

# MS7042M1      Version:100

TITLE	SHEET
COVER SHEET	1
BLOCK DIAGRAM	2
PWR MAP/CLOCK MAP	3
GPIO/MEMORY/PCI/HW STRPPING	4
PROCESSOR (SOCKET478)	5, 6
NORTH BRIDGE PM800/PT800CE	7 -- 10
DIMM1 / DIMM2	11
DDR TERMINATIONS	12
AGP SLOT	13
SOUTH BRIDGE VT8237/VT8235CE	14 -- 16
PCI SLOTS 1-3	17
AC'97 AUDIO CMI9761	18
LAN	19
IDE & AUDIO CONNECTORS	20
USB CONNECTORS	21
LPC SUPER IO & FLOPPY CONNECTOR	22
PARALLEL / SERIAL / VGA	23
ATX POWER CONNECTOR / FRONT PANEL	24
CLOCK GEN.	25
MS7 ACPI CONTROLLER	26
VRM10.0(FMB1)	27
EMI & MISC.	28
HISTORY	29

## CPU:

Intel Northwood/Prescott  
Up to 3.6GHz (FMB1.5)

## System Chipset:

PM800/PT800 (North Bridge)  
VIA 8237 (South Bridge)

## On Board Chipset:

BIOS -- ISA EEPROM  
AC'97 Codec --CMI9761  
LPC Super I/O -- W83697HF  
LAN -- VIA VT6103 PHY  
IEEE1394 -- VIA VT6307  
CLOCK -- CY28341-3

## Main Memory:

DDR \* 2 (Max 2GB)

## Expansion Slots:

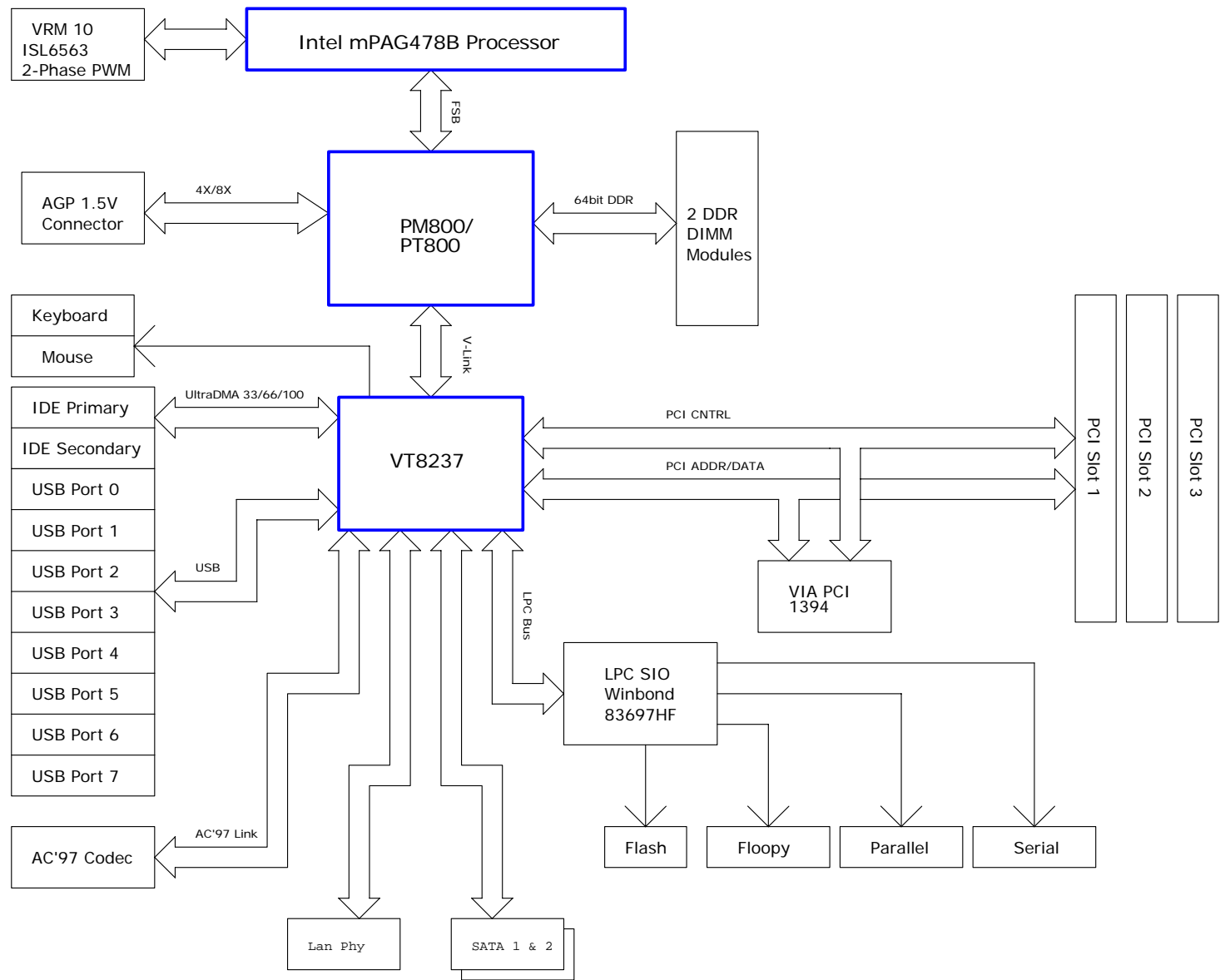
AGP \* 1  
PCI2.3 SLOT \* 3

## PWM:

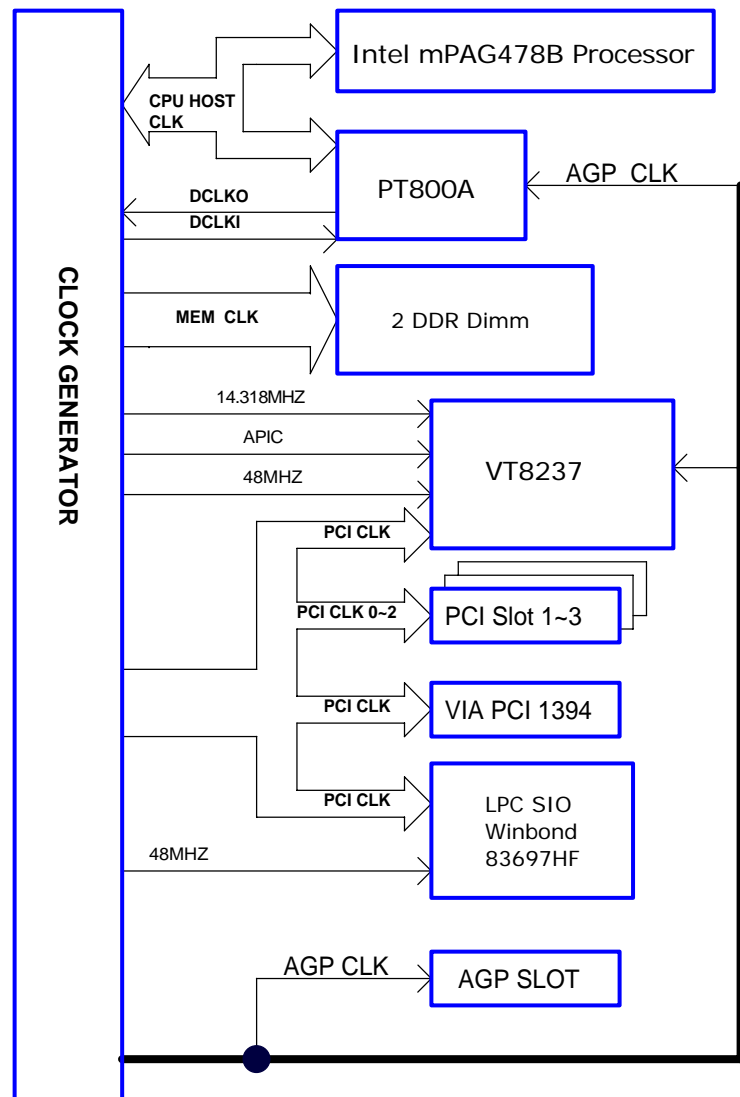
Controller: STL6710

Micro-Star			
Title COVER SHEET			
Size	Document Number	Rev	
	MS-7042	100	
Date:	Monday, December 22, 2003	Sheet	1 of 30

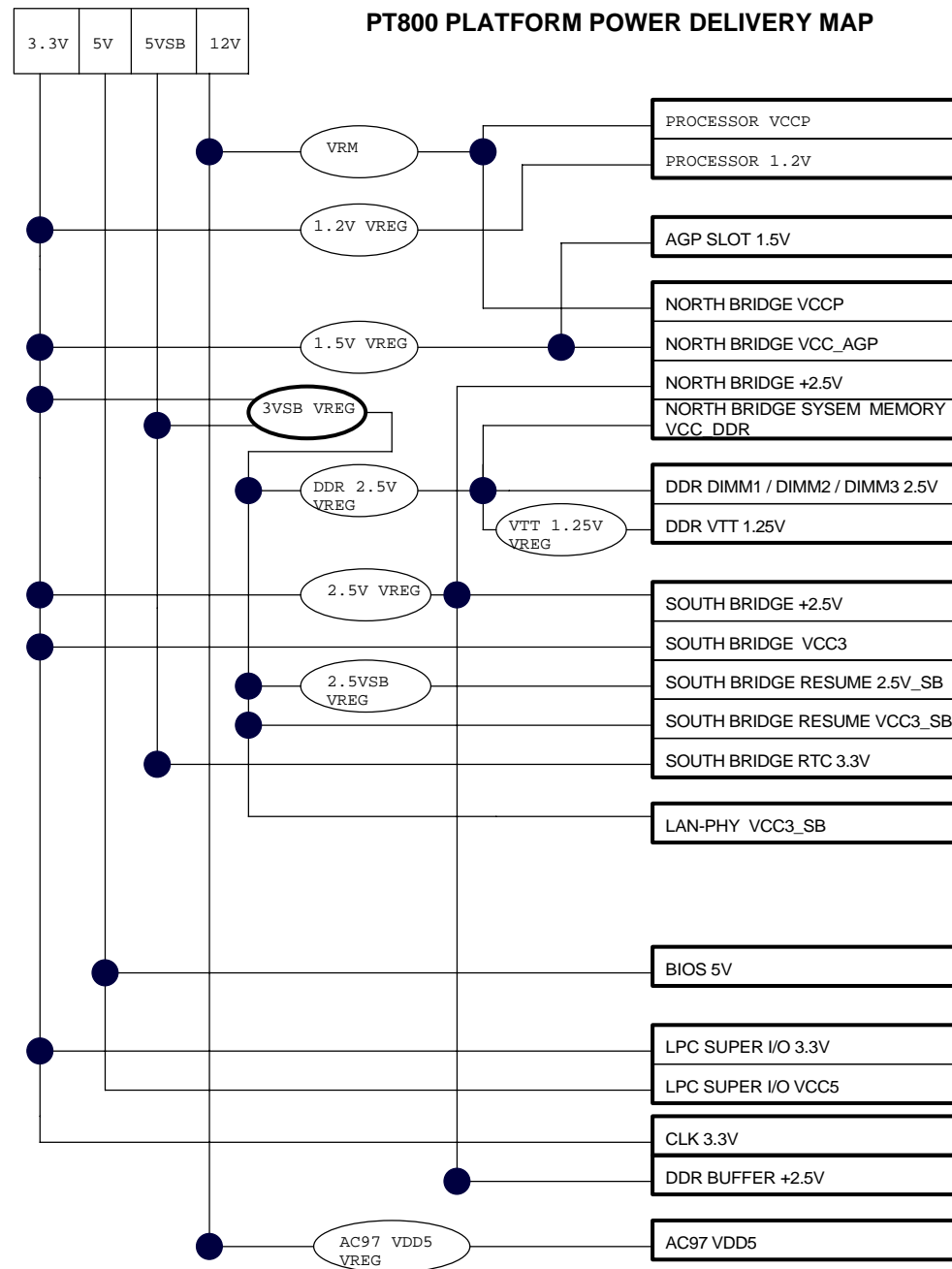
# Block Diagram



# PT800 PLATFORM CLOCK GENERATOR MAP



# PT800 PLATFORM POWER DELIVERY MAP



Micro-Star

Title			
PWR AND CLOCK MAP			
Size	Document Number		Rev
	MS-7042		100
Date:	Monday, December 22, 2003	Sheet	3 of 30
	2		1

SB-VT8327

GPIO Pin	Type	Function	Power well
GPI 0	I	GPI 0	RESUME
GPI 1	I	IDE2 CBD	RESUME
GPO 0	I	GPO 0	RESUME
GPO 1	I	GPO 0	RESUME
GPIO A	I	NB STR S	MAIN
GPIO B	I	IOQ DEPH	MAIN
GPIO C	I	NB STR S	MAIN
GPIO D	I	GTL PULL	MAIN

I/O-83697HF

GPIO 10	I/O	GAME GP4	MAIN
GPIO 11	I/O	GAME GP6	MAIN
GPIO 12	I/O	GAME GP2	MAIN
GPIO 13	I/O	GAME GP0	MAIN
GPIO 14	I/O	GAME GP3	MAIN
GPIO 15	I/O	GAME GP1	MAIN
GPIO 16	I/O	GAME GP7	MAIN
GPIO 17	I/O	GAME GP5	MAIN
GPIO 50	I/O	GAME TXD	MAIN
GPIO 51	I/O	GAME RXD	MAIN

DDR DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	1010000B	MDCLKA0/A#0 MDCLKA1/A#1 MDCLKA2/A#2
DIMM 2	1010001B	MDCLKB0/B#0 MDCLKB1/B#1 MDCLKB2/B#2

PCI Config.

DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK	CLK GEN PIN OUT
PCI Slot 1	PIRQ#A PIRQ#B PIRQ#C PIRQ#D	PREQ#0 PGNT#0	AD16	PCICLK0	15 (PCI_CLK0)
PCI Slot 2	PIRQ#B PIRQ#C PIRQ#D PIRQ#A	PREQ#1 PGNT#1	AD17	PCICLK1	17 (PCI_CLK1)
	PIRQ#D PIRQ#A PIRQ#B PIRQ#C	PREQ#3 PGNT#3	AD19	PCICLK3	14 (PCI_CLK1)
PCI Slot 3	PIRQ#C PIRQ#D PIRQ#A PIRQ#B	PREQ#2 PGNT#2	AD18	PCICLK2	18 (PCI_CLK2)
PCI 1394	PIRQ#E	PREQ#4 PGNT#4	AD20	1394PCLK	10(1394PCLK)

PCI RESET DEVICE

Signals	Source	Target
PCIRST#	SB	MS7, AGP slot
PCIRST#1	MS7	NB, SIO
PCIRST#2	MS7	PCI slot 1-3
DEV_RST#	MS7	PCI 1394
HDRST#	MS7	Primary, Scondary IDE

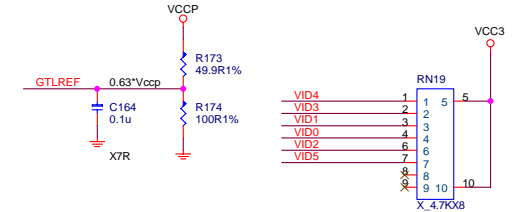
## CPU SIGNAL BLOCK

## VIDPWRGD DC Specifications

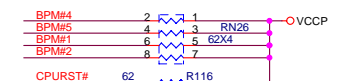
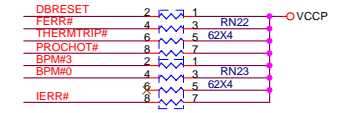
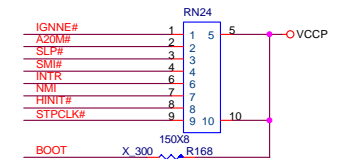
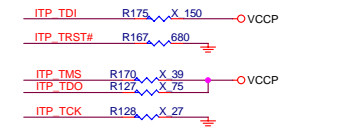
	Min	Typ	Max
VIL			0.3
VIH	0.9		

It must route to the enable pin of PWM and CK-409.  
VIDGD to Vccp delay time is from 1ms to 10ms.  
VIDGD rising time is 150ns.

## CPU GTL REFERENCE VOLTAGE BLOCK

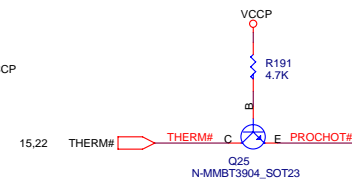


## CPU ITP BLOCK



## CPU STRAPPING RESISTORS

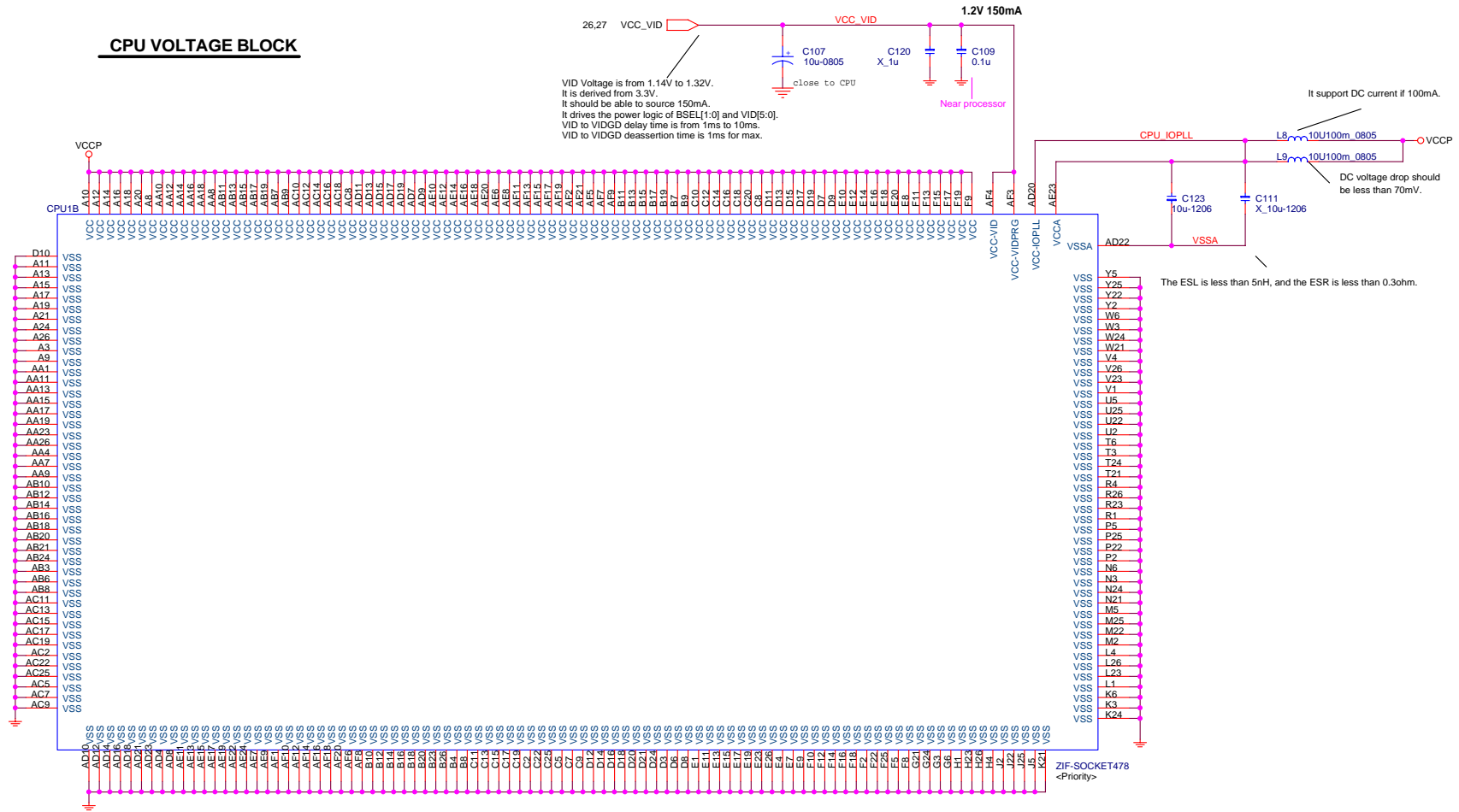
## ALL COMPONENTS CLOSE TO CPU



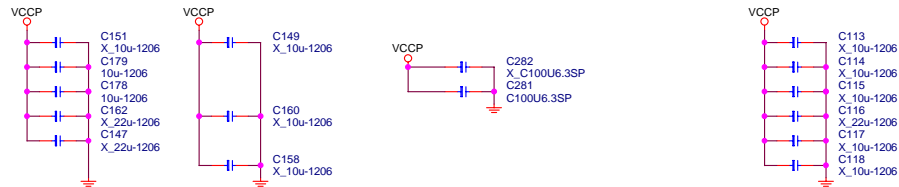
## Micro-Star

Title		
Intel mPGA478B - Signals		
Size	Document Number	Rev
		100
MS-7042		
Date:	Monday, December 22, 2003	Sheet 5 of 30

## CPU VOLTAGE BLOCK

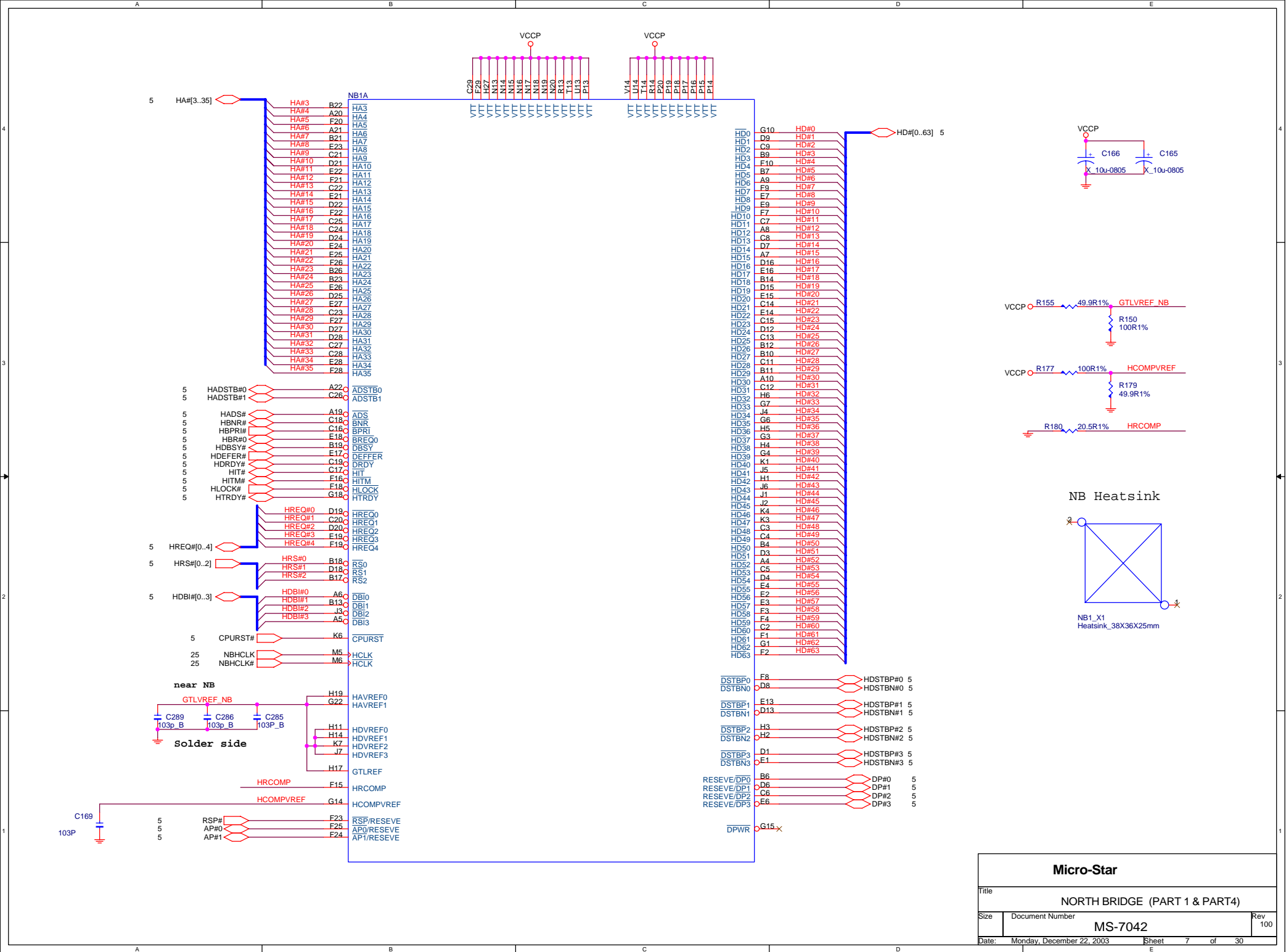


## CPU DECOUPLING CAPACITORS



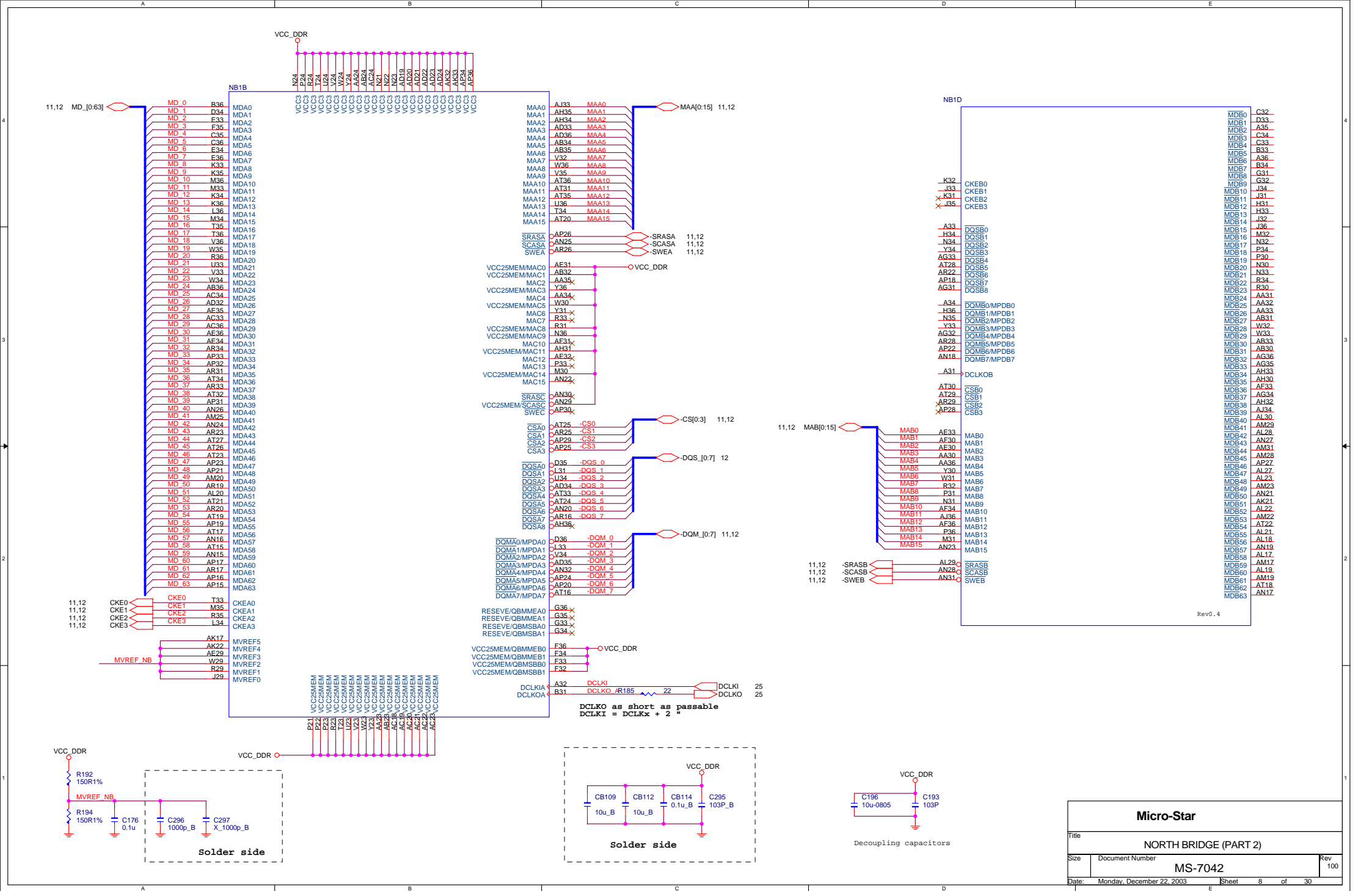
Micro-Star

Title		
Intel mPGA478B - Power		
Size	Document Number	Rev
	MS-7042	100
Date:	Monday, December 22, 2003	Sheet 6 of 30

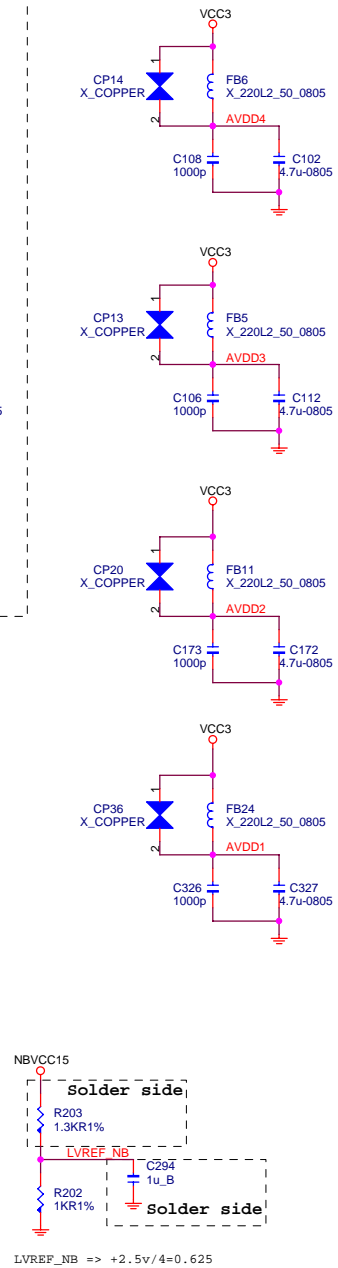
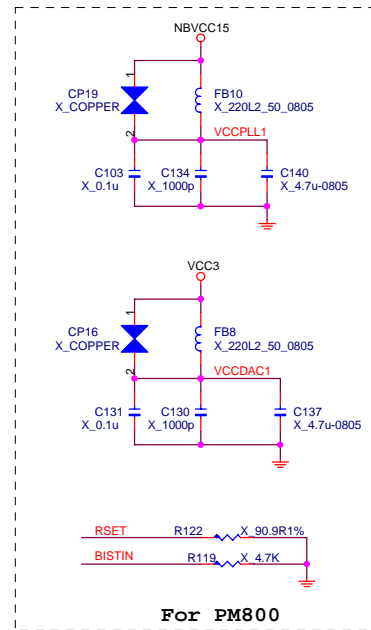
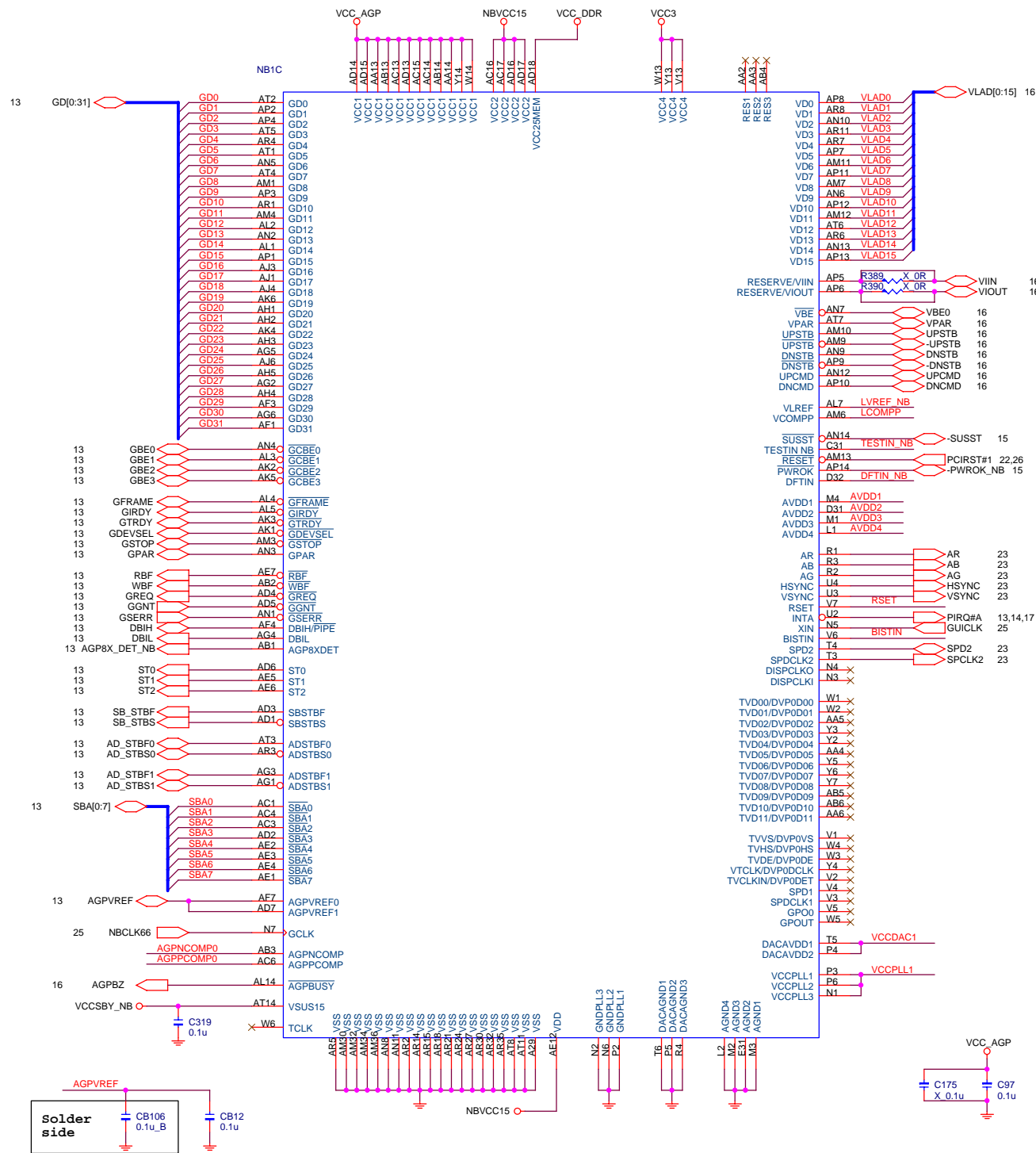


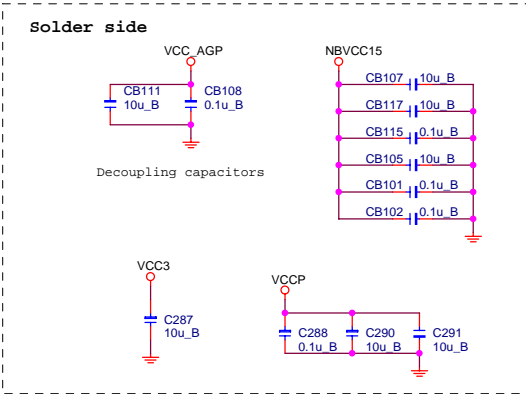
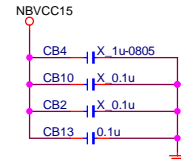
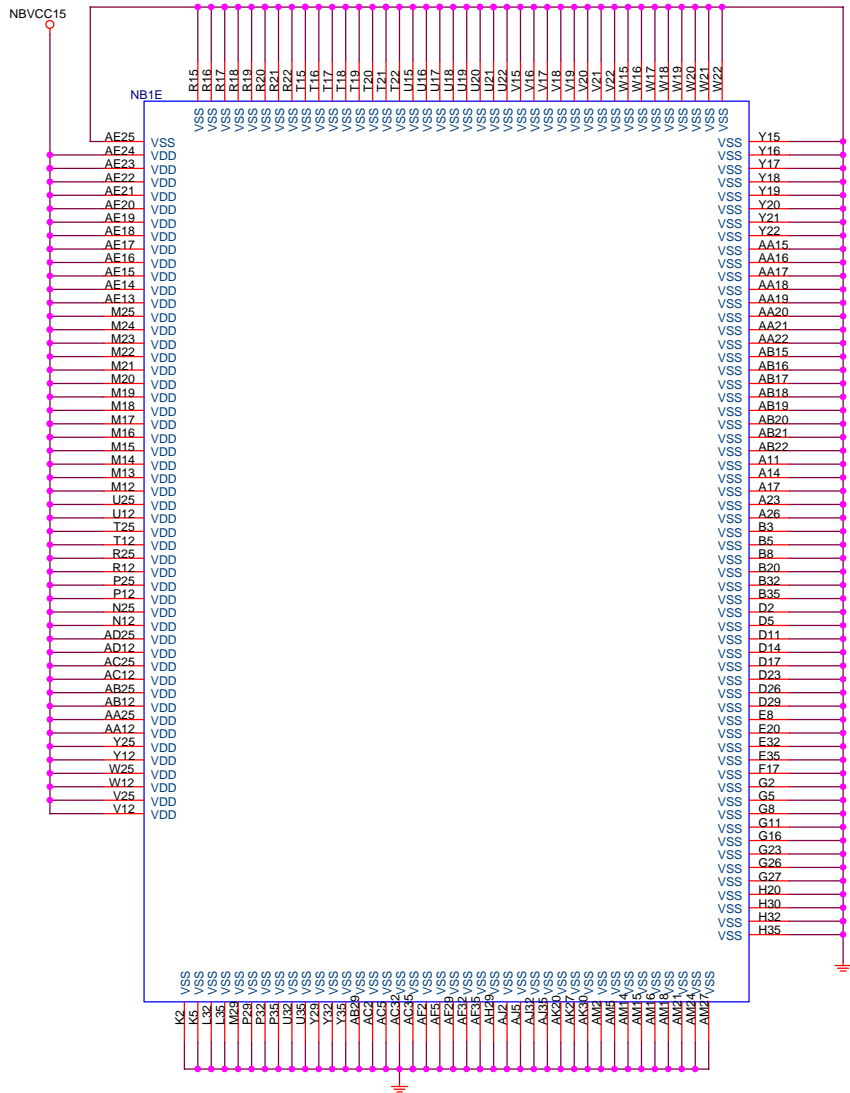
Micro-Star

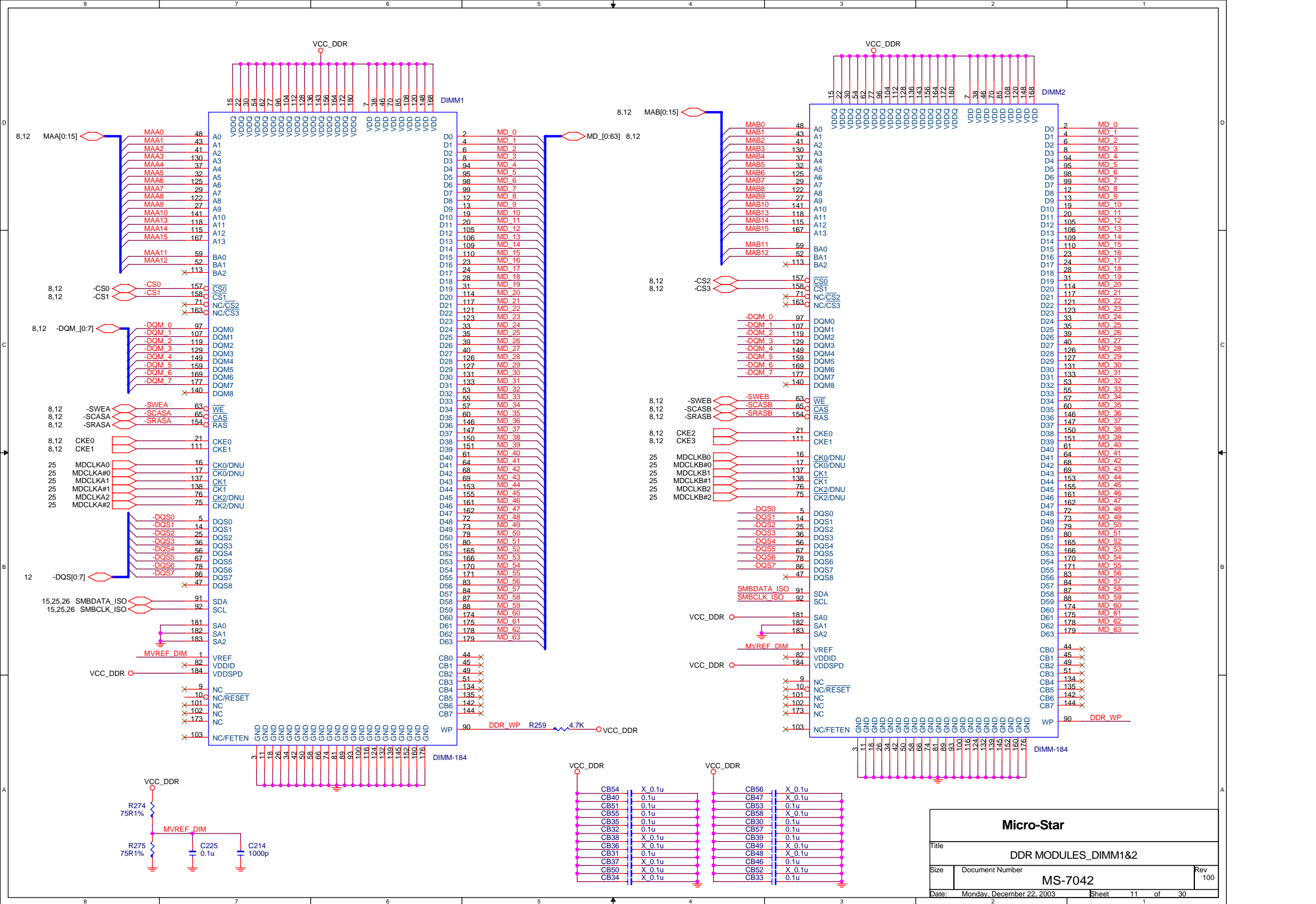
Title			
NORTH BRIDGE (PART 1 & PART4)			
Size	Document Number		Rev
	MS-7042		100
Date:	Monday, December 22, 2003	Sheet	7 of 30

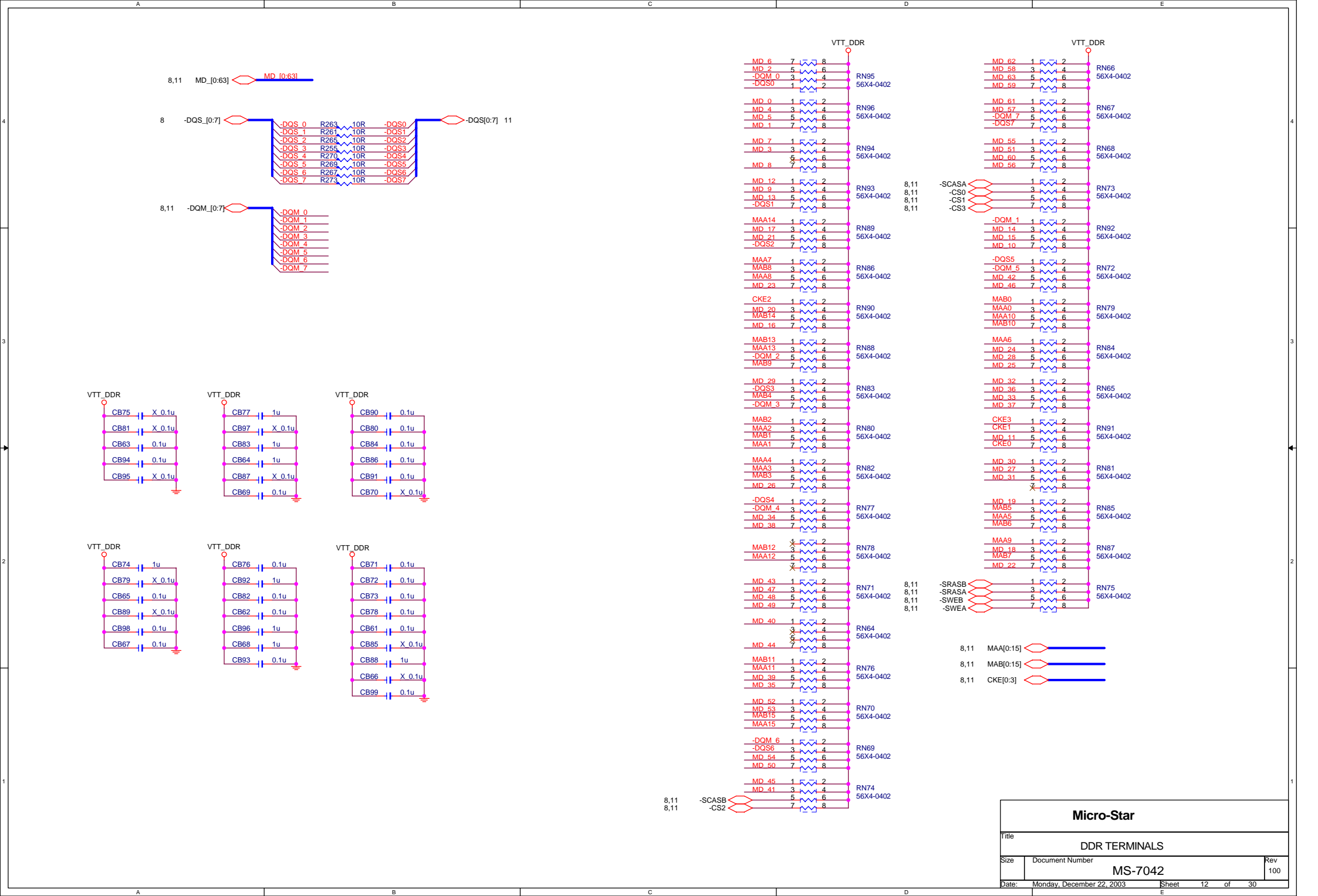




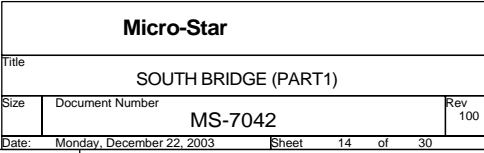


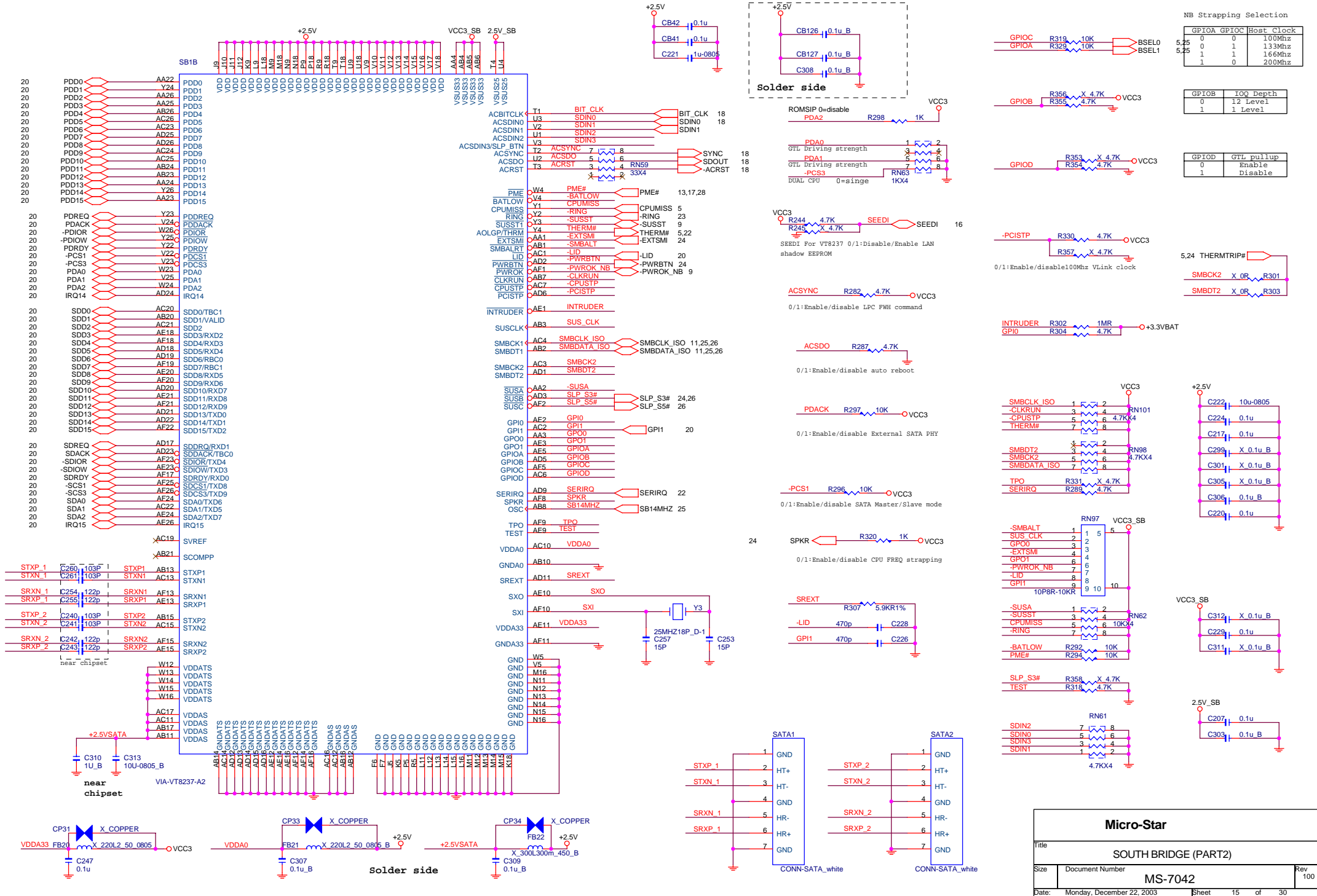




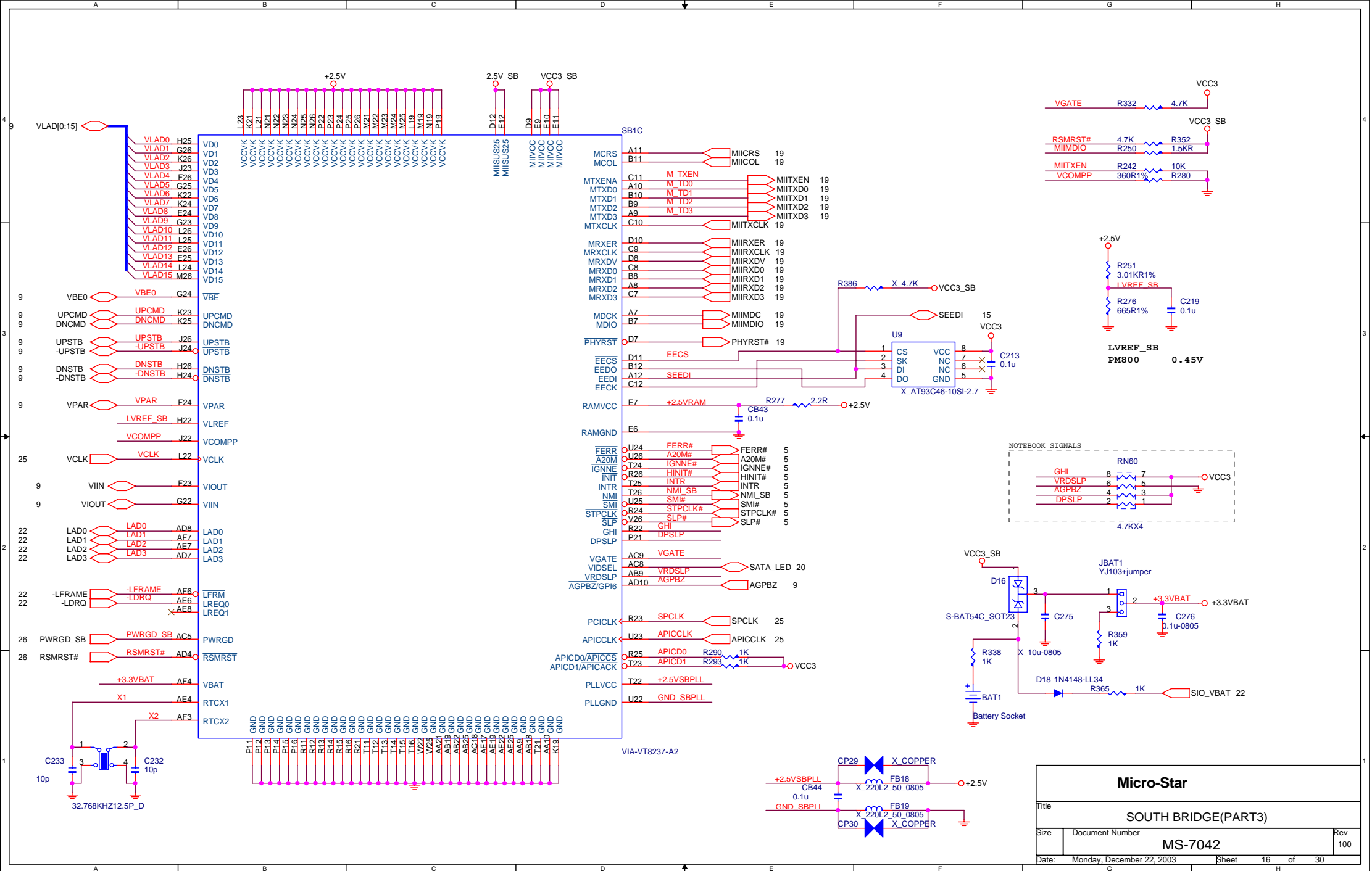






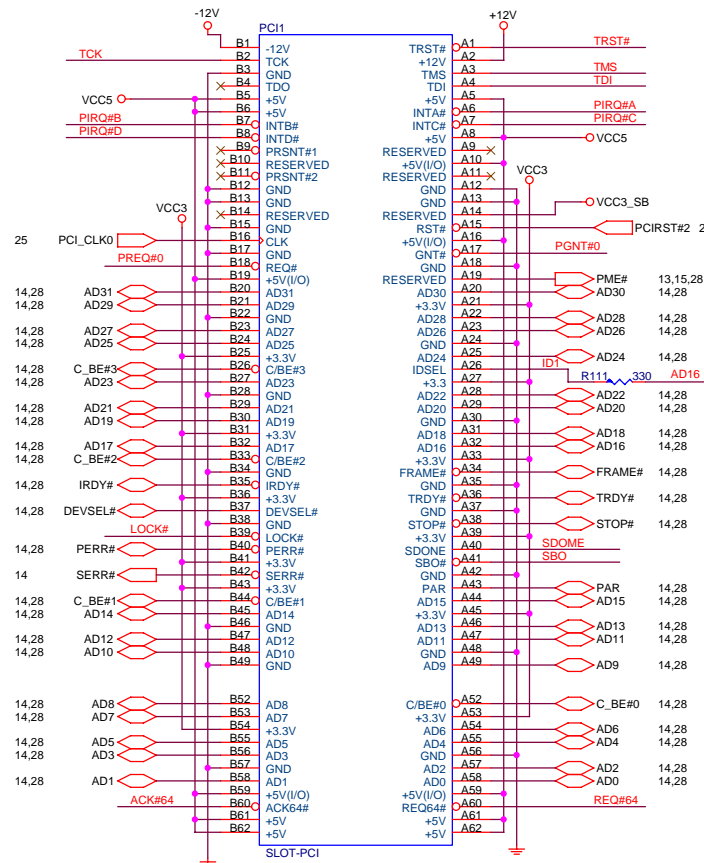






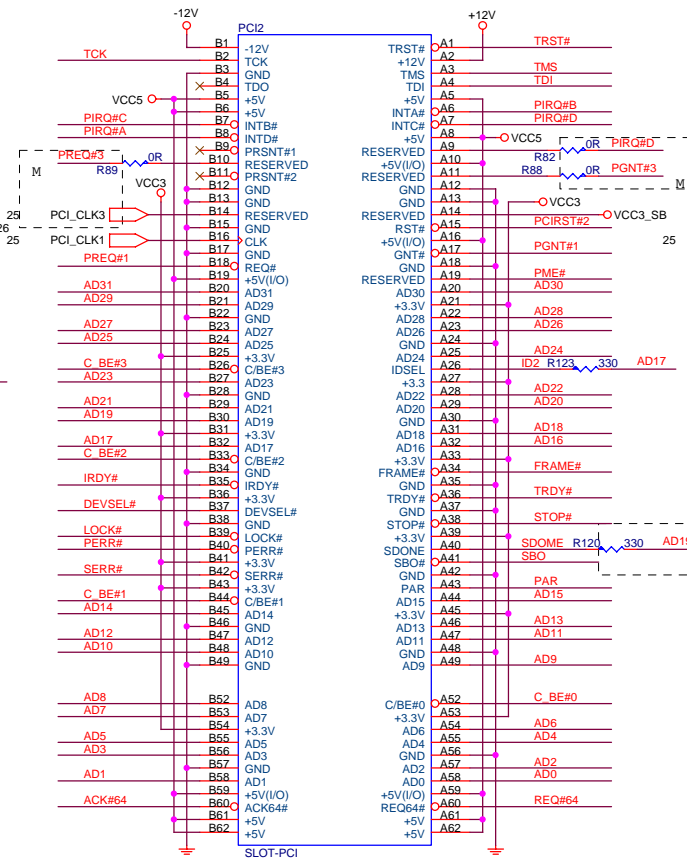


## PCI SLOT 1 (PCI VER: 2.2 COMPLY)



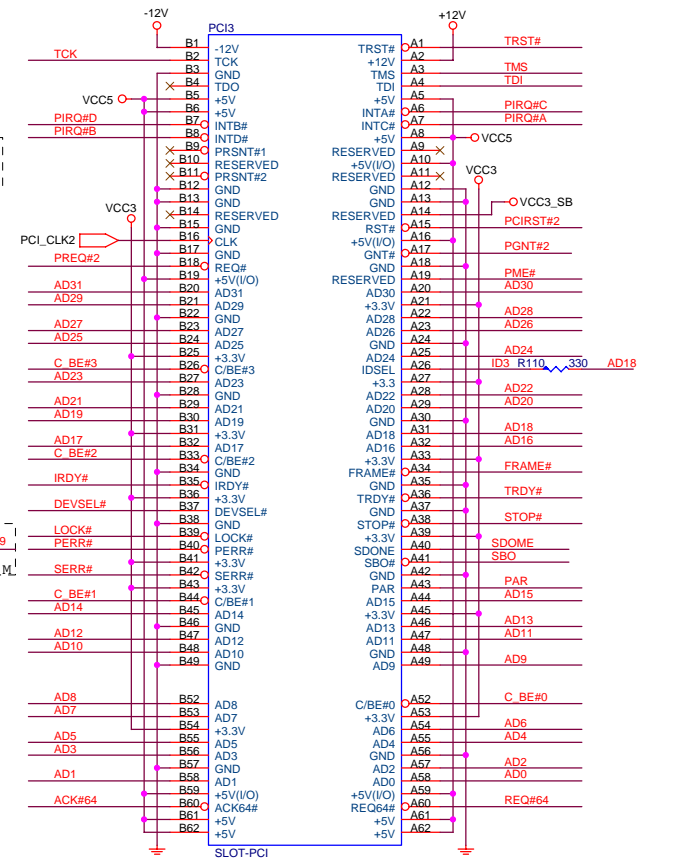
AD16, PREQ#0, PIRQ#A

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



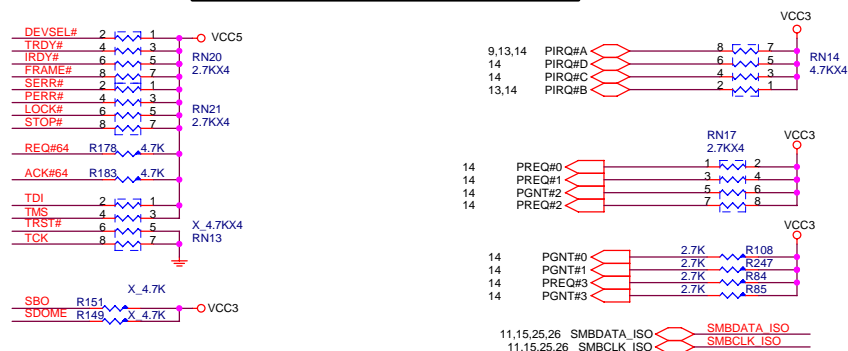
AD17, PREQ#1, PIRQ#B  
AD19, PREQ#3, PIRQ#D

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

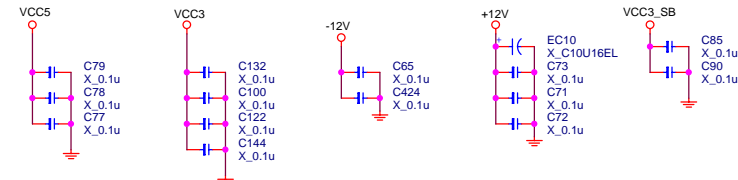


AD18, PREQ#2, PIRQ#C

## PCI PULL-UP / DOWN RESISTORS

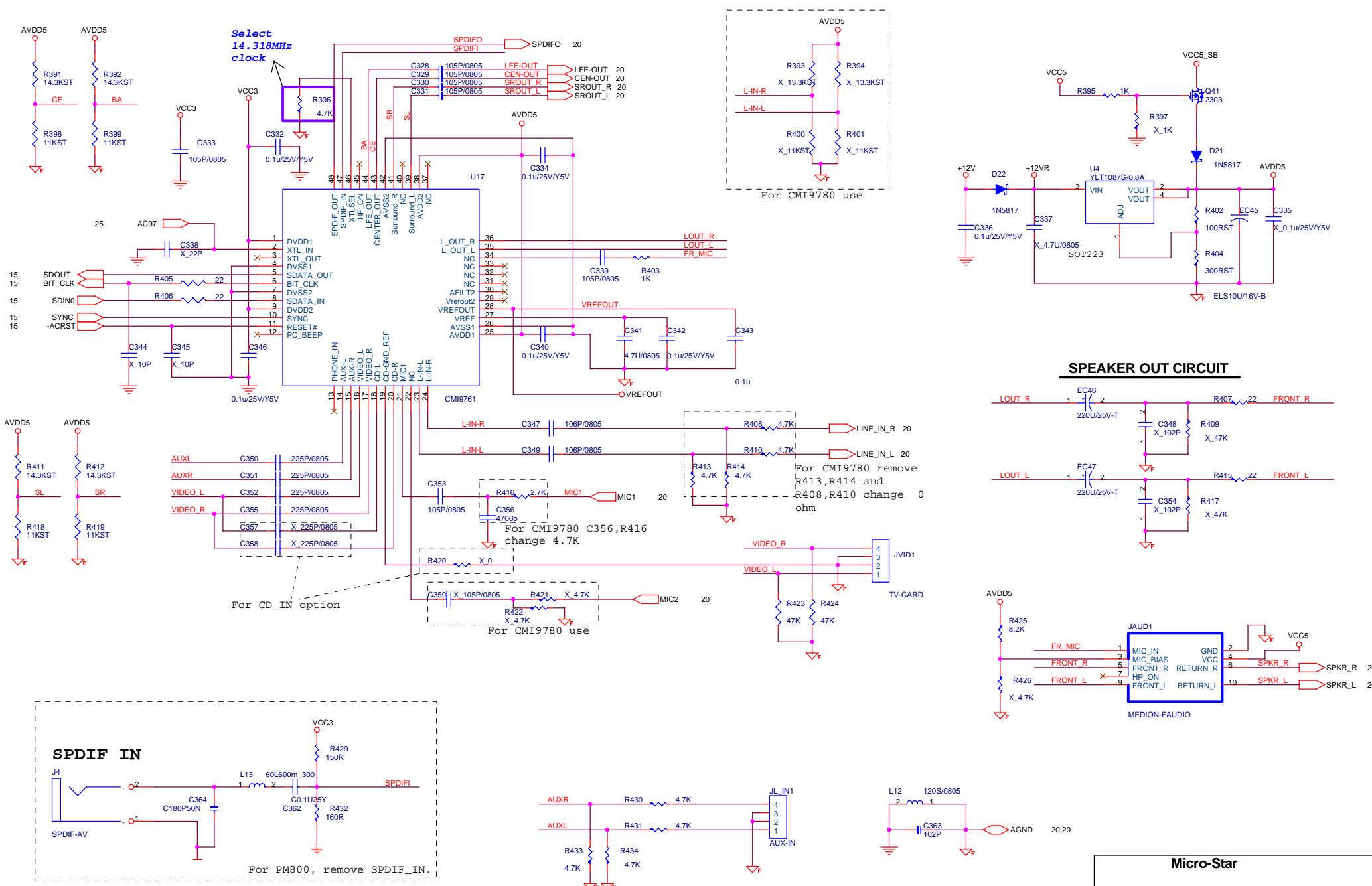


## PCI SLOT DECOUPLING CAPACITORS

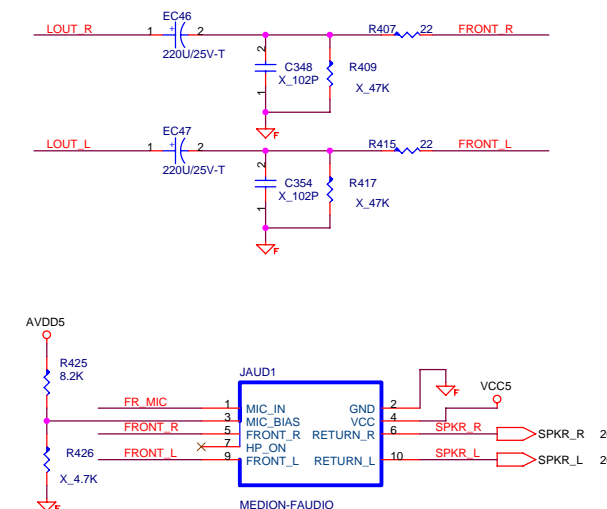


Micro-Star

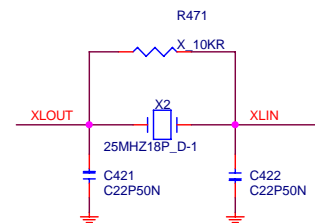
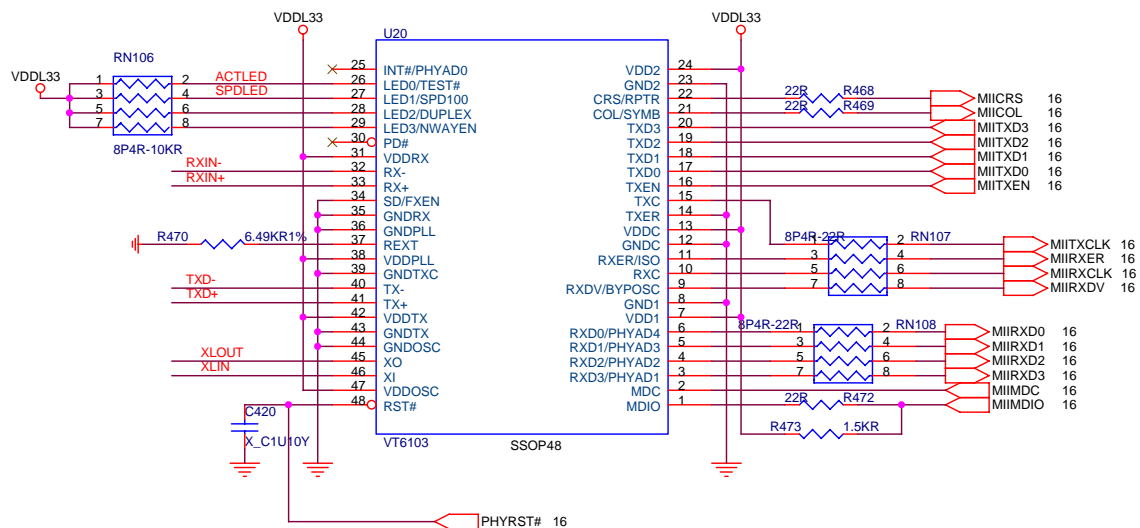
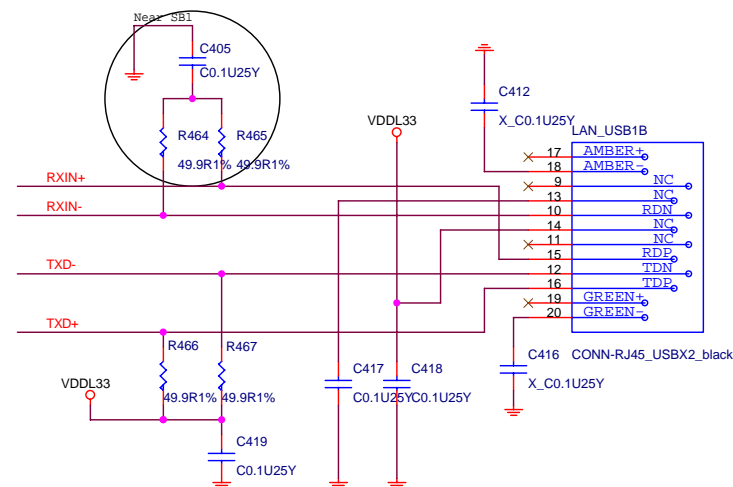
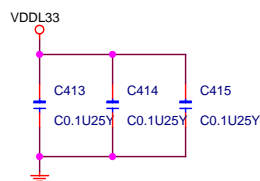
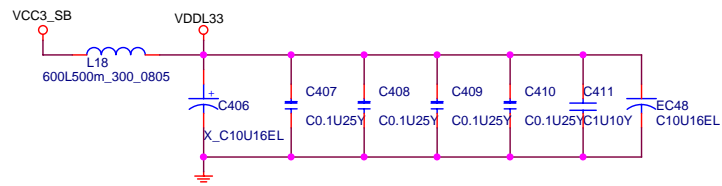
Title			PCI 1 & 2 & 3 Slots		
Size			Document Number		
			MS-7042		
Date:			Monday, December 22, 2003		
			Sheet 17 of 30		
			Rev 100		



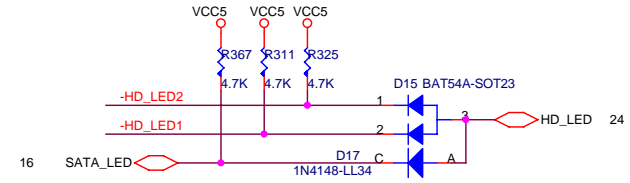
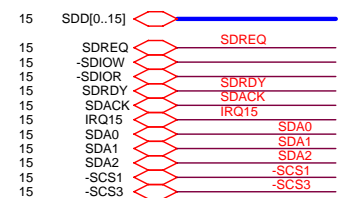
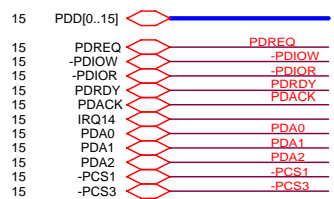
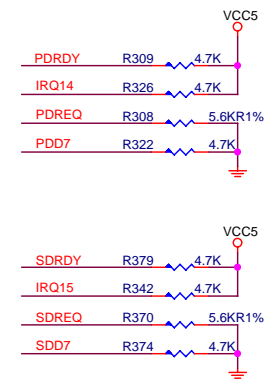
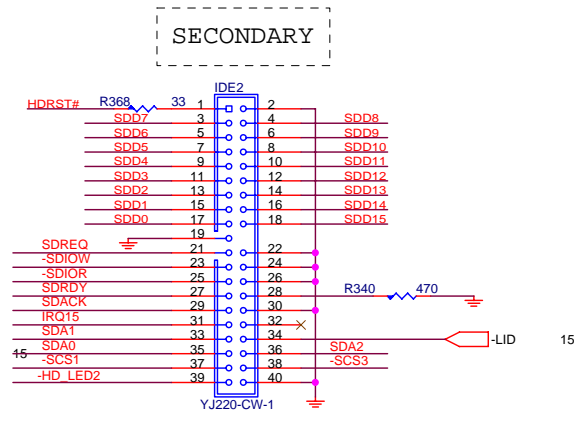
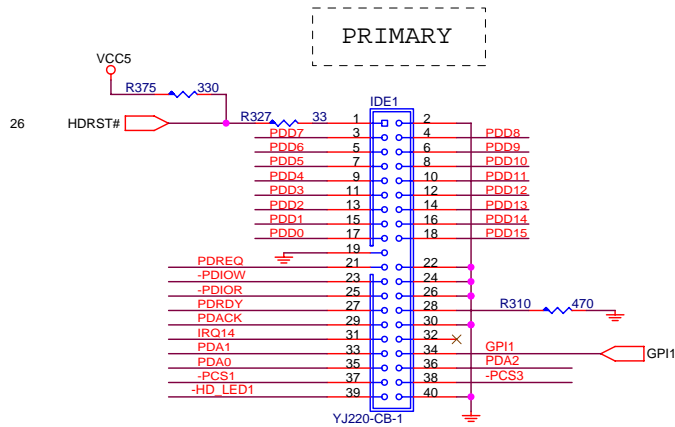
### SPEAKER OUT CIRCUIT



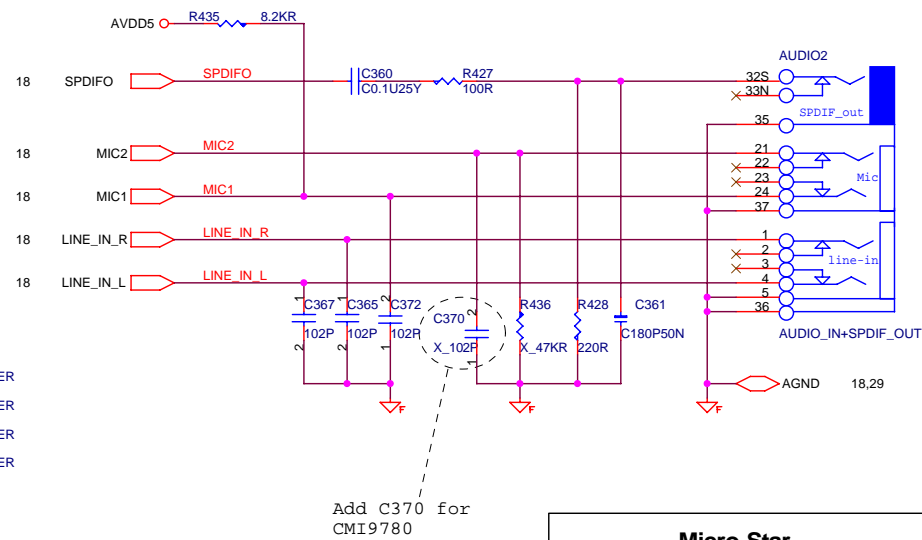
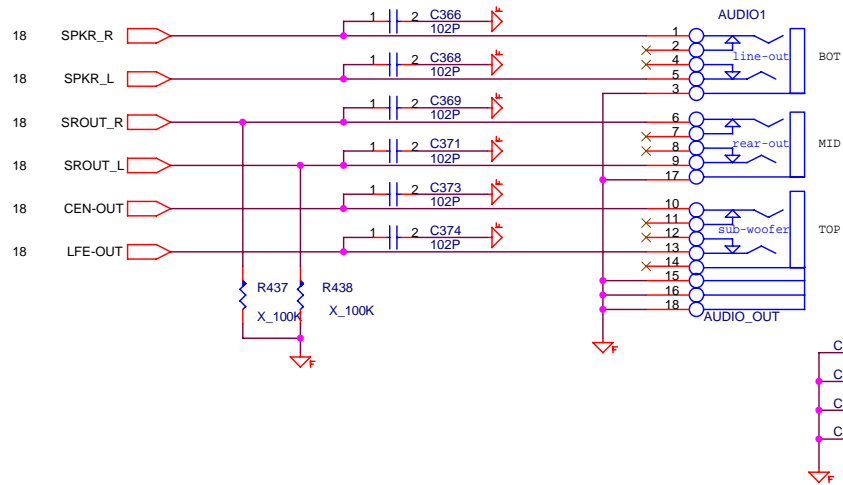
Micro-Star			
Title			
AC97 AUDIO- CMI9761			
Size			
Document Number			
MS-7042			
Rev			
100			
Date:			
Monday, December 22, 2003			
Sheet			
18 of 30			



Micro-Star			
Title			
DLED BRACKET			
Size	Document Number	Rev	
	MS-7042	100	
Date:	Monday, December 22, 2003	Sheet	19 of 30



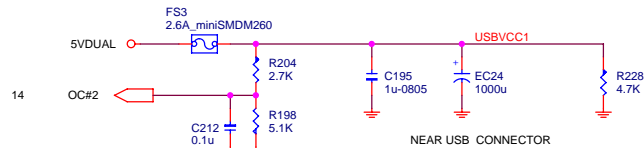
## Audio Connector 6 CHANNEL



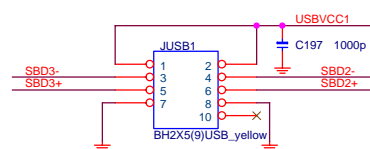
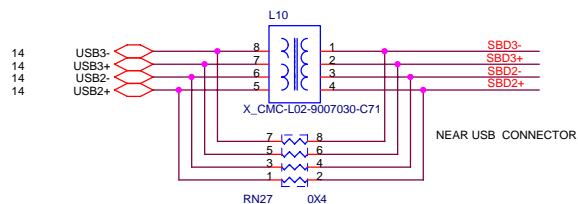
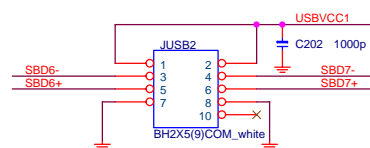
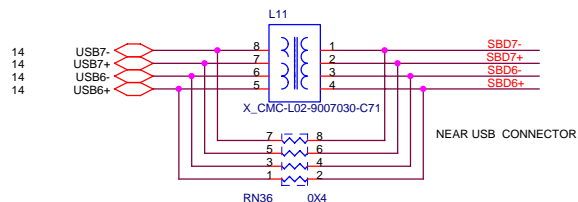
Add C370 for  
CMI9780

Micro-Star			
Title			
IDE & Audio CONNECTORS			
Size	Document Number		Rev
	MS-7042		100
Date:	Monday, December 22, 2003		Sheet 20 of 30

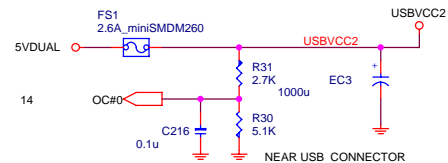
### POWER CIRCUIT FOR USB PORT 4,5,6,7



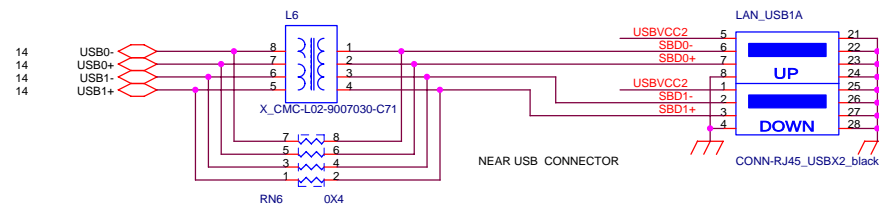
### REAR PANEL USB CONNECTOR FOR USB PORT 4,5,6,7



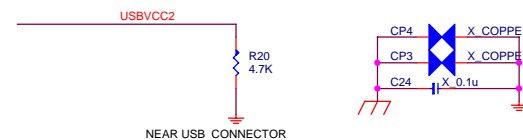
### POWER CIRCUIT FOR USB PORT 2,3



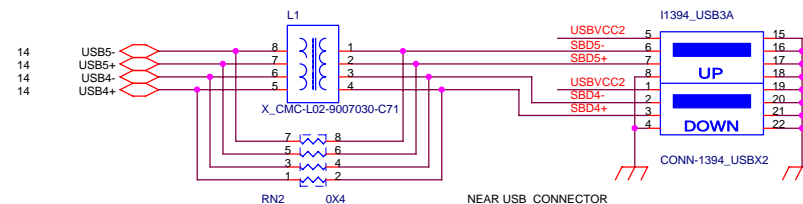
### REAR PANEL USB CONNECTOR FOR USB PORT 2,3



### POWER CIRCUIT FOR USB PORT 0,1



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



Micro-Star			
Title			
USB Connectors			
Size	Document Number		Rev
	MS-7042		100
Date:	Monday, December 22, 2003	Sheet	21 of 30



**Parallel Port**

**Serial Port**

**Micro-Star**

**Title**  
Parallel/Serial Port

**Size**  
Document Number  
MS-7042

**Date:** Monday, December 22, 2003 **Sheet** 23 **of** 30 **Rev** 100

**Parallel Port**

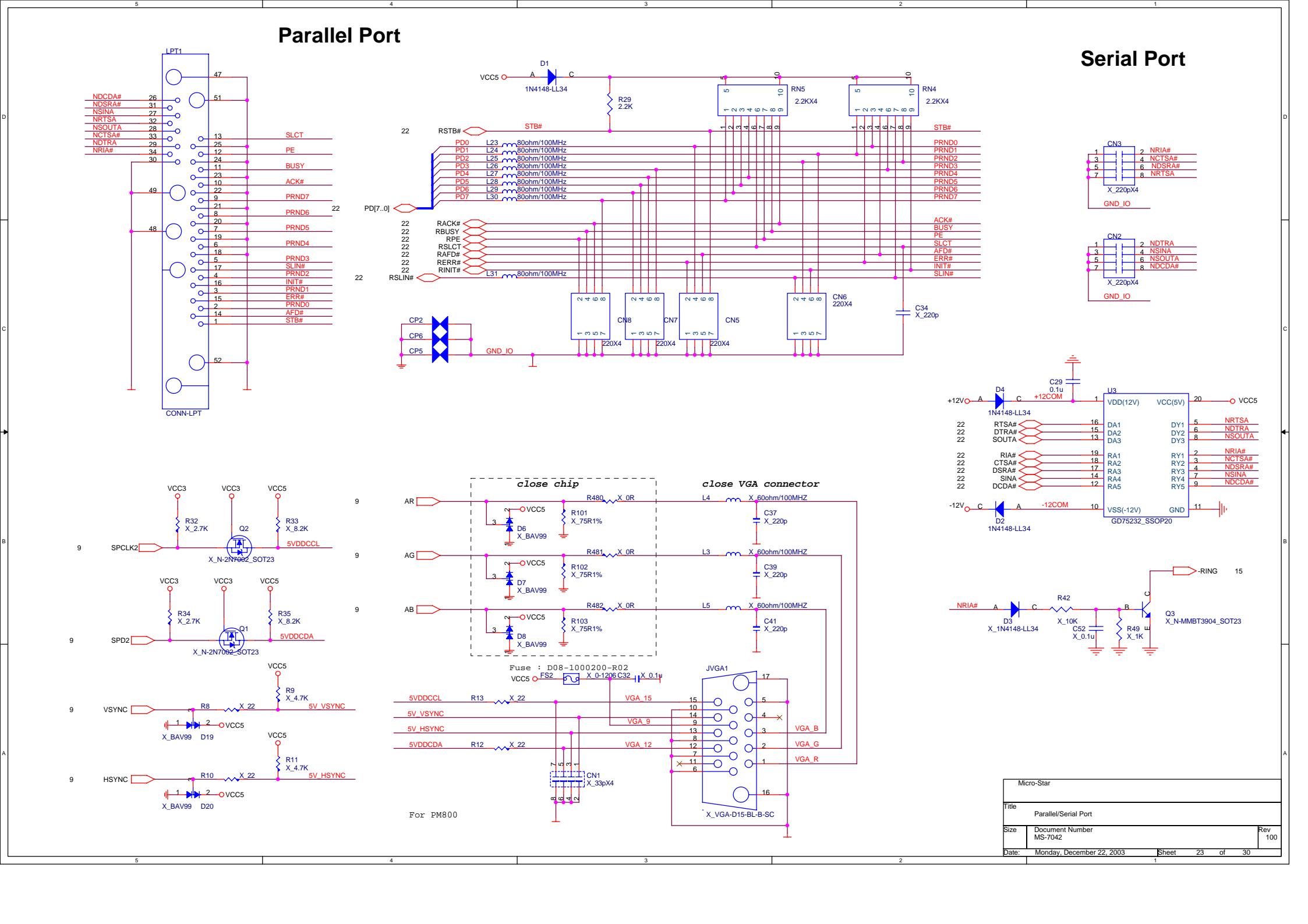
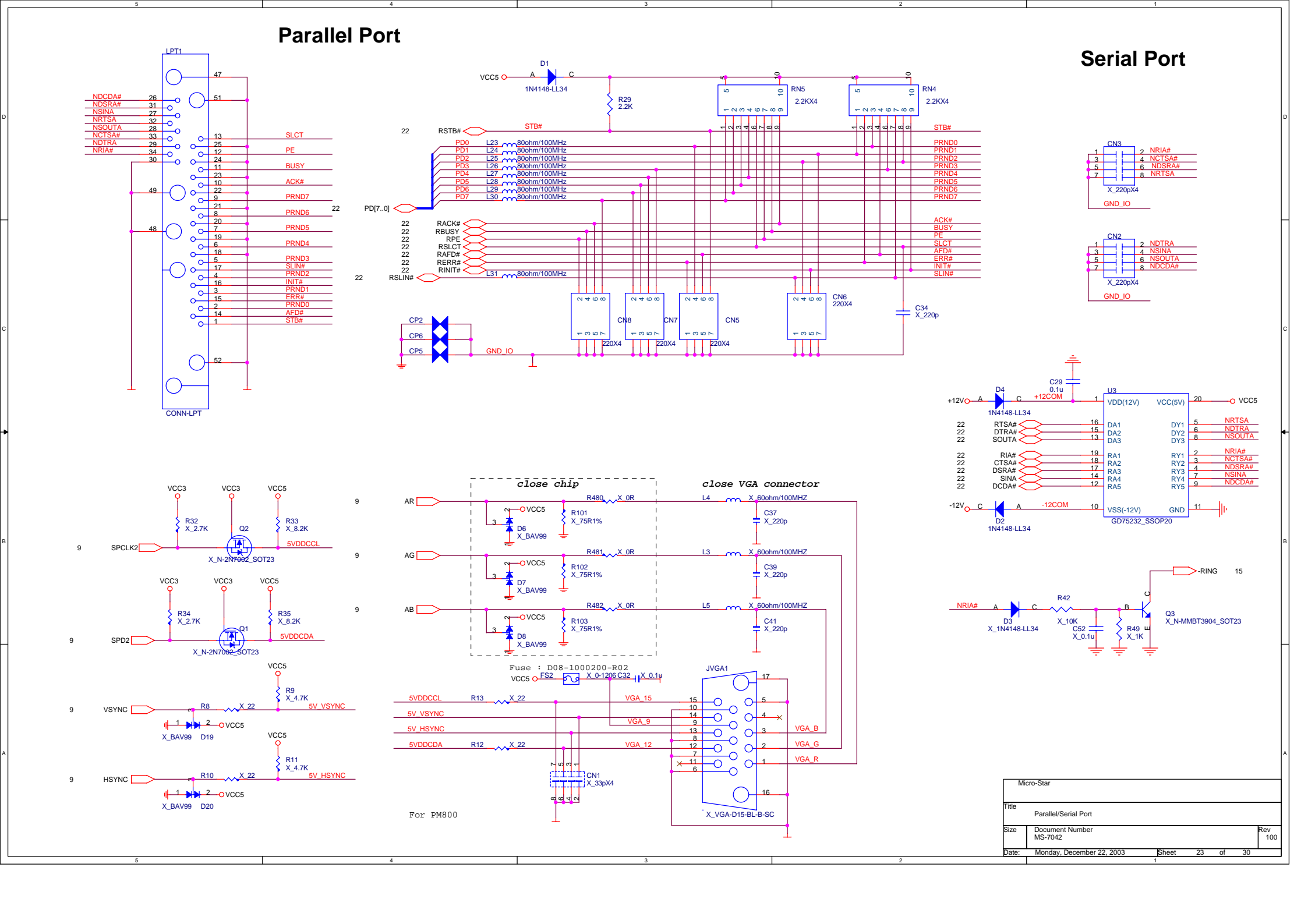
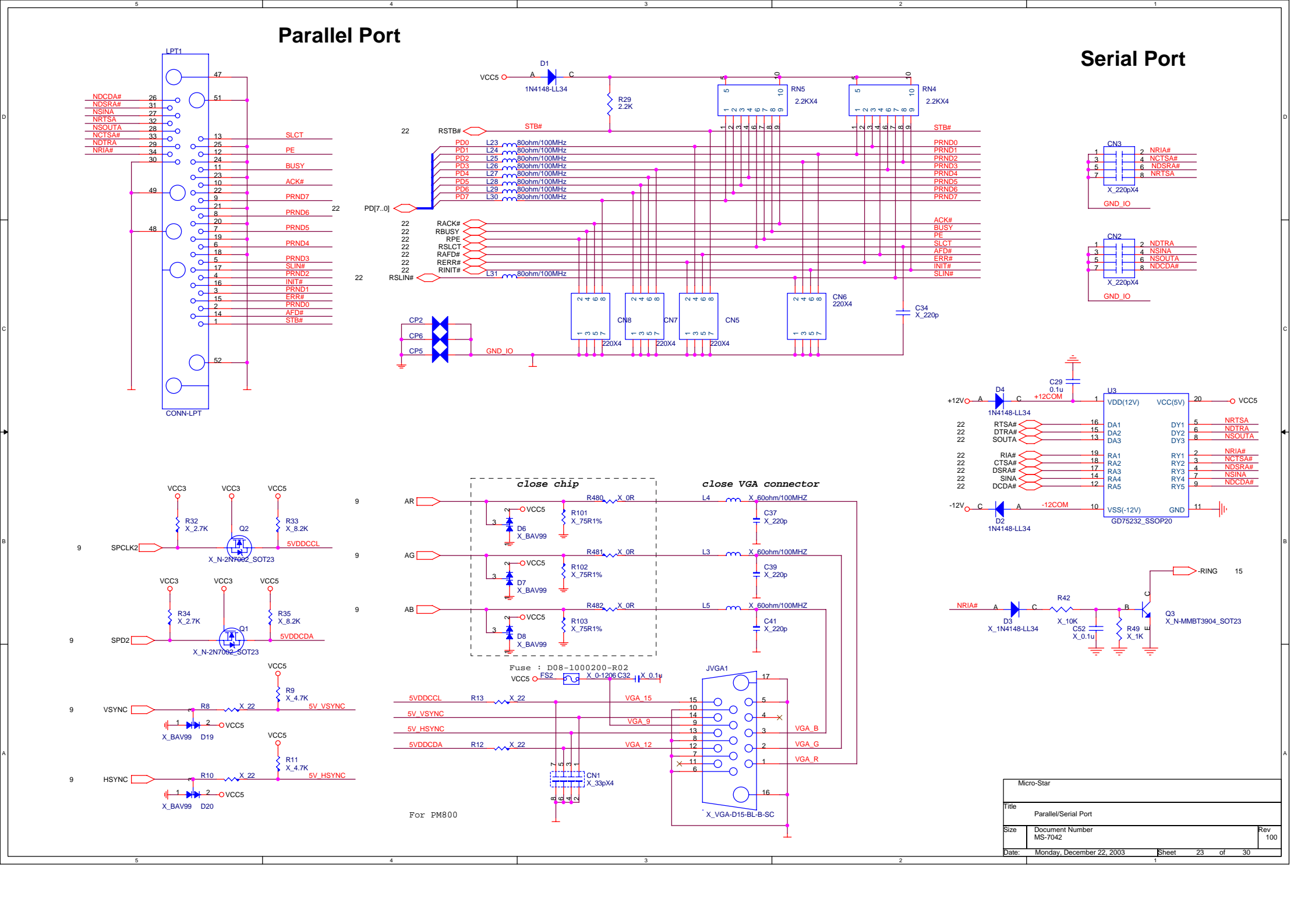
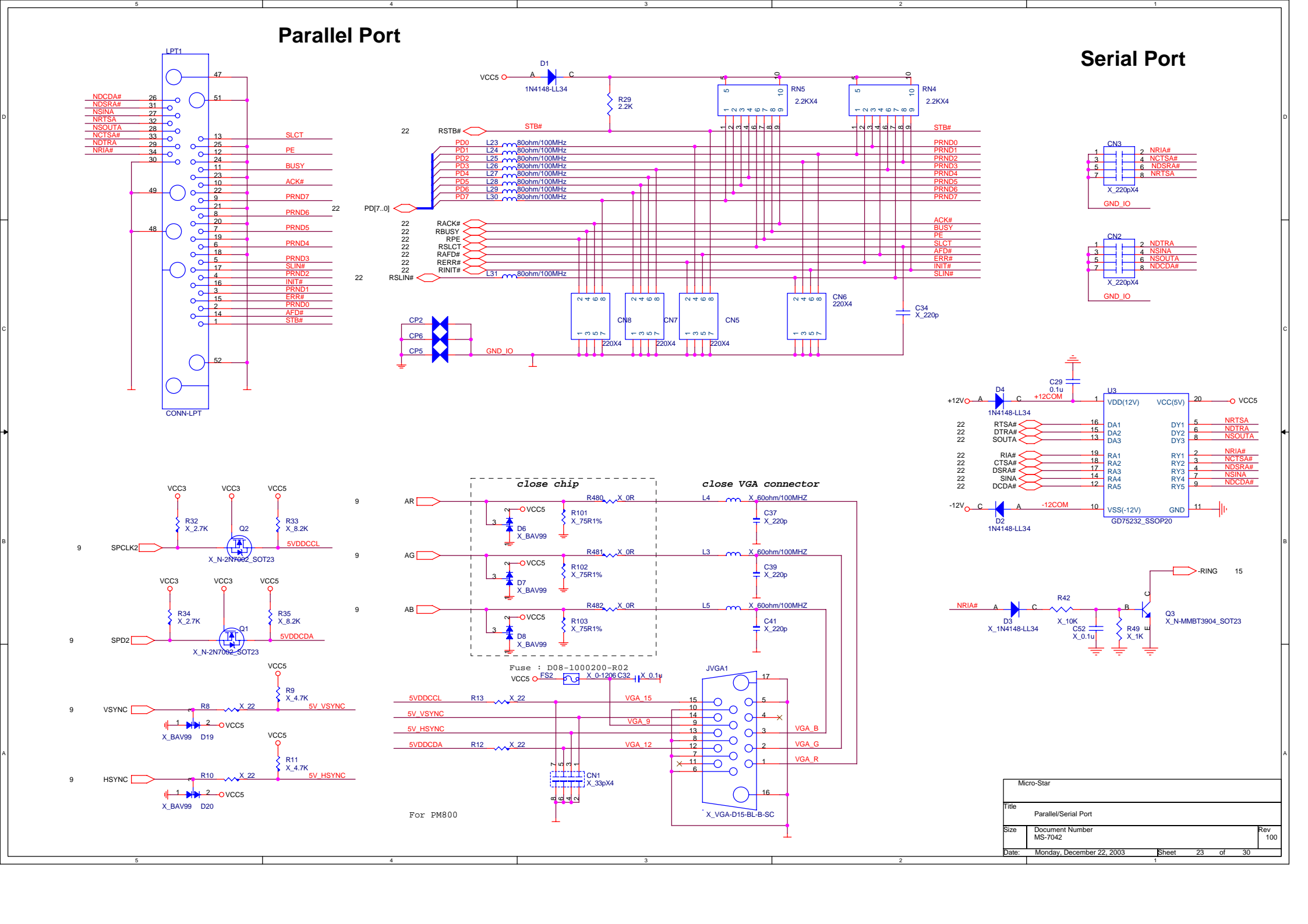
**Serial Port**

**Micro-Star**

**Title**  
Parallel/Serial Port

**Size**  
Document Number  
MS-7042

**Date:** Monday, December 22, 2003 **Sheet** 23 **of** 30 **Rev** 100



**Parallel Port**

**Serial Port**

**Micro-Star**

Title: Parallel/Serial Port

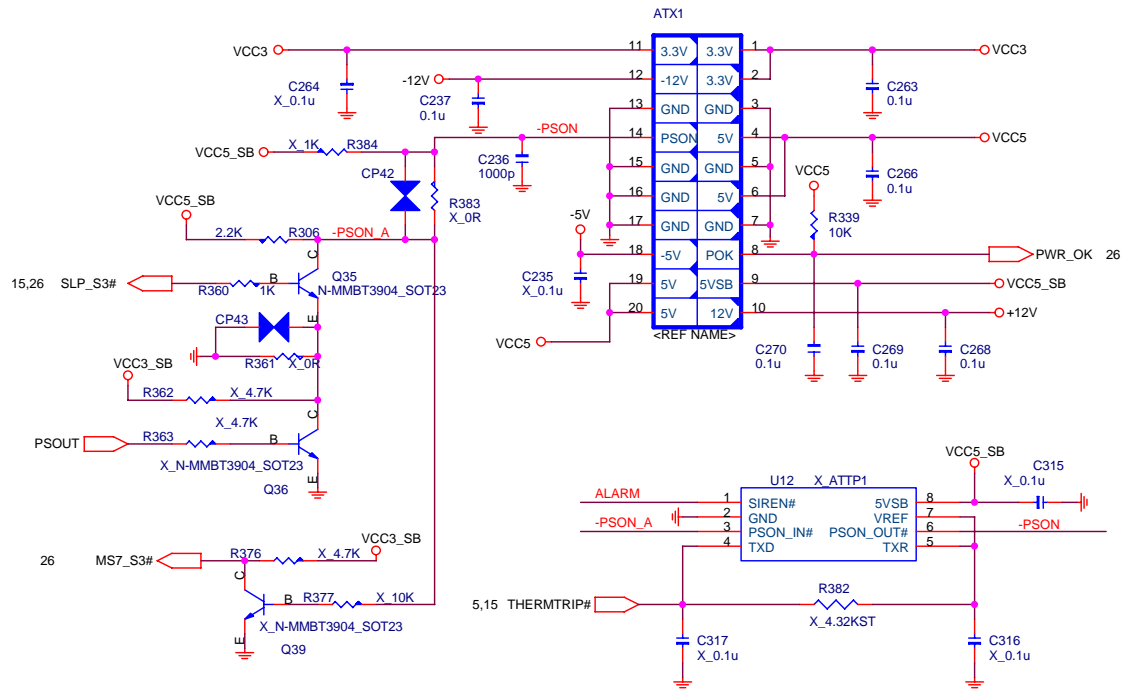
Size: Document Number MS-7042

Date: Monday, December 22, 2003

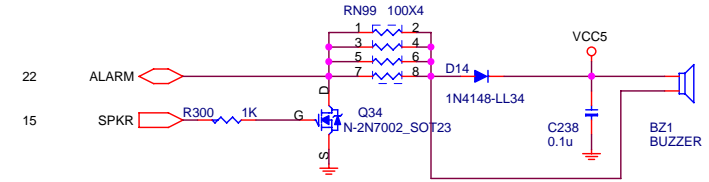
Sheet 23 of 30

Rev 100

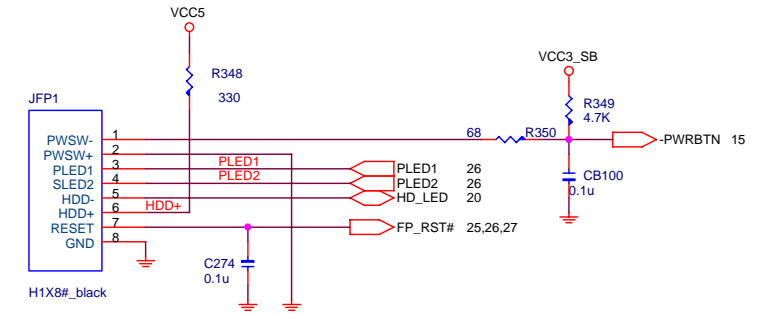
## ATX Connector



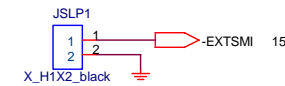
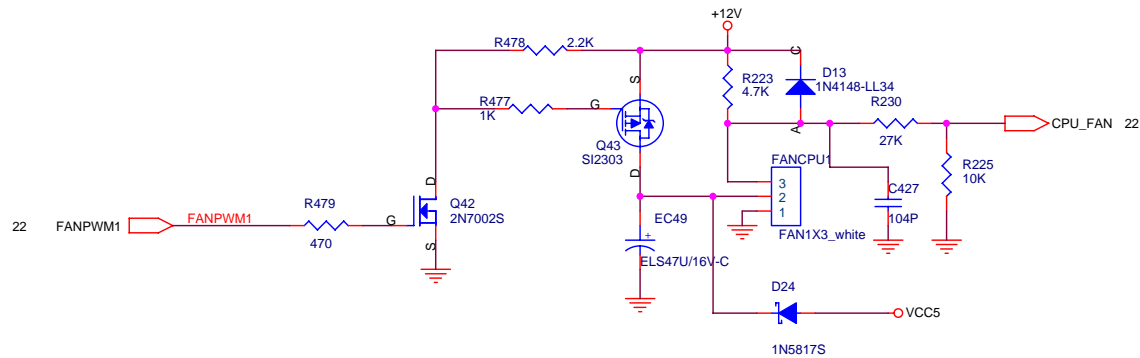
## MSI Front Panel Connector



## Front Panel Connector



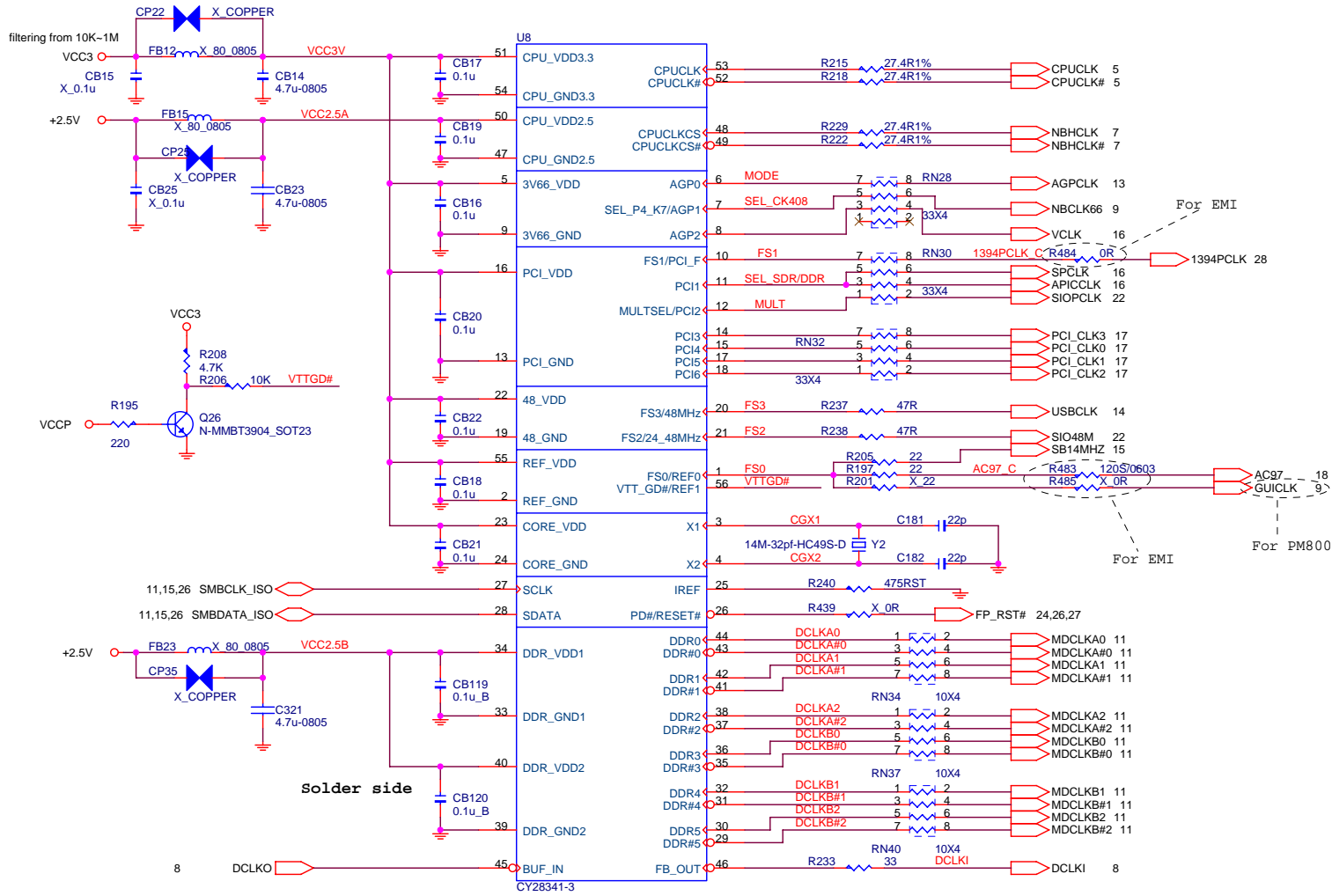
## CPU FAN



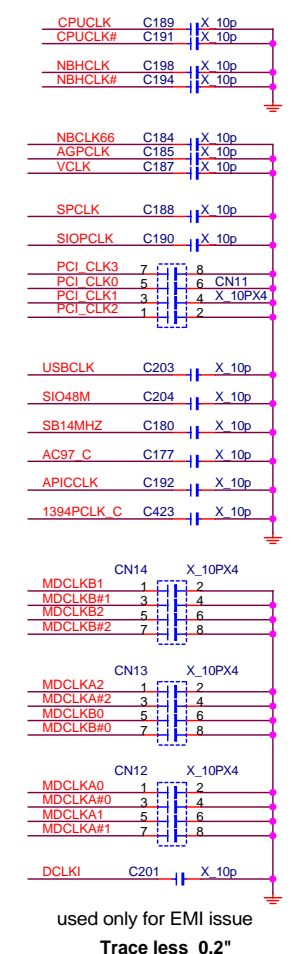
## Micro-Star

Title				
ATX Connector & Front Panel				
Size	Document Number			Rev
	MS-7042			100
Date:	Monday, December 22, 2003		Sheet	24 of 30

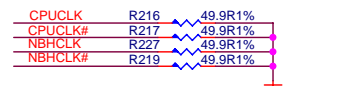




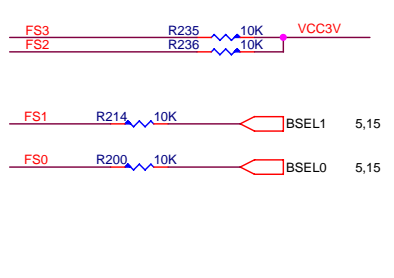
**Pull-Down Capacitors**



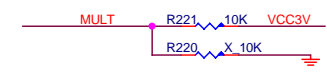
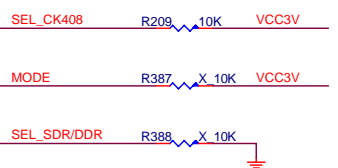
**Shut Source Termination Resistors**



**CLOCK STRAPPING RESISTORS**



FS3	FS2	FS1	FS0	FSB (MHz)
1	1	0	0	100 MHz
1	1	0	1	133 MHz
1	1	1	0	200 MHz
1	1	1	1	166 MHz



MULT	Rr	Iref	Ioh	Voh
0	221	5.00mA	4*Iref	1.0V
1	475	2.32mA	6*Iref	0.7V

**Micro-Star**

Title

Clock Generator

Size

Document Number

MS-7042

Rev

100

Date

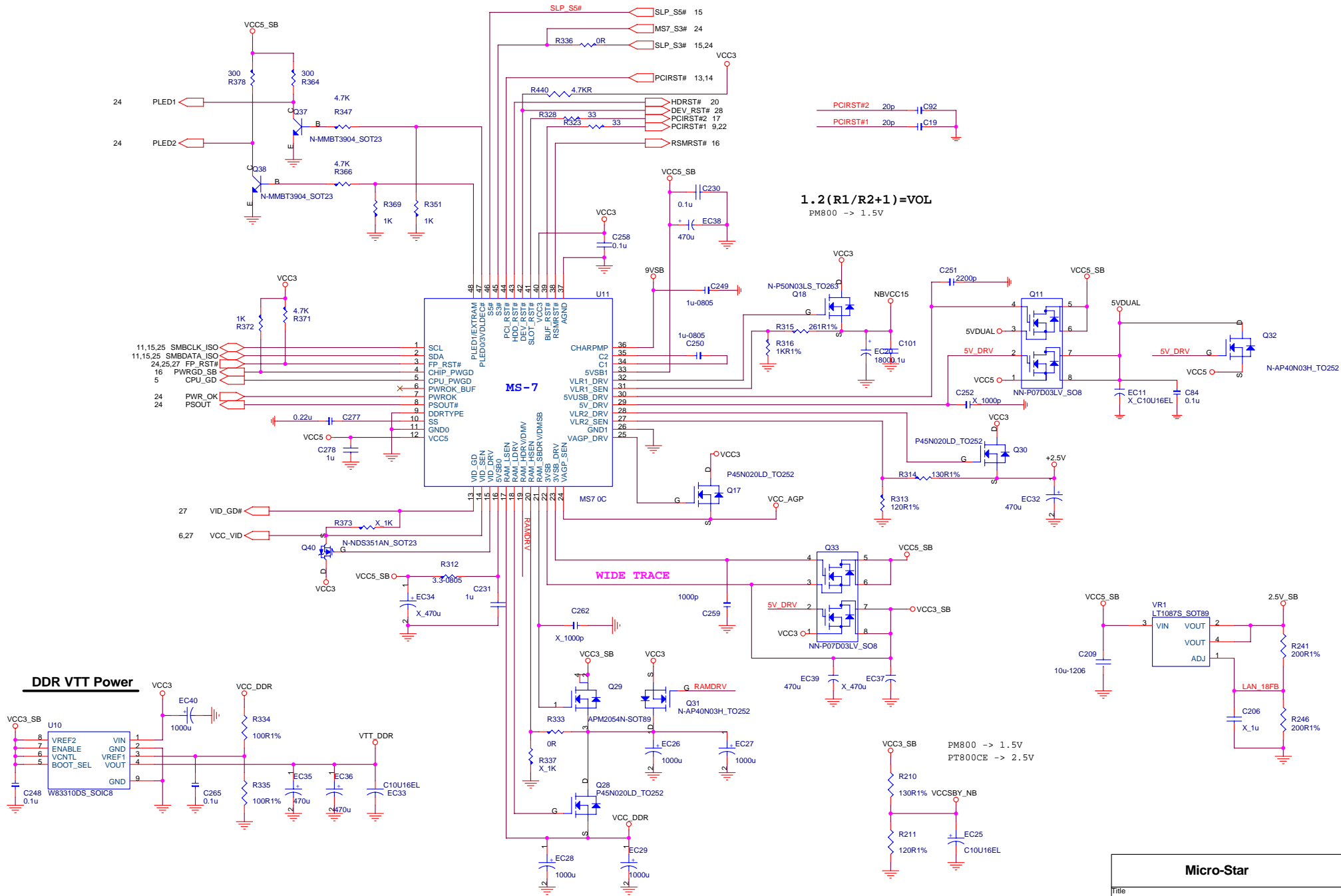
Monday, December 22, 2003

Sheet

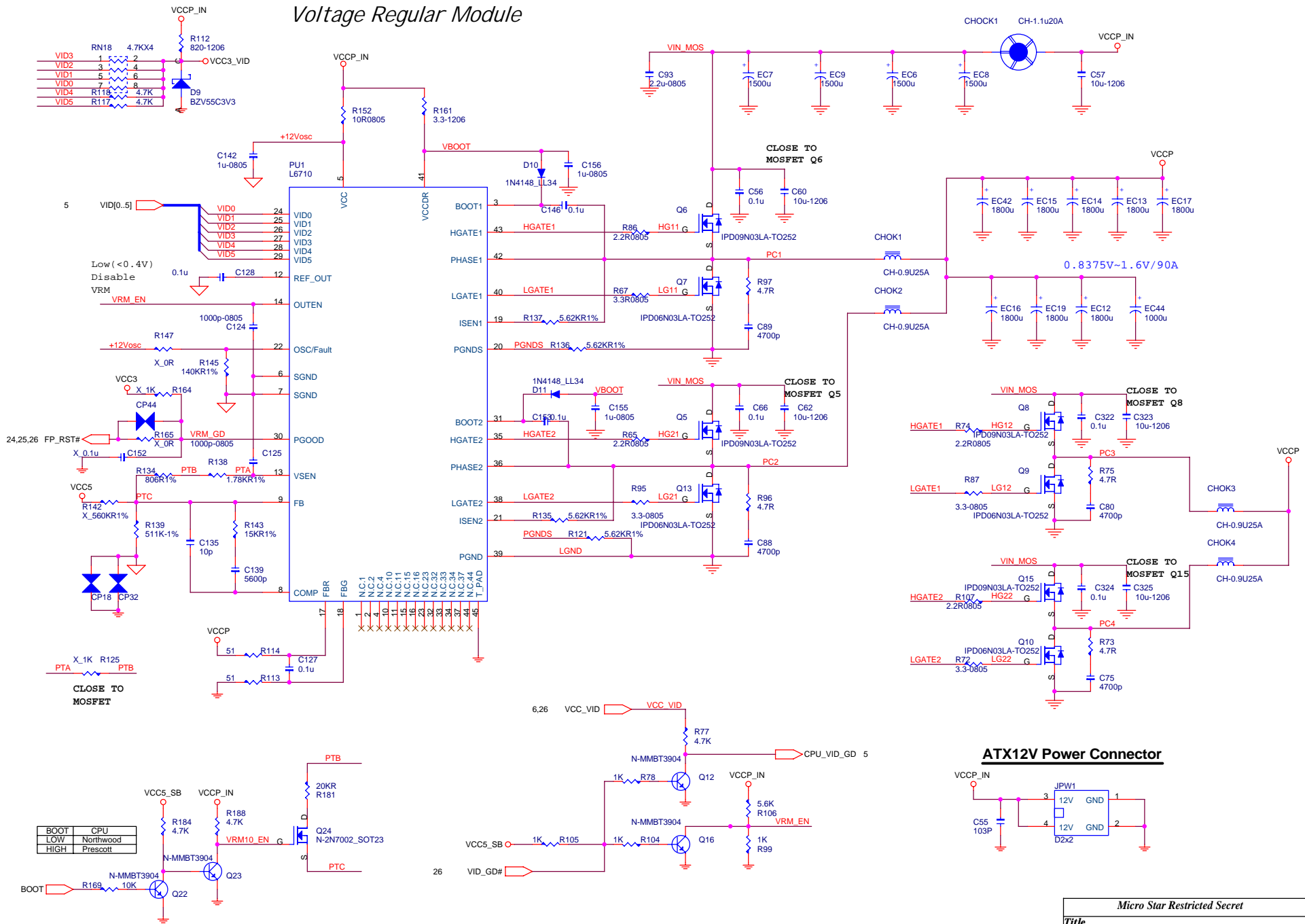
25

 of 

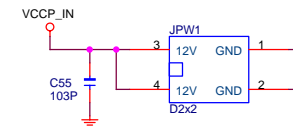
30



### Voltage Regular Module



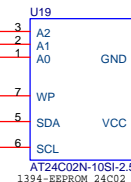
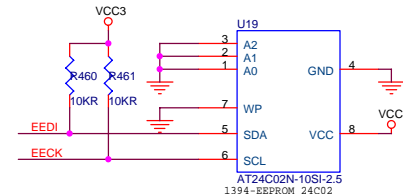
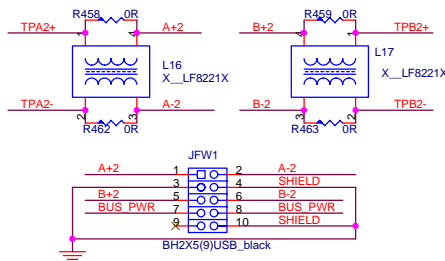
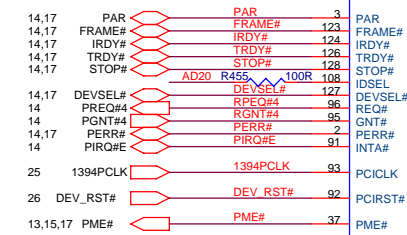
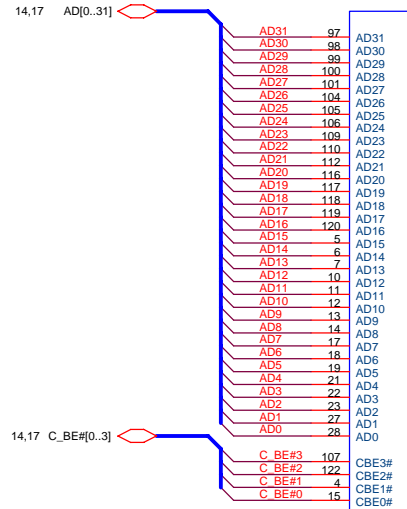
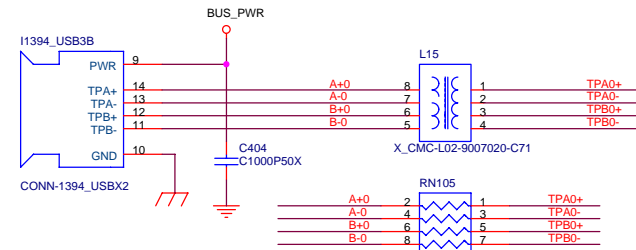
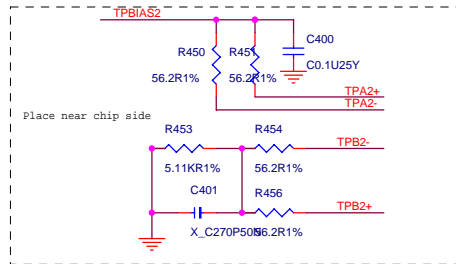
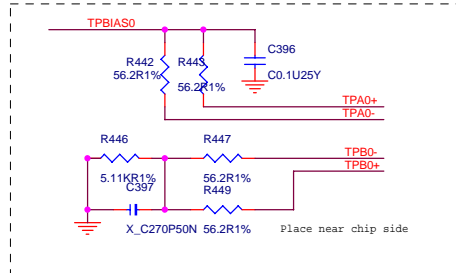
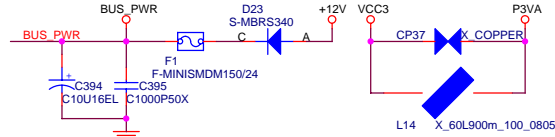
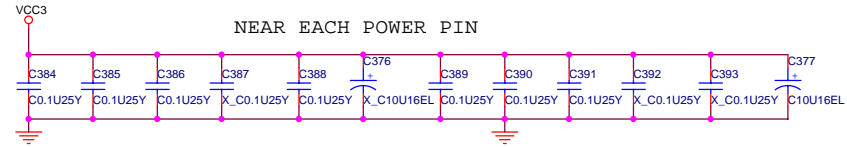
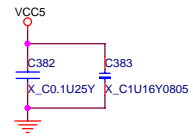
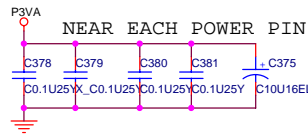
### ATX12V Power Connector

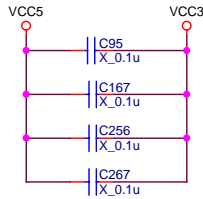
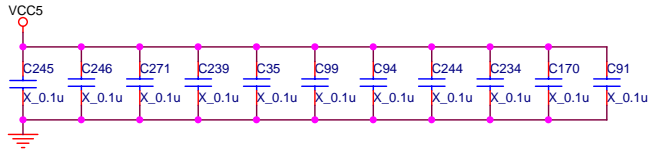
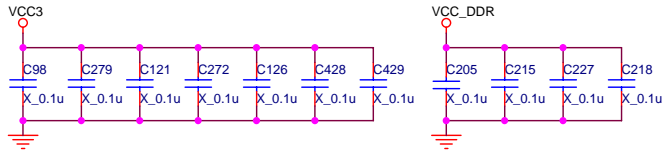


<i>Micro Star Restricted Secret</i>		
<b>Title</b>	<b>VRM 10 - L6710</b>	Rev
<b>Document Number</b>	<b>MS-7042</b>	100
MICRO-STAR INT'L No. 66, 4 <sup>th</sup> De St, Jung-He City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>	Last Revision Date: Monday, December 22, 2003 Sheet	27 of 30

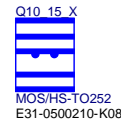
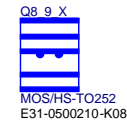
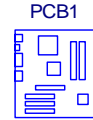
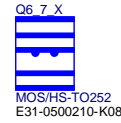
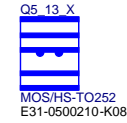
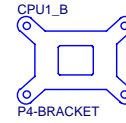
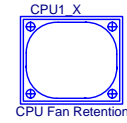
# IEEE-1394

## AD20 PIRQ#E

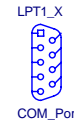




## Manual Parts



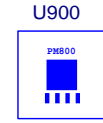
7042-100



JAUD1(5-6)1  
JUMPER-1X2A\_green

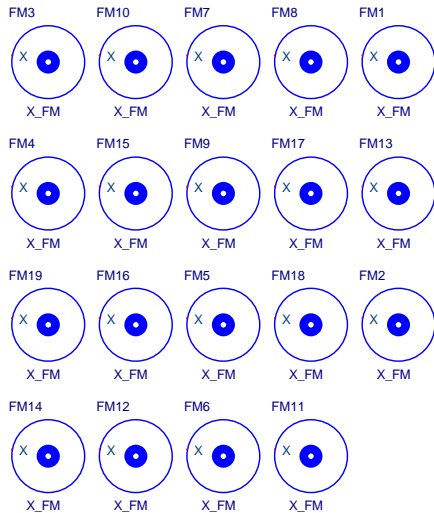
JAUD1(9-10)1  
JUMPER-1X2A\_green

## Option Parts

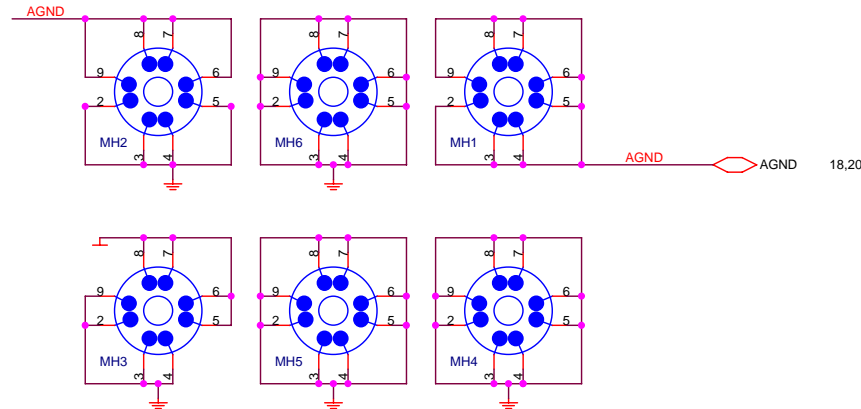


PM800

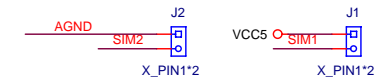
## Optics Orientation Holes



## Mounting Holes



## Simulation



## Micro-Star

Title			
EMI PART			
Size	Document Number		Rev
	MS-7042		100
Date:	Monday, December 22, 2003		Sheet
			29 of 30

54321

D

C

B

A

54321

Version 0A change to 100 note:

1. Remove R441 for VIA1394 EEPROM can flash normally.----Page28

2. Correct JFP1 pin-out direction.

3. Correct VIA1394 front-pin header.

4. Remove R386 for LAN-ID resume normally from S3 state.----Page 16