



# MS-7693

## Ver:2.0

### CPU

AMD M3 Phenom/Athlon 64 FX AM3/AM3R2

### System Chipset

AMD RX980

ATI SB950

### On Board Chip

FINTEK Super I/O -- F71889AD

LAN -- RTL8111EL

HD Codec --ALC892

ASM1042 USB3.0

BIOS -- SPI ROM 32M

### Main Memory

DDR III X 4 (Max 32GB)

### Expansion Slots

PCI-E X 16\*1

PCI-E X 8 \*1

PCI-E X 1 \*2

PCI 2.2 Slot X 2

### PWM

Controller--IUPI1601 4+1 Phase

Vcore 4 Phase (MOS HIGHX2 LOWX2)

Vnb 1 Phase (MOS HIGHX1 LOWX2)

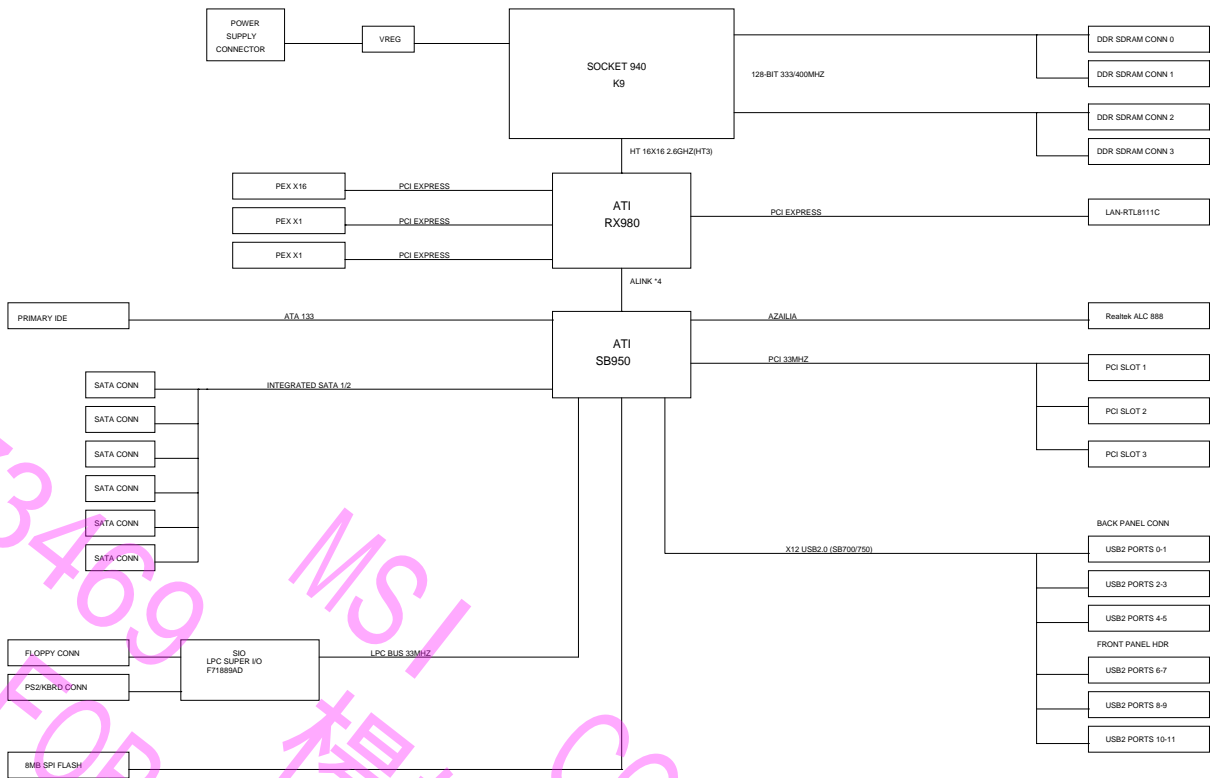
### Clock Generator

Controller--RTM880N-793

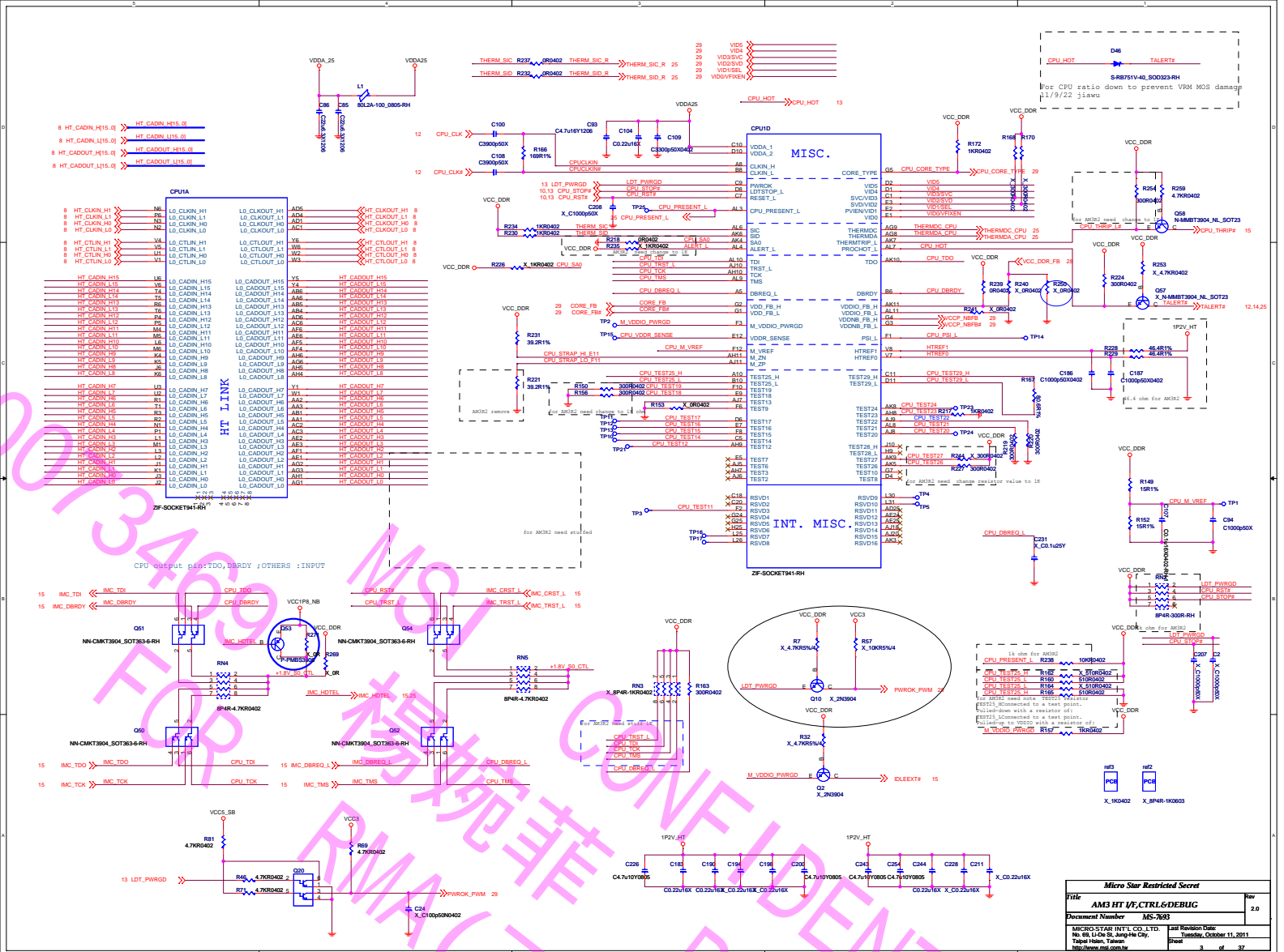
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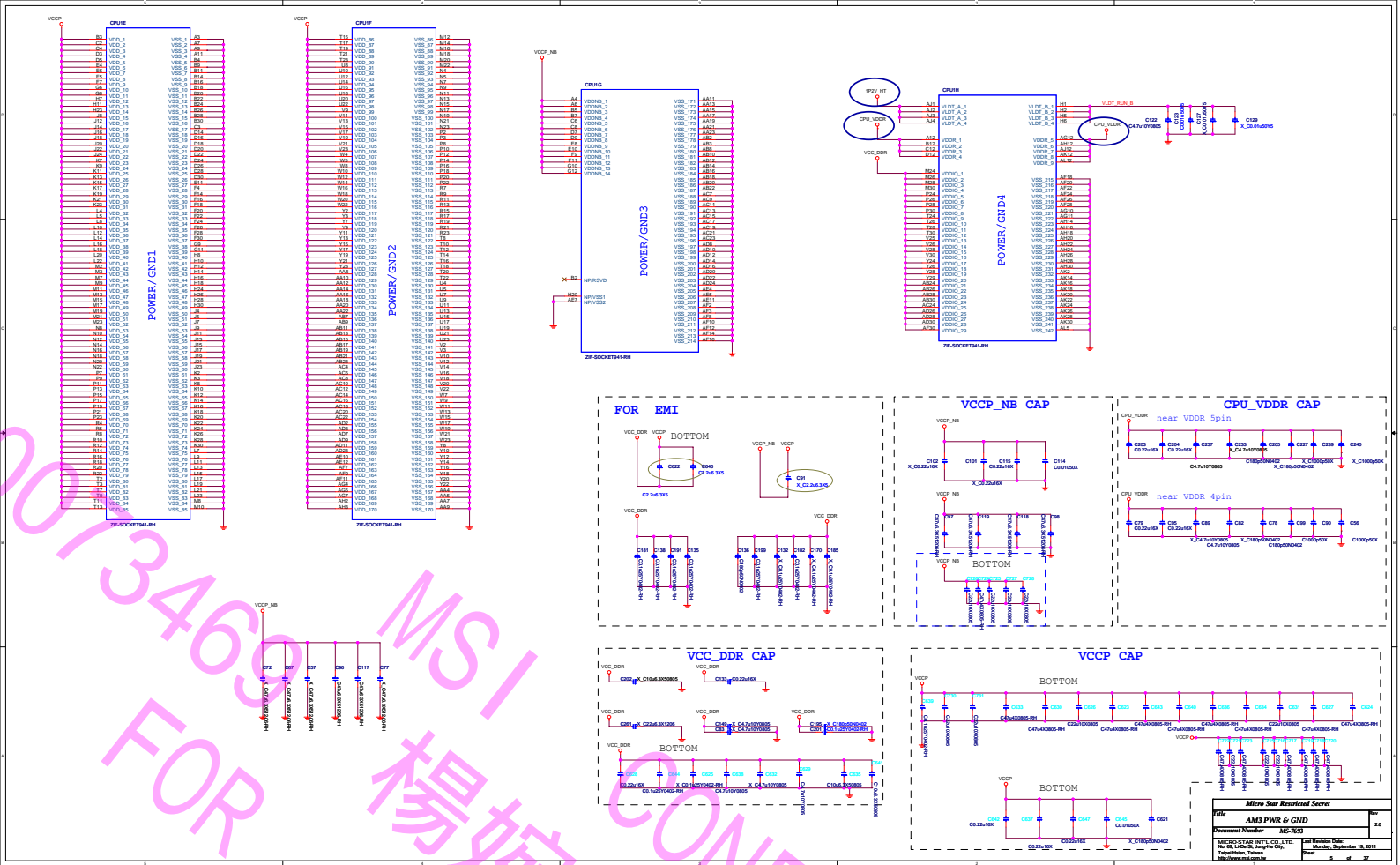
# BLOCK DIAGRAM

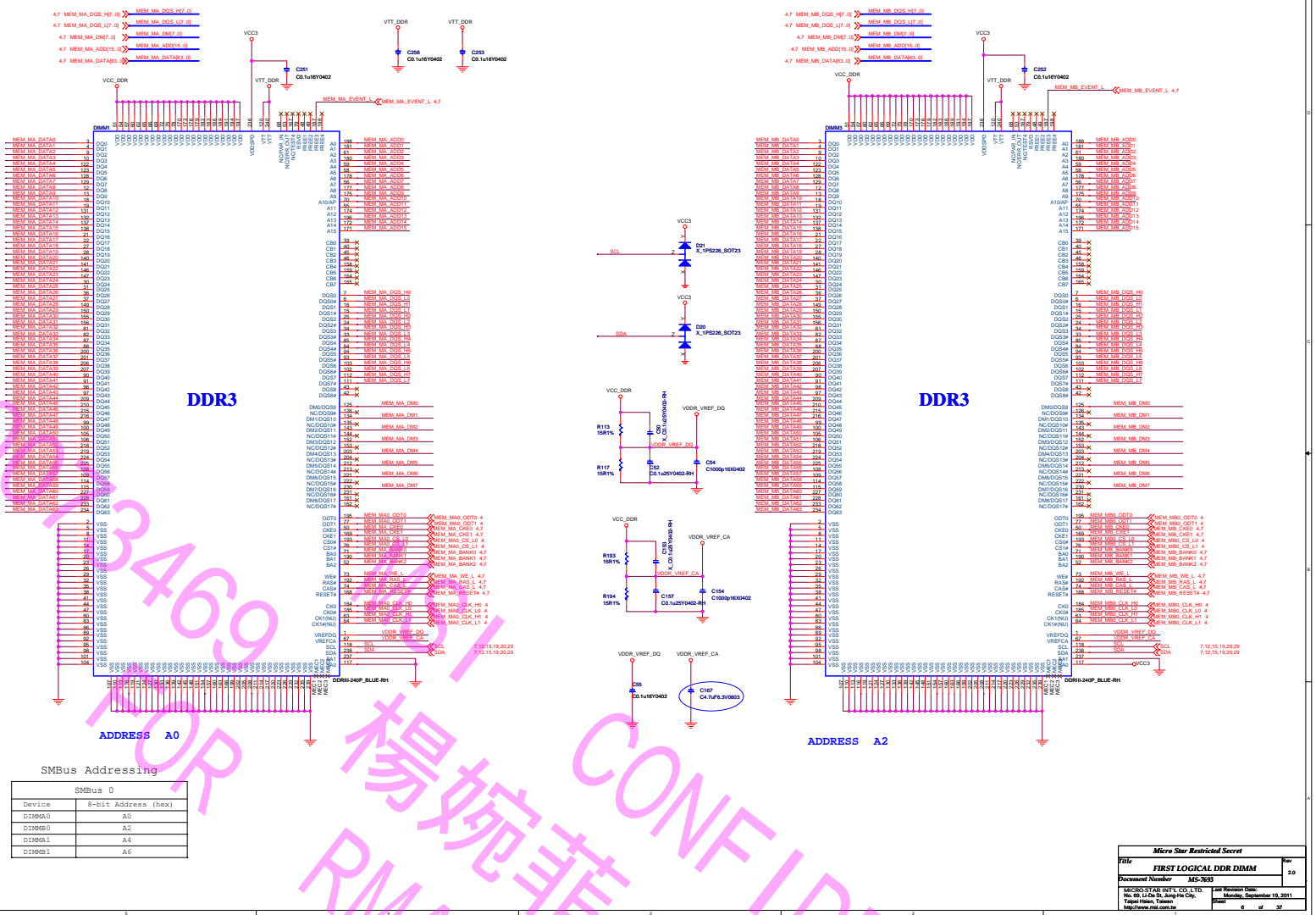


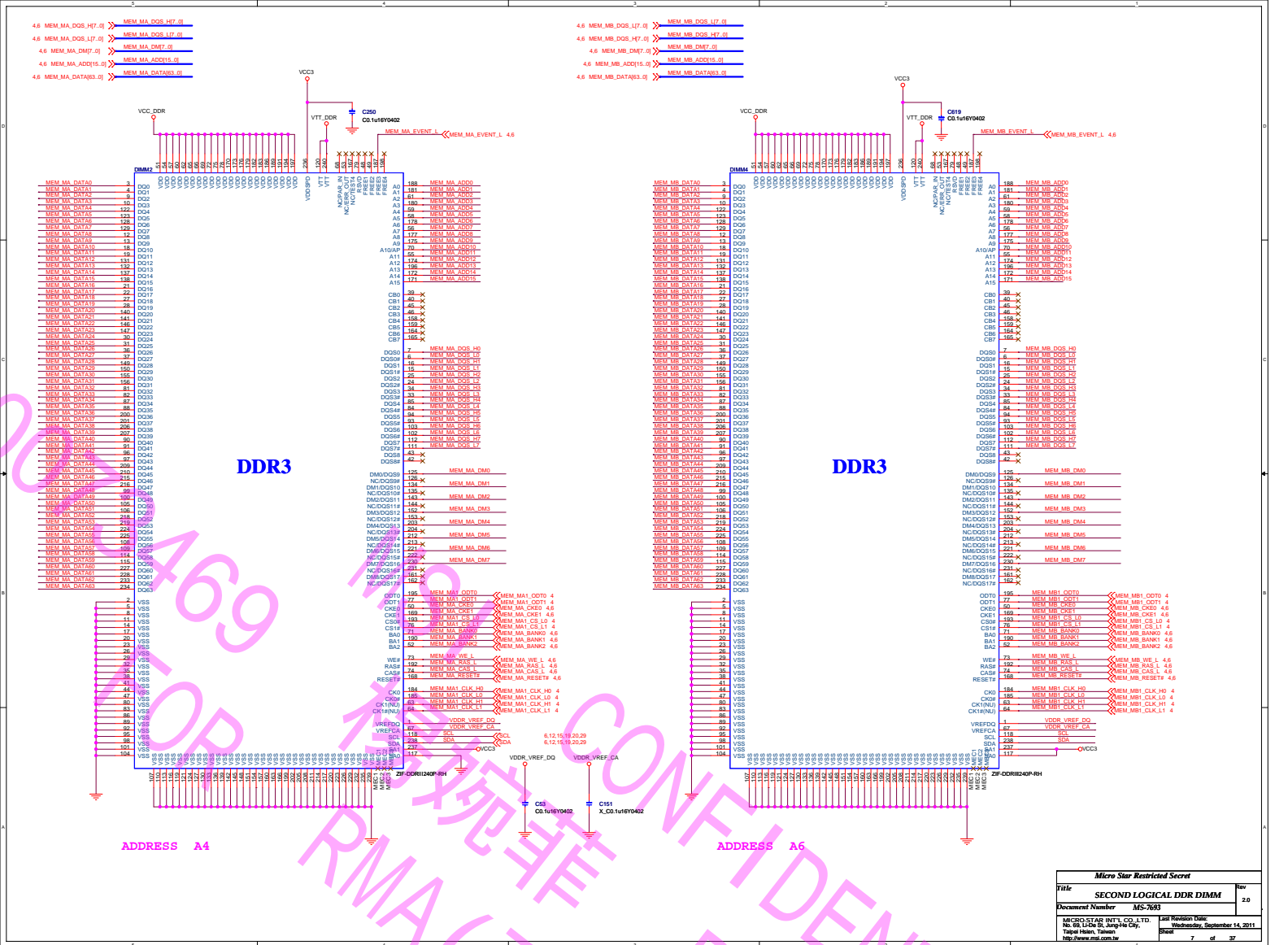
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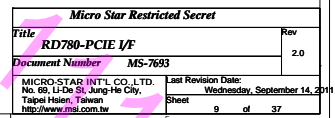




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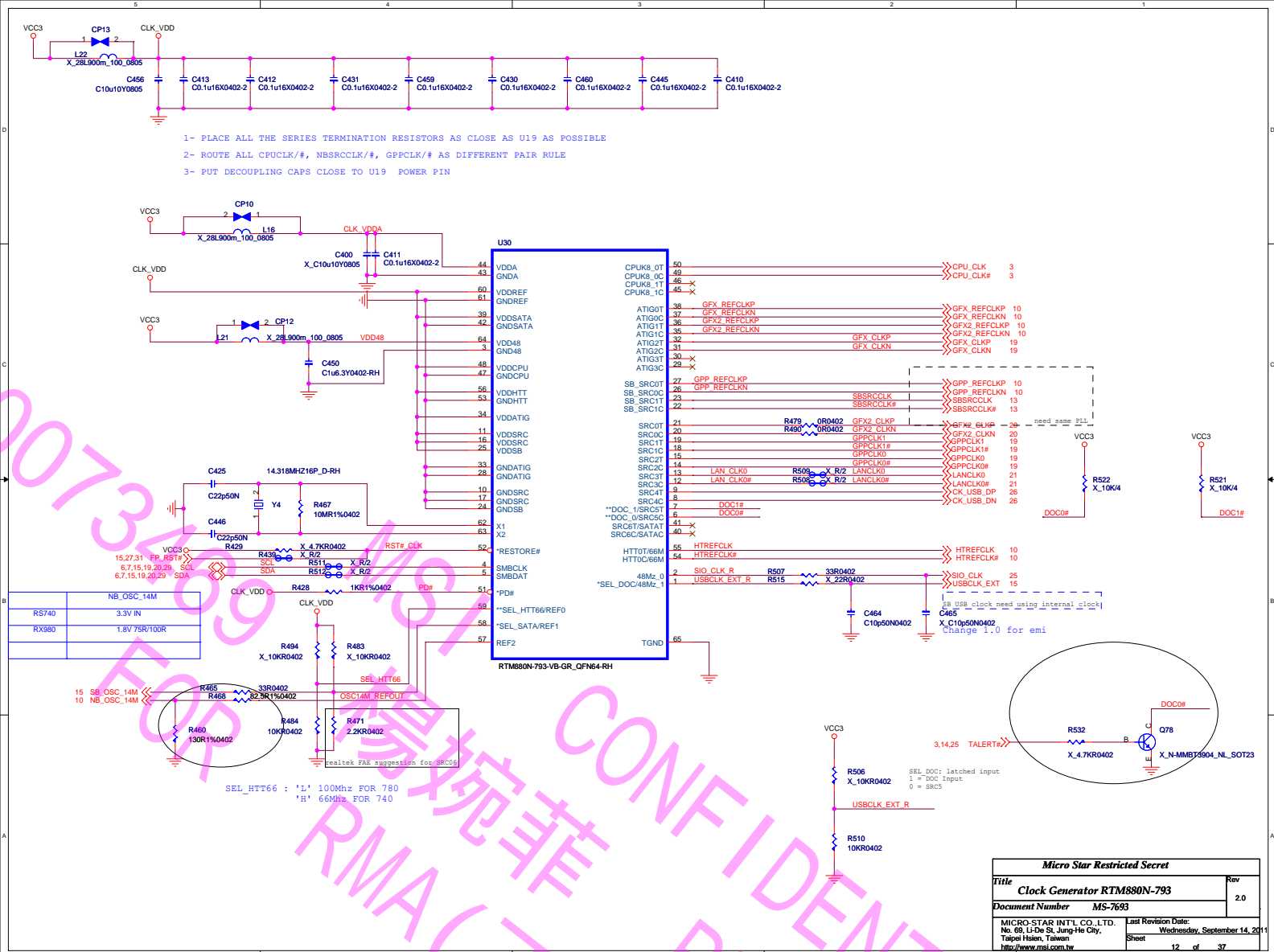
<b>Micro Star Restricted Secret</b>		
<b>Title</b> RD780-HT Hink I/F		<b>Rev</b> 2.0
<b>Document Number</b> MS-7963		
MICRO-STAR INT'L CO., LTD. No. 68, Li De St., Jung-Ho City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		<b>Last Revision Date:</b> <b>Wednesday, September 14, 200</b> <b>Sheet</b> 8 <b>of</b> 37

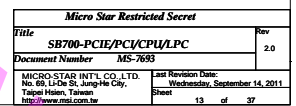




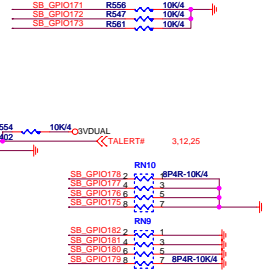
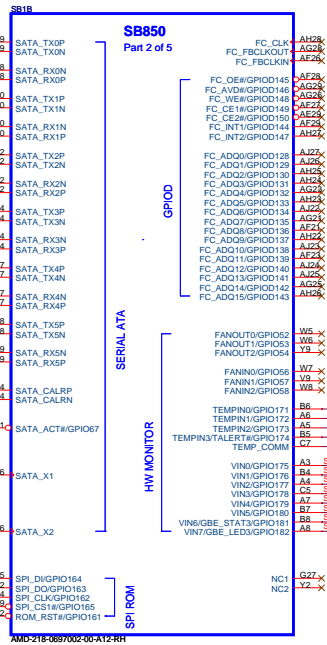
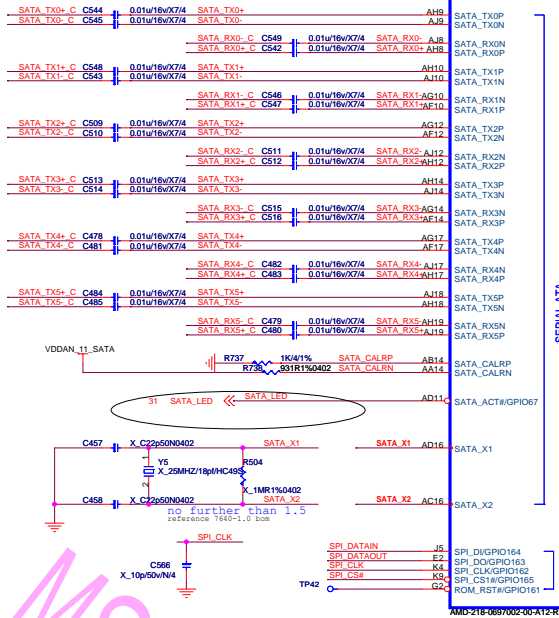
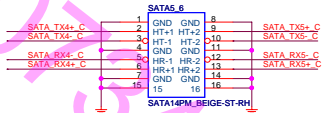
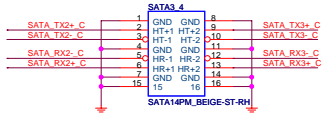
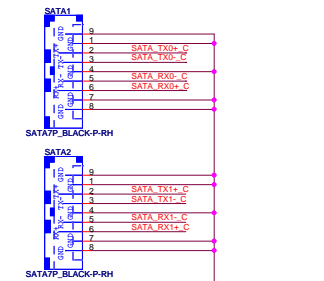








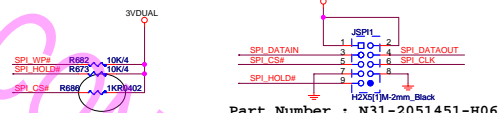
SATA\_TX[5:0]P/N: Routed with 90-ohm ± 10% differential impedance.  
SATA\_RX[5:0]P/N: Routed with 90-ohm ± 10% differential impedance.  
Gen3: Signal length from the Southbridge to connector ≤ 2.5".



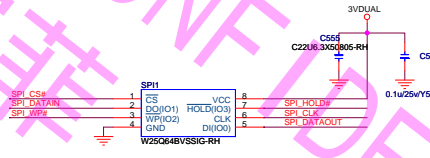
### SPI FLASH MEMORY

#### SPI DEBUG PORT

Place close to SPI ROM



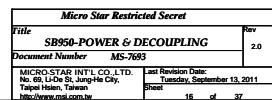
Part Number : N31-2051451-H06



Micro Star Restricted Secret		
Title	SB700-SATA/IDE/HWM/SPI	Rev 2.0
Document Number	MS-7693	
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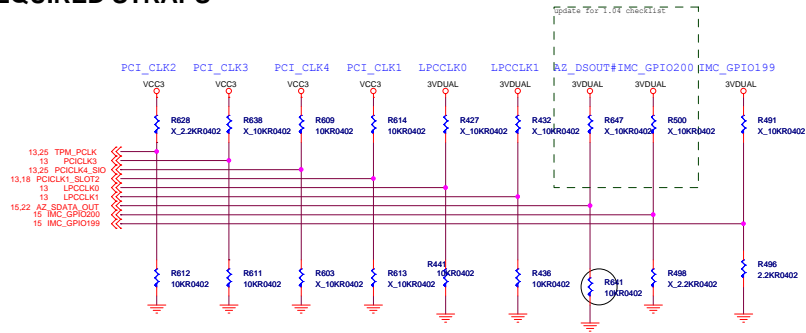






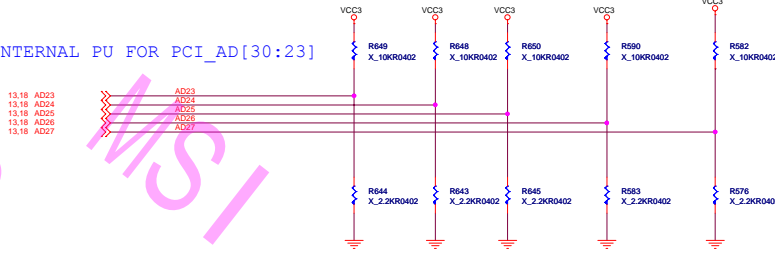
# REQUIRED STRAPS

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC\_CLK



	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	AZ_DSOUT#	IMC_GPIO200	IMC_GPIO199
PULL HIGH	ALLOW PCIE GEN2  DEFAULT	WATCHDOG TIMER ON NB_PWRGD ENABLED  DEFAULT	USE DEBUG STRAPS  DEFAULT	NON-FUSION CPU CLOCK MODE  DEFAULT	UEC ENABLE  DEFAULT	CLKGEN ENABLED  DEFAULT		ROM TYPE: H, H = Reserved H, L = SPI ROM L, H = LPC ROM L, L = FWH ROM	
PULL LOW	FORCE PCIE GEN1	WATCHDOG TIMER ON NB_PWRGD DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT	FUSION CPU CLOCK MODE DEFAULT	DISABLE EC DEFAULT	CLKGEN DISABLED DEFAULT	PERFORMANCE MODE DEFAULT		

SB800 HAS 15K INTERNAL PU FOR PCI\_AD[30:23]



## DEBUG STRAPS

	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
PULL LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT

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Title	SB950-STRAPS	Rev
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```

IDSEL = AD22
MASTER = PCI_REQ#1
        PCI_GNT#1

```

<b>Micro Star Restricted Secret</b>		
<b>Title</b>	<b>PCI Slot 1,2,3&amp; PCI Extender</b>	<b>Rev</b>
<b>Document Number</b>	<b>MS-7693</b>	<b>2.0</b>
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Trace width > 100 mils

7.12,15,20,29 SCL 12,15,20,29 SDA

26 PE\_WAKE

3VSS WAKE

Near Connector

R148

X100R0402

R117

OR0402

C494

0.1uF

GFX\_TX0P\_C

GFX\_TX0P\_P

C495

0.1uF

GFX\_TX1P\_C

GFX\_TX1P\_P

C496

0.1uF

GFX\_TX2P\_C

GFX\_TX2P\_P

C497

0.1uF

GFX\_TX3P\_C

GFX\_TX3P\_P

C498

0.1uF

GFX\_TX3N\_C

GFX\_TX3N\_P

C378

0.1uF

GFX\_TX4P\_C

GFX\_TX4P\_P

C379

0.1uF

GFX\_TX4N\_C

GFX\_TX4N\_P

C380

0.1uF

GFX\_TX5P\_C

GFX\_TX5P\_P

C381

0.1uF

GFX\_TX5N\_C

GFX\_TX5N\_P

C382

0.1uF

GFX\_TX6P\_C

GFX\_TX6P\_P

C383

0.1uF

GFX\_TX6N\_C

GFX\_TX6N\_P

C384

0.1uF

GFX\_TX7P\_C

GFX\_TX7P\_P

C385

0.1uF

GFX\_TX7N\_C

GFX\_TX7N\_P

C386

0.1uF

GFX\_TX8P\_C

GFX\_TX8P\_P

C387

0.1uF

GFX\_TX8N\_C

GFX\_TX8N\_P

C388

0.1uF

GFX\_TX9P\_C

GFX\_TX9P\_P

C389

0.1uF

GFX\_TX9N\_C

GFX\_TX9N\_P

C390

0.1uF

GFX\_TX10P\_C

GFX\_TX10P\_P

C391

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GFX\_TX10N\_C

GFX\_TX10N\_P

C392

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GFX\_TX11P\_C

GFX\_TX11P\_P

C393

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GFX\_TX11N\_P

C394

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GFX\_TX12P\_C

GFX\_TX12P\_P

C395

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GFX\_TX12N\_C

GFX\_TX12N\_P

C396

0.1uF

GFX\_TX13P\_C

GFX\_TX13P\_P

C397

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GFX\_TX13N\_C

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C398

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GFX\_TX14P\_C

GFX\_TX14P\_P

C399

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GFX\_TX14N\_P

C400

0.1uF

GFX\_TX15P\_C

GFX\_TX15P\_P

C401

0.1uF

GFX\_TX15N\_C

GFX\_TX15N\_P

PCIE\_E2

B1

12V

B2

12V

B3

REV0

B4

12V

B5

SMCLK

B6

JTAG2

B7

JTAG3

B8

JTAG4

B9

3V1

B10

3.3V

B11

3.3VALL WAKE

B12

3.3V

B13

3.3V

B14

HSOP0

B15

HSOP1

B16

HSOP2

B17

HSOP3

B18

HSOP4

B19

HSOP5

B20

HSOP6

B21

HSOP7

B22

HSOP8

B23

HSOP9

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HSOP10

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HSOP11

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HSOP154

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HSOP155

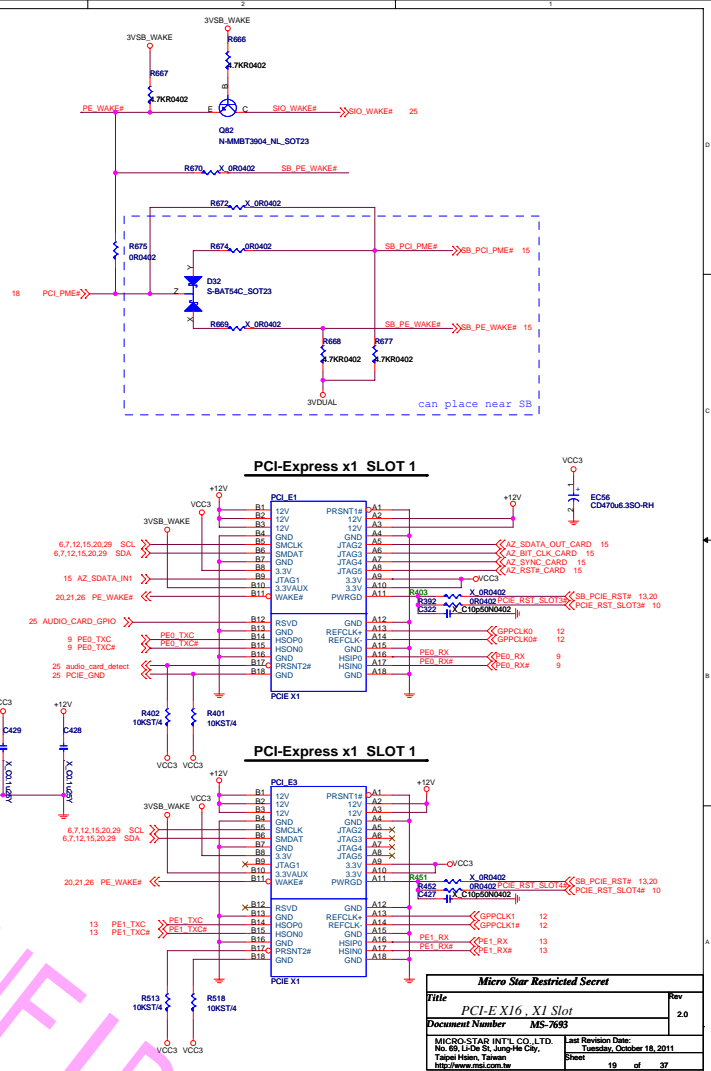
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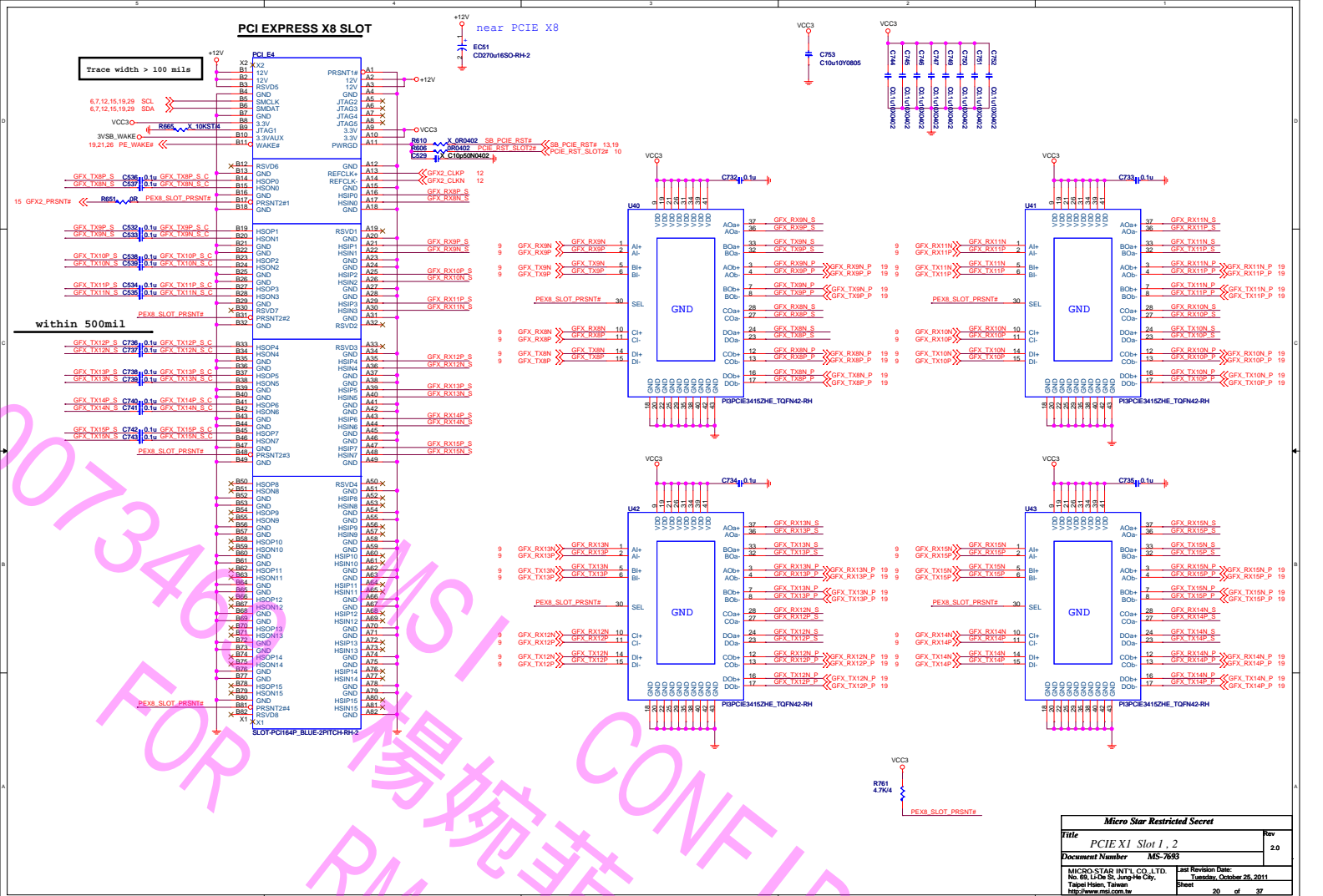
HSOP156

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HSOP157

B172



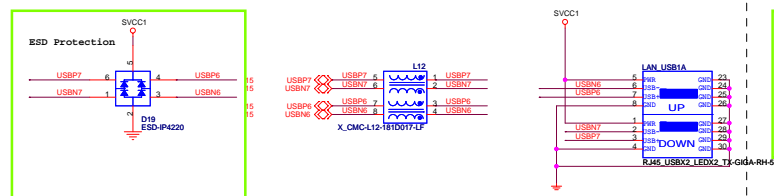




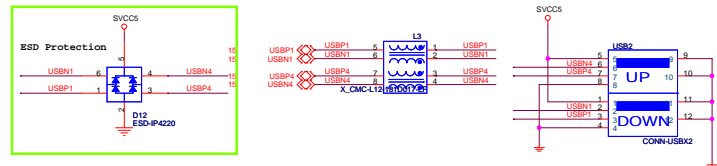




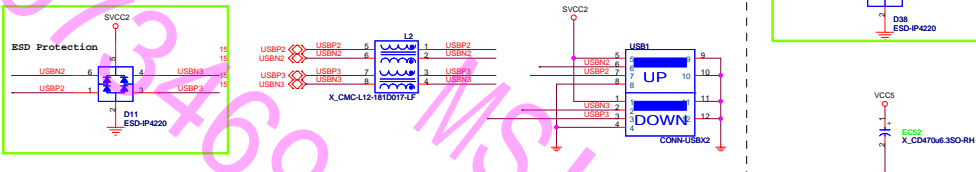
### REAR PANEL USB CONNECTOR FOR USB PORT 0,1



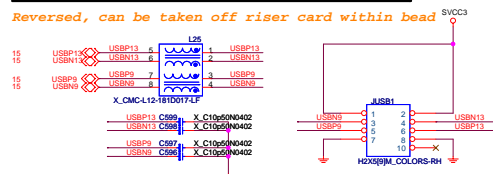
### REAR PANEL USB CONNECTOR FOR USB PORT 2,3



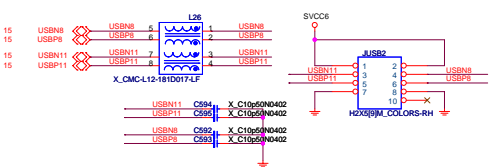
### REAR PANEL USB CONNECTOR FOR USB PORT 4,5



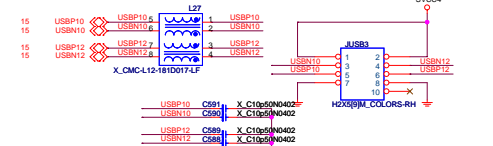
### FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



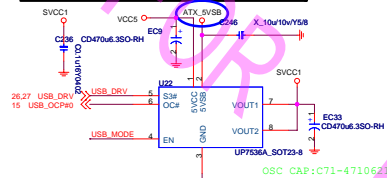
### FRONT PANEL USB CONNECTOR FOR USB PORT 8,9



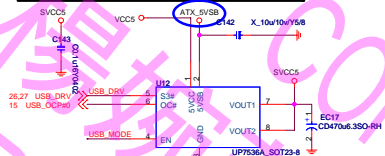
### FRONT PANEL USB CONNECTOR FOR USB PORT 10,11



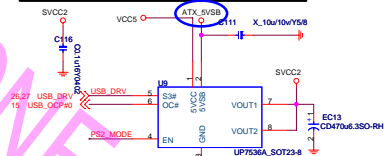
### POWER CIRCUIT FOR USB PORT 0,1



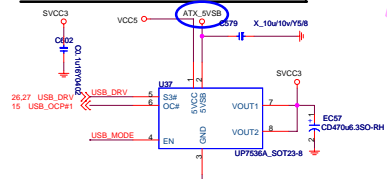
### POWER CIRCUIT FOR USB PORT 2,3



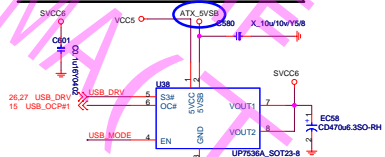
### POWER CIRCUIT FOR USB PORT 4,5



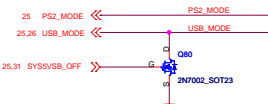
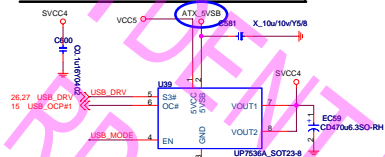
### POWER CIRCUIT FOR USB PORT 6,7



### POWER CIRCUIT FOR USB PORT 8,9

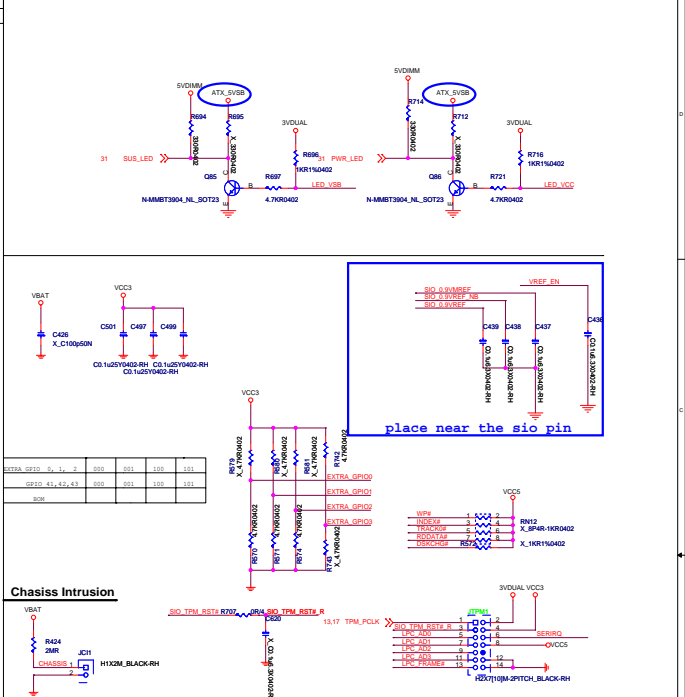
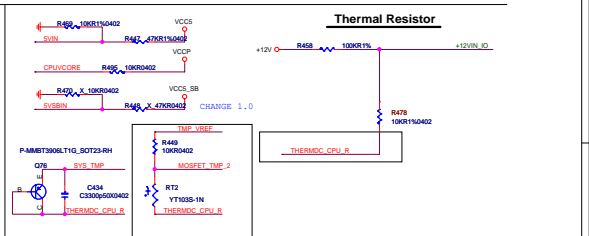


### POWER CIRCUIT FOR USB PORT 10,11

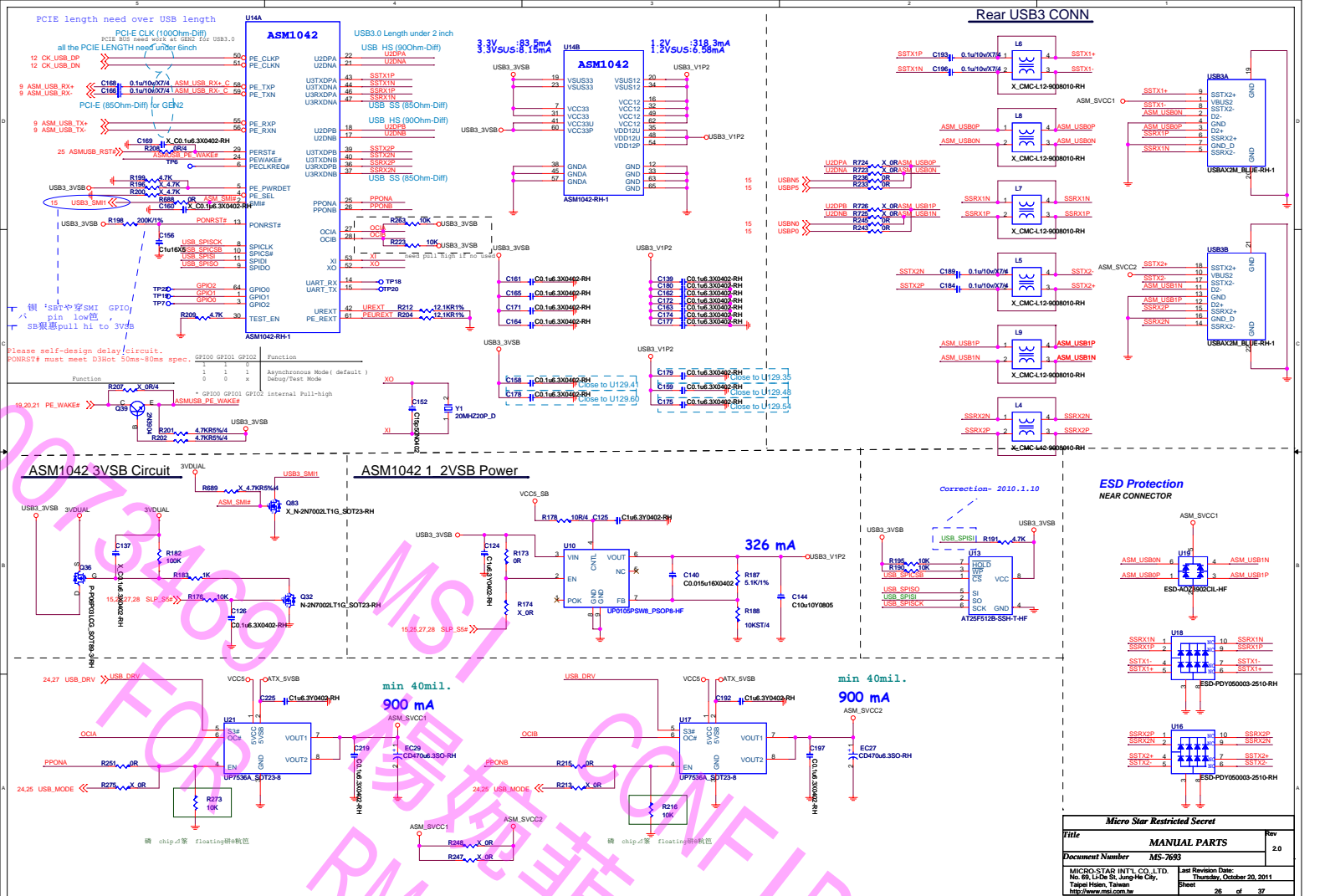


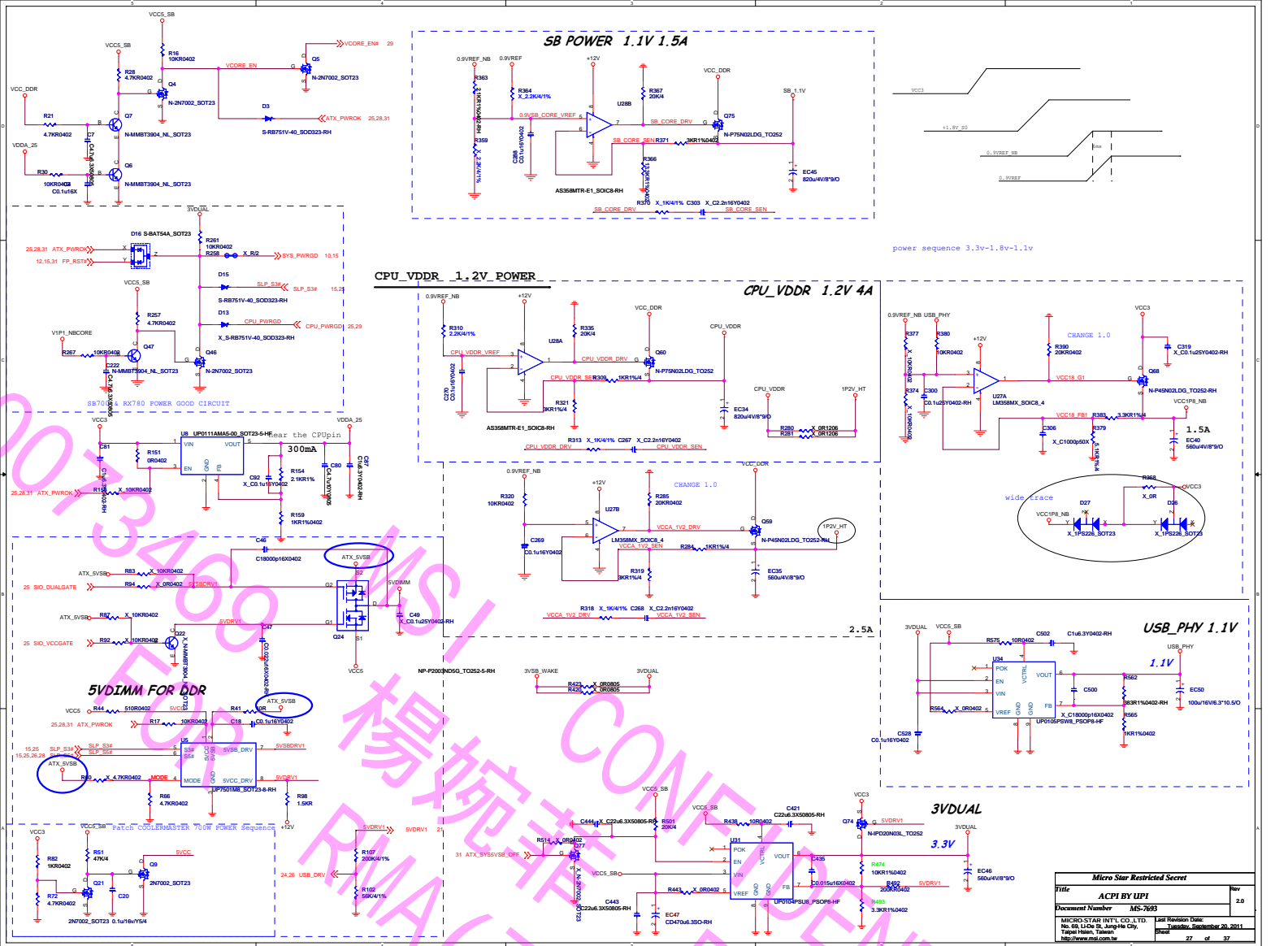
Micro Star Restricted Secret		
Title		Rev
USB CONNECTORS		2.0
Document Number	MS-7693	
MICRO-STAR INT'L. CO. LTD.		Issue Revision Date:
No. 68, Li-Hua St., Jung-Hua City,		Thursday, September 22, 2011
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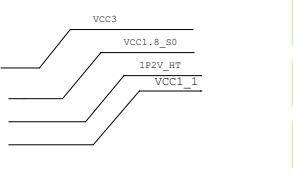
[illegible]

NOTE: LOCATE CLOSE S VRM mosfet for VRM mosfet temperature detect only

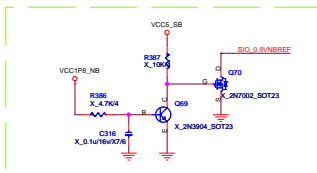




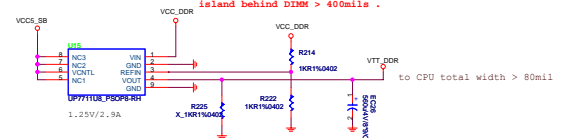
# RX780 power up sequence



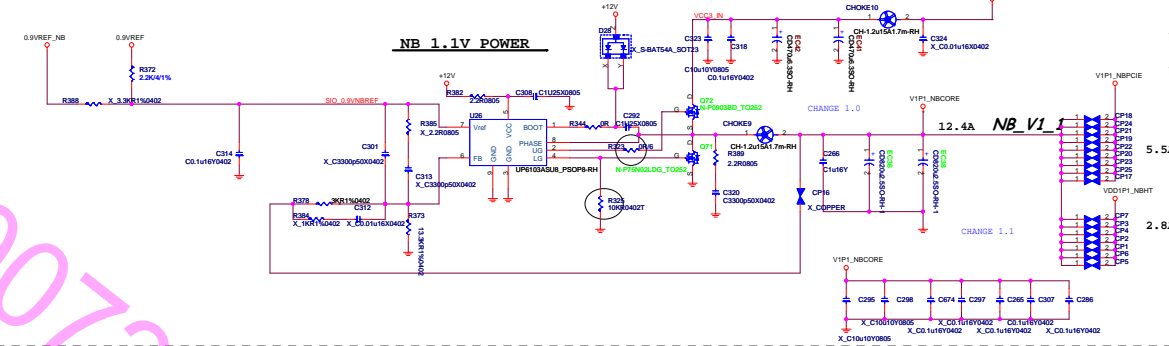
# Reserve for RX980 P08



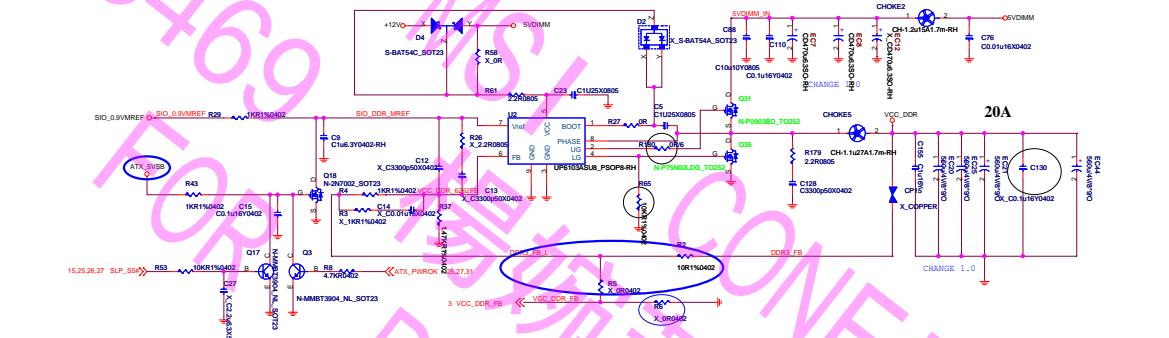
# DDR VTT Power



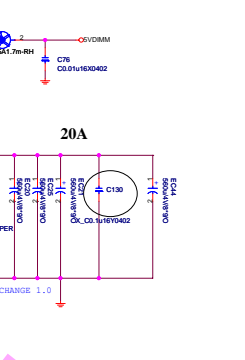
# NB 1.1V POWER



# DDR III 1.5V POWER



# VCC\_DDR



Micro Star Restricted Secret		
Title	VCC_DDR&VCC1_1	Rev
Document Number	MS-7693	2.0
MICROSTAR INT'L CO. LTD. 1st. Flr. Sec 2, Janghe City, Taipei, Taiwan		
http://www.msi.com.tw		
Rev	2.0	2011
28	of	37

Micro Star Restricted Secret

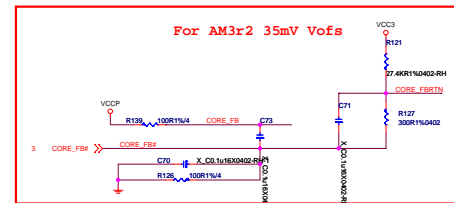
Title: LIP1601 4 Phase

Document Number: MS-7693

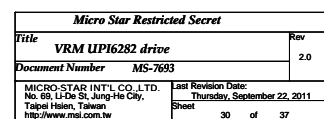
Micro Star Int'l. Co., Ltd.  
No. 60, Lian-Shan St., Jang-Hsi City,  
Taichung, Taiwan  
http://www.msi.com.tw

Last Revision Date: January, October 25, 2011

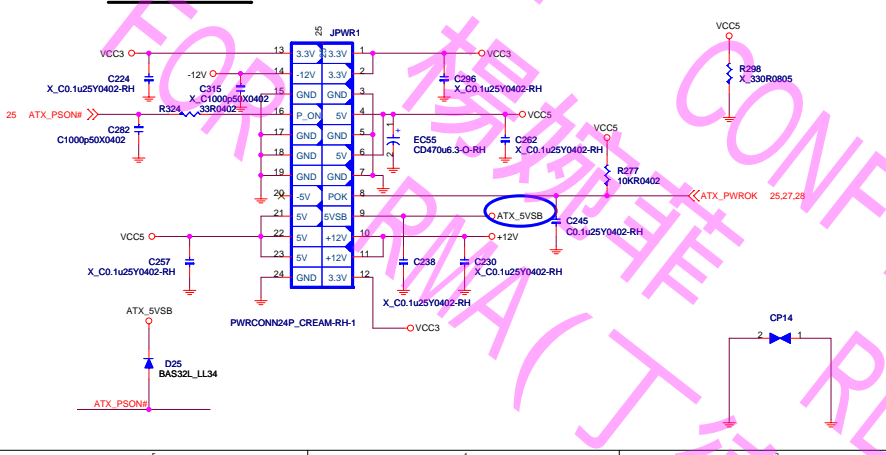
Sheet: 29 of 37



<b>Micro Star Restricted Secret</b>	
<b>Title</b> UPI1601 4 Phase	<b>Rev</b> 2.0
<b>Document Number</b> MS-7693	
MICRO-STAR INT'L CO. LTD. No. 69, Li-De St, Jung-Ho City, Taipei Hsien, Taiwan	<b>Last Revision Date:</b> Tuesday, October 26, 2011 <b>Sheet</b> 20 of 27

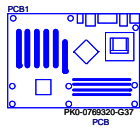
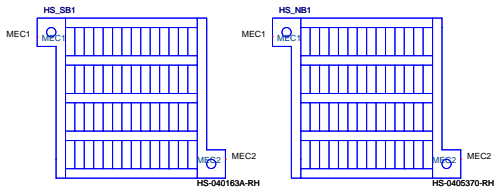


## Intel Front Panel

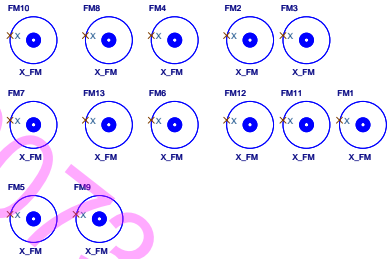
[illegible]

<b><i>Micro Star Restricted Secret</i></b>		
<b>Title</b> <b><i>ATX connector / Front Panel/KB</i></b>		<b>Rev</b> <b>2.0</b>
<b>Document Number</b>	<b><i>MS-7693</i></b>	
<b>MICRO-STAR INT'L CO. LTD.</b> No. 69, Li Shue St., Jung-Ho City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		<b>Last Revision Date:</b> <b><i>Monday, October 10, 2011</i></b> <b>Sheet</b> 31      of      37

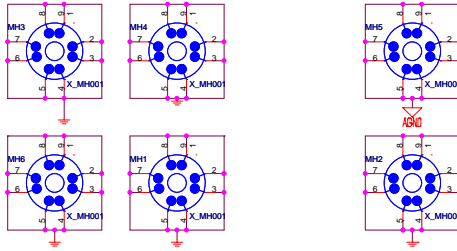
MK1  
CST-MTSP300-Q13



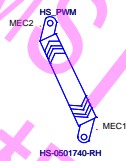
#### Optics Orientation Holes



#### Mounting Holes



#### Simulation



Micro Star Restricted Secret		
Title	MANUAL PARTS	Rev 2.0
Document Number	MS-7693	
MICRO-STAR INT'L CO., LTD. No. 88, Li-Hsi St, Jung-Hsi City, Taipei Hsien, Taiwan <a href="http://www.msi.com.tw">http://www.msi.com.tw</a>		Last Revision Date: Tuesday, October 25, 2011 Sheet 32 of 37