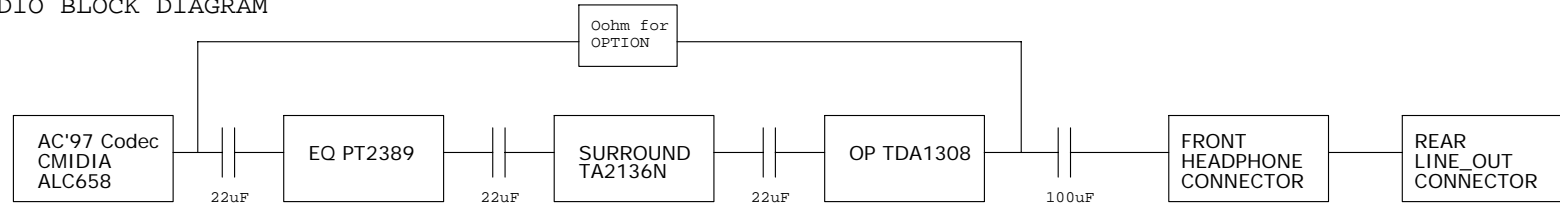
PWM:

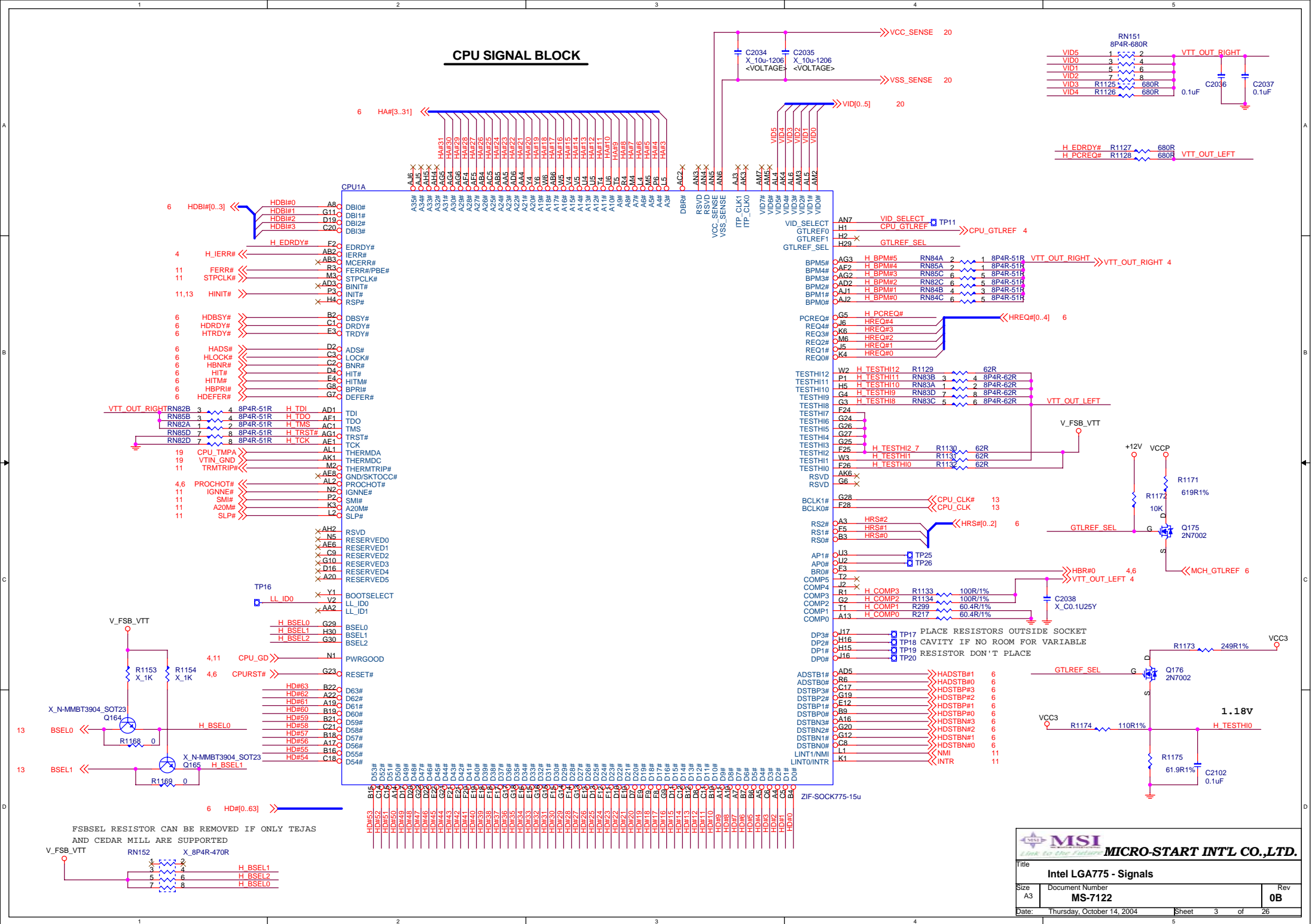
Controller: Intersil 6565

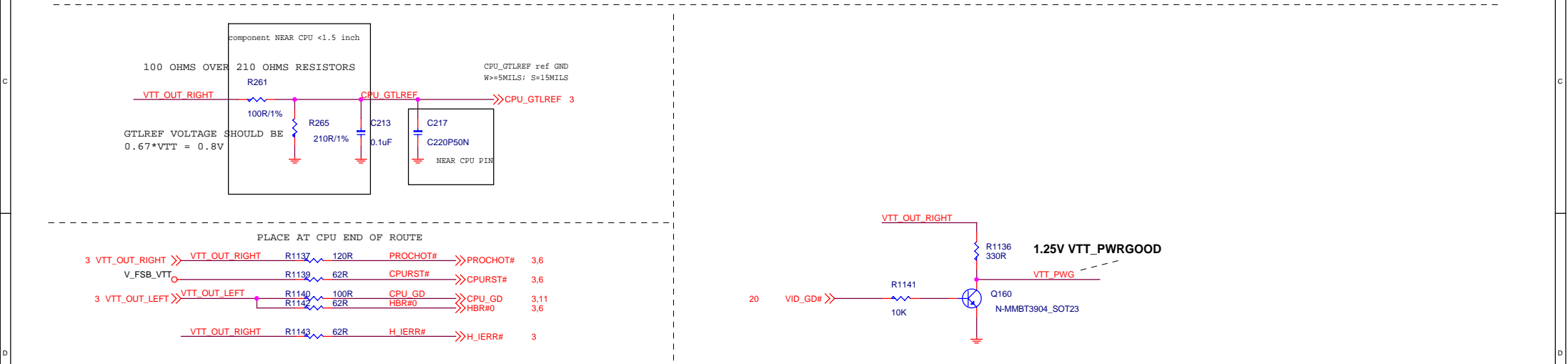
Block Diagram

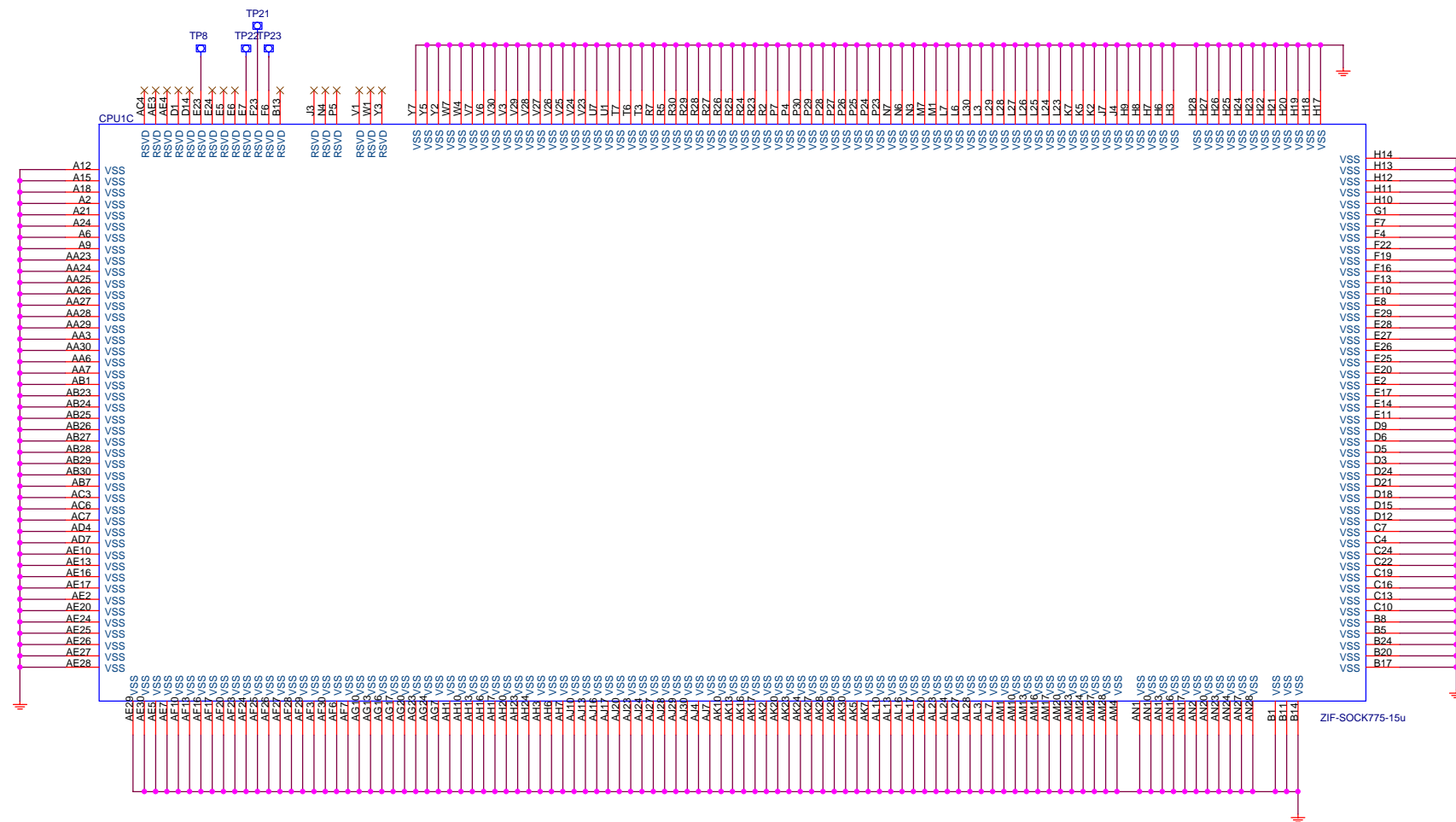


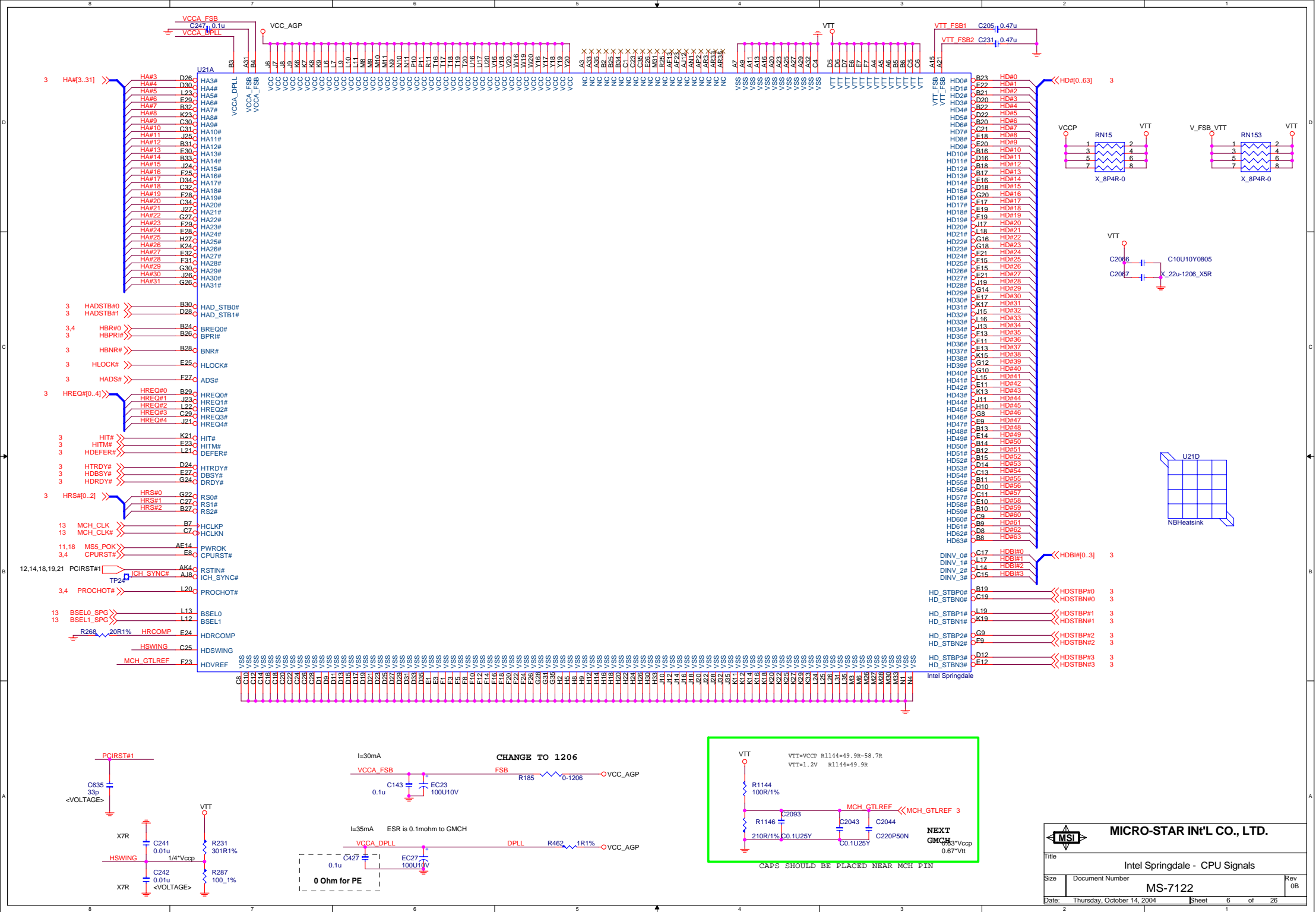
AUDIO BLOCK DIAGRAM

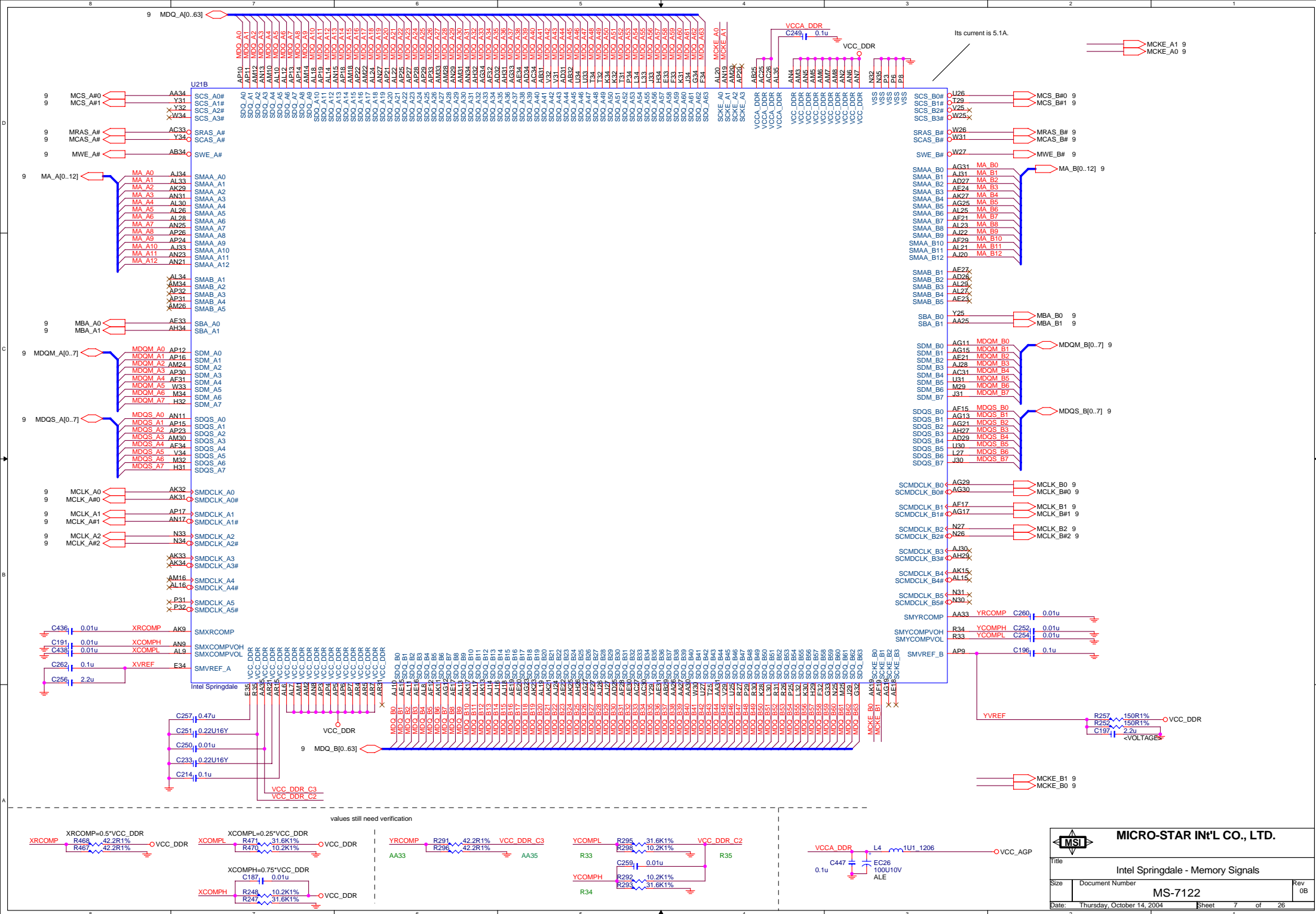


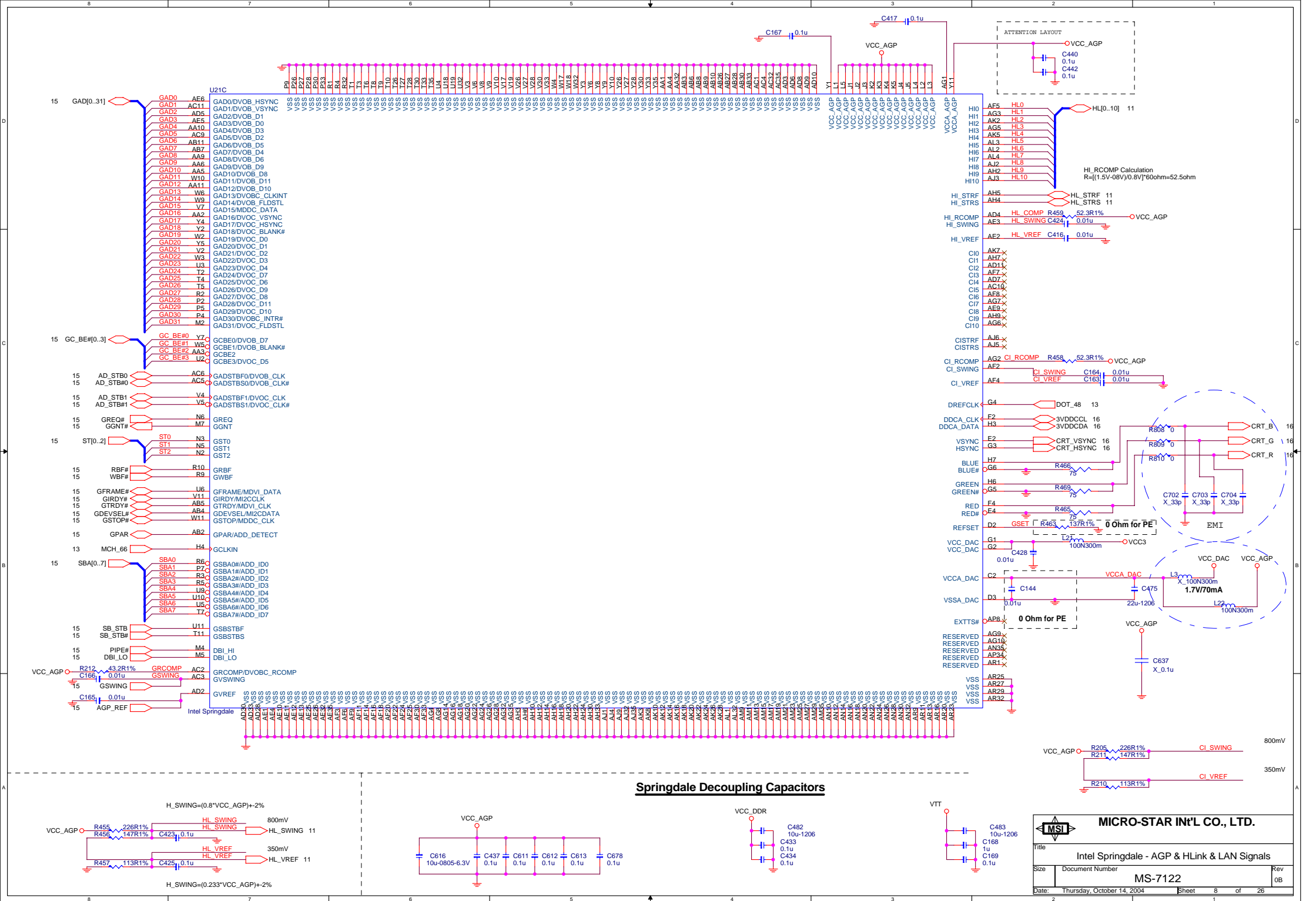




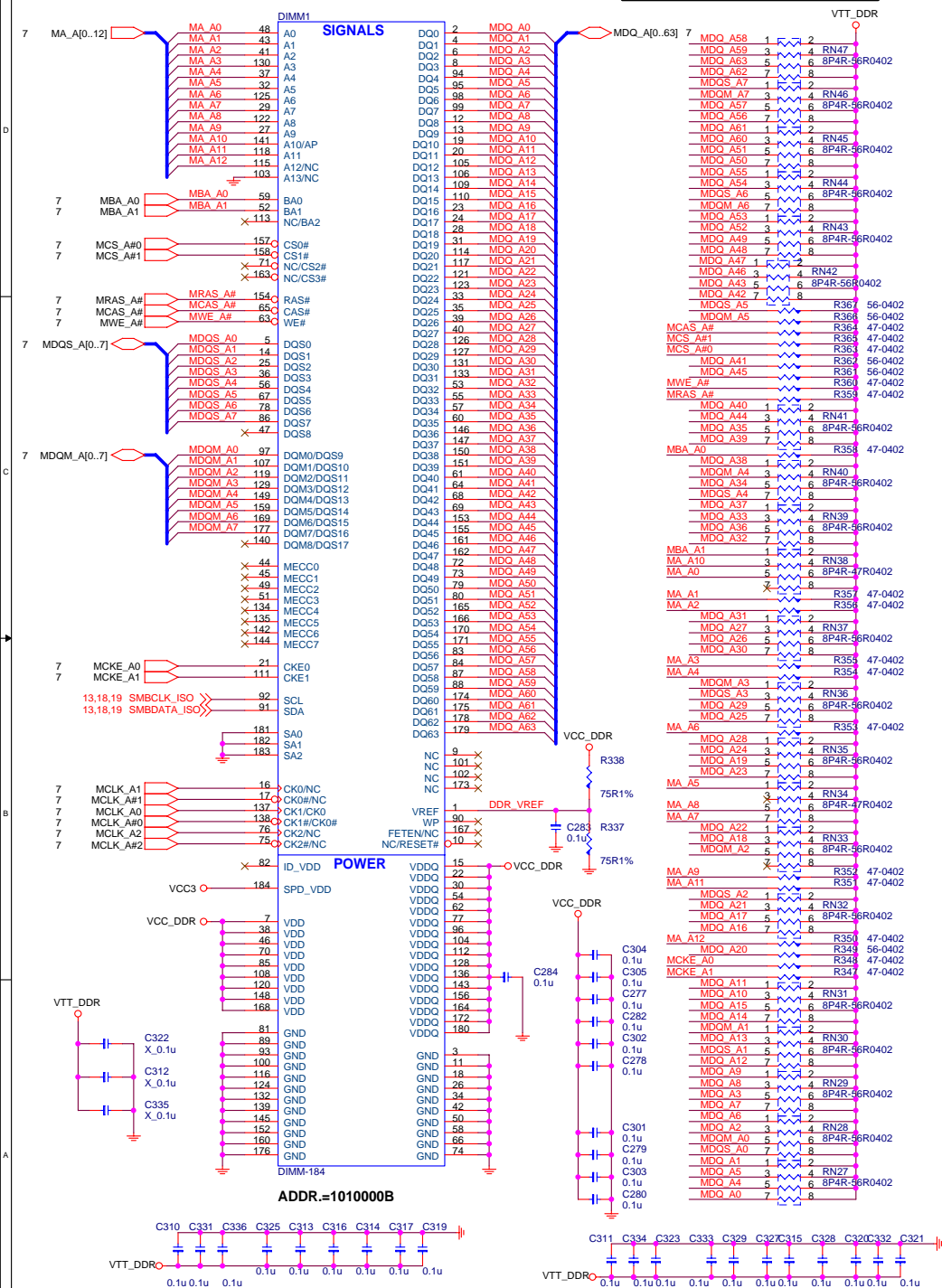






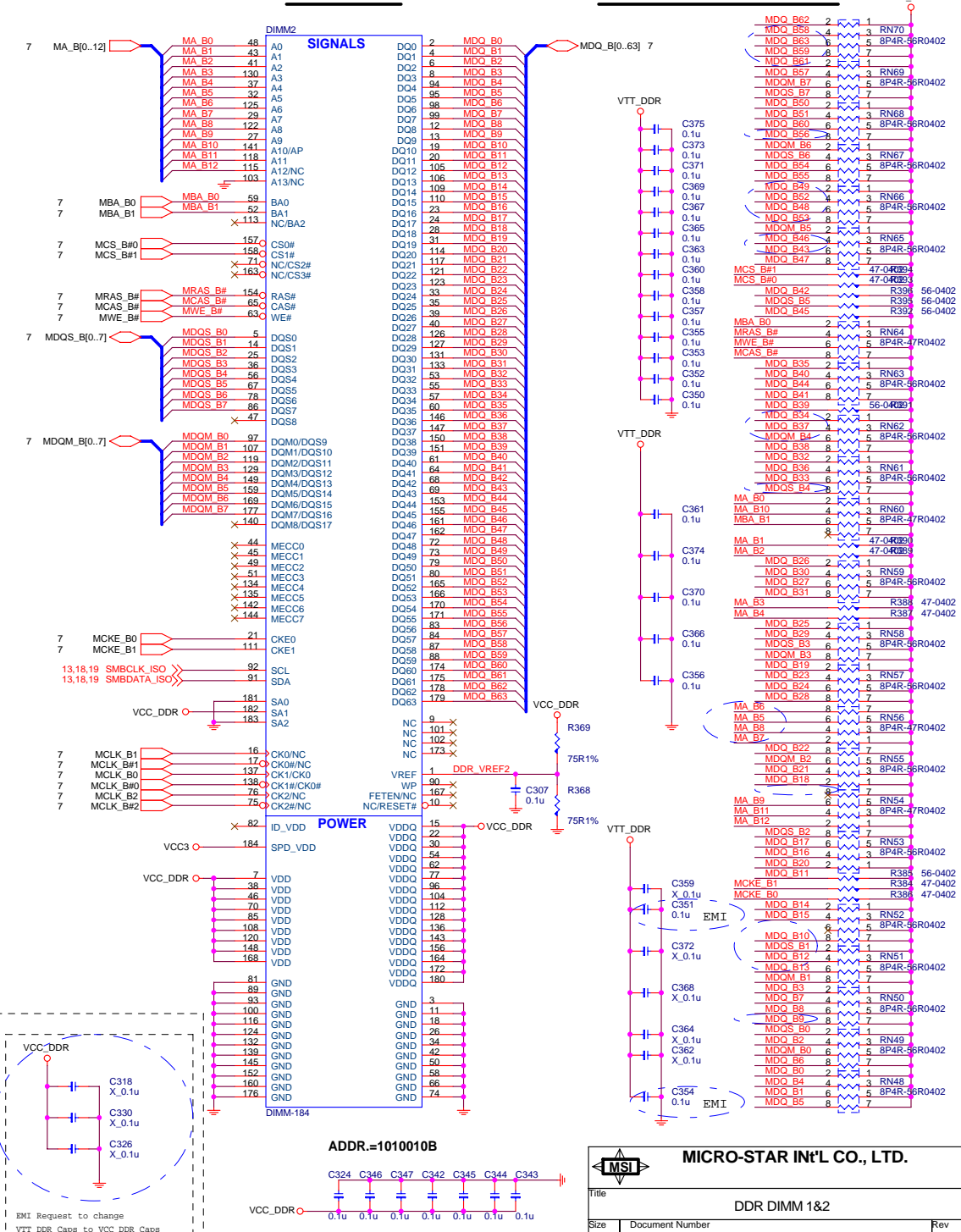


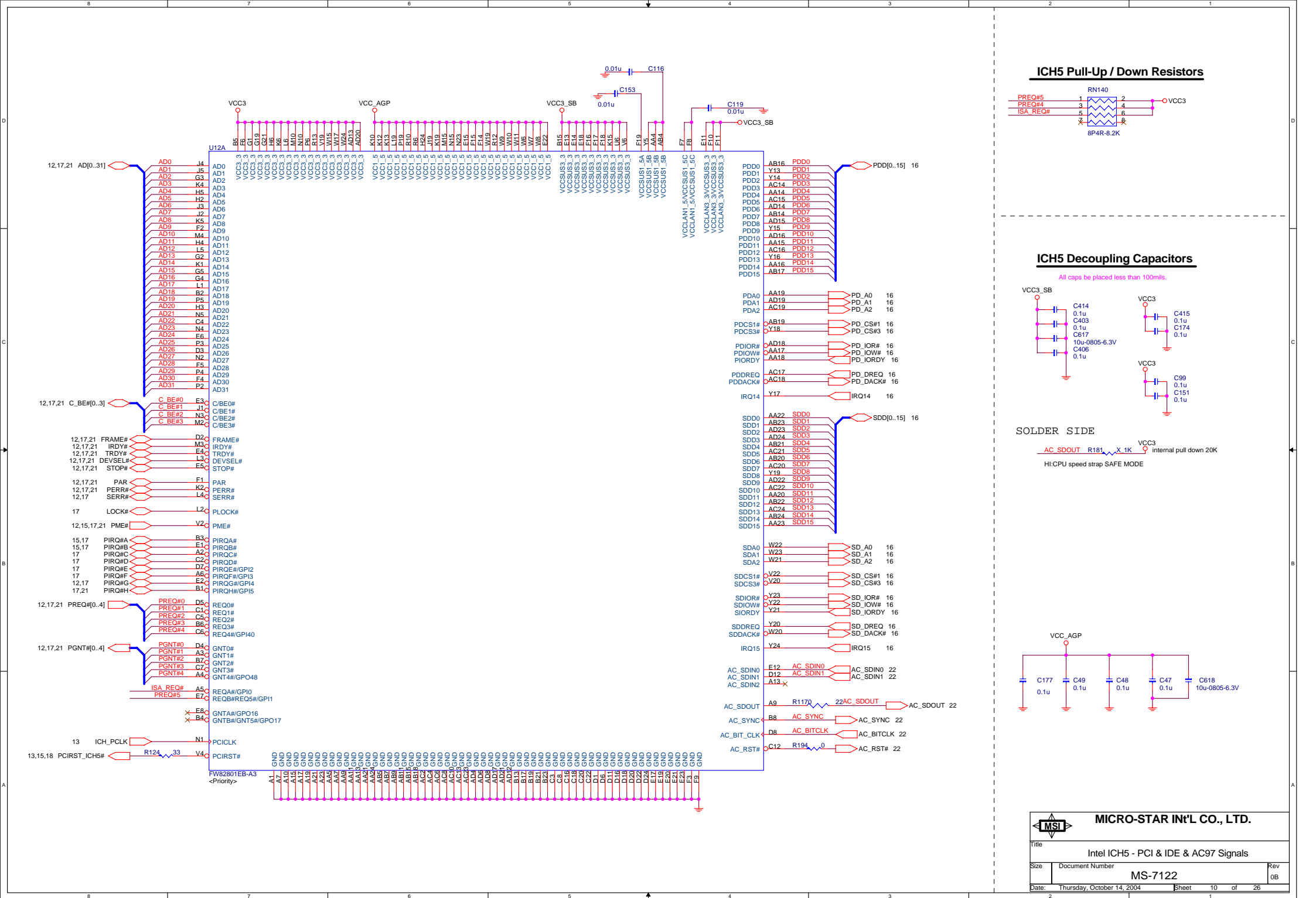
DDR Terminational Resisitors

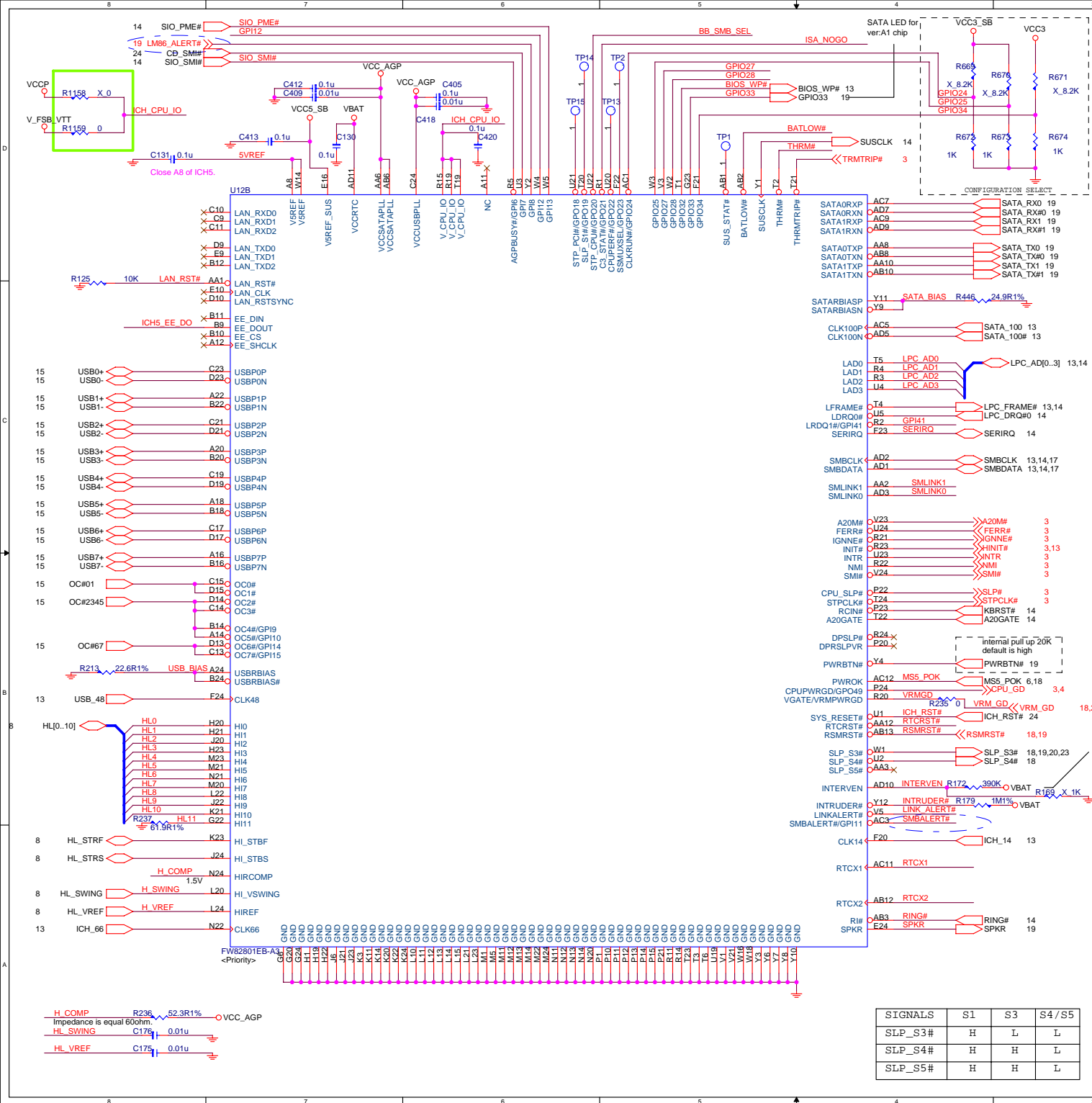


DDR DIMM2 CHB

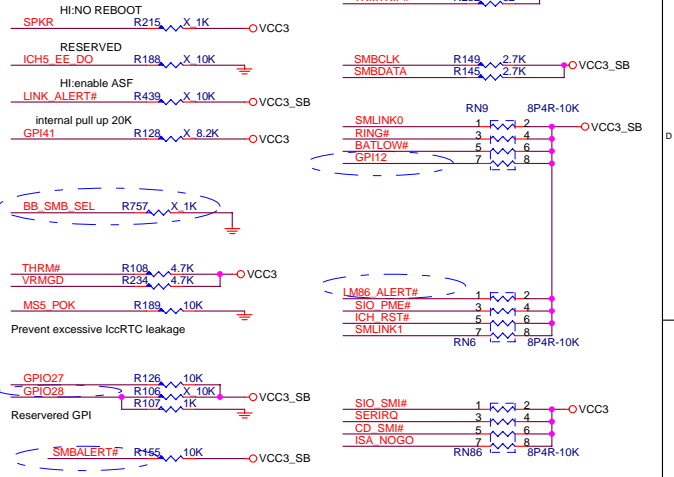
DDR Terminational Resisitors



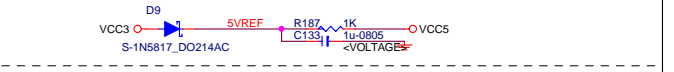




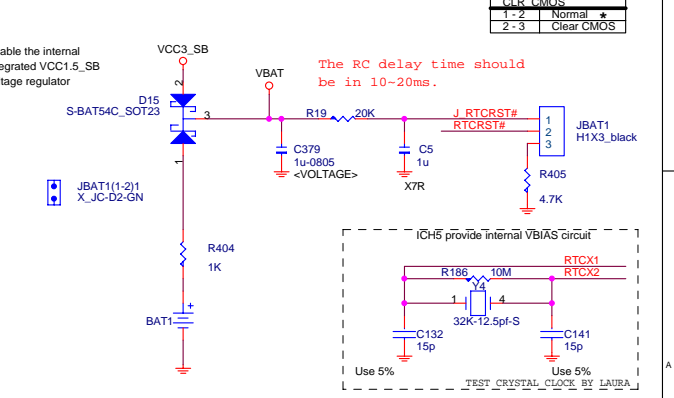
STRAPS



V5REF Sequencing Circuit

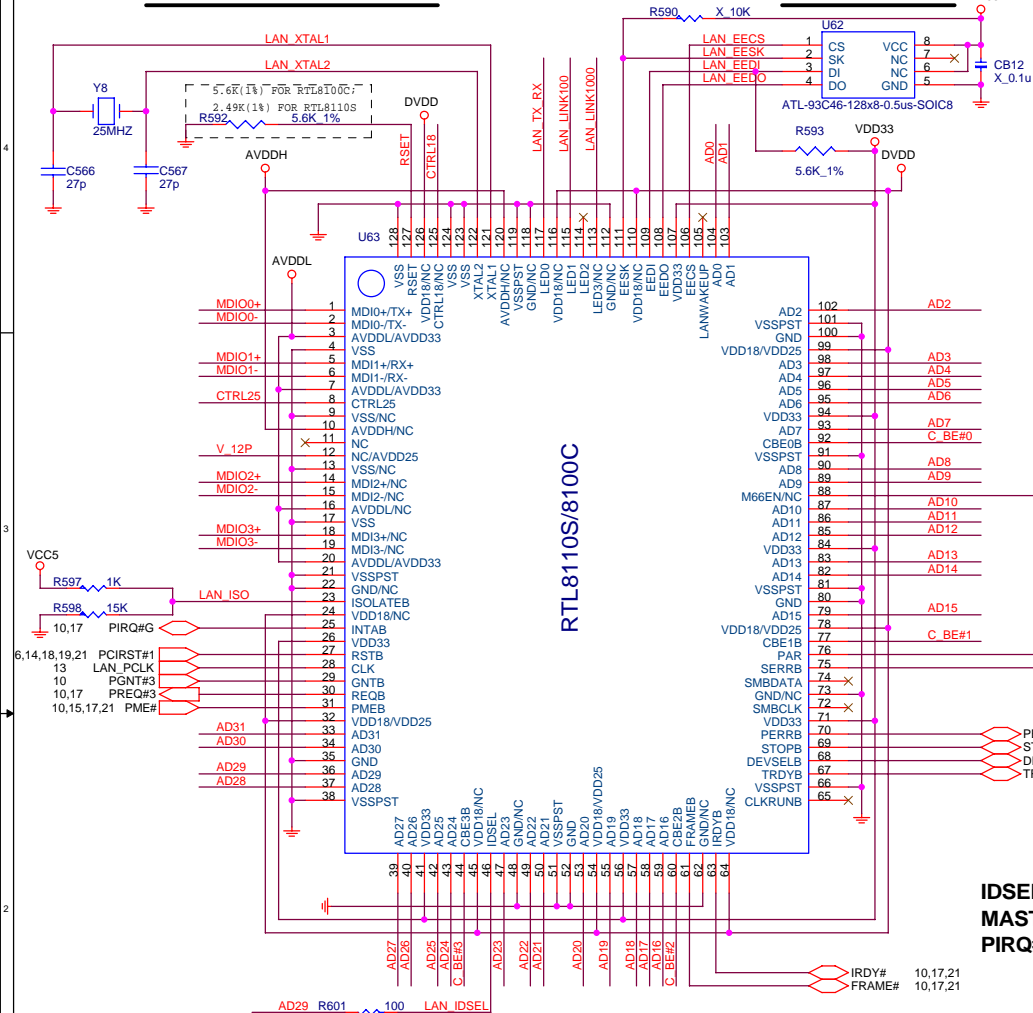


* Put a GND Plane under XTAL.
* Please put this block close ICH5

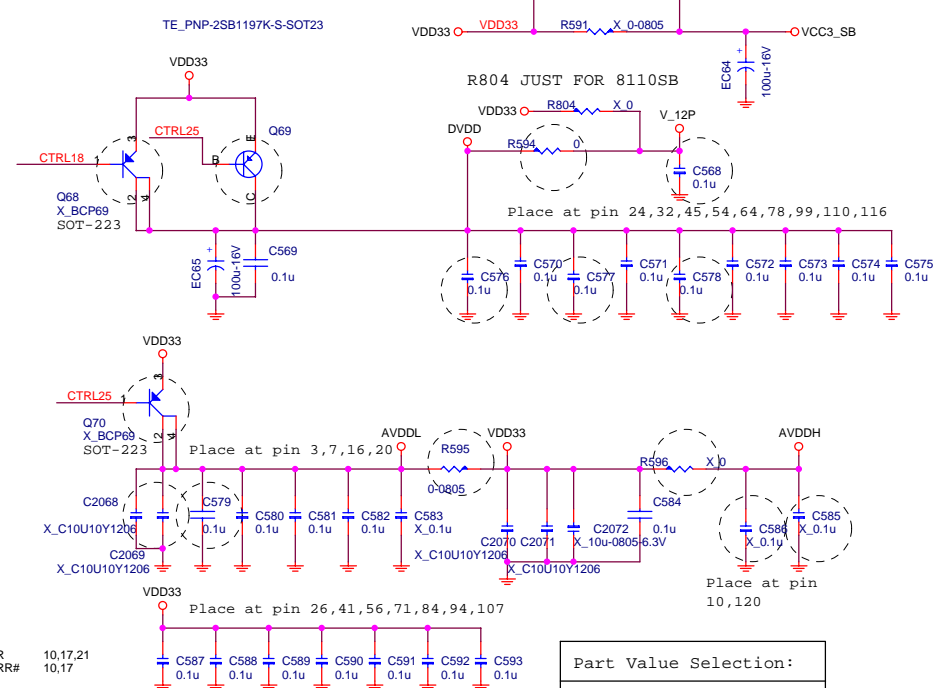


MICRO-STAR INT'L CO., LTD.			
Title: Intel ICH5 - Other Signals			
Size:	Document Number:	Rev: 0B	
Date: Thursday, October 14, 2004		Sheet: 11	of 26

PCI LAN RTL8110S/8100C



LAN EEPROM



	DVDD	DVDDA	AVDDL	AVDDH	V-12
8100C	2.5V	2.5V	3.3V	X	2.5V
8110S	1.8V	1.8V	2.5V	3.3V	X

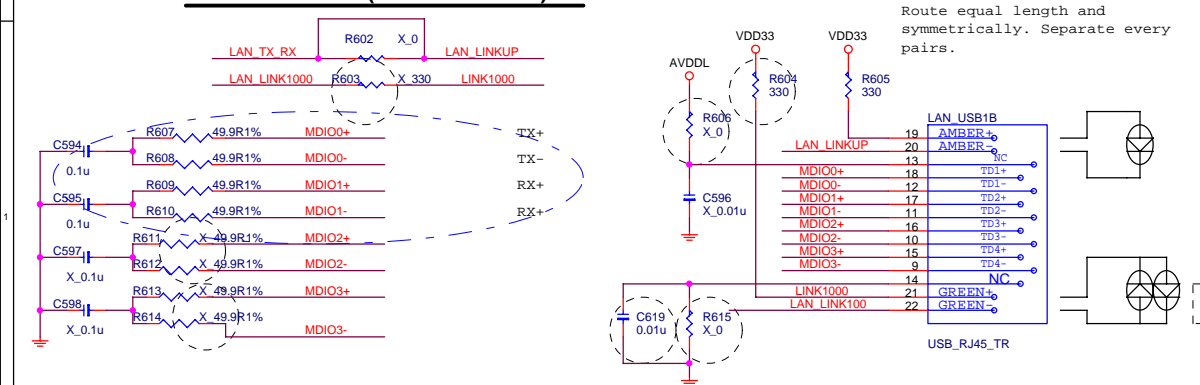
```
Part Value Selection:
GbE: 8110S LAN(1000M)
TE: 8100C LAN(10/100M)
L: With LAN option
X: No Stuff
```

```

IDSEL = AD29
MASTER = PREQ#3
PIRQ#G

```

RJ45 Connector (with transformer)



1- MDIO+ & MDIO- pairs should be 100-ohm differential impedance. Route equal length and symmetrically. Separate every pairs.



DEFAULT 10/100, () for GIGALAN OPTION



Title	REALTEK LAN 8110S/8100C
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Size A3	Document Number MS-7122
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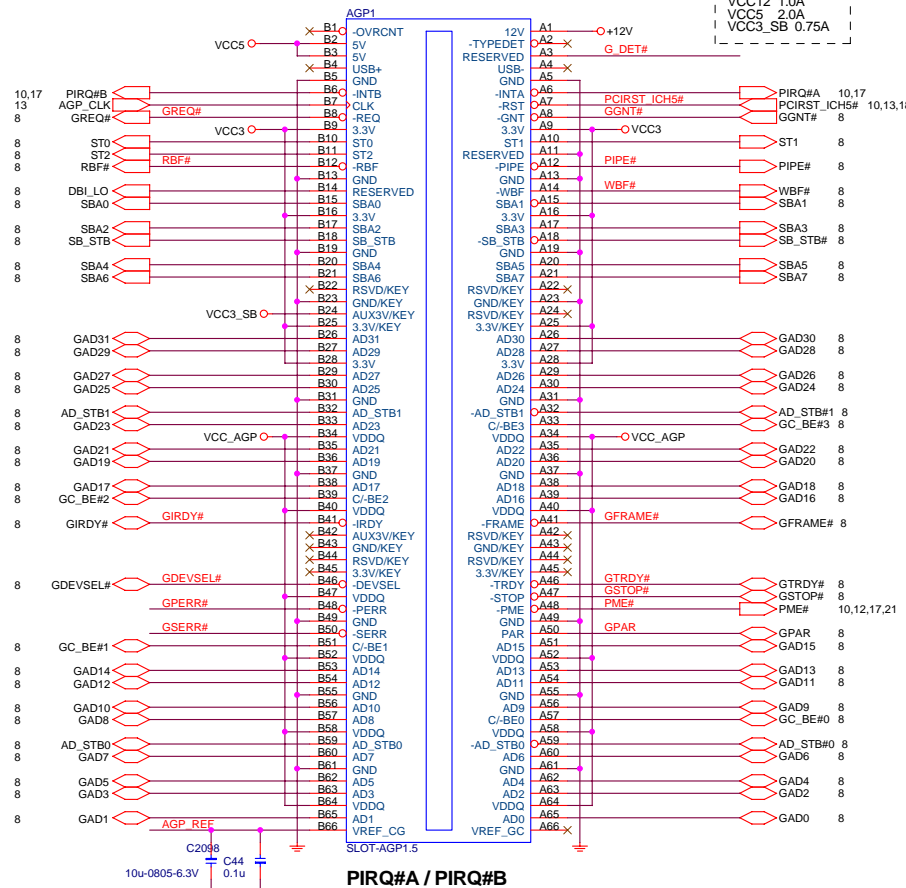
Date: Thursday, October 14, 2004 Sheet 12 of 26

Rev	0B
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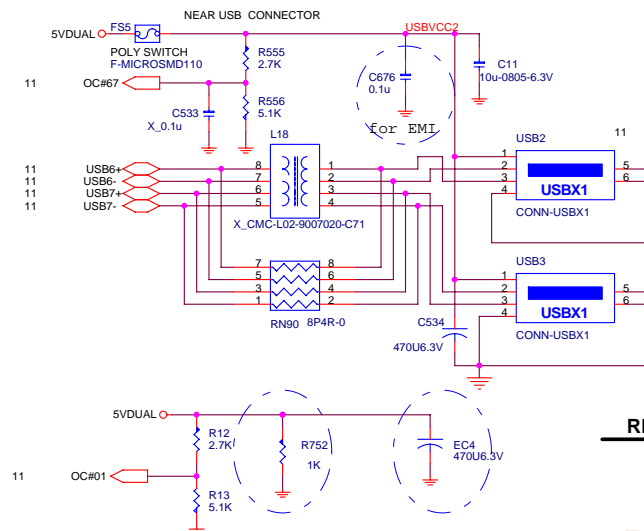
AGP 1.5V 4X/8X SLOT(AGP VER:3.0)

VCC5 = 60mils trace / 15 mils space

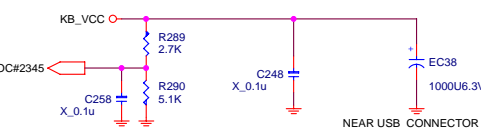
AGP Slot Imax
VCCg 2.0A
VCC3 6.0A
VCC12 1.0A
VCC5 2.0A
VCC3_SB 0.75A



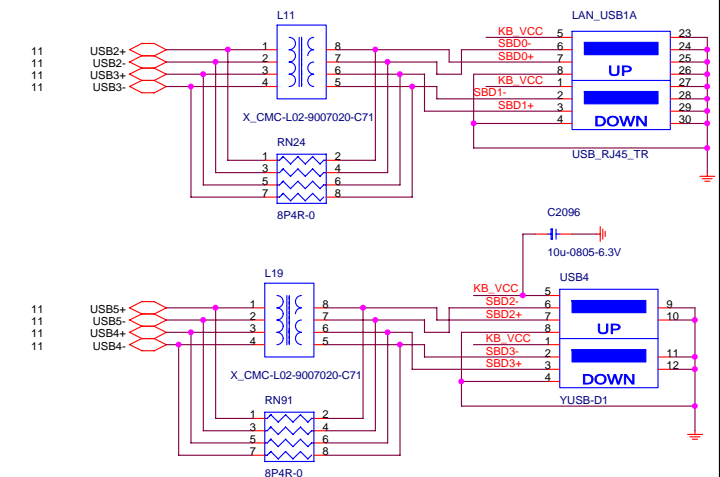
FRONT PANEL USB CONNECTOR FOR USB PORT 5, 6



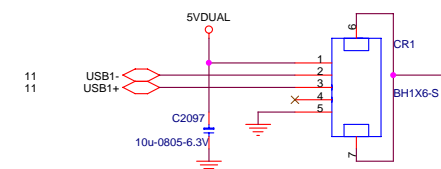
POWER CIRCUIT FOR USB PORT 1~4



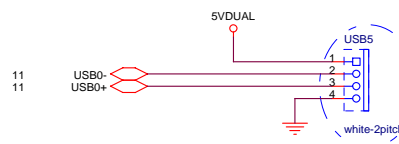
REAR PANEL USB CONNECTOR FOR USB PORT 1~4



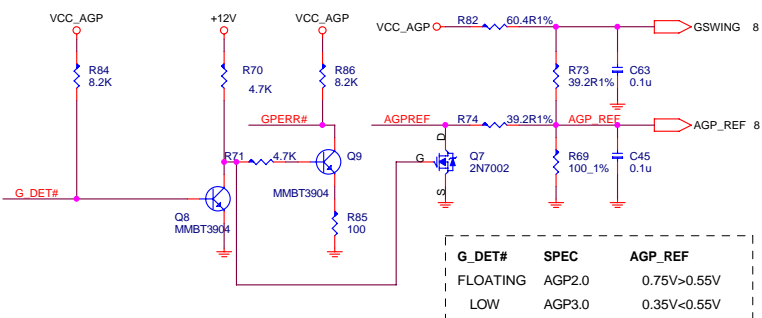
FRONT CARD READER USB CONNECTOR



PS2 RF/ BT USB CONNECTOR



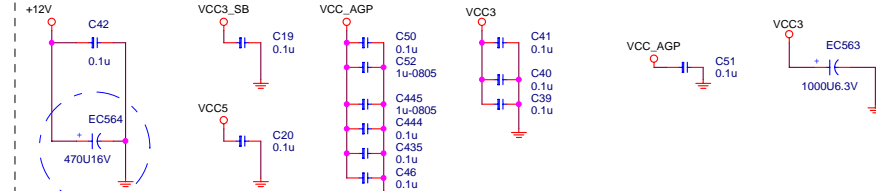
Springdale Reference & Swing Voltage Circuit



AGP TERMINATION RESISTORS

GSERR# R72 8.2K VCC_AGP

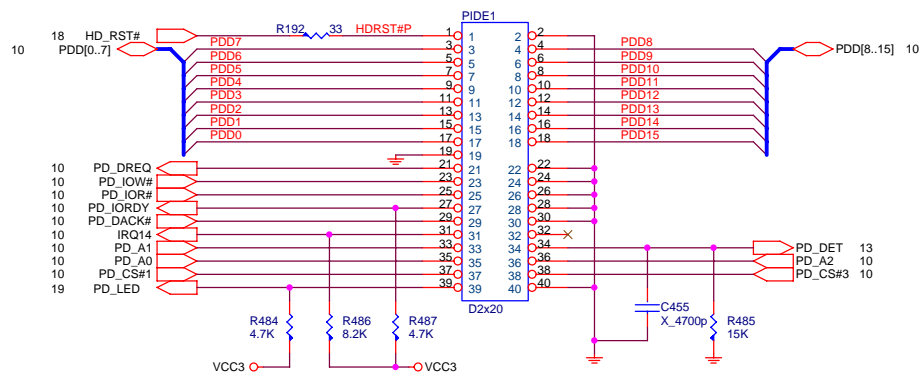
AGP SLOT DECOUPLING CAPACITORS



16V/CAPS: EC564 NP: C94-4711611-T30
FP: 560UF_4V

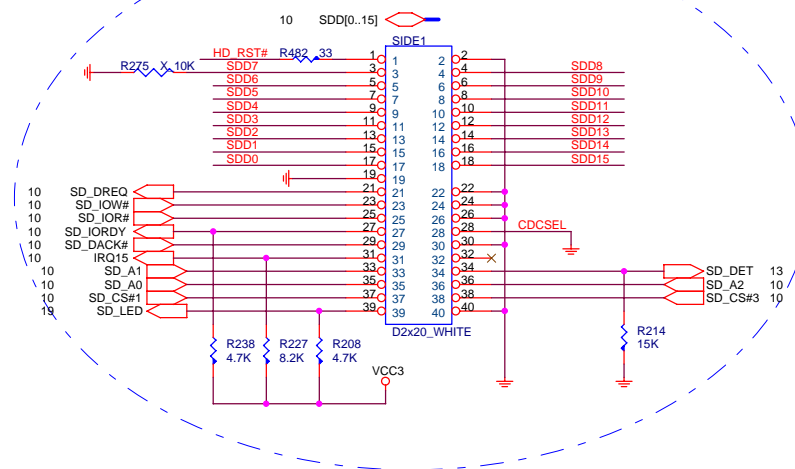
MICRO-STAR INT'L CO., LTD.		
Title AGP 1.5V SLOT & USB CONN		
Size	Document Number	Rev
	MS-7122	0B
Date:	Thursday, October 14, 2004	Sheet 15 of 26

PRIMARY IDE BLOCK

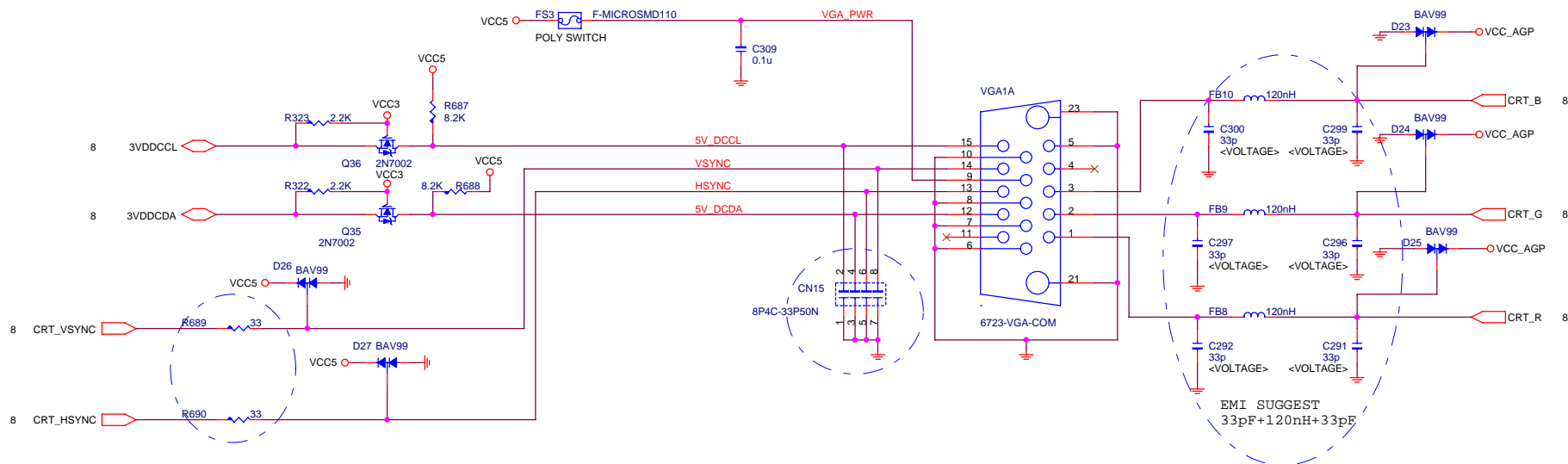


ATA 33/66/100 IDE Connectors

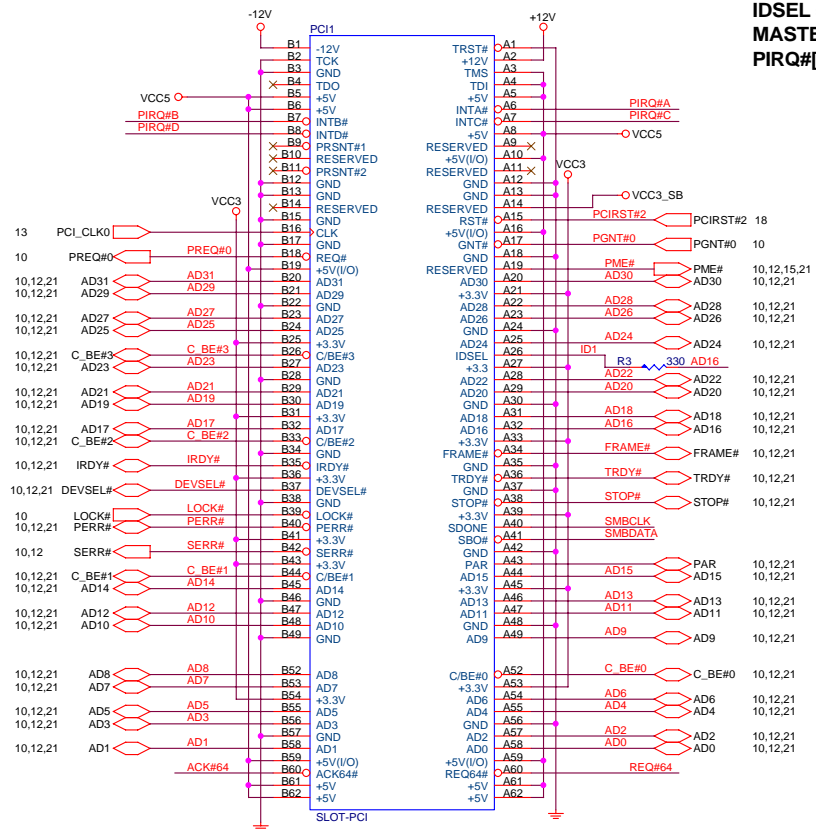
SECONDARY IDE BLOCK



Video Connector



PCI SLOT 1 (PCI VER: 2.2 COMPLY)

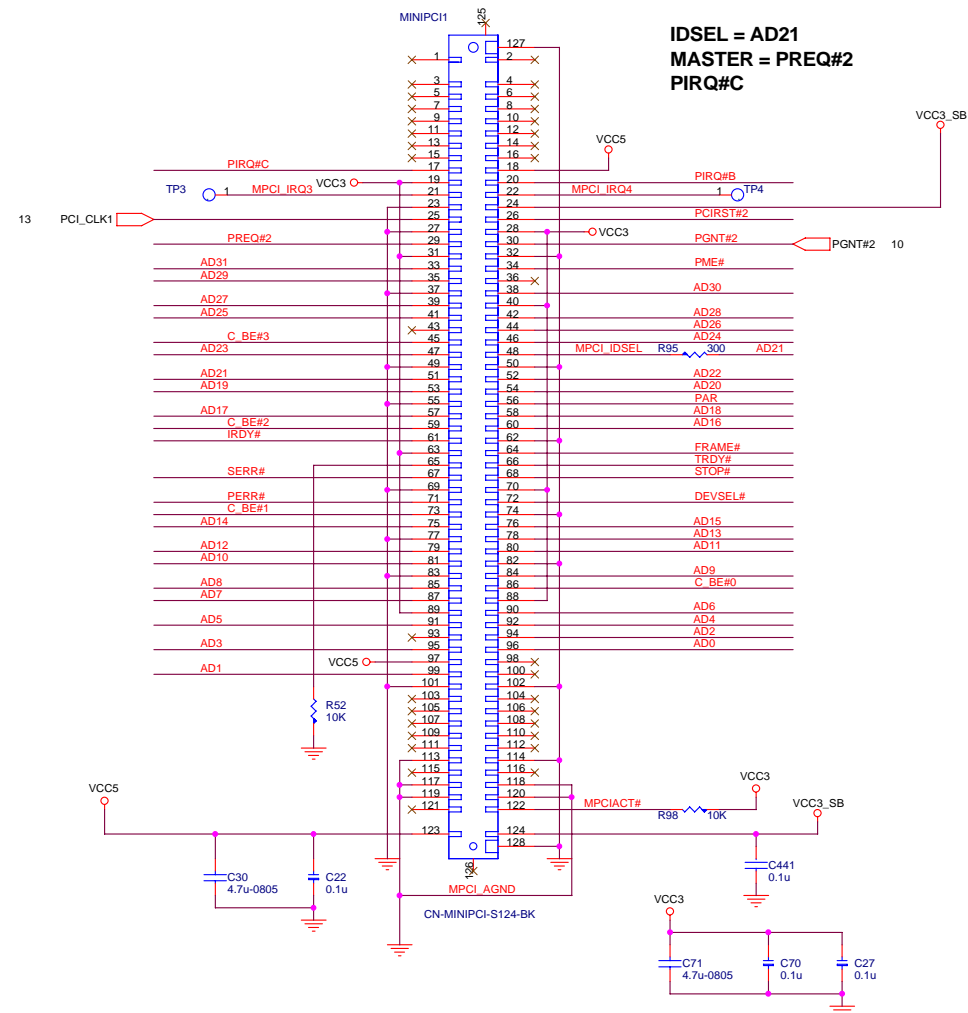


```
IDSEL = AD16
MASTER = PREQ#0
PIRQ#[A..D]
```

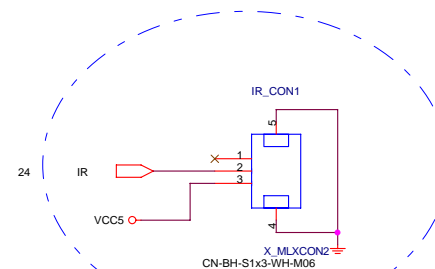
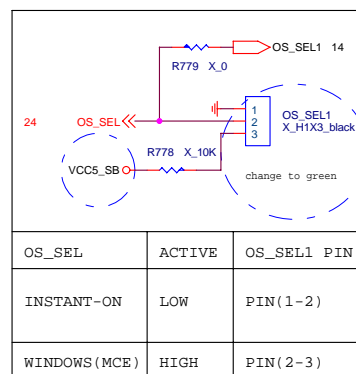
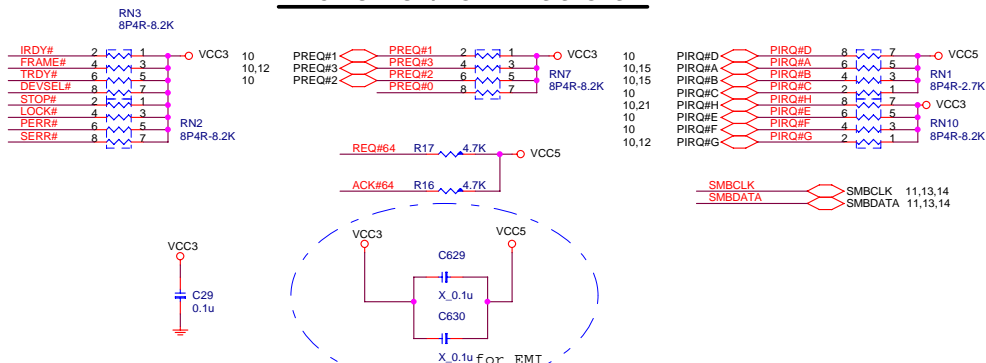
```

IDSEL = AD16
MASTER = PREQ#0
PIRQ#A


```



PCI PULL-UP / DOWN RESISTORS



OS_SEL	ACTIVE	OS_SEL1 PIN
INSTANT-ON	LOW	PIN(1-2)
WINDOWS(MCE)	HIGH	PIN(2-3)

	MICRO-STAR INT'L CO., LTD.		
Title			
PCI 1&MINI PCI			
Size	Document Number		Rev
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ACPI Controller

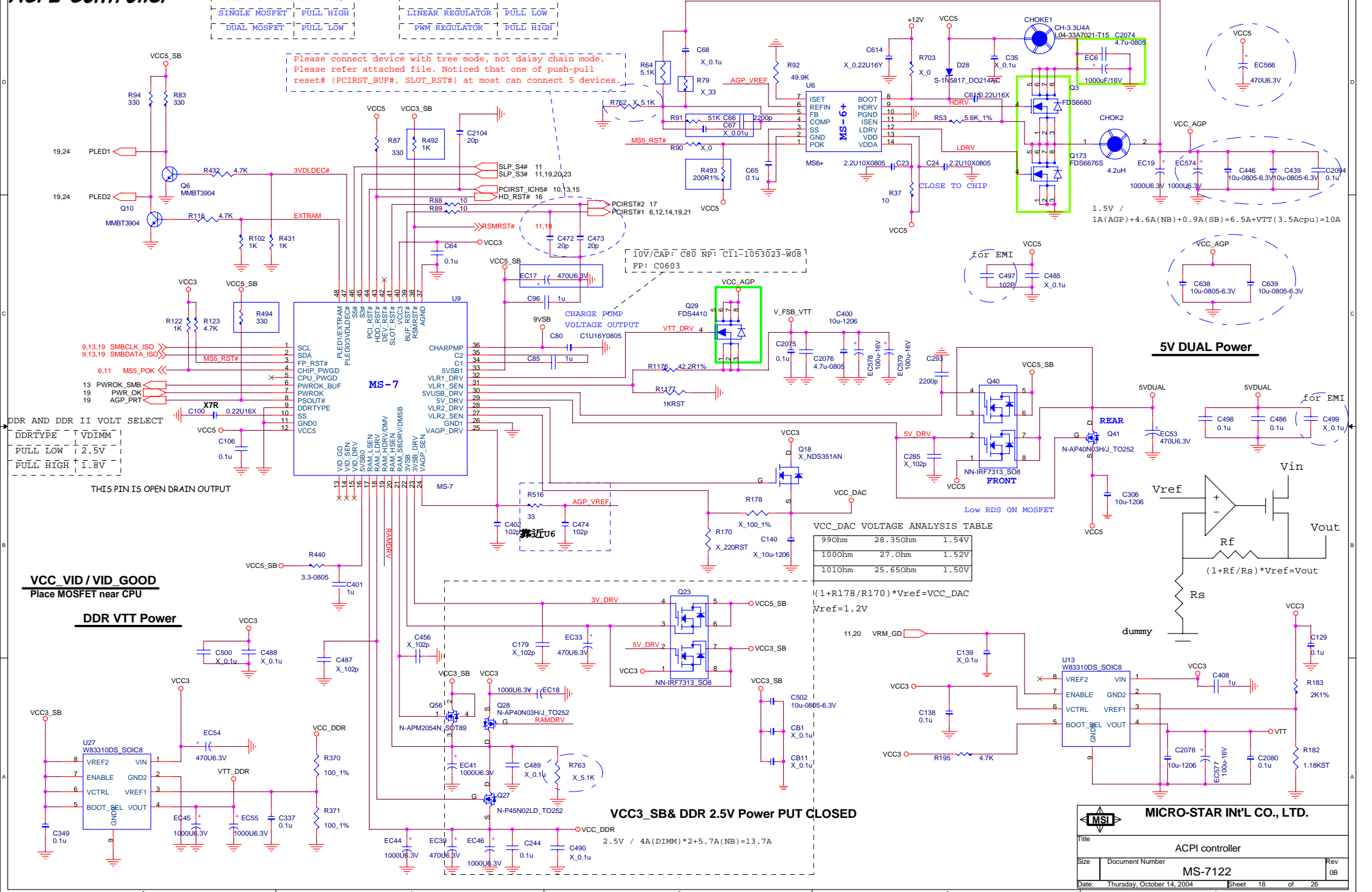
3VSB MODE SELECT

3VSB MODE	3VBLDEC#
SINGLE MOSFET	PULL HIGH
DUAL MOSFET	PULL LOW

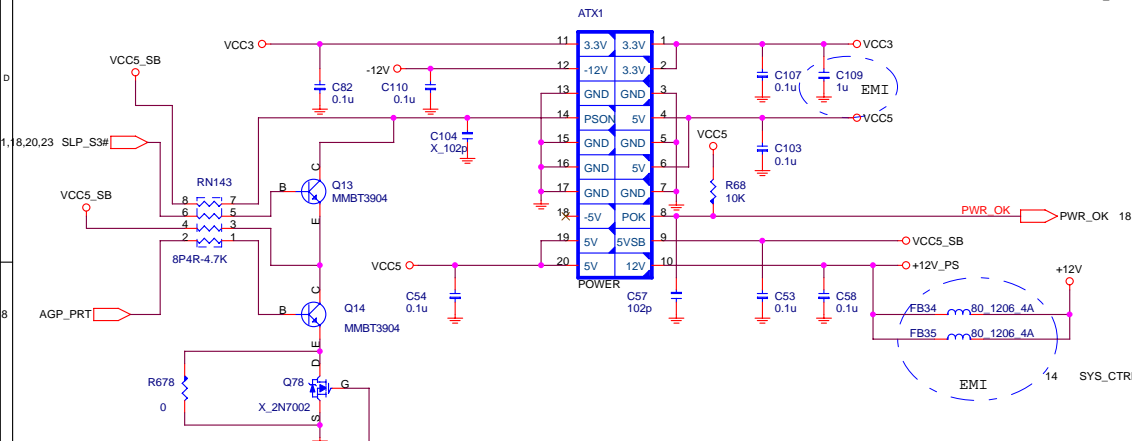
VDIMM LINEAR OR PWM SELECT

VDIMM MODE	EXTRAM
LINEAR REGULATOR	PULL LOW
PWM REGULATOR	PULL HIGH

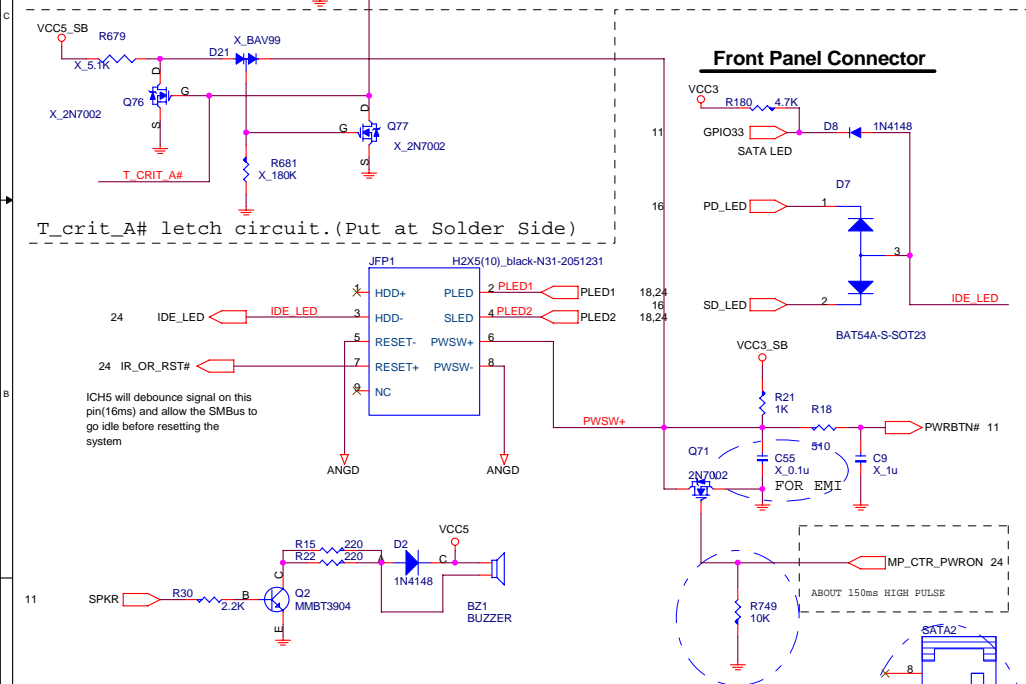
Please connect device with tree mode, not daisy chain mode.
Please refer attached file. Noticed that one of push-pull
reset# (PCIRST_BUF#, SLOT_RST#) at most can connect 5 devices.



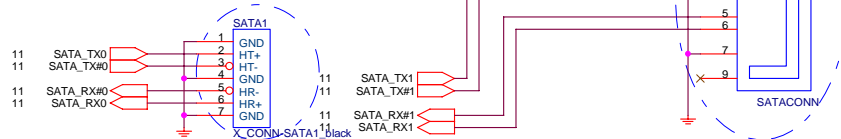
ATX Connector



Front Panel Connector

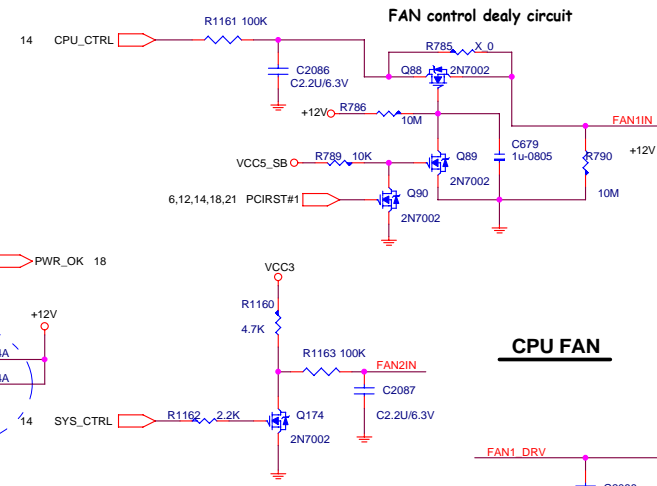


SERIAL ATA CONNECTOR BLOCK

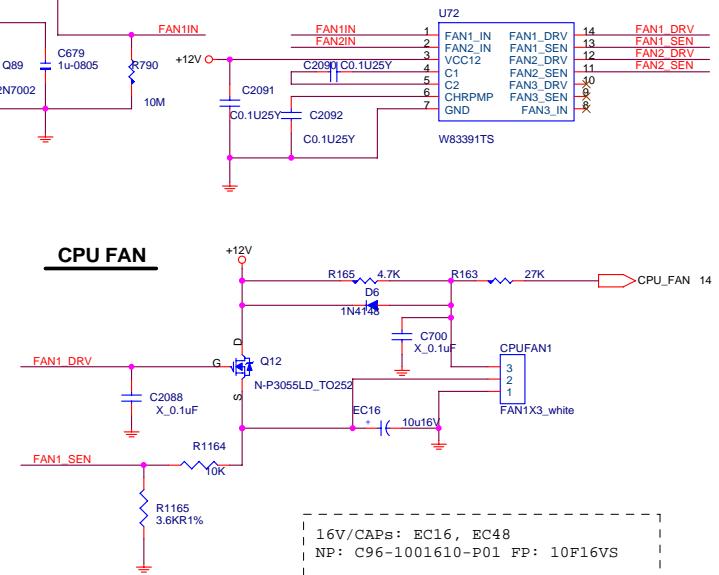


N5N-07M0021-M06 SHORT; N5N-07M0051-H06 LONG

FAN control dealy circuit

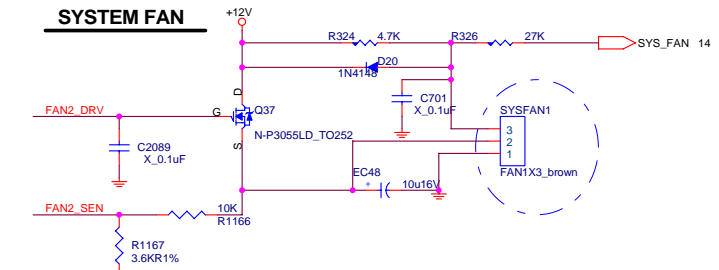


FAN CONTROL

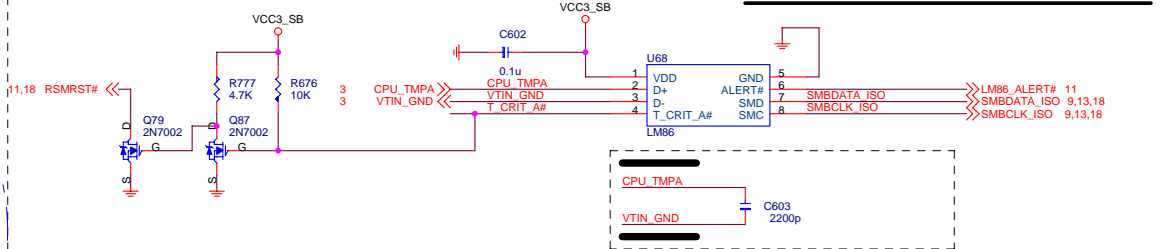


CPU FAN

SYSTEM FAN



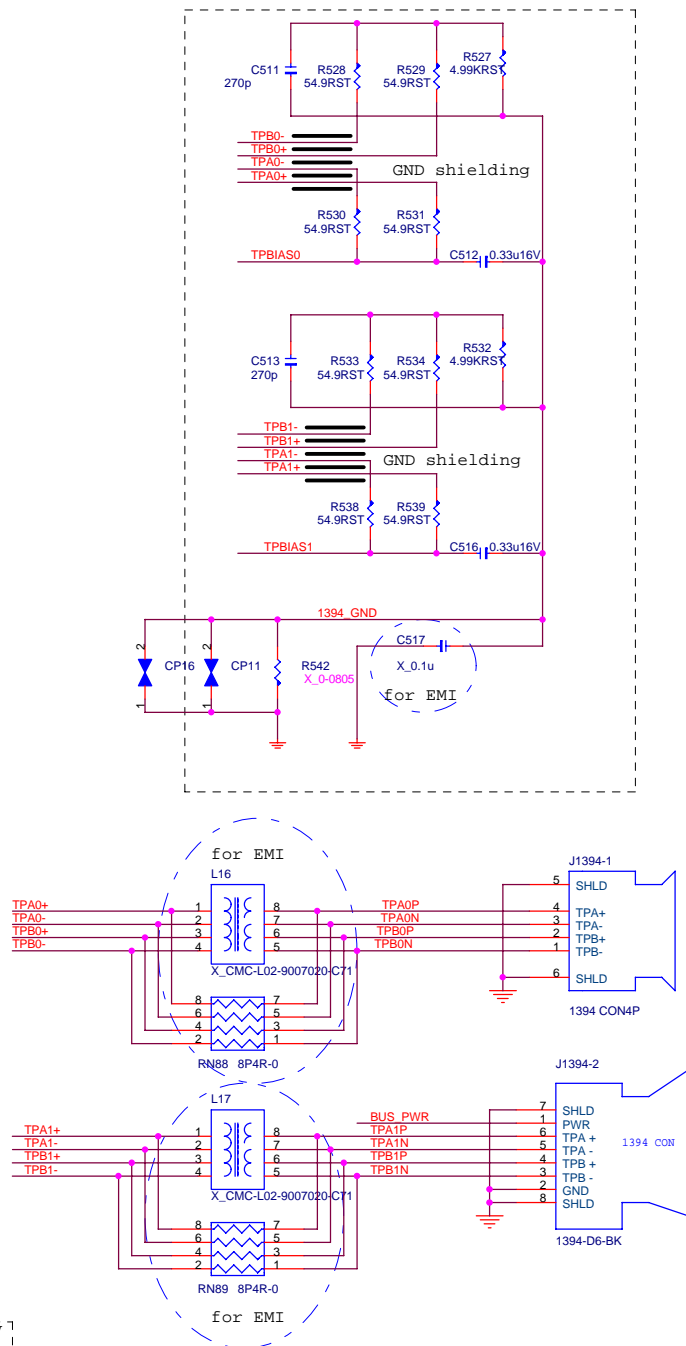
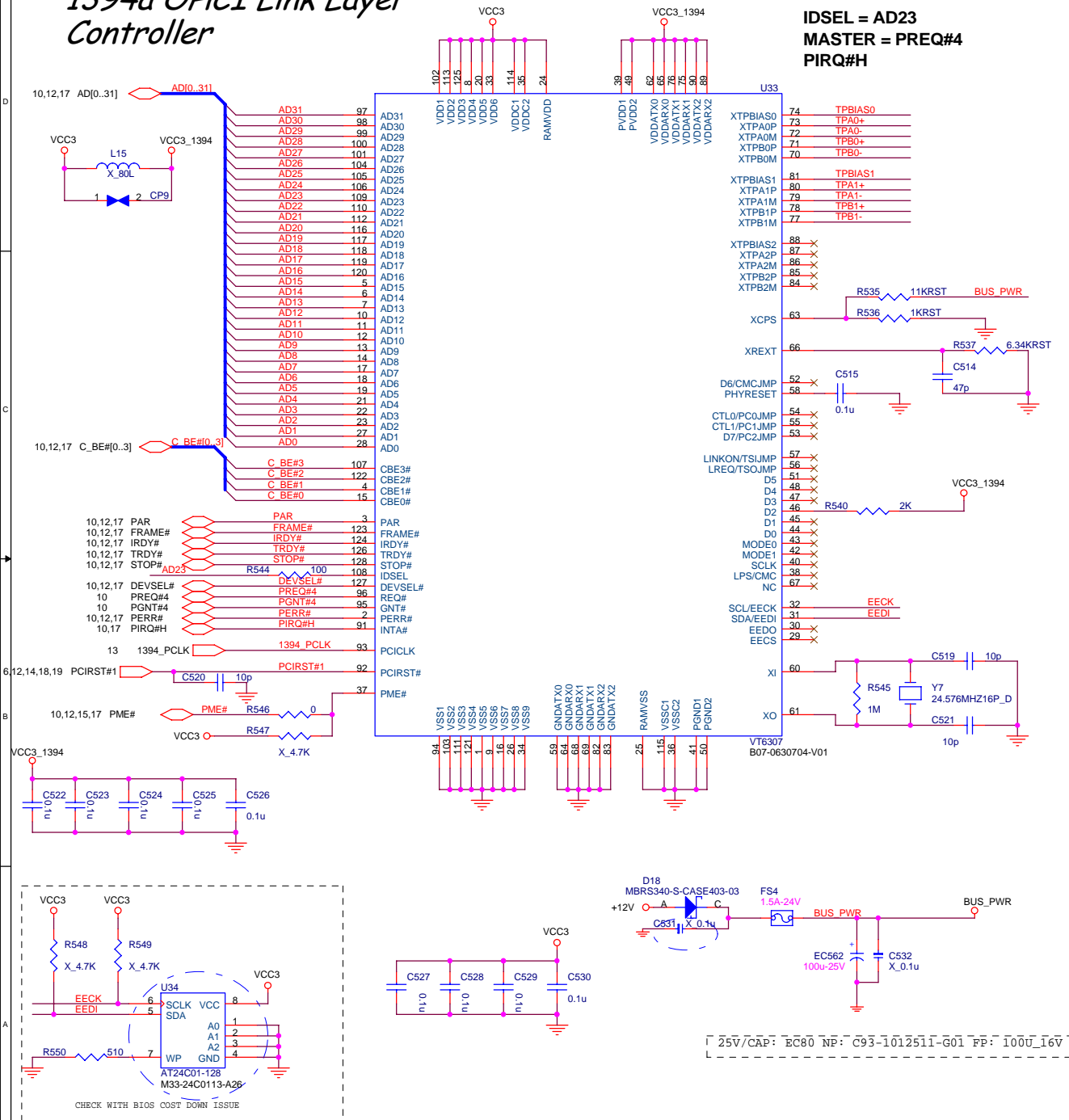
LM86 DIGITAL TEMPERATURE SENSOR

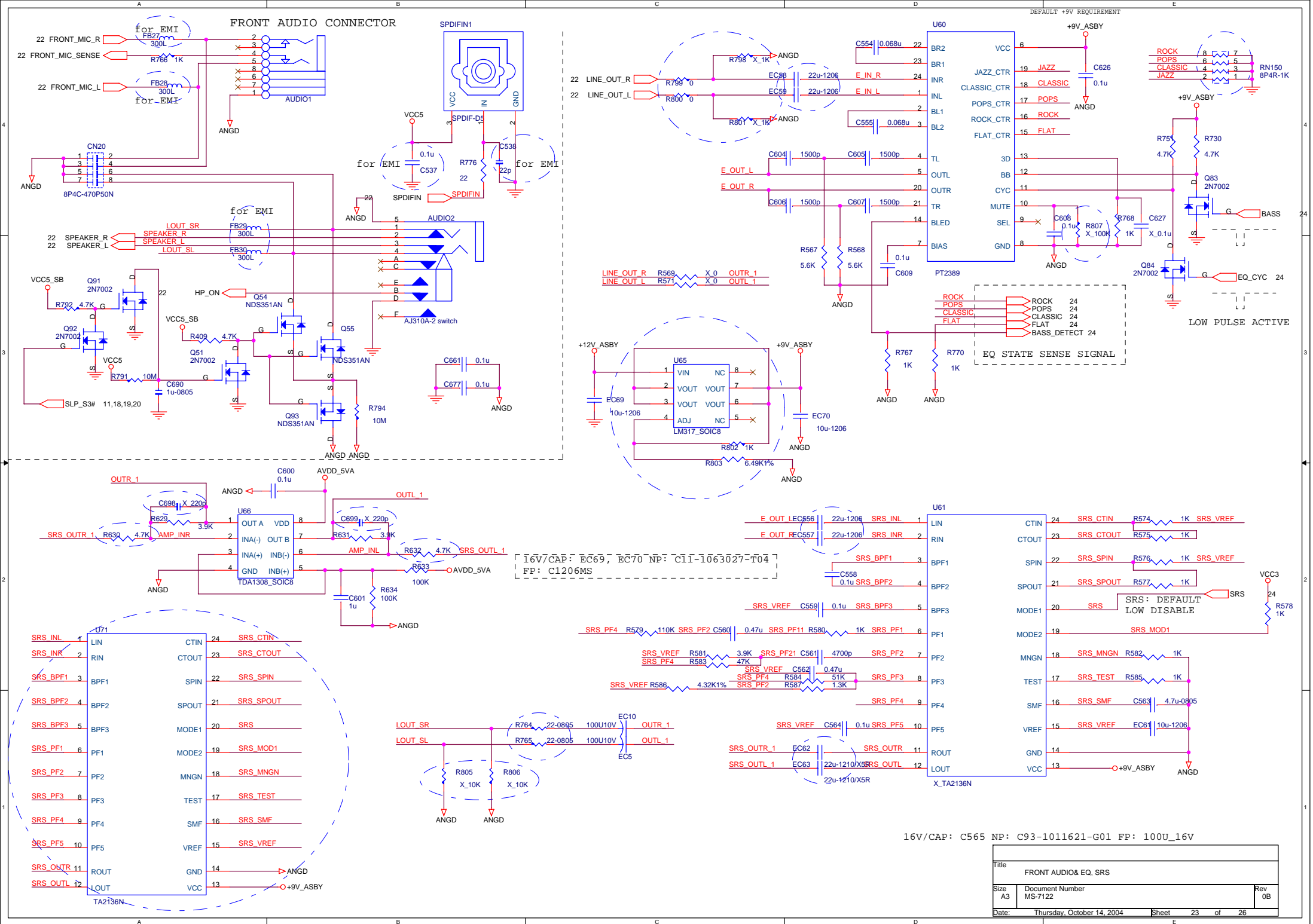


MICRO-STAR INT'L CO., LTD.

Title			
Front Panel/Fan/LM86			
Size	Document Number	Rev	
	MS-7122	0B	
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1394a OHCI Link Layer Controller





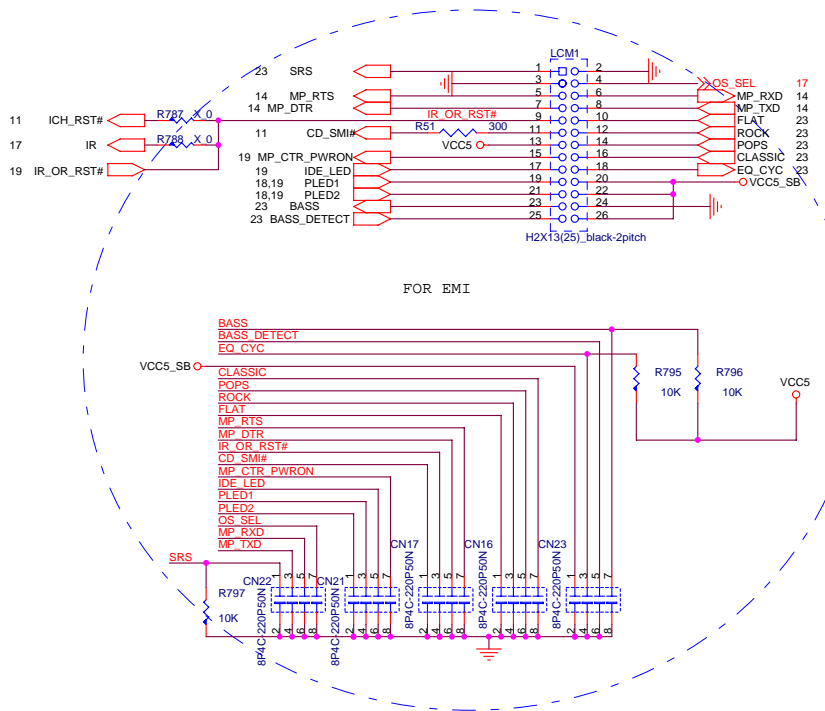
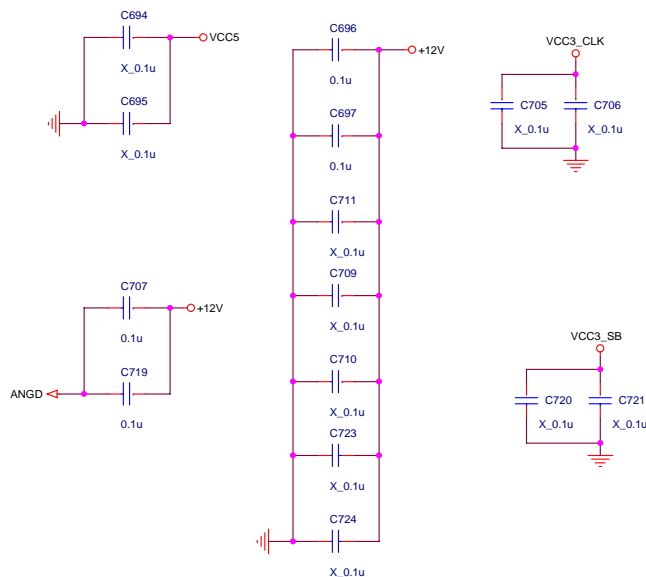
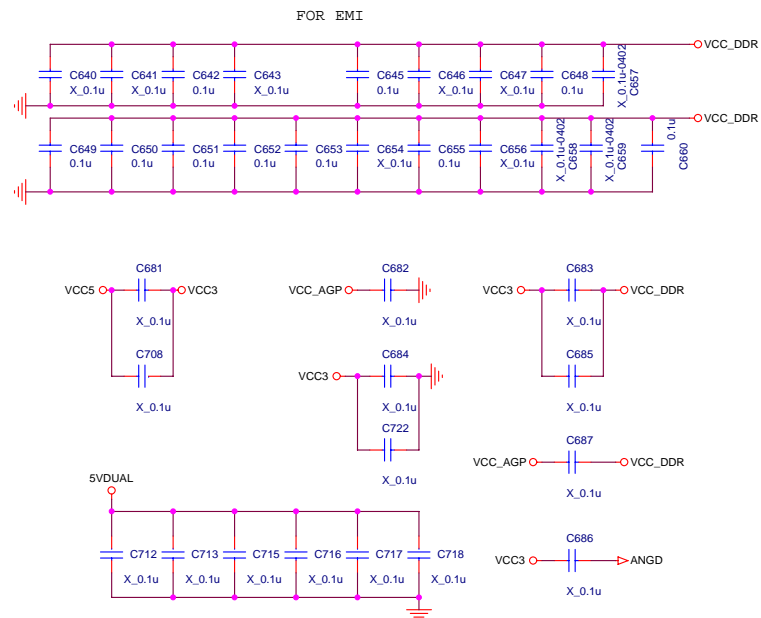


Table for POWER LED's behavior on LCM.

LCM 1 MODE	PLED1 PIN19	PLED2 PIN21	LED State
S0/ INSTANT-ON	H	L	Green
S1	Flash	L	Flash Green / 1Hz
S3	L	H	Yellow
S4/5	L	L	Dark



ICH5

GPIO Pin	Target	Function	Power well	PULL RESISTOR	
GPI 0	NA	ISA_REQ#	MAIN	8.2K	VCC3
GPI 1	NA	PREQ#5	MAIN	8.2K	VCC3
GPI 2	NA	PIRQ#E	MAIN	8.2K	VCC3
GPI 3	NA	PIRQ#F	MAIN	8.2K	VCC3
GPI 4	LAN	PIRQ#G	MAIN	8.2K	VCC3
GPI 5	1394	PIRQ#H	MAIN	8.2K	VCC3
GPI 6	SIO	SIO_SMI#	MAIN	10K	VCC3
GPI 7	MP	CD_SMI#	MAIN	10K	VCC3
GPI 8	LM86	LM86_ALERT#	RESUME	10K	VCC3_SB
GPI 9	USB	OC#45	RESUME	2.7K/5.1K	5VDUAL
GPI 10	USB	OC#45	RESUME	2.7K/5.1K	5VDUAL
GPI 11	NA	SMBALERT#	RESUME	10K	VCC3_SB
GPI 12	NA	GPI12	RESUME	10K	VCC3_SB
GPI 13	SIO	SIO_PME#	RESUME	10K	VCC3_SB
GPI 14	USB	OC#67	RESUME	2.7K/5.1K	5VDUAL
GPI 15	USB	OC#67	RESUME	2.7K/5.1K	5VDUAL
GPO 16	NA	ISA_GNT#	MAIN	NA	
GPO 17	NA	PGNT#5	MAIN	NA	
GPO 18	NA	GPO18	MAIN	NA	
GPO 19	NA	GPO19	MAIN	NA	
GPO 20	U72	BB_SMB_SEL	MAIN	1K	GND
GPO 21	NA	ISA_NOGO	MAIN	10K	VCC3
GPO 22	NA	GPO22	MAIN	NA	
GPO 23	NA	GPO23	MAIN	NA	
GPIO 24/I	NA	CFG_SEL1	RESUME	BY CFG	
GPIO 25/I	NA	CFG_SEL2	RESUME	BY CFG	
GPIO 27	NA	GPO27	RESUME	10K	VCC3_SB
GPIO 28	NA	GPIO 28	RESUME	1K	GND
GPIO 32	BIOS	BIOS_WP#	MAIN	1K	VCC3
GPIO 33/O	I/O	SATA LED	MAIN	4.7K	VCC3
GPIO 34/I	NA	CFG_SEL3	MAIN	BY CFG	
GPI 40	1394	PREQ#4	MAIN	8.2K	VCC3
GPI 41	NA	GPI41	MAIN	X_8.2K	VCC3
GPO 48	1394	PGNT#4	MAIN	NA	
GPO 49	CPU	CPU_GD	MAIN	620hm	VCCP

PS: GPIO 24~25, 27~28, 32~34 Default Output

FWH

GPIO Pin	Type	Function
GPI 0	I	PD_DET
GPI 1	I	SD_DET
GPI 2	I	Pull down through 1K ohms (unused)
GPI 3	I	Pull down through 1K ohms (unused)
GPI 4	I	Pull down through 1K ohms (unused)

SIO

GPIO Pin	Type	Function
GP26	I	VID5
GP25	I	VID4

PCI Config.

DEVICE	MCP1 INT Pin	REQ# /GNT#	IDSEL	CLOCK	CLK GEN PIN OUT
PCI Slot 1	PIRQ#A PIRQ#B PIRQ#C PIRQ#D	PREQ#0 PGNT#0	AD16	PCICLK0	13 (PCI1)
MPCI	PIRQ#B PIRQ#C	PREQ#2 PGNT#2	AD21	PCICLK1	14 (PCI2)
REALTEK LAN 8110S/8100C	PIRQ#G	PREQ#3 PGNT#3	AD29	LAN_PCLK	12 (PCI0)
IEEE 1394 VIA 6307	PIRQ#H	PREQ#4 PGNT#4	AD23	1394_PCLK	15 (PCI3)

CONFIGURATION SELECT

GPIO Pin	Type	DEFAULT	CONFIG 1	CONFIG 2	CONFIG 3
ICH5 GPIO 24	I	LOW			
ICH5 GPIO 25	I	LOW			
ICH5 GPIO 34	I	LOW			

PS: PULL LOW BY 1K; PULL HIGH BY 8.2K

DDR DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	1010000B	MCLK_A0/MCLK_A0# MCLK_A1/MCLK_A1# MCLK_A2/MCLK_A2#
DIMM 3	1010010B	MCLK_B0/MCLK_B0# MCLK_B1/MCLK_B1# MCLK_B2/MCLK_B2#

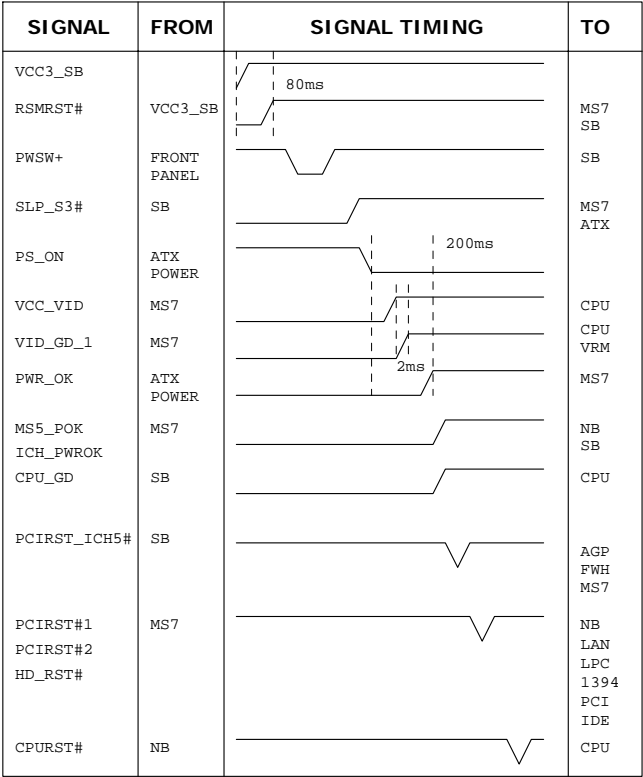
PCI RESET DEVICE

Signals	Target
PCIRST#_ICH5	AGP slot, FWH, MS7
PCIRST#1	Springdale, LAN, Super I/O, 1394, CPU FAN
PCIRST#2	PCI slot 1, ext PCI slot
HD_RST#	Primary, Scondary IDE

SMBus DEVICE

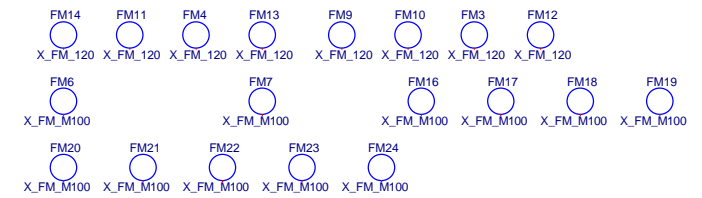
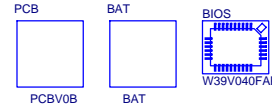
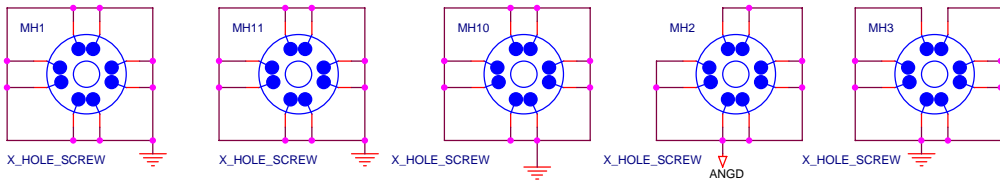
Signals	Target	POWER
SMBCLK SMBDATA	ICH5, LAN, PCI SLOT, LPC I/O, BLUEBIRD	VCC3_SB
SMBCLK_ISO SMBDATA_ISO	DIMM1, DIMM2, CLK GEN, MS7, LM86	VCC3

POWER ON SEQUENCE

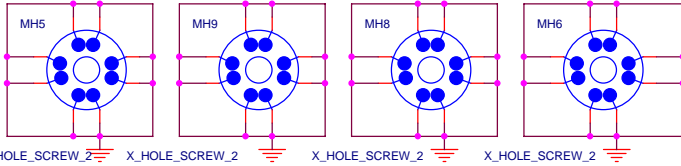


MICRO-STAR INT'L CO., LTD.

Title			General Purpose Spec		
Size	Document Number				Rev
	MS-7122				OB
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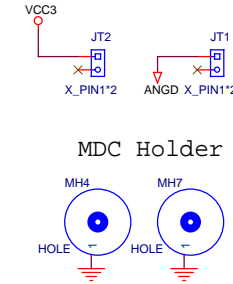


CPU Holes



MODE/BUTTON BEHAVIOR

MODE \ BUTTON	PC	Instant-On
PC S0	depend on windows function	X
PC S3	S3 → S0	X
PC S4/S5	S4/S5 → S0	S4/S5 → INST
Instant-On	INST → S5 → S0	INST → S5




865G& ICH5 POWER MAP

PART	POWER	VOLTAGE	CURRENT
CPU	VCCP V_FSB_VTT	1.05~1.55V 1.2V	95A 2.9A~3.5A
NB	VCC_AGP VTT VCC_DDR VCC_DAC VCCA_DDR	1.5V 1.05~1.55V 2.5V 1.5V 1.5V	4.6A 1.6A 5.7A 70mA 1A
DDR/ CHANNEL	VCC_DDR VTT_DDR DDR_VREF	2.5V 1.25V 1.25V	4A 900mA
AGP	VCC_AGP VCC3 VCC3_SB VCC5 +12V	1.5V 3.3V 3.3V 5V 12V	1A 6A 750mA 2A 1A
SB	VCC_AGP VCC3_SB VCC3 VCC5_SB VCCP	1.5V 3.3V 3.3V 5V 1.05~1.55V	880mA 356mA 528mA 3mA
I/O	USB/ PORT	5V	500mA

HISTORY
VERSION:0A
1.PAGE3 ADD R1171~R1175,Q175,Q176,C2102 FOR E.EP4(OPTION)
2.PAGE10 ADD R1170 FOR SIGNAL QULITY
3.PAGE11 R233,R232 CONNECT TO ICH_CPU_IO
4.PAGE14 REMOVE R1156,R1157,RN154,Q166~Q171 (REMOVE SUPERIO VID SENCE)
5.PAGE15 ADD C2097,C2096,C11 (FOR USB VOLTAGE)
6.PAGE18 ADD R1176,R1177 (FOR CHANGE V_FSB_VTT VOLTAGE)
7.PAGE18 CHANGE EC45,EC55 TO 1000U(FOR VTT POWER),ADD EC39 FOR VCC_DDR
8.PAGE19 R1160,Q174,R1162 CHANGE TO CONNECT SYS_CTRL(FOR FAN CONTROL)
9.PAGE22 ADD C2099 FOR VCC3 QULITY,ADD C2100,C2101 FOR SIGNAL QULITY
10.PAGE22 CHANGE R781,R782 TO 10K ohm REDUCE AUDIO NOISE
11.EC62,EC63 CHANGE TO 220/1210/X5R FOR AUDIO PASSBAND RIPPLE

MOSFET PACKAGE FEATURE

PACKAGE	NEW PN	VOLTAGE& CURRENT FEATURE
TO263	D03-10N03LB	Vgs(on)=1.2V; Id=73A; Vds=30V
TO252	D03-06N030B	Vgs(on)=1.2~2V; Id=50A; Vds=25V
SOT89	D03-2054N09	Vgs(on)=0.6~1.5V; Id=6A; Vds=20V
SOT23	D03-351AN09	Vgs(on)=0.8V; Id=1.2A; Vds=30V

 MICRO-STAR INT'L CO., LTD.		
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