

MS7293F1 Version: 1.0

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 ALC883/888	21
LAN PHY VT-6103L	22
IEEE-1394_VT6308P	23
Winbond & FDD & LPC & BIOS	24
FAN Control & COM Port	25
MS7 ACPI Controller	26
VRD11 Intersil 6312 3 Phase	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 - ICS953002 + ICS9P936
LPC Super I/O - W83627EHG
BIOS - LPC ROM
HD Audio ALC883/888
LAN - VT6103L
IEEE1394 - VT6308P

Main Memory:

single-channel - DDRII*2

Expansion Slots:

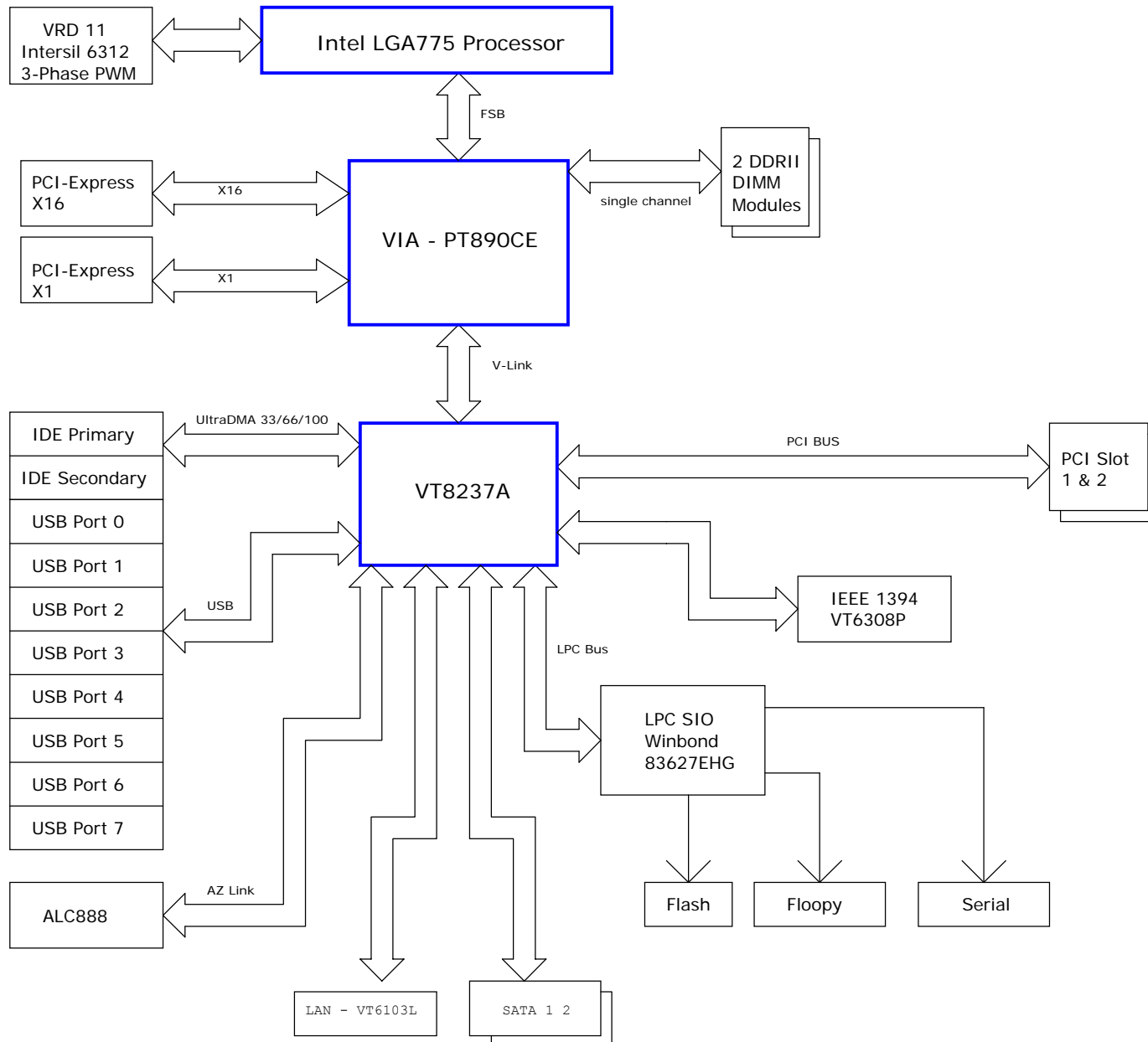
PCI Express X16 * 1
PCI 2.3 Slot * 2
PCI Express X1 * 1

PWM VRD11 :

Intersil 6312 3 Phase

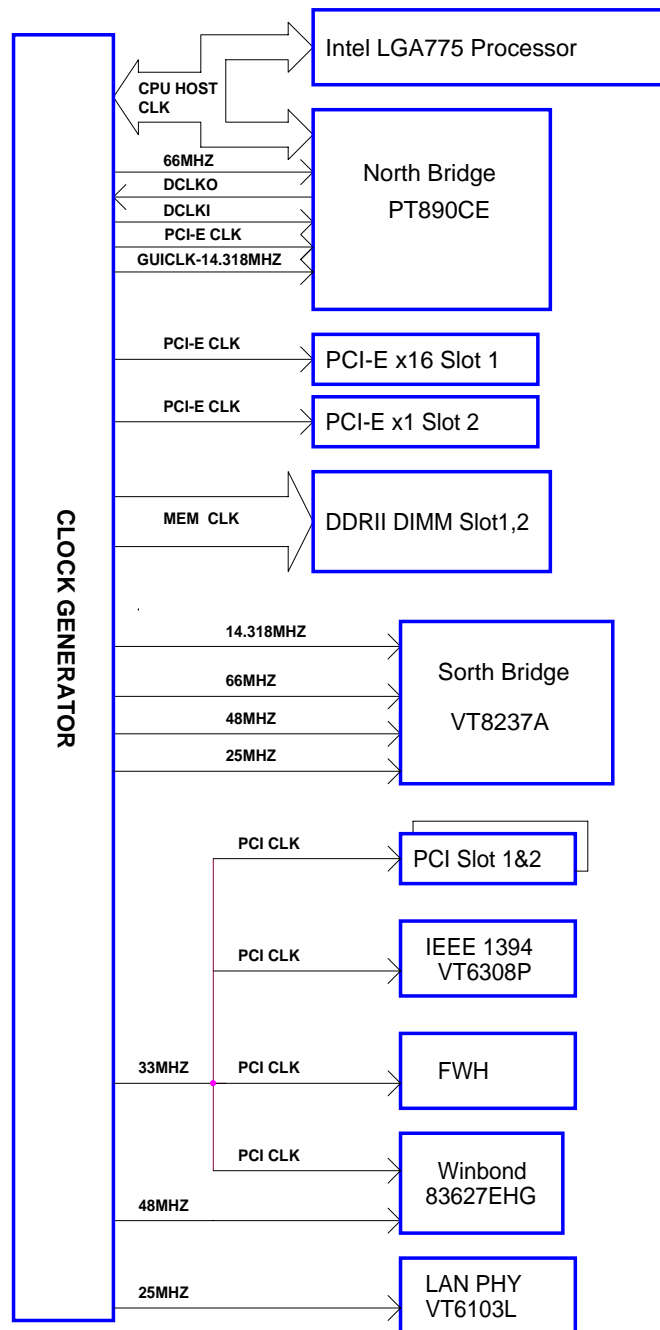
Micro Star Restricted Secret		
Title	Cover Sheet	Rev 1.0
Document Number	MS-7293F1	
MICRO-STAR INT'L CO., LTD. No. 69, Li-Po St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, April 25, 2006 Sheet 1 of 31

Block Diagram

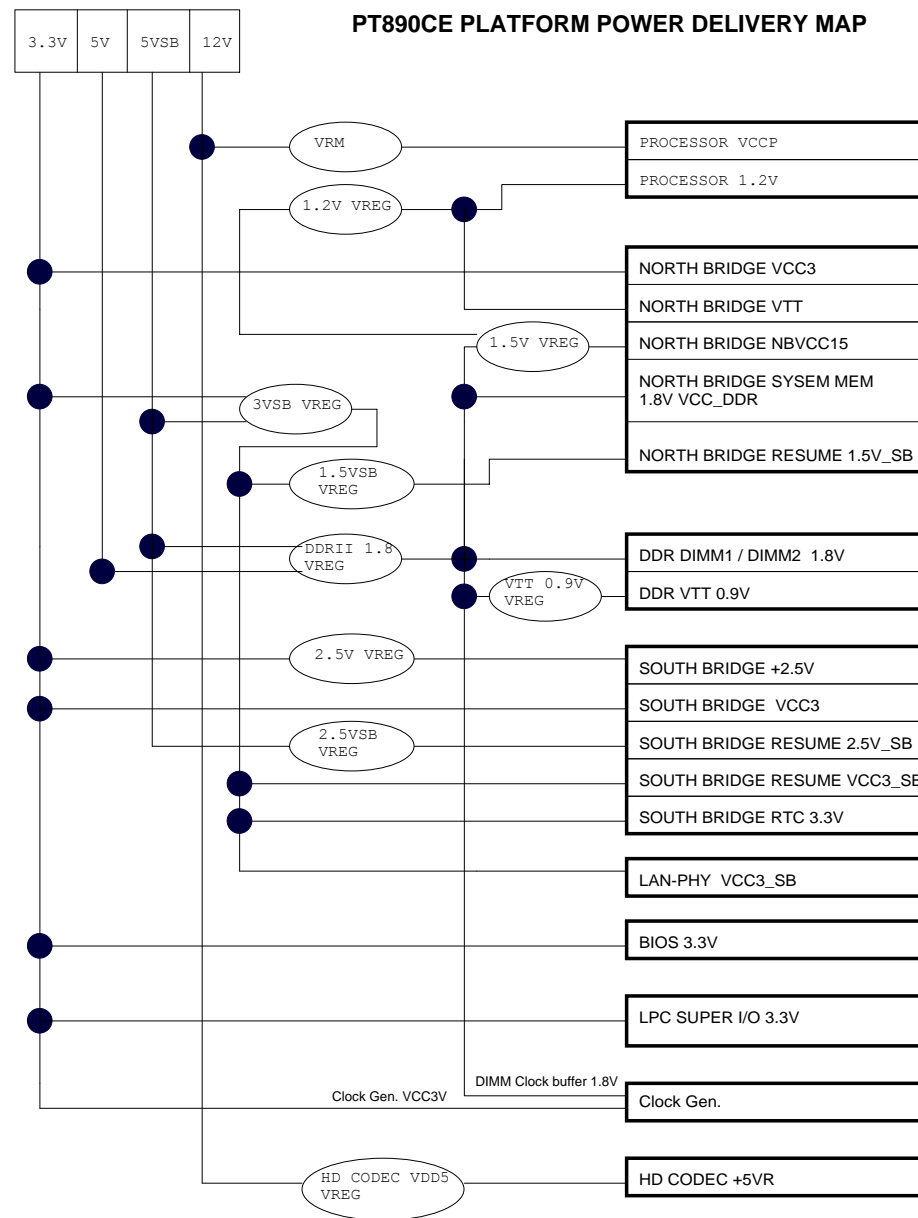


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Document Number	MS-7293F1	
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PT890CE PLATFORM CLOCK GENERATOR MAP



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
GPI17	Y01	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
GPI2	AA1	OVT#	VCC3_SB
GPI18	Y04	PEPMESCI#	VCC3_SB
GPI19	U23	PEHPSCI#	VCC3_SB
GPIO29	AB9	PCIE_Reset#	VCC3

LPC I/O W83627EHG

GPIO Pin	Pin	Function	Power
GP36	69	BIOS_WP#	VCC3
GP17	121	BIOS_RECOVERY#	VCC3
GP37	64	CLEAR_PWD#	VCC3_SB
GP20	120	CPU_FAN_OUT	
GP21	119	CPU_FAN_IN	
GP30	92	CPU_FAN_CTRL	
VTIN2	103	THERMDA	
VTIN3	102	CPU_TMP	
	116	SYS_FAN_OUT	
	113	SYS_FAN_IN	
VTIN1	104	SYS_TMP	
GP31	91	SYS_FAN_CTRL	

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	14
PCI Slot 2	PIRQ#C PIRQ#D PIRQ#A PIRQ#B	PREQ#1 PGNT#1	AD21	PCICLK2	17
1394	PIRQ#D	PREQ#3 PGNT#3	AD22	1394_PCLK	18

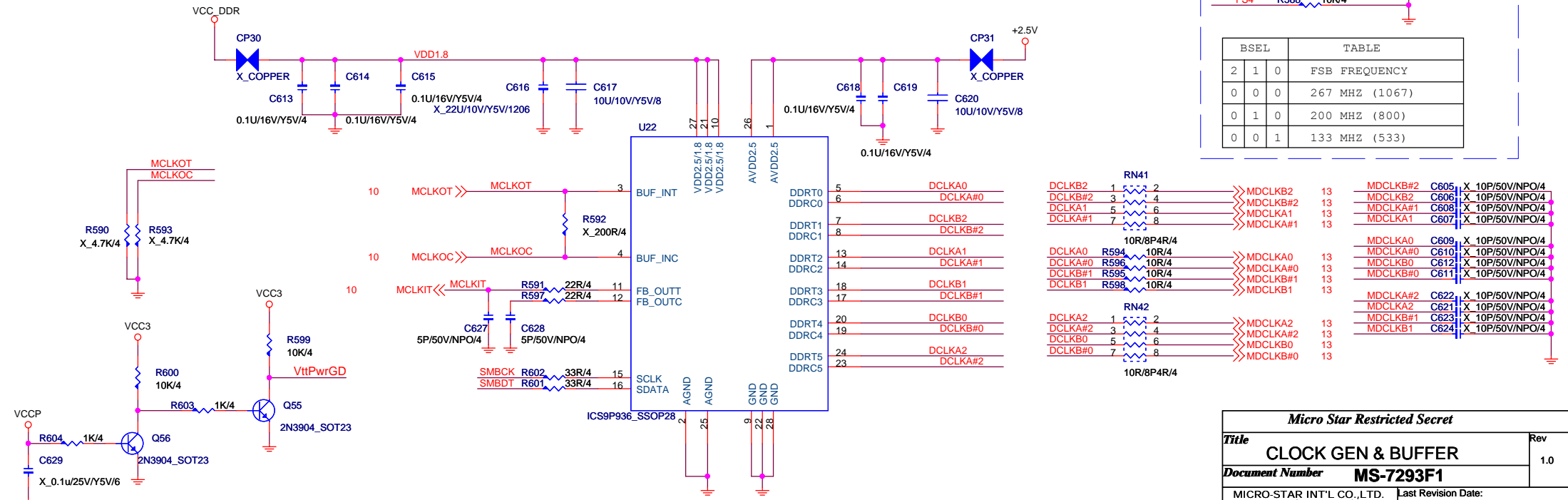
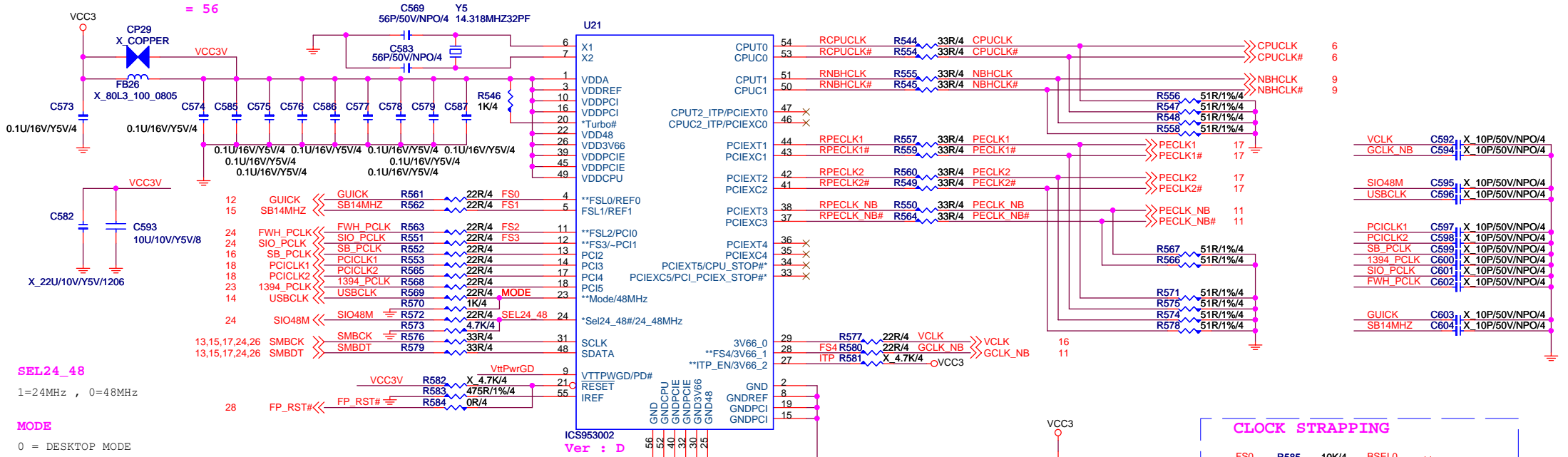
DDR DIMM Config.

DEVICE	ADDRESS	CLOCK	CLK GEN PIN OUT
DIMM 1	10100000B	MDCLKA0/A#0 MDCLKA1/A#1 MDCLKA2/A#2	5 / 6 13 / 14 24 / 23
DIMM 2	10100010B	MDCLKB0/B#0 MDCLKB1/B#1 MDCLKB2/B#2	20 / 19 18 / 17 7 / 8

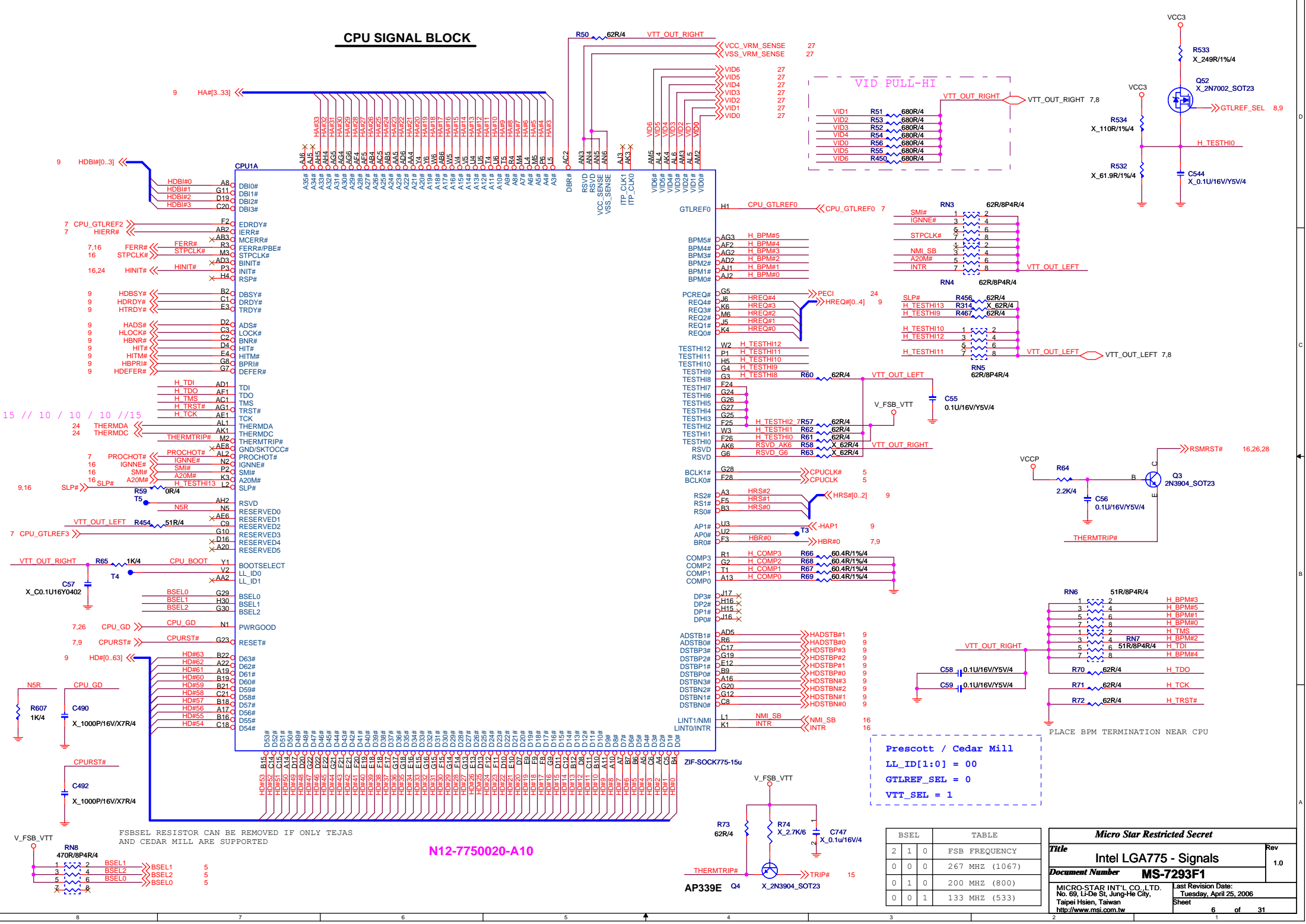
PCI RESET DEVICE

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

$$C_e = 2 \text{ CL} - C_i - C_s$$
$$= (2 \times 32) - 5 - 3$$
$$= 56$$



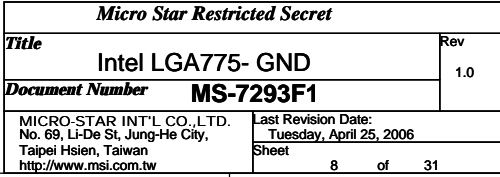
CPU SIGNAL BLOCK

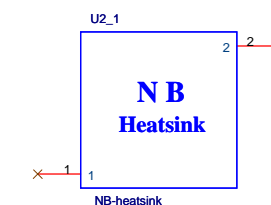


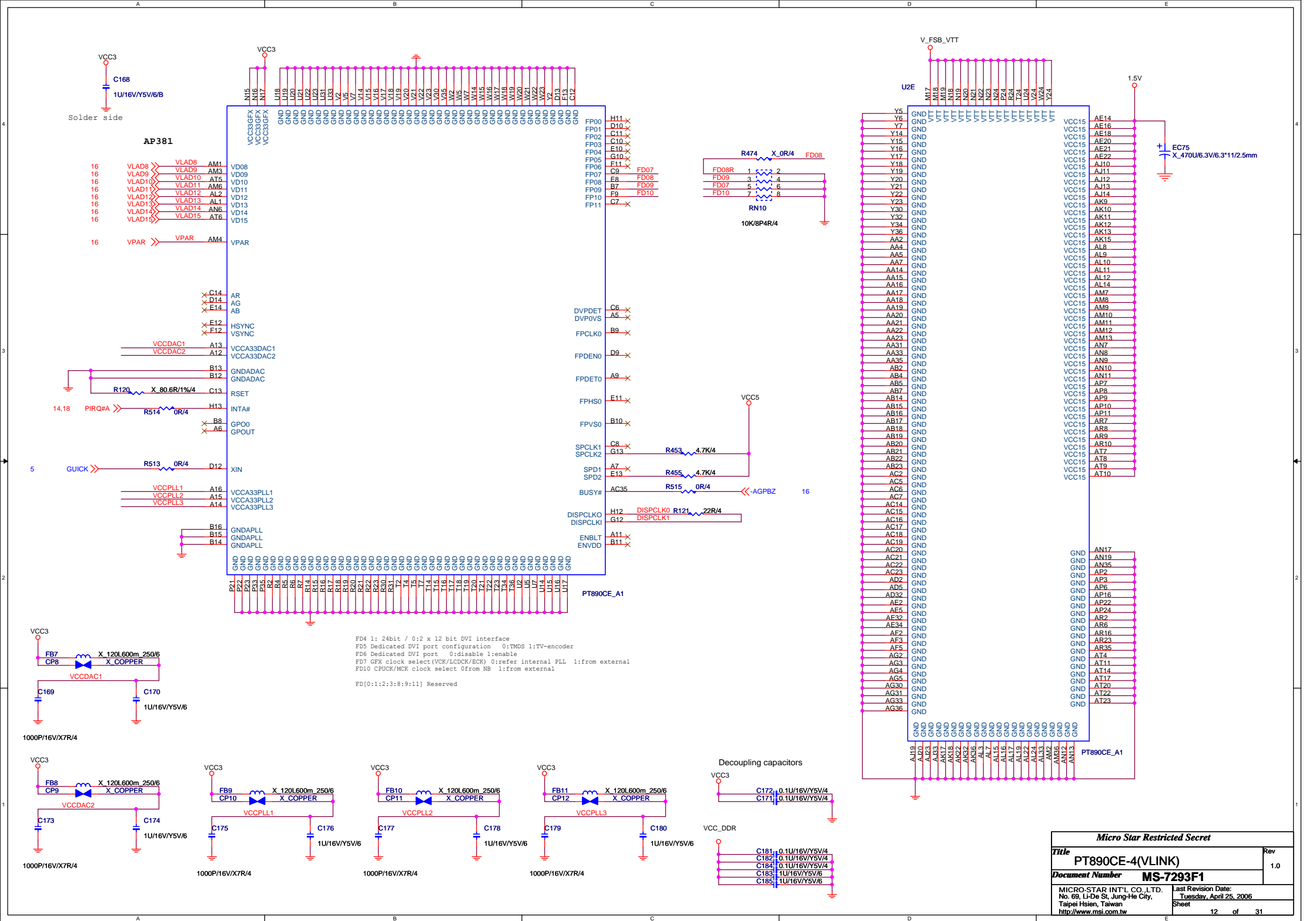
Prescott / Cedar Mill
 LL_ID[1:0] = 00
 GTLREF_SEL = 0
 VTT_SEL = 1

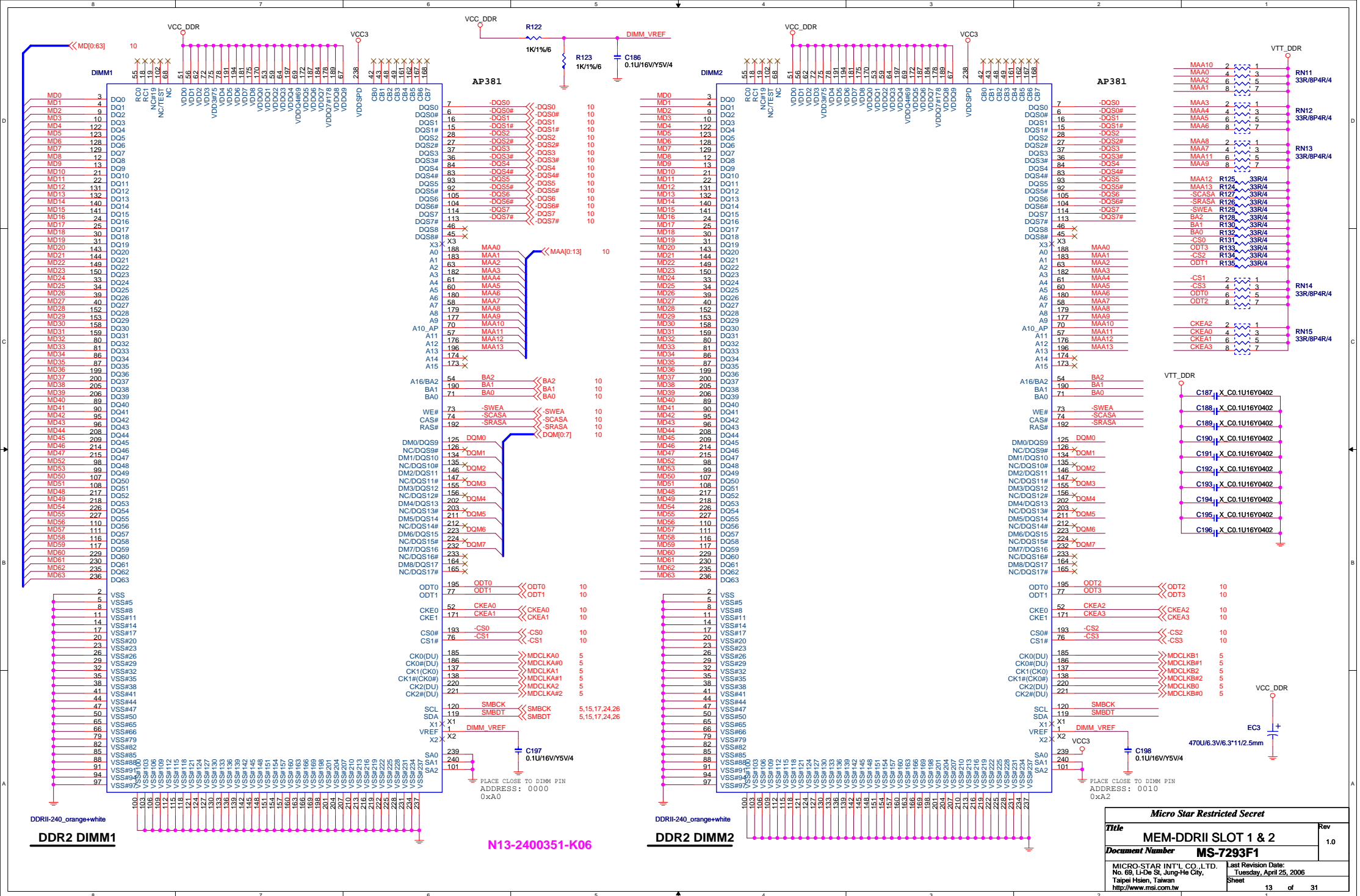
BSEL	TABLE
2 1 0	FSB FREQUENCY
0 0 0	267 MHz (1067)
0 1 0	200 MHz (800)
0 0 1	133 MHz (533)

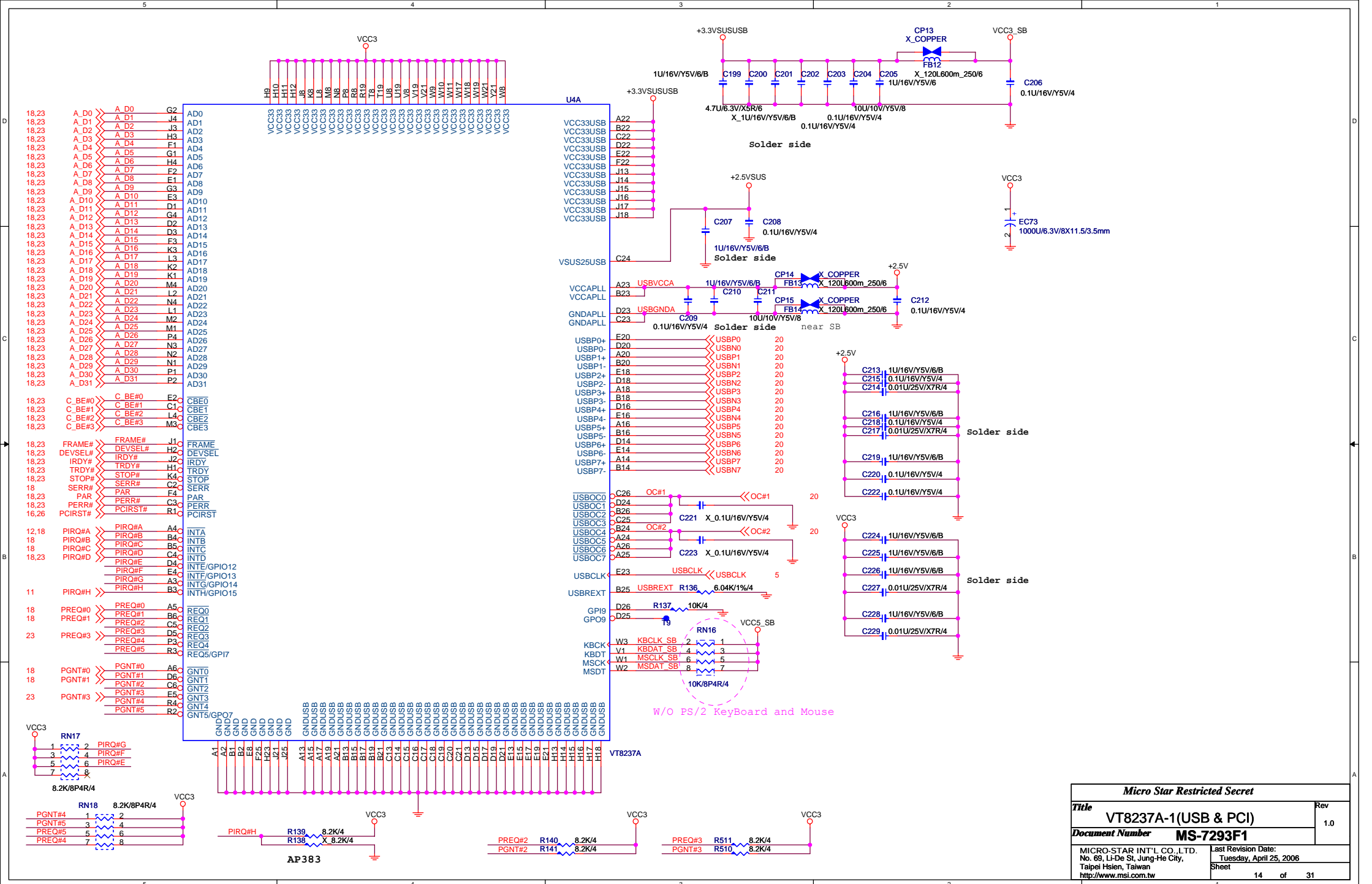
<i>Micro Star Restricted Secret</i>		
Title	Intel LGA775 - Signals	Rev 1.0
Document Number	MS-7293F1	
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Sheet		6 of 31

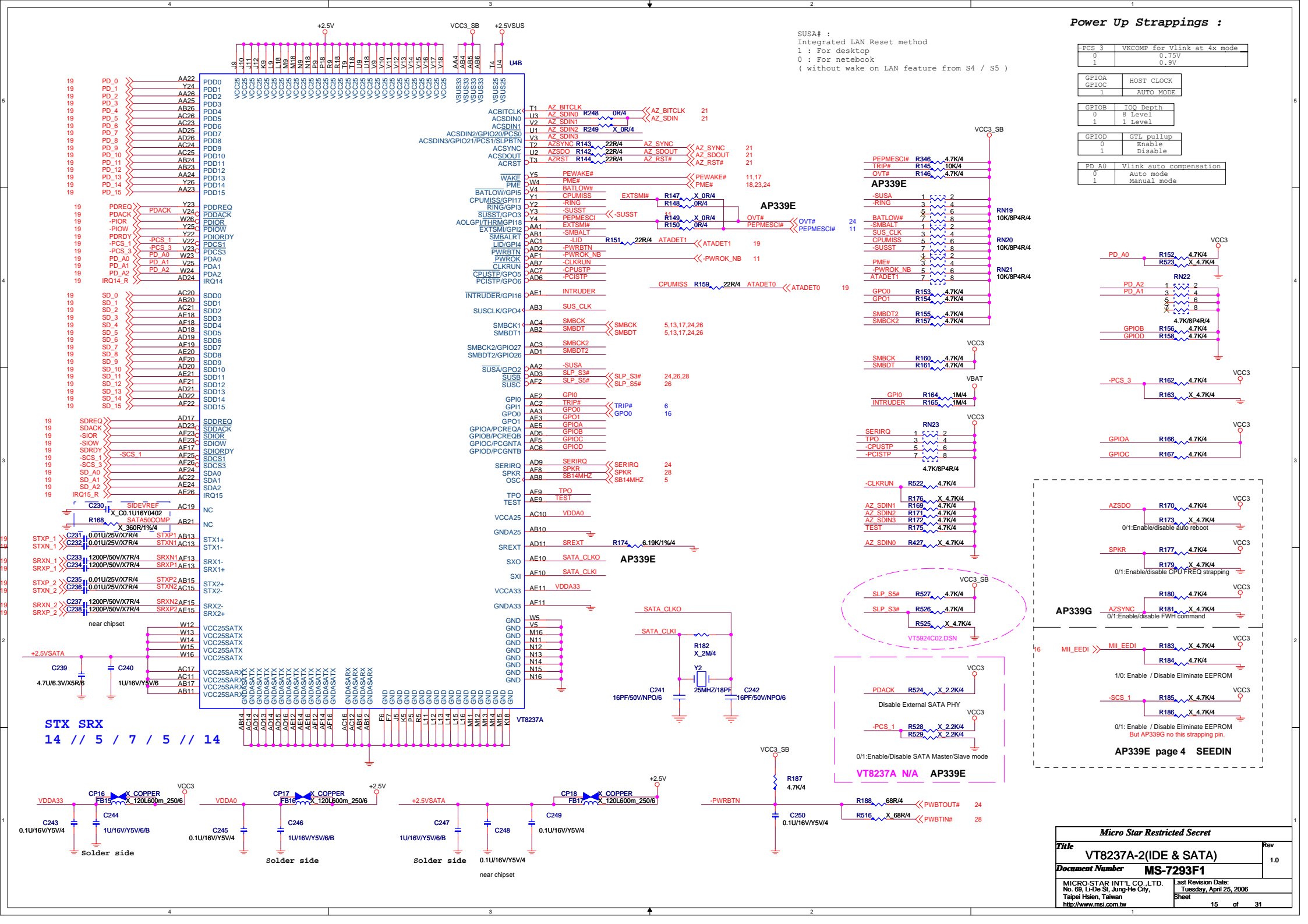


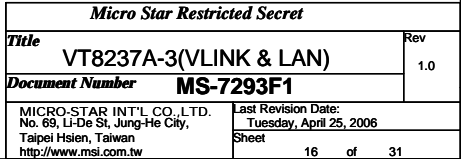


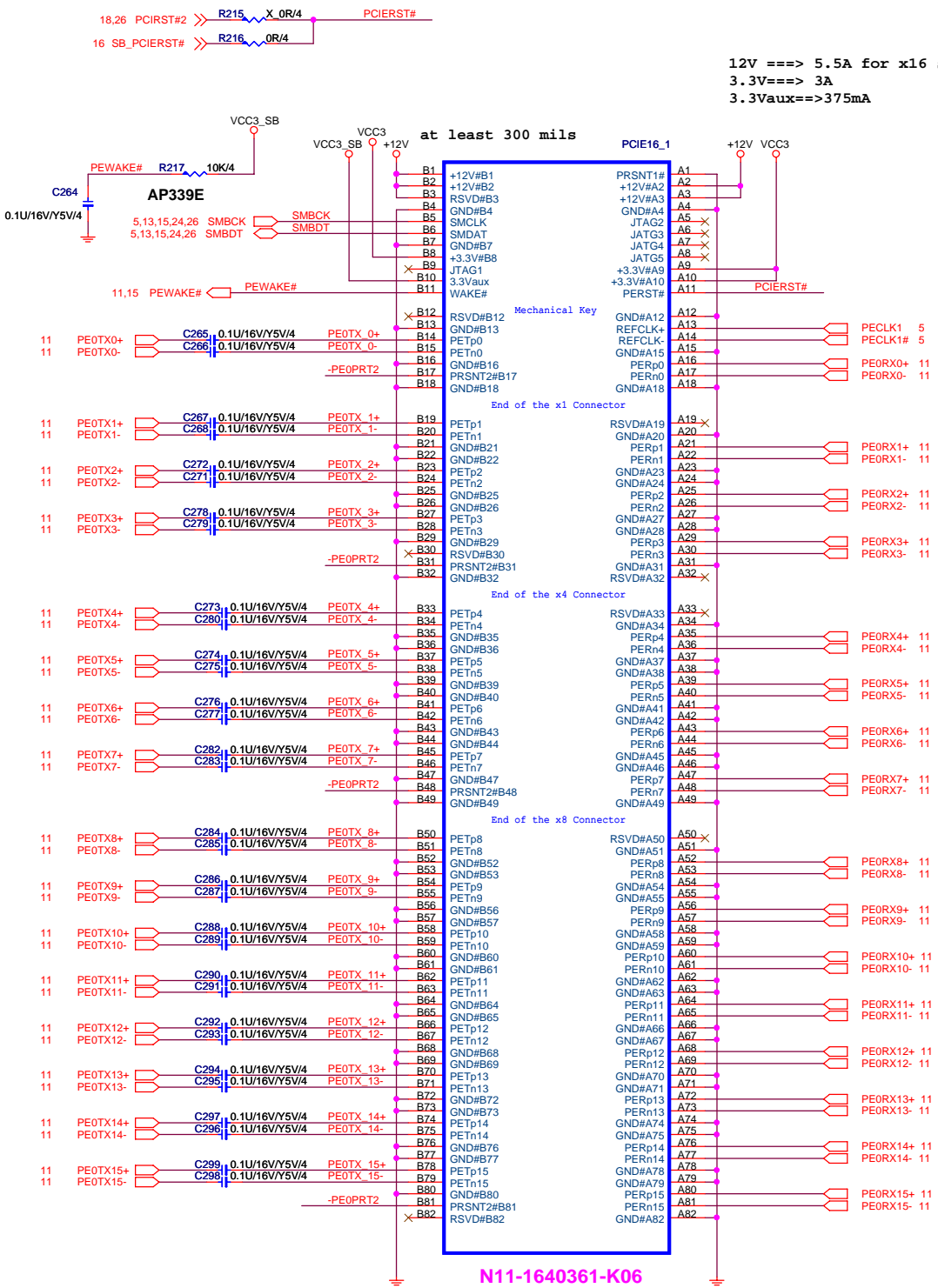






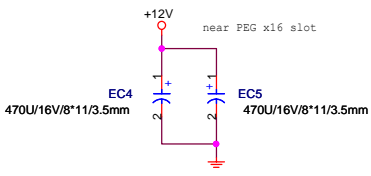
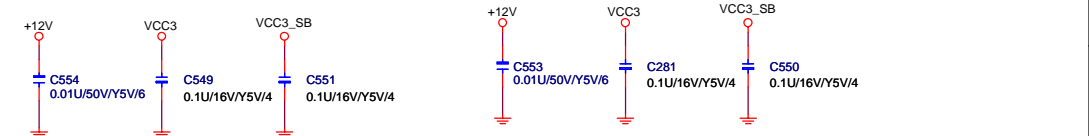
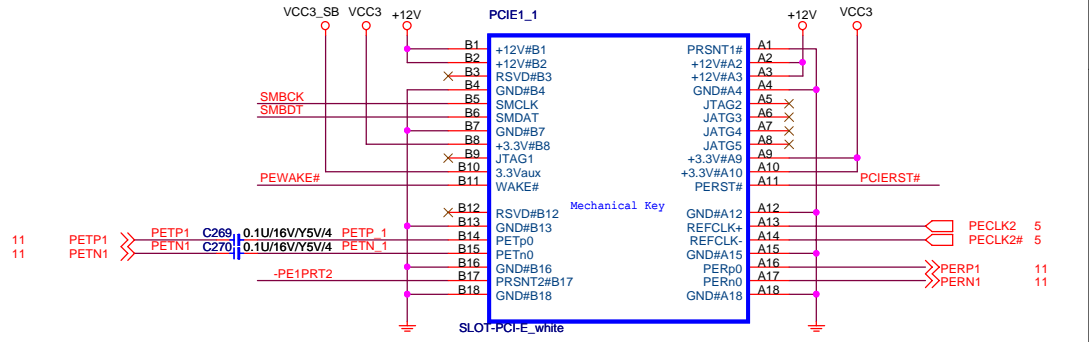






12V ==> 5.5A for x16 slot ,75 Watt
3.3V==> 3A
3.3Vaux==>375mA

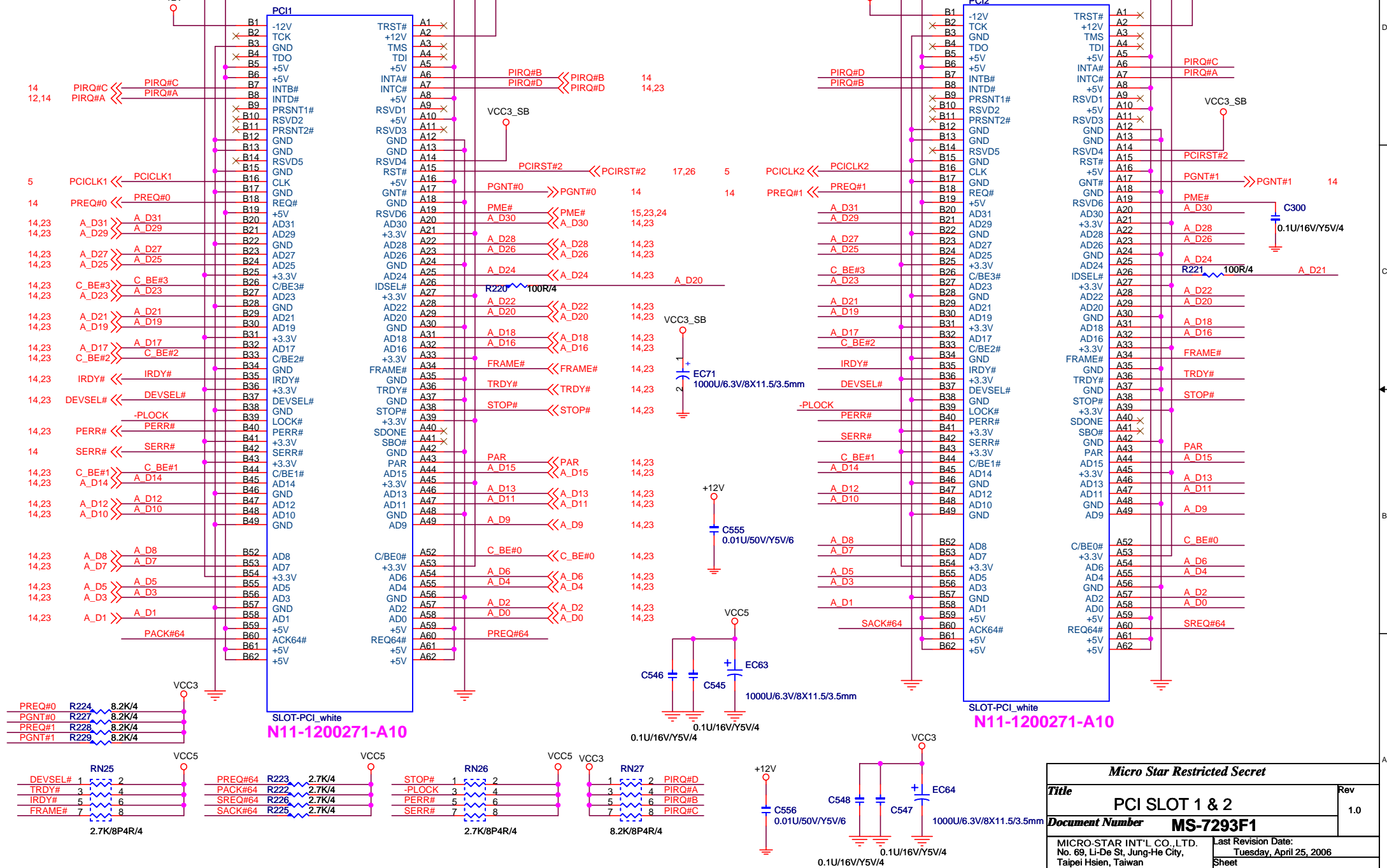
PCI EXPRESS 1-PORT 2



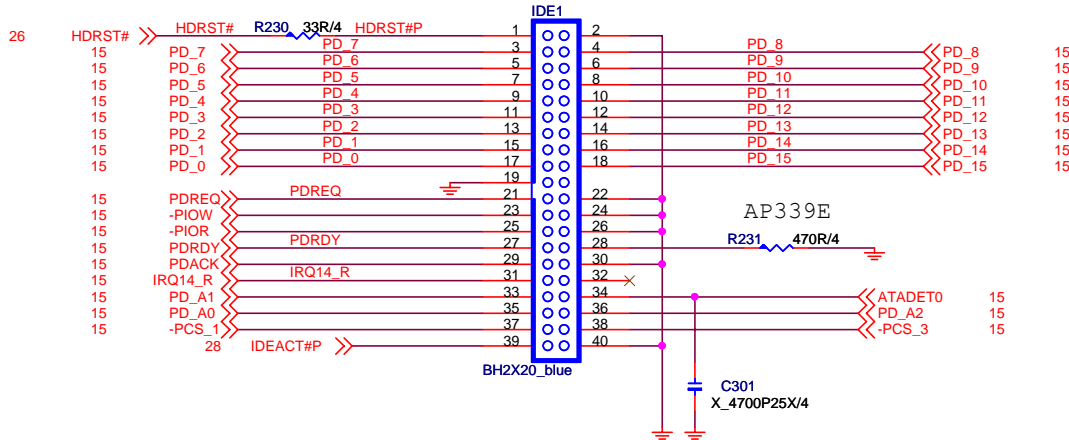
The system board designer determines the pull-up voltage

Micro Star Restricted Secret		
Title	PCI-Express Slot x16 & x1	Rev 1.0
Document Number	MS-7293F1	
MICRO-STAR INT'L CO. LTD. No. 68, Li-De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, April 25, 2006 Sheet 17 of 31

PCI Connectors

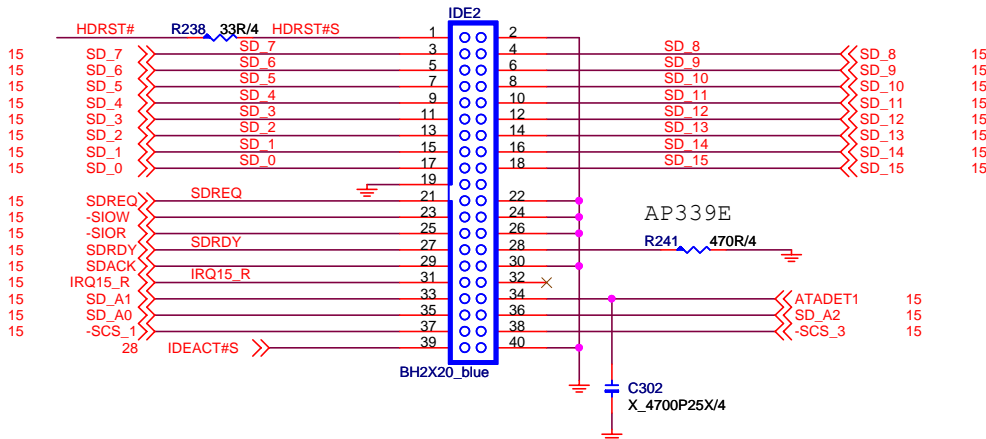


PRIMARY IDE BLOCK

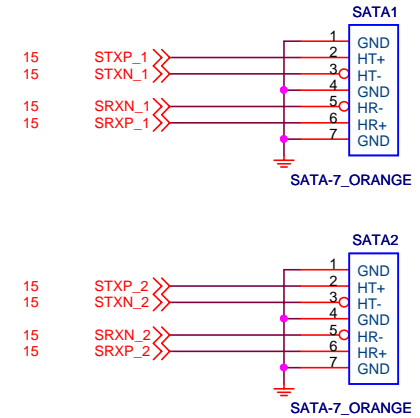


N32-2201221-H06

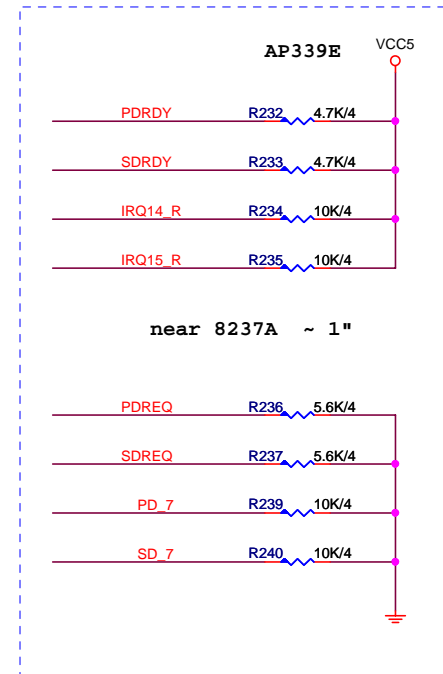
SECONDARY IDE BLOCK



SERIAL ATA CONNECTOR BLOCK

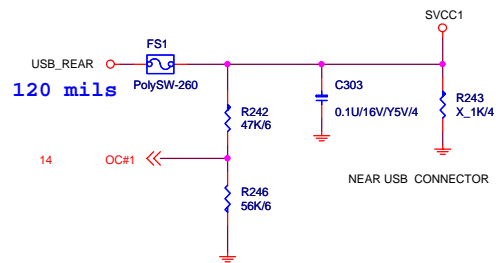


N5N-07M0131-H06

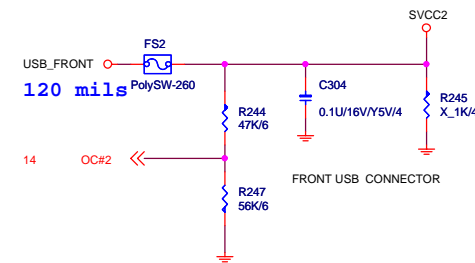


Micro Star Restricted Secret		
Title	P-IDE & SATA	Rev 1.0
Document Number	MS-7293F1	
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Hsi City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, April 25, 2006 Sheet 19 of 31

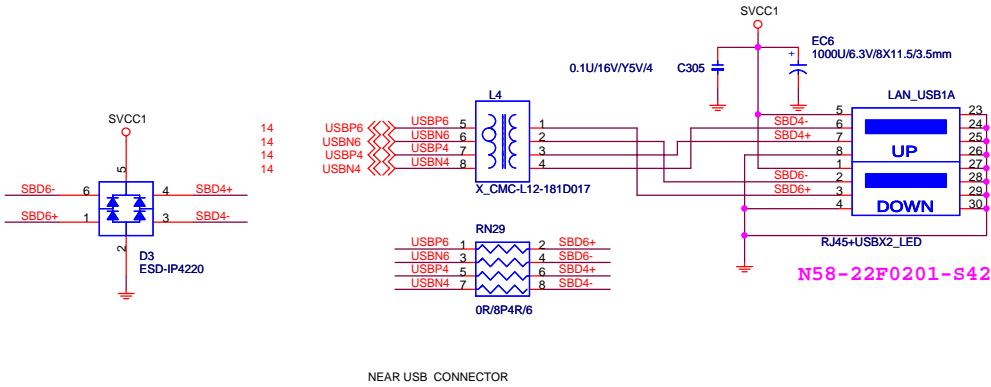
POWER CIRCUIT FOR USB PORT 0,1,2,3



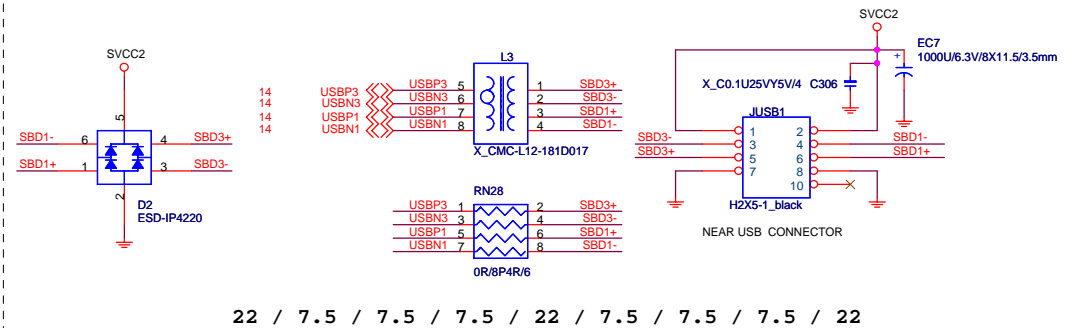
POWER CIRCUIT FOR USB PORT 4,5,6,7



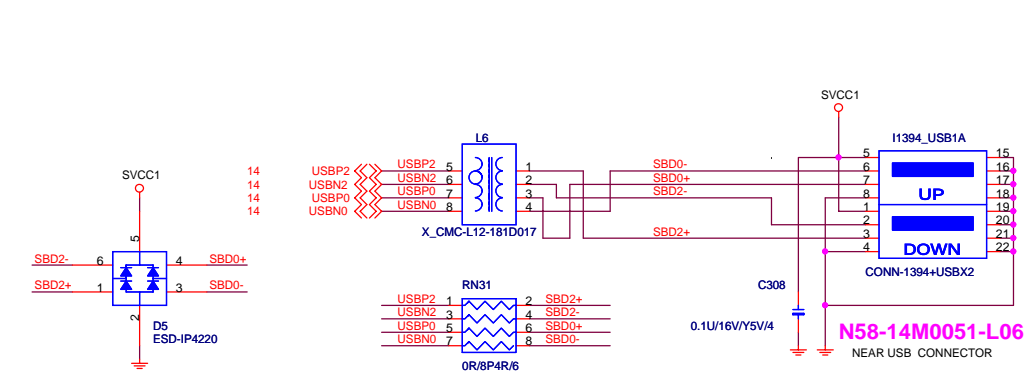
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



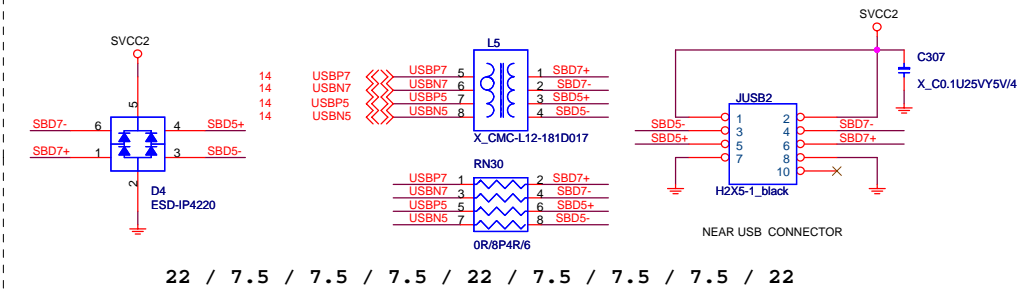
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



REAR PANEL USB CONNECTOR FOR USB PORT 2,3

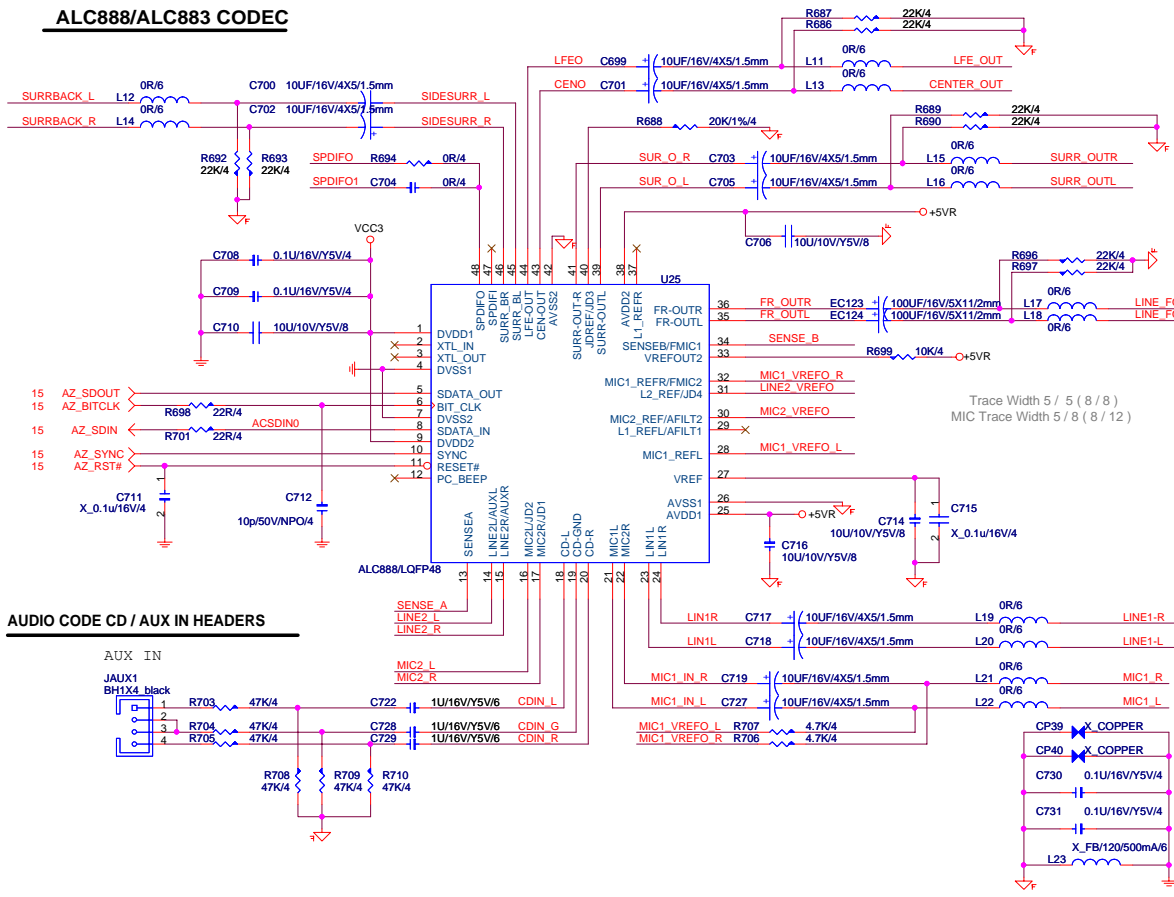


FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

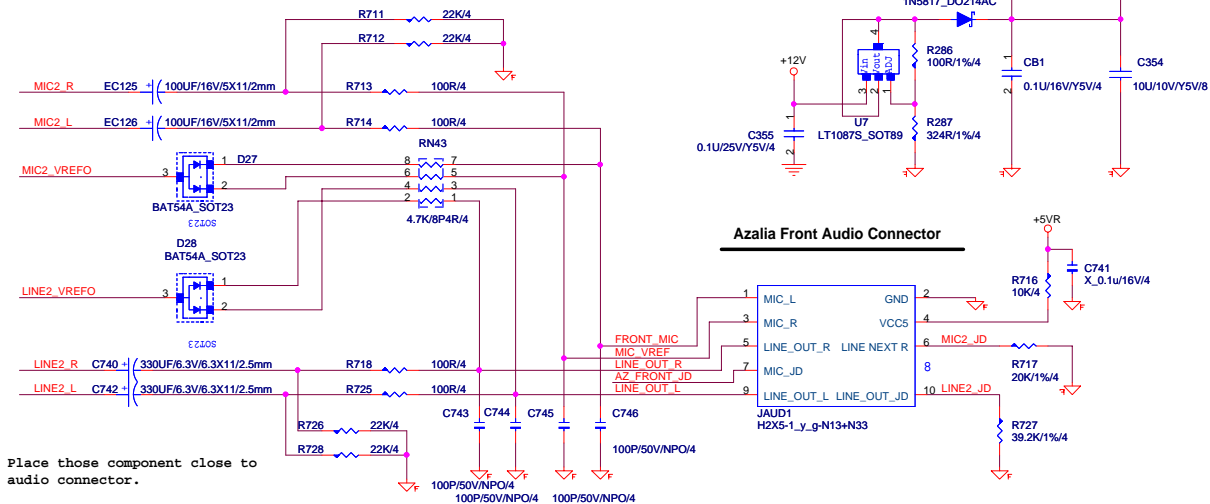


Micro Star Restricted Secret		
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Document Number	MS-7293F1	
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ALC888/ALC883 CODEC

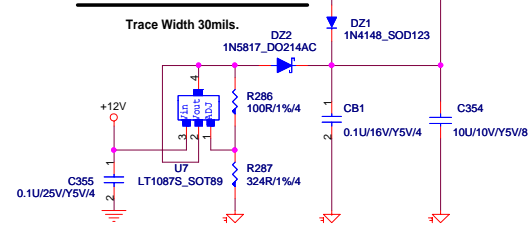


Speaker Out Decoupling

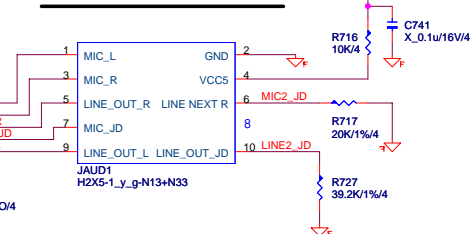


Place those component close to
audio connector.

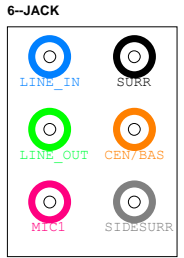
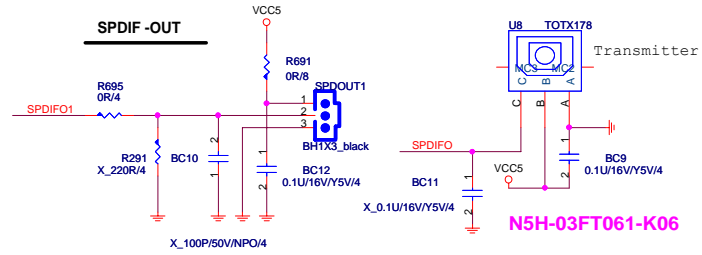
AUDIO CODE REGULATORS



Azalia Front Audio Connector

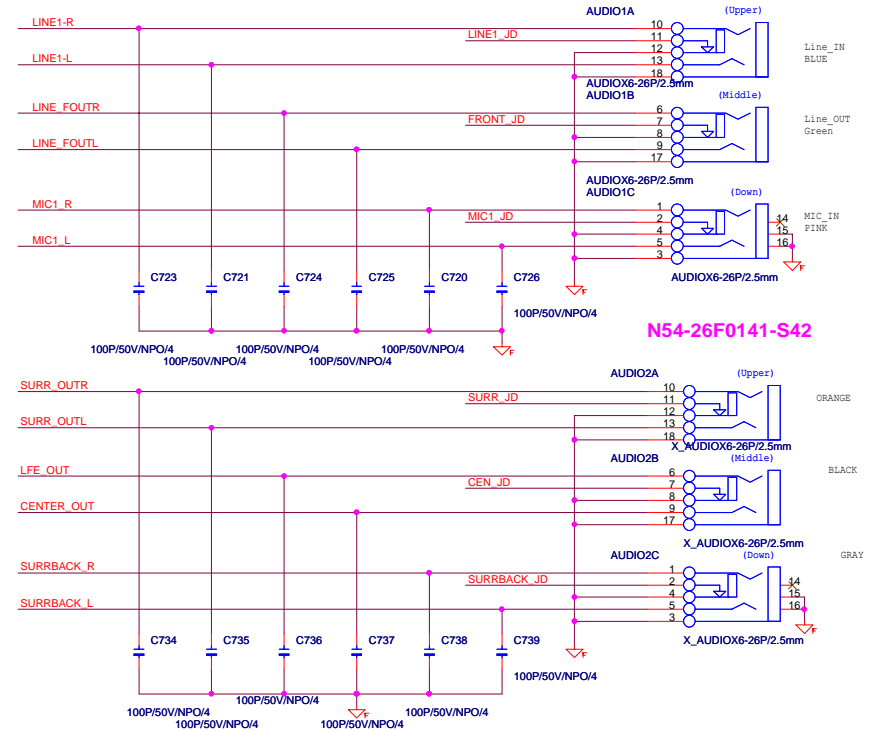


Optical : C704 / 0 Ohm ; R695 / 0 Ohm ; R291 / NC ; BC10 / NC ; R691 / 0 Ohm ; BC12 / 0.1UF
RCA : C704 / 0.01UF ; R695 / 100 Ohm ; R291 / 220 Ohm ; BC10 / 100 PF ; R691 / NC ; BC12 / NC



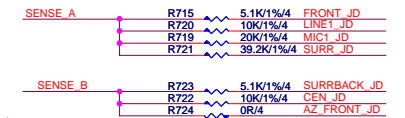
ALC883/888 JACK

Rear audio jack



Pin/Port Assignment	Location	Functions
FRONT (pin-35,36) /Port-D	Rear Panel	Front-Out, HP-Out
SURR (pin-39,41) /Port-A	Rear Panel	Surr-Out
CEN/LFE (pin-43,44) /Port-G	Rear Panel	Cen/Life-Out
SIDE (pin-45,46) /Port-H	Rear Panel	Side-Out
LINE1 (pin-23,24) /Port-B	Rear Panel	Line-In
MIC1 (pin-21,22) /Port-C	Rear Panel	Mic-In
LINE2 (pin-14,15) /Port-E	Front Panel	HP-Out, Line-In, Mic-In
MIC2 (pin-16,17) /Port-F	Front Panel	Mic-In, Line-In, HP-Out

ALC883/888 JACK DETECT

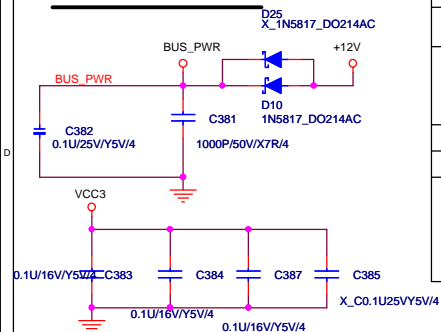


Closer to Codec.

```
Configuration: (INTEL Reference)
Rear Panel: 6 dedicated audio jacks
Front Panel: 2 re-tasking audio jacks
```

<i>Micro Star Restricted Secret</i>		
<i>Title</i>	HD Audio ALC883/888	Rev
<i>Document Number</i>	MS-7293F1	1.0
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IEEE-1394



POWER Pin		
Pin	VT6307	VT6308P
84	NC	BUT_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

For 6308 = 4.7K

PWRDET_VCC R315 4.7K/6

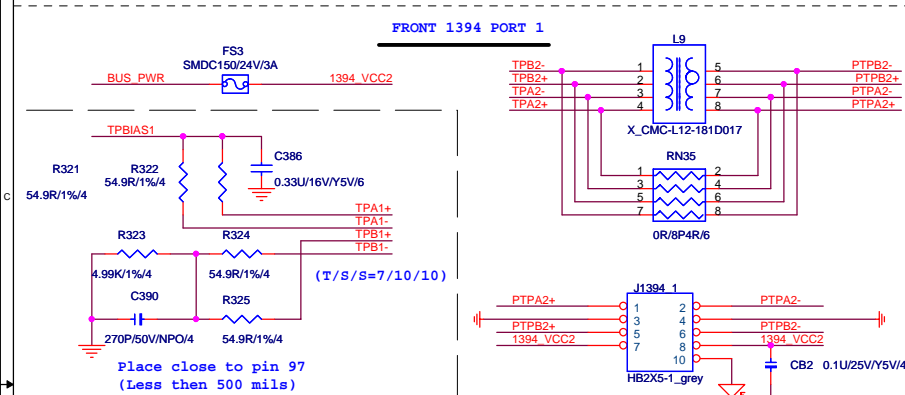
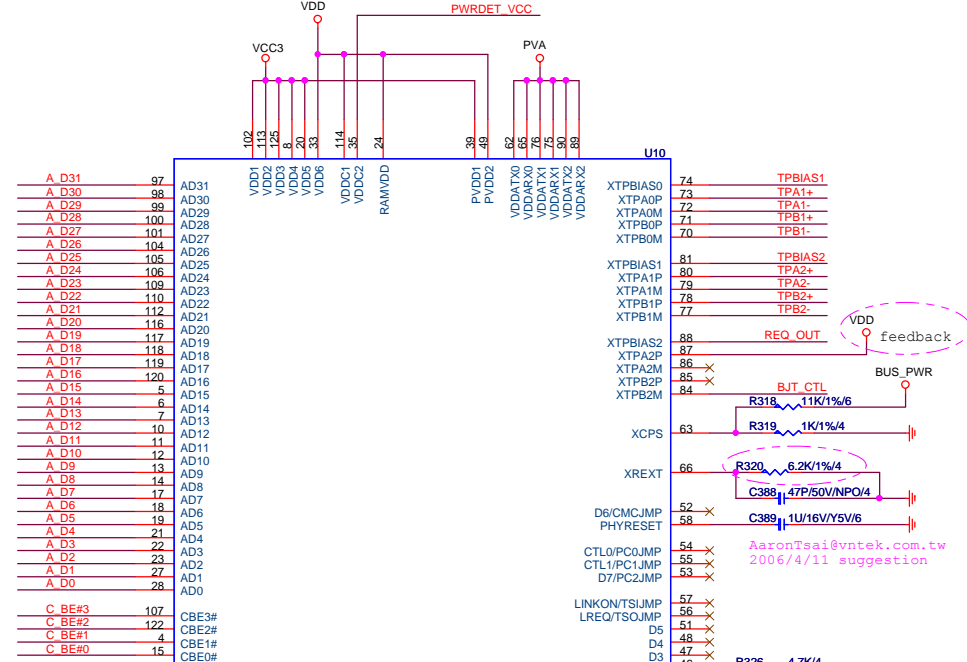
For 6307 = 0 Ohm

I2C EEPROM
pull high

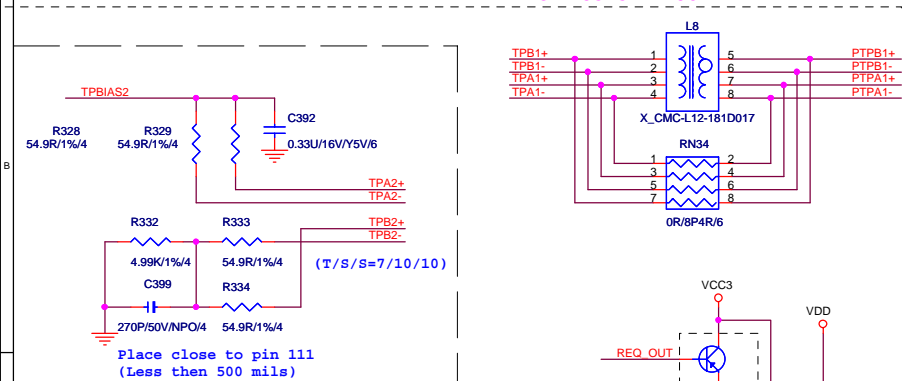
EECS R316 X 4.7K/4

BJT_CTL R317 X 4.7K/4

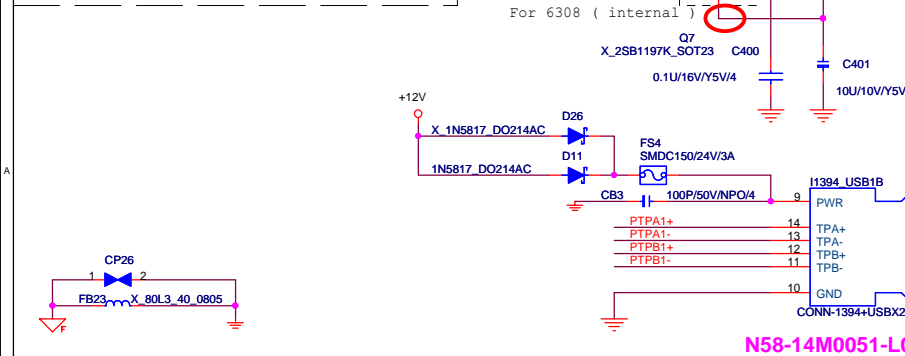
For 6308 (internal)



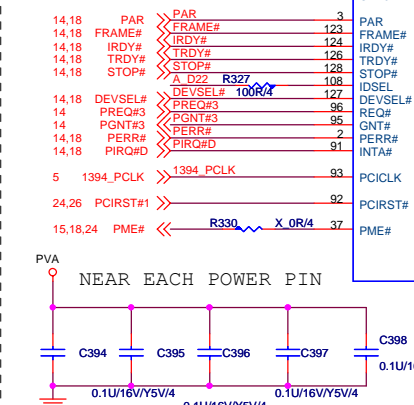
N32-2051571-H06



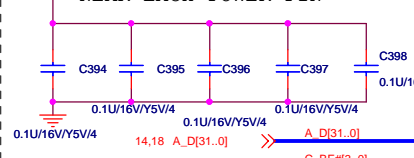
For 6308 (internal)



N58-14M0051-L06

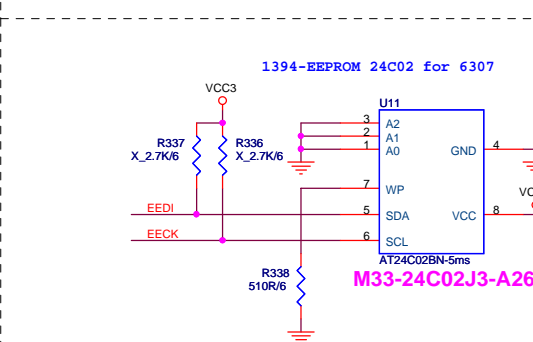


NEAR EACH POWER PIN

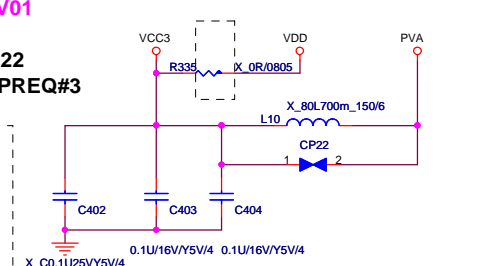


B07-6308P04-V01

```
PIRQ#D
IDSEL = AD22
MASTER = PREQ#3
```



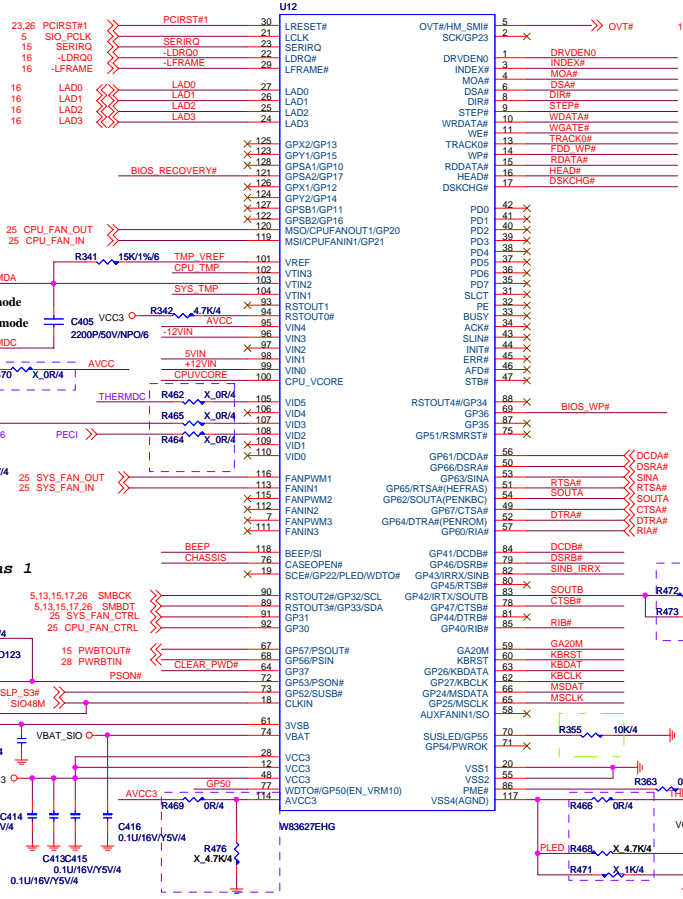
M33-24C02J3-A26



<i>Micro Star Restricted Secret</i>	
Title	Rev
IEEE-1394_VT6308P	1.0
Document Number	
MS-7293F1	
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Last Revision Date: Tuesday, April 25, 2006	
Sheet	23 of 31

Super I/O

LPC SUPER I/O W83627EHG



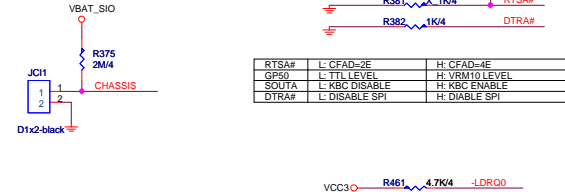
FANPWM2 & FANPWM3 are default PWM mode
FANPWM1 & CPUFANOUT1 are default DC mode

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

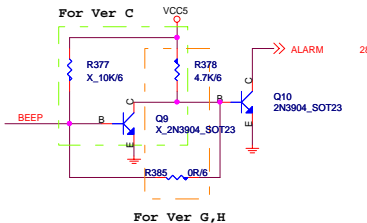
AP note

LPC I/O STRAPPING RESISTOR

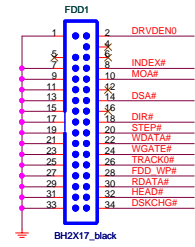
Chassis Intrusion



SPEAKER BLOCK

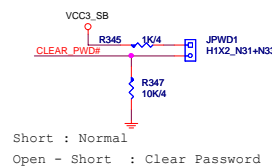


FLOPPY CONNECTOR

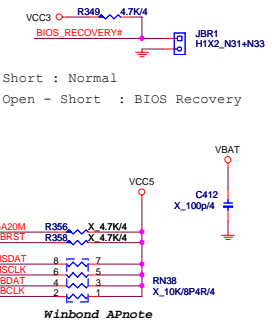


N32-2173051-H06

PASSWORD CLEAR JUMPER

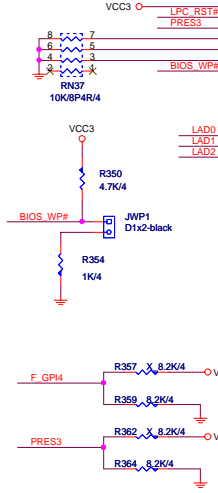


BIOS Recovery

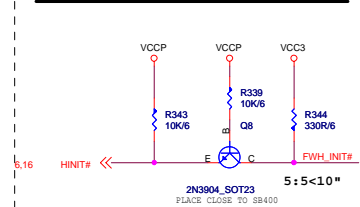


BIOS PROTECT BLOCK

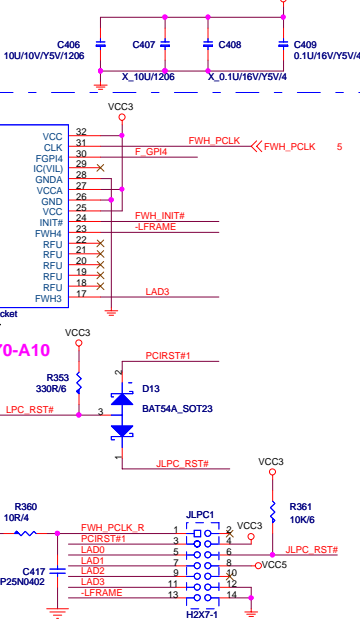
Open	Un_protected	Default
Short	Protected	



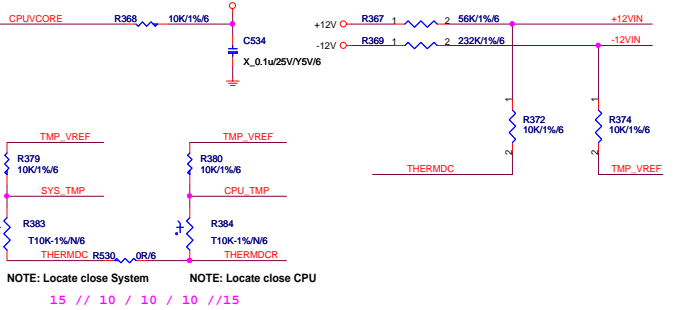
FWH INIT Signal Voltage Translation



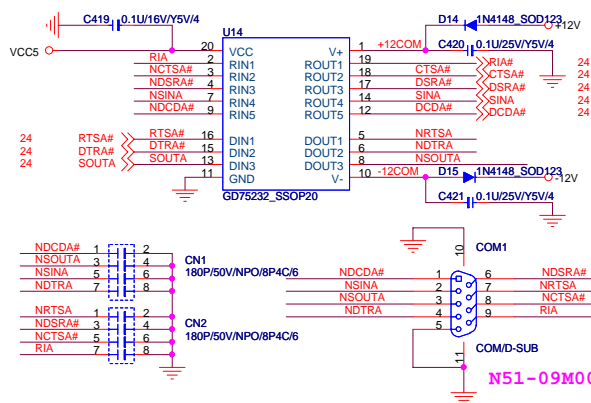
FOR BIOS ISSUS CLOSE BIOS VCC3



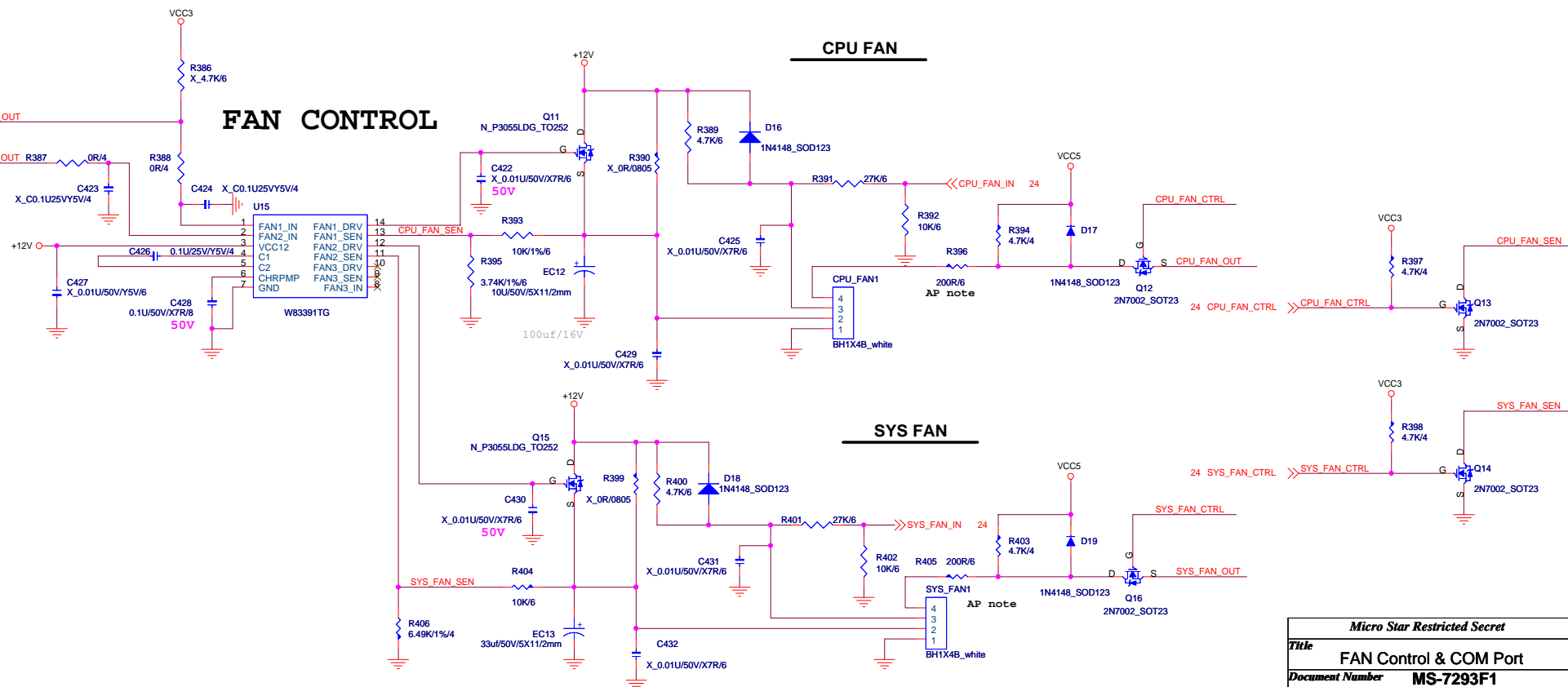
Thermal Resistor



SERIAL PORT 1



CPU FAN



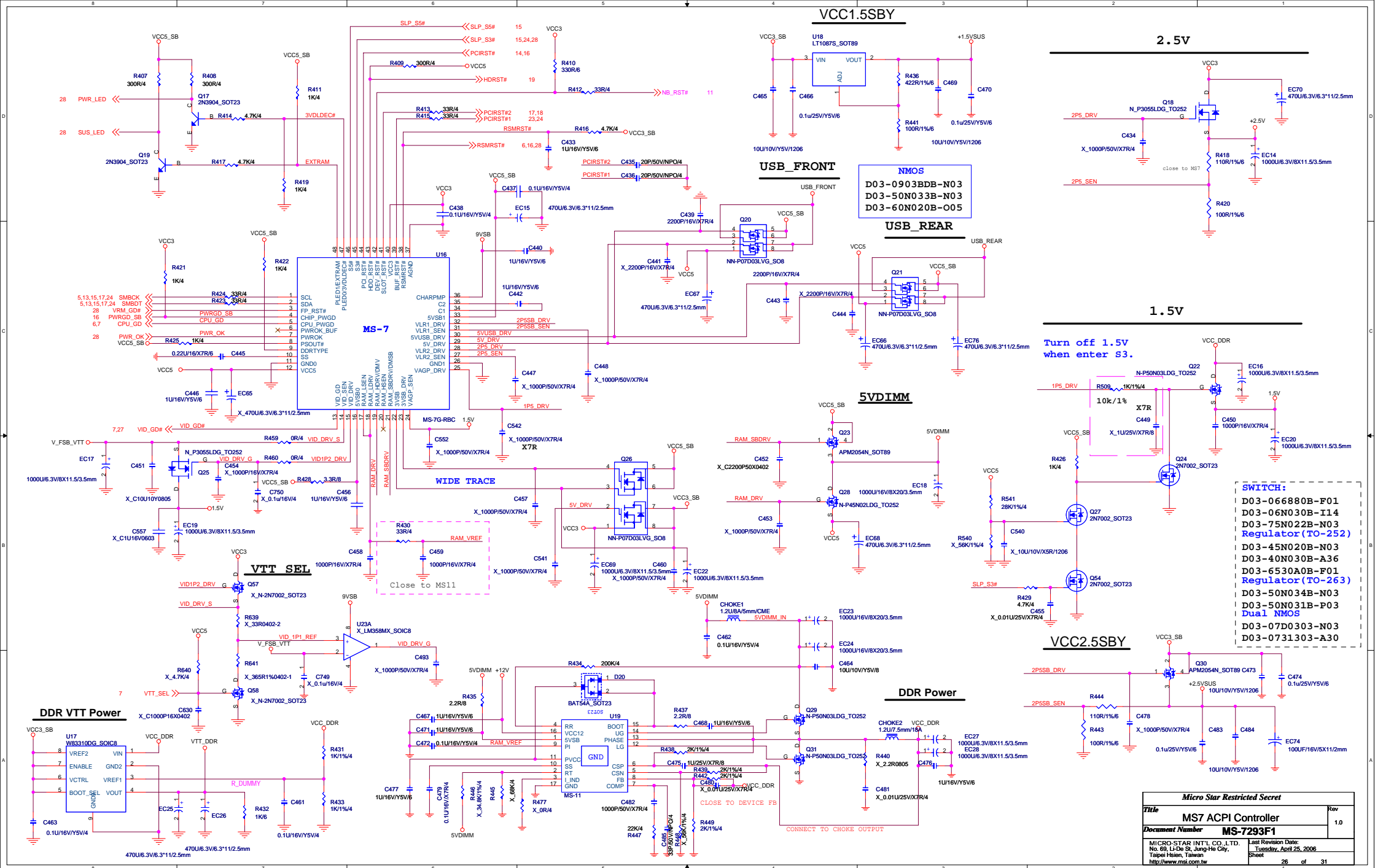
Micro Star Restricted Secret

Title	FAN Control & COM Port
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Document Number MS-7293F1

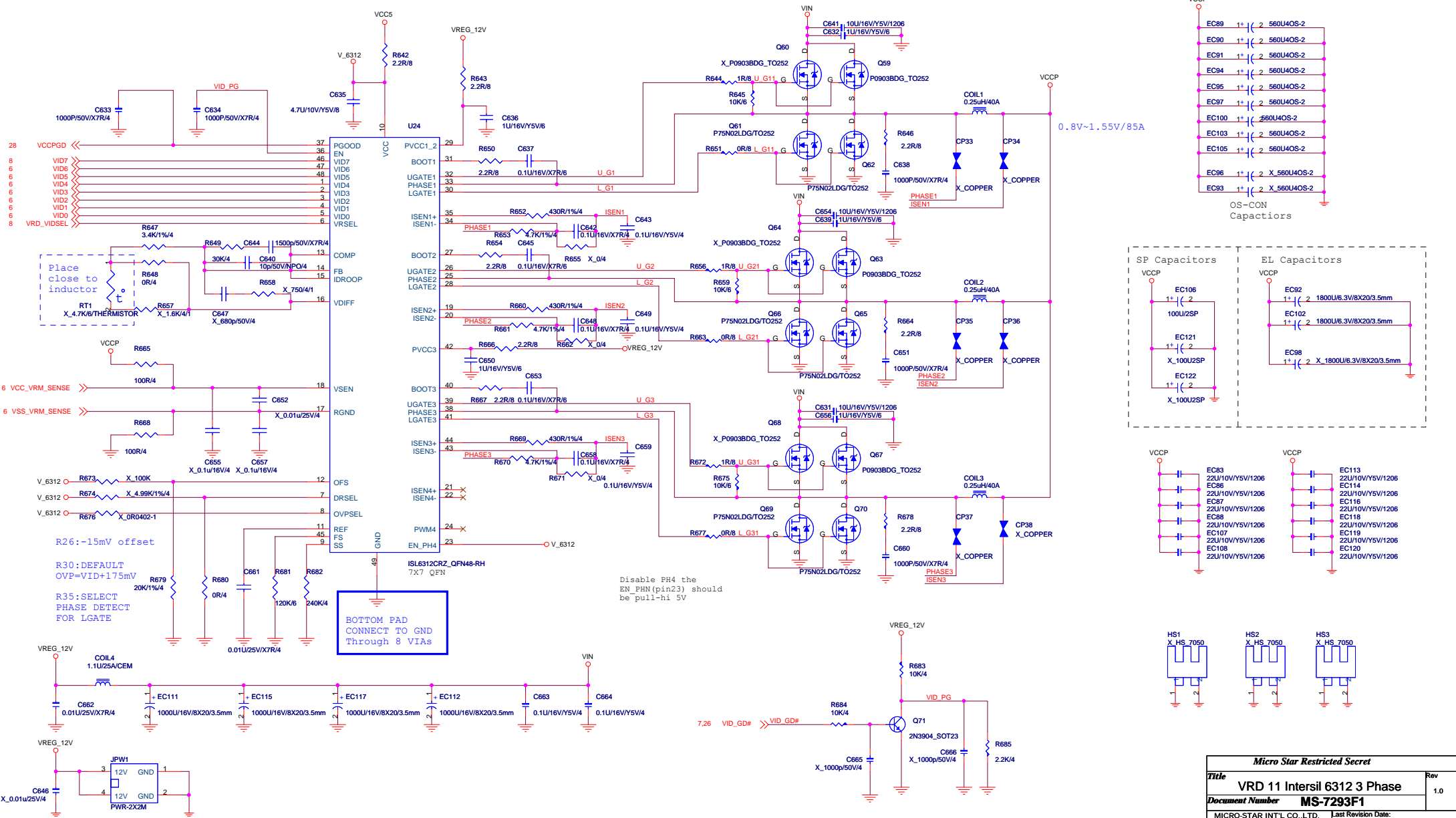
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Rev	1.0
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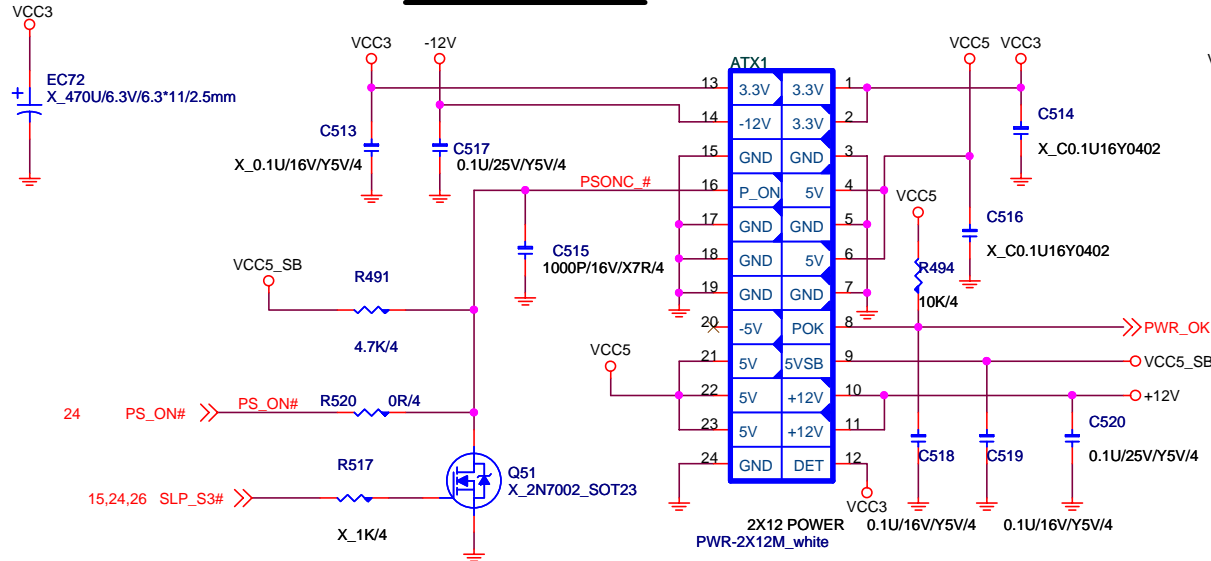
Voltage Regular Module

N-P0903BDG_TO252	mosfet/n-channel, P0903BDG, SMT/TO252, Rds(on)=9.5mΩ(10V/25A), Vgs(on)=1~3V, Id=50A, Ciss=1800pf, Qg=50nC, Vds=25V, Vgs=±20V, RoHS compliance
P75N02L2DG/TO252	mosfet/n-channel, P75N02L2DG, SMT/TO252, Rds(on)=7mΩ(⑩10V, 30A), Vgs(on)=1~3V, Id=75A, Ciss=5000pf, Qg=140nC, Vds=25V, Vgs=±20V, RoHS compliance
C100U2S	ESR<13mΩ, Ripple cur.<2.7A, LC<12uA, 105C
560U40S-2	CAP, OS-CON, 560u/4V, Dip-2/8*9/3.5mm, ESR<7mohm, Ripplecur.=6100mA, Lc. <500uA, SPEC series, RoHS compliance
1800UF/6.3V	ESR<12mΩ, Ripplecur<2350mA, 105C, longlife change from 2000hrs to 3000hrs ,KZJ series
0.25uH/40A	, IND CHOKE, 0.25uH, 20%, DIP/8.5mm, 40A, 0.6mOhm, , , PEW, FERRITE, SQUARE, RoHS COMPLIANCE
CH-1.U25A-LF	IND CHOKE, 1.1uH, 20%, DIP/9mm, 25A, 1.4mOhm, 5.5T, 0.9mmx3, PEW, IRON, , LEAD FREE
1000U16EL20-2	CAP, EL, 1000u, 16V, Dip-8x20/3.5mm, 20%, 12mOhm, 2350mA, 105C, 3000hrs, RoHS COMPLIANCE

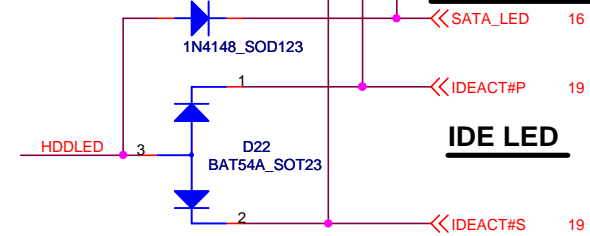


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Document Number	MS-7293F1	1.0
MICRO-STAR INT'L CO. LTD. No. 68, Li-De St., Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Tuesday, April 25, 2006 Sheet 27 of 31

ATX Connector

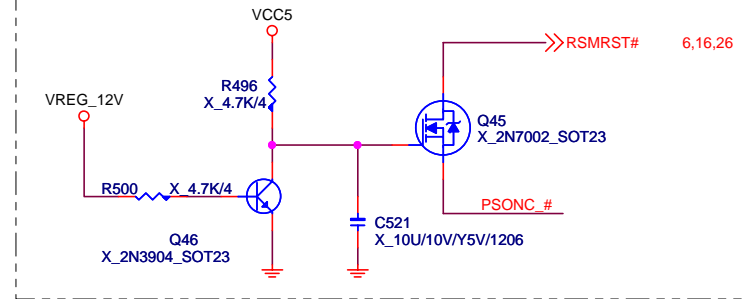


SERIAL ATA LED

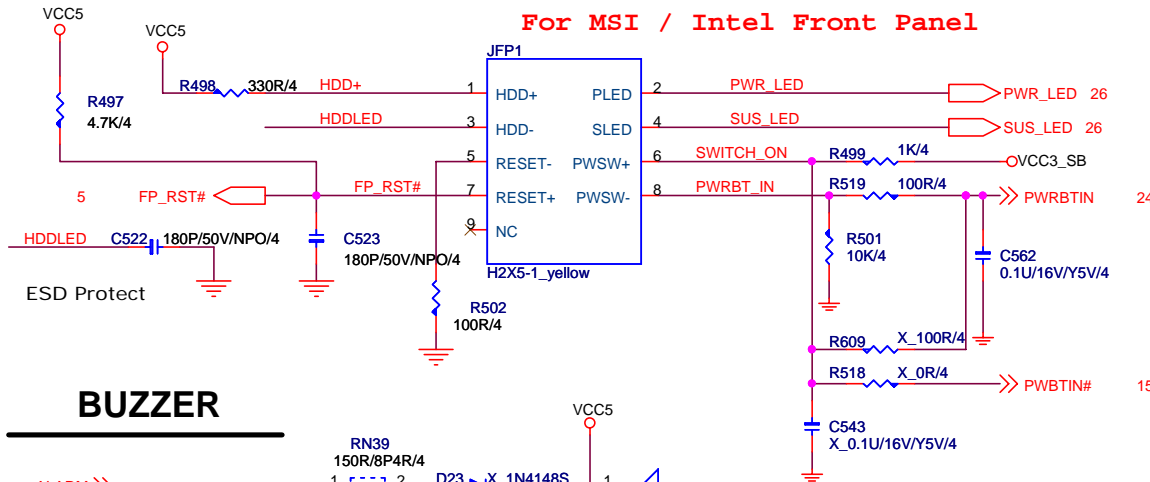


IDE LED

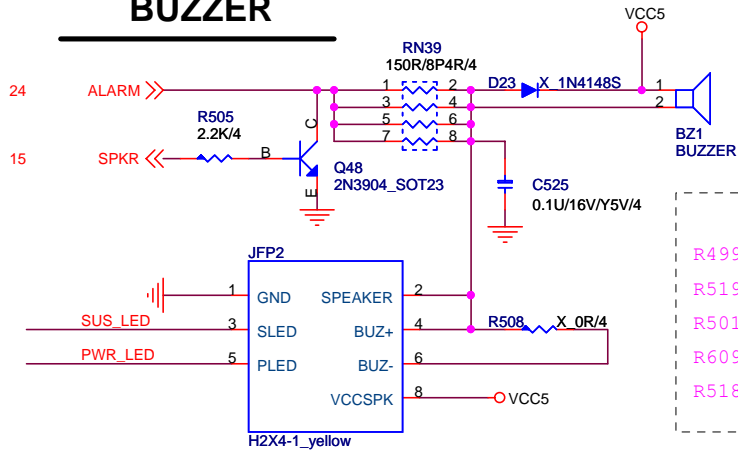
Support when not plug in 2x2 +12V power cable, system will auto shutdown.



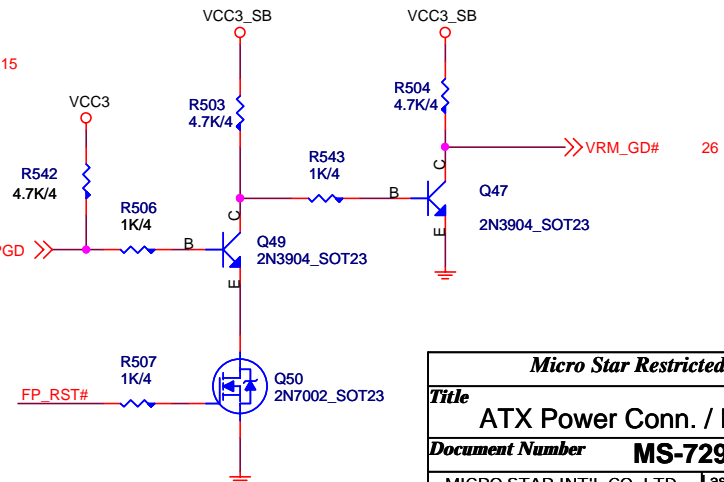
For MSI / Intel Front Panel



BUZZER

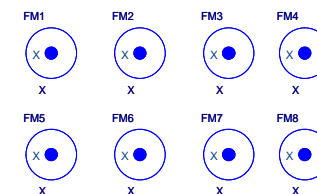
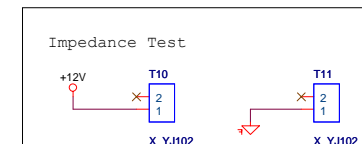
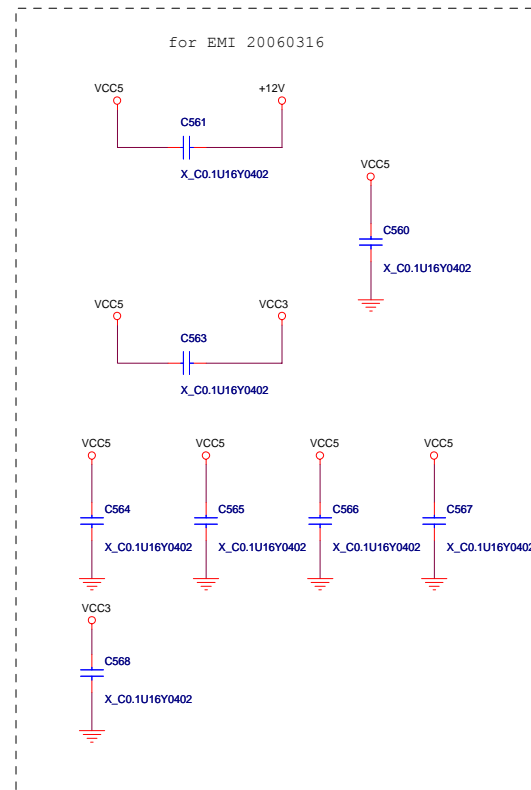
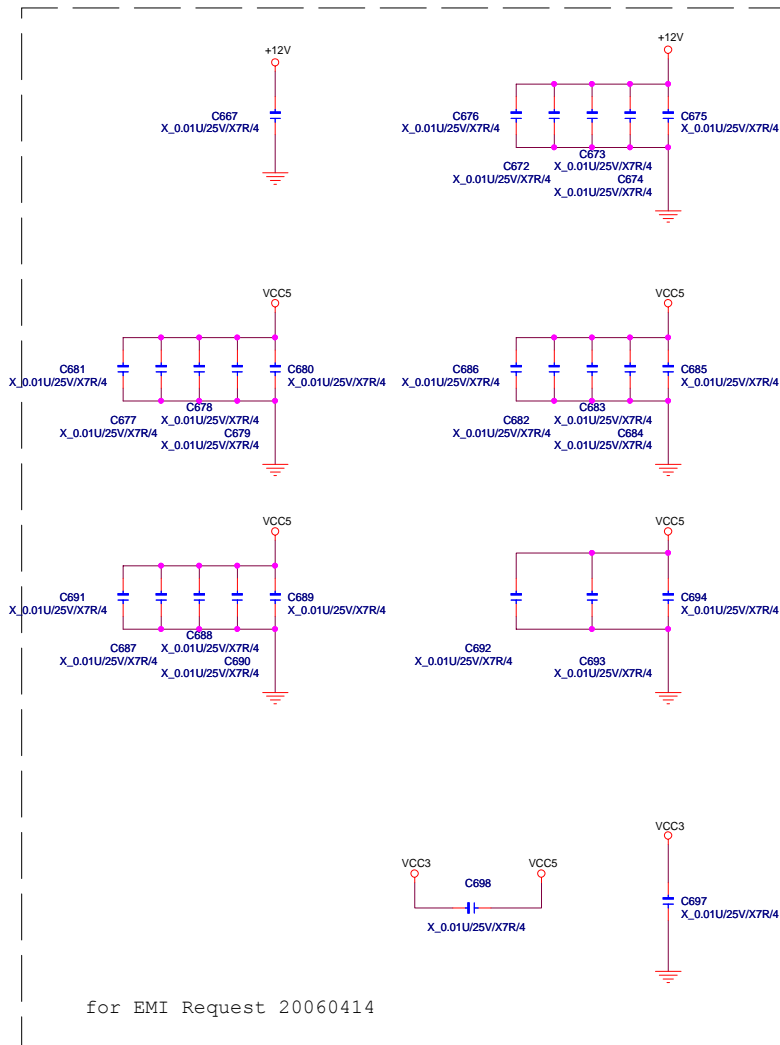
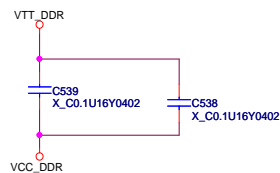
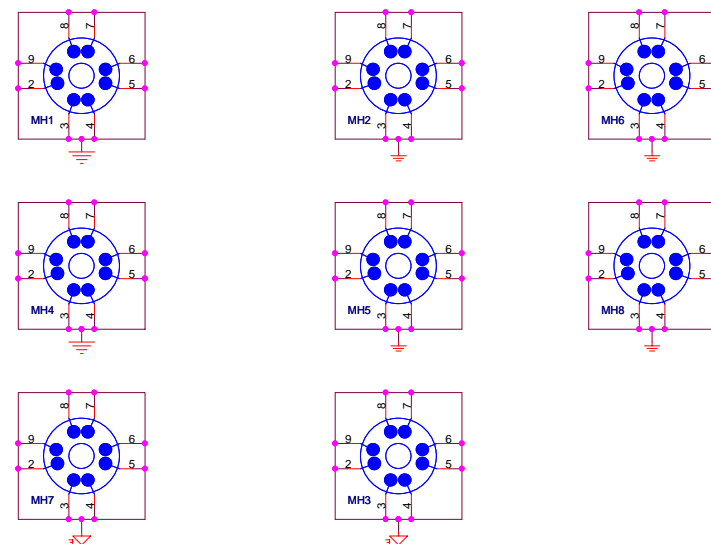
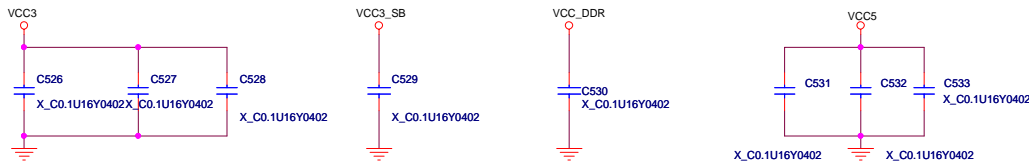


	W83627EHG	W83627DHG	SUSB#
R499	1K Ohm	4.7K Ohm	Remove
R519	100 Ohm	Remove	Remove
R501	10K Ohm	100 Ohm	100 Ohm
R609	Remove	100 Ohm	Remove
R518	Remove	Remove	Stuff



Micro Star Restricted Secret

Title	Rev
ATX Power Conn. / Front Panel	1.0
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: Tuesday, April 25, 2006 Sheet
	28 of 31



Micro Star Restricted Secret		
Title	Holes / Decoupling	Rev
Document Number	MS-7293F1	1.0
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, April 25, 2006 Sheet 29 of 31

Version : 0A 20060320

Version : 0B 20060410

Page :05
Clock Generator from ICS9LPR700B change to ICS953002 + ICS9P936

Page :22
Add CP32 & C559

Page :28
Q50 from 2N3904 change to 2N7002.
Q48 from 2N7002 change to 2N3904.

Version : 1.0 20060425

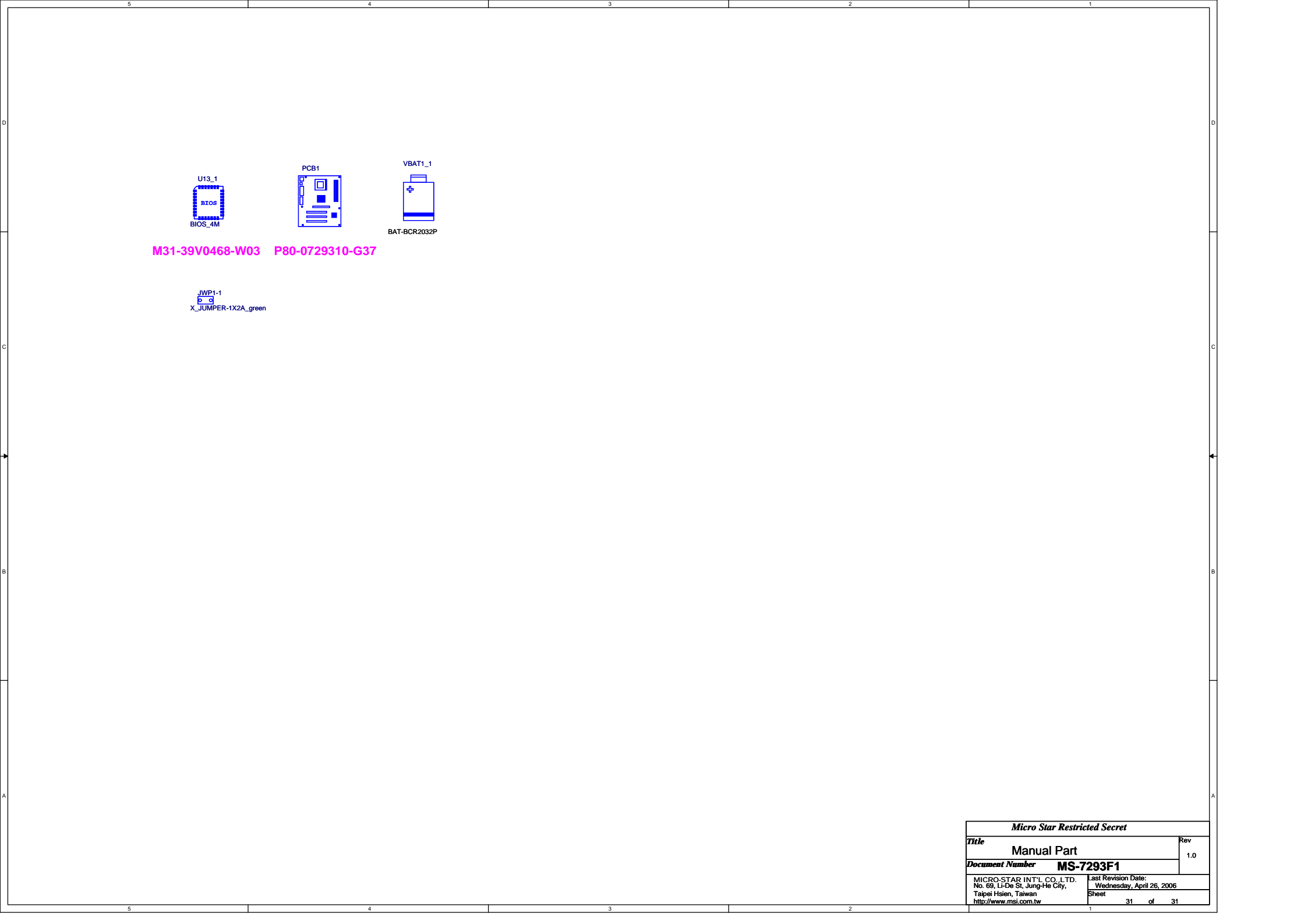
Page :06 , 07 , 08
Modify CIRCUIT for Conroe CPU

Page :21
HD Audio from VT1708 change to ALC883/888

Page :24
Delete D24
W83627EHG Co-lay W83627DHG

Page :27
PWM from VRM10.1 change to VRD11

Micro Star Restricted Secret		
Title	History	Rev
Document Number	MS-7293F1	1.0
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, April 25, 2006 Sheet 30 of 31	



M31-39V0468-W03 P80-0729310-G37



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Title	Manual Part	Rev
Document Number	MS-7293F1	1.0
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan http://www.msi.com.tw		Last Revision Date: Wednesday, April 26, 2006
Sheet		31 of 31