



MS-7302 VER:0A

CPU:

AMD M2 Athlon 64/Athlon 64 FX AM2R2

System Chipset:

AMD/ATI RS780 colay RS740

AMD/ATI SB700

On Board Chipset:

FINTEK Super I/O -- F71882

LAN -- RTL8111C(B)/RTL8101E

HD Codec -- ALC888

BIOS -- SPI ROM 8M

1394 -- JMB381

Main Memory:

DDR II X 2 (Max 4GB)

Expansion Slots:

PCI-E X 1 *1

PCI-E X 16 *1

PCI 2.2 Slot X 2

Clock Generator:

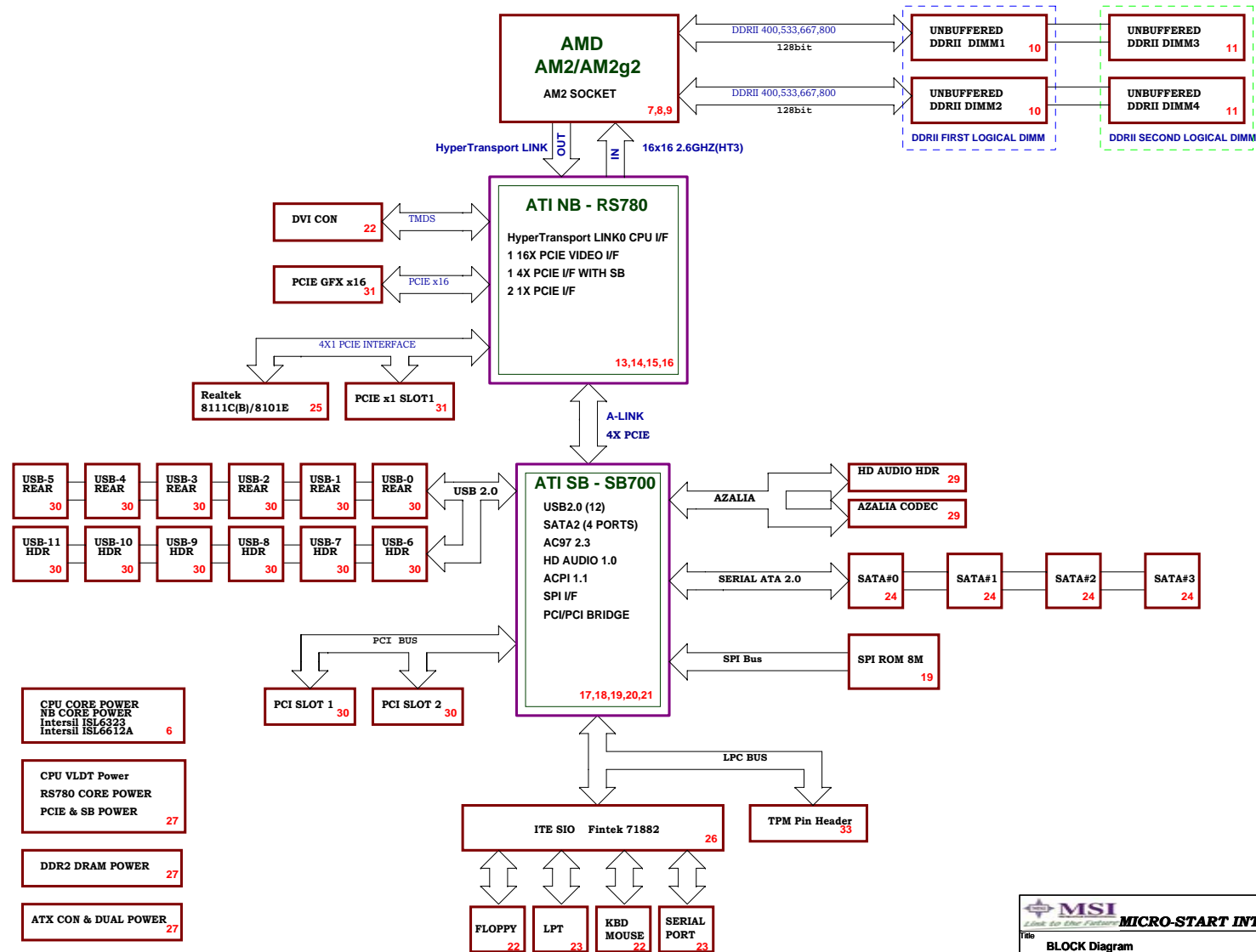
Controller--ICS9LPRS477

PWM:

INTSIL6566 3 Phase+75125

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Project RS-780 BLOCK DIAGRAM



SB700 GPIO Config																			
GPIO Name	Type	Function Description	Pin	Page	GPIO Name	Type	Function Description	Pin	Page	GPIO Name	Type	Function Description	Pin	Page	GPIO Name	Type	Function Description	Pin	Page
PC1CLK5/GPIO41	3.3V	PCI_CLK5	T3	17	AZ_DOCK_RST#/GPM8#	Unused		L5	18	IDE_D4/GPIO19		Unused	AD21	19	IDE_D5/GPIO20		Unused	AE20	19
REQ3#/GPIO70		PREQ#3	AE6	17	PS2_DAT/EC_GPIO0	Unused		H19	18	IDE_D6/GPIO21		Unused	AB20	19	IDE_D7/GPIO22		Unused	AD19	19
REQ4#/GPIO71		PREQ#4	AB6	17	PS2_CLK/EC_GPIO1	Unused		H20	18	IDE_D8/GPIO23		Unused	AE19	19	IDE_D9/GPIO24		Unused	AC20	19
GNT3#/GPIO72		Unused	AC6	17	SPI_CS2#/EC_GPIO2	Unused		H21	18	IDE_D10/GPIO25		Unused	AD20	19	IDE_D11/GPIO26		Unused	AE21	19
GNT4#/GPIO73		Unused	AE5	17	IDE_RST#/F_RST#/EC_GPO3	Unused		F25	18	IDE_D12/GPIO27		Unused	AB22	19	IDE_D13/GPIO28		Unused	AD22	19
INTE#/GPIO33		PCI_INTA#	AD3	17	PS2KB_DAT/EC_GPIO4	Unused		D22	18	IDE_D14/GPIO29		Unused	AE23	19	IDE_D15/GPIO30		Unused	AC23	19
INTF#/GPIO33		PCI_INTB#	AC4	17	PS2KB_CLK/EC_GPIO5	Unused		E24	18	SPI_DI/GPIO12		SPI_DATAIN	G6	19	SPI_DO/GPIO11		SPI_DATAOUT	D2	19
INTG#/GPIO33		PCI_INTC#	AE2	17	PS2M_DAT/EC_GPIO6	Unused		E25	18	SPI_CLK/GPIO47		SPI_CLK	D1	19	SPI_HOLD#/GPIO31		SPI_HOLD_L	F4	19
INTH#/GPIO33		PCI_INTD#	AE3	17	PS2M_CLK/EC_GPIO7	Unused		D23	18	SPI_CS#/GPIO32		SPI_CS#	F3	19	LAN_RST#/GPIO13		CPU_PRESENT#	U15	19
LDRQ1#/GNT5#/GPIO68		Unused	AB8	17	USBCLK/14M_25M_48M_OSC	USB_48M_CLK		C8	18	ROM_RST#/GPIO14		Unused	J1	19	FANOUT0/GPIO3		Unused	M8	19
BMREQ#/REQ5#/GPIO65		PREQ#5	AD7	17	KSO_16/EC_GPIO8	Unused		A18	18	FANOUT1/GPIO48		COM_GPIO	M5	19	FANOUT2/GPIO49		Unused	M7	19
RH#/EXTENVN0#		R#	E2	18	KSO_17/EC_GPIO9	Unused		B18	18	FANIN0/GPIO50		Unused	P5	19	FANIN1/GPIO51		Unused	P8	19
SLP_S2/GPM9#		Unused	H7	18	EC_PWM0/EC_GPIO10	Unused		F21	18	FANIN2/GPIO52		Unused	E8	19	TEMPIN0/GPIO61		Unused	B6	19
GA20IN/GEVENT0#		A20GATE	Y15	18	SCL2/EC_GPIO11	Unused		D21	18	TEMPIN1/GPIO62		Unused	A6	19	TEMPIN2/GPIO63		Unused	A5	19
KBRST#/GEVENT1#		KBRST#	W15	18	SDA2/EC_GPIO12	Unused		F19	18	TEMPIN3/TALERT#/GPIO64		TALERT#	B5	19	VIN0/GPIO53		BIOS_WP#1	A4	19
LPC_PME#/GEVENT3#		LPC_PME#	K4	18	SCL3_LV/EC_GPIO13	Unused		E20	18						VIN1/GPIO54		BIOS_WP#2	B4	19
LPC_SMI#/EXTENVN1#		LPC_SMI#	K24	18	SDA3_LV/EC_GPIO14	Unused		E21	18						VIN2/GPIO55		CLR_COMS	C4	19
S3_STATE/GEVENT5#		Unused	F1	18	EC_PWM1/EC_GPIO15	Unused		E19	18						VIN3/GPIO56		LAN_DISABLE	D4	19
SYS_RESET#/GPM7#		FP_RST#	J2	18	EC_PWM2/EC_GPIO16	SB_GP16(Strapping)		D19	18						VIN4/GPIO57		Unused	D5	19
WAKE#/GEVENT8#		WAKE#	H6	18	EC_PWM3/EC_GPIO17	Unused		E18	18						VIN5/GPIO58		Unused	D6	19
BLINK/GPM6#		Unused	F2	18	KSI_0/EC_GPIO18	Unused		G20	18						VIN6/GPIO59		Unused	A7	19
SMBALERT#/THRMTRIP#/GEVENT2#		SMBALERT#	J6	18	KSI_1/EC_GPIO19	Unused		G21	18						VIN7/GPIO60		Unused	B7	19
SATA_ISC#/GPIO10		SB_GPIO10(Strapping)	AE18	18	KSI_2/EC_GPIO20	Unused		D25	18										
CLK_REQ3#/SATA_IS1#/GPIO6		SB_GPIO6(Strapping)	AD18	18	KSI_3/EC_GPIO21	Unused		D24	18										
SMARTVOLT/SATA_IS2#/GPIO4		SB_GPIO4(Strapping)	AA19	18	KSI_4/EC_GPIO22	Unused		C25	18										
CLK_REQ0#/SATA_IS3#/GPIO0		SB_GPIO0(Strapping)	W17	18	KSI_5/EC_GPIO23	Unused		C24	18										
CLK_REQ1#/SATA_IS4#/FANOUT3/GPIO39		SB_GPIO39(Strapping)	V17	18	KSI_6/EC_GPIO24	Unused		B25	18										
CLK_REQ2#/SATA_IS5#/FANIN3/GPIO40		SB_GPIO40(Strapping)	W20	18	KSI_7/EC_GPIO25	Unused		C23	18										
		SPKR/GPIO2	W21	18	KSO_0/EC_GPIO26	Unused		B24	18										
		SCLK/GPOC0#	AA18	18	KSO_1/EC_GPIO27	Unused		B23	18										
		SDA0/GPOC1#	W18	18	KSO_2/EC_GPIO28	Unused		A23	18										
		SCL1/GPOC2#	K1	18	KSO_3/EC_GPIO29	Unused		C22	18										
		SDA1/GPOC3#	K2	18	KSO_4/EC_GPIO30	Unused		A22	18										
		DDC1_SCL/GPIO9	Unused	AA20	18	KSO_5/EC_GPIO31	Unused	B22	18										
		DDC1_SDA/GPIO8	SPI_WP#	Y18	18	KSO_6/EC_GPIO32	Unused	B21	18										
		LLB#/GPIO66	LC_SENSE	C1	18	KSO_7/EC_GPIO33	Unused	A21	18										
		SHUTDOWN#/GPIO5	SB_GPIO5(Strapping)	Y19	18	KSO_8/EC_GPIO34	Unused	D20	18										
		DDR3_RST#/GEVENT7#	Unused	G5	18	KSO_9/EC_GPIO35	Unused	C20	18										
		USB_OC6#/IR_TX1/GEVENT6#	OC4#	B9	18	KSO_10/EC_GPIO36	Unused	A20	18										
		USB_OC5#/IR_TX0/GPM5#	OC4#	B8	18	KSO_11/EC_GPIO37	Unused	B20	18										
		USB_OC4#/IR_RX0/GPM4#	OC3#	A8	18	KSO_12/EC_GPIO38	Unused	B19	18										
		USB_OC3#/IR_RX1/GPM3#	OC3#	A9	18	KSO_13/EC_GPIO39	Unused	A19	18										
		USB_OC2#/GPM2#	OC2#	E5	18	KSO_14/EC_GPIO40	Unused	D18	18										
		USB_OC1#/GPM1#	OC2#	F8	18	KSO_15/EC_GPIO41	Unused	C18	18										
		USB_OC0#/GPM0#	OC1#	E4	18	SATA_ACT#/GPIO67	SATA_LED#	W11	19										
		AZ_SDIN0/GPIO42	SDATA_IN_R	J7	18	IDE_D0/GPIO15	Unused	AD24	19										
		AZ_SDIN1/GPIO43	Unused	J8	18	IDE_D1/GPIO16	Unused	AD23	19										
		AZ_SDIN2/GPIO44	Unused	L8	18	IDE_D2/GPIO17	Unused	AE22	19										
		AZ_SDIN3/GPIO46	Unused	M3	18	IDE_D3/GPIO18	Unused	AC22	19										

Super I/O GPIO Config				
GPIO Name	Type	Function Description	Pin	Page
VIO05/GP27		LEO_GPIO2	20	26
VIO04/GP26		LEO_GPIO1	21	26
VIO01/GP21/VGP0		LEO_GPIO0	26	26
PME#/GP54		LPC_PME#	73	26
KRST#/GP62		KBRST#	45	26
GA20/JPT		A20GATE	46	26
KDAT/GP61		KBDATA	80	26
KCLK/GP60		KBCLK	81	26
MDAT/GP57		MSDATA	82	26
MCLK/GP56		MSCLK	83	26
SUSC#/GP53		LPC_SMI#	77	26
PSON#/GP42		PS_ON#	76	26
PANSWH#/GP43		PSIN	75	26
PWRON#/GP44		SB_PWRON#	72	26
PCIRST3#/GP11		ASSID_GPIO0	34	26
PCIRST2#/GP12		ASSID_GPIO1	33	26
FAN_CTL3/GP36		PWRFAN_PWM	12	26
FAN_TAC3/GP37		PWRFAN_TAC	11	26
FAN_CTL2/GP51		SYSFAN_PWM	10	26
FAN_TAC2/GP52		SYSFAN_TAC	9	26
FAN_CTL1		CPUFAN_PWM	8	26
FAN_TAC1		CPUFAN_TAC	7	26
VID2/GP32		COM_GPIO2	17	26
VID3/GP33		FUSB_G1	16	26
VID4/GP34		FUSB_G2	14	26
VID5/GP35		FUSB_G3	13	26

PCI Config.				
DEVICE	MCP1 INT Pin	REQ# /GNT#	IDSEL	CLOCK
PCI Slot 1	PCI_INTA#	PREQ#0 PGNT#0	AD16	PCICLK0
	PCI_INTB#			
	PCI_INTC#			
	PCI_INTD#			
PCI Slot 2	PCI_INTB#	PREQ#1 PGNT#1	AD17	PCICLK1
	PCI_INTC#			
	PCI_INTD#			
	PCI_INTA#			


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Title
GPIO Configuration

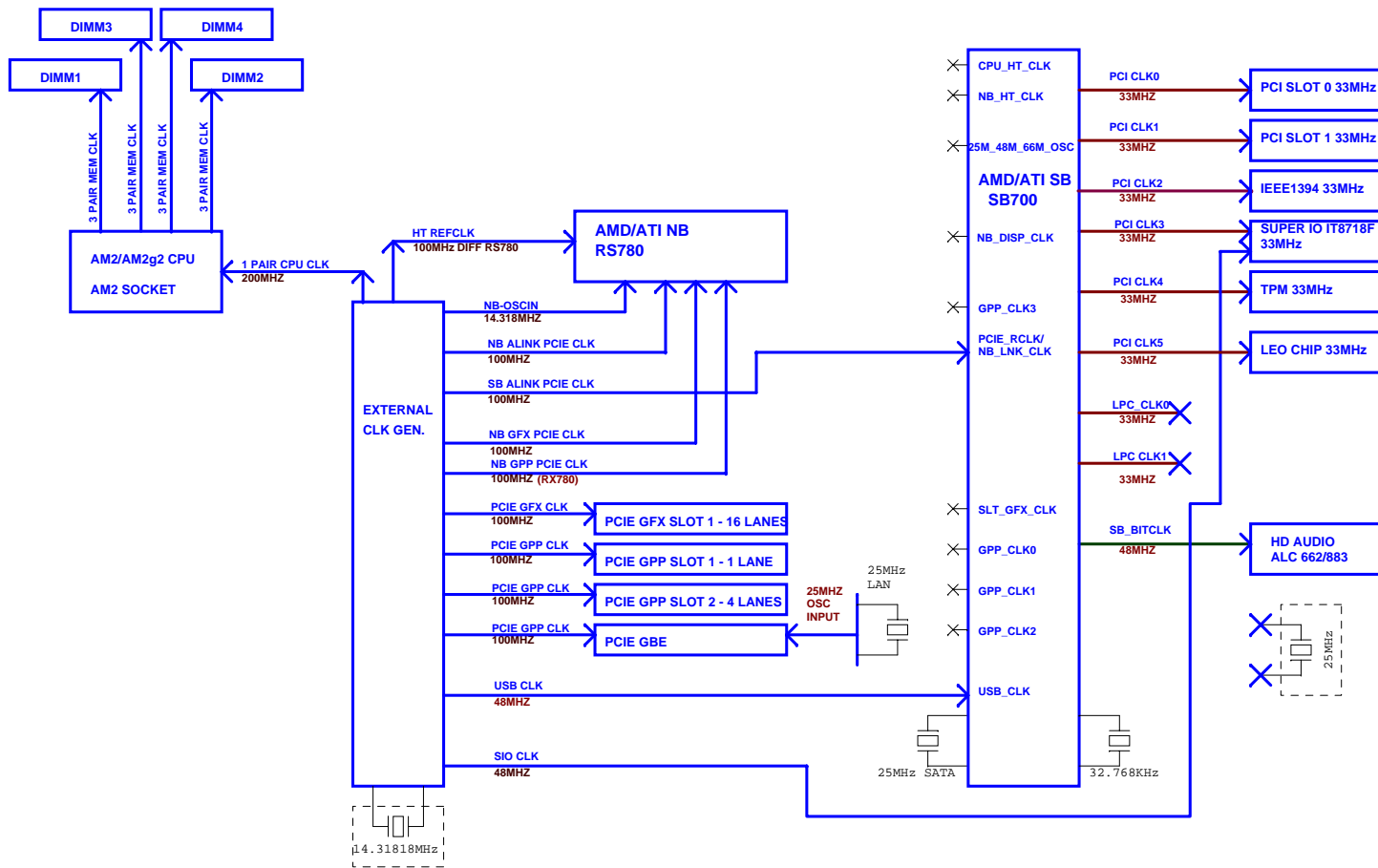
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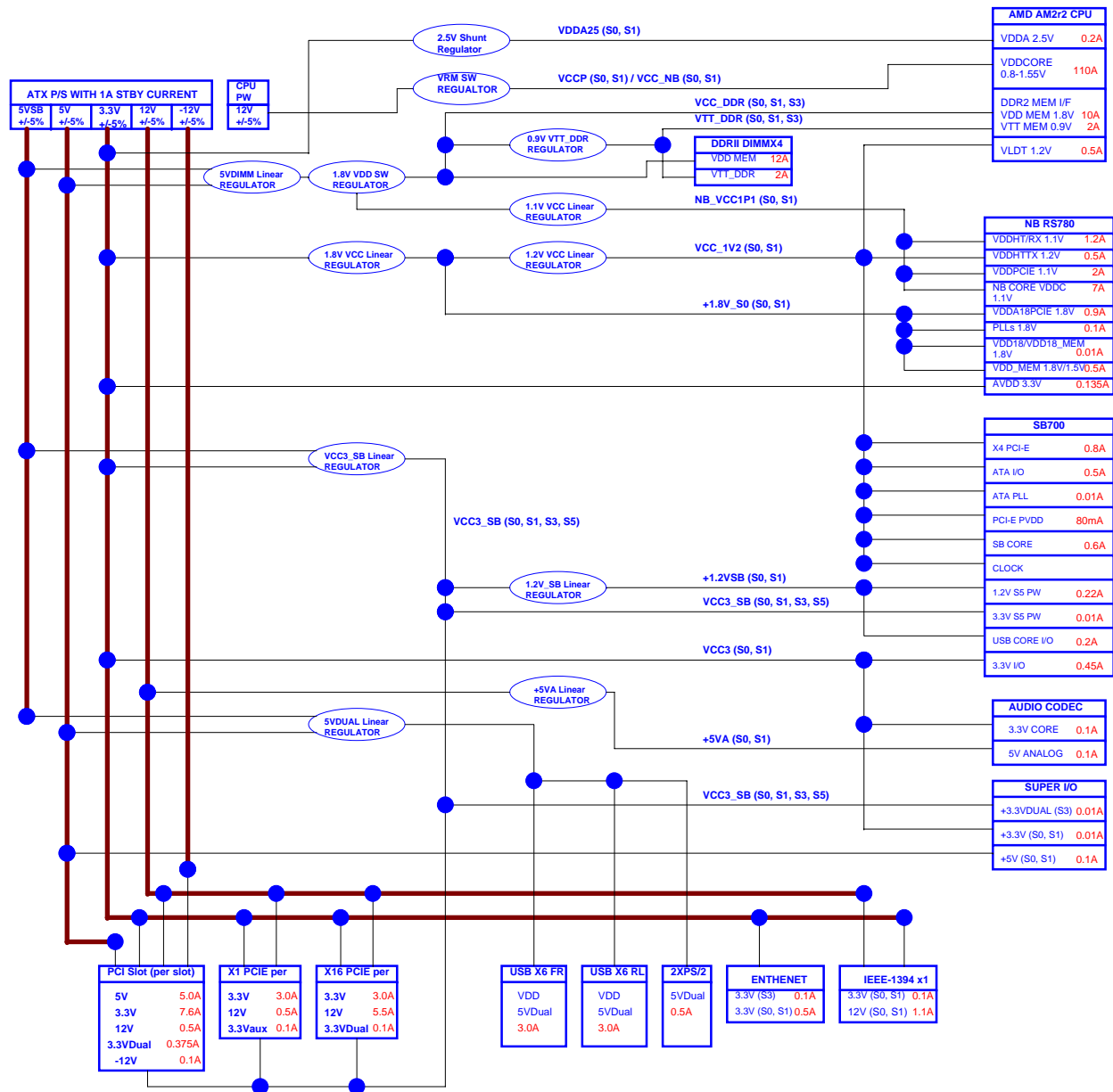
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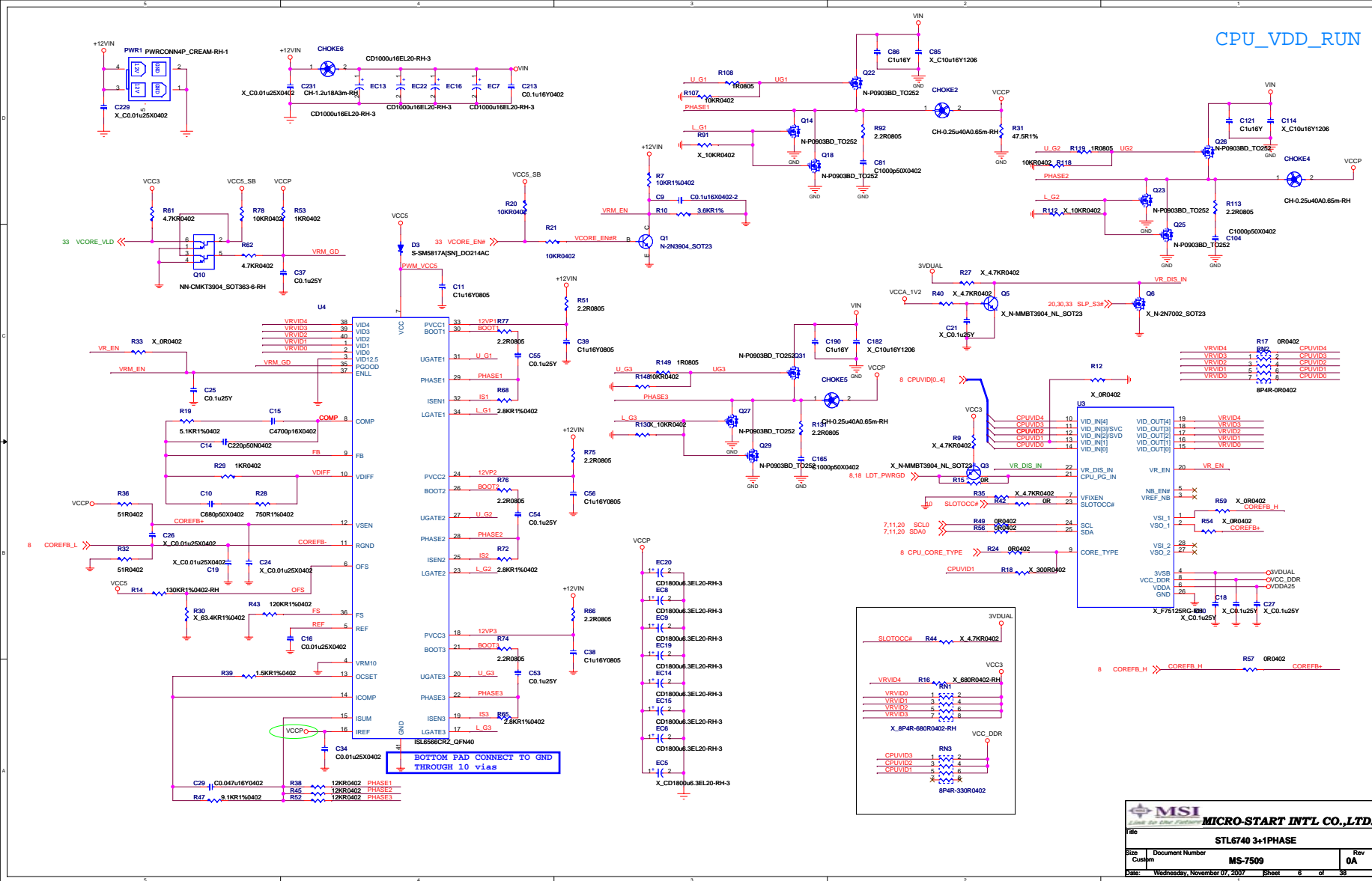
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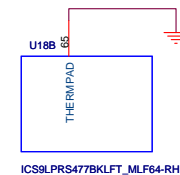
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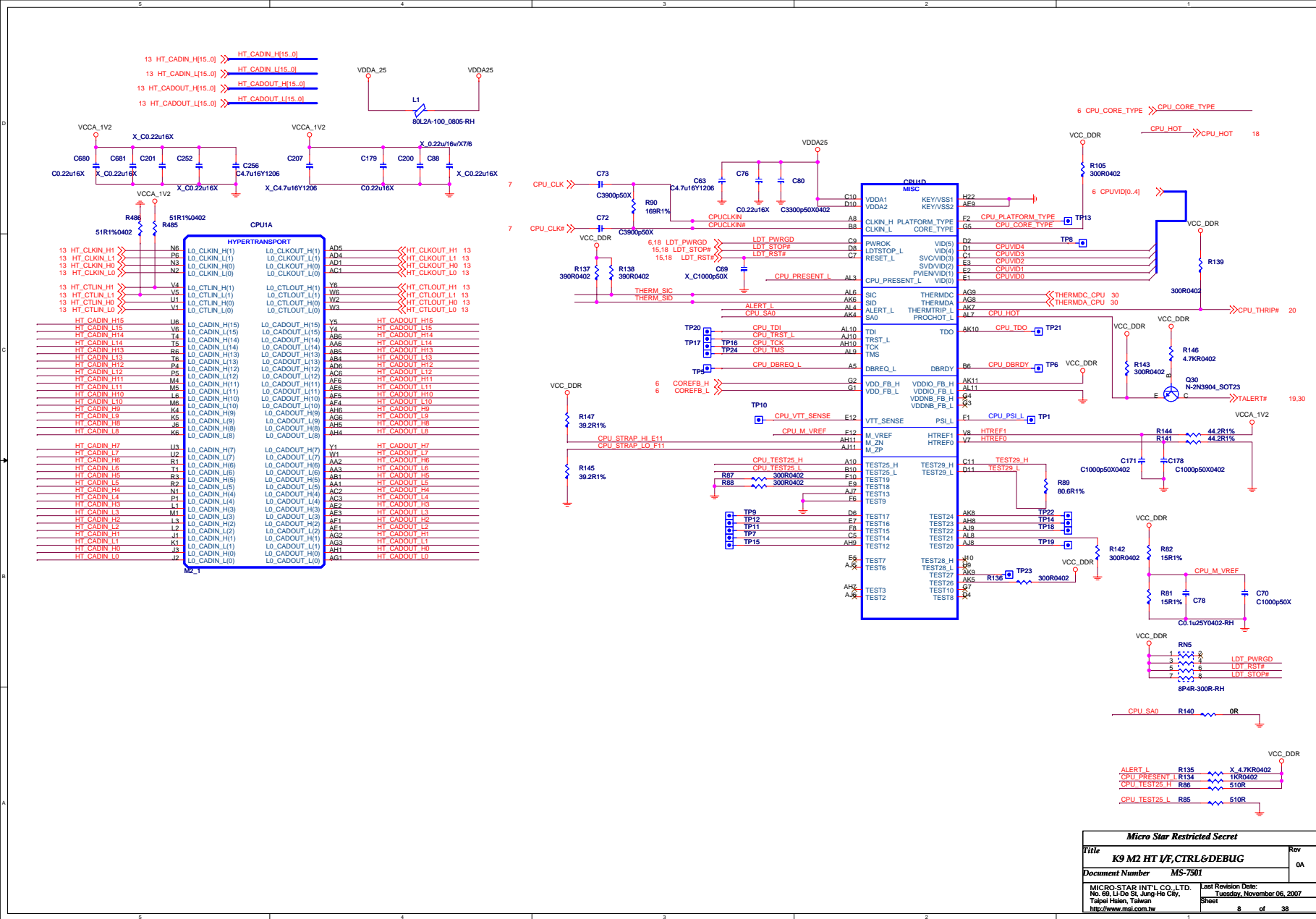
Power Deliver Chart

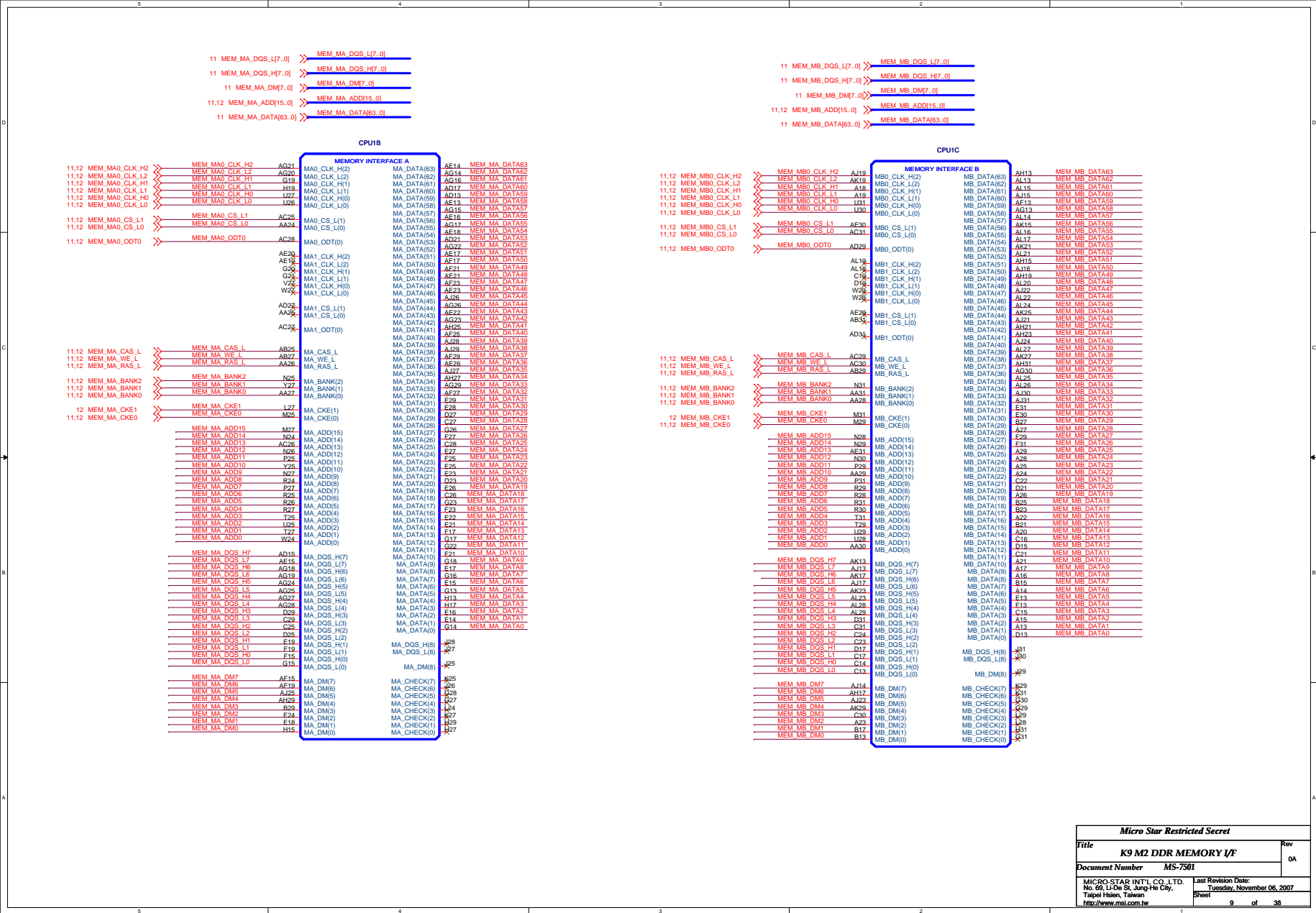


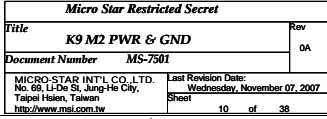




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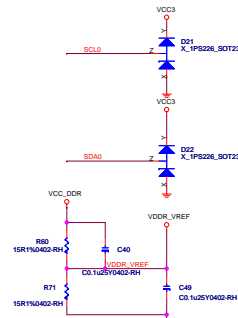
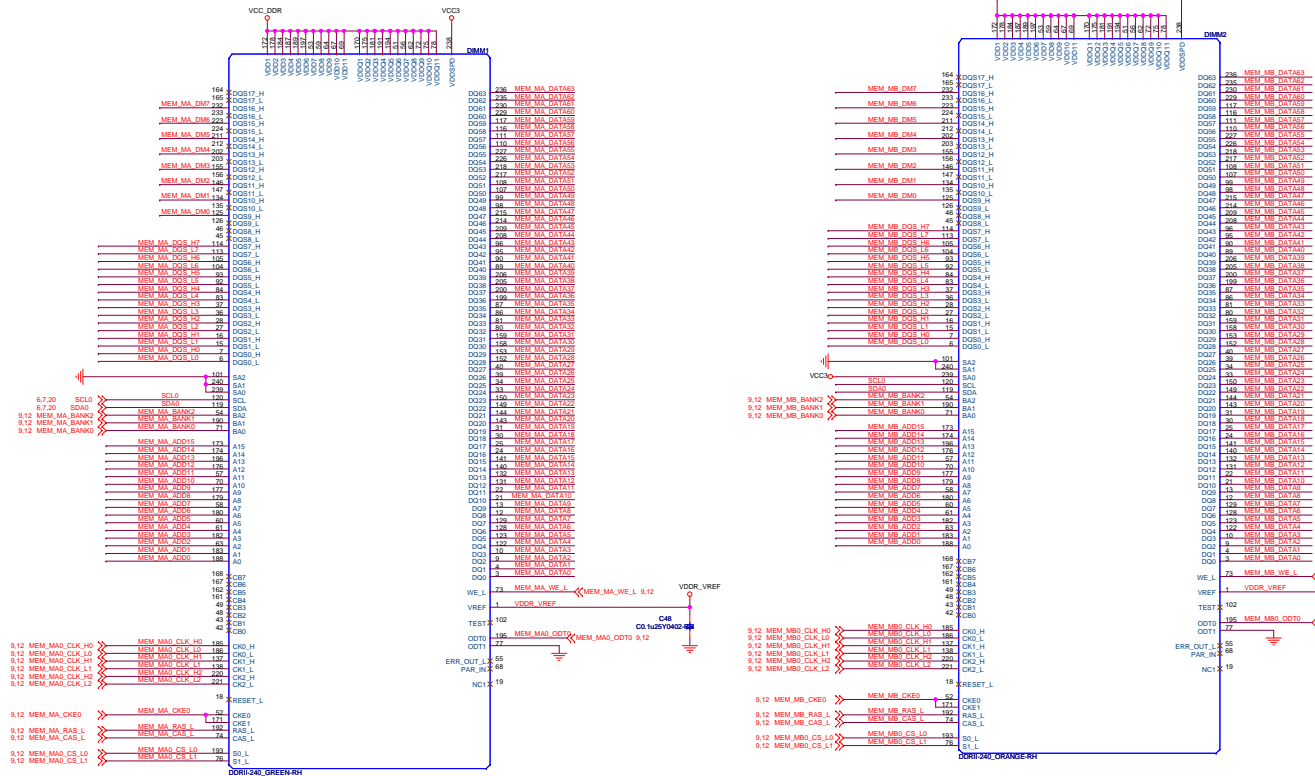




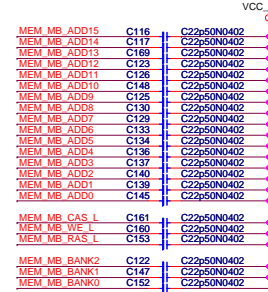
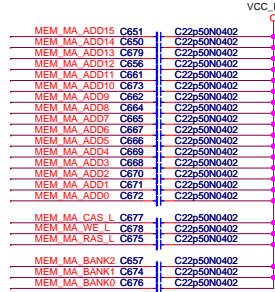
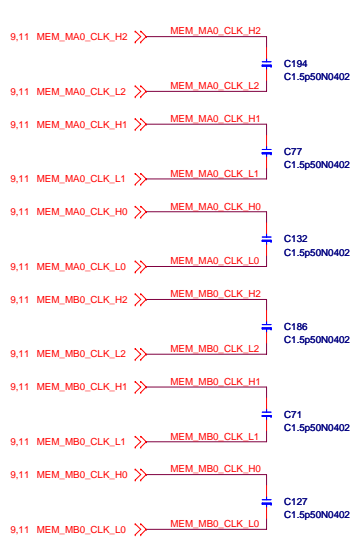


9 MEM_MA_DQS_H<7..0> MEM_MA_DQS_H<7..0>
9 MEM_MA_DQS_L<7..0> MEM_MA_DQS_L<7..0>
9 MEM_MA_DM7..0 MEM_MA_DM7..0
9.12 MEM_MA_ADD<15..0> MEM_MA_ADD<15..0>
9 MEM_MA_DATA<63..0> MEM_MA_DATA<63..0>

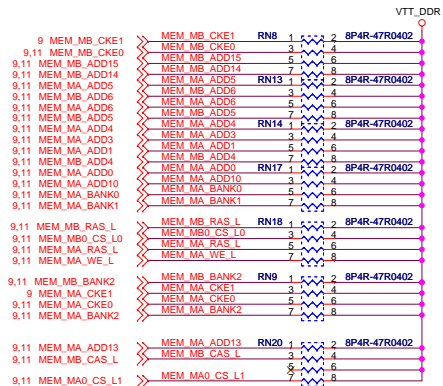
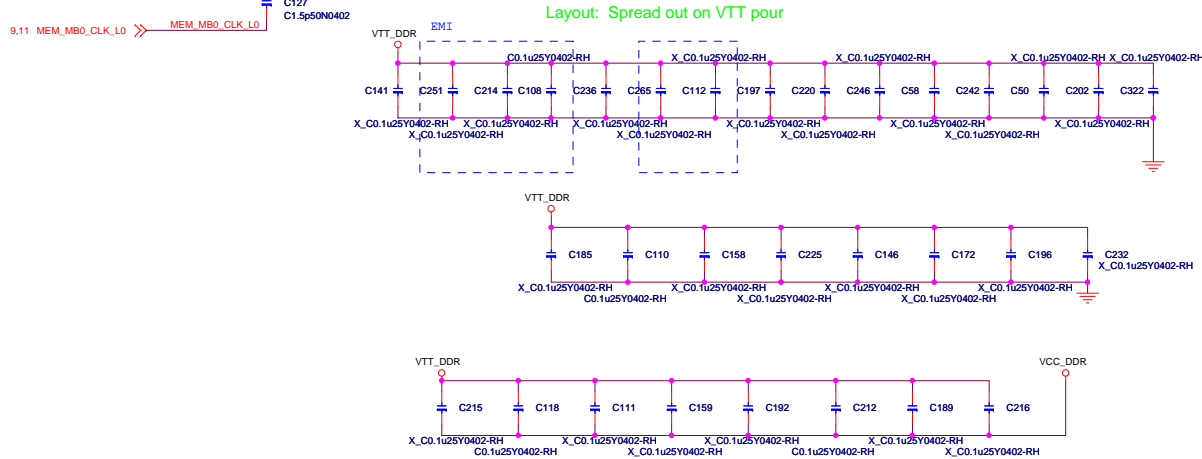
9 MEM_MB_DQS_H<7..0> MEM_MB_DQS_H<7..0>
9 MEM_MB_DQS_L<7..0> MEM_MB_DQS_L<7..0>
9 MEM_MB_DM7..0 MEM_MB_DM7..0
9.12 MEM_MB_ADD<15..0> MEM_MB_ADD<15..0>
9 MEM_MB_DATA<63..0> MEM_MB_DATA<63..0>



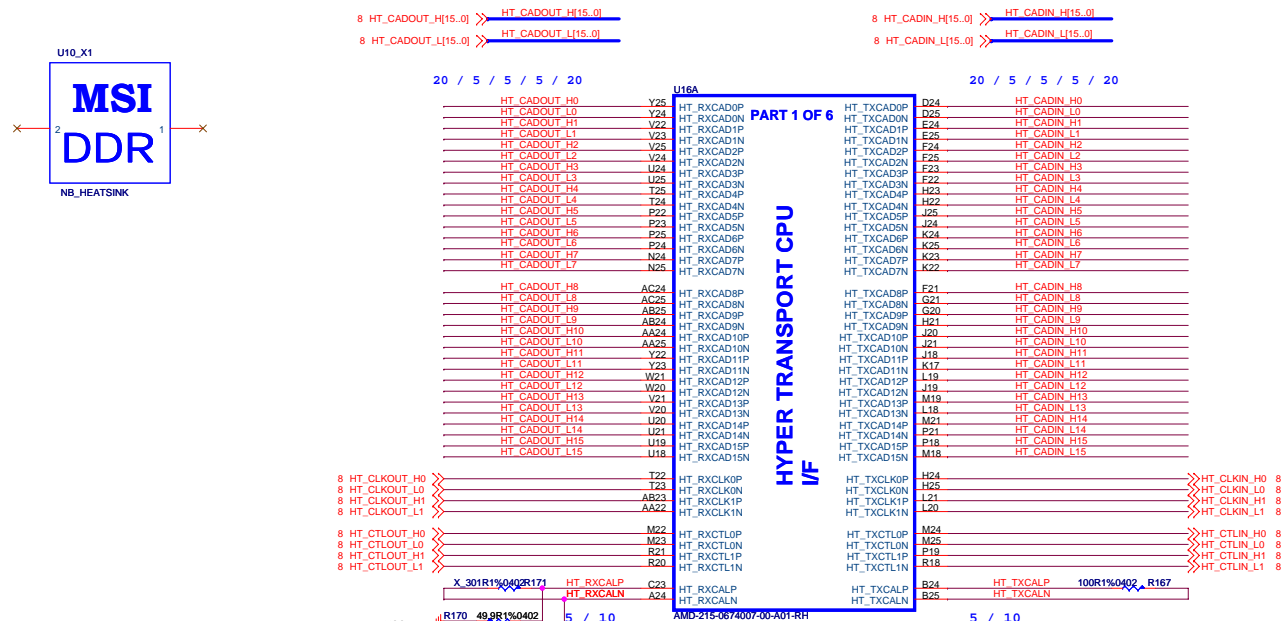
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Decoupling Between Processor and DIMMs



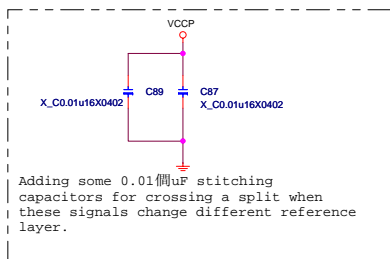
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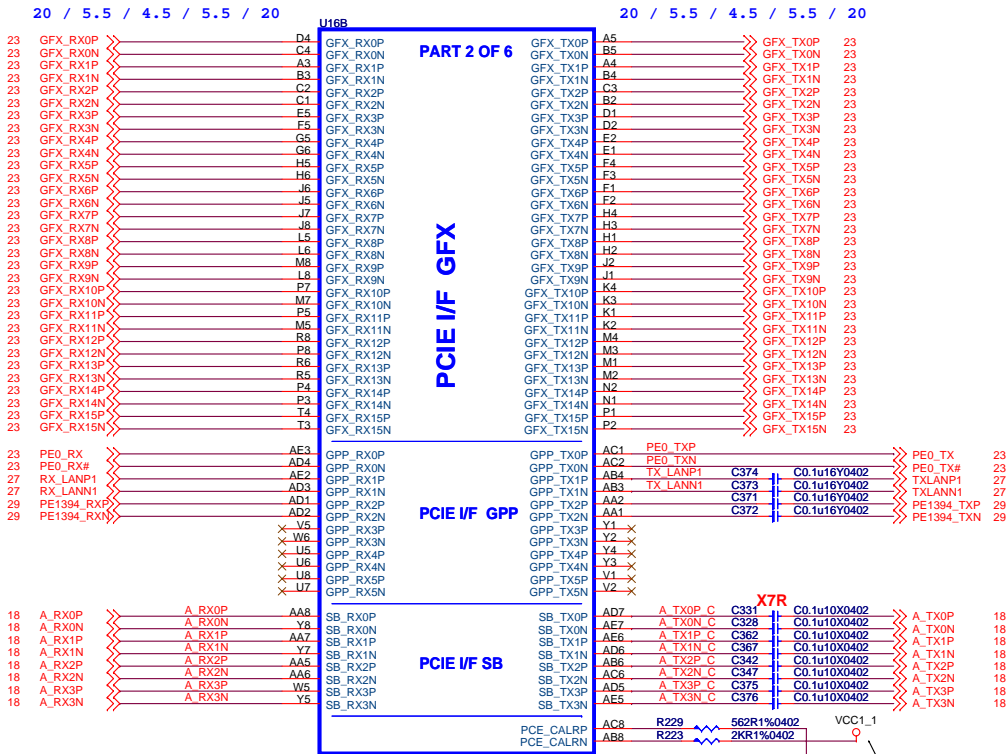
Check U10 New Version : Port Number

RX780/RS740/RS780 difference table (HT LINK)

SIGNALS	RS740	RX780	RS780
HT_RXCALP	49.9R (GND)	1.21K	301R
HT_RXCALN	49.9R (VDDHT)	1.21K	301R
HT_TXCALP	100R	1.21K	301R
HT_TXCALN			

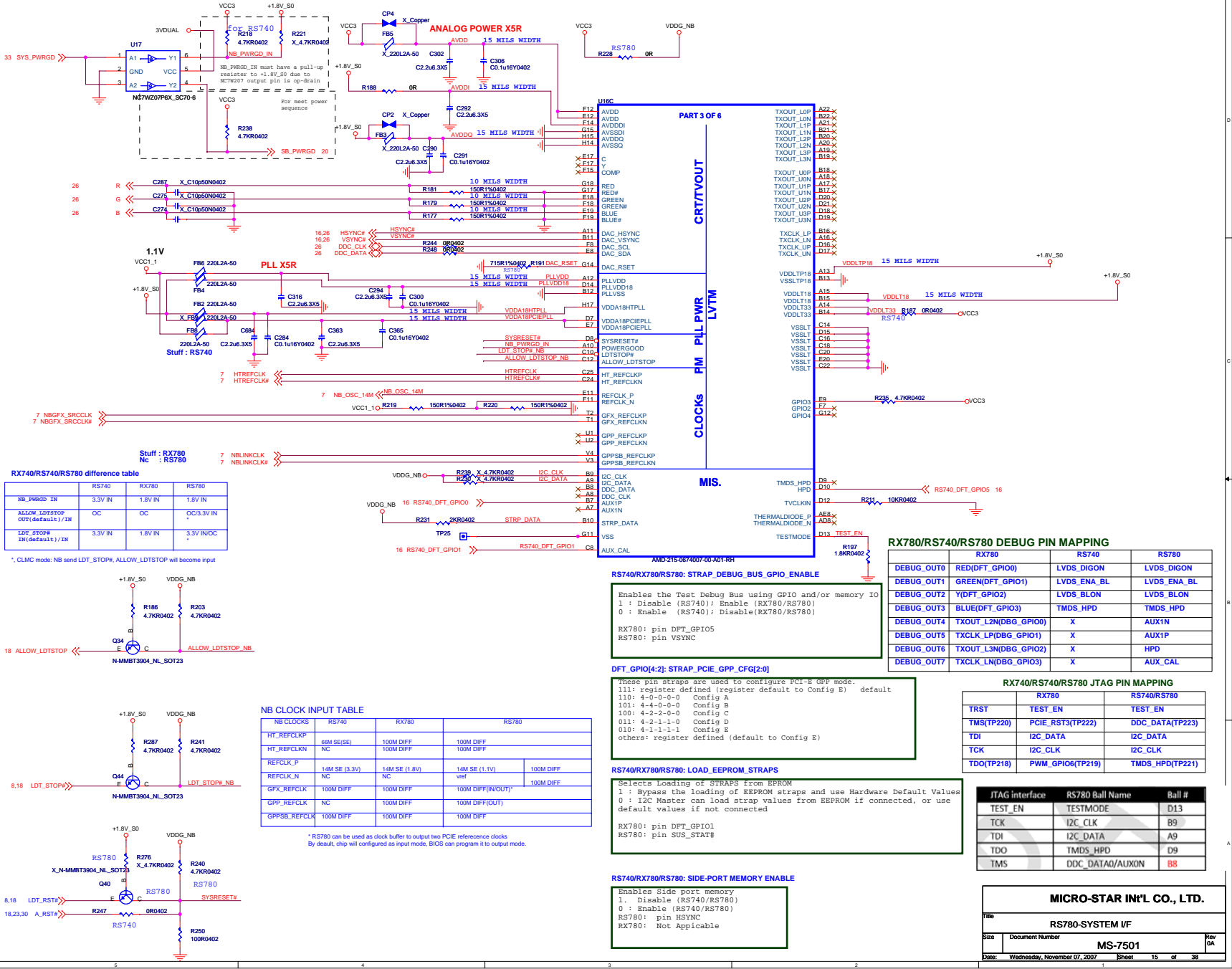


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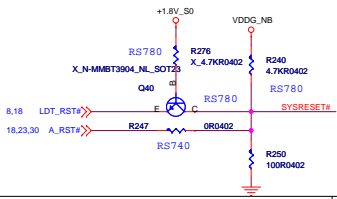
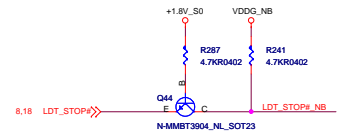
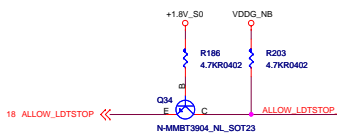


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Title			RS780-PCIE I/F
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*, CLMC mode: NB send LDT_STOP#, ALLOW_LDTSTOP will become input



NB CLOCK INPUT TABLE				
NB CLOCKS	RS740	RX780	RS780	
HT_REFCLKP	69M SE(SE)	100M DIFF	100M DIFF	
HT_REFCLKN	NC	100M DIFF	100M DIFF	
REFCLK_P	14M SE (3.3V)	14M SE (1.8V)	14M SE (1.1V)	100M DIFF
REFCLK_N	NC	NC	ref	100M DIFF
GPP_REFCLKP	100M DIFF	100M DIFF	100M DIFF(INOUT)	
GPP_REFCLK	NC	100M DIFF	100M DIFF(OUT)	
GPPSB_REFCLK	100M DIFF	100M DIFF	100M DIFF	

* RS780 can be used as clock buffer to output two PCIe reference clocks
By default, chip will configured as input mode, BIOS can program it to output mode.

RS740/RX780/RS780: STRAP_DEBUG_BUS_GPIO_ENABLE

Enables the Test Debug Bus using GPIO and/or memory IO

1 : Disable (RS740); Enable (RX780/RS780)

0 : Enable (RS740); Disable(RX780/RS780)

RX780: pin DFT_GPIO5

RS780: pin VSYNCP

DFT_GPIO[4:2]: STRAP_PCIE_GPP_CFG[2:0]

These pin straps are used to configure PCIe-GPP mode.

111: register defined (register default to Config E) default

110: 4-0-0-0-0 Config A

101: 4-4-0-0-0 Config B

100: 4-2-2-0-0 Config C

011: 4-2-1-1-0 Config D

010: 4-1-1-1-1 Config E

others: register defined (default to Config E)

RS740/RX780/RS780: LOAD_EEPROM_STRAPS

Selects Loading of STRAPS from EPROM

1 : Bypass the loading of EEPROM straps and use Hardware Default Values

0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected

RX780: pin DFT_GPIO1

RS780: pin SUS_STAT#

RS740/RX780/RS780: SIDE-PORT MEMORY ENABLE

Enables Side port memory

1: Disable (RS740/RS780)

0 : Enable (RS740/RS780)

RS780: pin HSYNCP

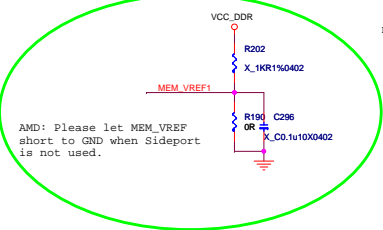
RX780: Not Applicable

RX780/RS740/RS780 DEBUG PIN MAPPING			
	RX780	RS740	RS780
DEBUG_OUT0	RED(DFT_GPIO0)	LVDS_DIGON	LVDS_DIGON
DEBUG_OUT1	GREEN(DFT_GPIO1)	LVDS_ENA_BL	LVDS_ENA_BL
DEBUG_OUT2	Y(DFT_GPIO2)	LVDS_BLOK	LVDS_BLOK
DEBUG_OUT3	BLUE(DFT_GPIO3)	TMDS_HPD	TMDS_HPD
DEBUG_OUT4	TXOUT_L2N(DBG_GPIO0)	X	AUXIN
DEBUG_OUT5	TXCLK_LP(DBG_GPIO1)	X	AUXIP
DEBUG_OUT6	TXOUT_L3N(DBG_GPIO2)	X	HPD
DEBUG_OUT7	TXCLK_LN(DBG_GPIO3)	X	AUX_CAL

RX740/RS740/RS780 JTAG PIN MAPPING		
TRST	RX780	RS740/RS780
	TEST_EN	TEST_EN
TMS(TP220)	PCIE_RST3(TP222)	DDC_DATA(TP223)
TDI	I2C_DATA	I2C_DATA
TCK	I2C_CLK	I2C_CLK
TDO(TP218)	PWM_GPIO6(TP219)	TMDS_HPD(TP221)

JTAG interface		
TEST_EN	TESTMODE	D13
TCK	I2C_CLK	B9
TDI	I2C_DATA	A9
TDO	TMDS_HPD	D9
TMS	DDC_DATA0/AUXON	B8

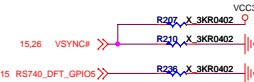
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FOR RS780,R148,R162,C203 and C202 will be populated.

RS740/RX780/RS780: LOAD_EEPROM_STRAPS

15 RS740_DFT_GPIO1 >> R243 150R0402



RS740/RX780/RS780: STRAP_DEBUG_BUS_GPIO_ENABLE

Selects Loading of STRAPS from EPROM

```
Selects Loading of STRAPS from EPROM
1 : Bypass the loading of EEPROM straps and use Hardware Default Values
0 : I2C Master can load strap values from EEPROM if connected, or use
default values if not connected
RS740: pin DFT_GPI01
```

```
RS780: pin SUS_STAT#
```

Enables the Test Debug Bus using GPIO and/or memory IO

```
Enables the Test Debug Bus using GPIO and/or memory IO
1 : Disable (RS740/RS780); Enable (RX780)
0 : Enable (RS740/RS780); Disable(RX780)
RS740: pin DFT_GPIO5
```

```
RS780: pin VSYNC
```

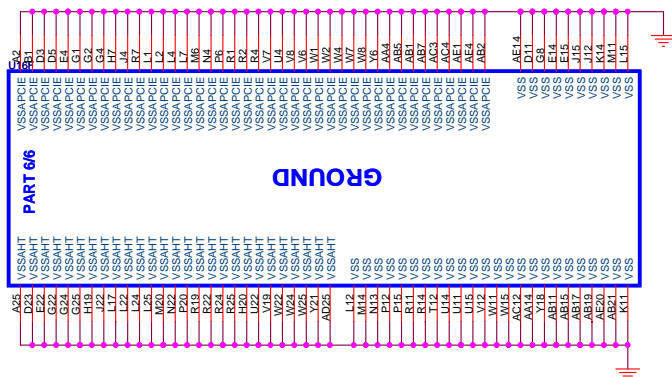
Enables Side port memory

- ```
1. Disable (RS740/RS780)
0 : Enable (RS740/RS780)
RS740: pin DFT_GPIO0
RS780: pin HSYNC
```

```
Enables Test debug bus
using PCIE bus
1. Disable (can be enabled
 thru nbcfg register)
0 : Enable
```

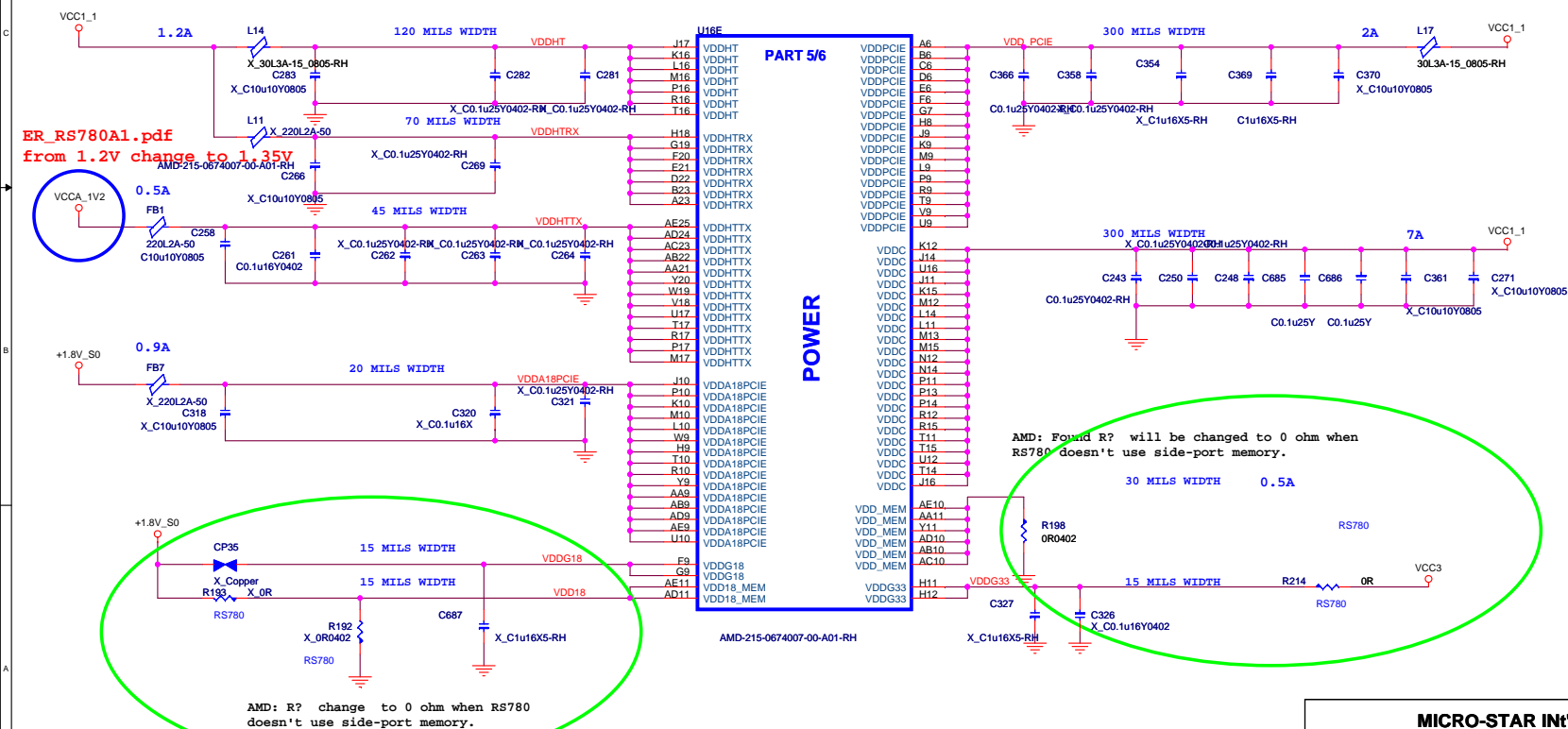
```
RS780: configurable thru register
 setting only
RS740: Not supported
```





### RS740/RX780/RS780 POWER DIFFERENCE TABLE

| PIN NAME   | RS740      | RX780 | RS780      | PIN NAME      | RS740 | RX780 | RS780 |
|------------|------------|-------|------------|---------------|-------|-------|-------|
| VDDHT      | NC         | +1.1V | +1.1V      | IOPLLVD       | +1.2V | NC    | +1.1V |
| VDDHTRX    | NC         | +1.1V | +1.1V      | AVDD          | +3.3V | NC    | +3.3V |
| VDDHTX     | +1.2V      | +1.2V | +1.2V      | AVDDDI        | +1.8V | NC    | +1.8V |
| VDDA18PCIE | NC         | +1.8V | +1.8V      | AVDDQ         | +1.8V | NC    | +1.8V |
| VDD18      | +1.8V      | +1.8V | +1.8V      | PLLVD         | +1.2V | NC    | +1.1V |
| VDD18_MEM  | NC         | NC    | +1.8V      | PLLVD18       | +1.8V | NC    | +1.8V |
| VDDPCIE    | +1.2V      | +1.1V | +1.1V      | VDDA18PCIEPLL | +1.2V | +1.8V | +1.8V |
| VDDC       | +1.2V      | +1.1V | +1.1V      | VDDA18HTPLL   | +1.8V | +1.8V | +1.8V |
| VDD_MEM    | +1.8V/1.5V | NC    | +1.8V/1.5V | VDDLT18       | +1.8V | NC    | +1.8V |
| VDD33      | +3.3V      | NC    | +3.3V      | VDDL13        | +1.8V | NC    | +1.8V |
| IOPLLVD18  | +1.8V      | NC    | +1.8V      | VDDL23        | +3.3V | NC    | NC    |



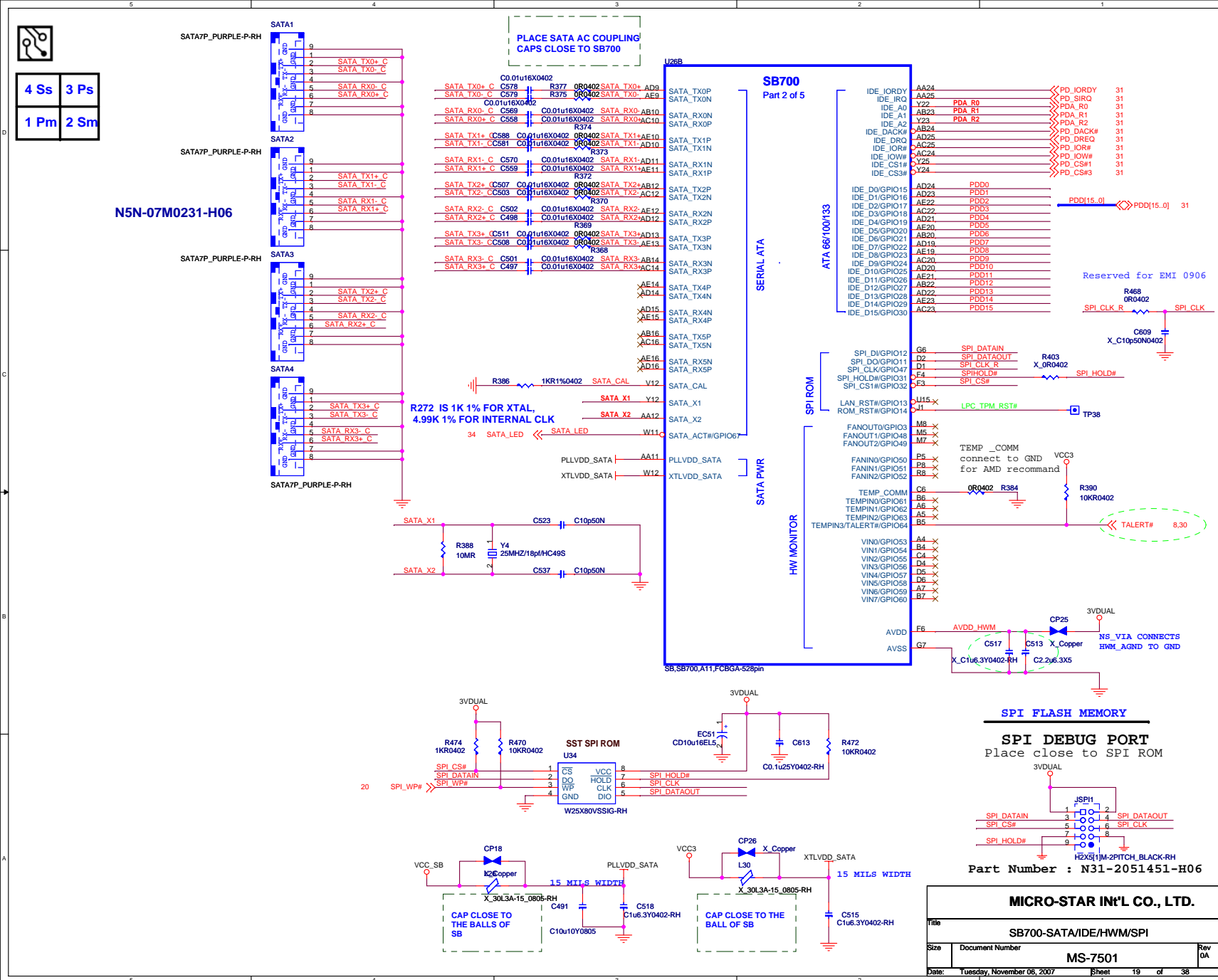
**MICRO-STAR INT'L CO., LTD.**

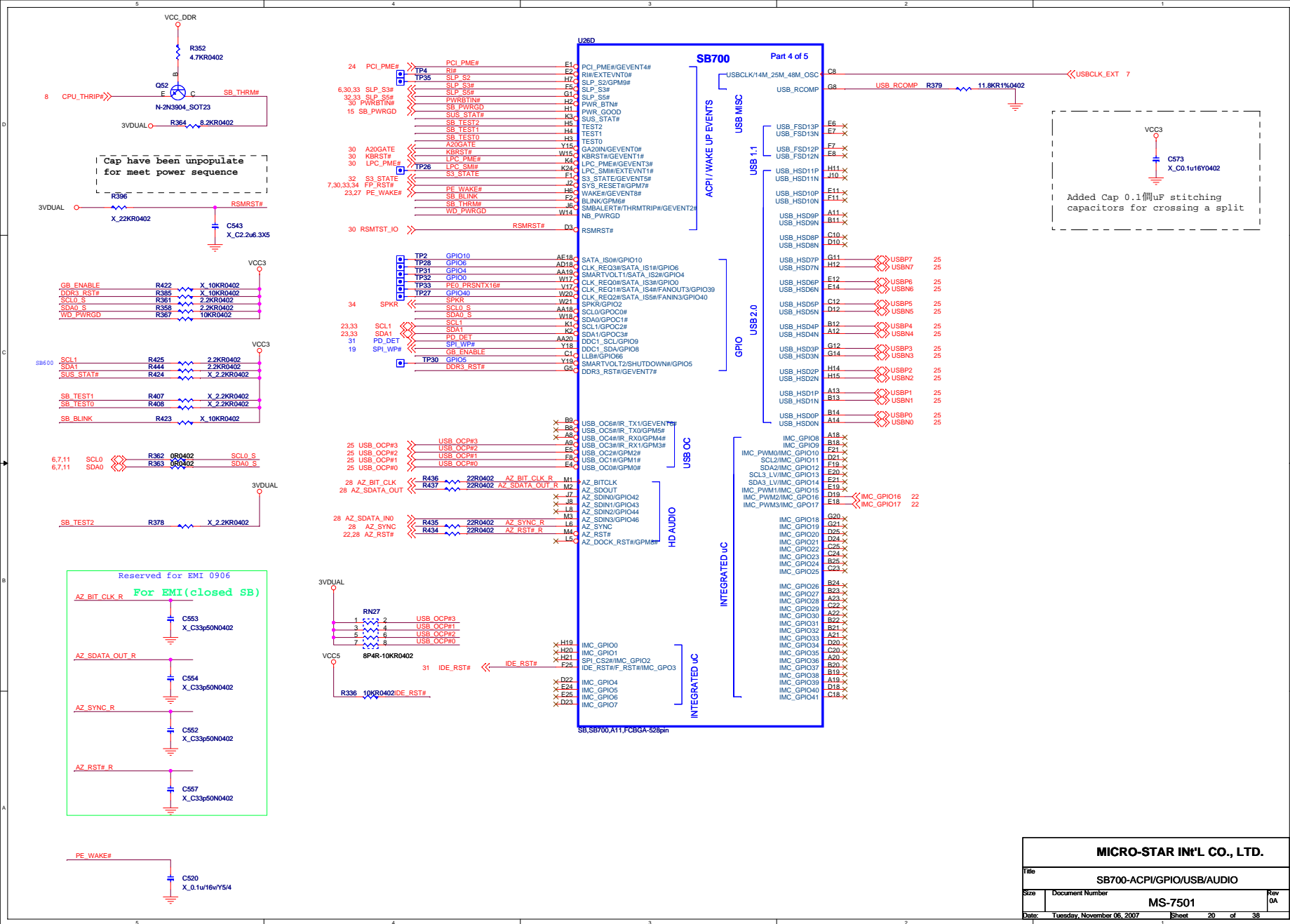
|       |             |
|-------|-------------|
| Title | RS780-POWER |
|-------|-------------|

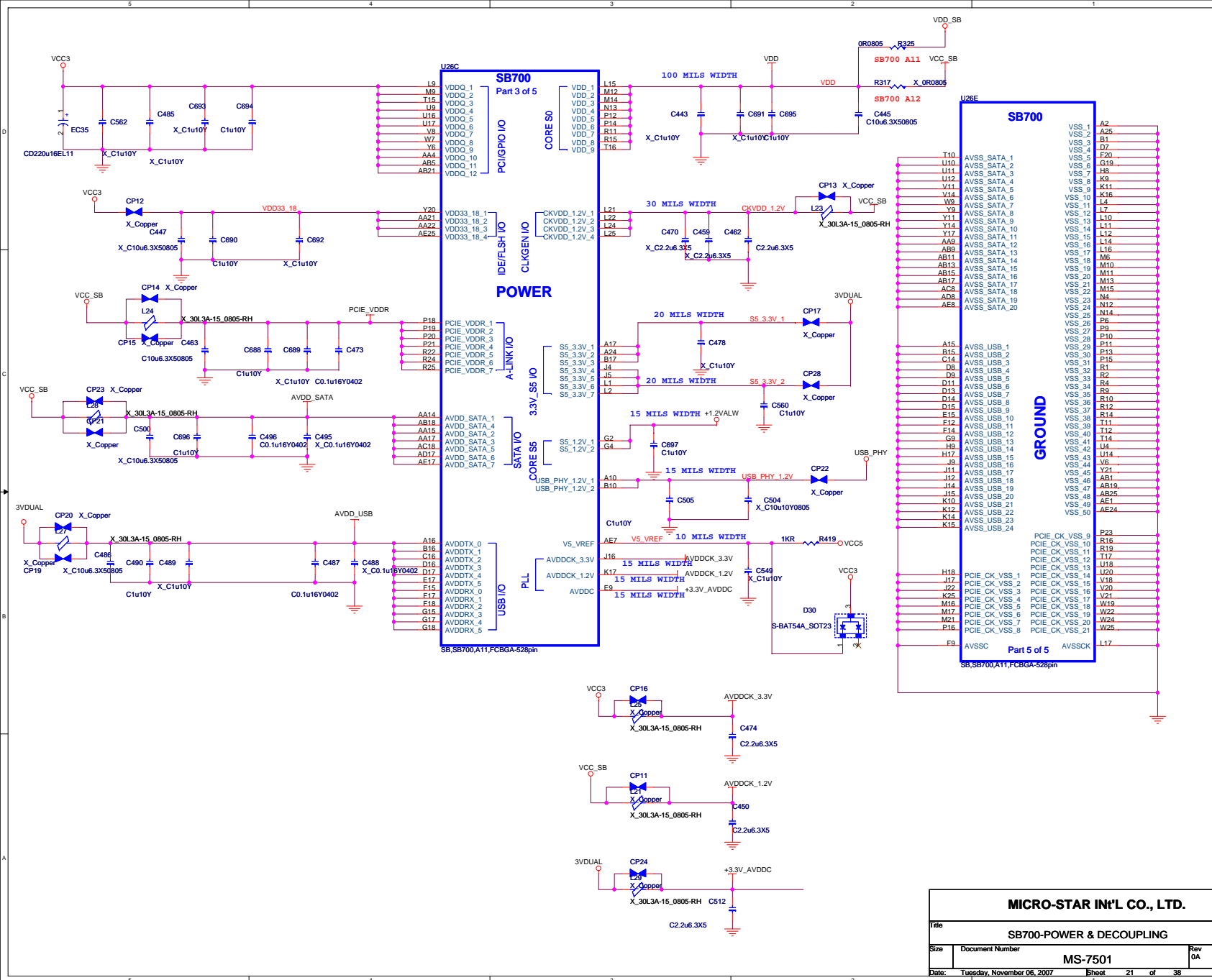
|      |                 |
|------|-----------------|
| Size | Document Number |
|      | MS-7501         |

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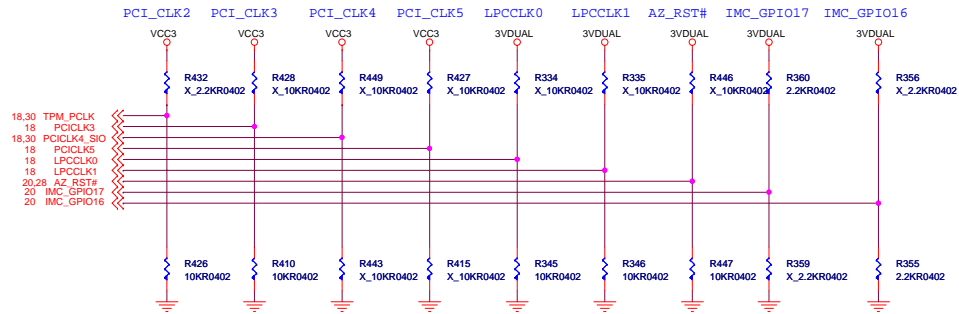






## REQUIRED STRAPS

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



|           | PCI_CLK2                                           | PCI_CLK3                           | PCI_CLK4 | PCI_CLK5 | LPC_CLK0                            | LPC_CLK1                       | AZ_RST#                     | IMC_GPIO17                                                    | IMC_GPIO16                       |
|-----------|----------------------------------------------------|------------------------------------|----------|----------|-------------------------------------|--------------------------------|-----------------------------|---------------------------------------------------------------|----------------------------------|
| PULL HIGH | WATCHDOG TIMER ON NB_PWRGD ENABLED                 | USE DEBUG STRAPS                   | RESERVED | RESERVED | ENABLE PCI MEM BOOT                 | CLKGEN ENABLED                 | IMC ENABLED                 | ROM TYPE:<br>H, H = Reserved<br>H, L = SPI ROM <b>DEFAULT</b> |                                  |
| PULL LOW  | WATCHDOG TIMER ON NB_PWRGD DISABLED <b>DEFAULT</b> | IGNORE DEBUG STRAPS <b>DEFAULT</b> |          |          | DISABLE PCI MEM BOOT <b>DEFAULT</b> | CLKGEN DISABLED <b>DEFAULT</b> | IMC DISABLED <b>DEFAULT</b> |                                                               | L, H = LPC ROM<br>L, L = FWH ROM |

## DEBUG STRAPS

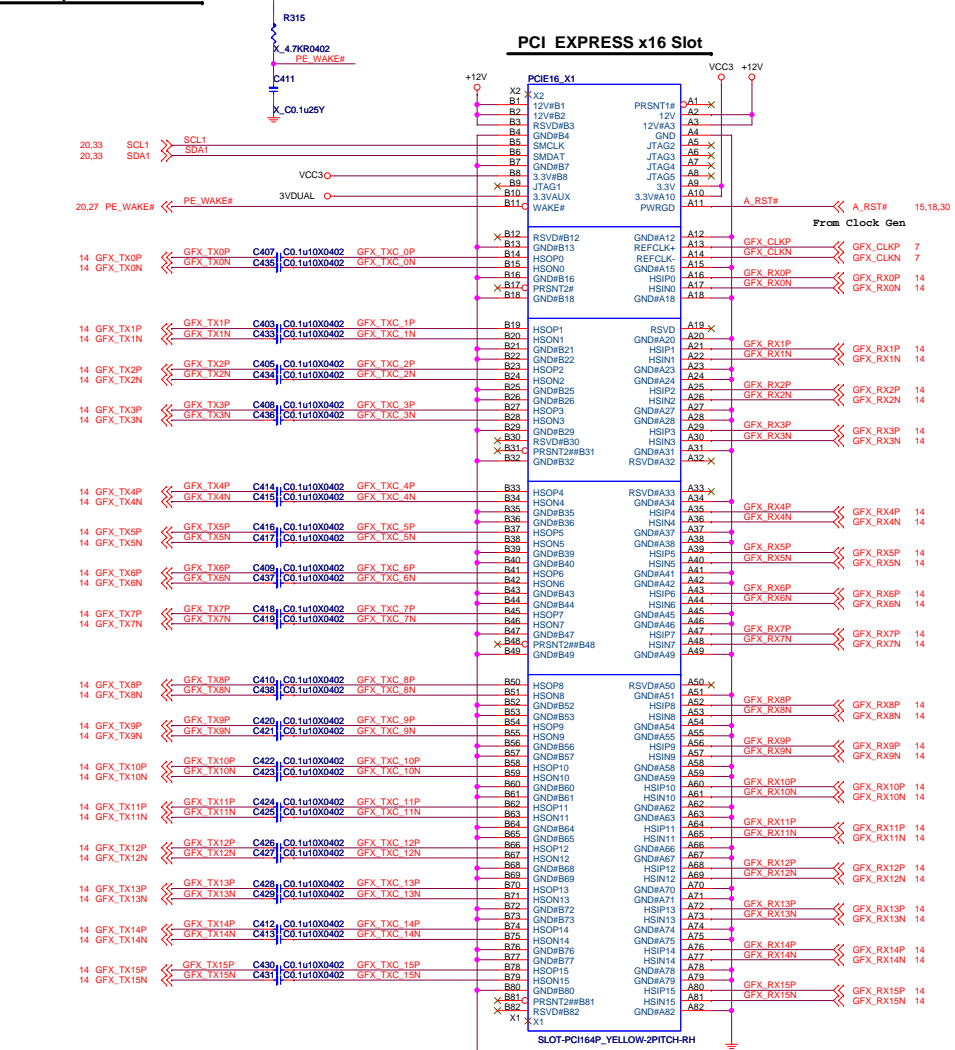
SB700 HAS 15K INTERNAL PU FOR PCI\_AD[30:23]

|           | PCI_AD28                      | PCI_AD27                   | PCI_AD26                     | PCI_AD25                   | PCI_AD24                               | PCI_AD23 |
|-----------|-------------------------------|----------------------------|------------------------------|----------------------------|----------------------------------------|----------|
| PULL HIGH | USE LONG RESET <b>DEFAULT</b> | USE PCI PLL <b>DEFAULT</b> | USE ACPI BCLK <b>DEFAULT</b> | USE IDE PLL <b>DEFAULT</b> | USE DEFAULT PCIE STRAPS <b>DEFAULT</b> | RESERVED |
| PULL LOW  | USE SHORT RESET               | BYPASS PCI PLL             | BYPASS ACPI BCLK             | BYPASS IDE PLL             | USE EEPROM PCIE STRAPS                 |          |

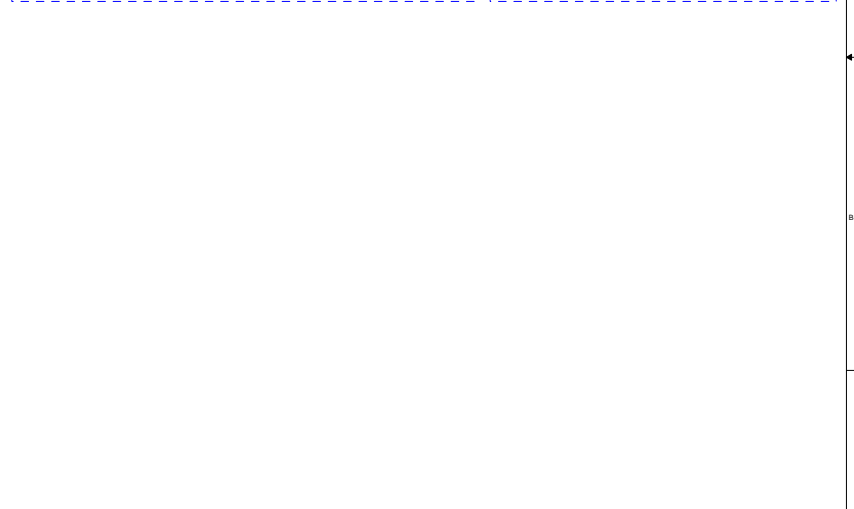
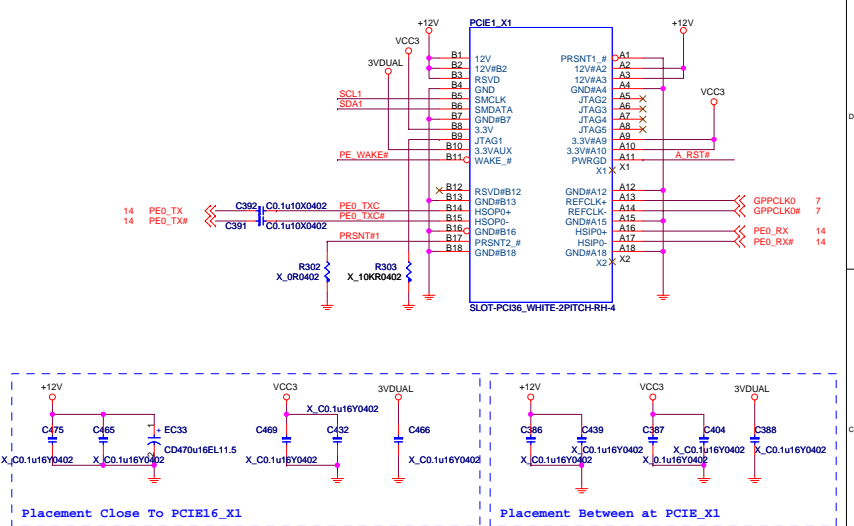
MICRO-STAR INT'L CO., LTD.

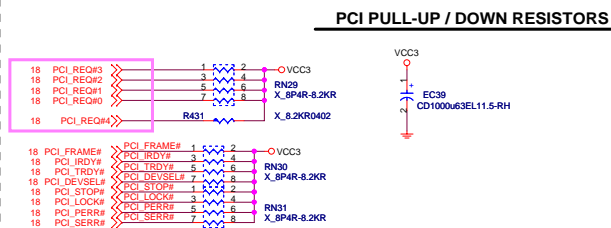
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| Title |                            |  | SB700-STRAPS |    |        |
| Size  | Document Number            |  |              |    | Rev 0A |
|       | MS-7501                    |  |              |    |        |
| Date: | Tuesday, November 06, 2007 |  | Sheet        | 22 | of 38  |

PCI Express Slot x16/x1



PCI EXPRESS 1 Slot-1



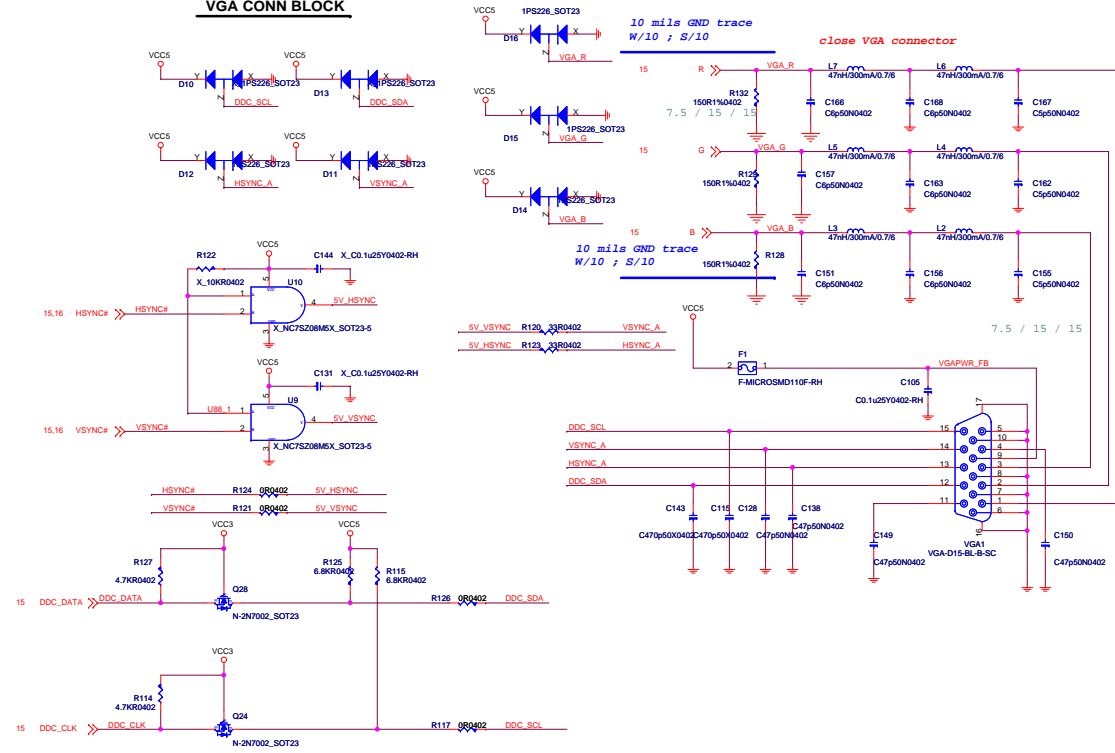


|                                                                                                                                                    |  |                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|
| <b>Title</b> PCI Slot 1 2                                                                                                                          |  | <b>Rev</b>                                                                        |
| <b>Document Number</b> MS-7501                                                                                                                     |  | 0A                                                                                |
| MICRO-STAR INT'L CO., LTD.<br>No. 69, Li-De St, Jung-Ho City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |  | <b>Last Revision Date:</b><br>Tuesday, November 06, 2007<br><b>Sheet</b> 24 of 38 |





# VGA CONN BLOCK

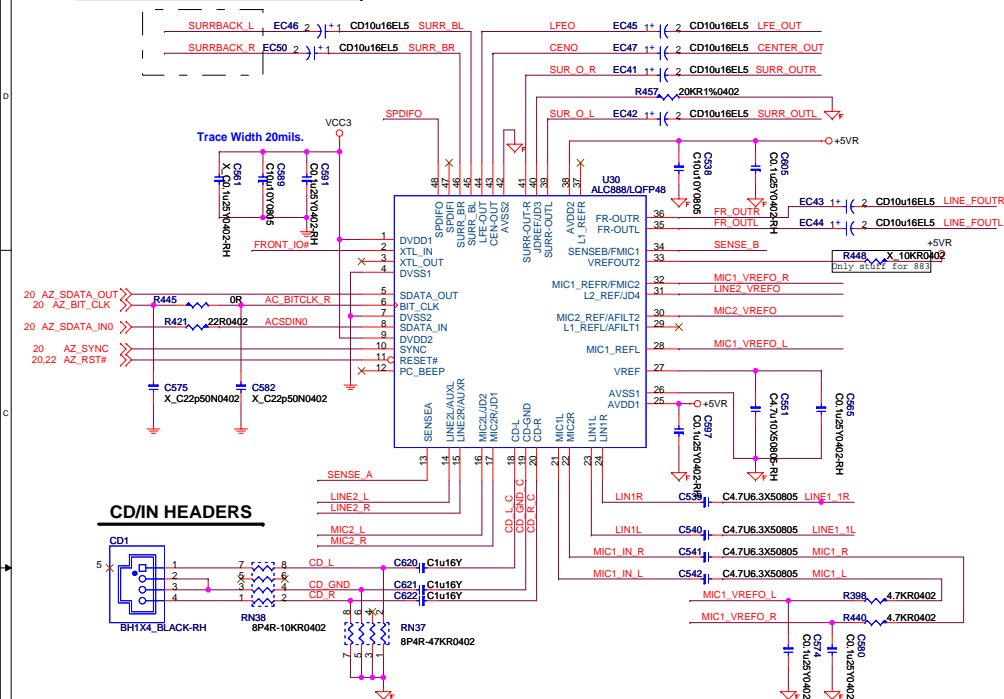


| MICRO-STAR INT'L CO., LTD. |                            |                |
|----------------------------|----------------------------|----------------|
| Title                      |                            |                |
| VGA CONN / TVOUT           |                            |                |
| Size                       | Document Number            | Rev            |
|                            | MS-7501                    | 0A             |
| Date                       | Tuesday, November 06, 2007 | Sheet 26 of 38 |

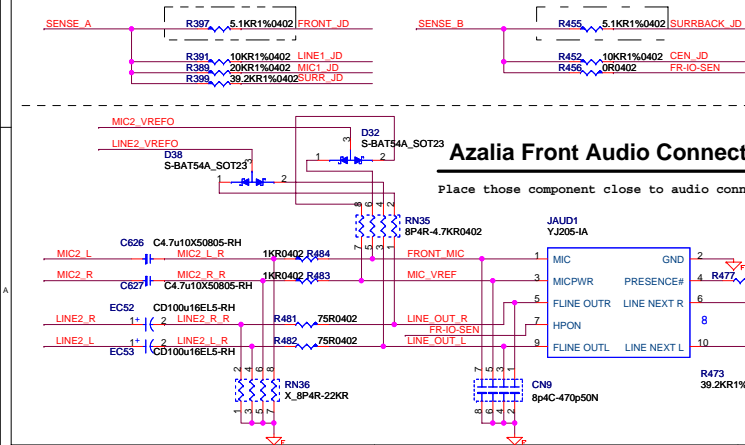


## ALC888 CODEC

883 :B09-LC88304-R09  
888: B09-LC88804-R09  
861D:B09-LC86124-R09

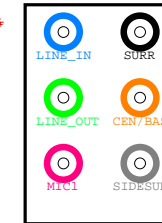
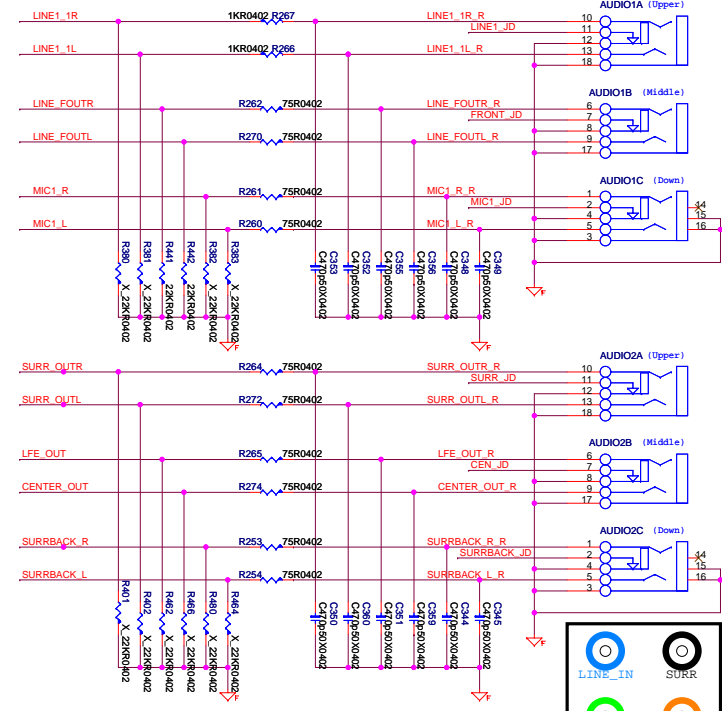
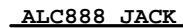


ALC883 JACK DETECT



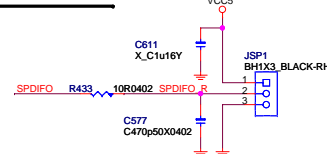
## <sup>23</sup> Azalia Front Audio Connector

Place those component close to audio connector.

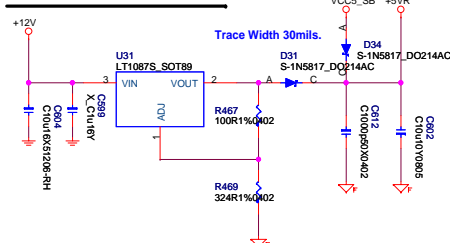


PN:N54-26F0151-S42

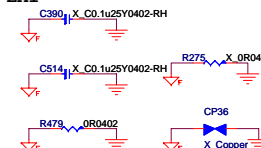
## SPDIF\_OUT



## AUDIO CODE REGULATORS



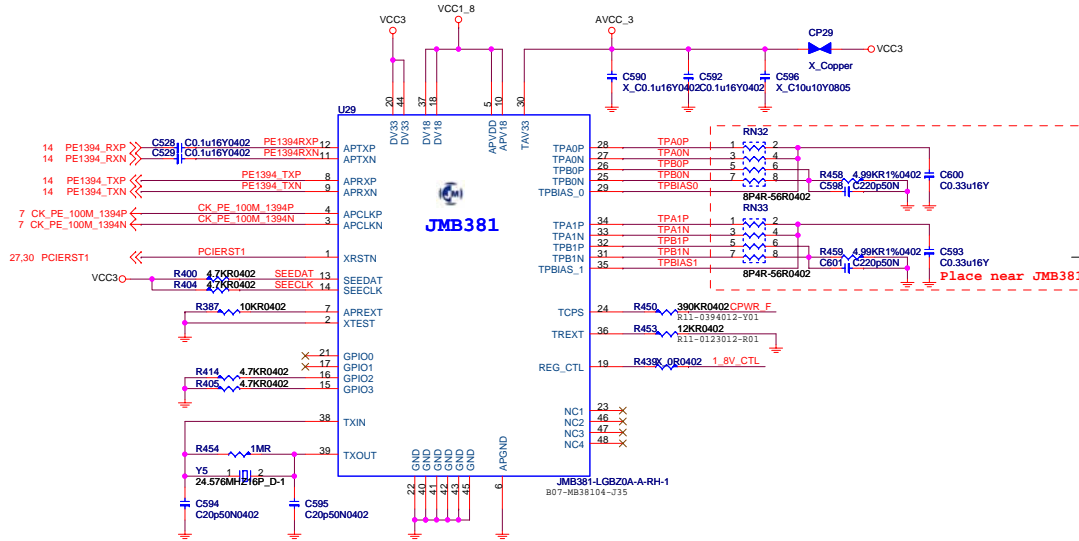
For EMI



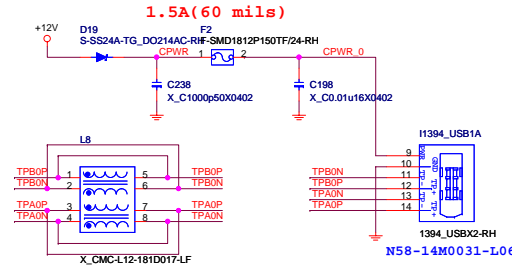
**MICRO-STAR INT'L CO., LTD.**

|       |  |                            |  |                            |  |          |  |
|-------|--|----------------------------|--|----------------------------|--|----------|--|
| Title |  |                            |  | ALC888 CO-LAY ALC883 CODEC |  |          |  |
| Size  |  | Document Number            |  |                            |  | Rev      |  |
|       |  | MS-7379                    |  |                            |  | 3.0      |  |
| Date: |  | Tuesday, November 06, 2007 |  | Sheet                      |  | 28 of 38 |  |

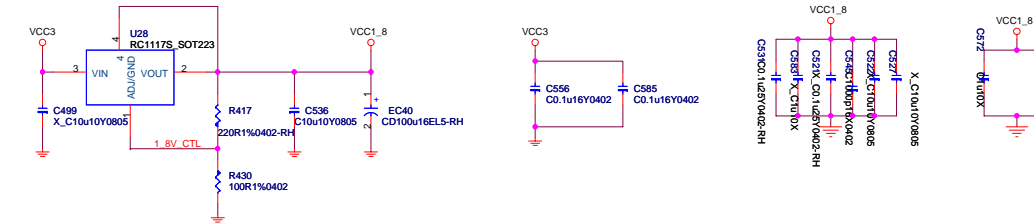
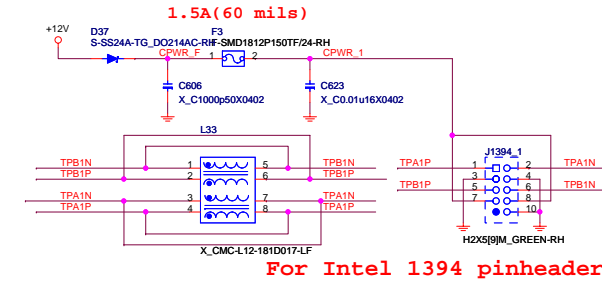
# JMICRON JMB381



## Rear 1394 port



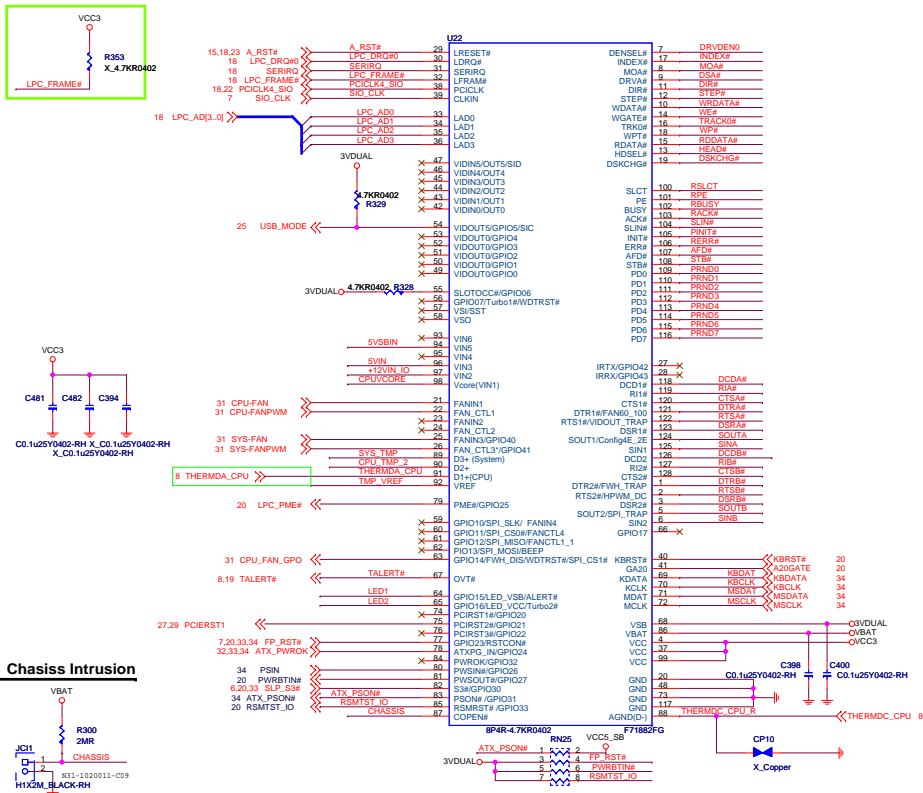
## Front 1394 pin header



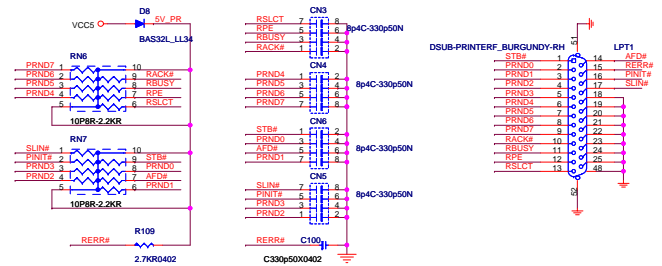
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| Title        | <Title>                    | Rev   | <Rev>    |
| Size         | Document Number            | Rev   | <Rev>    |
| Customer Doc |                            | Rev   | <Rev>    |
| Date         | Tuesday, November 06, 2007 | Sheet | 29 of 38 |

# Super I/O

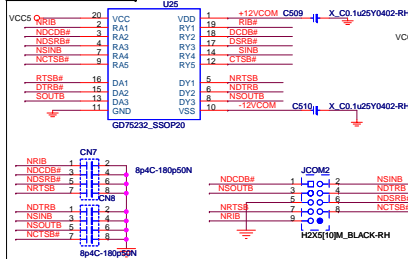
## LPC SUPER I/O F71882



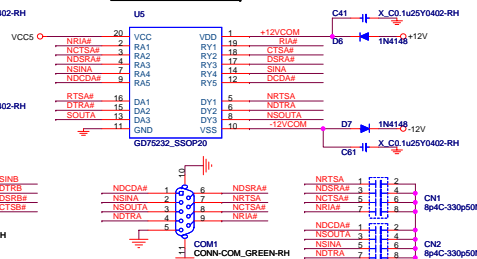
## PARALLEL PORT



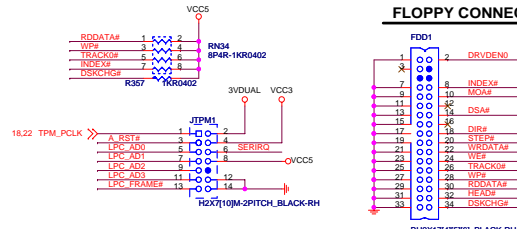
## SERIAL PORT 2



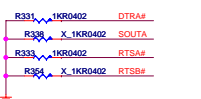
## SERIAL PORT 1



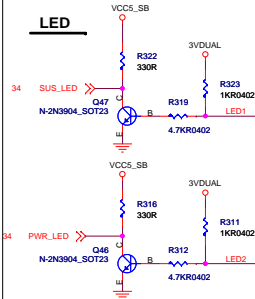
## FLOPPY CONNECTOR



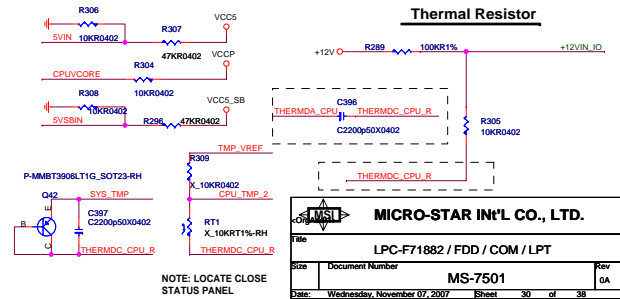
## LPC I/O STRAPPING RESISTOR



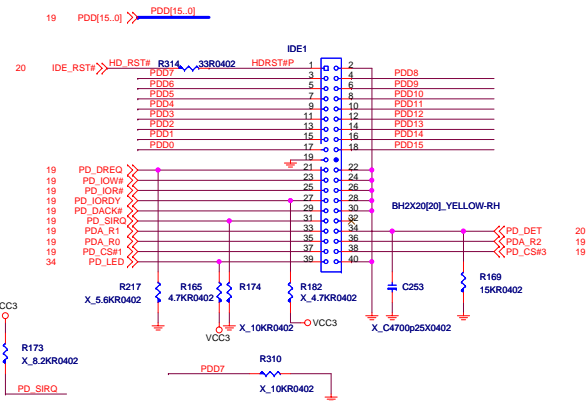
## LED



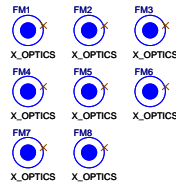
## Thermal Resistor



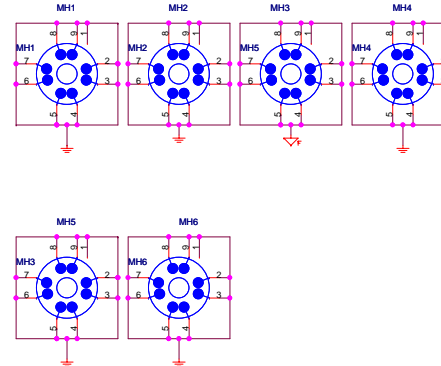
## IDE 1



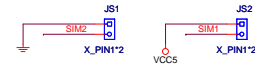
## Optics Orientation Holes



## Mounting Holes



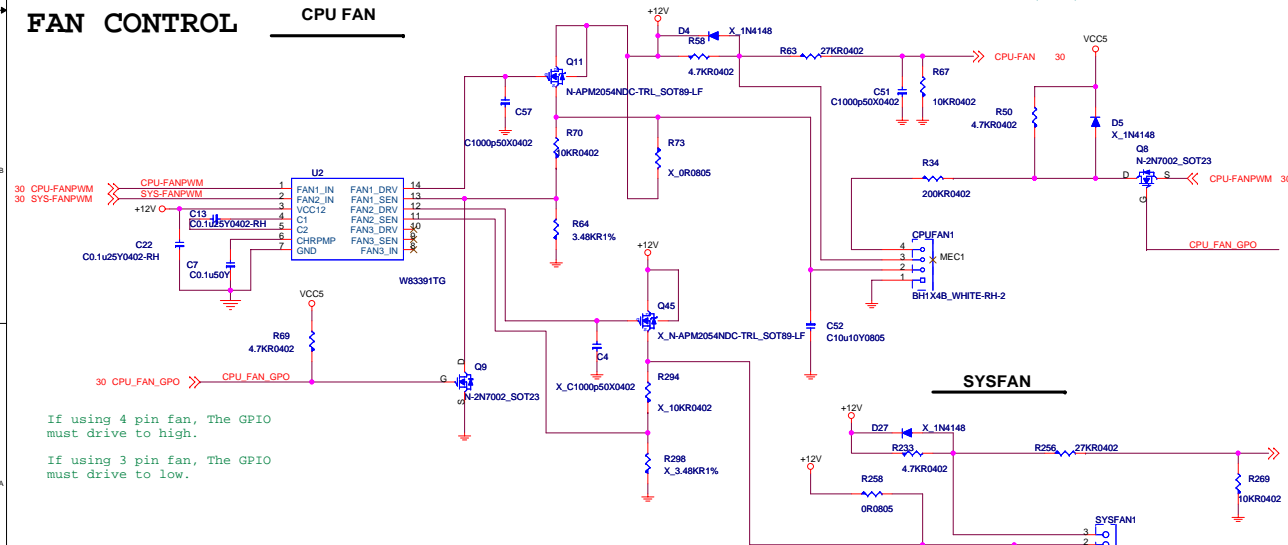
## Simulation



If using 3 pin fan, The Q40 will turn off to avoid the VCC5(R527) bias to CPU-FANPWM.

## FAN CONTROL

### CPU FAN

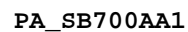


### SYSFAN

If using 4 pin fan, The GPIO must drive to high.

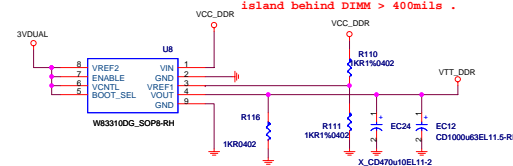
If using 3 pin fan, The GPIO must drive to low.

| Micro Star Restricted Secret                                                                                                                         |                |                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------|
| Title                                                                                                                                                | IDE Conn / FAN | Rev                                                                    |
| Document Number                                                                                                                                      | MS-7501        | 0A                                                                     |
| MICRO-STAR INT'L CO., LTD.<br>No. 88, LIDEN St., Jung-Hsi City,<br>Taipei Hsien, Taiwan<br><a href="http://www.msi.com.tw">http://www.msi.com.tw</a> |                | Last Revision Date:<br>Tuesday, November 06, 2007<br>Sheet<br>31 of 38 |



R539 has been un-populated and R541 has been populated for U32 heat.

To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .



***NB\_V1\_1***

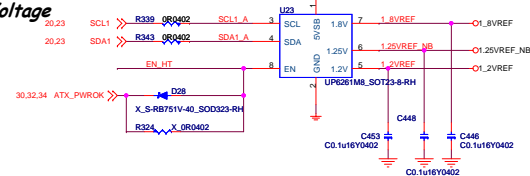
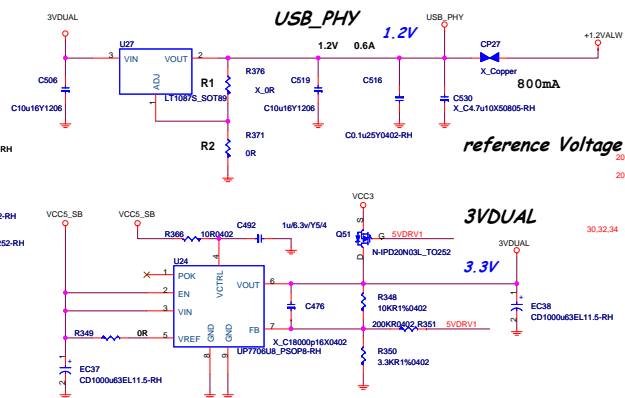
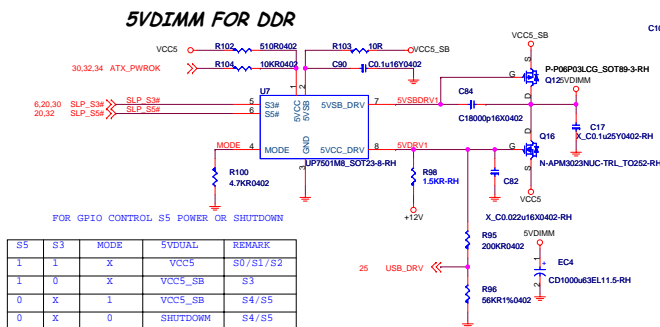
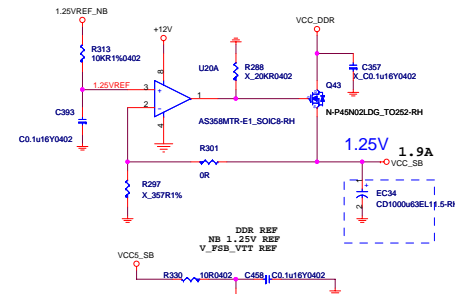
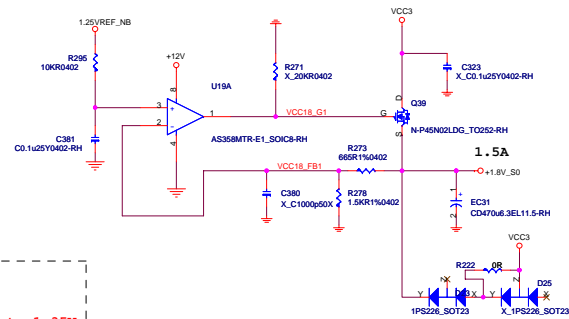
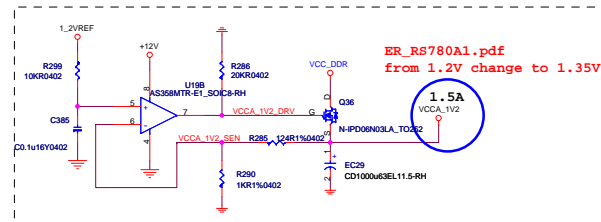
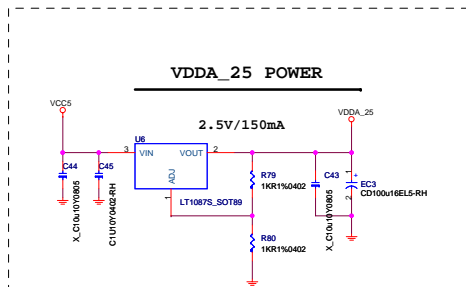
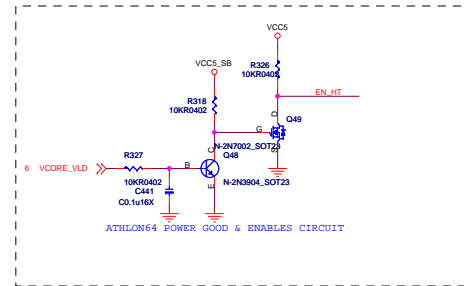
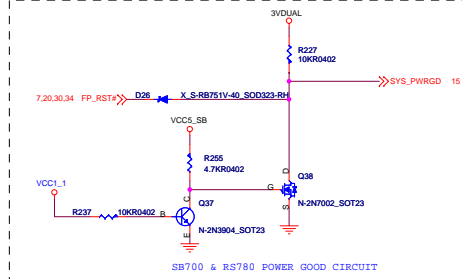
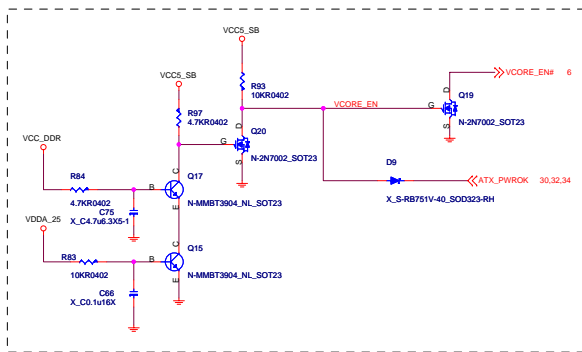
16A

**VCC\_DDR**

**10A**

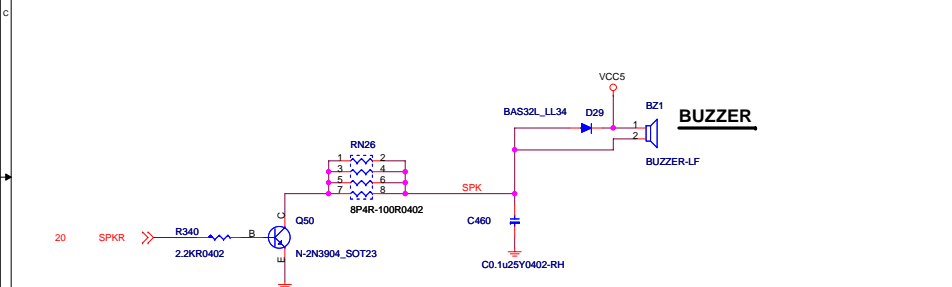
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|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------|
| <b>Micro Star Restricted Secret</b>                                                                                                               |                   |                                                                     |
| <b>Title</b>                                                                                                                                      | VCC_DDR&VCC1_1 NB | Rev                                                                 |
| <b>Document Number</b>                                                                                                                            | MS-7501           | 0A                                                                  |
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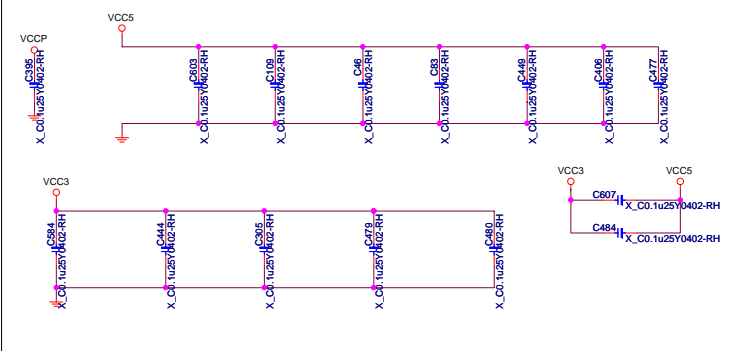


| Micro Star Restricted Secret    |             |                            |
|---------------------------------|-------------|----------------------------|
| File                            | ACPI BY UPI | Rev                        |
| Document Number                 | MS-7501     | 0A                         |
| MICRO-STAR INT'L CO. LTD.       |             | Last Revision Date:        |
| No. 68, LiDe St., Jung-Ho City, |             | Tuesday, November 08, 2007 |
| Taipei Hsien, Taiwan            |             | Sheet                      |
| http://www.msi.com.tw           |             | 33 of 38                   |

## Intel Front Panel

[illegible]

# EMI solution



|                                                                                                                                                       |                               |                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------|
| <b>Micro Star Restricted Secret</b>                                                                                                                   |                               |                                                                                                |
| <b>Title</b>                                                                                                                                          | <b>ATX/Front Panel/KB/EMI</b> | <b>Rev</b>                                                                                     |
| <b>Document Number</b>                                                                                                                                | <b>MS-7501</b>                | <b>0A</b>                                                                                      |
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