MS-7212 Ver:0A

CPU:

AMD 939 Athlon 64/Athlon 64 FX

System Chipset:

NVIDIA CRUSH 51G
NVIDIA MCP 51

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

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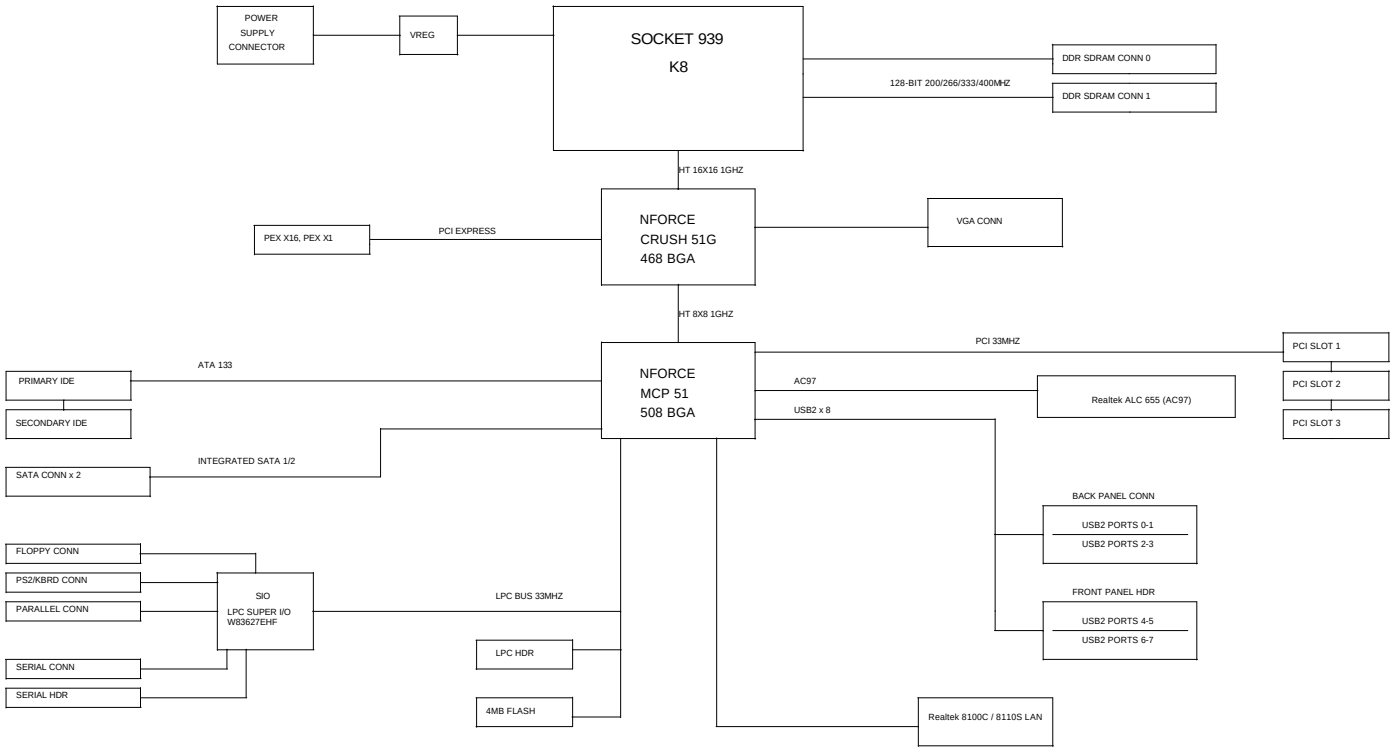
BLOCK DIAGRAM



MICRO-START INT'L CO.,LTD.

Title: Block Diagram		
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Date: Thursday, August 04, 2005	Sheet 2 of 32	

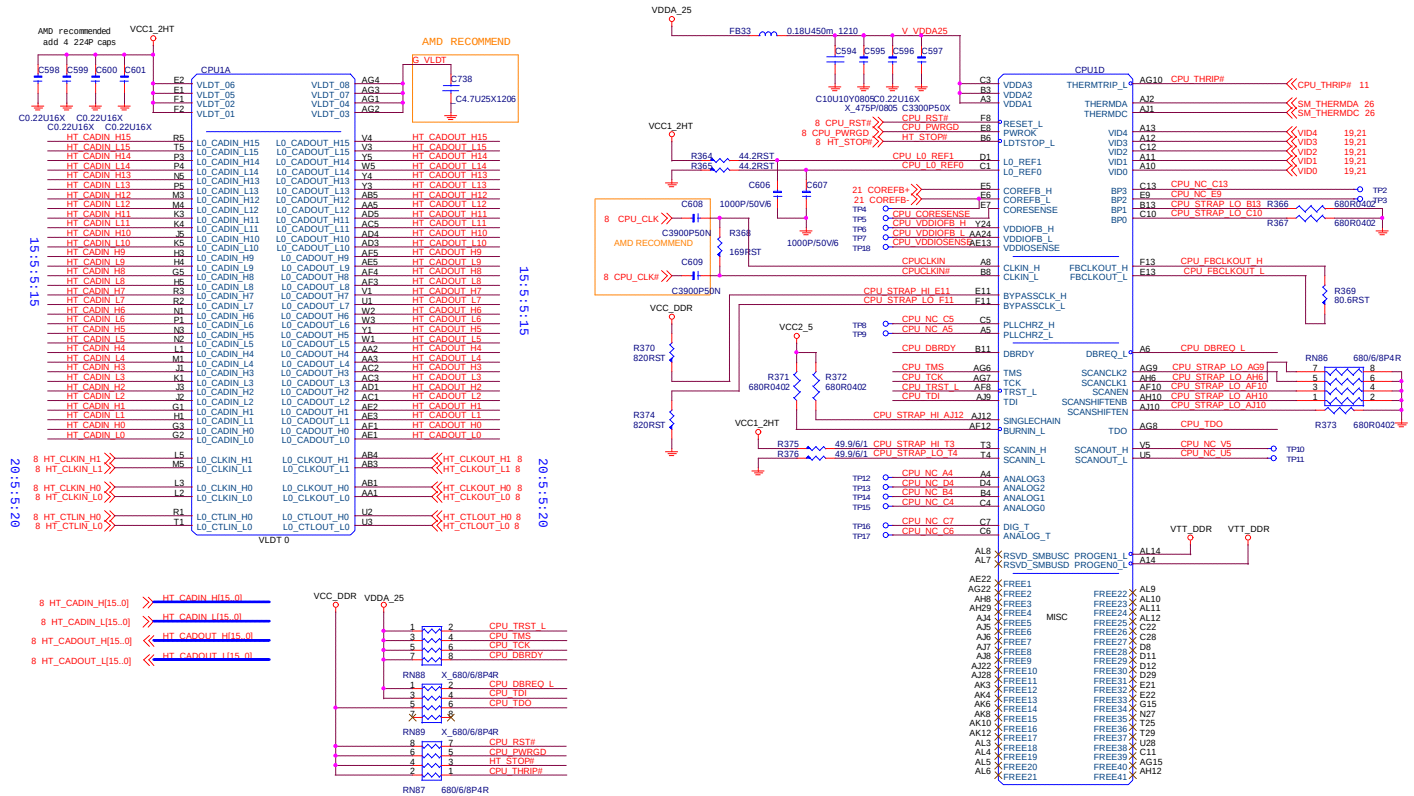
MS-7212 GPIO FUNCTION

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



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

Title	AMD K8 939 PART 1	
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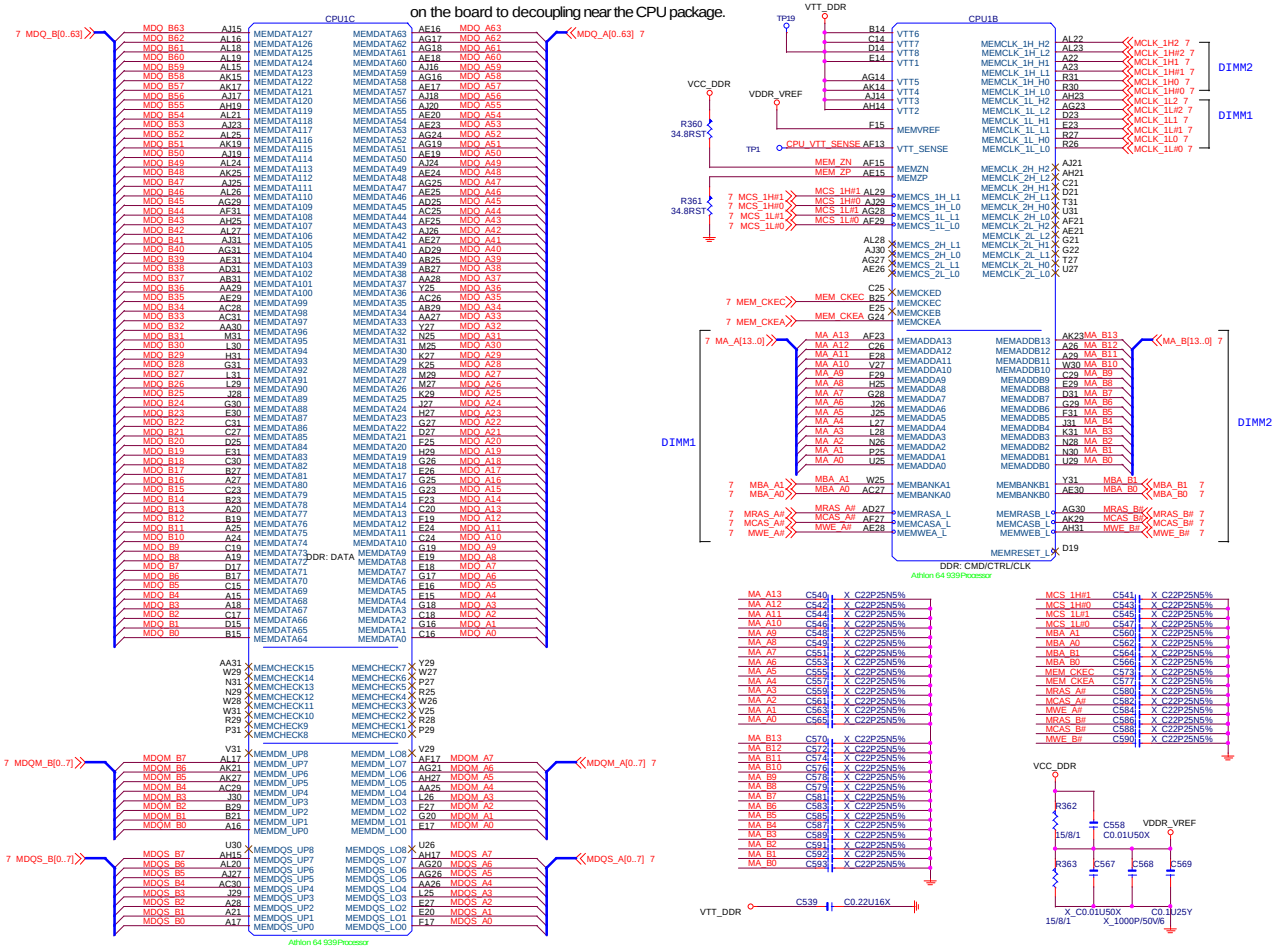
VDD_VTT_SUS_CPU is connected to the VDD_VTT_SUS power supply through the package or on the die. It is only connected on the board to decoupling near the CPU package.



MSI	MICRO-START INT'L CO.,LTD.	
Title	AMD K8 939 PART 2	
Size: C	Document Number: MS-7212	Rev: 0A
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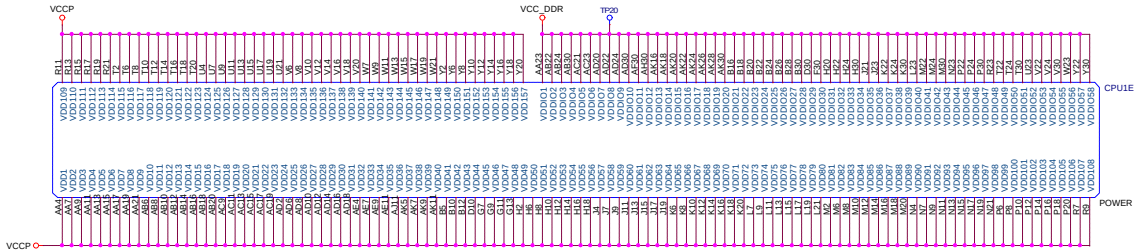
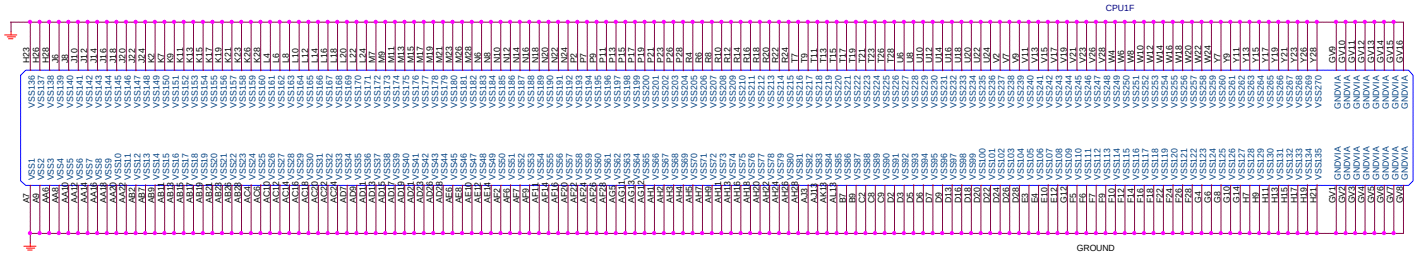
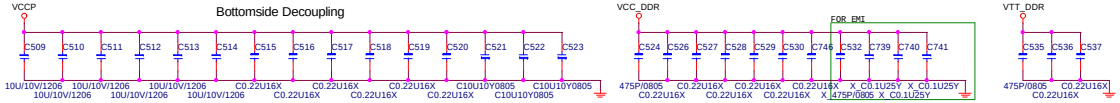
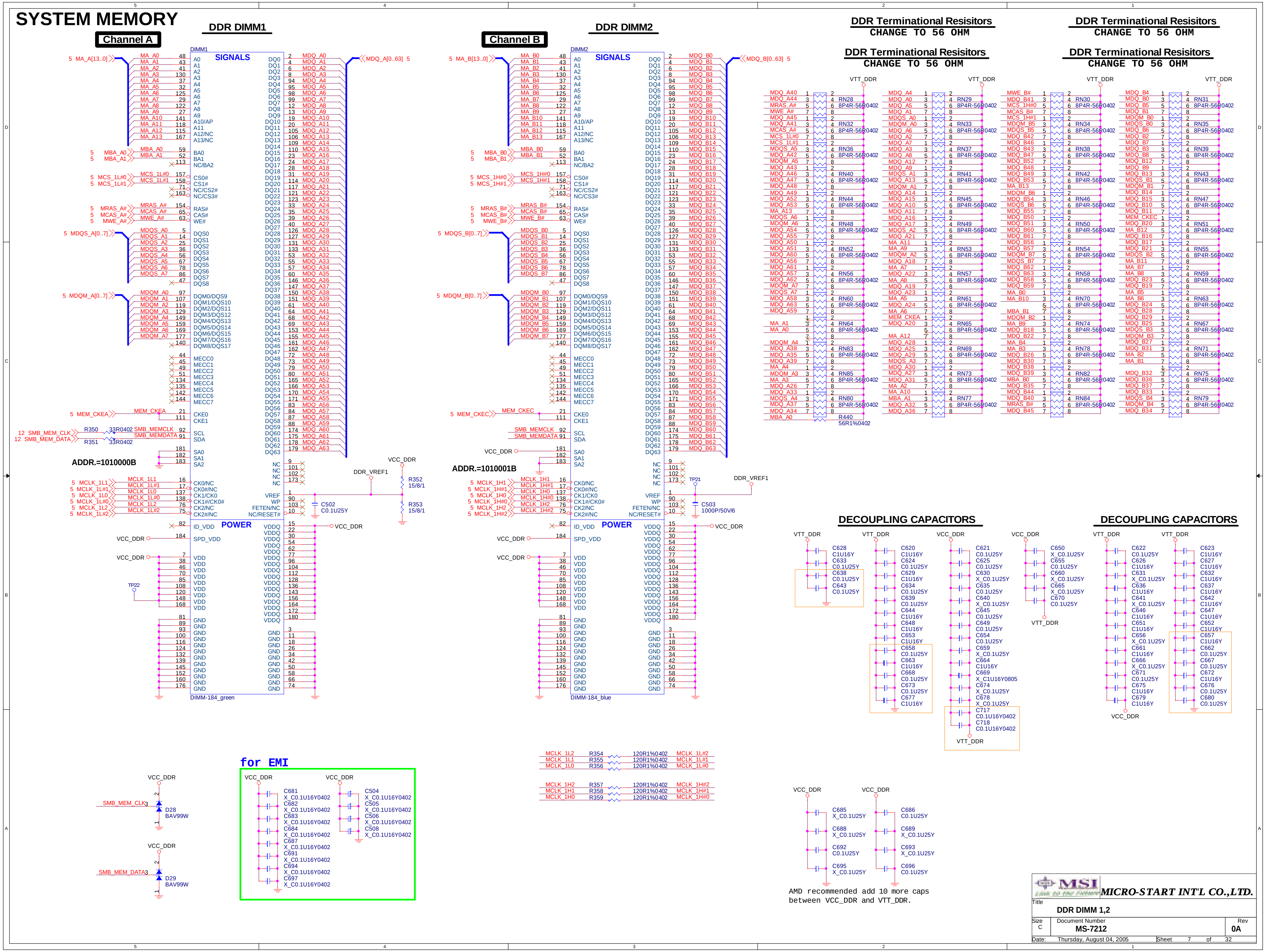






MSI	MICRO-START INT'L CO.,LTD.	
Title: AMD K8 939 PART 3		
Size: C	Document Number: MS-7212	Rev: 0A
Date: Thursday, August 04, 2005	Sheet 6 of 32	



SYSTEM MEMORY
Channel A
DDR DIMM1
Channel B
DDR DIMM2
SIGNALS
POWER
DIMM-184_green
DIMM-184_blue
ADDR.=1010000B
ADDR.=1010001B
DDR Terminational Resisitors
CHANGE TO 56 OHM
DECOUPLING CAPACITORS
for EMI
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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C
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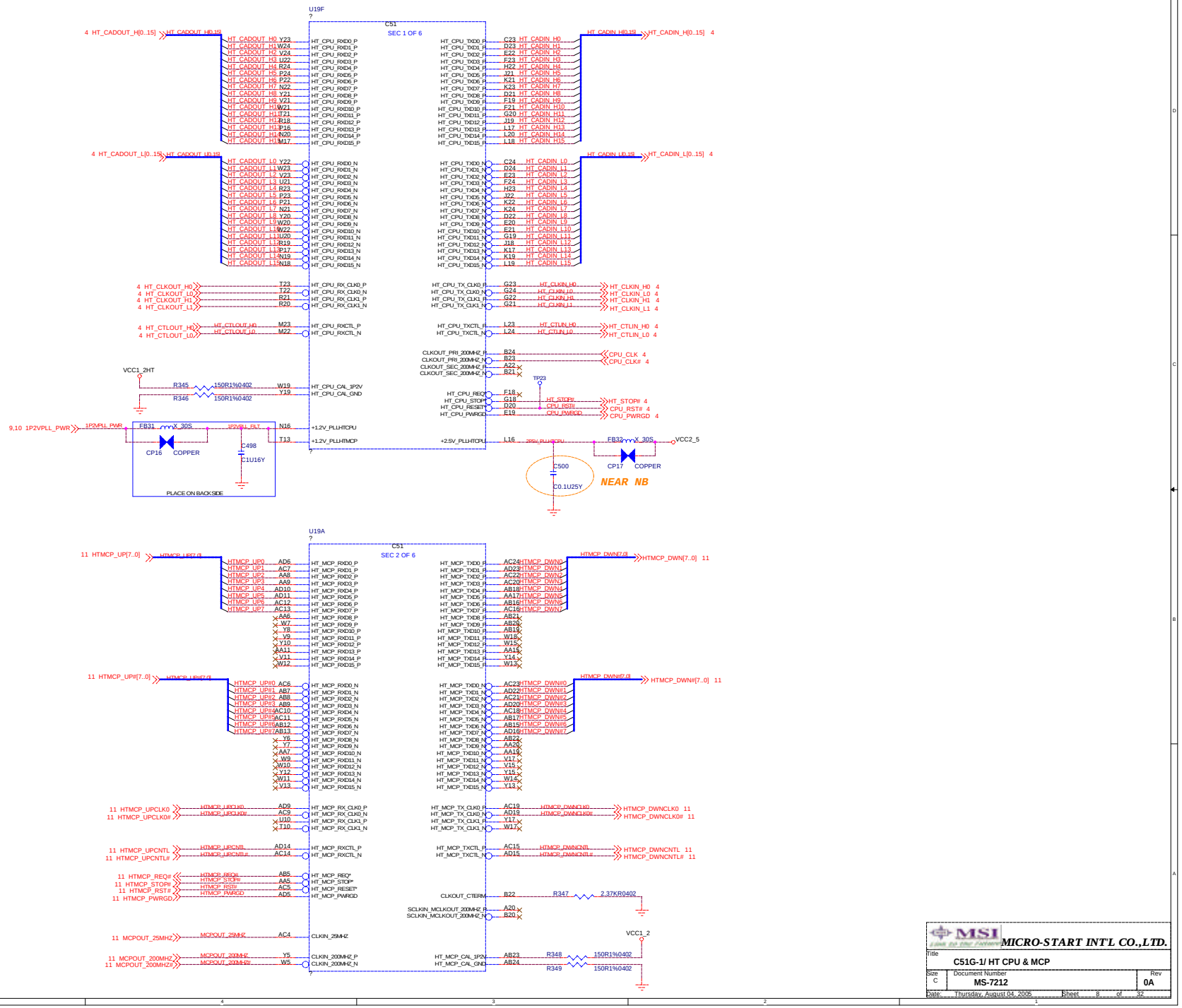
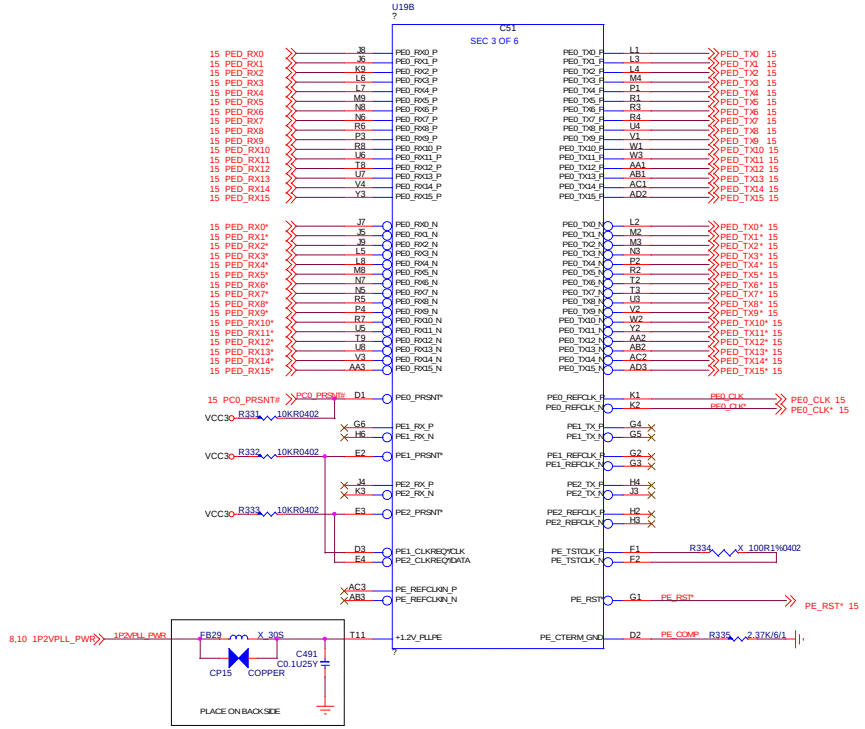
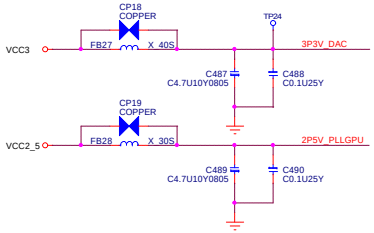
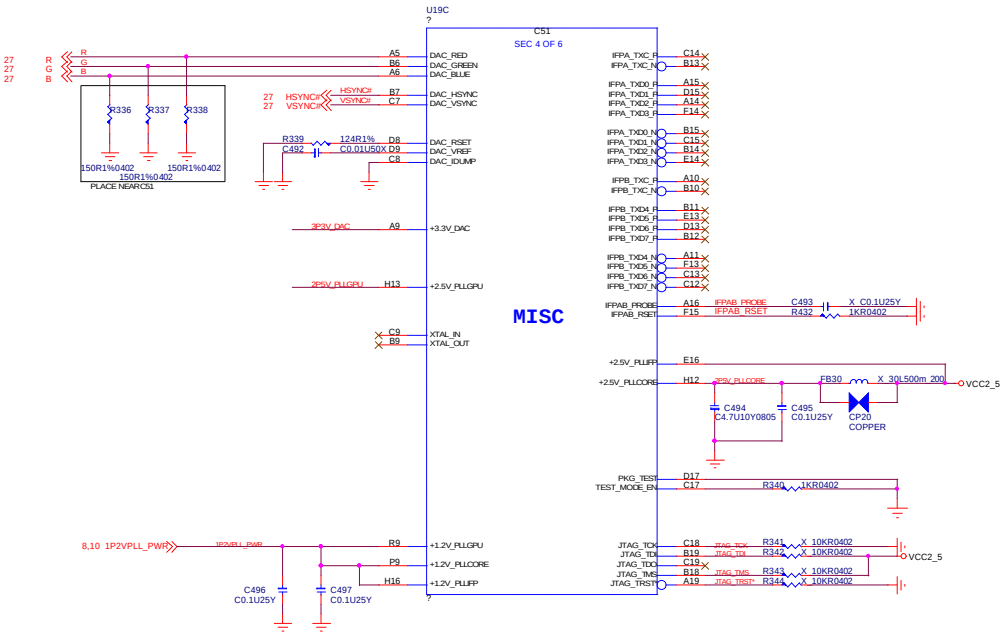


MSI	MICRO-START INT'L CO.,LTD.	
Title	C51G-1/ HT CPU & MCP	
Size C	Document Number MS-7212	Rev 0A
Date: Thursday, August 04, 2005	Sheet 8 of 32	







MICRO-START INT'L CO.,LTD.		
Title: C51G-2 / PCI-E & DAC		
Size: C	Document Number: MS-7212	Rev: 0A
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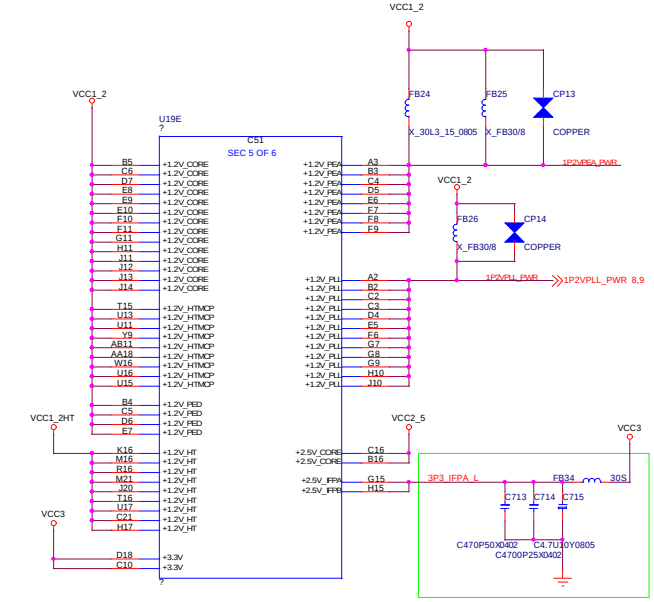
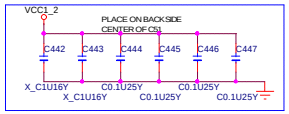
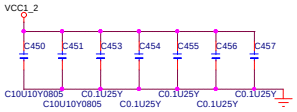
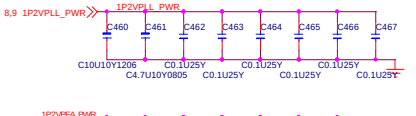
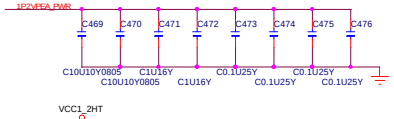


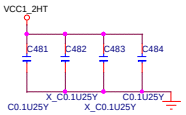
C51 DECOUPLING

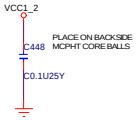


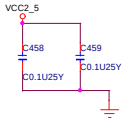


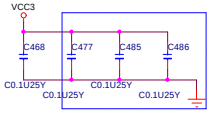


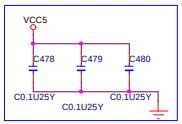


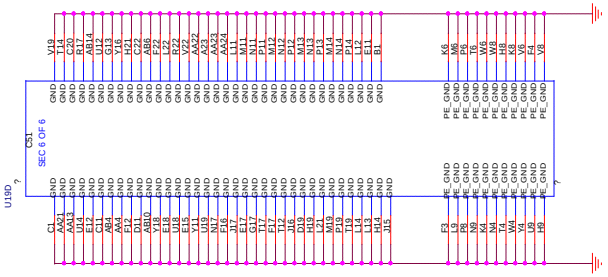












MICRO-START INT'L CO.,LTD.

Title	C51G-3/PWR/GND	
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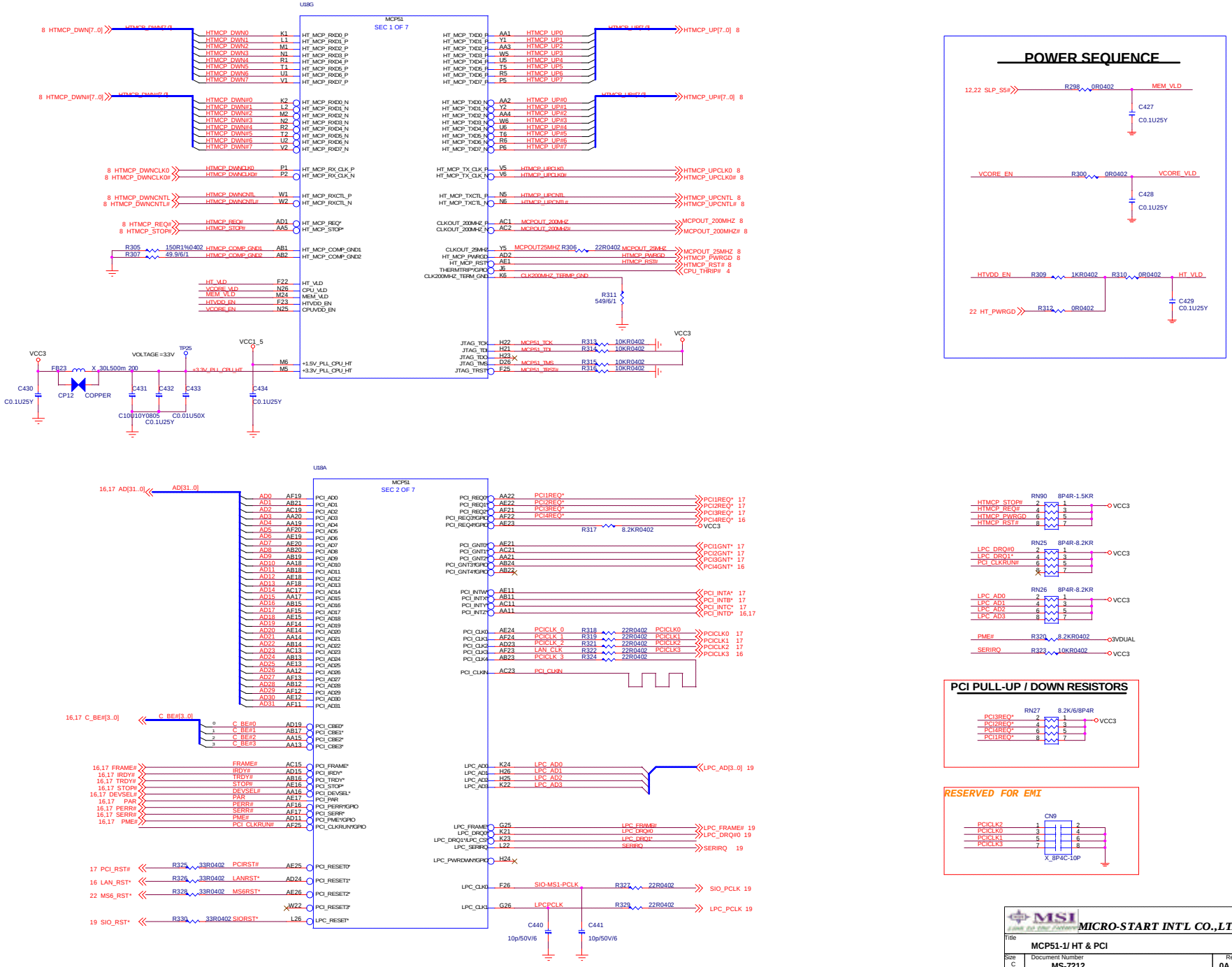
U19G
MCP51
SEC 1 OF 7
HTMCP_DWN[7..0]
HTMCP_DWN#[7..0]
HTMCP_UP[7..0]
HTMCP_UP#[7..0]
HTMCP_DWNCLK0
HTMCP_DWNCLK0#
HTMCP_DWNCNTL
HTMCP_DWNCNTL#
HTMCP_REQ#
HTMCP_STOP#
HTMCP_COMP_GND1
HTMCP_COMP_GND2
HTMCP_UPCLK0
HTMCP_UPCLK0#
HTMCP_UPCNTL
HTMCP_UPCNTL#
MCPOUT_200MHZ
MCPOUT_200MHZ#
MCPOUT25MHZ
HTMCP_PWRGD
HTMCP_RST#
CPU_THRIP#
CLK200MHZ_TERM
HT_VLD
CPU_VLD
MEM_VLD
HTVDD_EN
CPUVDD_EN
MCP51_TCK
MCP51_TDI
MCP51_TMS
MCP51_TRST#
VCC3
VCC1_5
VOLTAGE=33V
TP25
FB23
X_30L500m 200
+3.3V_PLL_CPU_HT
+1.5V_PLL_CPU_HT
CP12
COPPER
C430
C431
C432
C433
C434
C0.1U25Y
C10U10Y0805
C0.01U50X
R305
R307
150R1%0402
49.9/6/1
R306
22R0402
R311
549/6/1
R313
R314
R315
R316
10KR0402
U19A
MCP51
SEC 2 OF 7
16,17 AD[31..0]
16,17 C_BE#[3..0]
16,17 FRAME#
16,17 IRDY#
16,17 TRDY#
16,17 STOP#
16,17 DEVSEL#
16,17 PAR
16,17 PERR#
16,17 SERR#
16,17 PME#
PCI_CLKRUN#
PCI_REQ0*
PCI_REQ1*
PCI_REQ2*
PCI_REQ3*/GPIO
PCI_REQ4*/GPIO
PCI_GNT0*
PCI_GNT1*
PCI_GNT2*
PCI_GNT3*/GPIO
PCI_GNT4*/GPIO
PCI_INTA*
PCI_INTB*
PCI_INTC*
PCI_INTD*
PCI_CLK0
PCI_CLK1
PCI_CLK2
PCI_CLK3
PCI_CLK4
PCI_CLKIN
PCICLK_0
PCICLK_1
PCICLK_2
LAN_CLK
PCICLK_3
PCICLK0
PCICLK1
PCICLK2
PCICLK3
R317
8.2KR0402
R318
R319
R321
R322
R324
22R0402
LPC_AD[3..0]
LPC_FRAME#
LPC_DRQ0*
LPC_DRQ1*/LPC_CS*
LPC_SERIRQ
LPC_PWRDWN*/GPIO
SERIRQ
17 PCI_RST#
16 LAN_RST*
22 MS6_RST*
19 SIO_RST*
R325
R326
R328
R330
33R0402
PCIRST#
LANRST*
MS6RST*
SIORST*
PCI_RESET0*
PCI_RESET1*
PCI_RESET2*
PCI_RESET3*
PCI_RESET*
SIO-MS1-PCLK
LPCPCLK
SIO_PCLK 19
LPC_PCLK 19
R327
R329
C440
C441
10p/50V/6
POWER SEQUENCE
12,22 SLP_S5#
R298
0R0402
MEM_VLD
C427
C0.1U25Y
VCORE_EN
R300
VCORE_VLD
C428
HTVDD_EN
R309
1KR0402
R310
HT_VLD
C429
22 HT_PWRGD
R312
RN90
8P4R-1.5KR
RN25
8P4R-8.2KR
RN26
PME#
SERIRQ
3VDUAL
PCI PULL-UP / DOWN RESISTORS
RN27
8.2K/6/8P4R
PCI3REQ*
PCI2REQ*
PCI4REQ*
PCI1REQ*
RESERVED FOR EMI
CN9
X_8P4C-10P
MICRO-START INT'L CO.,LTD.
Title
MCP51-1/ HT & PCI
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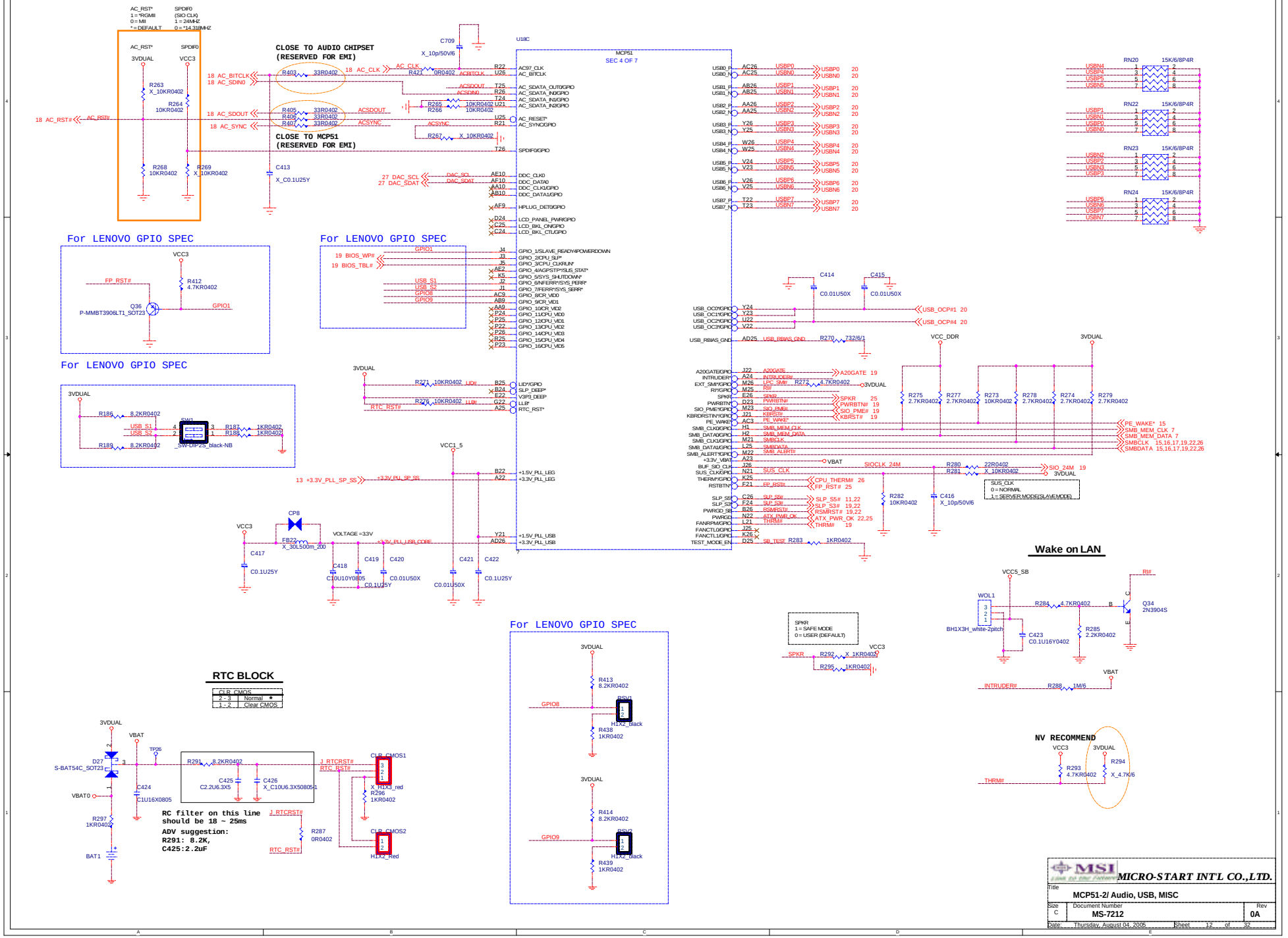
32


CLOSE TO AUDIO CHIPSET
(RESERVED FOR EMI)
CLOSE TO MCP51
(RESERVED FOR EMI)
MCP51
SEC 4 OF 7
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
For LENOVO GPIO SPEC
RTC BLOCK
Wake on LAN
NV RECOMMEND
RC filter on this line
should be 18 ~ 25ms
ADV suggestion:
R291: 8.2K,
C425:2.2uF
MICRO-START INT'L CO.,LTD.
MCP51-2/ Audio, USB, MISC
MS-7212
0A
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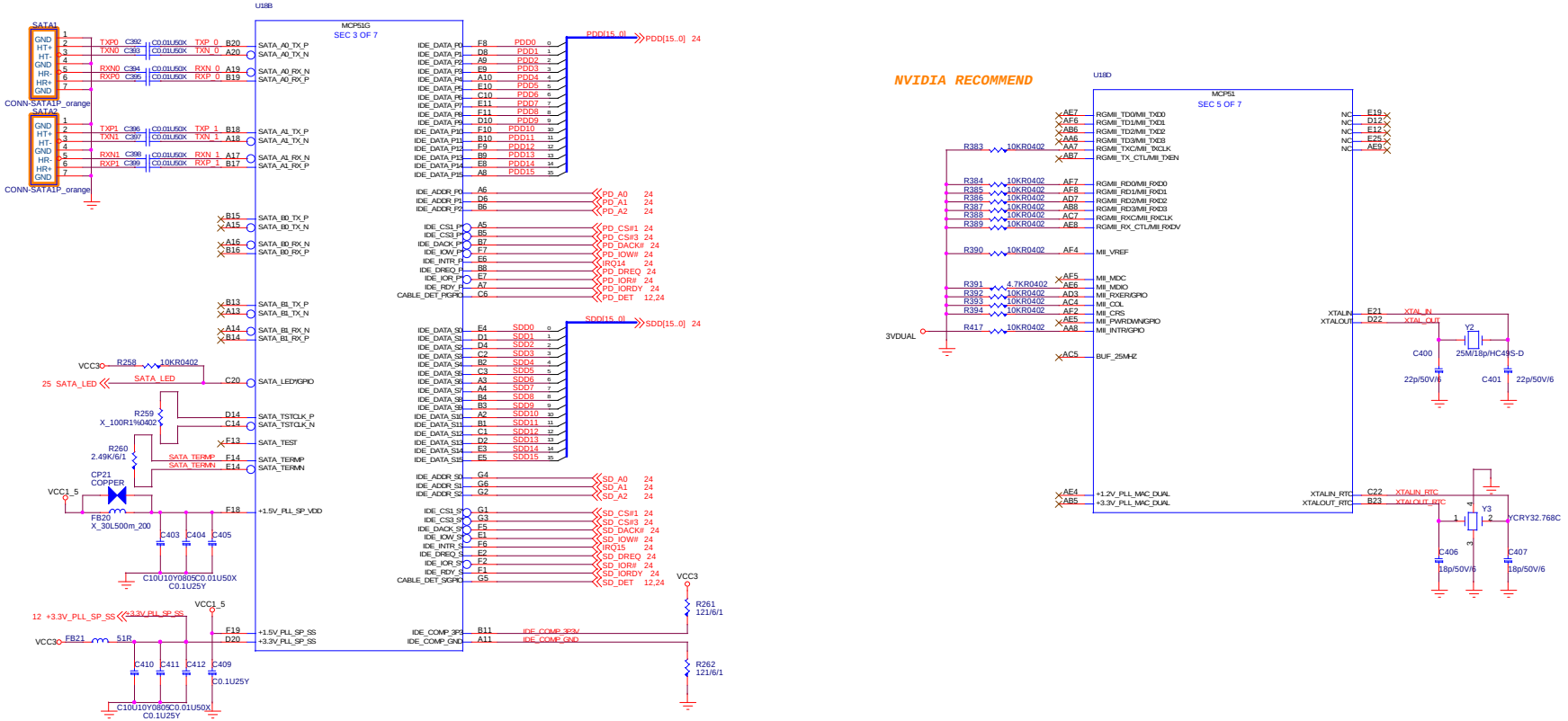

MSI	MICRO-START INT'L CO.,LTD.		
Title	MCP51-3/ SATA, IDE, MII		
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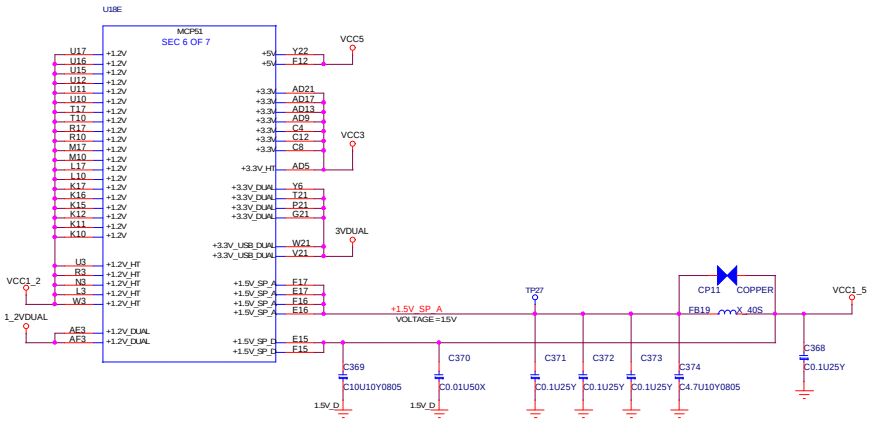

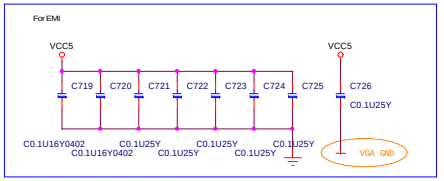

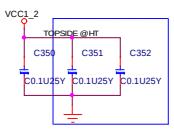

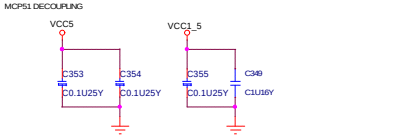

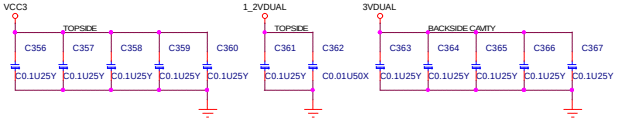

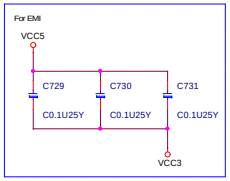

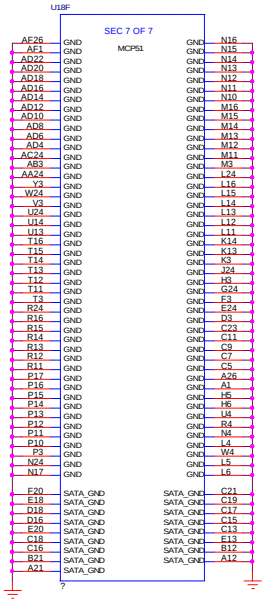

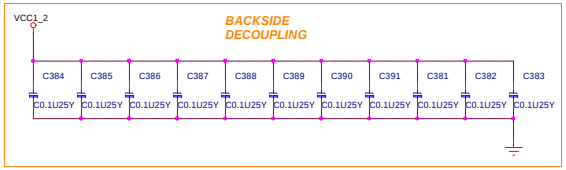

MICRO-START INT'L CO.,LTD.

Title	MCP51-4/ PWR & GND	
Size: C	Document Number: MS-7212	Rev: 0A
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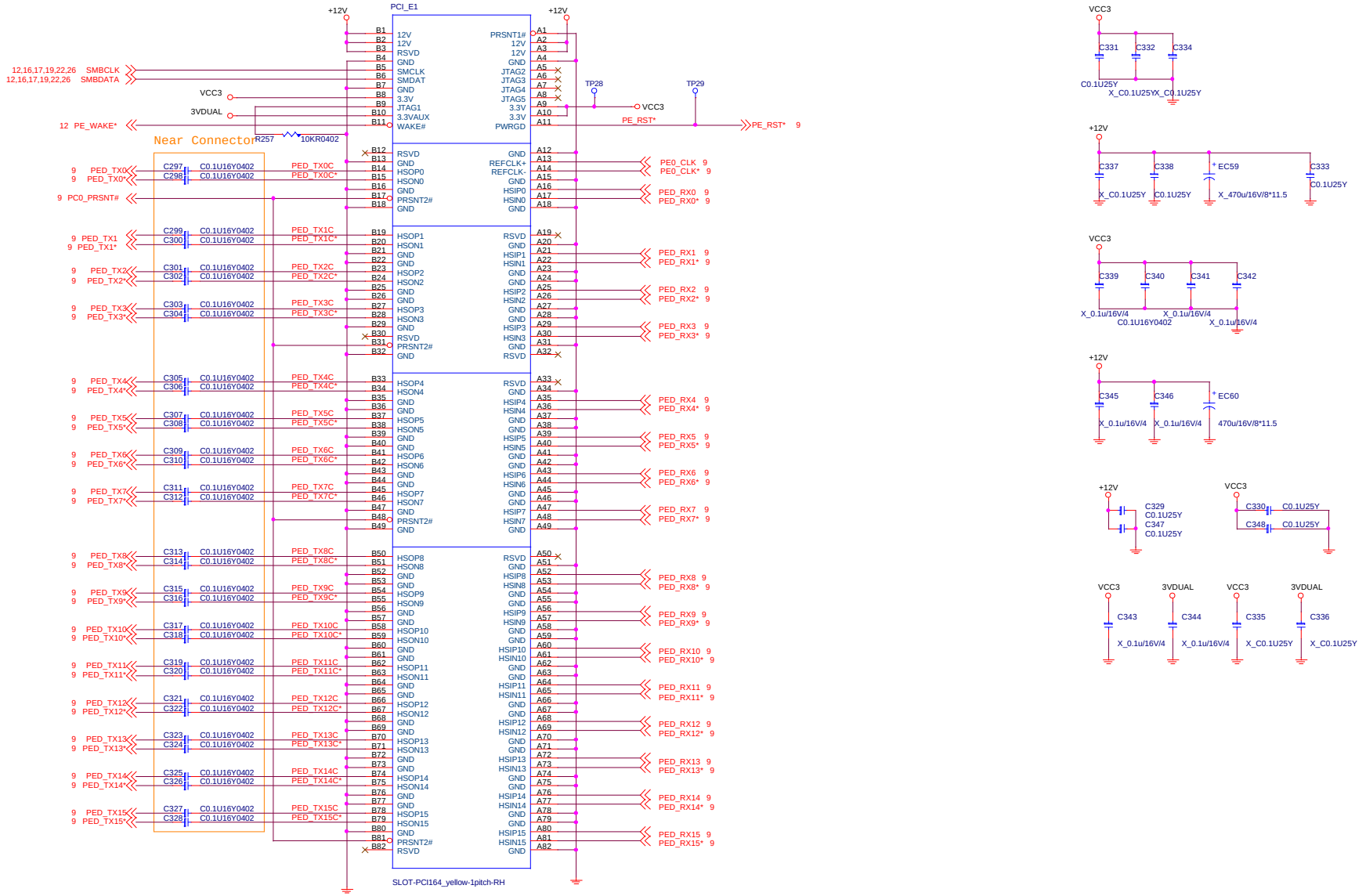

MICRO-START INT'L CO.,LTD.

Title: PCI-EXPRESS X16 SLOT

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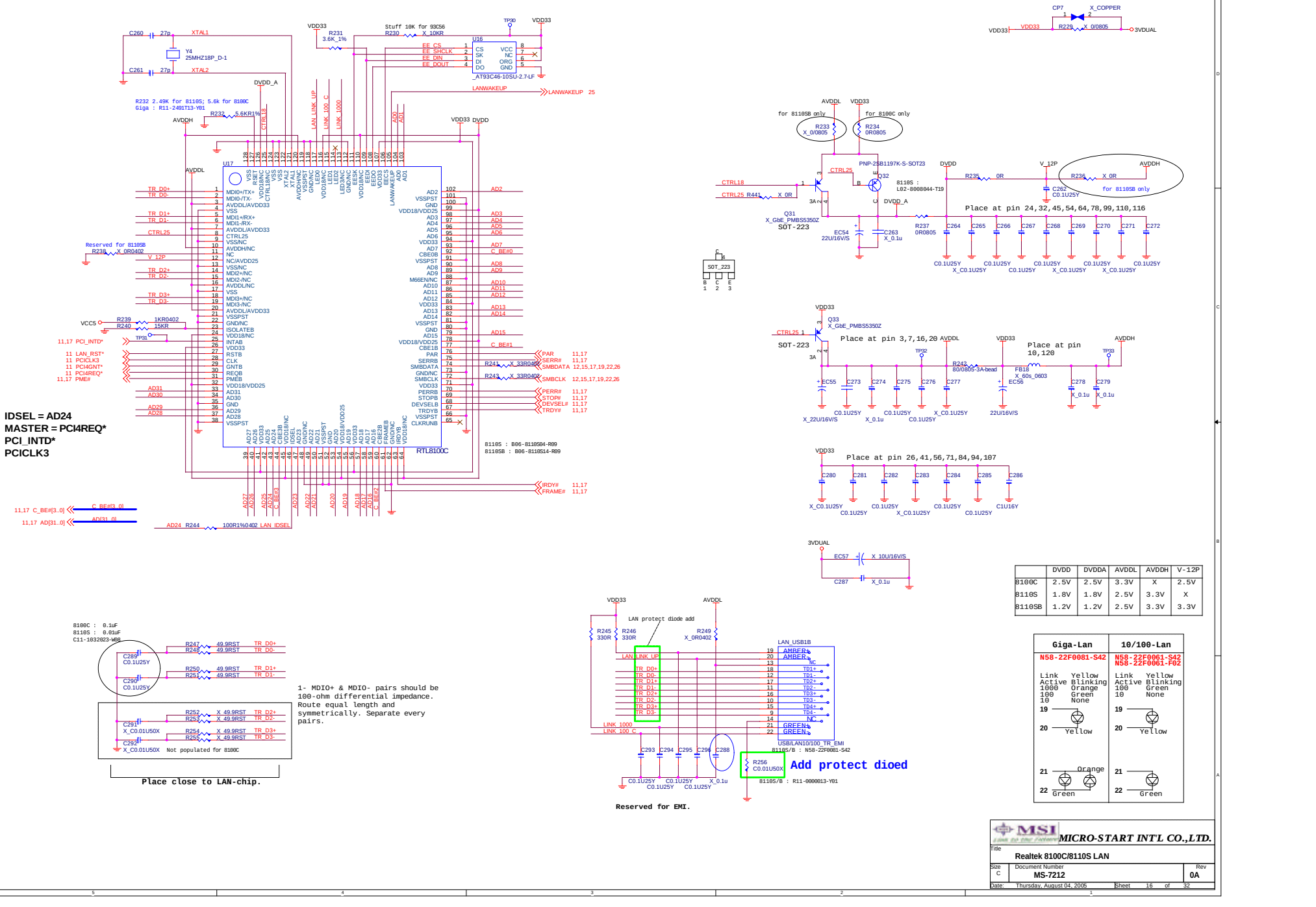

	DVDD	DVDDA	AVDDL	AVDDH	V-12P
8100C	2.5V	2.5V	3.3V	X	2.5V
8110S	1.8V	1.8V	2.5V	3.3V	X
8110SB	1.2V	1.2V	2.5V	3.3V	3.3V

MICRO-START INT'L CO.,LTD.

Title: Realtek 8100C/8110S LAN

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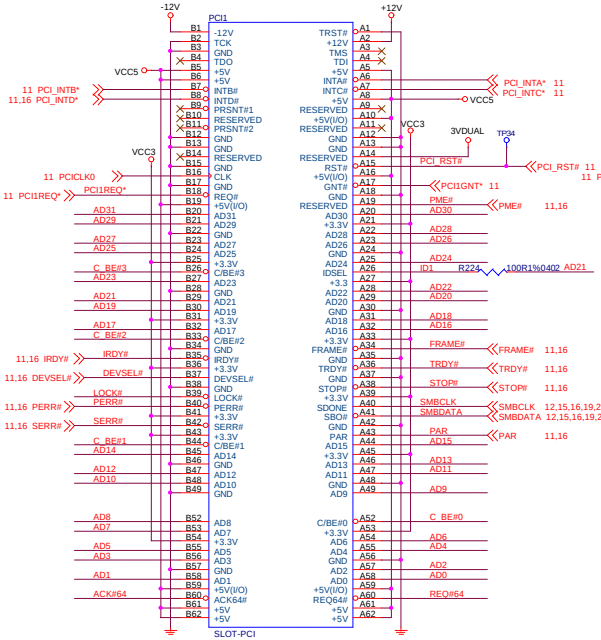
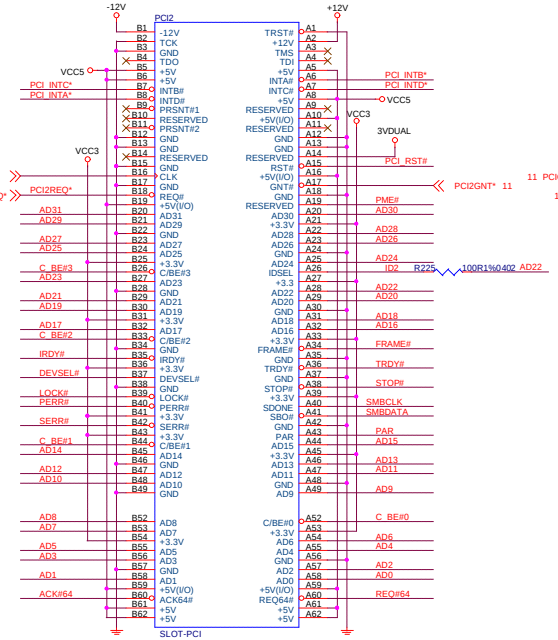
PCI SLOT 1



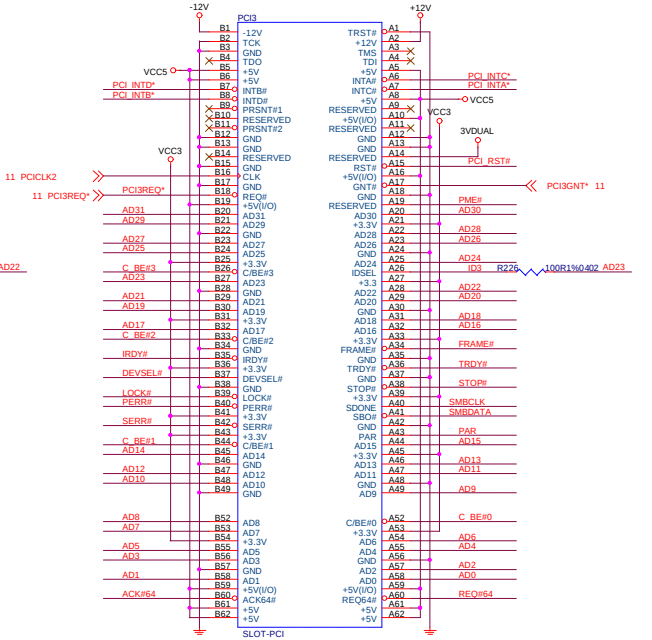
IDSEL = AD21
MASTER = PCI1REQ*
PCI_INT* A B C D
PCICLK0

PCI SLOT 2

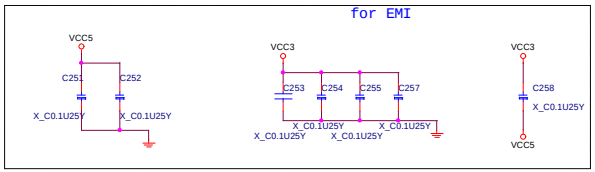


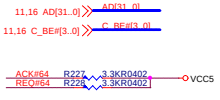
IDSEL = AD22
MASTER = PCI2REQ*
PCI_INT* B C D A
PCICLK1

PCI SLOT 3

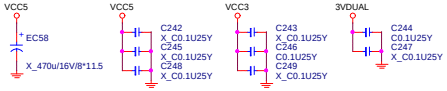


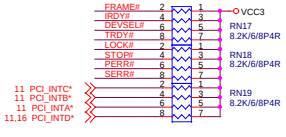
IDSEL = AD23
MASTER = PCI3REQ*
PCI_INT* C D A B
PCICLK2





PCI SLOT DECOUPLING CAPACITORS





MICRO-START INT'L CO.,LTD.

Title: PCI Slot 1 & 2		
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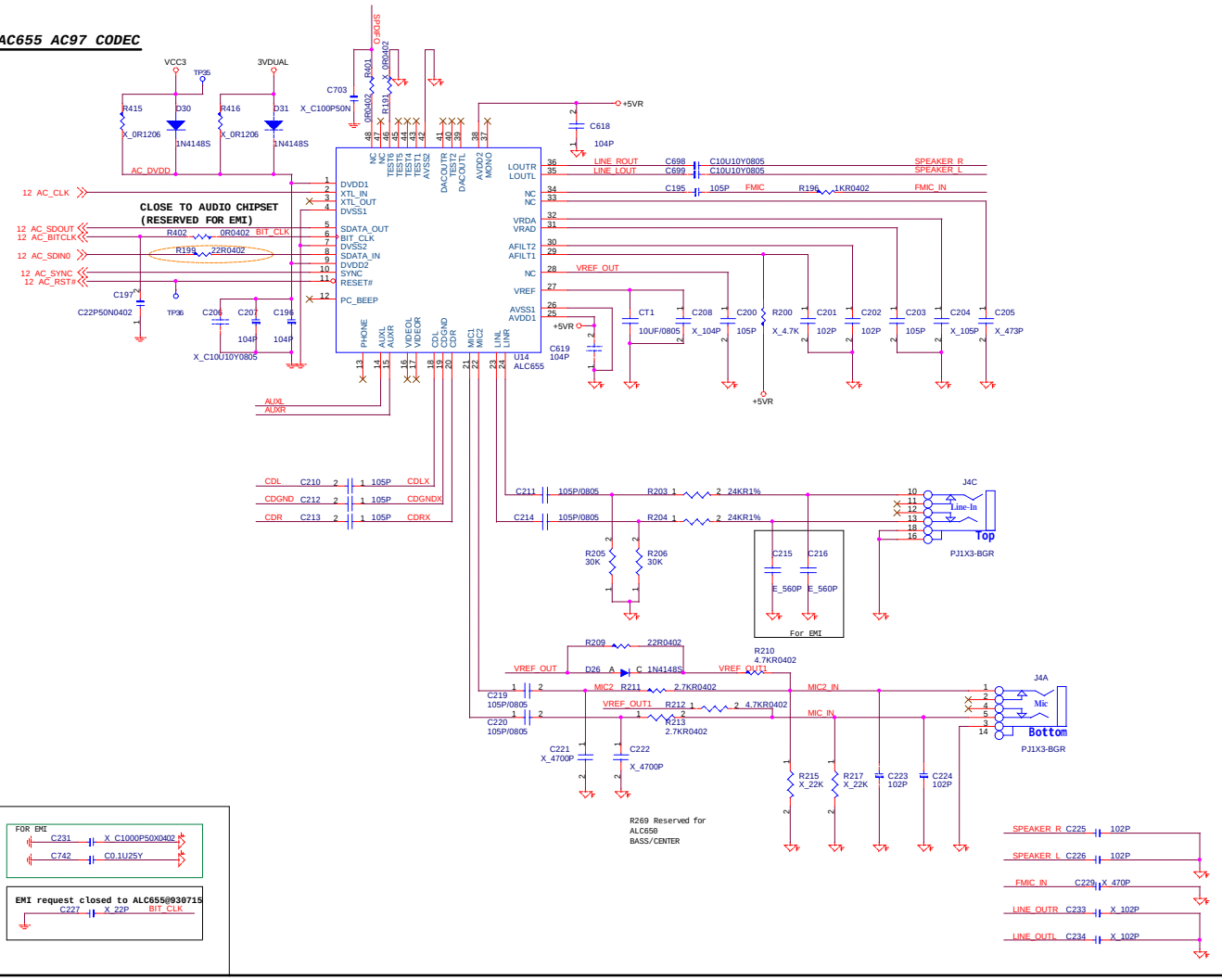
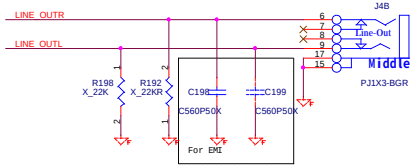
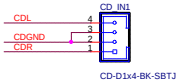
AC655 AC97 CODEC



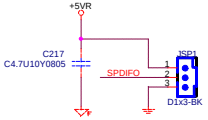
SPEAKER OUT JACK



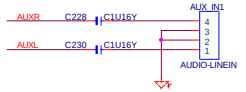
AUDIO CODE CD IN HEADERS



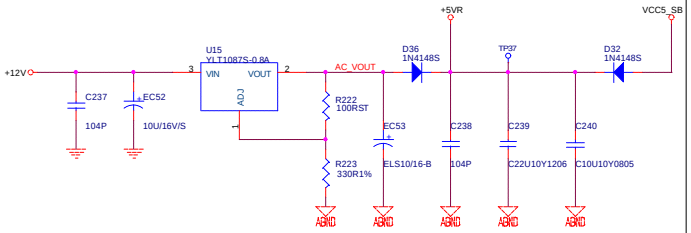
SPDIF OUT



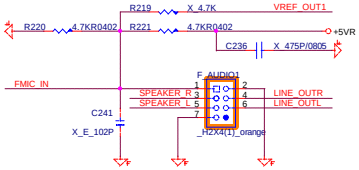
AUX IN



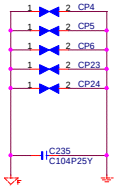
AUDIO CODE REGULATORS

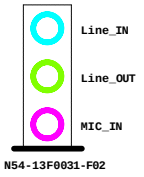


Onboard Header for Lenovo



DECOUPLING CAPACITOR





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

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

W83627EHF

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 LEVEL
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

Size: C | Document Number: MS-7212 | Rev: 0A

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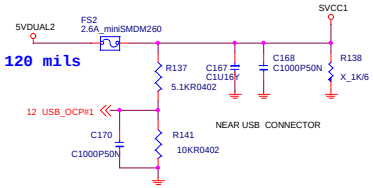
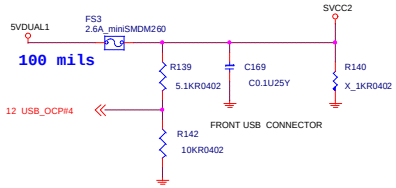
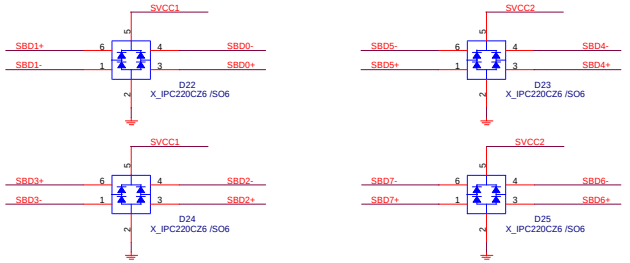
POWER CIRCUIT FOR USB PORT 0,1,2,3

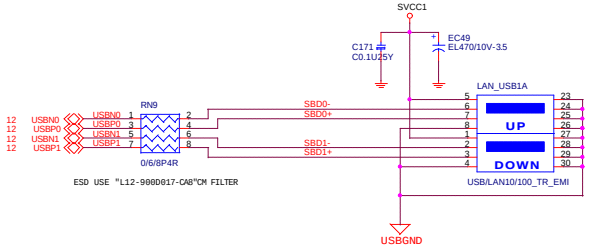


POWER CIRCUIT FOR USB PORT 4,5,6,7





REAR PANEL USB CONNECTOR FOR USB PORT 4,5

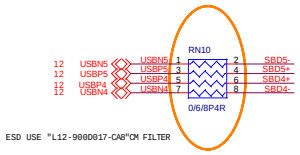


NEAR USB CONNECTOR

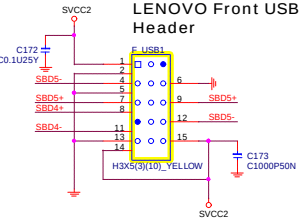
22 / 7.5 / 7.5 / 7.5 / 22 / 7.5 / 7.5 / 7.5 / 22

FRONT PANEL USB CONNECTOR FOR USB PORT 0,1

Reserved, can be taken off riser card within bead

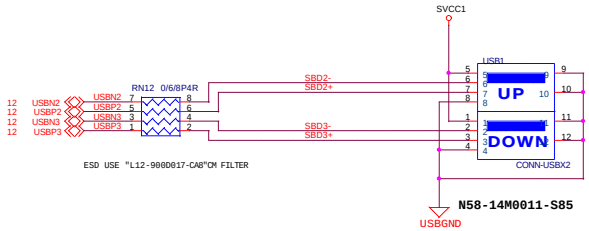


NEAR USB CONNECTOR



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

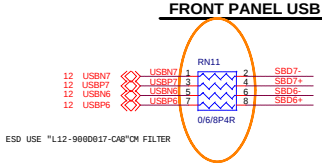
REAR PANEL USB CONNECTOR FOR USB PORT 6,7



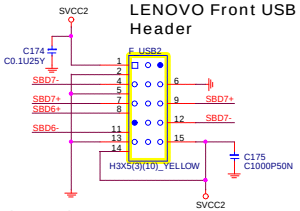
NEAR USB CONNECTOR

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

FRONT PANEL USB CONNECTOR FOR USB PORT 2,3

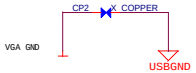


NEAR USB CONNECTOR



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

EMI TEST



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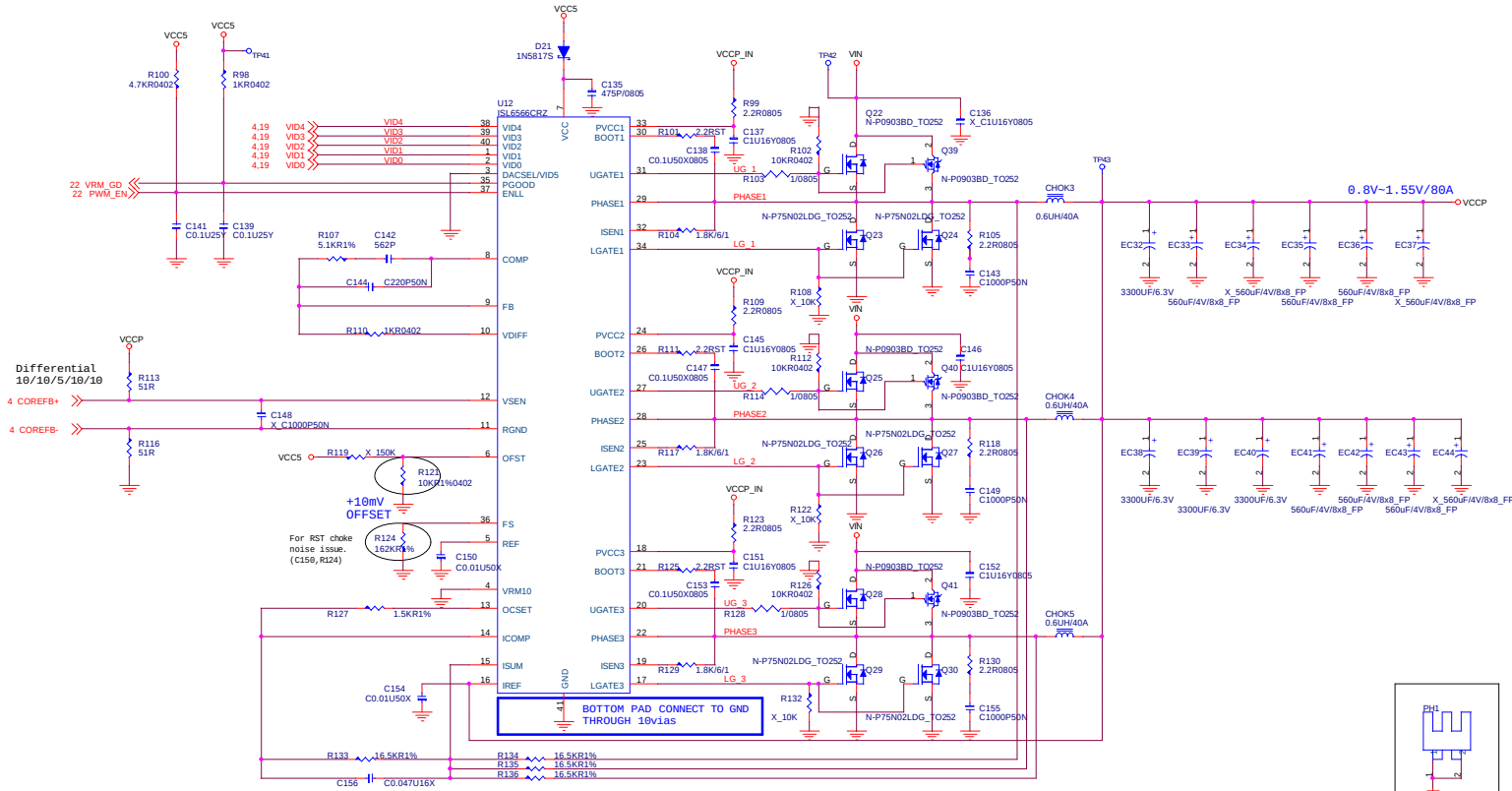
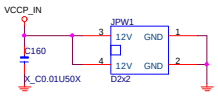
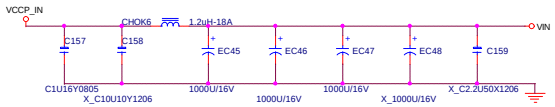
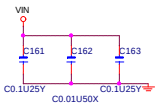
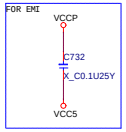


ATX12V Power Connector









MSI LINK TO THE FUTURE	MICRO-START INT'L CO.,LTD.	
Title: K8 PWM ISL6566CRZ		
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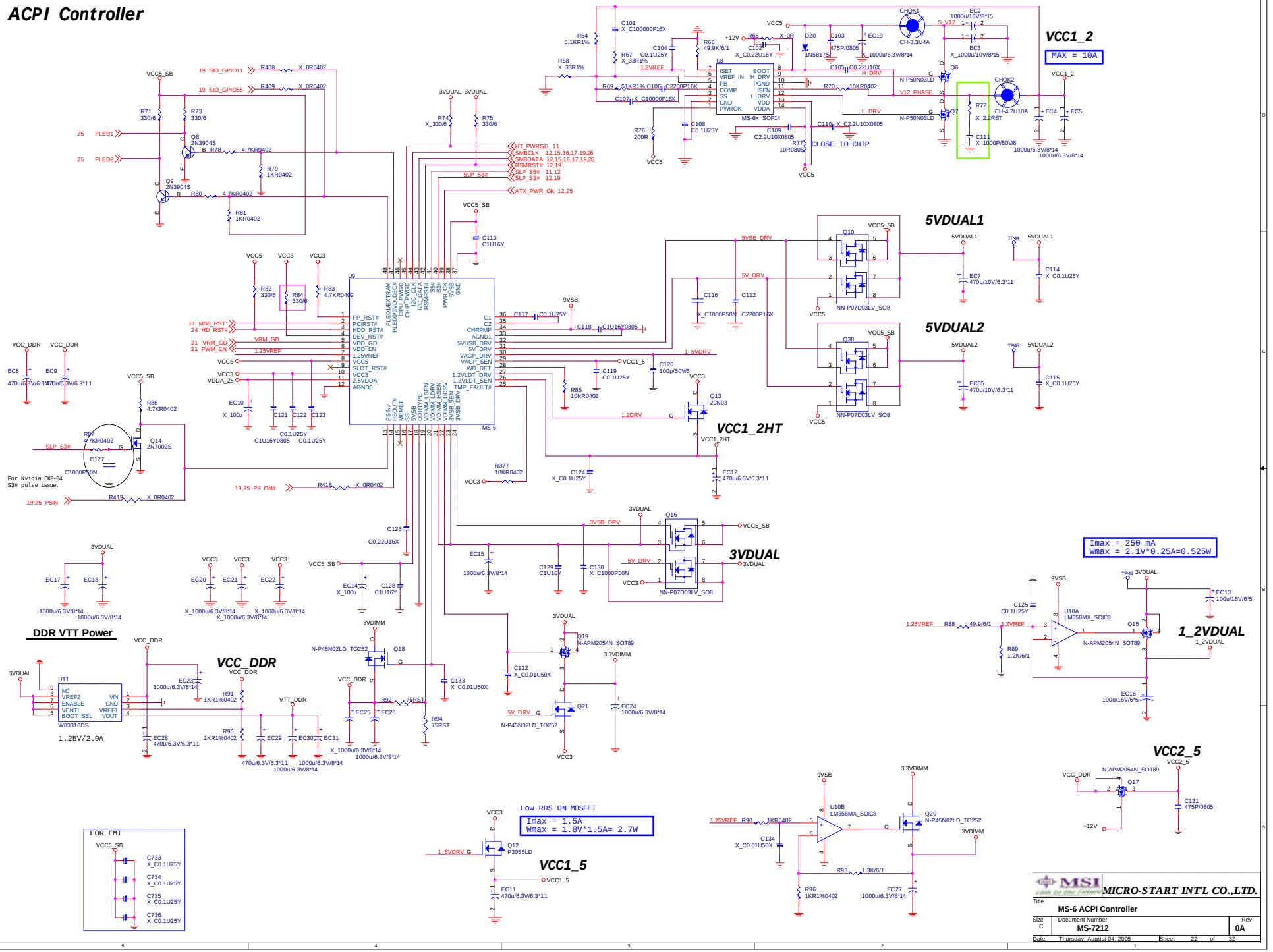
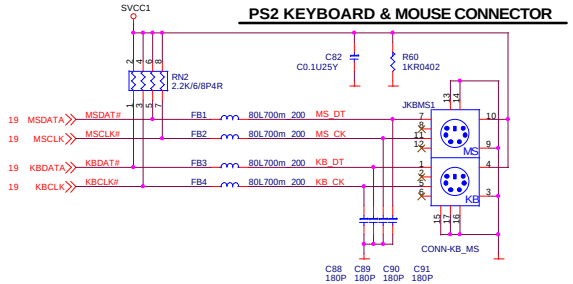
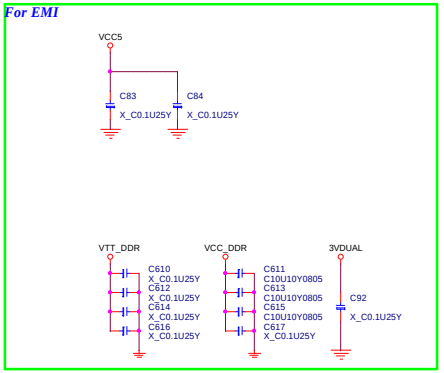
ACPI Controller

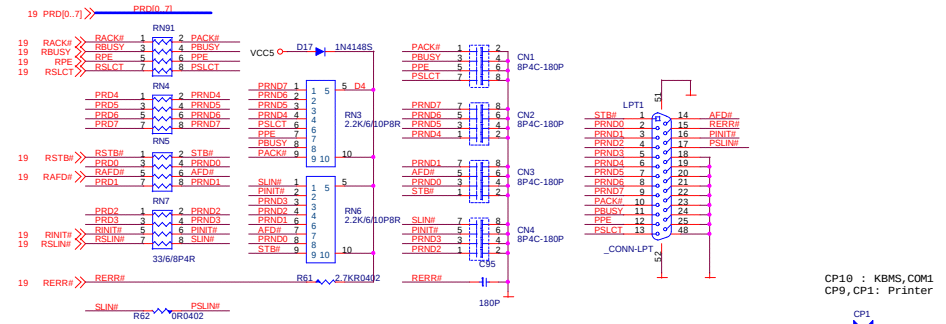


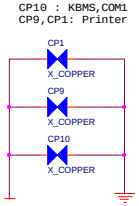
KB/MS/LPT/COM Port



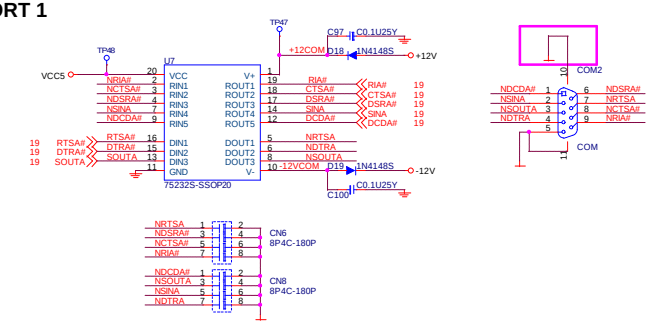


PARALLAL PORT

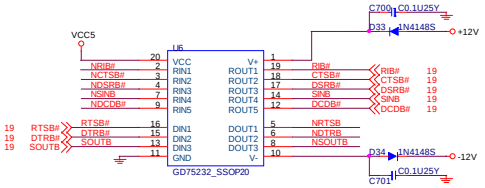


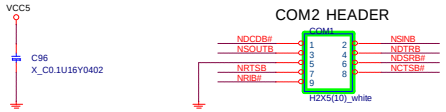


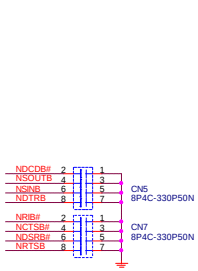
SERIAL PORT 1

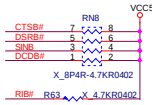


SERIAL PORT 2









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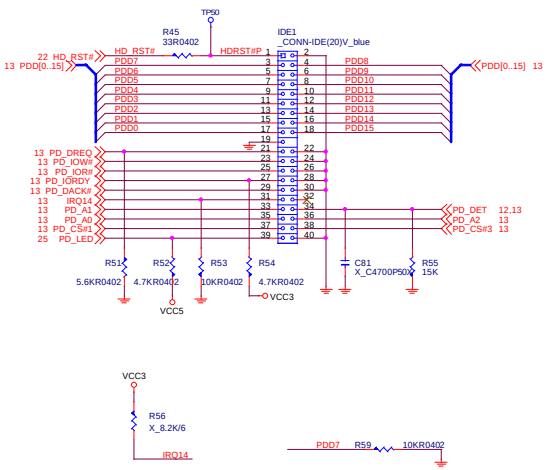
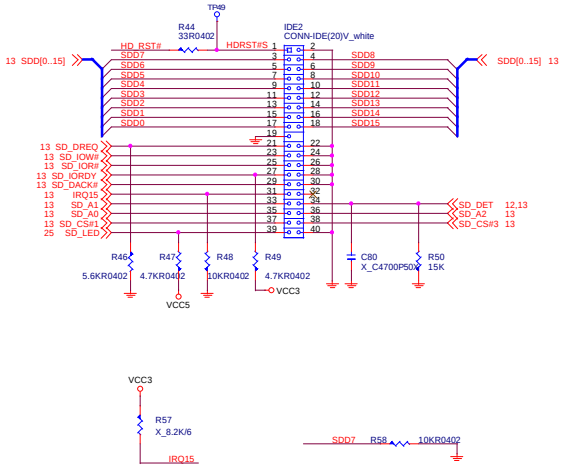
ATA 33/66/100 Connector

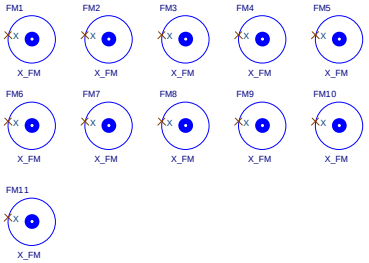
PRIMARY IDE BLOCK



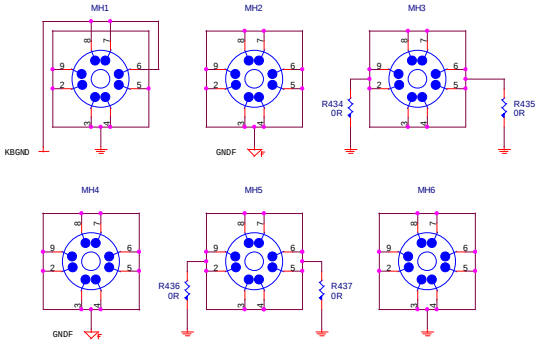
SECONDARY IDE BLOCK



Optics Orientation Holes



Mounting Holes



Simulation

MICRO-START INT'L CO.,LTD.

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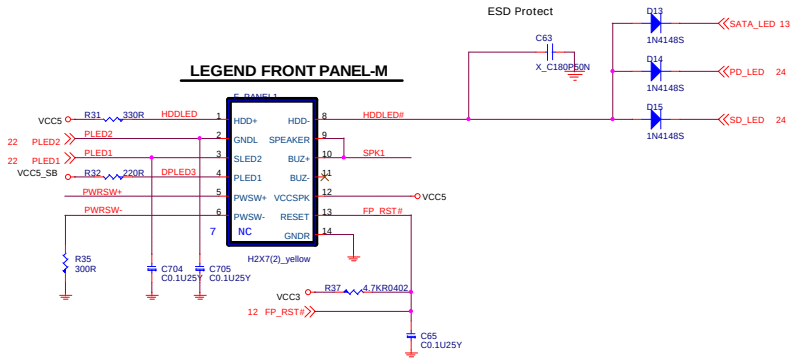
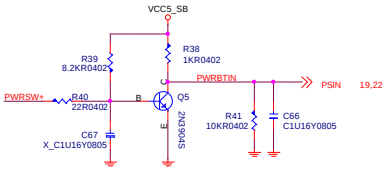
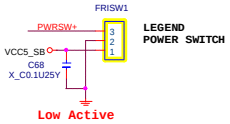
ATX connector / Front Panel

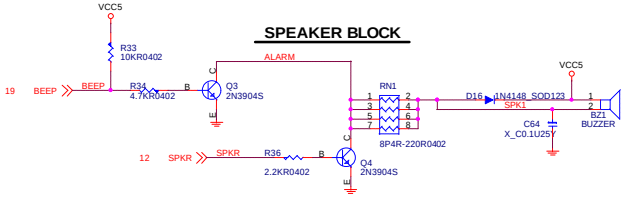




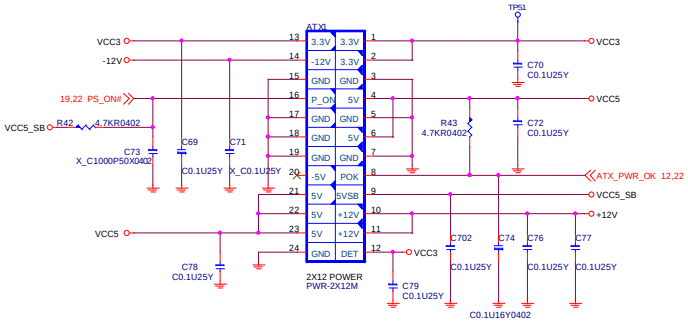
POWER BUTTON



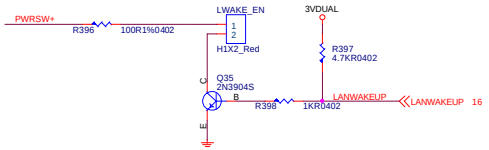
BUZZER



ATX Connector



For LENOVO LAN Wake up function



MICRO-START INT'L CO.,LTD.

Title: ATX connector / Front Panel		
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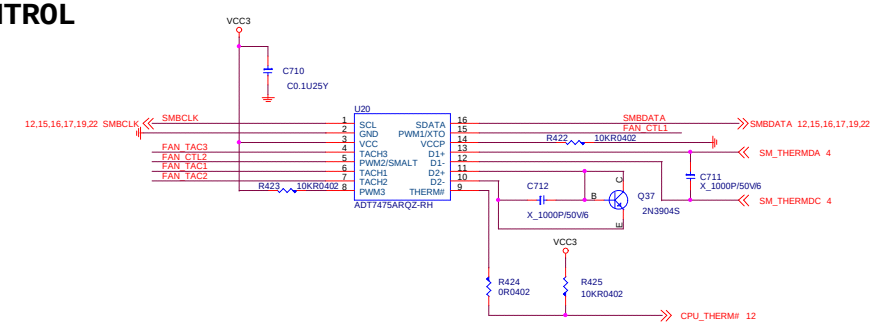
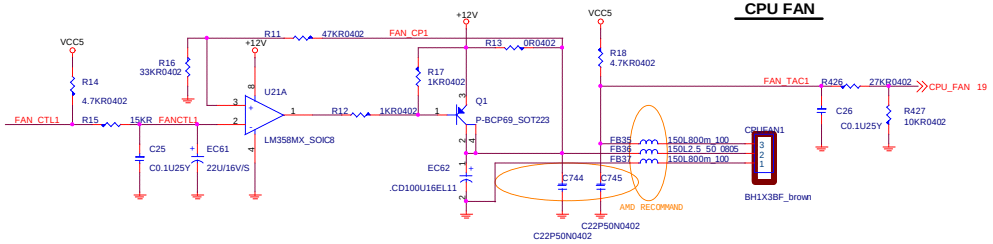
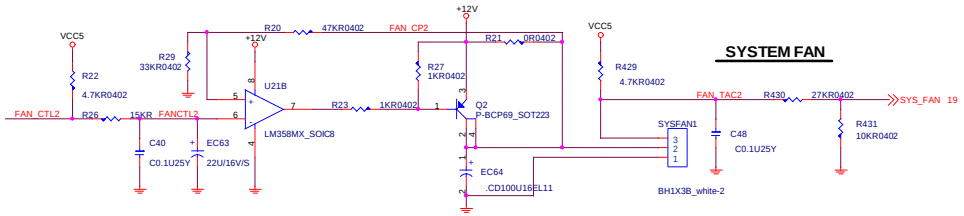
FAN CONTROL



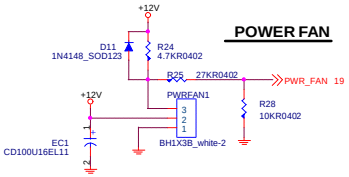
CPU FAN



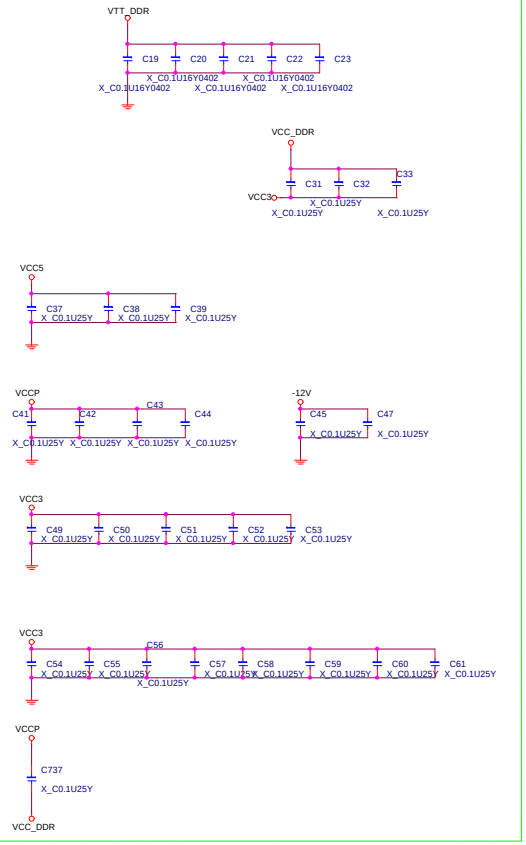
SYSTEM FAN

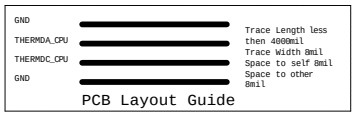


POWER FAN



EMI





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Title: FAN CONTROL		
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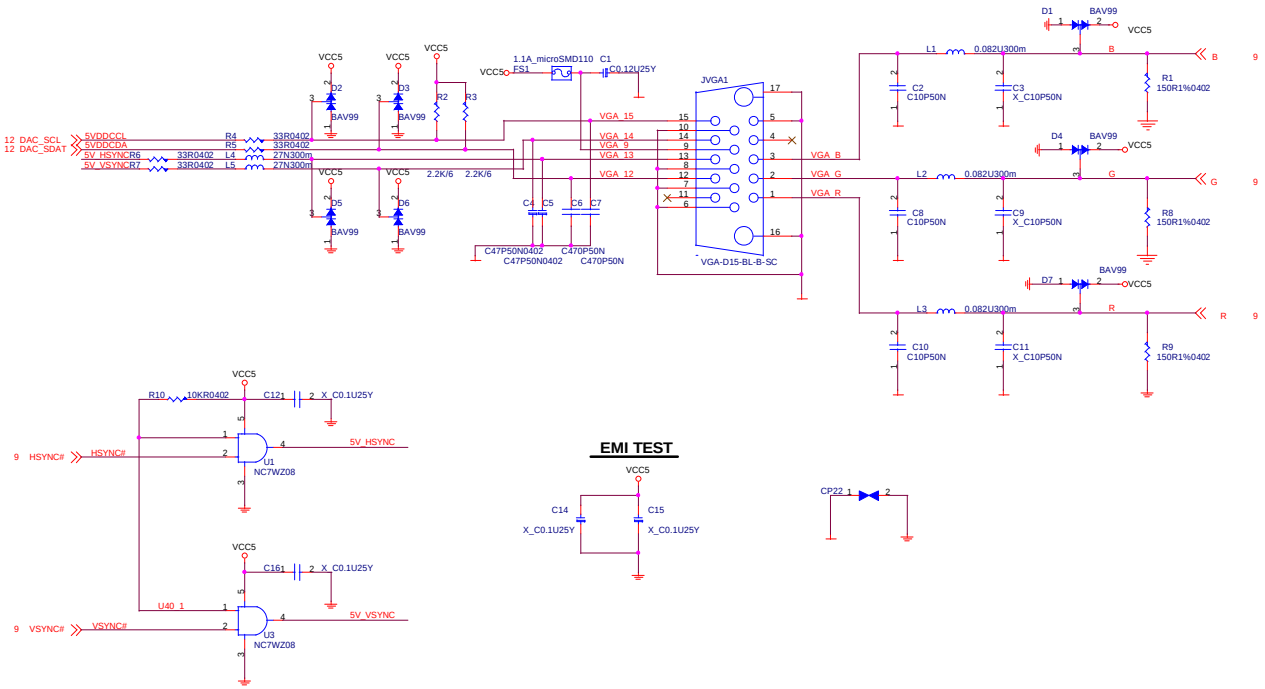
close VGA connector



EMI TEST

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Title: VGA CONNECTOR		
Size: C	Document Number: MS-7212	Rev: 0A
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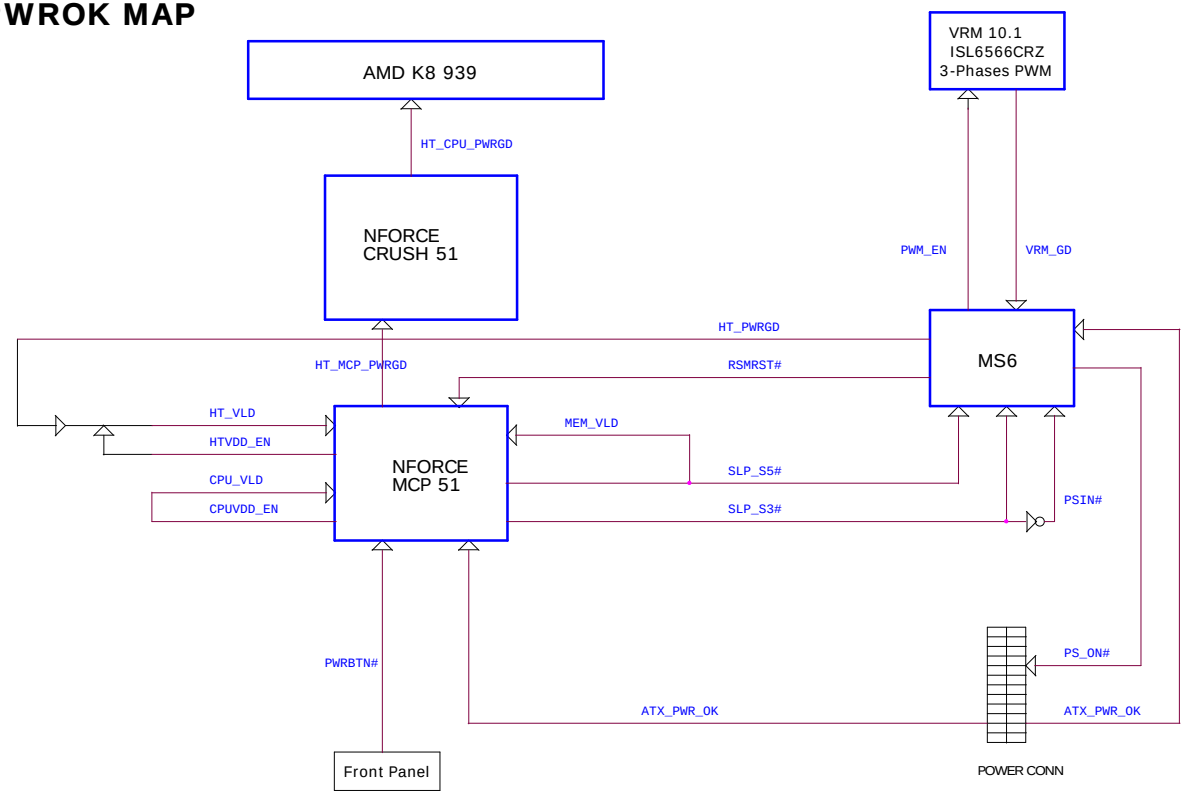
PWROK MAP



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Title: PWROK MAP		
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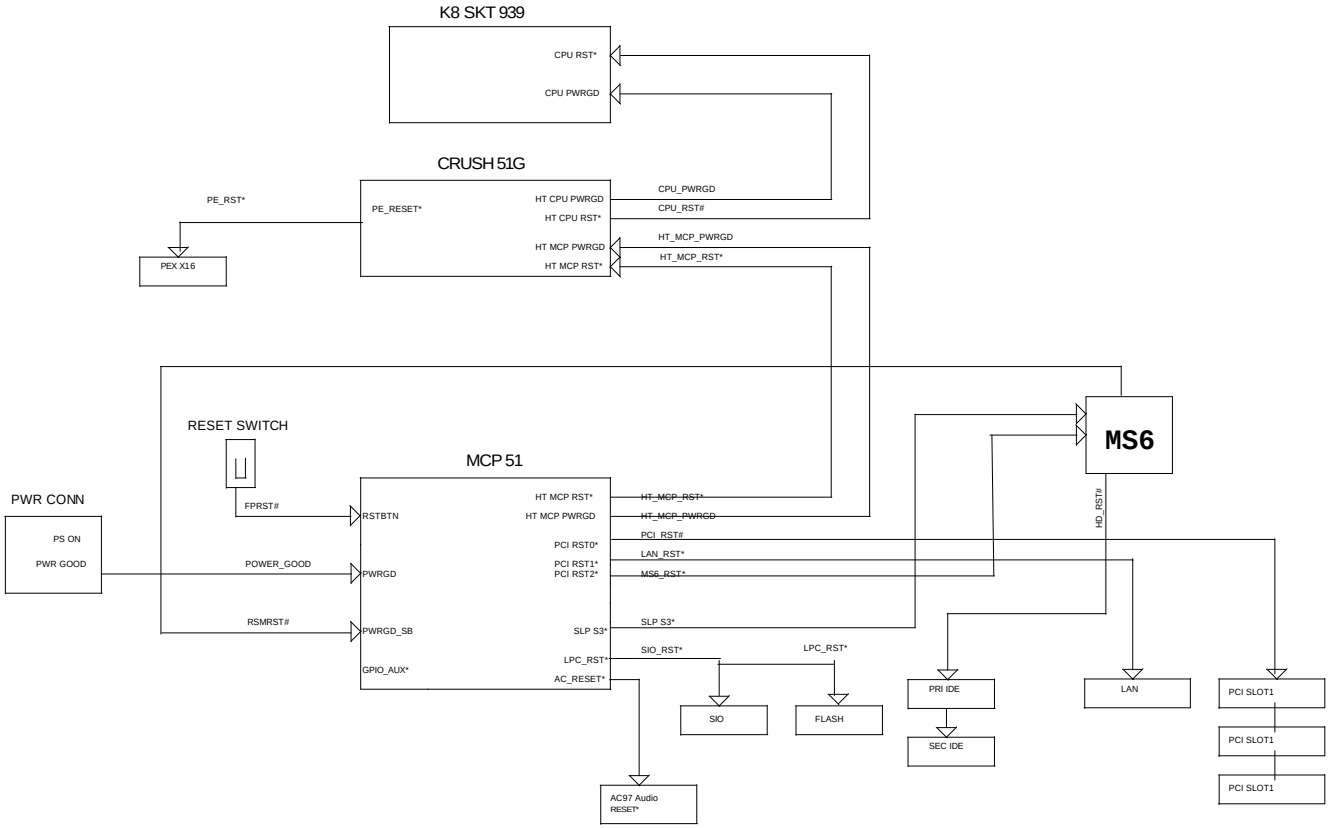
RESET MAP



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Title: RESET MAP		
Size: C	Document Number: MS-7212	Rev: 0A
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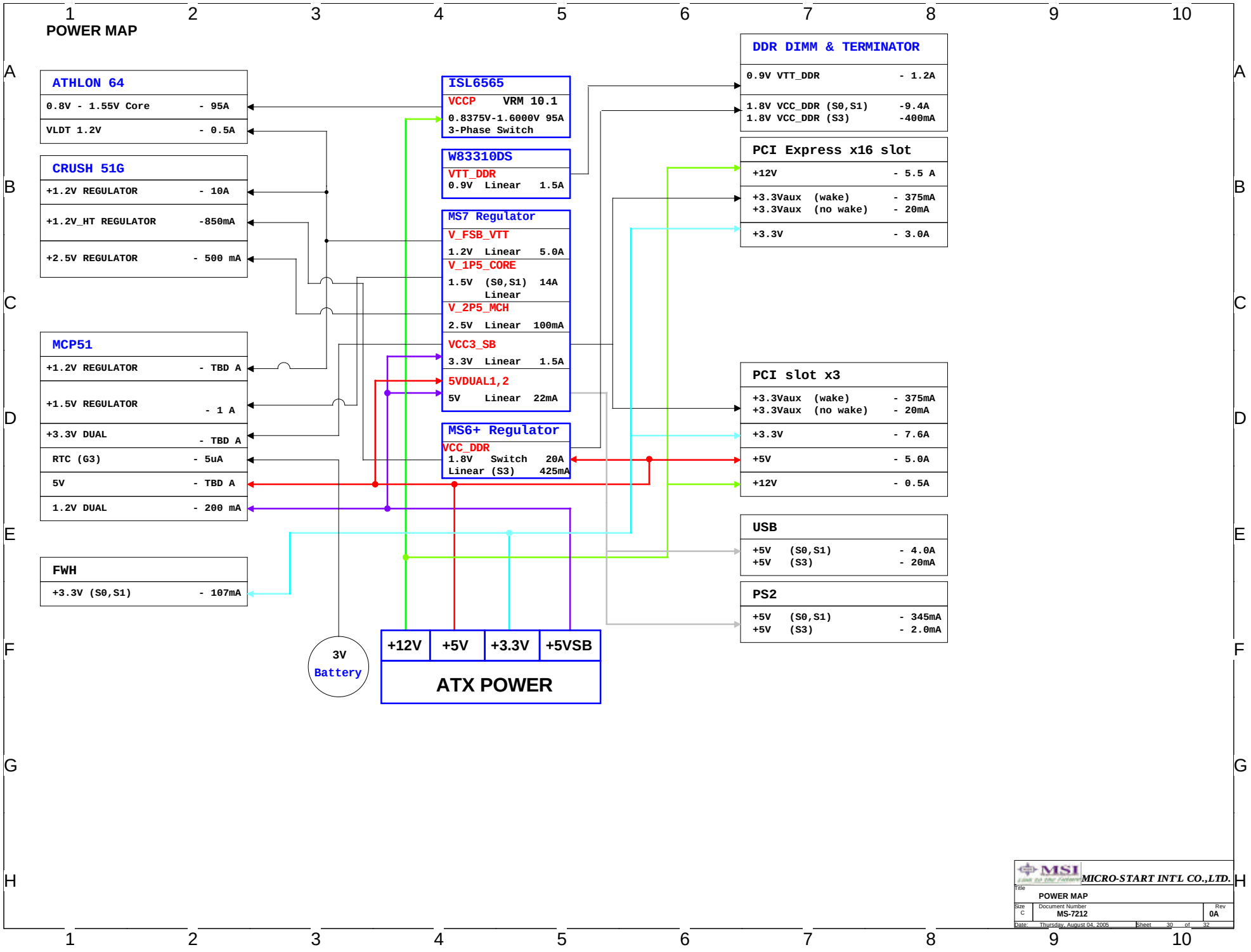
POWER MAP



MICRO-START INT'L CO.,LTD.

Title: POWER MAP		
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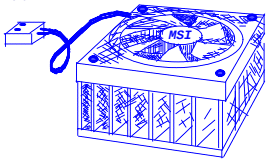
U19_X1

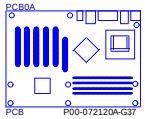
HEATSINK

U16-FAN1



X_U16-FAN

PCB0A



PCB P00-072120A-G37

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

U18_X1

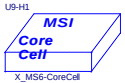
HEATSINK

BIOS1_X1

PLCC32-SMT

MS-6 CORE CELL

U9-H1



X_MS6-CoreCel

BAT1-S1

YSKTBT

LEGEND SPEC:

CLR_CMOS1(23)

X_JUMPER-1X2A_green-1

JBAT1 Clear CMOS	
1 - 2	Clear CMOS
2 - 3	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:

CLR_CMOS2(2)

X_JUMPER-1X2A_green-1

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

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: MANUAL PARTS

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Title: HISTORY

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