

# MS7293F1 Version: 2.0

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**CPU:**  
**Intel LGA775**

**System Chipset:**  
**PT890CE (North Bridge)**  
**VT8237A / VT8237S (South Bridge)**

**On Board Chipset:**  
**CLOCK - ICS953002 + ICS9P936**  
**LPC Super I/O - W83627EHG**  
**BIOS - LPC ROM**  
**HD Audio ALC888**  
**LAN - VT6103L**  
**IEEE1394 - VT6308P**

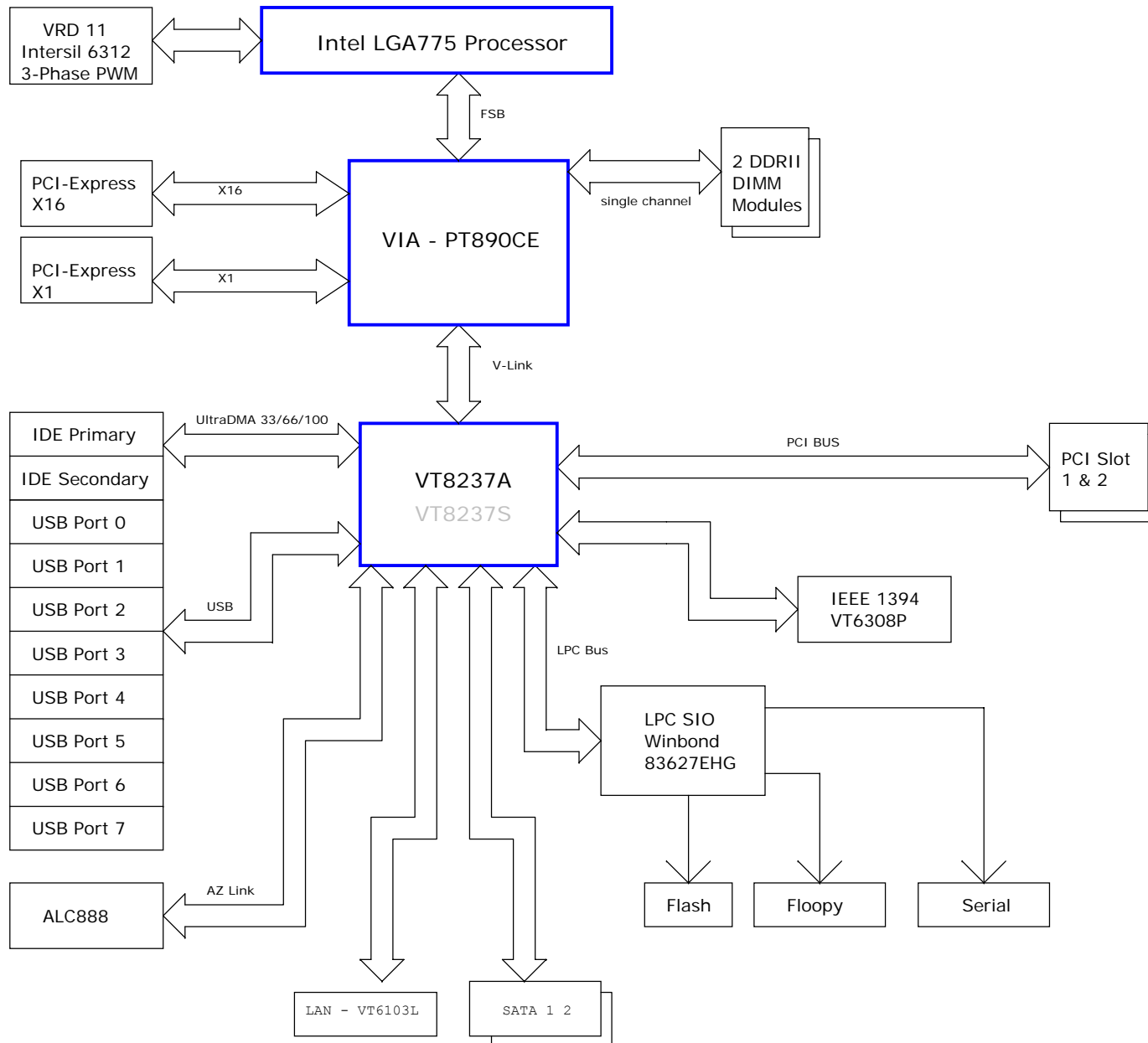
**Main Memory:**  
**single-channel - DDRII\*2**

**Expansion Slots:**  
**PCI Express X16 \* 1**  
**PCI 2.3 Slot \* 2**  
**PCI Express X1 \* 1**

**PWM VRD11 :**  
**Intersil 6312 3 Phase**

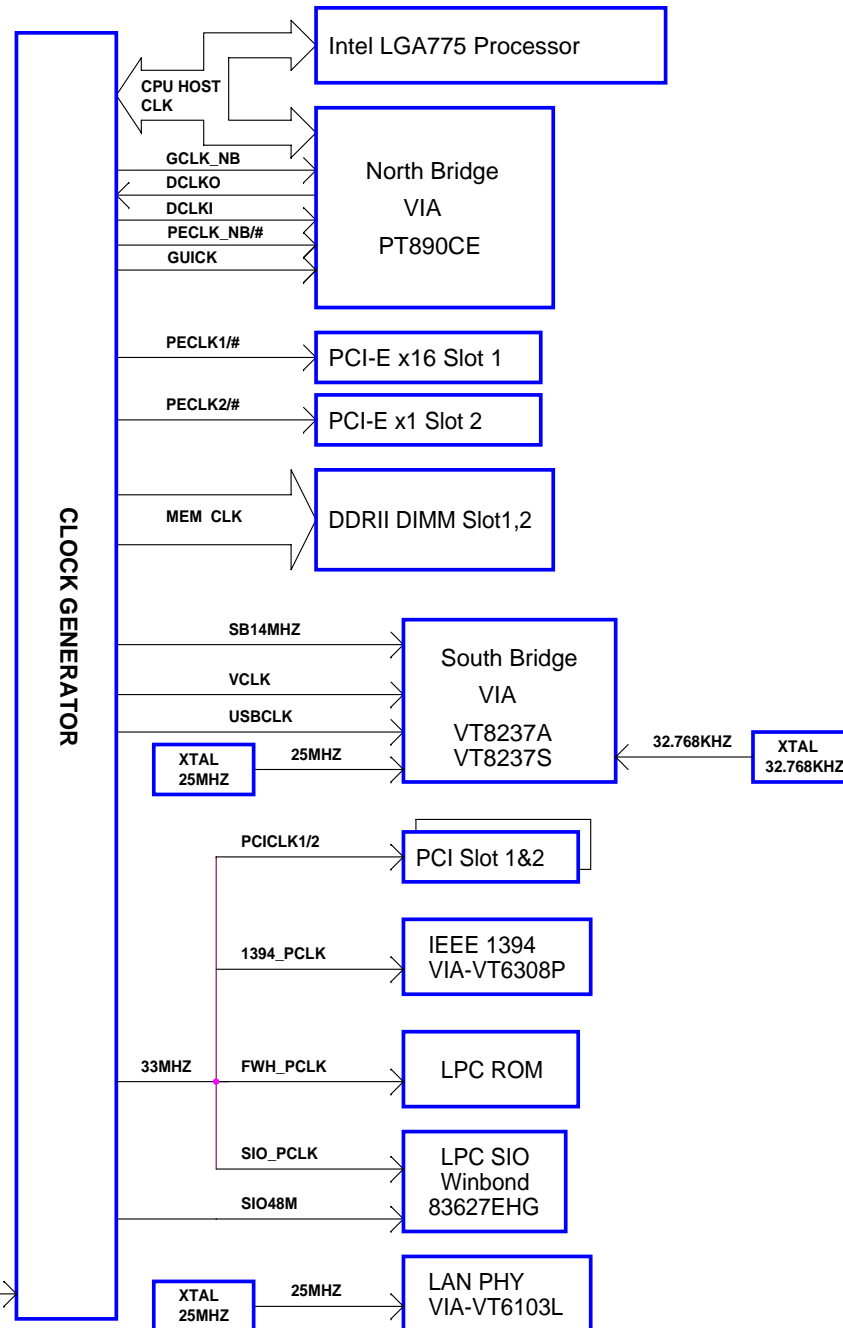
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# Block Diagram



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# PT890CE PLATFORM CLOCK GENERATOR MAP



Rev1.0 initial

Rev1.1: Add table2 CLK output value for CLK GEN SPEC

P4M890 Preliminary sync mode skew value, this is based on simulation result, will have further update when tester characterization is done.

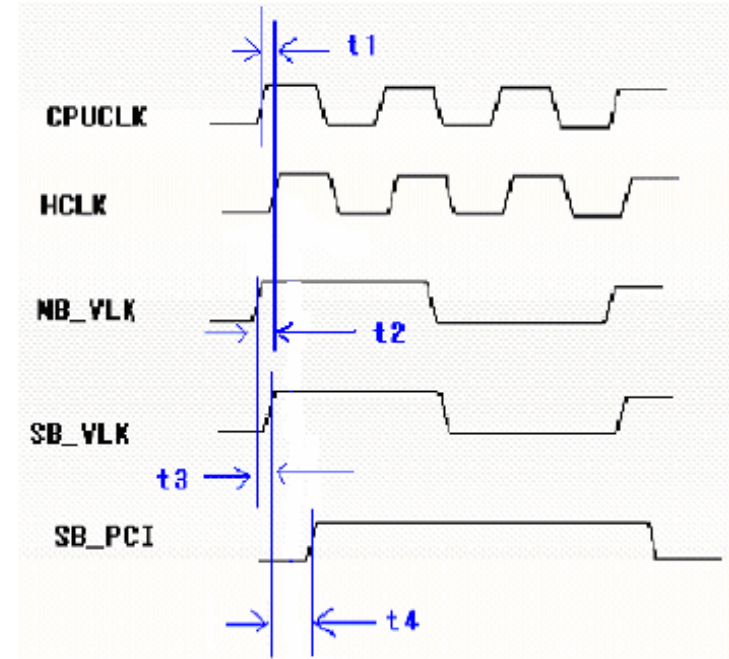


Table1:

System	t1	t2	t3	t4
value	< +/- 250ps	< +/- 500ps	< +/- 750ps	1~ 3 ns

T4 : VCLK lead PCICLK(default: 2 ns)

Table2:

CLK Output	t1	t2	t3	t4
value	Align	V lead H 250ps	Align	V lead P 2 ns

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SB-VT8237A / VT8237S

GPIO Pin	Pin	Function	Power
GPIO	AE02	GPIO	VBAT
GP11	AC02	Trip#	VCC3_SB
PD_A0	W23	Vlink auto compensation	VCC3
GP14	AC01	ATADET1	VCC3_SB
GP19	D26	ATADET0	VCC3_SB
GPIOA	AE05	HOST CLOCK	VCC3
GPIOC	AF05	Auto mode	VCC3
GPIOB	AD05	IOQ Depth	GND
GP10D	AC06	GTL pullup	GND
GPIO28	AC08	SATA LED	VCC5
GP12	AA1	OVT#	VCC3_SB
GP118	Y04	PEPMESCI#	VCC3_SB
GP119	U23	PEHPSCI# ----- VT8237A	VCC3_SB
GP117	Y1	PEHPSCI# ----- VT8237S	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

**CLOCK STRAPPING**

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)
1 1 0	400 MHZ

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**Title** CLOCK GEN & BUFFER

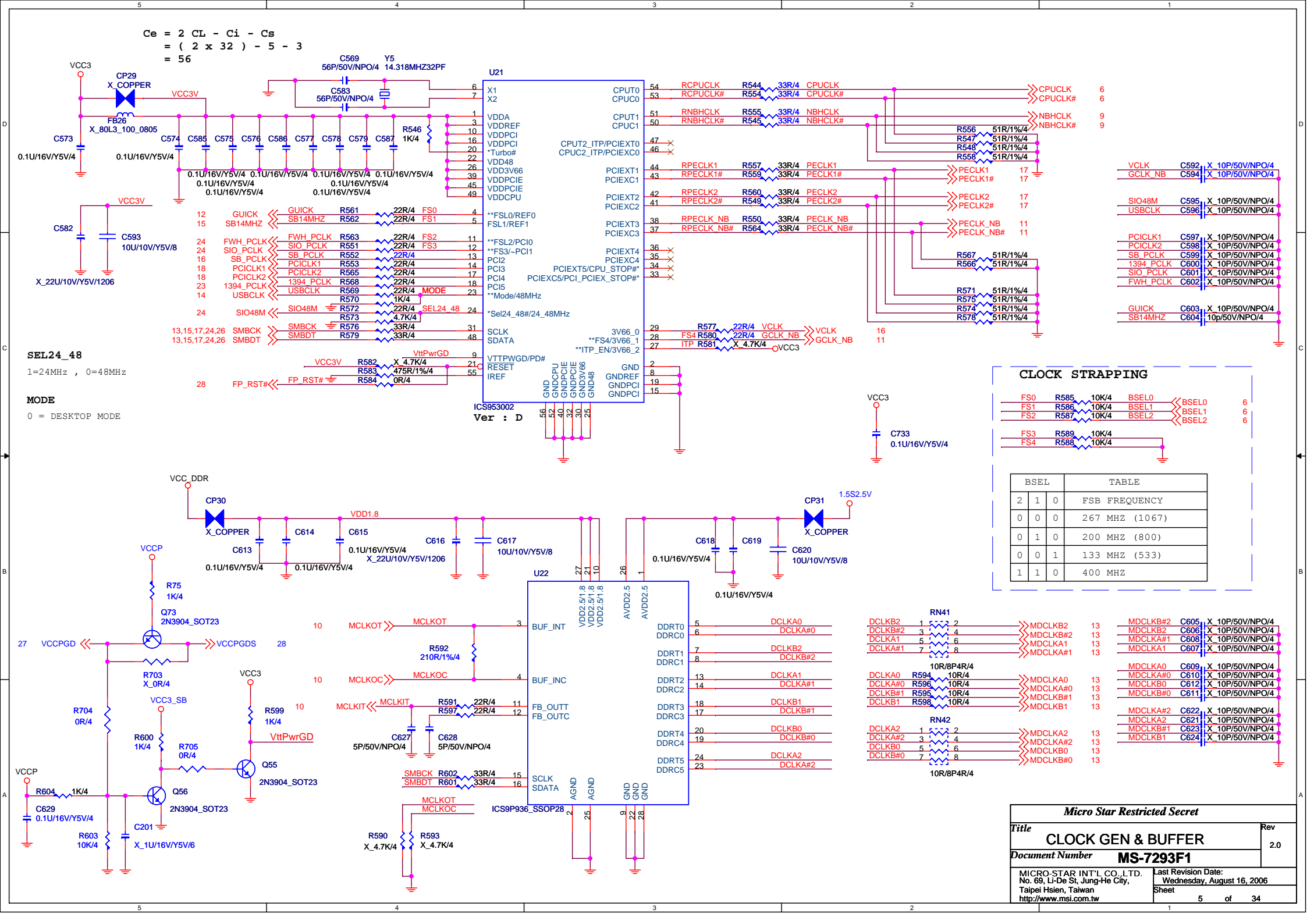
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**Ce = 2 CL - Ci - Cs**  
**= ( 2 x 32 ) - 5 - 3**  
**= 56**

**SEL24\_48**  
 1=24MHz , 0=48MHz

**MODE**  
 0 = DESKTOP MODE

**CLOCK STRAPPING**

BSEL	TABLE
2 1 0	FSB FREQUENCY
0 0 0	267 MHZ (1067)
0 1 0	200 MHZ (800)
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1 1 0	400 MHZ

**Ver: D**

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**Rev** 2.0

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2 1 0	FSB FREQUENCY
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**Ver: D**

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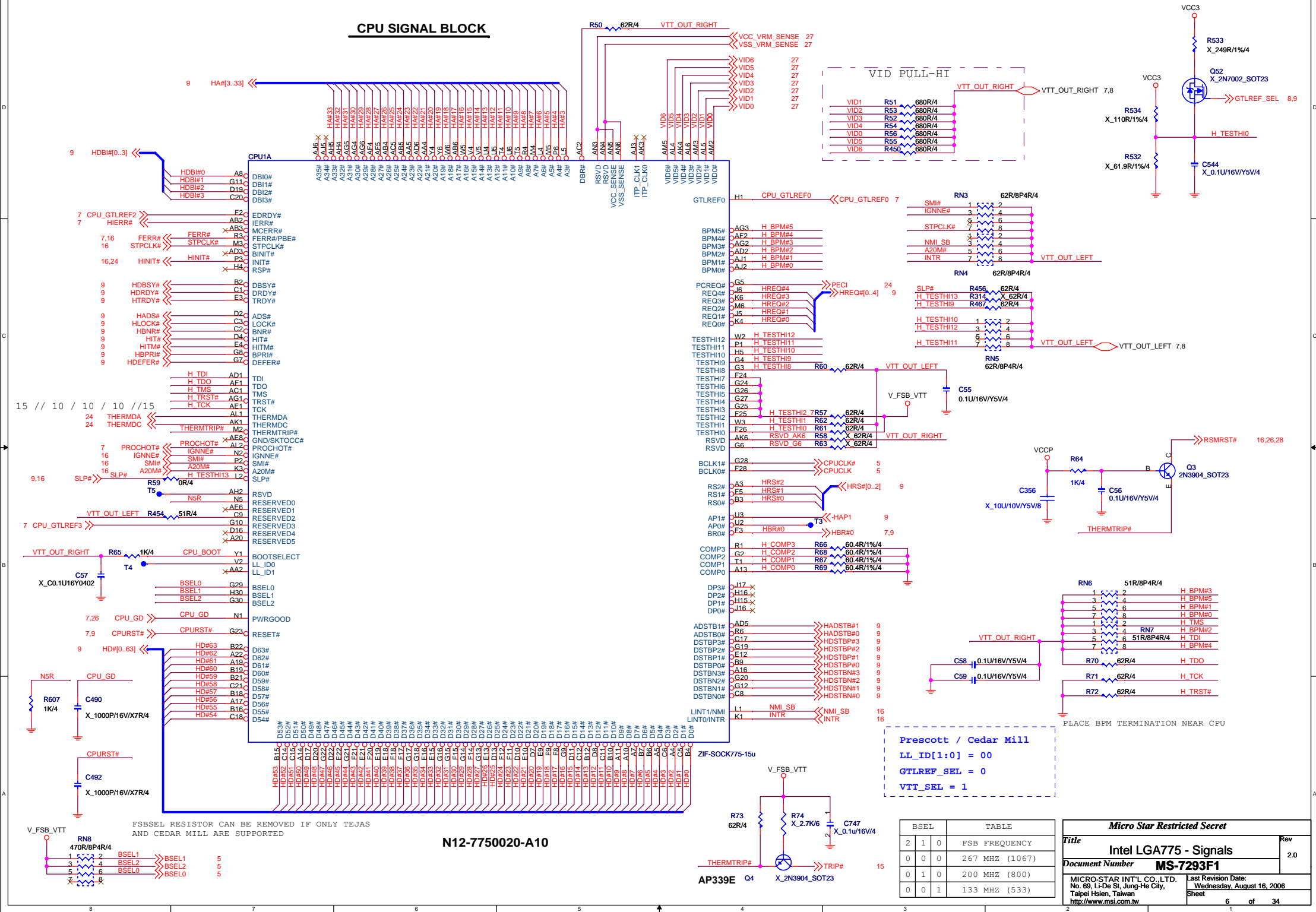
**Rev** 2.0

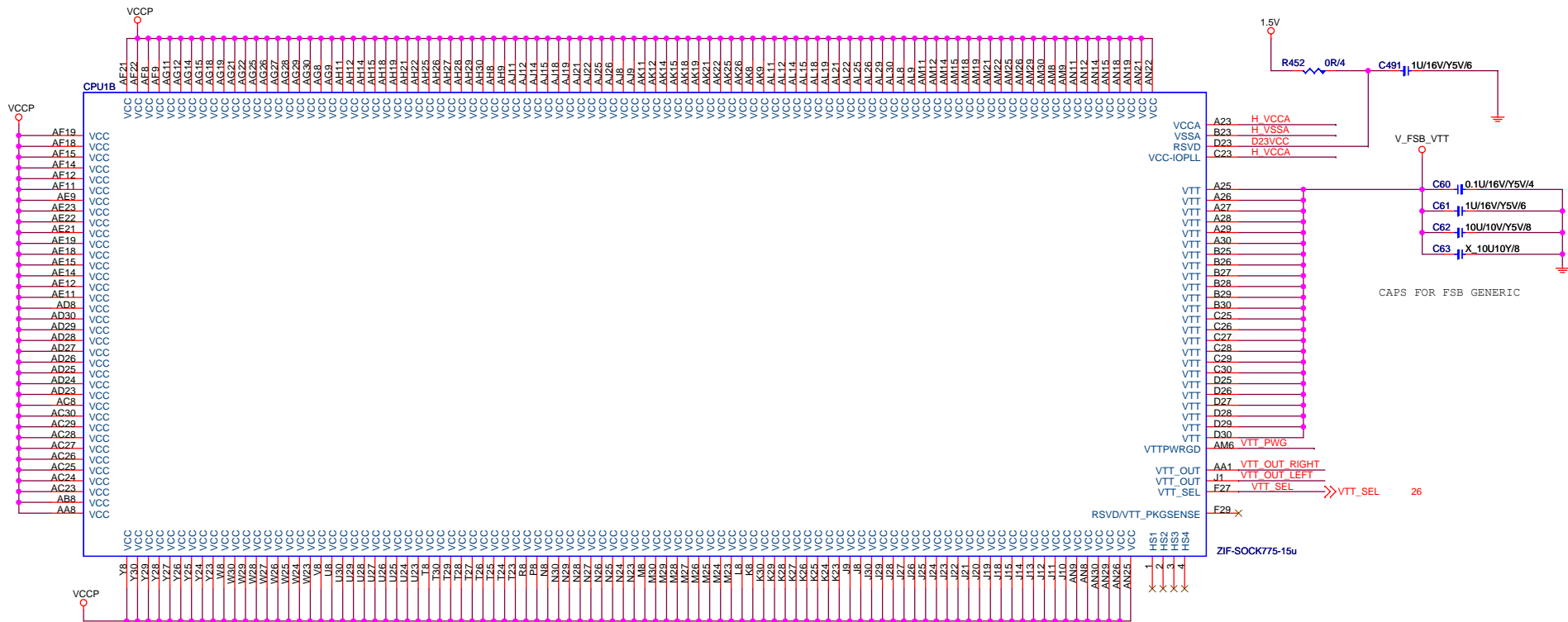
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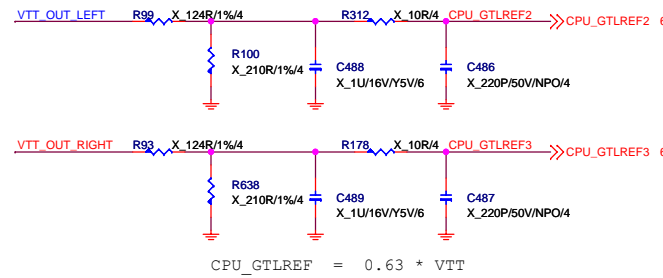
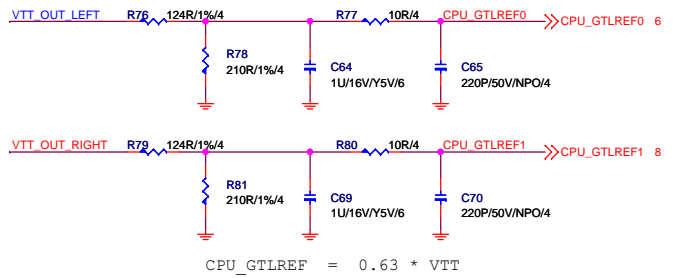
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### CPU SIGNAL BLOCK

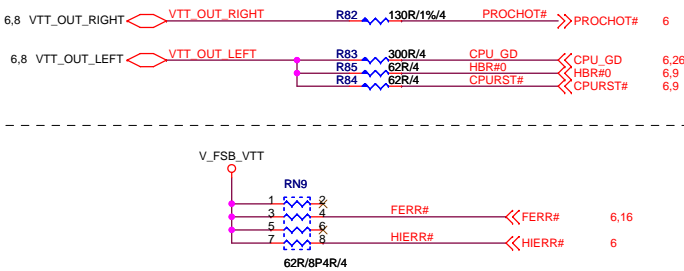
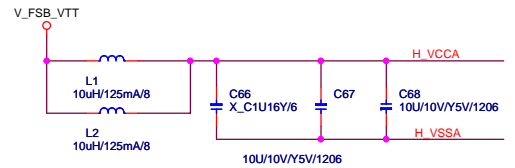




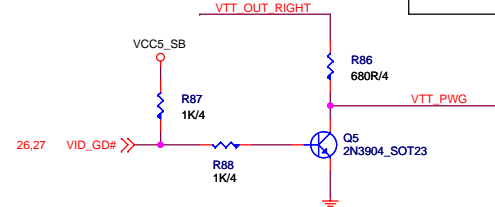
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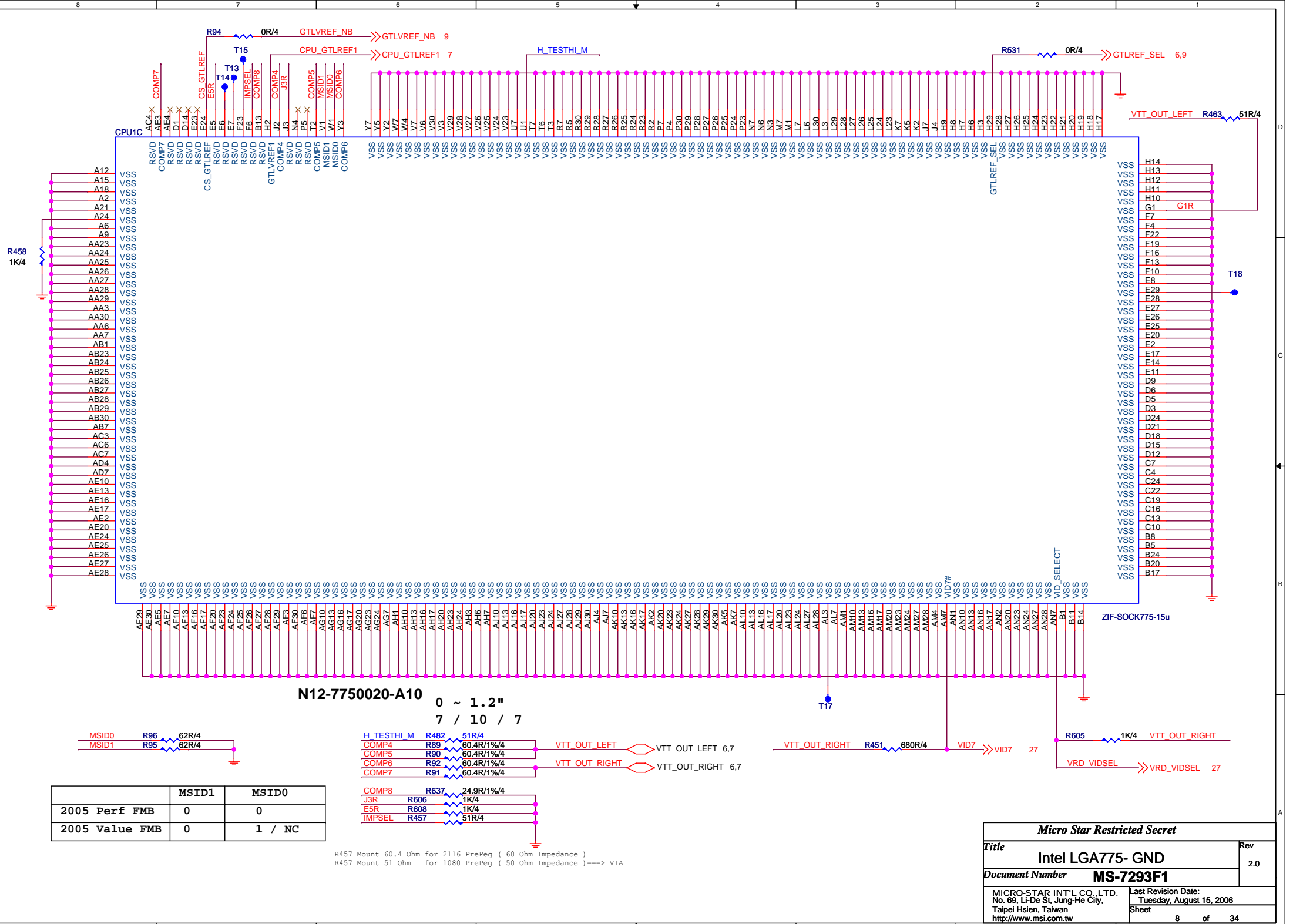
PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET  
TRACE WIDTH TO CAPS MUST BE SMALLER THAN 12MILS



VTT\_PWG SPEC :  
High > 0.9V  
Low < 0.3V  
Trise < 150ns



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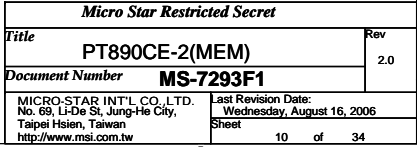
	MSID1	MSID0
2005 Perf FMB	0	0
2005 Value FMB	0	1 / NC

R457 Mount 60.4 Ohm for 2116 PrePeg ( 60 Ohm Impedance )  
R457 Mount 51 Ohm for 1080 PrePeg ( 50 Ohm Impedance )====> VIA

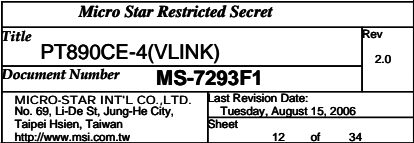
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Document Number	MS-7293F1	
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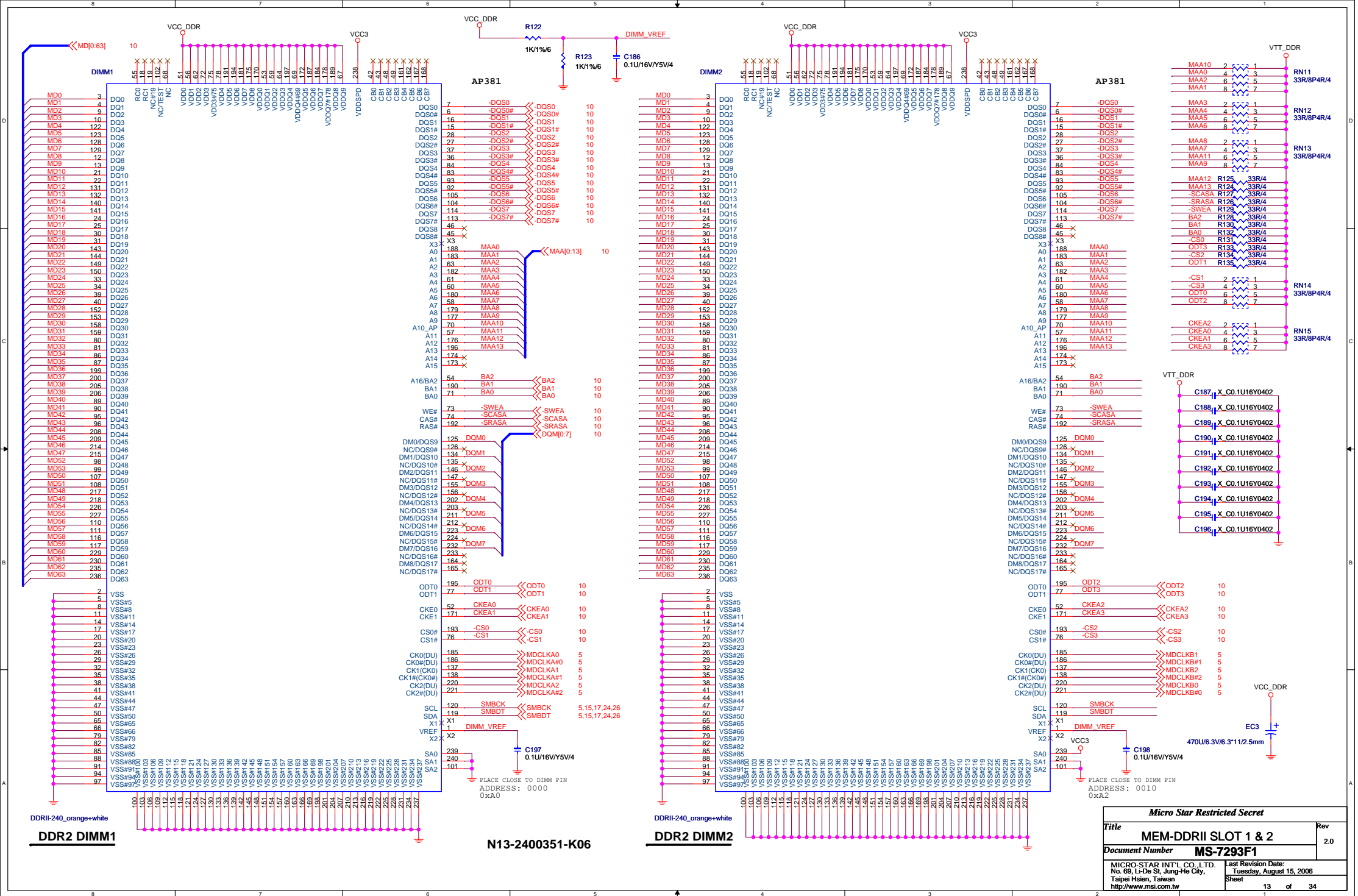




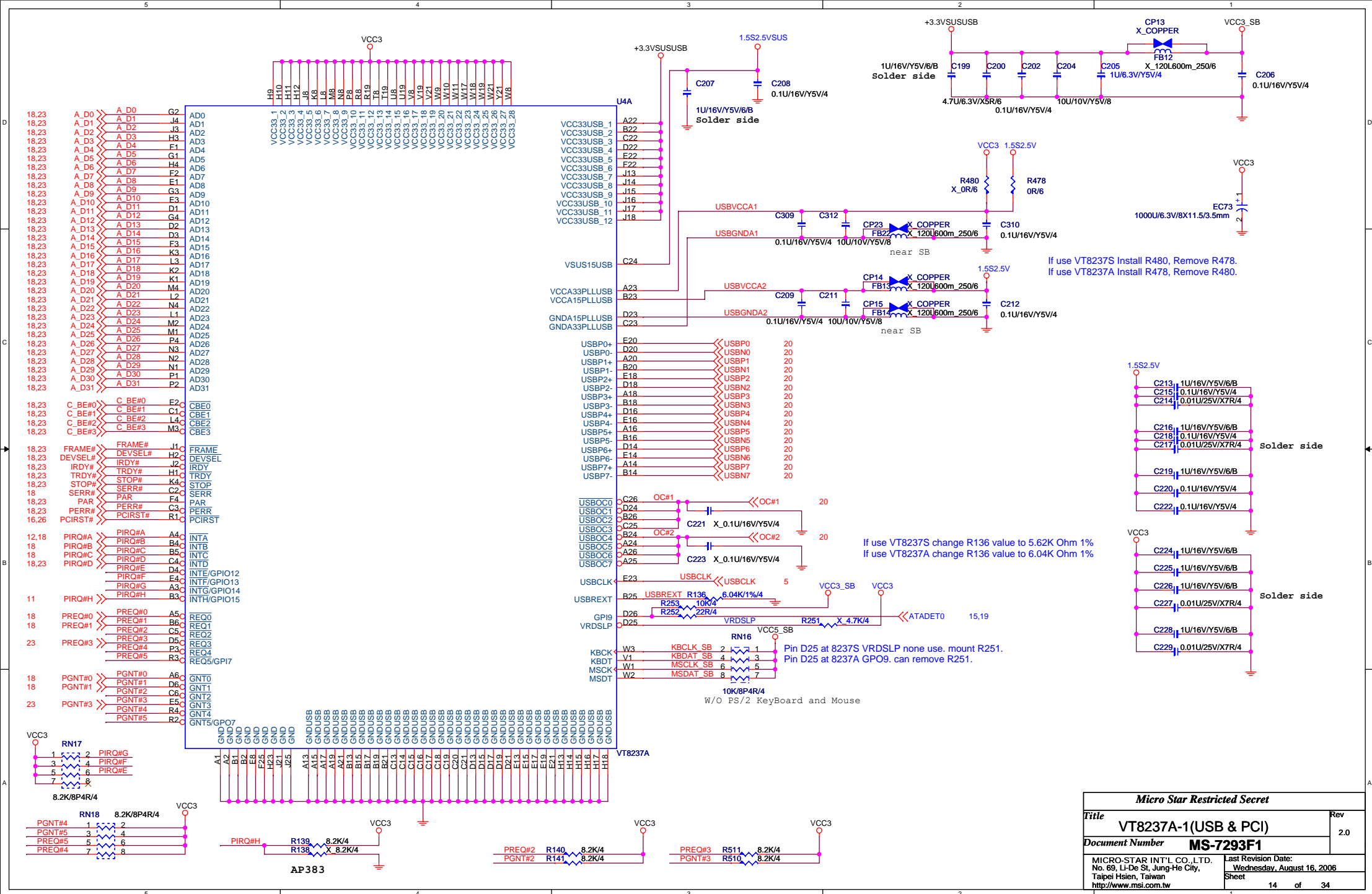




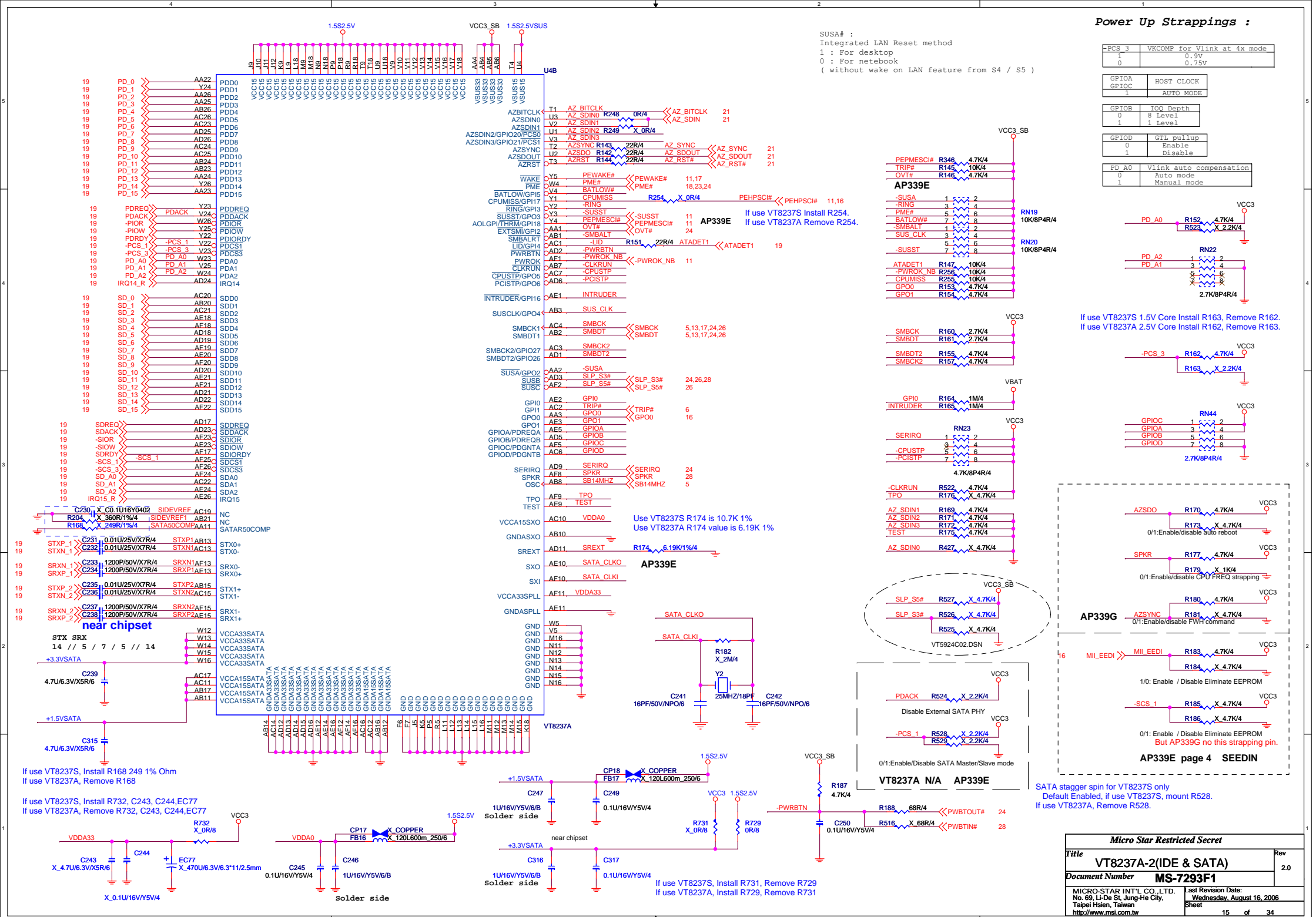


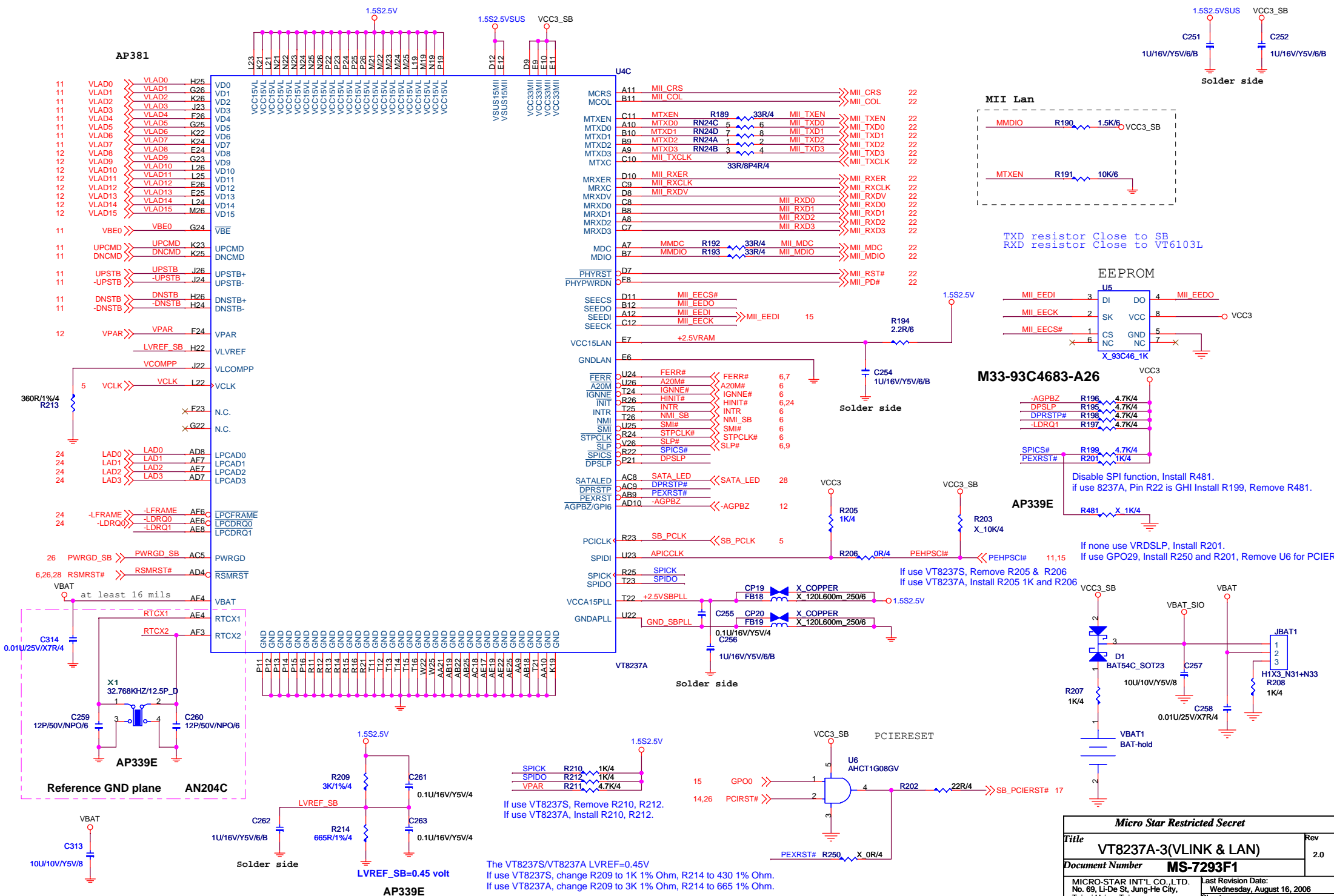




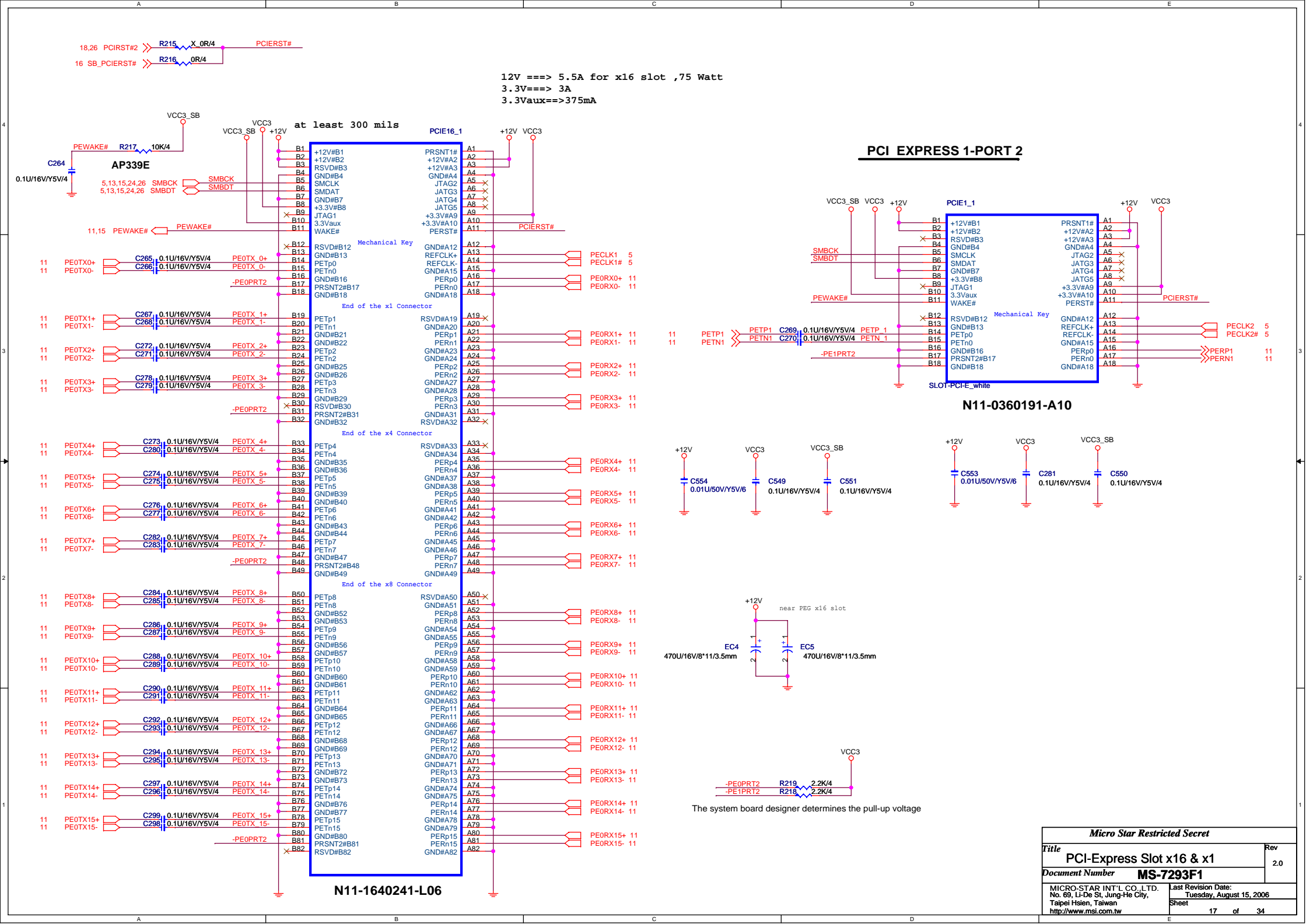


<b><i>Micro Star Restricted Secret</i></b>					
<b>Title</b>	VT8237A-1(USB & PCI)	<b>Rev</b>			
<b>Document Number</b>	<b>MS-7293F1</b>	2.0			
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14	of	34			

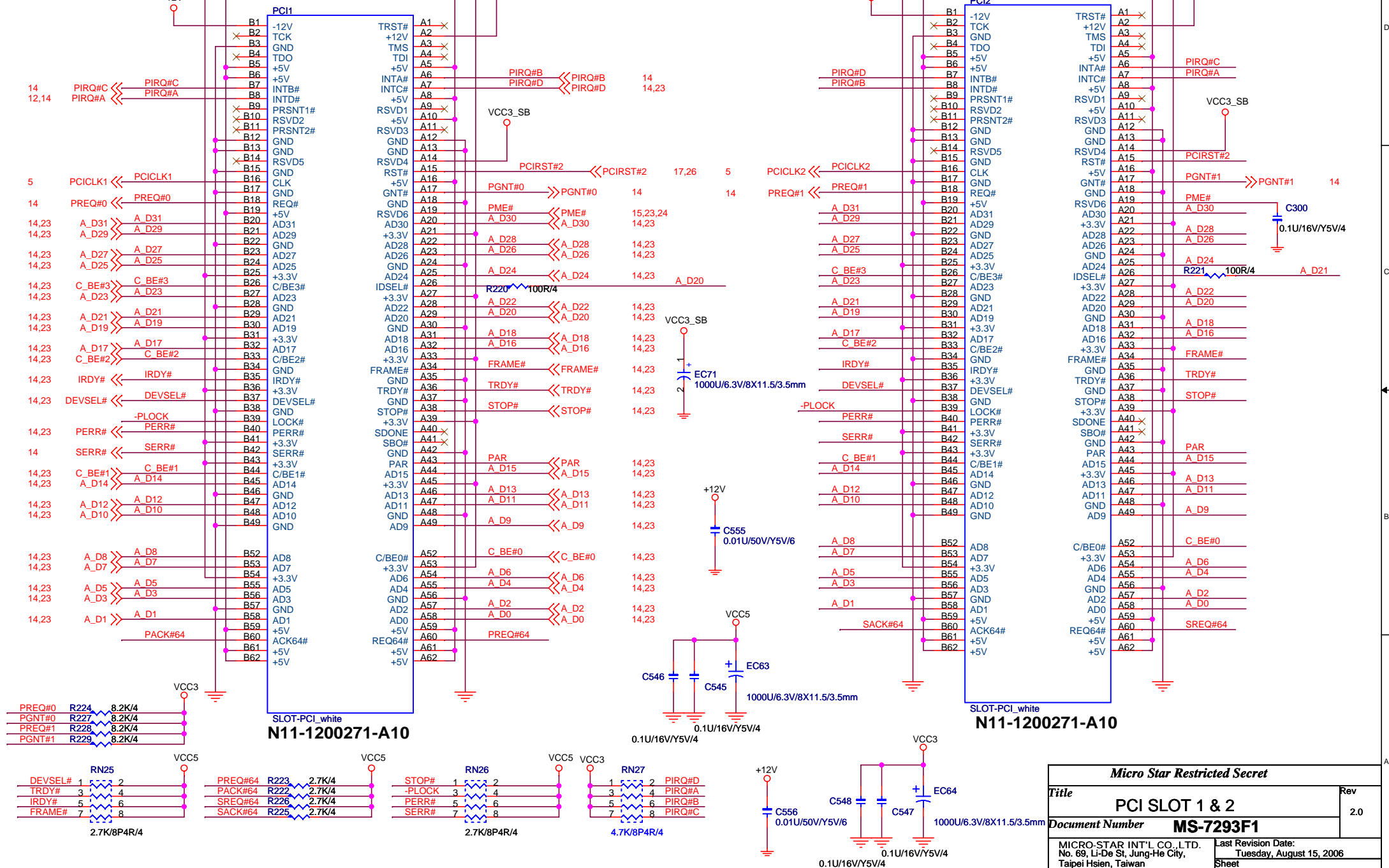








## PCI Connectors



***Micro Star Restricted Secret***

<b>Title</b>
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PCI SLOT 1 & 2

## 2.0

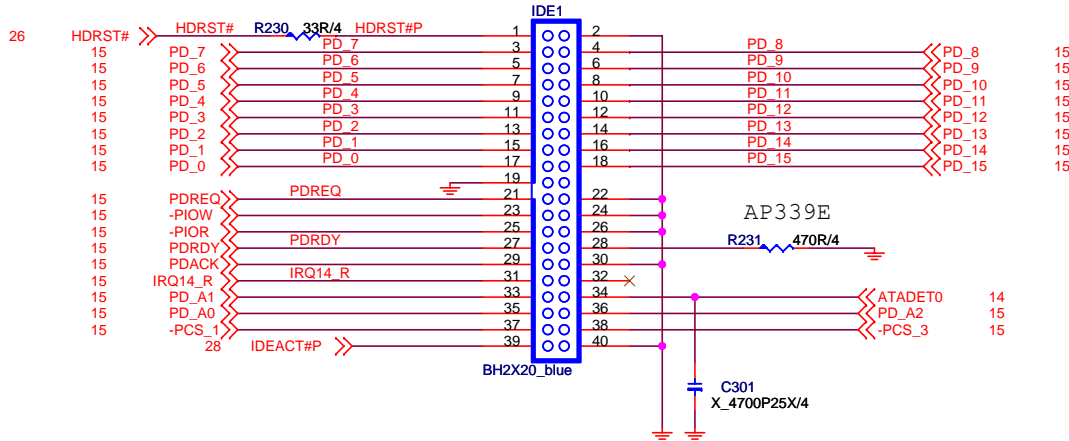
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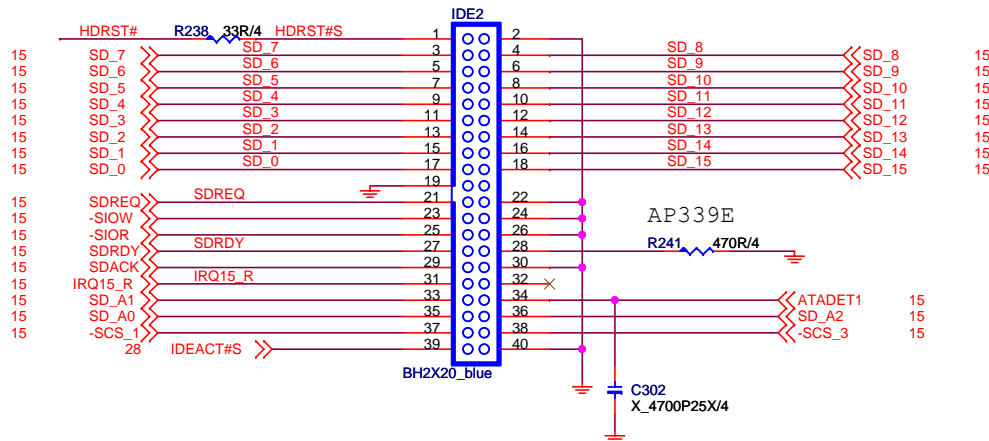
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## PRIMARY IDE BLOCK

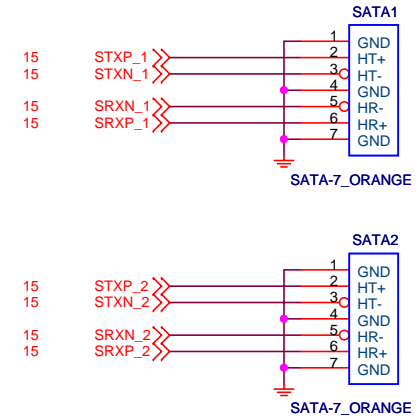


N32-2201221-H06

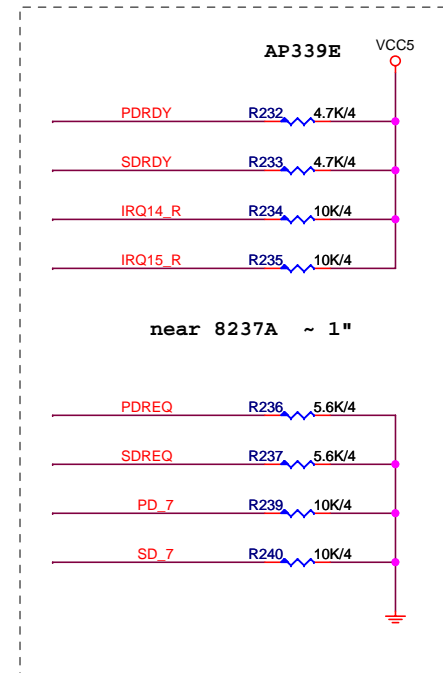
## SECONDARY IDE BLOCK



## SERIAL ATA CONNECTOR BLOCK

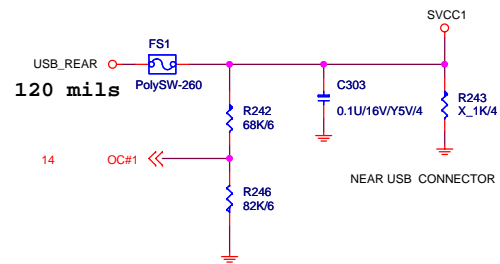


N5N-07M0131-H06

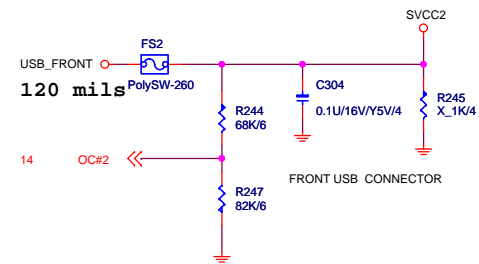


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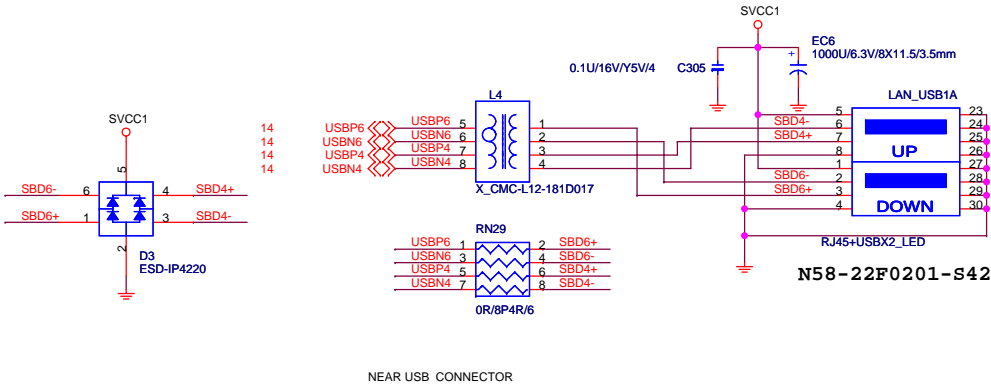
### POWER CIRCUIT FOR USB PORT 0,1,2,3



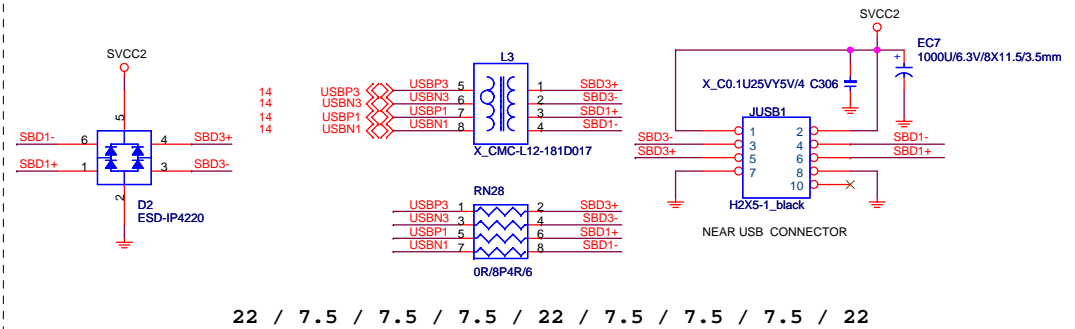
### POWER CIRCUIT FOR USB PORT 4,5,6,7



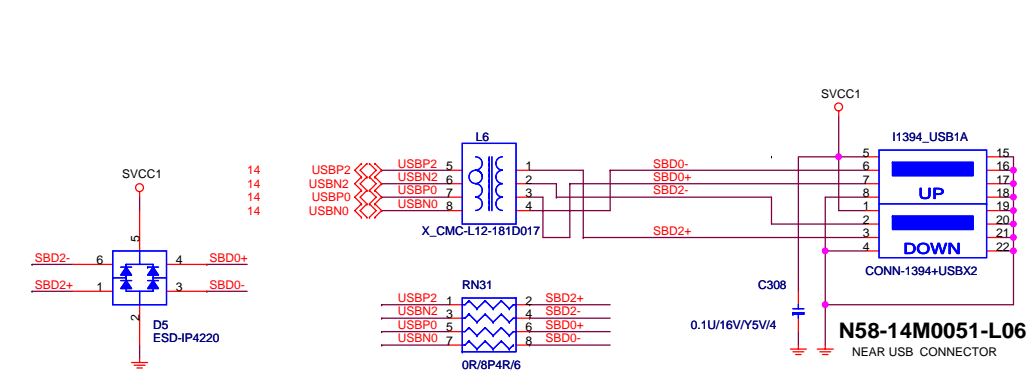
### REAR PANEL USB CONNECTOR FOR USB PORT 0,1



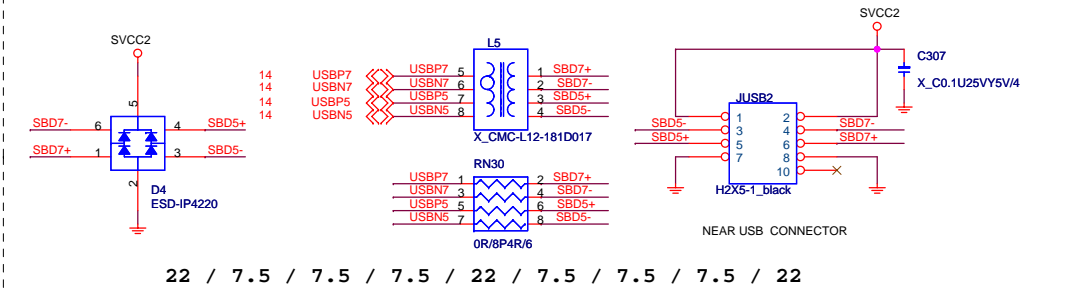
### FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



### REAR PANEL USB CONNECTOR FOR USB PORT 2,3

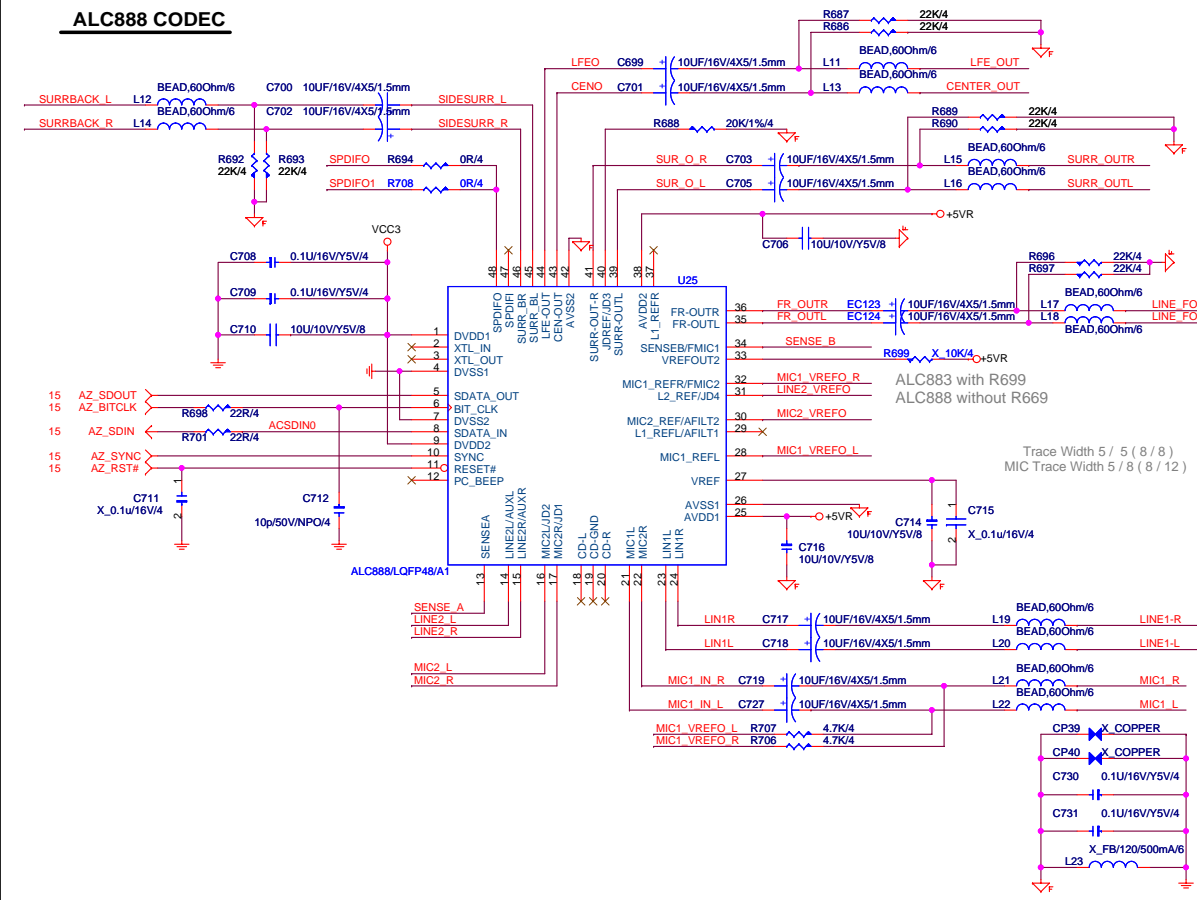


### FRONT PANEL USB CONNECTOR FOR USB PORT 6,7

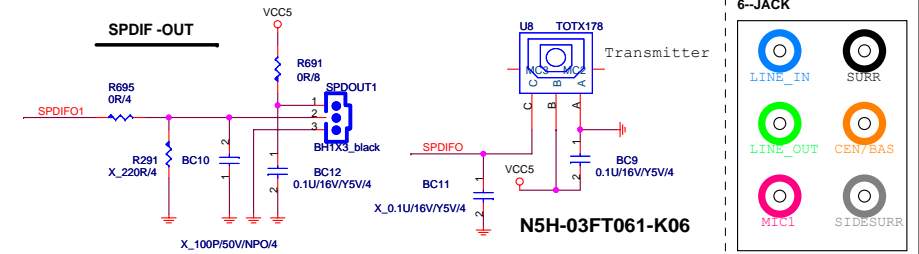


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Title	USB-Rear & Front Conn.	Rev 2.0
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## ALC888 CODEC

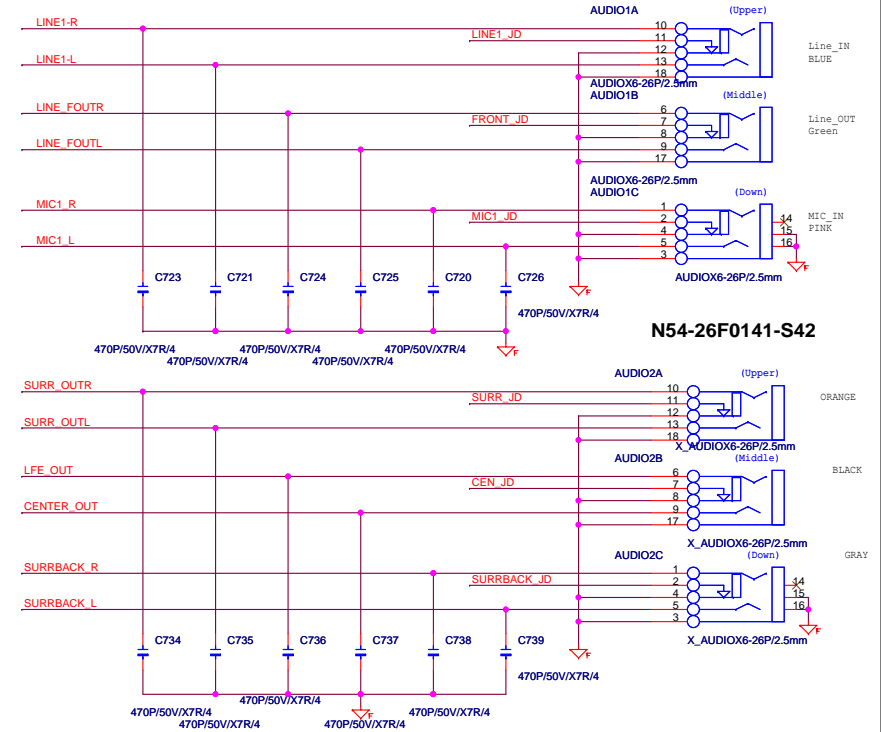


Optical : C704 / 0 Ohm ; R695 / 0 Ohm ; R291 / NC ; BC10 / NC ; R691 / 0 Ohm ; BC12 / 0.1UF  
RCA : C704 / 0.01UF ; R695 / 100 Ohm ; R291 / 220 Ohm ; BC10 / 100 PF ; R691 / NC ; BC12 / NC



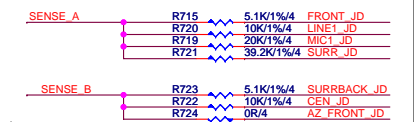
## ALC883/888 JACK

### 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	Surround-Out
CEN/LFE (pin-43,44) /Port-G	Rear Panel	Cen/Lfe-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

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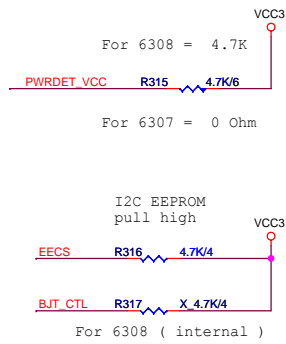
Place those component close to audio connector.



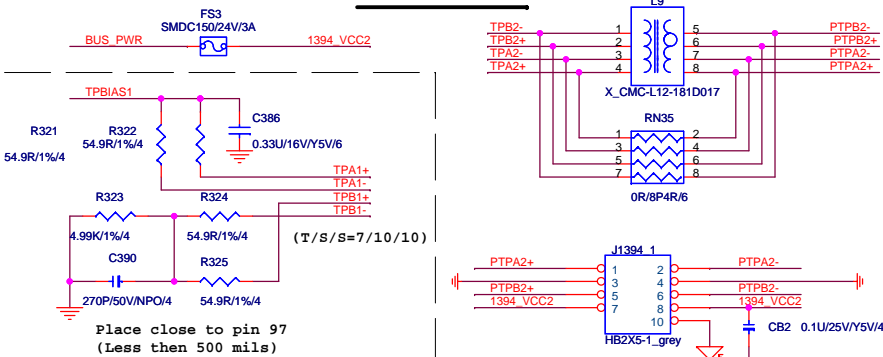


# IEEE-1394

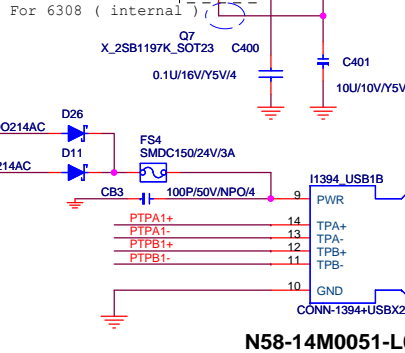
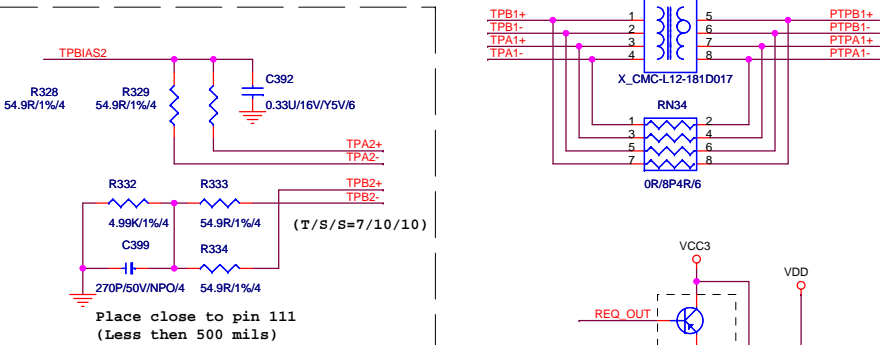
Pin	VT6307	VT6308P
84	NC	BJT_CTL
87	NC	REG_FB
88	NC	REQ_OUT
35	VCC3	PWRDET_VCC
39	VCC3	VCC3
49	VCC3	VDD
24	VCC3	VDD
114	VCC3	VDD
33	VCC3	VDD



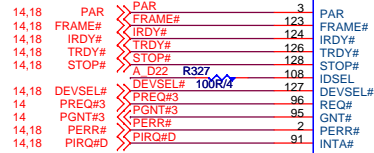
## FRONT 1394 PORT 1



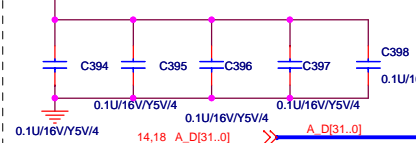
## N32-2051571-H06



## N58-14M0051-L06



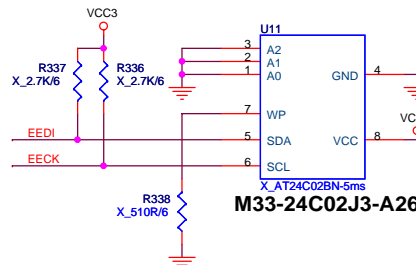
## NEAR EACH POWER PIN



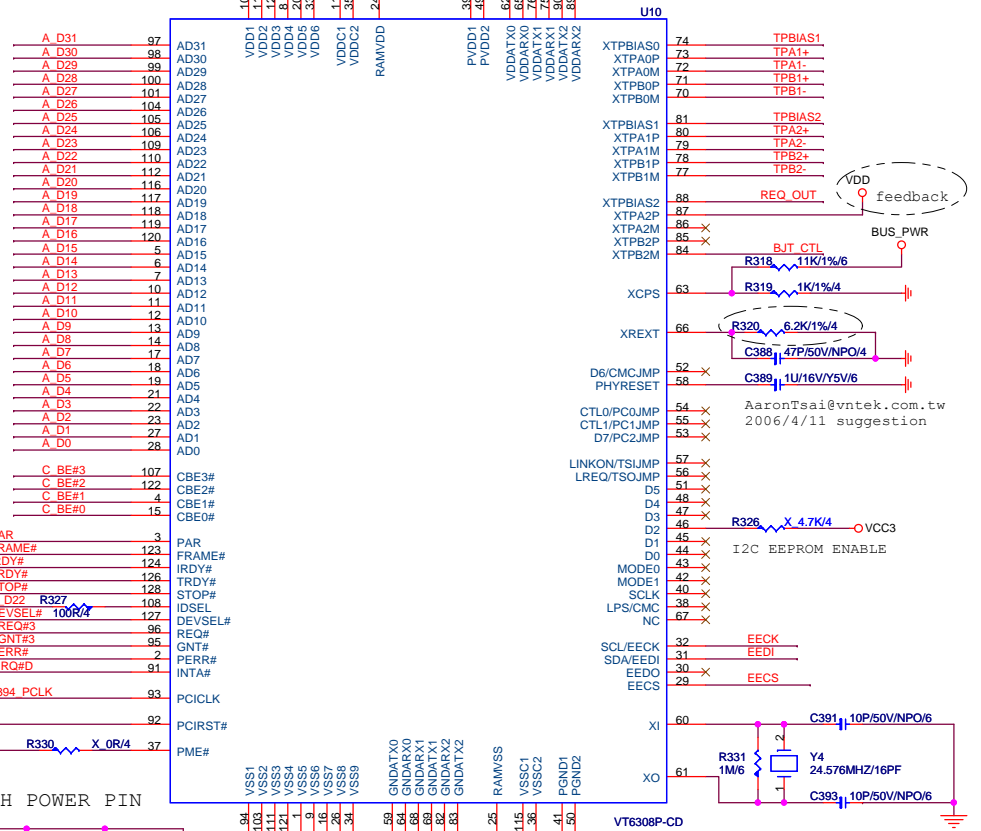
## B07-6308P04-V01

PIRQ#D  
IDSEL = AD22  
MASTER = PREQ#3

## 1394-EEPROM 24C02 for 6307

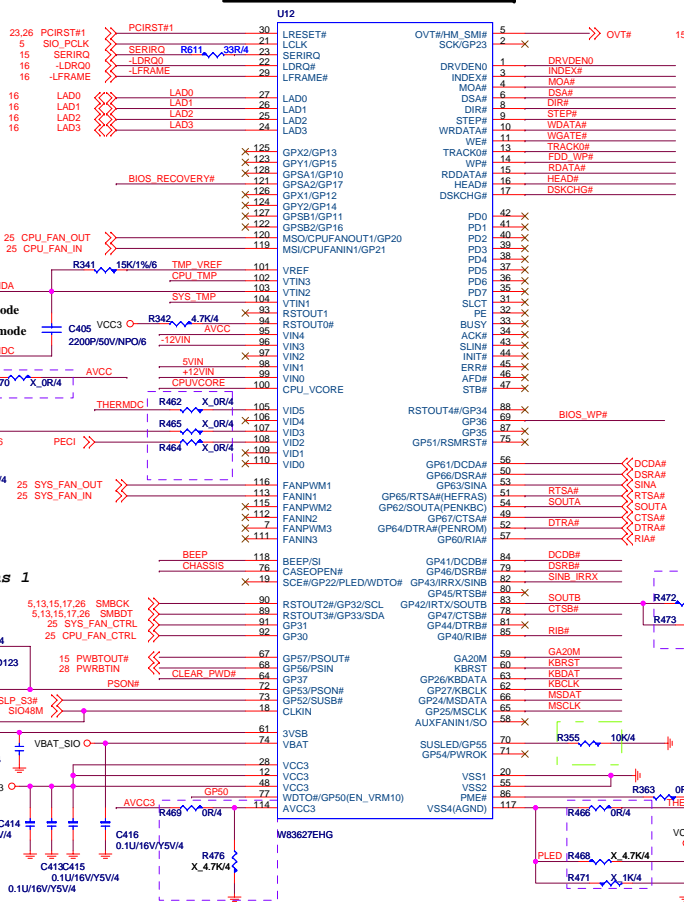


## M33-24C02J3-A26

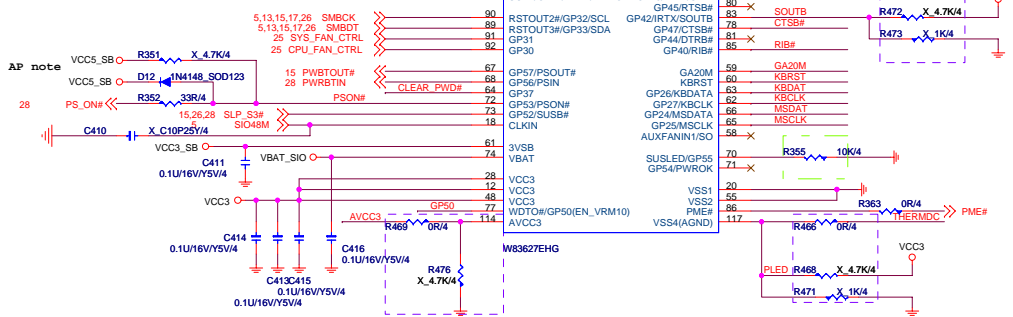


## Super I/O

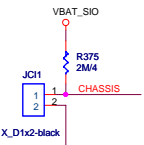
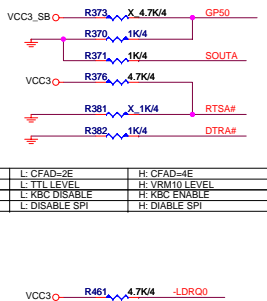
**LPC SUPER I/O W83627EHG**



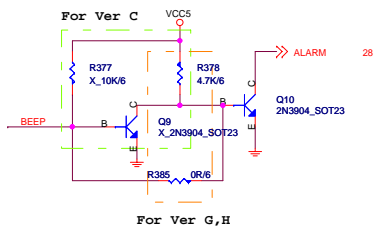
When PSIN function is  
disable, set CRE7 bit 0 as 1



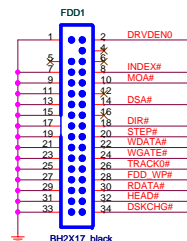
## LPC I/O STRAPPING RESISTOR



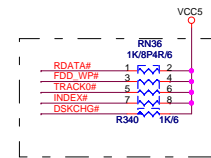
### SPEAKER BLOCK



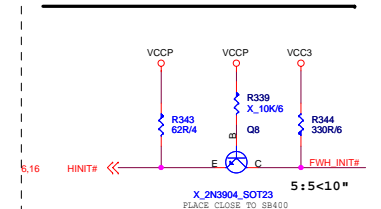
## FLOPPY CONNECTOR



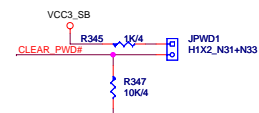
**N32-2173051-H06**



### FWH INIT Signal Voltage Translation

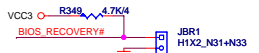


PASSWORD CLEAR JUMPER



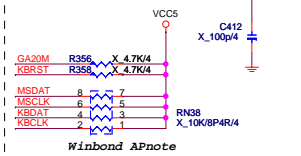
```
Short : Normal
Open - Short : Clear Password
```

## BIOS Recovery



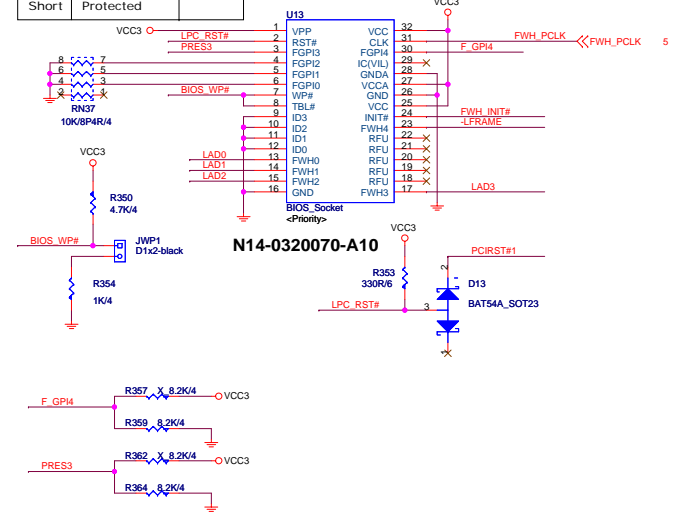
```
Short : Normal
Open - Short : BIOS Recovery
```

## Winbond APnote

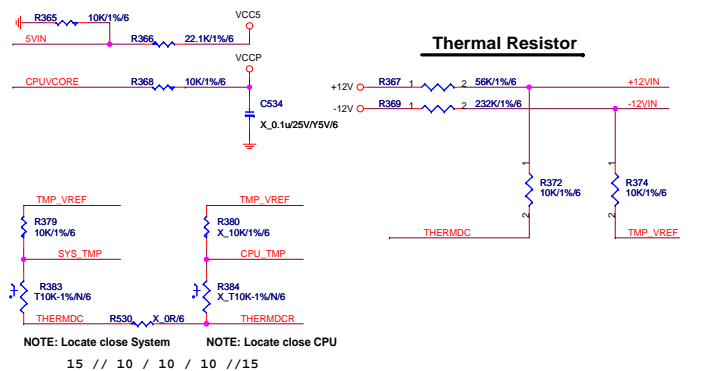


## BIOS PROTECT BLOCK

BIOS Update Config.		
Open	Un_protected	Default
Short	Protected	



### Thermal Resistor



NOTE: Locate close System      NOTE: Locate close CPU

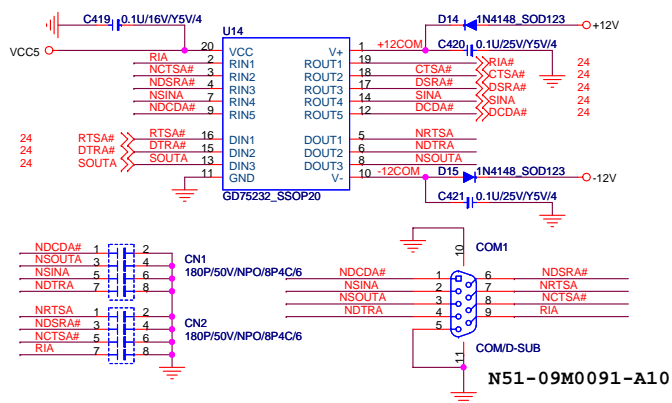
15 // 10 / 10 / 10 //15

**Micro Star Restricted Secret**

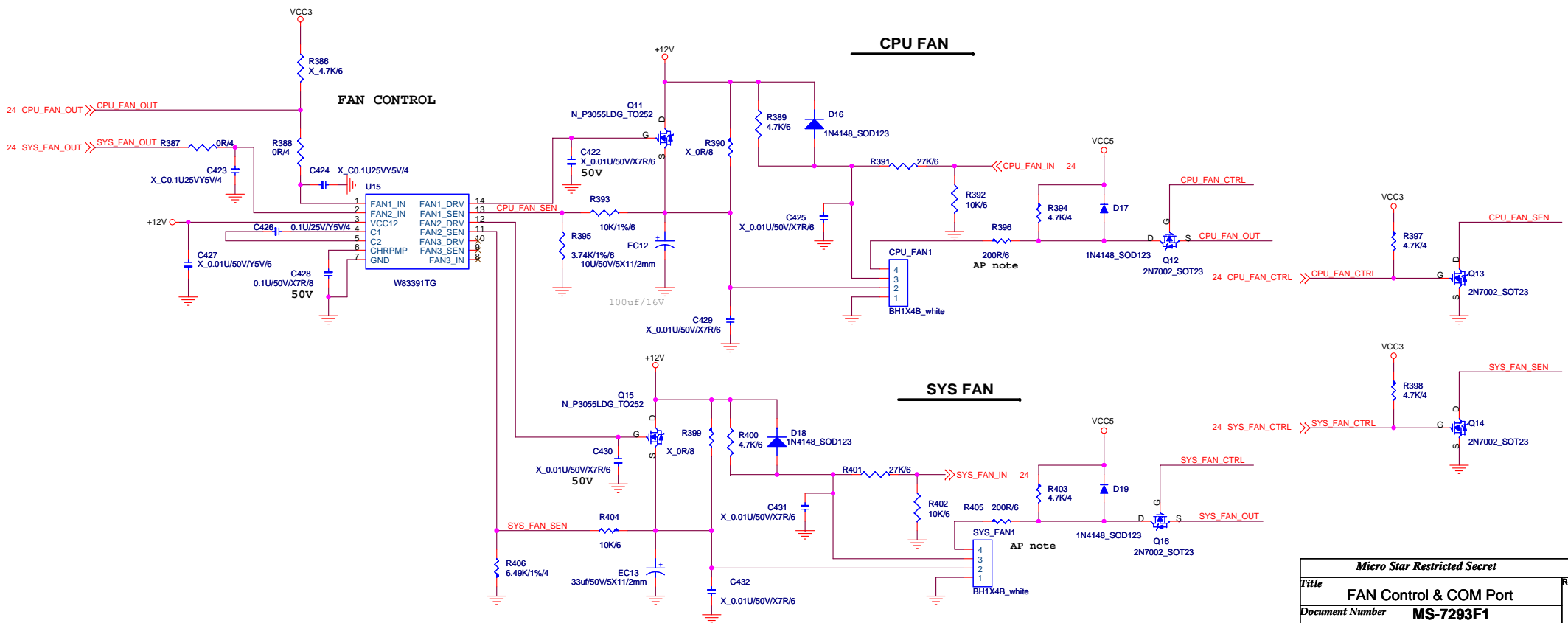
<b>Title</b> <b>Winbond &amp; FDD &amp; LPC &amp; BIOS</b>		<b>Rev</b> <b>2.0</b>
<b>Document Number</b> <b>MS-7293F1</b>		
MICRO-STAR INT'L CO.,LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: <b>Tuesday, August 15, 2006</b> Sheet 24      of      34



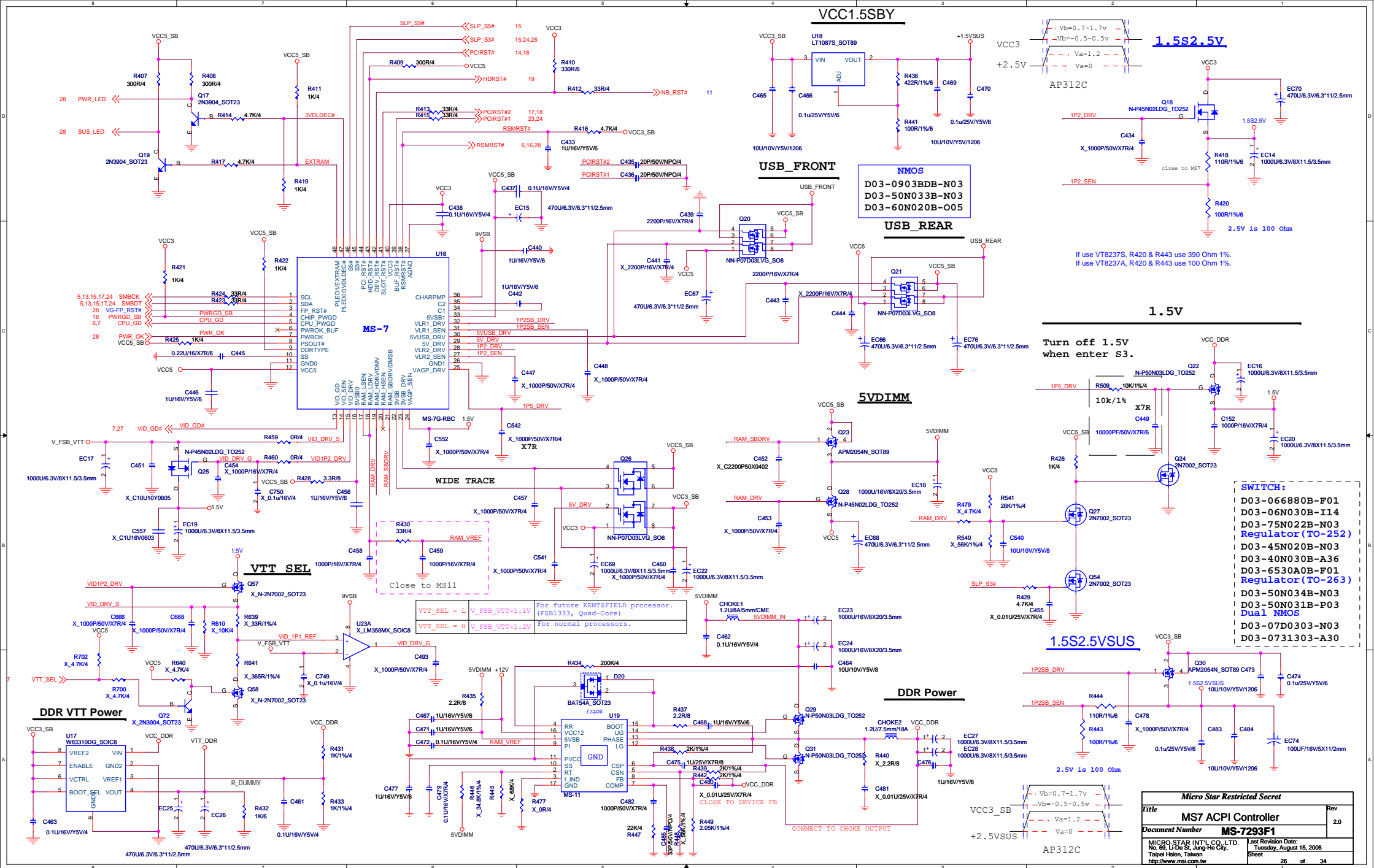
## SERIAL PORT 1



## CPU FAN



Micro Star Restricted Secret		
Title	FAN Control & COM Port	Rev 2.0
Document Number	MS-7293F1	
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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

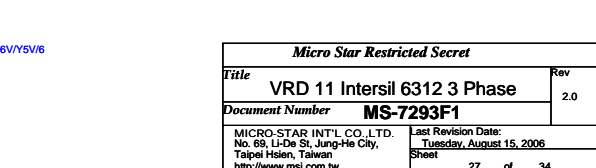
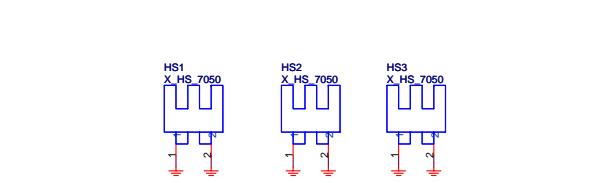
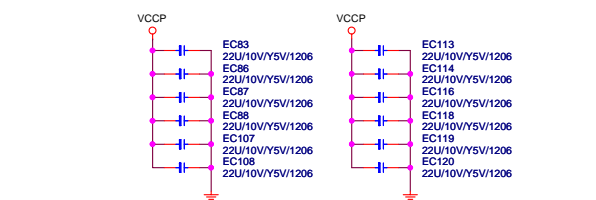
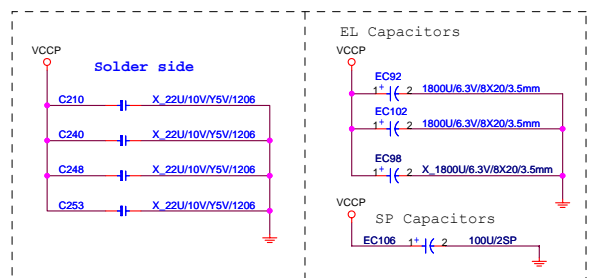
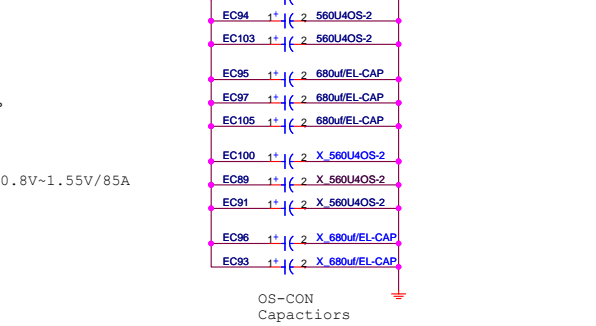
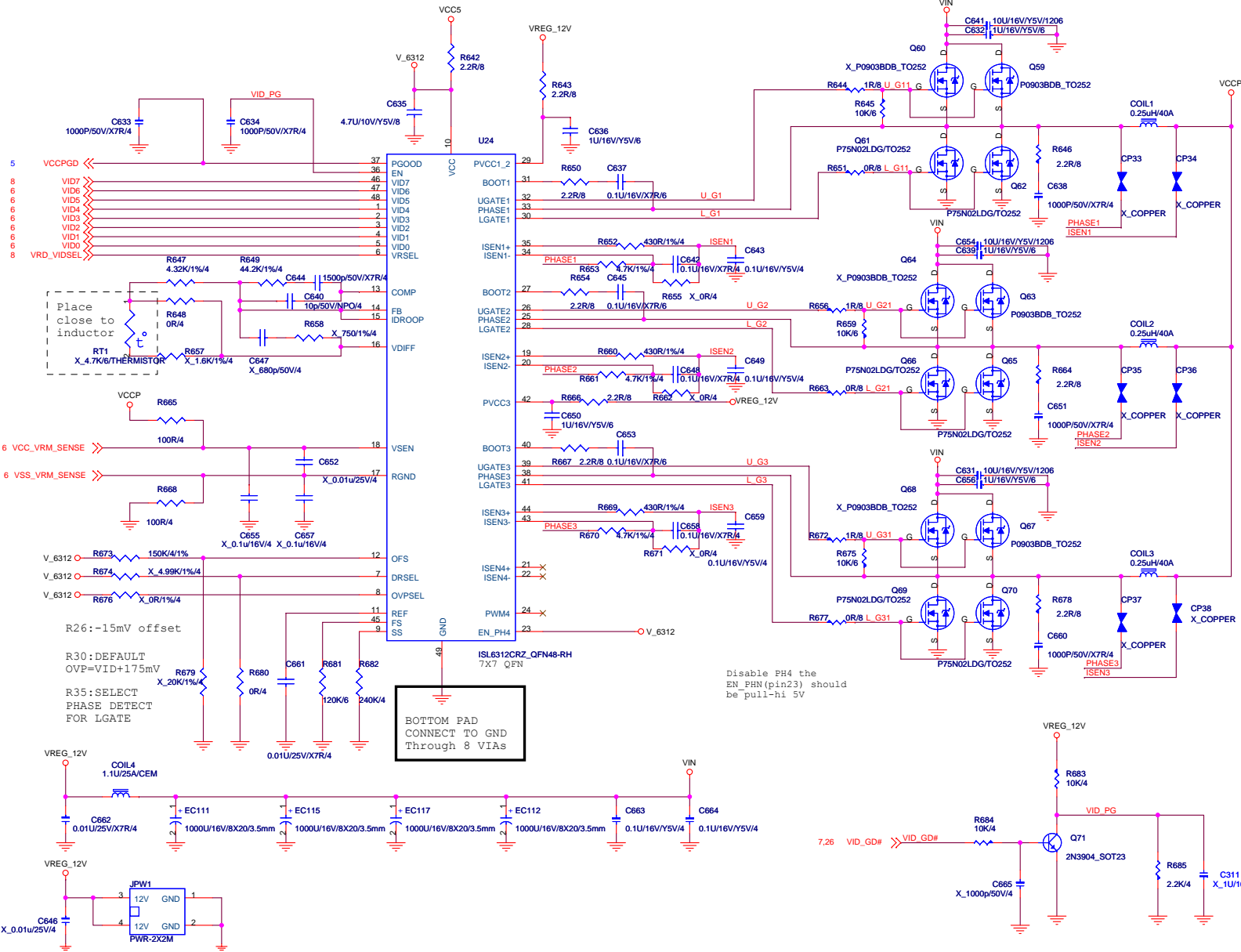
P75N02LDG/TO252 ESR<13mΩ, Ripple cur.<2.7A, LC<12uA, 105C

C100U2SP 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, K2J series

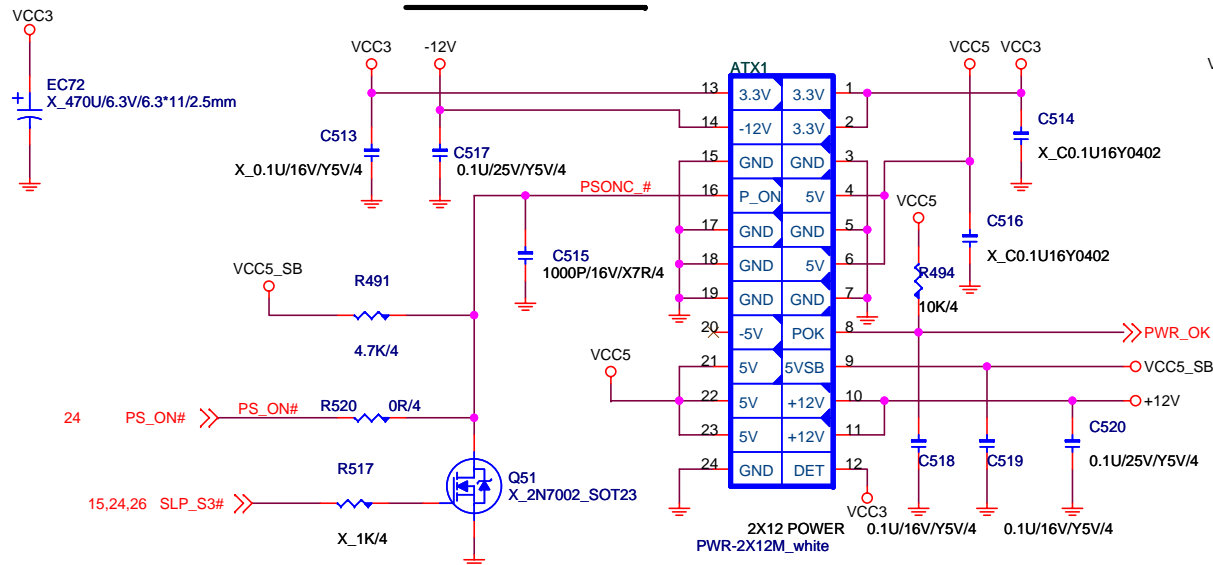
0.25uH/40A, IND CHOKE, 1.1uH, 20%, DIP/9mm, 25A, 1.4mOhm, 5.5T, 0.9mmx3, PEW, IRON, LEAD FREE

CH-1.1U25A-LF CAP, EL, 1000u, 16V, Dip-8x20/3.5mm, 20%, 12mOhm, 2350mA, 105C, 3000hrs, RoHS COMPLIANCE

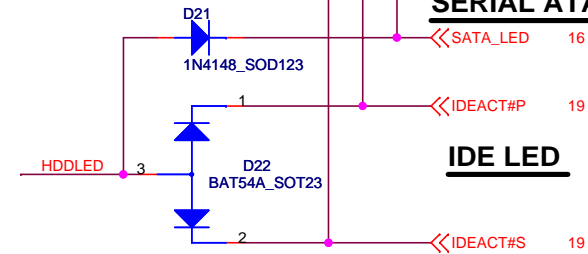


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Document Number	MS-7293F1	
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## ATX Connector

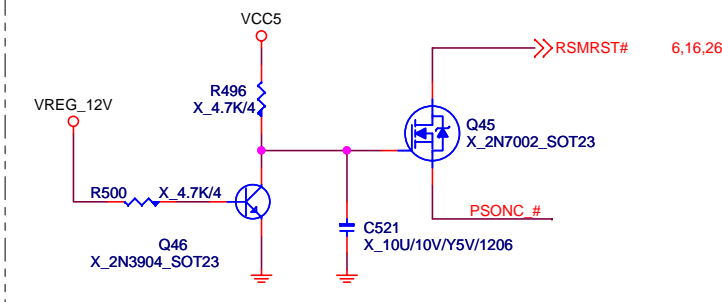


## SERIAL ATA LED

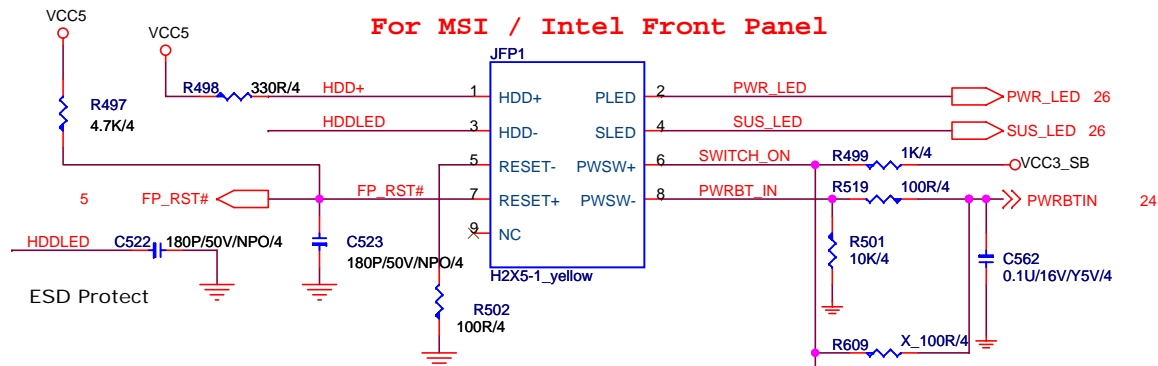


## IDE LED

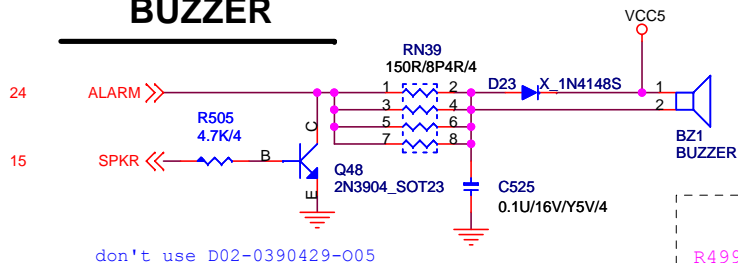
Support when not plug in 2x2 +12V power cable, system will auto shutdown.



## For MSI / Intel Front Panel

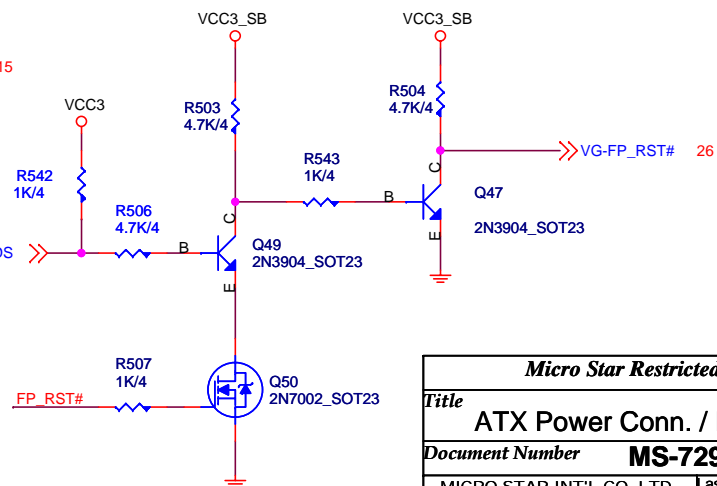


## BUZZER



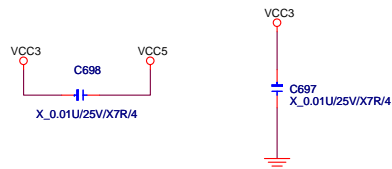
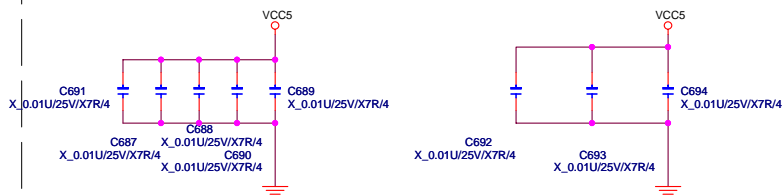
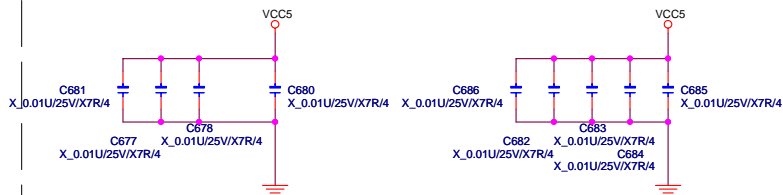
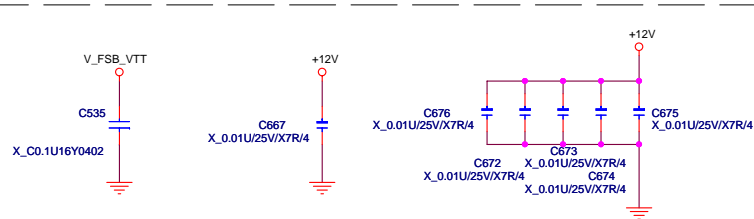
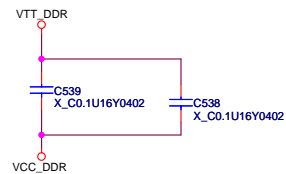
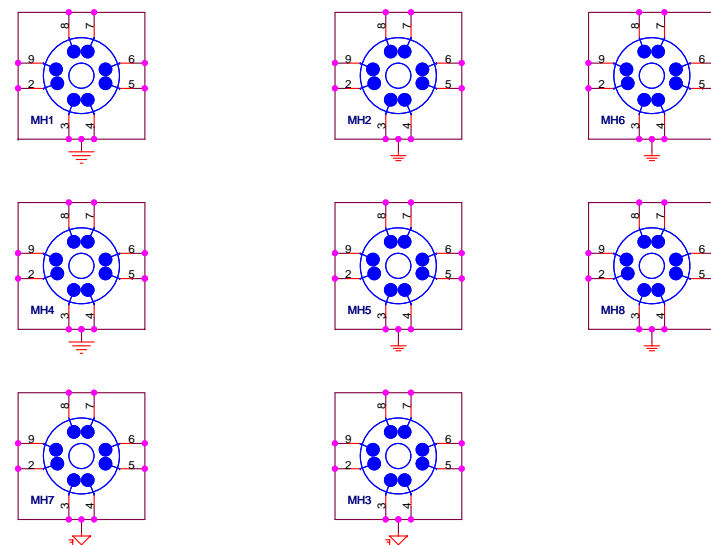
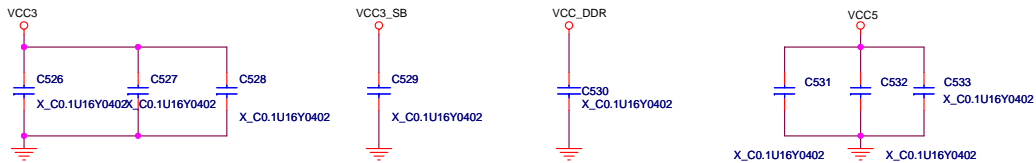
don't use D02-0390429-005

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

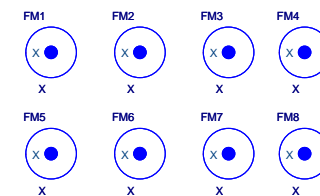
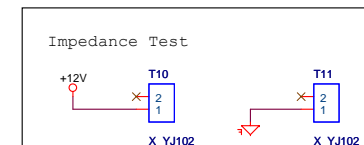
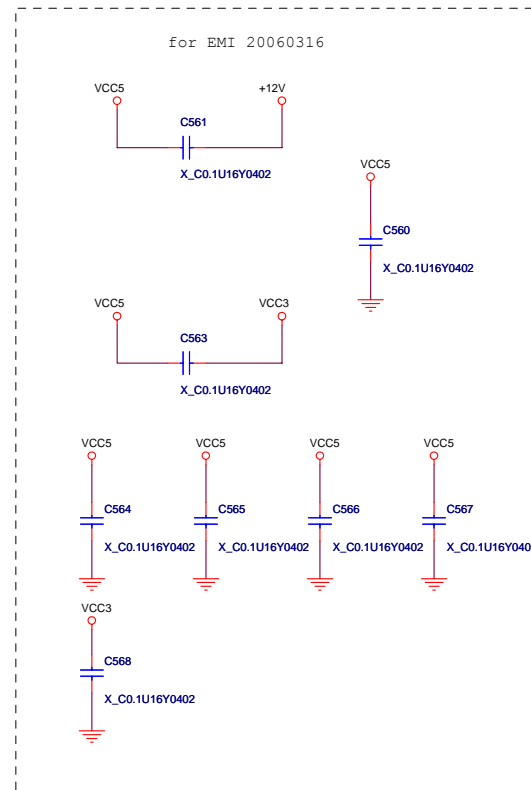


## Micro Star Restricted Secret

Title	Rev
ATX Power Conn. / Front Panel	2.0
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, August 15, 2006 Sheet 28 of 34

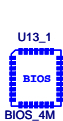
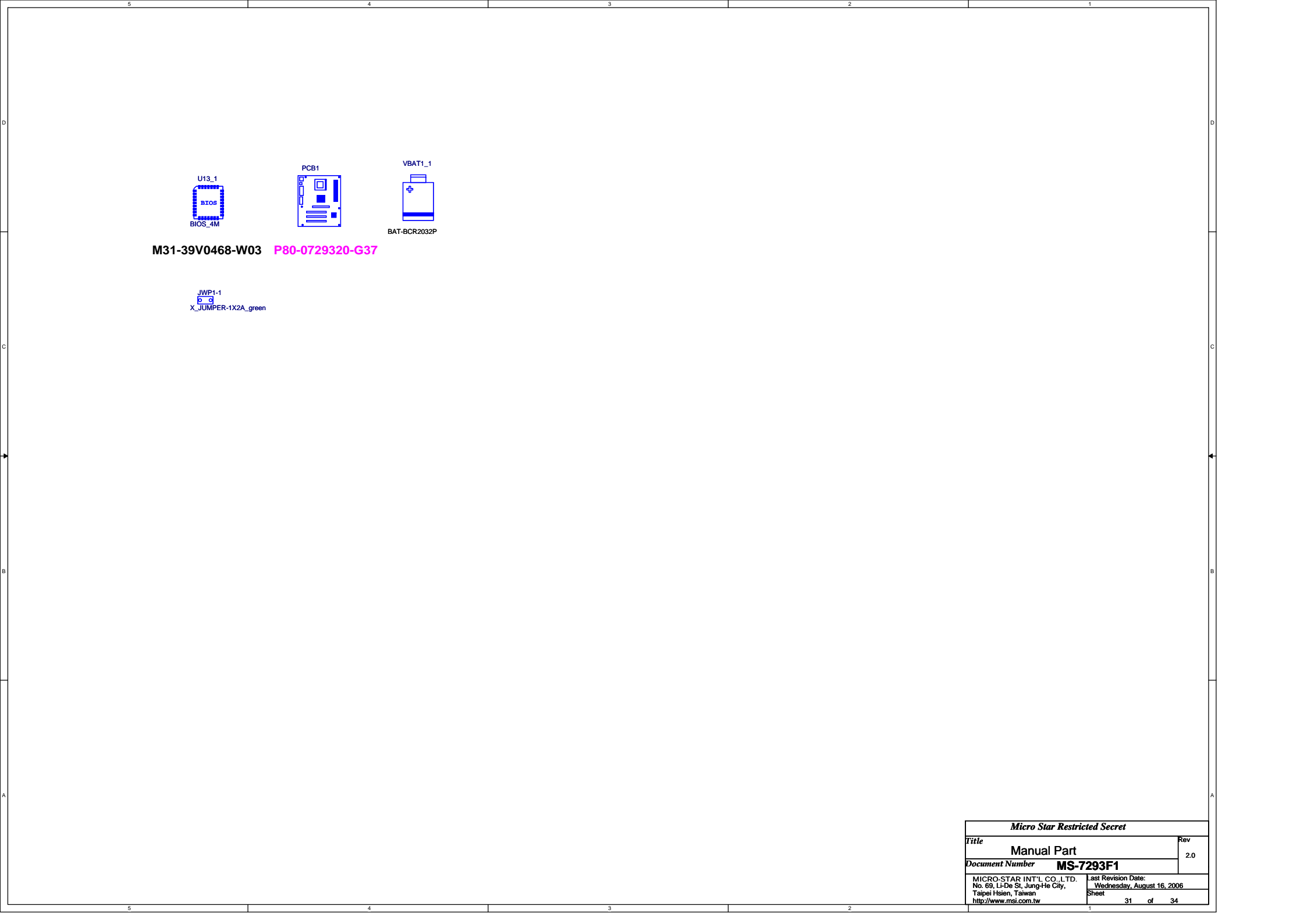


for EMI Request 20060414



Micro Star Restricted Secret		
Title	Holes / Decoupling	Rev
Document Number	MS-7293F1	2.0
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St. Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Tuesday, August 15, 2006 Sheet 29 of 34

Micro Star Restricted Secret		
Title	History	Rev 2.0
Document Number		MS-7293F1
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Wednesday, July 19, 2006 Sheet 30 of 34

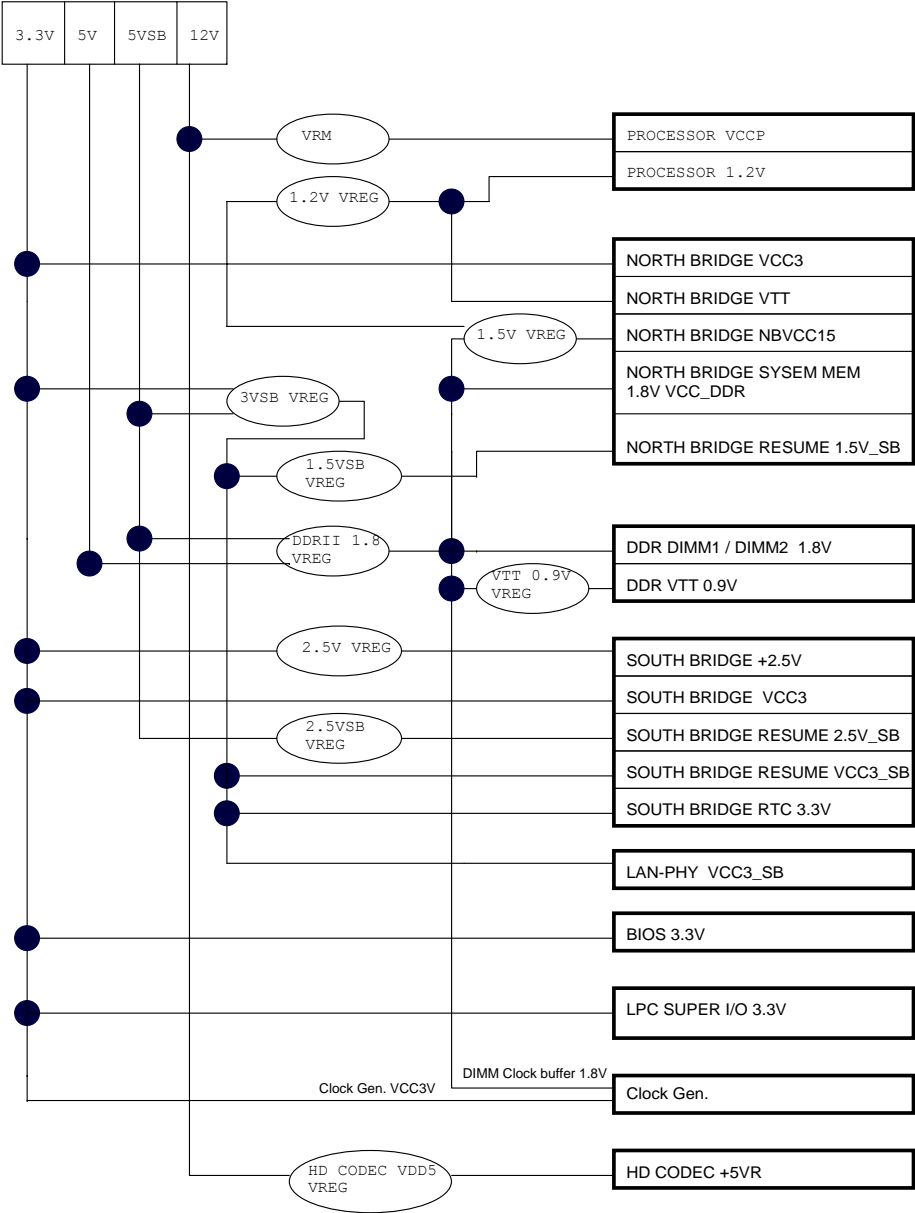


M31-39V0468-W03 P80-0729320-G37

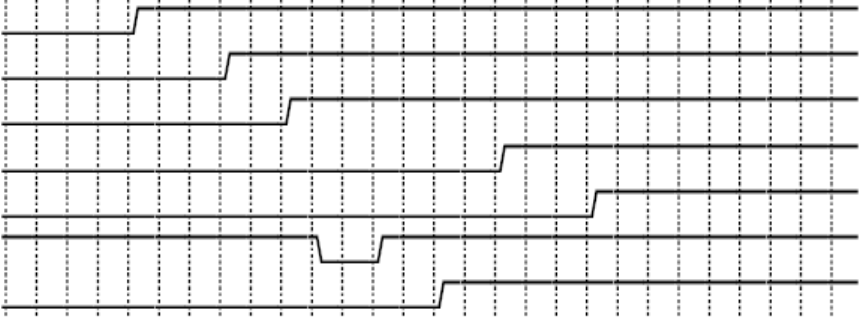


Micro Star Restricted Secret		
Title	Manual Part	Rev 2.0
Document Number	MS-7293F1	
MICRO-STAR INT'L CO.,LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Wednesday, August 16, 2006 Sheet 31 of 34

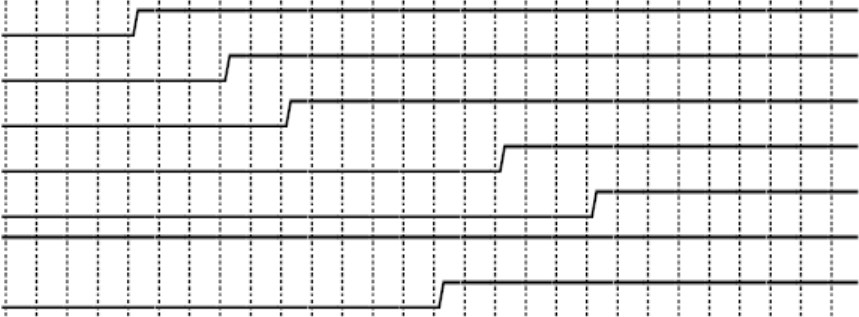
PT890CE PLATFORM POWER DELIVERY Map



Power On Sequence with default OFF

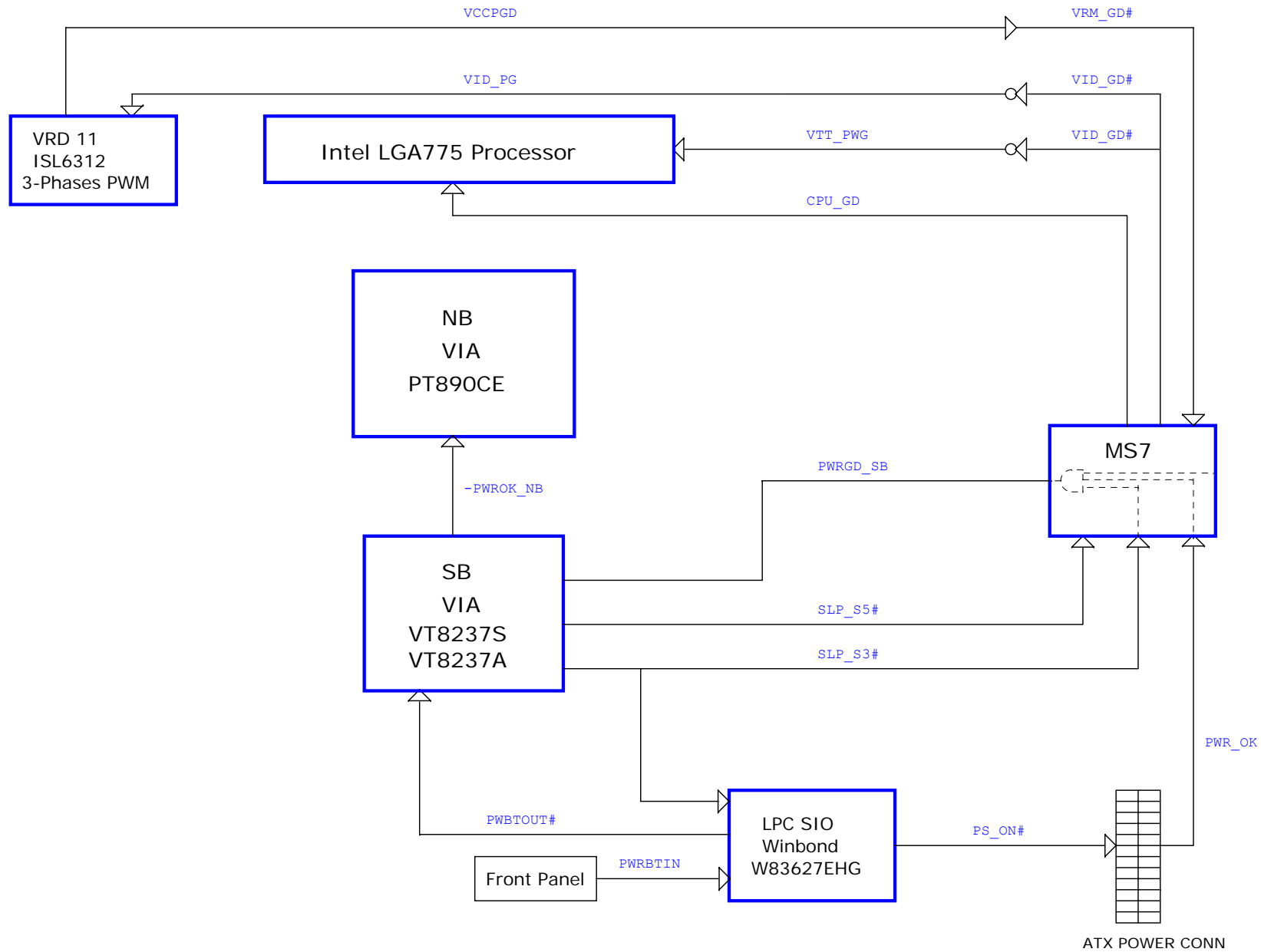


Power On Sequence with default ON



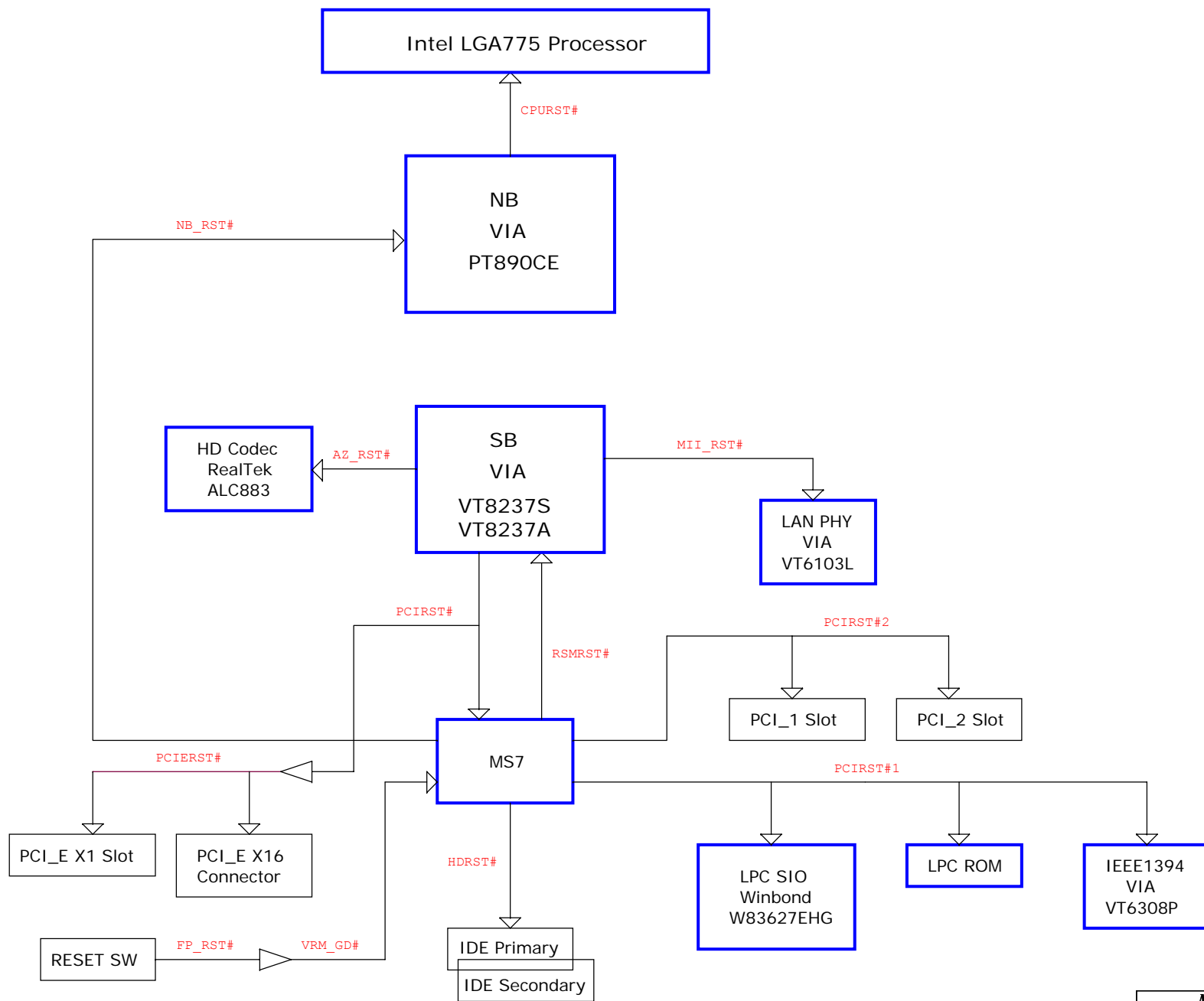


# PWROK Map



Micro Star Restricted Secret		
Title	PWROK Map	Rev 2.0
Document Number	MS-7293F1	
MICRO-STAR INT'L CO., LTD. No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Thursday, July 20, 2006 Sheet 33 of 34

# RESET Map



Micro Star Restricted Secret		
Title	RESET Map	Rev 2.0
Document Number	MS-7293F1	
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