

MS7293F1 Version:0A

TITLE	SHEET
Cover Sheet	1
Block Diagram	2
PWR Map / CLOCK Map	3
GPIO/Memory/PCI/HW Config.	4
Clock Gen .	5
Processor (LGA775)	6-8
North Bridge PT890CE	9-12
MEM-DDRII SLOT 1 & 2	13
South Bridge VT8237A	14-16
PCI-Express Slot x16 & x1	17
PCI SLOT 1 & 2	18
P-IDE & SATA	19
USB-Rear & Front Conn.	20
HD-Audio VT1708	21
LAN PHY VT-6103L	22
IEEE-1394_VT6308P	23
Winbond & FDD & LPC & BIOS	24
FAN Control & COM Port	25
MS7 ACPI Controller	26
VRM10.1 Intersil 6566 3Phase	27
ATX Power Conn. / Front Panel	28
Holes / Decopuling	29
History	30
Manual Part	31

CPU:

Intel LGA775

System Chipset:

PT890CE (North Bridge)
VT8237A (South Bridge)

On Board Chipset:

CLOCK - ICS9LPR700B
LPC Super I/O - W83627EHG
BIOS - LPC ROM
Audio - VT1708
LAN - VT6103L
IEEE1394 - VT6308P

Main Memory:

single-channel - DDRII*2

Expansion Slots:

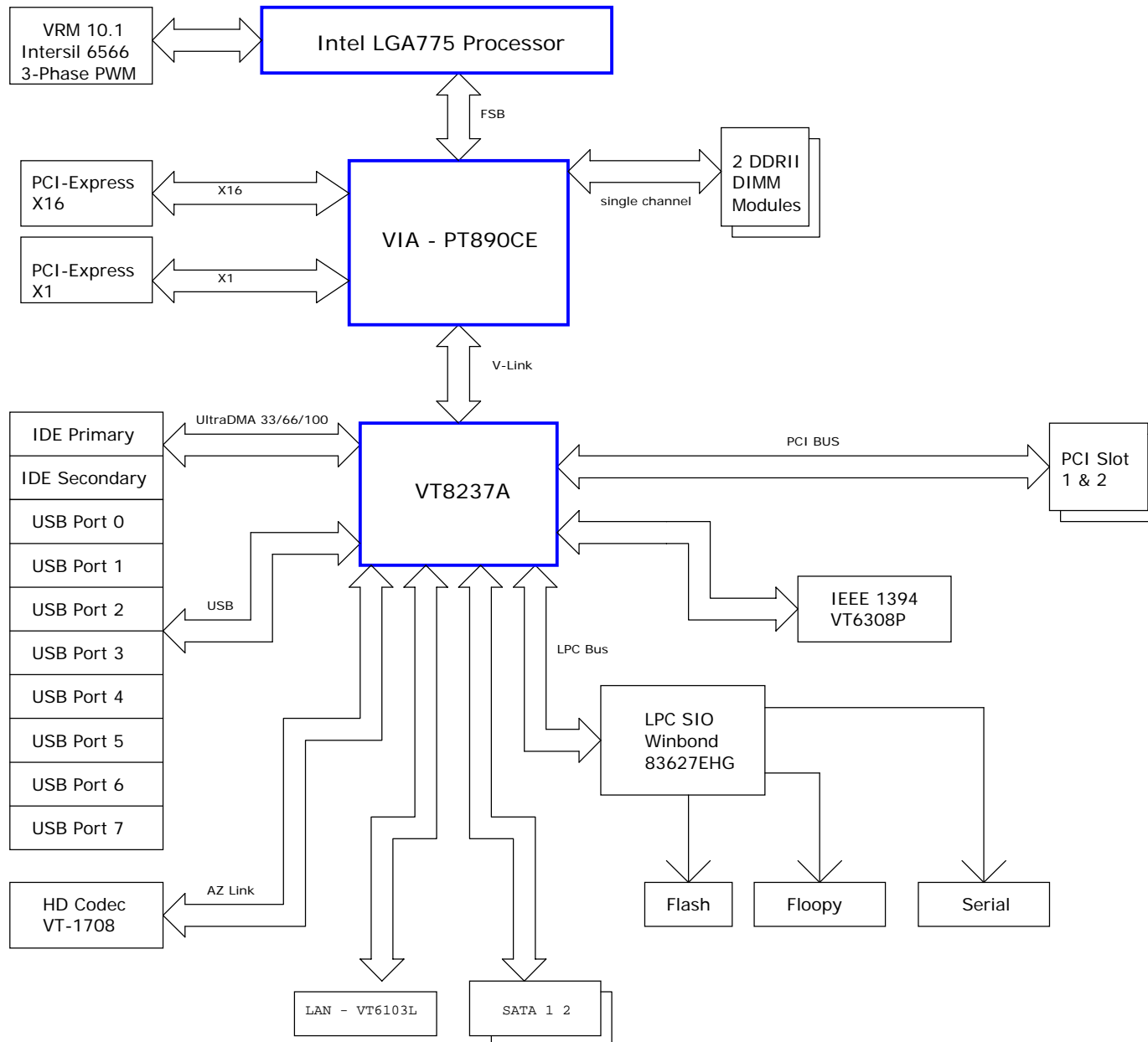
PCI Express X16 * 1
PCI 2.3 Slot * 2
PCI Express X1 * 1

PWM (VRM10.1) :

Intersil 6566 3Phase

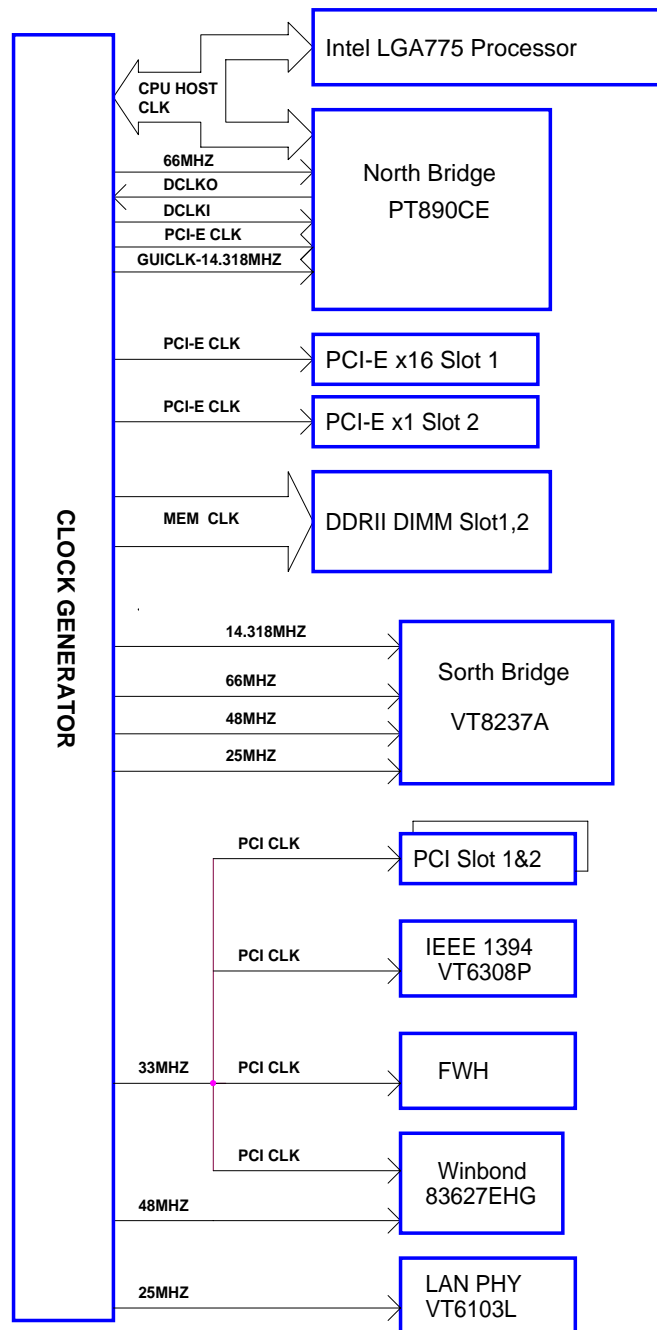
Micro Star Restricted Secret		
Title	Cover Sheet	Rev 0A
Document Number	MS-7293F1	
MICRO STAR INT'L CO., LTD. No. 68, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Sunday, March 19, 2006 Sheet 1 of 31

Block Diagram

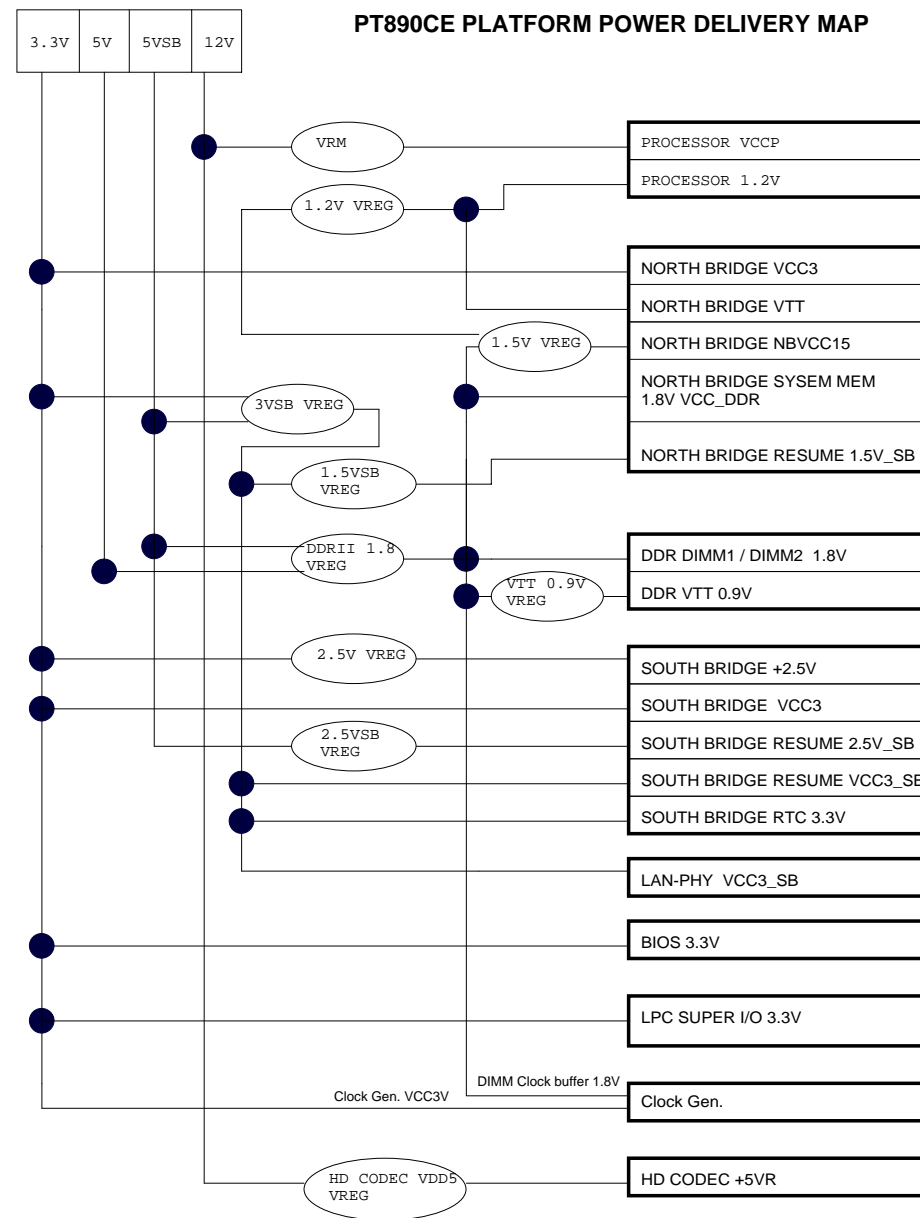


Micro Star Restricted Secret		
Title	Block Diagram	Rev
Document Number	MS-7293F1	0A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Saturday, March 18, 2006
Sheet		2 of 31

PT890CE PLATFORM CLOCK GENERATOR MAP



PT890CE PLATFORM POWER DELIVERY MAP



SB-VT8237A

GPIO Pin	Pin	Function	Power
GPIO	AE02	GPIO	VBAT
GPI1	AC02	Trip#	VCC3_SB
PD_A0	W23	Vlink auto compensation	VCC3
GPI4	AC01	ATADET1	VCC3_SB
GPIO26	AD01	ATADET0	VCC3_SB
GPIOA	AE05	HOST CLOCK	VCC3
GPIOC	AF05	Auto mode	VCC3
GPIOB	AD05	IOQ Depth	GND
GPIOD	AC06	GTL pullup	GND
GPIO28	AC08	SATA LED	VCC5
GPI18	Y04	OVT#	VCC3_SB
GPI17	Y01	PEPMESCI#	VCC3_SB
GPI19	U23	PEHPSCI#	VCC3_SB

LPC I/O W83627EHG

GPIO Pin	Pin	Function	Power
GP36	69	BIOS_WP#	VCC3
GP17	121	BIOS_RECOVERY#	VCC3
GP16	122	CLEAR_PWD#	VCC3_SB
GP20	120	CPU_FAN_OUT	
GP21	119	CPU_FAN_IN	
VTIN2	103	THERMDA	
VTIN3	102	CPU_TMP	
	116	SYS_FAN_OUT	
	113	SYS_FAN_IN	
VTIN1	104	SYS_TMP	

PCI Config.

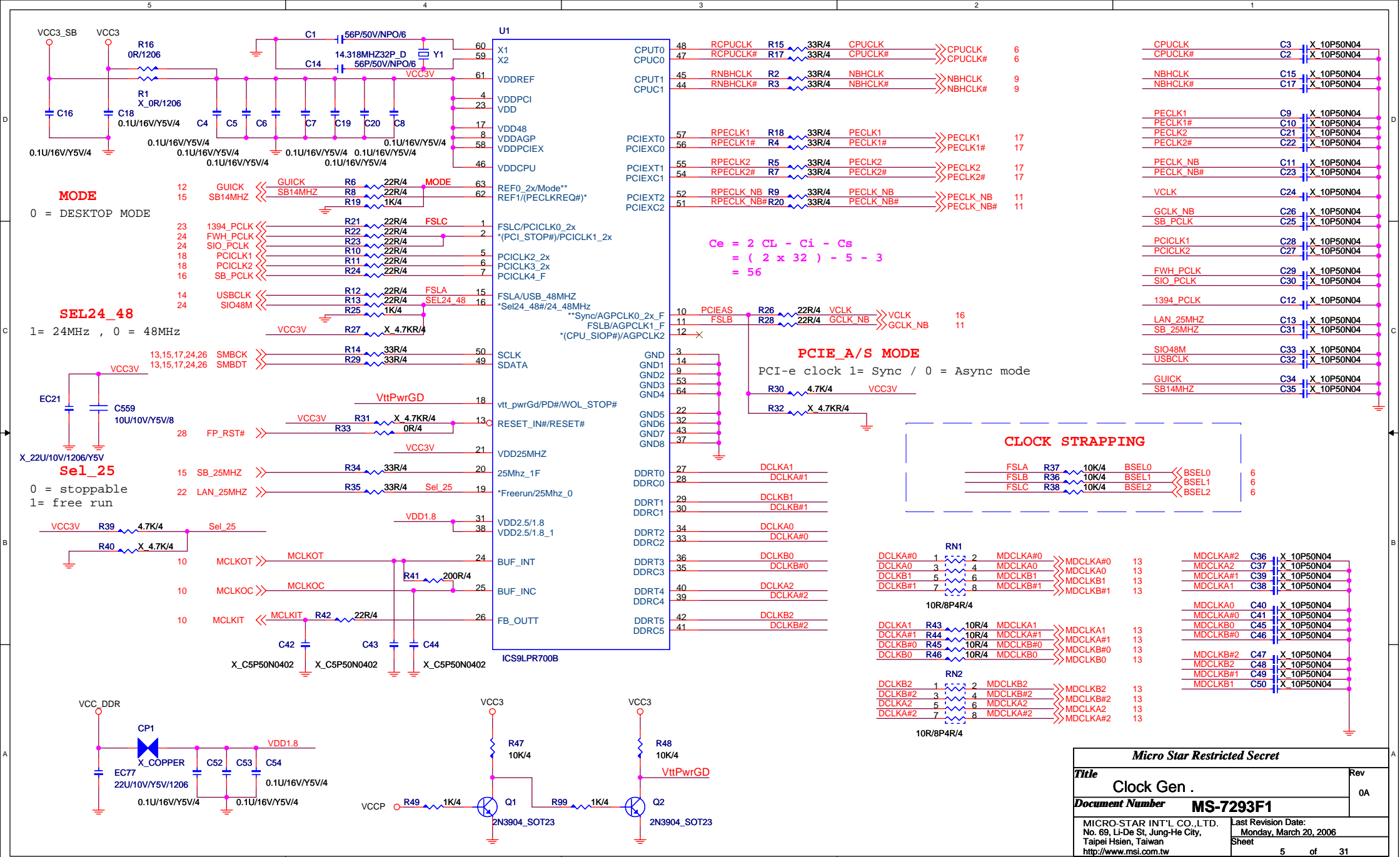
DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK	CLK GEN PIN OUT
PCI Slot 1	PIRQ#B PIRQ#C PIRQ#D PIRQ#A	PREQ#0 PGNT#0	AD20	PCICLK1	5
PCI Slot 2	PIRQ#C PIRQ#D PIRQ#A PIRQ#B	PREQ#1 PGNT#1	AD21	PCICLK2	6
1394	PIRQ#D	PREQ#3 PGNT#3	AD22	1394_PCLK	1

DDR DIMM Config.

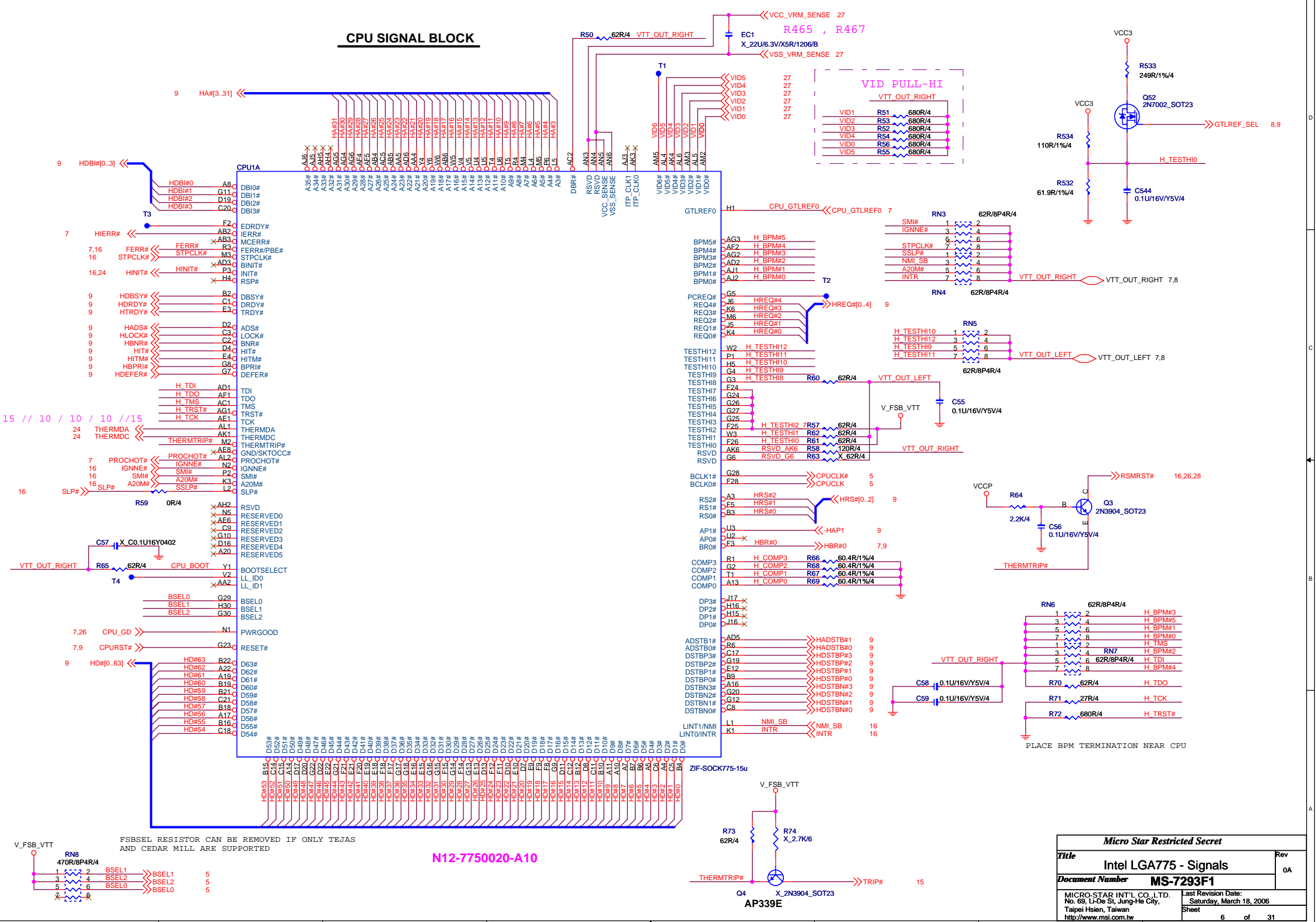
DEVICE	ADDRESS	CLOCK	CLK GEN PIN OUT
DIMM 1	10100000B	MDCLKB0/B#0 MDCLKB1/B#1 MDCLKB2/B#2	36/35 29/30 42/41
DIMM 2	10100010B	MDCLKA0/A#0 MDCLKA1/A#1 MDCLKA2/A#2	34/33 27/28 40/39

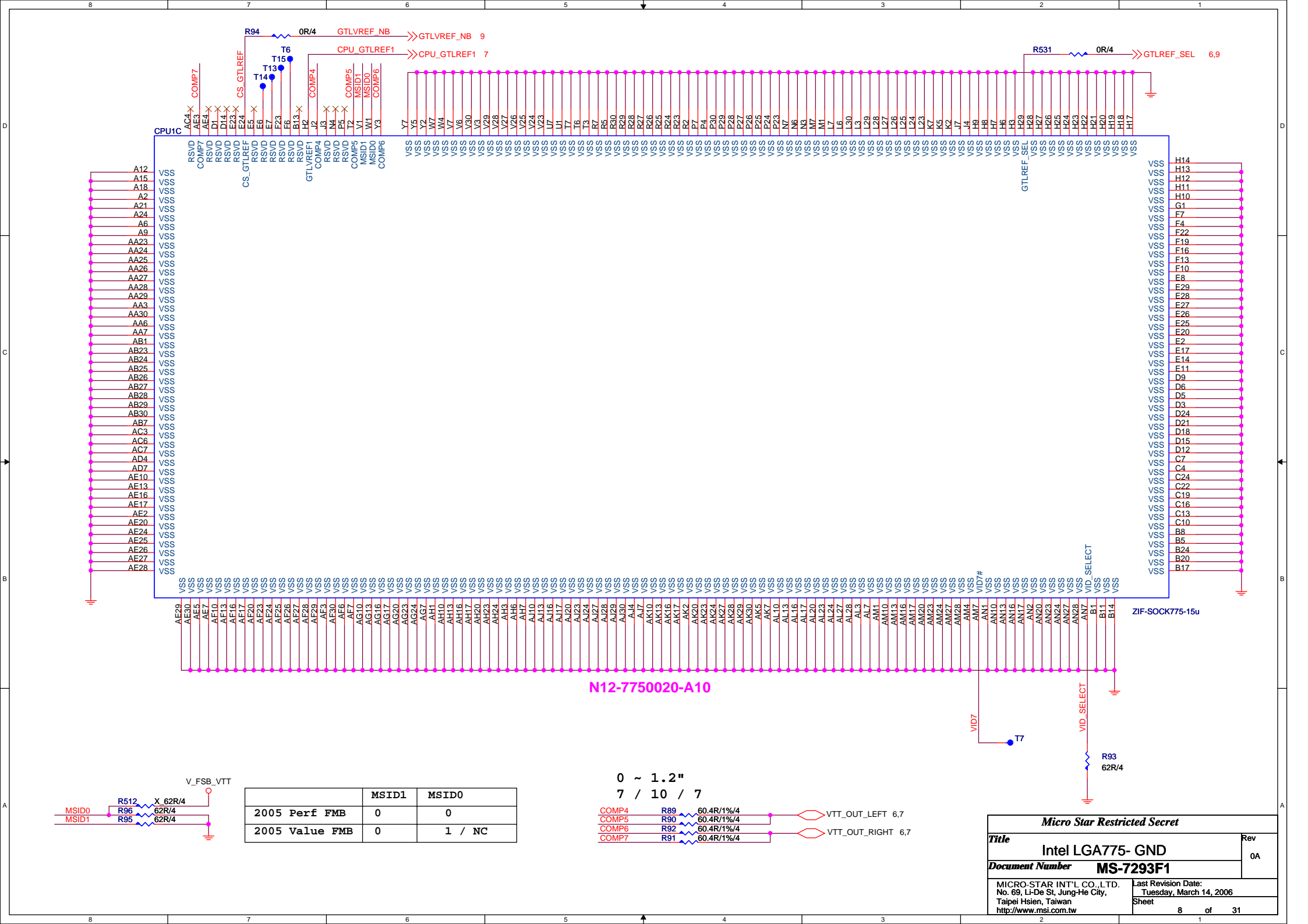
PCI RESET DEVICE

Signals	Source	Target
PCIRST#	SB	MS7
PCIRST#1	MS7	1394 & SPIO & BIOS
PCIRST#2	MS7	PCI slot 1-2 & PCIE 1-2
NB_RST#	MS7	NB_RST#
HDRST#	MS7	Primary, Scondary IDE
Rsmrst#	MS7	VT8237A



CPU SIGNAL BLOCK





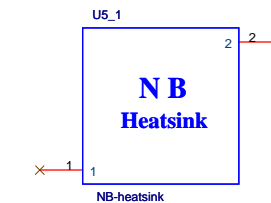
	MSID1	MSID0
2005 Perf FMB	0	0
2005 Value FMB	0	1 / NC

0 ~ 1.2"
7 / 10 / 7

COMP4 R89 60.4R/1%/4
COMP5 R90 60.4R/1%/4
COMP6 R92 60.4R/1%/4
COMP7 R91 60.4R/1%/4

VTT_OUT_LEFT 6,7
VTT_OUT_RIGHT 6,7

Micro Star Restricted Secret		
Title	Intel LGA775- GND	Rev
Document Number	MS-7293F1	0A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, March 14, 2006 Sheet
		8 of 31



13

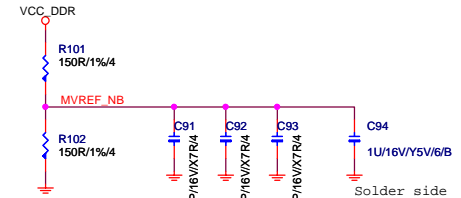
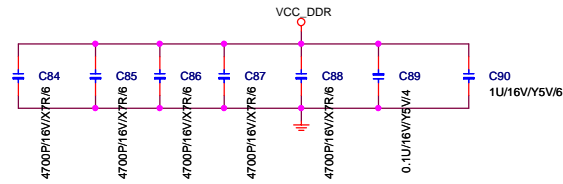
MD[0:63]

MD0 AF35 MD00 VCCMEM BA0
MD1 AG34 MD01 VCCMEM BA1
MD2 AJ36 MD02 VCCMEM BA2
MD3 AK35 MD03 VCCMEM MAA0
MD4 AF34 MD04 VCCMEM MAA1
MD5 AG35 MD05 VCCMEM MAA2
MD6 AJ34 MD06 VCCMEM MAA3
MD7 AK34 MD07 VCCMEM MAA4
MD8 AG32 MD08 VCCMEM MAA5
MD9 AF32 MD09 VCCMEM MAA6
MD10 AH30 MD10 VCCMEM MAA7
MD11 AJ31 MD11 VCCMEM MAA8
MD12 AF31 MD12 VCCMEM MAA9
MD13 AH32 MD13 VCCMEM MAA10
MD14 AH31 MD14 VCCMEM MAA11
MD15 AJ32 MD15 VCCMEM MAA12
MD16 AK33 MD16 VCCMEM MAA13
MD17 AL36 MD17 VCCMEM SRASA
MD18 AP35 MD18 VCCMEM SCASA
MD19 AL34 MD19 VCCMEM SWEA
MD20 AL35 MD20 VCCMEM CS0#
MD21 AM35 MD21 VCCMEM CS1#
MD22 AT38 MD22 VCCMEM CS2#
MD23 AM34 MD23 VCCMEM CS3#
MD24 AK24 MD24 VCCMEM CKE0
MD25 AL23 MD25 VCCMEM CKE1
MD26 AM24 MD26 VCCMEM CKE2
MD27 AJ22 MD27 VCCMEM CKE3
MD28 AK23 MD28 VCCMEM ODT0
MD29 AN24 MD29 VCCMEM ODT1
MD30 AM23 MD30 VCCMEM ODT2
MD31 AM22 MD31 VCCMEM ODT3
MD32 AK20 MD32 VCCMEM DQS0+
MD33 AK19 MD33 VCCMEM DQS0-
MD34 AM19 MD34 VCCMEM DQS1+
MD35 AR18 MD35 VCCMEM DQS1-
MD36 AL20 MD36 VCCMEM DQS2+
MD37 AM20 MD37 VCCMEM DQS2-
MD38 AL18 MD38 VCCMEM DQS3+
MD39 AM18 MD39 VCCMEM DQS3-
MD40 AR17 MD40 VCCMEM DQS4+
MD41 AT16 MD41 VCCMEM DQS4-
MD42 AN16 MD42 VCCMEM DQS5+
MD43 AN15 MD43 VCCMEM DQS5-
MD44 AM17 MD44 VCCMEM DQS6+
MD45 AP17 MD45 VCCMEM DQS6-
MD46 AM16 MD46 VCCMEM DQS7+
MD47 AN22 MD47 VCCMEM DQS7-
MD48 AN21 MD48 VCCMEM MCLKI
MD49 AN21 MD49 VCCMEM MCLKO+
MD50 AP19 MD50 VCCMEM MCLKO-
MD51 AT18 MD51 VCCMEM MEMVREF0
MD52 AT21 MD51 VCCMEM MEMVREF1
MD53 AR21 MD53 VCCMEM MEMDET
MD54 AT19 MD54 VCCMEM DMCOMP
MD55 AR19 MD55 VCCMEM
MD56 AR14 MD56 VCCMEM
MD57 AM14 MD57 VCCMEM
MD58 AP13 MD58 VCCMEM
MD59 AR11 MD59 VCCMEM
MD60 AP14 MD60 VCCMEM
MD61 AN14 MD61 VCCMEM
MD62 AT12 MD62 VCCMEM
MD63 AP12 MD63 VCCMEM

DQM0 AH36C DQM0#
DQM1 AF30C DQM1#
DQM2 AN36C DQM2#
DQM3 AN23C DQM3#
DQM4 AN20C DQM4#
DQM5 AT15C DQM5#
DQM6 AP21C DQM6#
DQM7 AT13C DQM7#

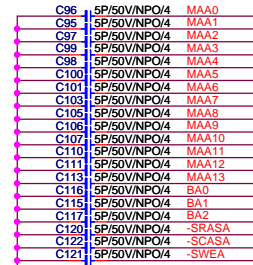
E2 GND
E3 GND
E4 GND
E5 GND
E6 GND
E7 GND
E8 GND
E9 GND
F0 GND
F1 GND
F2 GND
F3 GND
F4 GND
F5 GND
F6 GND
F7 GND
F8 GND
F9 GND
F10 GND
F11 GND
F12 GND
F13 GND
F14 GND
F15 GND
F16 GND
F17 GND
F18 GND
F19 GND
F20 GND
F21 GND
F22 GND
F23 GND
F24 GND
F25 GND
F26 GND
F27 GND
F28 GND
F29 GND
F30 GND
F31 GND
F32 GND
F33 GND
F34 GND
F35 GND
F36 GND
F37 GND
F38 GND
F39 GND
F40 GND
F41 GND
F42 GND
F43 GND
F44 GND
F45 GND
F46 GND
F47 GND
F48 GND
F49 GND
F50 GND
F51 GND
F52 GND
F53 GND
F54 GND
F55 GND
F56 GND
F57 GND
F58 GND
F59 GND
F60 GND
F61 GND
F62 GND
F63 GND
F64 GND
F65 GND
F66 GND
F67 GND
F68 GND
F69 GND
F70 GND
F71 GND
F72 GND
F73 GND
F74 GND
F75 GND
F76 GND
F77 GND
F78 GND
F79 GND
F80 GND
F81 GND
F82 GND
F83 GND
F84 GND
F85 GND
F86 GND
F87 GND
F88 GND
F89 GND
F90 GND
F91 GND
F92 GND
F93 GND
F94 GND
F95 GND
F96 GND
F97 GND
F98 GND
F99 GND
G0 GND
G1 GND
G2 GND
G3 GND
G4 GND
G5 GND
G6 GND
G7 GND
G8 GND
G9 GND
G10 GND
G11 GND
G12 GND
G13 GND
G14 GND
G15 GND
G16 GND
G17 GND
G18 GND
G19 GND
G20 GND
G21 GND
G22 GND
G23 GND
G24 GND
G25 GND
G26 GND
G27 GND
G28 GND
G29 GND
G30 GND
G31 GND
G32 GND
G33 GND
G34 GND
G35 GND
G36 GND
G37 GND
G38 GND
G39 GND
G40 GND
G41 GND
G42 GND
G43 GND
G44 GND
G45 GND
G46 GND
G47 GND
G48 GND
G49 GND
G50 GND
G51 GND
G52 GND
G53 GND
G54 GND
G55 GND
G56 GND
G57 GND
G58 GND
G59 GND
G60 GND
G61 GND
G62 GND
G63 GND
G64 GND
G65 GND
G66 GND
G67 GND
G68 GND
G69 GND
G70 GND
G71 GND
G72 GND
G73 GND
G74 GND
G75 GND
G76 GND
G77 GND
G78 GND
G79 GND
G80 GND
G81 GND
G82 GND
G83 GND
G84 GND
G85 GND
G86 GND
G87 GND
G88 GND
G89 GND
G90 GND
G91 GND
G92 GND
G93 GND
G94 GND
G95 GND
G96 GND
G97 GND
G98 GND
G99 GND
H0 GND
H1 GND
H2 GND
H3 GND
H4 GND
H5 GND
H6 GND
H7 GND
H8 GND
H9 GND
H10 GND
H11 GND
H12 GND
H13 GND
H14 GND
H15 GND
H16 GND
H17 GND
H18 GND
H19 GND
H20 GND
H21 GND
H22 GND
H23 GND
H24 GND
H25 GND
H26 GND
H27 GND
H28 GND
H29 GND
H30 GND
H31 GND
H32 GND
H33 GND
H34 GND
H35 GND
H36 GND
H37 GND
H38 GND
H39 GND
H40 GND
H41 GND
H42 GND
H43 GND
H44 GND
H45 GND
H46 GND
H47 GND
H48 GND
H49 GND
H50 GND
H51 GND
H52 GND
H53 GND
H54 GND
H55 GND
H56 GND
H57 GND
H58 GND
H59 GND
H60 GND
H61 GND
H62 GND
H63 GND
H64 GND
H65 GND
H66 GND
H67 GND
H68 GND
H69 GND
H70 GND
H71 GND
H72 GND
H73 GND
H74 GND
H75 GND
H76 GND
H77 GND
H78 GND
H79 GND
H80 GND
H81 GND
H82 GND
H83 GND
H84 GND
H85 GND
H86 GND
H87 GND
H88 GND
H89 GND
H90 GND
H91 GND
H92 GND
H93 GND
H94 GND
H95 GND
H96 GND
H97 GND
H98 GND
H99 GND
I0 GND
I1 GND
I2 GND
I3 GND
I4 GND
I5 GND
I6 GND
I7 GND

PT890CE_A1



Close to ball

Test Point
(Place near their respective balls of NB)

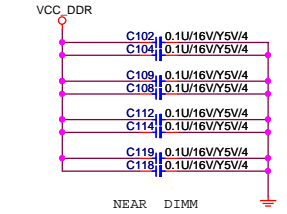


PULL DOWN GND OR PULL UP +1.8VDIMM

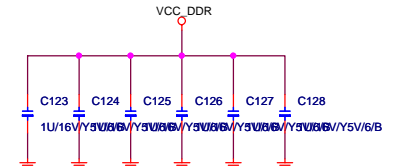
CLOSE TO DIMM

NOTE: DQS/DQS# => OTHER:W:S:W:OTHER=15:10:5:10:15

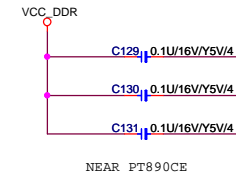
MCLKO+/- as short as passable
MCLKIT = DCLKx + 2 "



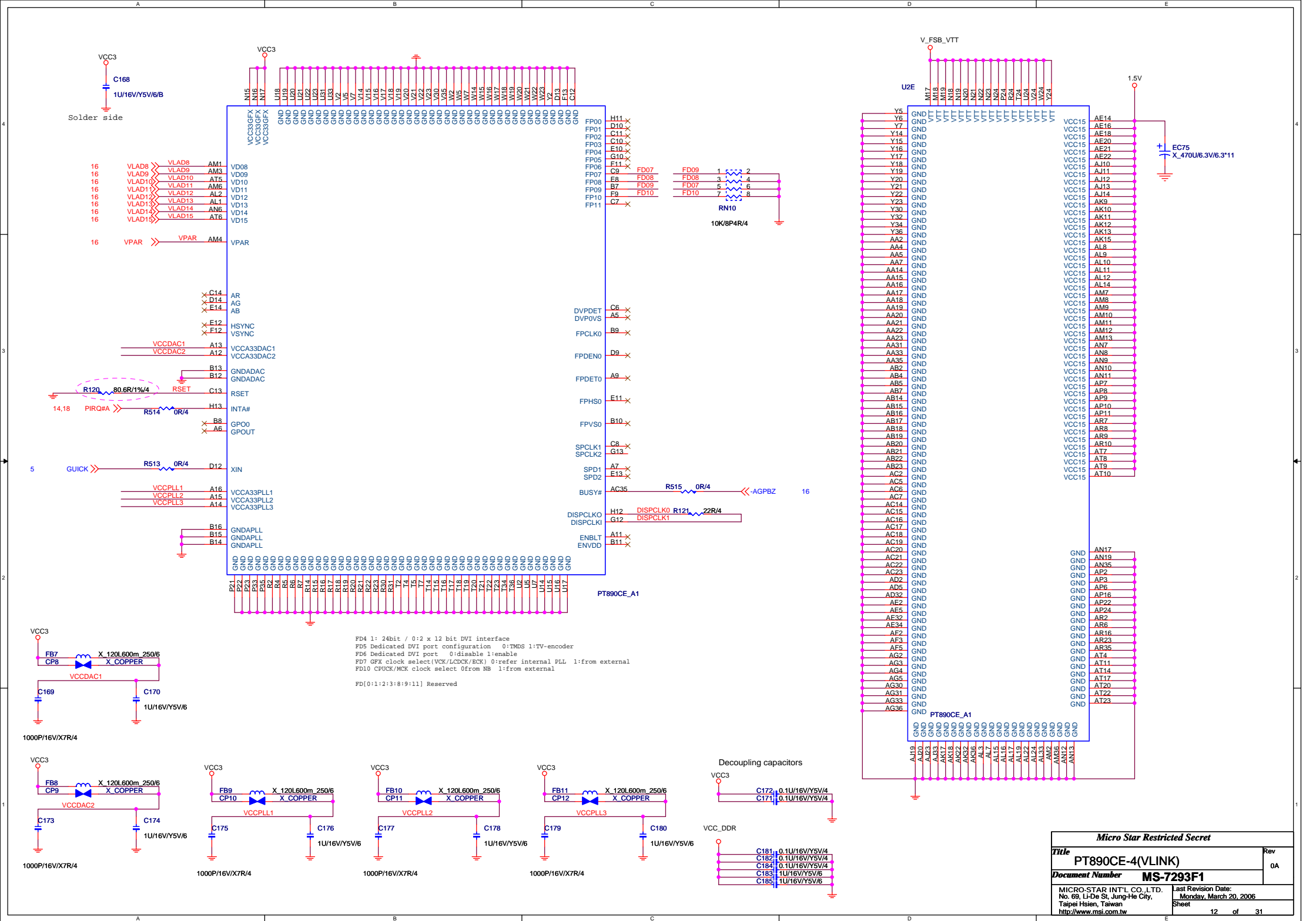
NEAR DIMM

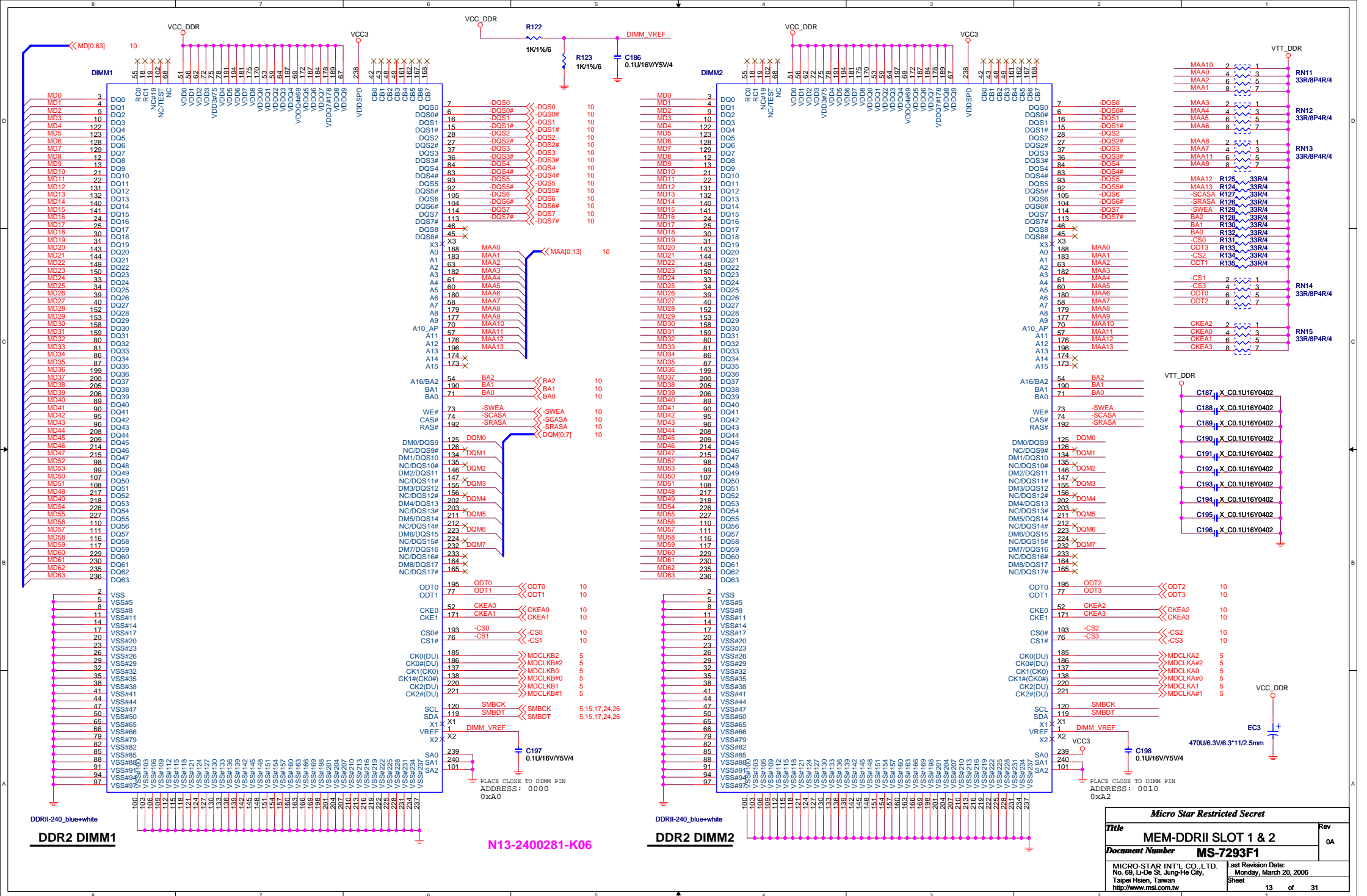


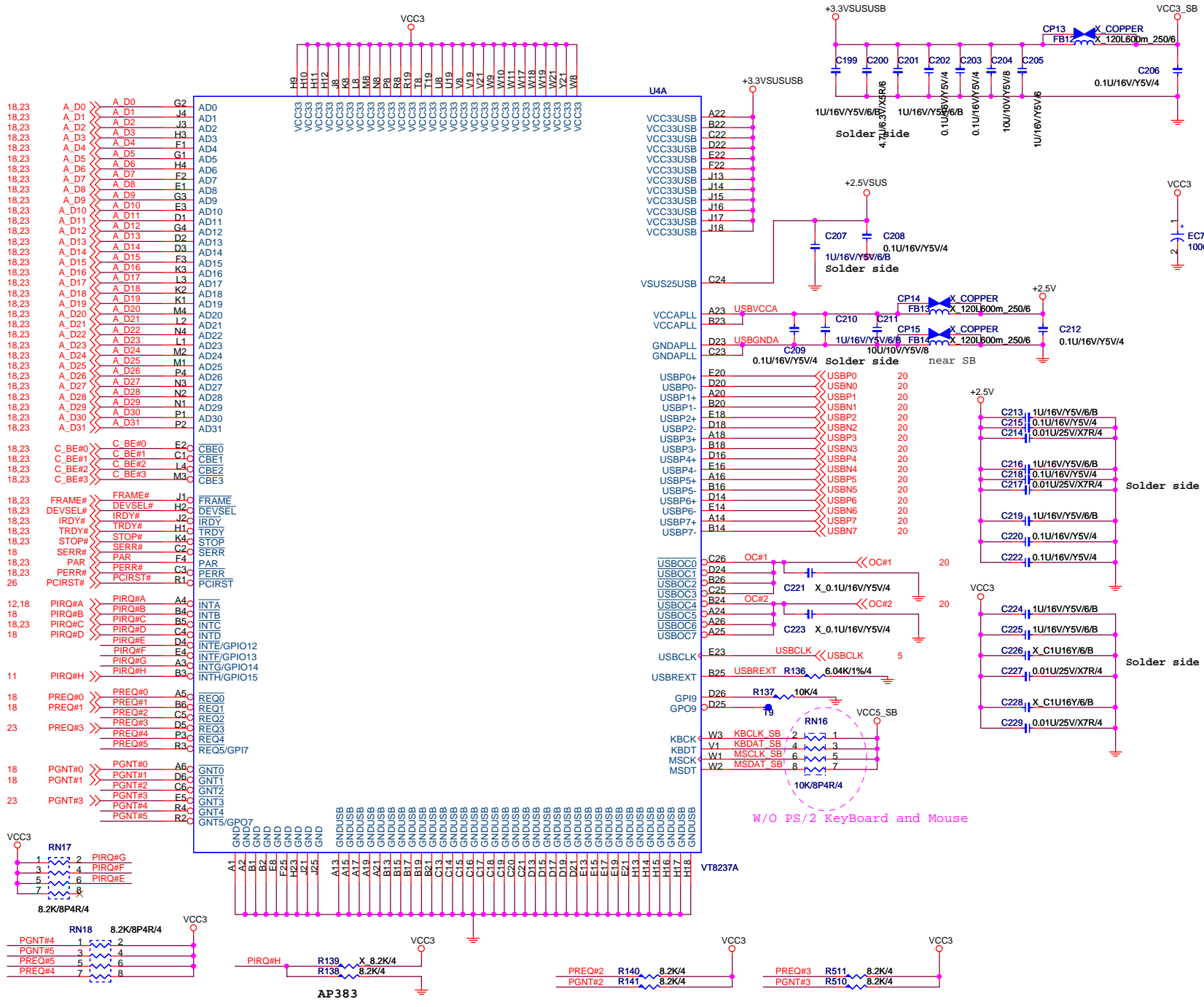
Solder side



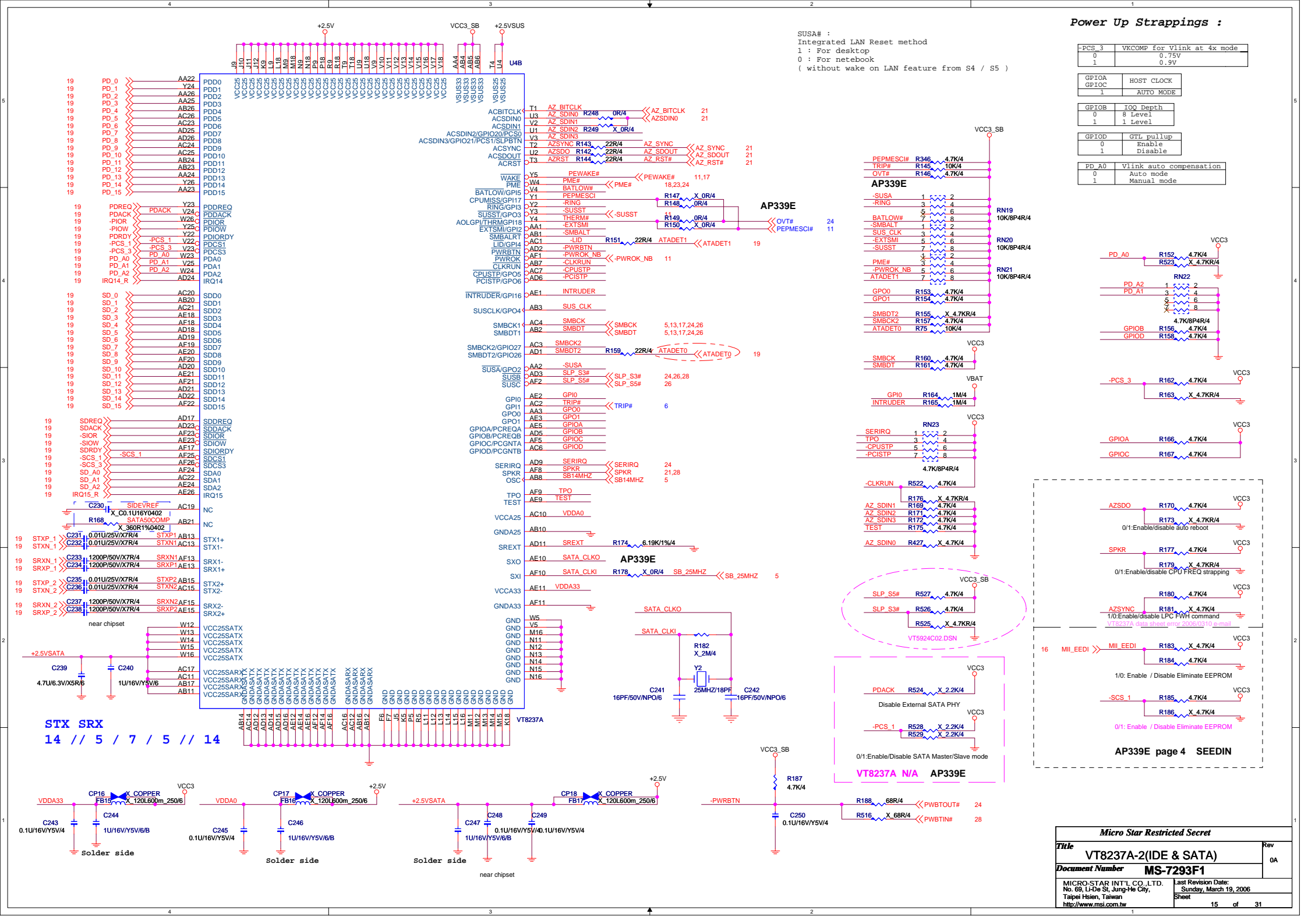
NEAR PT890CE

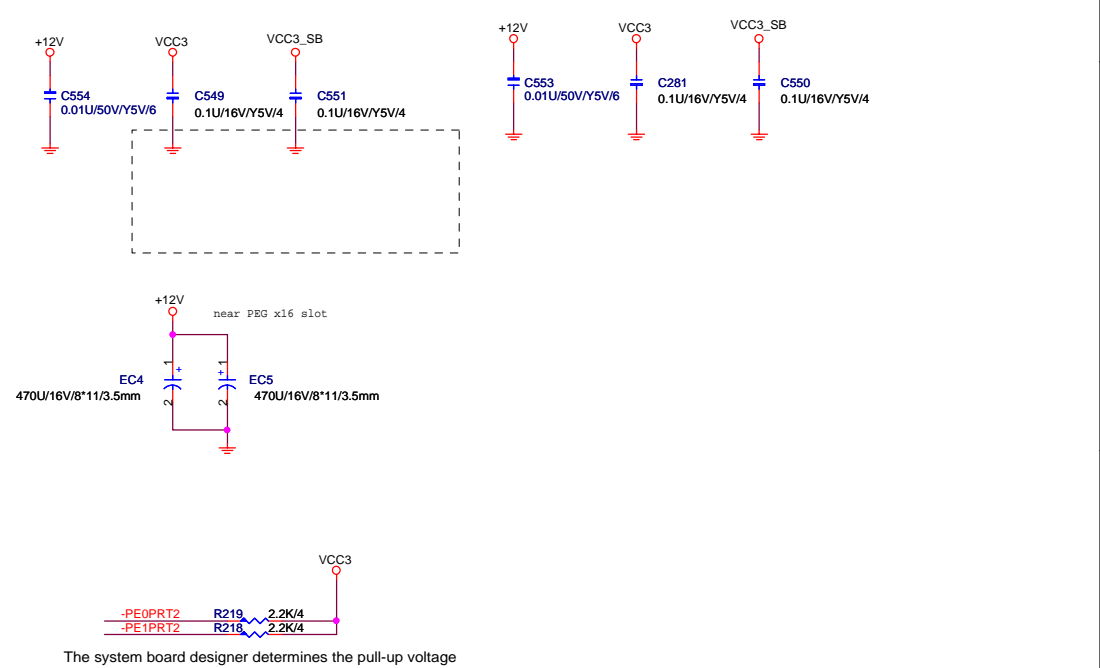
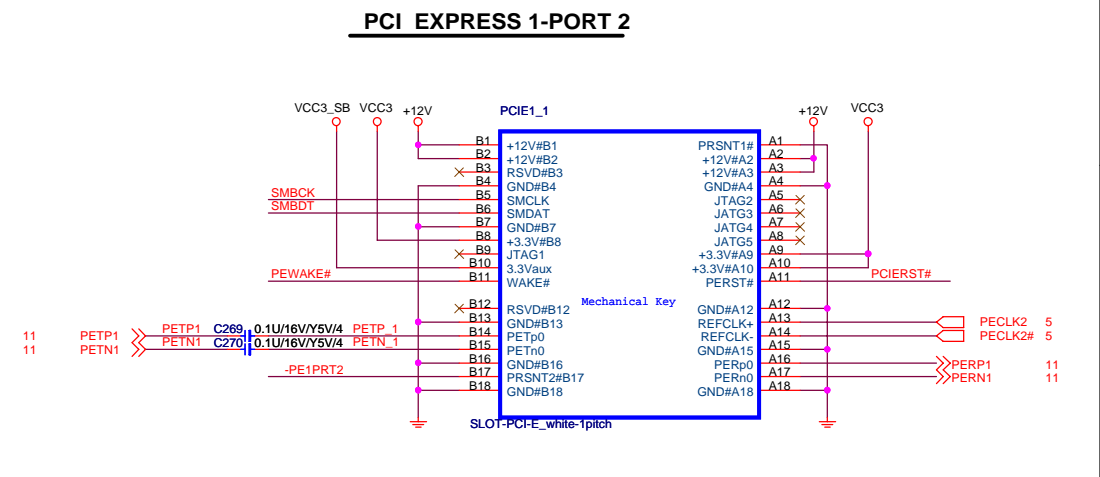
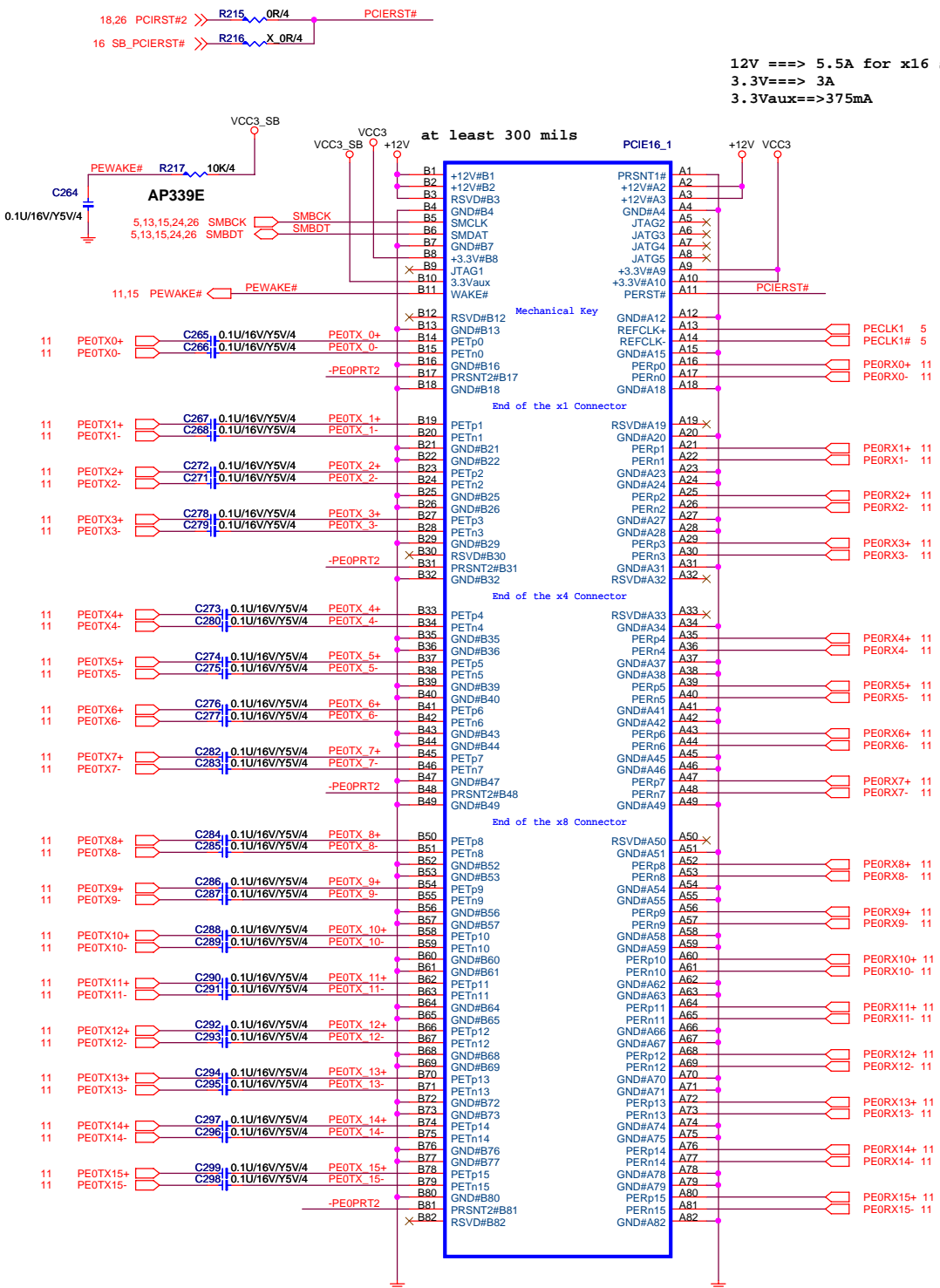






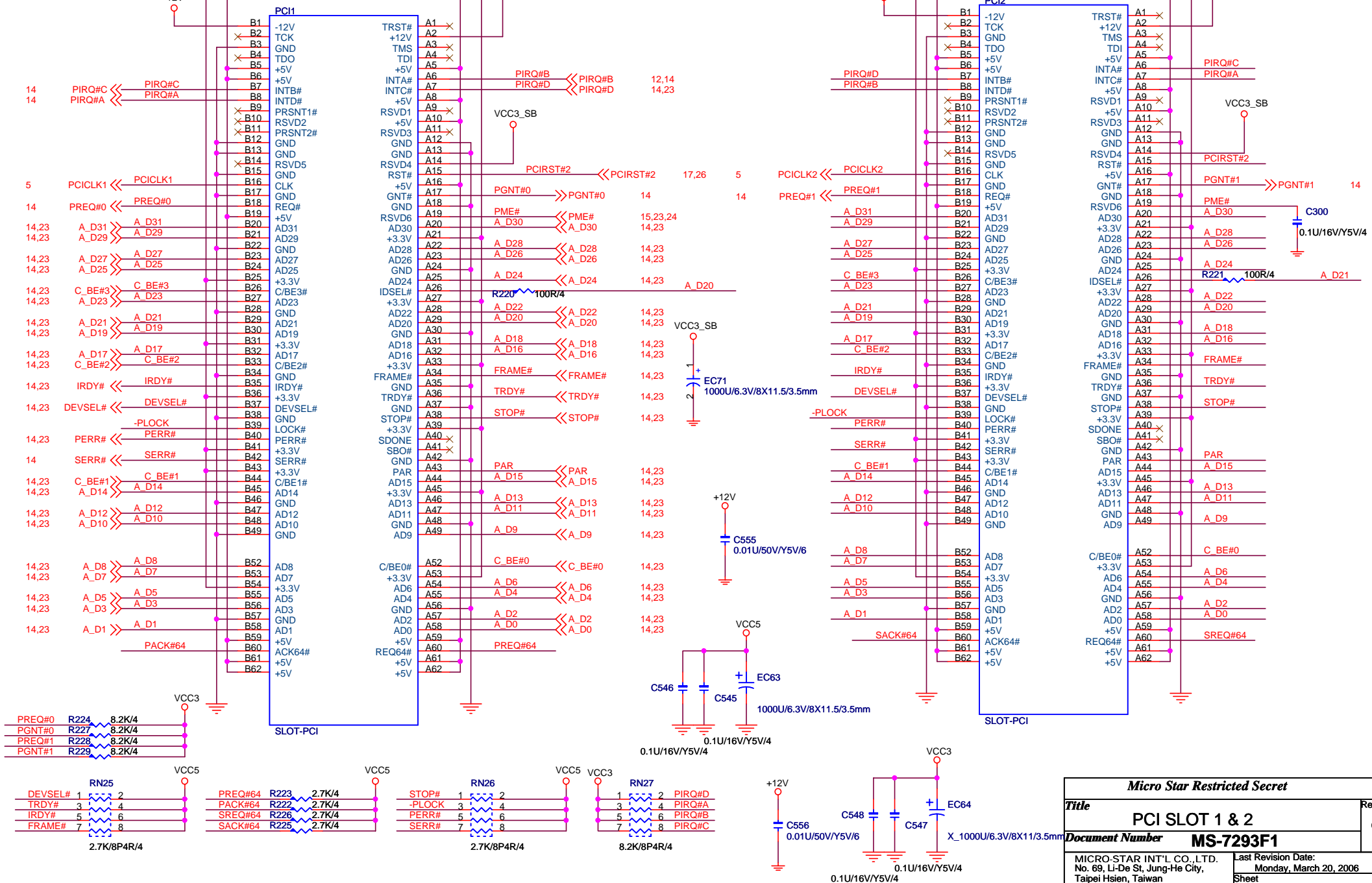
Micro Star Restricted Secret			
Title	VT8237A-1(USB & PCI)		Rev
			0A
Document Number	MS-7293F1		
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date:	
		Saturday, March 18, 2006	
		Sheet	14 of 31



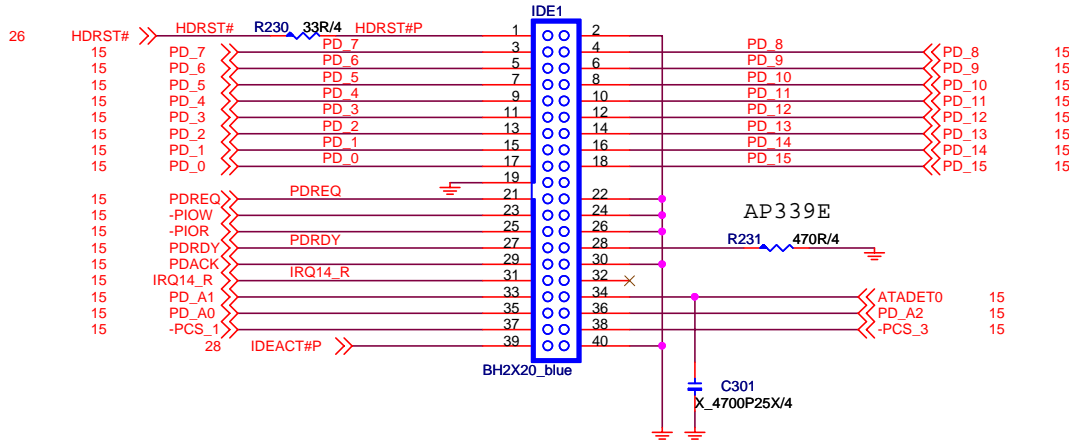


Micro Star Restricted Secret		
Title	PCI-Express Slot x16 & x1	Rev 0A
Document Number	MS-7293F1	
MICRO-STAR INT'L CO. LTD. No. 68, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, March 14, 2006 Sheet 17 of 31

PCI Connectors

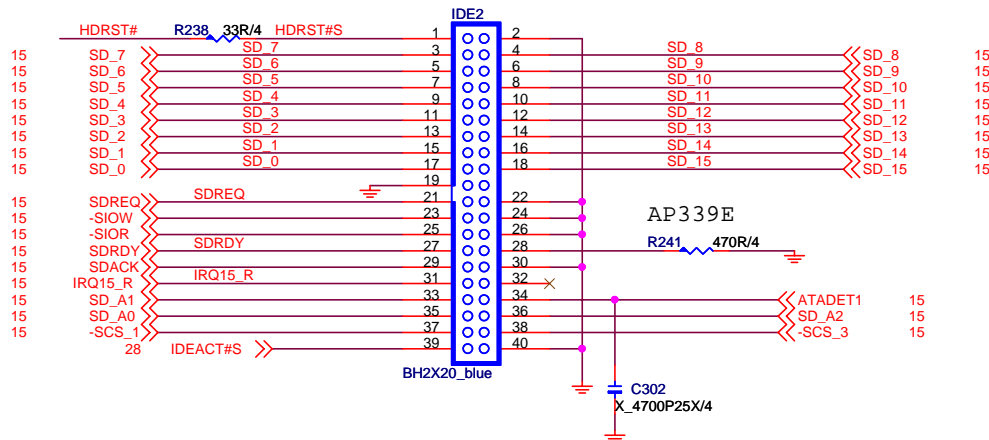


PRIMARY IDE BLOCK

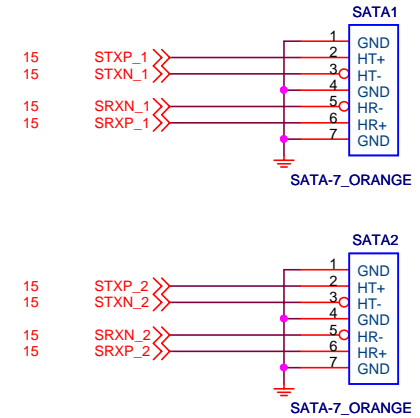


N32-2201221-H06

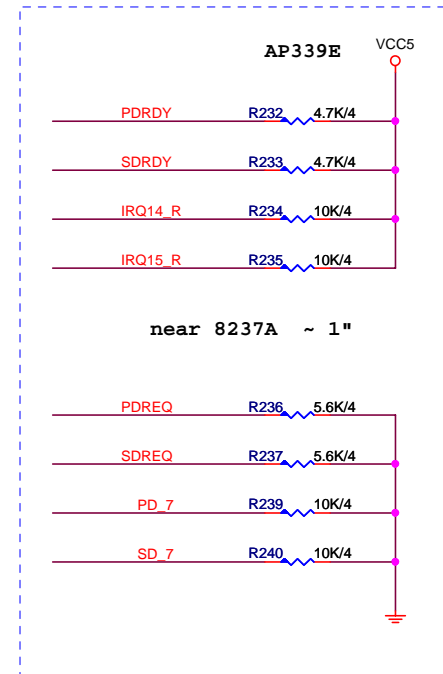
SECONDARY IDE BLOCK



SERIAL ATA CONNECTOR BLOCK

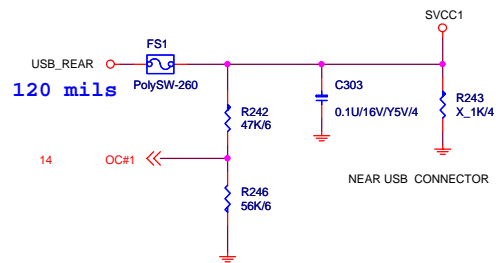


N5N-07M0131-H06

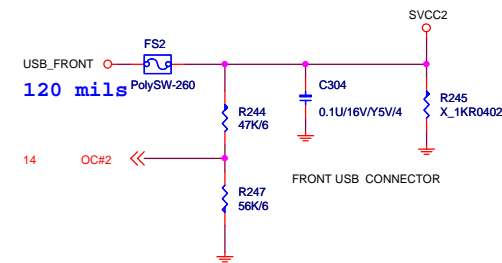


Micro Star Restricted Secret		
Title	P-IDE & SATA	Rev
Document Number	MS-7293F1	0A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Hsi City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Monday, March 20, 2006
Sheet		19 of 31

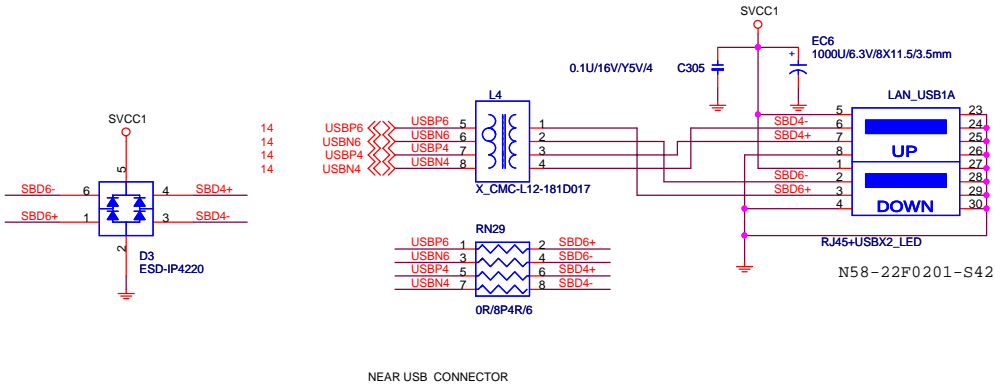
POWER CIRCUIT FOR USB PORT 0,1,2,3



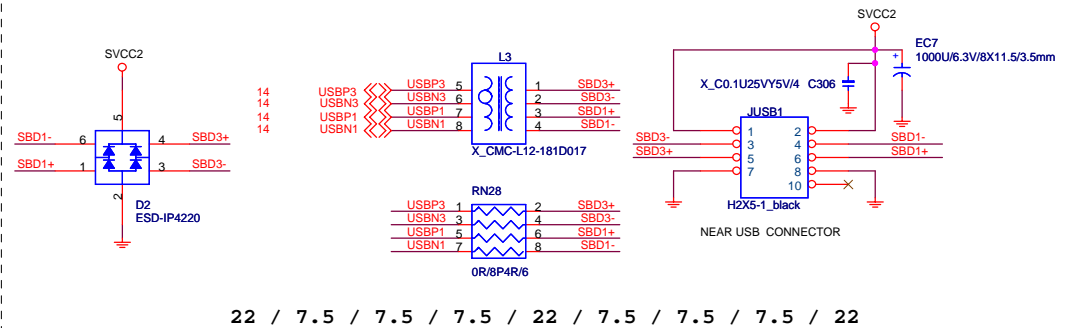
POWER CIRCUIT FOR USB PORT 4,5,6,7



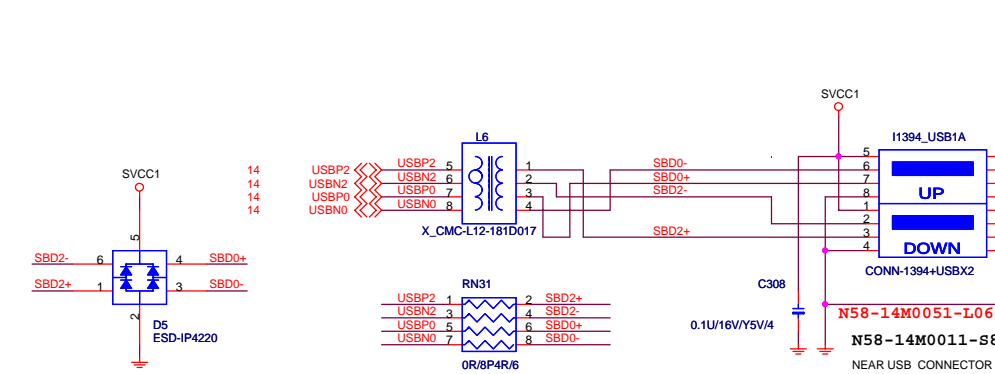
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



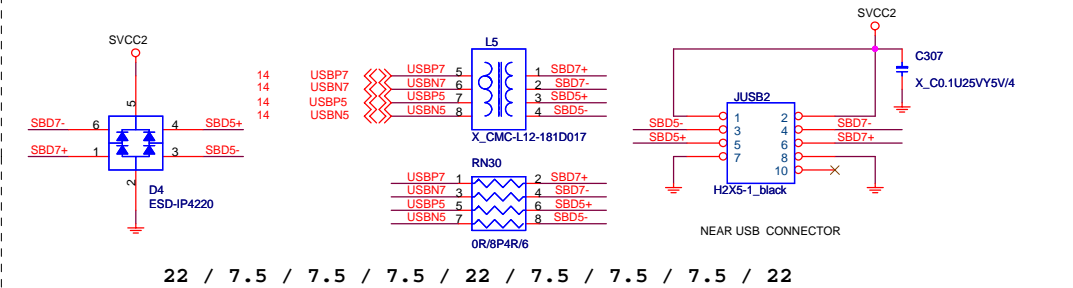
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



REAR PANEL USB CONNECTOR FOR USB PORT 2,3

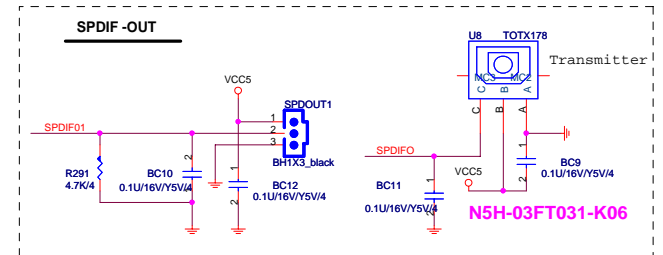
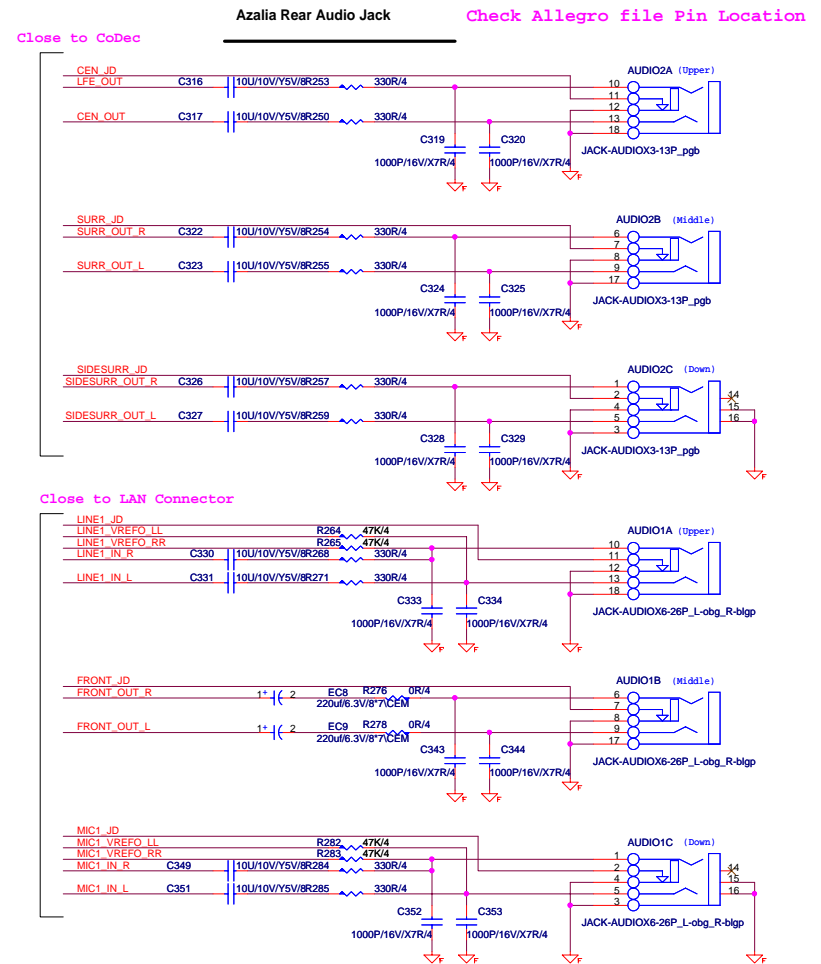
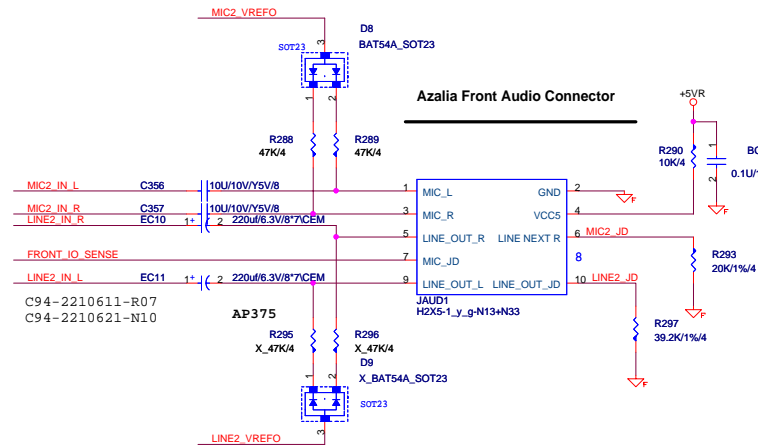
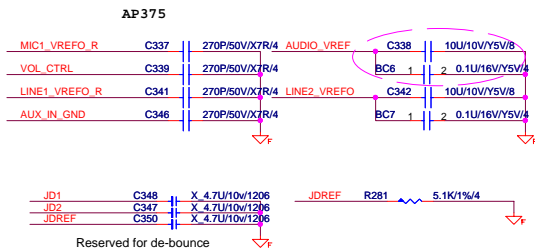
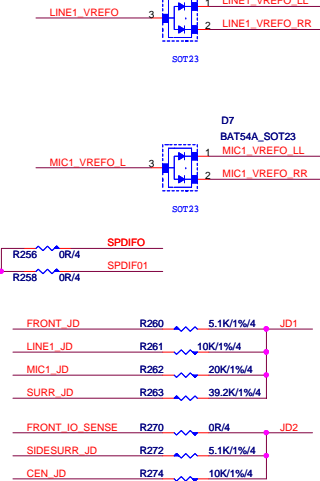


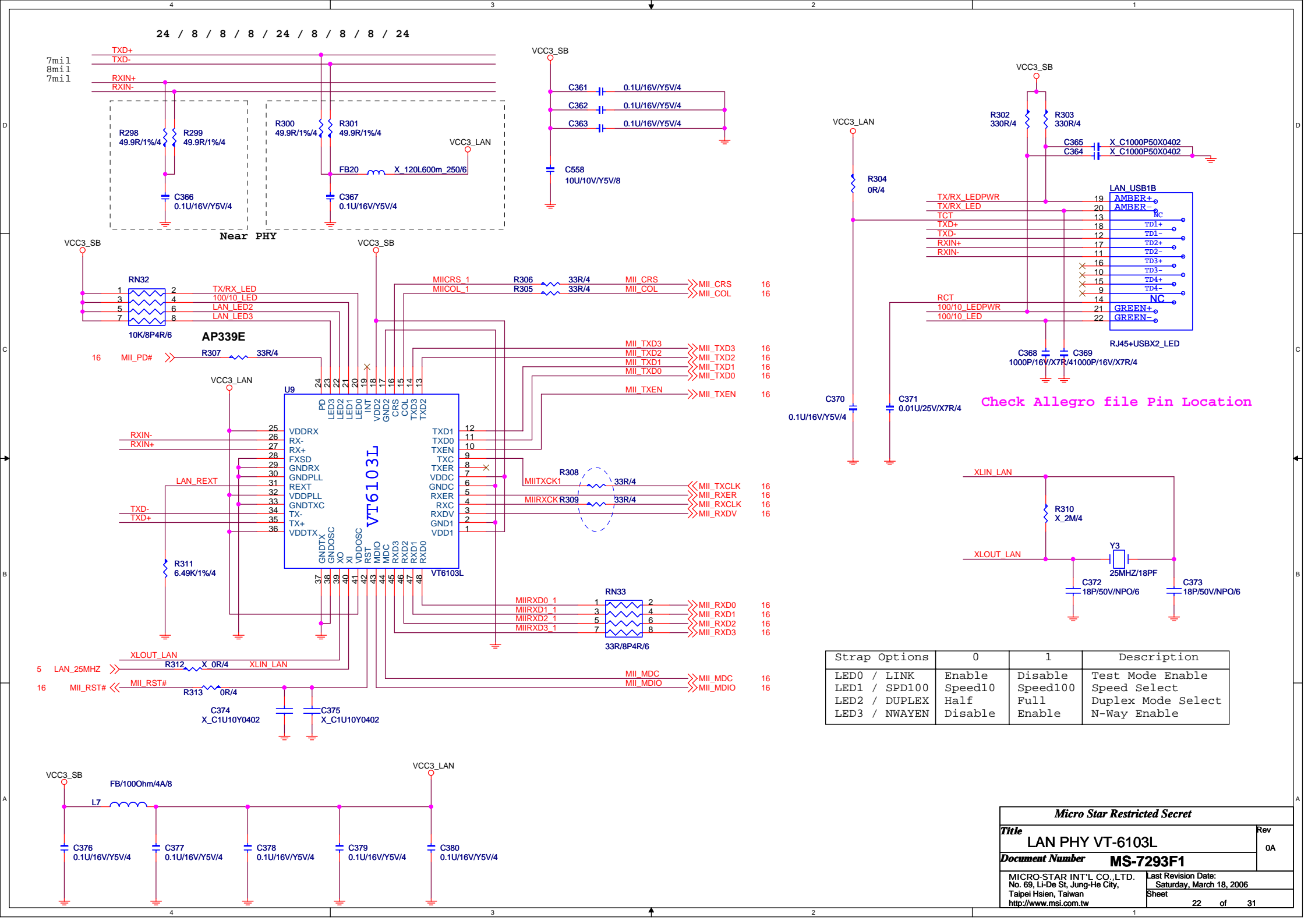
FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



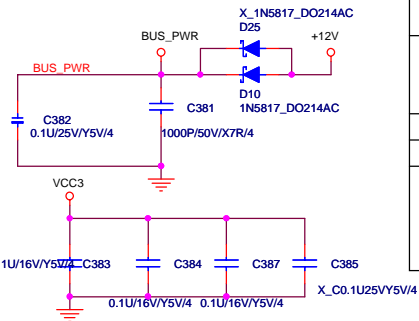
N32-2051371-H06

Micro Star Restricted Secret		
Title	USB-Rear & Front Conn.	Rev
Document Number	MS-7293F1	0A
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan		Last Revision Date: Monday, March 20, 2006
http://www.msi.com.tw		Sheet 20 of 31

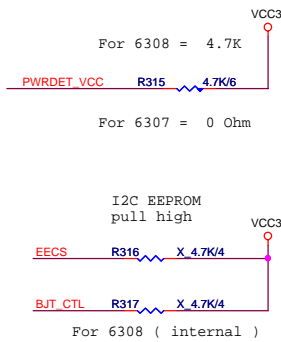




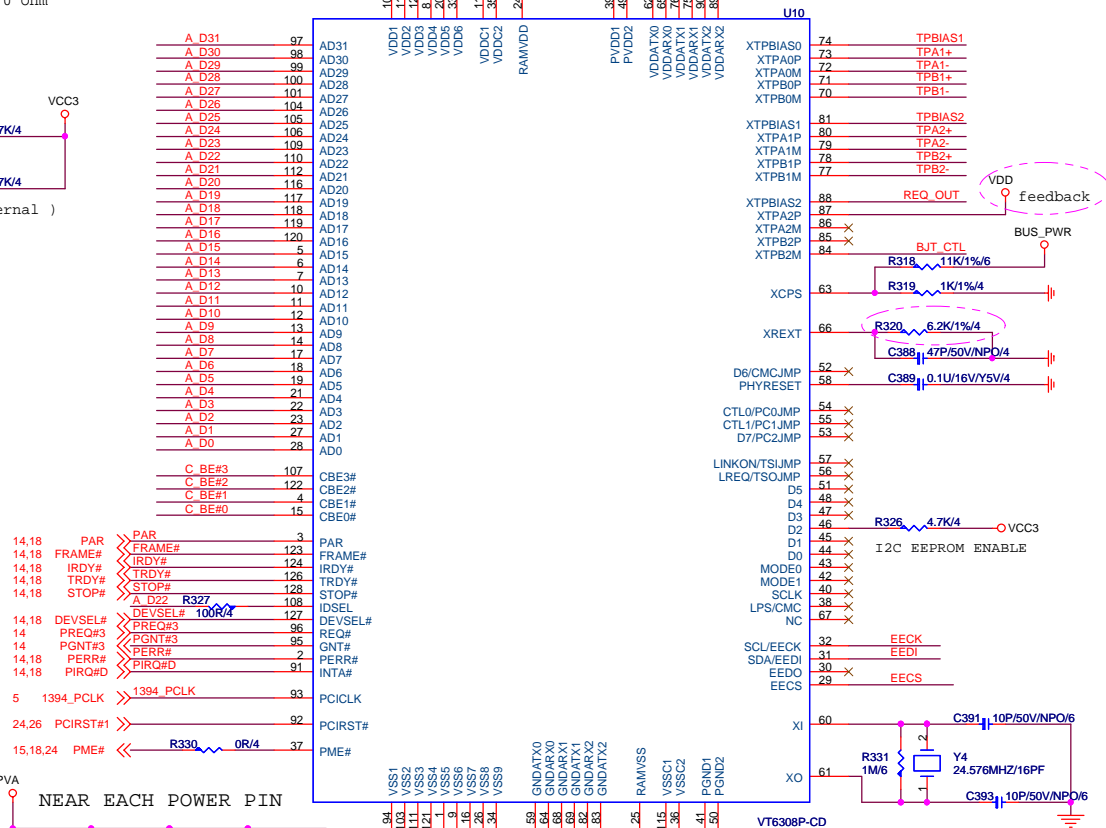
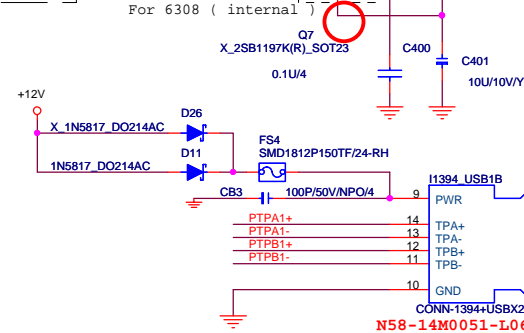
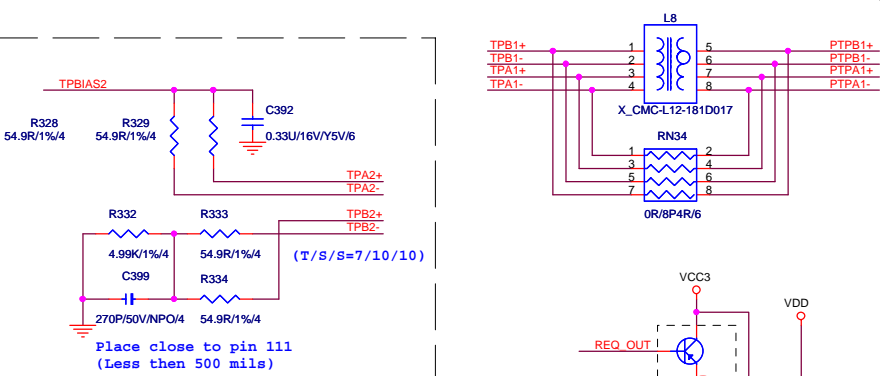
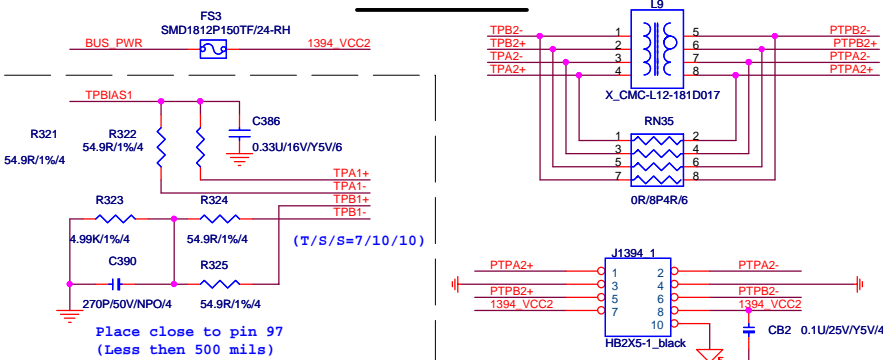
IEEE-1394



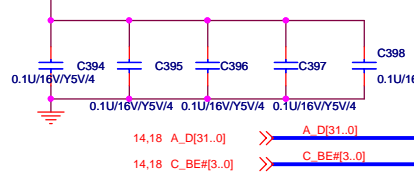
POWER Pin		
Pin	VT6307	VT6308P
84	NC	BJT_CTL
87	NC	REG_FB
88	NC	REQ_OUT
35	VCC3	PWRDET_VCC
39	VCC3	VCC3
49	VCC3	VDD
24	VCC3	VDD
114	VCC3	VDD
33	VCC3	VDD



FRONT 1394 PORT 1



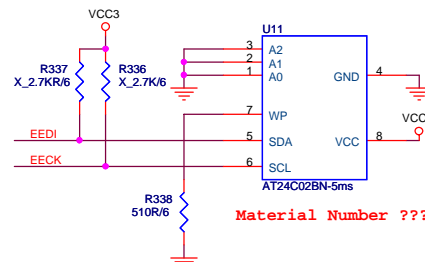
NEAR EACH POWER PIN



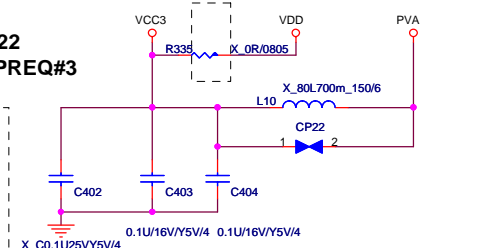
B07-6308P04-V01

PIRQ#D
IDSEL = AD22
MASTER = PREQ#3

1394-EEPROM 24C02 for 6307



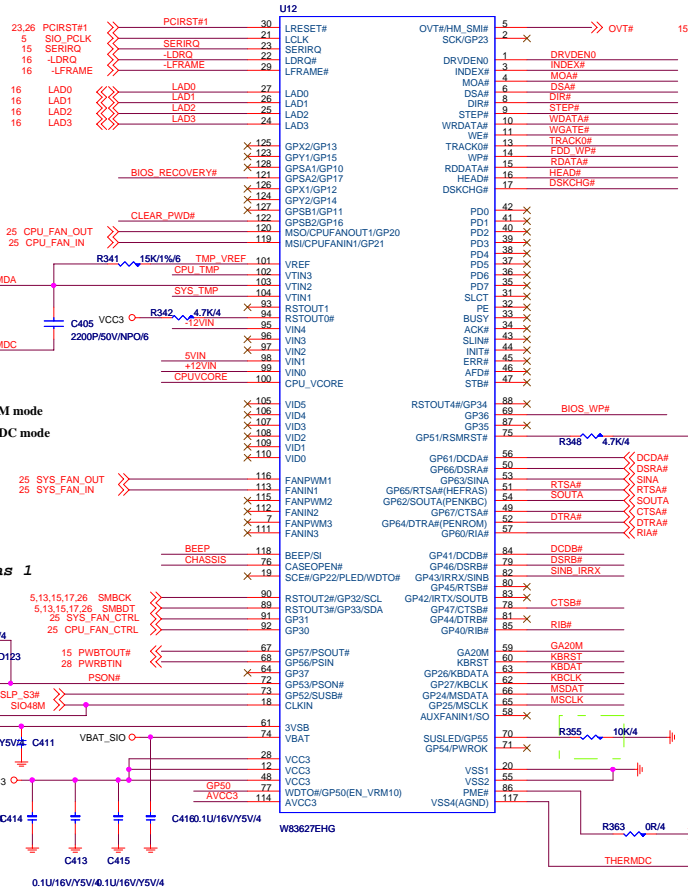
For 6307



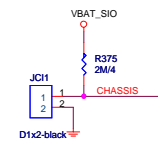
Micro Star Restricted Secret		
Title	IEEE-1394_VT6308P	Rev
Document Number	MS-7293F1	0A
MICRO STAR INT'L CO., LTD. No. 89, Lfpe St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Monday, March 20, 2006 Sheet 23 of 31

Super I/O

LPC SUPER I/O W83627EHG

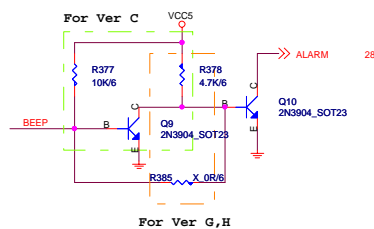


LPC I/O STRAPPING RESISTOR

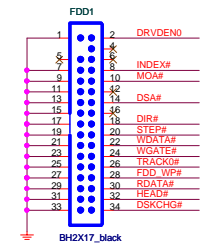


RTSA#	L: CFAD=2E	H: CFAD=4E
GP50	L: TTL LEVEL	H: VRM10 LEVEL
SOUTA	L: KBC DISABLE	H: KBC ENABLE
DTRA#	L: DISABLE SPI	H: DIABLE SPI

SPEAKER BLOCK

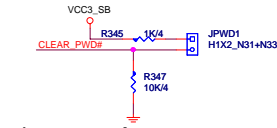


FLOPPY CONNECTOR



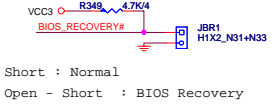
N32-2173051-H06

PASSWORD CLEAR JUMPER

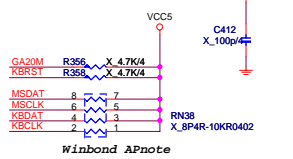


Open - Short : Clear Password

BIOS Recovery

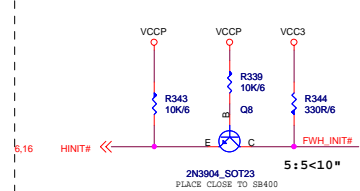


Short : Normal
Open - Short : BIOS Recovery



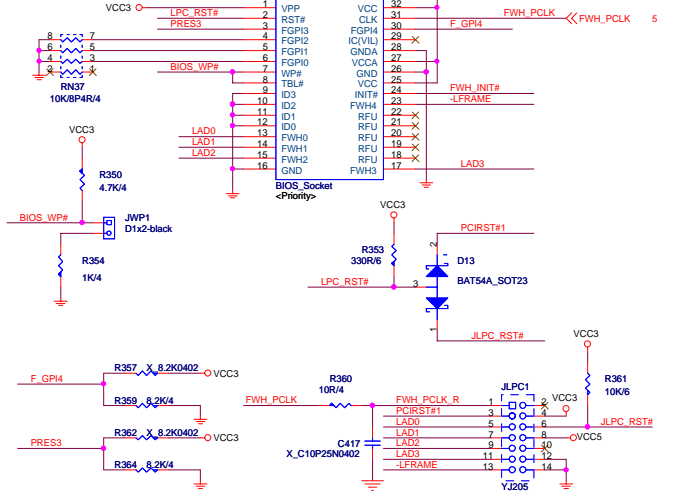
Winbond APnote

FWH INIT Signal Voltage Translation

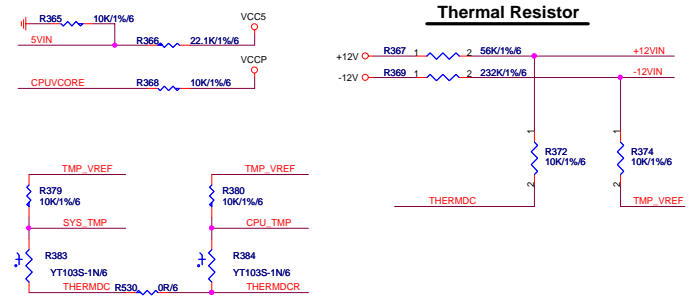


BIOS PROTECT BLOCK

BIOS Update Config.		
Open	Un_protected	Default
Short	Protected	



Thermal Resistor

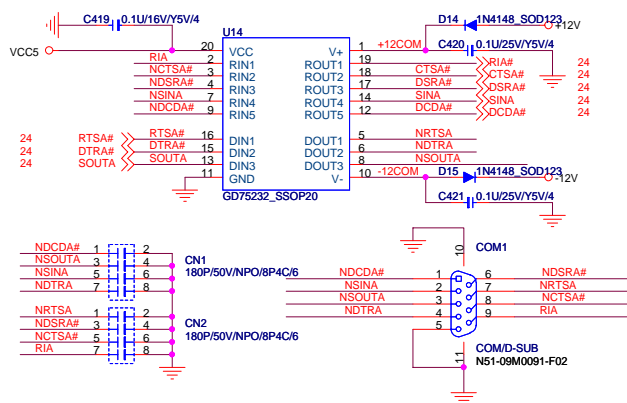


NOTE: Locate close System NOTE: Lo

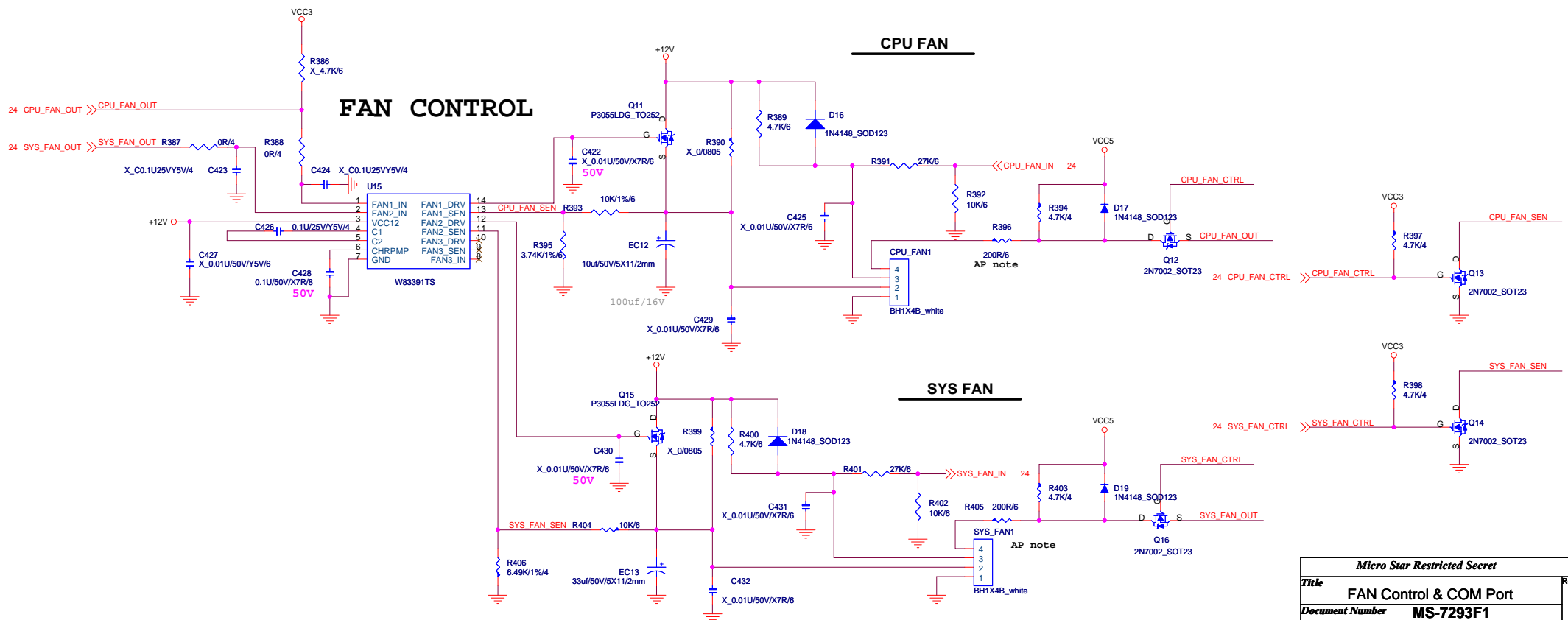
15 // 10 / 10 / 10 //15

NOTE: Locate close CPU

SERIAL PORT 1



CPU FAN

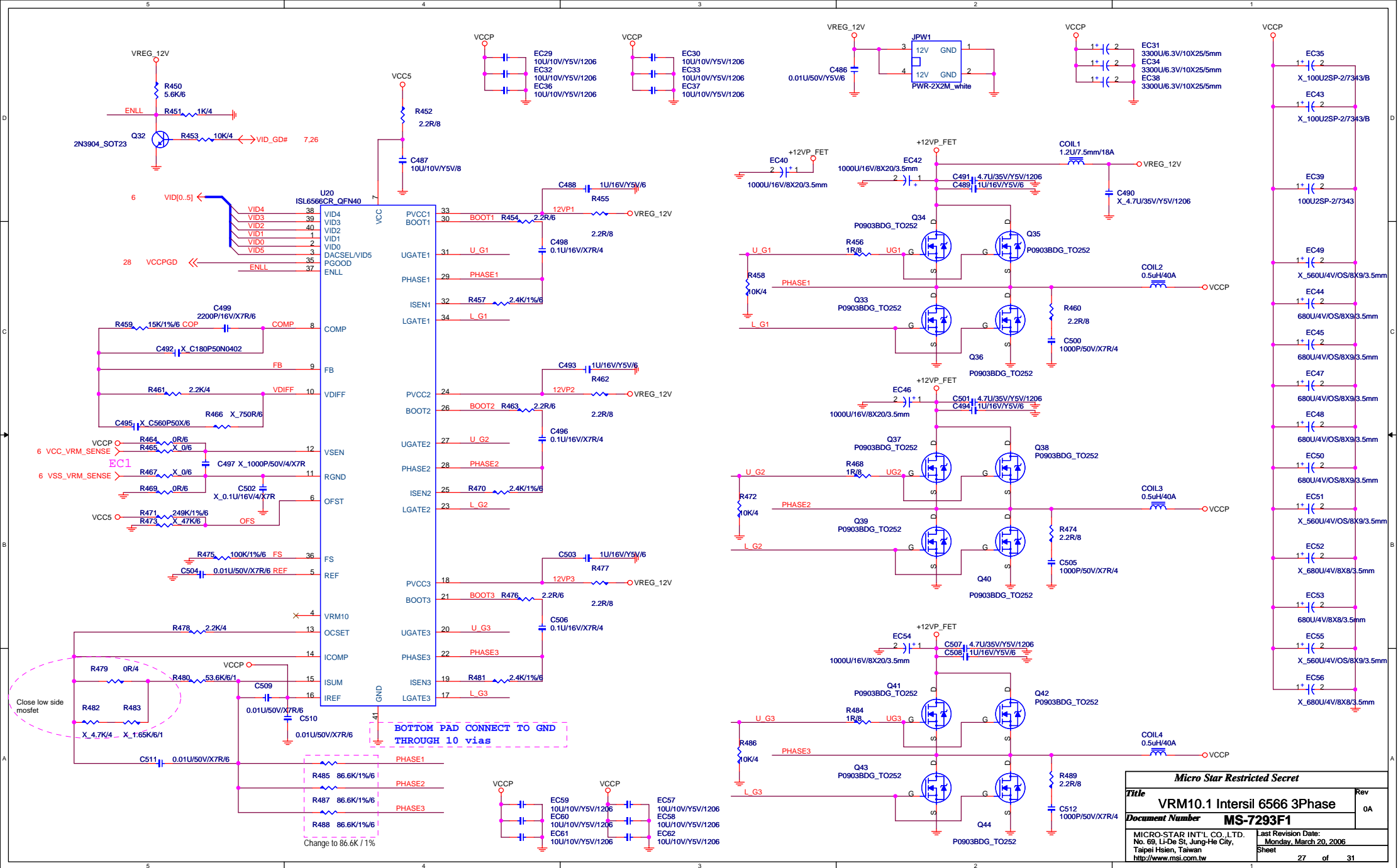


Micro Star Restricted Secret

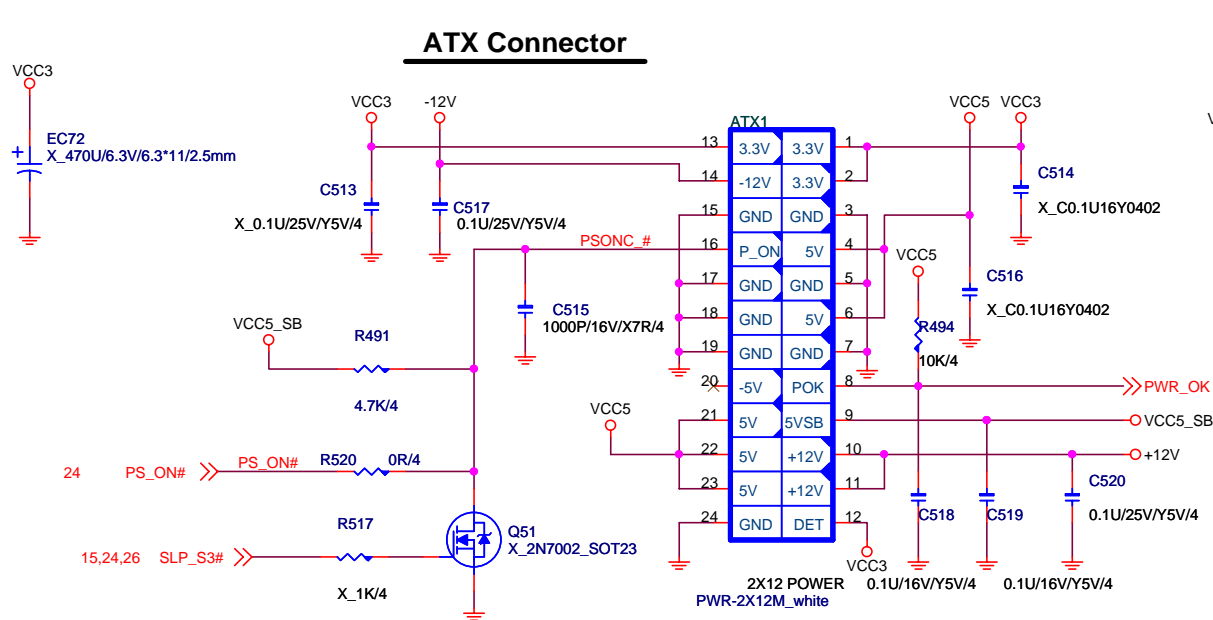
Title	FAN Control & COM Port
--------------	------------------------

Document Number MS-7293F1

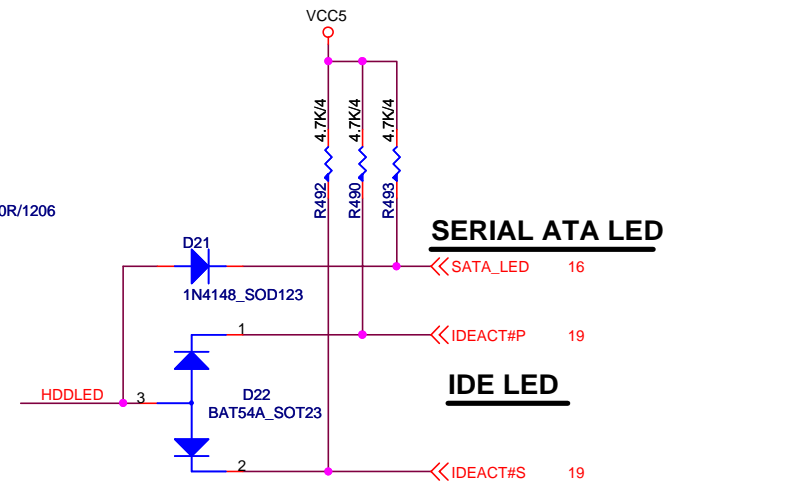
MICRO-STAR INT'L CO.,LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Monday, March 20, 2006 Sheet 25 of 31
---------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------



ATX Connector

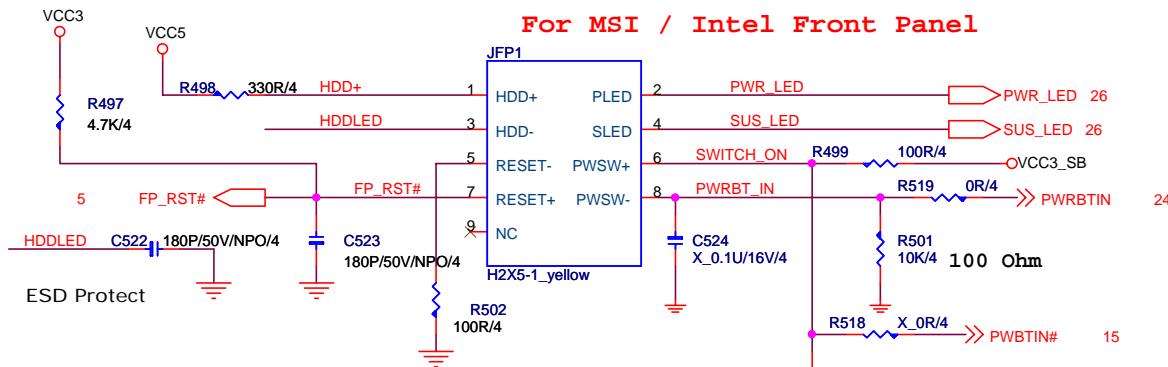


SERIAL ATA LED

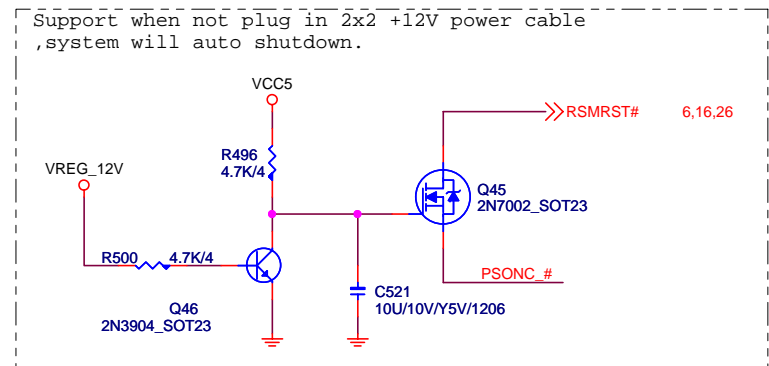
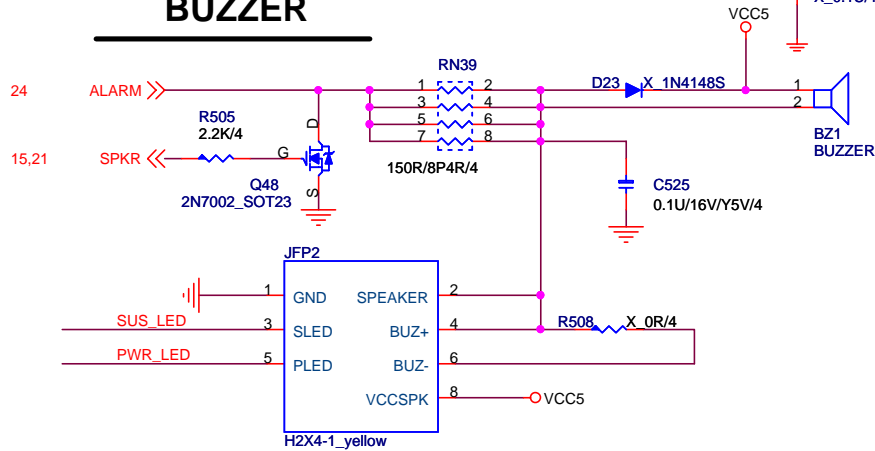


IDE LED

For MSI / Intel Front Panel

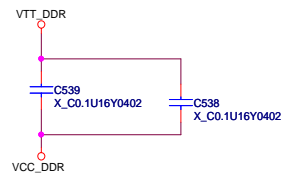
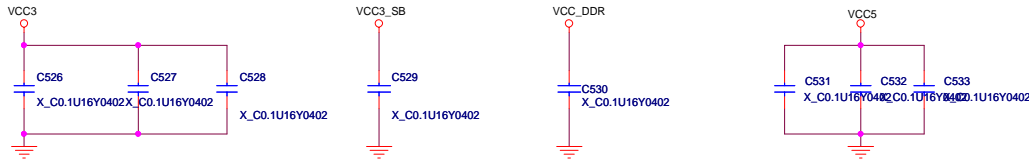


BUZZER

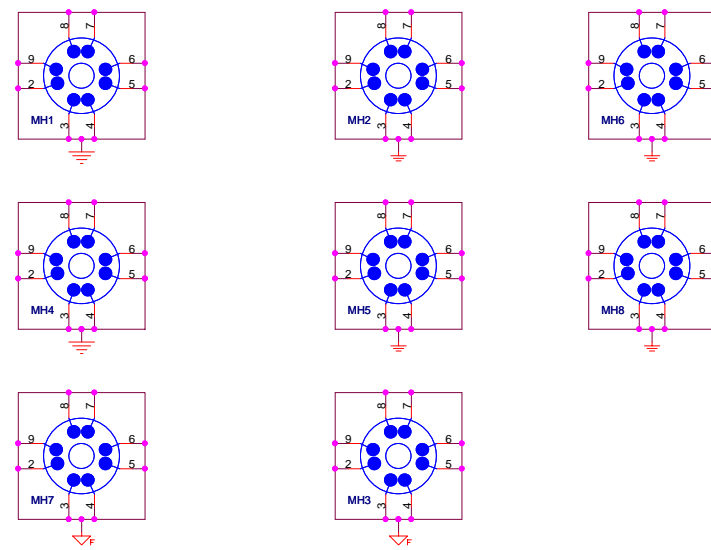
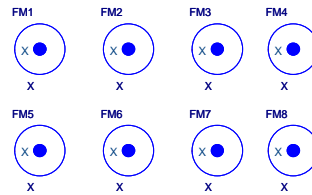
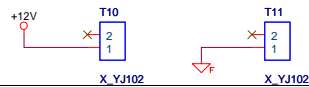


Micro Star Restricted Secret

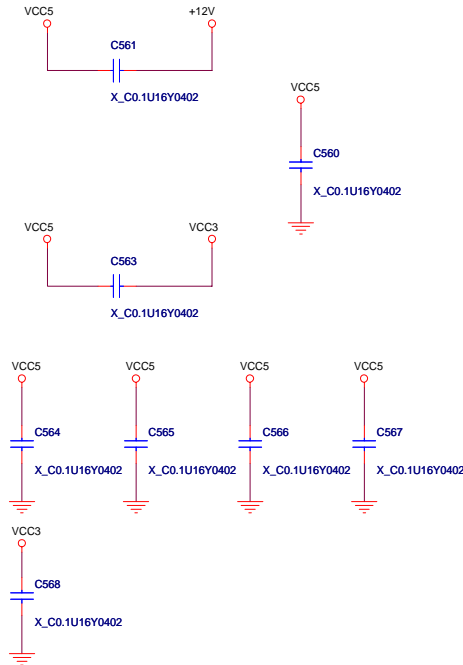
Title		Rev
ATX Power Conn. / Front Panel		0A
Document Number		
MS-7293F1		
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Monday, March 20, 2006 Sheet
		28 of 31



Impedance Test



for EMI 20060316



Micro Star Restricted Secret

Title		Rev
Holes / Decoupling		0A
Document Number		MS-7293F1
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Thursday, March 16, 2006 Sheet 29 of 31