MS-7212 Ver:100

CPU:

AMD 939 Athlon 64/Athlon 64 FX

System Chipset:

NVIDIA CRUSH 51G
NVIDIA MCP51G

On Board Chipset:

LPC Super I/O -- W83627EHF REV:D
LAN -- REALTEK 8110S / 8100C
AC97 Codec --ALC655
BIOS --LPC FLASH ROM 4M

Main Memory:

DDR1 * 2 (Max 2GB)

Expansion Slots:

PCI-E 16X * 1
PCI 2.2 Slot * 3

PWM:

Controller--Intersil ISL6566CR with Driver inside

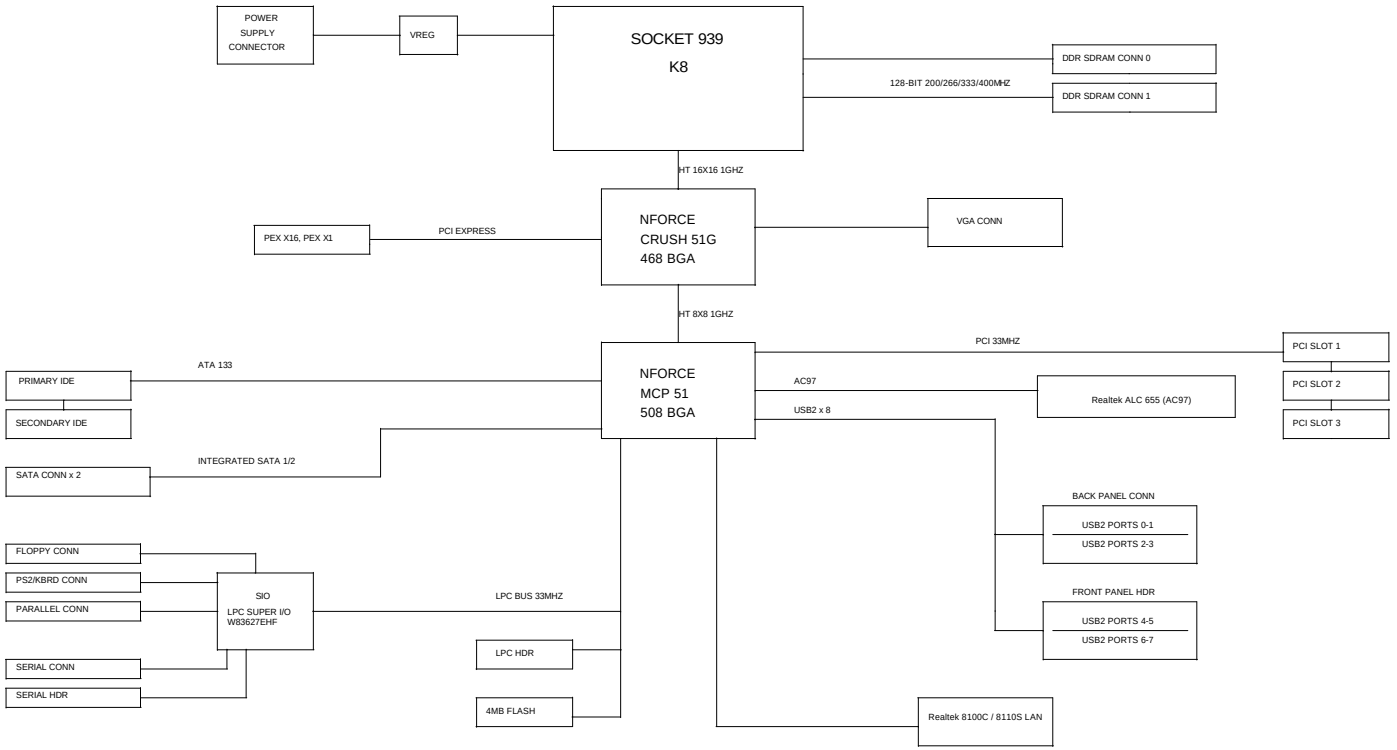
MICRO-START INT'L CO.,LTD.

Title: Cover Sheet

Size: C | Document Number: MS-7212 | Rev: 100

Date: Thursday, September 22, 2005 | Sheet 1 of 32

BLOCK DIAGRAM



MICRO-START INT'L CO.,LTD.

Title: Block Diagram		
Size: C	Document Number: MS-7212	Rev: 100
Date: Thursday, September 22, 2005	Sheet 2 of 32	

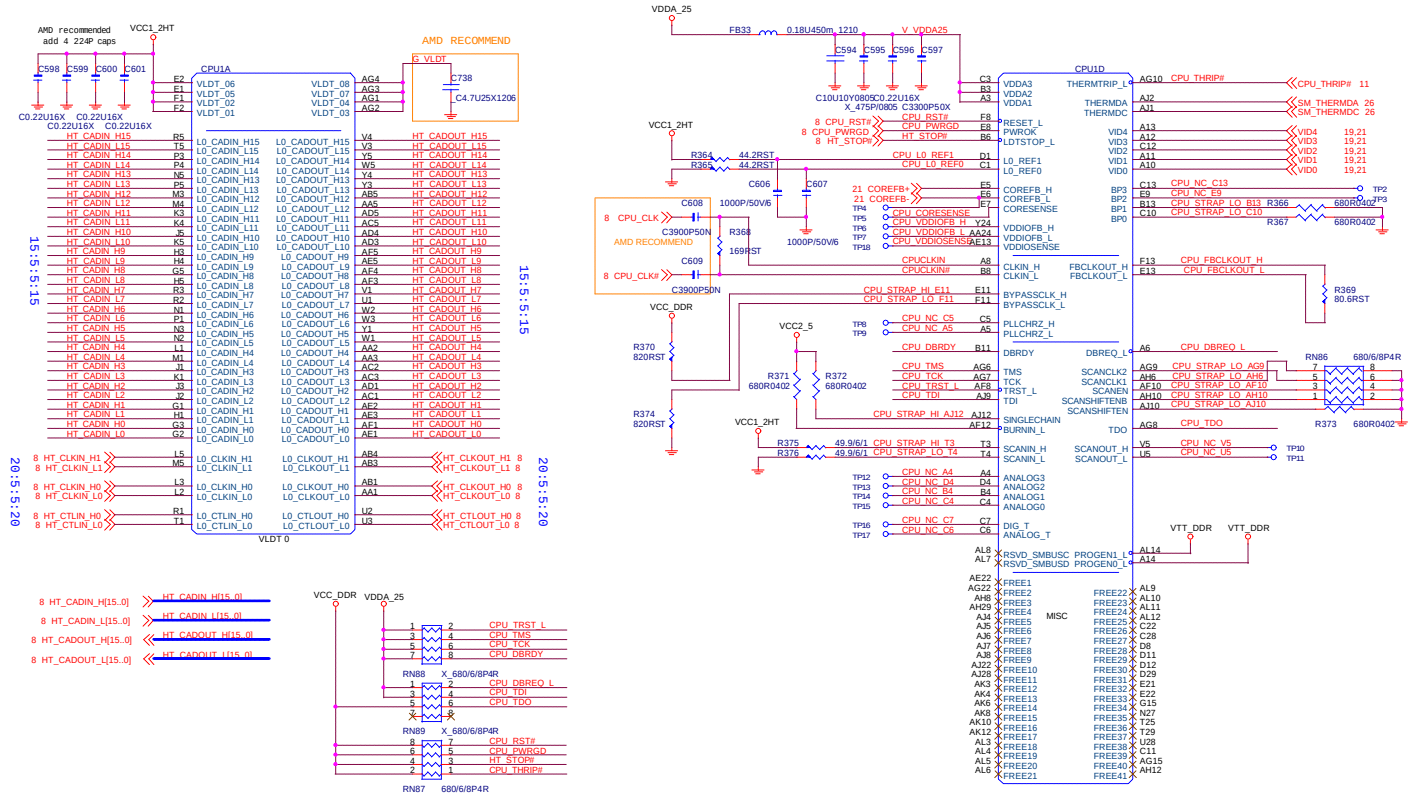
MS-7212 GPIO FUNCTION

MCP51 GPIO FUNCTION

NAME	Function Description	PAGE
GPIO_1	F_PANL RESET GPIO(FOR LENOVO SPEC)	12
GPIO_2	BIOS WRITE PROTECT(FOR LENOVO SPEC)	12
GPIO_3	BIOS_TBL#(FOR LENOVO SPEC)	12
GPIO_4	RESERVE(NC)	12
GPIO_5	RESERVE(NC)	12
GPIO_6	FOR LENOVO USB SWITCH(FOR LENOVO SPEC)	12
GPIO_7	FOR LENOVO USB SWITCH(FOR LENOVO SPEC)	12
GPIO_8	RESERVE GPIO(RSV1)(FOR LENOVO SPEC)	12
GPIO_9	RESERVE GPIO(RSV2)(FOR LENOVO SPEC)	12
GPIO_10	RESERVE(NC)	12
GPSB1/GP11	FOR LENOVO SUSPEND LED CONTROL(FOR LENOVO SPEC)	12
GP55	FOR LENOVO POWER LED CONTROL(FOR LENOVO SPEC)	12
GPIO_13	NC	12
GPIO_14	NC	12
GPIO_15	NC	12
GPIO_16	NC	12
THERMTRIP*/GPIO	CPU THERMTRIP	12
FANRPM/GPIO	THRM#	12
SATA_LED*/GPIO	SATA_LED	13

SIO GPIO FUNCTION

NAME	Function Description	PAGE
GP10	NC	19
GP11	POWER LED CONTROL(FOR LENOVO SPEC)	19
GP12	NC	19
GP13	NC	19
GP14	NC	19
GP16	NC	19
GP17	NC	19
GP32	NC	19
GP33	NC	19
GP44	NC	19
GP45	NC	19
GP53/PSON#	PS_ON# (ATX_PWR_ON#)	19
GP55	SUSPEND LED CONTROL(FOR LENOVO SPEC)	19
GP56/PSIN	PSIN (FP_RST#)	19
GP57/PSOUT#	PWRBTN#	19
GP60/RIA#	RIA#	19
GP52/SUSB#	SLP_S3#	19
GP50	GP50(EN_VRM10)	19



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Title	AMD K8 939 PART 1		
Size C	Document Number MS-7212		Rev 100
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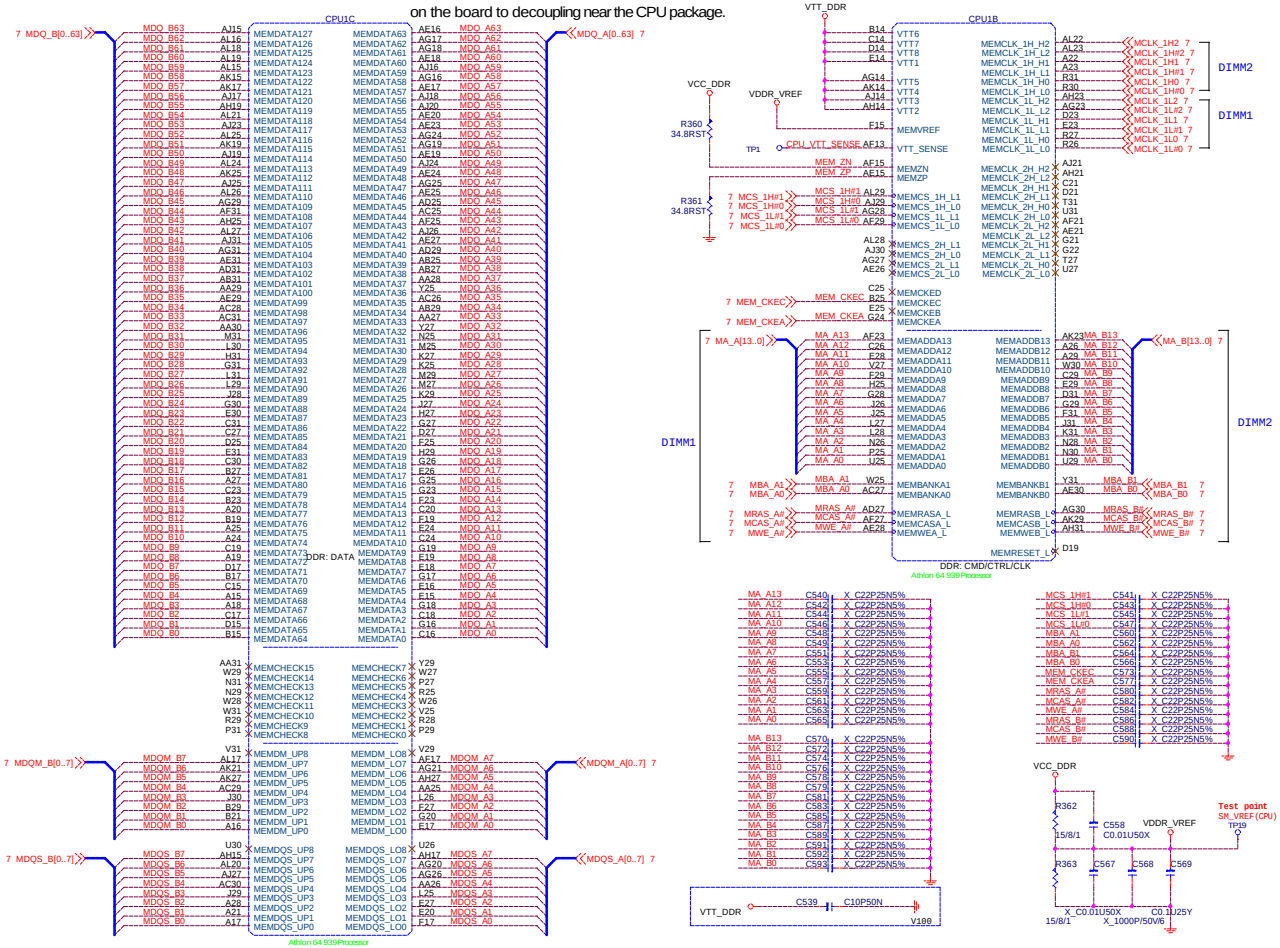
VDD_VTT_SUS_CPU is connected to the VDD_VTT_SUS power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.



MICRO-START INT'L CO.,LTD.			
Title: AMD K8 939 PART 2			
Size: C	Document Number: MS-7212	Rev: 100	
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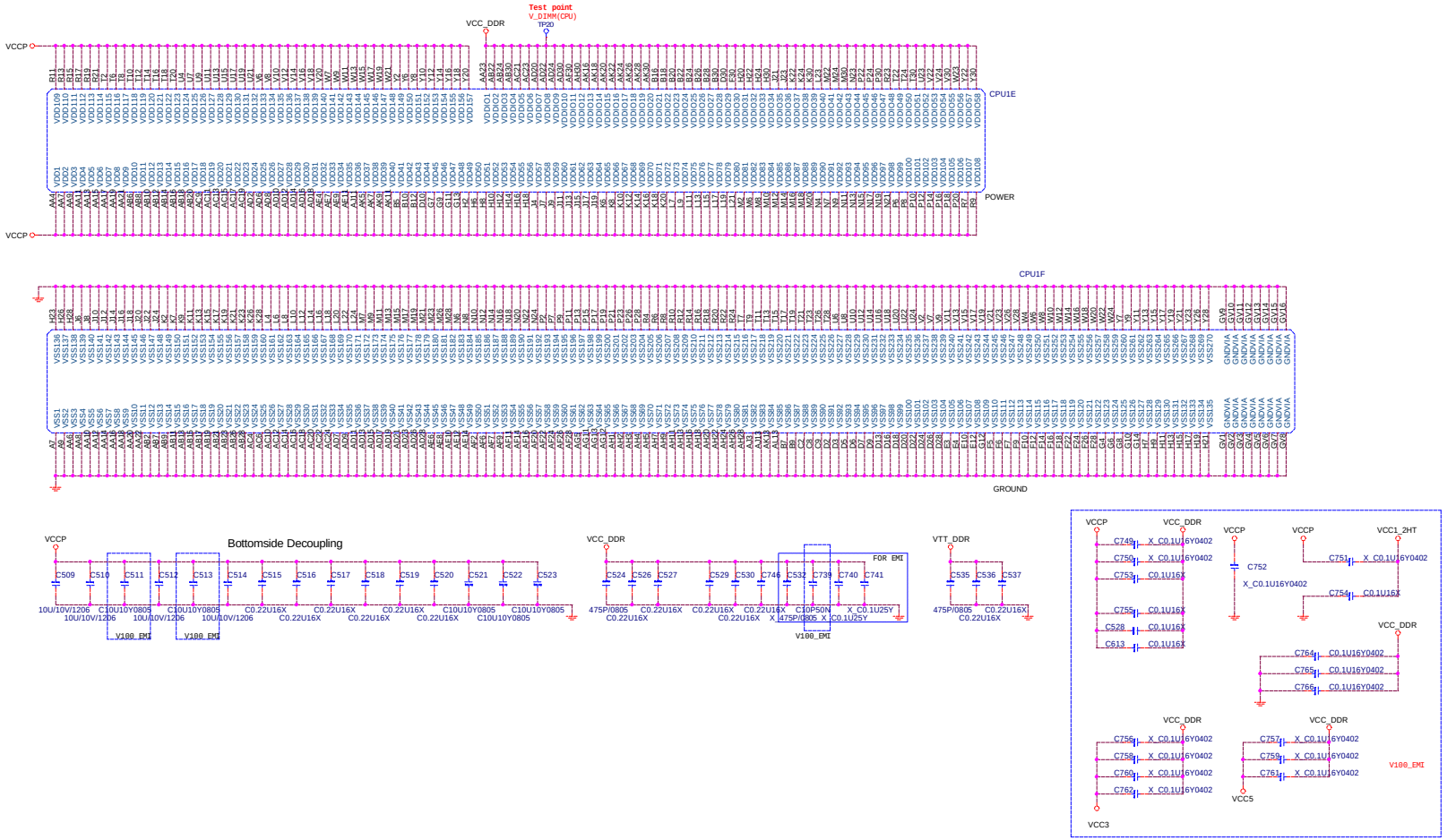

MSI	MICRO-START INT'L CO.,LTD.		
Title	AMD K8 939 PART 3		
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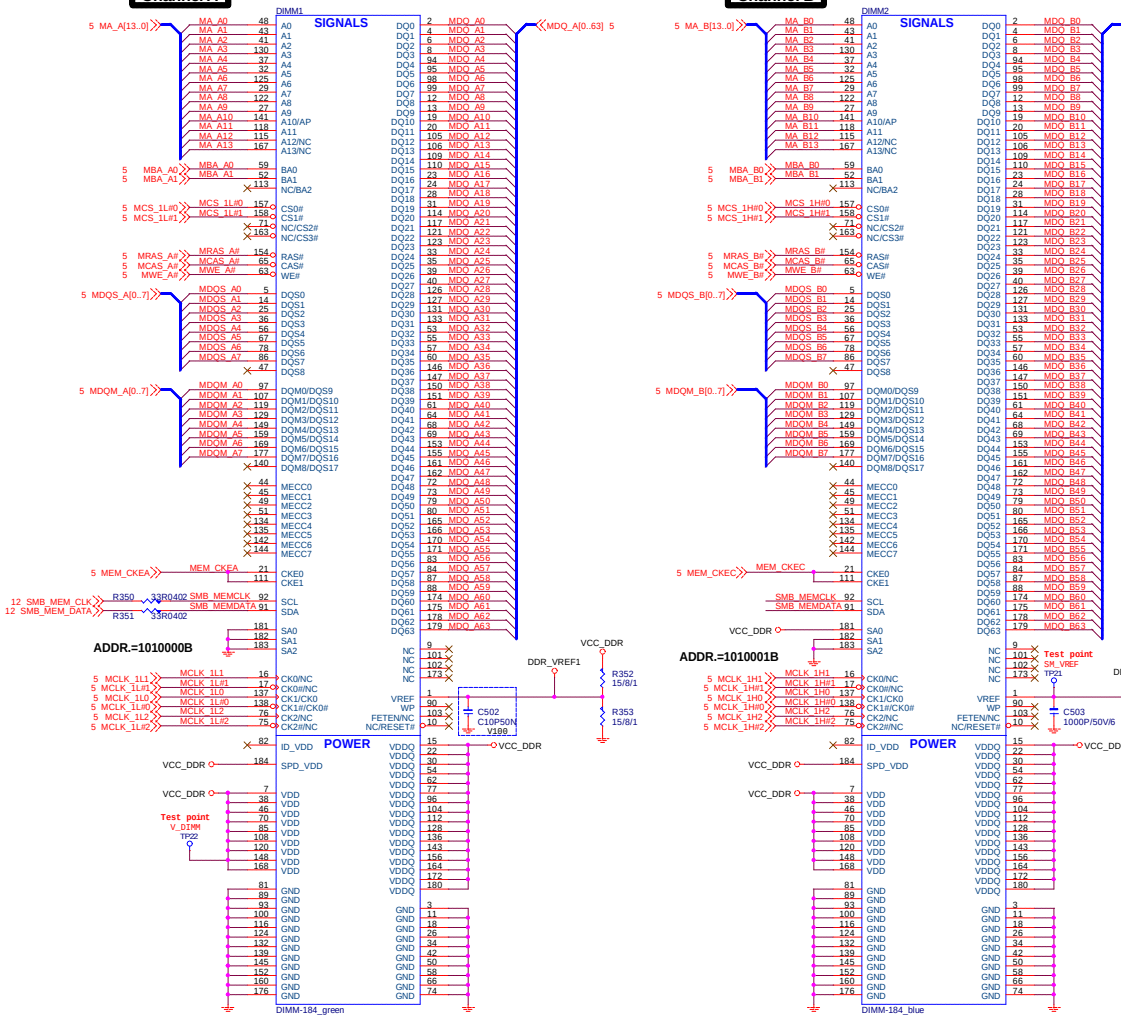
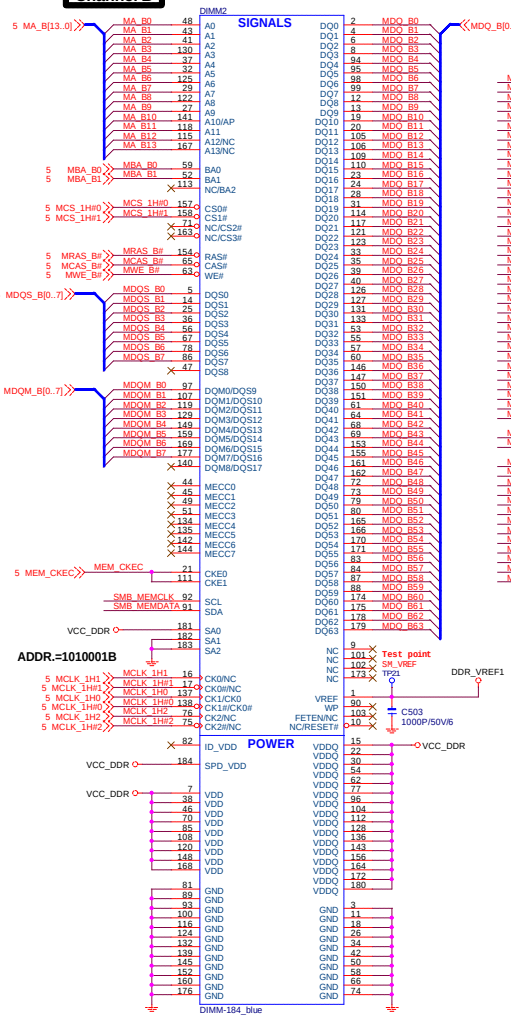
SYSTEM MEMORY

Channel A

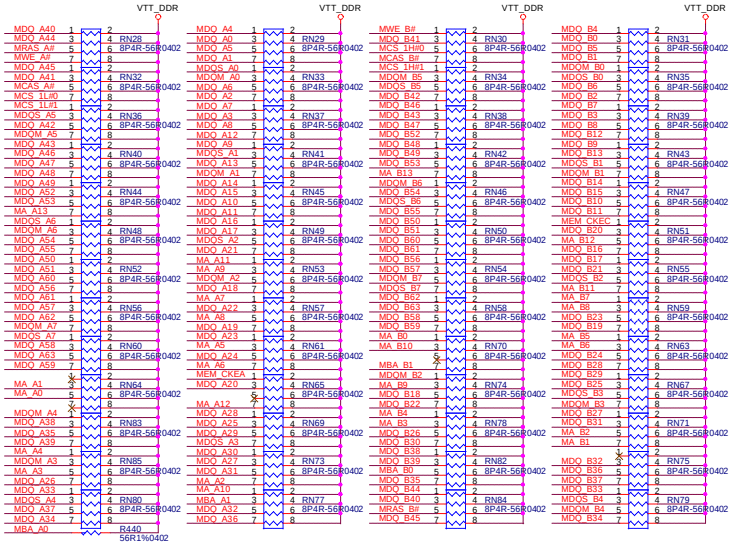
DDR DIMM1



DDR DIMM2



DDR Terminational Resisitors
CHANGE TO 56 OHM

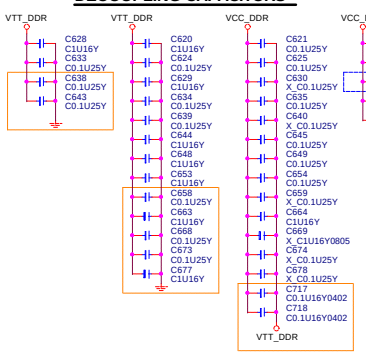


DDR Terminational Resisitors
CHANGE TO 56 OHM

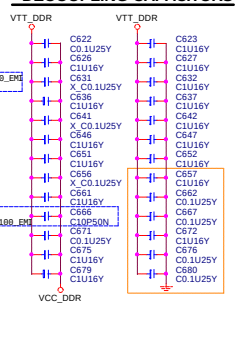
DDR Terminational Resisitors
CHANGE TO 56 OHM

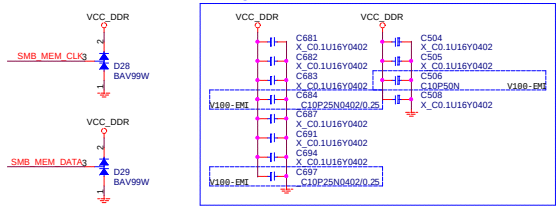
DDR Terminational Resisitors
CHANGE TO 56 OHM

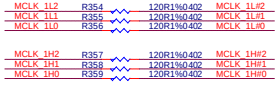
DECOUPLING CAPACITORS

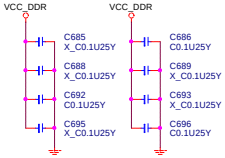


DECOUPLING CAPACITORS









AMD recommended add 10 more caps between VCC_DDR and VTT_DDR.

MICRO-START INT'L CO.,LTD.

Title	DDR DIMM 1,2	
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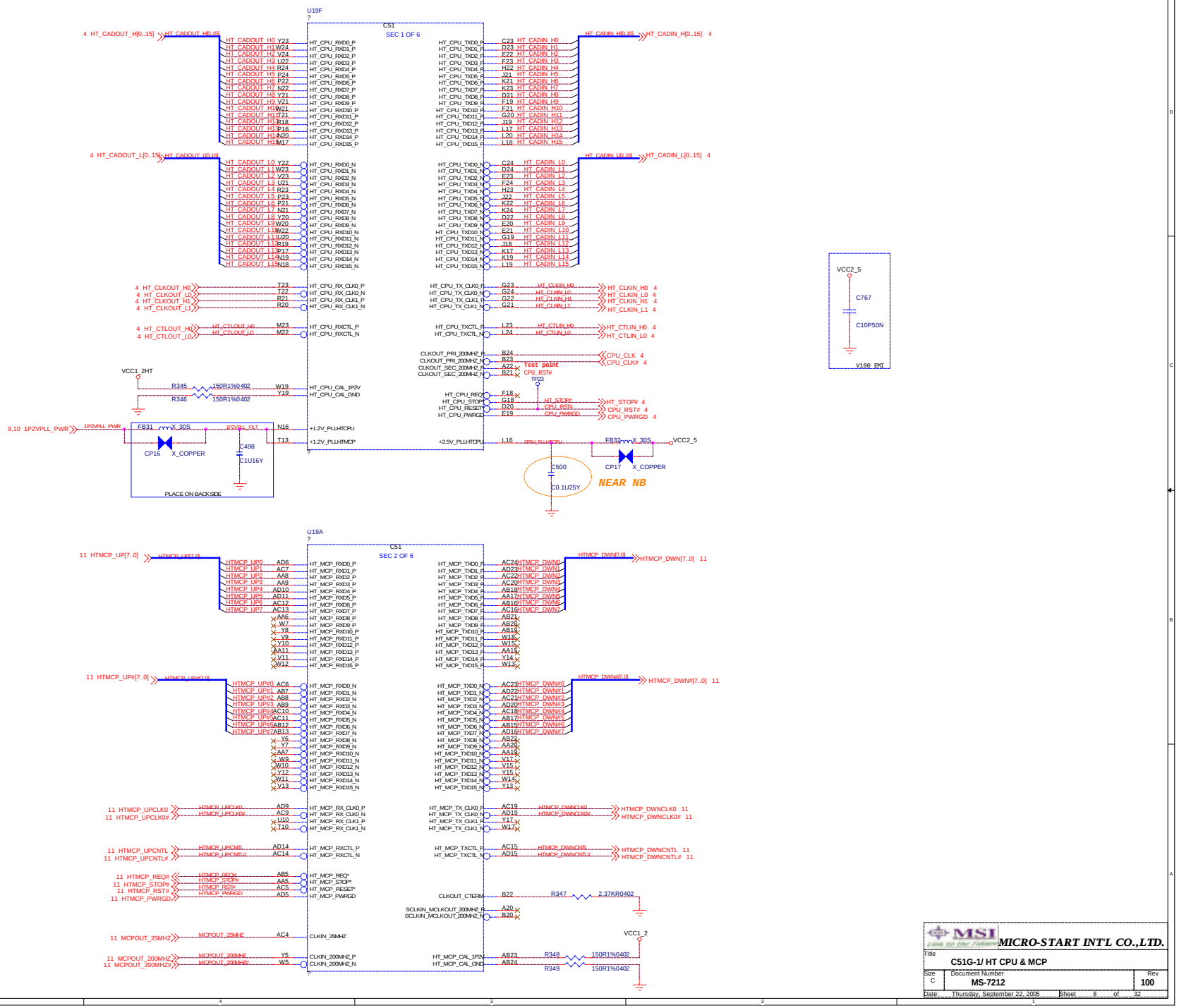

MICRO-START INT'L CO.,LTD.

Title: C51G-1/ HT CPU & MCP

Size	Document Number	Rev
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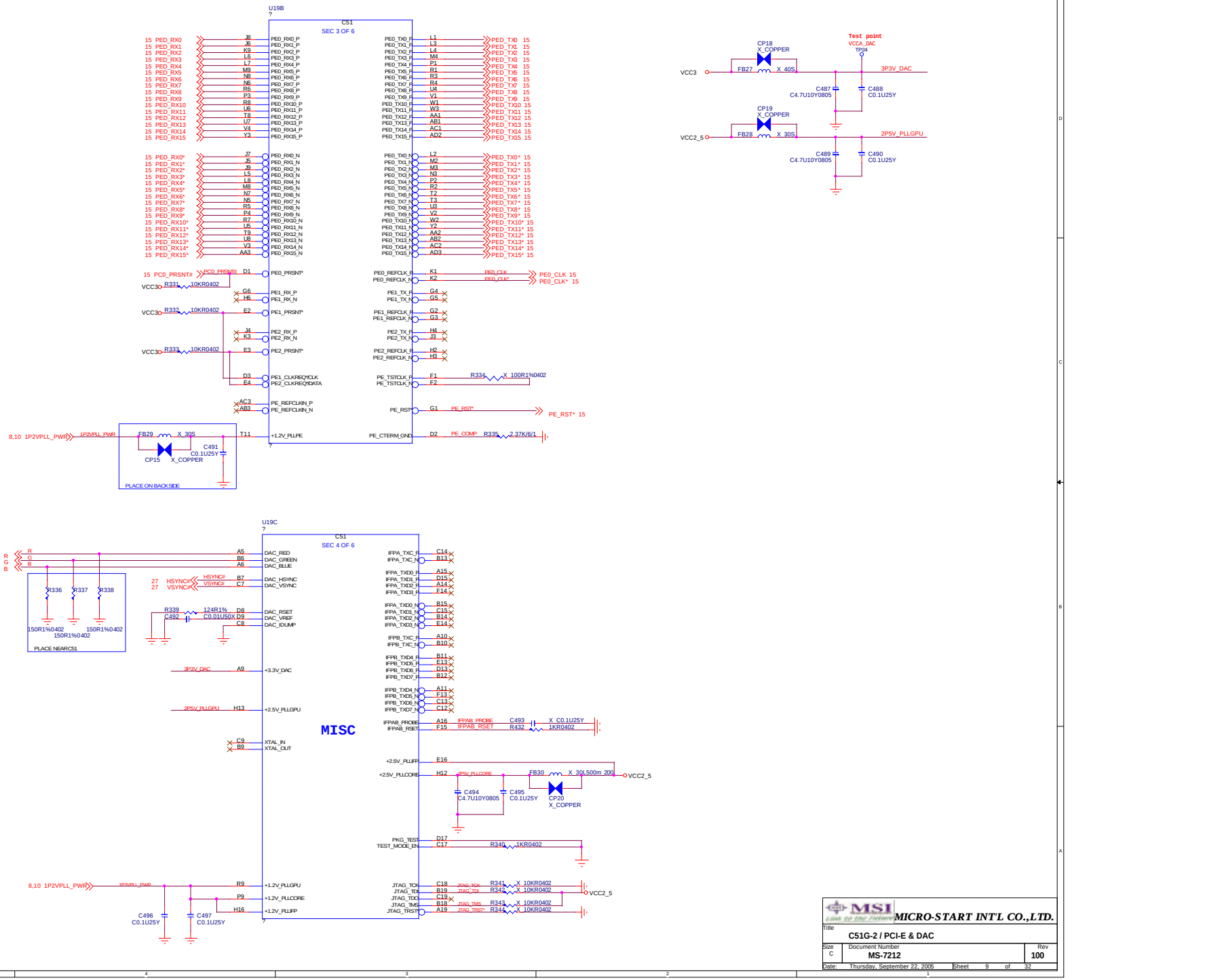
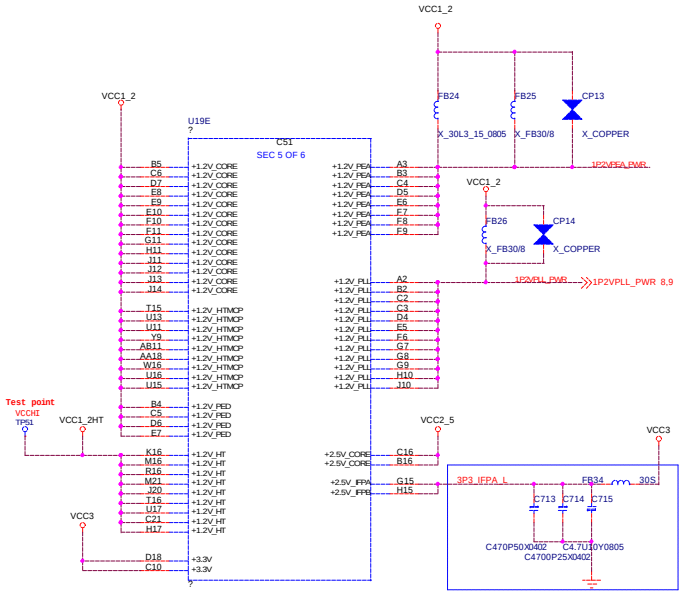
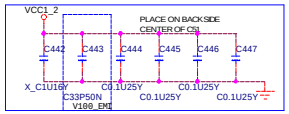


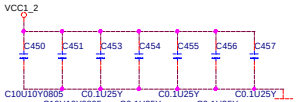
MICRO-START INT'L CO.,LTD.

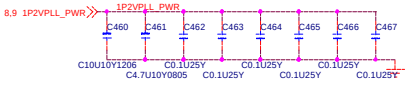
Title	C51G-2 / PCI-E & DAC	
Size: C	Document Number: MS-7212	Rev: 100
Date: Thursday, September 22, 2005	Sheet 9 of 32	

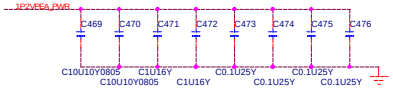


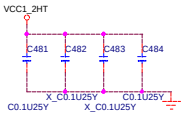
C51 DECOUPLING

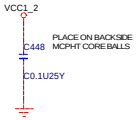


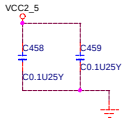


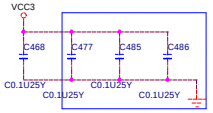


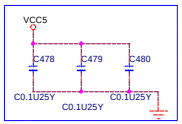


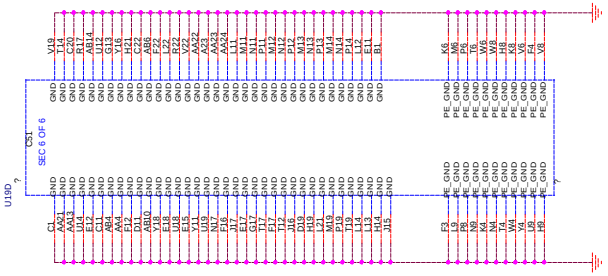












MSI — MICRO-START INT'L CO.,LTD.			
Title: C51G-3/PWR/GND			
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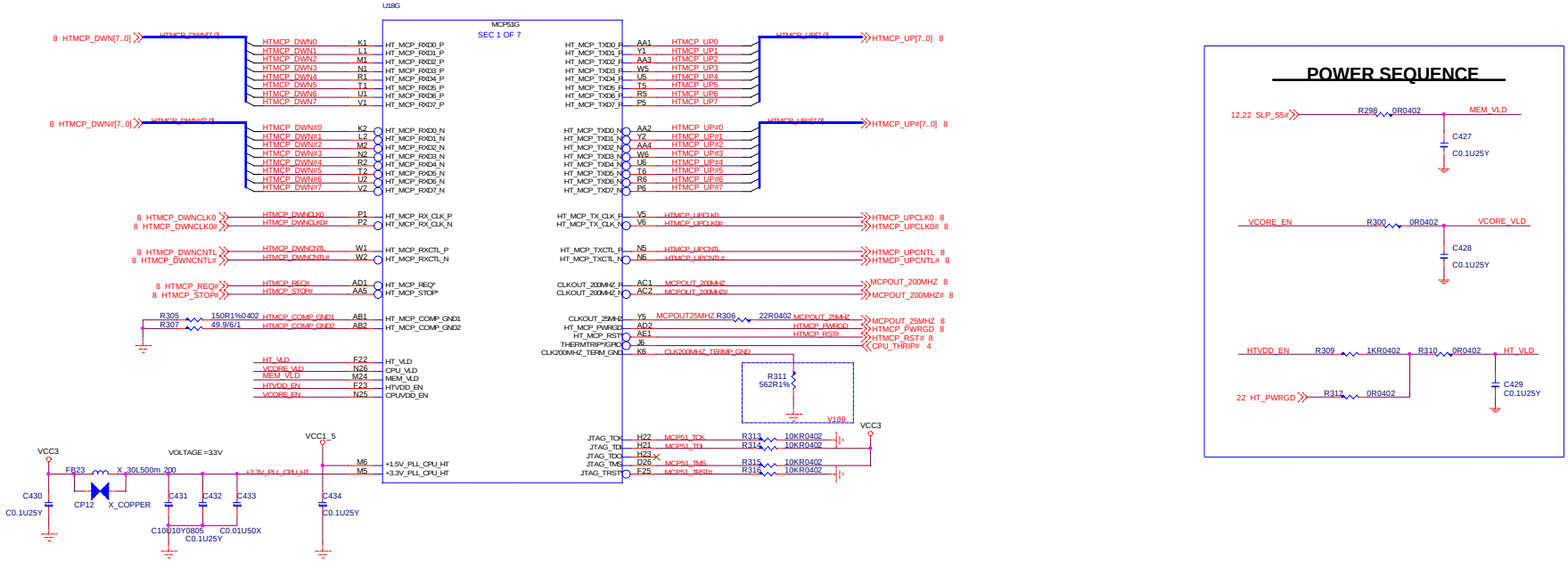
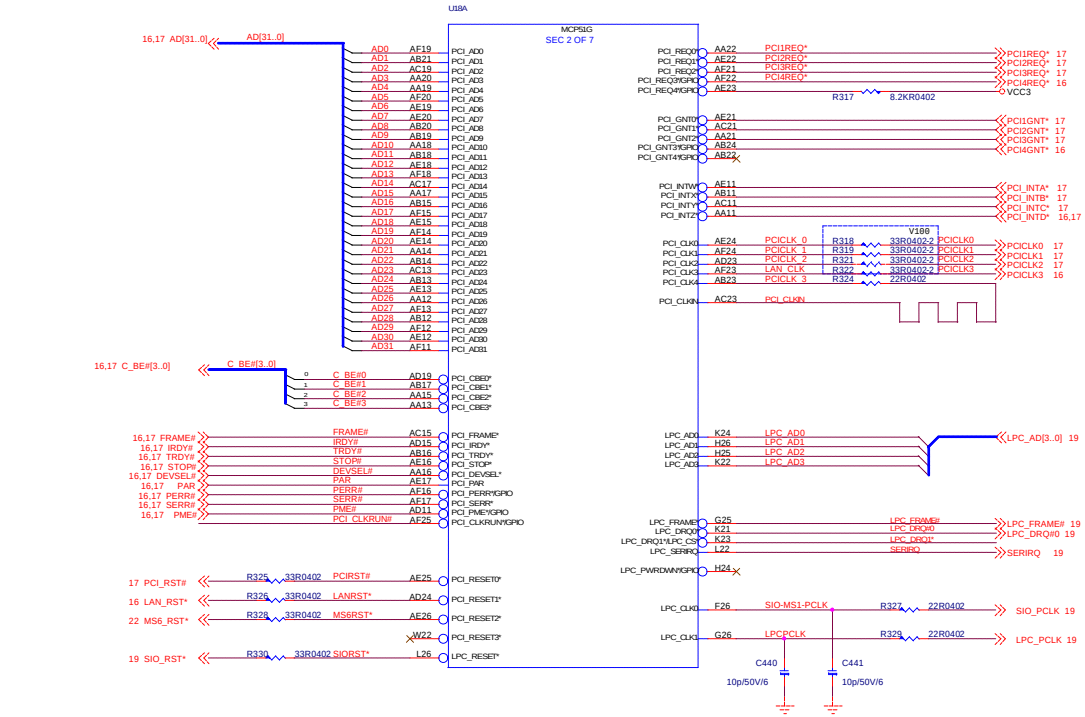
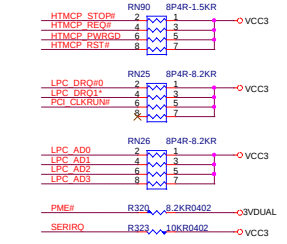
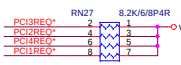


POWER SEQUENCE

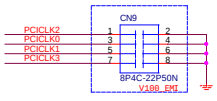




PCI PULL-UP / DOWN RESISTORS



RESERVED FOR EMI



MICRO-START INT'L CO.,LTD.

Title: MCP51-1/ HT & PCI		
Size: C	Document Number: MS-7212	Rev: 100
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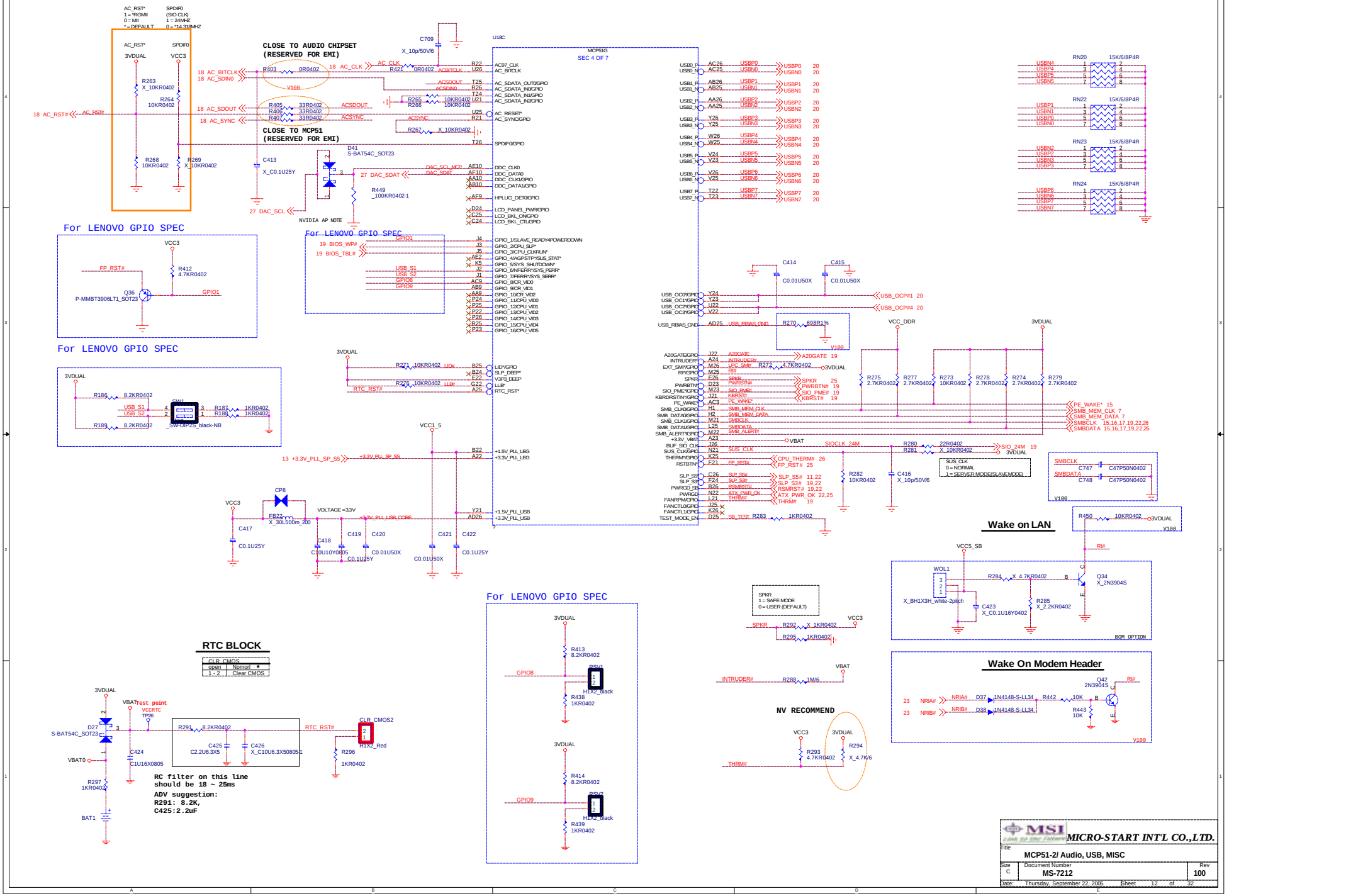
CLOSE TO AUDIO CHIPSET
(RESERVED FOR EMI)
CLOSE TO MCP51
(RESERVED FOR EMI)
NVIDIA AP NOTE
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
RTC BLOCK
Wake on LAN
Wake On Modem Header
NV RECOMMEND
RC filter on this line
should be 18 ~ 25ms
ADV suggestion:
R291: 8.2K,
C425:2.2uF
MCP51G
SEC 4 OF 7
U18C
MICRO-START INT'L CO.,LTD.
MCP51-2/ Audio, USB, MISC
MS-7212
100
Thursday, September 22, 2005
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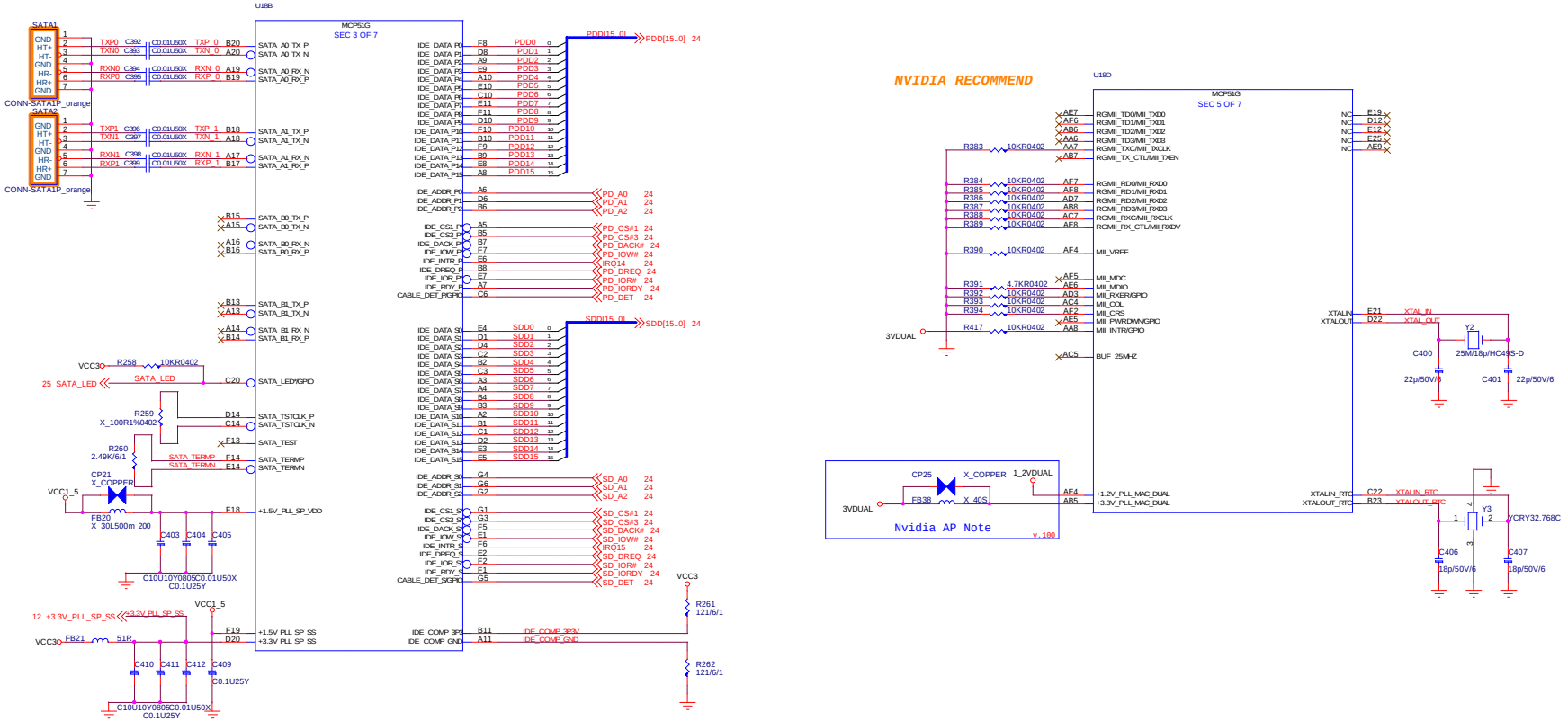
32



MICRO-START INT'L CO.,LTD.			
Title: MCP51-3/ SATA, IDE, MII			
Size: C	Document Number: MS-7212		Rev: 100
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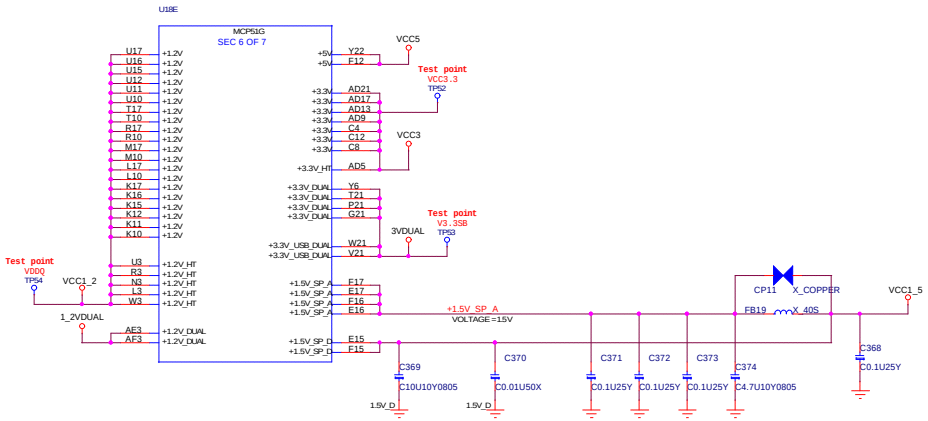

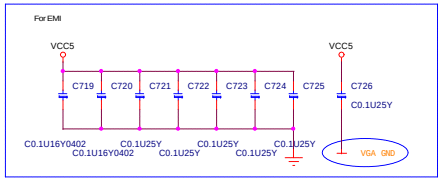

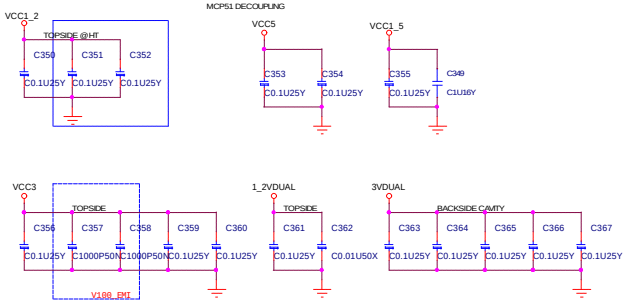

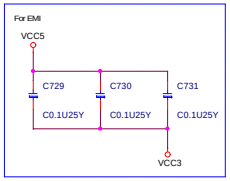

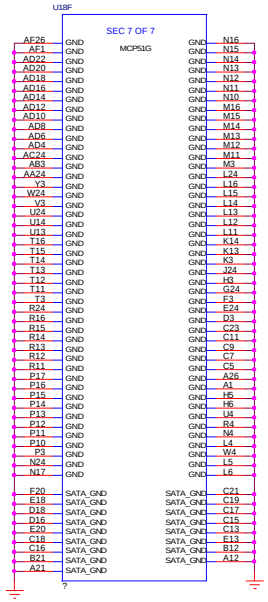

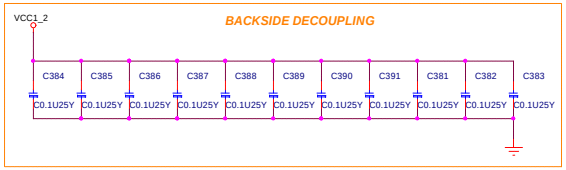

MICRO-START INT'L CO.,LTD.

Title: MCP51-4/ PWR & GND

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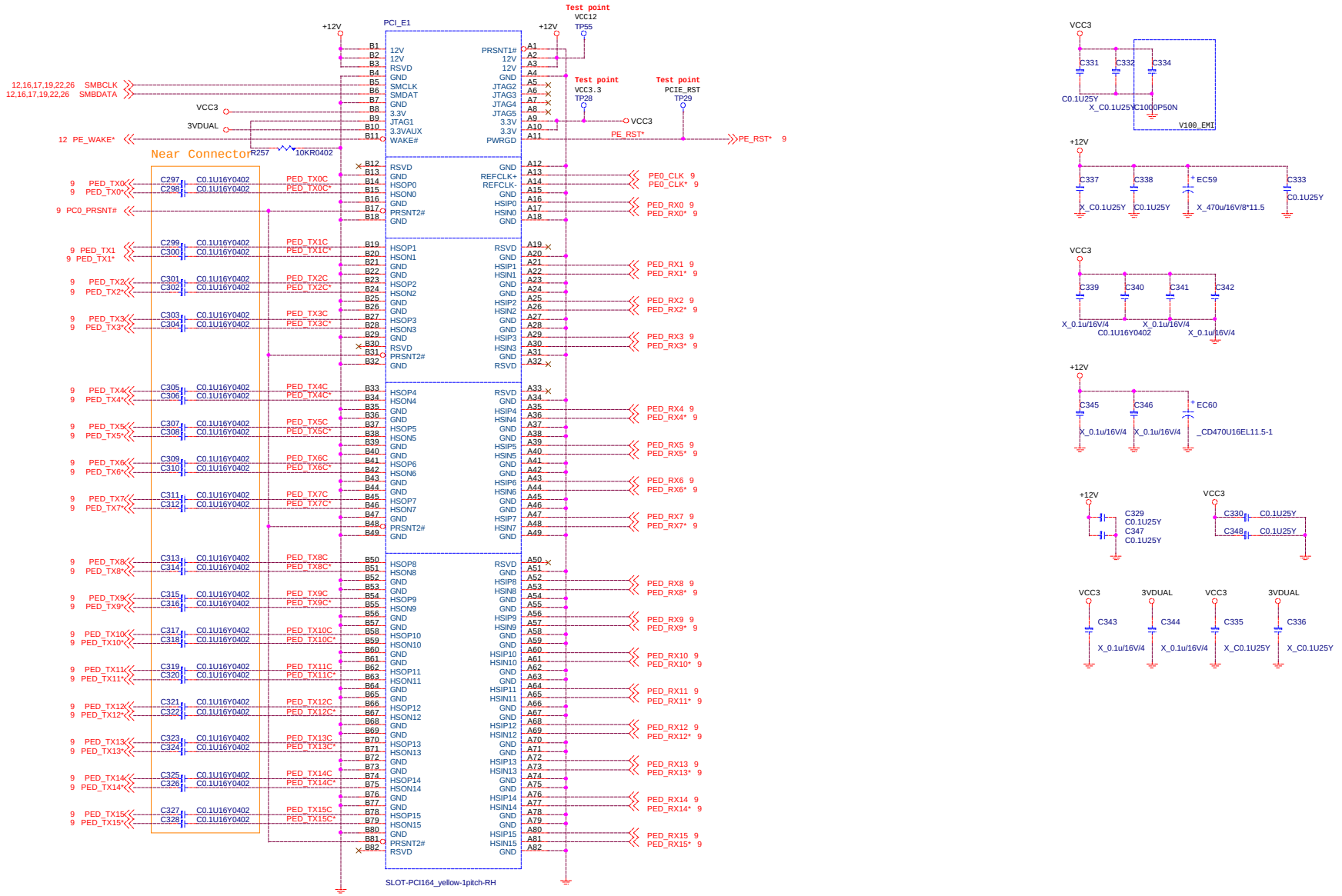

MICRO-START INT'L CO.,LTD.

Title: PCI-EXPRESS X16 SLOT

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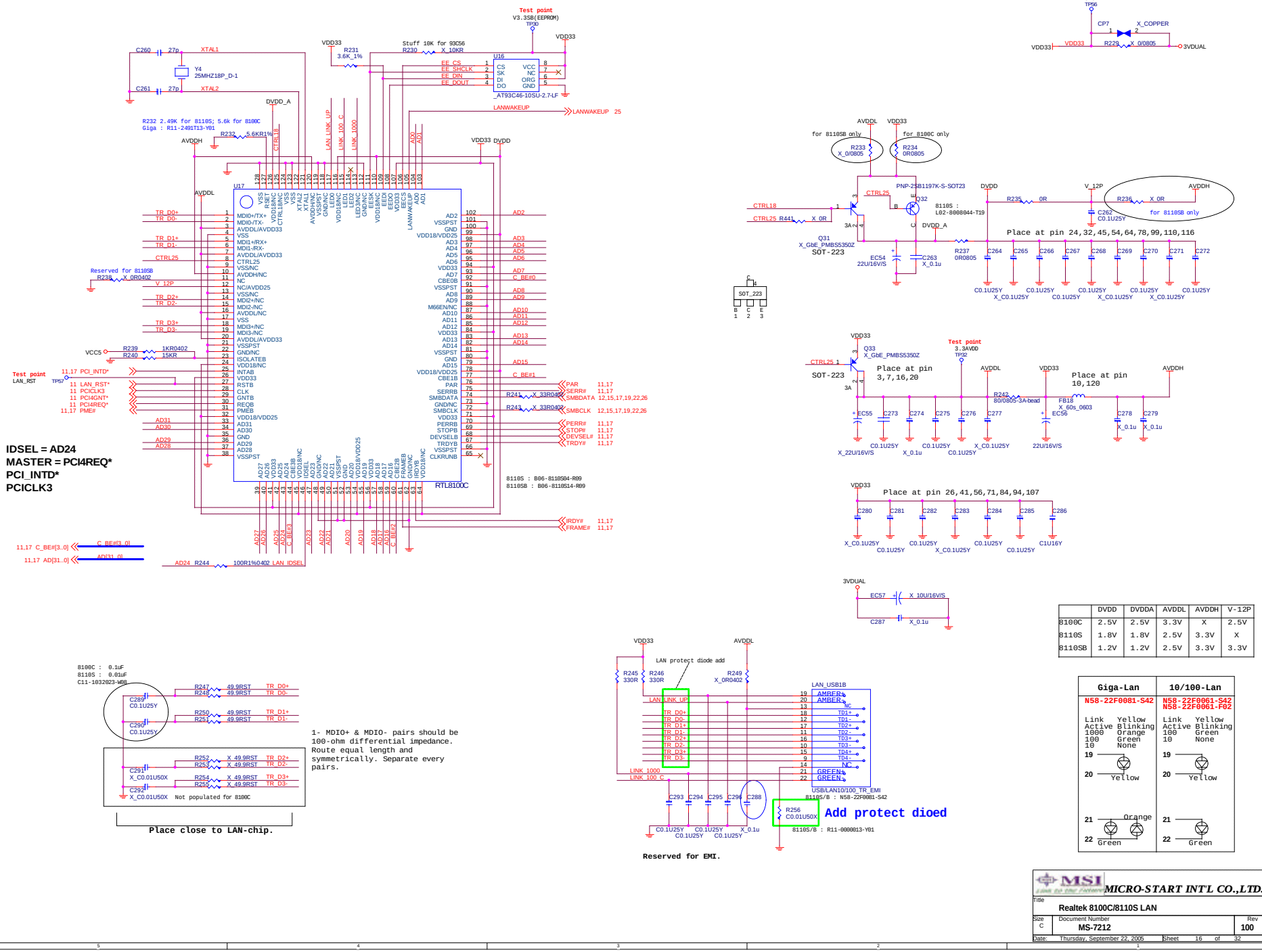

	DVDD	DVDDA	AVDDL	AVDDH	V-12P
8100C	2.5V	2.5V	3.3V	X	2.5V
8110S	1.8V	1.8V	2.5V	3.3V	X
8110SB	1.2V	1.2V	2.5V	3.3V	3.3V

MSI	MICRO-START INT'L CO.,LTD.
Title	Realtek 8100C/8110S LAN
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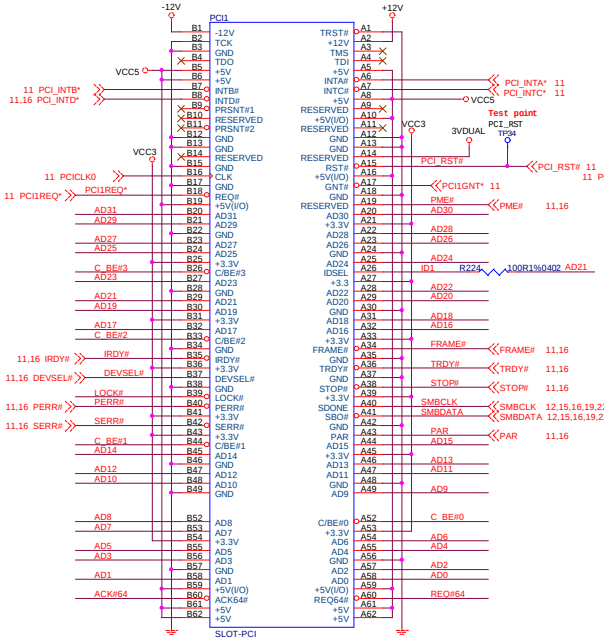
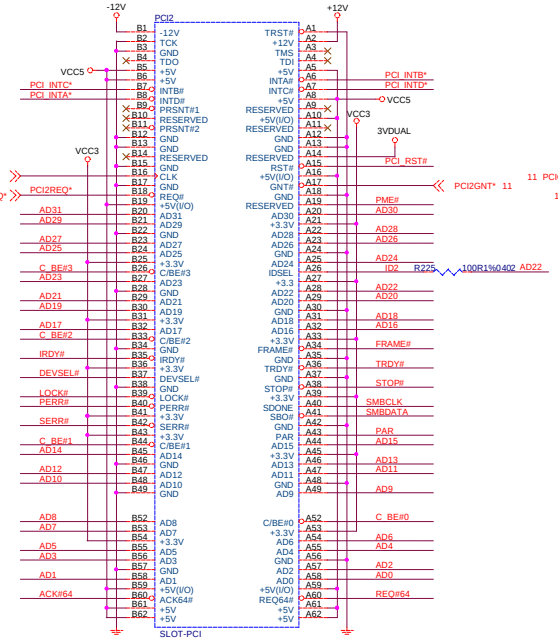
PCI SLOT 1



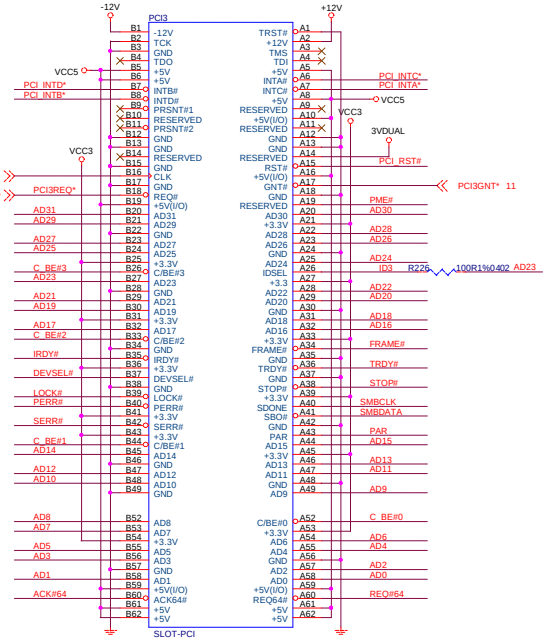
IDSEL = AD21
MASTER = PCI1REQ*
PCI_INT* A B C D
PCICLK0

PCI SLOT 2

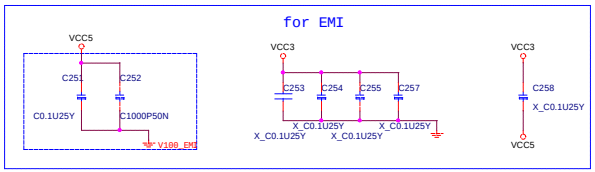


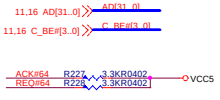
IDSEL = AD22
MASTER = PCI2REQ*
PCI_INT* B C D A
PCICLK1

PCI SLOT 3

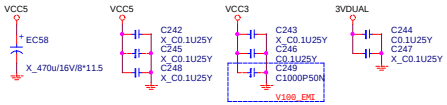


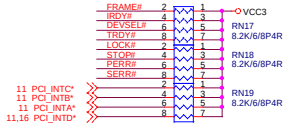
IDSEL = AD23
MASTER = PCI3REQ*
PCI_INT* C D A B
PCICLK2





PCI SLOT DECOUPLING CAPACITORS





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

Title: PCI Slot 1 & 2		
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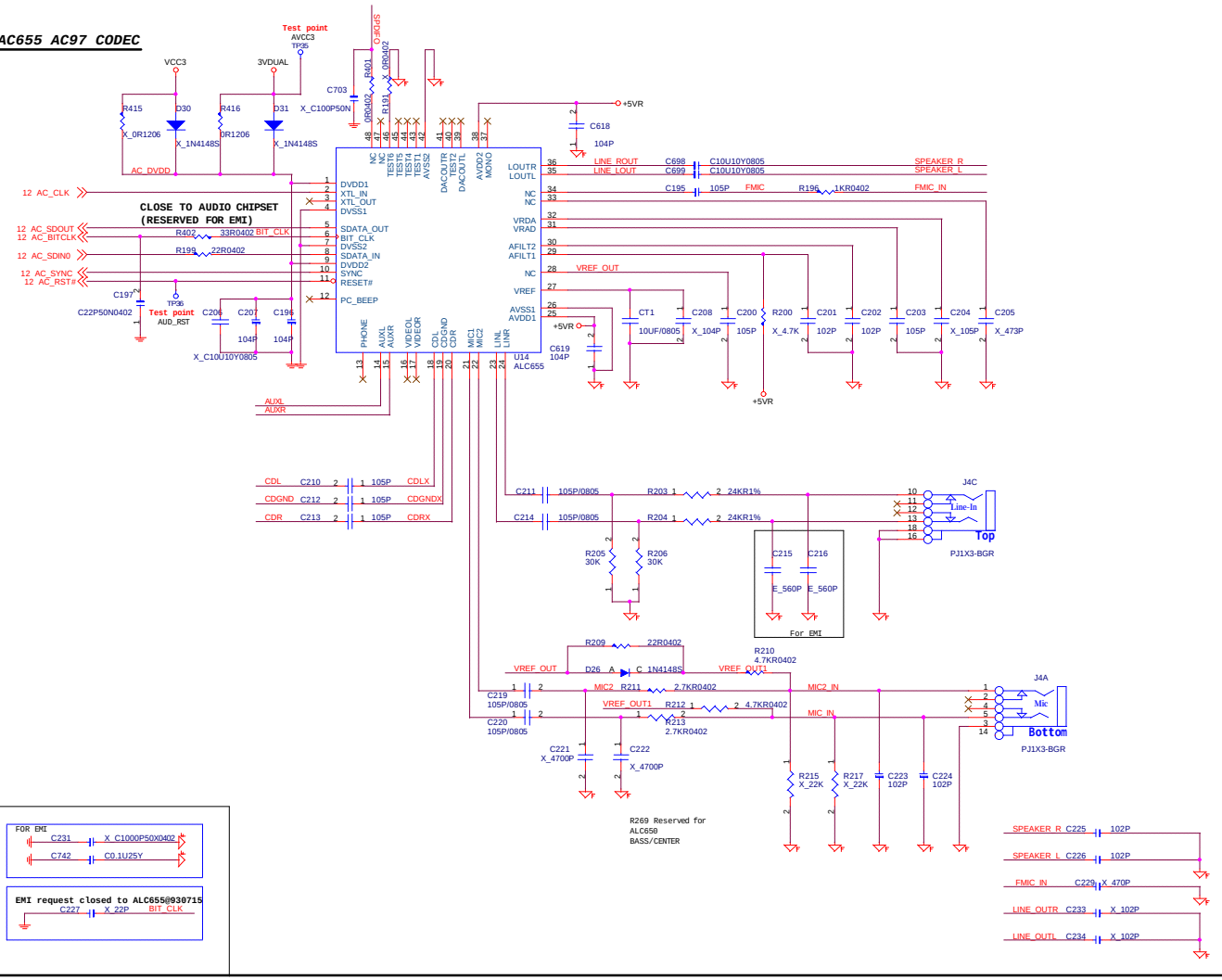
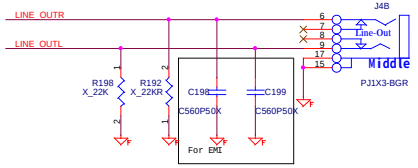
AC655 AC97 CODEC



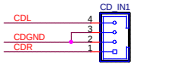
FOR EMI
C231 X_C1000P50X0402
C742 C0.1U25Y

EMI request closed to ALC655@930715
C227 X_22P BIT_CLK

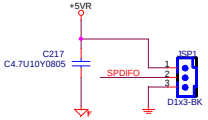
SPEAKER OUT JACK



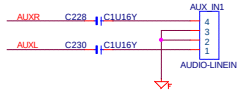
AUDIO CODE CD IN HEADERS



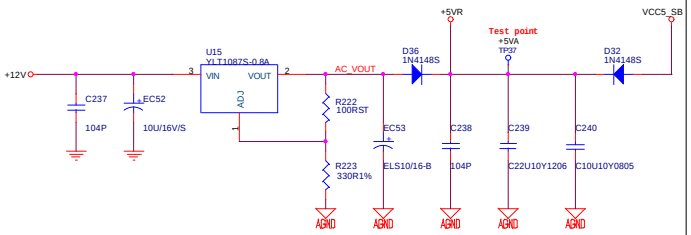
SPDIF OUT



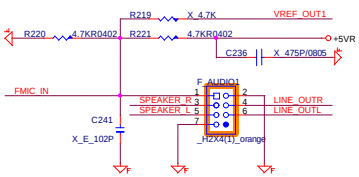
AUX IN



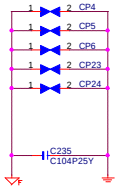
AUDIO CODE REGULATORS

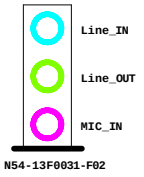


Onboard Header for Lenovo



DECOUPLING CAPACITOR





N54-13F0031-F02

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

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LPC SUPER I/O W83627EHF

Winbond APnote

CPUFANOUT0 & SYSFANOUT are default PWM mode

CPUFANOUT1 & SYSFANOUT are default DC mode

When PSIN function is disable, set CRE7 bit 0 as 1

W83627EHF

Bios should switch to 24MHZ (Default : 48MHZ)

Hardware Monitor

BIOS PROTECT BLOCK

BIOS Update Config.		
HIGH	Un_protected	
LOW	Protected	Default

IR HEADER

LPC I/O STRAPPING RESISTOR

RTSA#	L: CFAD=2E	H: CFAD=4E
GP50	L: TTL LEVEL	H: VBM10.1 EVEL
SOUTA	L: KBC DISABLE	H: KBC ENABLE
DTRA#	L: DISABLE SPI	H: DIABLE SPI

Chasiss Intrusion

W83627EHF OUTPUT IS 3.3V

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

Title: W627EHF LPC I/O / FWH

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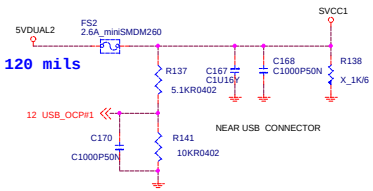
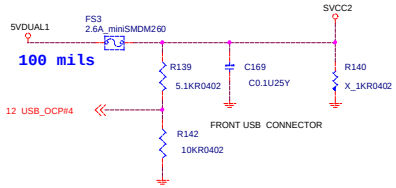
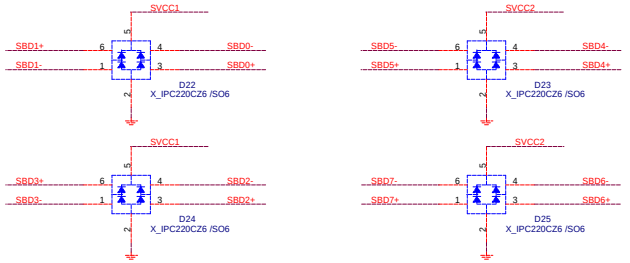
POWER CIRCUIT FOR USB PORT 0,1,2,3

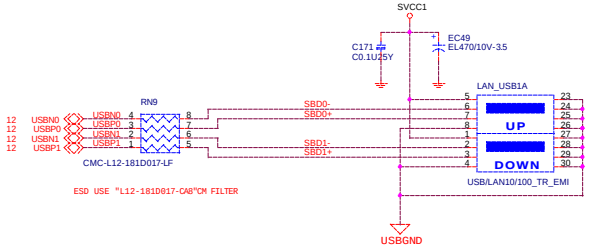


POWER CIRCUIT FOR USB PORT 4,5,6,7





REAR PANEL USB CONNECTOR FOR USB PORT 4,5

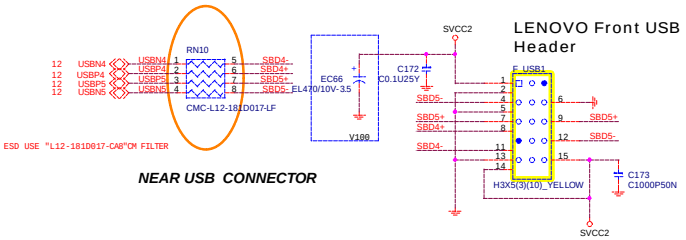


NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

FRONT PANEL USB CONNECTOR FOR USB PORT 0,1

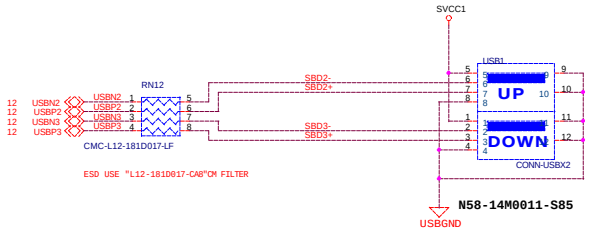
Reserved, can be taken off riser card within bead



NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

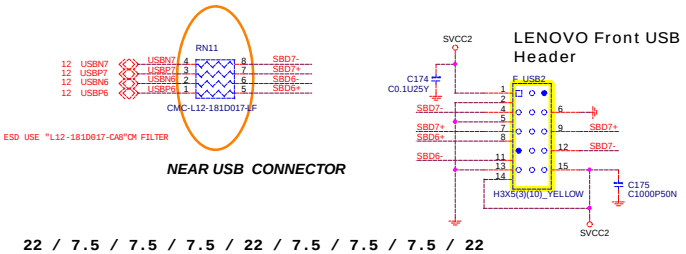
REAR PANEL USB CONNECTOR FOR USB PORT 6,7



NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

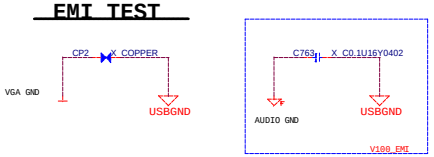
FRONT PANEL USB CONNECTOR FOR USB PORT 2,3



NEAR USB CONNECTOR

22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

EMI TEST



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

Title: USB CONNECTORS		
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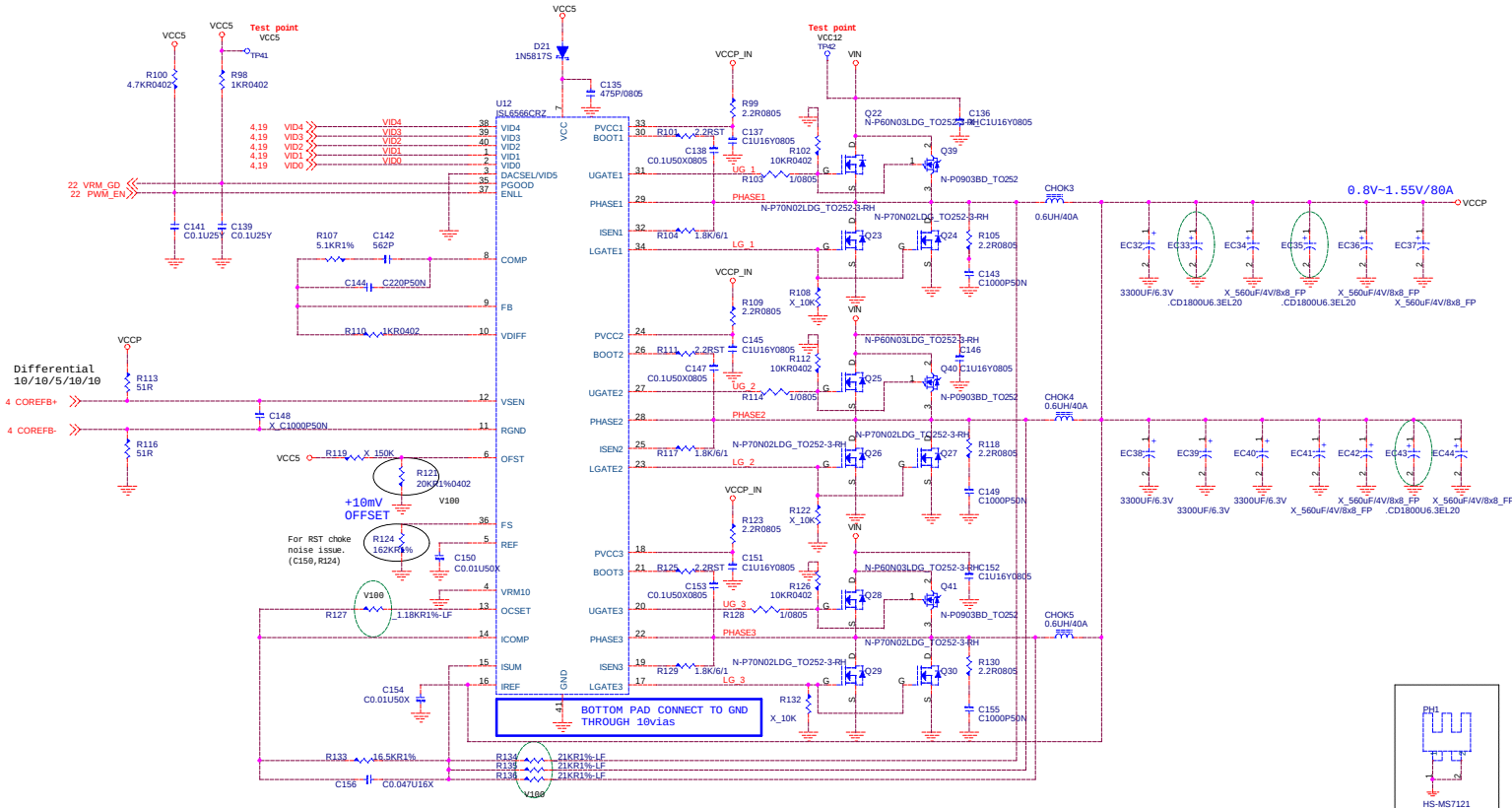
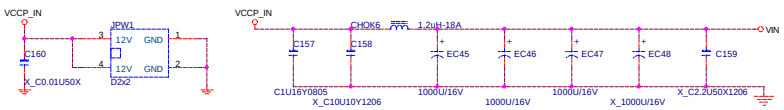
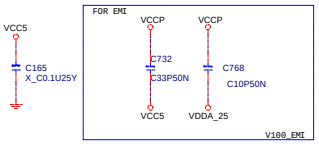


ATX12V Power Connector





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Title: K8 PWM ISL6566CRZ		
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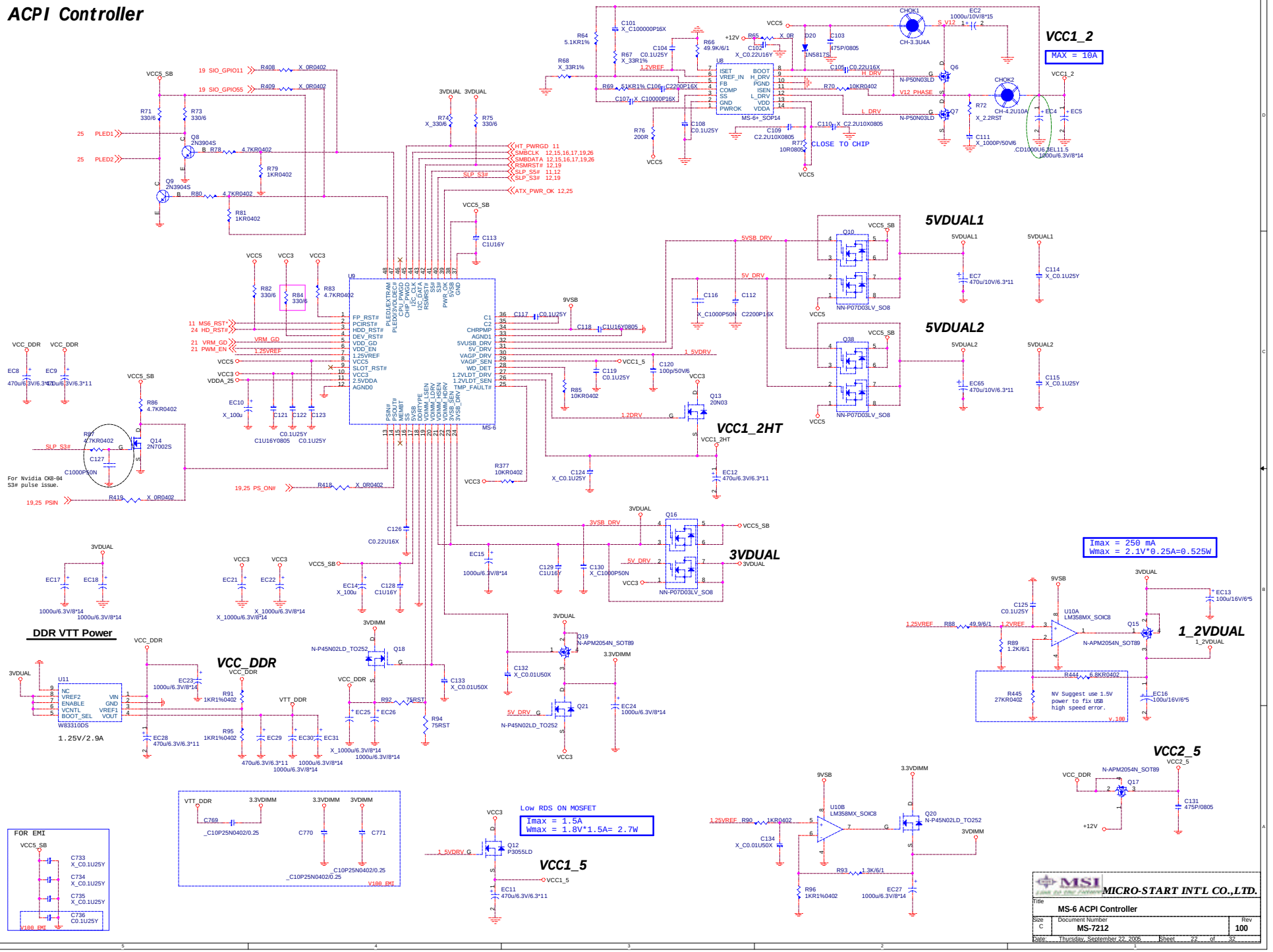
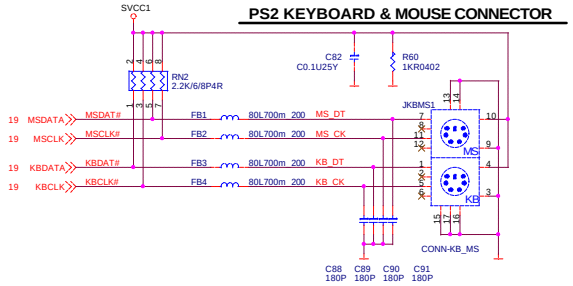
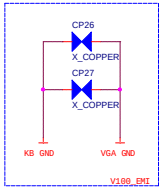
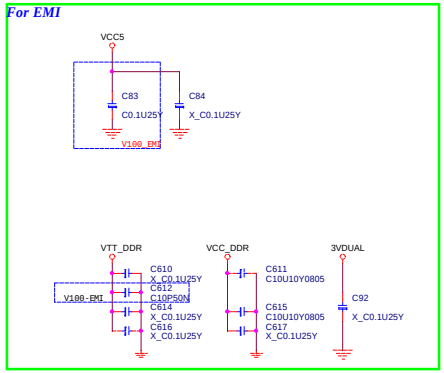
ACPI Controller



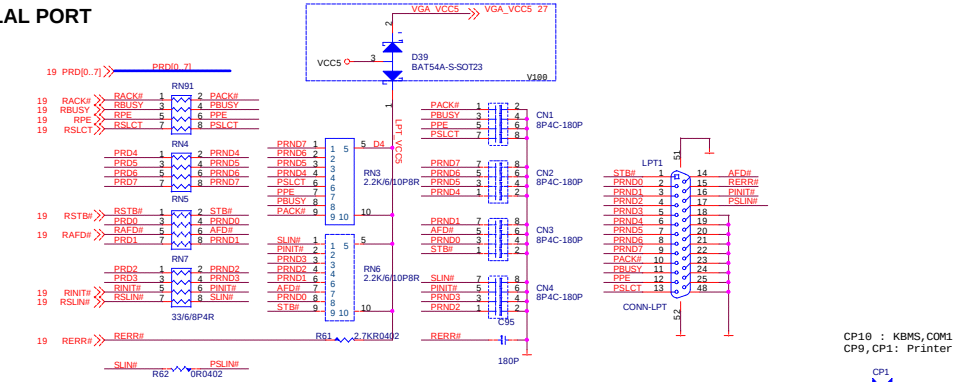
KB/MS/LPT/COM Port





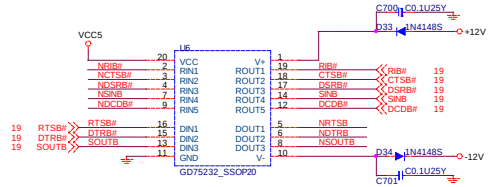


PARALLAL PORT

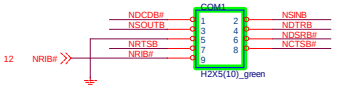


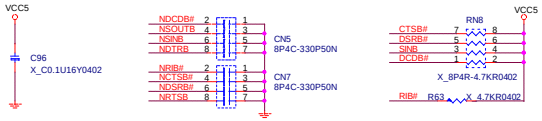
CP10 : KBMS,COM1
CP9,CP1: Printer

SERIAL PORT 1

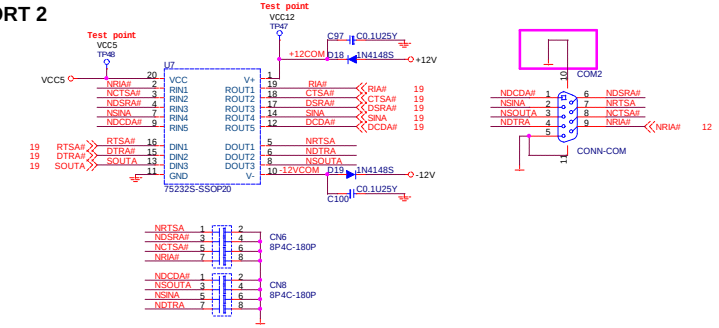


COM1 HEADER





SERIAL PORT 2



Title	KB/MS/LPT/COM Port	
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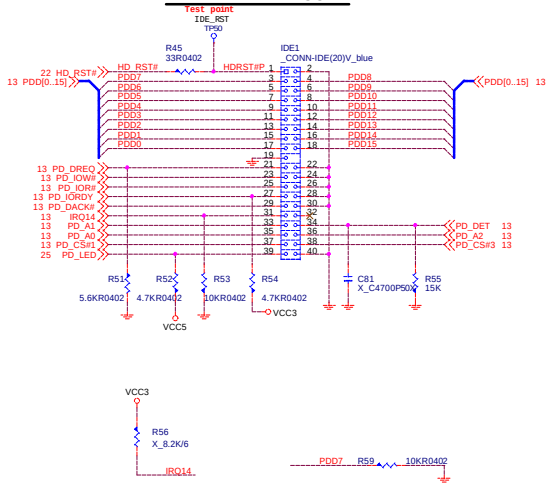
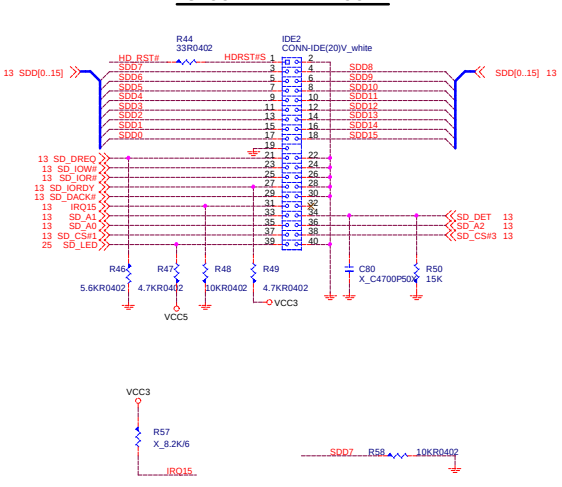
ATA 33/66/100 Connector

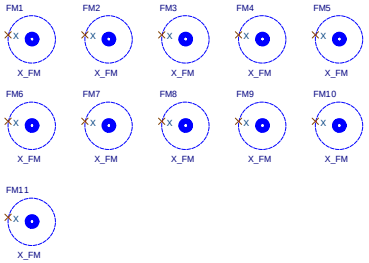
PRIMARY IDE BLOCK



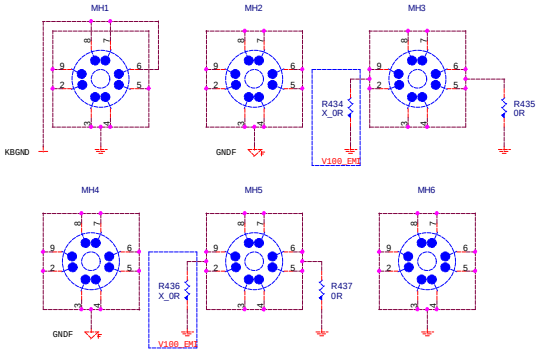
SECONDARY IDE BLOCK



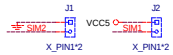
Optics Orientation Holes



Mounting Holes



Simulation



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Title: ATA 33/66/100 Connector		
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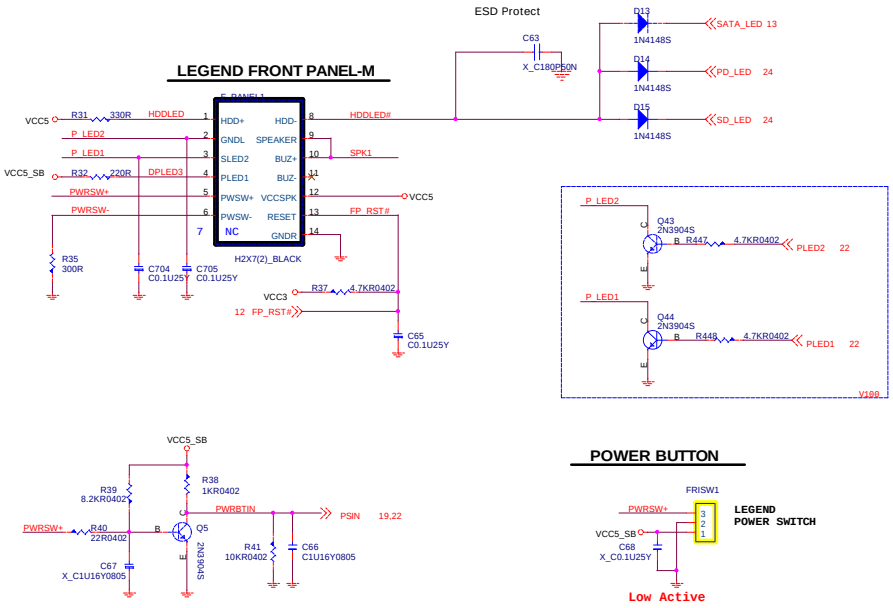
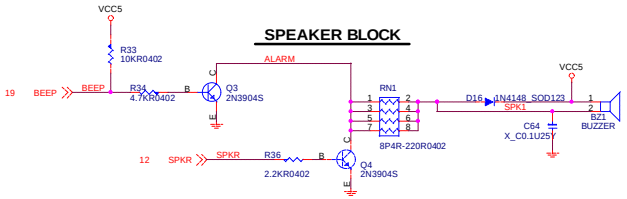
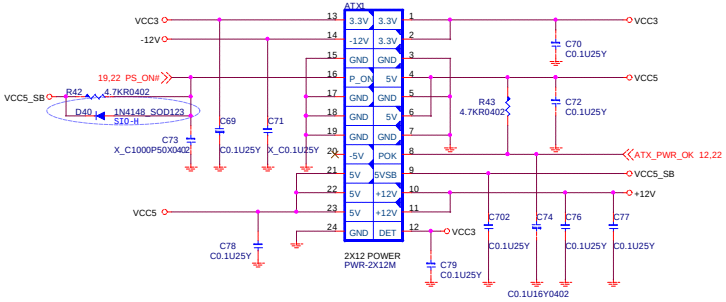
ATX connector / Front Panel



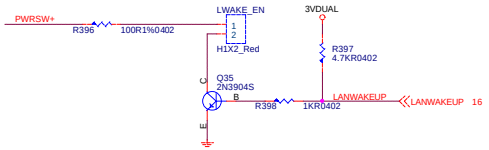
BUZZER



ATX Connector



For LENOVO LAN Wake up function



MICRO-START INT'L CO.,LTD.

Title: ATX connector / Front Panel		
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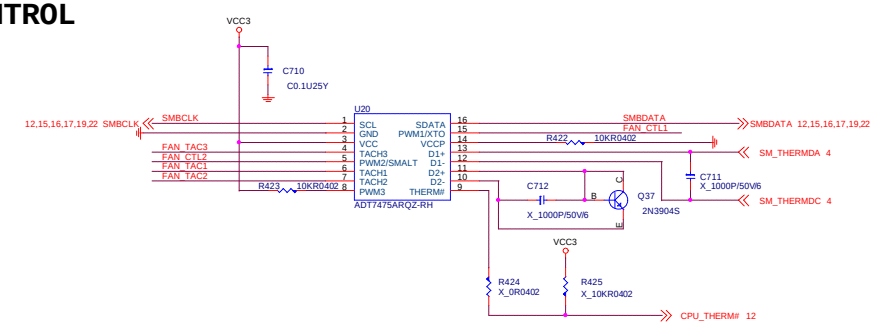
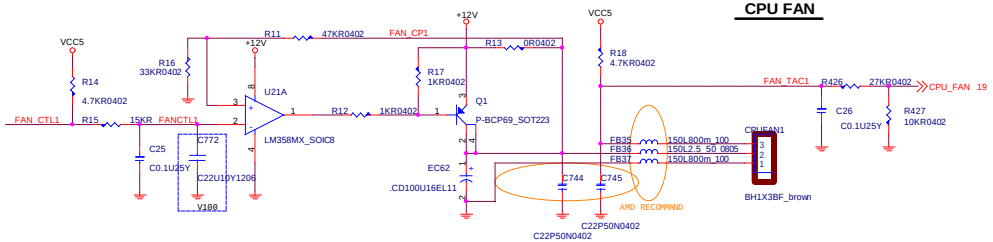
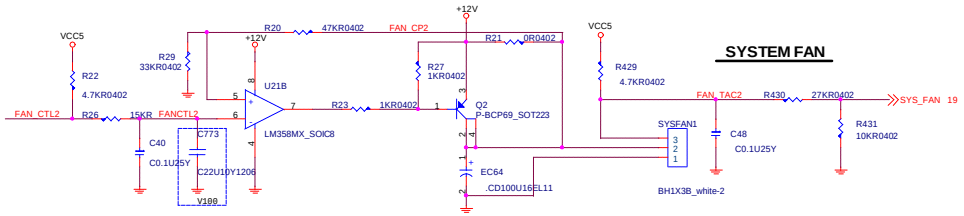
FAN CONTROL

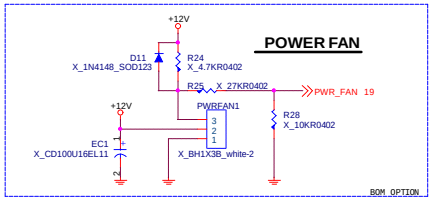


CPU FAN

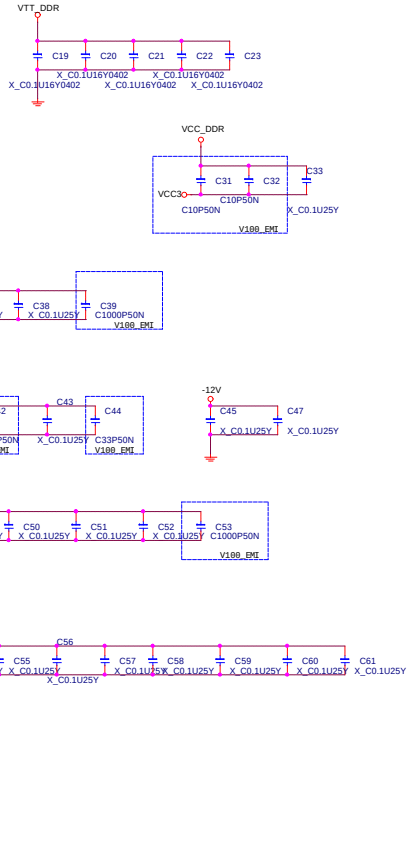


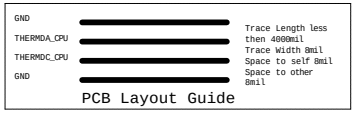
SYSTEM FAN





EMI





MICRO-START INT'L CO.,LTD.

Title: FAN CONTROL		
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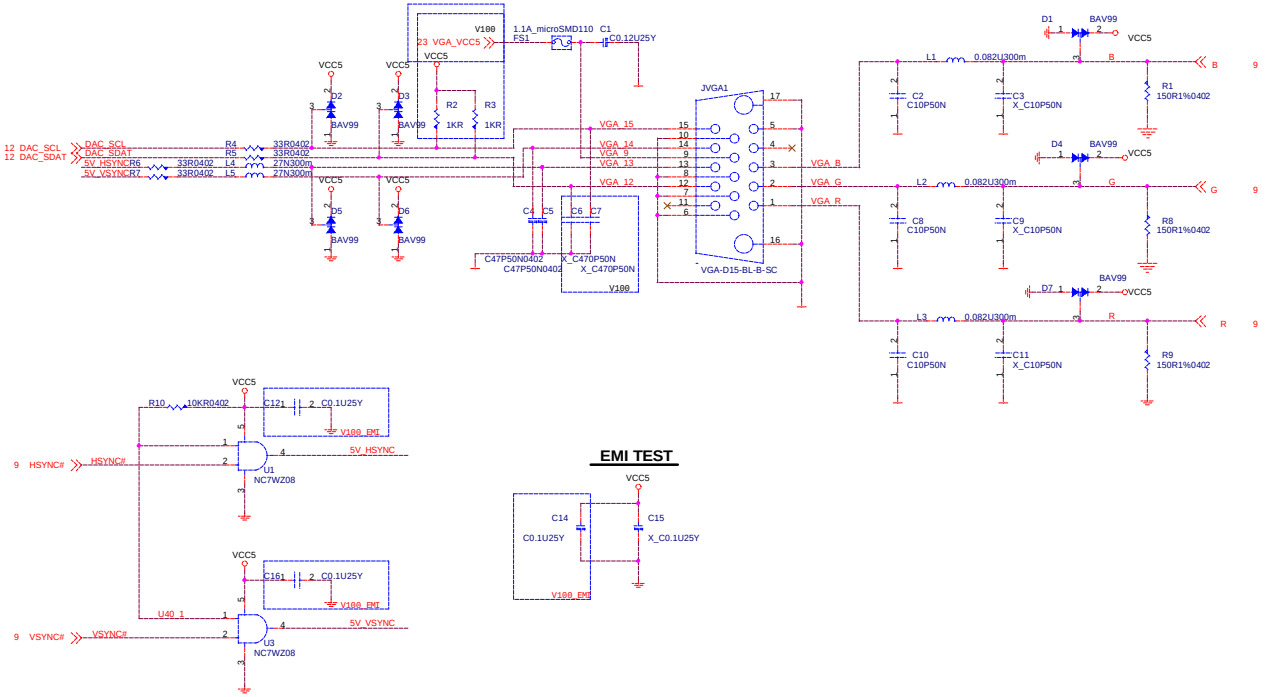
close VGA connector



EMI TEST

MICRO-START INT'L CO.,LTD.		
Title: VGA CONNECTOR		
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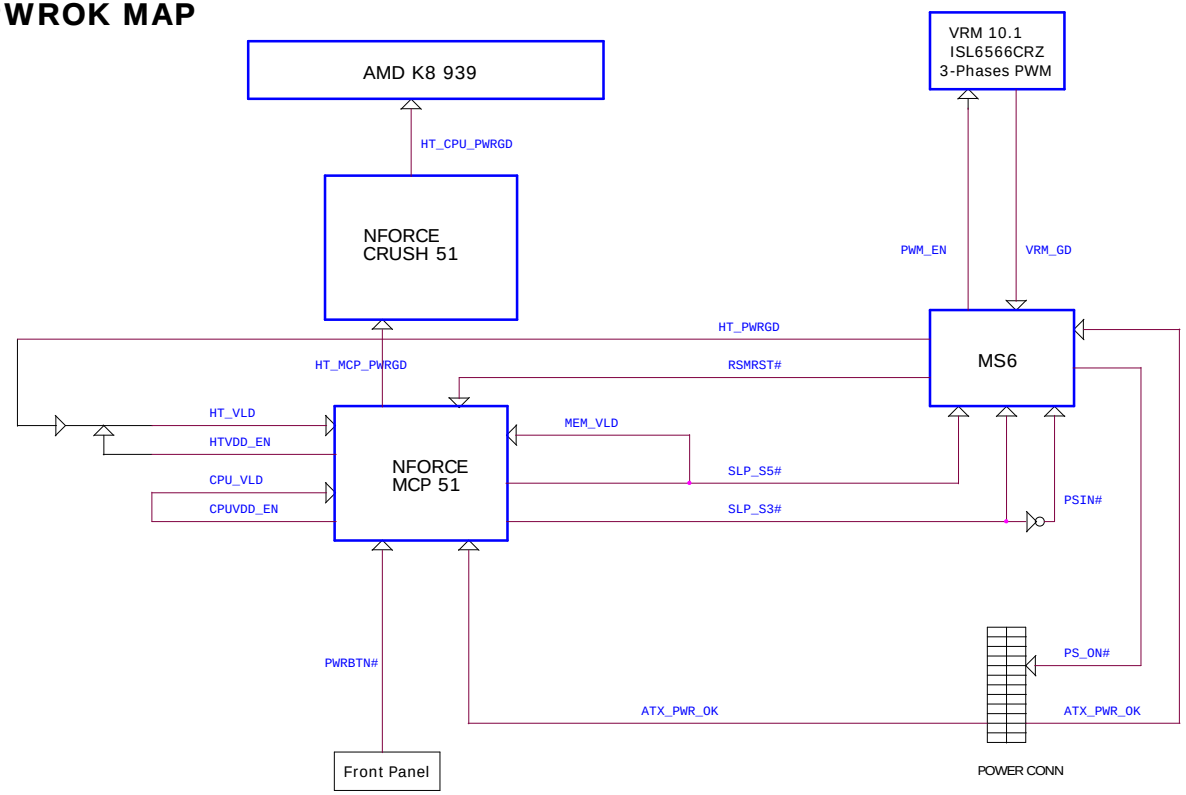
PWROK MAP



MICRO-START INT'L CO.,LTD.

Title: PWROK MAP		
Size: C	Document Number: MS-7212	Rev: 100
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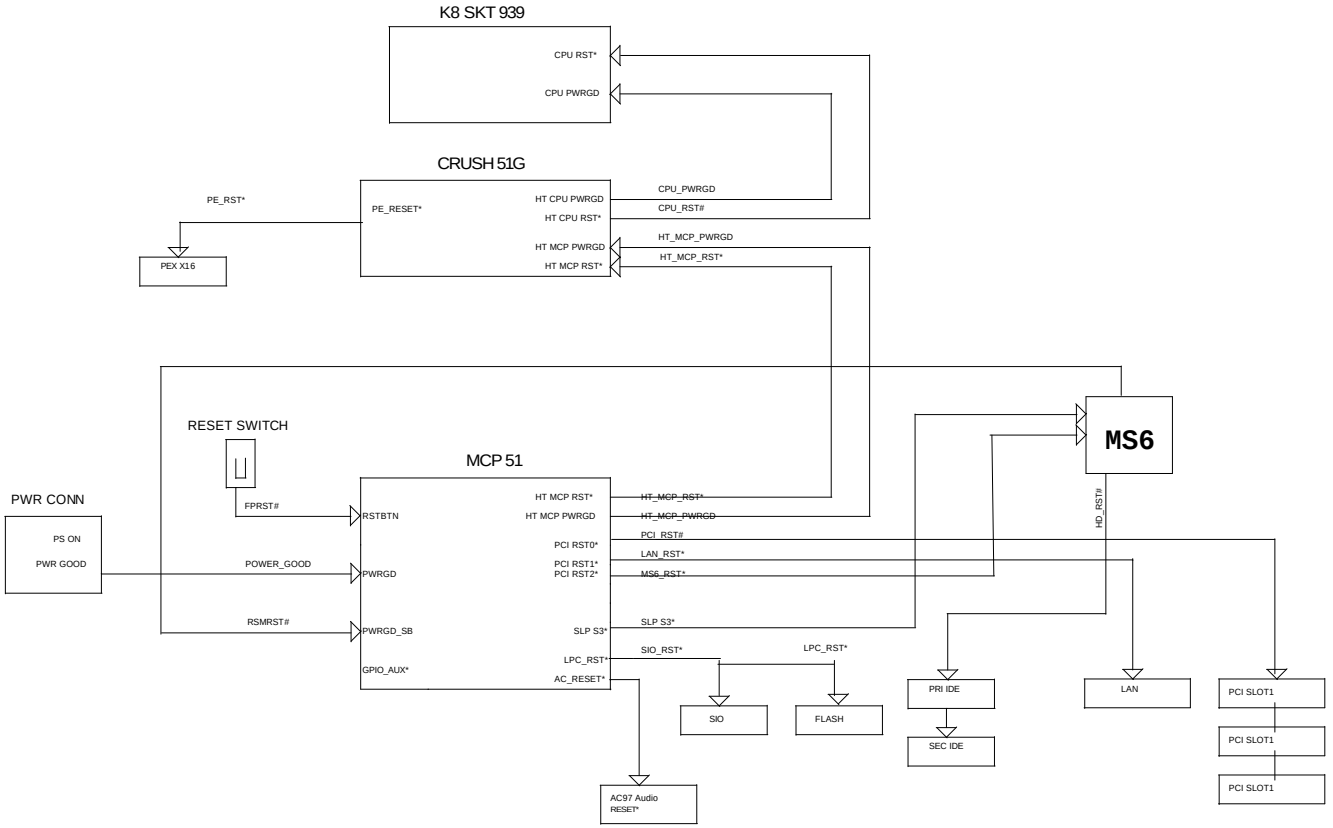
RESET MAP



MICRO-START INT'L CO.,LTD.

Title: RESET MAP		
Size: C	Document Number: MS-7212	Rev: 100
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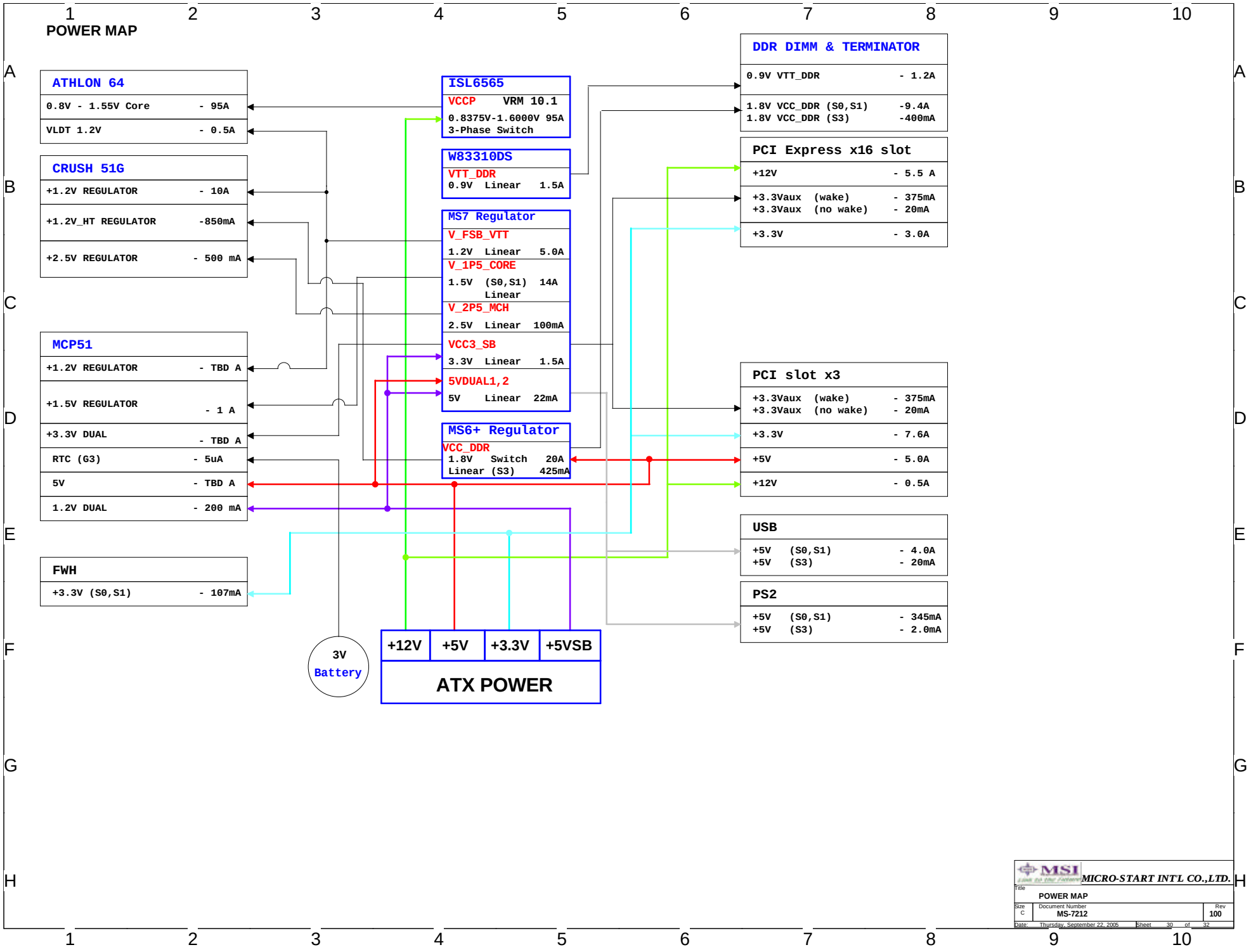
POWER MAP



MICRO-START INT'L CO.,LTD.

Title: POWER MAP

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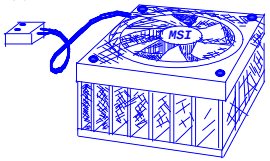
U19_X1

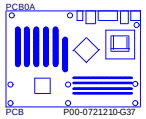
HEATSINK

U16-FAN1



X_U16-FAN

PCB0A



PCB P00-0721210-G37

PCB NEW PN
VER:0A
P00-072120A-G37
P00-072120A-T39
VER:10
P00-0721210-G37
P00-0721210-E48

U18_X1

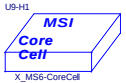
SB_HEATSINK

BIOS1_X1

PLCC32-SMT

MS-6 CORE CELL

U9-H1



X_MS6-CoreCel

BAT1-S1

YSKTBT

LEGEND SPEC:

CLR_CMOS2(2)

X_JUMPER-1X2A_green-1

JBAT1 Clear CMOS	
1 - 2	Clear CMOS
1	Normal *
2	Normal *

LEGEND SPEC:

BIOS_WP(1)

X_JUMPER-1X2A_green

BIOS WRITE PROTECT

LEGEND SPEC:

F_AUDIO(3-6)

JUMPER-2X2_green

LEGEND AUDIO

LEGEND SPEC:

RSV1(1)

X_JUMPER-1X2A_black

RSV1 PROTECT

LEGEND SPEC:

RSV2(1)

X_JUMPER-1X2A_black

RSV2 PROTECT

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Title: HISTORY

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