

CONTENT	SHEET
Cover Sheet, Block diagram	1-2
Intel LGA775 CPU - Signals/ Power/ GND	3-5
Intel Bearlake - FSB, PCIE, DMI, VGA, MSIC	6
Intel Bearlake - Memory DDR2	7
Intel Bearlake - Power / GND	8-9
ICH9 - PCI, USB, DMI, TPM	10
ICH9 - Host, DMI, SATA, Audio, SPI, RTC, MSIC	11
ICH9 - Power, GND	12
DDR2 Chanel-A / Chanel-B	13-14
Clock Gen ICS9LPR906	15
Super I/O Fintek F71882	16
Onboard VGA Port	17
SATA / e-SATA / FAN Control	18
LAN INTEL NINEVEH/EKRON	19
Audio Codec ALC888	20
PCIE Slot x16, x1	21
PCI Slot 1 & 2	22
Marvell 88SE6111 PCIE to IDE/ SATA	23
USB Connectors	24
IEEE1394 VT6308	25
System Power/ACPI Controller UPI	26
DDR2 / NB-Core Switching Power /AMT	27
VRD 11 - ISL6312 (4 Phases)	28
ATX Power-Con. / F_Panel	29
Manual & Option Parts	30
Power Delivery	31
Reset & PWROK map	32
GPIO Setting & PCI Routing / Revision History	33-34

MS-7358 uATX Version: 1.2

CPU: Intel Pentium 4, Pentium D, Core2 Duo, Wolfdale, Kentsfield and Yorkfield processors in LGA775 Package.

System Chipset:

Intel Bearlake - Q35/G33 North Bridge
Intel ICH9 (DO/DH South Bridge)

On Board Device:

CLOCK Gen ICS 9LPRS906
LPC Super I/O -- Fintek F71882F
LPC TPM -- SLB9635
LAN -- INTEL NINEVEH/EKRON
HD Audio Codec -- ALC888
1394 Controller -- VT6308 (2-port)
PCIE to PATA Bridge -- Marvel 88SE6111

Main Memory:

Dual-channel DDR-II * 4


Expansion Slots:

PCI EXPRESS X16 SLOT *1
PCI EXPRESS X1 SLOT *1
PCI SLOT * 2

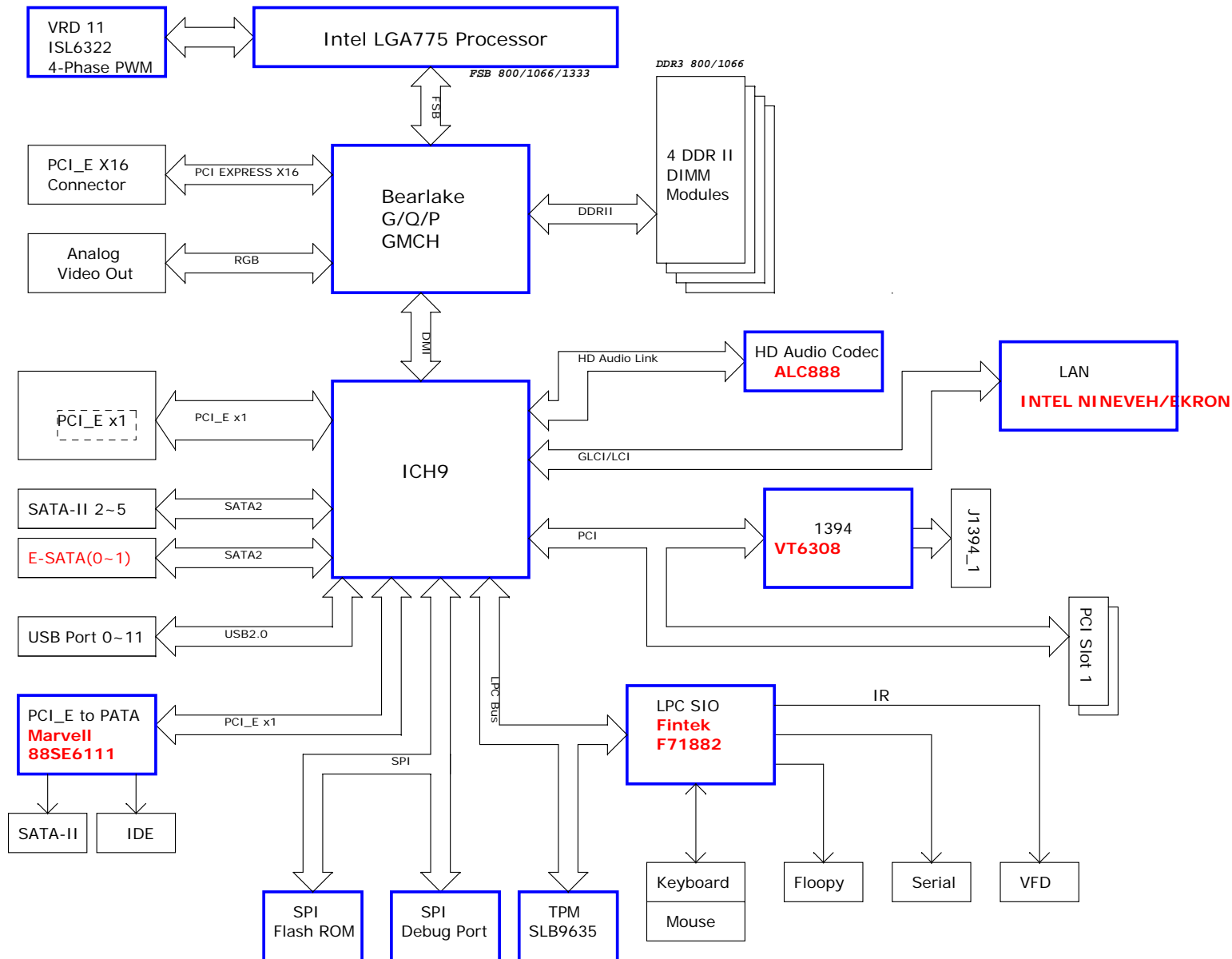
PWM: Intersil ISL6322 (4 Phases) w/ ISL6612 driver

Configuration and BOM match up

Option	Function	Orcad Configure	BOM
STD	Bearlake-Q33/ICH9DO	cfg-7358-STD	

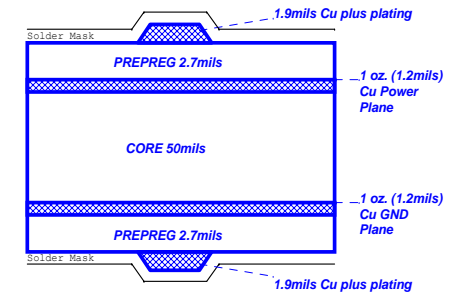
				MICRO-STAR INT'L CO.,LTD			
				MS-7358V1.2_070821JK1			
Size	Custom	Document Description				Rev	
		COVER SHEET				1.2	
Date: Tuesday, August 21, 2007				Sheet 1 of 35			

Block Diagram



Board Stack-up

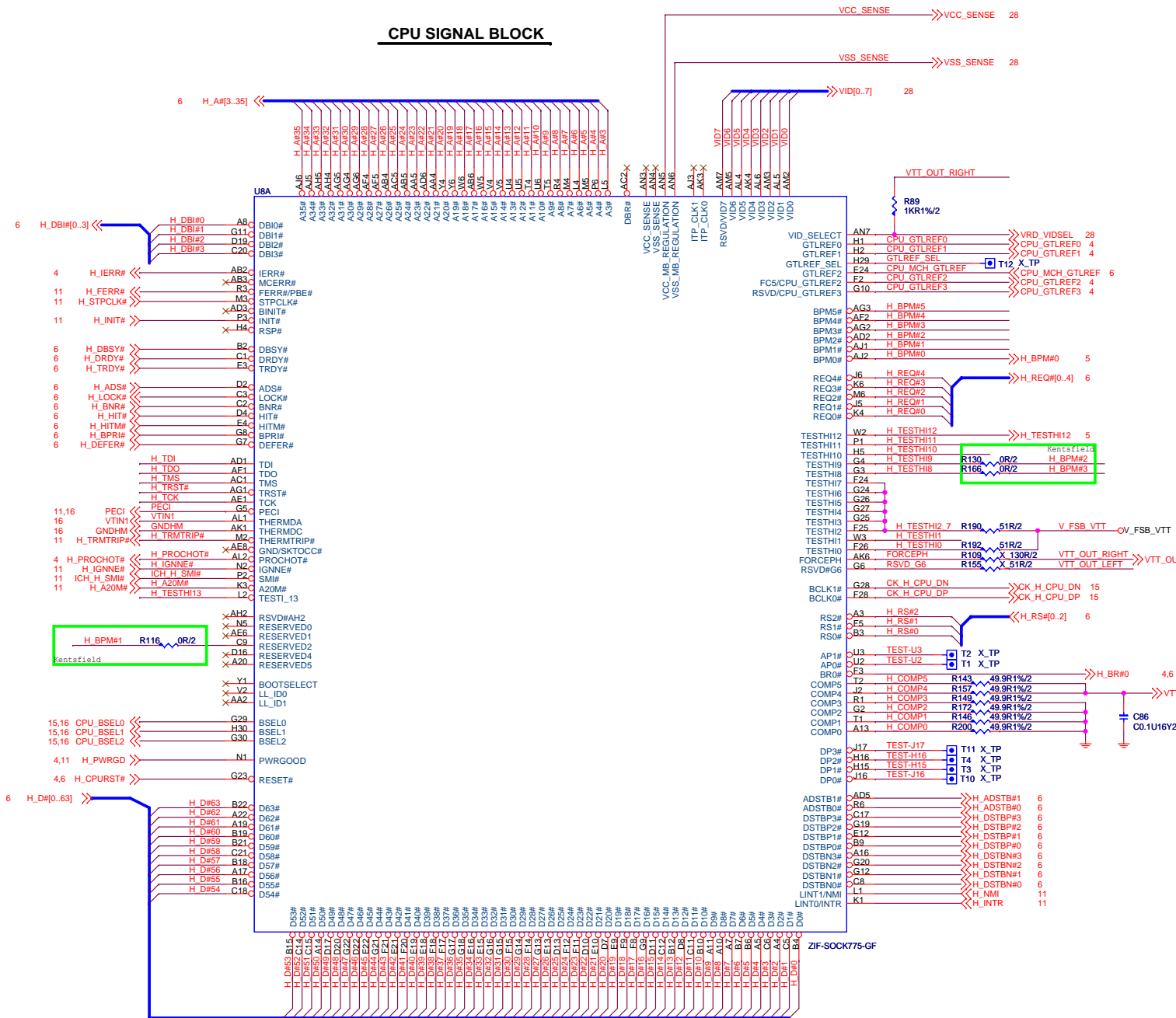
(1080 Prepreg Considerations)



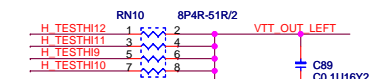
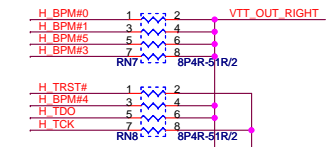
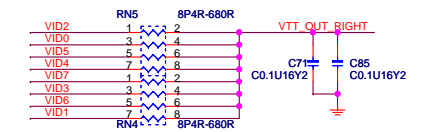
Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15
 SATA - 95ohm : 15/4/8/4/15
 LAN - 100ohm : 15/4/8/4/15
 PCIE - 95ohm : 15/4/8/4/15
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

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MS-7358V1.2_070821JK1			
Size	Document Description	Rev	
Custom	BLOCK DIAGRAM	1.2	
Date: Tuesday, August 21, 2007		Sheet	2 of 35

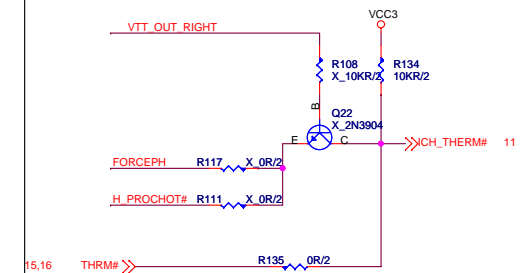
CPU SIGNAL BLOCK



PULL HIGHT PULL DOWN



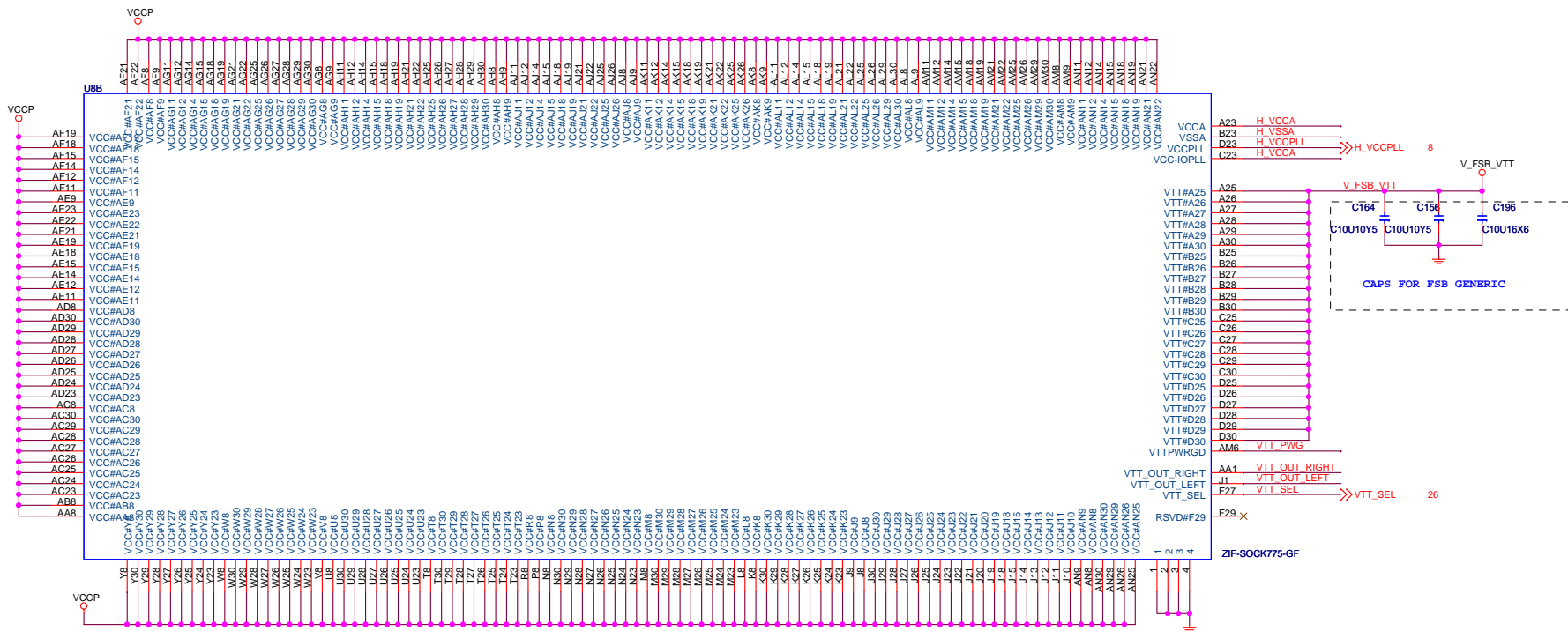
Thermal TRIP



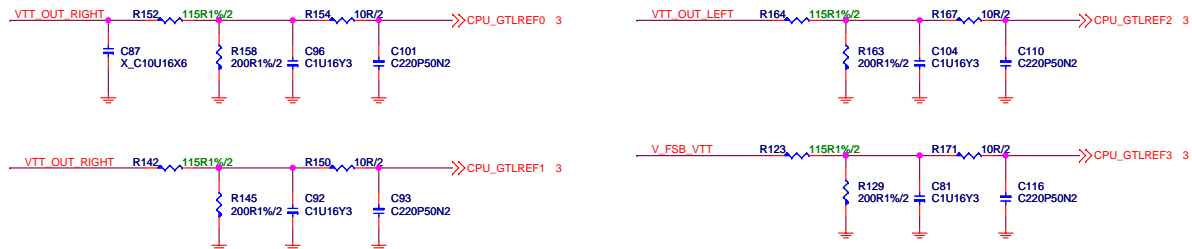
MICRO-STAR INT'L CO.,LTD

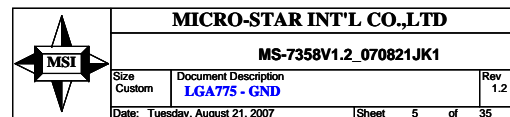
MS-7358V1.2_070821JK1

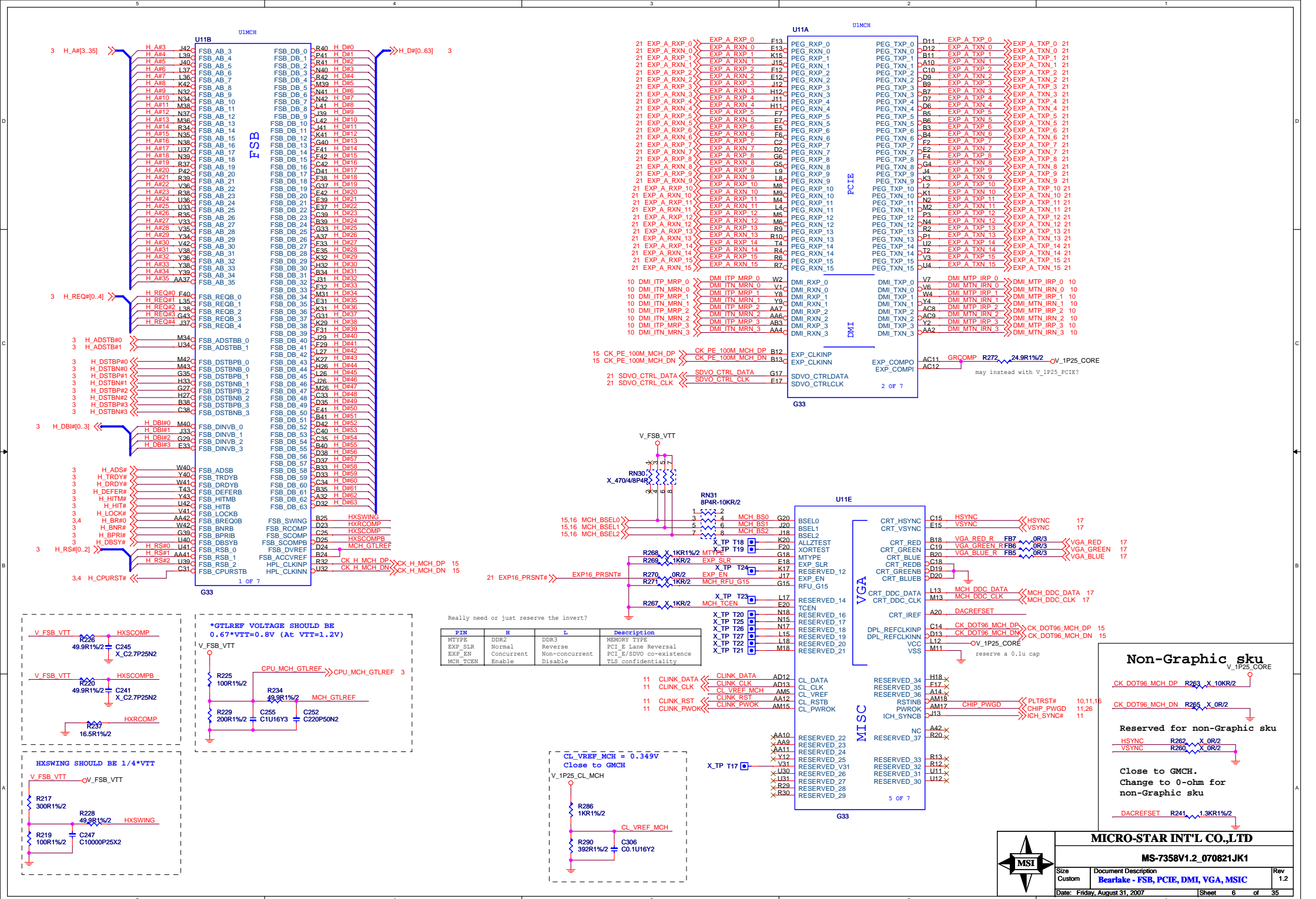
Size Custom	Document Description LGA775 - Signal	Rev 1.2
Date: Tuesday, August 21, 2007		Sheet 3 of 35

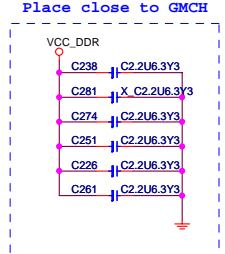
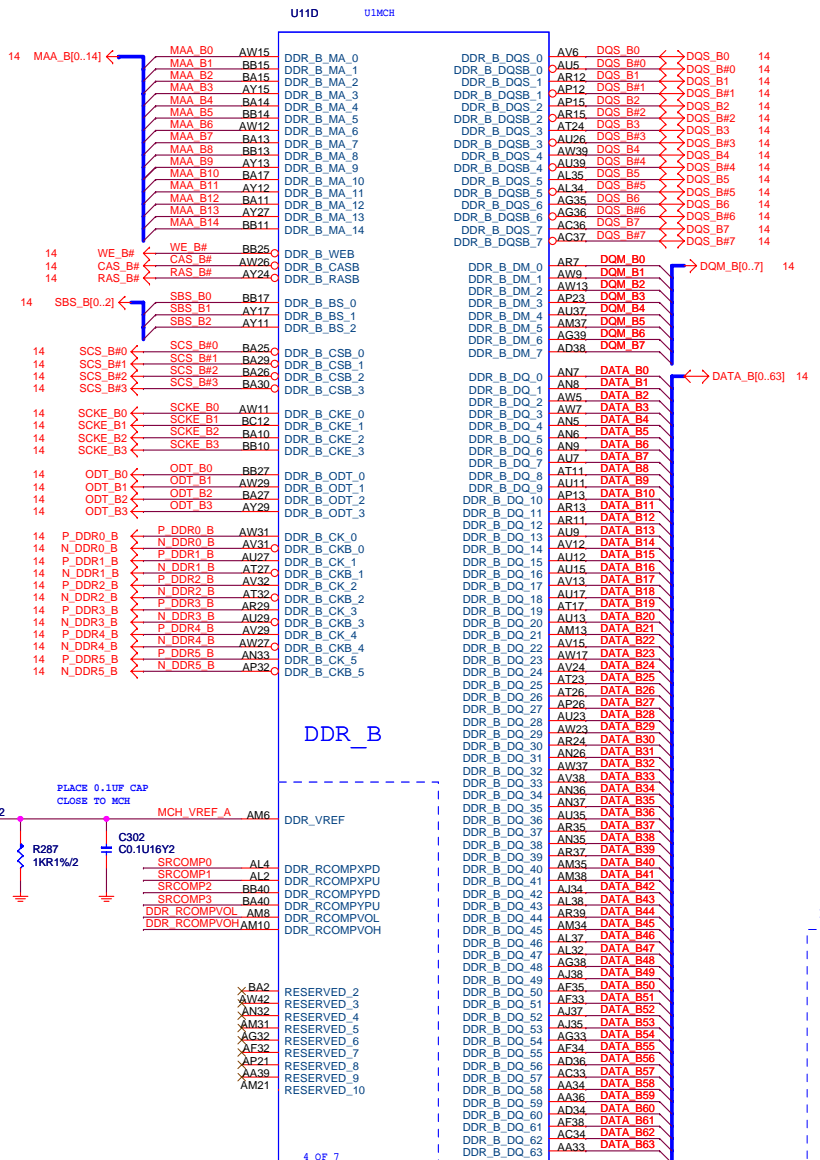
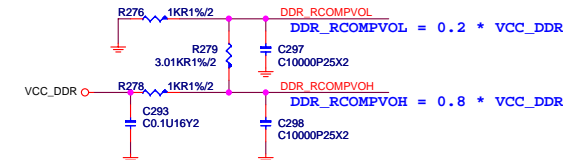
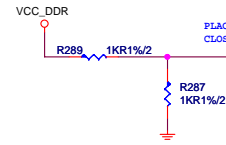
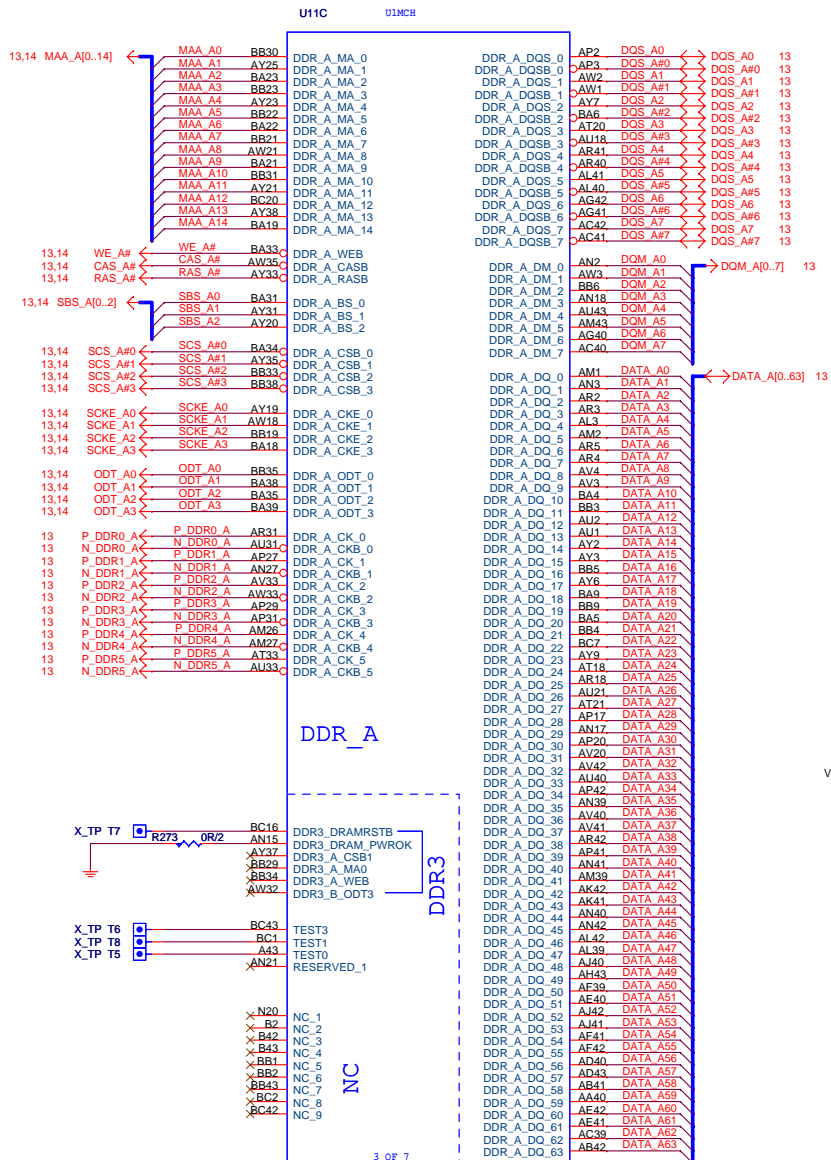


*GTLREF VOLTAGE SHOULD BE
0.67 * VTT = 0.8V (At VTT=1.2V)

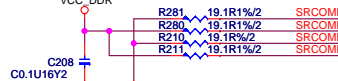






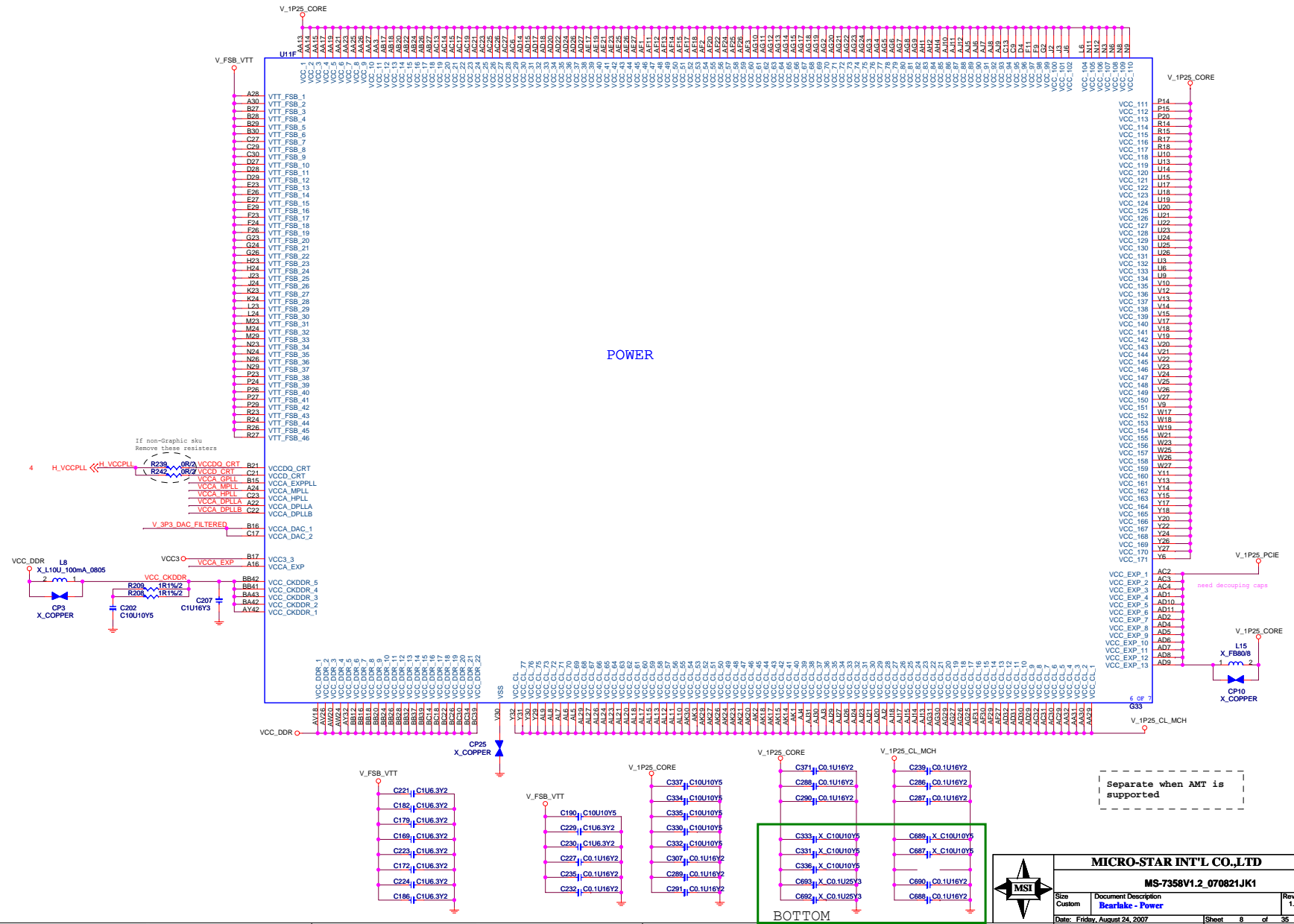
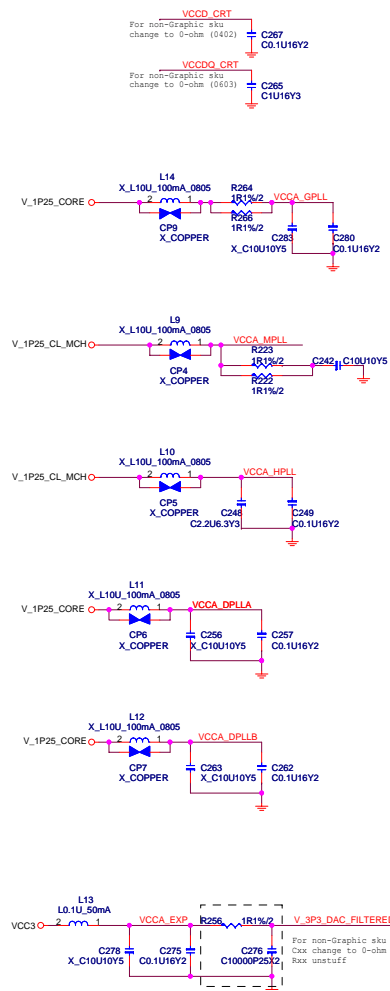


SCROMP1,3 CLOSED TO VCC_DDR



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MS-7358V1.2_070821JK1		
Size Custom	Document Description Bearlake - Memory	Rev 1.2
Date: Friday, August 24, 2007		Sheet 7 of 35

NB POWER



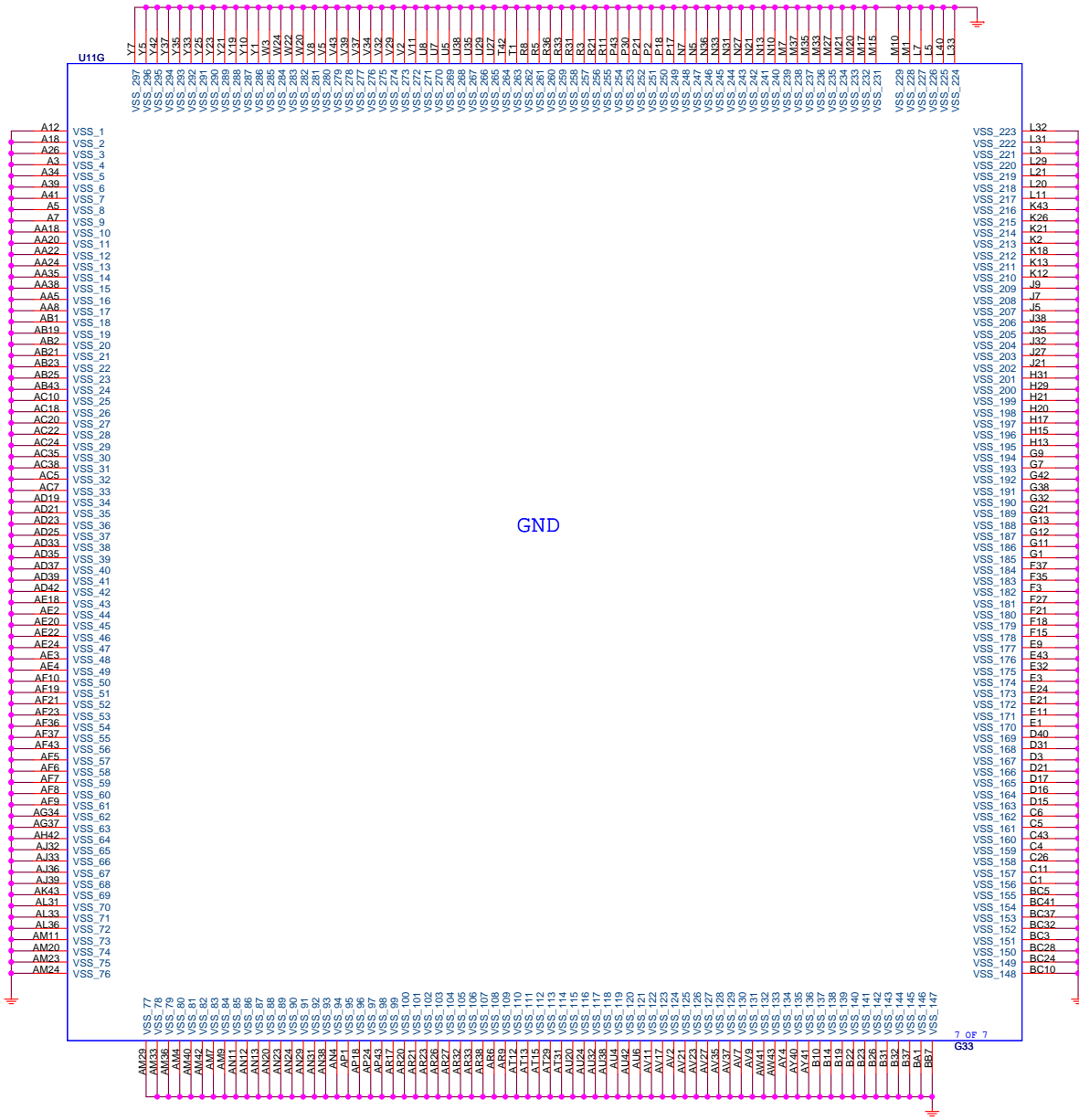
Separate when AMT is supported

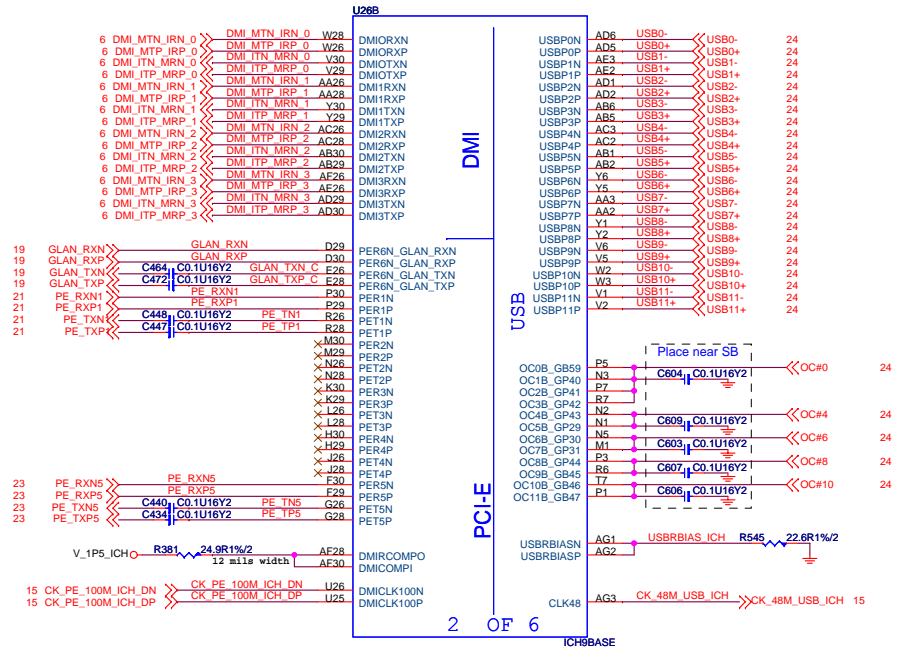
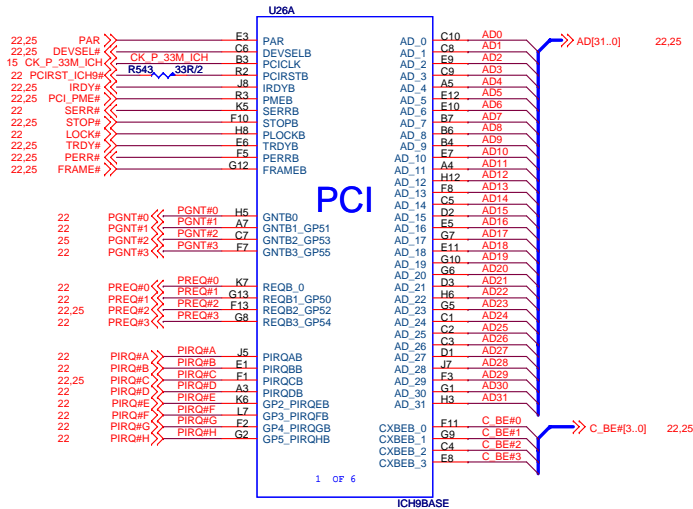


MICRO-STAR INT'L CO.,LTD

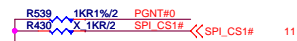
MS-7358V1.2_070821JK1

Size Custom	Document Description Bearlake - Power	Rev 1.2
Date: Friday, August 24, 2007	Sheet 8 of 35	



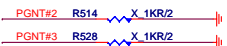


SB STRAPPING RESISTOR



BOOT SELECT STRAPS		
BOOT DEVICE	GNT#0	SPI_CS1#
FWH	1	1
SPI	0	1
PCI	1	0

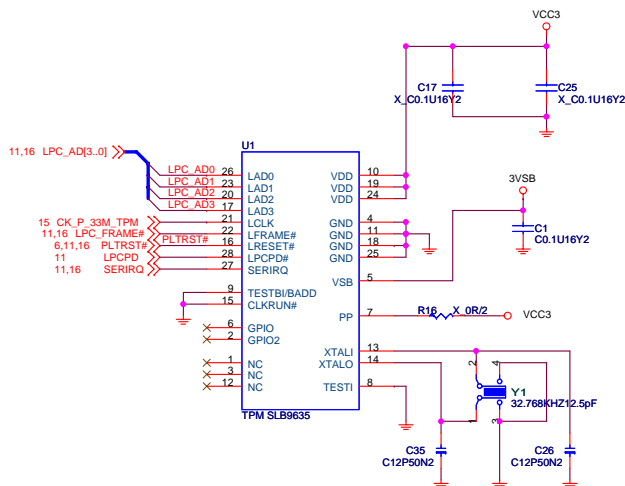
PGNT#(3:0) Internal Pull-up



SIGNAL	H	L	DES.
GNT3	DIS	EN	A16 OVERRIDE
GNT2	N/A	SET BIT	PCI-E PORT CONFIG 2 BIT 0 (5-6)

HDA_SDOUT/HDA_SYNC strap PCI_E port configuration bit[1:0]. Internal weak pull down.
00:1X/1X/1X 11:0X/0X/4X

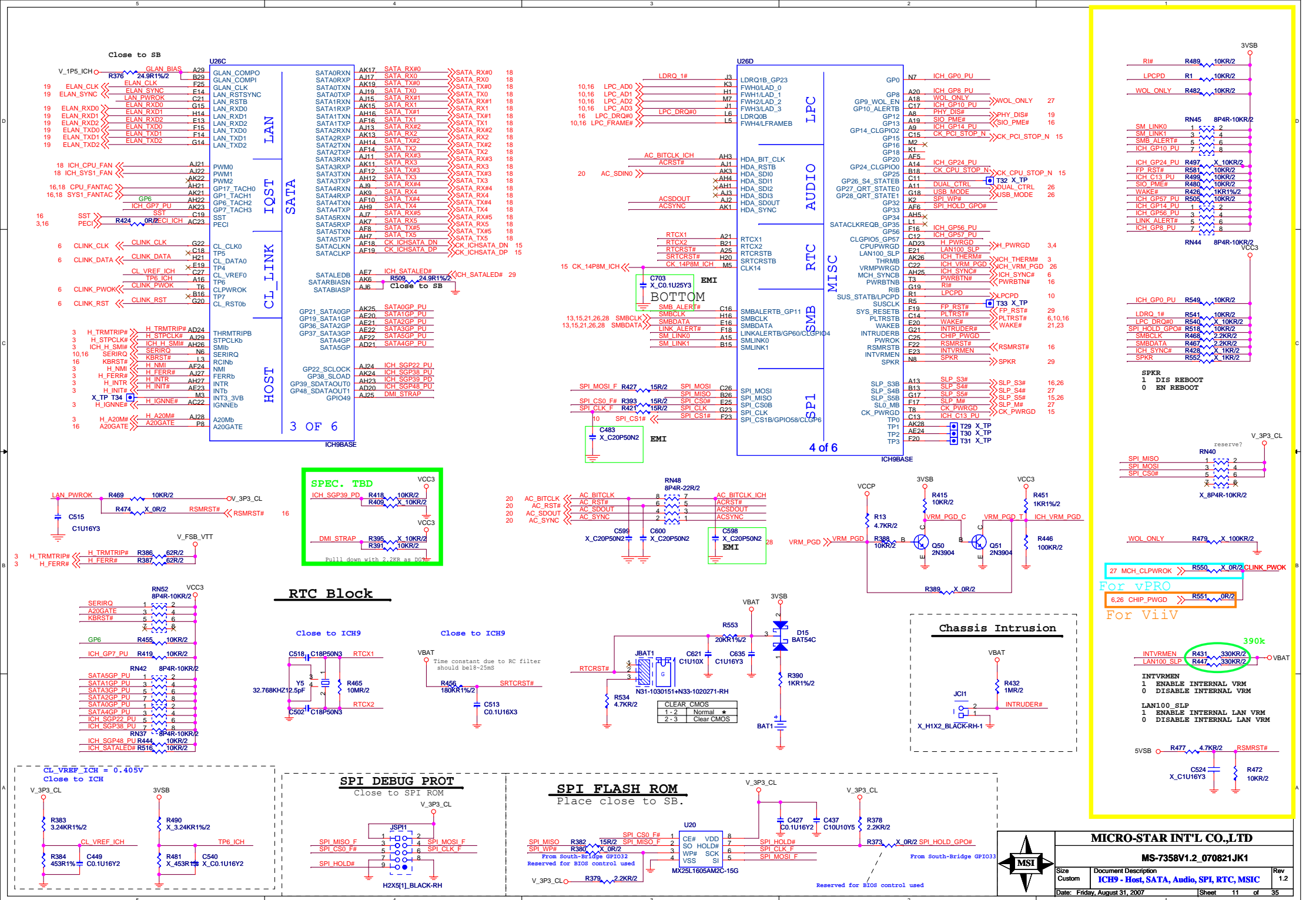
TPM - Security Controller



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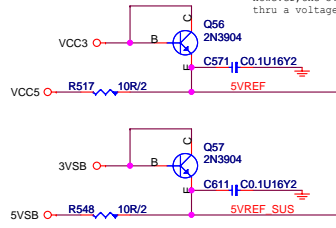
MS-7358V1.2_070821JK1

Size	Document Description	Rev
Custom	ICH9 - PCI, DMI, USB, PCIE & Slots	1.2
Date: Friday, August 31, 2007	Sheet 10 of 35	

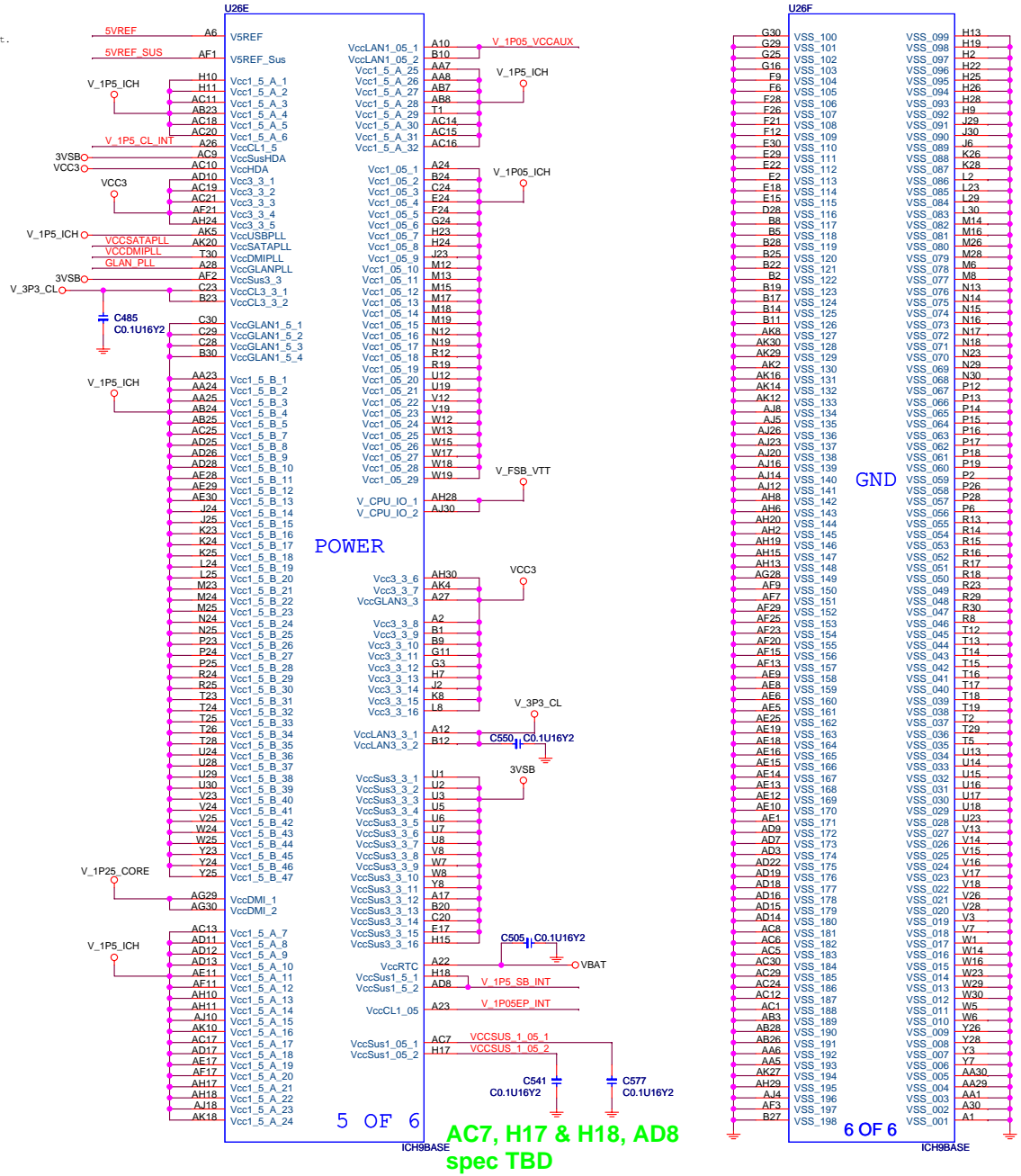
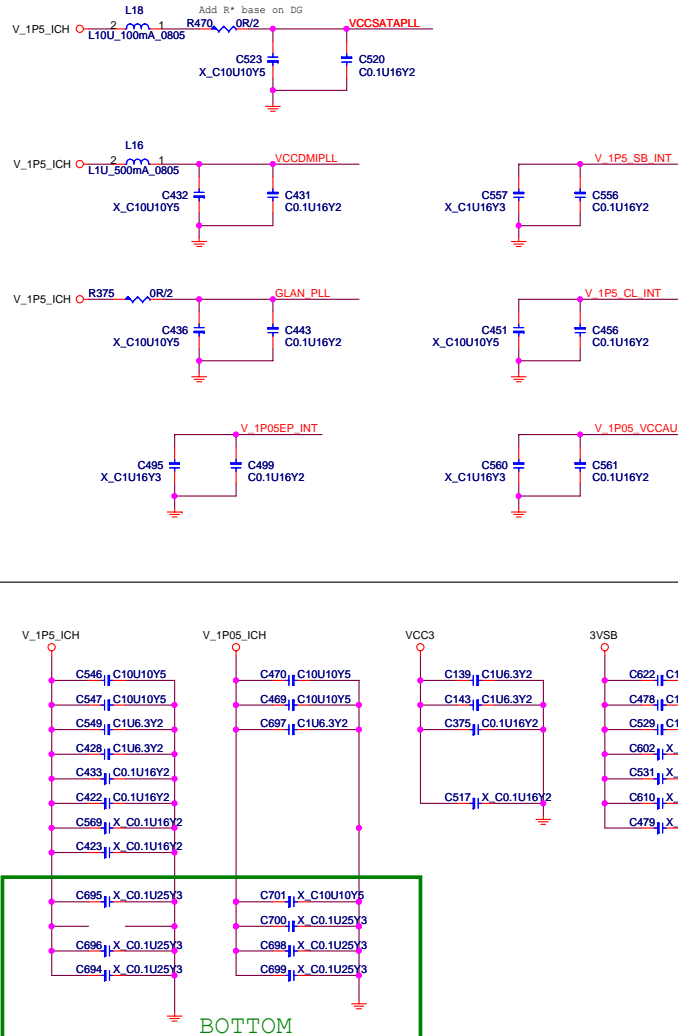


5VREF & 5VREF_SUS Sequencing Circuit

V5REF must be powered up before VCC3 or after VCC3 within 0.7V.
Also, V5REF must power down after VCC3 or before VCC3 within 0.7V.
This rule is also applies to V5REF_SUS and 3VSB.
However, the 3VSB is derived from the 5VSB on the power supply thru a voltage regulator and therefore, they can satisfy the requirement.



SB POWER



POWER

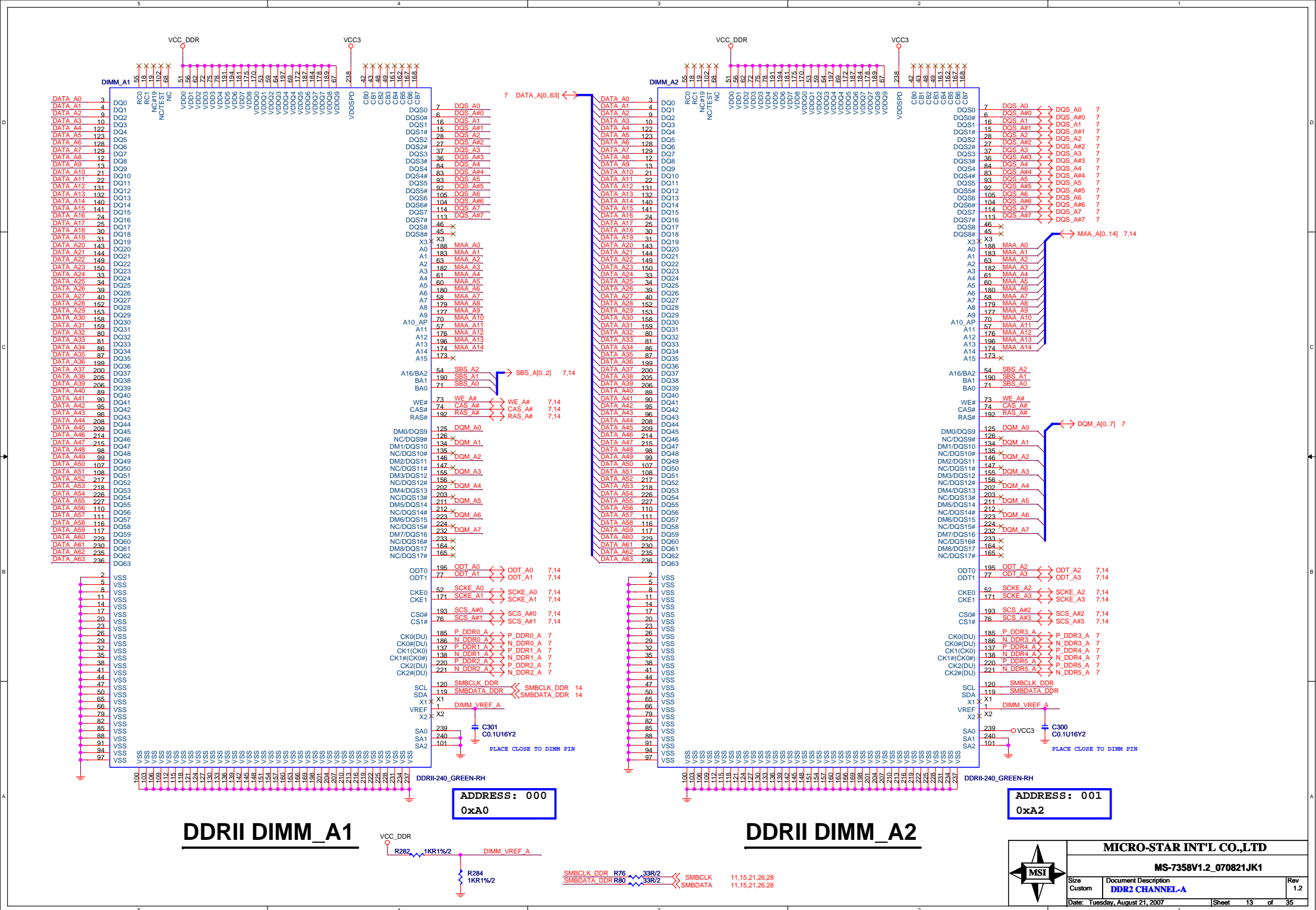
AC7, H17 & H18, AD8
spec TBD



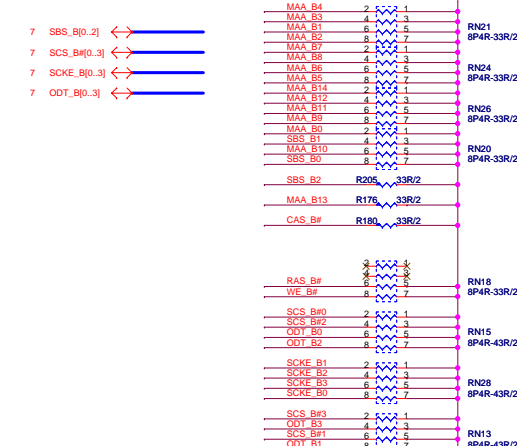
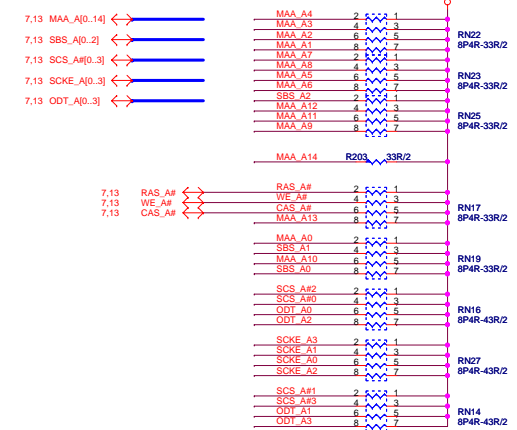
MICRO-STAR INT'L CO.,LTD

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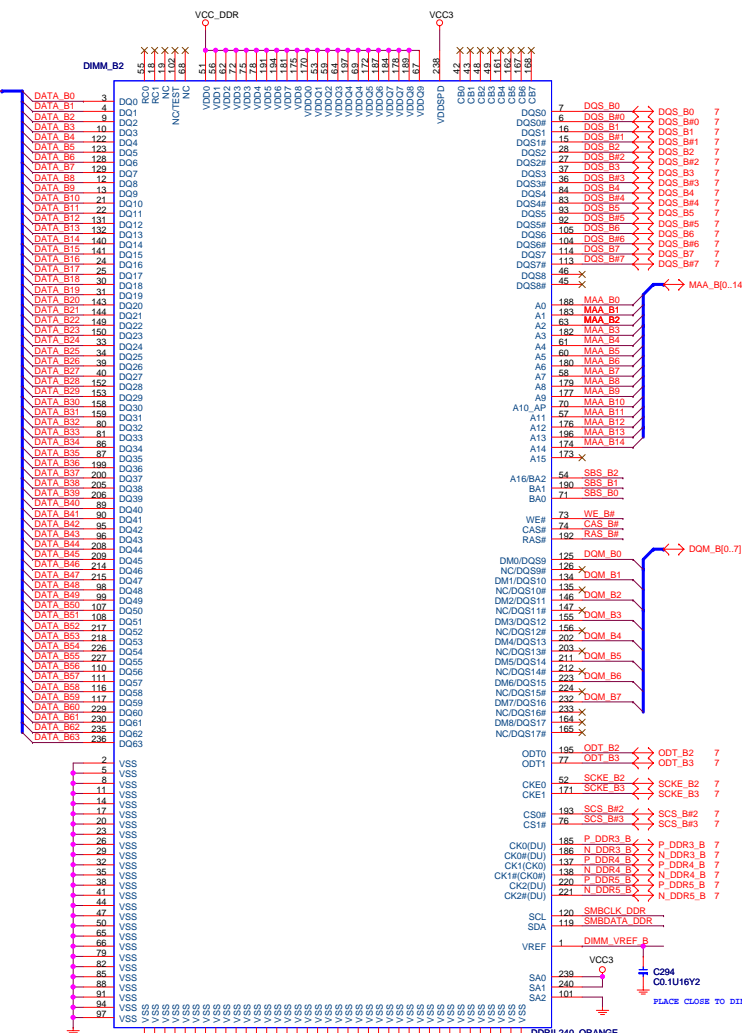
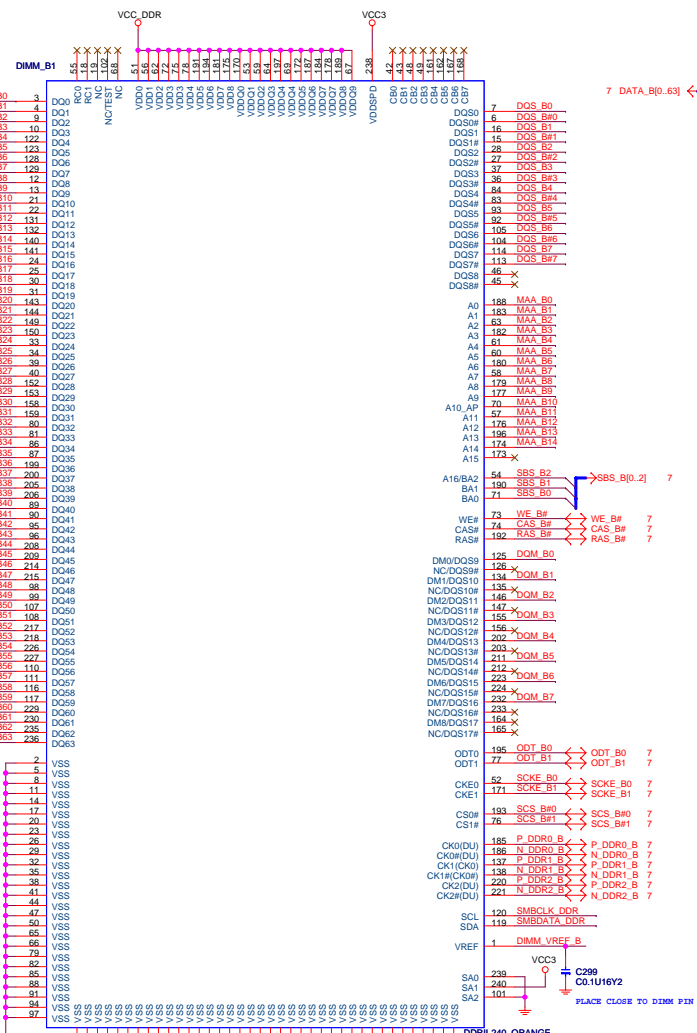
Size	Document Description	Rev
Custom	ICH9 - Power, GND	1.2
Date:	Friday, August 31, 2007	Sheet 12 of 35



DDR II Termination



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MS-7358V1.2_070821JK1		
Size Custom	Document Description	Rev 1.2
DDR2 CHANNEL-B/DDR II Termination		
Date: Tuesday, August 21, 2007	Sheet 14	of 35



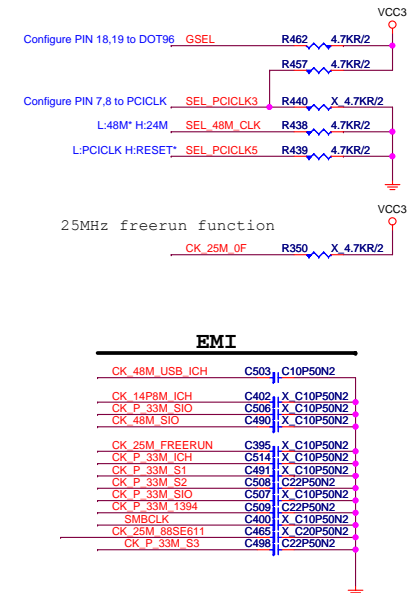
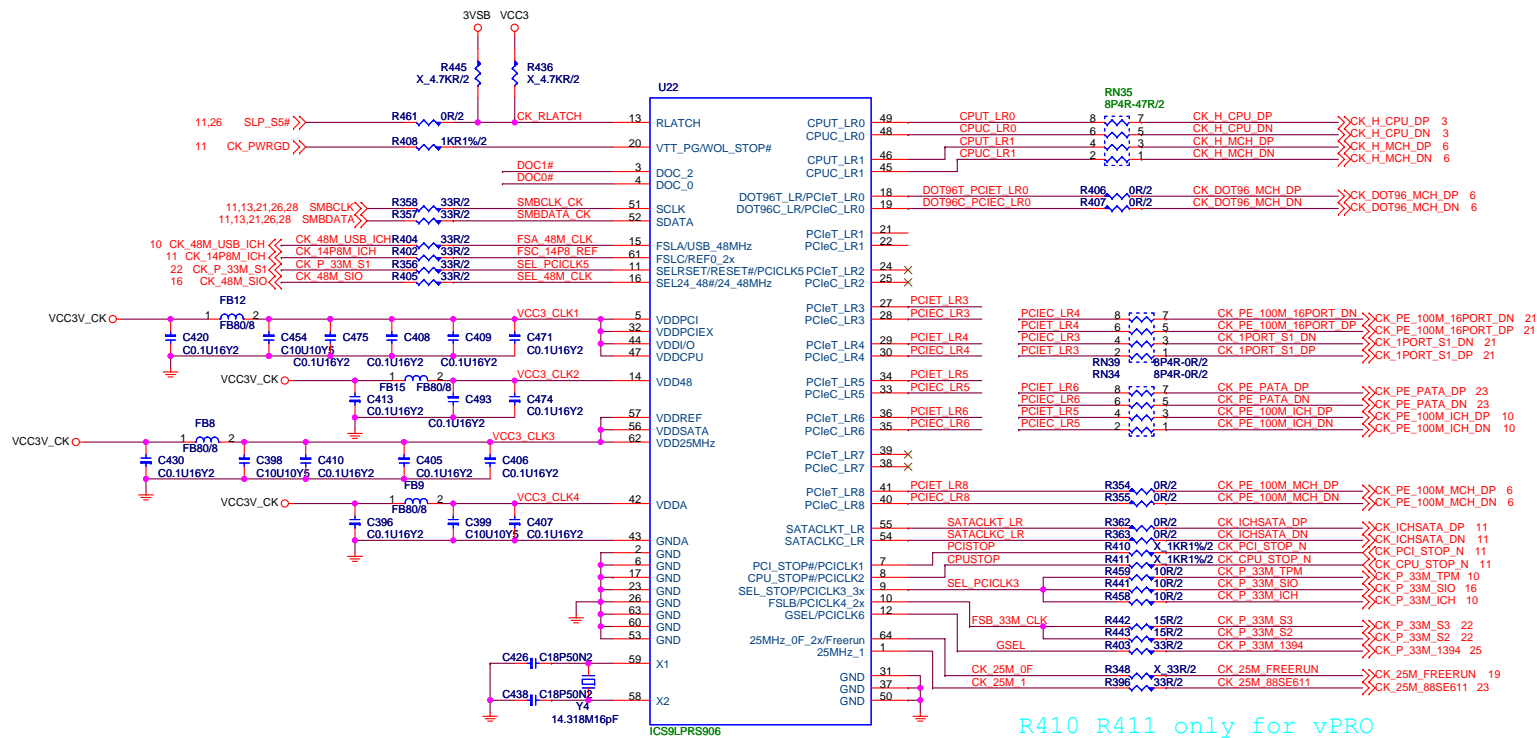
ADDRESS: 010
0xA4

ADDRESS: 011
0xA6

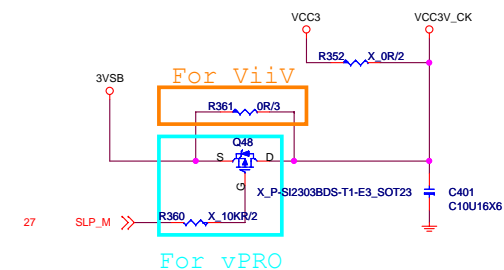
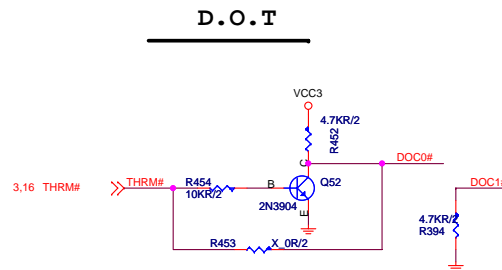
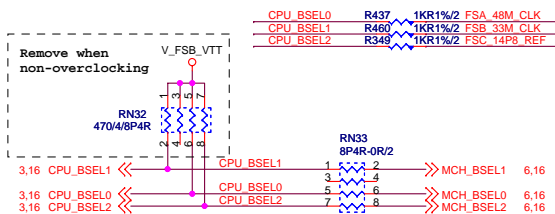
DDR II DIMM_B1

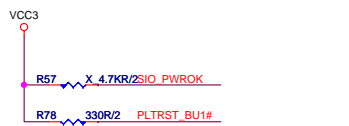
DDR II DIMM_B2



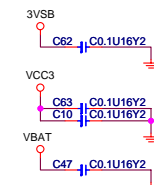
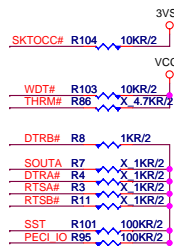


BSEL	TABLE
2 1 0	FSB FREQUENCY
0 0 0	266 MHz (1066)
0 0 1	133 MHz (533)
0 1 0	200 MHz (800)
1 0 0	333 MHz (1333)
1 1 0	400 MHz (1600)

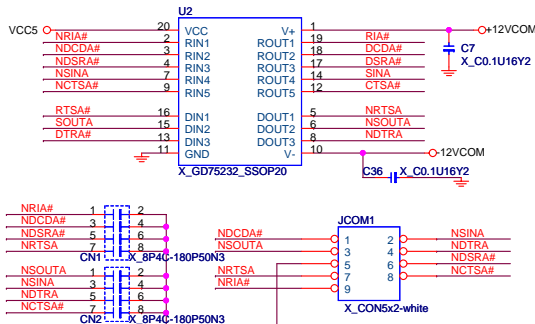




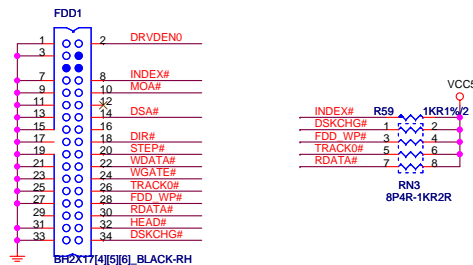
LPC I/O STRAPPING RESISTOR



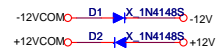
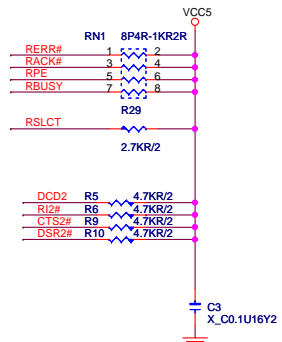
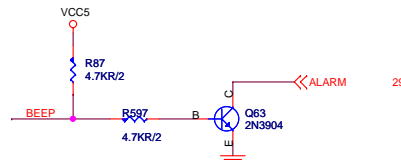
SERIAL PORT 1



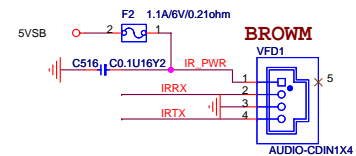
FLOPPY CONNECTOR



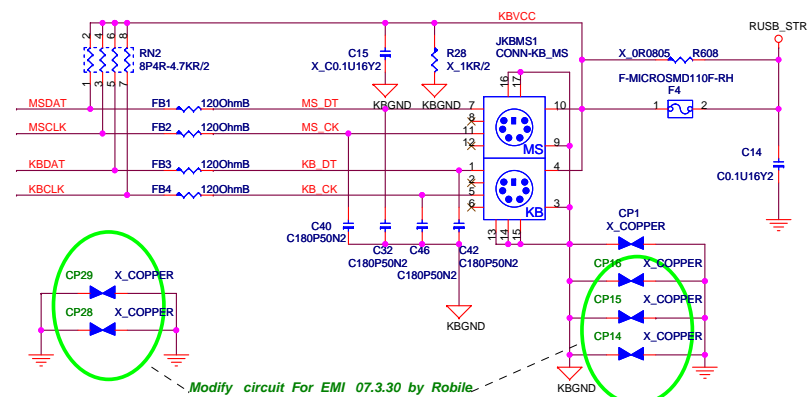
BEEP



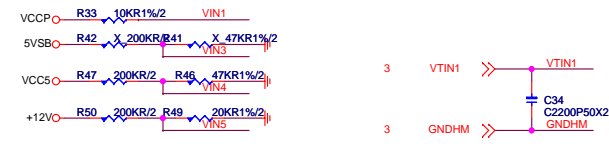
Front LCD (SERIAL PORT 2)



PS2 KEYBOARD & MOUSE CONNECTOR



Thermal Resistor

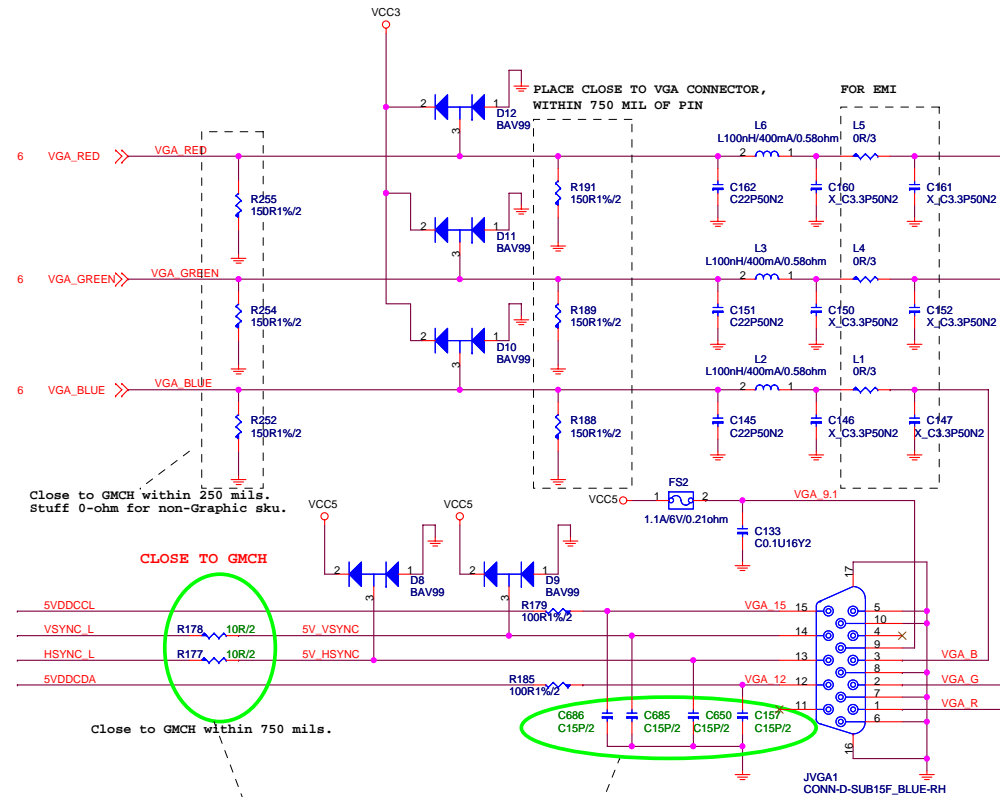
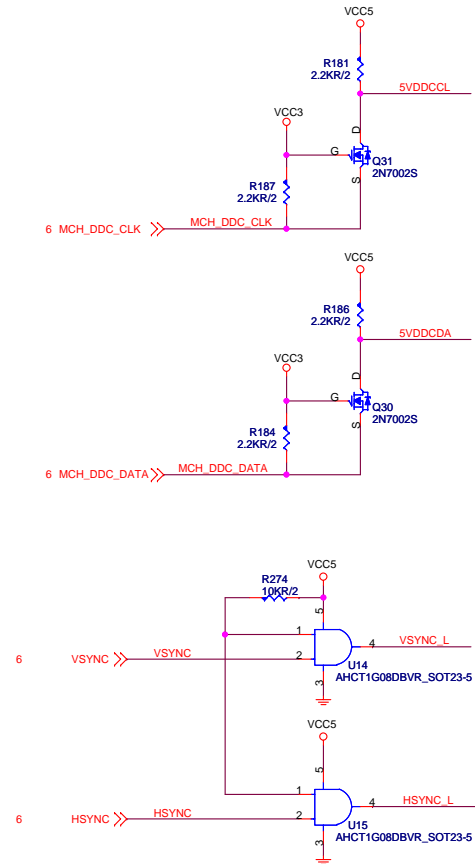


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MS-7358V1.2_070821JK1

Size Custom	Document Description SIO-Fintek F17882F/COM	Rev 1.2
Date: Friday, August 31, 2007		Sheet 16 of 35

Video Connector



Modify HSYNC/VSYNC Circuit
 1. R178,R177 from 30R to 10R
 2. CN3 from 33p to 15p
 For Rise time edge not clean 07.3.30 by Robile



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MS-7358V1.2_070821JK1

Size Custom	Document Description VGA	Rev 1.2
Date: Tuesday, August 21, 2007		Sheet 17 of 35

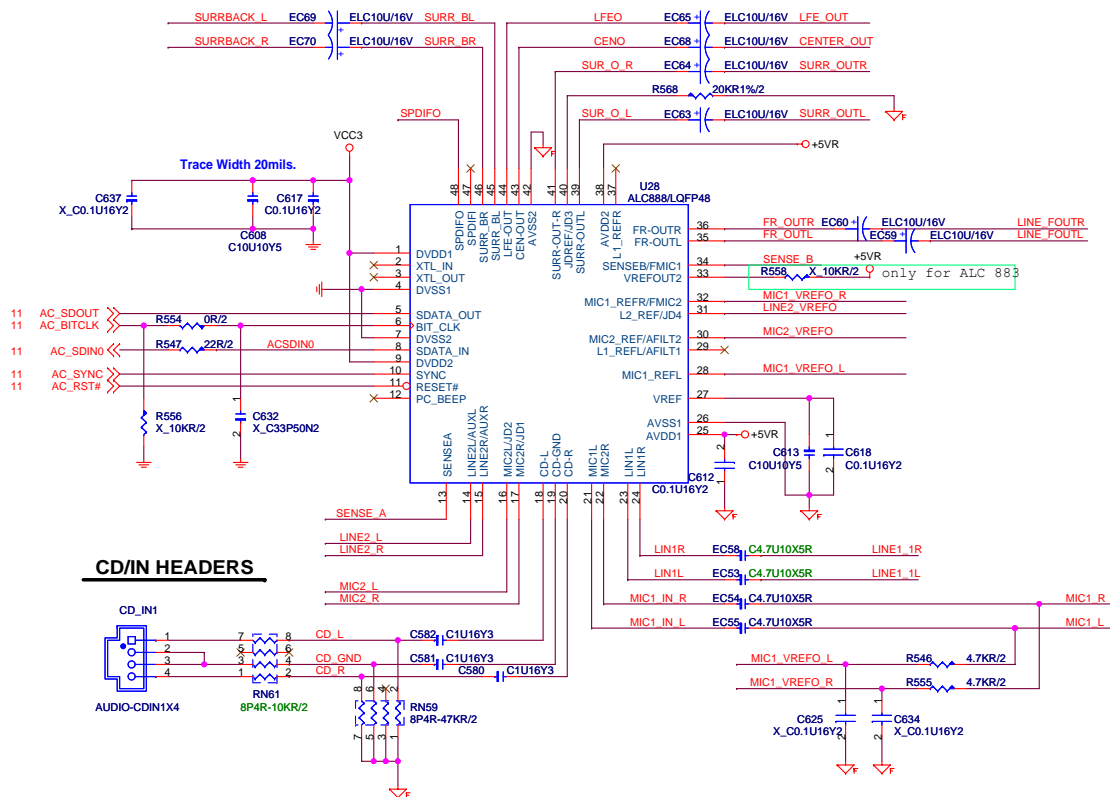


FAN-COUNTROL CIRCUIT

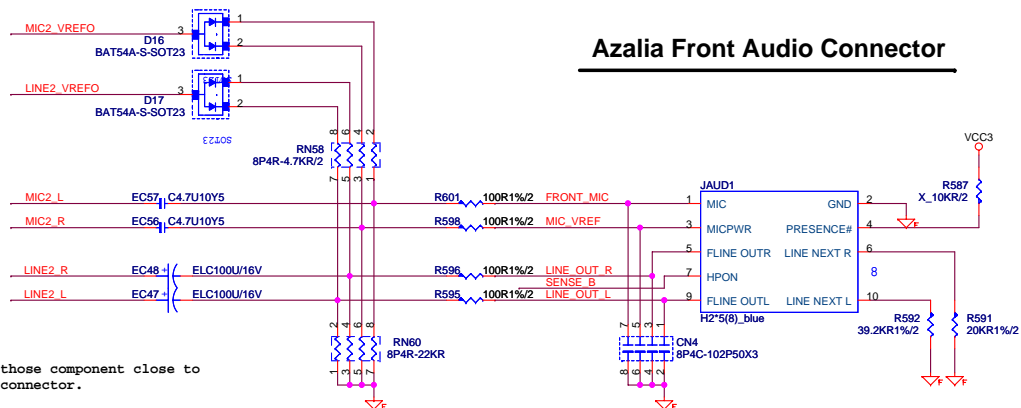


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MS-7358V1.2_070821JK1			
Size Custom	Document Description SATA & e-SATA Ports and Fan Control		Rev 1.2
Date: Tuesday, August 21, 2007	Sheet	18 of	35

ALC883 CODEC

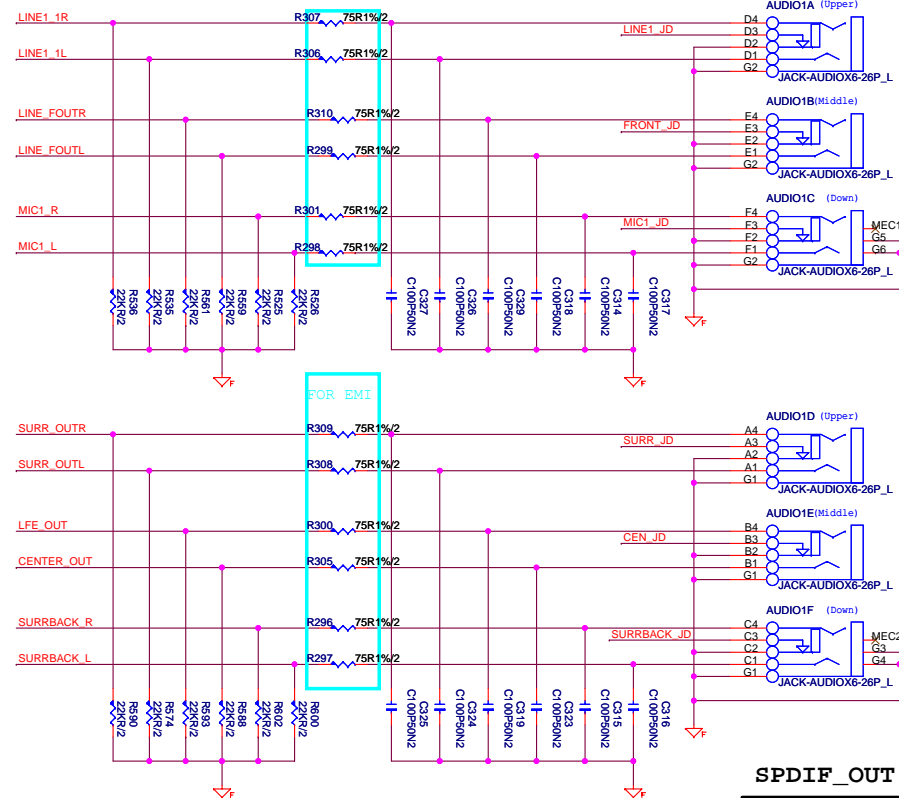


Azalia Front Audio Connector

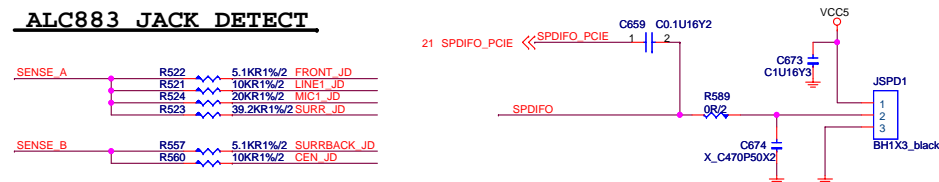


Place those component close to
audio connector.

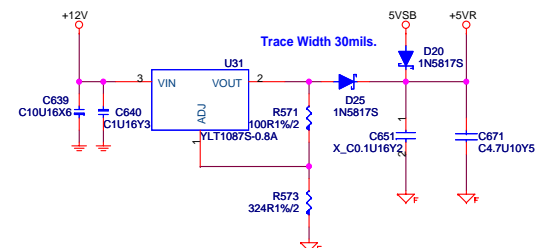
ALC883 JACK



ALC883 JACK DETECT



AUDIO CODE REGULATORS

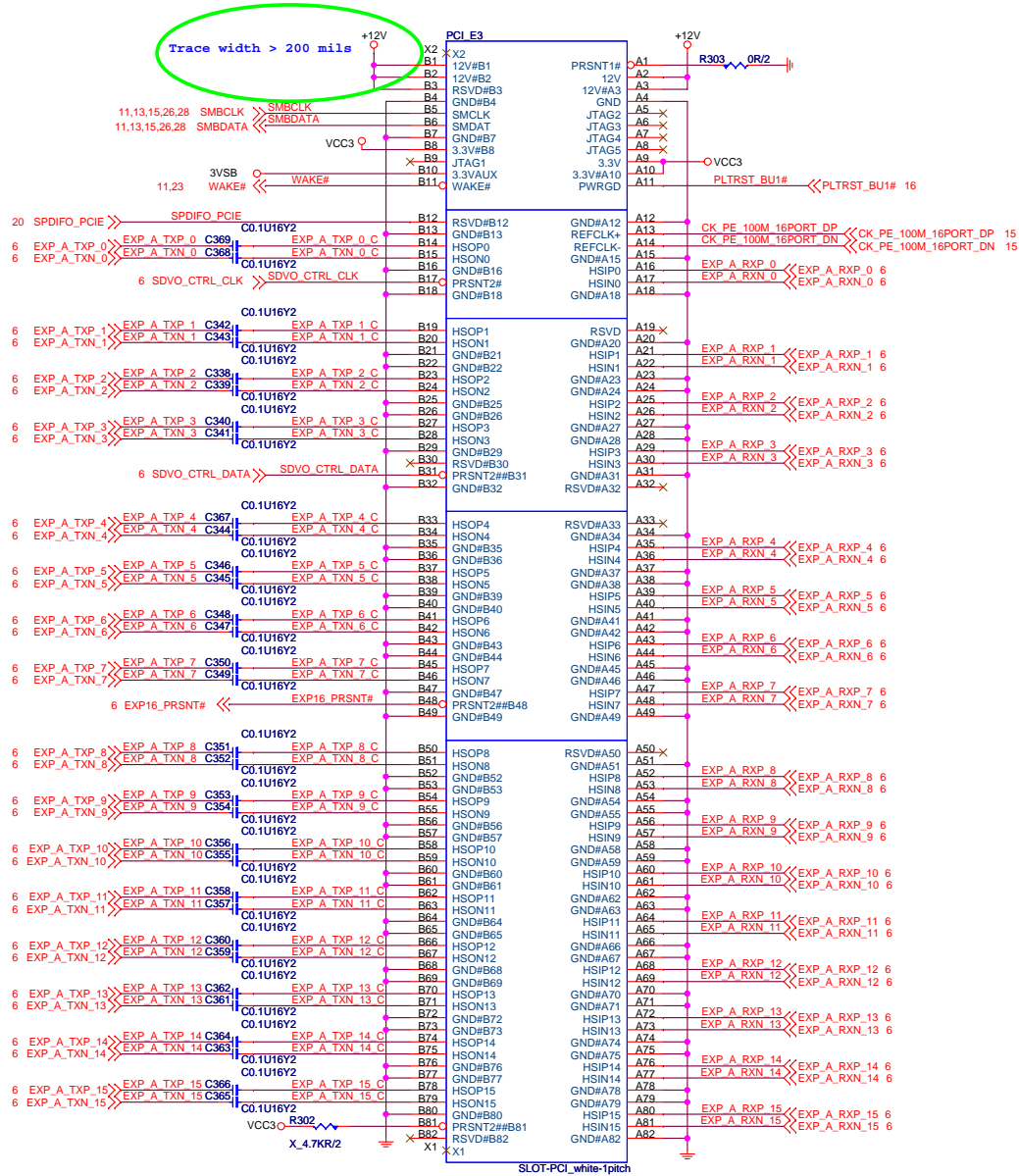


MICRO-STAR INT'L CO.,LTD

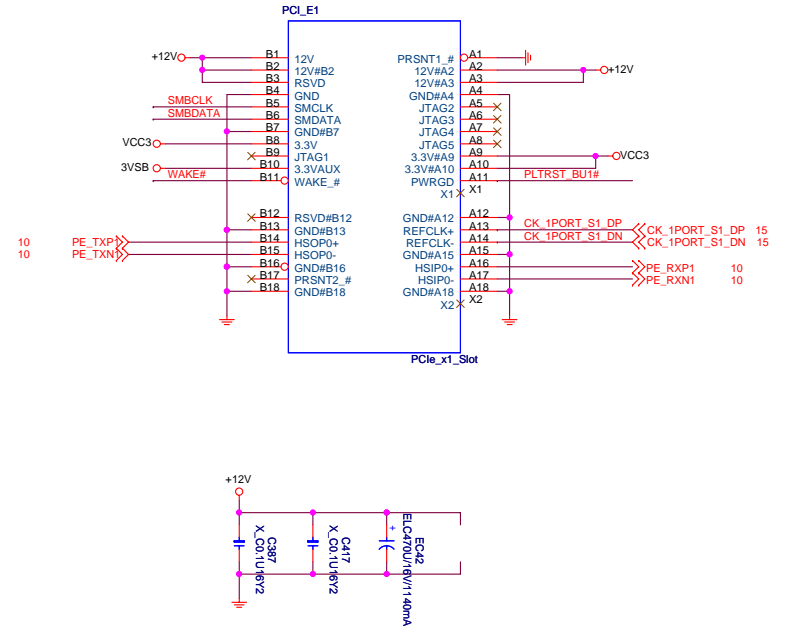
MS-7358V1.2 070821JK1

Size Custom	Document Description STAC9227	Rev 1.2
Date: Tuesday, August 21, 2007		Sheet 20 of 35

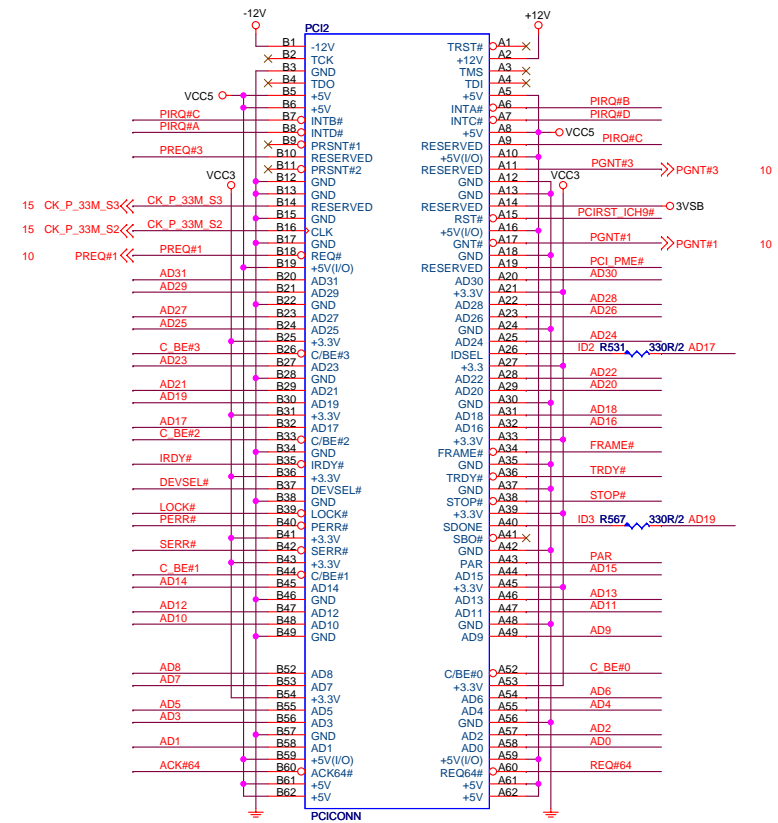
PCI_Express X16 Slot



PCI_Express X4 Slot (Share with PCI_E x1 Slots)



PCI SLOT 2 (PCI VER: 2.2 COMPLY)

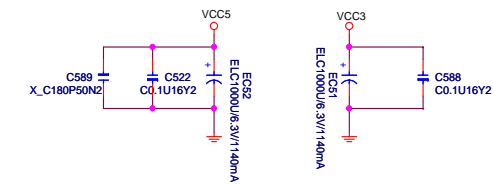


IDSEL = AD17

MASTER = PREQ#1

PIRQ#B

PCI SLOT DECOUPLING CAPACITORS

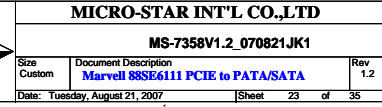
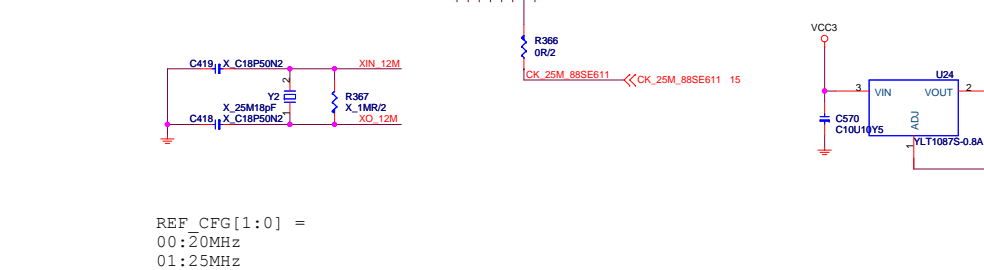


MS-7358V1.2_070821JK1

	Document Description
	PCI Slot 1 & 2

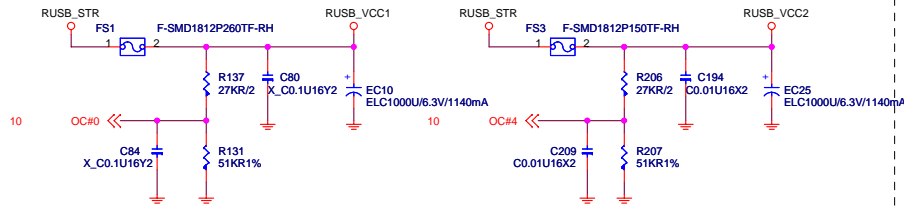
Rev	
1.2	

Date: Tuesday, August 21, 2007	Sheet 22 of 35
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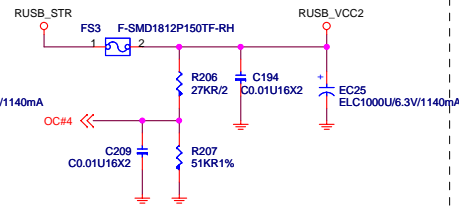


Rear USB Connector

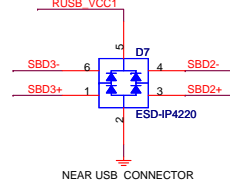
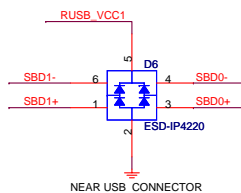
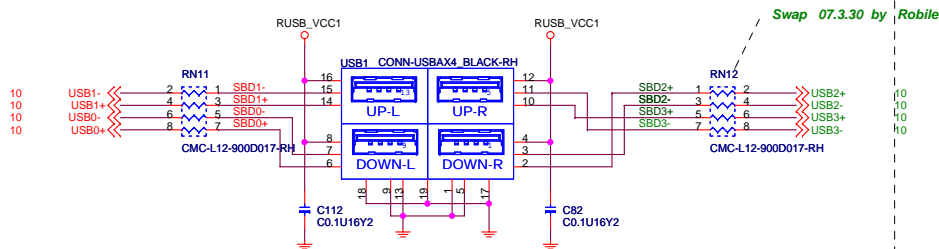
USB POWER FOR PORT 0,1 NEAR CONNECTOR



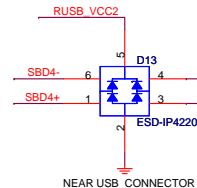
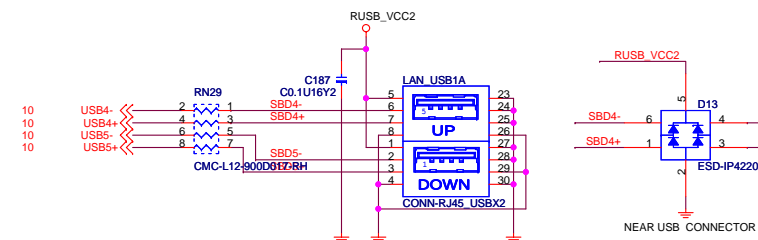
USB POWER FOR PORT 2,3,4,5 NEAR CONNECTOR



REAR USB PORT 0-3 (2x2)

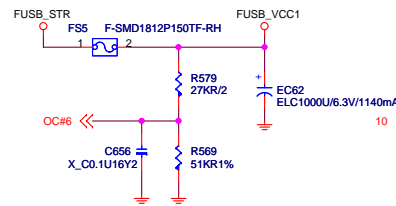


REAR USB PORT 4,5 (With LAN)

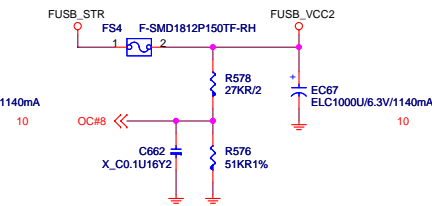


Front USB Connector

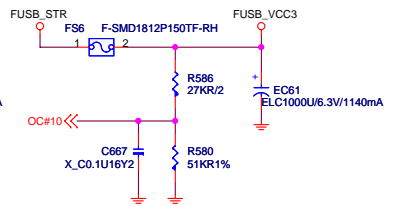
USB POWER FOR PORT 6,7 NEAR CONNECTOR



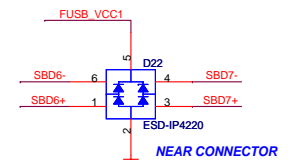
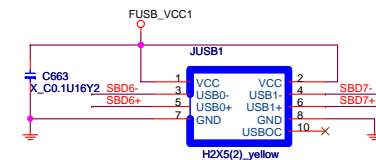
USB POWER FOR PORT 6,7 NEAR CONNECTOR



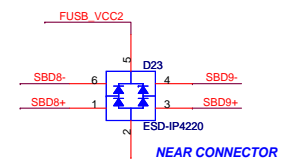
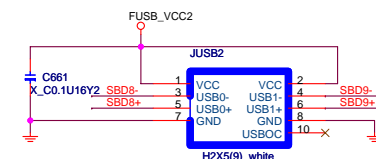
USB POWER FOR PORT 6,7 NEAR CONNECTOR



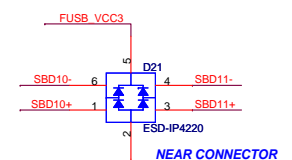
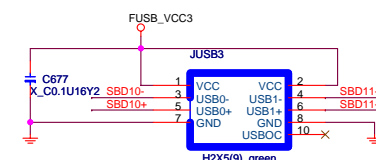
FRONT USB PORT 6,7



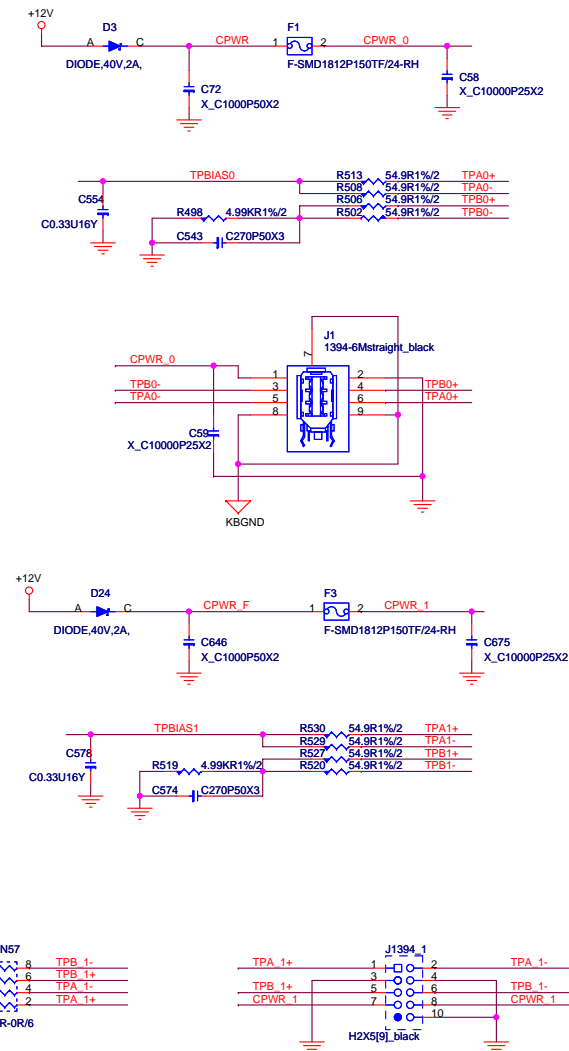
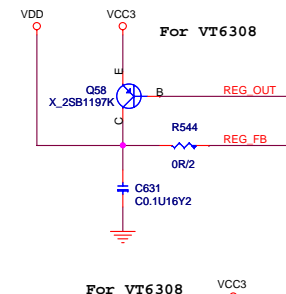
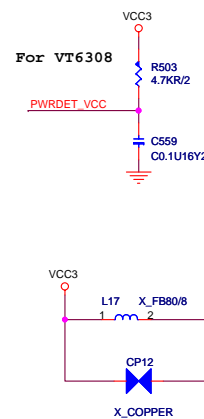
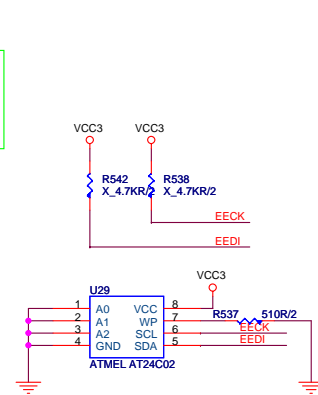
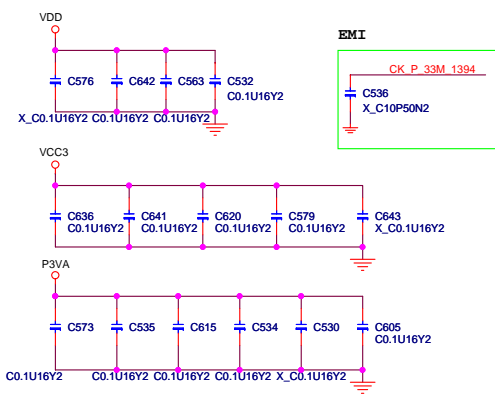
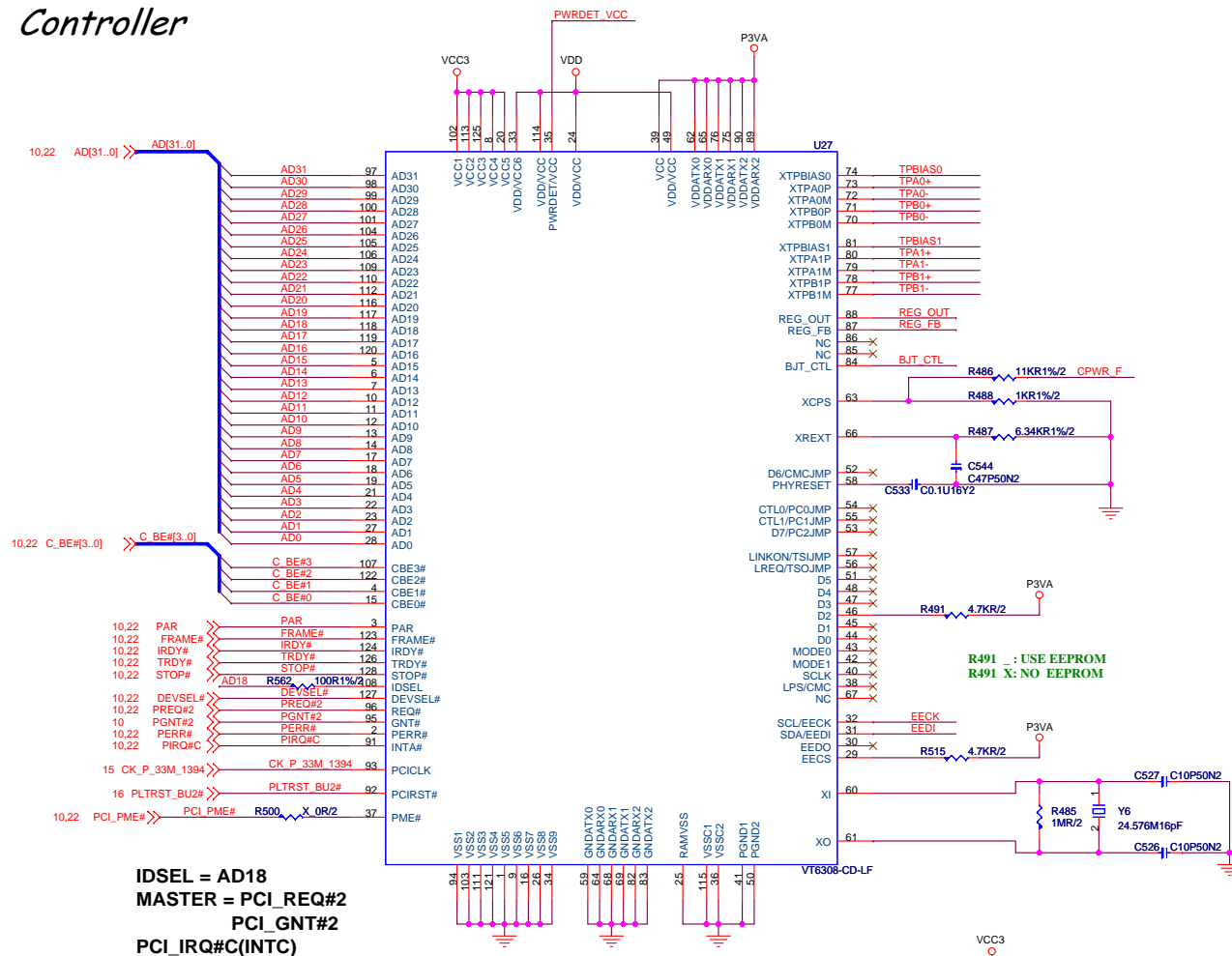
FRONT USB PORT 8,9



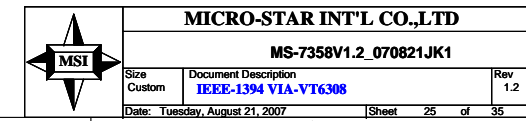
FRONT USB PORT 10,11



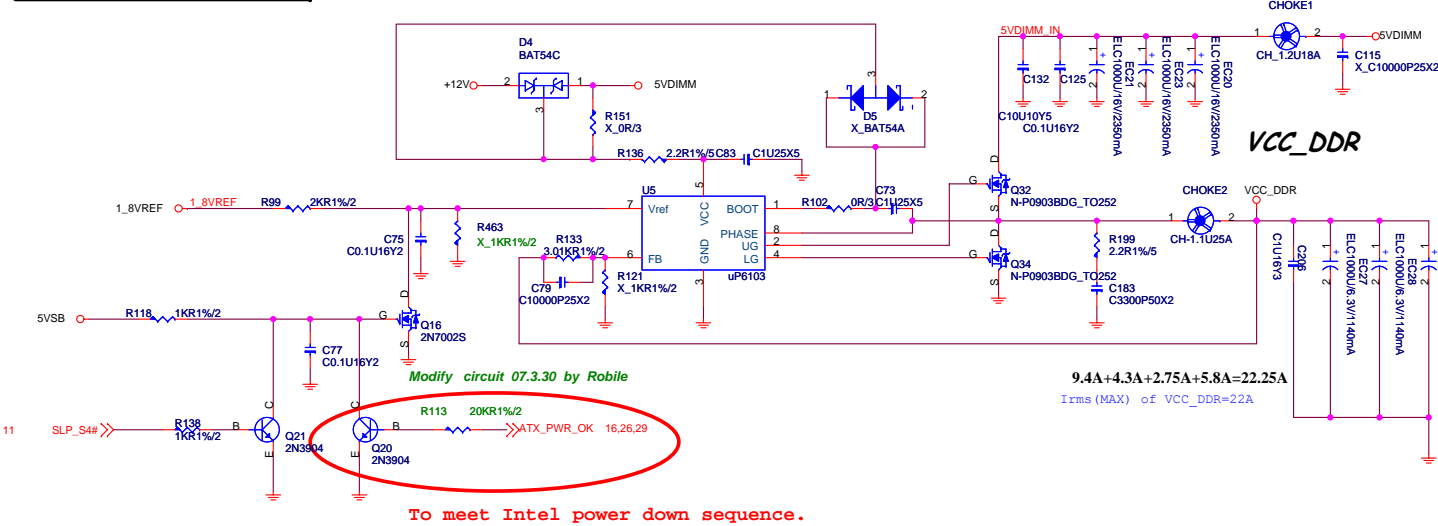
1394a OHCI Link Layer Controller



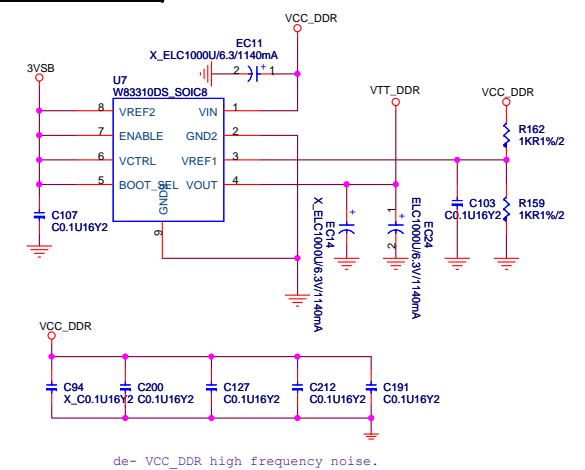
For Intel 1394 pinheader



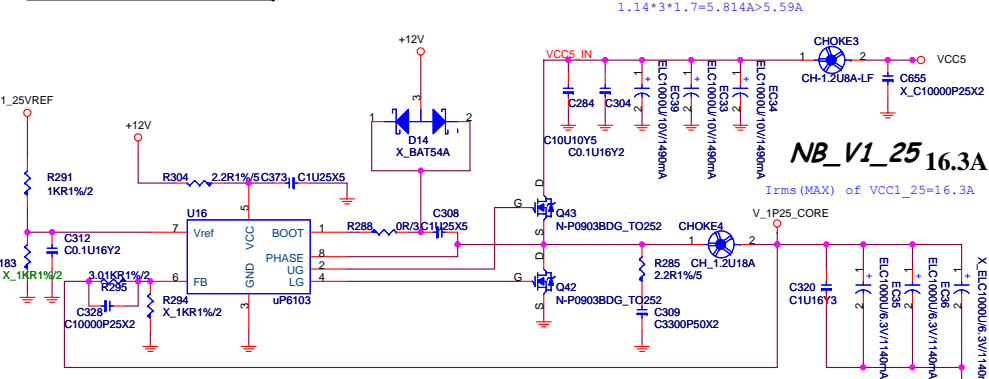
DDR II 1.8V POWER



DDR VTT Power

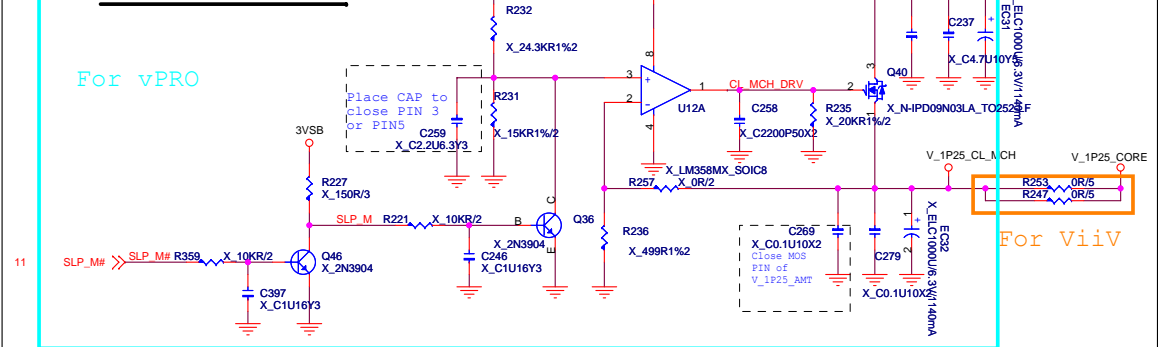


NB 1.25V POWER

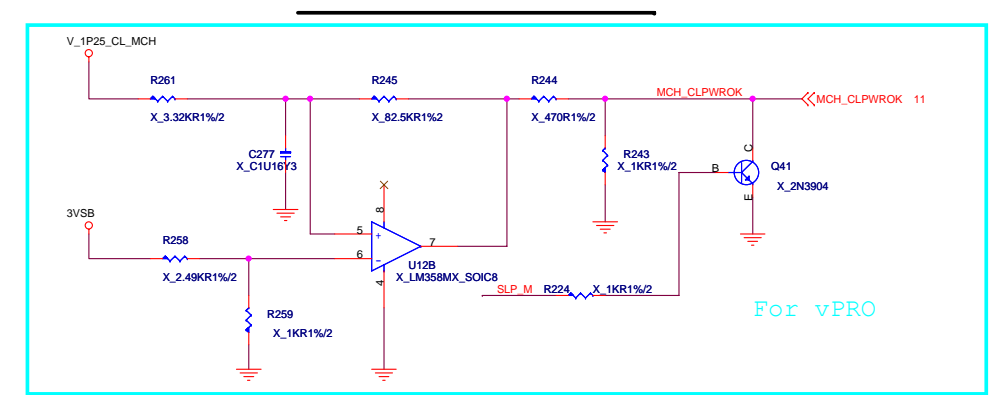


AMT POWER

V_1P25_CL_MCH (4.3A)

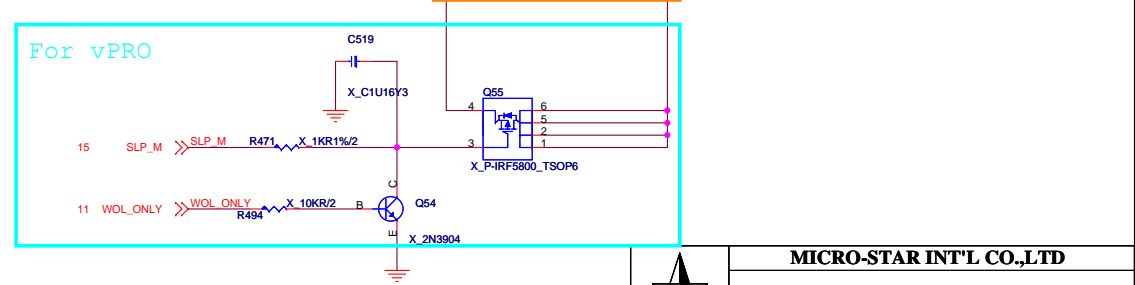


CLINK PWROK GENERATION



V_3P3_CL

(711mA)



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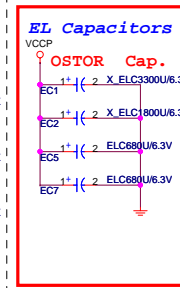
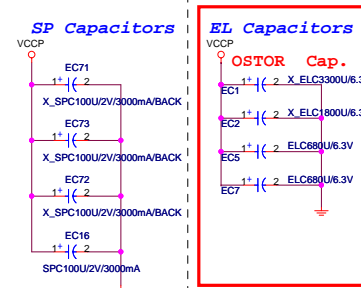
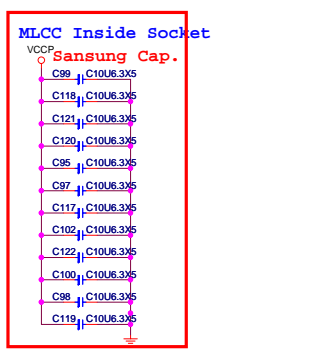
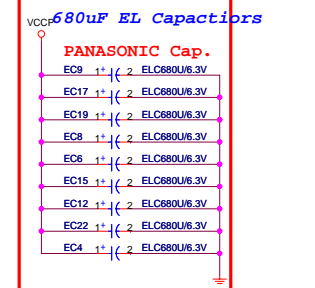
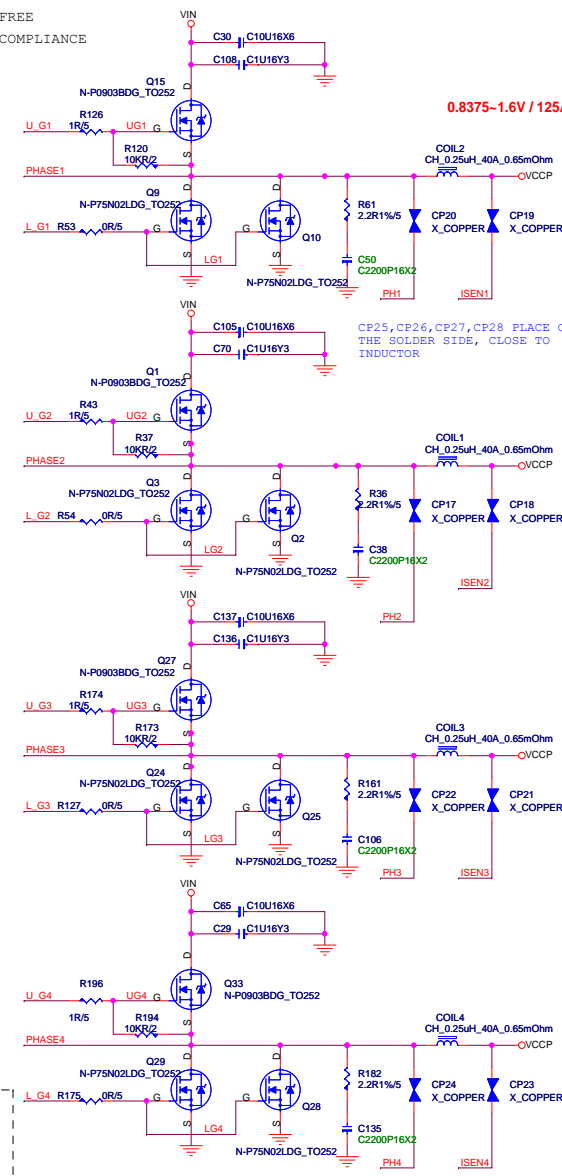
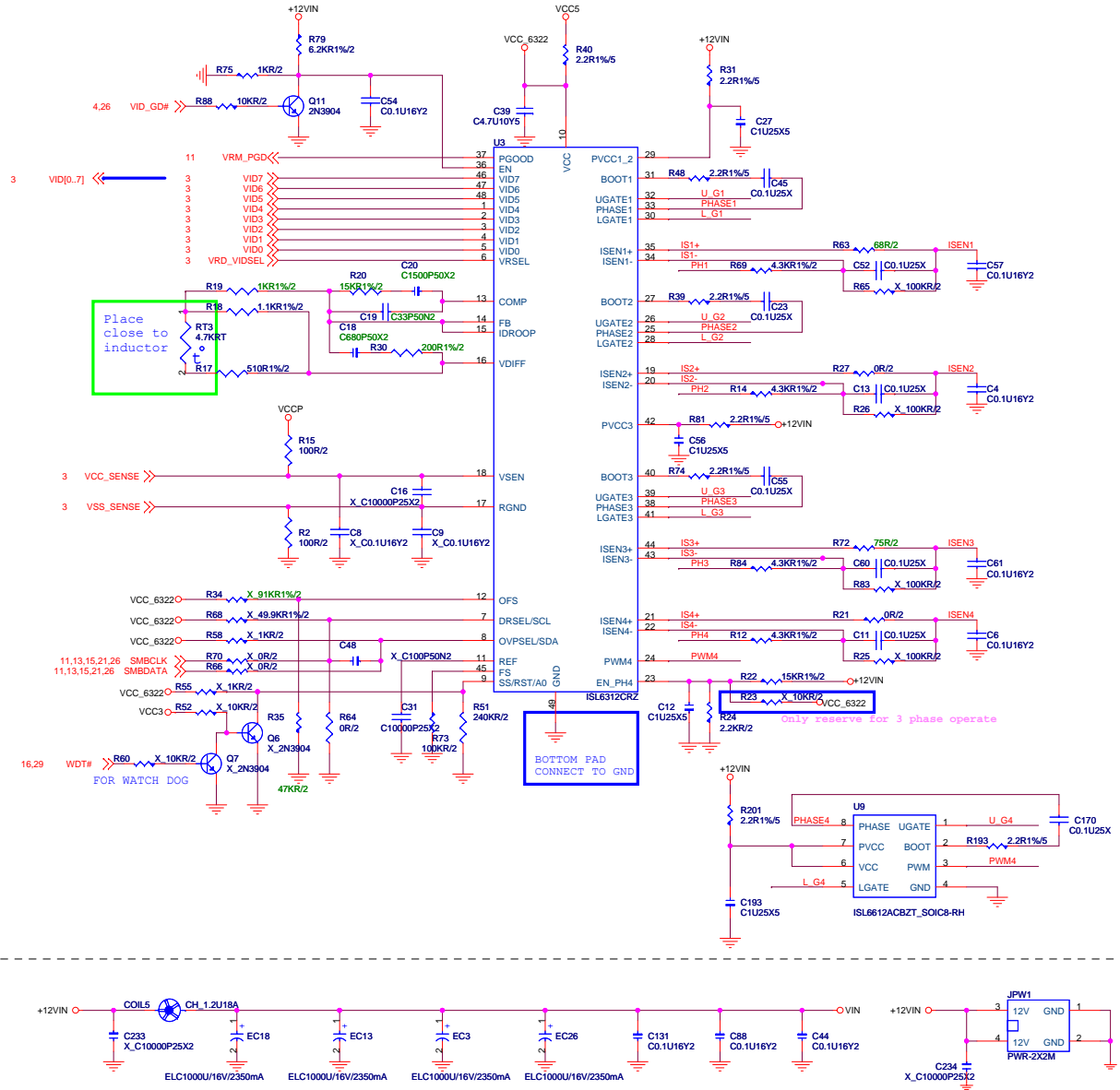
MS-7358V1.2_070821JK1

Size	Document Description	Rev
Custom	NB Core Power & DDR Power	1.2
Date: Friday, August 31, 2007	Sheet 27 of 35	

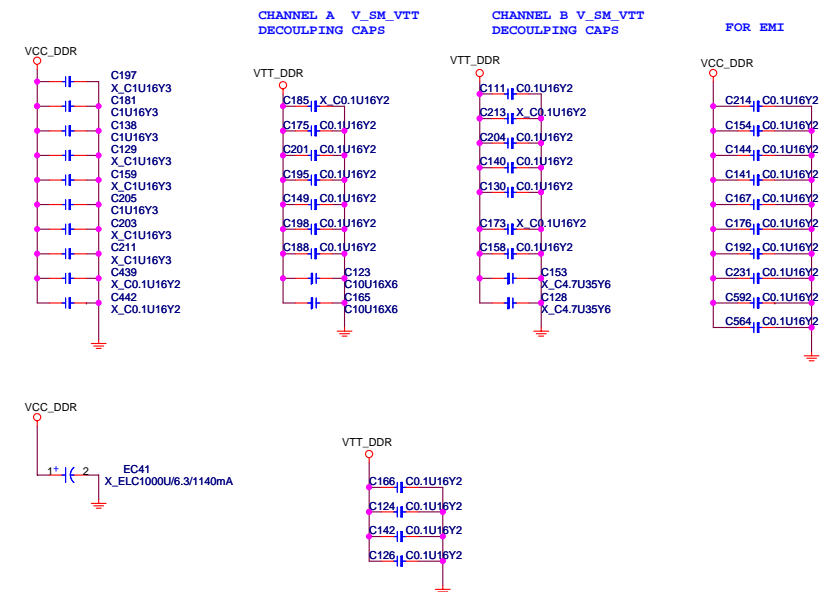
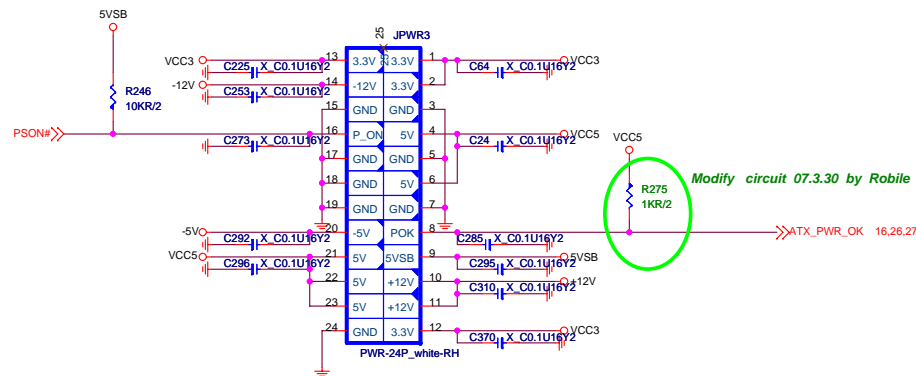
Voltage Regular Module

N-P0903BDG_TO252
P75N02LDG/TO252
C100U2SP
CD560U40S-2
1800UF/6.3V
0.25uH/40A
CH-1.1U25A-LF
CD1000U16EL20-2

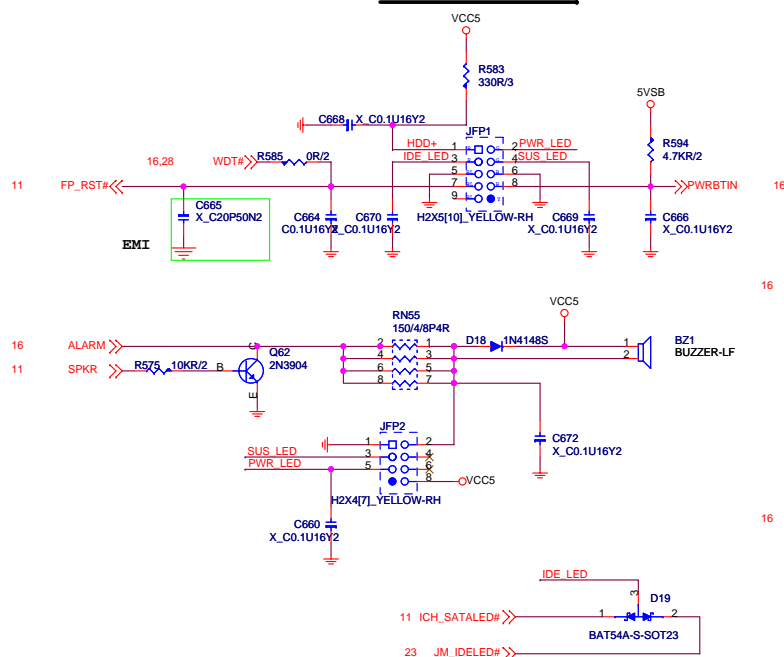
mosfet/n-channel, P0903BDG, SMT/TO252, Rds (on)=9.5mΩ (10V/25A), Vgs (on) =1~3V, Id=50A, Ciss=1800pF, Qg=50nC, Vds=25V, Vgs=±20V, RoHS COMPLIANCE
mosfet/n-channel, P75N02LDG, SMT/TO252, Rds (on)=7mΩ (10V, 30A), Vgs (on)=1~3V, Id=75A, Ciss=5000pF, Qg=140nC, Vds=25V, Vgs=±20V, RoHS COMPLIANCE
ESR<13mΩ, Ripplecur.=6100mA, Lc. <500uA, SPEC series, RoHS compliance
SMD CHOKE, 0.25uH, 20%, DIP/8.5mm, 40A, 0.6mOhm, , , PEW, FERRITE, SQUARE, RoHS COMPLIANCE
IND CHOKE, 1.1uH, 20%, DIP/9mm, 25A, 1.4mOhm, 5.5T, 0.9mmx3, PEW, IRON, , LEAD FREE
CAP, EL, 1000u, 16V, Dip-8x20/3.5mm, 20%, 12mOhm, 2350mA, 105C, 3000hrs, RoHS COMPLIANCE



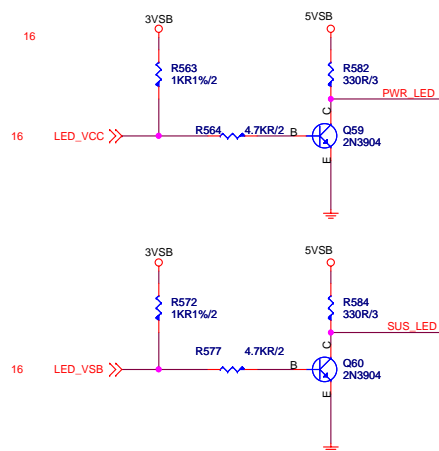
ATX POWER CONNECTOR



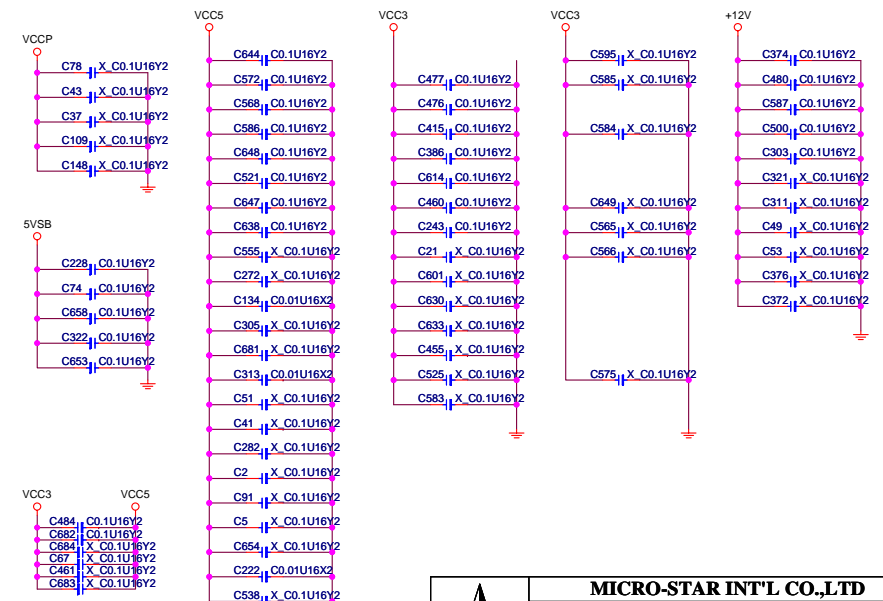
FRONT PANNEL



LED (for Fintek 71882)



Cap. for EMI & Power



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MS-7358V1.2_070821JK1

Size Custom	Document Description ATX PWR-Connector & Front Panel	Rev 1.2
Date: Tuesday, August 21, 2007	Sheet 29 of 35	

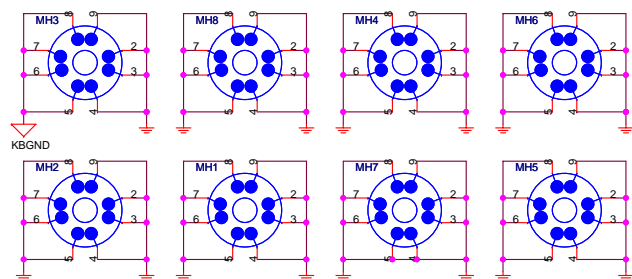
Optical Fiducial Marks-120



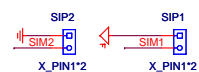
Optical Fiducial Marks-100



Mounting Holes



Simulation



7358-1.2



7358-1.1

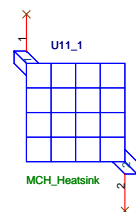
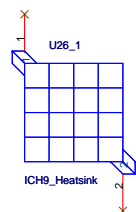
JFP2(4-6)



X_JUMPER-1X2A_green



BATTERY-CR2032



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MS-7358V1.2_070821JK1

Size Custom	Document Description Manual Parts & Option Parts	Rev 1.2
Date: Friday, August 31, 2007	Sheet 30 of 35	