MS-7750 Ver: 1.0 ATX 305*220mm

CPU:

INTEL - Sandy Bridge LGA 1155

System Chipset:

INTEL - Cougar Point PCH(H67/Z68)

OnBoard Chipset:

HD Audio Codec:ALC887 co-lay 892
LAN:RTL 8111E 10/100/1000 , Co-lay 8105E 10/100
SIO:FIN71869AD
Flash ROM:64Mb SPI (PCH)

Main Memory:

DDRIII (1066/1333MHz) * 4 (Dual Channel)

Expansion Slots:

PCI Express (X16) Slot * 1
PCI Express (X4) Slot * 1
PCI Express (X1) Slot * 2

PCI Slot * 3

PWM:

Controller:VRD12 UP1625 3Phase
CPU+GPU: UP6282 MOSFET Driver
CPU VTT: IP6103
CPU SA : OP+MOS
DDR: UP6103
PCH: UP6103

ACPI:

UPI

Other:

SATA3.0 x2 (PCH)+ SATA2.0 x4 (PCH)

USB2.0 RearX4 Front x8
USB3.0 RearX2
D-SUB *1
TPM Header *1
COM Header *1
LPT Header *1
on BOARD BUZZER

BOM:

1.H67 Full Spec(mil)
2.H61 Full Spec(mil)
3.H61 common Spec(mil)

Manual & Option
Manual & Option
Manual & Option

MICRO-STAR INT'L CO.,LTD
MS-7750
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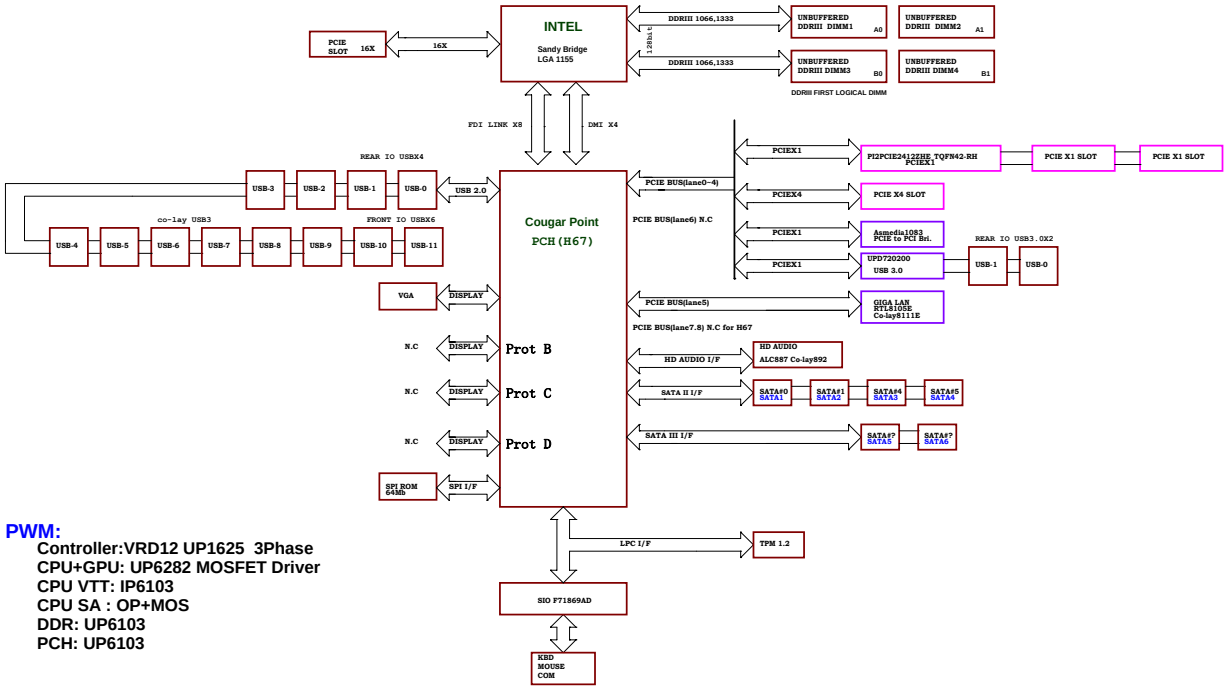
MS-7750 Ver:1.0

ATX 305*205mm



PWM:

- Controller:VRD12 UP1625 3Phase
- CPU+GPU: UP6282 MOSFET Driver
- CPU VTT: IP6103
- CPU SA : OP+MOS
- DDR: UP6103
- PCH: UP6103

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Size: Custom | Document Description: Block Diagram | Rev: 1.0

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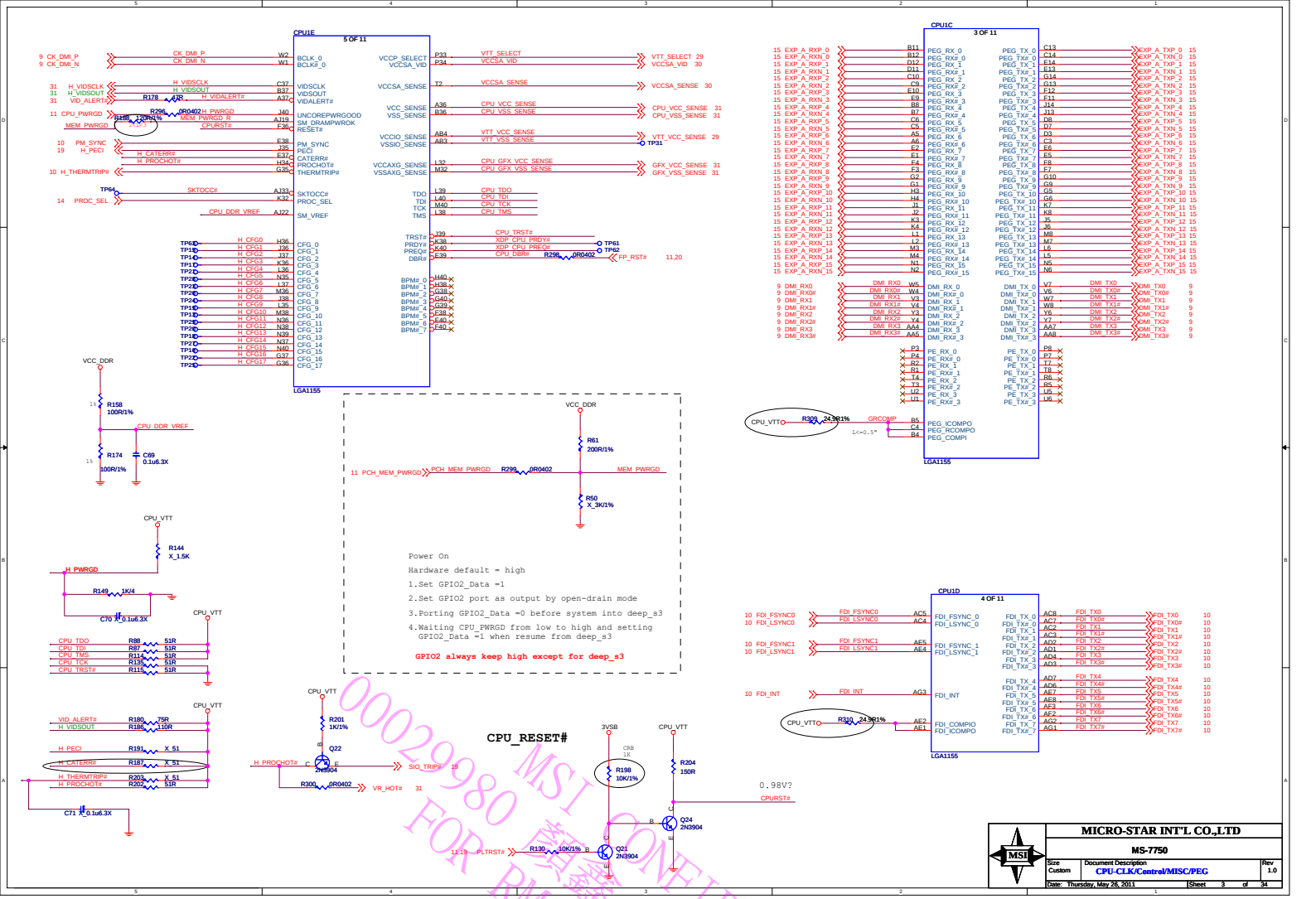

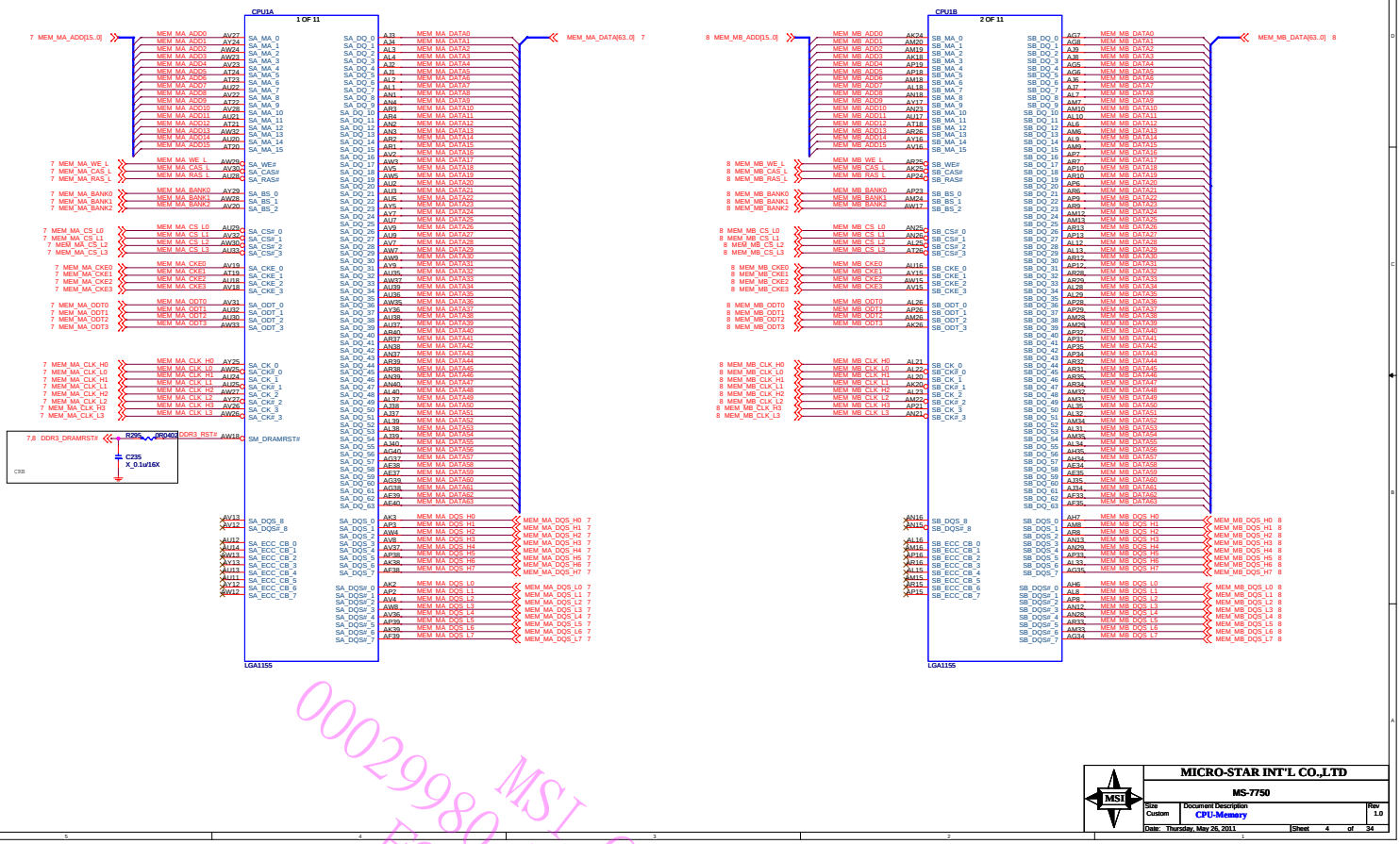

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MS-7750		
Size: Custom	Document Description: CPU-Memory	Rev: 1.0
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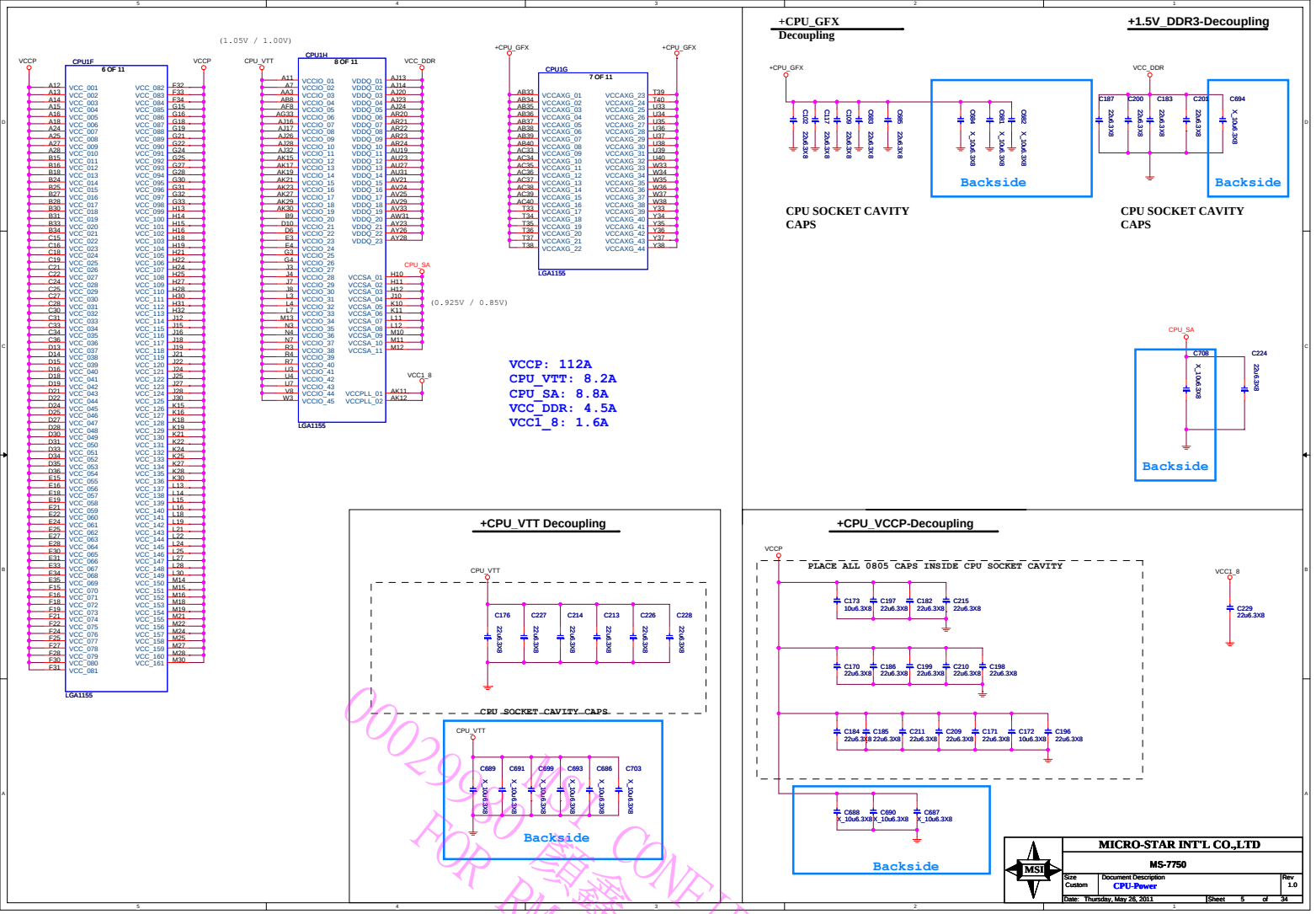

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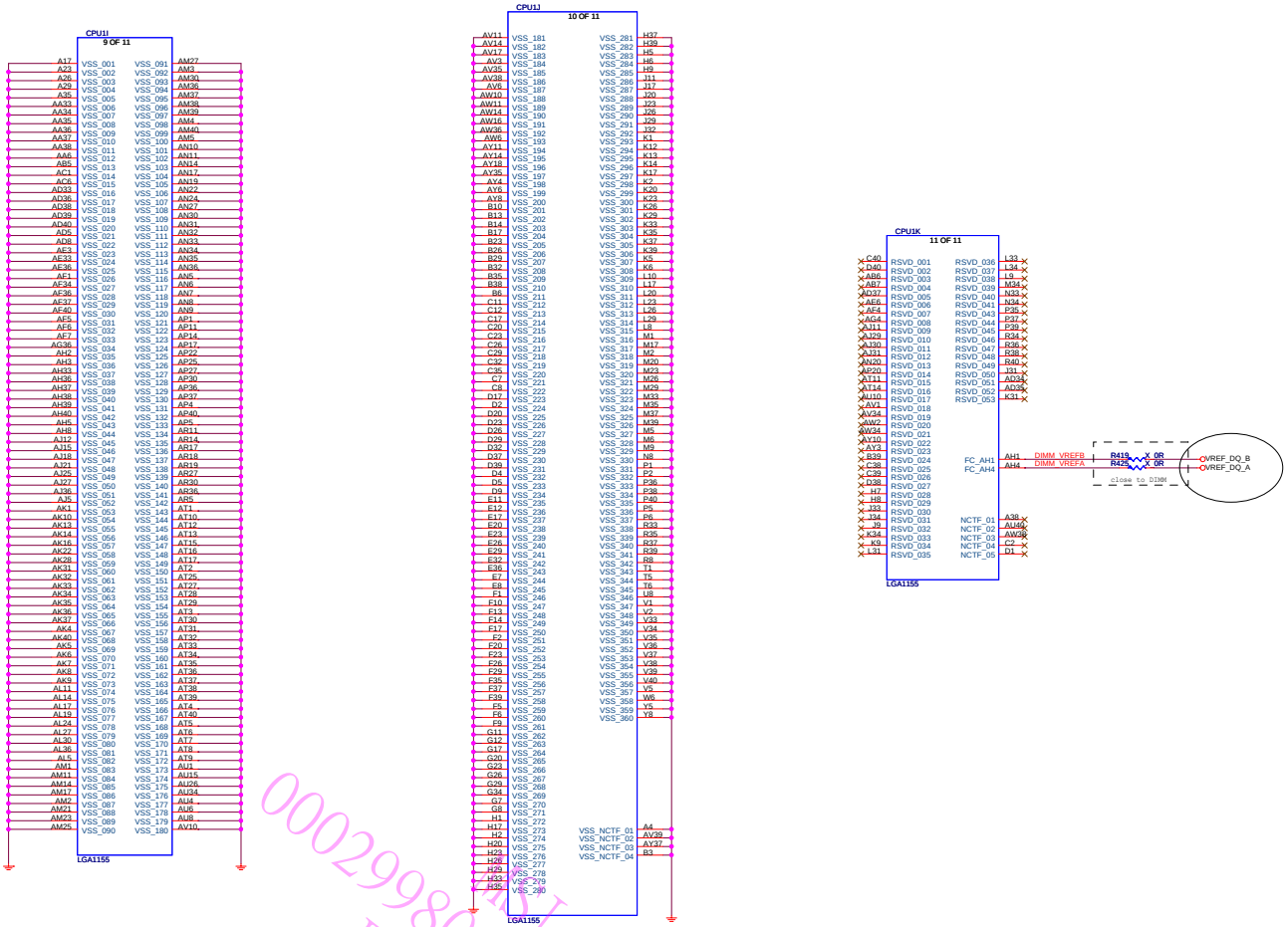
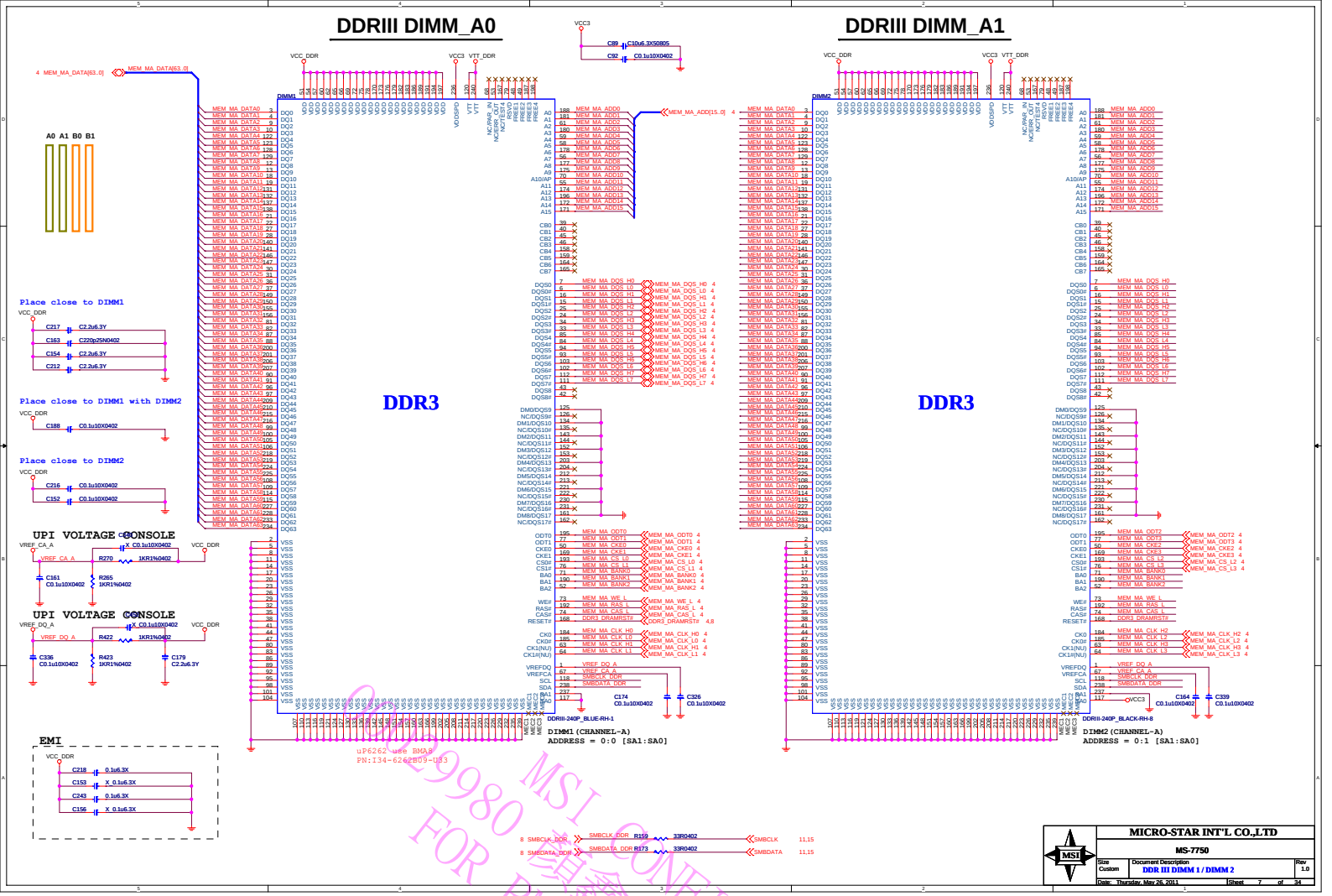
MS-7750

Size: Custom | Document Description: CPU-Power | Rev: 1.0

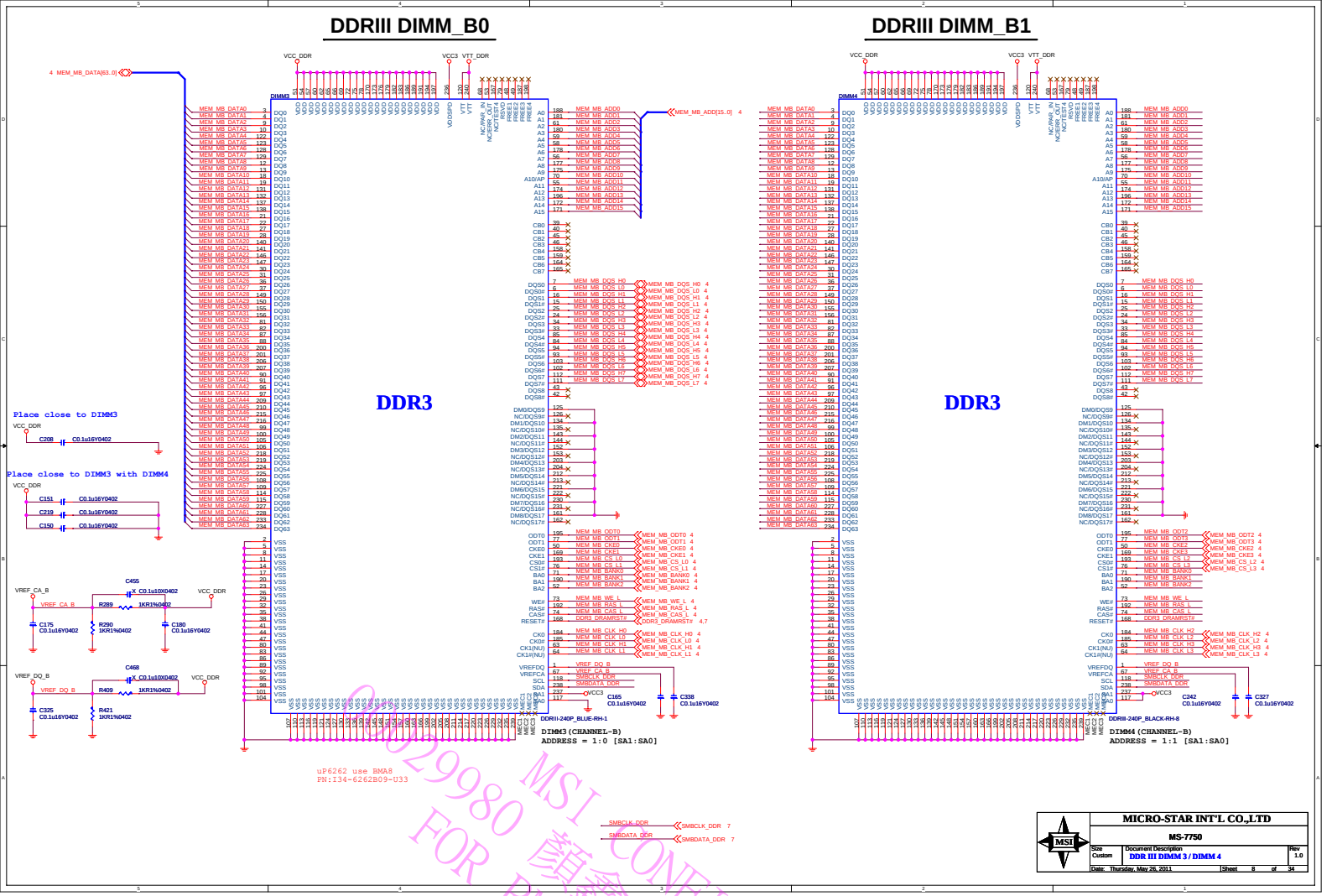
Date: Thursday, May 26, 2011 | Sheet 5 of 34

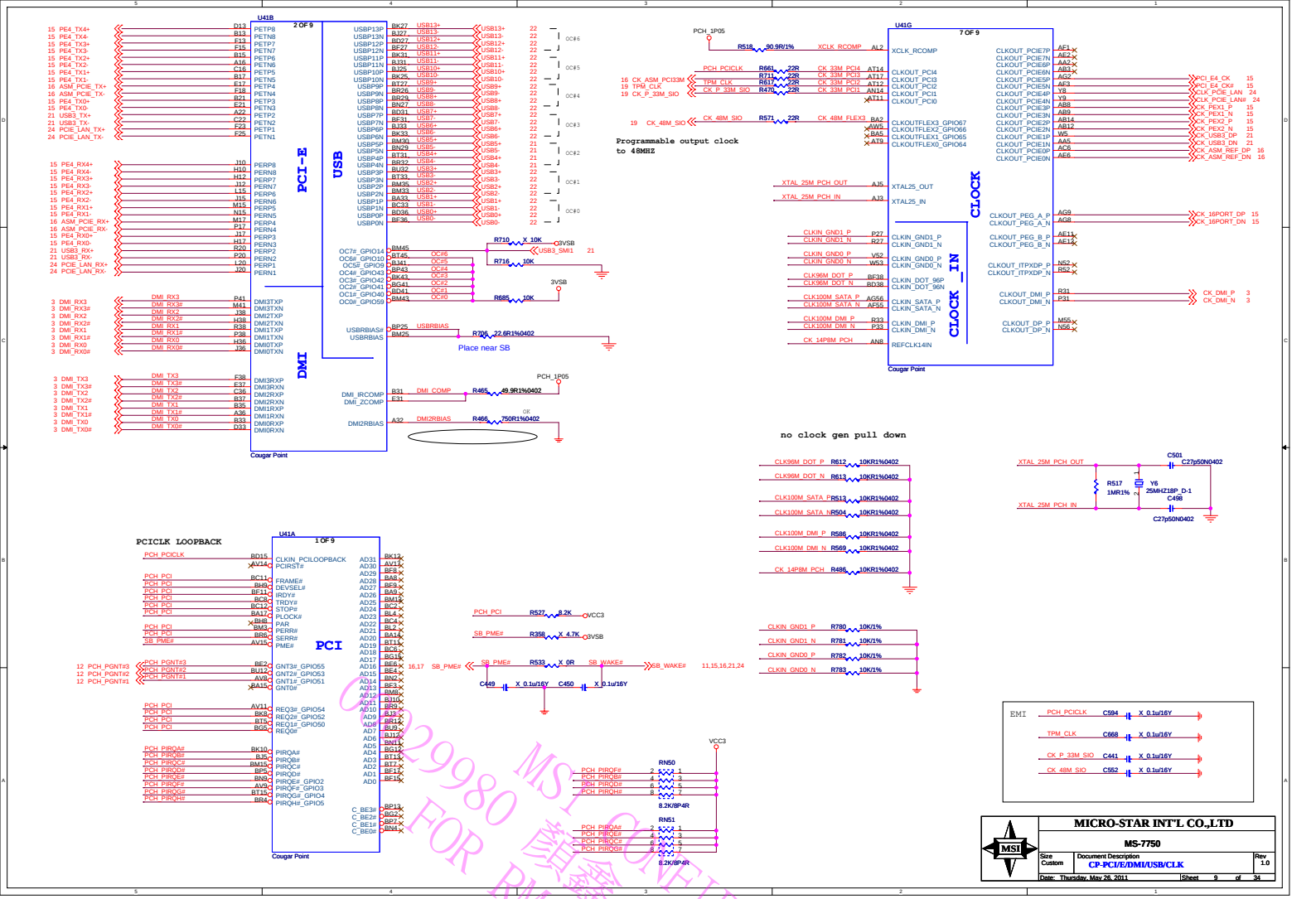


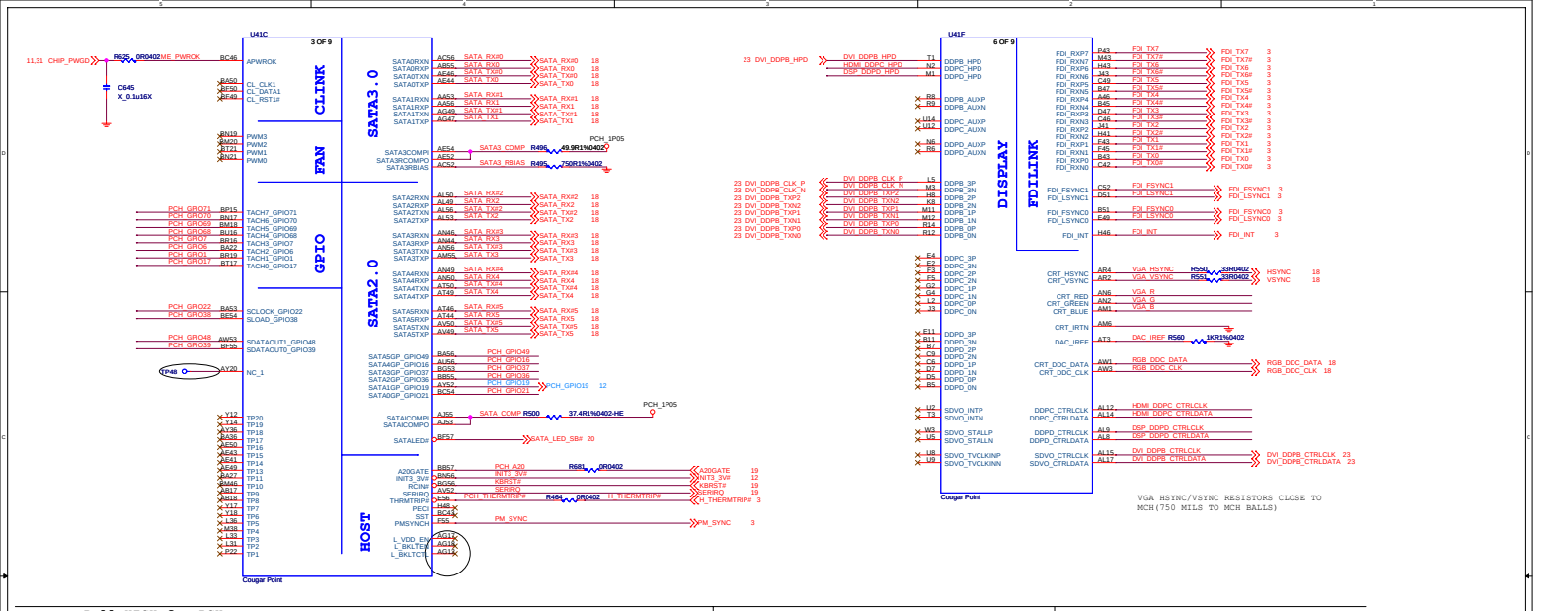
MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size: Custom	Document Description: CPU-GND	Rev: 1.0
Date: Thursday, May 26, 2011	Sheet 6 of 34	



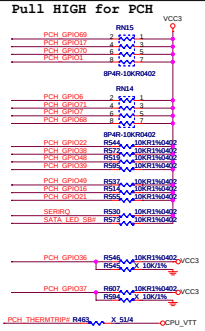
MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size: Custom	Document Description: DDR III DIMM 1 / DIMM 2	Rev: 1.0
Date: Thursday, May 26, 2011	Sheet 7 of 34	

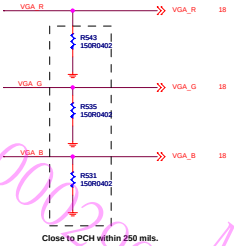




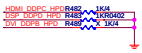


Pull HIGH for PCH

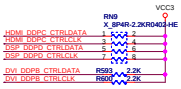




No VGA(pull down)



Enable VGA(CTRLCLK/DATA Pull High)



MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size: C	Document Description: CP-SATA/HOST/FAN/GPIO/VGA	Rev: 1.0
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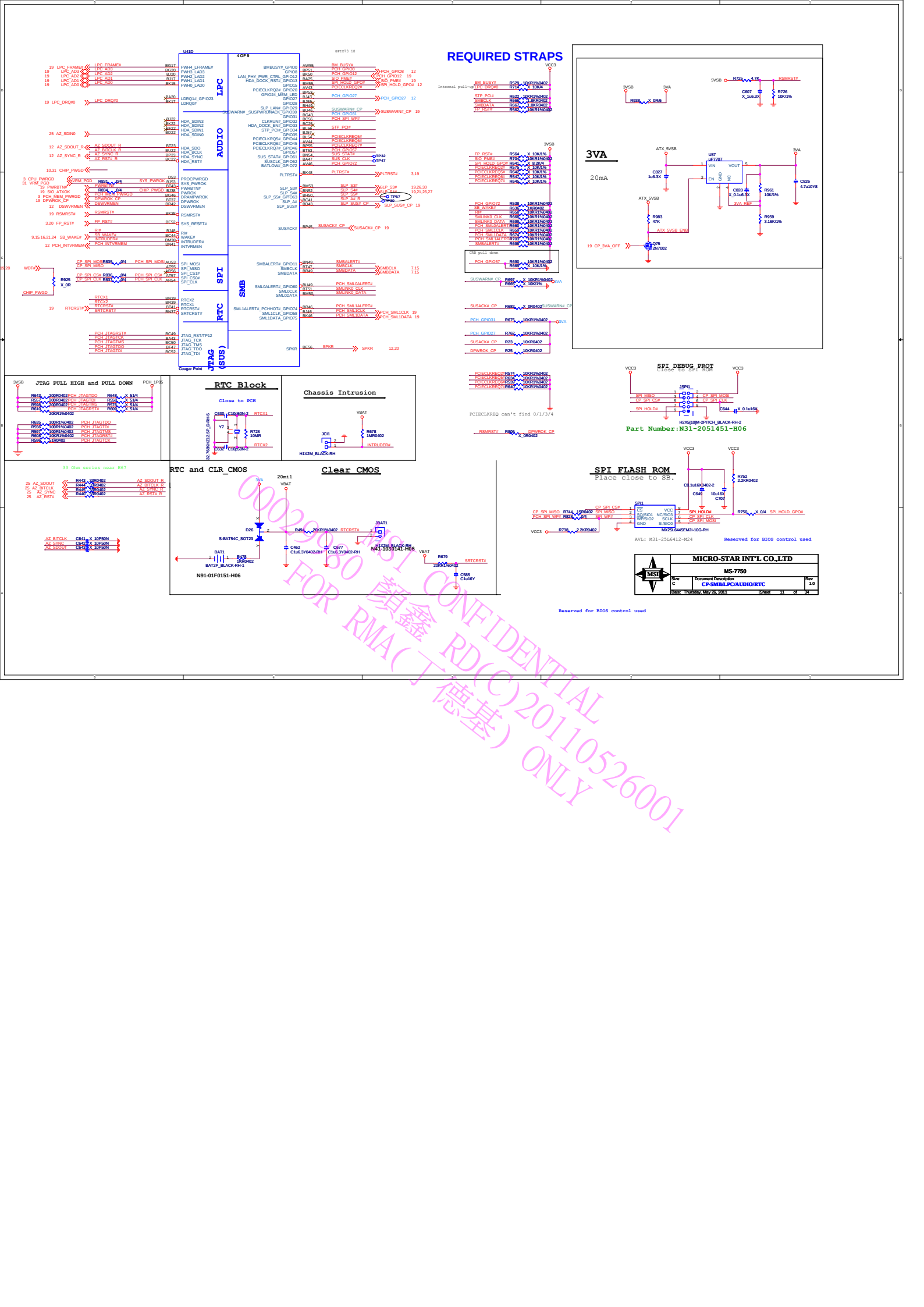
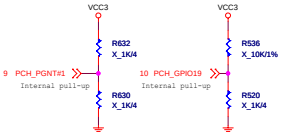
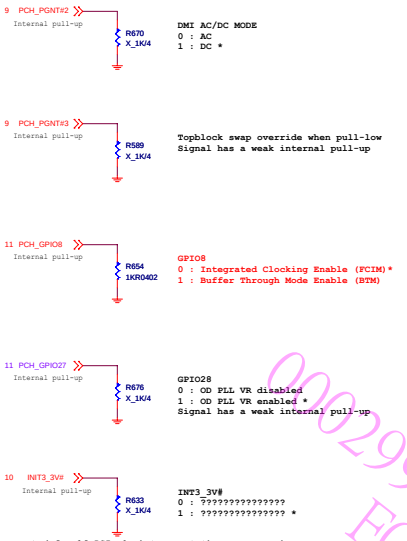

REQUIRED STRAPS
3VA
20mA
SPI DEBUG PROT
Close to SPI ROM
Part Number:N31-2051451-H06
JTAG PULL HIGH and PULL DOWN
RTC Block
Close to PCH
Chassis Intrusion
RTC and CLR_CMOS
Clear CMOS
SPI FLASH ROM
Place close to SB.
MICRO-STAR INT'L CO.,LTD
MS-7750
CP-SMB/LPC/AUDIO/RTC
Reserved for BIOS control used
0002960 CONFIDENTIAL
FOR RMA(广德基) ONLY
RD(C)20110526001

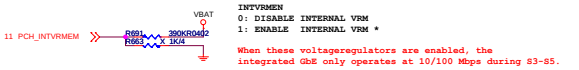
PCH Straps

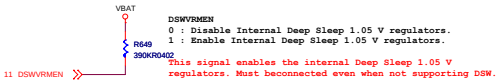
BOOT DEVICE	GNT1	SATA1GP/GPIO19
LPC	0	0
PCI	1	0
SPI	1	1

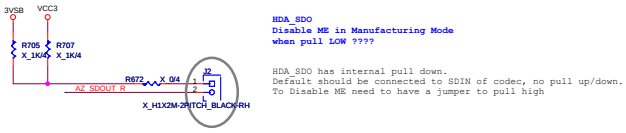


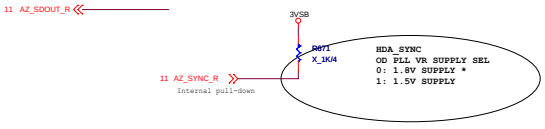


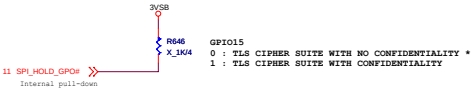
1: INIT3_3V to asserted for 16 PCI clock to reset the processor by some evens occur.
0: Can not to reset the processor.

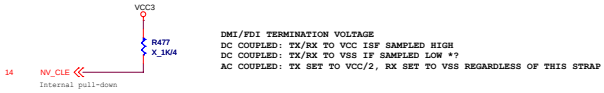


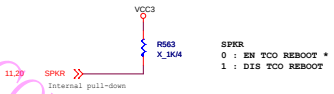












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Size: Custom | Document Description: CP-Strap | Rev: 1.0

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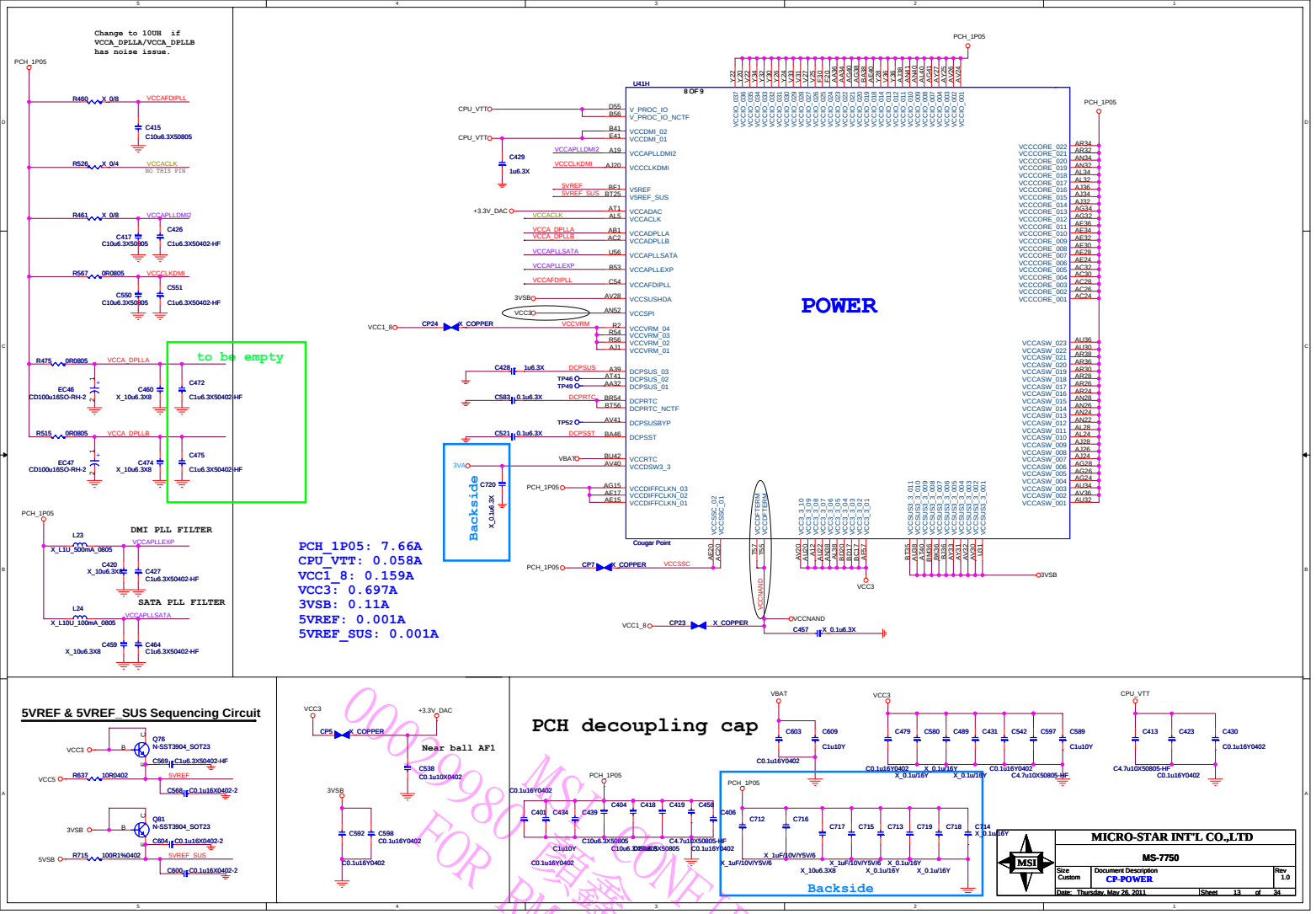

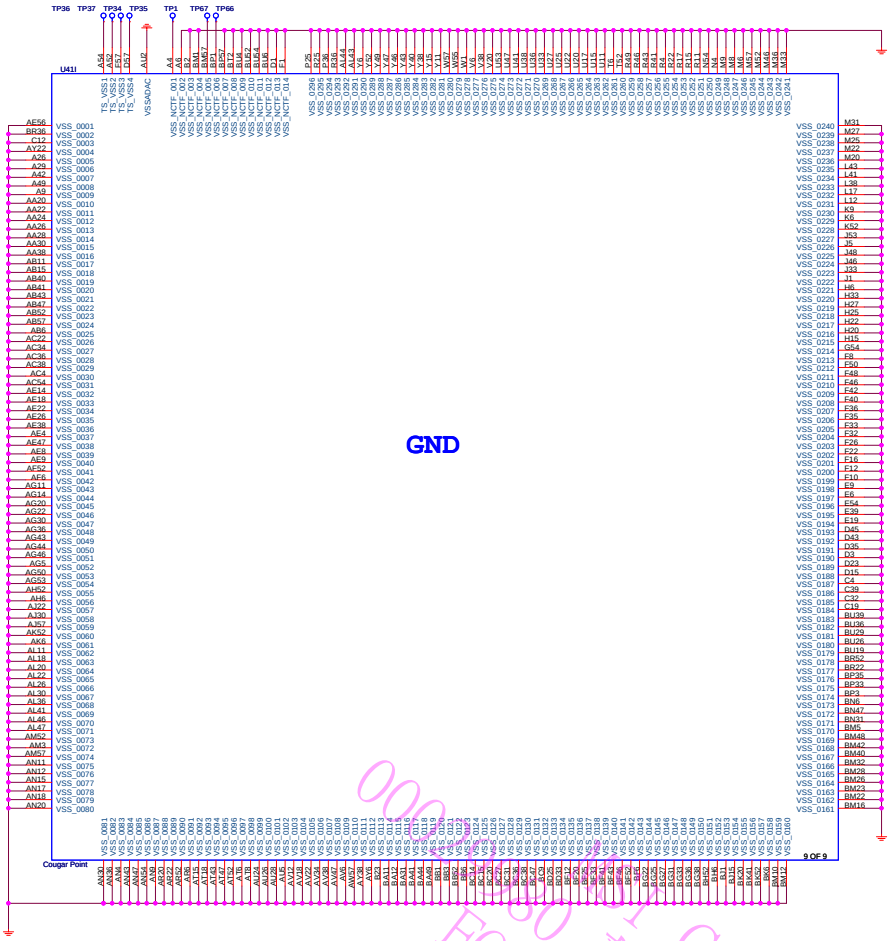

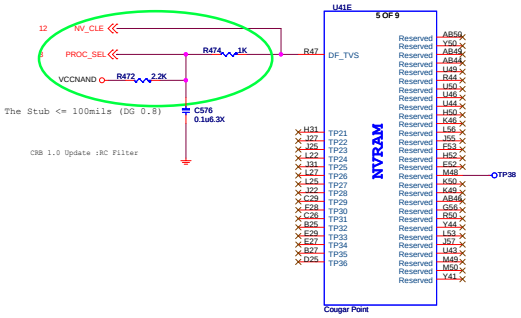

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MS-7750		
Size: Custom	Document Description: CP-GND/NVRAM	Rev: 1.0
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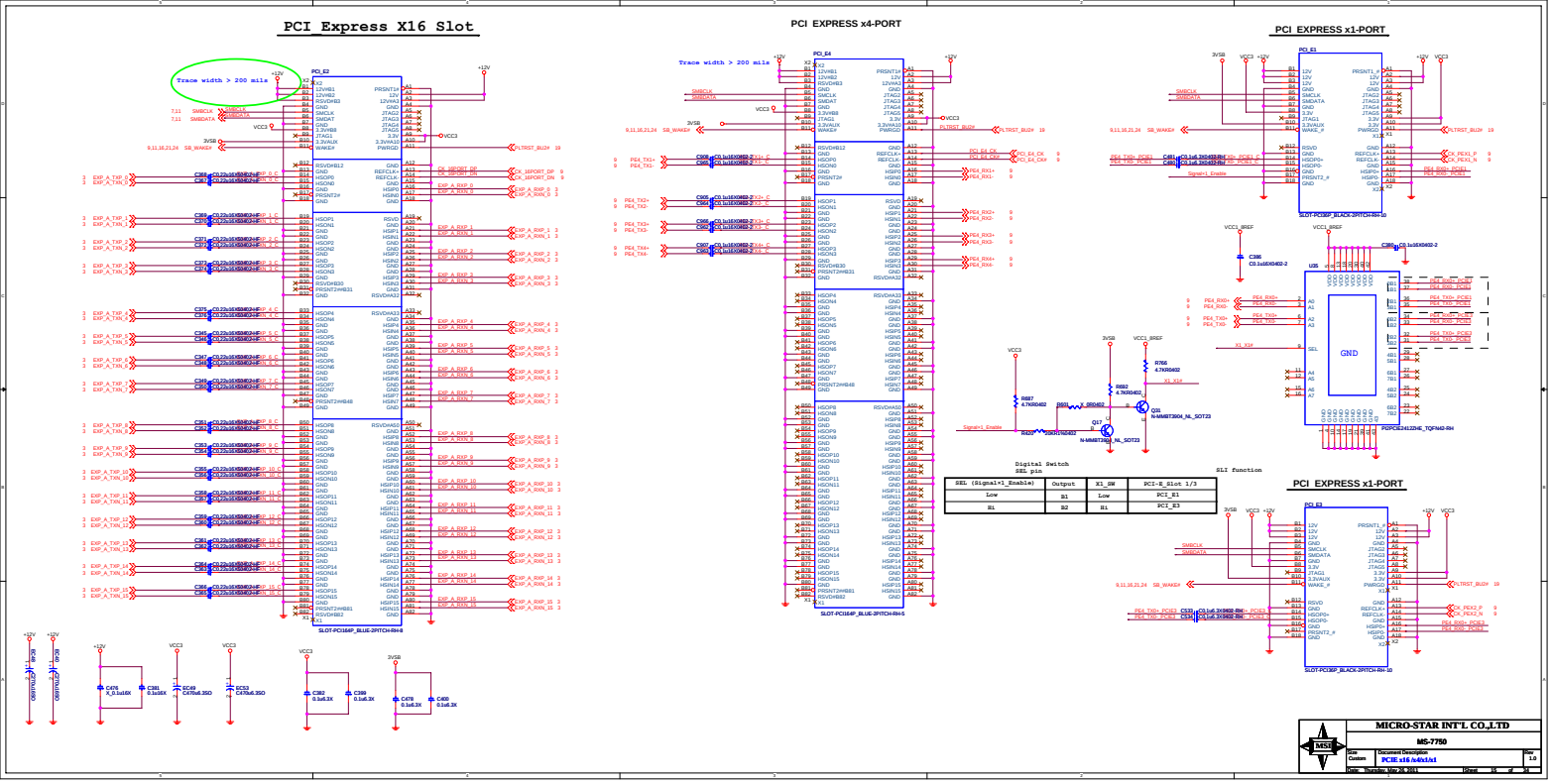

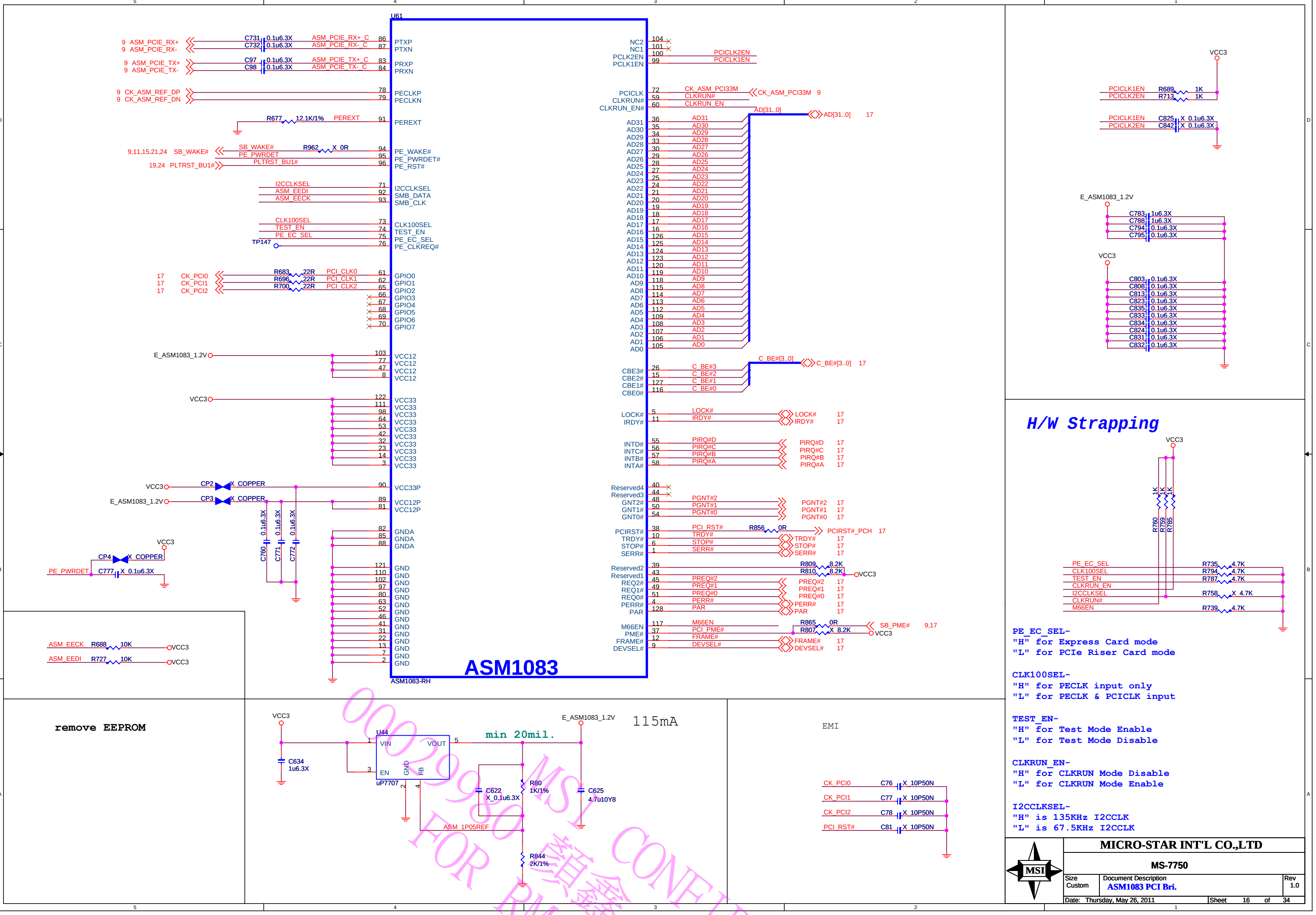

H/W Strapping

PE_EC_SEL-
"H" for Express Card mode
"L" for PCIe Riser Card mode

CLK100SEL-
"H" for PECLK input only
"L" for PECLK & PCICLK input

TEST_EN-
"H" for Test Mode Enable
"L" for Test Mode Disable

CLKRUN_EN-
"H" for CLKRUN Mode Disable
"L" for CLKRUN Mode Enable

I2CCLKSEL-
"H" is 135KHz I2CCLK
"L" is 67.5KHz I2CCLK

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MS-7750

Size	Document Description	Rev
Custom	ASM1083 PCI Bri.	1.0

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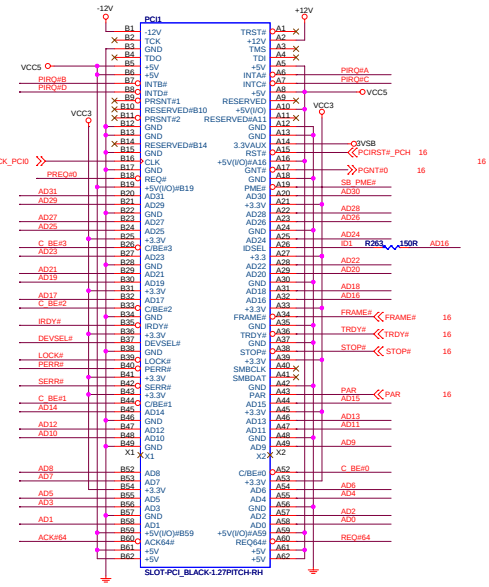
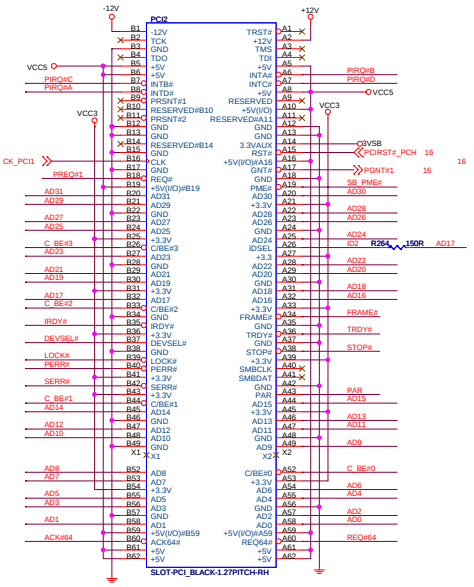
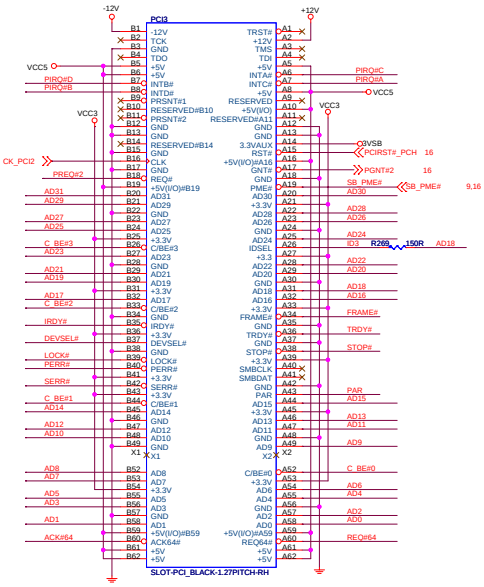


IDSEL = AD16
MASTER = PREQ#0
PIRQ#A



IDSEL = AD17
MASTER = PREQ#1
PIRQ#B



IDSEL = AD18
MASTER = PREQ#2
PIRQ#C

AD[31..0] 16
C_BE#[3..0] 16

PCI PULL-UP / DOWN RESISTORS

PCI slot (X3)	
+3.3Vaux (wake)	- 1125mA
+3.3Vaux (no wake)	- 60mA
+3.3V	- 7.6A
+5V	- 15A
+12V	- 1.5A

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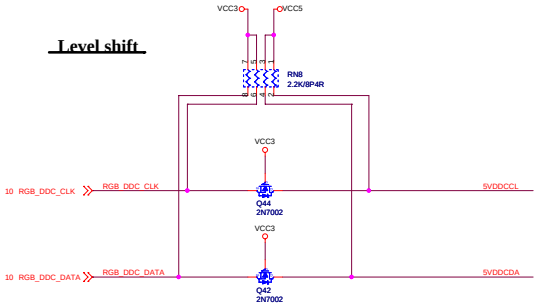
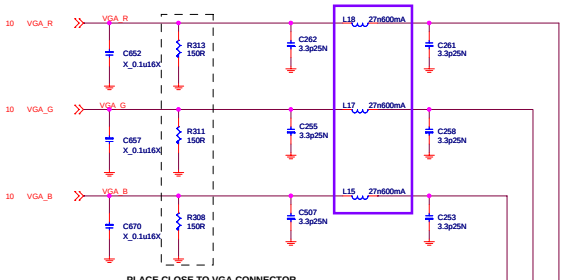
D-Sub

VGA: resolution of 2048x1536 pixels with 32-bit color at 75 Hz (4:3 QXGA)

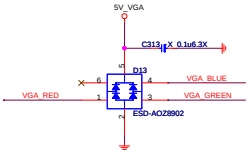
Change to L, don't use FB
Try to pass VESA v1.2

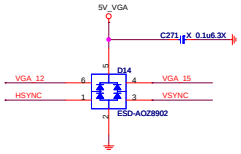
Level shift

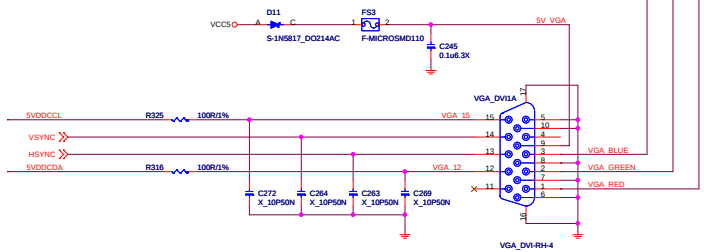




PLACE CLOSE TO VGA CONNECTOR,
WITHIN 750 MIL OF PIN

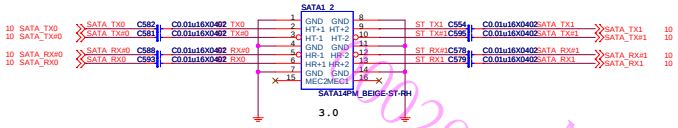






SATA6G 1,2

SATA1-2

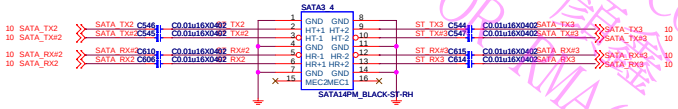


3.0

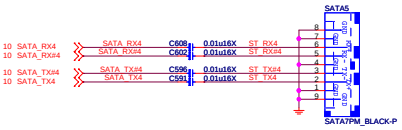
white

SATA 3G PORT3,4

SATA3-4



SATA 3G PORT 5,6



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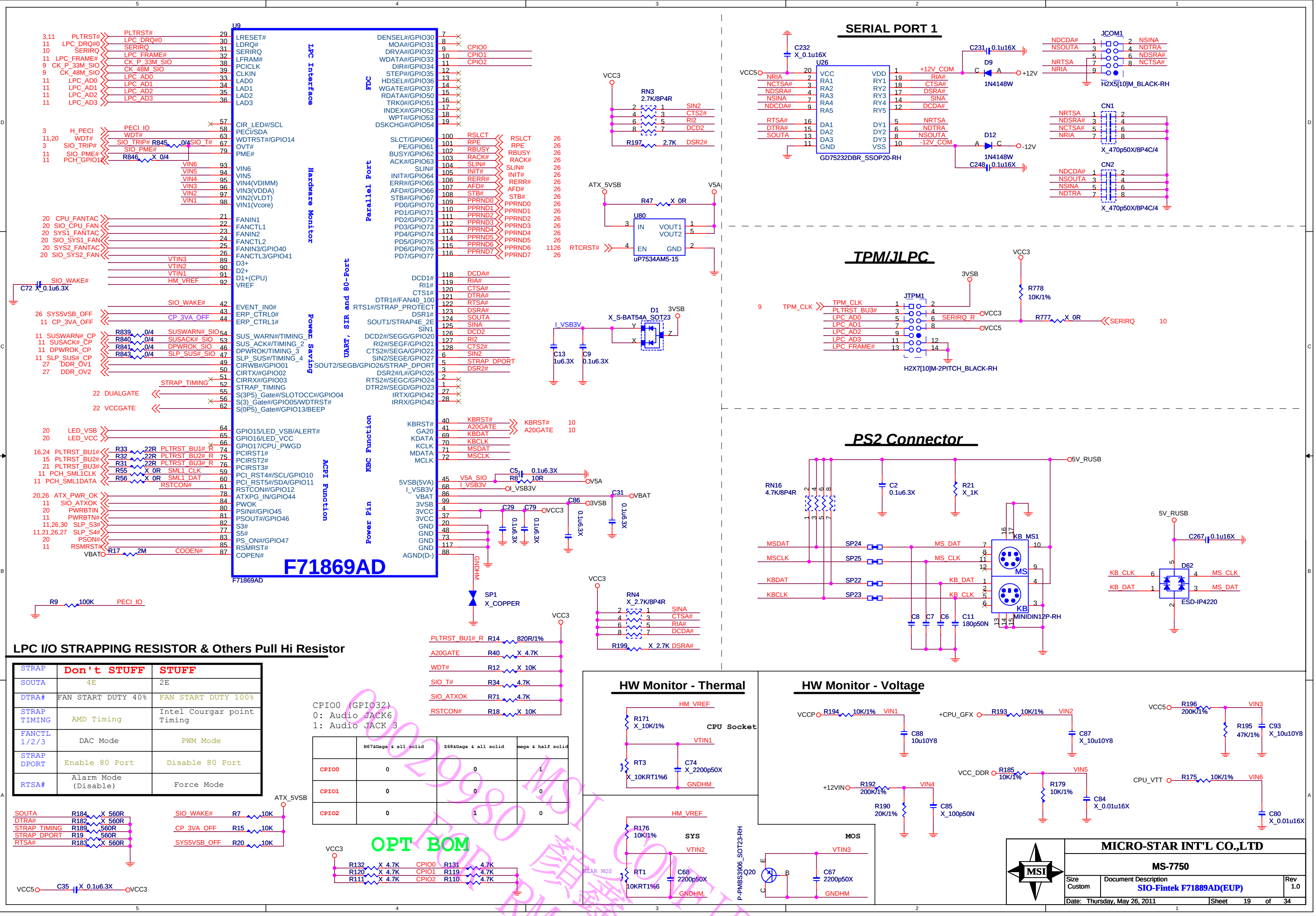
MS-7750		
Size: Custom	Document Description: VGA/SATA6G/SATA3G	Rev: 1.0
Date: Thursday, May 26, 2011	Sheet 18 of 34	



LPC I/O STRAPPING RESISTOR & Others Pull Hi Resistor

STRAP	Don't STUFF	STUFF
SOUTA	4E	2E
DTRA#	FAN START DUTY 40%	FAN START DUTY 100%
STRAP TIMING	AMD Timing	Intel Courgar point Timing
FANCTL 1/2/3	DAC Mode	PWM Mode
STRAP DPORT	Enable 80 Port	Disable 80 Port
RTSA#	Alarm Mode (Disable)	Force Mode

CPIO0 (GPIO32)
0: Audio JACK6
1: Audio JACK 3

	H67&Gaga & all solid	Z68&Gaga & all solid	mega & half solid
CPIO0	0	0	1
CPIO1	0	0	0
CPIO2	0	1	0

MICRO-STAR INT'L CO.,LTD

MS-7750

Size	Document Description	Rev
Custom	SIO-Fintek F71889AD(EUP)	1.0

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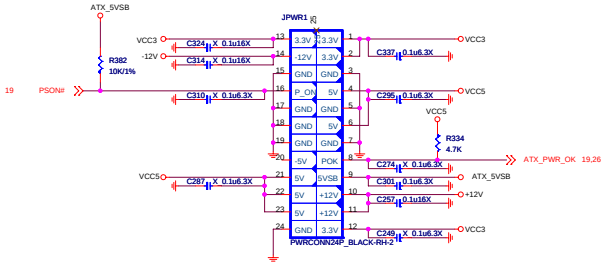
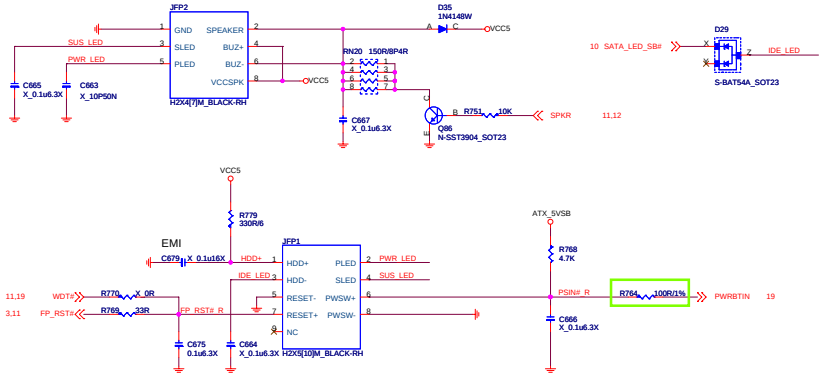
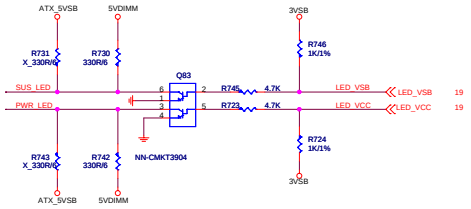
ATX POWER CONNECTOR



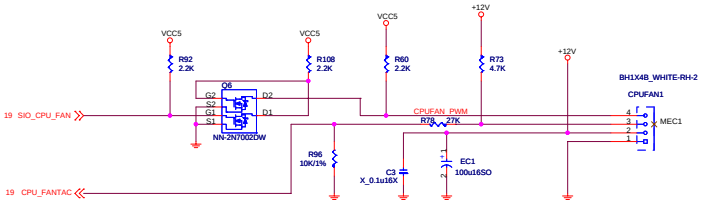
FRONT PANNEL



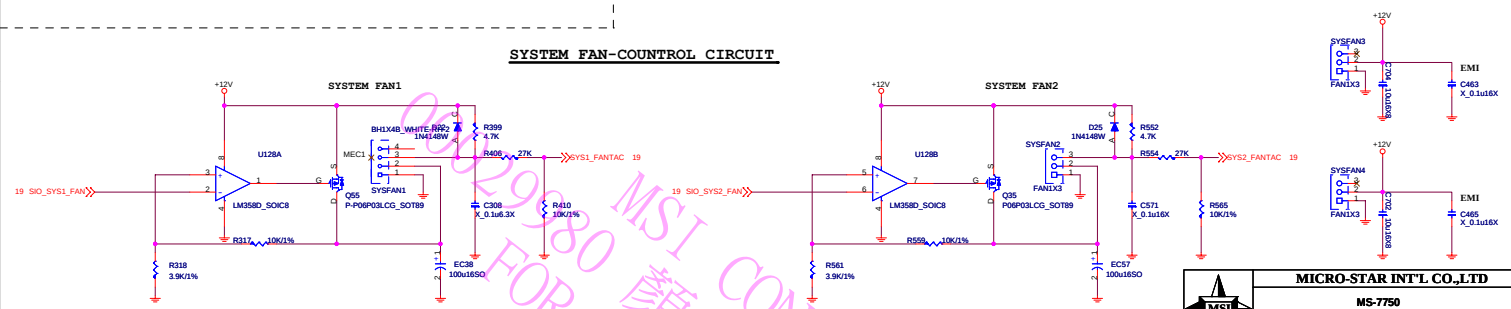
LED (for Fintek 71869)



CPU FAN-COUNTROL CIRCUIT



SYSTEM FAN-COUNTROL CIRCUIT



MICRO-STAR INT'L CO.,LTD		
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Size: Custom	Document Description: ATX PWR-Connector & Front Panel & EMI	Rev: 1.0
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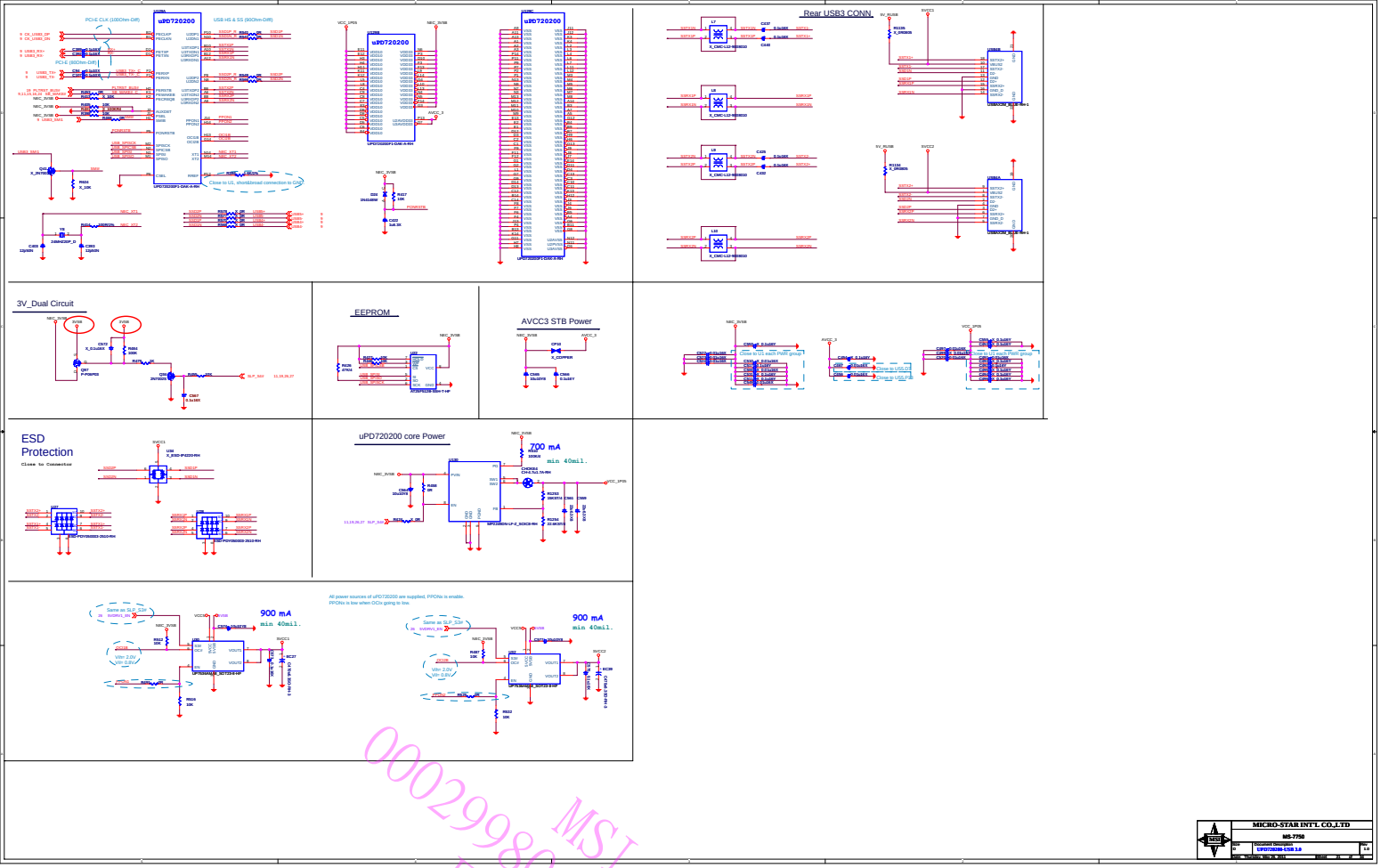
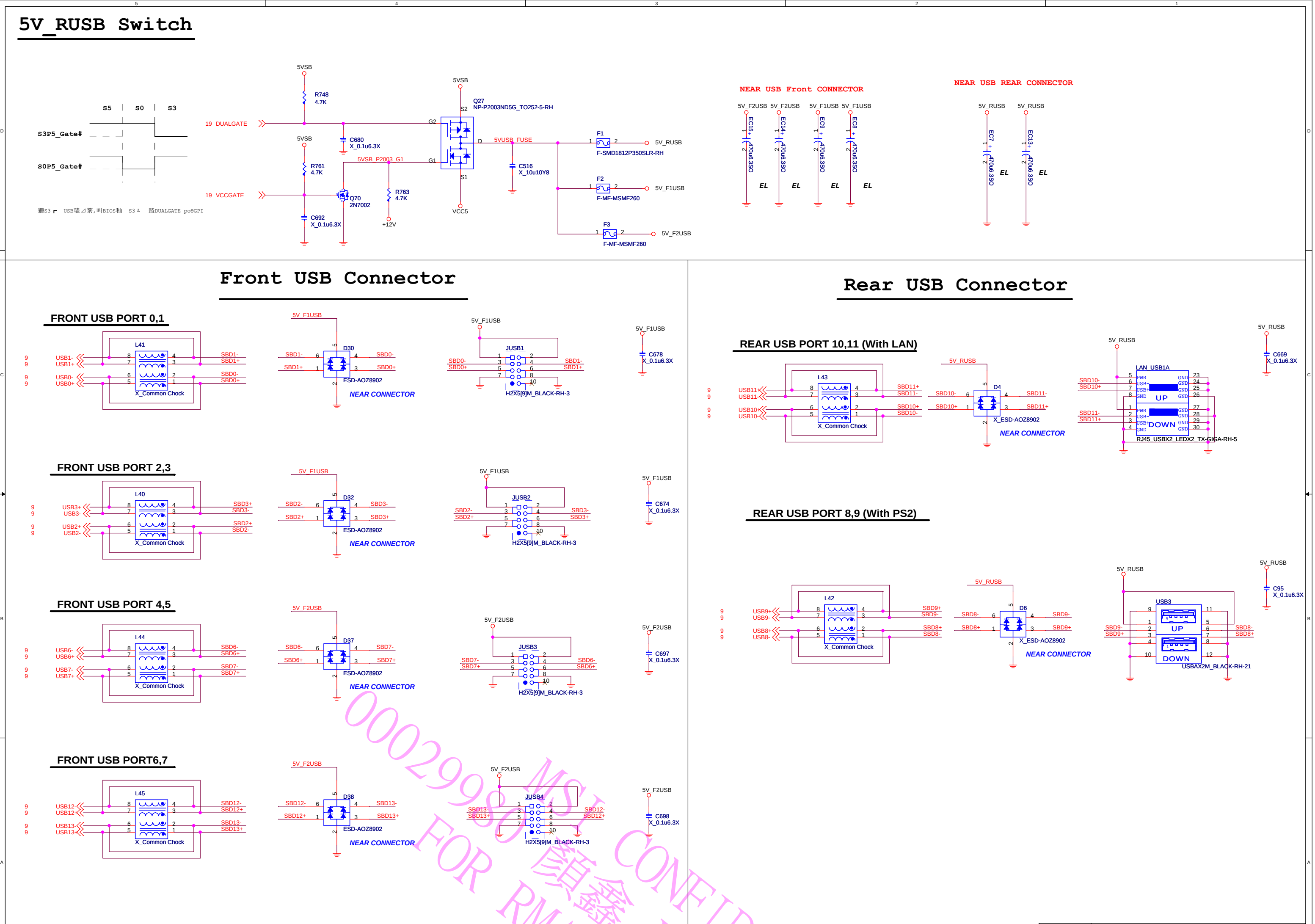


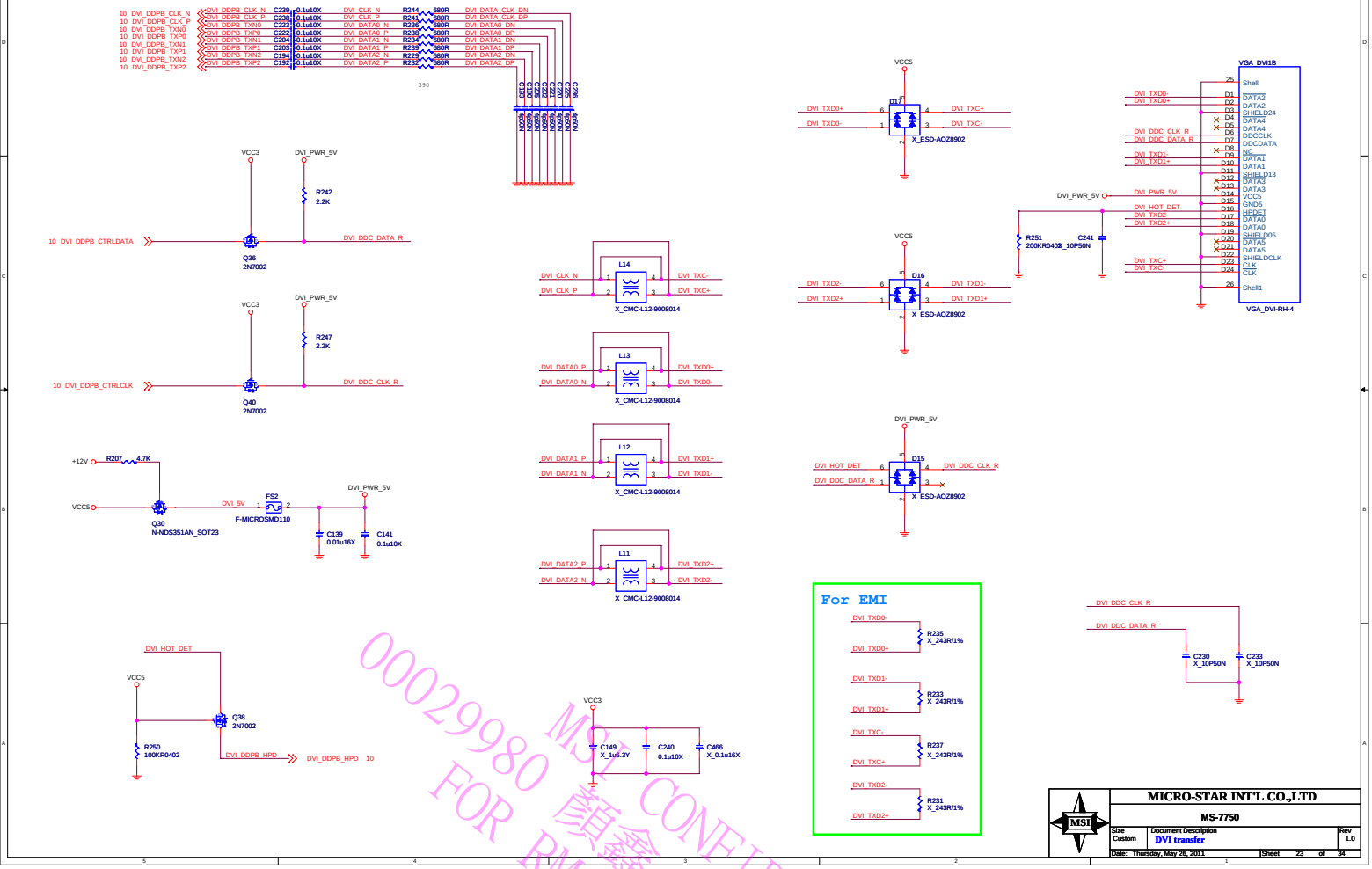
MICRO-STAR INT'L CO.,LTD		
	MS-7750	
Size: D	Document Description: 0307750SUB USB 3.0	Rev: 1.0
Date: Wednesday, May 18, 2011	Sheet: 33 of 47	



MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size C	Document Description: USB Connector	Rev 1.0
Date: Thursday, May 26, 2011	Sheet 22 of 34	

DVI level shifter

VGA: resolution of 2048x1536 pixels with 32-bit color at 75 Hz (4:3 QXGA)



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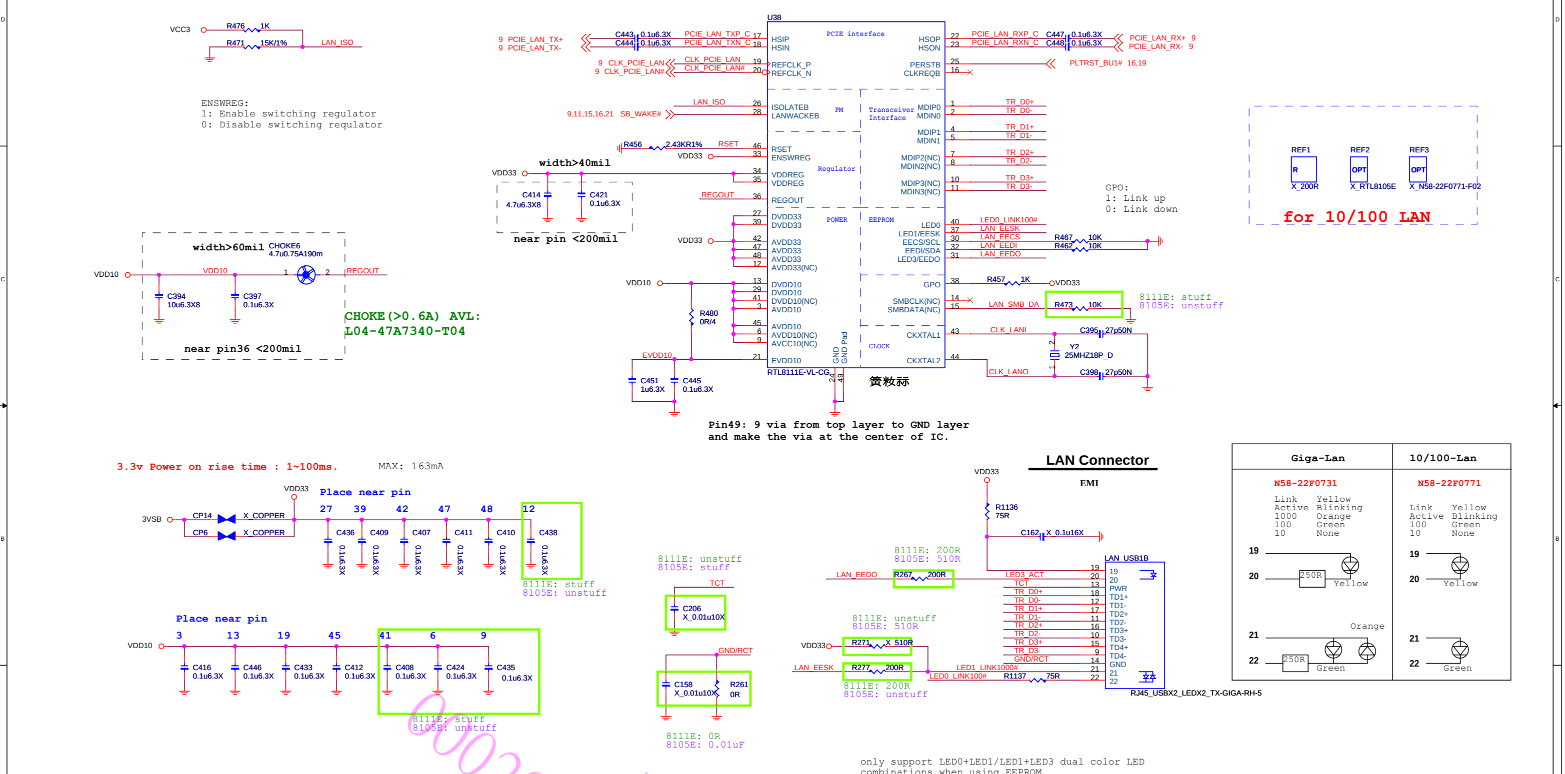
MS-7750		
Size: Custom	Document Description: DVI transfer	Rev: 1.0
Date: Thursday, May 26, 2011	Sheet 23 of 34	

RTL8111E Giga LAN

RTL8105E 10/100M LAN

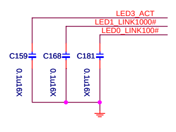


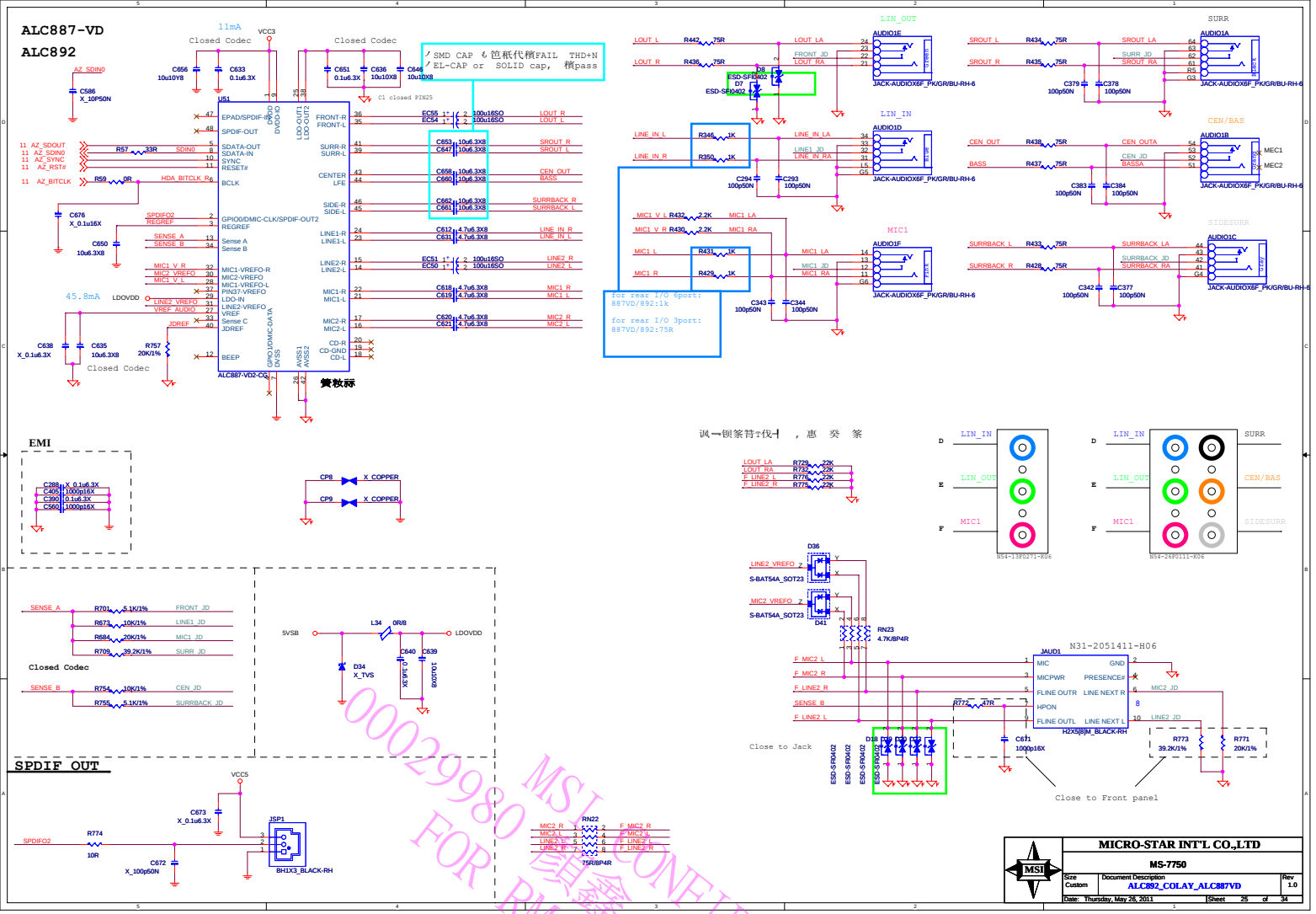
8105E POWER Consumption

	3.3V	mW
10 M Idle/TxRx	14/75	46/248
100 M Idle/TxRx	43/66	142/218
S0 ALDPS	3.2	11

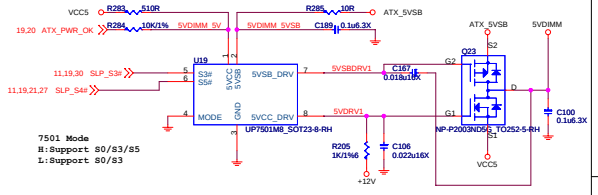
8111E POWER Consumption

	3.3V	mW
10 M Idle/TxRx	12/66	40/218
100 M Idle/TxRx	31/44	102/145
Giga Idle/TxRx	135/163	452/538
ALDPS	4	13



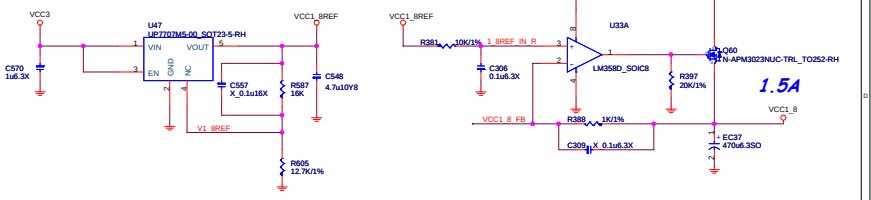


5VDIMM FOR DDR

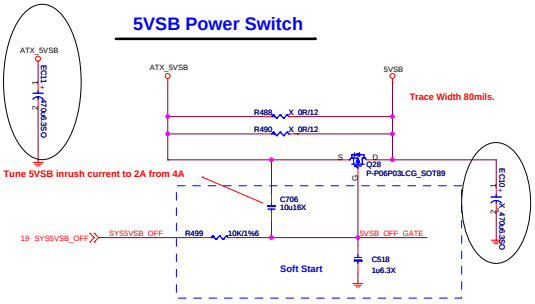


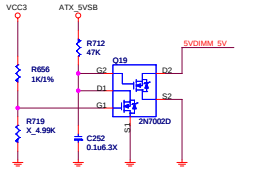
7501 Mode
H:Support S0/S3/S5
L:Support S0/S3

VCC1_8REF



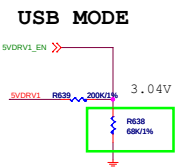
5VSB Power Switch





Patch coolermaster 700w power sequence

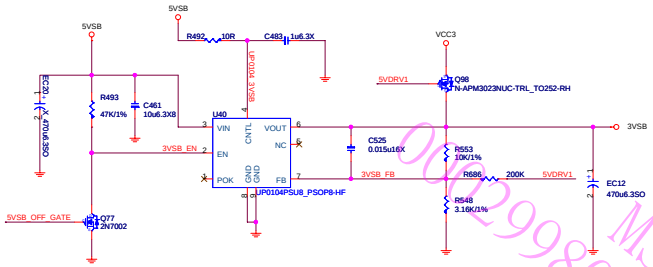
USB MODE



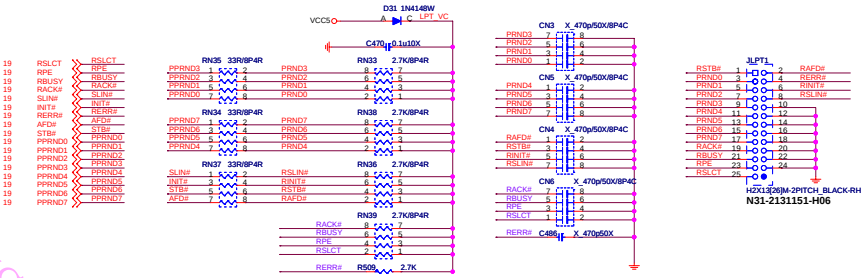
56K-->68K

3VSB

3VSB supply to PCH and other device.
Turn off when Deep S3/S5 by 5VSB off.



PARALLAL PORT



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7750	
Size: Custom	Document Description: ACPI Controller UPI/Parallal	Rev: 1.0
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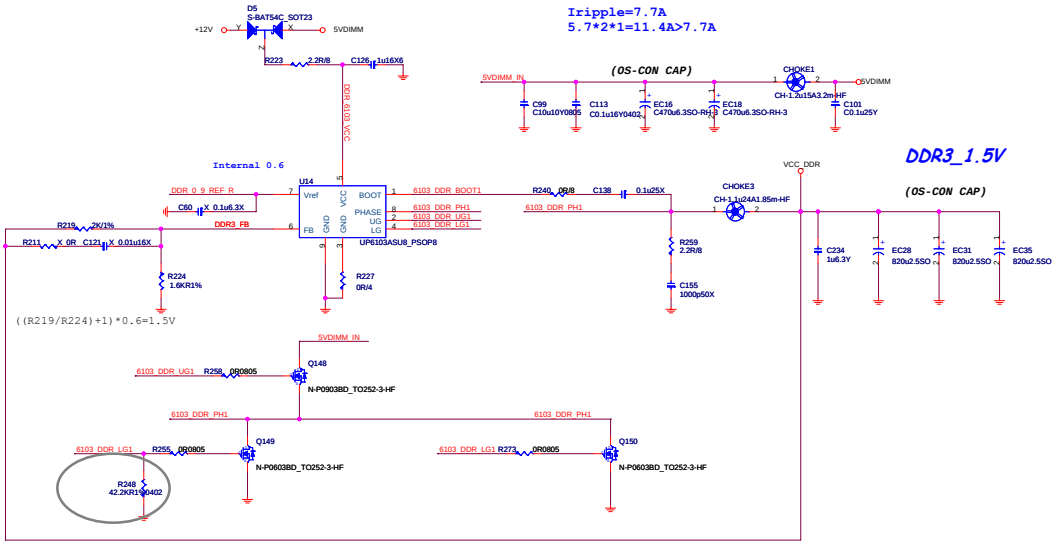
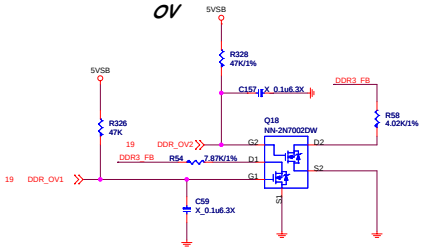
DDR3_1.5V 4.5A+11A+1A=16.5A

4.5A FOR CPU
11A FOR 4DIMM
1A FOR DDR VTT



OV



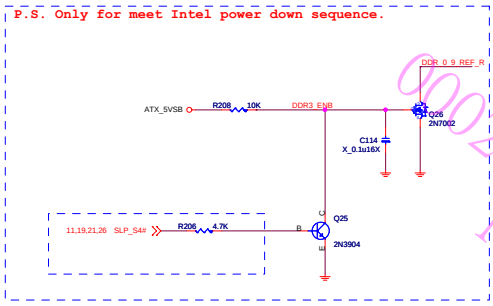
MODE	材 顶	Default	材 顶	材 顶
DDR_OV1	LOW	HIGH	LOW	HIGH
DDR_OV2	LOW	LOW	HIGH	HIGH
VALUE	1.35V	1.5V	1.65V	1.8V

UPI VOLTAGE CONSOLE

0x20:RH=10K,RL=OPEN

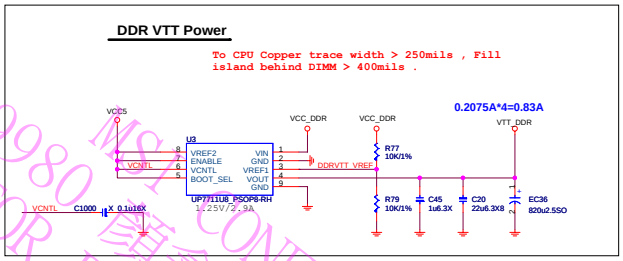
ADDRESS	0x2A	0X28	0x26	0x24	0x22	0x20
RH (KOhm)	OPEN	3.9	3	2.2	1.3	10
RL (KOhm)	10	1.3	2.3	3	3.9	OPEN
BUS_SEL	0%	25%	40%	60%	75%	100%

P.S. Only for meet Intel power down sequence.



DDR VTT Power

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



MICRO-STAR INT'L CO.,LTD	
MS-7750	
Size: Custom	Document Description: DDR Power - uP6103 1-Phase
Rev: 1.0	
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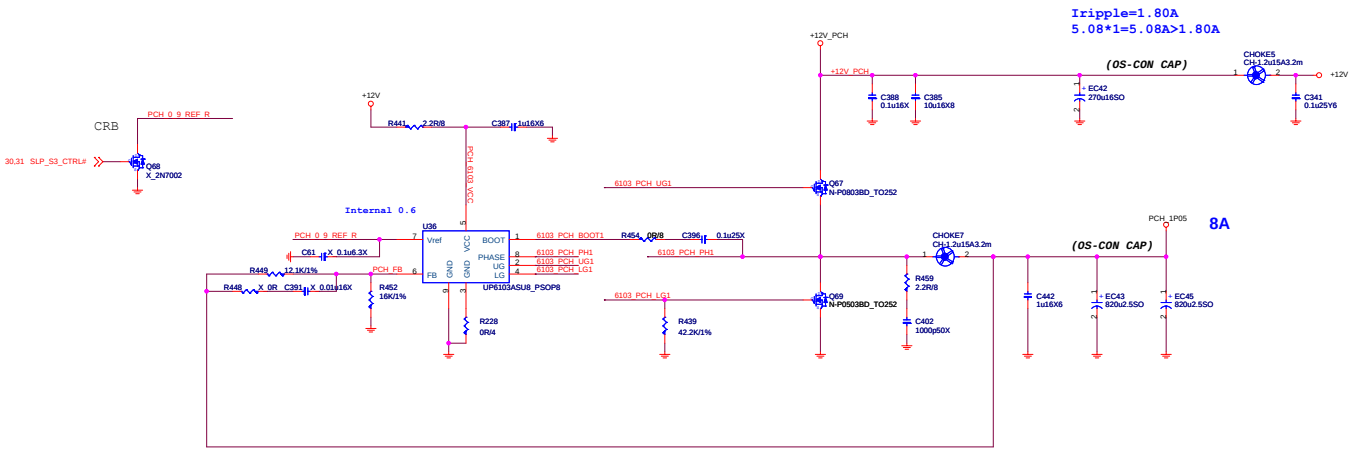
PCH Power:1.05V

PCH Core 6.2A+1.8A=8A

6.2A FOR PCH

1.8A FOR ME CORE



MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size: Custom	Document Description: PCH Power - uP6103 1-Phase	Rev: 1.0
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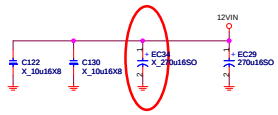
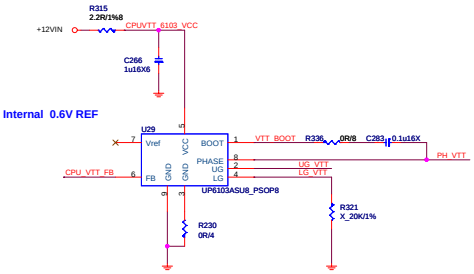
CPU_VTT:1.05/1.00

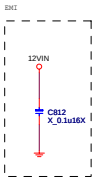
CPU VTT 8.5A + SA Core =17.3A

Iripple=1.92(vtt)+1.88(sa)
5.08*2=10.16A>3.8A



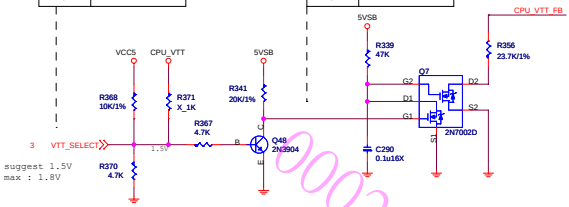
Internal 0.6V REF



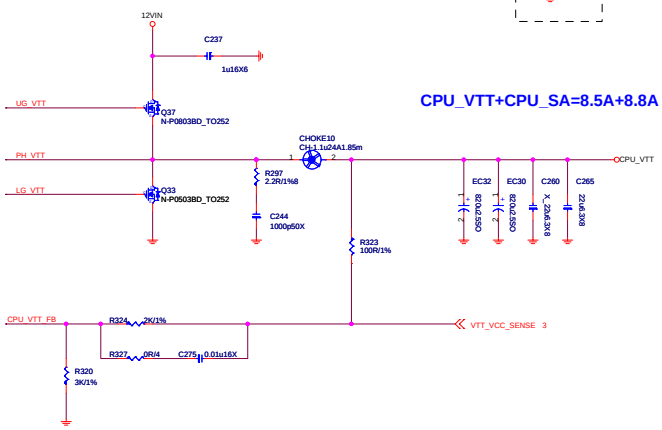


VTT_SELECT	
Low	1.0V
High	1.05V

VTT_SELECT Table	
Low	1.05V
High	1.0V



CPU_VTT+CPU_SA=8.5A+8.8A



MICRO-STAR INT'L CO.,LTD		
MS-7750		
Size: Custom	Document Description: CPU_VTT - uP6103- 1-Phase	Rev: 1.0
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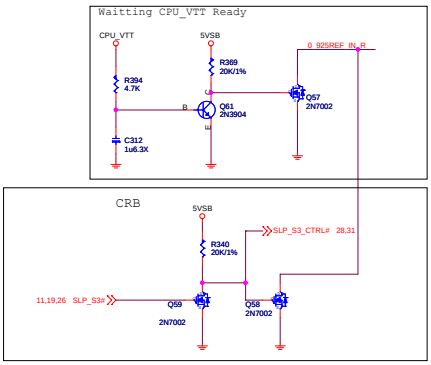
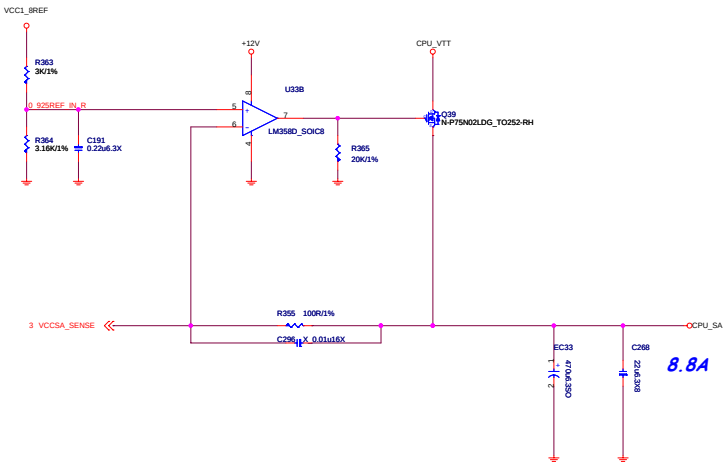
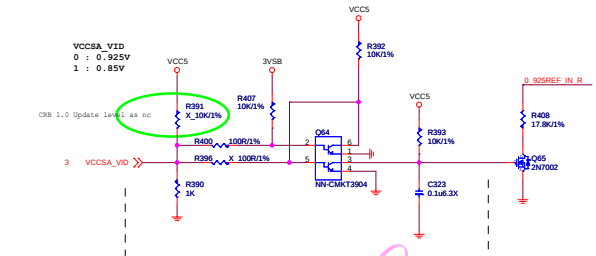
CPU_SA:0.925/0.85

SA Core =8.8A







VCCSA_VID	
Low	0.925V
High	0.85V

VCCSA_VID_SIO Table	
Low	0.85V
High	0.925V

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MS-7750		
Size: Custom	Document Description: CPU_SA - uP6103 1-Phase	Rev: 1.0
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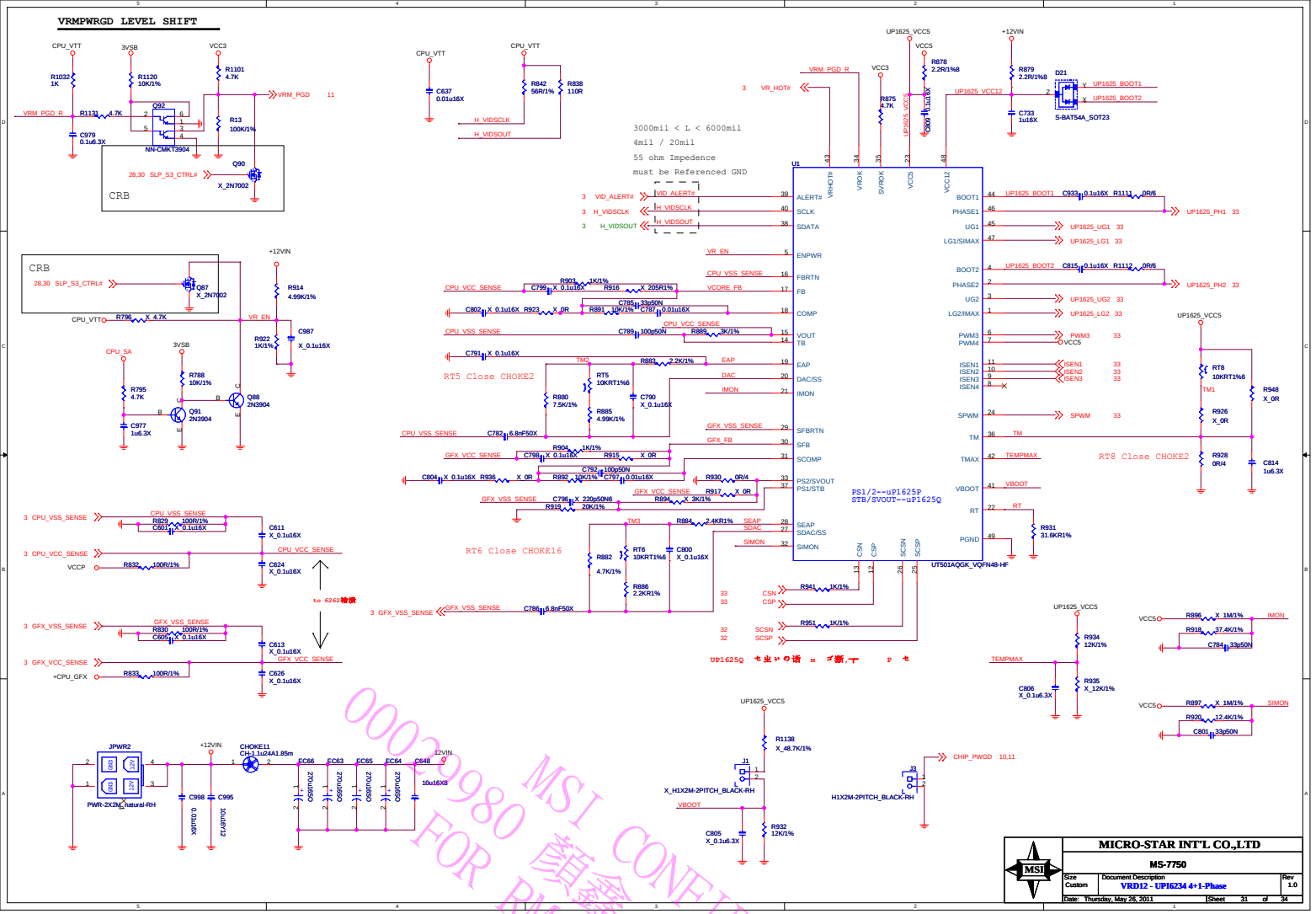

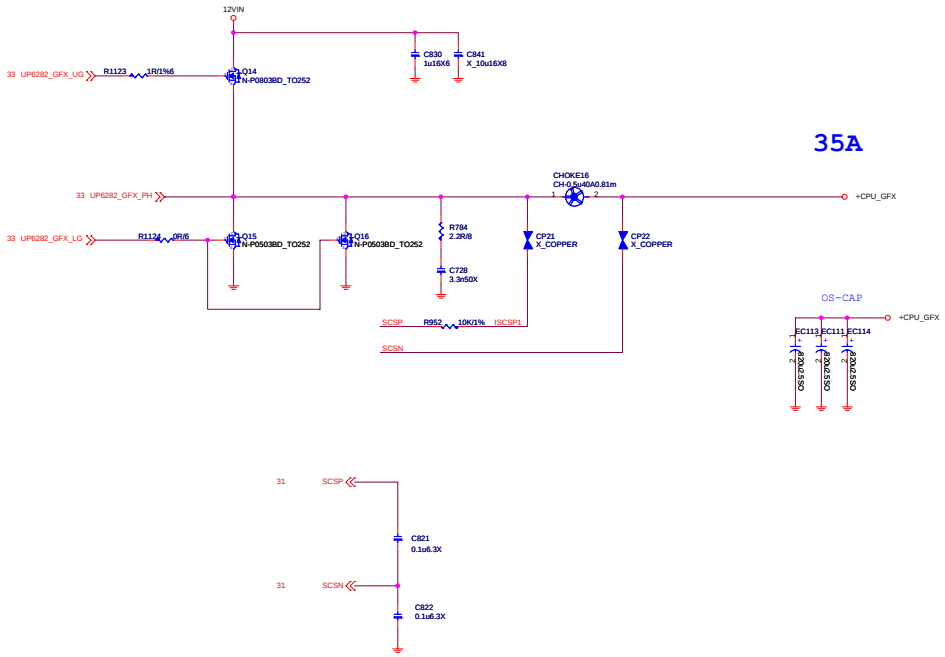

MICRO-STAR INT'L CO.,LTD			
MS-7750			
Size: Custom	Document Description: UP6234 1-Phase GPU		Rev: 1.0
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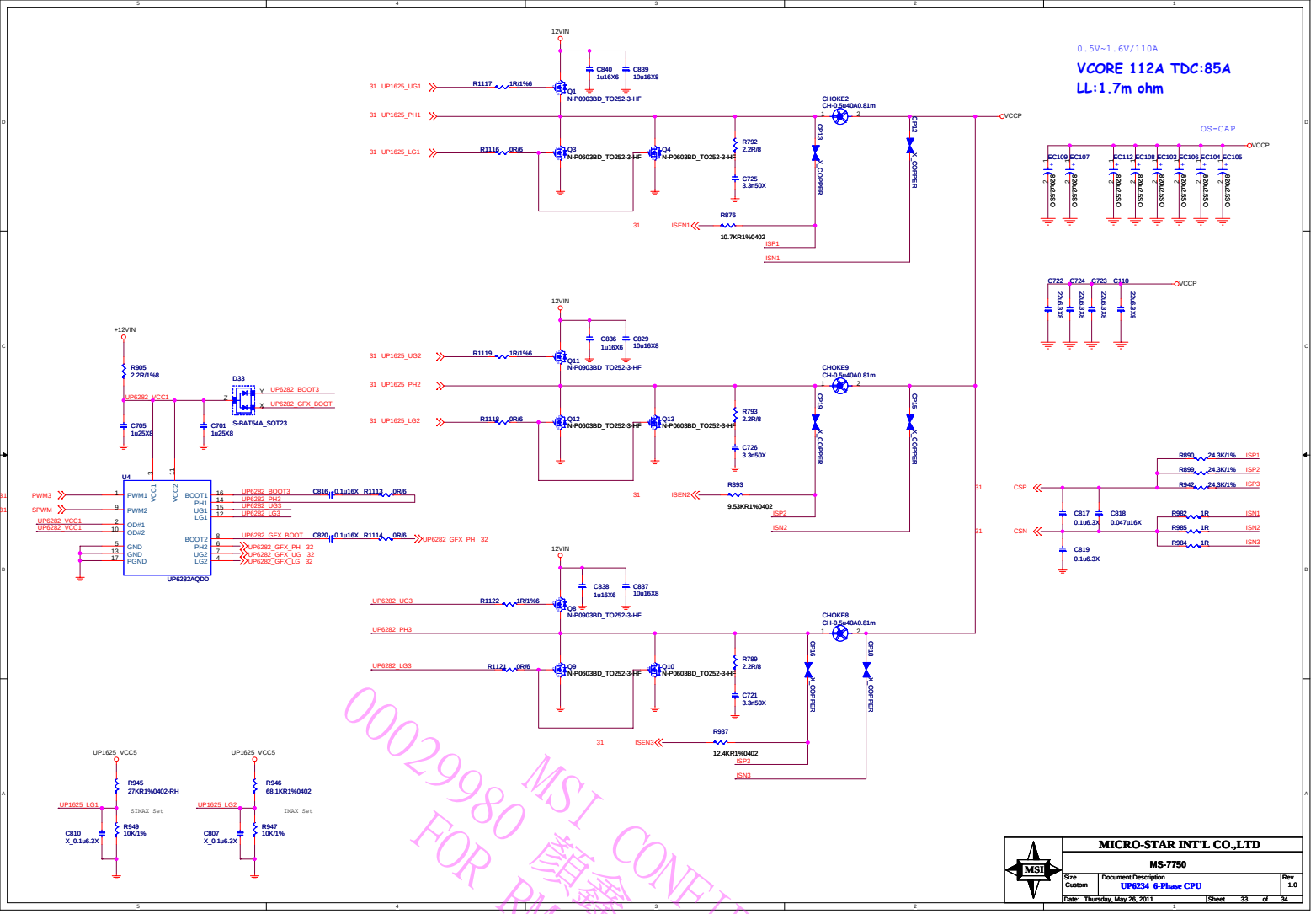

OPT	Configure	BOM	Function
A	CFG-7750-0A-A	601-7750-A20	MS-77500A OPT:A H67M Intel H67+4*DDRIII+1*PCIe16,1*PCIe4,2*PCIe1,3*PCI+DVI/D-sub +4*SATAII+2*SATAIII+12*USB2.0+2*USB3.0+HD8Ch Audio+Gb lan,EuP,(All Solid Cap),RoHS
B	CFG-7750-0A-B	601-7750-A30	MS-77500A OPT:B Z68 Intel H67+4*DDRIII+1*PCIe16,1*PCIe4,2*PCIe1,3*PCI+DVI/D-sub +4*SATAII+2*SATAIII+12*USB2.0+2*USB3.0+HD8Ch Audio+Gb lan,EuP,(All Solid Cap),RoHS
C	CFG-7750-1.0-A	601-7750-01S	MS-7750 10 H67A-G43 (B3) ,H67 B3 +4DDR3+2*PCI_Ex16+2*PCI_Ex1+3*PCI+4*SATAII +2*SATAIII+HD 8CH Audio+12USB2.0+Gb LAN+2USB3.0,(EuP),RoHS
D	CFG-7750-1.0-B	601-7750-02S	MS-7750 10 OPT:A Z68A-G43 (B3) ,Z68 B3 +4DDR3+2*PCI_Ex16+2*PCI_Ex1+3*PCI+4*SATAII +2*SATAIII+HD 8CH Audio+12USB2.0+Gb LAN+2USB3.0,(EuP),RoHS

HS_PWM1
MEC1
MEC2
HS-0501780-RH

HS_PWM2
MEC1
MEC2
HS-0501790-RH

HS_PCH1
MEC1
MEC2
HS-0405590-RH

SB
REF10
OPT
X_Z68

BIOS-ROM
REF11
OPT
X_Z68

AUDIO CON OPT.
REF4
AUDIO
X_PK/GR/BU/GY/OR/BL

EL/OS OPT.
REF5 EC X_270uF16OS
REF6 EC X_100u16SO
REF7 EC X_470u6.3SO
REF8 EC X_470u16EL11.5
REF9 EC X_1000u63EL11.5

Simulation
VCC5
SIM2
SIM1
X_PIN1*2
SIM1
SIM2
X_PIN1*2

Optical Fiducial Marks-120
FM5 FM8 FM2 FM4
FM6 FM7 FM1 FM3
X_FM

Mounting Holes
MH7 MH2 MH4 MH5 MH1 MH8
X_MH001

PCB1
7750-1.0

BAT1 X1
BAT-BCR2032P-RH

RUB1 USB Rubber
RUB2 USB Rubber

CPU_H1
CPU
E21-7557050-L06

CPU	E21-7557040-L06	E21-7670020-L06	E21-7557050-L06

PK0-07732OA-E36,E48,23,
PK0-07732OA-E36,E48,2,
PK0-07732OA-G37,G40,23,
PK0-07732OA-G37,G40,2,
(MSI8),4,Coffee

MICRO-STAR INT'L CO.,LTD
MS-7750
Size: Custom
Document Description: XDP / Manual Parts
Rev: 1.0
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