

Title	Page
Cover Sheet	1
Block Diagram	2
ClockGen/Buffer	3
CPU-CLK/Control/MISC	4
CPU-PEG/DMI	5
CPU-Memory 0/1/2/3	6,7
CPU-Power,CPU-GND/RSVD	8,9
DDR III DIMM 1/2/3/4/5/6/7/8	10,11,12,13
PBG-PCI/E/DMI/USB/CLK	14
PBG-SATA/HOST/FAN/GPIO/CCMOS	15
PBG-SMB/LPC/AUDIO/RTC	16
PBG-POWER,GND/NVRAM	17
PBG-STRAP PIN	18
PCIE Slot X16 /X1 /X1 /X16 /X1 /X8	19,20,21,22
SATA and FAN CONTROL	23
USB CONNECTOR X2 & Full Charger	24,25,26
UPD720200F1 USB3.0 X2	27,28
USB3.0 CONNECTOR & POWER X2	29
ASMEDIA/ASM1061 SATA6G	30
1394 Controller-VT6315N	31
Intel PHY82579	32
Audio 892	33
ACPI	34,35
VRD12-uP1618 6+2 Phase	36
VRD12 Vsa POWER(Dr.MOS)	37
VRD12-uP6275 - 4Phase to 8Phase	38
VRD12-uP1618 Dr.MOS- 8 Phase	39
PCH Power - uP1508-1Phase	40
DDR Power -uP6212 -2Phase X2	41,42

# MS-7760 Ver: 1.1

## CPU:

INTEL - Sandy Bridge-E LGA2011

## System Chipset:

INTEL - Patsburg PCH

## OnBoard Chipset:

Clock Gen:932SQ420D + 9FG1200AG-5LF

LAN:Intel PHY82579

USB3.0: UPD720200F1 X2

Flash ROM: 8 MB SPI / 8 MB SPI (PCH)

SIO:FIN71889AD(LAA)

1394 Controller: VIA6315N

SATA 6G Controller:ASM1061

## Main Memory:

DDRIII (1066/1333MHz) \* 8

## PWM:

CPU:uP1618 (8-Dr.MOS)

CPU\_SA:uP1618 (2-Dr.MOS)

CPU\_VTT:UP6212 (2-Dr.MOS)

VCC\_DDR:UP6212(2-Dr.MOS)

PCH:uP1508 (1-Dr.MOS)

## ACPI:

UPI

## Other:

SATA3.0 \*4+SATA2.0 \*4

USB2.0 \*14 (Rear\*8 Front\*6)

## Expansion Slots:

PCI Express (X16) Slot \* 2

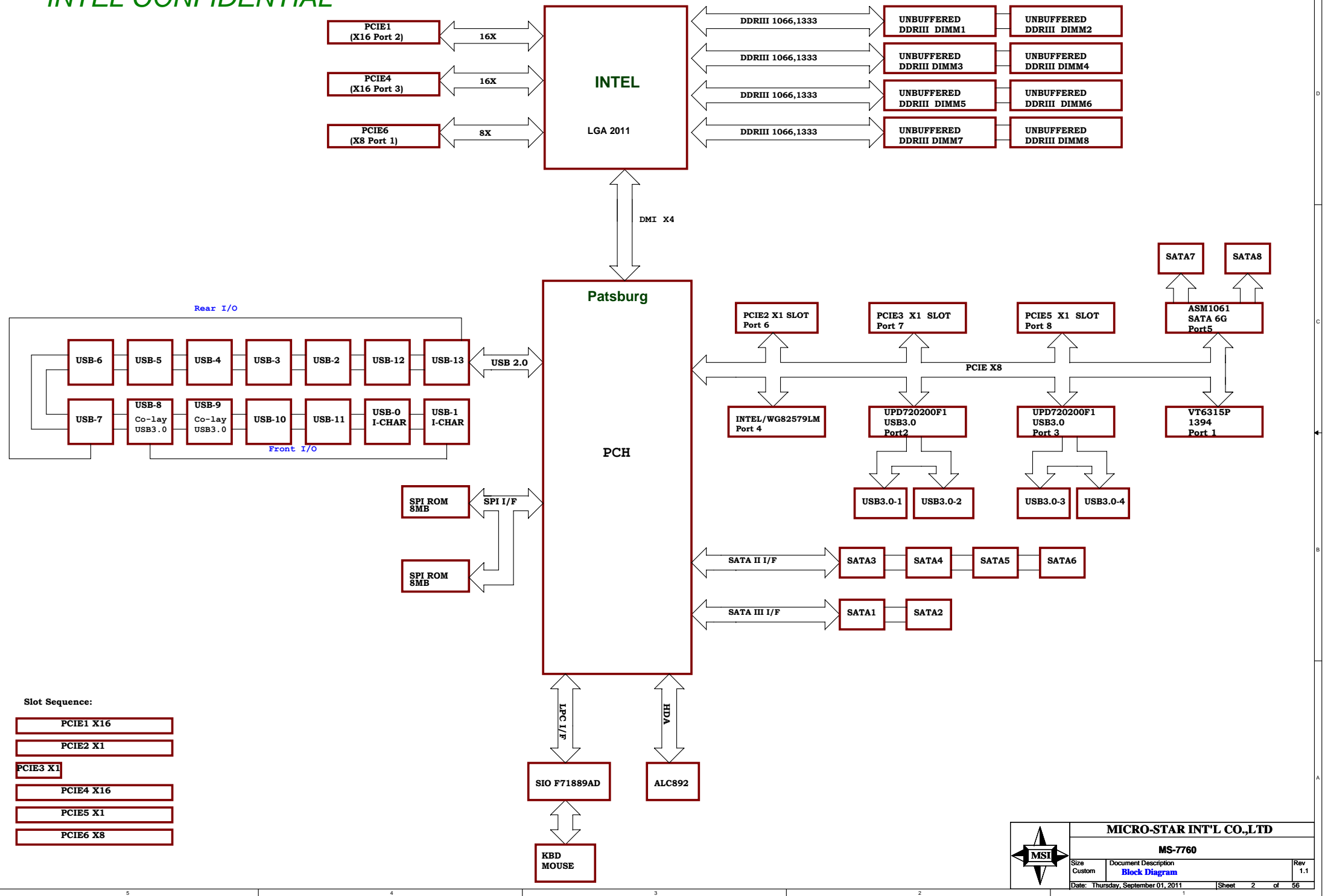
PCI Express (X8) Slot \* 1

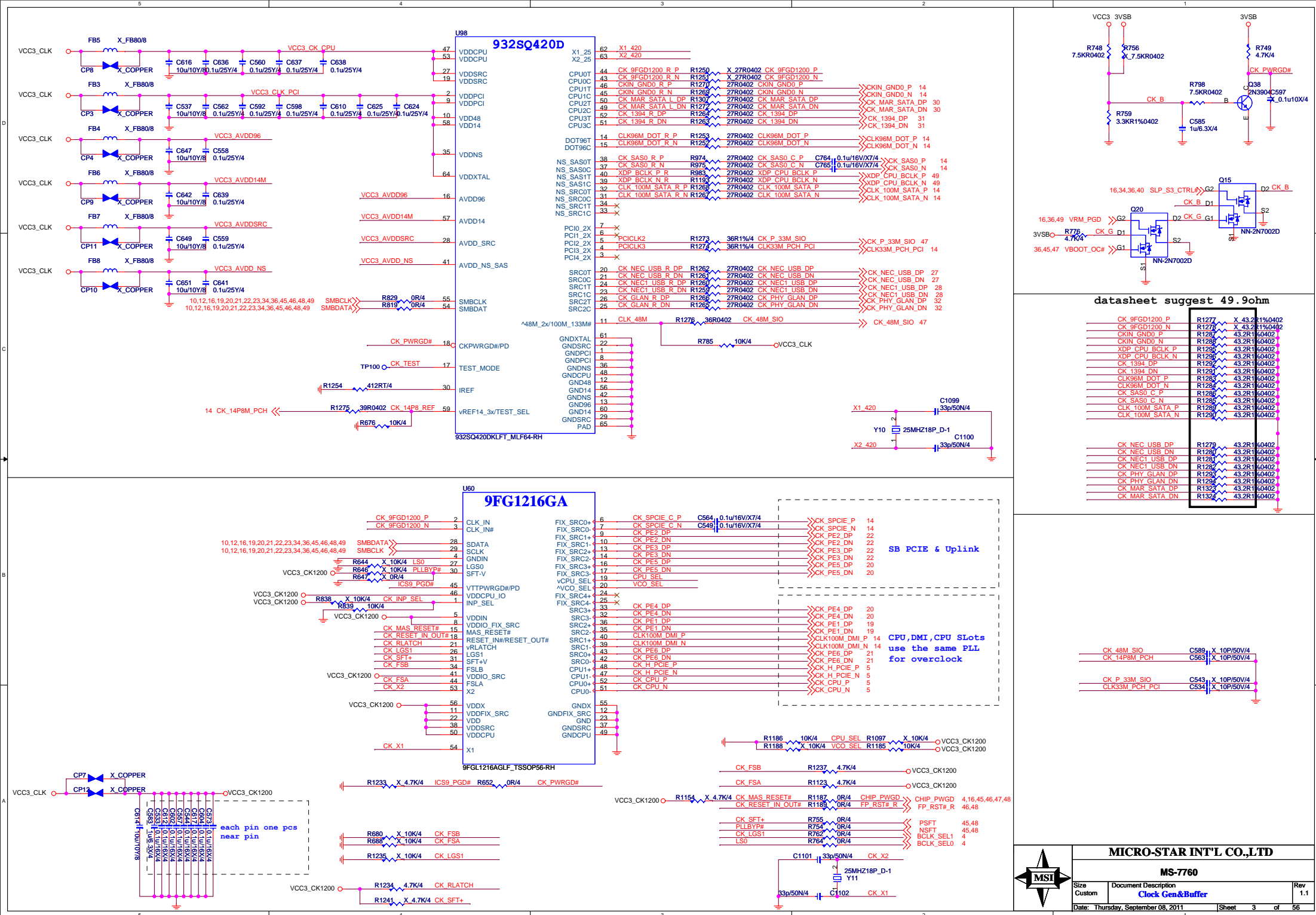
PCI Express (X1) Slot \* 3

Title	Page
VTT Power - uP6212-2Phase	43
Phase Indicator & Debug LED	44
OC SWITCH & W604GPIO CTL	45
8051 WATCHDOG	46
SIO-F71889AD/KB	47
ATX Connector/Front Panel	48
XDP / Manual Parts	49
Clk Map	50
POWER MAP	51
POWER SEQUENCE	52
System Reset Map	53
PCH GPIO & System Routing	54
Other GPIO Setting	55
HISTORY	56

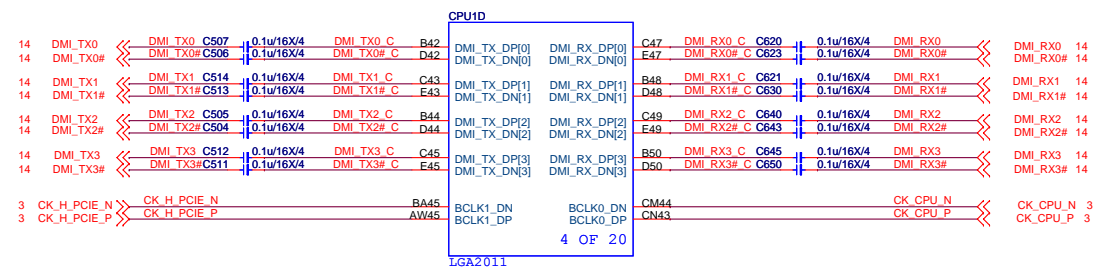
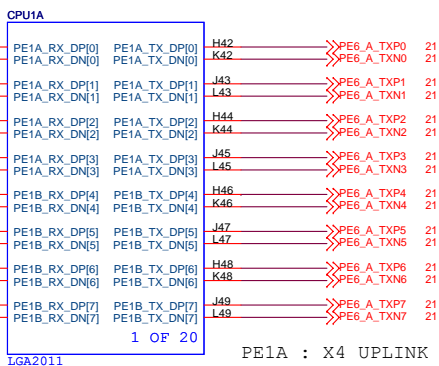
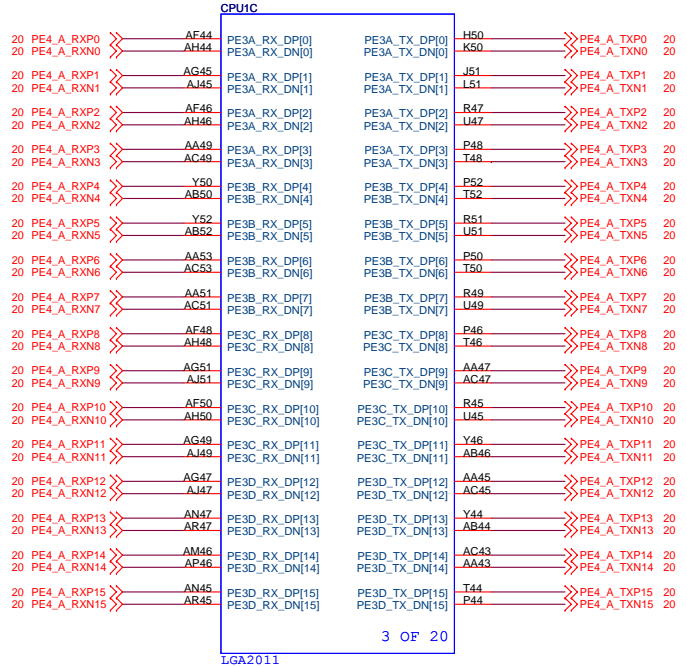
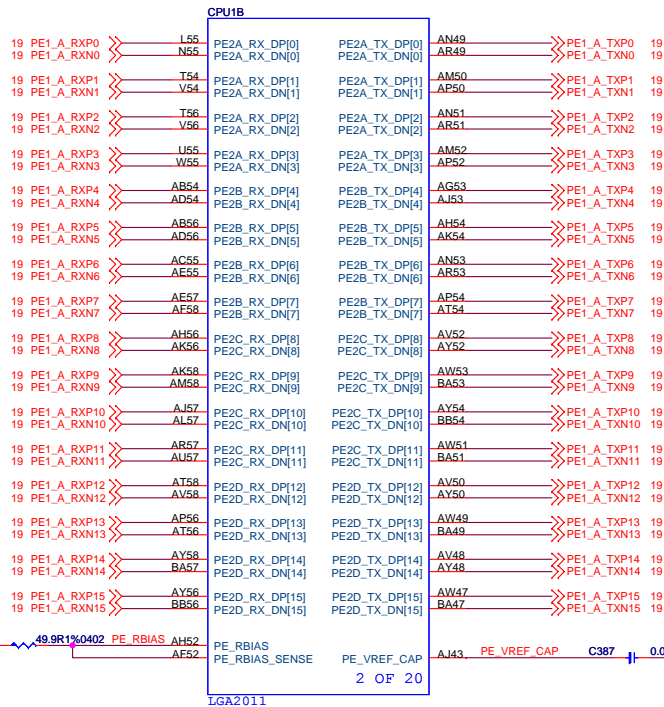


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MS-7760		
Size Custom	Document Description Cover Sheet	Rev 1.1
Date: Wednesday, September 14, 2011 Sheet 1 of 56		

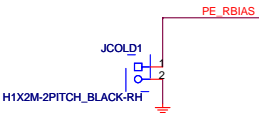









Reserve for Cold Bug





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MS-7760

Size Custom Document Description CPU-PEG/DMI Rev 1.1

Date: Thursday, September 08, 2011

Sheet 5 of 56



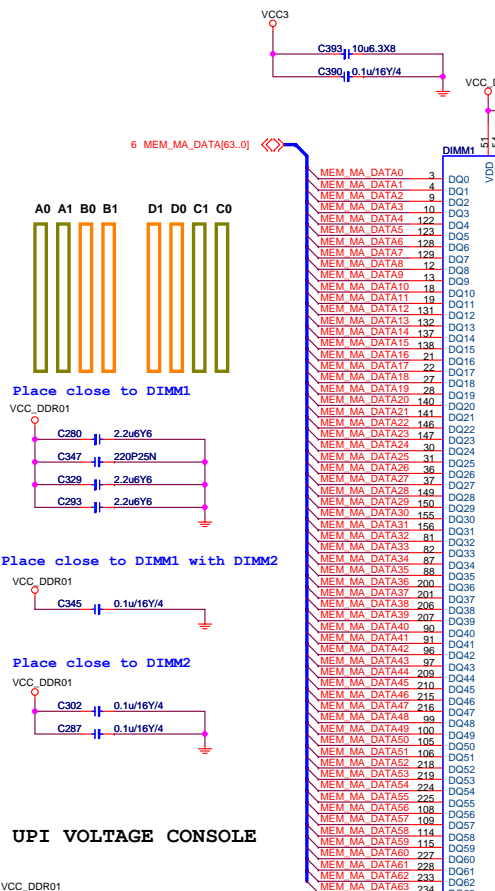








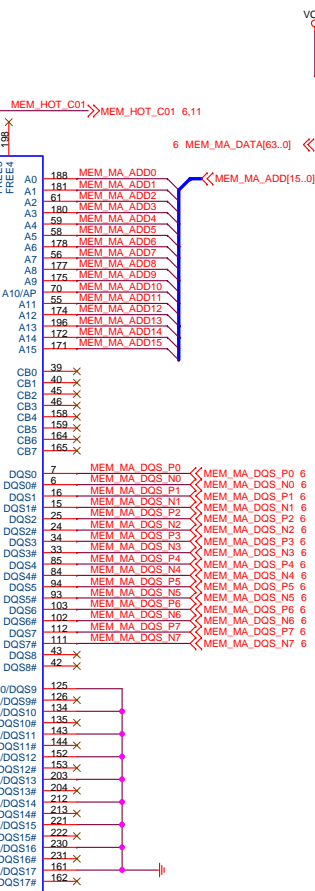




## DDRIII DIMM\_A0

### DDR3

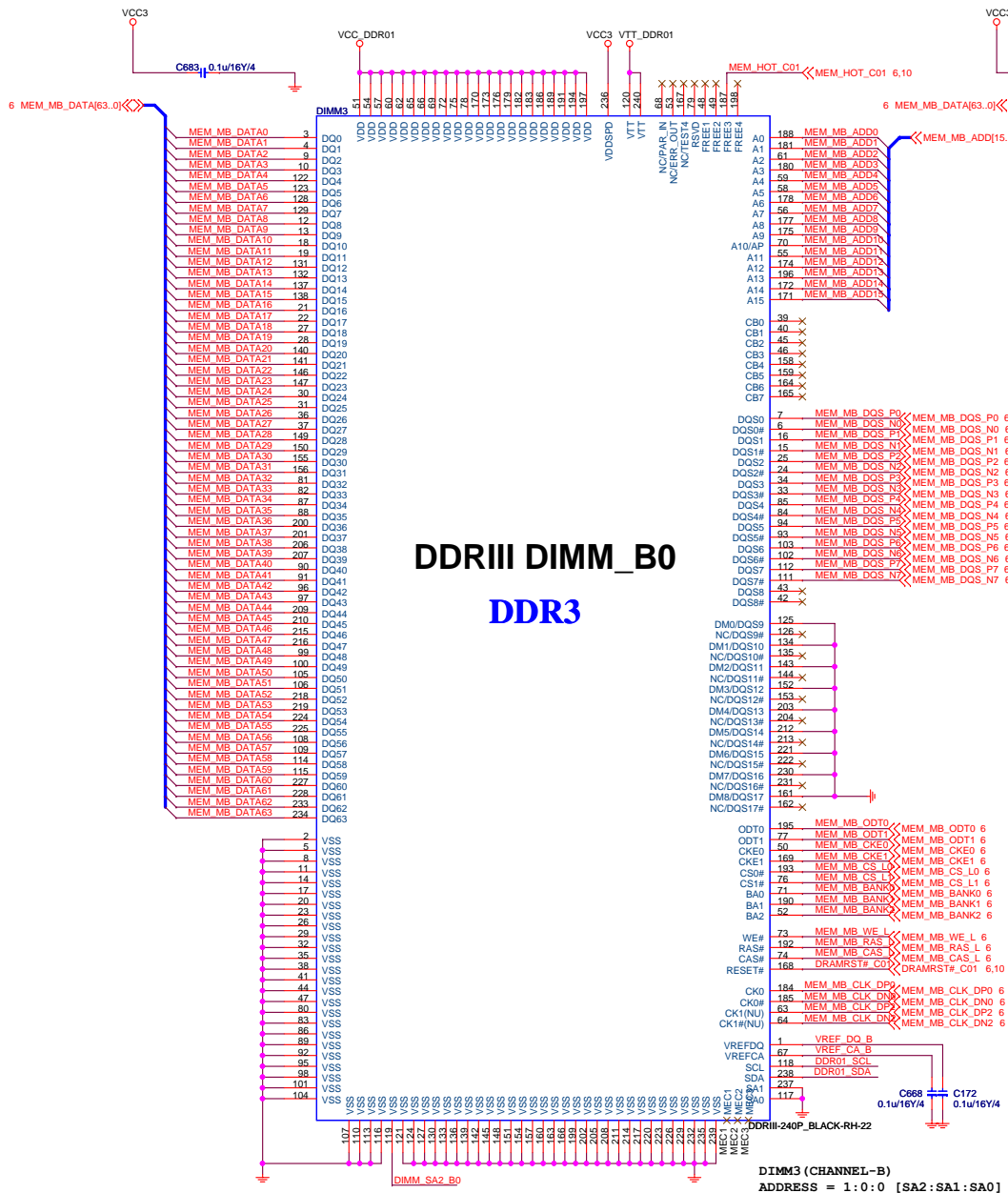
UPI VOLTAGE CONSOLE						
ADDRESS	0x2A	0X28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%



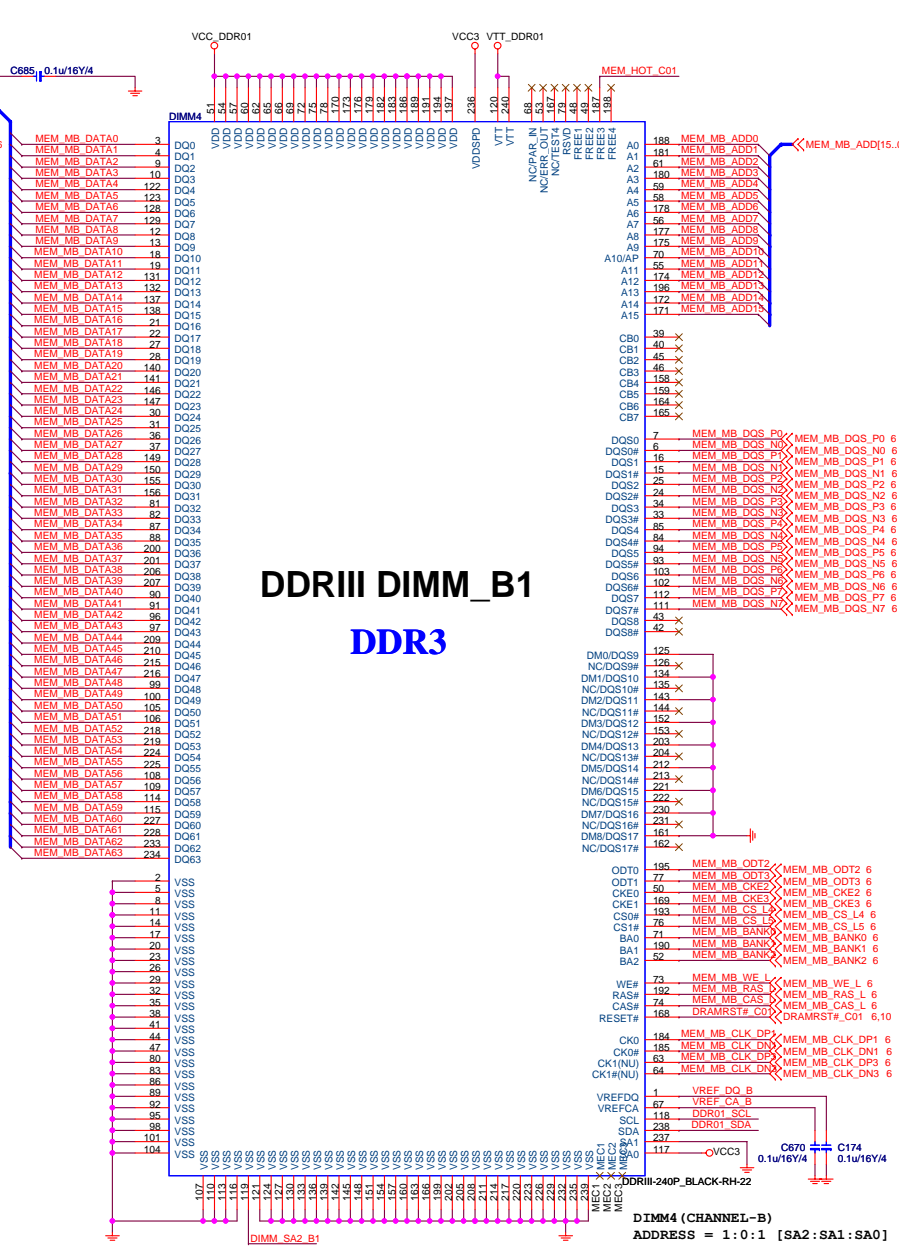
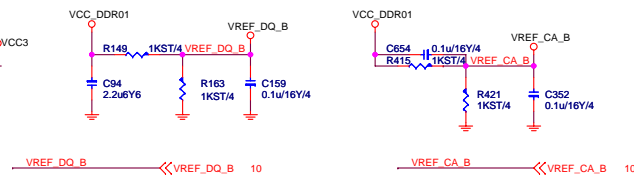
## DDRIII DIMM\_A1

### DDR3

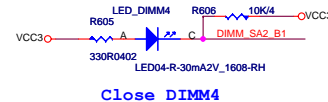
UPI VOLTAGE CONSOLE						
ADDRESS	0x2A	0X28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%



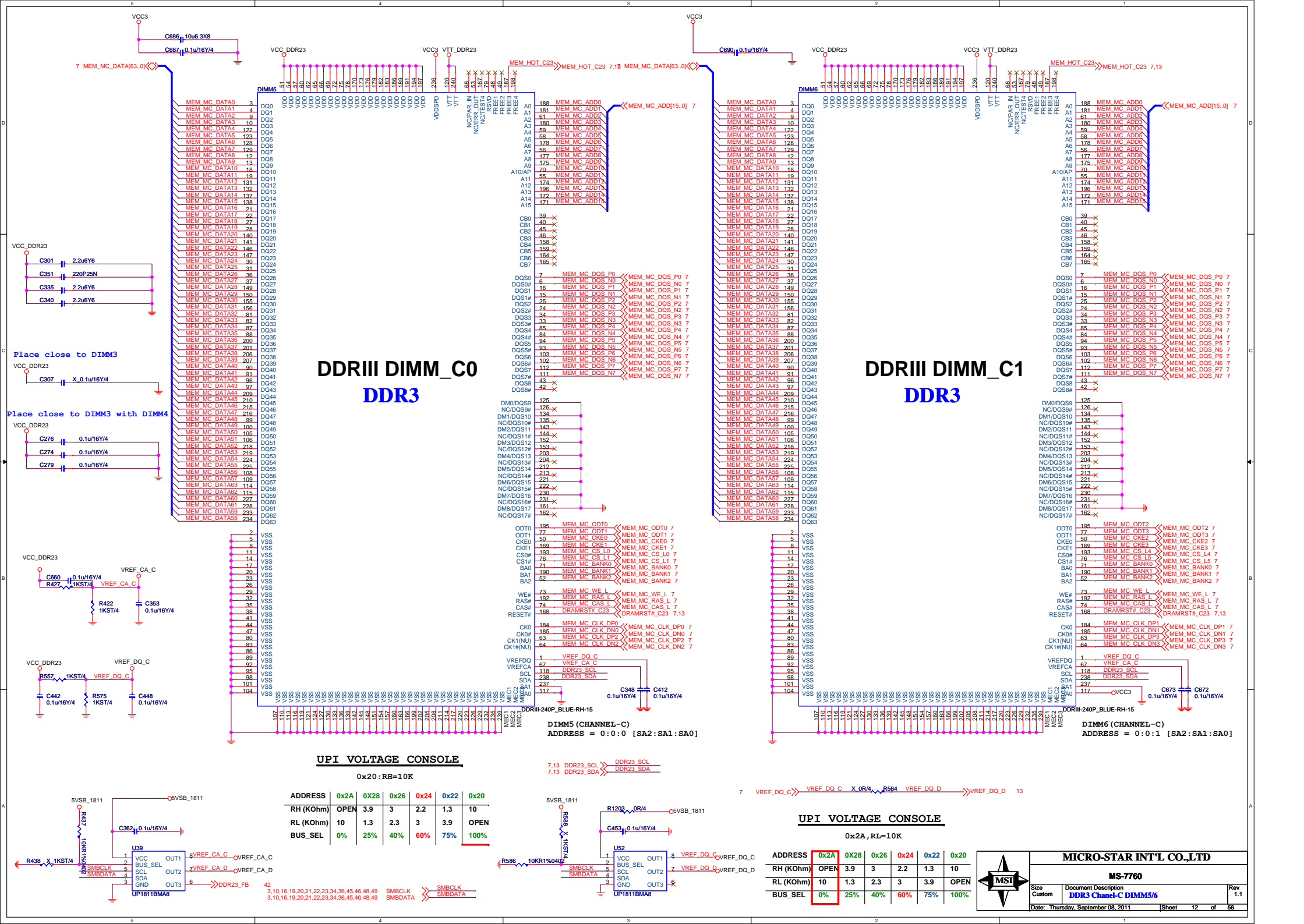
### Warning LED



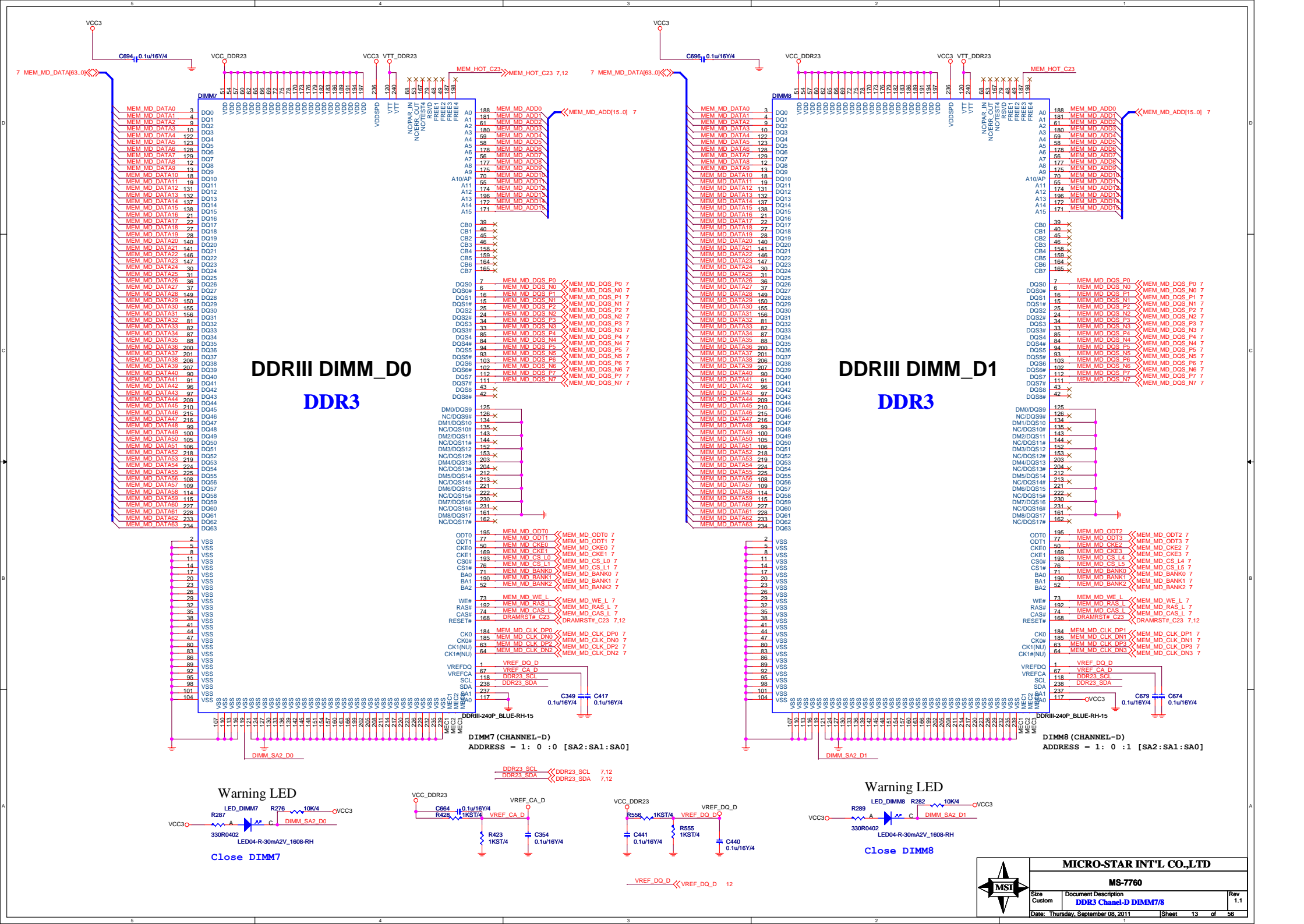
### Warning LED

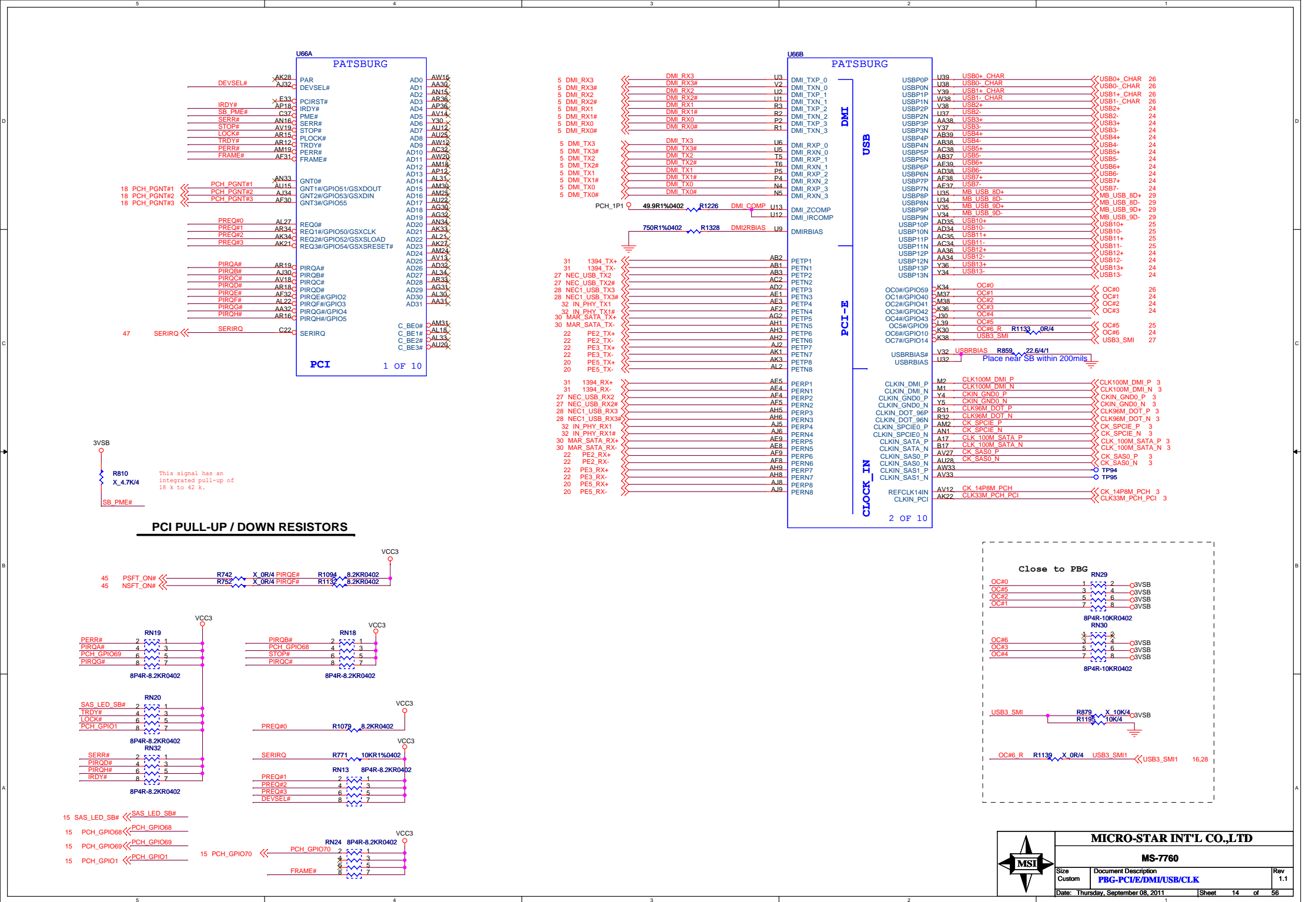


MICRO-STAR INT'L CO.,LTD			
MS-7760			
Size	Document Description	Rev	
Custom	DDR3 Chane-B DIMM3/4	1.1	
Date: Thursday, September 08, 2011	Sheet	11	of 56



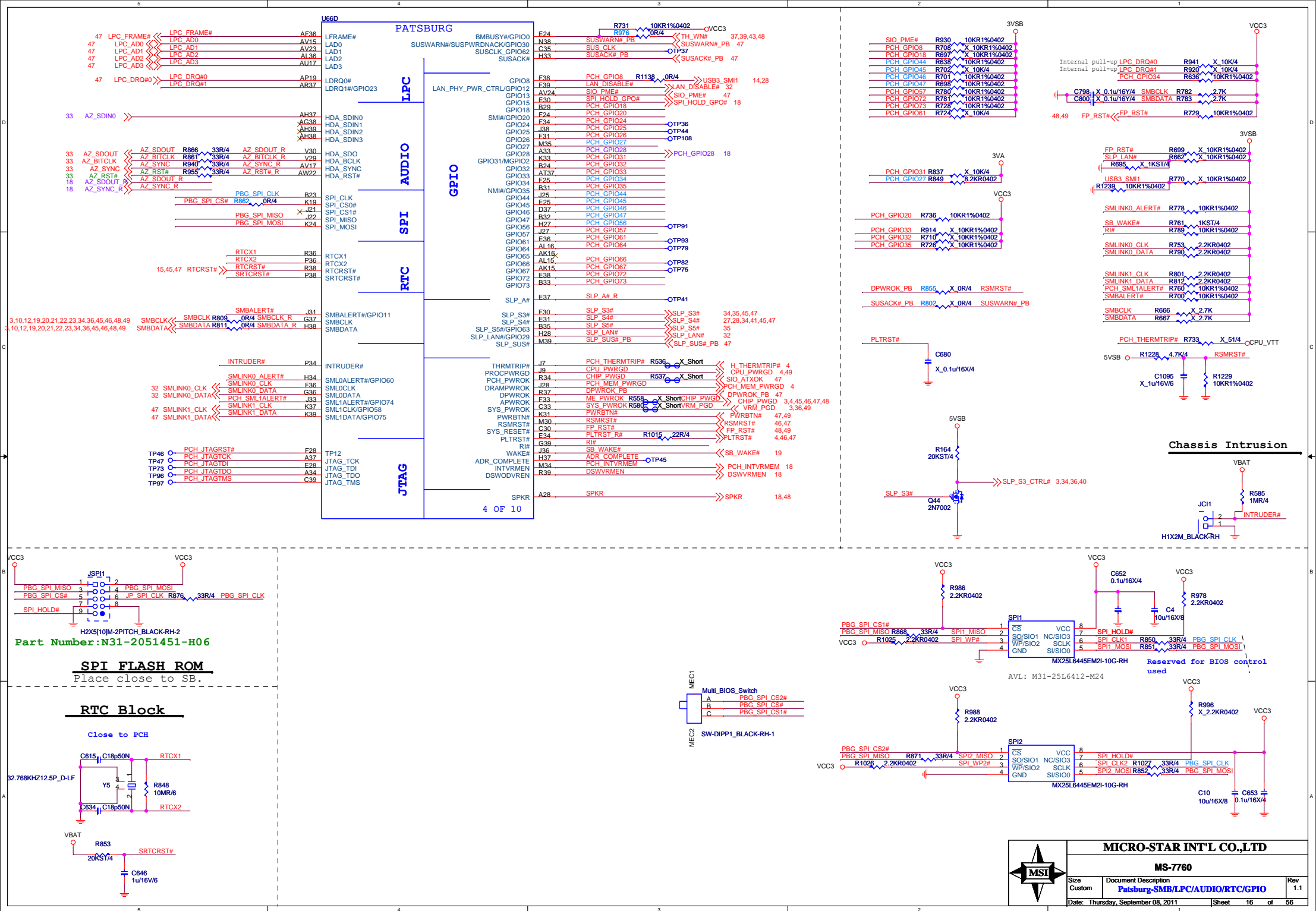


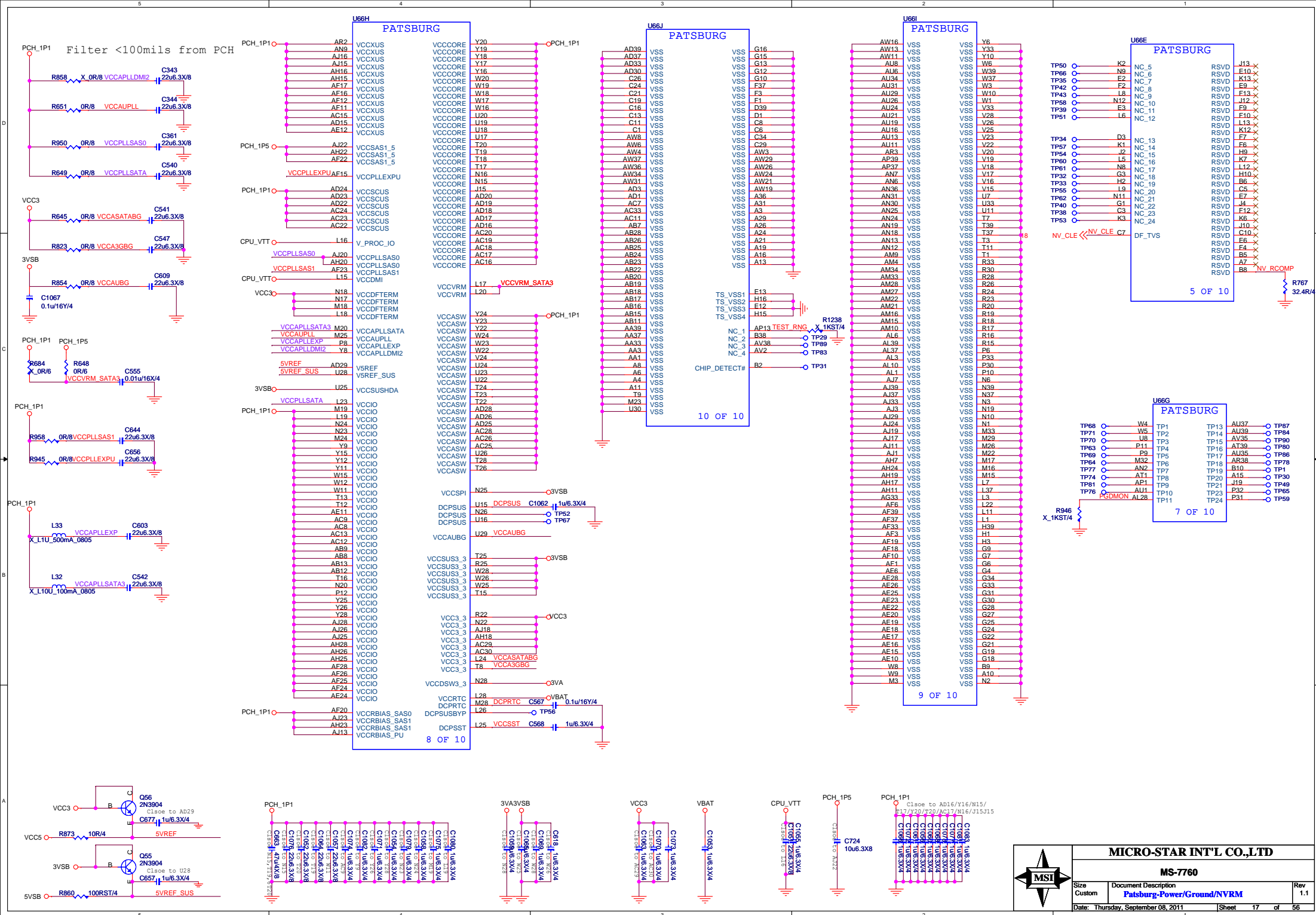






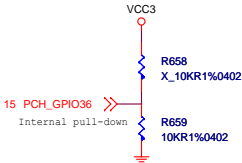
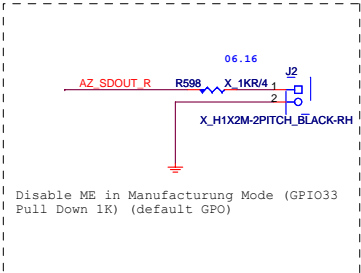
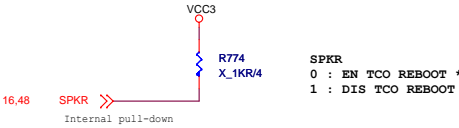
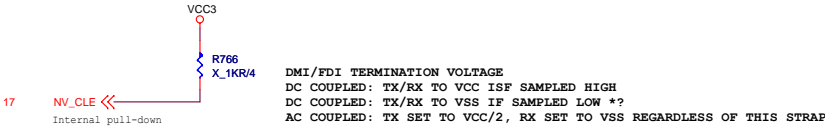
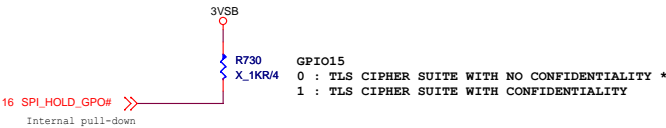
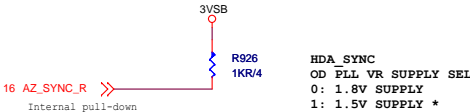
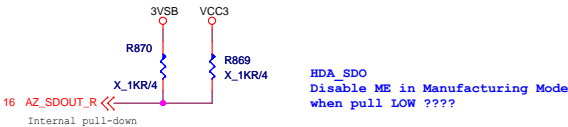
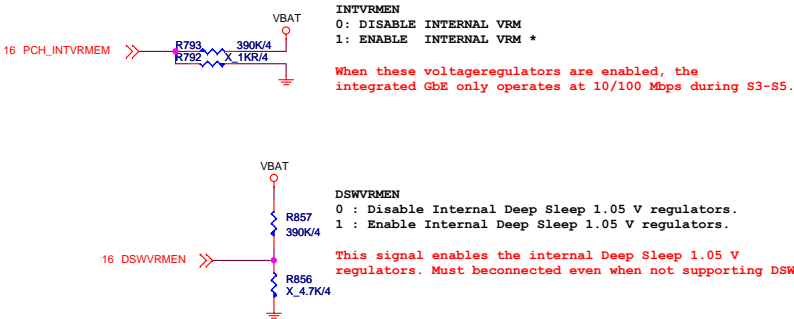
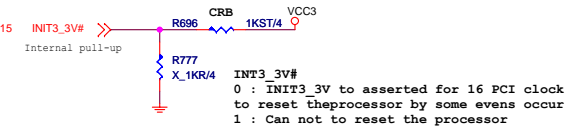
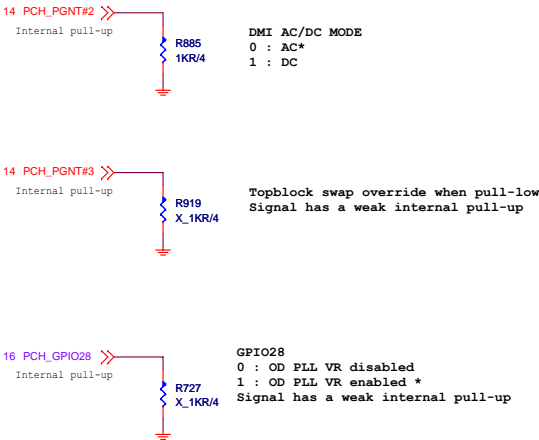
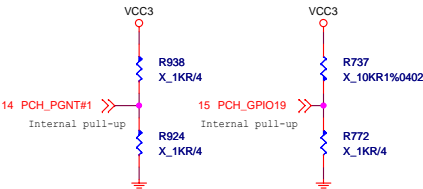






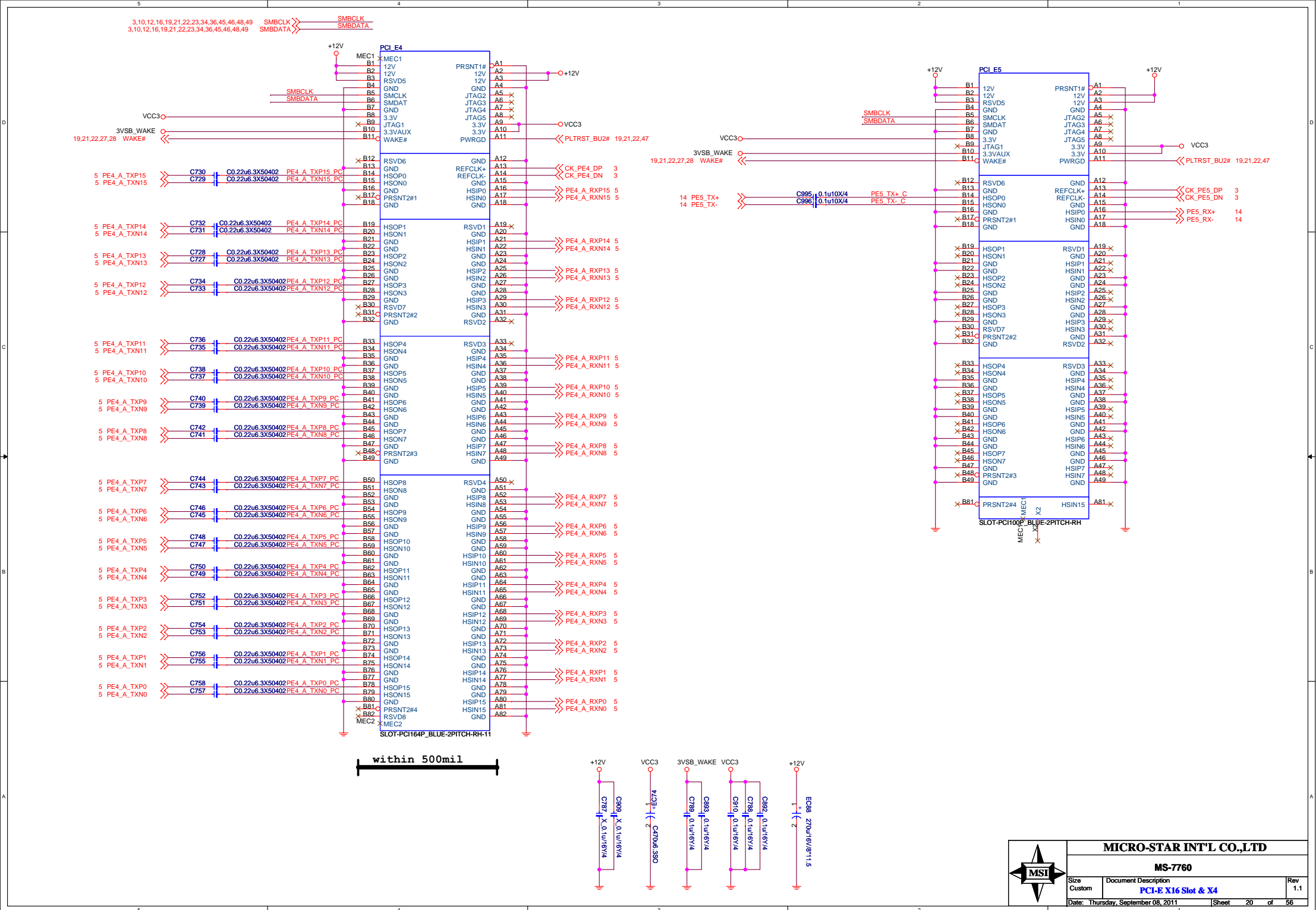
PCH Straps

BOOT DEVICE	GNT1	SATA1GP/GPIO19
LPC	0	0
PCI	1	0
SPI	1	1

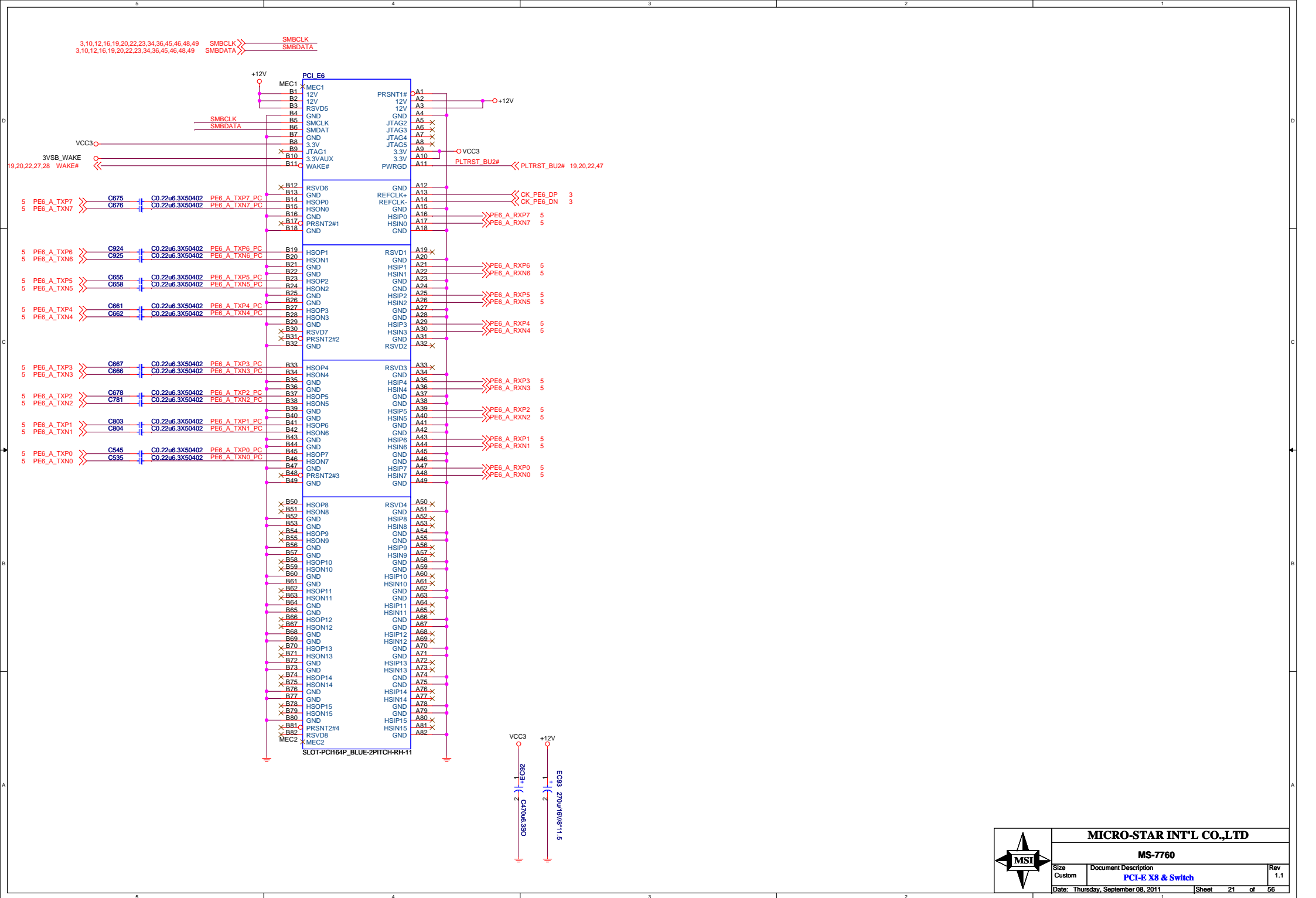


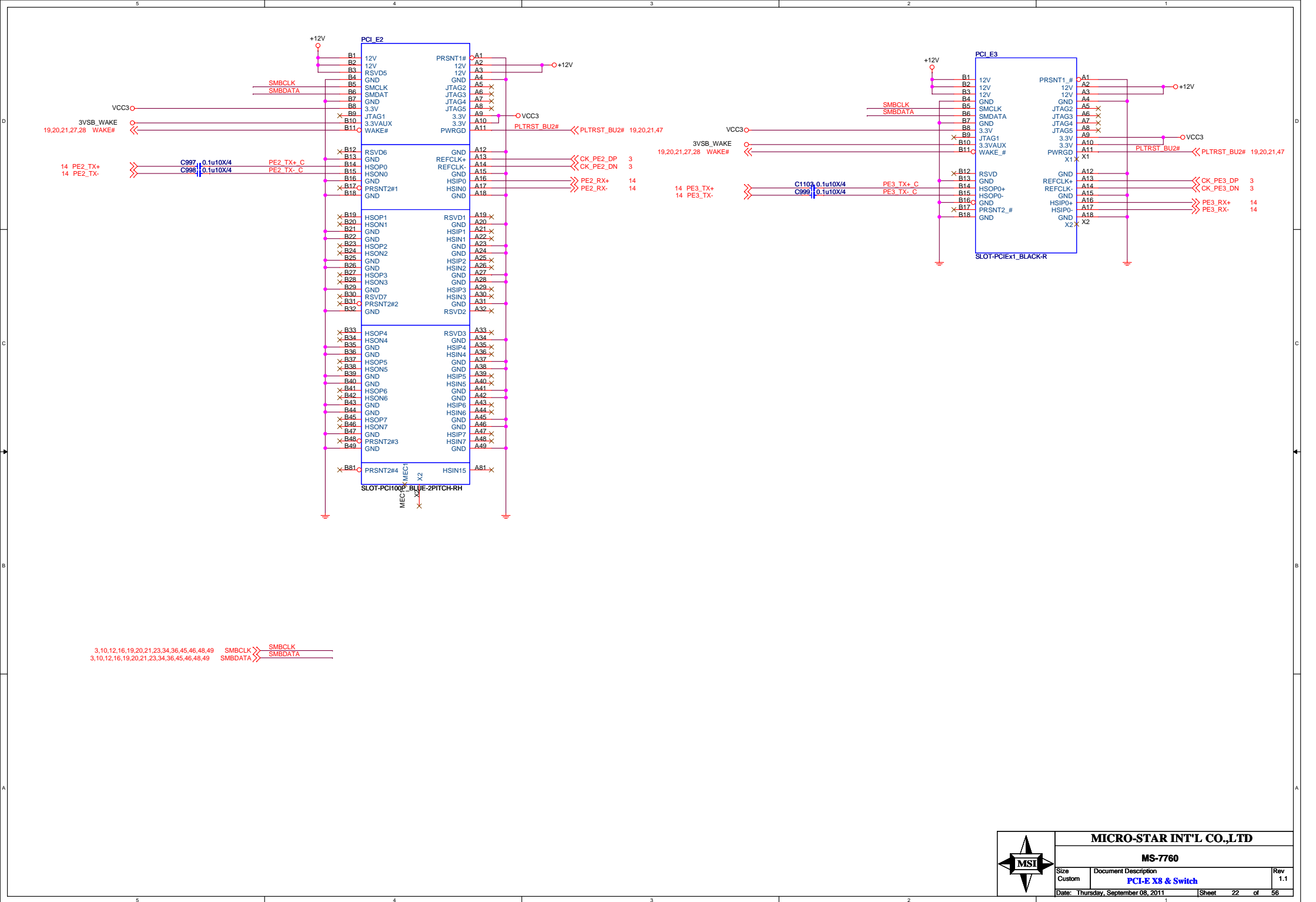
MICRO-STAR INT'L CO.,LTD		
MS-7760		
Size Custom	Document Description Patsburg -Strap	Rev 1.1
Date: Thursday, September 08, 2011	Sheet 18 of 56	



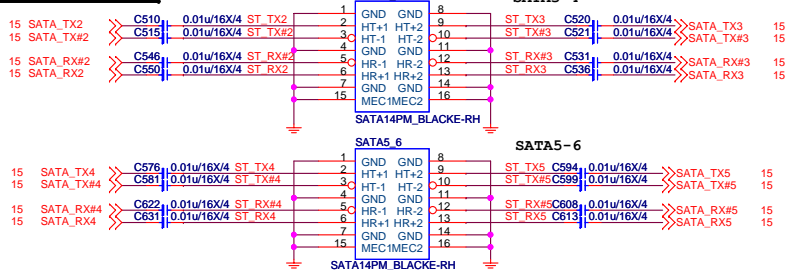




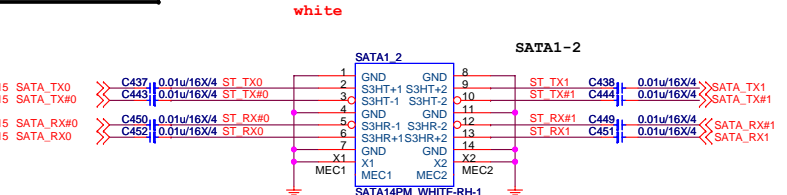




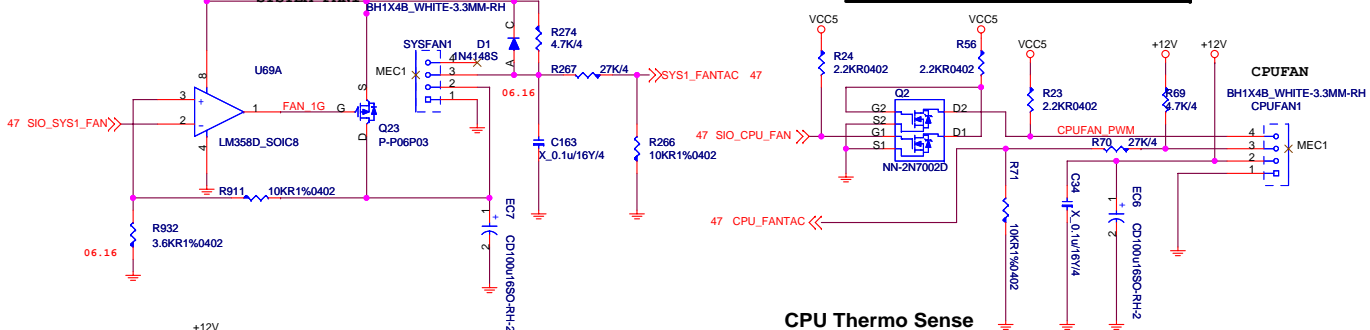
## SATA2 Ports



## SATA3 Ports



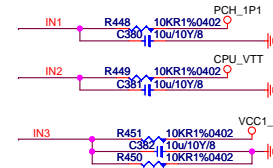
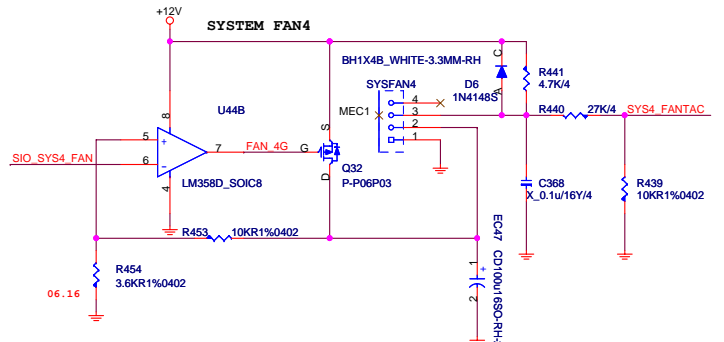
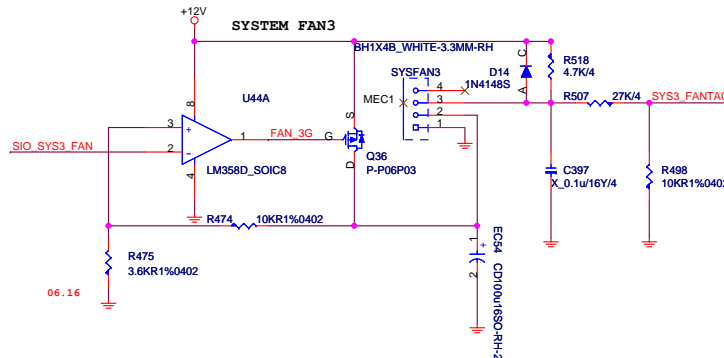
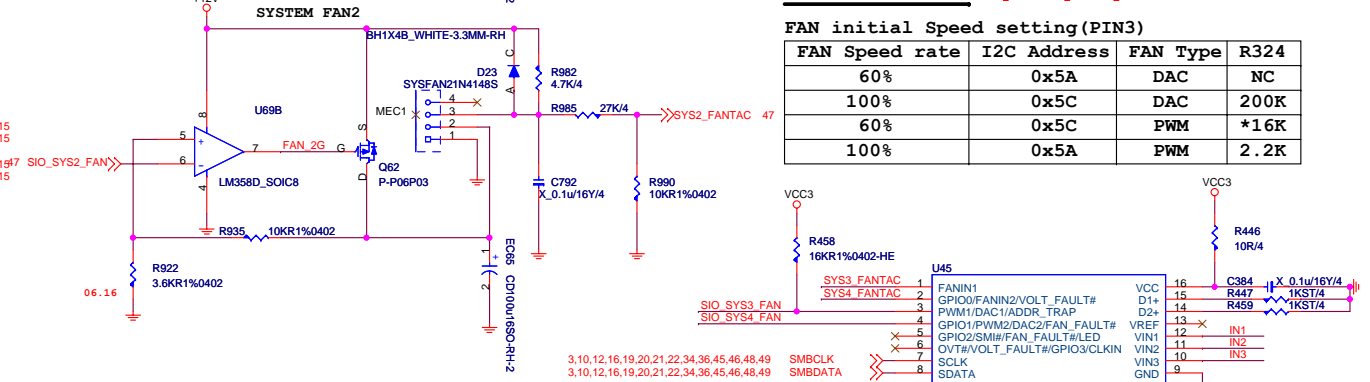
## CPU FAN-COUNTROL CIRCUIT



## CPU Thermo Sense

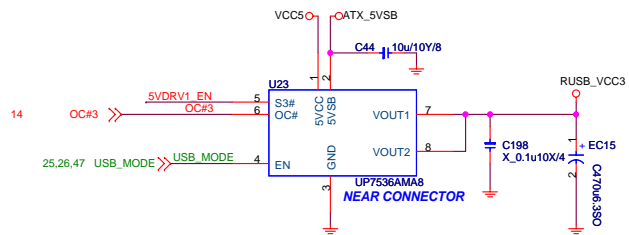
### FAN initial Speed setting (PIN3)

FAN Speed rate	I2C Address	FAN Type	R324
60 %	0x5A	DAC	NC
100 %	0x5C	DAC	200K
60 %	0x5C	PWM	*16K
100 %	0x5A	PWM	2.2K

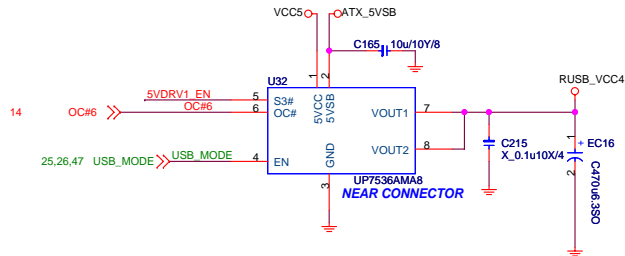


HW Monitor

### USB POWER FOR PORT 6,7

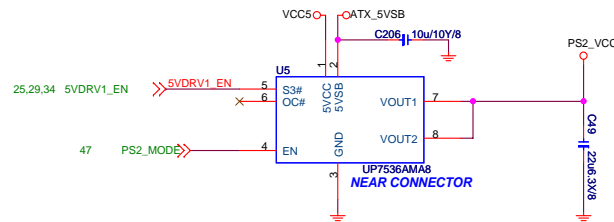


### USB POWER FOR PORT 12,13

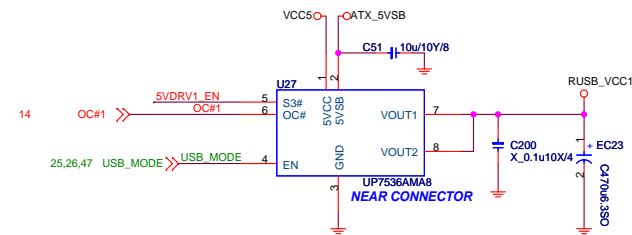


## Rear USB Connector

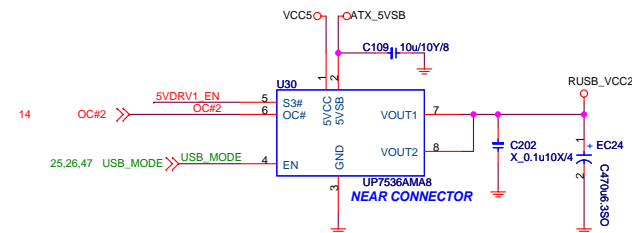
## PS2 POWER



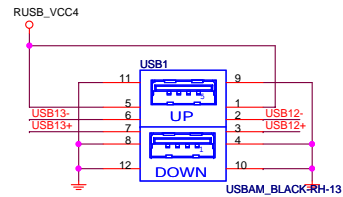
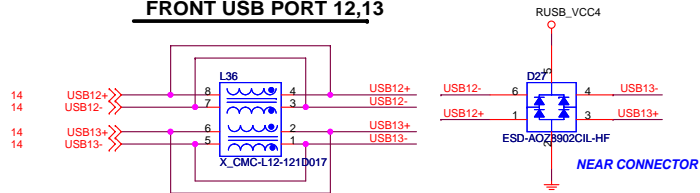
### USB POWER FOR PORT 2,3



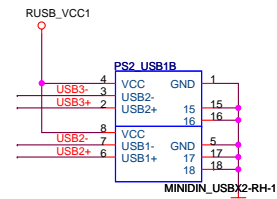
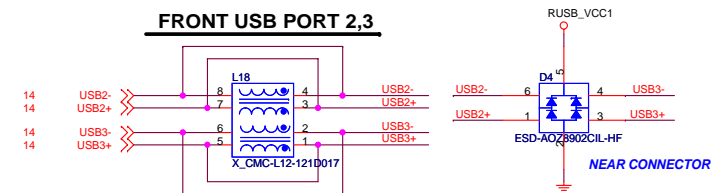
### USB POWER FOR PORT 4,5



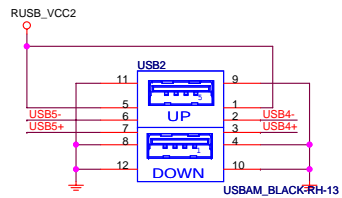
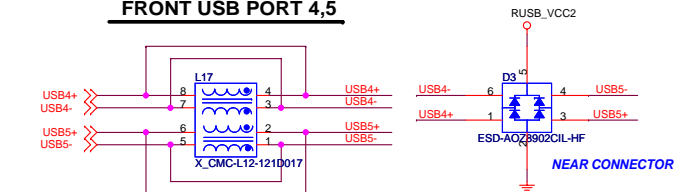
### FRONT USB PORT 12,13



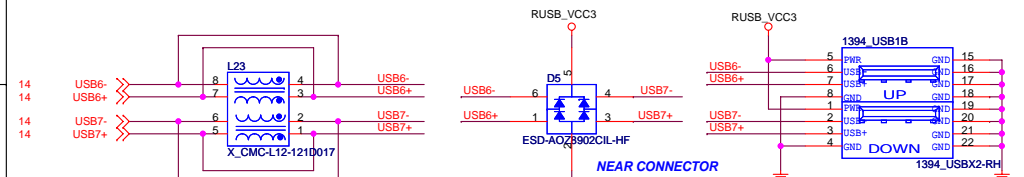
### FRONT USB PORT 2,3



### FRONT USB PORT 4,5



### FRONT USB PORT 6,7



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

MS-7760

Size Custom	Document Description <b>USB Connectors - 2</b>	Rev 1.1
Date: Thursday, September 08, 2011		Sheet 24 of 56

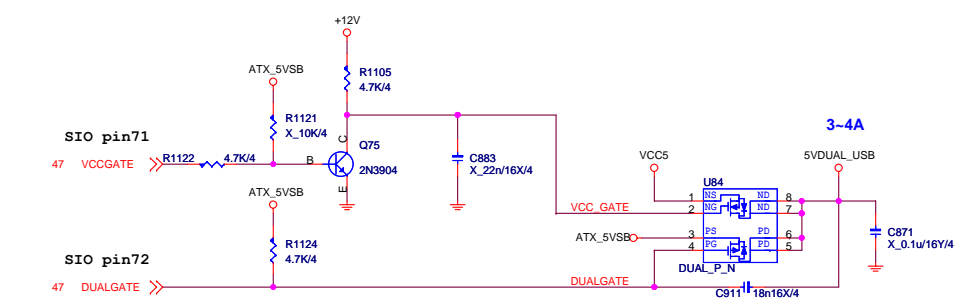
24,29,34 5VDRV1\_EN 14  
OC#5  
USB\_MODE 24,26,47 USB\_MODE

USB\_MODE for USB voltage  
H: Follow 5VSB  
L: Always off

VCC5V ATX\_5VSB  
C932 10u/10Y/8  
FUSB\_VCC1  
C945 X\_0.1u10X4  
EC79\_1 C4706.3S0

U93 U1P7536AMA8 NEAR CONNECTOR  
S3# 5  
OC# 6  
EN 4  
VOUT1 7  
VOUT2 8  
VCC 2  
GND 3

5VDUAL\_USB

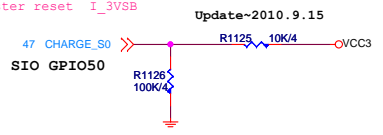


SIO GPIO40 Pin7 (I\_VSB3V)

USB\_CHARGE: (OD)  
0: Don't support USB charge and resume.  
1: Support USB charge and resume.

Power plug in , H/W default support USB charge.

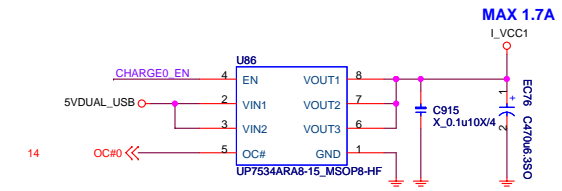
Pin power I\_3VSB  
Register power I\_3VSB  
Register reset I\_3VSB



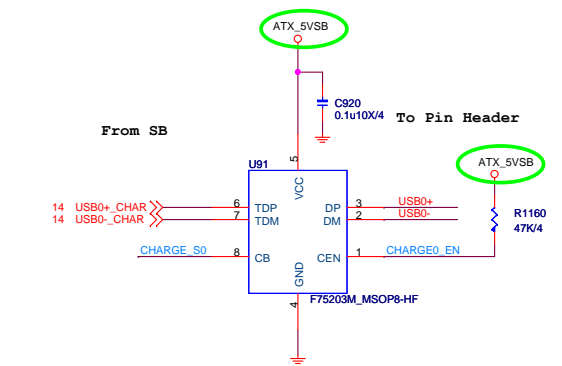
Pin power I\_3VSB or VBAT  
Register power I\_3VSB or VBAT  
Register reset I\_3VSB or VBAT



USB POWER PORT 0 For USB Charging

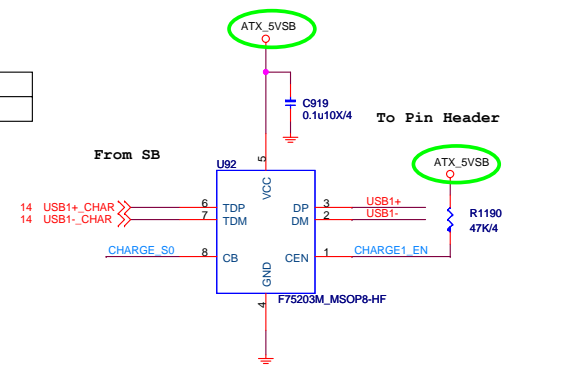
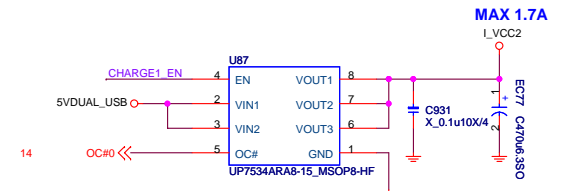


\*\* If your spec will not need bom option, please don't co-lay blue labels.

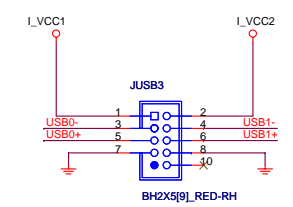
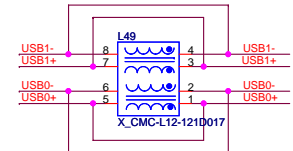


S1	0	0	1
S0	0	1	1
Mode	AUTO	A	Y

USB POWER PORT 1 For USB Charging



FRONT USB PORT 0,1



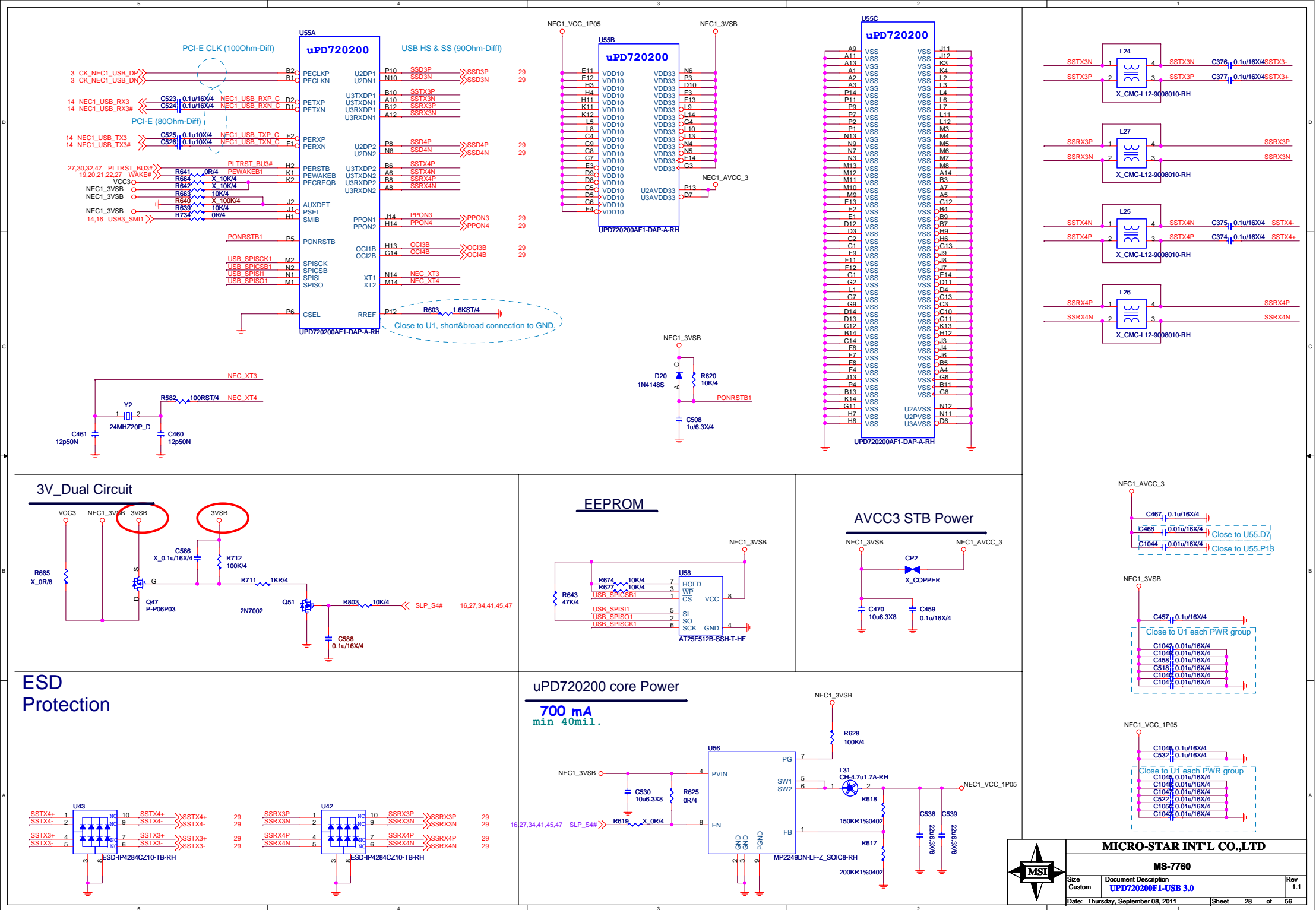
Please name the pin header JUSB1 and use SB USB0,1 link for charger port.

PI5USB14550 has internal EDS diode.

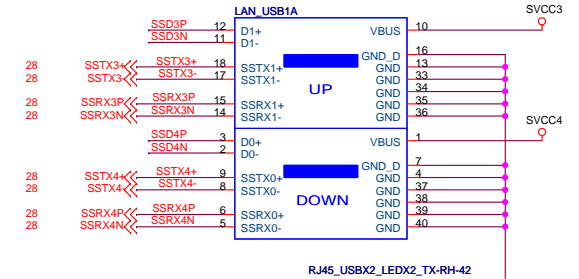
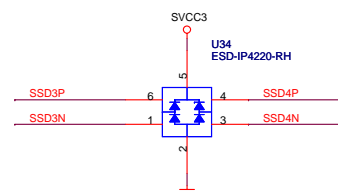
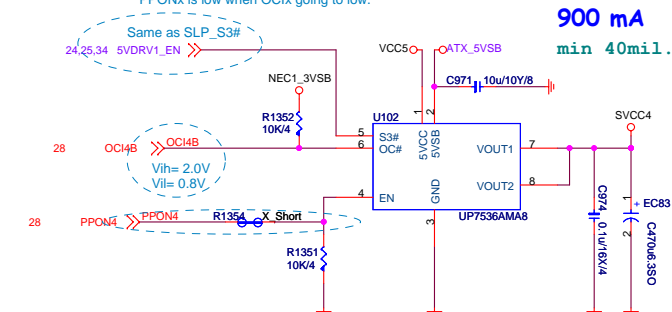
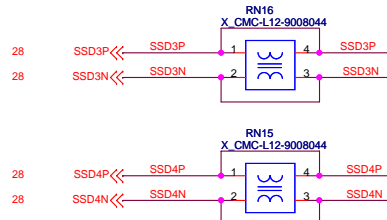
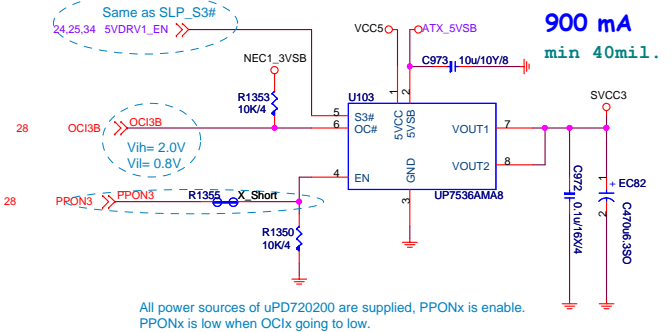
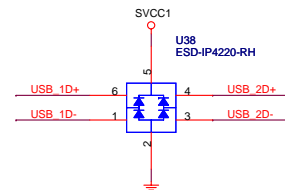
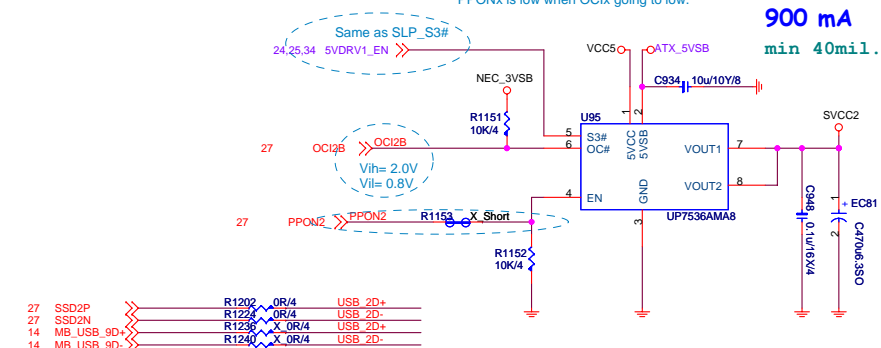
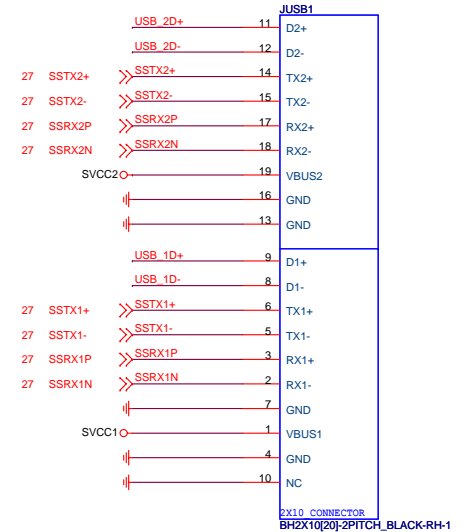
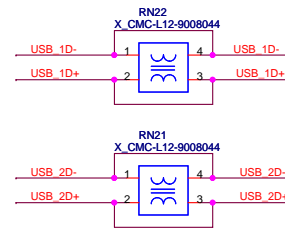
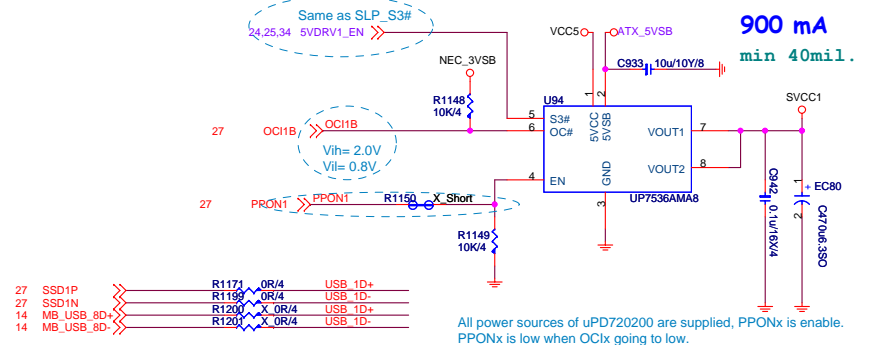
A type  
2.70V< D+ <3.1 V  
1.85V< D- < 2.1V  
For i-Pad / i-Phone 4G charges current up to 1.6A.







### FRONT USB PORT 8,9

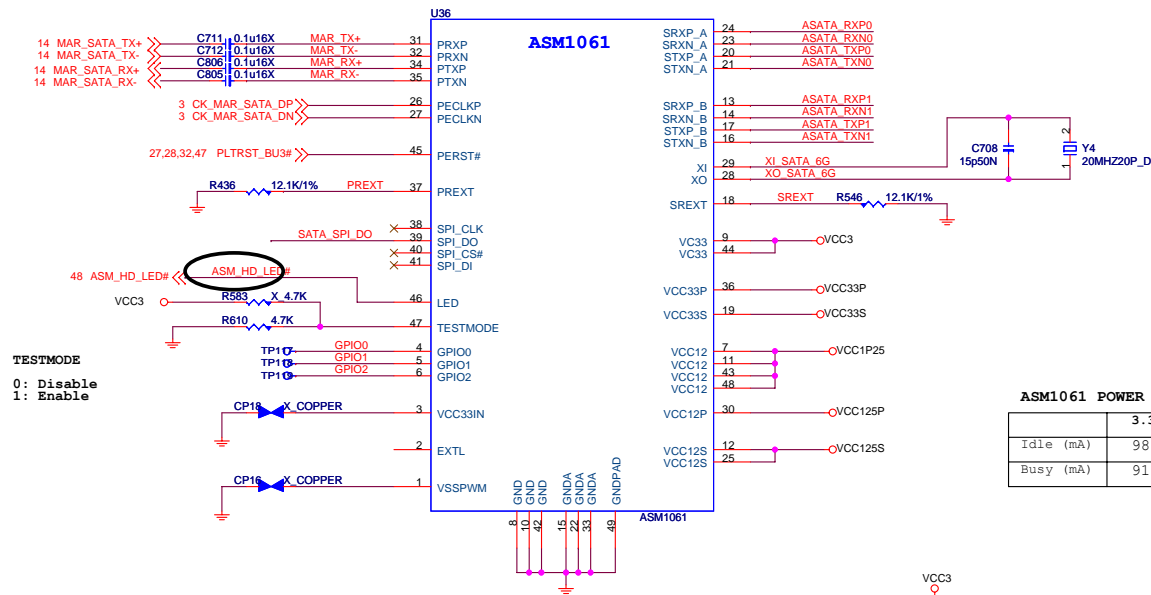


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MS-7760

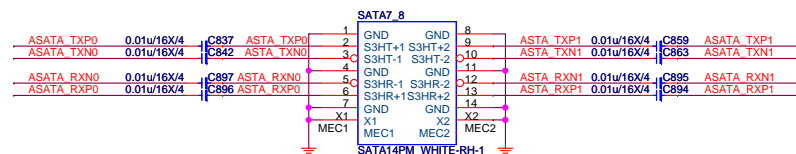
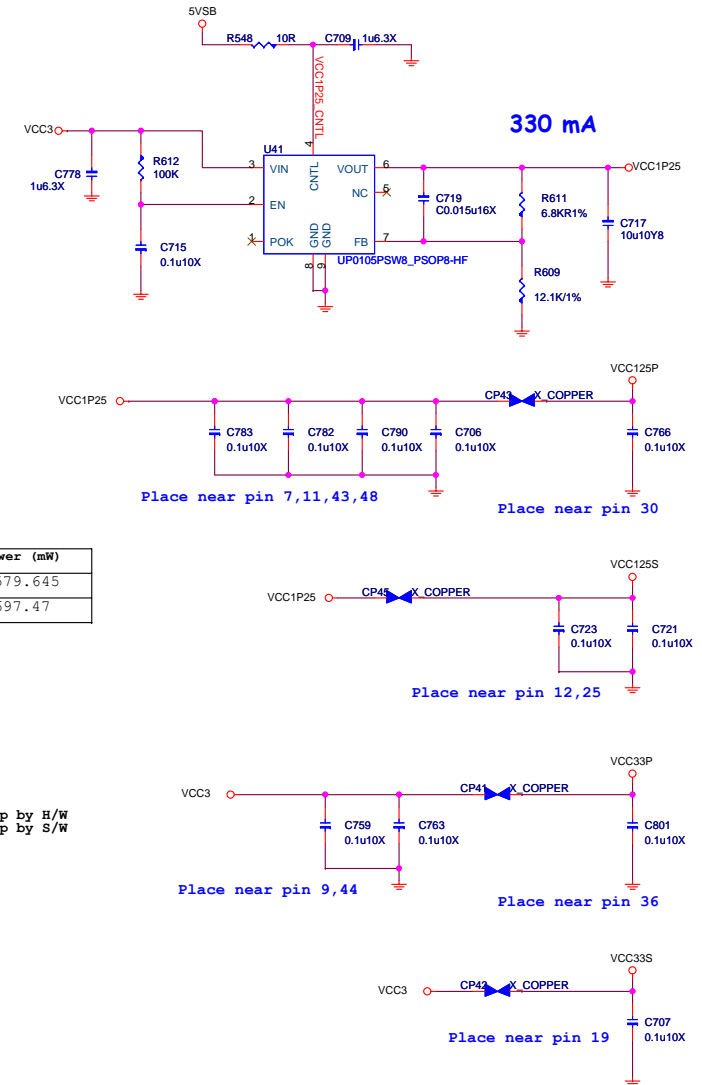
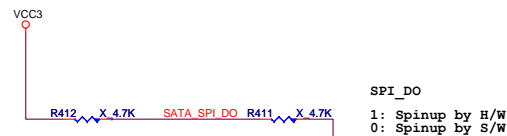
Size Custom	Document Description <b>USB 3.0 Power &amp; Connector</b>	Rev 1.1
Date: Thursday, September 08, 2011		Sheet 29 of 56

ASMEDIA/ASM1061 SATA6G



## ASM1061 POWER Consumption

	3.3V	1.2V	Power (mW)
Idle (mA)	98.45	212.3	579.645
Busy (mA)	91.1	330.7	697.47

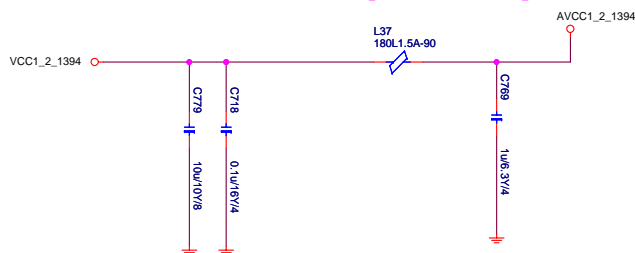
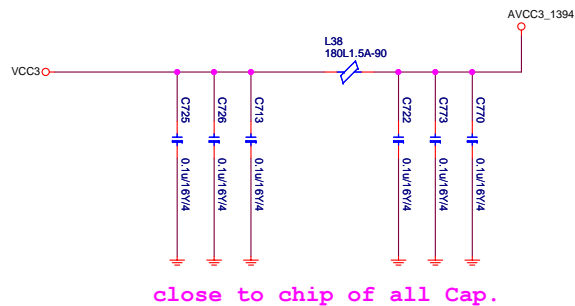
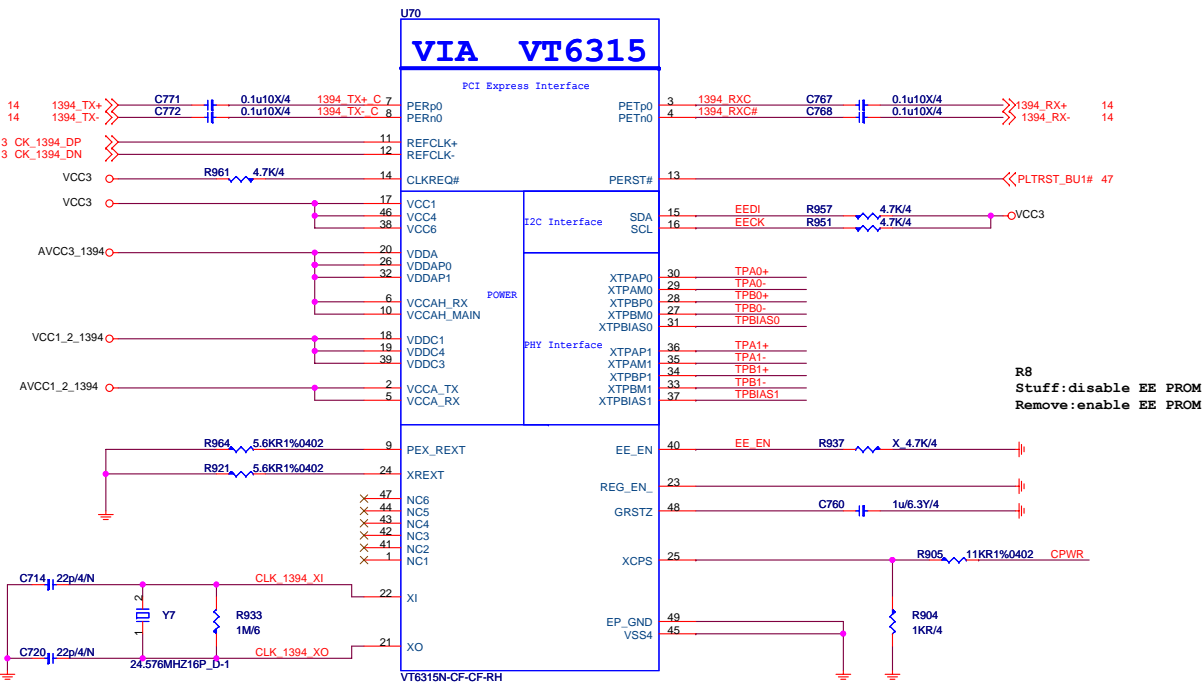


**MICRO-STAR INT'L CO.,LTD**

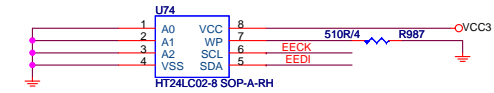
MS-7760

Size Custom	Document Description <b>ASMEDIA/ASM1061 SATA 6G</b>	Rev 1.1
Date: Thursday, September 08, 2011	Sheet 30 of 56	

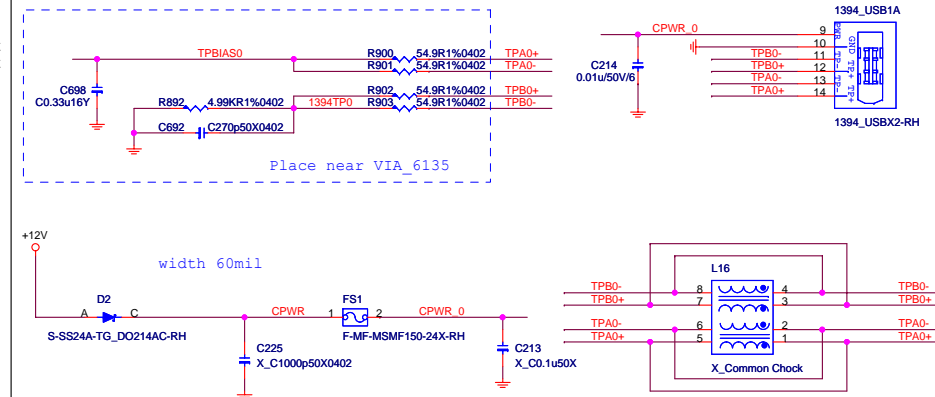
# 1394 CONTROLLER



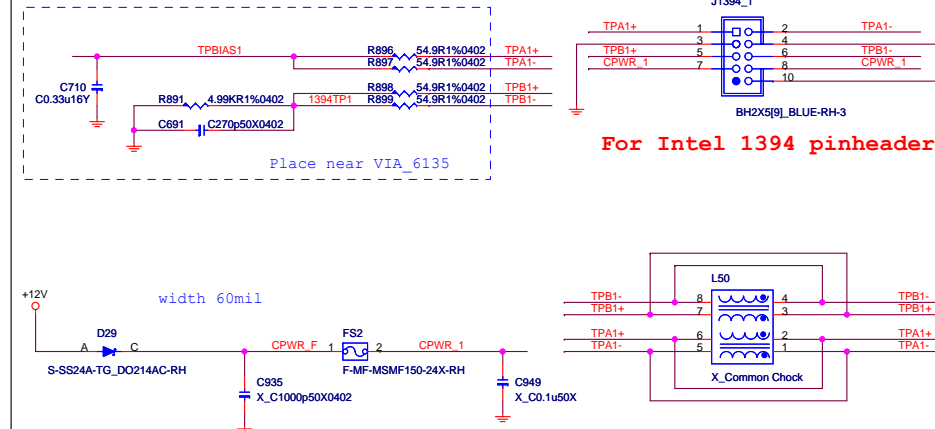
## EE PROM



## Rear 1394 port



## Front 1394 pin header



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

**MS-7760**

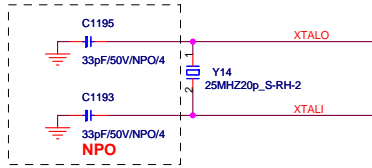
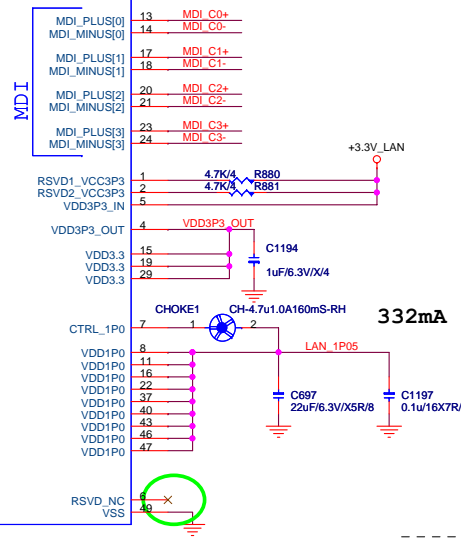
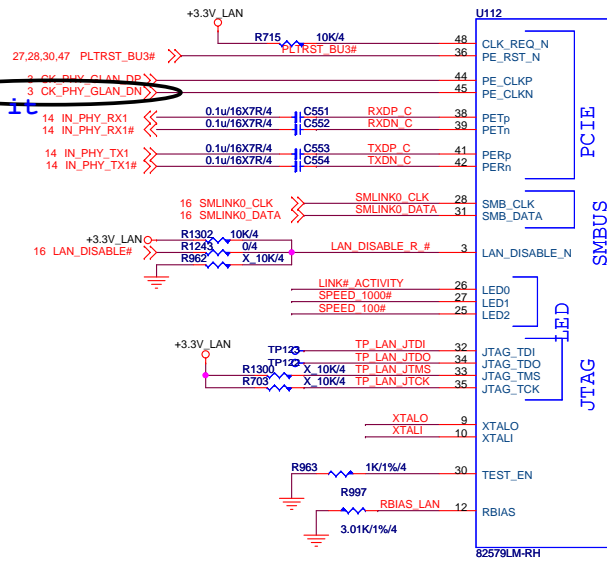
Size	Document Description	Rev
Custom	VT6315N-1394	1.1

Date: Thursday, September 08, 2011 Sheet 31 of 56

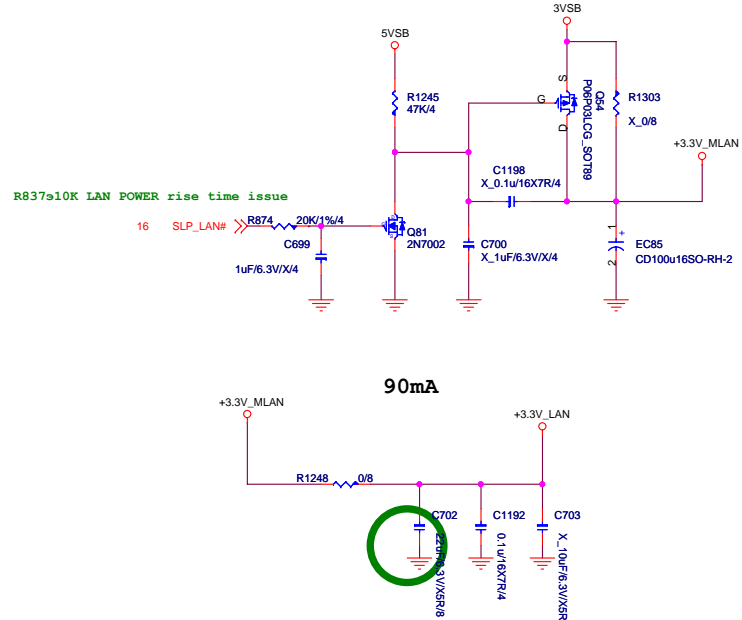
$$V_o = V_{ref} \frac{R_1 + R_2}{R_1} + I_{adj} \times R_2$$

If CLK\_REQ\_N is connected to PCIECLKRQ[1:2]#, the CLK\_REQ\_N pull-up resistor should be connected to +V3.3s

need check it

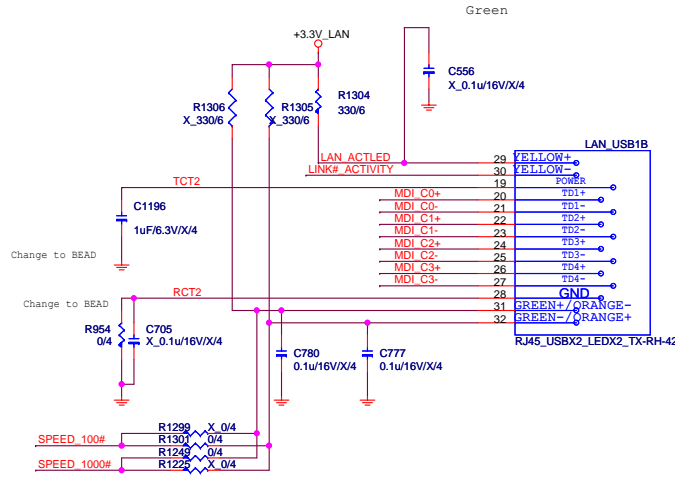


### +3.3V LAN

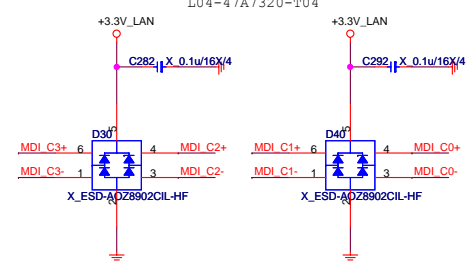


Note: These caps closed to PHY

### LAN Connector



CHOKE (>0.6A) AVL:  
L04-22A7470-T04  
\*L04-47A7340-T04  
L04-47A7330-T04  
L04-47A7320-T04



close to Connector close to Connector

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

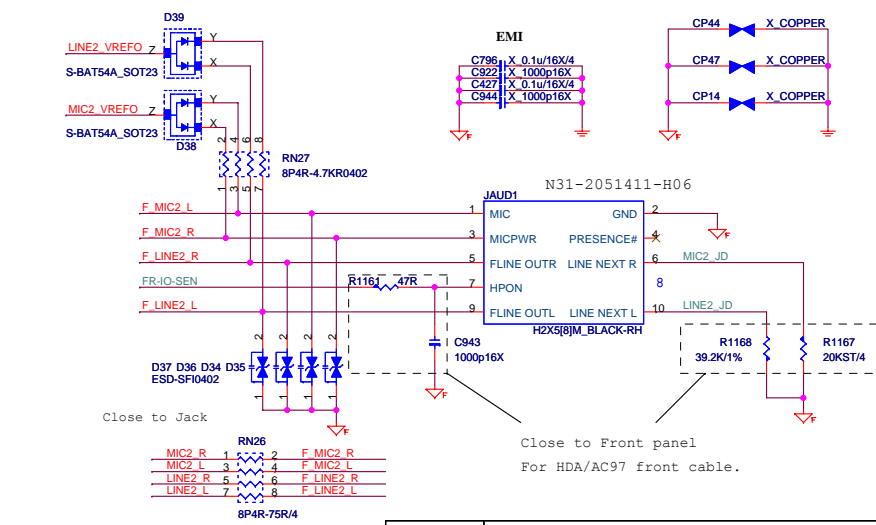
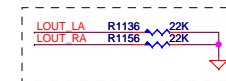
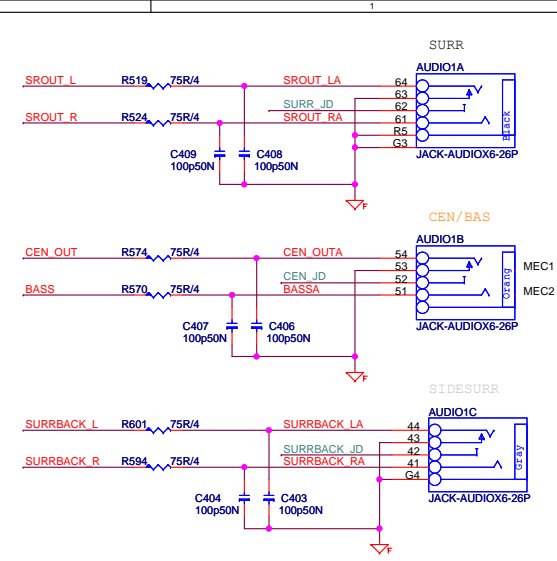
**MS-7760**

Size Custom	Document Description	Rev 1.1
LAN-RTL8111E-1		

Date: Thursday, September 08, 2011 Sheet 32 of 56

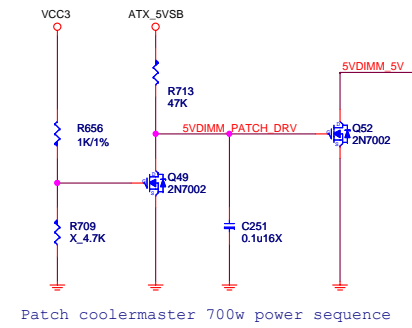
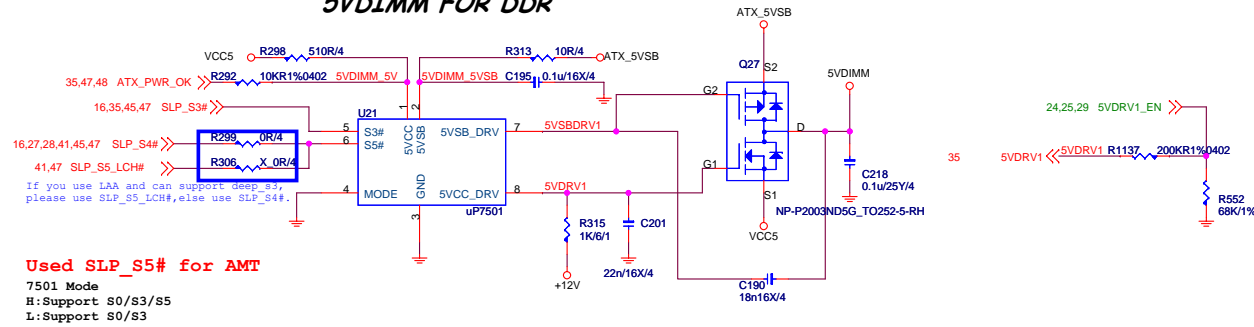
JFM38U1K-B301-4*		30		32
JFM38U1J-B301-4*		30		32
JFM38U1H-B301-4*		30		32
JFM38U1G-B301-4*		30		32
JFM38U1F-B301-4*		30		32
JFM38U1B-B301-4*		30		32
JFM38U1A-B301-4*		30		32
JFM38U14-B301-4*		30		32
JFM38U13-B301-4*		30		32
JFM38U12-B301-4*		30		32
JFM38U11-B301-4*		30		32
JFM38U10-B301-4*	NONE		NONE	
PART NO.	LED1		LED2	



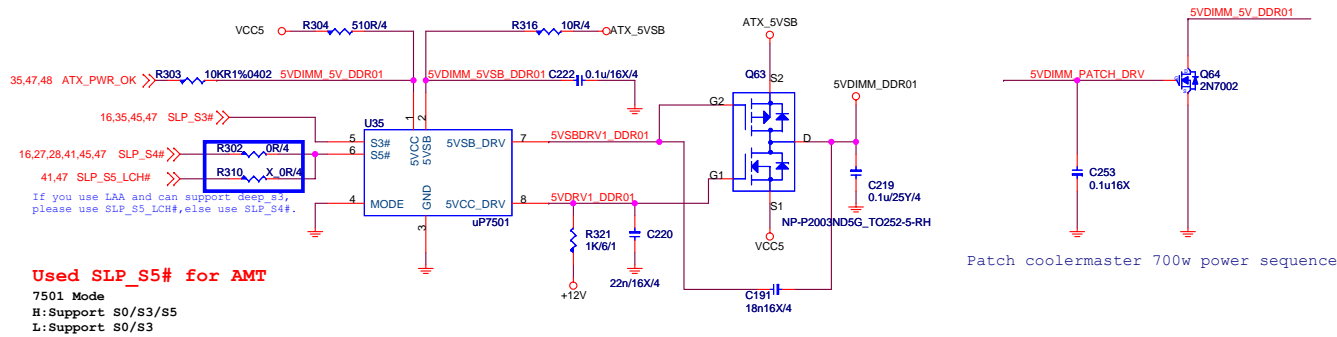


MICRO-STAR INT'L CO.,LTD		
MS-7760		
Size Custom	Document Description <b>Audio Codec ALC892</b>	Rev 1:

## 5VDIMM FOR DDR



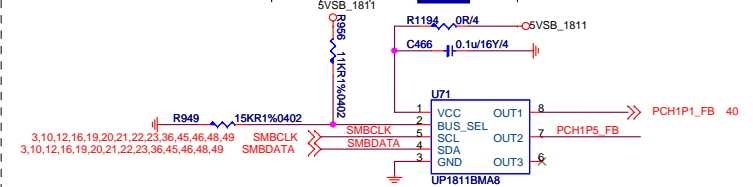
## 5VDIMM FOR DDR 01



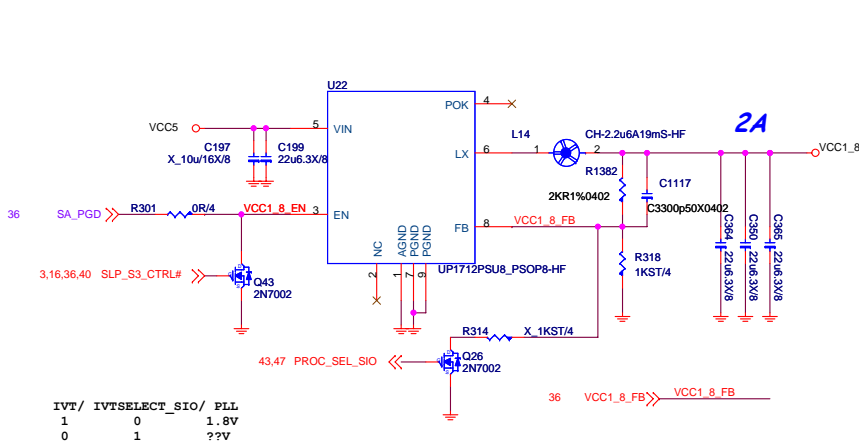
## UPI VOLTAGE CONSOLE

0x24: RH=11K, RL=15K

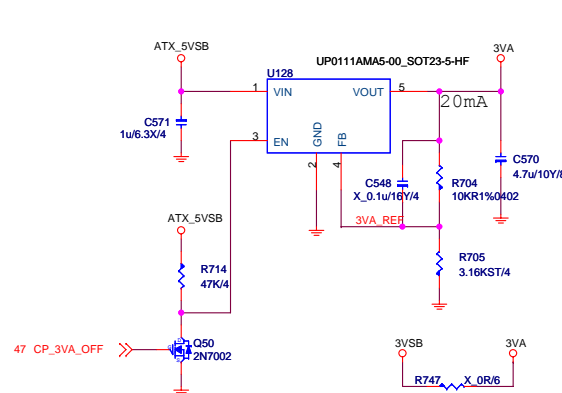
ADDRESS	0x2A	0x28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%



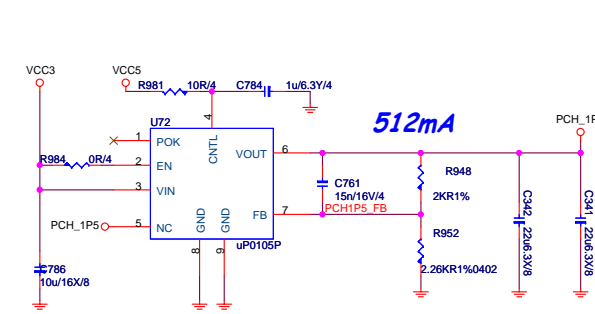
## CPU\_1.8



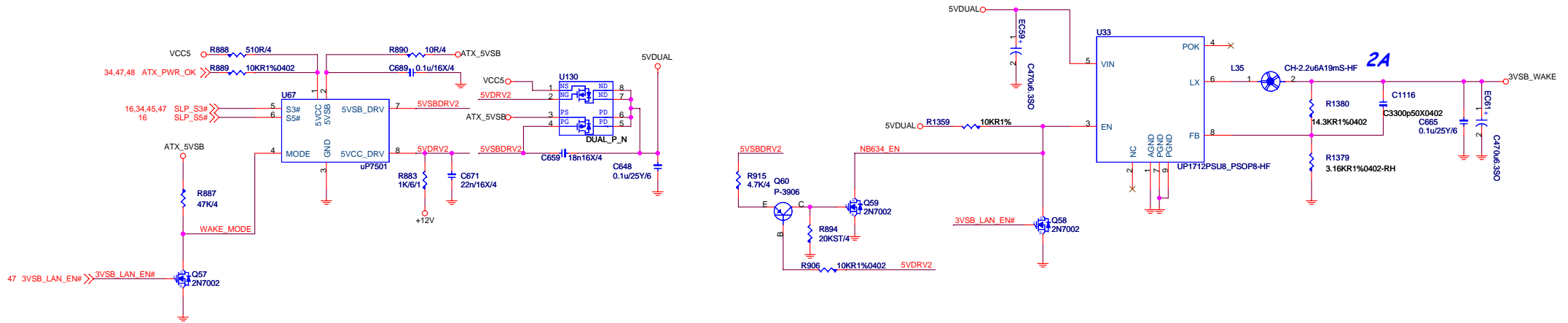
## 3VA



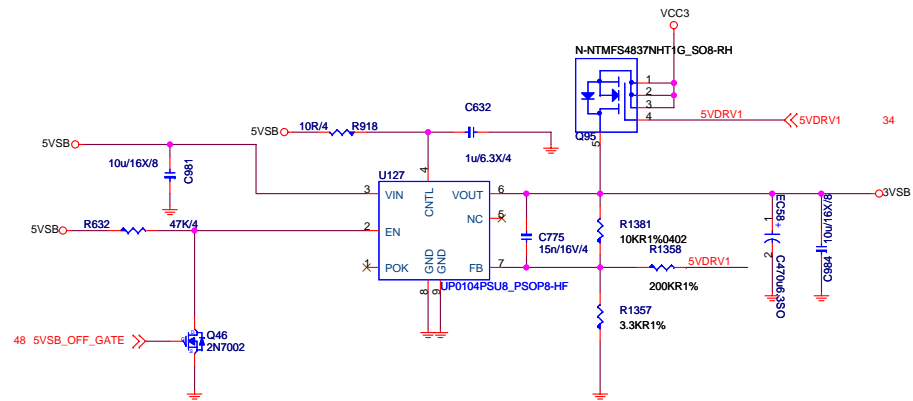
## PCH1.5



3VSB\_WAKE



3VSB

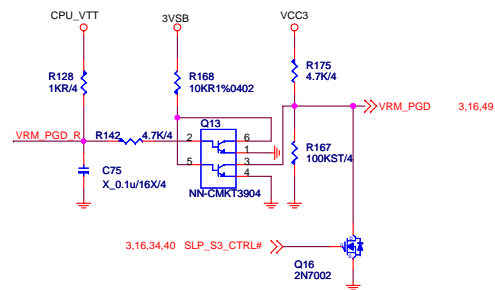


**MICRO-STAR INT'L CO.,LTD**

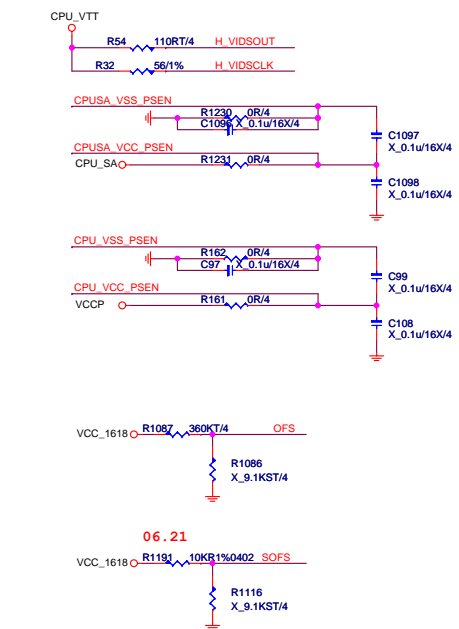
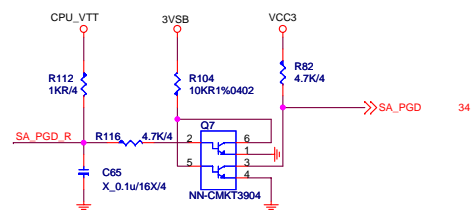
MS-7760

Size Custom	Document Description <b>ACPI controller UPI</b>	Rev 1.1
Date: Thursday, September 08, 2011	Sheet 35 of 56	

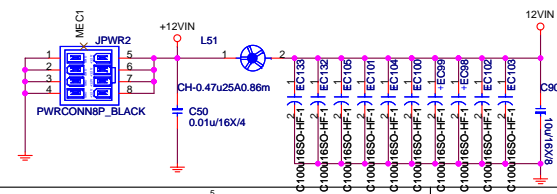
# VRMPWRGD LEVEL SHIFT



# SAPGD LEVEL SHIFT



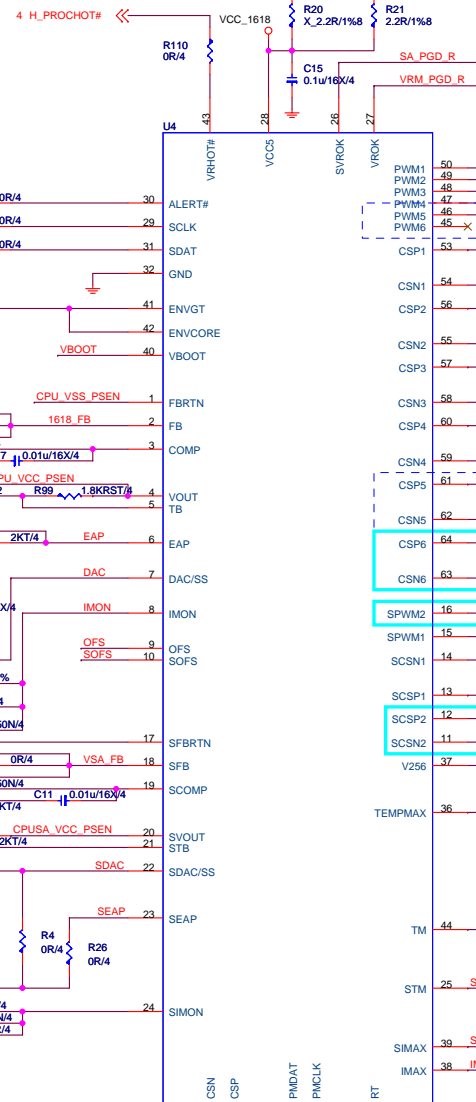
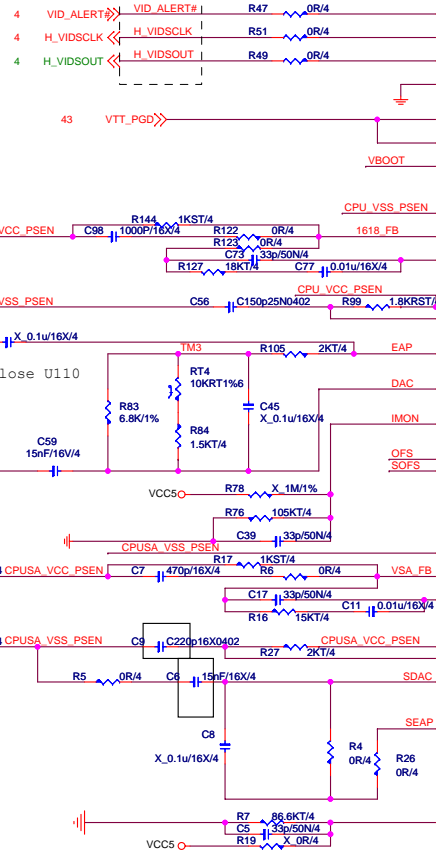
$$5000\text{mA} \times 4 \times 1 = 20\text{A} > 13.7\text{A} \quad (7.68)$$



# UPI VOLTAGE CONSOLE

ADDRESS	0x2A	0x28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%

3000mil < L < 6000mil  
4mil / 20mil  
55 ohm Impedence  
must be Referenced GND



VBOOT\_OC#/VCCP/VSA/VBOOT  
1(Default) 0V 0.9V 11.7%  
0 1.1V 0.9V 82.4%

3.45,47 VBOOT\_OC#

H1X2M-2PITCH\_BLACK-RH

Q19 2N7002

R107 10KR1%0402

R108 47K

C53 X\_0.1u/16X/4

CPU\_V256

R97 12K/1%

R98 2.94K/1%

C41 X\_0.1u/16X/4

R81 X\_12K/1%

MSI

MICRO-STAR INT'L CO.,LTD

MS-7760

VRD12 - UPI1618

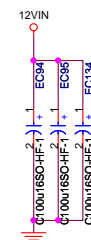
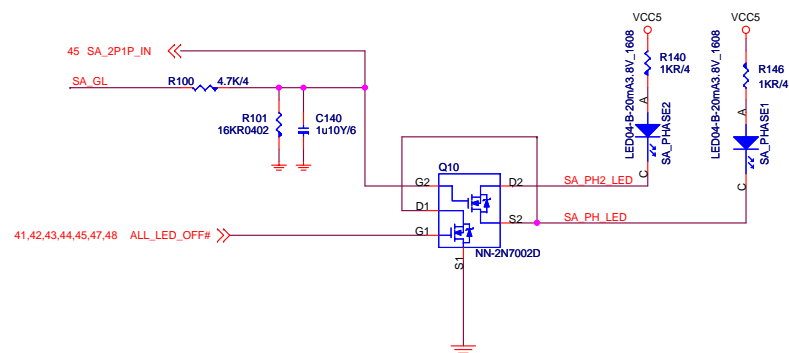
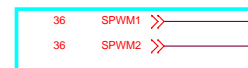
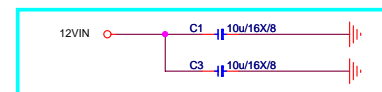
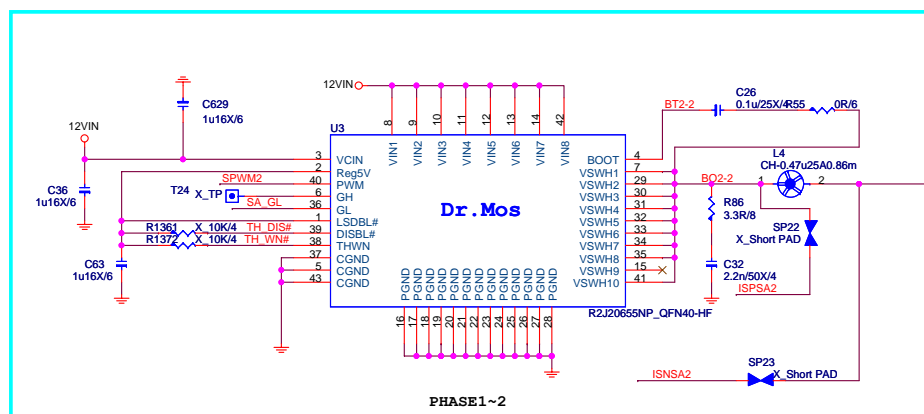
Size Custom

Document Description

Date: Thursday, September 08, 2011

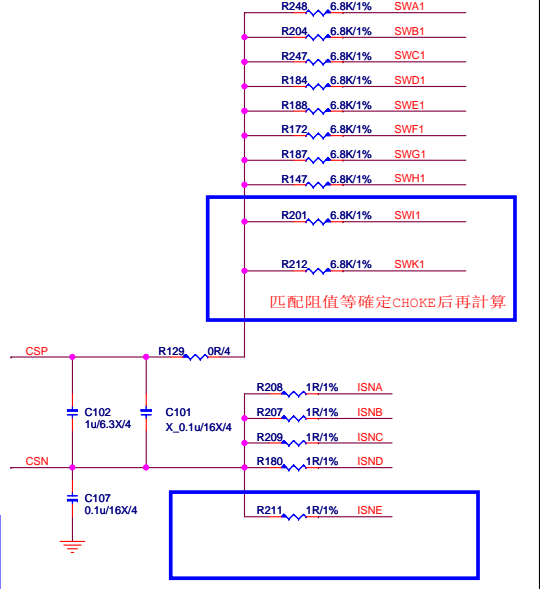
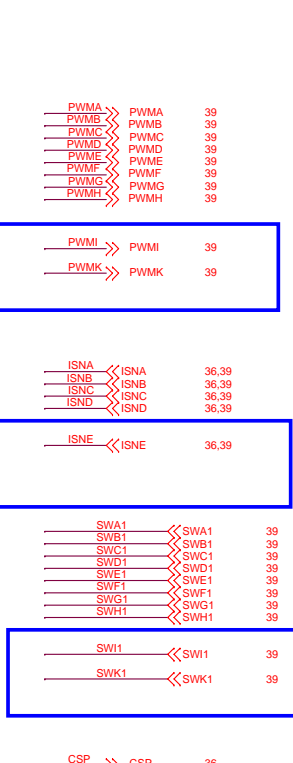
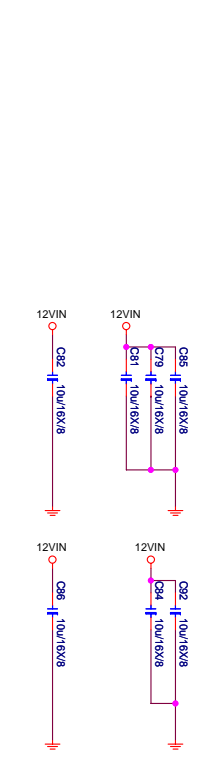
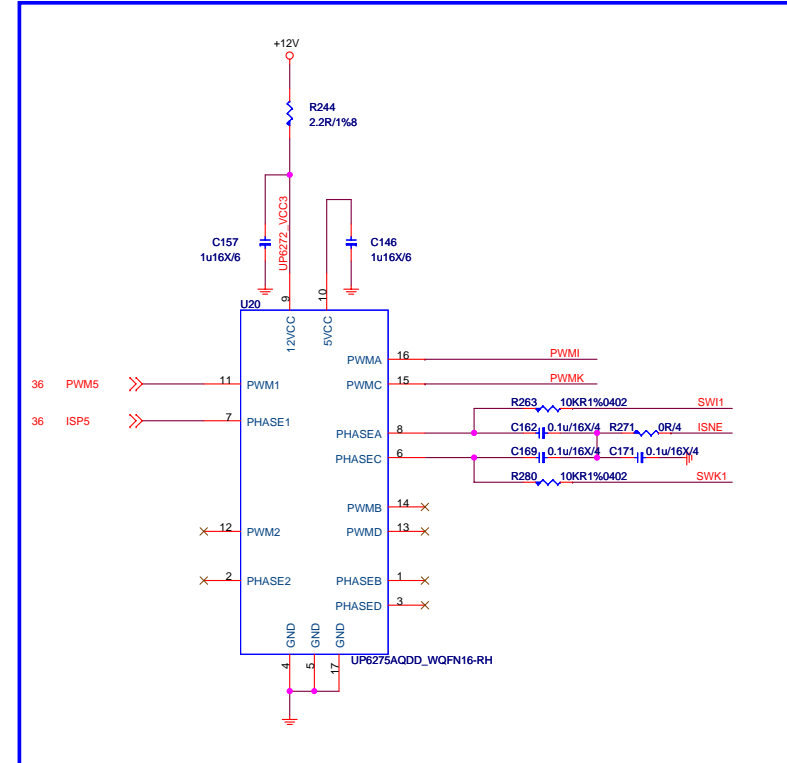
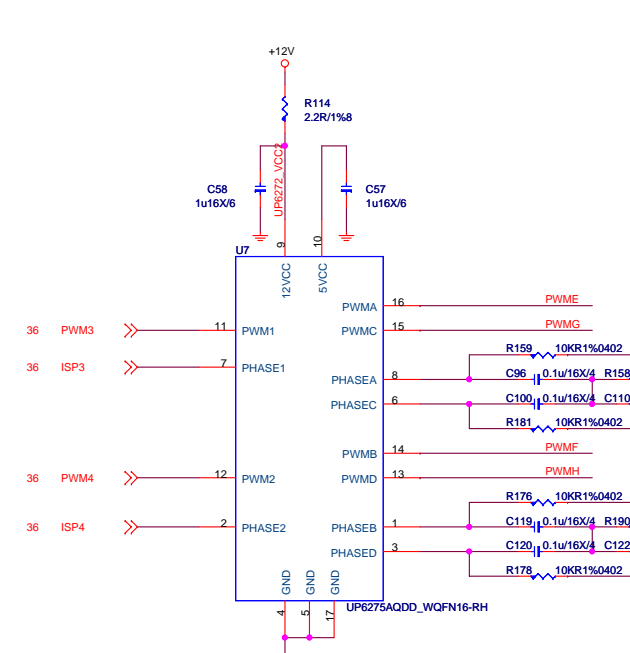
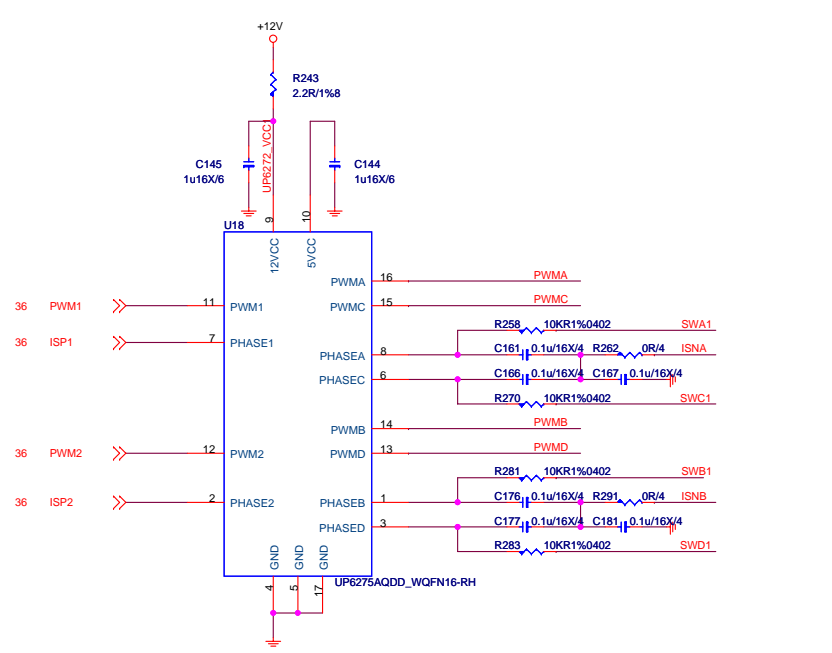
Sheet 36 of 56

Rev 1.1



MS-7760

Size Custom	Document Description <b>UP1618 2-Phase SA (Dr.Mos)</b>	Rev 1.
Date: Thursday, September 08, 2011		Sheet 37 of 56




PWMA	PWMA	39
PWMB	PWMB	39
PWMC	PWMC	39
PWMD	PWMD	39
PWME	PWME	39
PWMF	PWMF	39
PWMG	PWMG	39
PWMH	PWMH	39

ISNA	ISNA	36,39
ISNB	ISNB	36,39
ISNC	ISNC	36,39
ISND	ISND	36,39

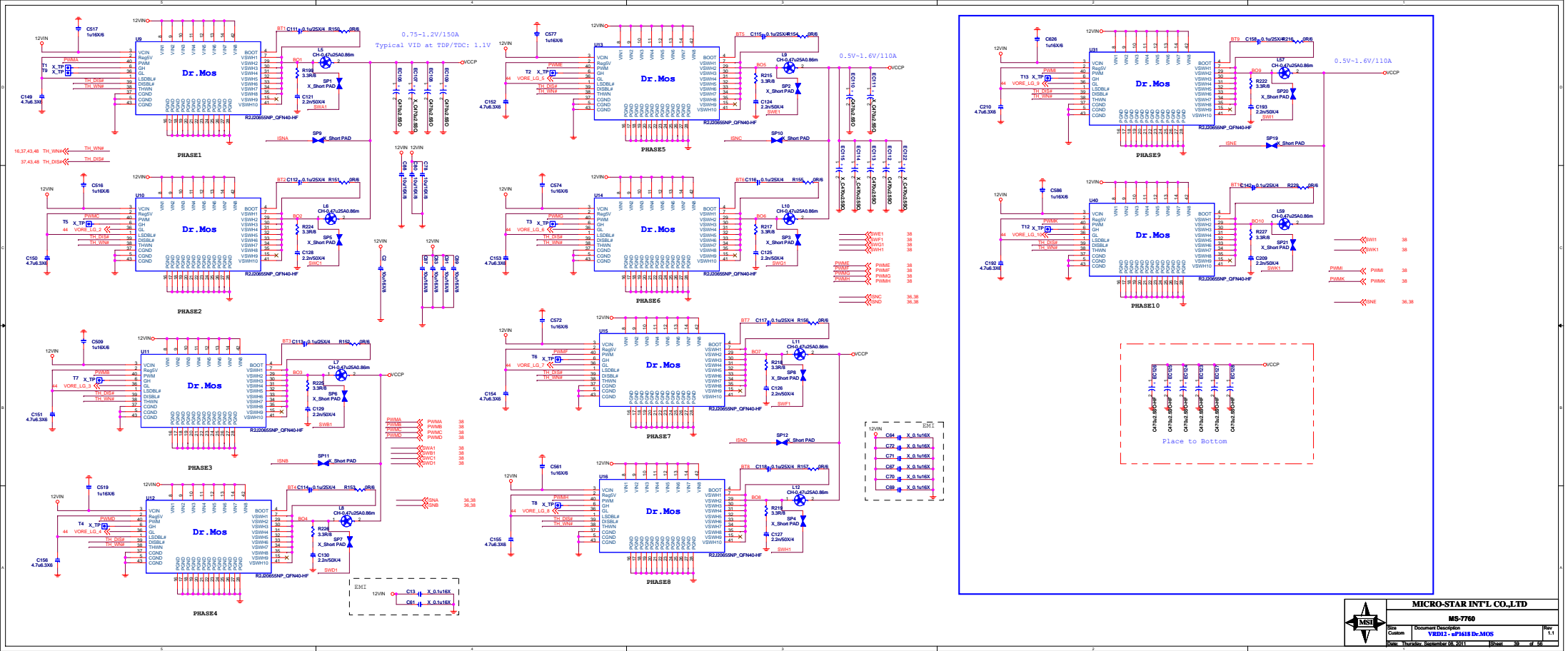
SWA1	SWA1	39
SWB1	SWB1	39
SWC1	SWC1	39
SWD1	SWD1	39
SWF1	SWF1	39
SWG1	SWG1	39
SWH1	SWH1	39

SWI1	SWI1	39
SWK1	SWK1	39

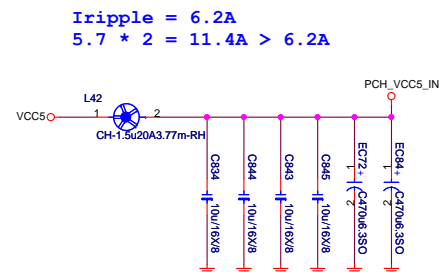
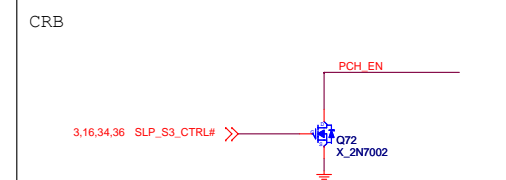
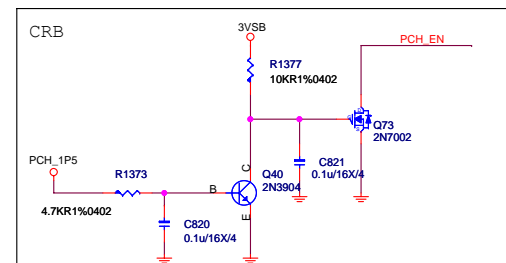
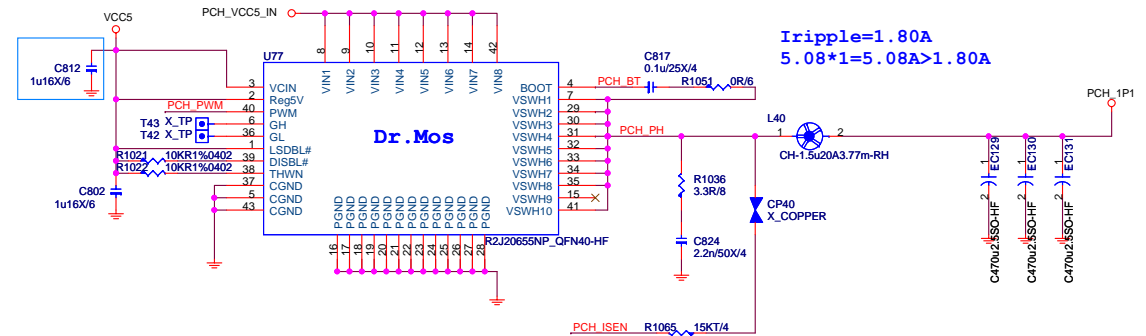
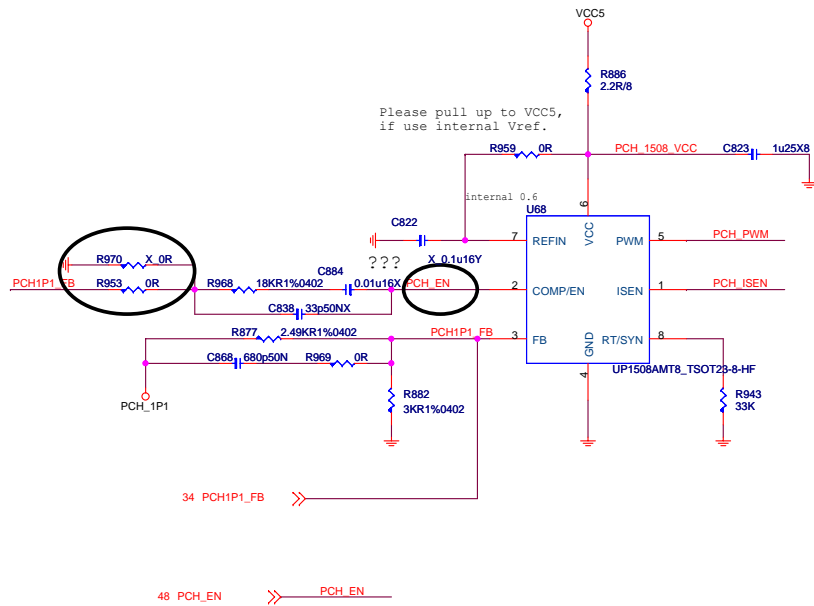
CSP	CSP	36
CSN	CSN	36



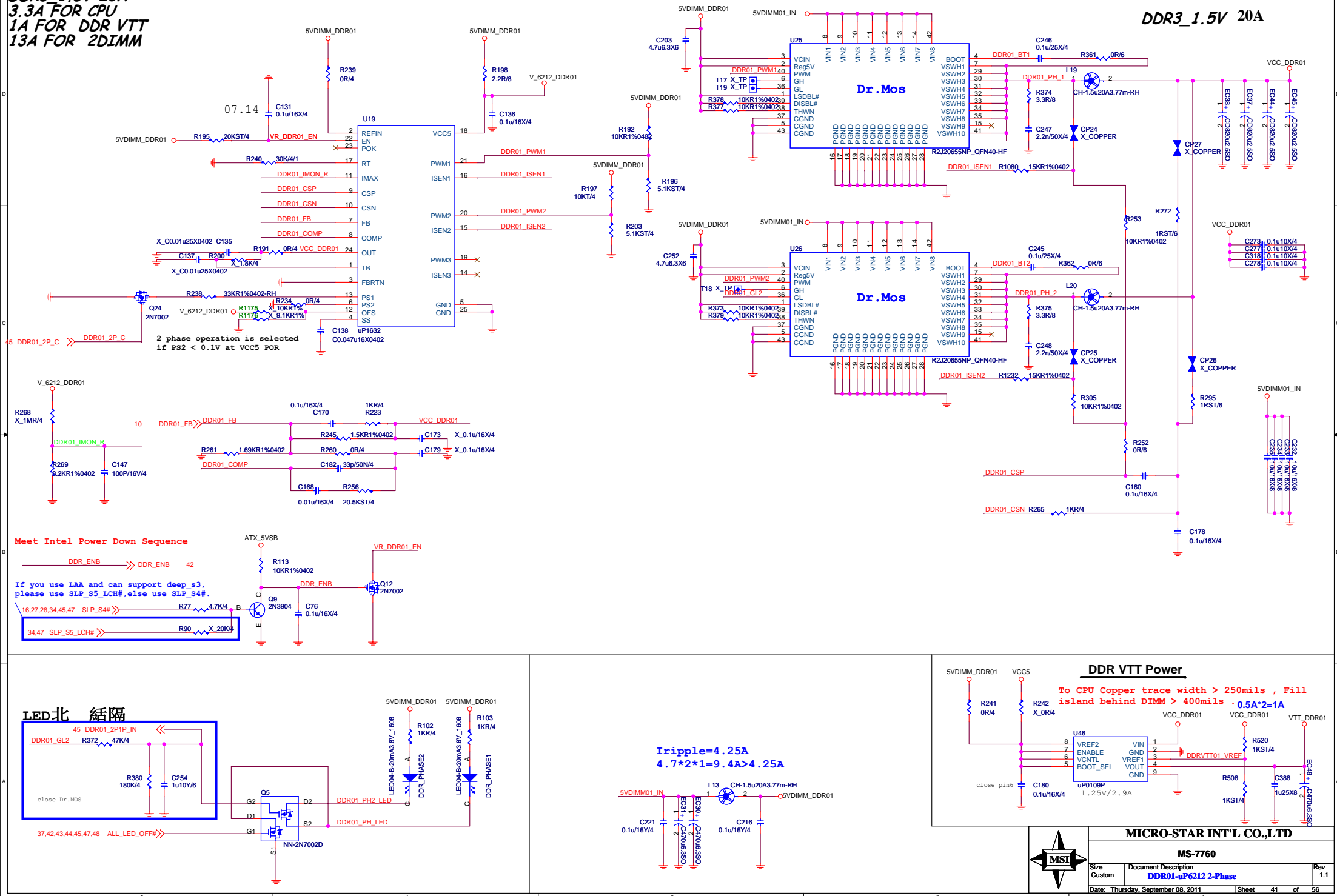
MICRO-STAR INT'L CO.,LTD		
MS-7760		
Size	Document Description	Rev
Custom	uP6275 - 4Phase to 8Phase	1.1
Date:	Thursday, September 08, 2011	Sheet 38 of 56



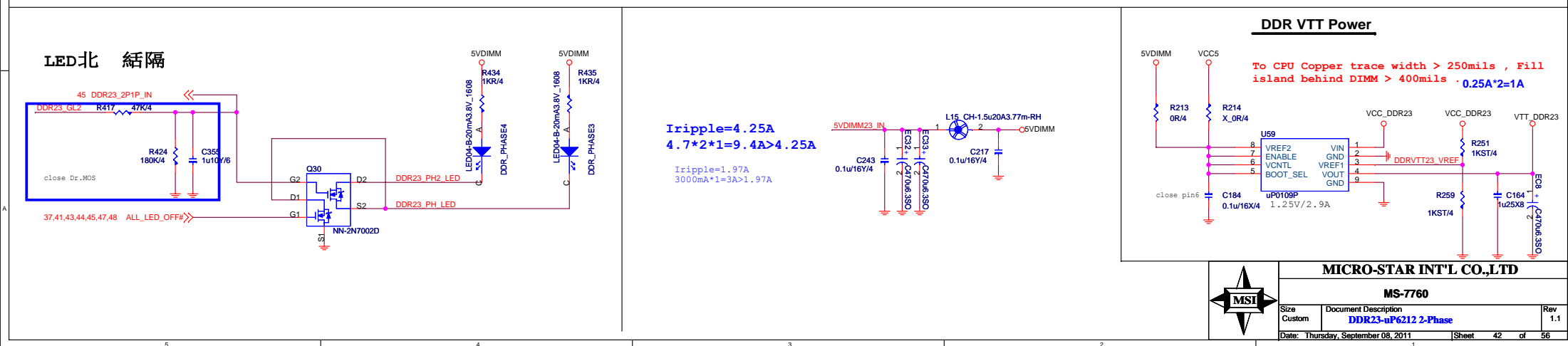
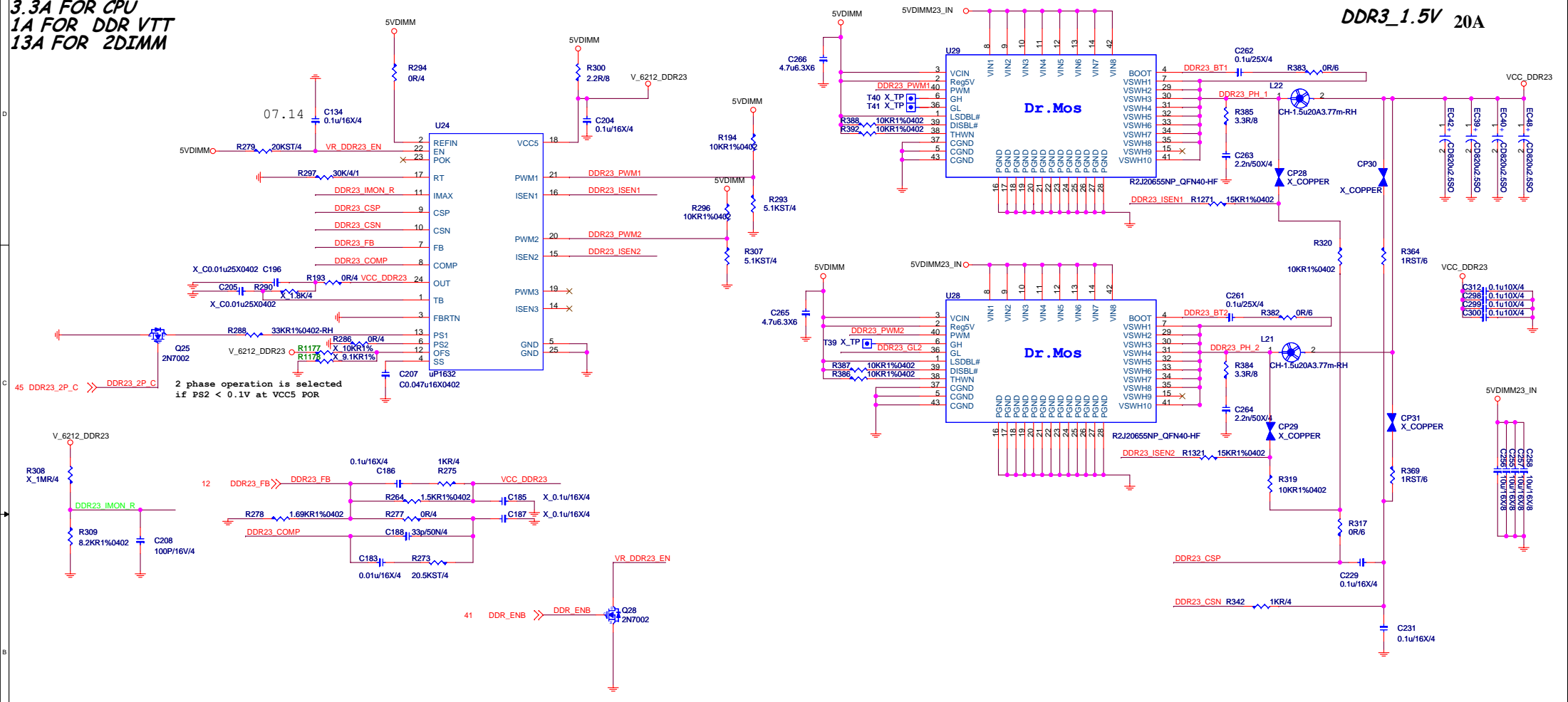




**DDR3\_1.5V 20A**



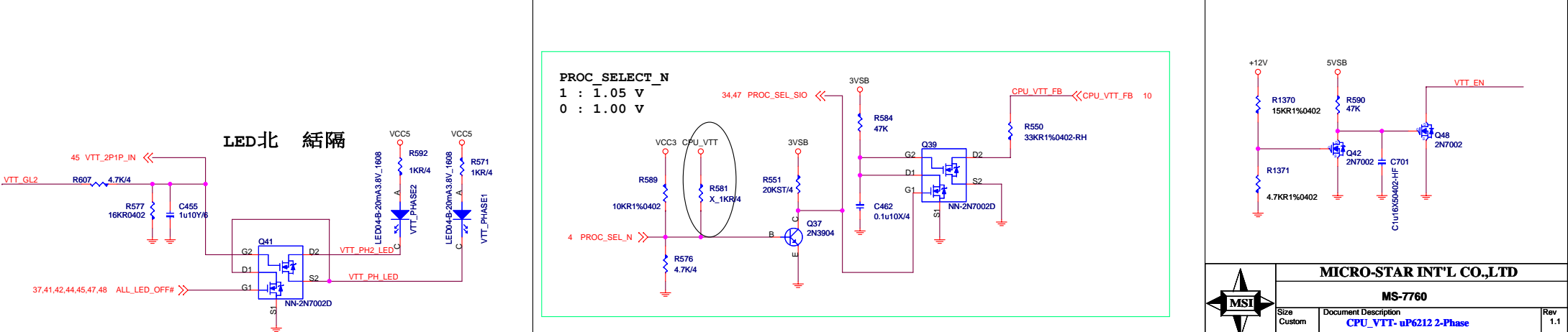
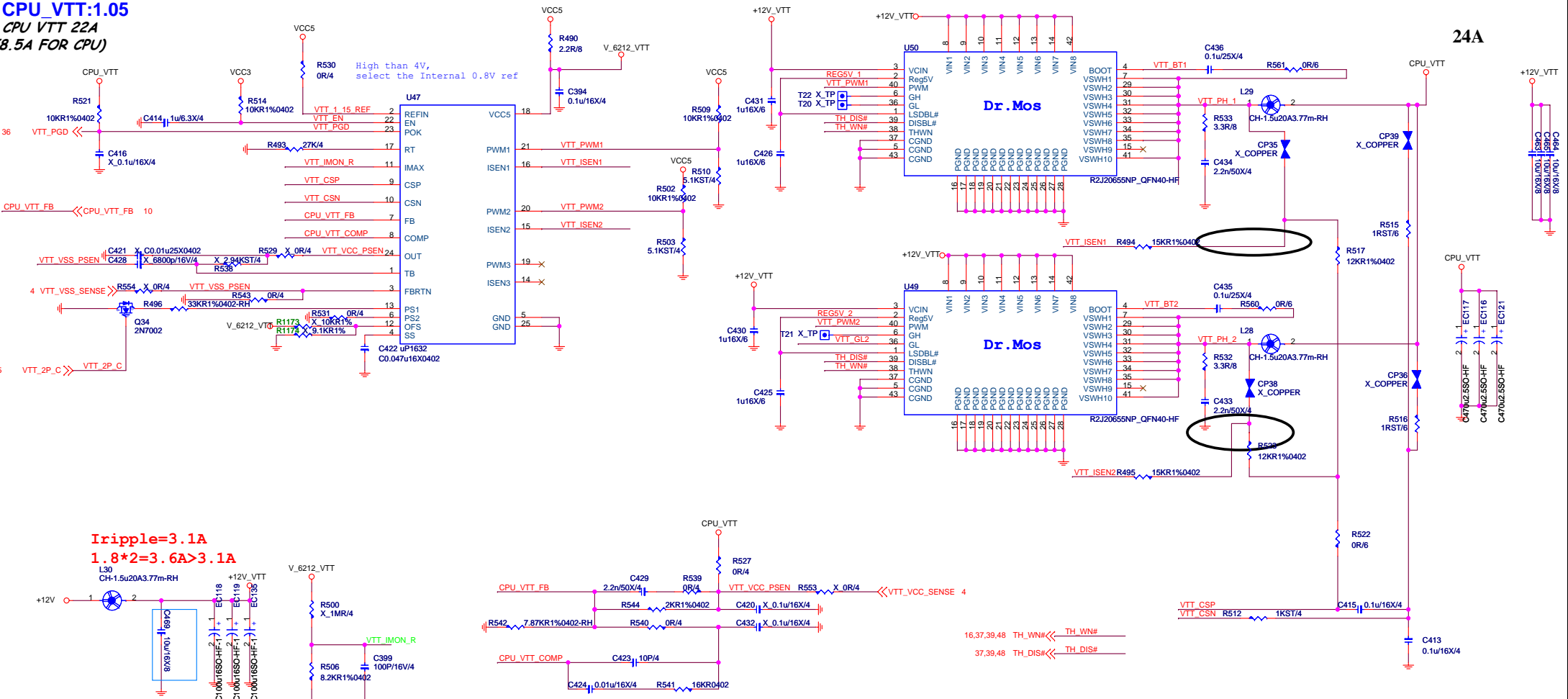
**DDR3 1.5V 20A**  
**3.3A FOR CPU**  
**1A FOR DDR VTT**  
**13A FOR 2DIMM**

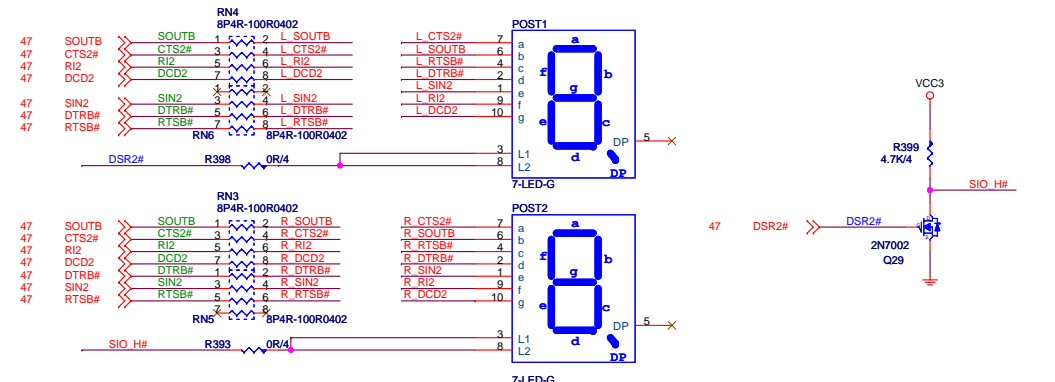
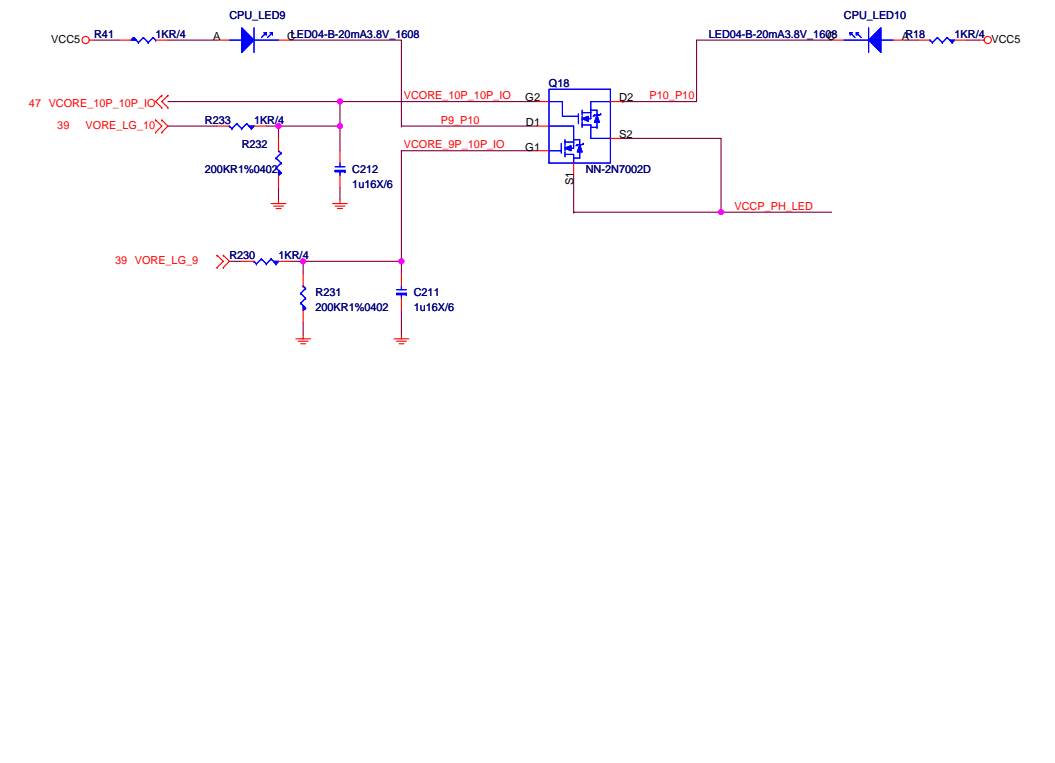
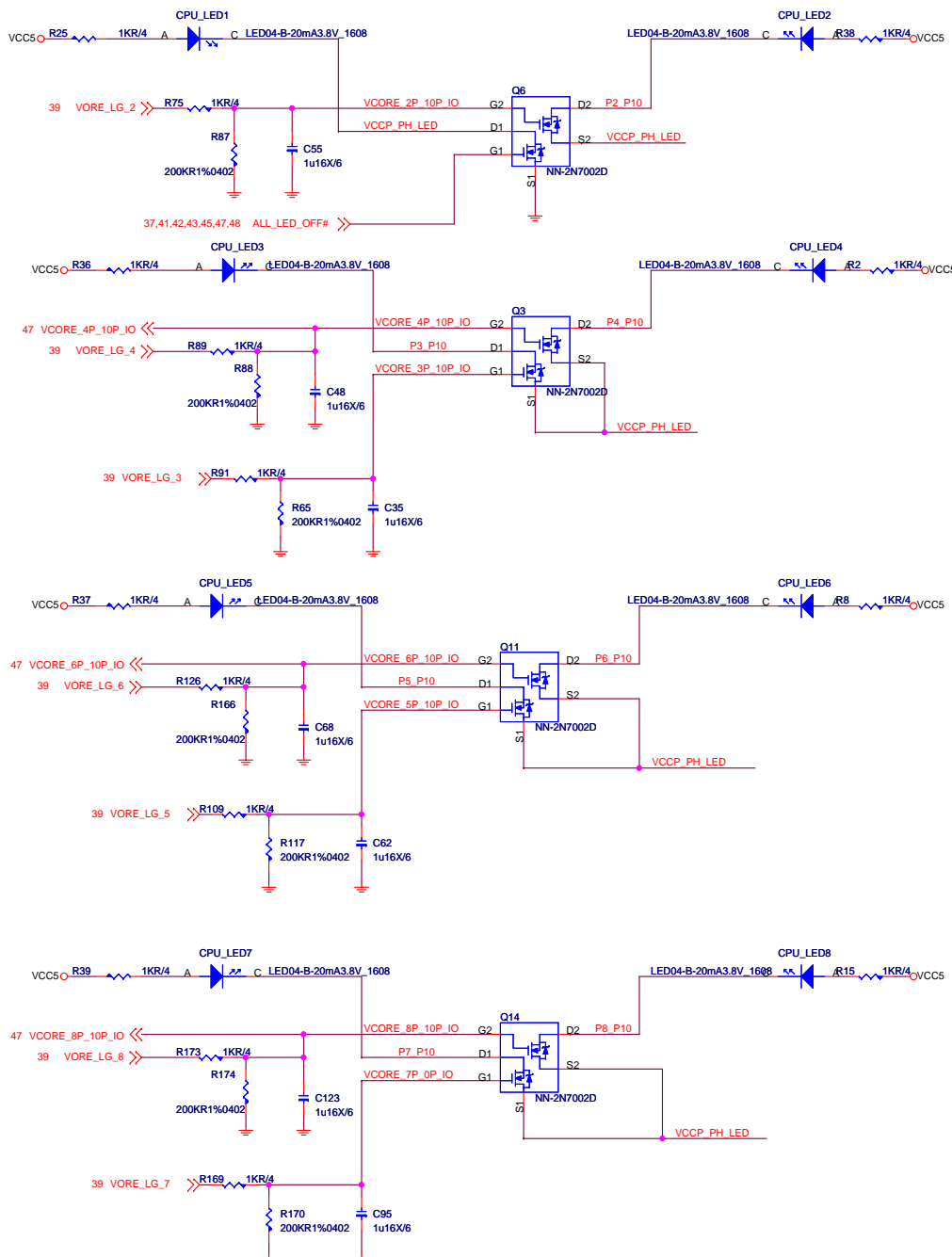


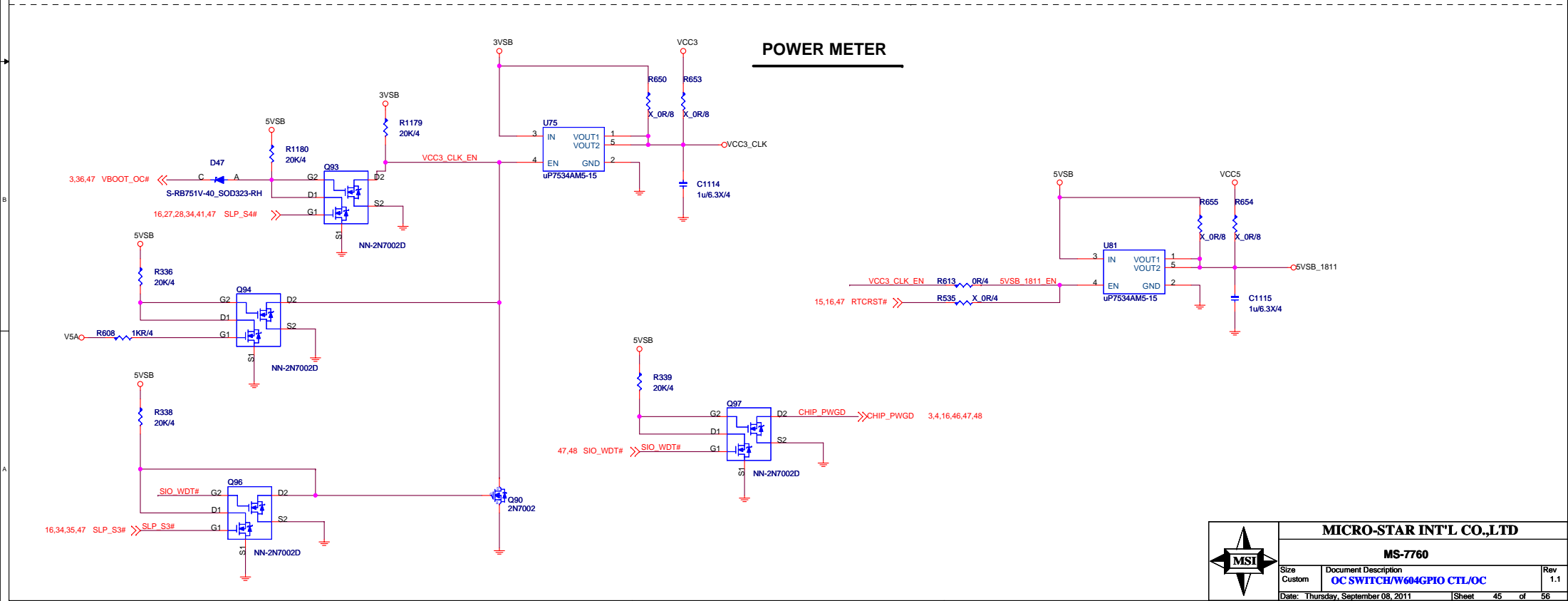
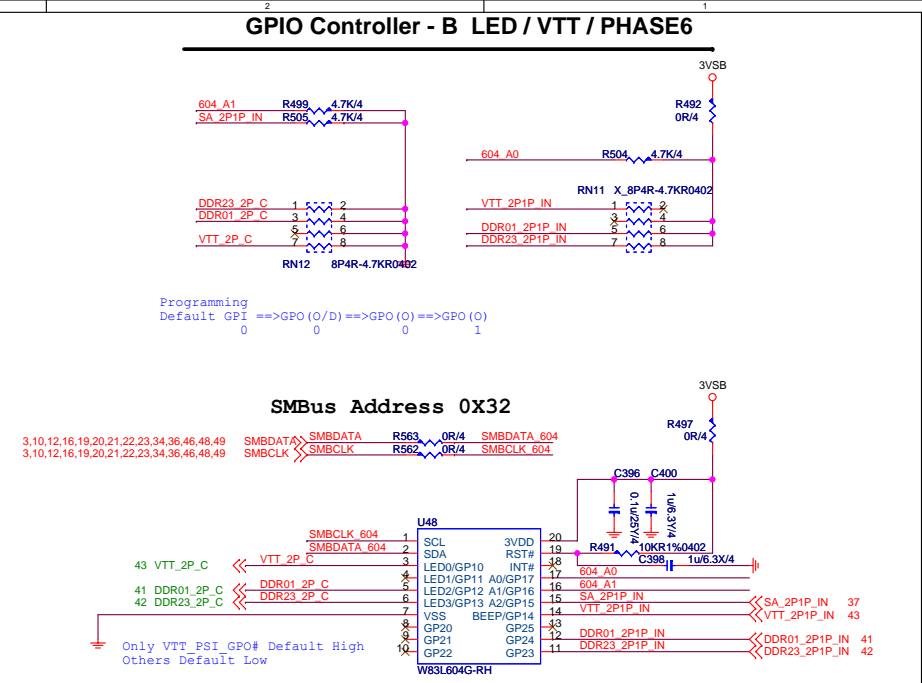
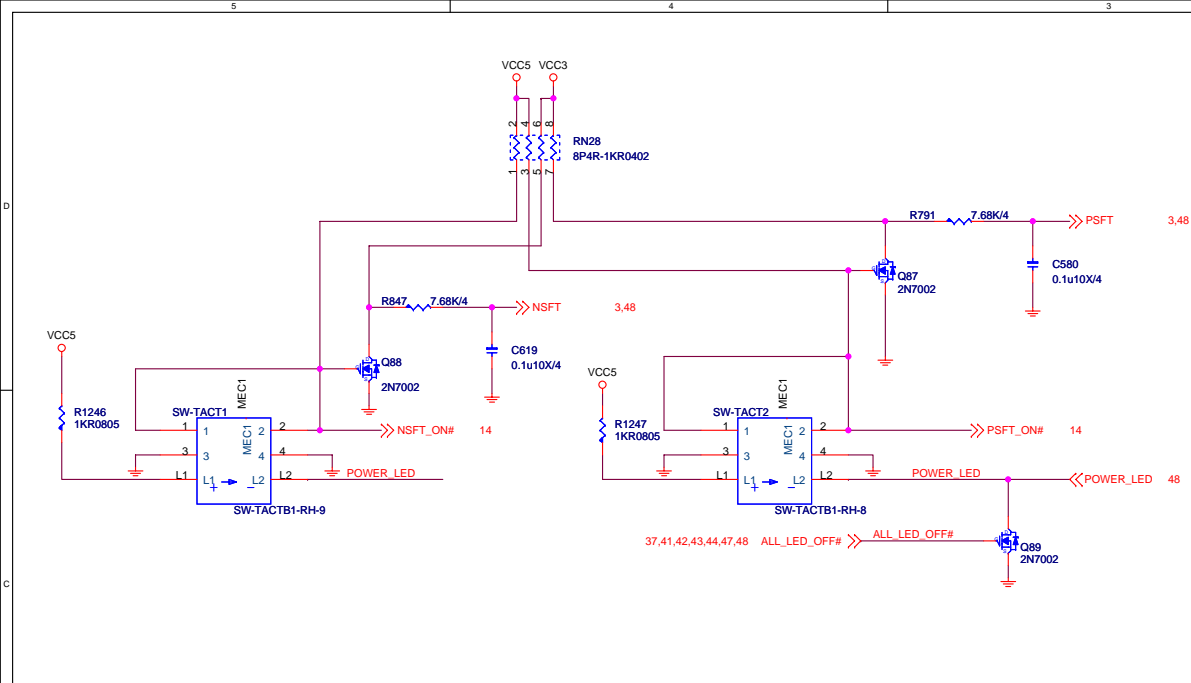
**Iripple=4.25A**  
 $4.7 \times 2 \times 1 = 9.4A > 4.25A$

Iripple=1.97A  
 $3000mA \times 1 = 3A > 1.97A$

**CPU\_VTT:1.05**  
CPU VTT 22A  
8.54 FOR CPU()





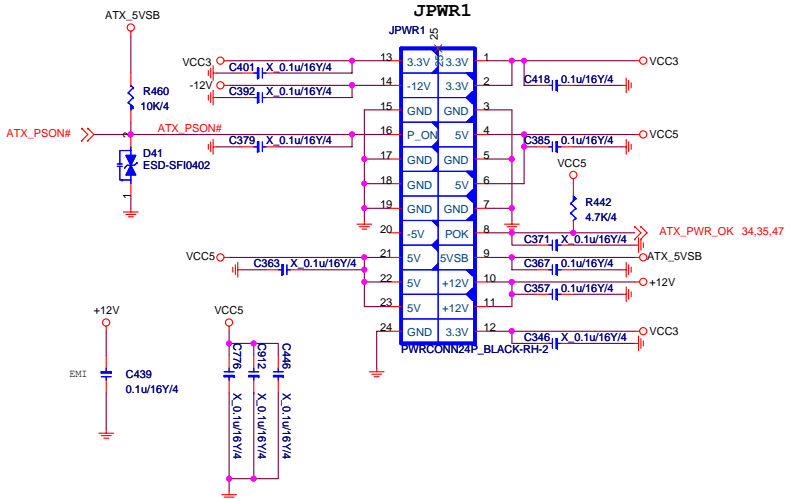




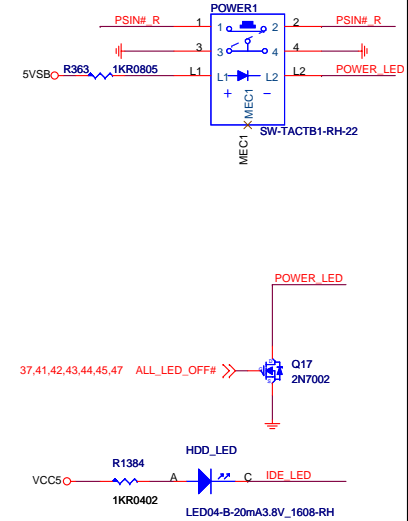
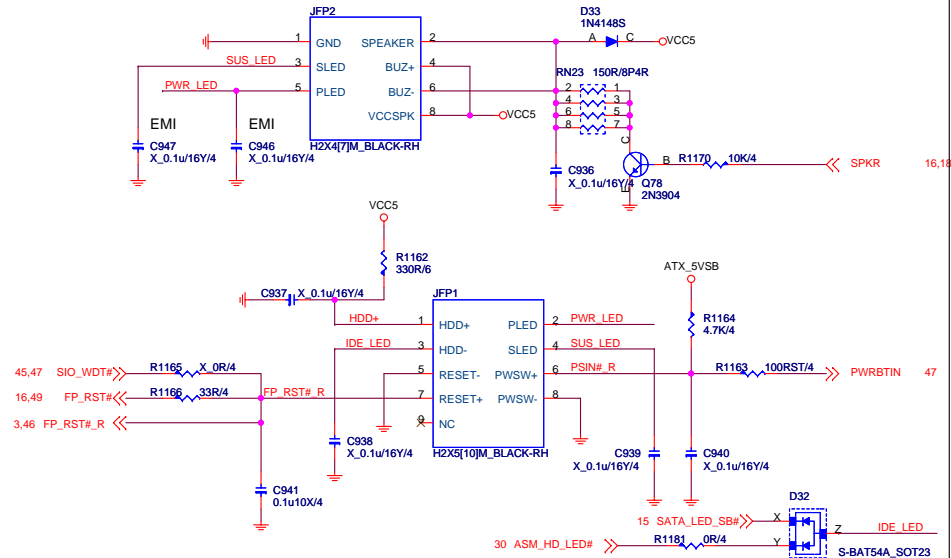




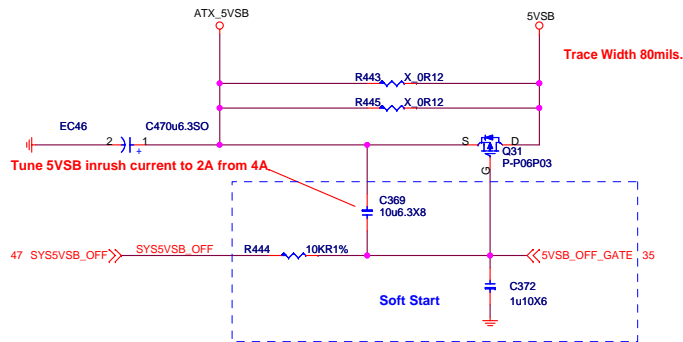
## ATX POWER CONNECTOR



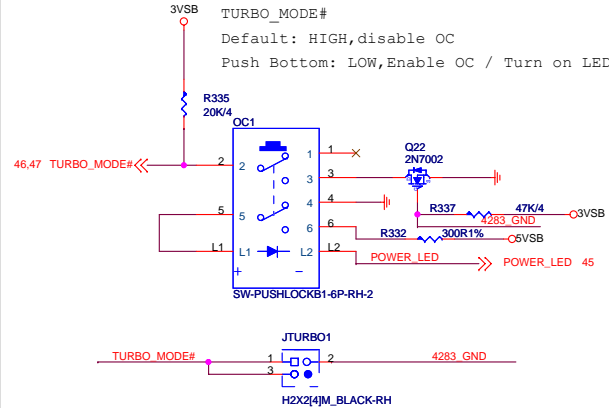
## FRONT PANNEL



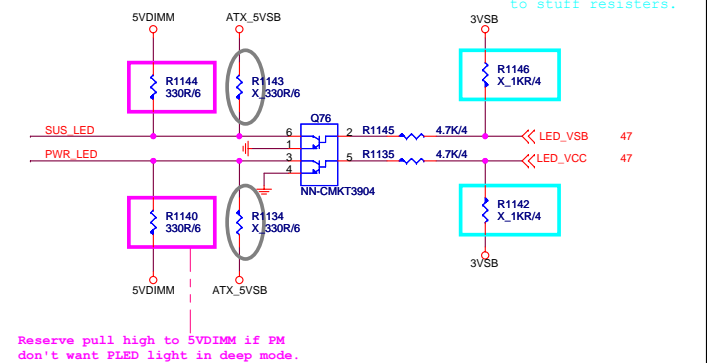
## 5VSB Power Switch



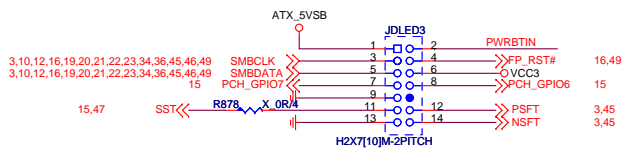
## Turbo Button



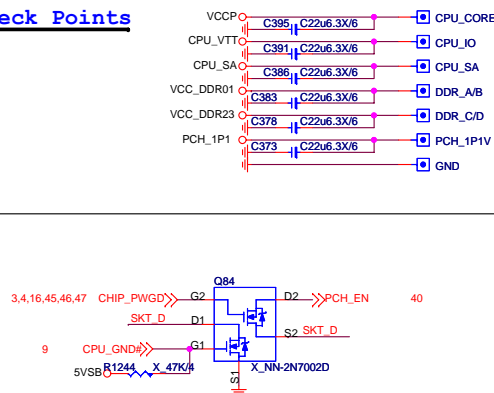
## LED ( for Fintek 71889)



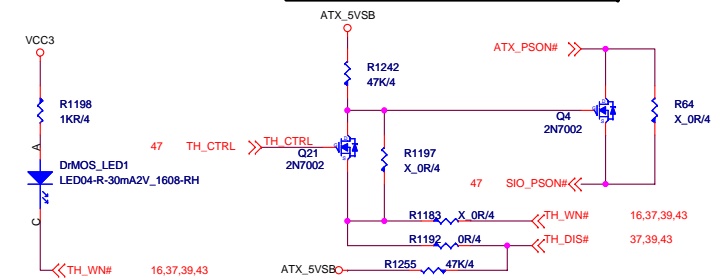
## JDLED3



## V-Check Points



## THERMAL SHUTDOWN

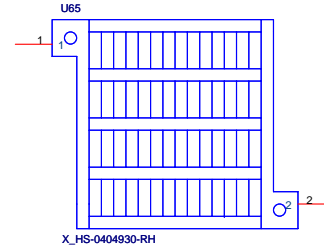
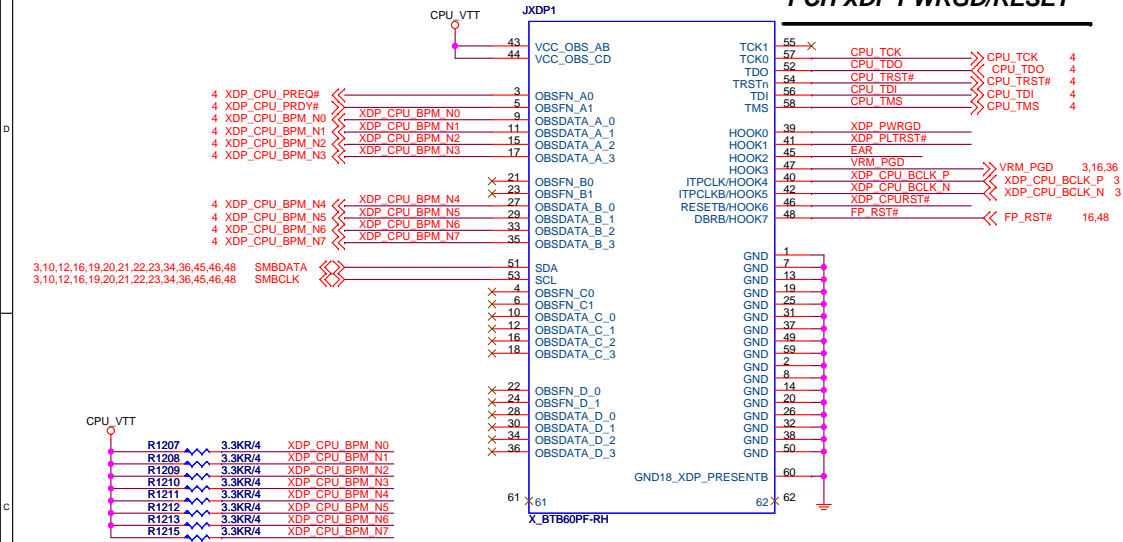


MICRO-STAR INT'L CO.,LTD

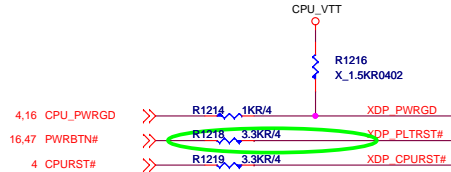
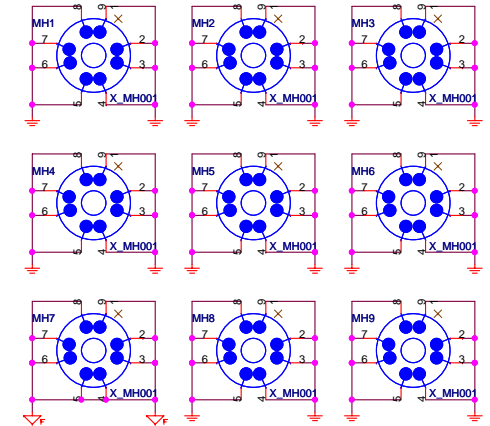
MS-7760

Size	Document Description	Rev
Custom	ATX PWR-Connector & Front Panel	1.1
Date:	Thursday, September 08, 2011	Sheet 48 of 56

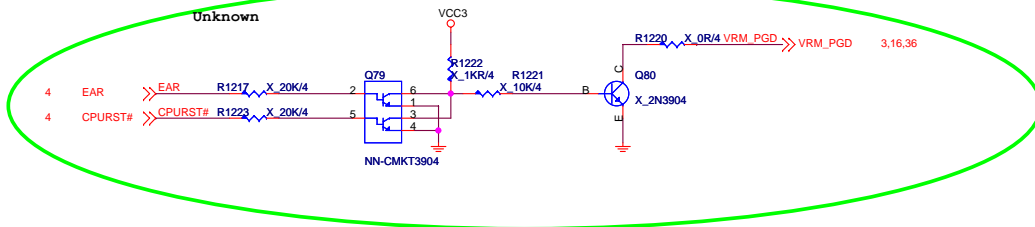
# PCH XDP PWRGD/RESET



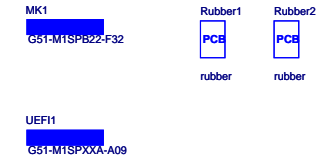
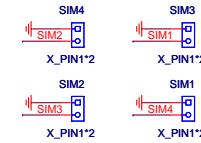
## Mounting Holes



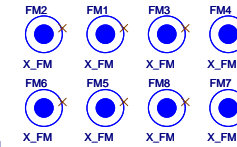
Unknown



## Simulation



## Optical Fiducial Marks-120



## Optical Fiducial Marks-100

