

Cover Sheet, Block diagram	1-2
Intel LGA775 CPU - Signals	3
Intel LGA775 CPU - Power	4
Intel LGA775 CPU- GND	5
Intel Grantsdale - CPU	6
Intel Grantsdale - Memory	7
Intel Grantsdale - PCI Express	8
Intel Grantsdale - GND	9
ICH6	10-12
CLOCK - ICS954119	13
LPC I/O - WINBOND83627THF KB/MS	14
FWH/FAN/SERIAL-ATA	15
LAN INTEL 82562EZ & 82541GI	16
LAN CONNECTOR RJ45	17
Azalia CODEC(ALC880)	18
PCIE X16 SLOT & H/W Monitor W83792AD	19
DDR1 DIMM 1 , 2 , 3 & 4	20-22
PCI SLOT 1 & 2 & 3	23
ATX & Front Panel & IDE CONNECTOR	24
USB Connectors	25
IEEE1394-VIA6307	26
MS7 ACPI Controller	27
GPIO & JUMPER SETTING	28
VRM 10 - Intersil HIP 6561 3 phase	29
VGA Connector	30
Revision History	31
Manual Parts & Power Delivery	32

# MS-7175

**Version 0A**

Intel (R) Grantsdale (GMCH) + ICH6 Chipset  
Intel Tejas & Prescott LGA775 Processor

## CPU:

**Intel Tejas/Prescott - 3.6G**

## System Chipset:

**Intel Grantsdale - GMCH (North Bridge)**  
**Intel ICH6 (South Bridge)**

## On Board Chipset:

**BIOS -- FWH FLASH 4Mb**  
**Azalia Codec -- ALC880**  
**LPC Super I/O -- WINBOND83627THF**  
**LAN-INTEL 10/100 PHY 82562EZ**  
**INTEL GIGA (PCI) 82541GI**  
**CLOCK -- ICS954119**  
**1394 -- VIA VT-6307**  
**H/W Monitor W83792AD**

## Main Memory:


**2 CHANNEL DDR 2 \* 4 (Max 4GB)**

## Expansion Slots:

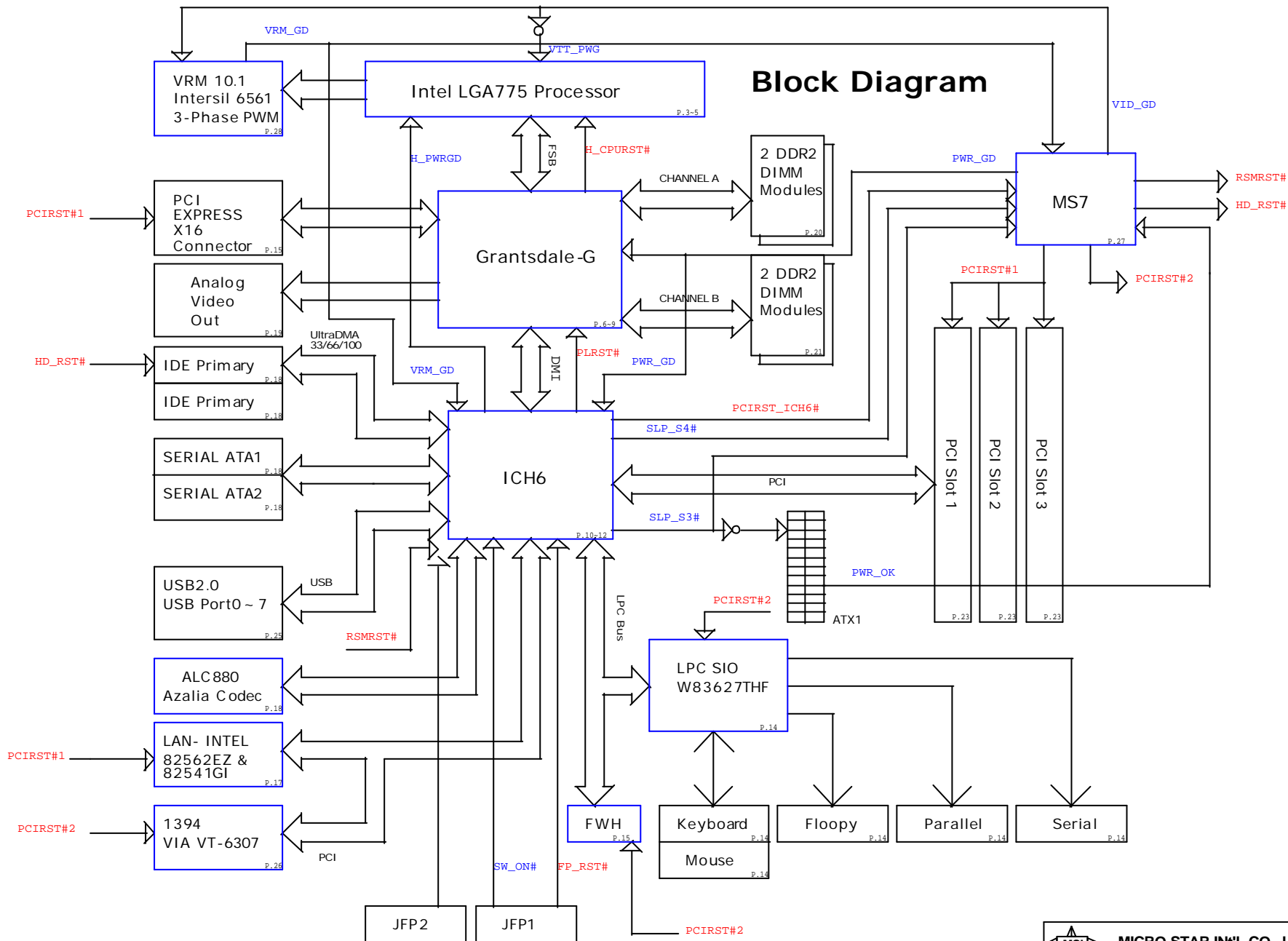
**PCI Express X16 SLOT \* 1**  
**PCI 1.2.3 SLOT \* 3**


## Intersil PWM:

**Controller: HIP6565ACV**  
**Driver: HIP6602B + HIP6601B**

		<b>MICRO-STAR INT'L CO., LTD.</b>	
Title		COVER SHEET	
Size	Document Number	MS-7175	Rev 0A
Date:	Wednesday, March 16, 2005	Sheet	1 of 34

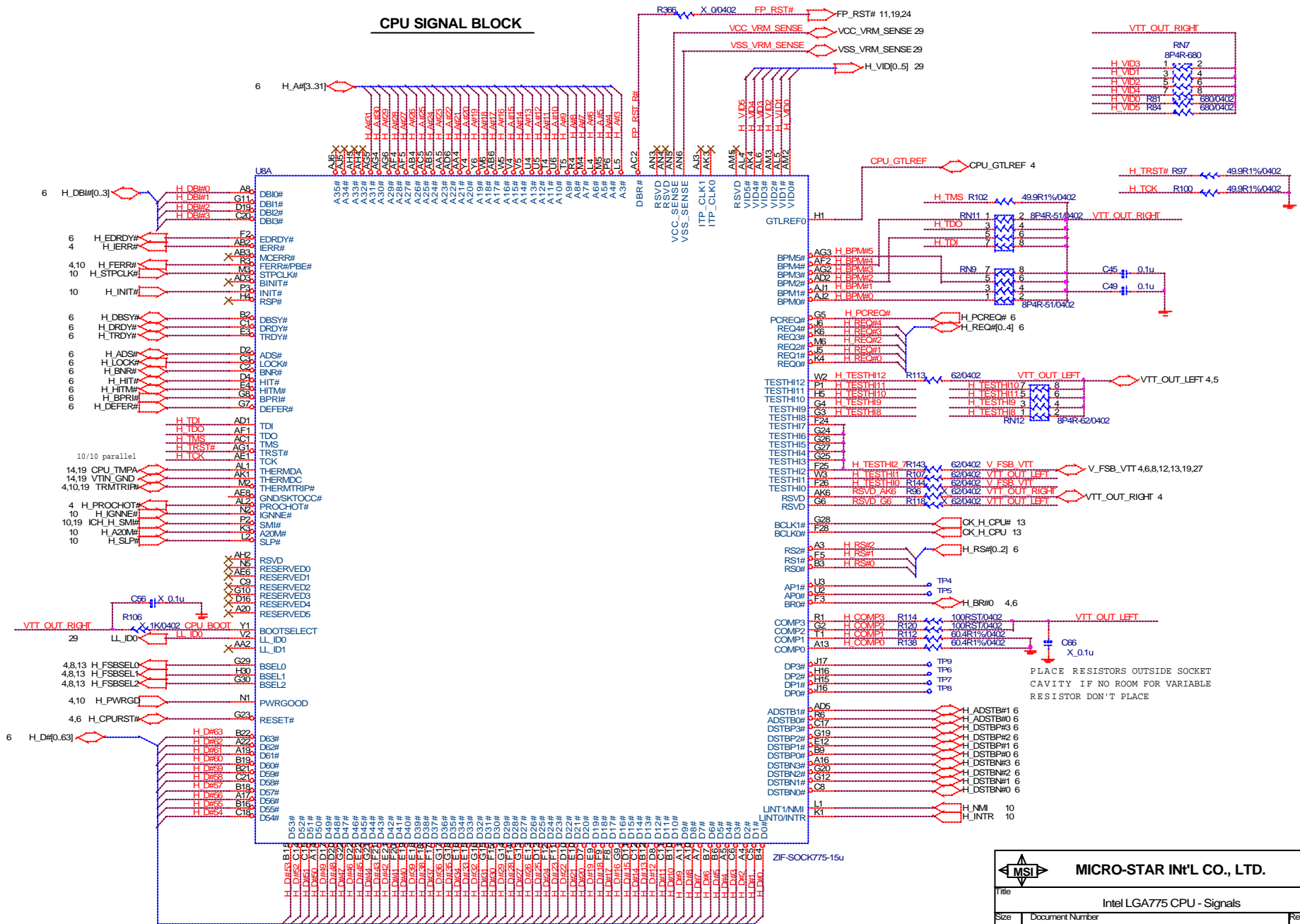
# Block Diagram



 <b>MICRO-STAR INT'L CO., LTD.</b>			
Title: BLOCK DIAGRAM			
Size	Document Number		Rev
	MS-7175		0A
Date: Wednesday, March 16, 2005	Sheet	2	of 34

### VID Pull-Up Resistor

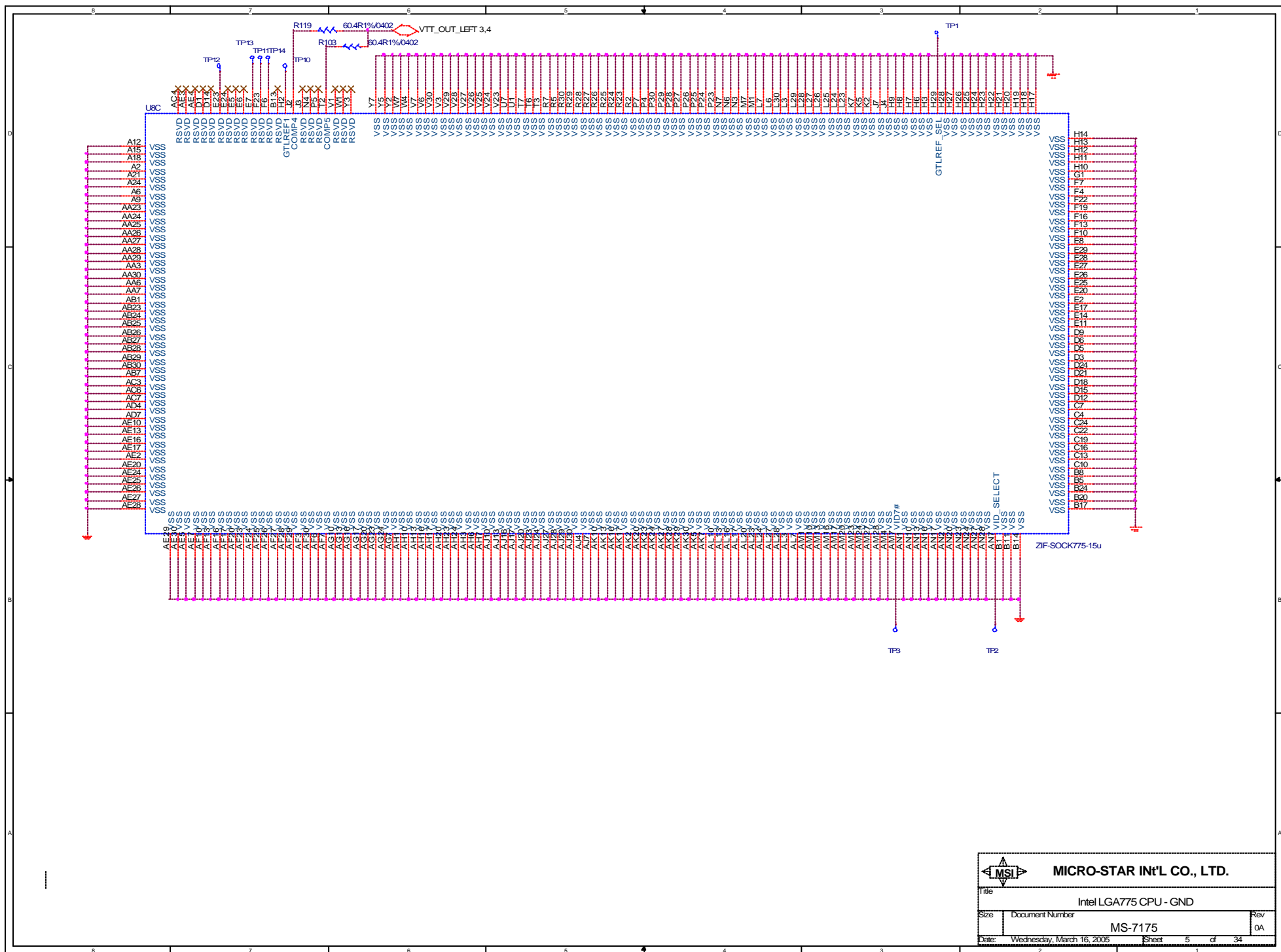
### CPU SIGNAL BLOCK

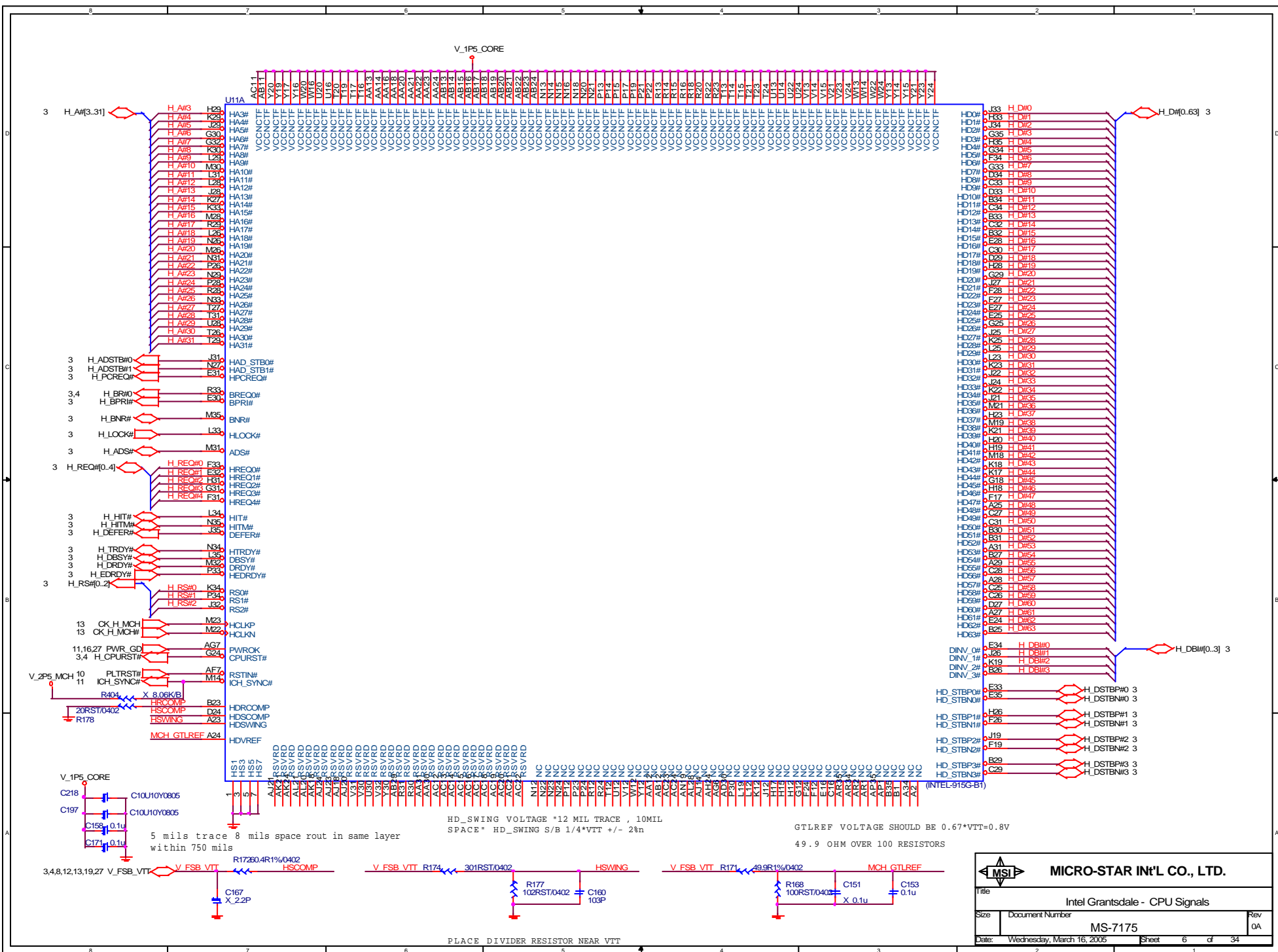


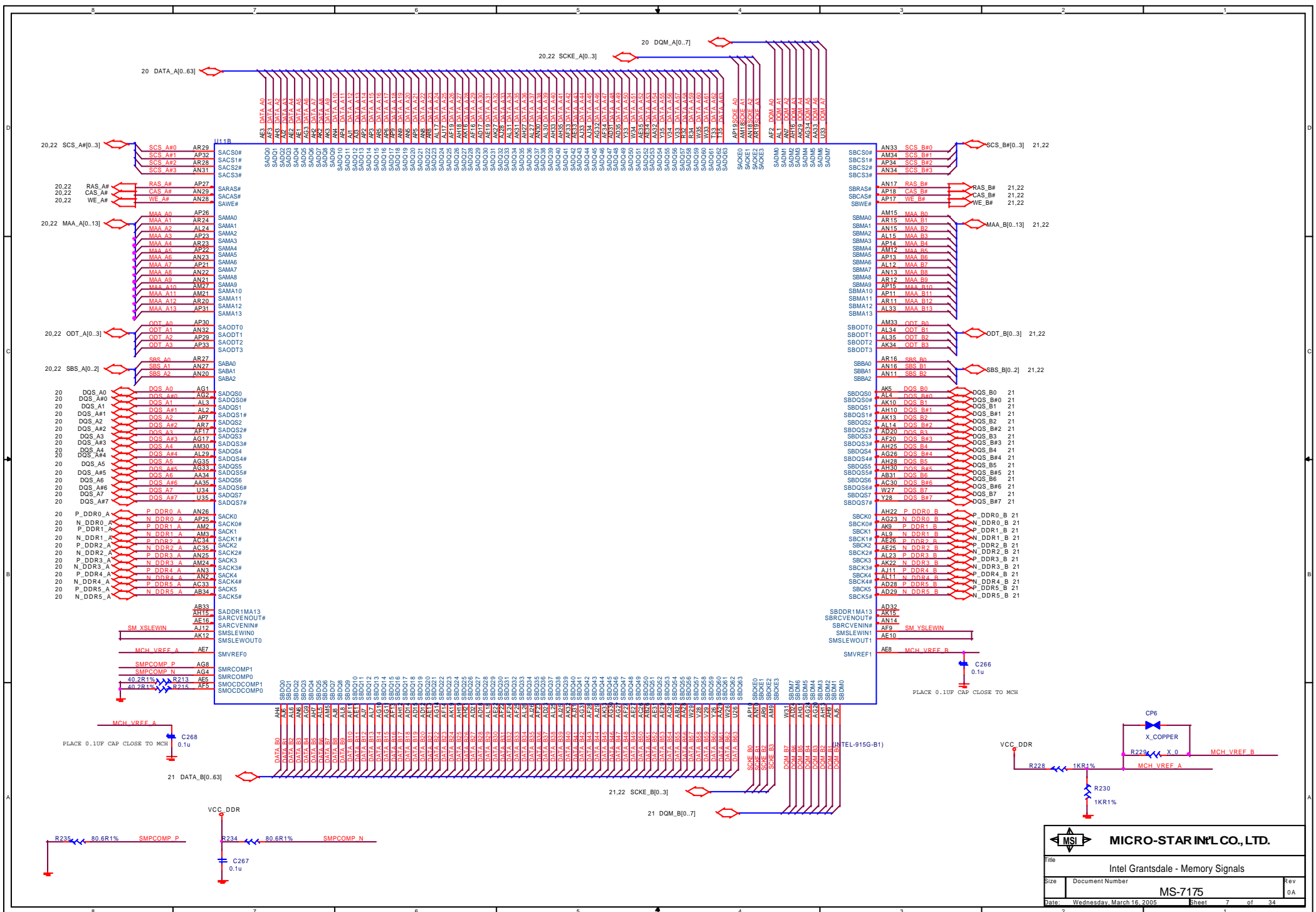
**MICRO-STAR INT'L CO., LTD.**

Title			
Intel LGA775 CPU - Signals			
Size	Document Number		Rev
	MS-7175		0A
Date:	Wednesday, March 16, 2005	Sheet	3 of 34







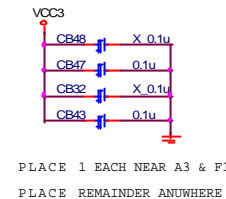
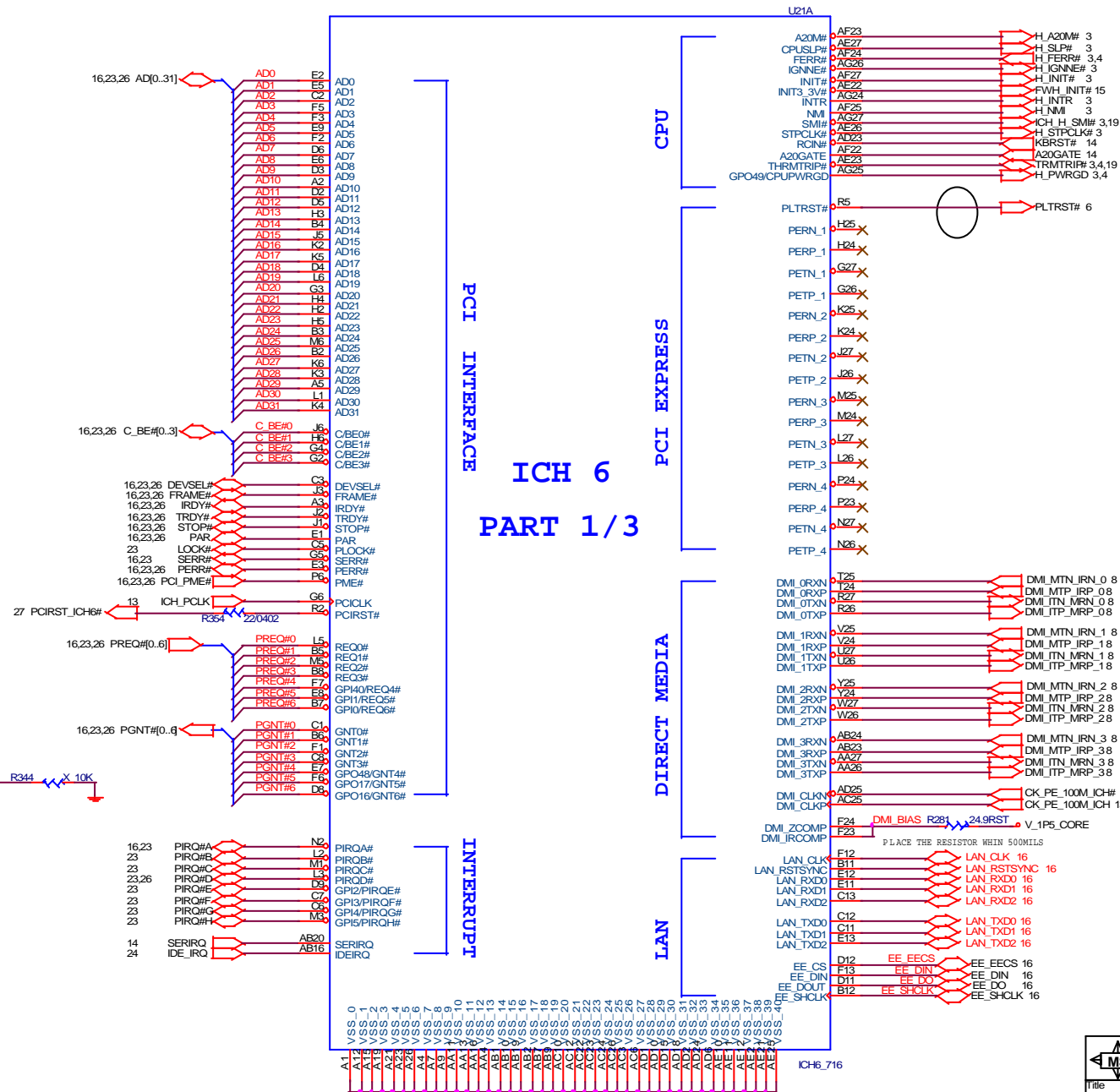


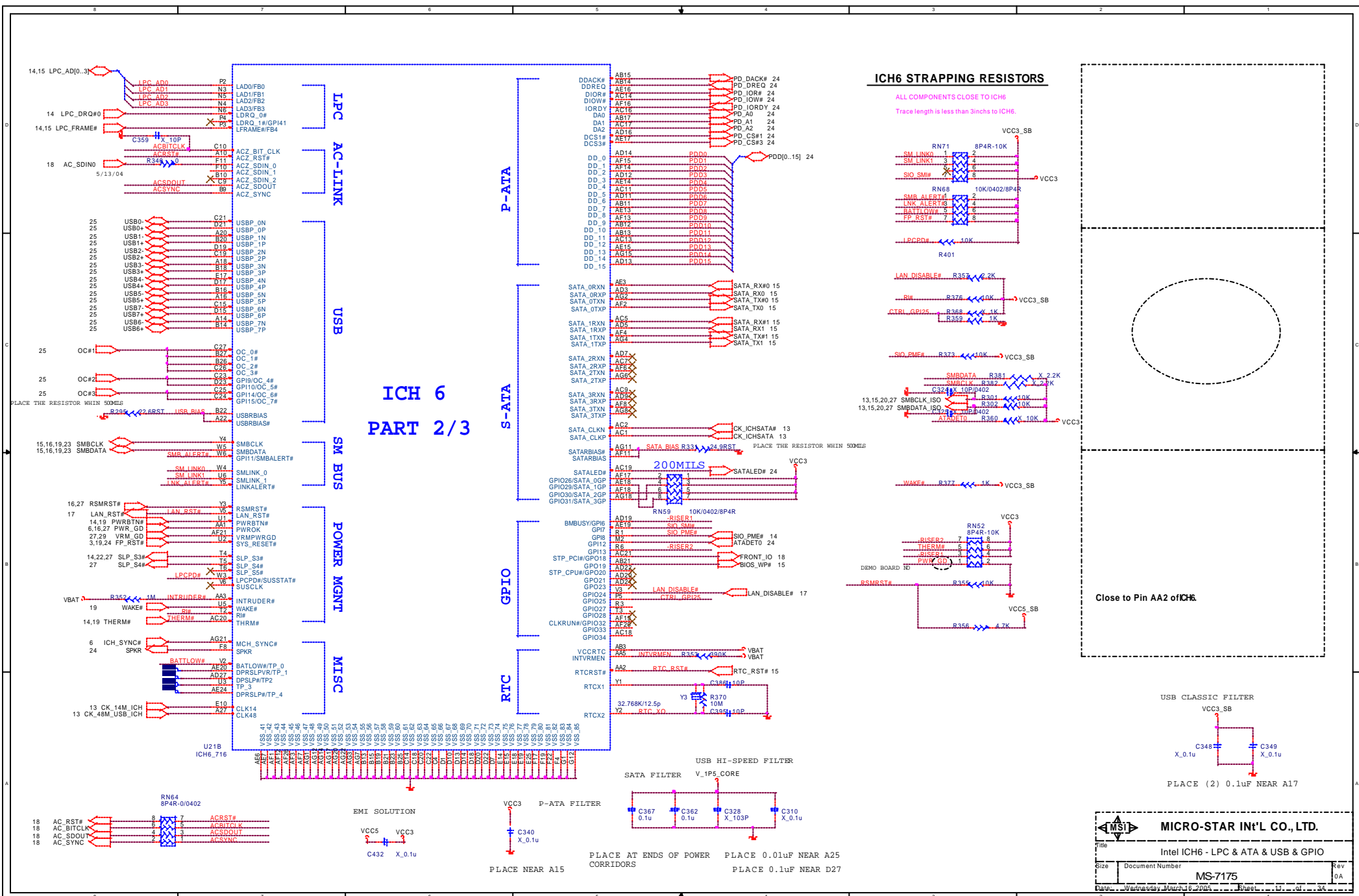


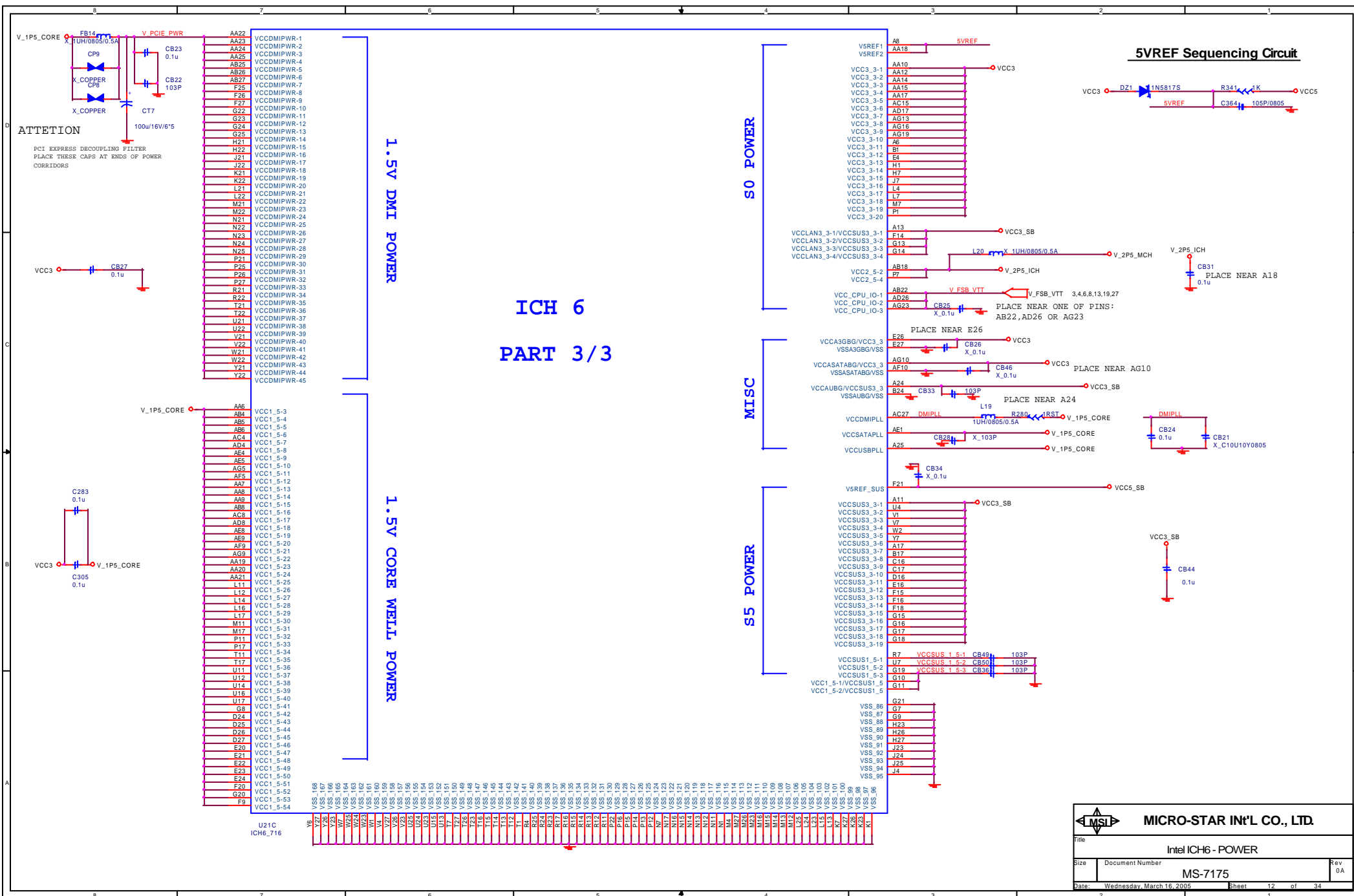




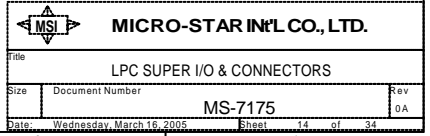








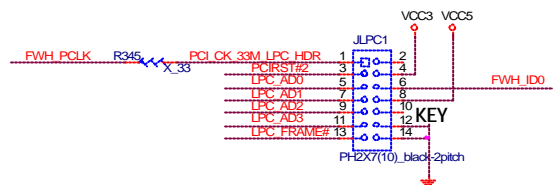




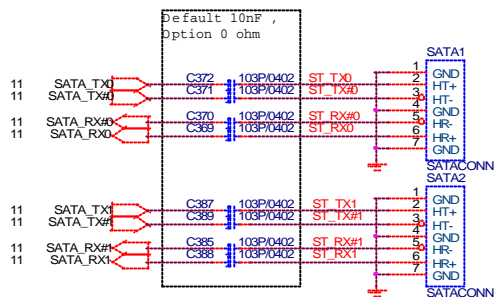


## LPC Debug Port

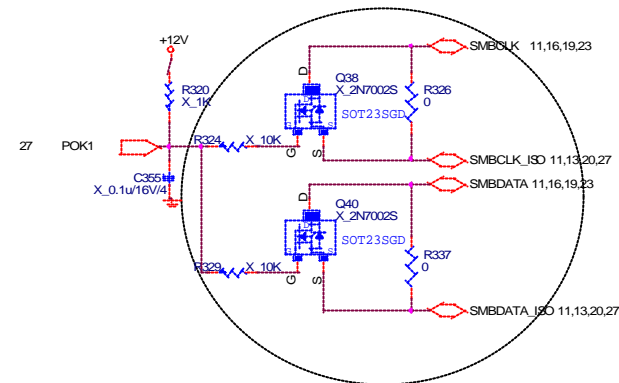
If you place the jumper very closed to FWH bios socket, please use the same clock with FWH. But if you can not place it so close, please use another clock to support it.



## SERIAL ATA CONNECTOR BLOCK



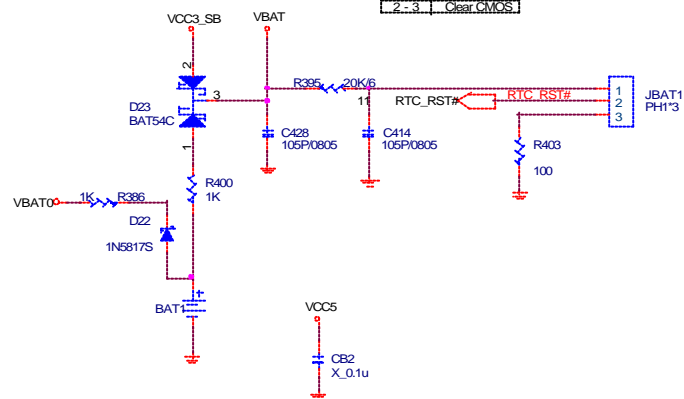
## SMBUS ISOLATE



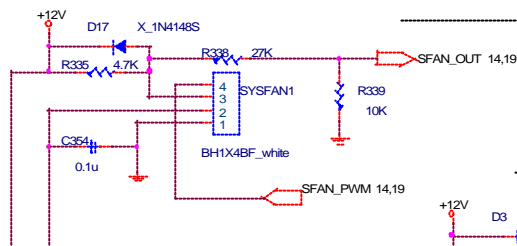
## RTC BLOCK

CLR_CMOS	
1 - 2	Normal *
2 - 3	Clear CMOS

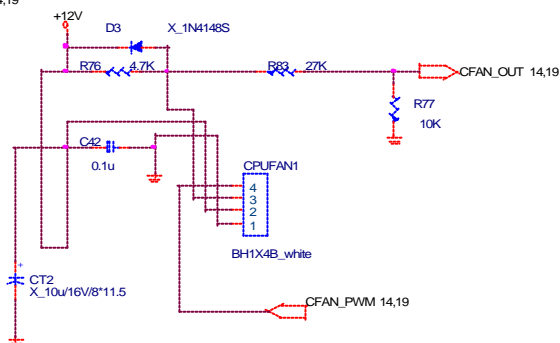
**Close to Pin AA2 of ICH6.**



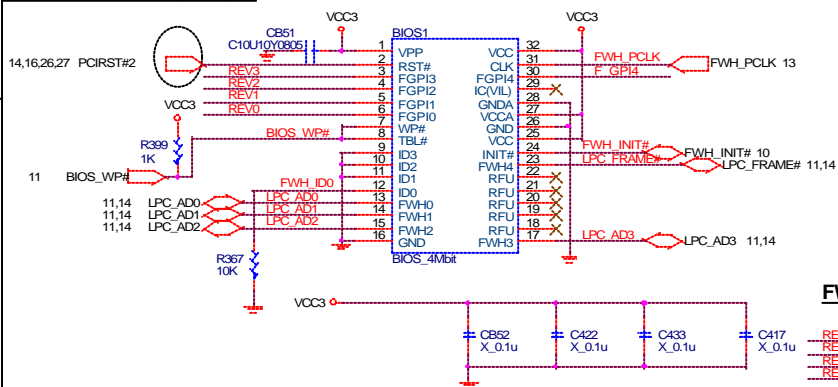
**SYSTEM FAN**



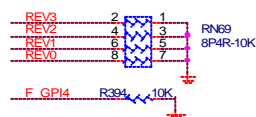
**CPU FAN**



## FIRMWARE HUB (FWH)



## FWH RESISTORS



**MICRO-STAR INT'L CO., LTD.**

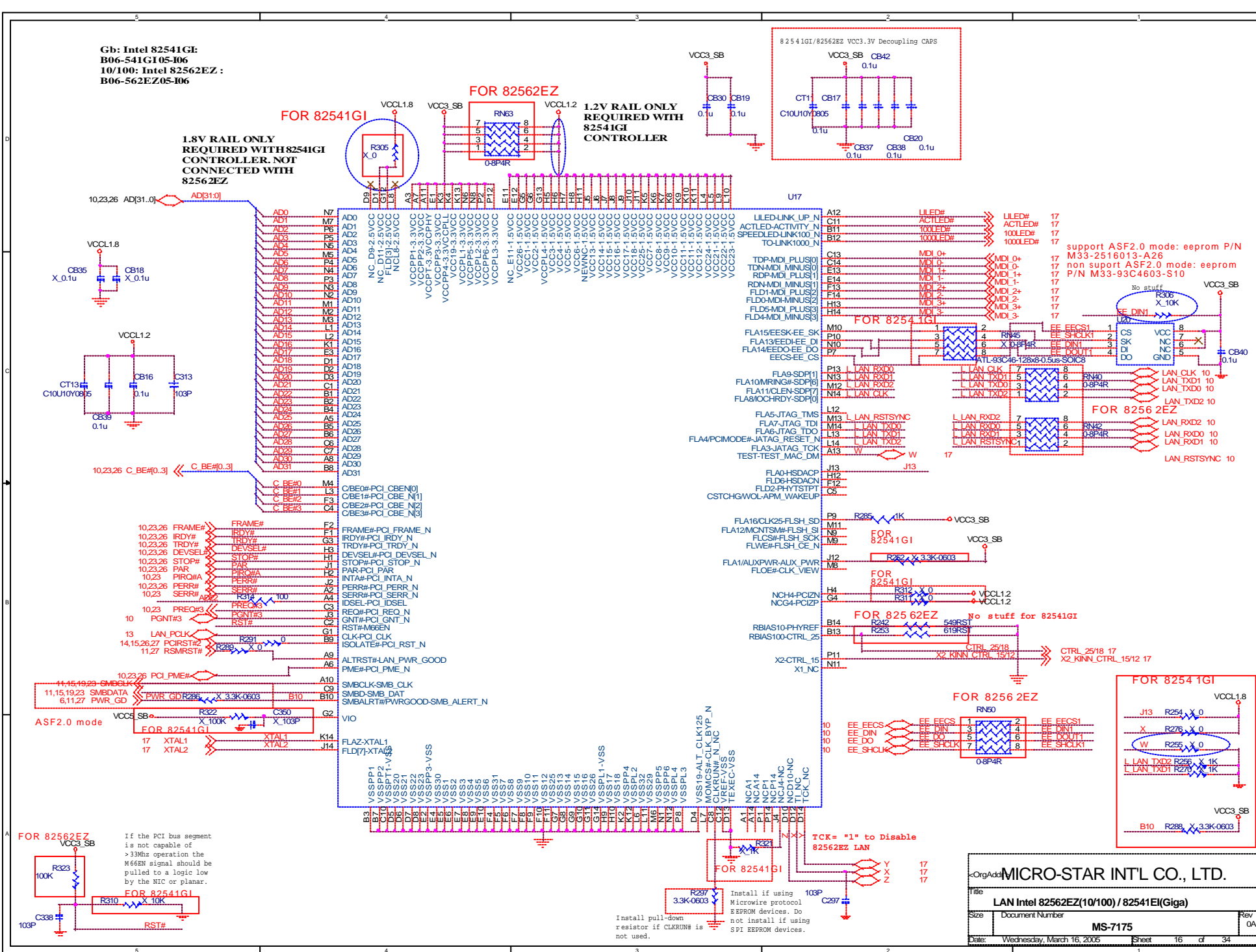
Title	FAN, FWH AND SATA
-------	-------------------

Size	Document Number	MS-7175
------	-----------------	---------

Date: Wednesday, March 16, 2005 Sheet 15 of 34



**Gb: Intel 82541GI:  
B06-541GI05-I06  
10/100: Intel 82562EZ :  
B06-562EZ05-I06**



MICRO-STAR INT'L CO., LTD.

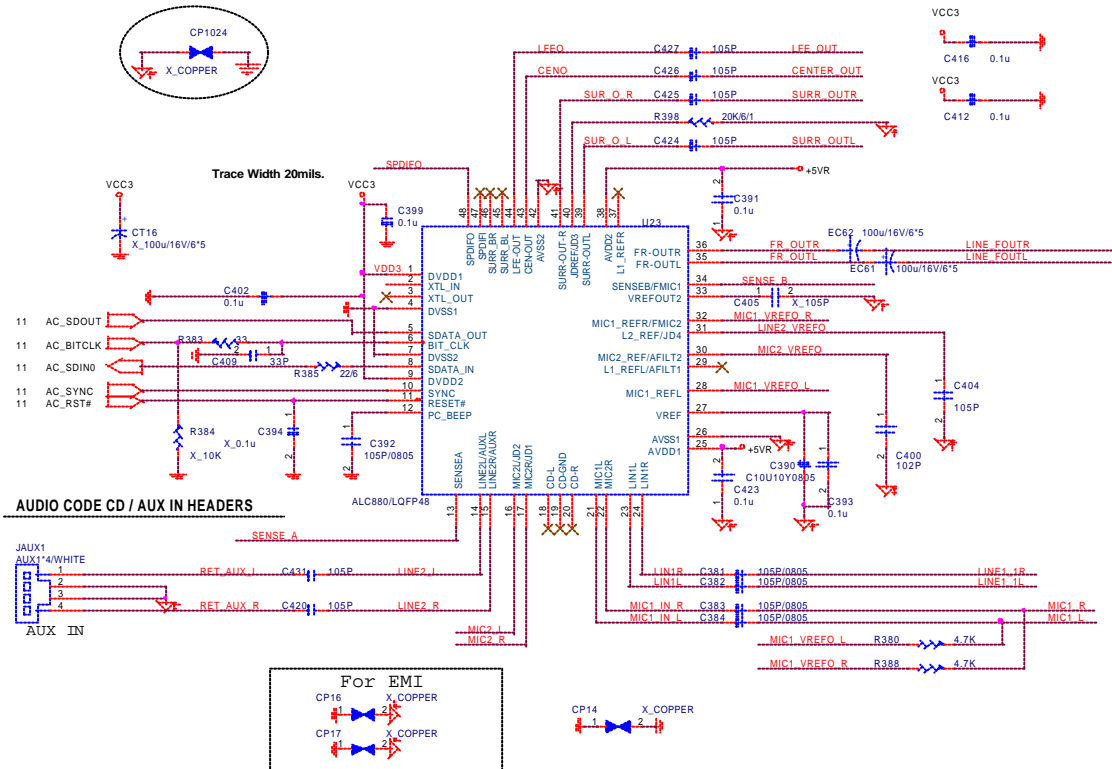
LAN Intel 82562EZ(10/100) / 82541EI(Giga)

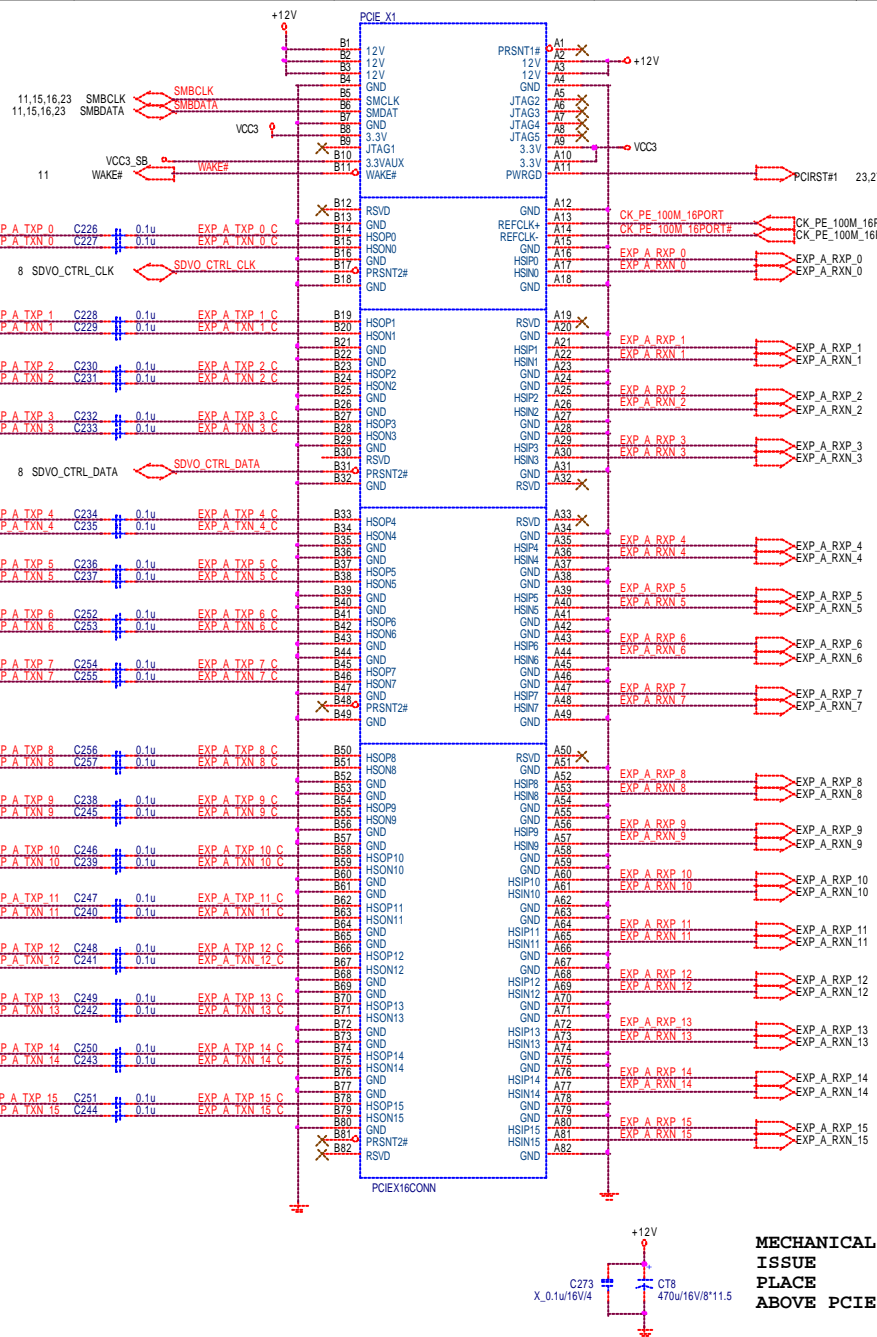
Size	Document Number
	MS-7175

Date: Wednesday, March 16, 2005 Sheet 16 of 3

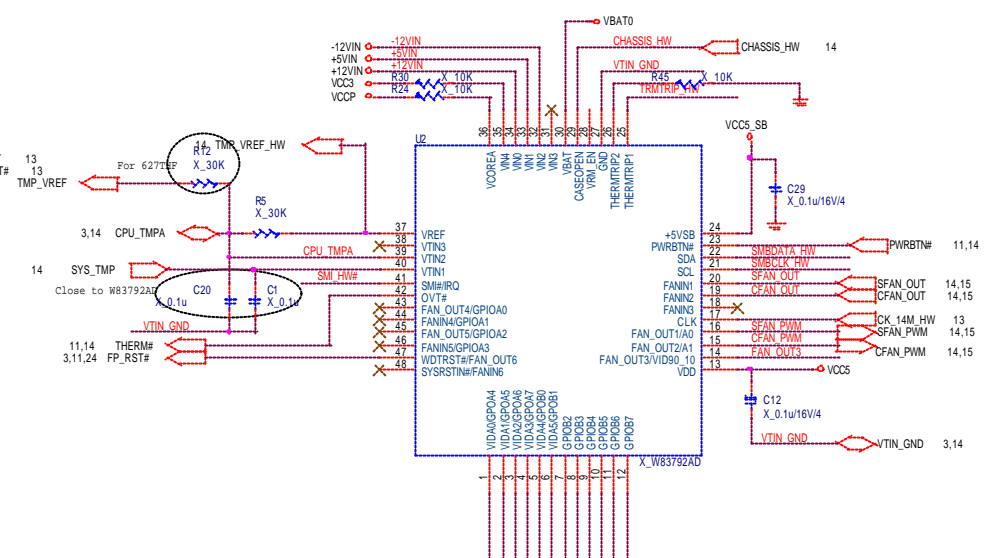
<OrgAddr> MICRO-STAR INT'L CO., LTD.				
Title				
LAN CONTROLLER				
Size	Document Number			Rev
	MS-5175			01
Date:	Wednesday, March 16, 2005	Sheet	17	of 34

## ALC880 CODEC

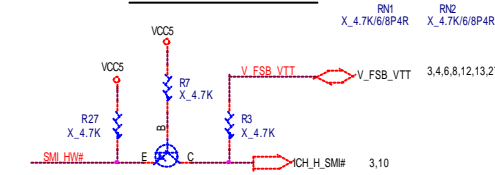




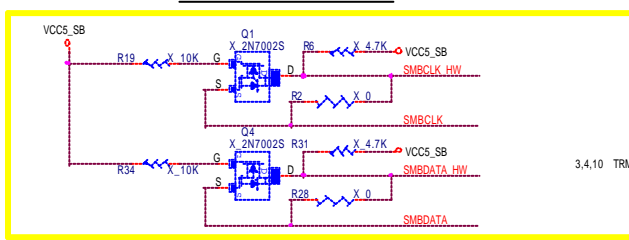
### W83792AD H/W MONITOR



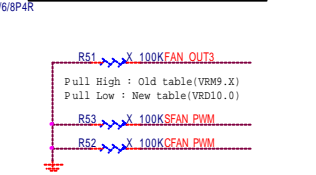
### SMI# Level Shift



### SM-BUS Level Shift

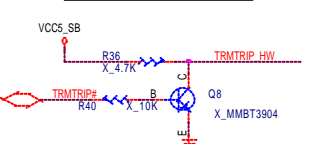


### W83792AD Trapping

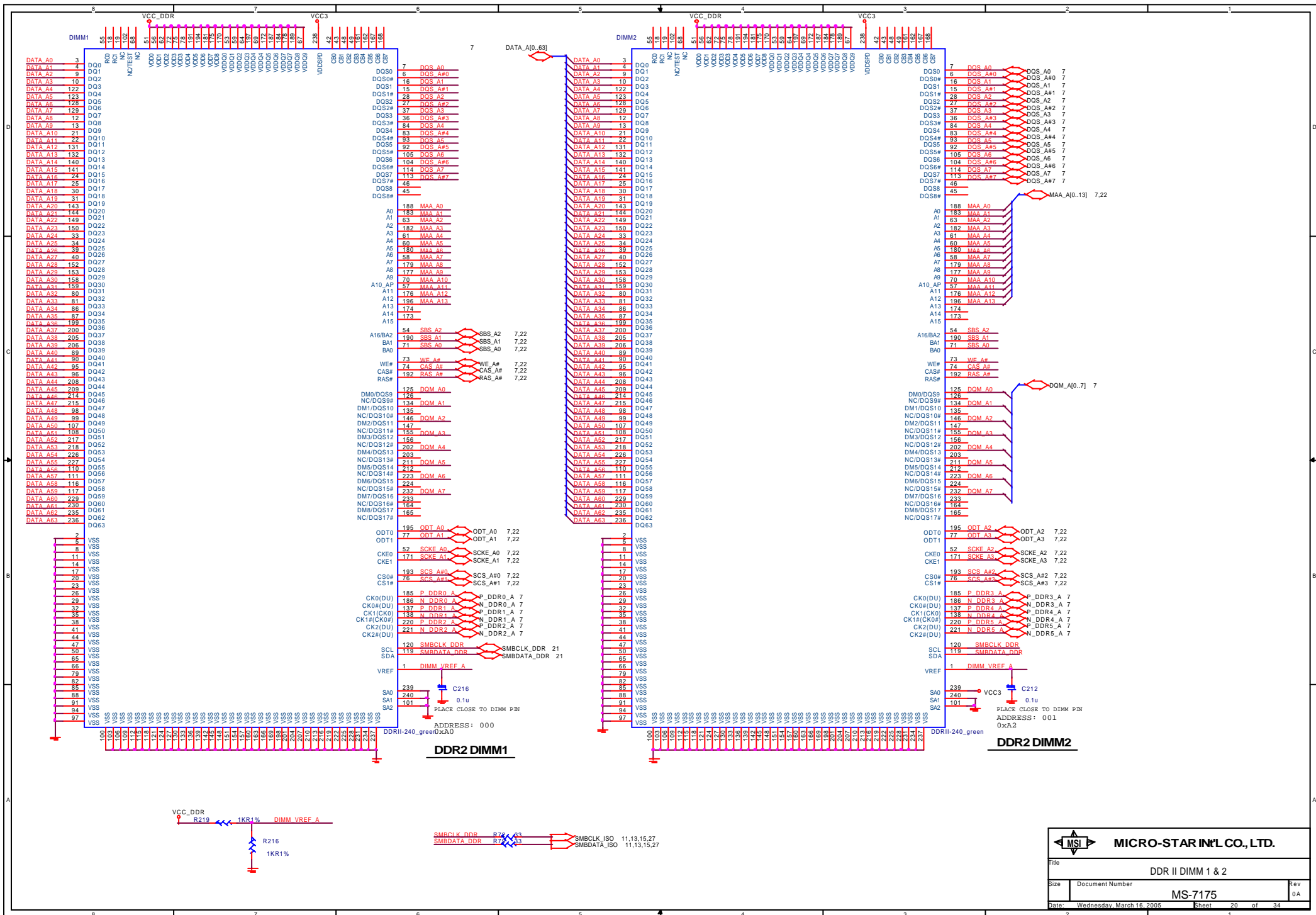


	CFAN_PWM (A1=0)	CFAN_PWM (A1=1)
SFAN_PWM (A0=0)	792D (0x58) T2 (0x90) T3 (0x98)	792D (0x5C) T2 (0x94) T3 (0x9C)
SFAN_PWM (A0=1)	792D (0x5A) T2 (0x92) T3 (0x9A)	792D (0x5E) T2 (0x96) T3 (0x9E)

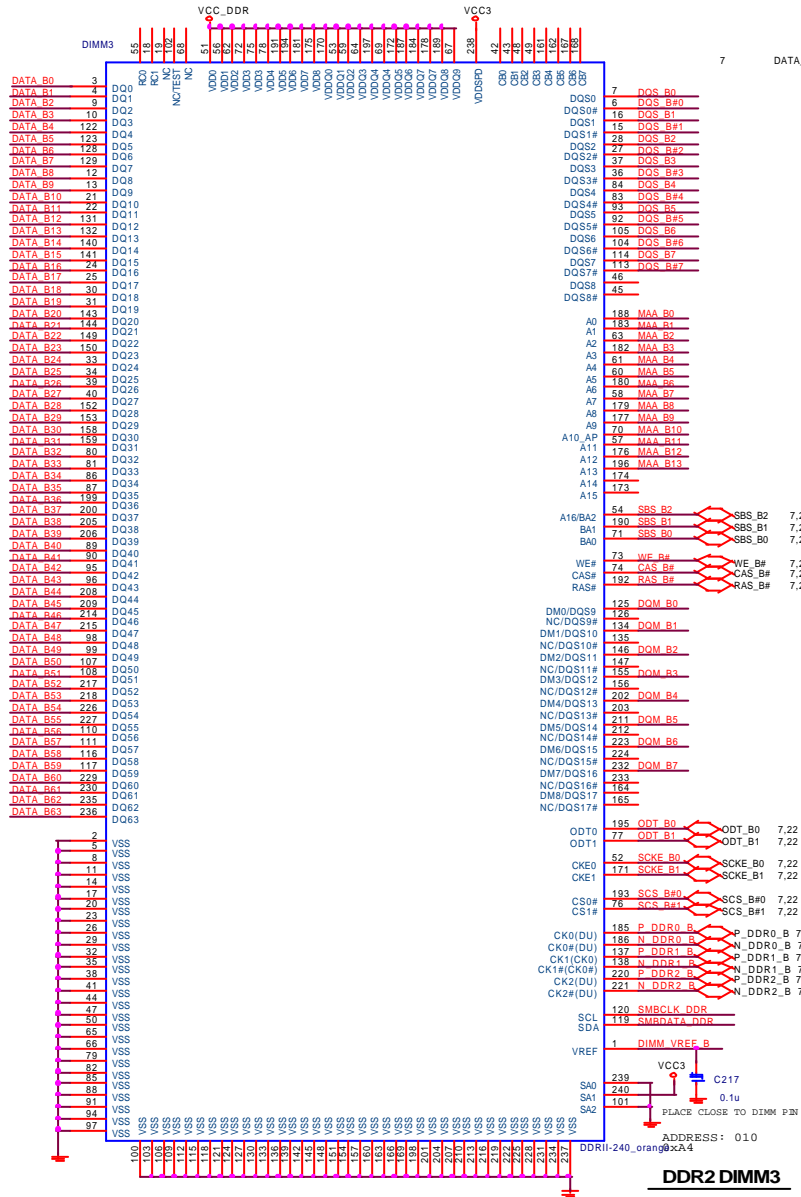
### TRMTRIP# Circuit



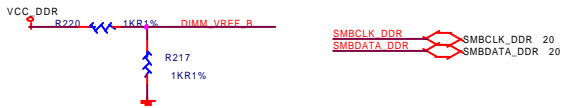
**MECHANICAL  
ISSUE  
PLACE  
ABOVE PCIE**







DDR2 DIMM3



DDR2 DIMM4

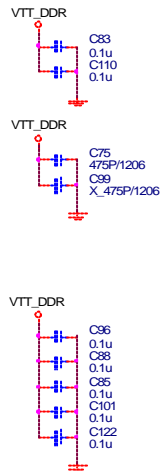
**MICRO-STAR INT'L CO., LTD.**

File: DDR II DIMM 3 & 4

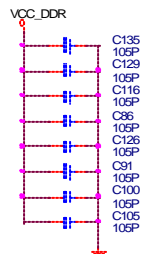
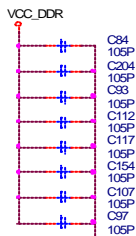
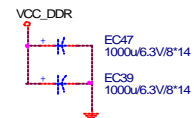
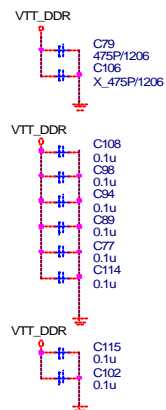
Size: Document Number MS-7175 Rev 0A

Date: Wednesday, March 16, 2005 Sheet 21 of 34

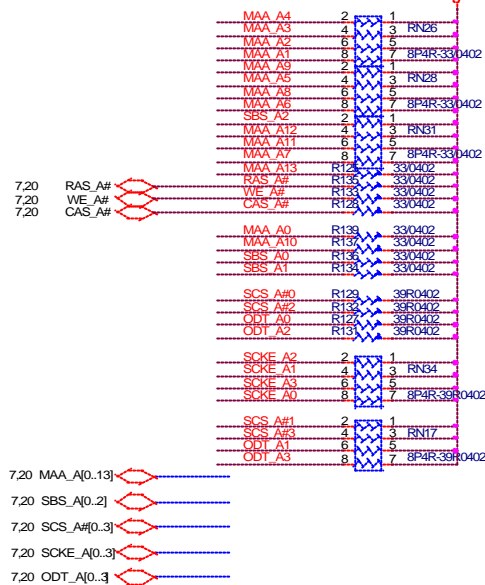
CHANNEL A V<sub>SM\_VTT</sub> DECOUPLING CAPS



CHANNEL B V<sub>SM\_VTT</sub> DECOUPLING CAPS

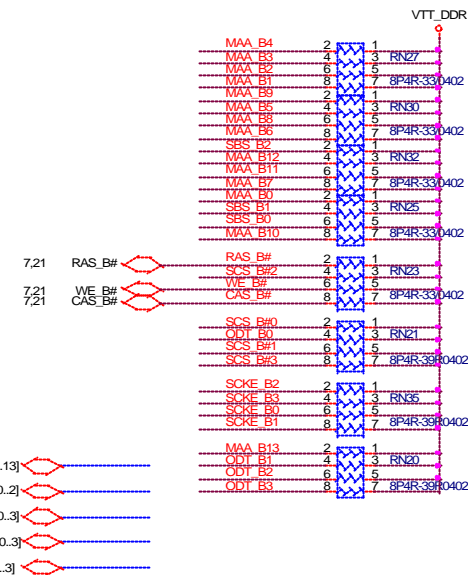


VTT\_DDR

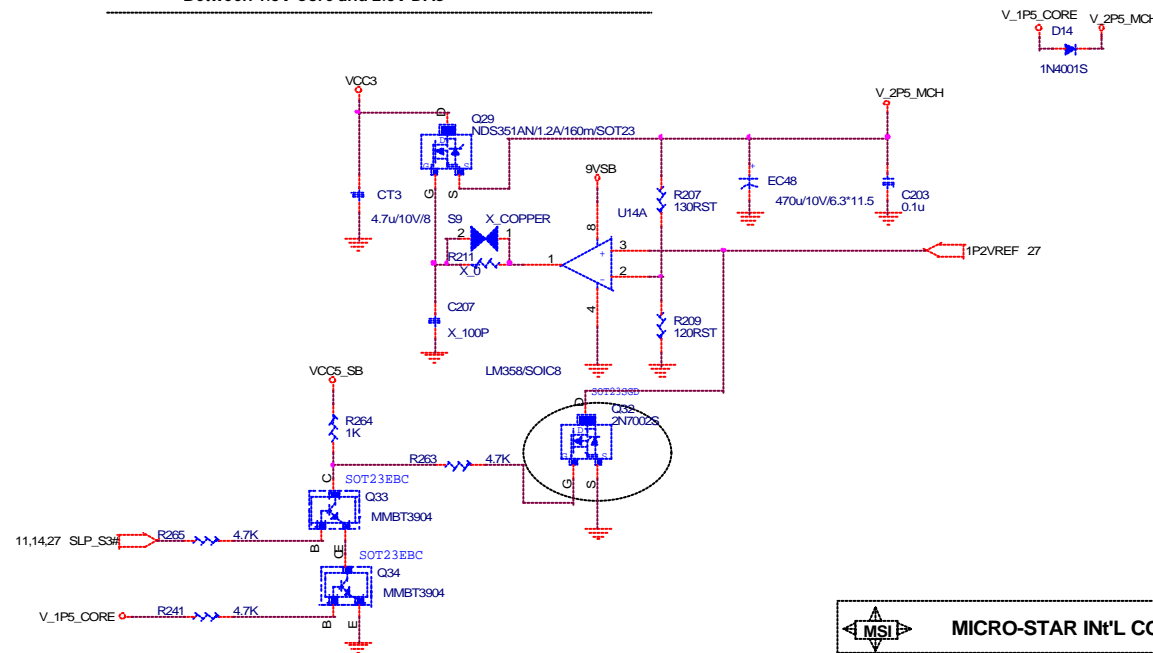


FOR EMI

VCC3 C132 0.1u/16V/6



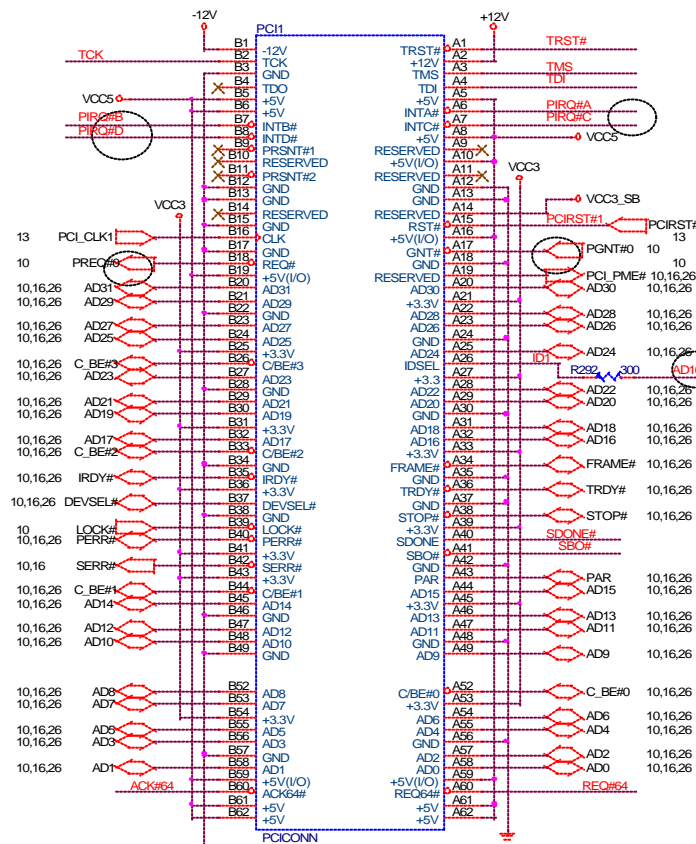
Grantsdale GMCH Power Sequencing Requirement  
Between 1.5V Core and 2.5V DAC



MICRO-STAR INT'L CO., LTD.			
Title: DDR1 VTT DECOUPLING			
Size	Document Number	Rev	
	MS-7175	0A	
Date: Wednesday, March 16, 2005	Sheet	22	of 34

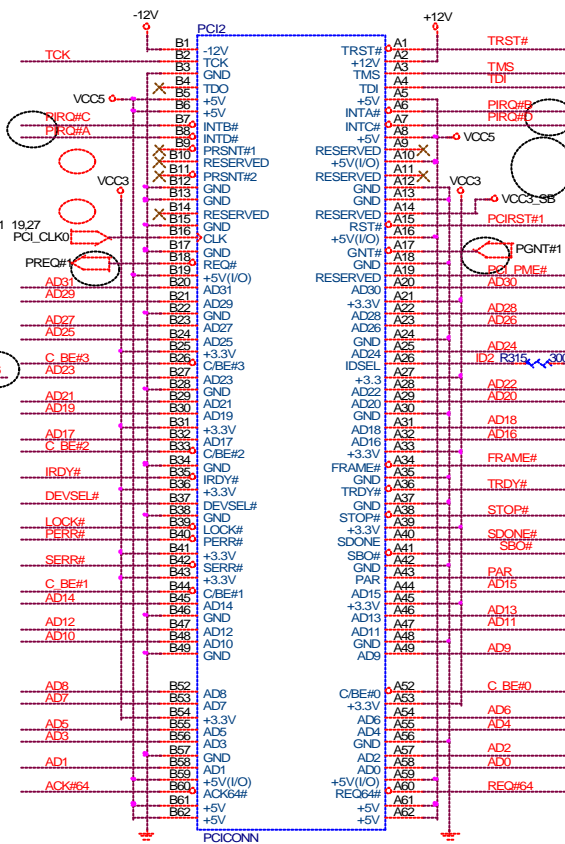


### PCI SLOT 1 (PCI VER: 2.2 COMPLY)



IDSEL = AD16  
MASTER = PREQ#0  
PIRQ#A

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

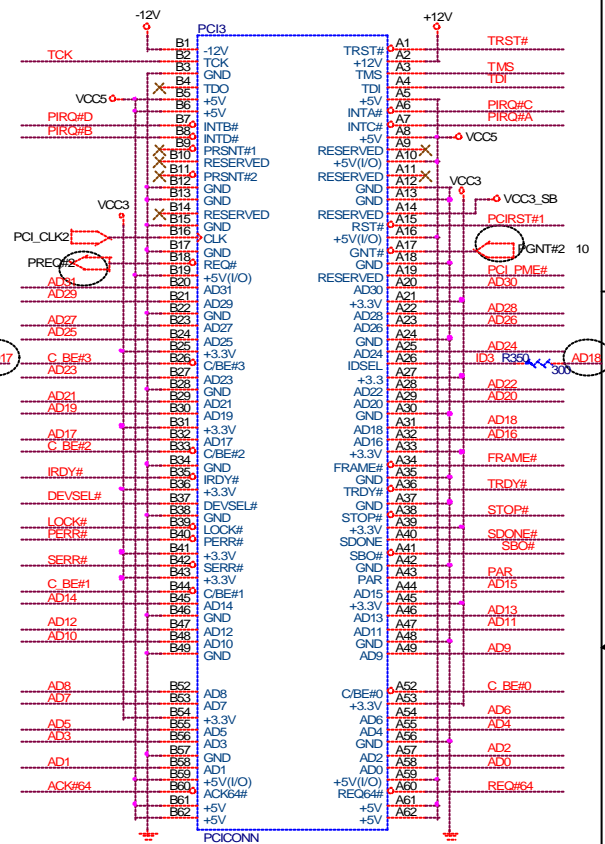


```

IDSEL = AD17
MASTER = PREQ#1
PIRQ#B

```

**PCI SLOT 3 (PCI VER: 2.2 COMPLY)**

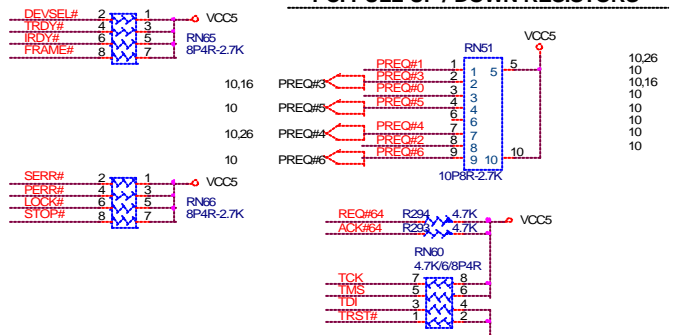


```

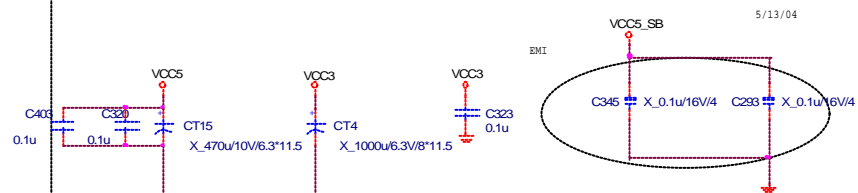
IDSEL = AD18
MASTER = PREQ#2
PIRQ#C

```

## PCI PULL-UP / DOWN RESISTORS



## PCI SLOT DECOUPLING CAPACITORS



**MICRO-STAR INT'L CO., LTD.**

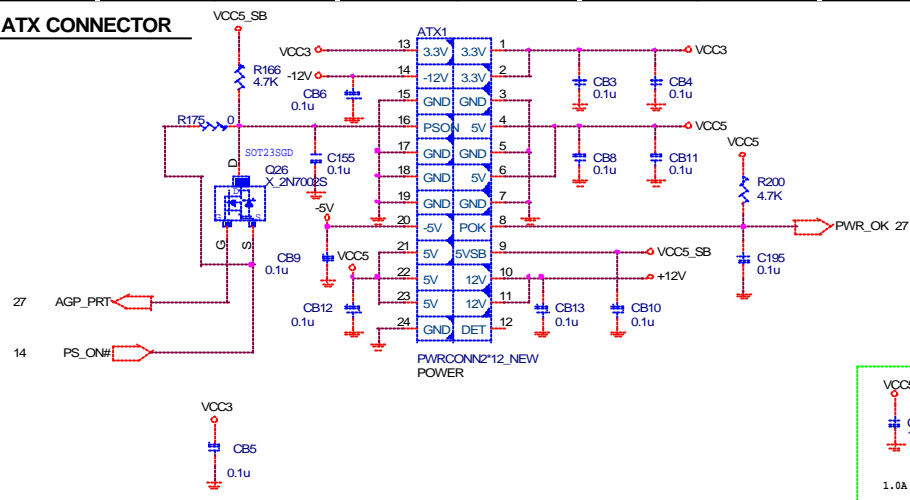
PCI 1&2 & 3 Slots

MS-7175

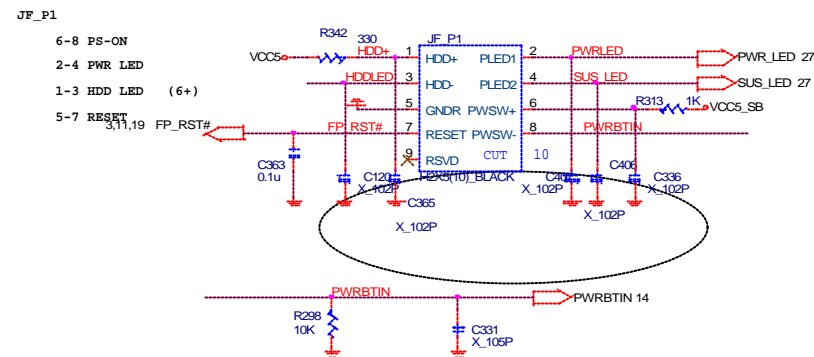
Date: Wednesday, March 16, 2005 Sheet 23 of 34

Date: Wednesday, March 10, 2000	Project: 23	Gr: 5
2	1	

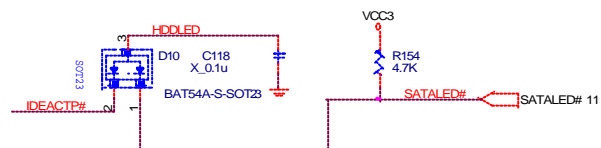
## ATX CONNECTOR



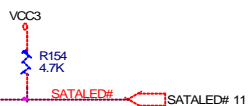
## MEDION Front Panel



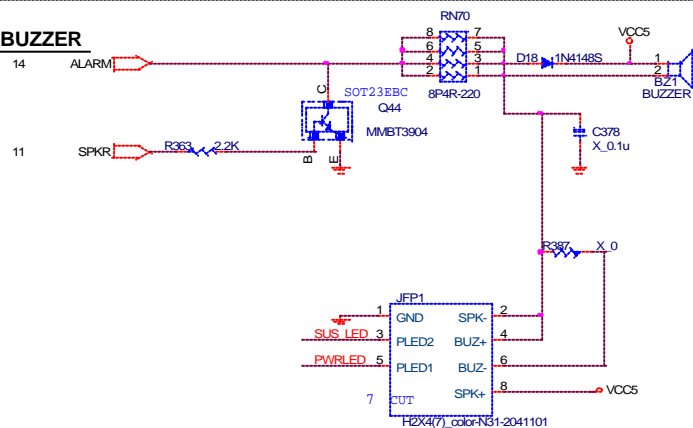
**IDE LED**



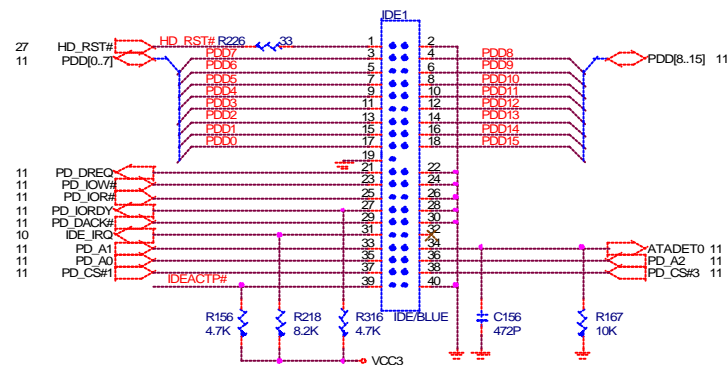
## SERIAL ATA LED



**BUZZER**



## PRIMARY IDE BLOCK



**MICRO-STAR INT'L CO., LTD.**

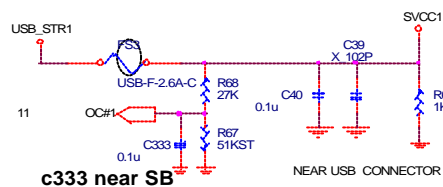
Title	ATX Connector & Front Panel & FAN CONTROL
-------	---

Size	Document Number
	MS-7175

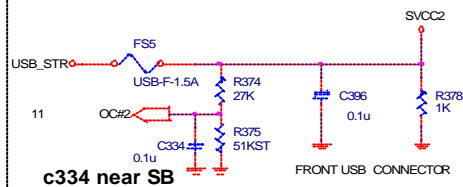
Date: Wednesday, March 16, 2005 Sheet 24 of 34

0A

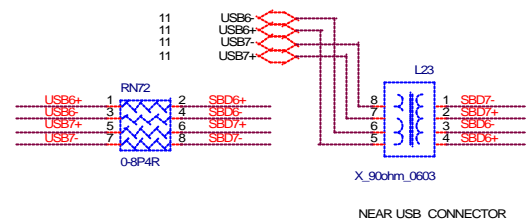
### POWER CIRCUIT FOR USB PORT 0,1,2,3



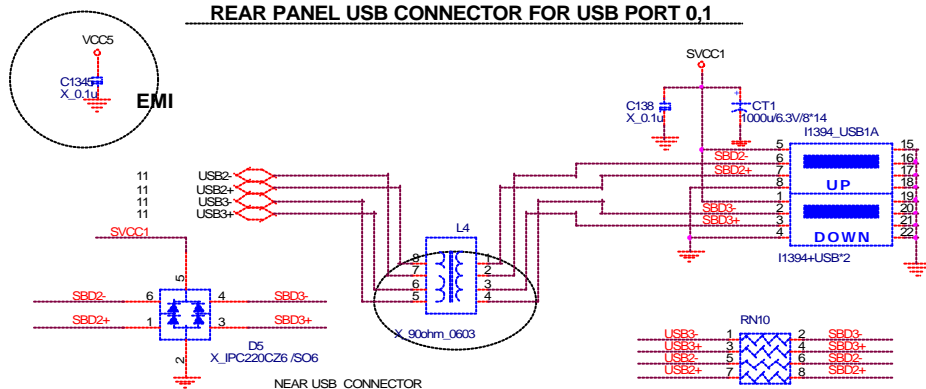
### POWER CIRCUIT FOR USB PORT 4,5



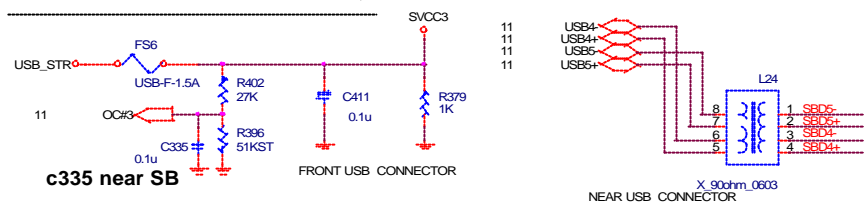
### FRONT PANEL USB CONNECTOR FOR USB PORT 4,5,6,7



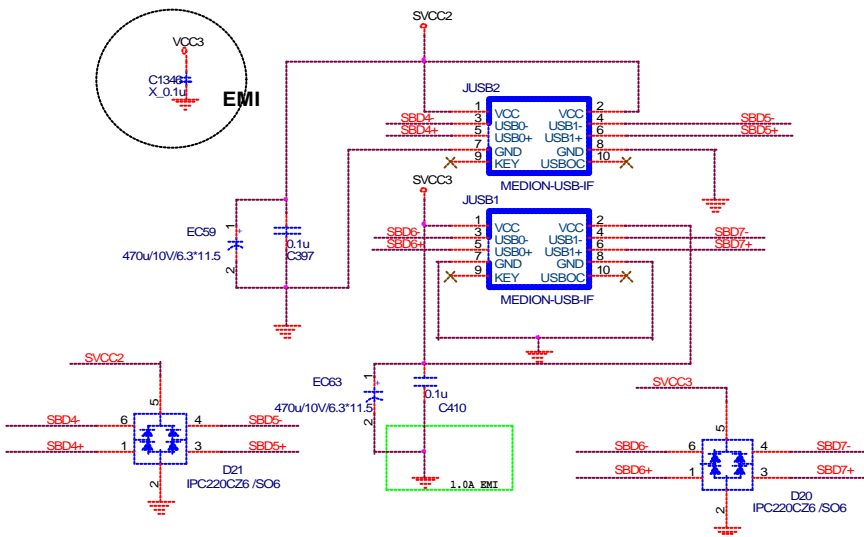
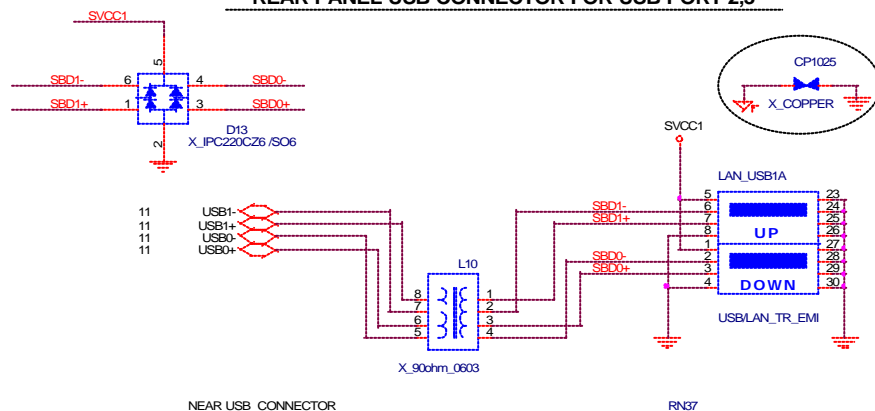
### REAR PANEL USB CONNECTOR FOR USB PORT 0,1



### POWER CIRCUIT FOR USB PORT 6,7

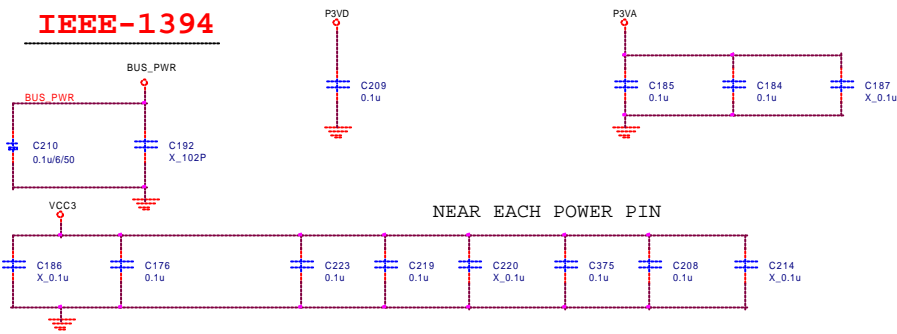


### REAR PANEL USB CONNECTOR FOR USB PORT 2,3

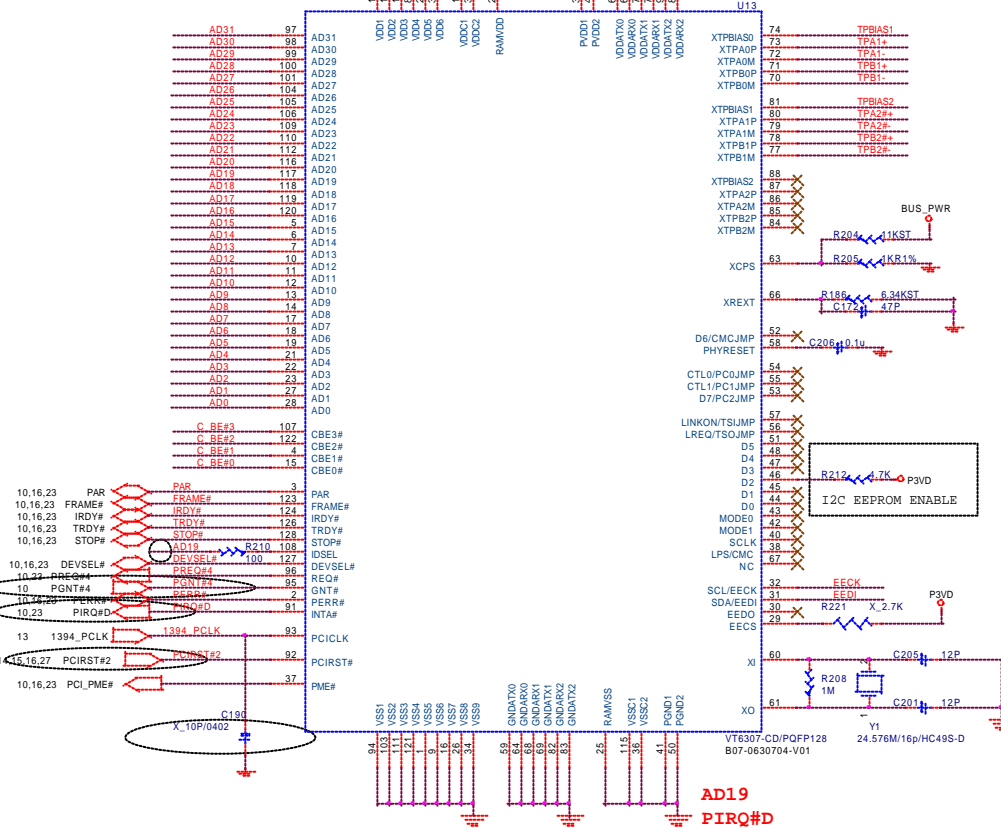
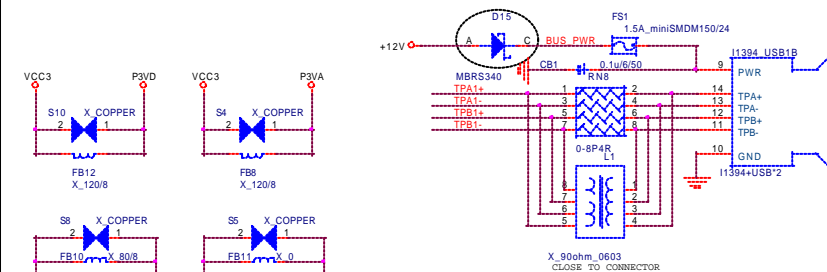
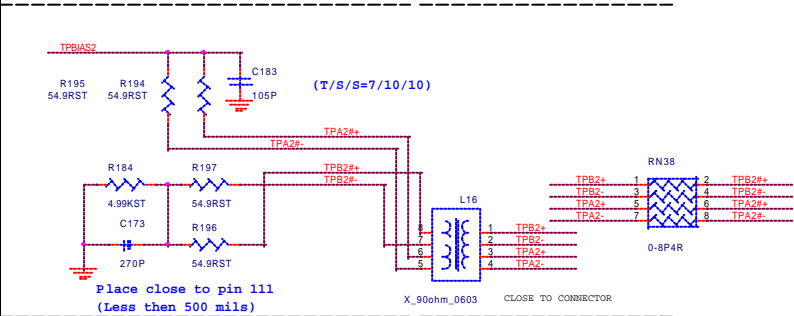
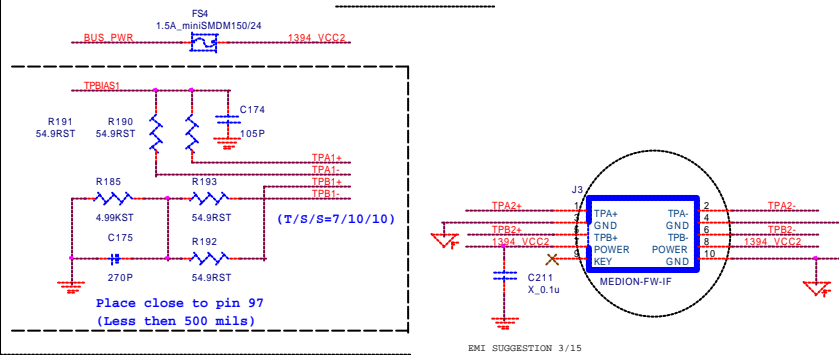


MICRO-STAR INT'L CO., LTD.			
Title			
H/W Monitor & FAN & USB Connectors			
Size	Document Number	Rev	
		MS-7175	
Date: Wednesday, March 16, 2005	Sheet	25	of 34

# IEEE-1394



## FRONT 1394 PORT 1



**MICRO-STAR**

VIA VT-6307

MS-7175

Rev 0A

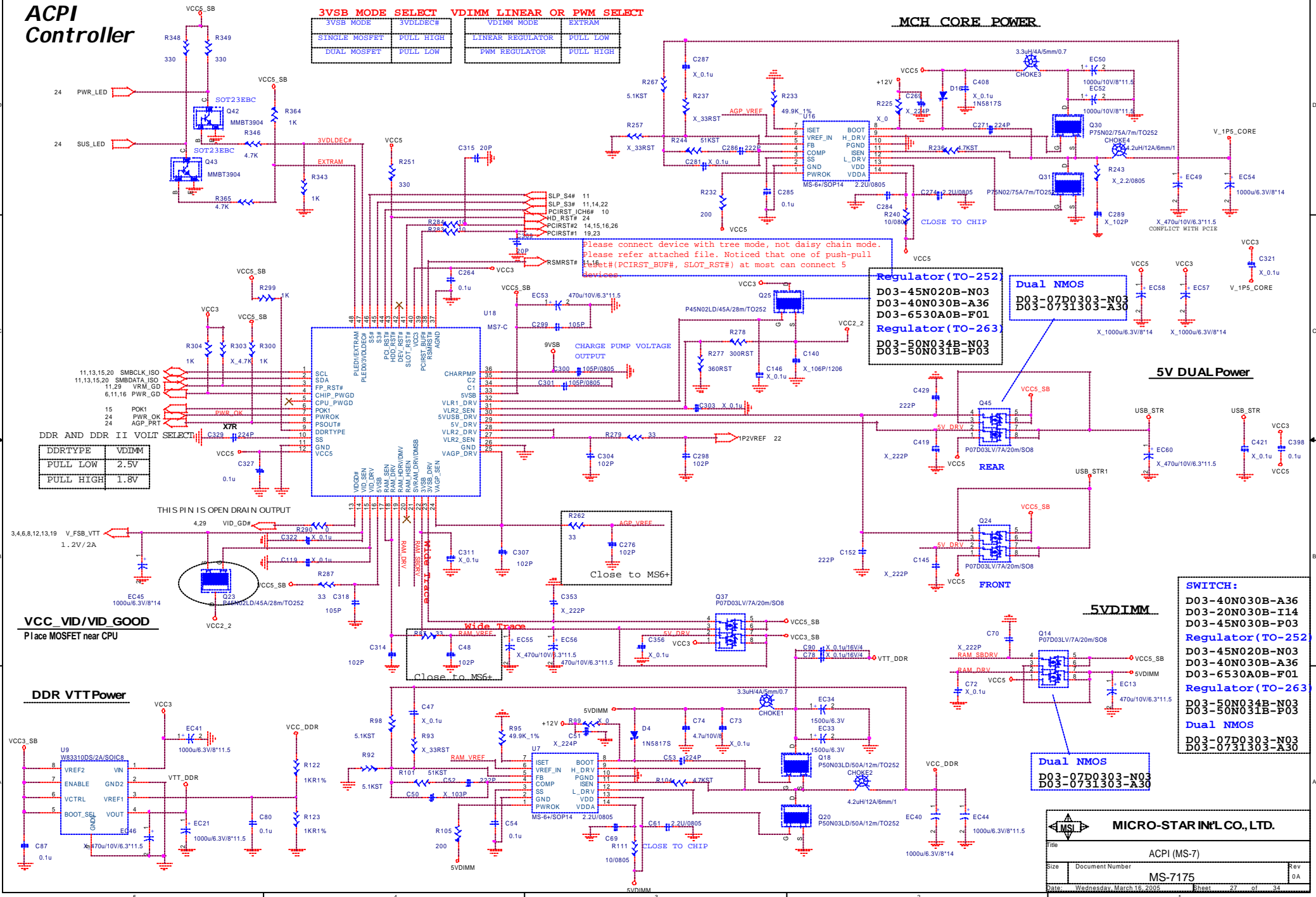
Date: Wednesday, March 16, 2005

Sheet 26 of 34

# ACPI Controller

3VSB MODE SELECT		VDIMM LINEAR OR PWM SELECT	
3VSB MODE	3VLDDEC#	VDIMM MODE	EXTRAM
SINGLE MOSFET	PULL HIGH	LINEAR REGULATOR	PULL LOW
DUAL MOSFET	PULL LOW	PWM REGULATOR	PULL HIGH

## MCH CORE POWER



Please connect device with tree mode, not daisy chain mode.  
Please refer attached file. Noticed that one of push-pull  
Pin#(PCIRST\_BUF#, SLOT\_RST#) at most can connect 5  
Devices

**Regulator(TO-252)**  
D03-45N020B-N03  
D03-40N030B-A36  
D03-6530A0B-F01  
**Regulator(TO-263)**  
D03-50N034B-N03  
D03-50N031B-P03

**Dual NMOS**  
D03-07D0303-N03  
D03-0731303-A30

## 5V DUAL Power

**SWITCH:**  
D03-40N030B-A36  
D03-20N030B-I14  
D03-45N030B-P03  
**Regulator(TO-252)**  
D03-45N020B-N03  
D03-40N030B-A36  
D03-6530A0B-F01  
**Regulator(TO-263)**  
D03-50N034B-N03  
D03-50N031B-P03  
**Dual NMOS**  
D03-07D0303-N03  
D03-0731303-A30

## 5VDIMM

**Dual NMOS**  
D03-07D0303-N03  
D03-0731303-A30

## ICH6

GPIO Pin	Type	Function
GPIO 0	I	REQ6# (multifunction pin)
GPIO 1	I	REQ5# (multifunction pin)
GPIO 2	I	PCI_IRQ#E (multifunction pin)
GPIO 3	I	PCI_IRQ#F (multifunction pin)
GPIO 4	I	PCI_IRQ#G (multifunction pin)
GPIO 5	I	PCI_IRQ#H (multifunction pin)
GPIO 6	I	-RISER1 (multifunction pin)
GPIO 7	I	SIO_SMI# (multifunction pin)
GPIO 8	I	SIO_PME# (multifunction pin)
GPIO 9	I	Unused (multifunction pin)
GPIO 10	I	Unused (multifunction pin)
GPIO 11	I	Unused (multifunction pin)
GPIO 12	I	ATADET0
GPIO 13	I	-RISER2
GPIO 14	I	Unused (multifunction pin)
GPIO 15	I	Unused (multifunction pin)
GPIO 16	O	GNT6# (multifunction pin)
GPIO 17	O	GNT5# (multifunction pin)
GPIO 18	O	Unused (multifunction pin)
GPIO 19	O	Unused (multifunction pin)
GPIO 20	O	Unused (multifunction pin)
GPIO 21	O	Unused (multifunction pin)
GPIO 22	OD	Unused (multifunction pin)
GPIO 23	O	Unused (multifunction pin)
GPIO 24	I/O	MB_ID0
GPIO 25	I/O	CTRL_GPI25
GPIO 27	I/O	MB_ID1
GPIO 28	I/O	Password Clear(Active low)
GPIO 32	I/O	(multifunction pin)
GPIO 33	I/O	MB_ID2
GPIO 34	I/O	MB_ID3
GPIO 40	I	PREQ#4 (multifunction pin)
GPIO 41	I	LDRQ1 (multifunction pin)
GPIO 48	O	PGNT#4 (multifunction pin)
GPIO 49	OD	CPU_GD (multifunction pin)

## PCI Config.

DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK
PCI Slot 1	PIRQA PIROB PIROC PIROD	PCI_REQ#0 PCI_GNT#0	AD16	PCI_CLK1
PCI Slot 2	PIROB PIROC PIROD PIRQA	PCI_REQ#1 PCI_GNT#1	AD17	PCI_CLK0
PCI Slot 3	PIROC PIROD PIRQA PIROB	PCI_REQ#2 PCI_GNT#2	AD18	PCI_CLK2
LAN	PIROC	PCI_REQ#6 PCI_GNT#6	AD22	LAN_PCLK
1394	PIROD	PCI_REQ#4 PCI_GNT#4	AD20	1394_PCLK
PCI 2 MASTER	PIRQE	PCI_REQ#3 PCI_GNT#3	AD19	PCI_CLK3
IDE RAID	PIROG	PCI_REQ#5 PCI_GNT#5	AD21	RAID_PCLK

## 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

## JUMPER SETTING


<b>JBAT1</b>	( 1 - 2 ) NORMAL	( 2 - 3 ) CLEAR

## SIO

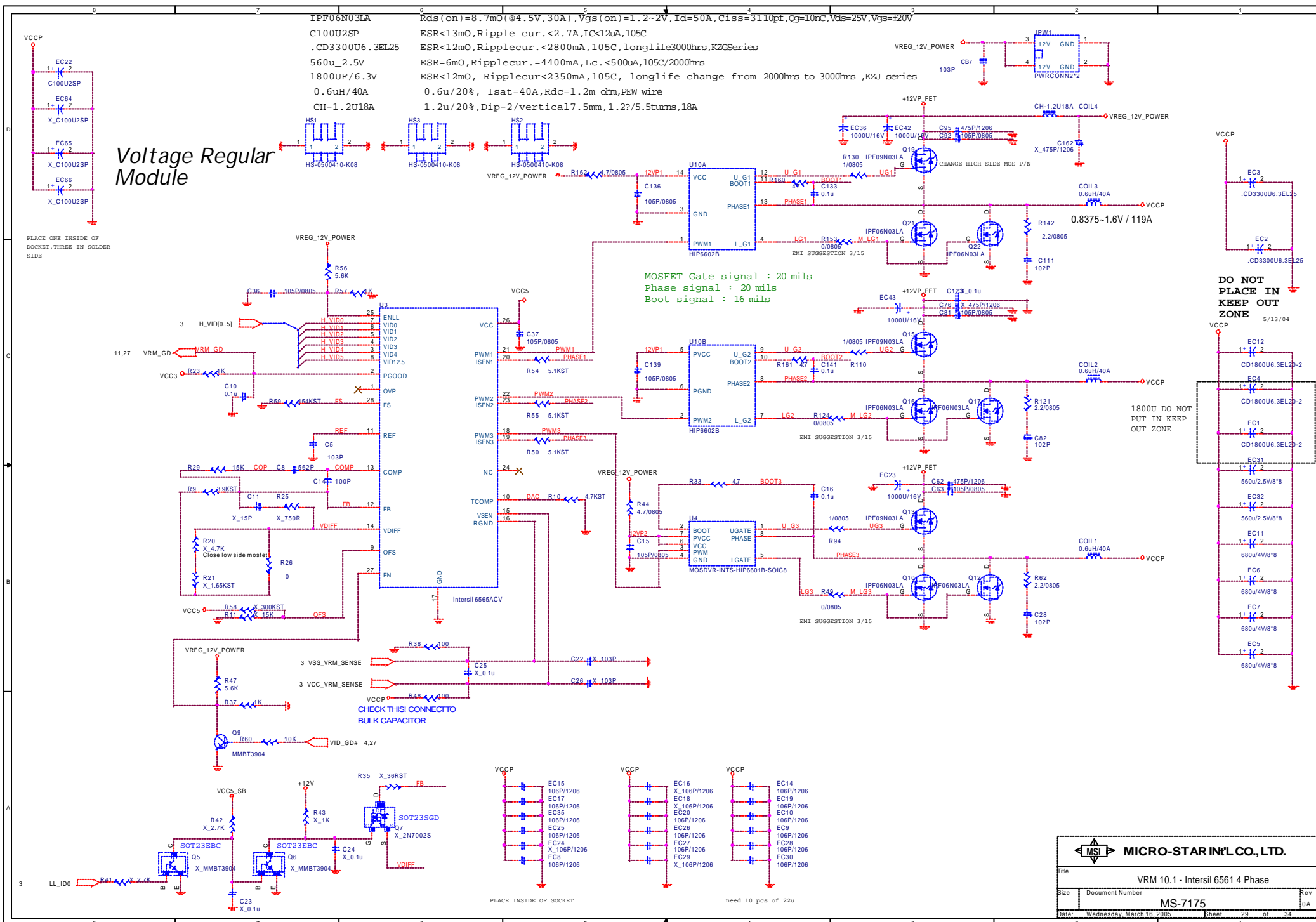
PIN NAME	USAGE	Input/Output	NOTES
GPIO34	BIOS_WP#	OUTPUT	BIOS Write Protect
GPIO35	2X12_DET	INPUT	2x12 Power Conn Detect

## PCI RESET DEVICE

Signals	Target
PCIRST#1	PCI 1-3
PCIRST#2	Super I/O, 1394, LAN, FWH
PCIRST_ICH6#	PCI-E
HDDRST#	Primary IDE

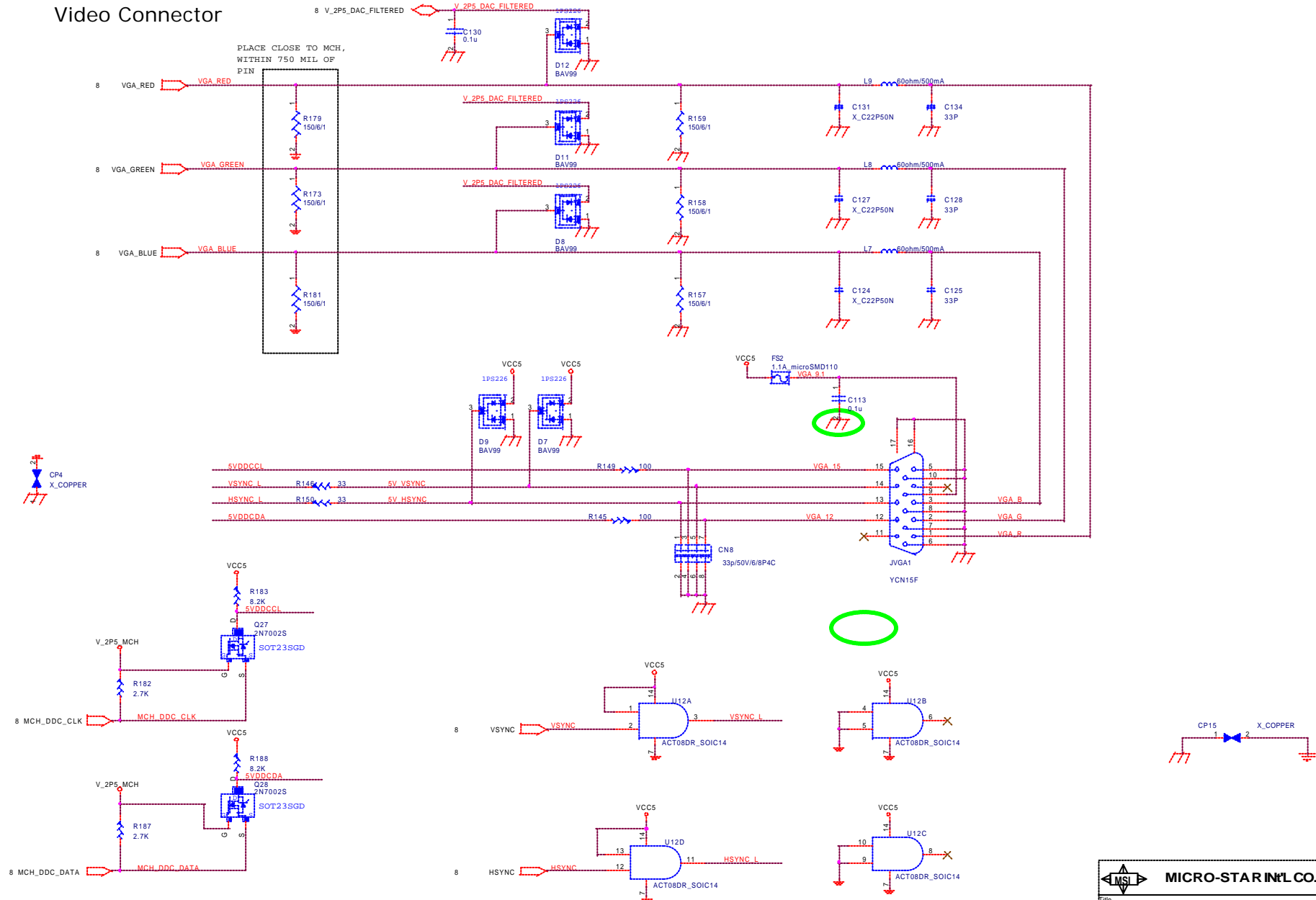
 <b>MICRO-STAR INT'L CO., LTD.</b>	
Title: General Purpose Spec & JUMPER SETTING	
Size: Document Number	Rev: 0A
MS-7175	
Date: Wednesday, March 16, 2005	Sheet 28 of 34



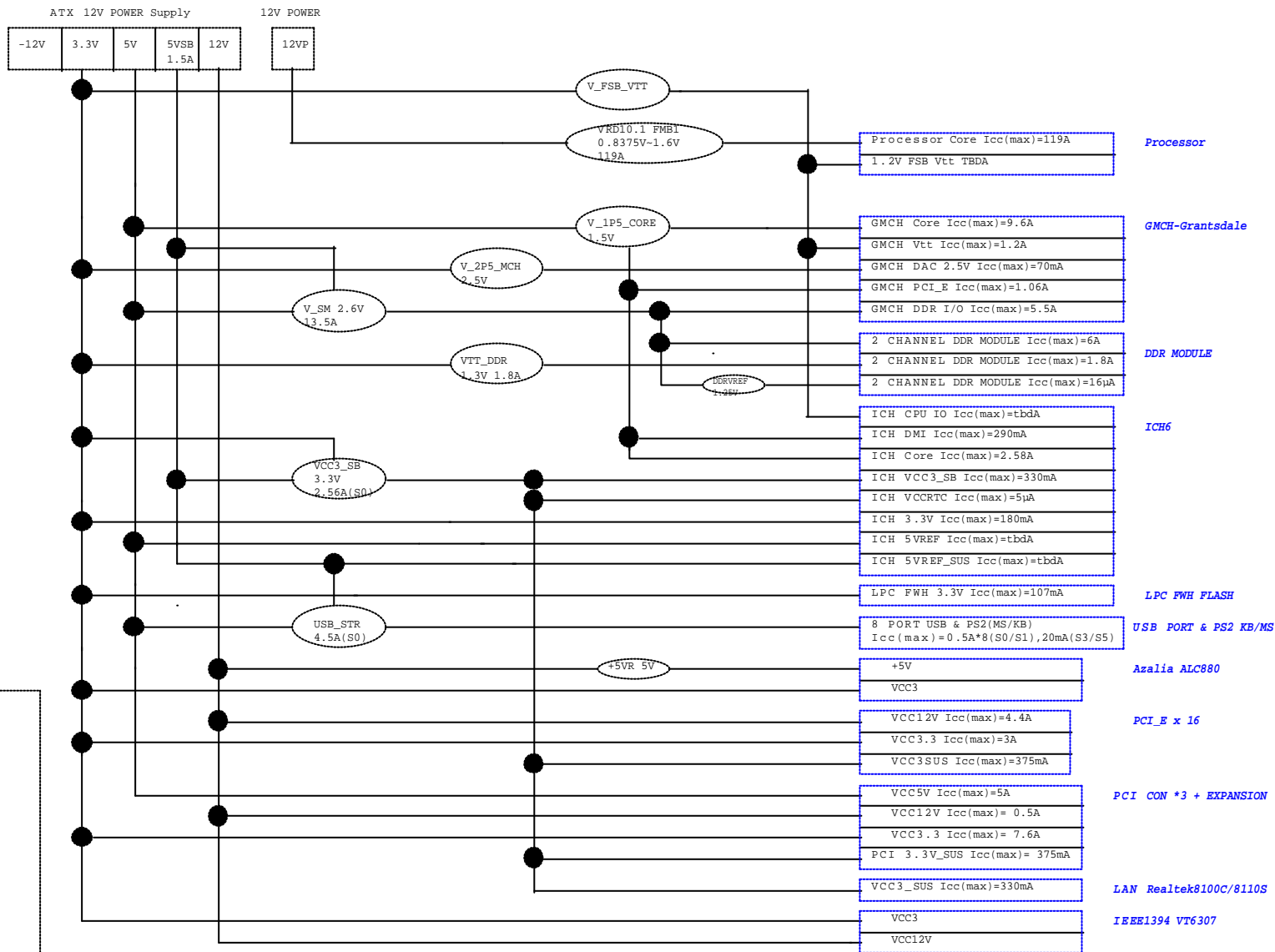




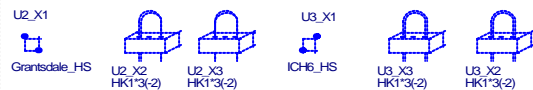
# Video Connector



# POWER DELIVERY MAP



## HEAT SINK

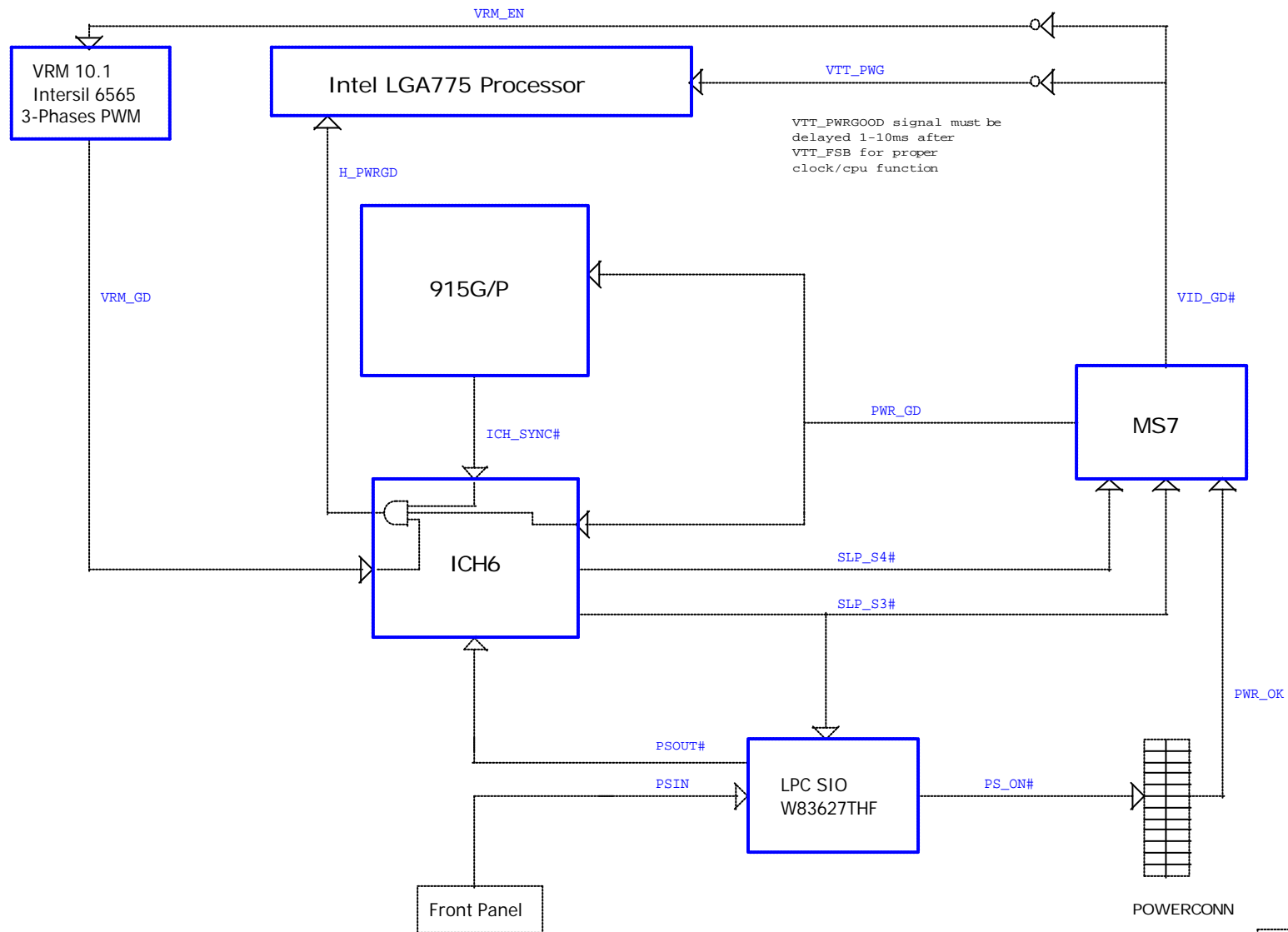


## MANUAL PART

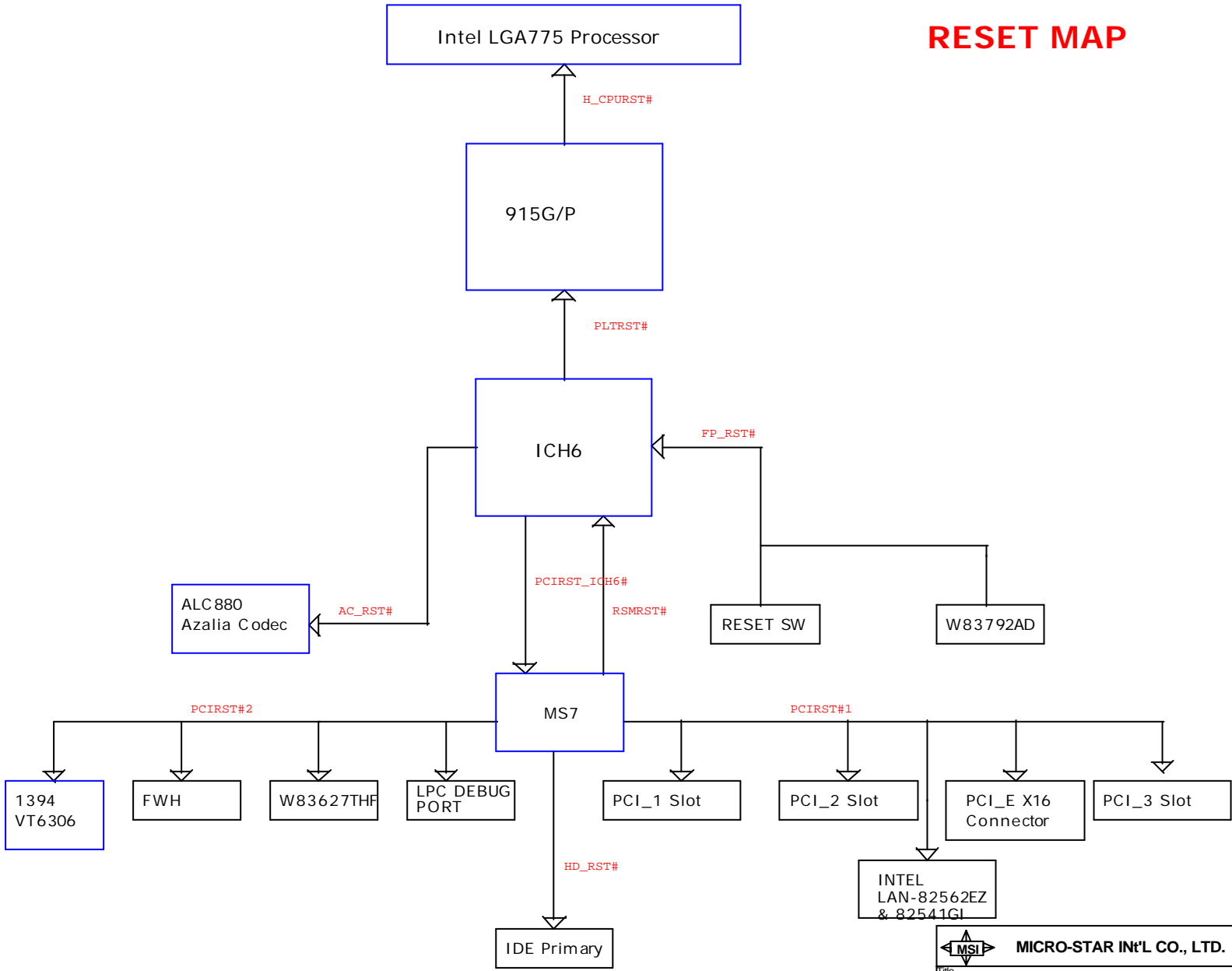


<b>MICRO-STAR INT'L CO., LTD.</b>			
Title POWER DELIVERY MAP & MANUAL PART			
Size	Document Number	Rev	
	MS-7175	0A	
Date: Wednesday, March 16, 2005	Sheet	31	of 34

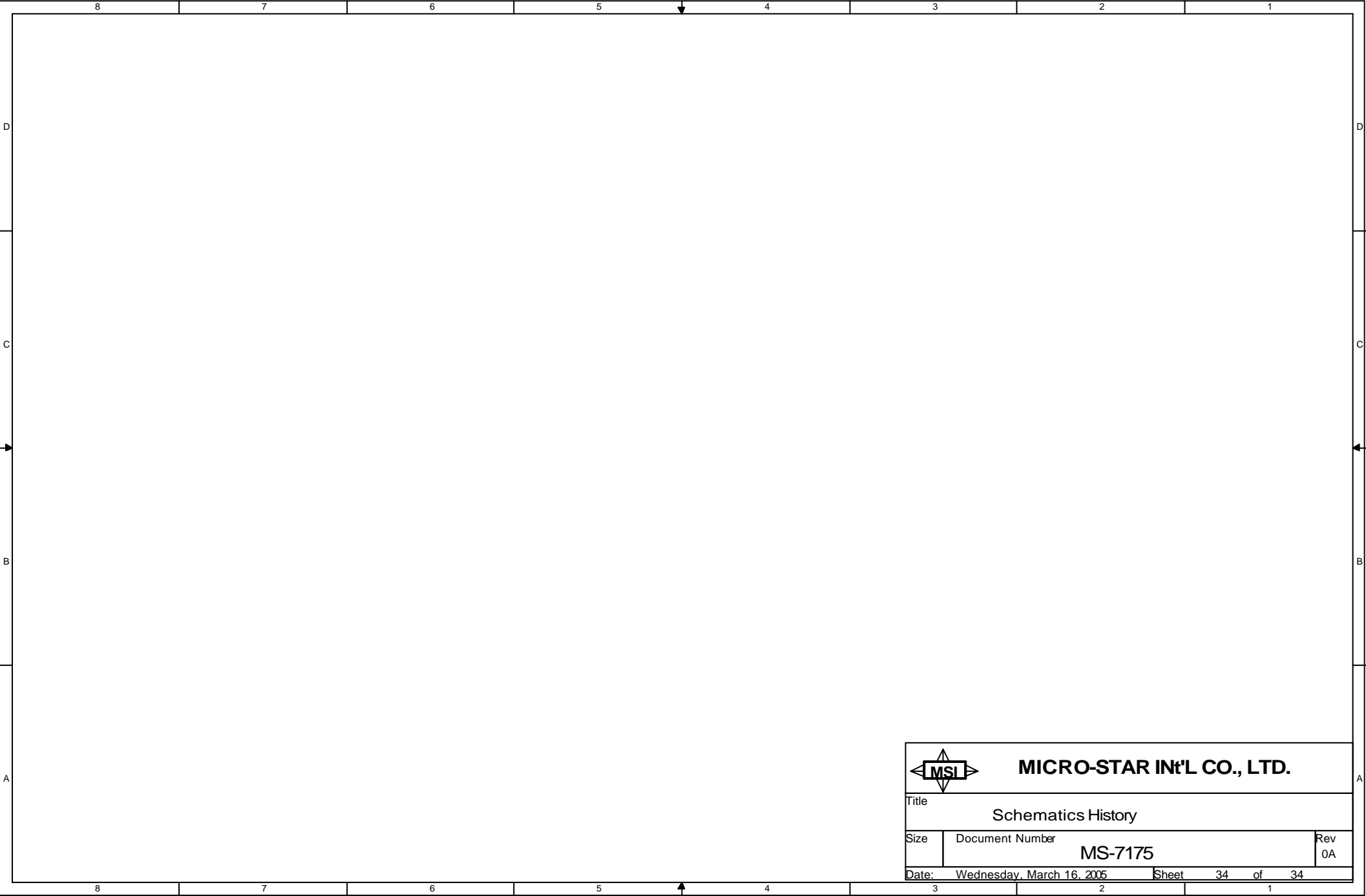
# PWROK MAP




**RESET MAP**



MICRO-STAR INT'L CO., LTD.			
Title		Reset Map	
Size	Document Number		Rev
	MS-7176		0A
Date:	Wednesday, March 16, 2005	Sheet	33 of 34



**MICRO-STAR INT'L CO., LTD.**

Title		
Schematics History		
Size	Document Number	Rev
	MS-7175	0A
Date: Wednesday, March 16, 2005		Sheet 34 of 34