

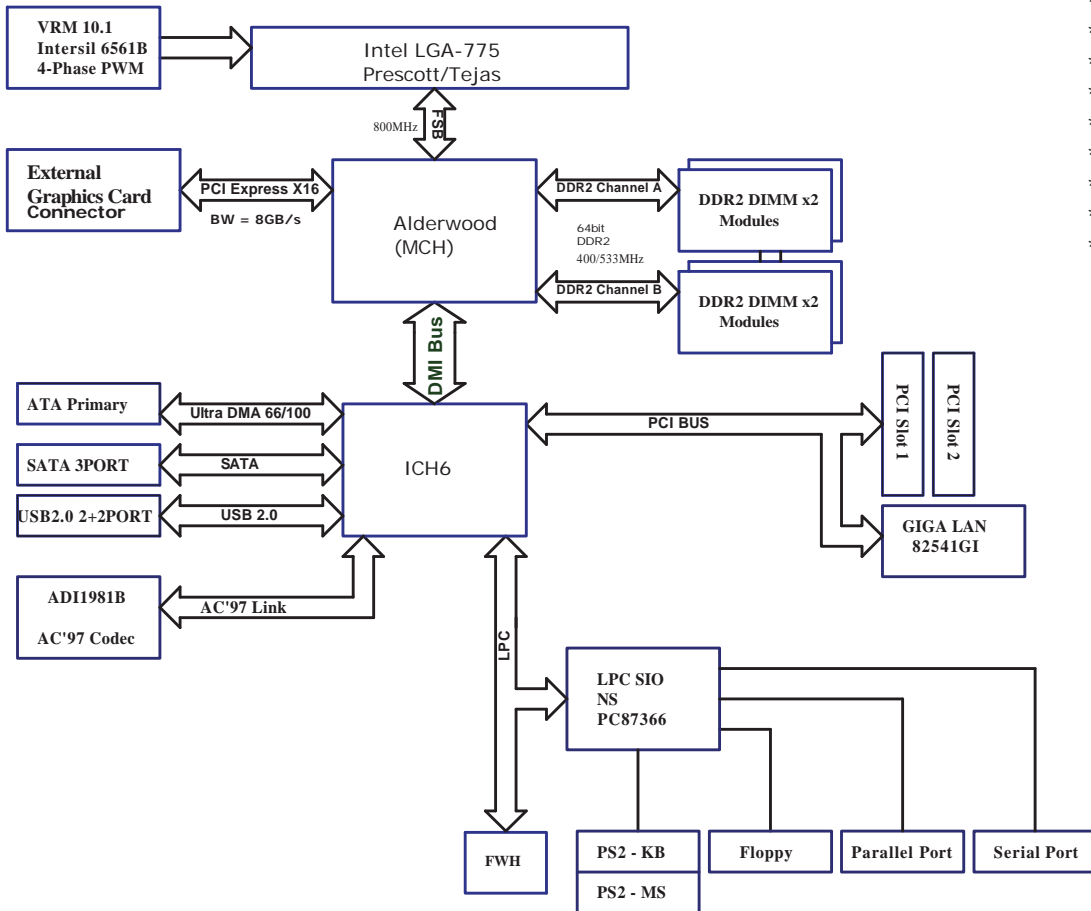


# AWO

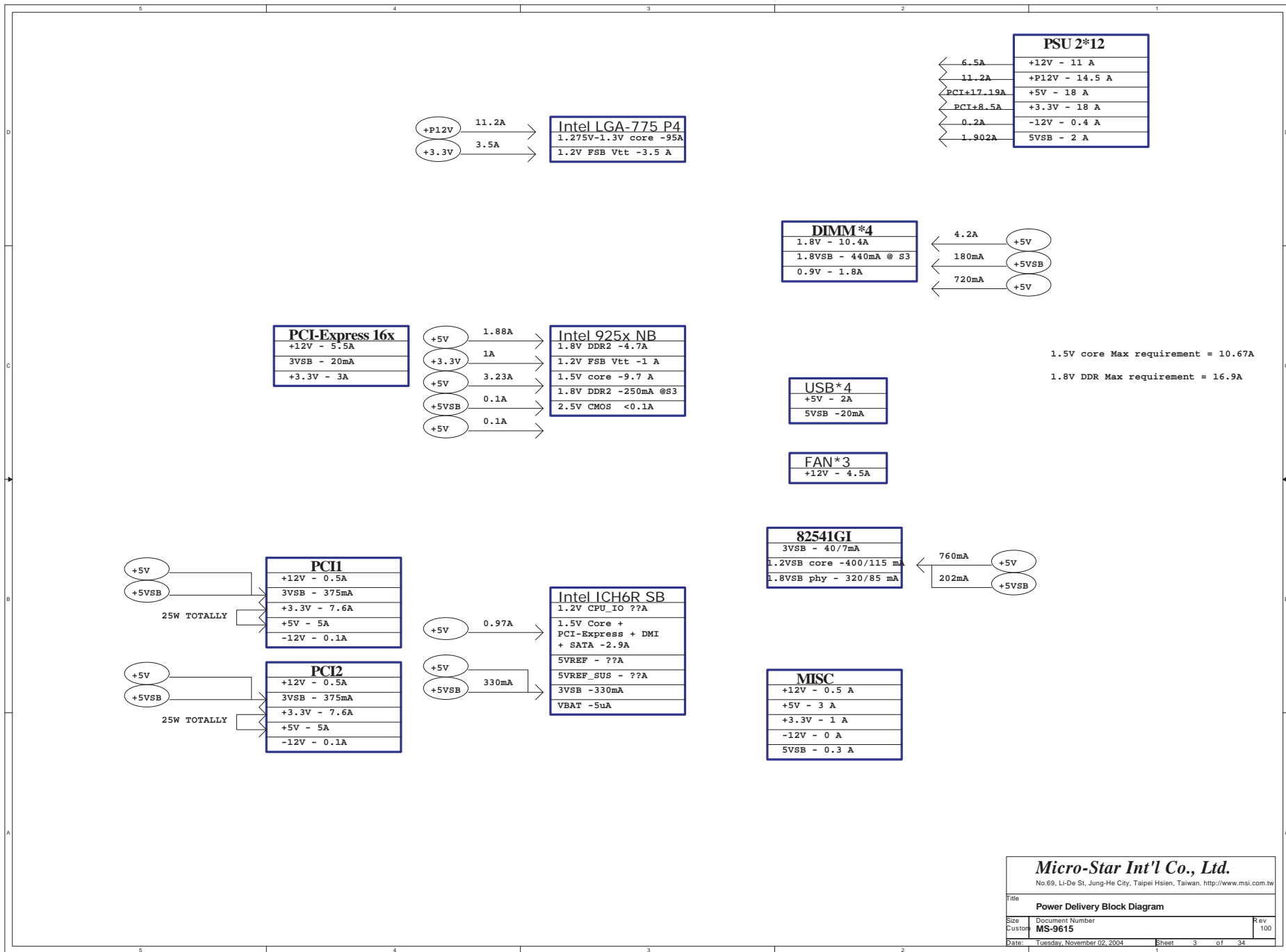
## MS-9615 BLOCK DIAGRAM

### Preliminary Spec

- \* Intel Alderwood / ICH6R Chipset
- \* Supporting Prescott LGA-775 CPUs
- \* 6 Layer uATX Form Factor
- \* 4 DDR2 unbuffered ECC DIMMs (2 Channel)
- \* PCI Express X16 for Graphic
- \* USB 2.0 (Rear x2, Front x2)
- \* 2 PCI slots
- \* AD1981B AC97 codec
- \* Serial ATA (3 ports) + RAID 0, 1
- \* Gigabit LAN 82541GI



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<b>System Block Diagram</b>			
File			
Size	Document Number	Rev	
Custom	<b>MS-9615</b>	<b>100</b>	
Date	Tuesday, November 02, 2004	Sheet	2 of 34

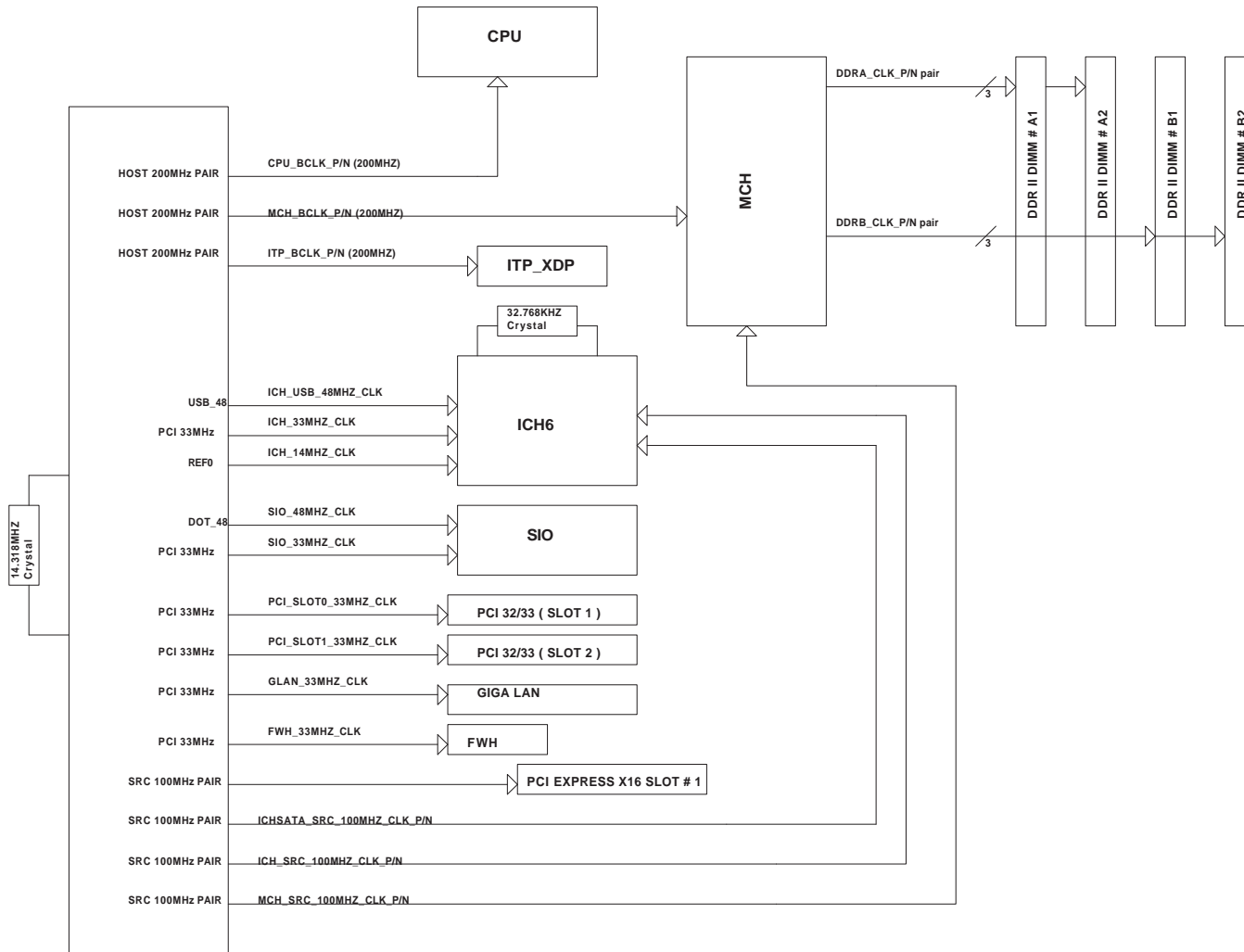


**Micro-Star Int'l Co., Ltd.**

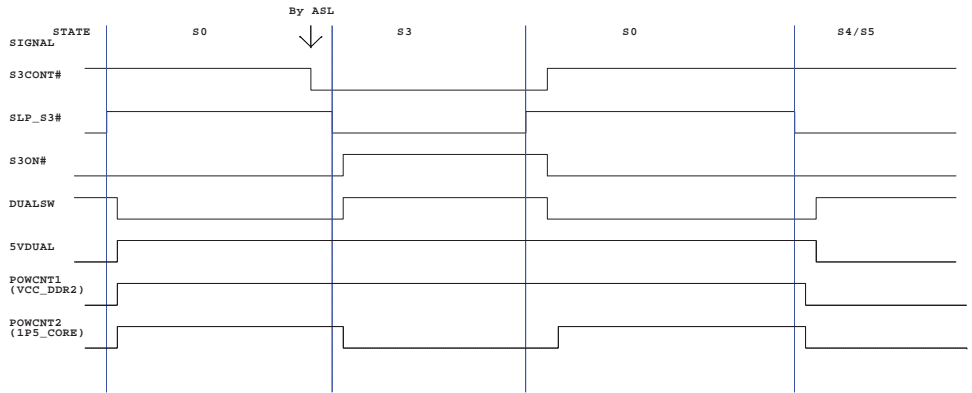
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Title		
Power Delivery Block Diagram		
Size	Document Number	Rev
Custom	MS-9615	100
Date:	Tuesday, November 02, 2004	Sheet 3 of 34

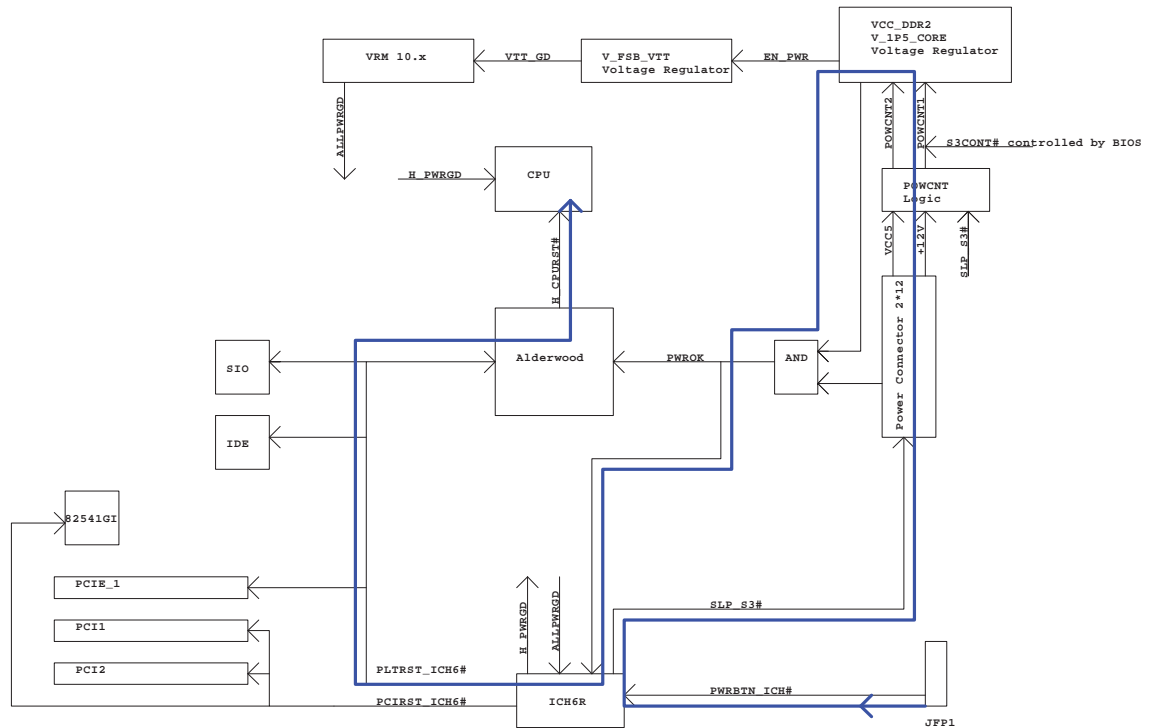
# MS-9615 CLOCK BLOCK DIAGRAM



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<b>System Clock Block Diagram</b>		
Title		
Size	Document Number	Rev
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$^*S3CONT\# * DUALSW = S3ON\#$   
 $SLP\_S3\# * ^*DUALSW + S3ON\# = SVDUAL$   
 $^*S3CONT\# + SLP\_S3\# = POWCNT1 (VCC\_DDR2)$



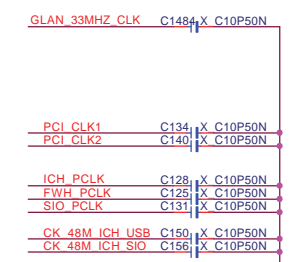
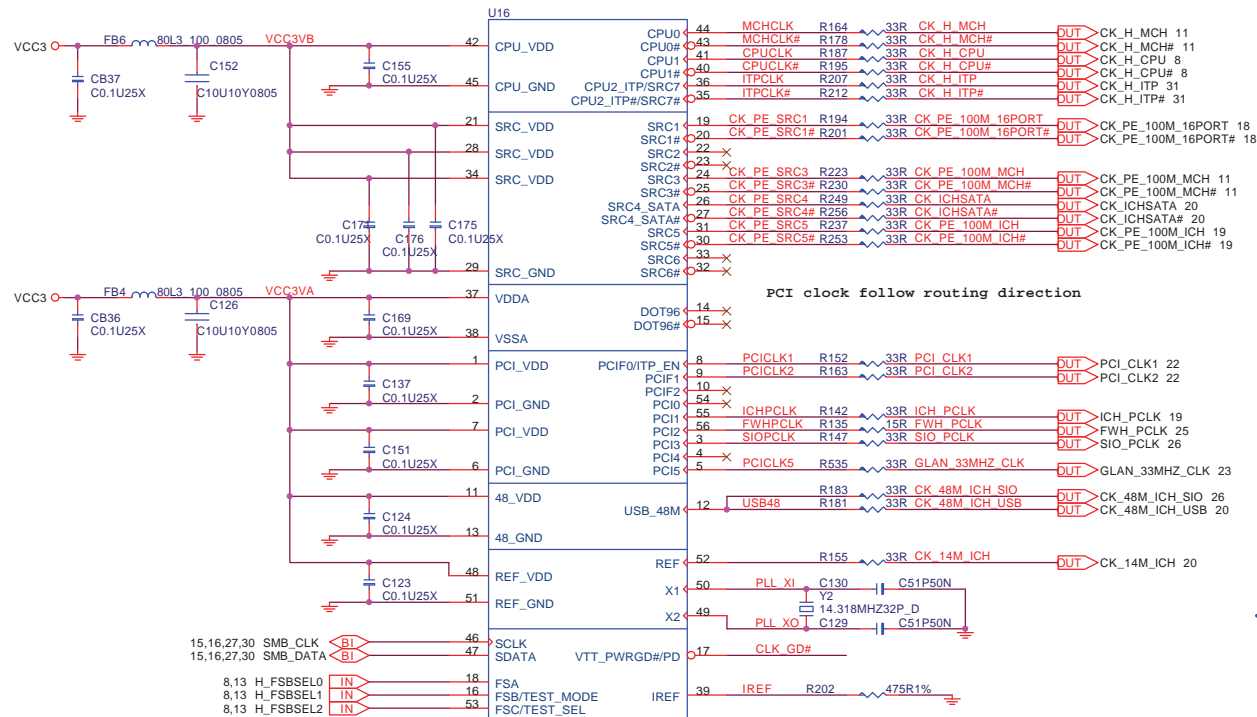
<b>Micro-Star Int'l Co., Ltd.</b>			
No.69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>			
Title	<b>System Reset Block Diagram</b>		
Size	Document Number	Rev	
Custom	<b>MS-9615</b>	100	
Date:	Tuesday, November 02, 2004	Sheet	5 of 34

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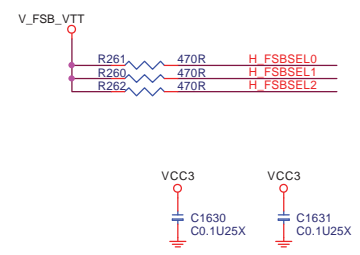
<b>Micro-Star Int'l Co., Ltd.</b>		
No.69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		
Title		
<b>BLANK</b>		
Size	Document Number	Rev
B	<b>MS-9615</b>	100
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### Clock Generator - CY28410

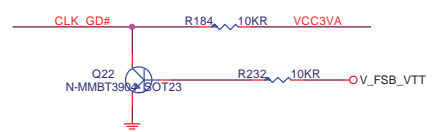
Trace length less than 0.5inches



EMC HF filter capacitors, located close to PLL



### Clock Generator VTT Power Down Block



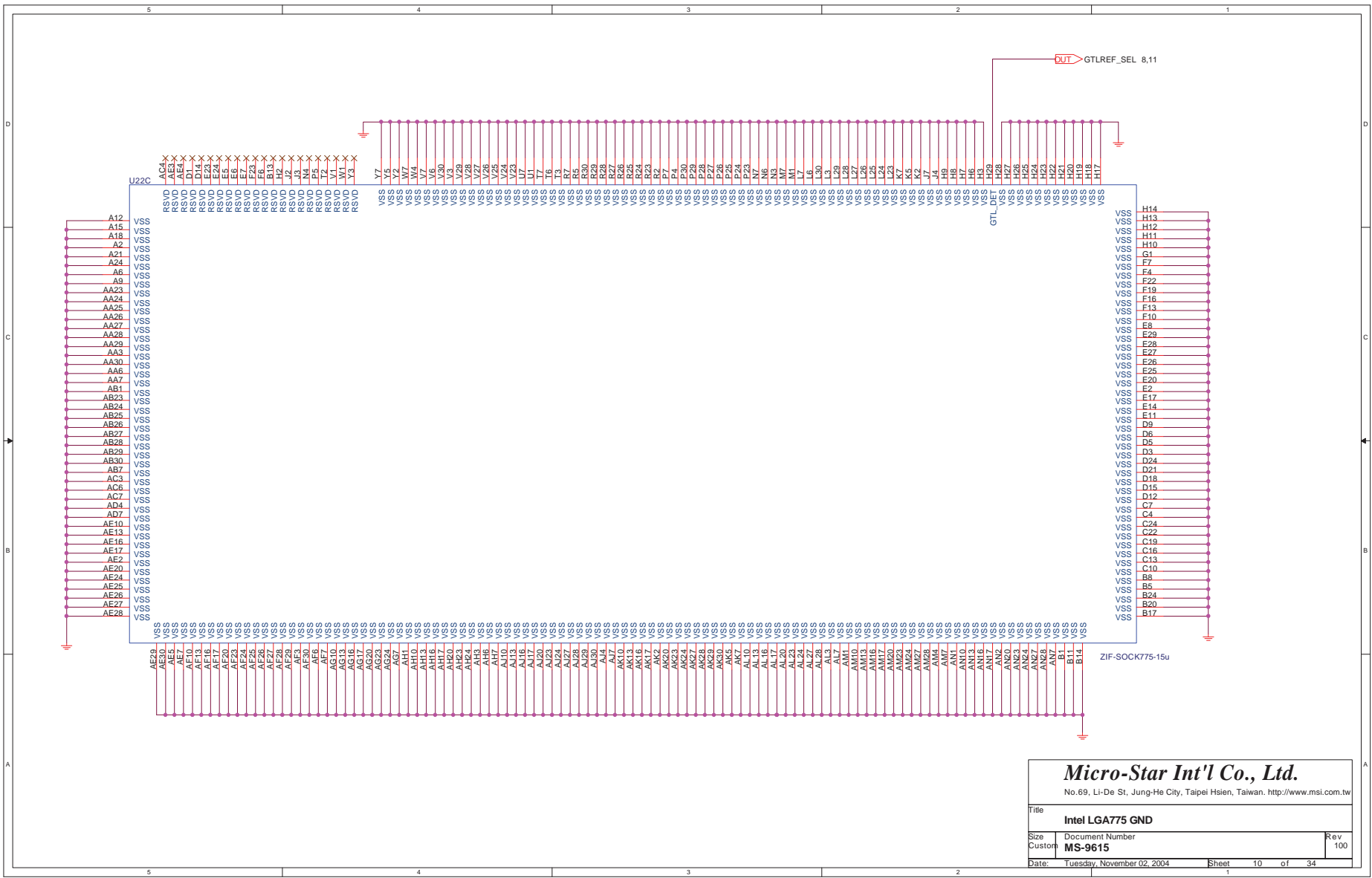
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 No.69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <http://www.msi.com.tw>

Title <b>CK410-CY28410</b>		
Size Custom	Document Number <b>MS-9615</b>	Rev 100
Date: Tuesday, November 02, 2004	Sheet 7	of 34





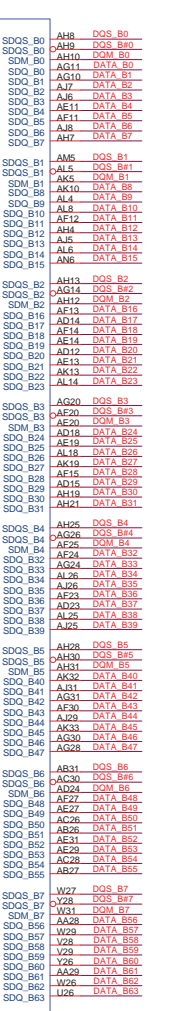
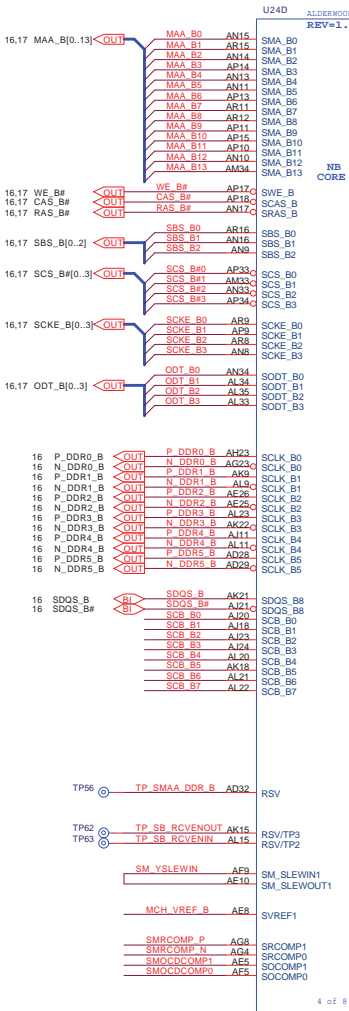
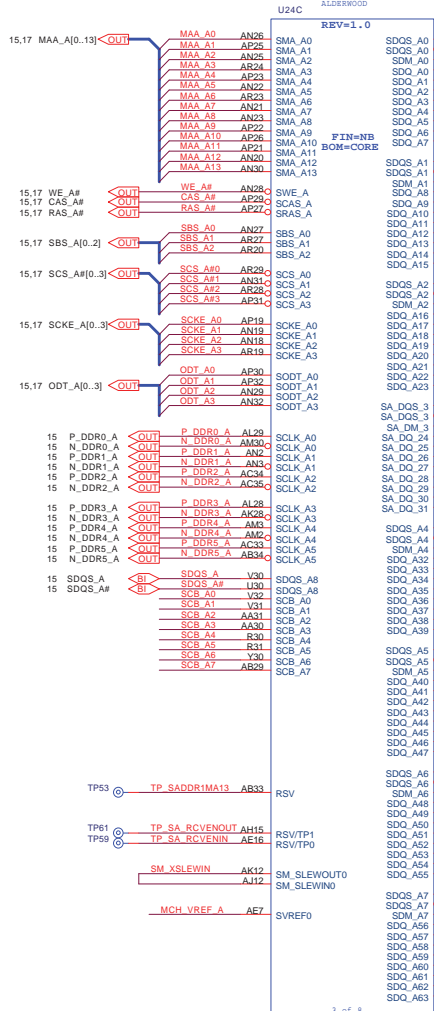


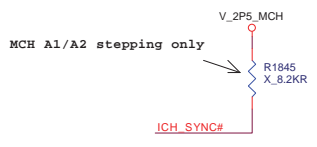
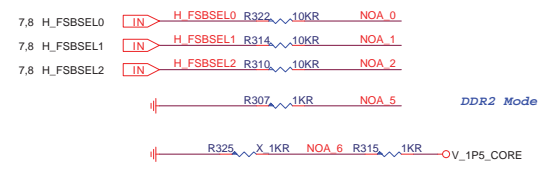
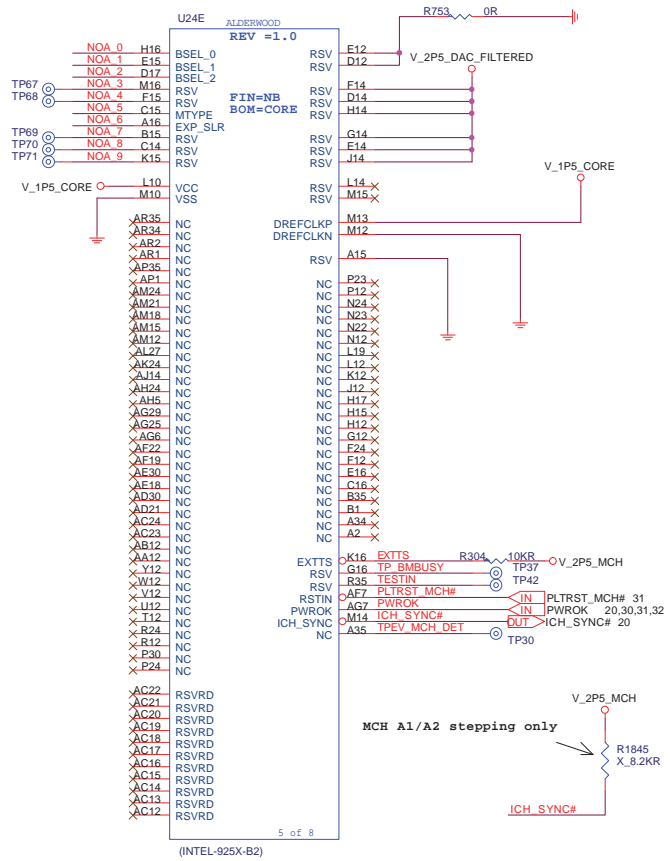


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Title		<b>Intel LGA775 GND</b>
Size	Document Number	Rev
Custom	<b>MS-9615</b>	<b>100</b>
Date:	Tuesday, November 02, 2004	Sheet 10 of 34







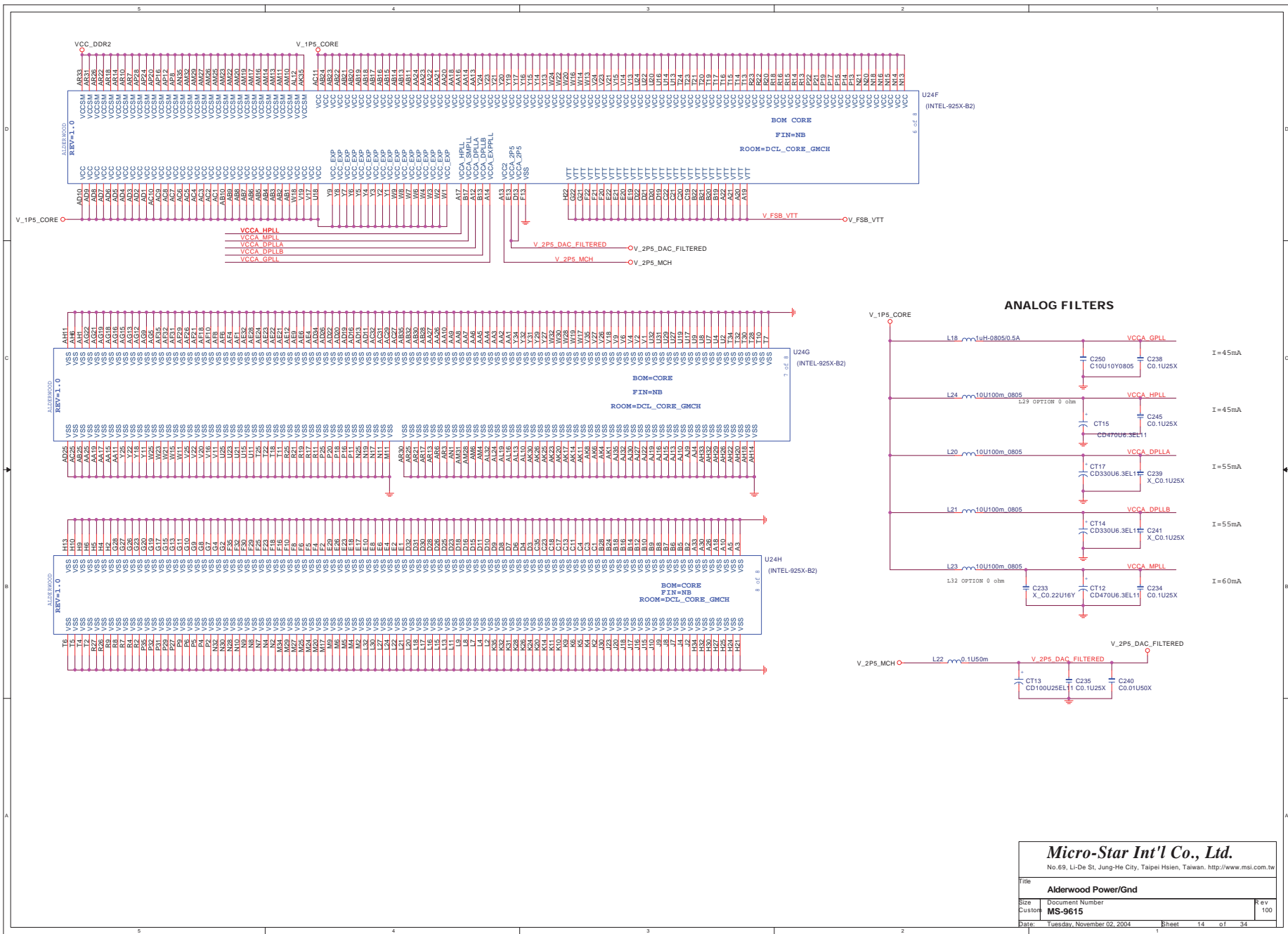
BSEL	TABLE	
2 1 0	PSB FREQUENCY	
0 0 1	133 MHZ (533)	
0 1 0	200 MHZ (800)	

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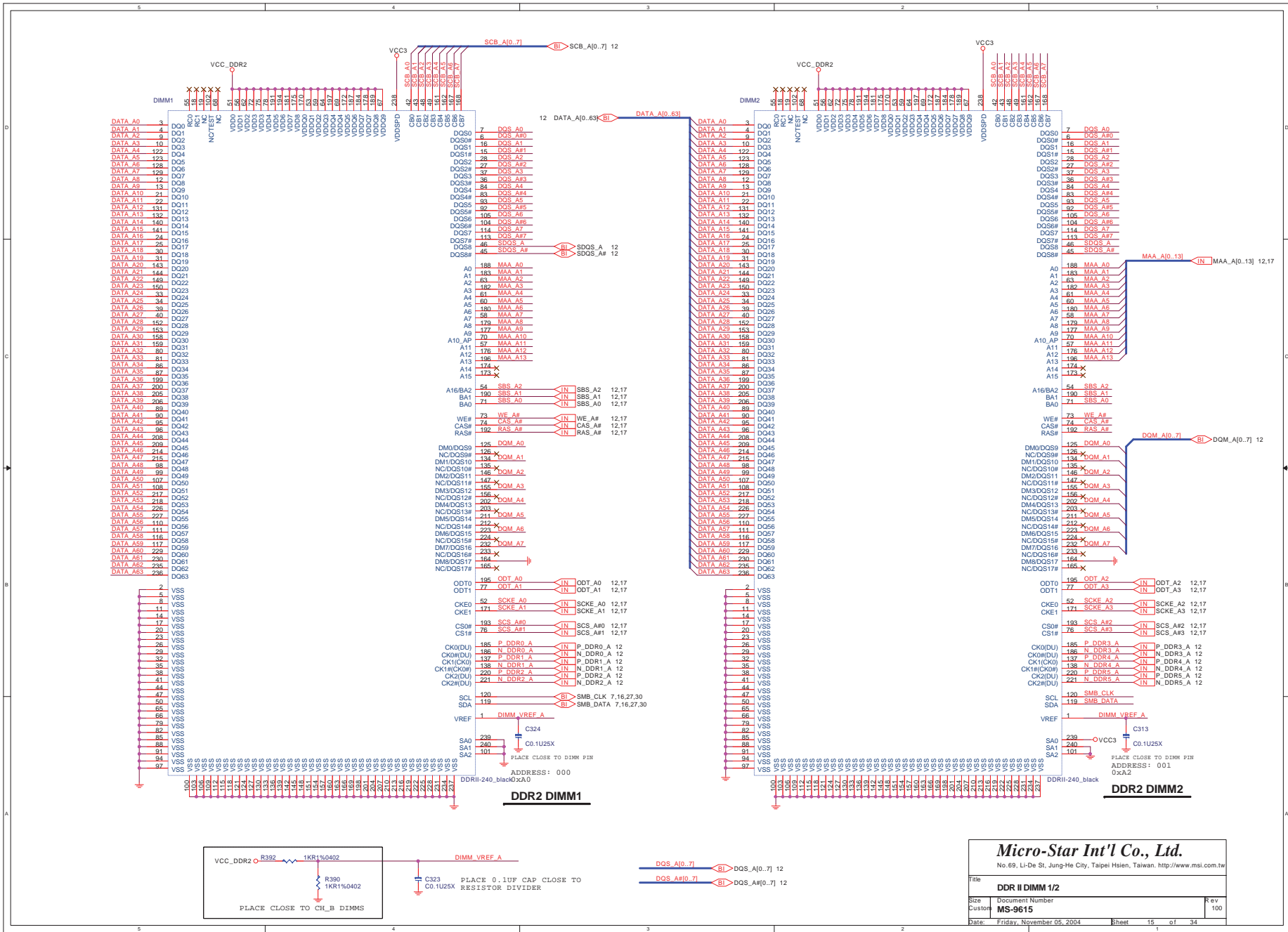
Title: **Alderwood Misc/Power Signal**

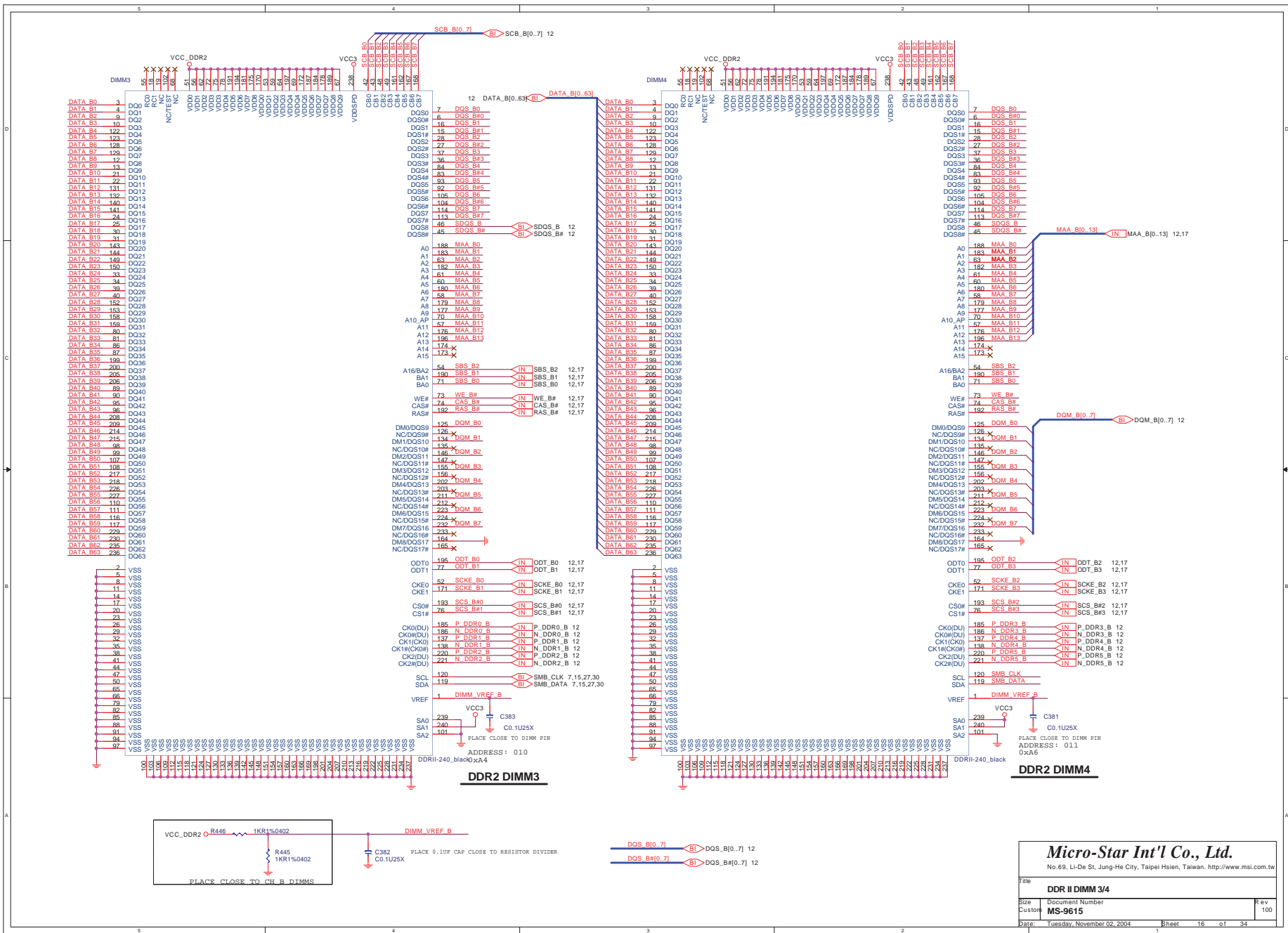
Size: 9 Document Number: **MS-9615** Rev: 100

Date: Tuesday, November 02, 2004 Sheet: 13 of 34



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No. 69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		
Title <b>Alderwood Power/Gnd</b>		
Size	Document Number	Rev
Custom	<b>MS-9615</b>	100
Date:	Tuesday, November 02, 2004	Sheet 14 of 34

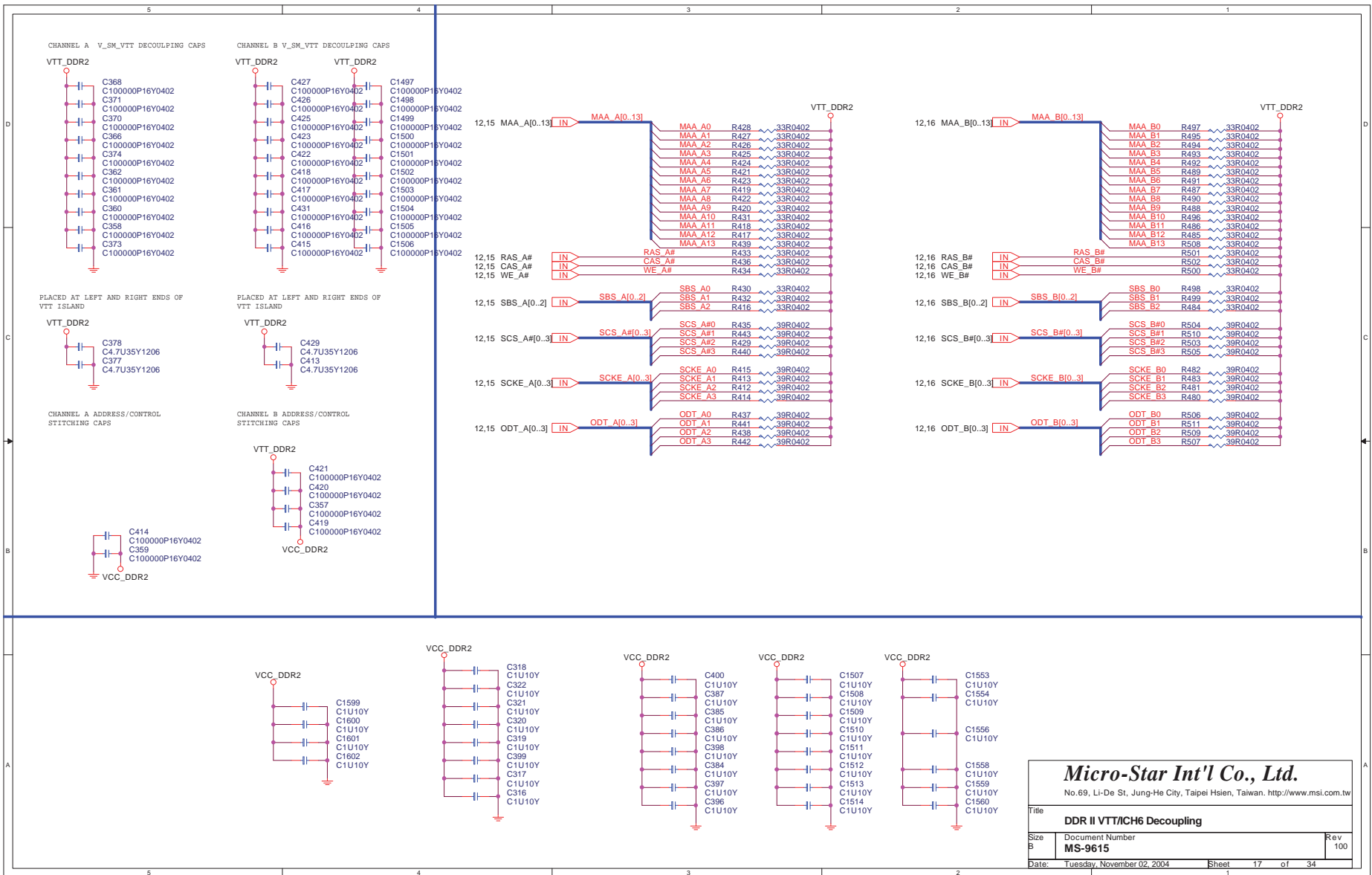




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File	DDR II DIMM 3/4	
Size	Document Number	Rev
Custom	MS-9615	100
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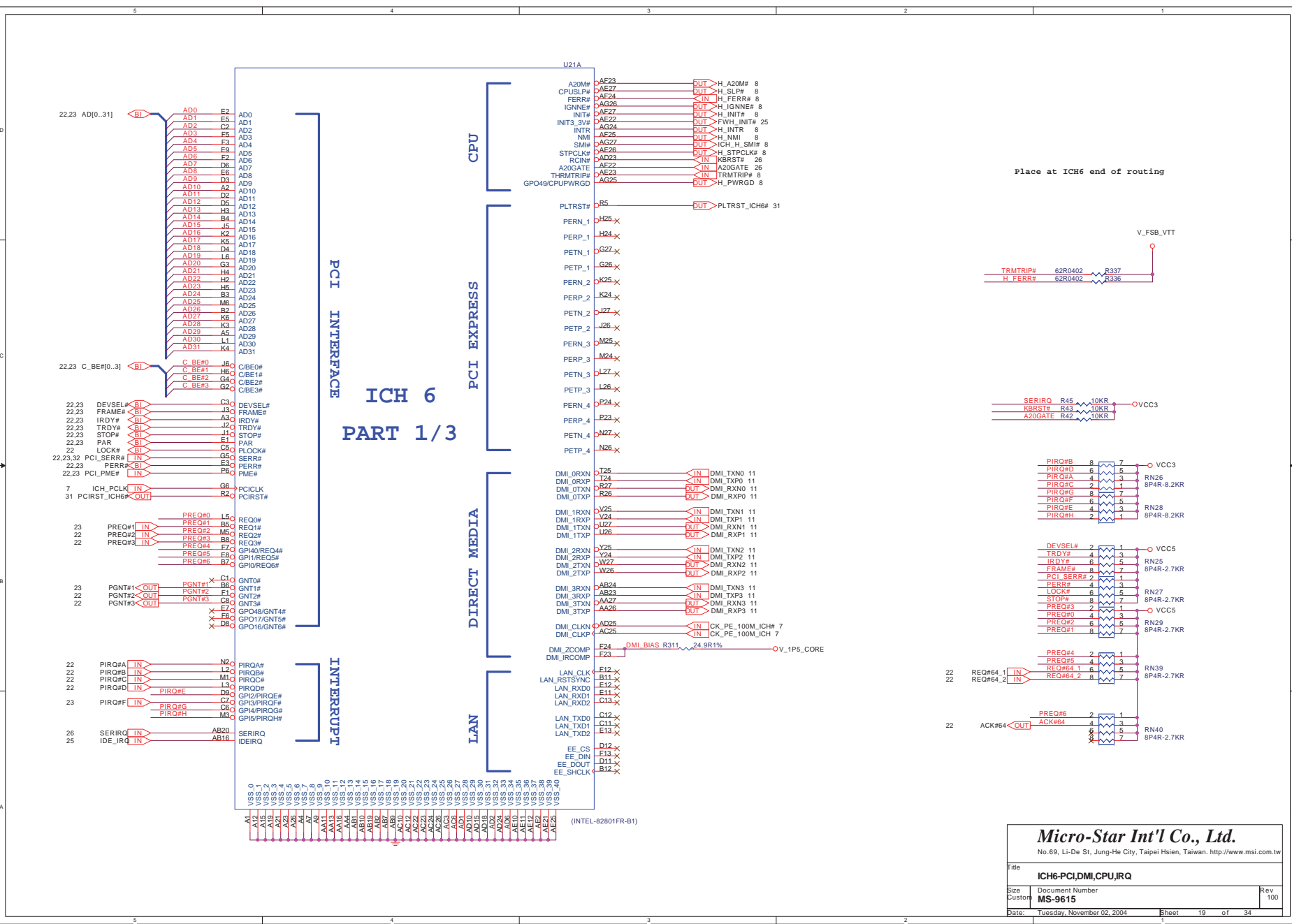
**Micro-Star Int'l Co., Ltd.**  
No.69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <http://www.msi.com.tw>

File: **DDR II VTT/CH6 Decoupling**

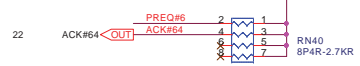
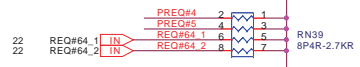
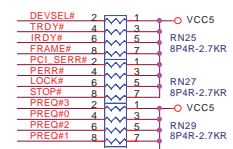
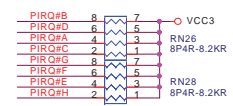
Size	Document Number	Rev
B	<b>MS-9615</b>	100

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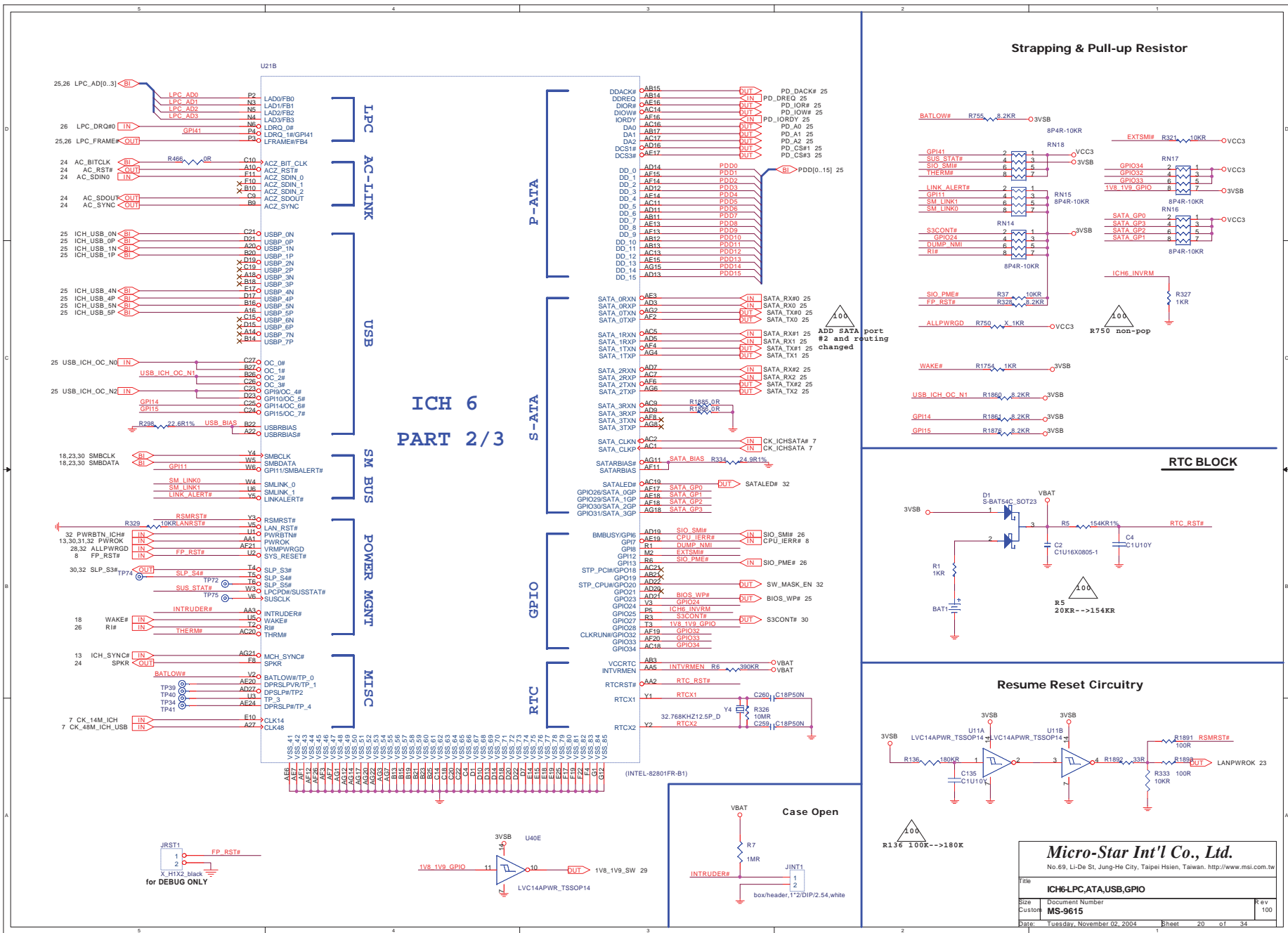


Place at ICH6 end of routing



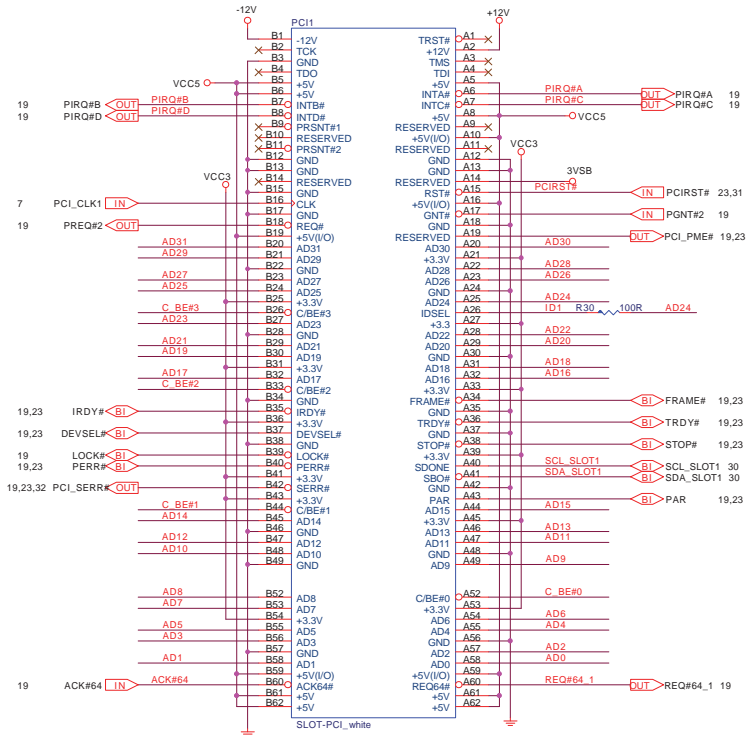
**Micro-Star Int'l Co., Ltd.**  
No. 69, Li-De St. Jung-He City, Taipei Hsien, Taiwan. <http://www.msi.com.tw>

Title	ICH6-PCI,DMI,CPU,IRQ	
Size	Document Number	Rev
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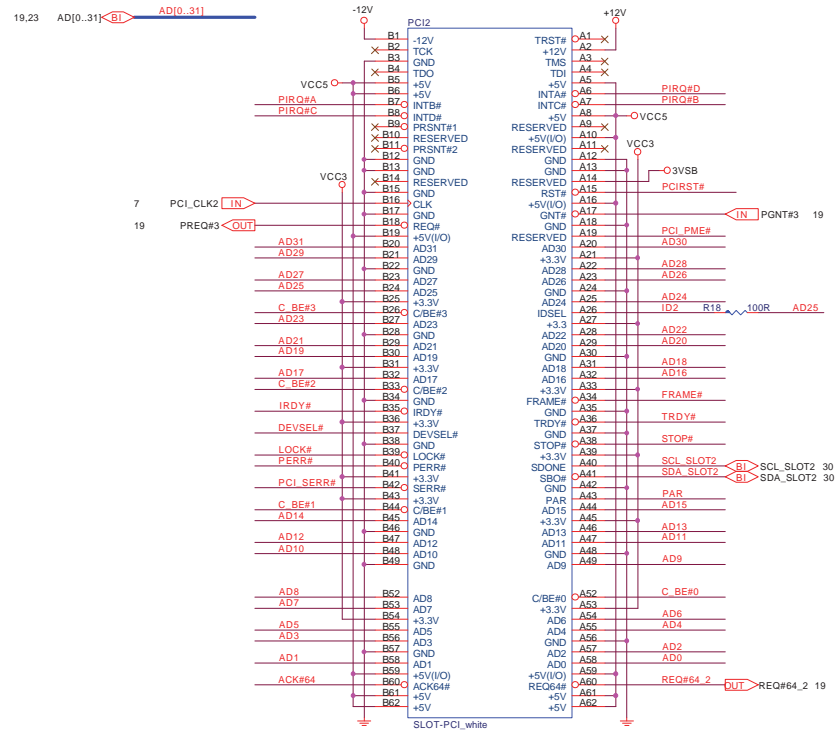


**PCI SLOT 1 (PCI VER: 2.2 COMPLY)**



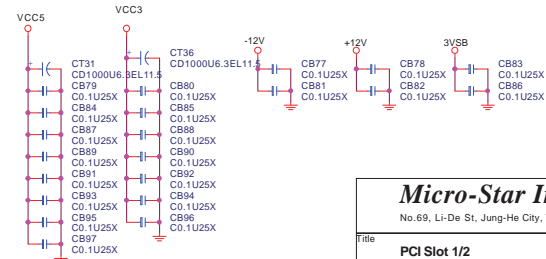
ISSEL = AD24  
 MASTER = PREQ#1  
 PIRQ#A

**PCI SLOT 2 (PCI VER: 2.2 COMPLY)**



ISSEL = AD25  
 MASTER = PREQ#2  
 PIRQ#B

**PCI SLOT DECOUPLING CAPACITORS**

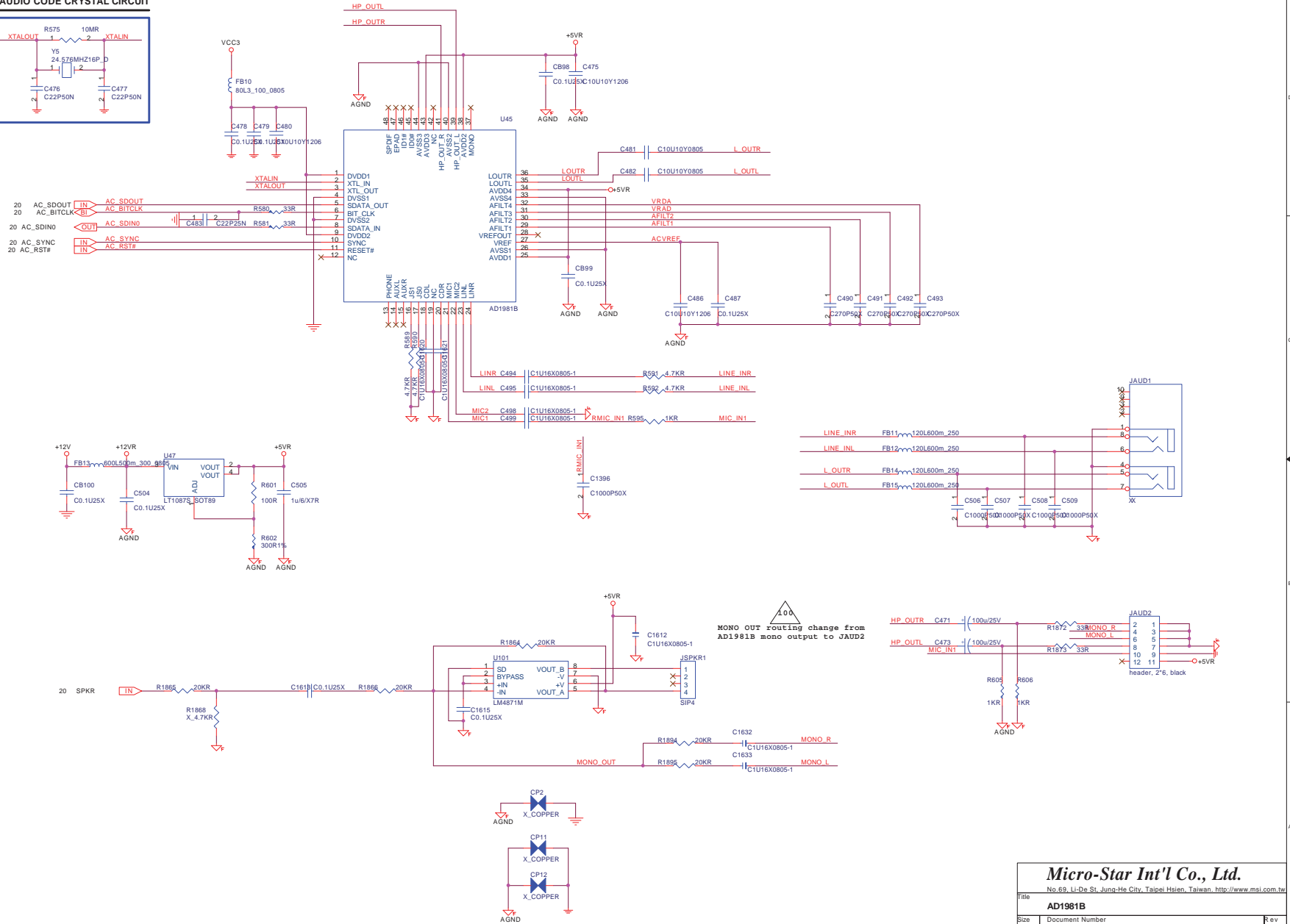
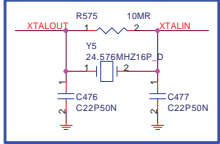


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File		
PCI Slot 1/2		
Size	Document Number	Rev
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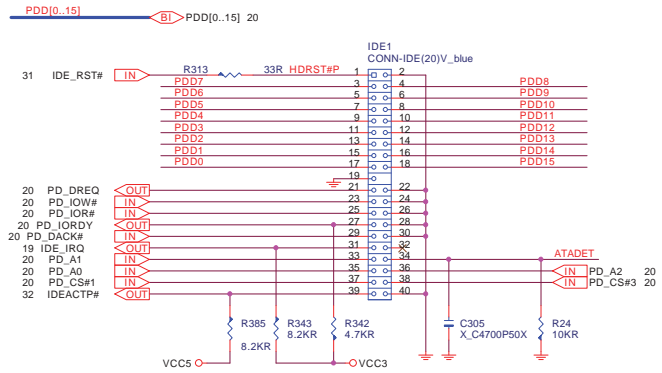


**AUDIO CODE CRYSTAL CIRCUIT**

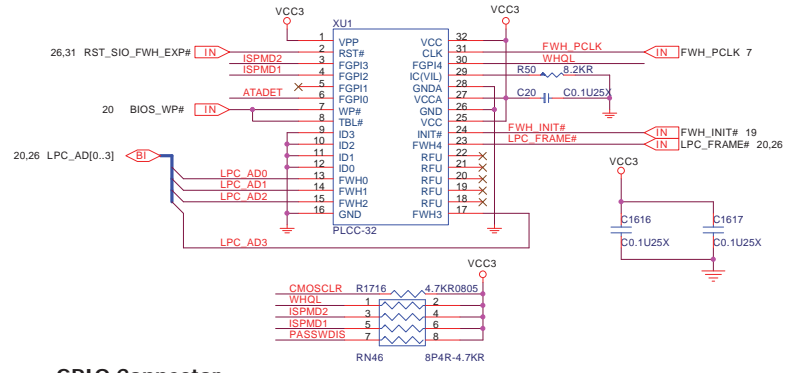




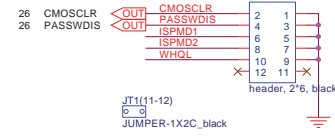
### ATA 33/66/100 IDE Connectors



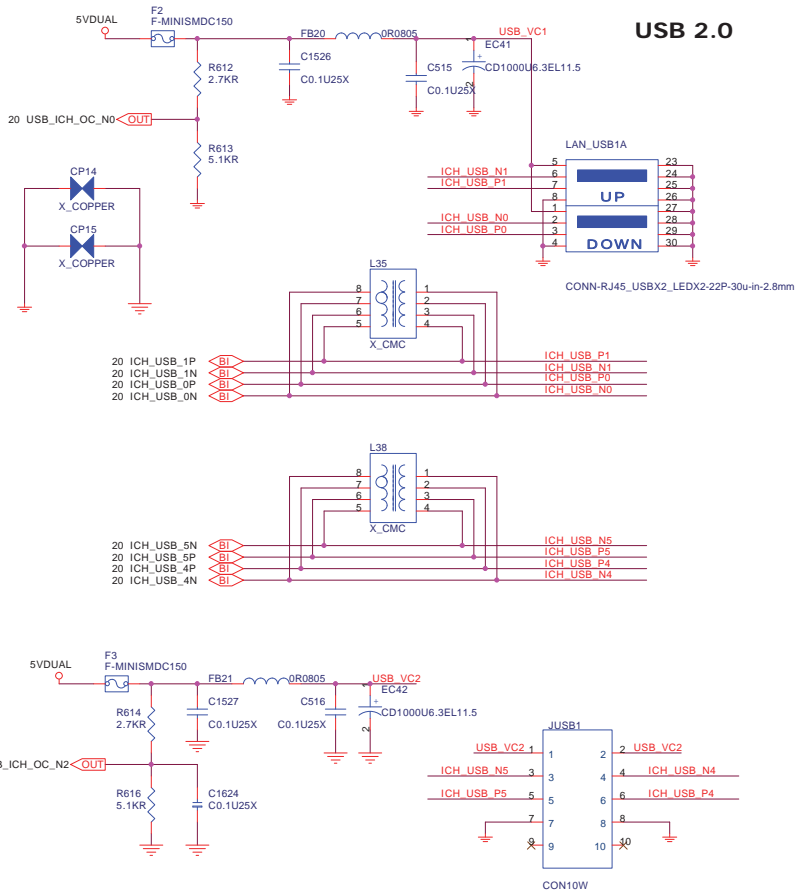
### Firmware Hub (FWH)



### GPIO Connector

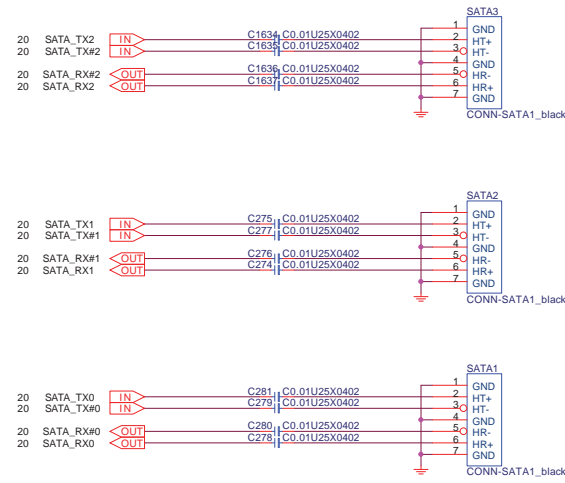


### USB 2.0



### SerialATA Connector Block

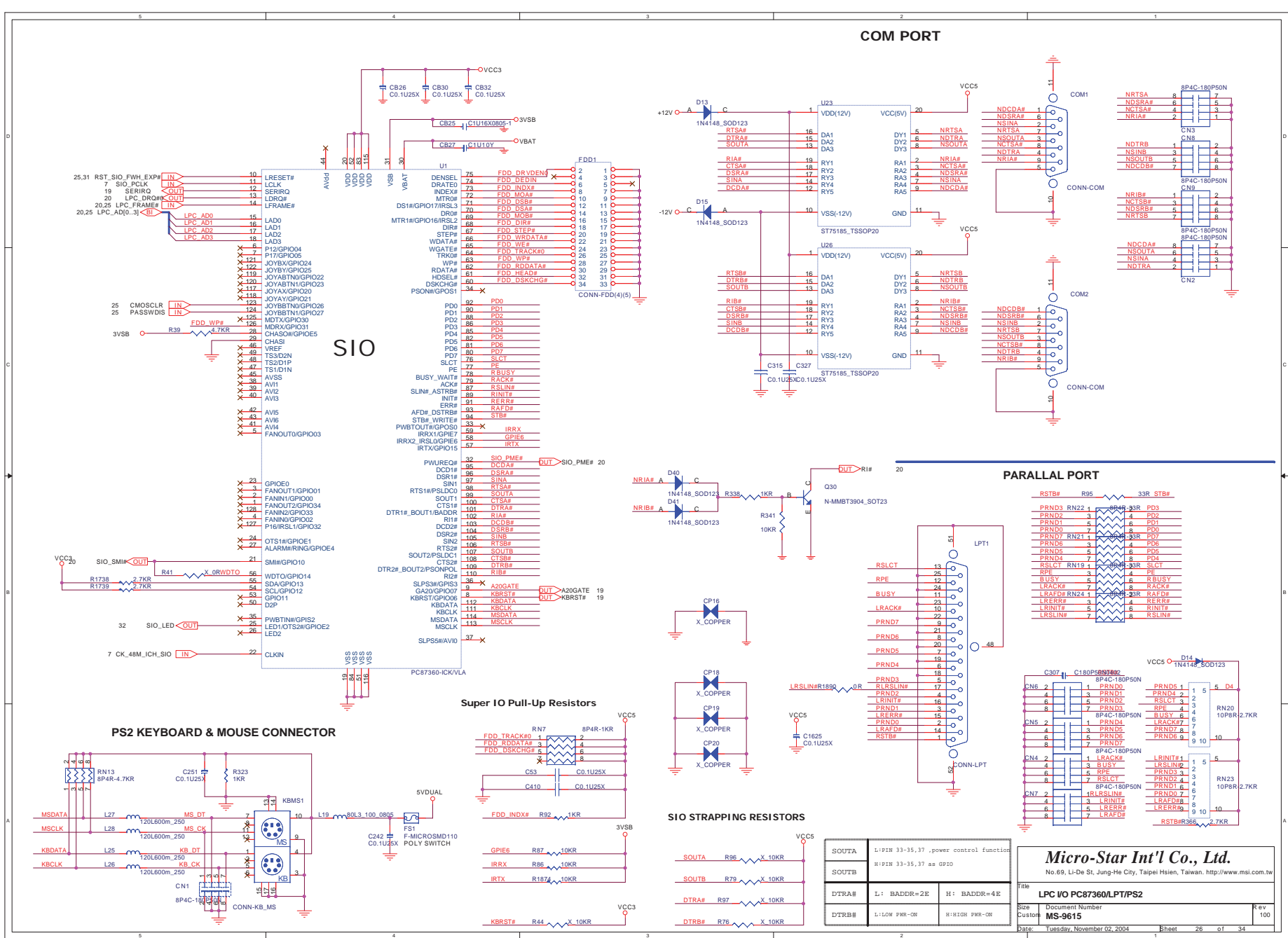
100  
 ADD SATA3 and routing changed



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Title	FWH/IDE/USB/SATA/JUMP SETTING Connectors	
Size	Document Number	Rev
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SOUTA	L:PIN 33-35, 37 .power control function
SOUTB	S:PIN 33-35, 37 as GPIO
DTRA#	L: BADDR=2E H: BADDR=4E
DTRB#	L:LOW PWR-ON H:HIGH PWR-ON

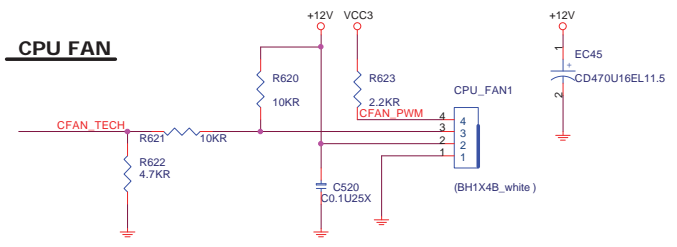
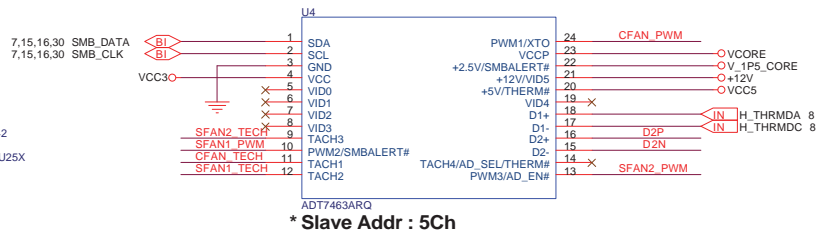
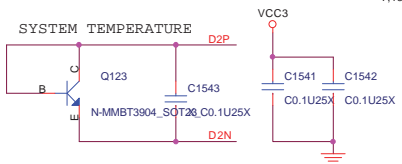
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Rev: **LPC I/O PC87360/LPT/PS2**

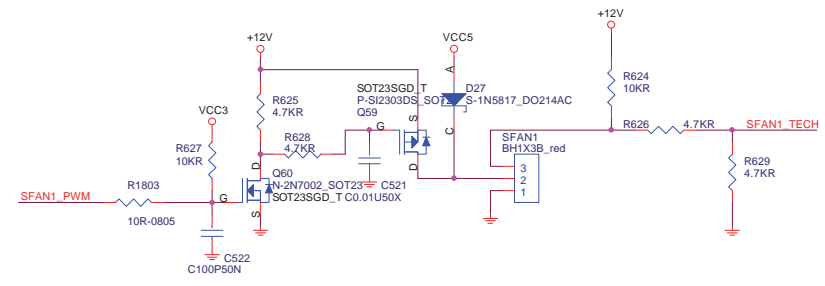
Size: Document Number **MS-9615** Rev 100

Custom: **MS-9615**

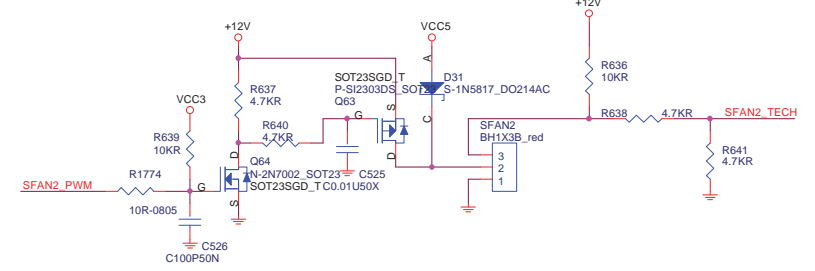
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**SYSTEM FAN 1 - Rear**



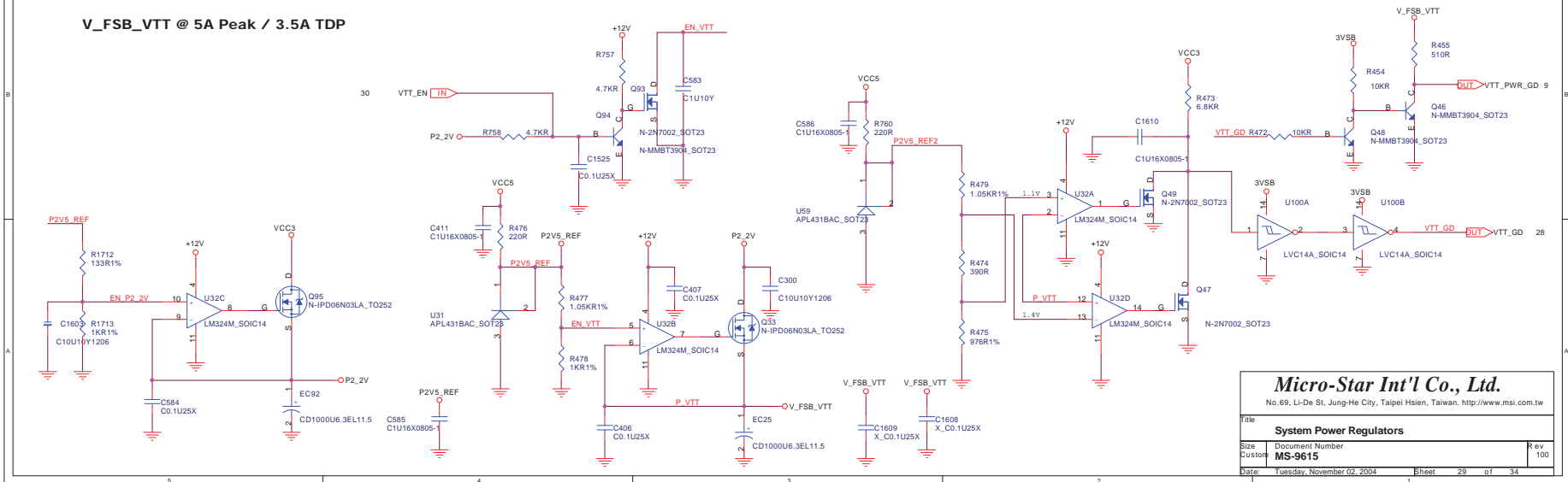
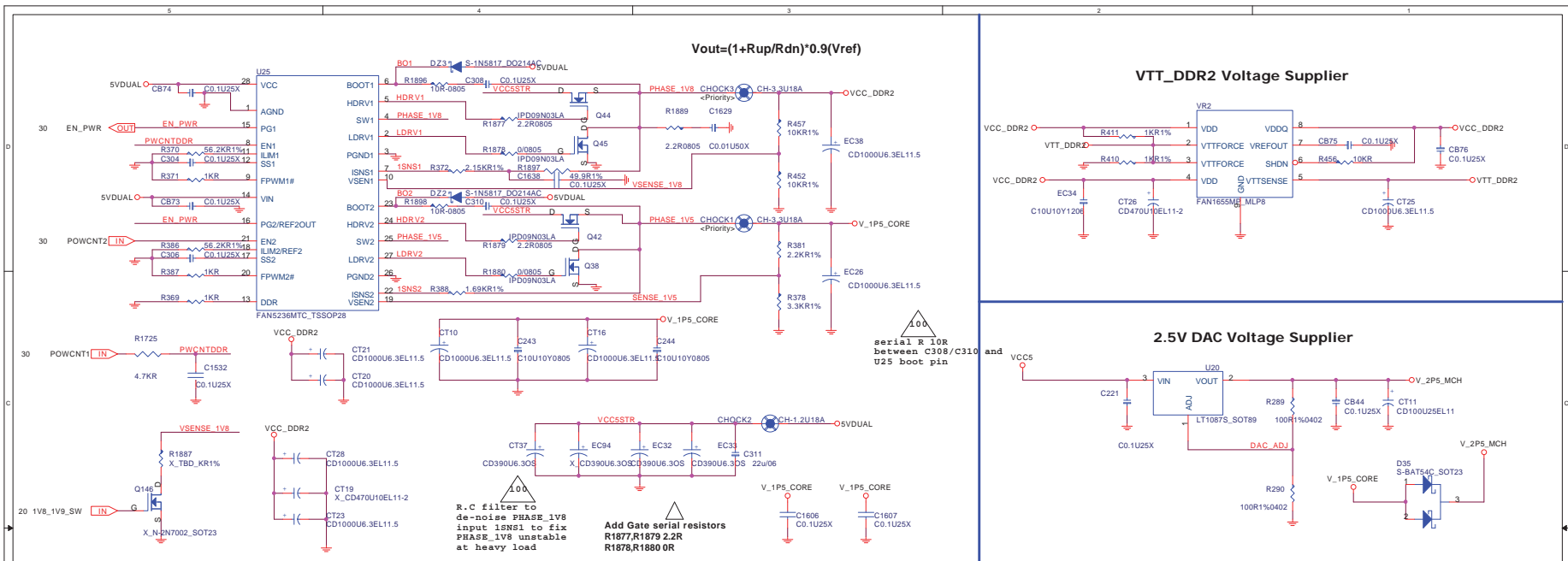
**SYSTEM FAN 2 - Front**

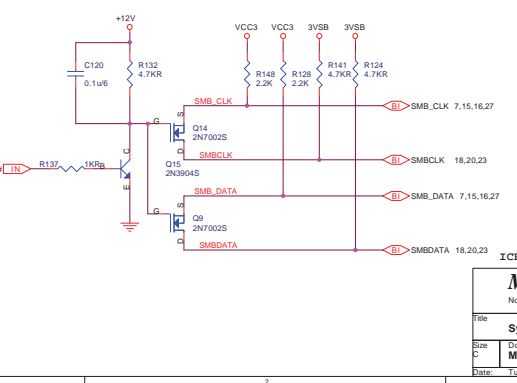
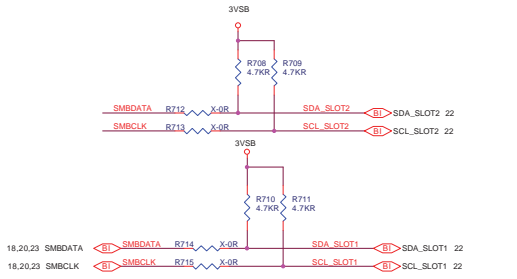
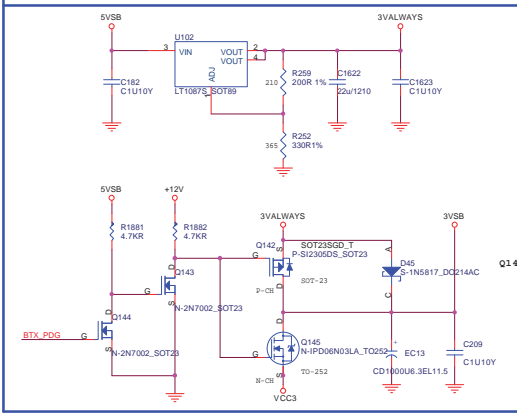
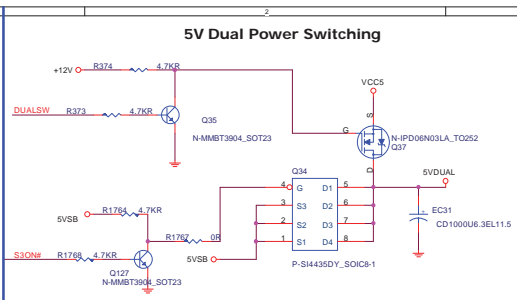
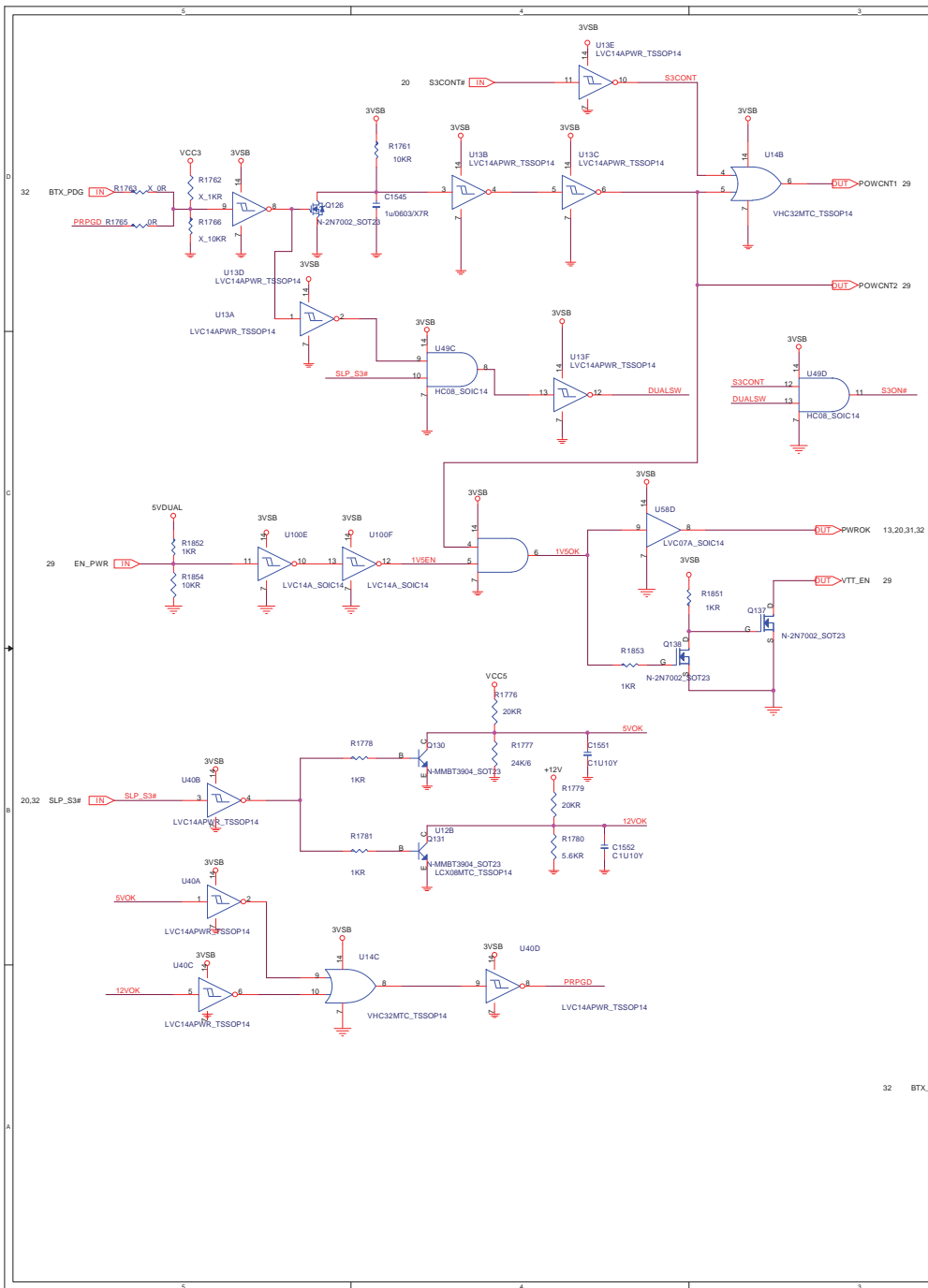


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Title		
Hardware Monitor ADT7463/FAN		
Size	Document Number	Rev
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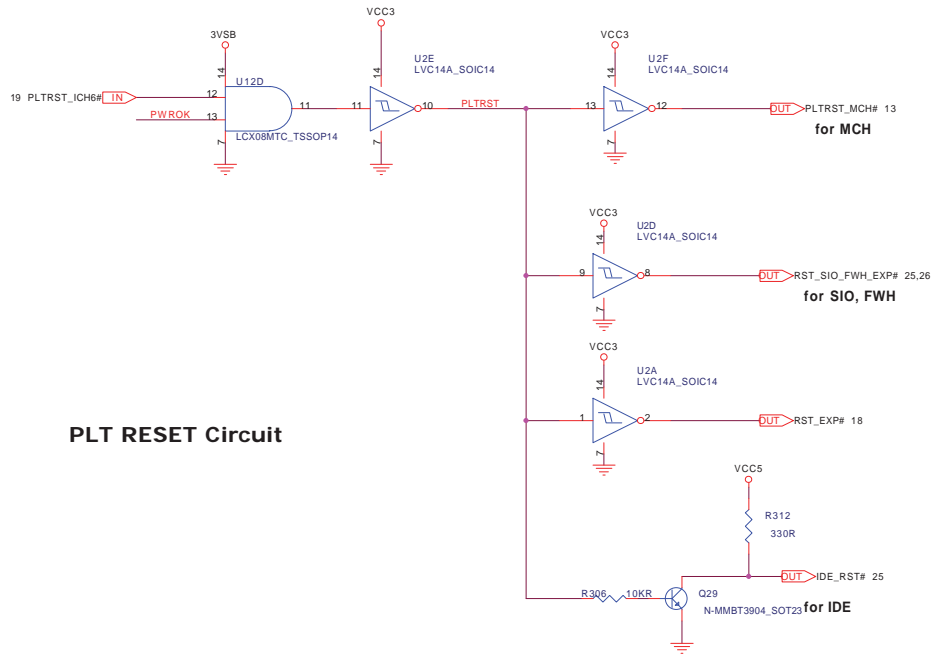
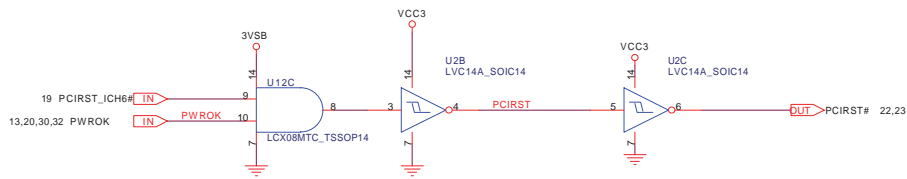


IC#6 LAN

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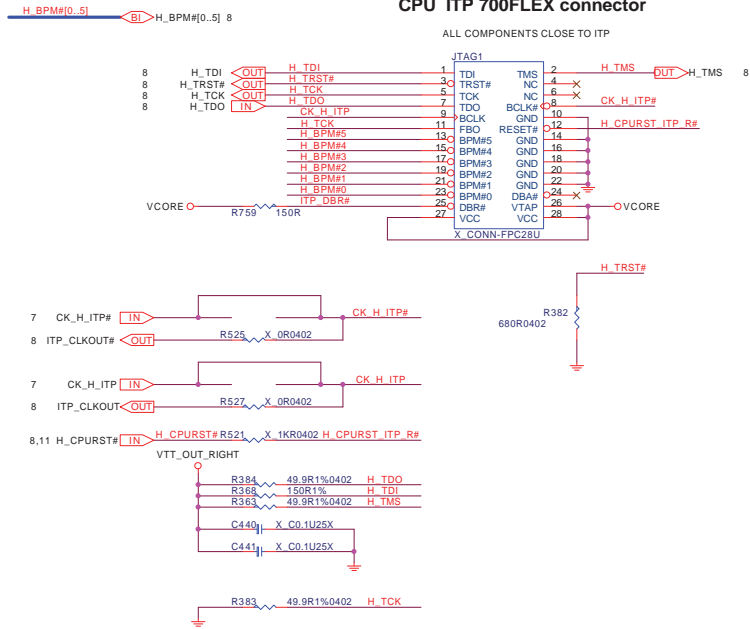
File	System Power Control/5VSB/3VSB	
Size	Document Number	Rev
	<b>MS-9615</b>	100
Date	Tuesday, November 02, 2004	Sheet 30 of 34

### PCI RESET Circuit



### PLT RESET Circuit

### CPU ITP 700FLEX connector

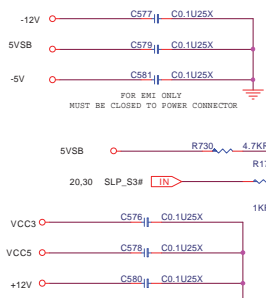


**Micro-Star Int'l Co., Ltd.**  
 No.69, Li-De St, Jung-He City, Taipei Hsien, Taiwan. <http://www.msi.com.tw>

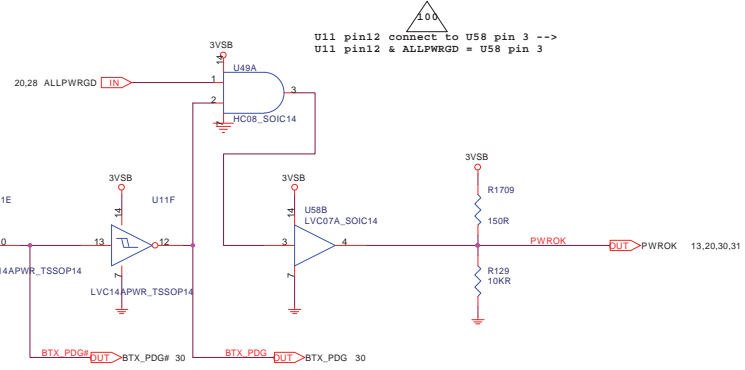
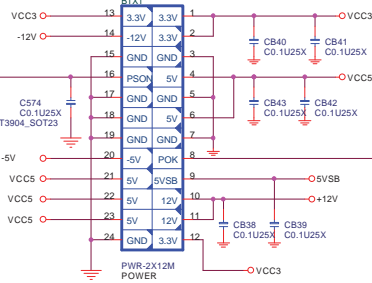
Title: **PCI Reset & ITP**

Size: Custom Document Number: **MS-9615** Rev: 100

Date: Tuesday, November 02, 2004 Sheet: 31 of 34

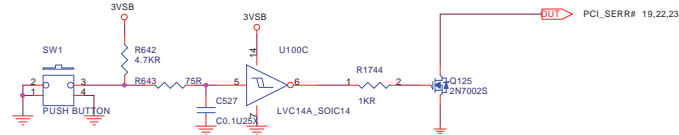
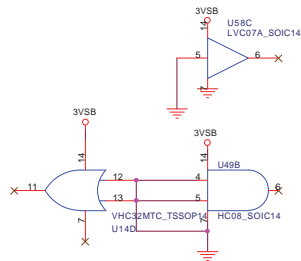
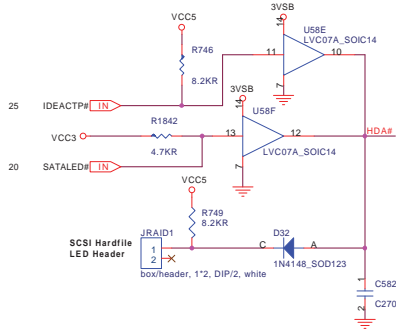
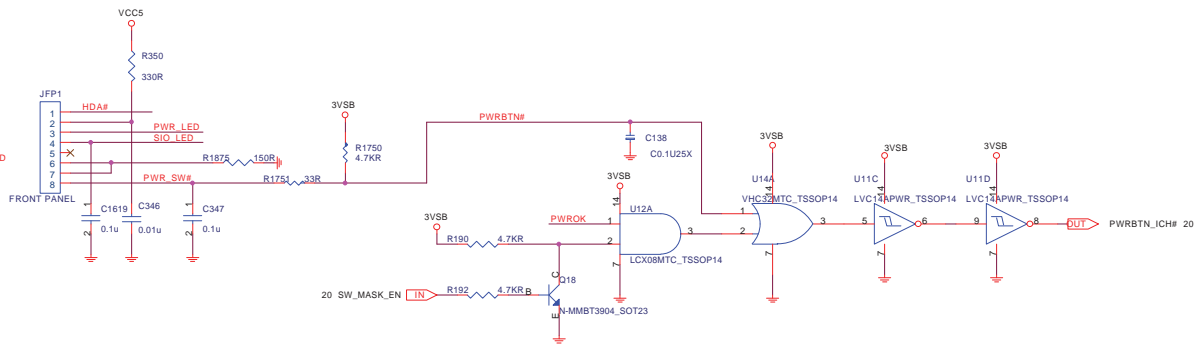
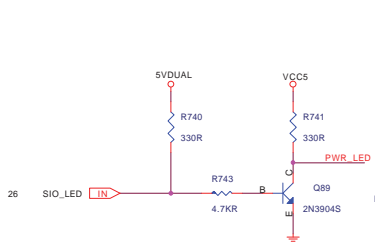


### 2 \* 12 Power Connector



U11 pin12 connect to U58 pin 3 -->  
U11 pin12 & ALLPWRGD = U58 pin 3

### FRONT PANEL



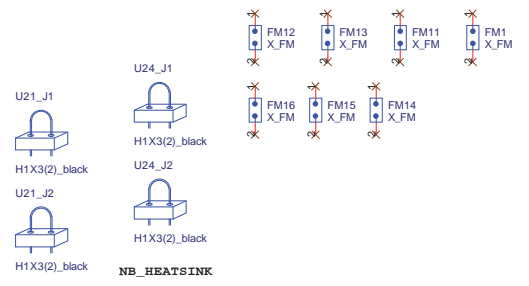
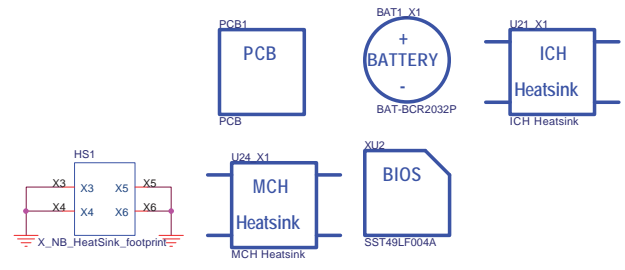
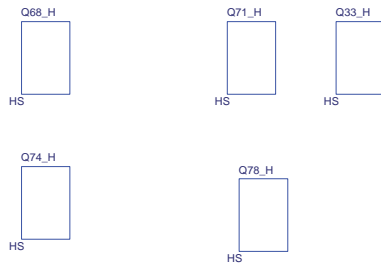
### DUMP Switch Circuit

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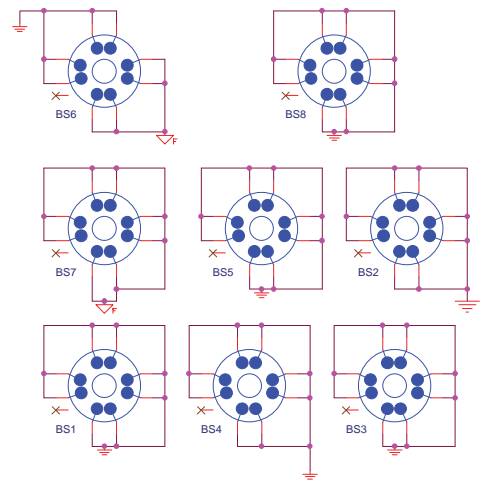
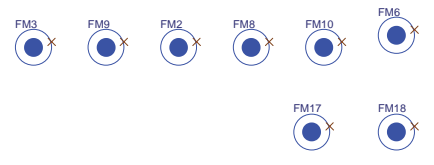
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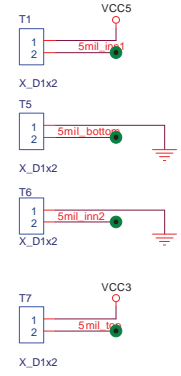




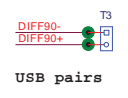
**Optics Orientation Holes**



**5mil 60 Ohm single end**



**7.5/7.5/7.5 layer 1 & 6  
90 Ohm differential**



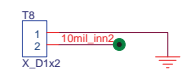
USB pairs

**5/7/5 layer 1 & 6  
100 Ohm differential**



LAN pairs  
PCI - express pairs  
DMI pairs  
SATA  
Host Clock group  
SRC Clock group

**10mil 40 Ohm single end**



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### ICH6

GPIO Pin	Type	Function	Power Well
GPIO 0	I	PREQ#6	V5REF
GPIO 1	I	PREQ#5	V5REF
GPIO 2	I	PIRO#E	V5REF
GPIO 3	I	PIRO#F	V5REF
GPIO 4	I	PIRO#G	V5REF
GPIO 5	I	PIRO#H	V5REF
GPIO 6	I	SIO_SMI#	VCC3
GPIO 7	I	CPU_IERR#	VCC3
GPIO 8	I	Unused	3VSB
GPIO 9	I	USB_ICH_OC_N2	3VSB
GPIO 10	I	USB_ICH_OC_N2	3VSB
GPIO 11	I	PRESS_DUMP SWITCH	3VSB
GPIO 12	I	EXTSMI#	3VSB
GPIO 13	I	SIO_PME#	3VSB
GPIO 14	I	USB_ICH_OC_N3	3VSB
GPIO 15	I	USB_ICH_OC_N3	3VSB
GPIO 16	O	PGNT#6	VCC3
GPIO 17	O	PGNT#5	VCC3
GPIO 18	O	Unused	VCC3
GPIO 19	O	Unused	VCC3
GPIO 20	O	SW_MASK_EN	VCC3
GPIO 21	O	Unused	VCC3
GPIO 23	O	BIOS_WP#	VCC3
GPIO 24	I/O	Unused	3VSB
GPIO 25	I/O	ICH6_INVRM, External-PD	3VSB
GPIO 26	I	SATA_GPO, External-PU	VCC3
GPIO 27	I/O	S3CONT#	3VSB
GPIO 28	I/O	Unused	3VSB
GPIO 29	I	SATA_GP1, External-PU	VCC3
GPIO 30	I	SATA_GP2, External-PU	VCC3
GPIO 31	I	SATA_GP3, External-PU	VCC3
GPIO 32	I/O	GPIO32, External-PU	VCC3
GPIO 33	I/O	GPIO33, External-PU	VCC3
GPIO 34	I/O	GPIO34, External-PU	VCC3
GPIO 40	I	PREQ#4 (multifuntn pin)	V5REF
GPIO 41	I	Unused, Internal-PU	VCC3
GPIO 48	O	PGNT#4	VCC3
GPIO 49	OD	H_PWRGD	V_CPU_IO

### LPC SIO

GPIO Pin	Type	Function	Power Well
GPIO00	I/O	Unused	Main
GPIO01	I/O	Unused	Main
GPIO02	I/O	Unused	Main
GPIO03	I/O	Unused	Main
GPIO04	I/O	Unused	Main
GPIO05	I/O	Unused	Main
GPIO06	I/O	KBRST#	Main
GPIO07	I/O	A20GATE	Main
GPIO10	I/O	SIO_SMI#	Main
GPIO11	I/O	Unused	Main
GPIO12	I/O	Unused	Main
GPIO13	I/O	Unused	Main
GPIO14	I/O	WDTO	Main
GPIO15	O	IRTX	Main
GPIO16	I/O	FDD_MOB#	Main
GPIO17	I/O	FDD_DSB#	Main
GPIO20	I/O	VID0	Main
GPIO21	I/O	VID1	Main
GPIO22	I/O	VID2	Main
GPIO23	I/O	VID3	Main
GPIO24	I/O	VID4	Main
GPIO25	I/O	VID5	Main
GPIO26	I/O	CMOSCLR	Main
GPIO27	I/O	PASSWDIS	Main
GPIO30	I/O	Unused	Main
GPIO31	I/O	FP_WP	Main
GPIO32	I/O	Unused	Main
GPIO33	I/O	Unused	Main
GPIO34	I/O	Unused	Main
GPIOE0	I/O	Unused	Standby
GPIOE1	I/O	LAN_DIS#	Standby
GPIOE2	I/O	SUSLED	Standby
GPIOE3	I/O	Unused	Standby
GPIOE4	I/O	Unused	Standby
GPIOE5	I	Unused	Standby
GPIE6	I	Unused, Ext-PU	Standby
GPIE7	O	IRRX	Standby
GPOS0	O	Unused	Standby
GPOS1	I	Unused	Standby
GPIS2	I	Unused	Standby
GPIS3	I	Unused	Standby

### DDR DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	A0H	MCLK_A0/MCLK_A#0 MCLK_A1/MCLK_A#1 MCLK_A2/MCLK_A#2
DIMM 2	A2H	MCLK_A3/MCLK_A#3 MCLK_A4/MCLK_A#4 MCLK_A5/MCLK_A#5
DIMM 3	A4H	MCLK_B0/MCLK_B#0 MCLK_B1/MCLK_B#1 MCLK_B2/MCLK_B#2
DIMM 4	A6H	MCLK_B3/MCLK_B#3 MCLK_B4/MCLK_B#4 MCLK_B5/MCLK_B#5

### PCI Config.

DEVICE	INT Pin	REQ#/GNT#	IDSEL	CLOCK
PCI Slot 1	PIRO#A PIRO#B PIRO#C PIRO#D	PREQ#2 PGNT#2	AD24	PCI_CLK1
PCI Slot 2	PIRO#B PIRO#C PIRO#D PIRO#A	PREQ#3 PGNT#3	AD25	PCI_CLK2
PCI Slot 3	PIRO#C PIRO#D PIRO#A PIRO#B	PREQ#4 PGNT#4	AD26	PCI_CLK3
PCI Slot 4	PIRO#D PIRO#A PIRO#B PIRO#C	PREQ#5 PGNT#5	AD27	PCI_CLK4
1394	PIRO#E	PIRO#0 PGNT#0	AD22	1394_CLK
GLAN	PIRO#F	PIRO#1 PGNT#1	AD23	GLAN_CLK

### FWH

GPIO Pin	Type	Function
GPI 0	I	ATADET0
GPI 1	I	CLKREQ#
GPI 2	I	ISPMD1
GPI 3	I	ISPMD2
GPI 4	I	WHQL

TBD

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