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MS-7358 uATX Version: 0A

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

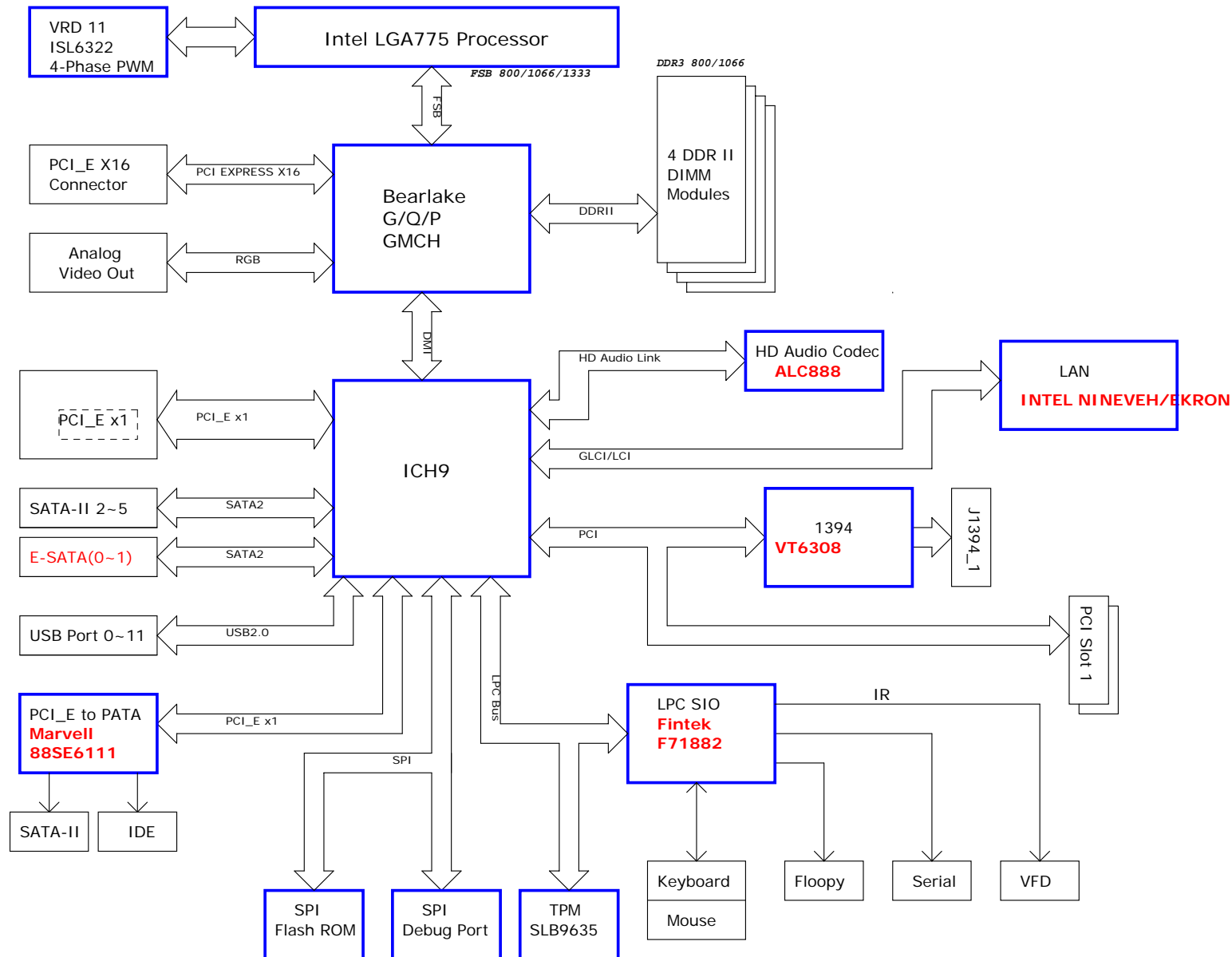
PWM: Intersil ISL6322 (4 Phases) w/ ISL6612 driver

Configuration and BOM match up

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

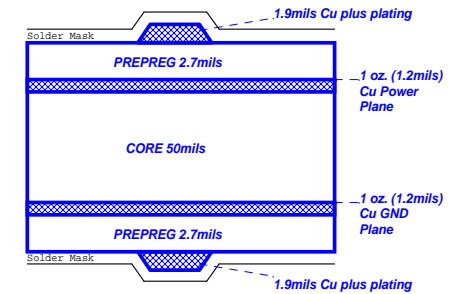
	MICRO-STAR INT'L CO.,LTD				
	MS-7358				
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Block Diagram



Board Stack-up

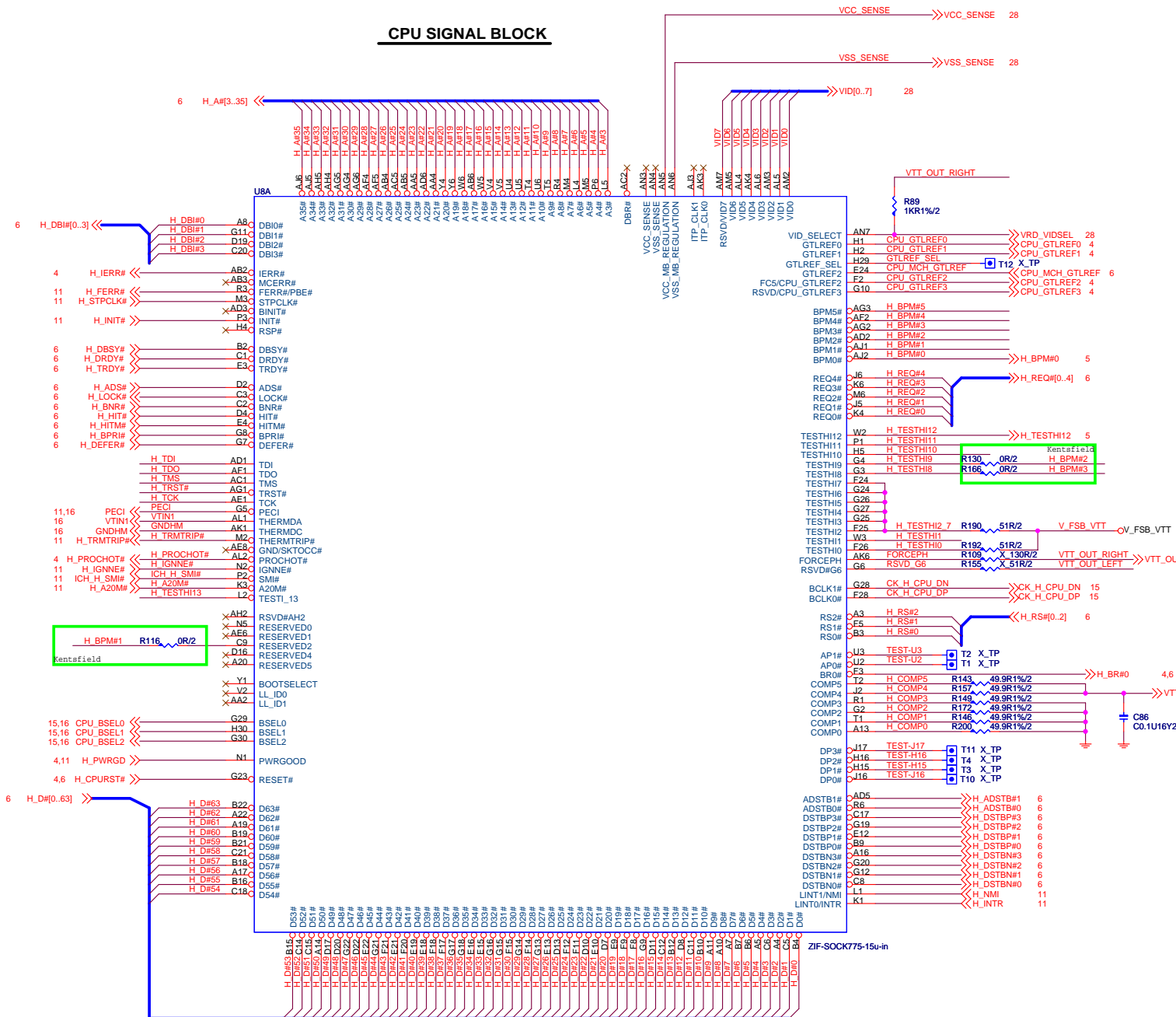
(1080 Prepreg Considerations)



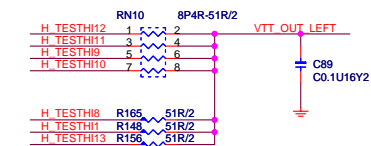
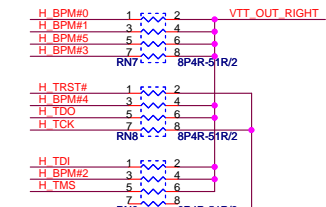
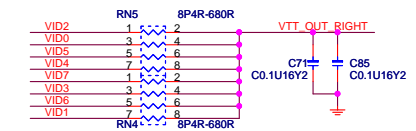
Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15
 SATA - 95ohm : 15/4/8/4/15
 LAN - 100ohm : 15/4/8/4/15
 PCIE - 95ohm : 15/4/8/4/15
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

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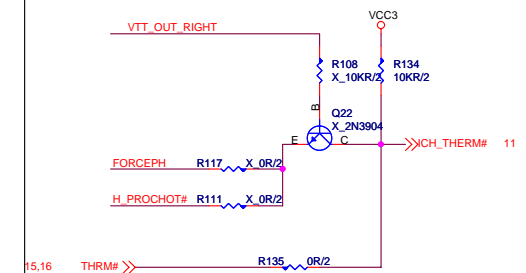
CPU SIGNAL BLOCK



PULL HIGHT PULL DOWN



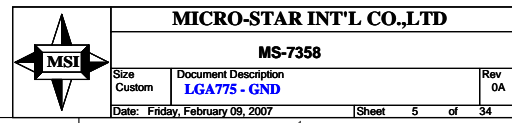
Thermal TRIP

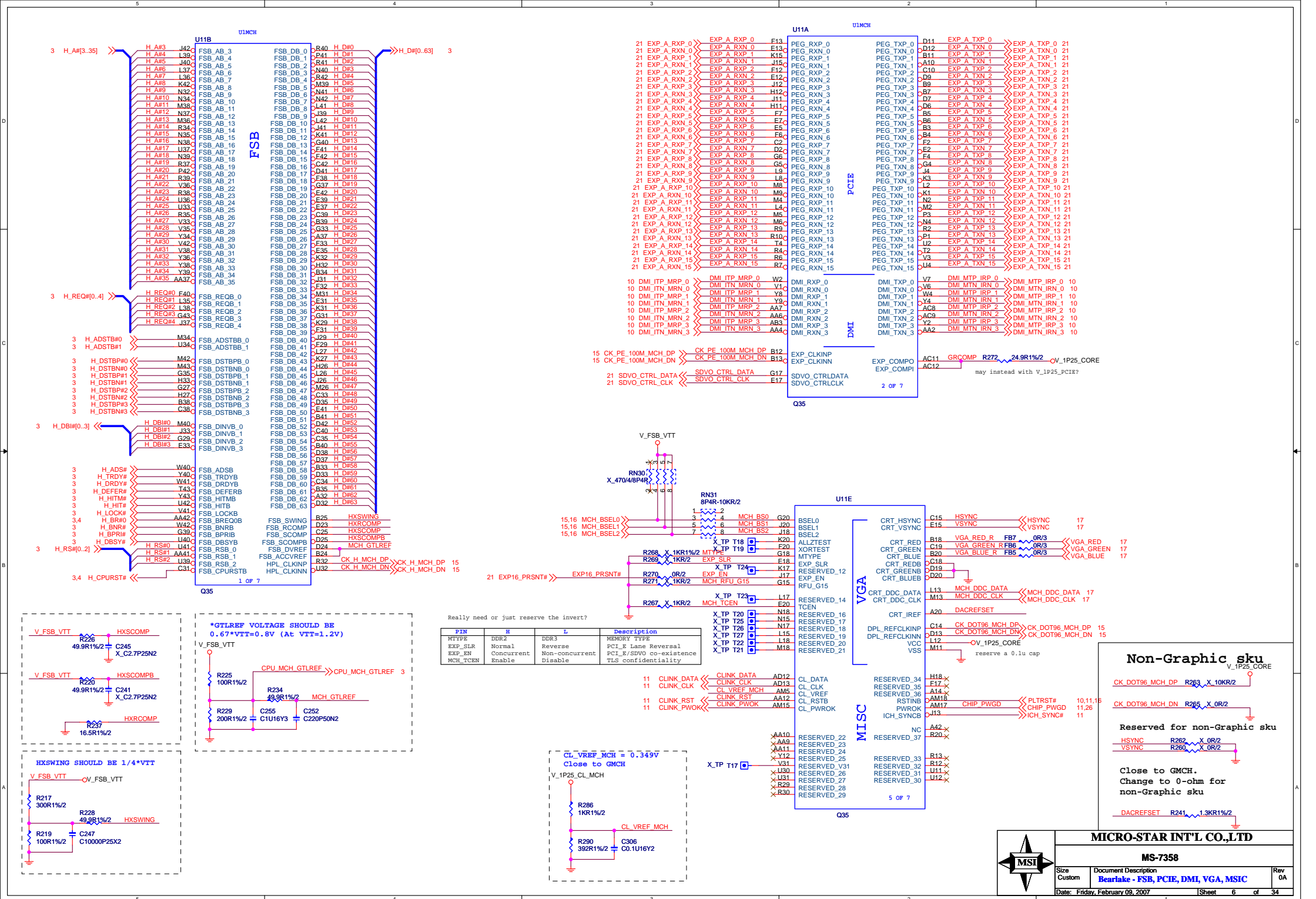


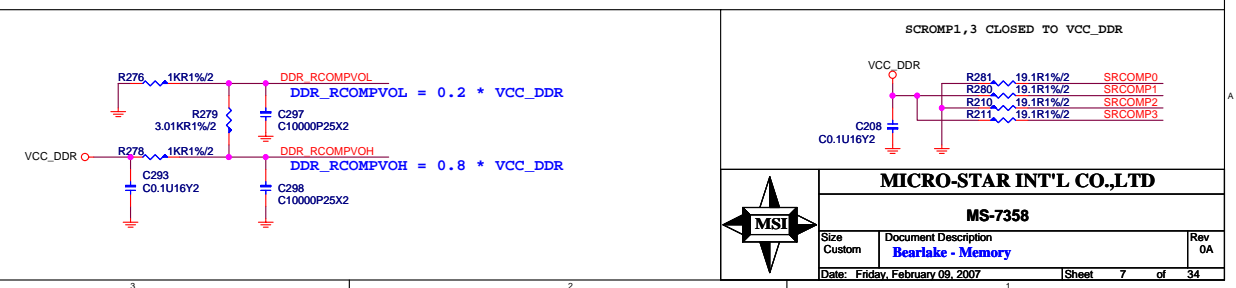
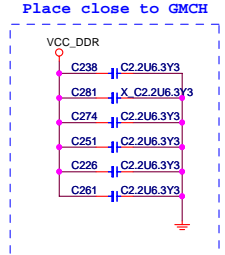
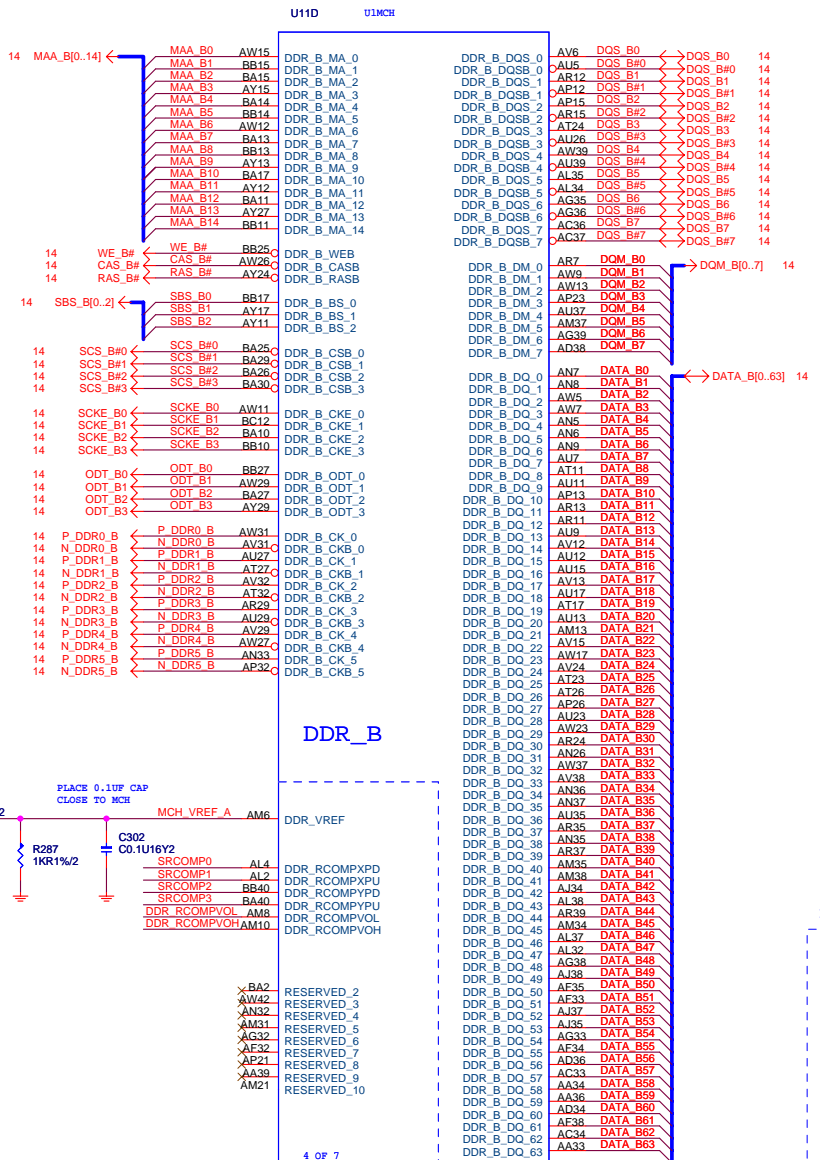
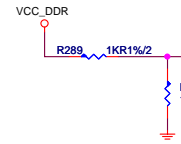
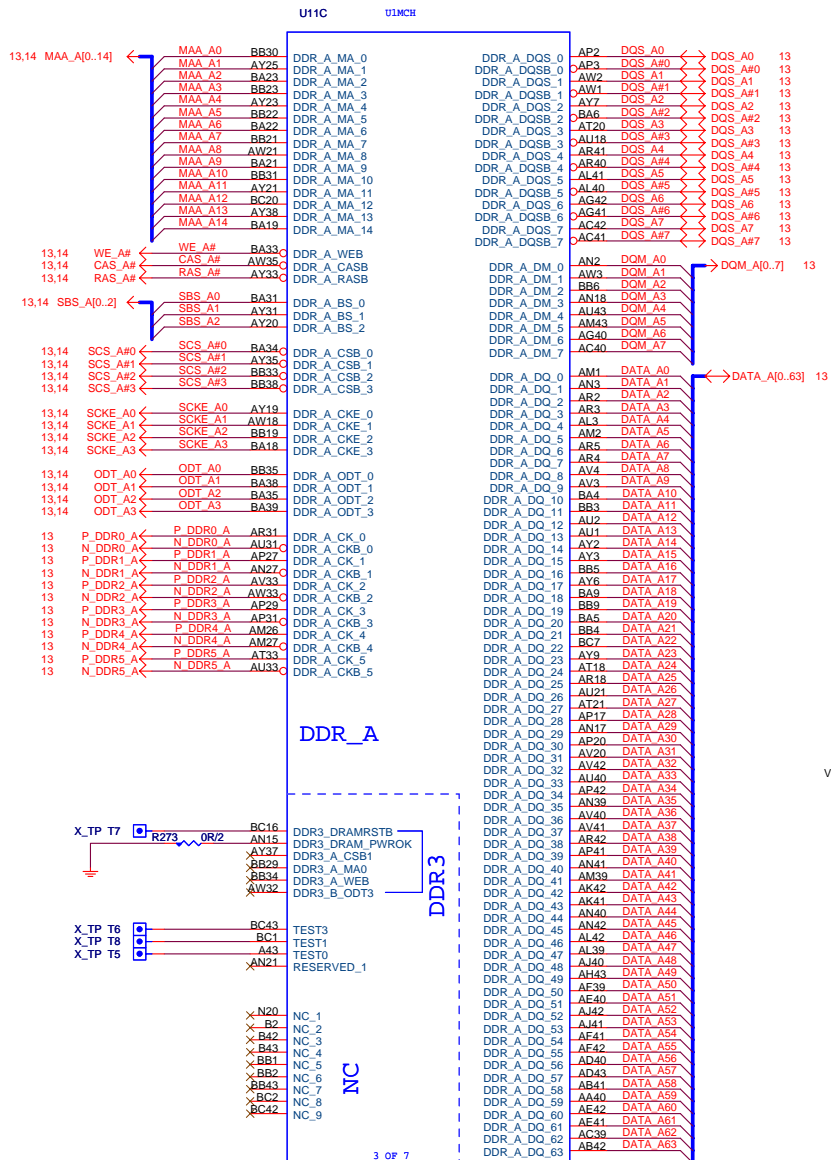
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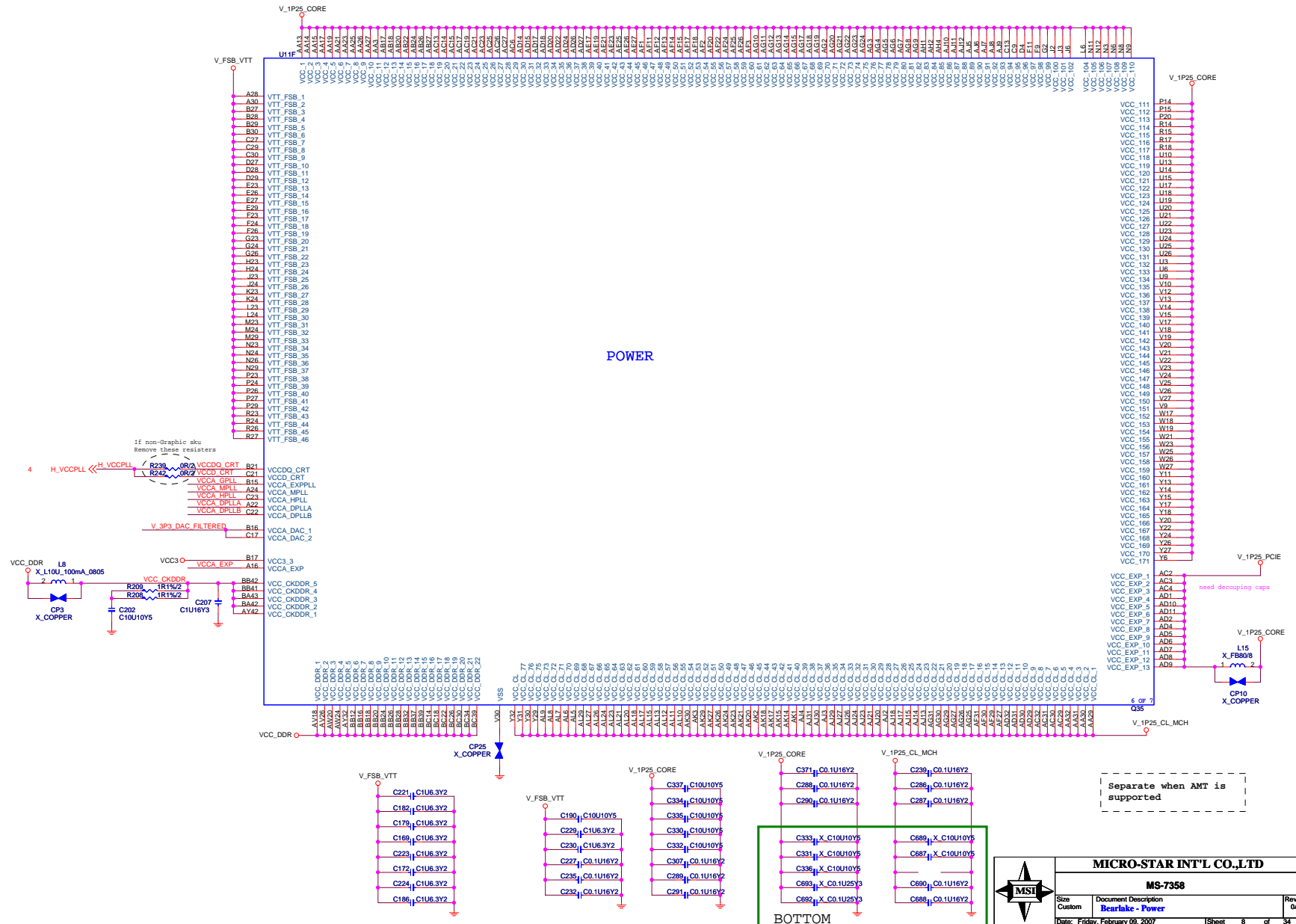
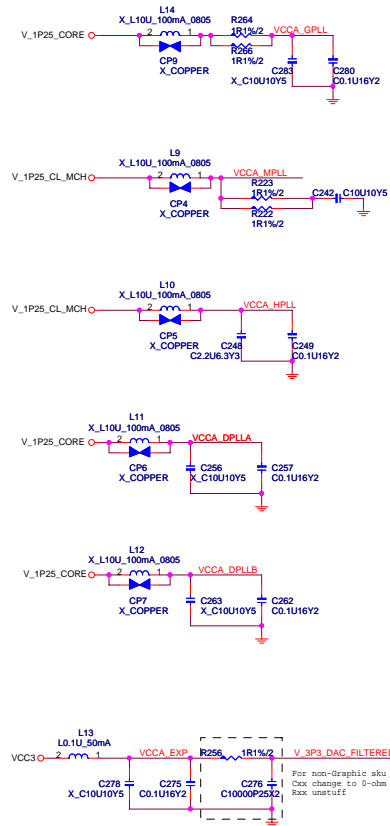


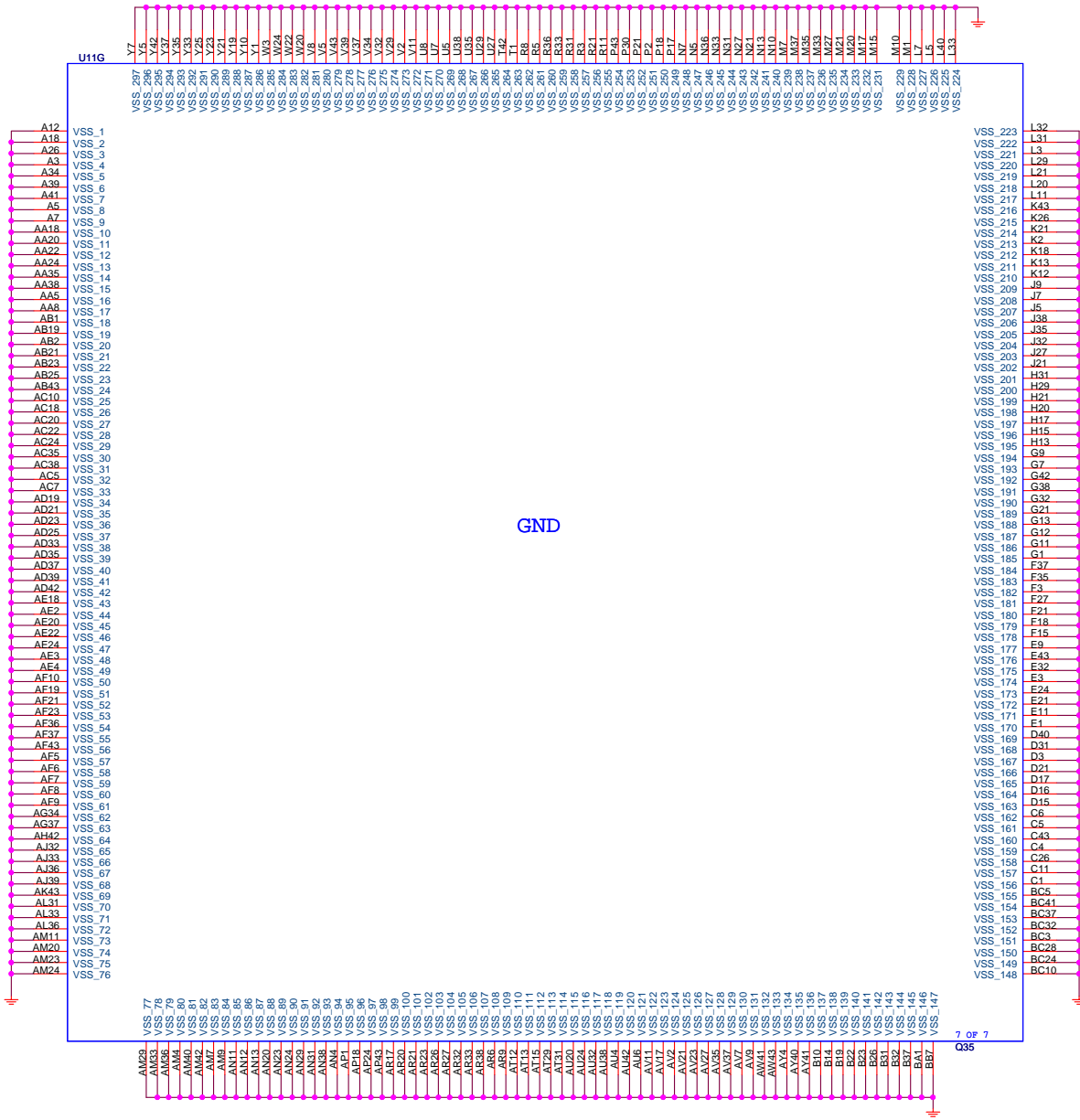


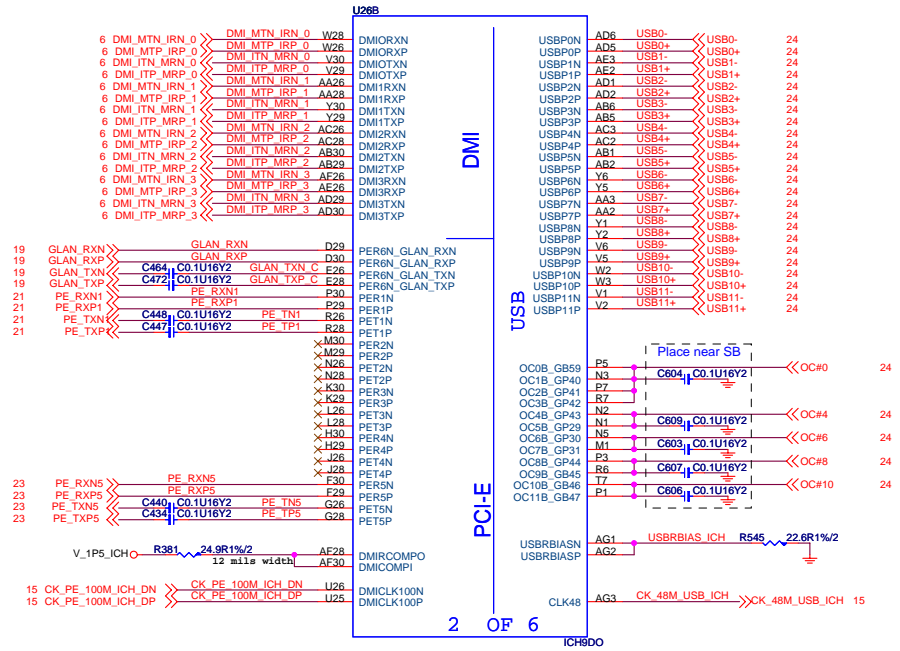
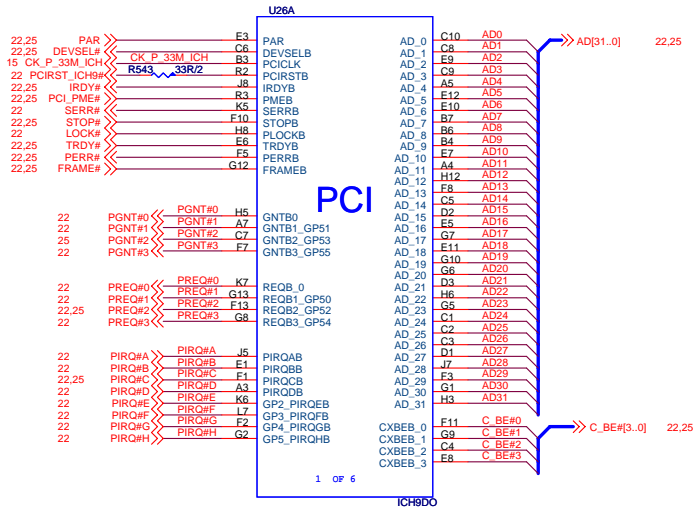


VCCD_CRT
For non-Graphic sku
change to 0-ohm (0402)

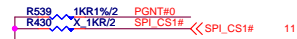
VCCDQ_CRT
For non-Graphic sku
change to 0-ohm (0603)





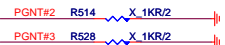


SB STRAPPING RESISTOR



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

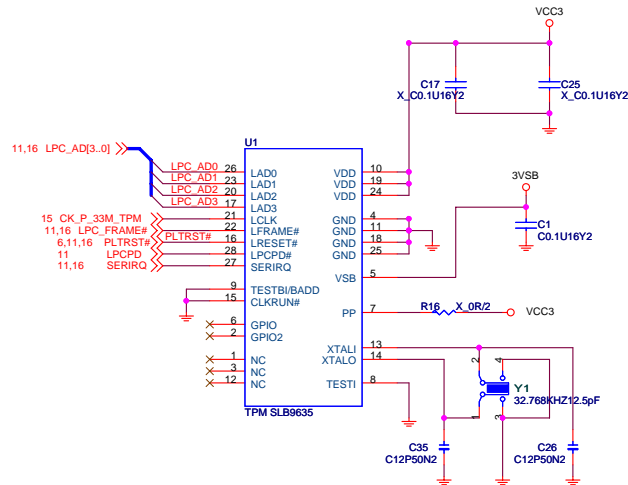
PGNT#(3:0) Internal Pull-up



SIGNAL	H	L	DES.
GNT3	DIS	EN	A16 OVERRIDE
GNT2	N/A	SET BIT	PCI 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/1X 11:0X/0X/4X

TPM - Security Controller



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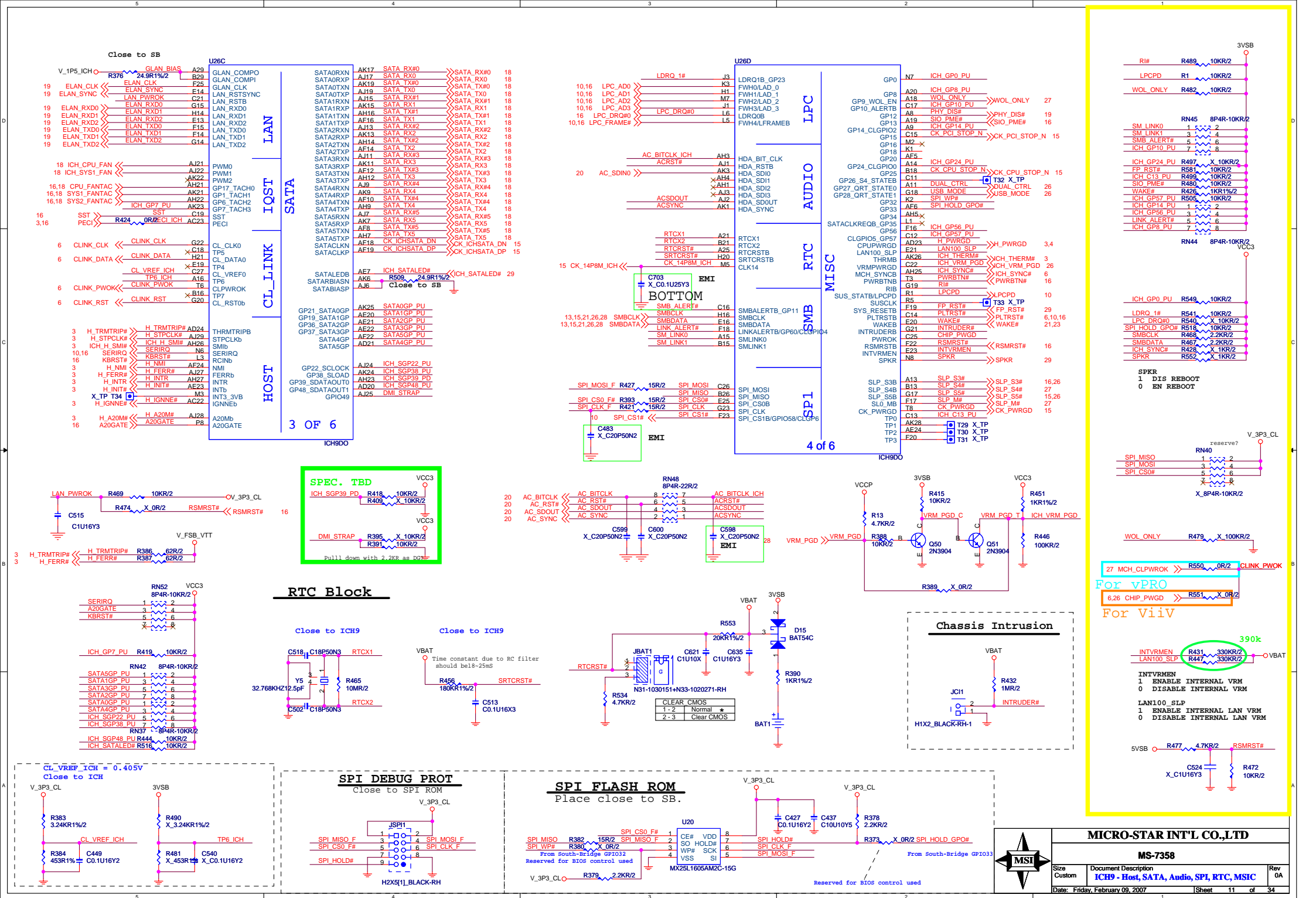
MS-7358

Size Custom Document Description ICH9 - PCI, DMI, USB, PCIE & Slots

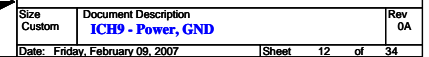
Rev 0A

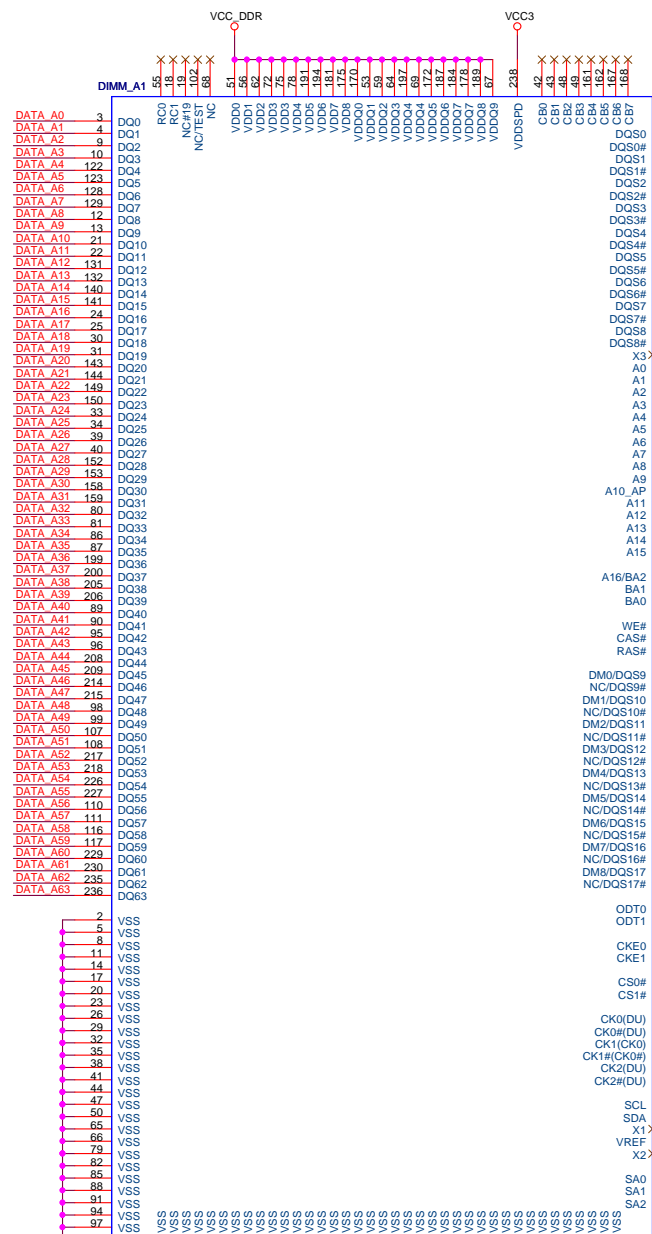
Date: Friday, February 09, 2007

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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.





DDRII DIMM_A1

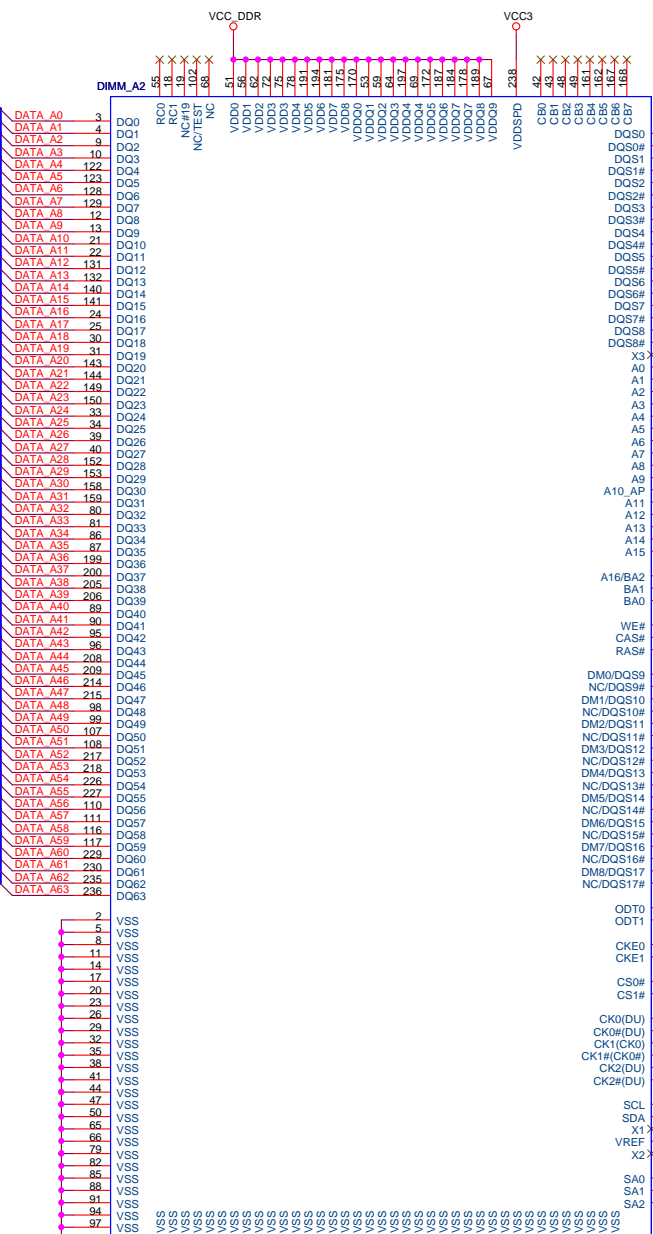


ADDRESS: 000
0xA0

MSBCLK_DDR R76 33R/2
SMBDATA_DDR R80 33R/2

MSBCLK SMBCLK
SMBDATA SMBDATA

DDRII DIMM_A2



ADDRESS: 001
0xA2

MSBCLK_DDR R76 33R/2
SMBDATA_DDR R80 33R/2

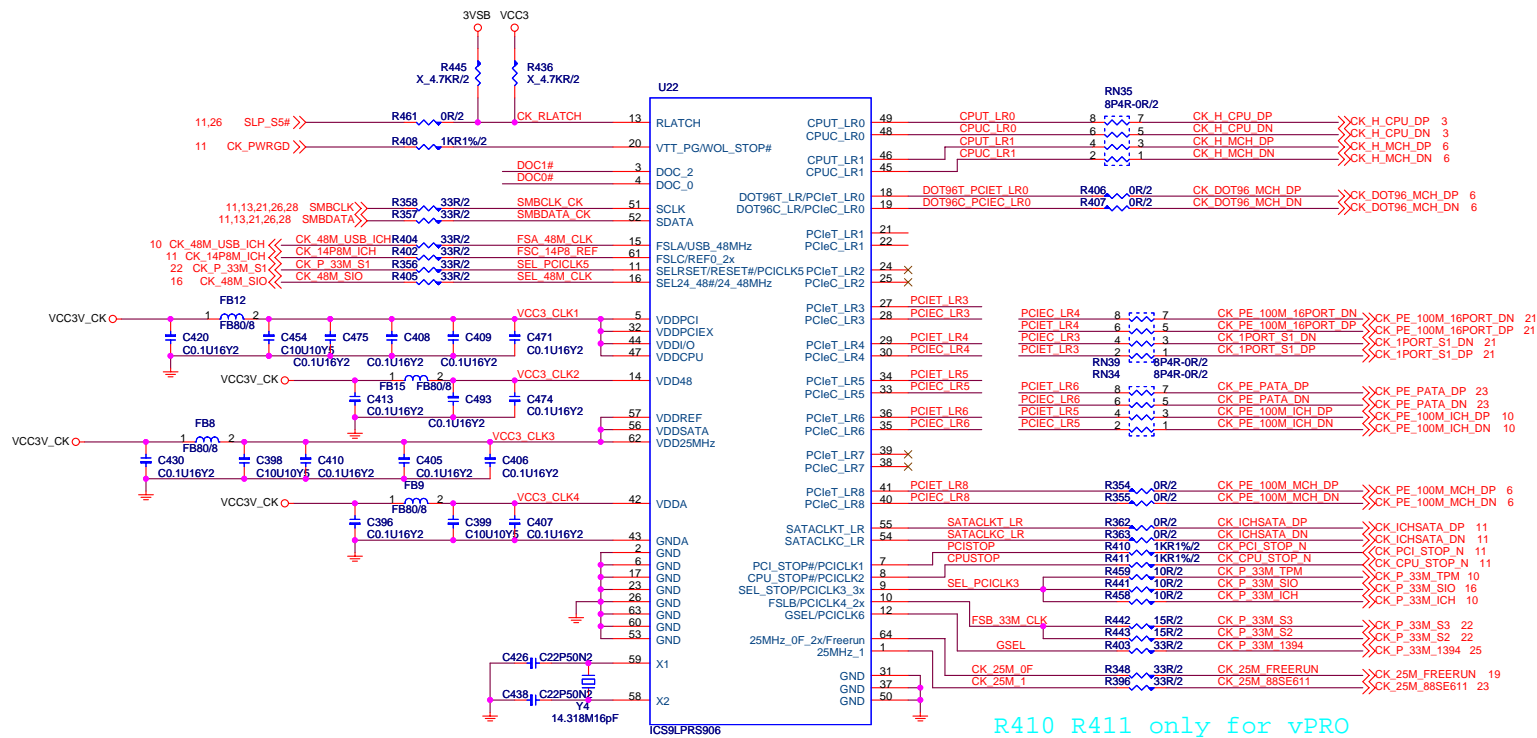
MSBCLK SMBCLK
SMBDATA SMBDATA



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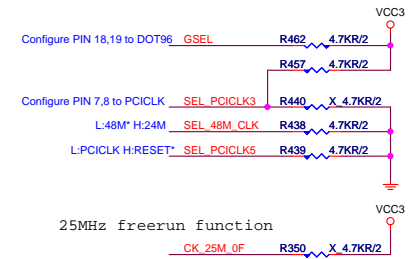
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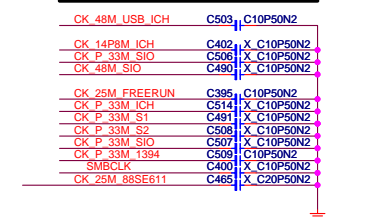


R410 R411 only for vPRO

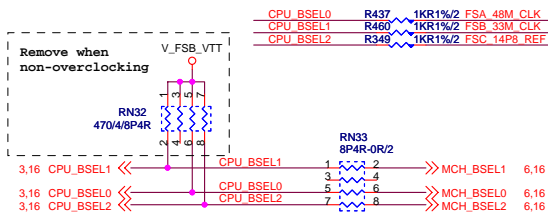
CLOCK GEN STRAPPING



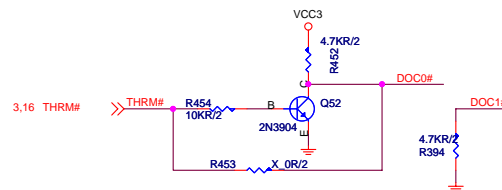
EMI



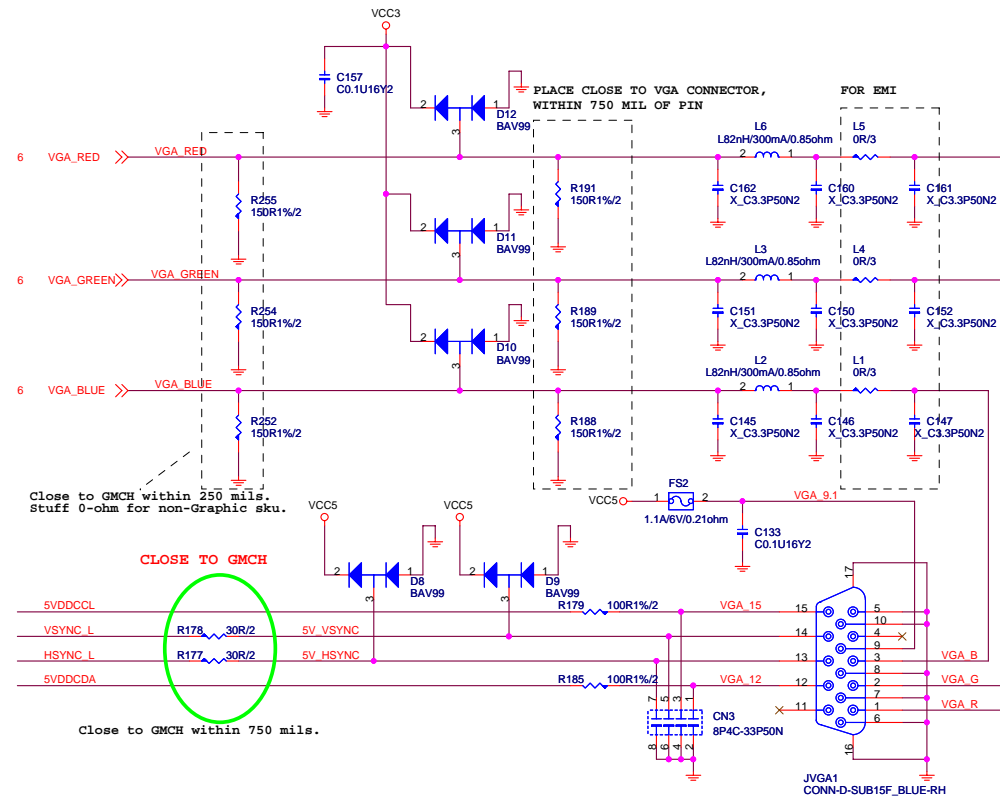
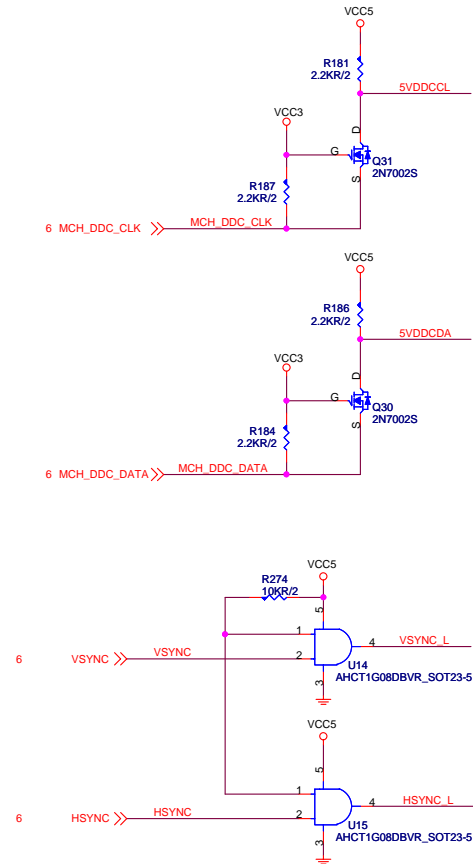
BSEL	TABLE
2 1 0	FSB FREQUENCY
0 0 0	266 MHz (1066)
0 0 1	133 MHz (533)
0 1 0	200 MHz (800)
1 0 0	333 MHz (1333)
1 1 0	400 MHz (1600)



D.O.T



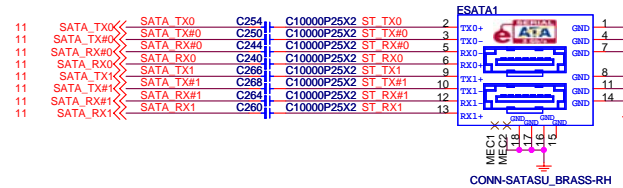
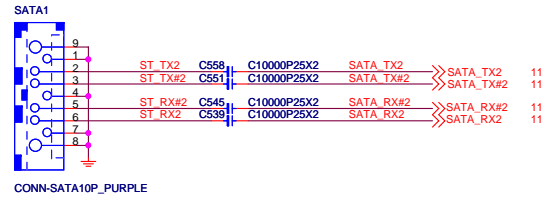
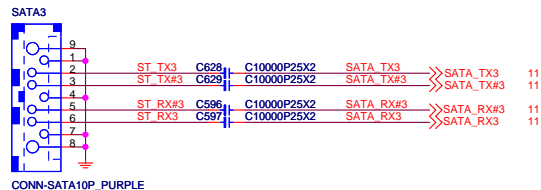
Video Connector



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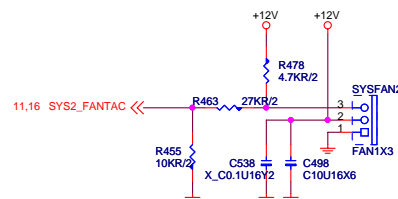
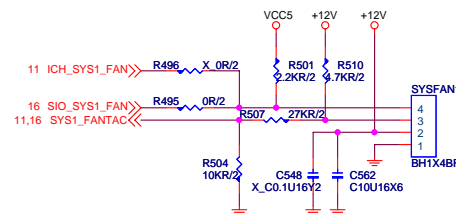
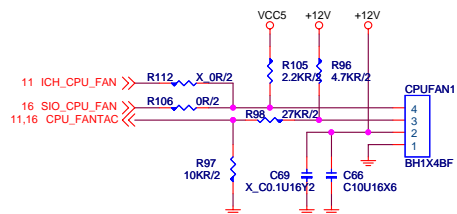
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e-SATA trace length should be less than 10 inch.(Connector to Chip)

FAN-COUNTROL CIRCUIT

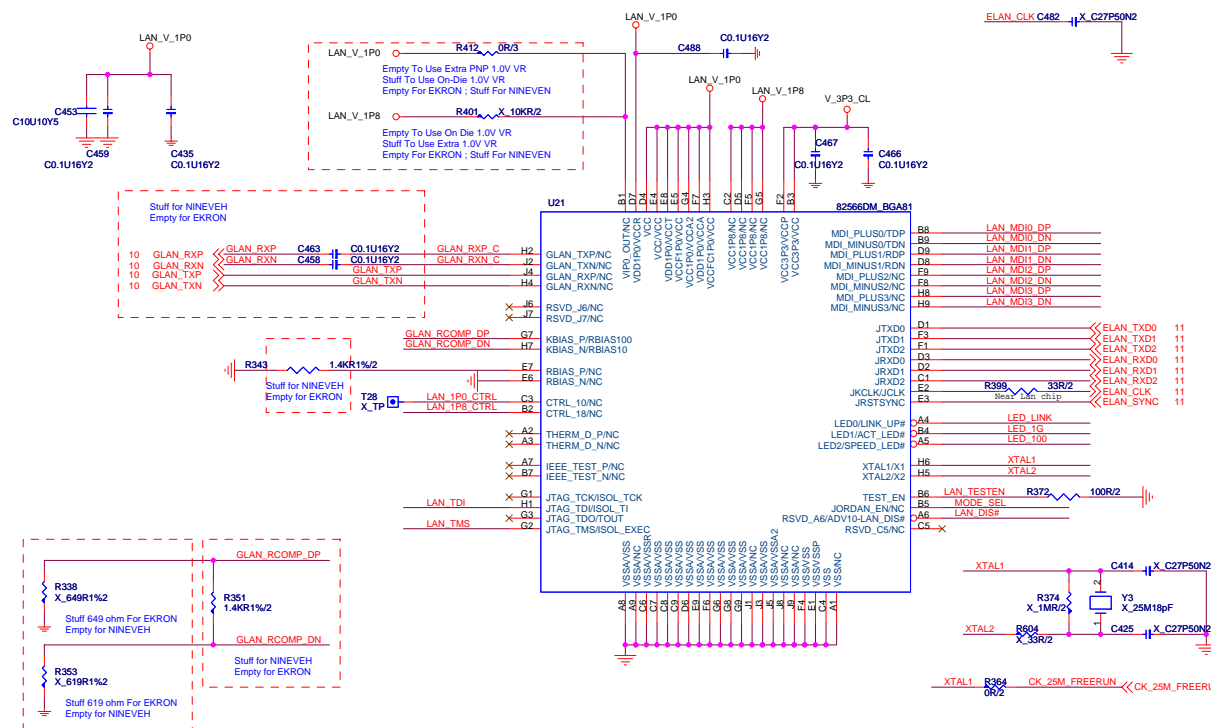


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LAN - NINEVEH/EKRON

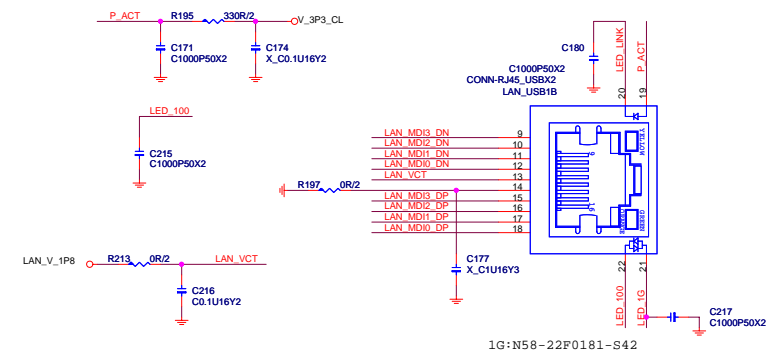


Intel 82566DM
For business desktop PCs.Support Intel AMT2 or ASF 2.0 alerting,Circuit Breaker,WoL,PXE,Multipoint teaming,RSS,Intel Stable Image Platform Program drivers.
Intel 82566DC
For consumer desktop PC.Support Digital Home capabilities,WoL,PXE.
Intel 82562V
Basic 10/100 Ethernet connection.
B06-8256605-1Y6
FOR NECP CONSIGN,CHIP LAN,INTEL82566DM,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE
B06-8256615-106
CHIP LAN,INTEL82566DC,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE
B06-8256205-106
CHIP LAN,INTEL82562V,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE

Speed LED Type
1000Mbps : Orange
100Mbps : Green
10Mbps : LED off

YELLOW : For Active/Link

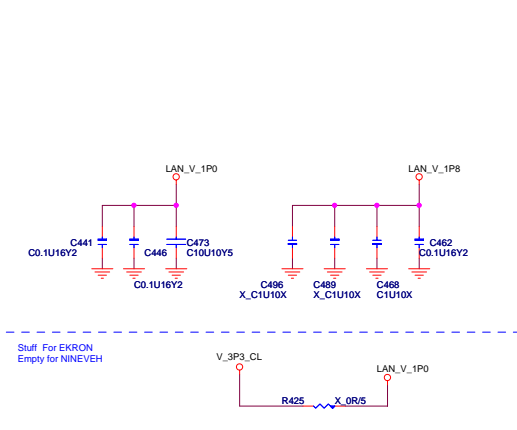
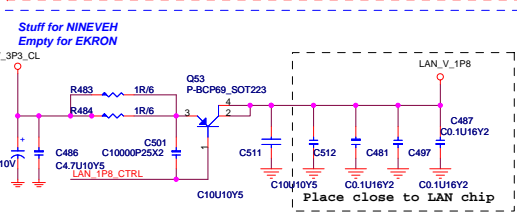
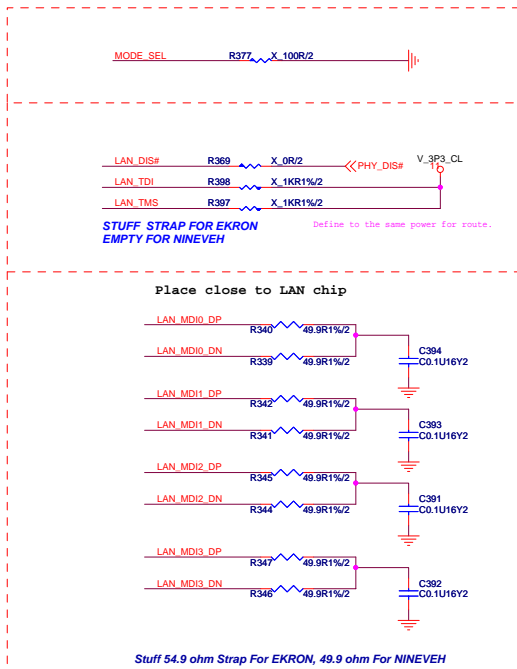
LAN CONNECTOR



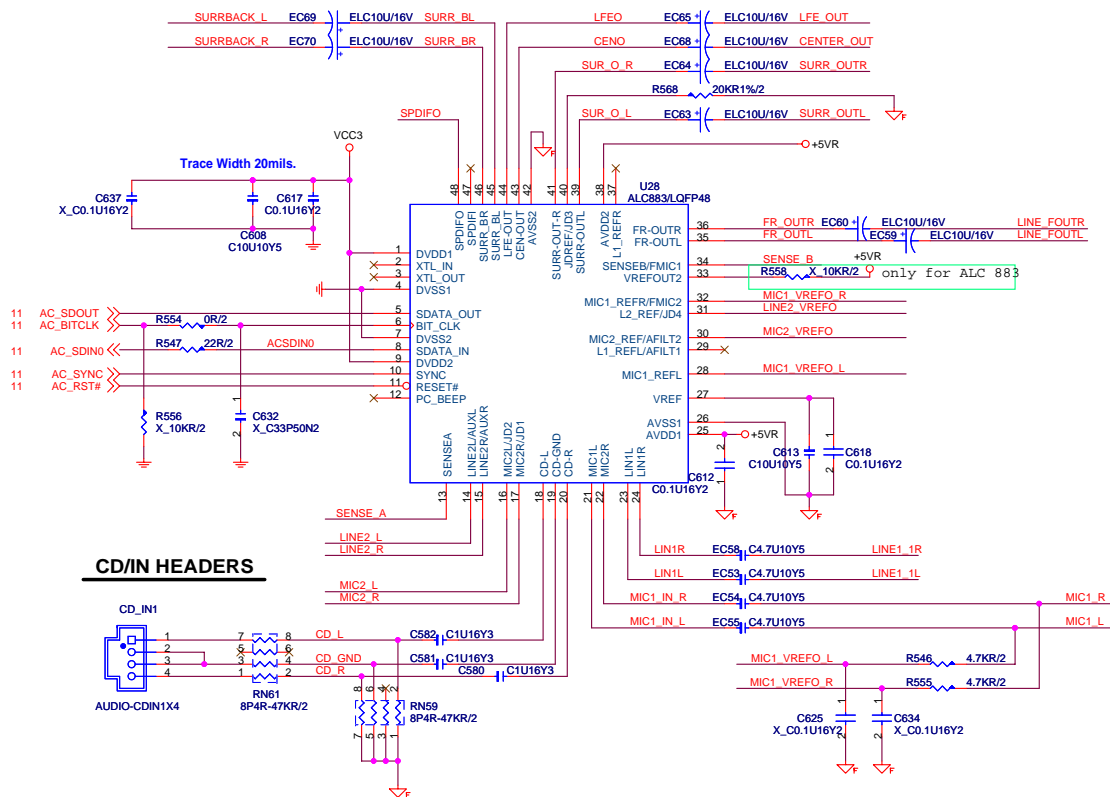
1G:N58-22F0181-S42

ACT_LED	Link_LED
S0: LOW	S0: LOW
S1/S3/S4/S5: HIGH	S5: HIGH
	S1/S3/S4: WOL EN--LOW WOL DIS--HIGH

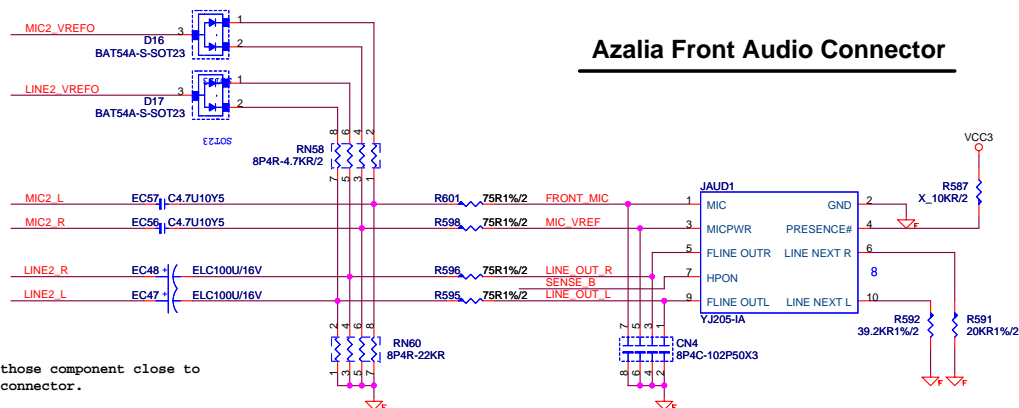
Giga-Lan	10/100-Lan
N58-22F0181-S42	N58-22F0061-S42
N58-22F0061-P02	
Link Yellow	Link Yellow
Active Blinking	Active Blinking
1000 Orange	100 Green
100 Green	10 None
10 None	
19 Yellow	19 Yellow
20 Yellow	20 Yellow
21 Orange	21 Orange
22 Green	22 Green



ALC883 CODEC

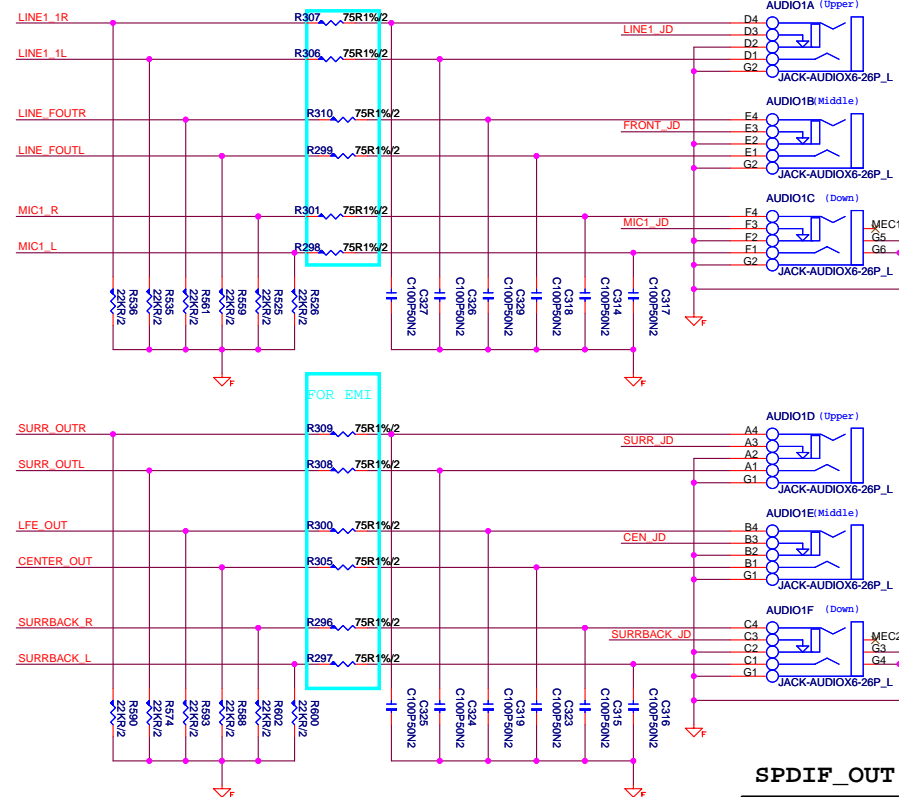


Azalia Front Audio Connector

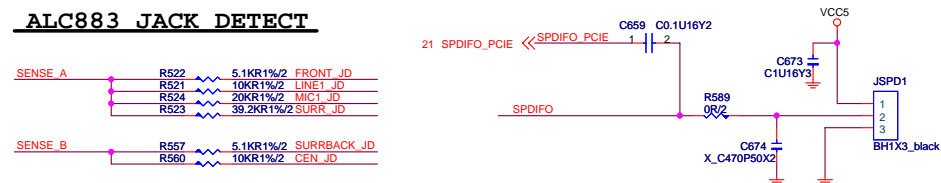


Place those component close to
audio connector.

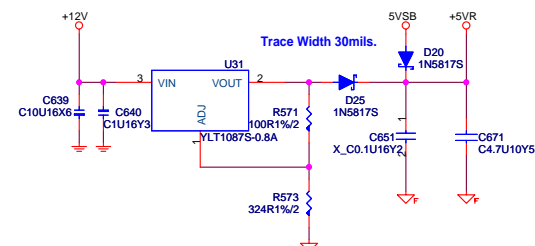
ALC883 JACK



ALC883 JACK DETECT



AUDIO CODE REGULATORS



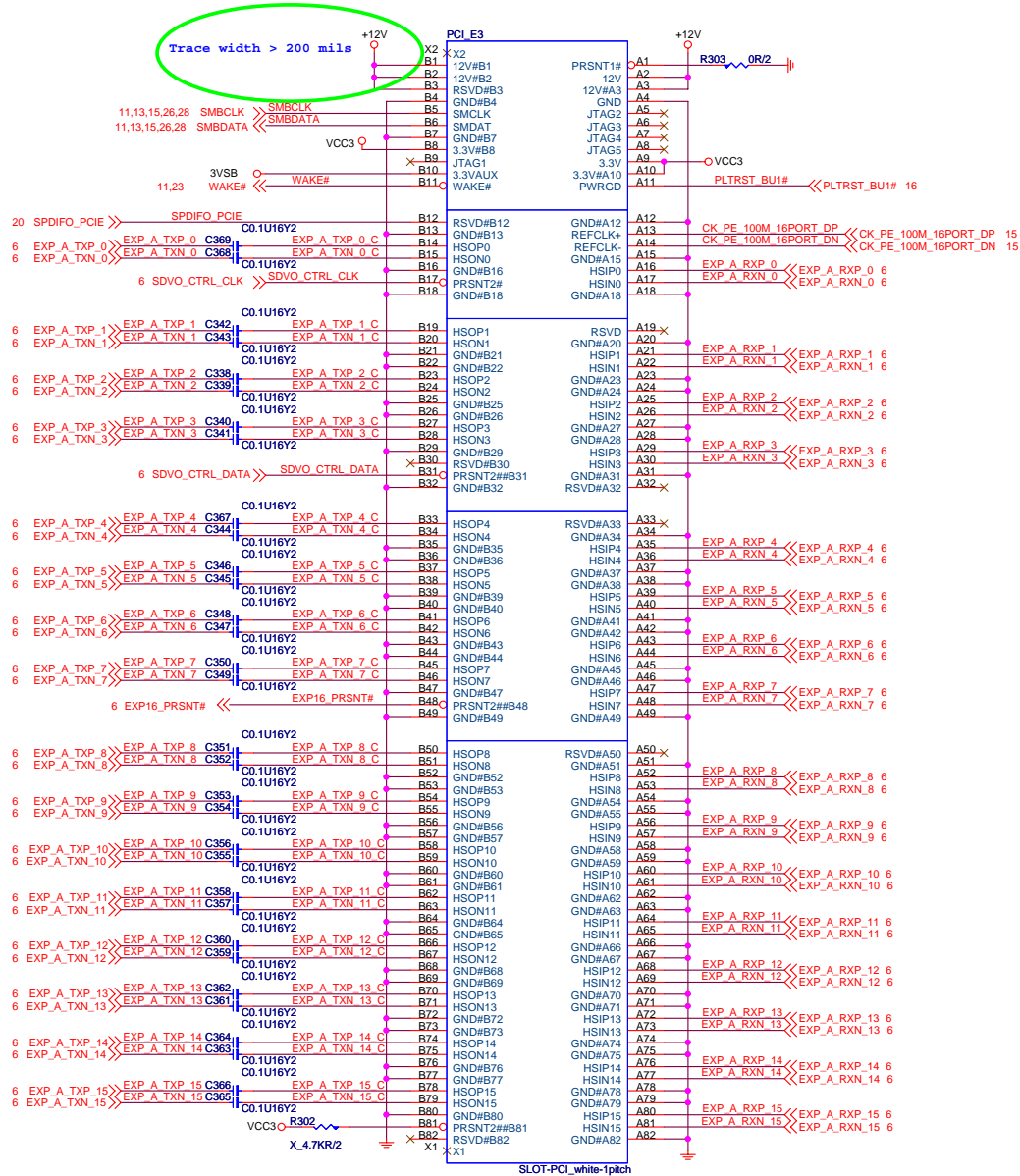
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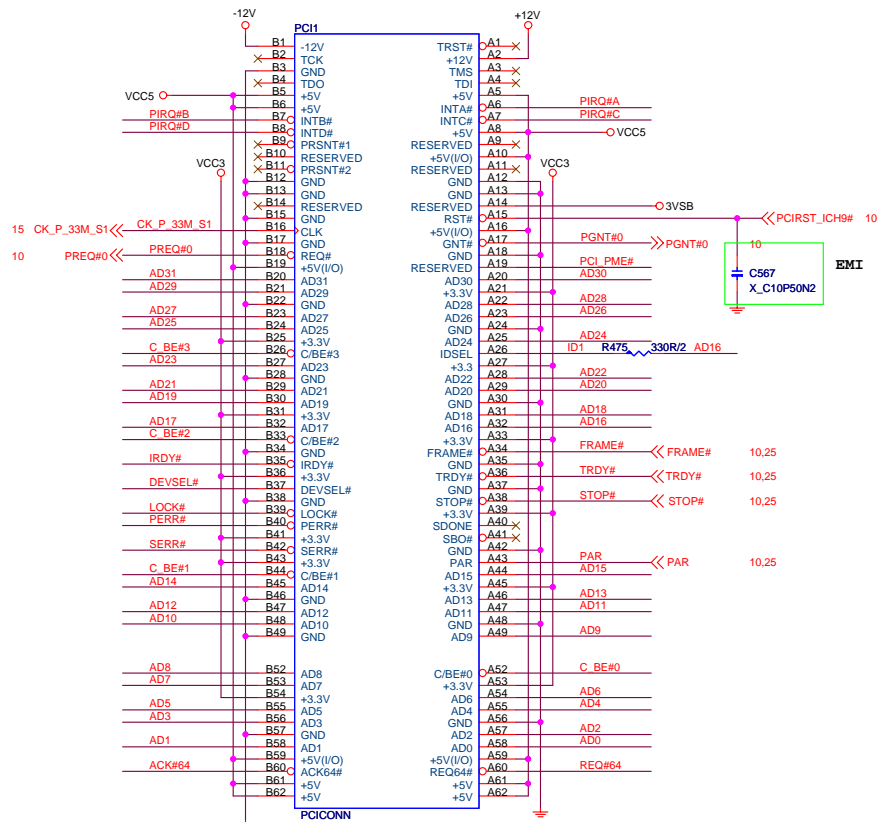
Size Custom	Document Description STAC9227
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	Rev 0A
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PCI_Express X16 Slot



PCI SLOT 1 (PCI VER: 2.2 COMPLY)

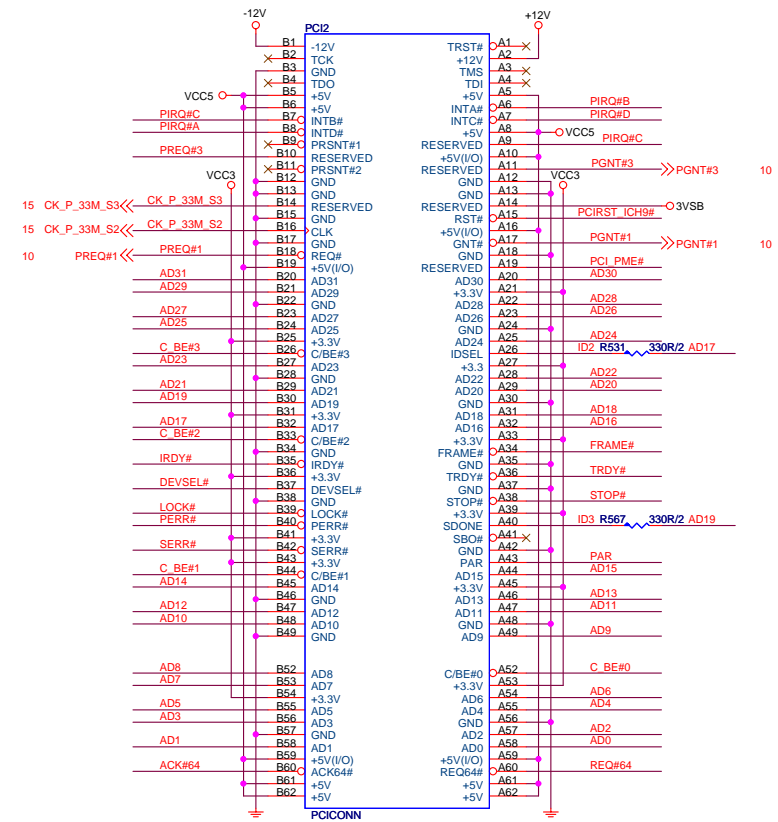


IDSEL = AD16

MASTER = PREQ#0

PIRQ#A

PCI SLOT 2 (PCI VER: 2.2 COMPLY)

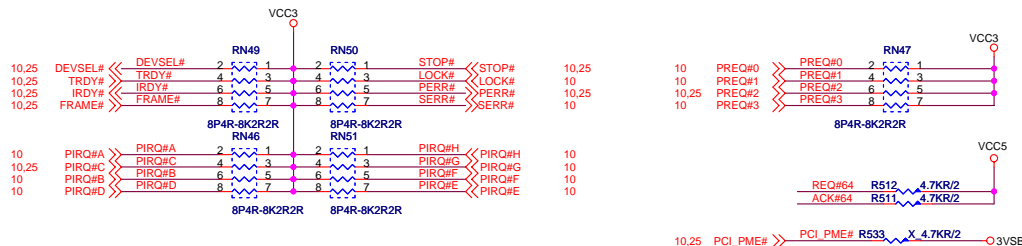


IDSEL = AD17

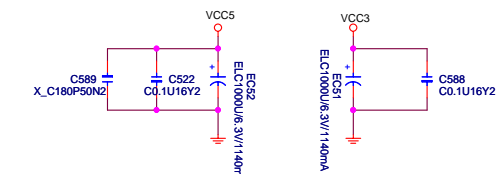
MASTER = PREQ#1

PIRQ#B

PCI PULL-UP / DOWN RESISTORS



PCI SLOT DECOUPLING CAPACITORS

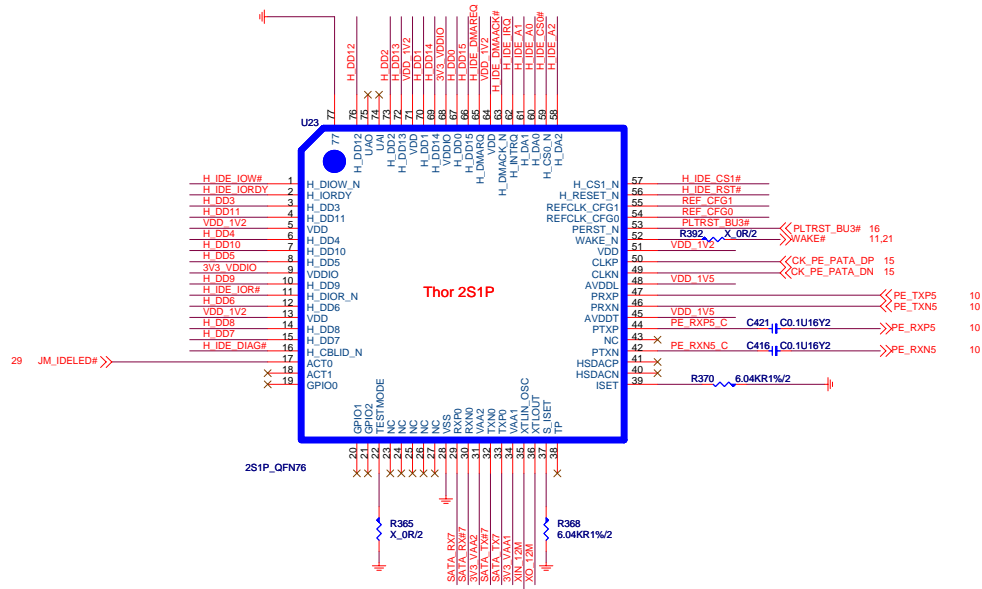


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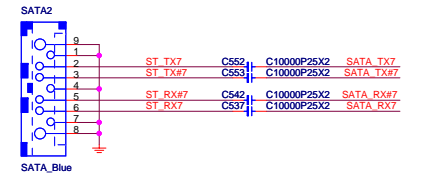
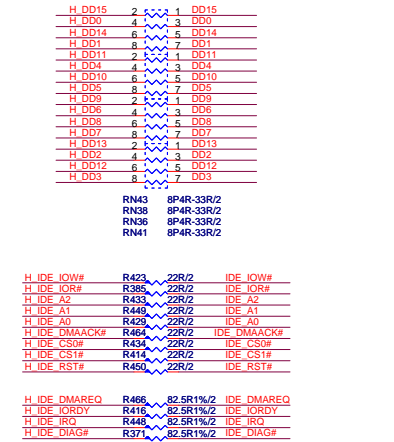
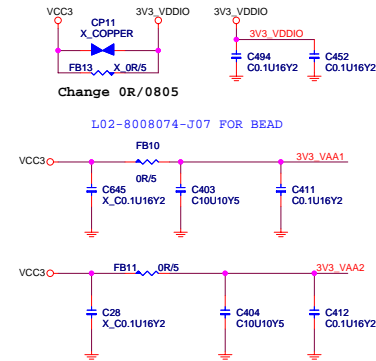
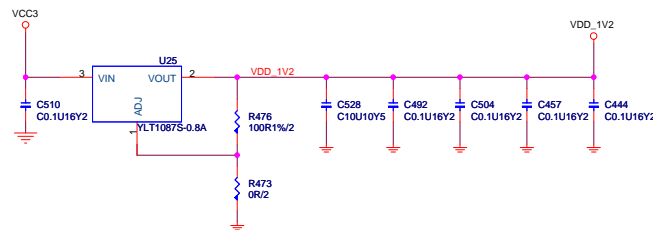
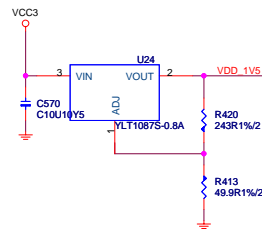
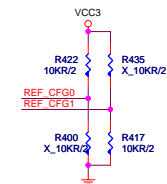
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Hi-Speed PCIE to SATA/PATA Bridge

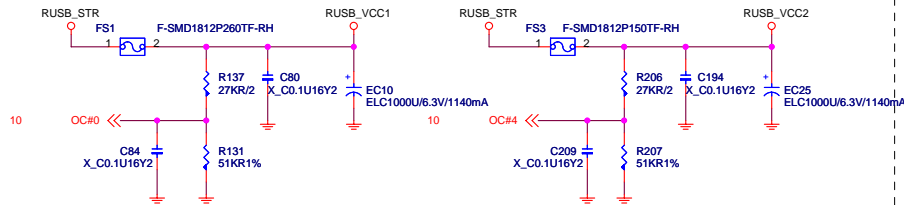


REF_CFG[1:0] =
00:20MHz
01:25MHz

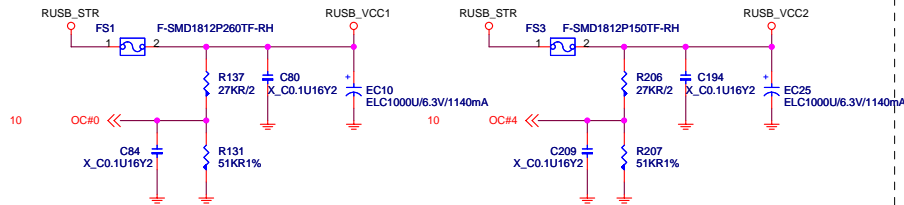


Rear USB Connector

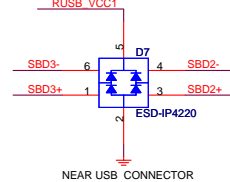
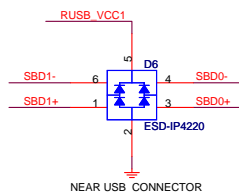
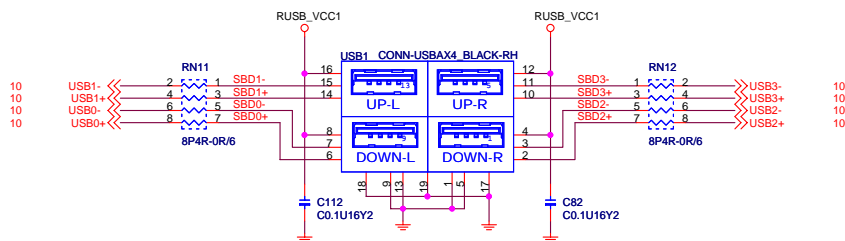
USB POWER FOR PORT 0,1 NEAR CONNECTOR



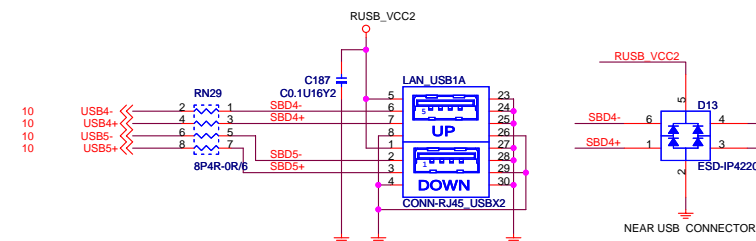
USB POWER FOR PORT 2,3,4,5 NEAR CONNECTOR



REAR USB PORT 0~3 (2x2)

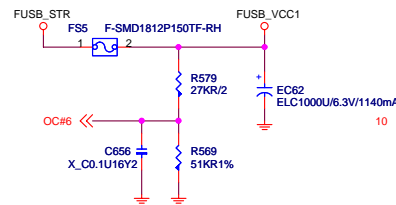


REAR USB PORT 4,5 (With LAN)

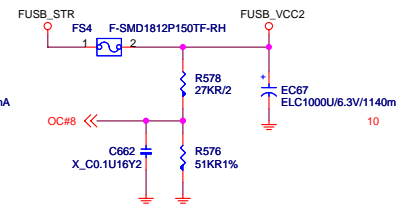


Front USB Connector

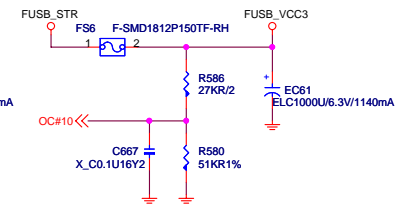
USB POWER FOR PORT 6,7 NEAR CONNECTOR



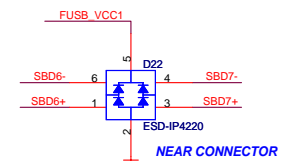
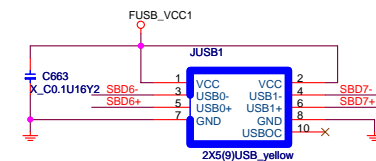
USB POWER FOR PORT 6,7 NEAR CONNECTOR



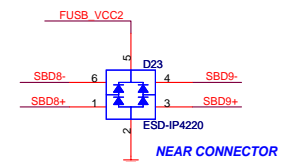
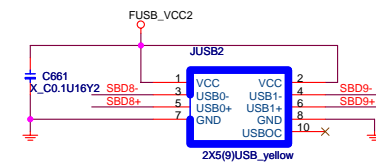
USB POWER FOR PORT 6,7 NEAR CONNECTOR



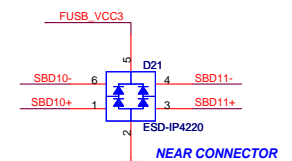
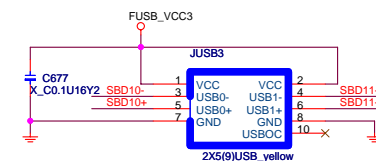
FRONT USB PORT 6,7



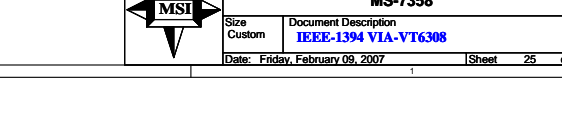
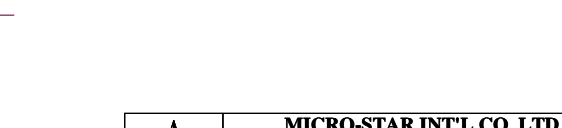
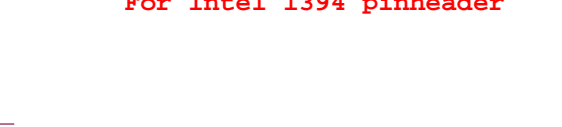
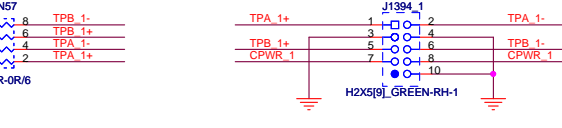
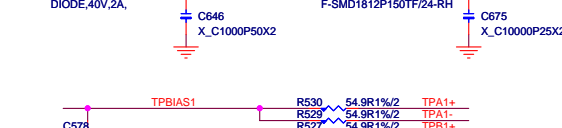
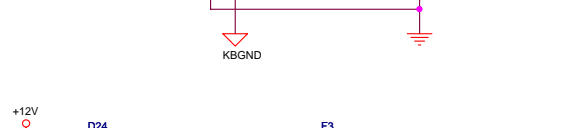
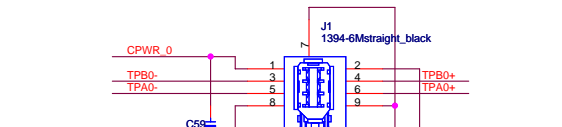
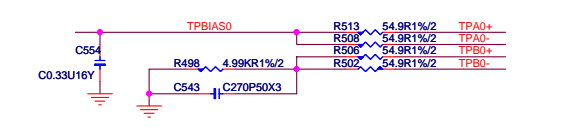
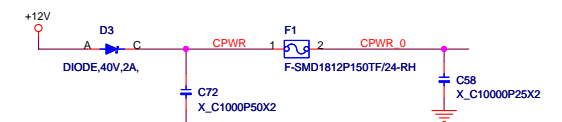
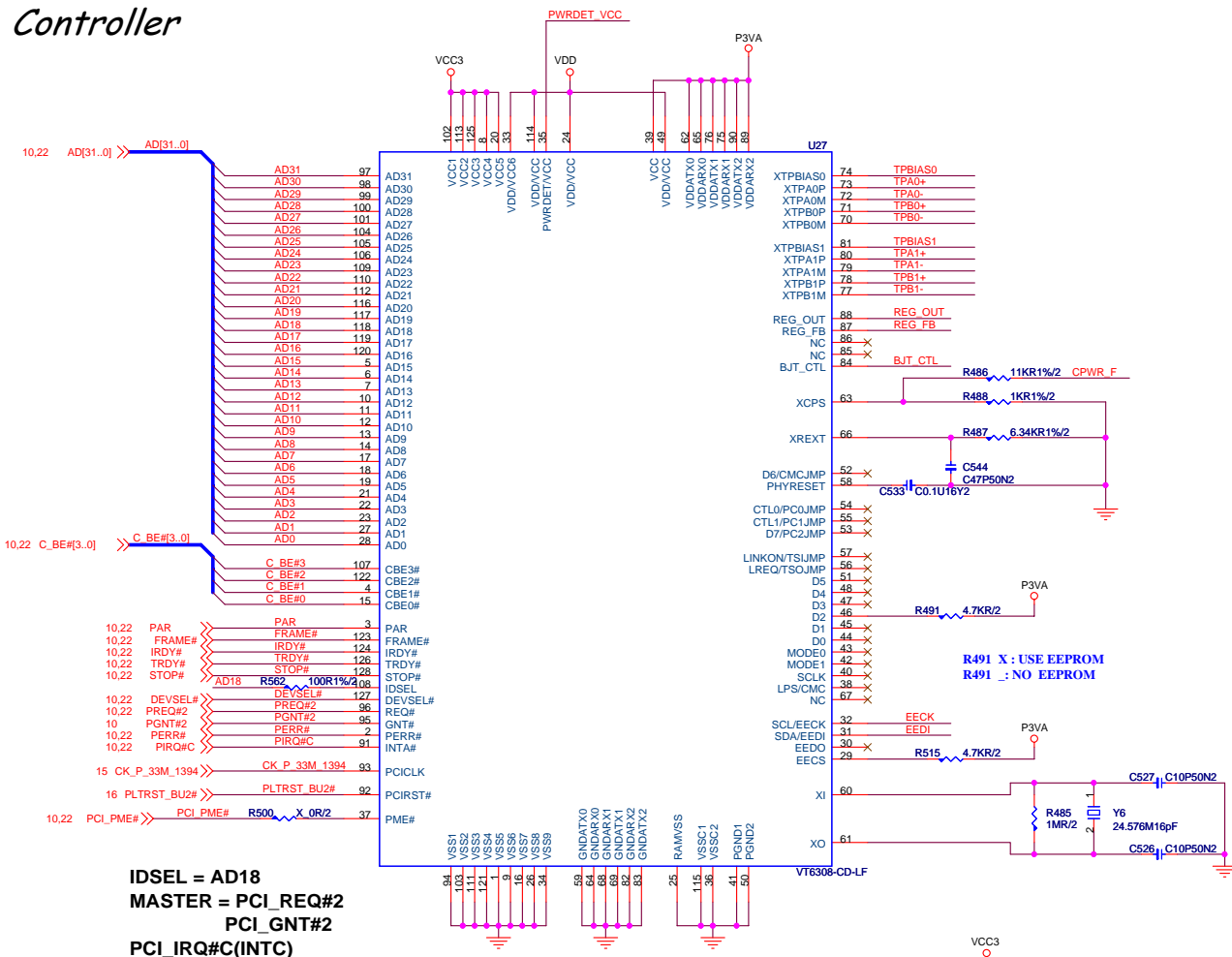
FRONT USB PORT 8,9



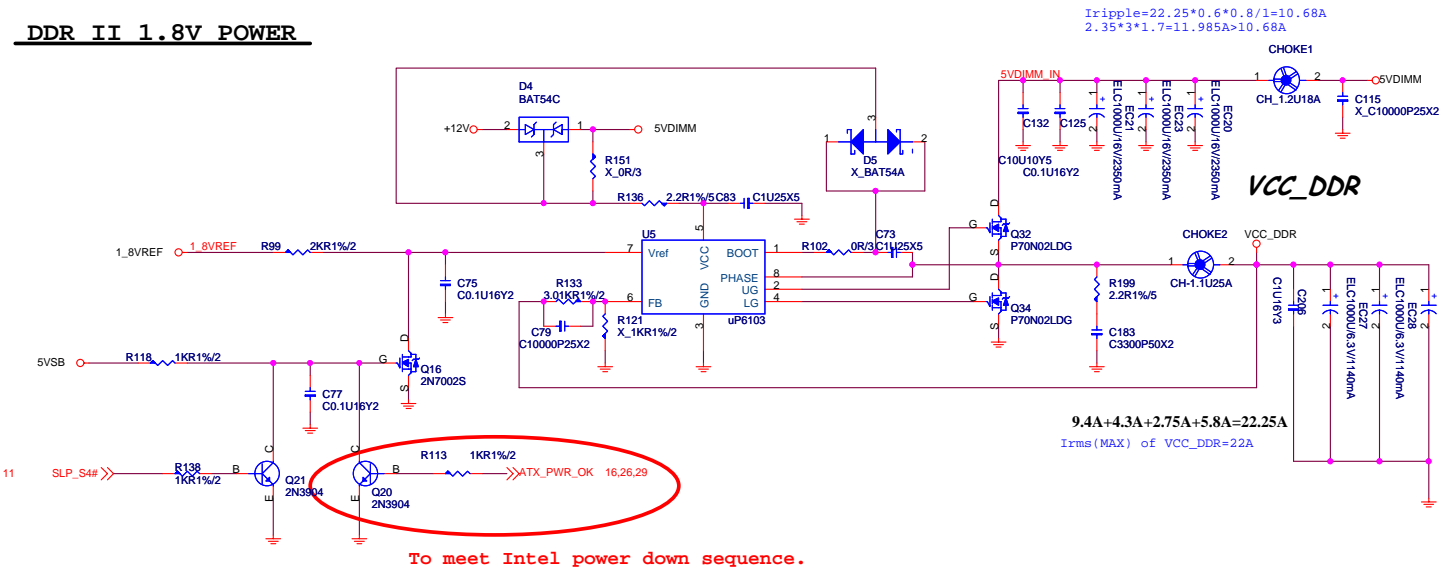
FRONT USB PORT 10,11



1394a OHCI Link Layer Controller

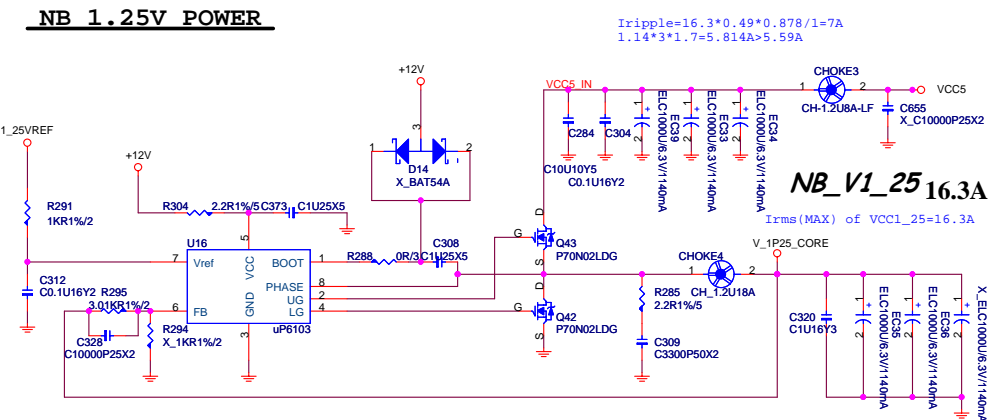


DDR II 1.8V POWER



To meet Intel power down sequence.

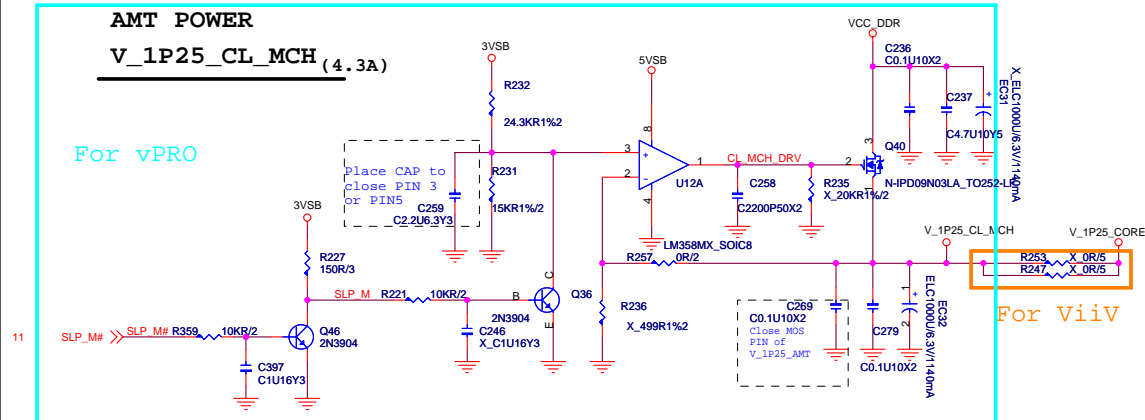
NB 1.25V POWER



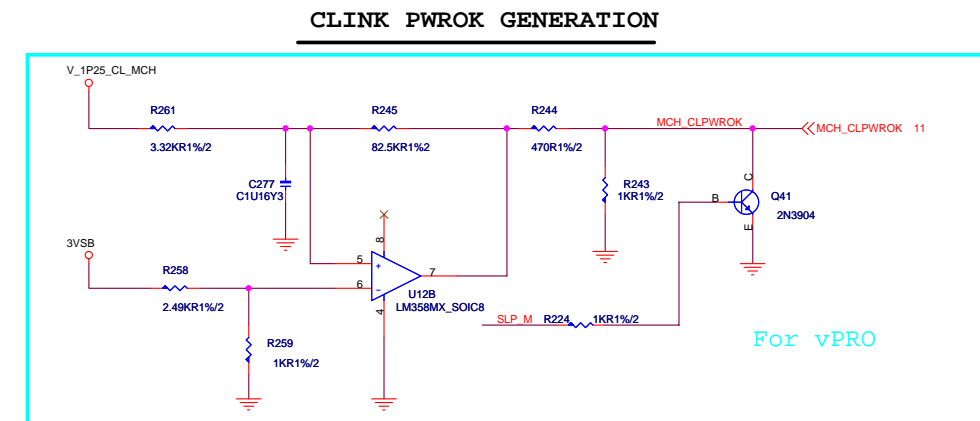
AMT POWER

V_1P25_CL_MCH (4.3A)

For vPRO



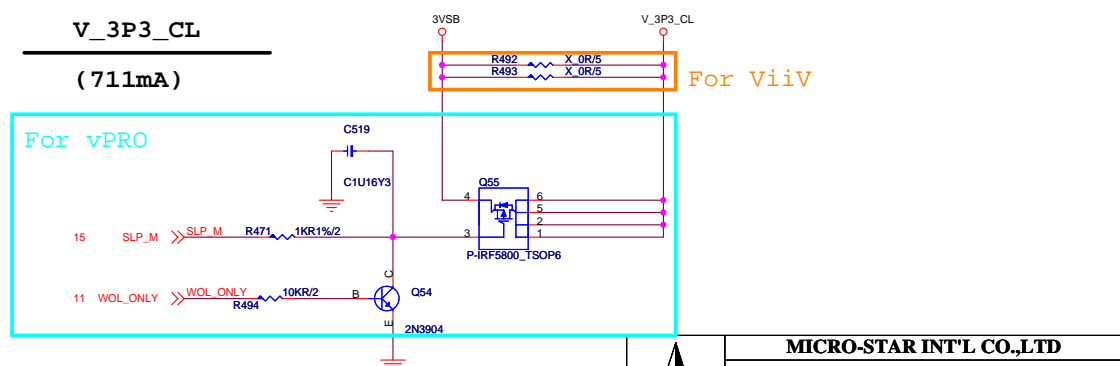
CLINK PWROK GENERATION



V 3P3 CL

(711mA)

For vPRO



MICRO-STAR INT'L CO.,LTD

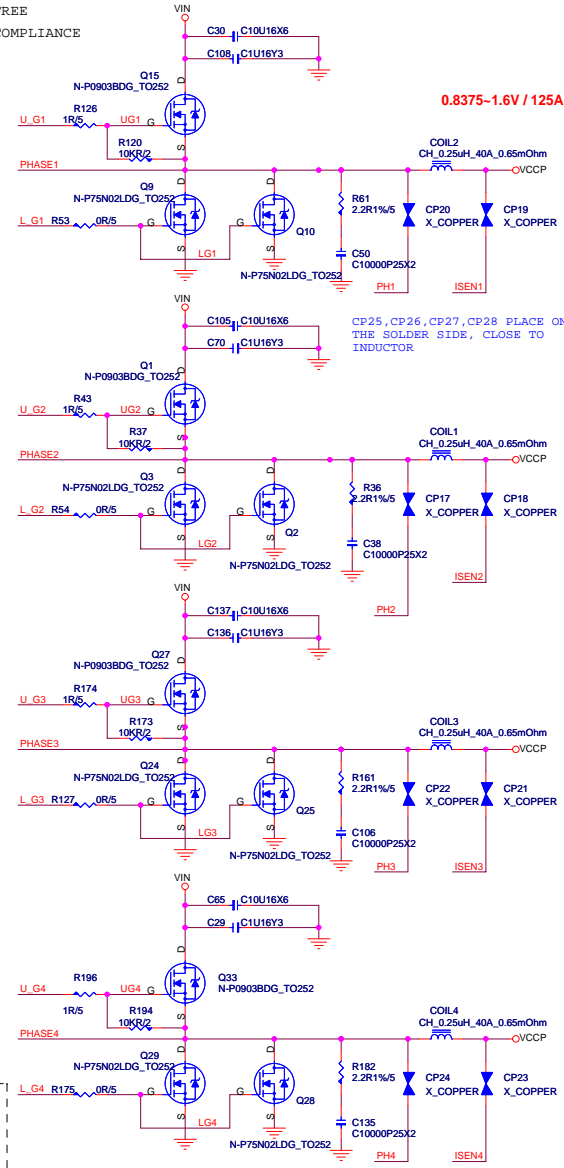
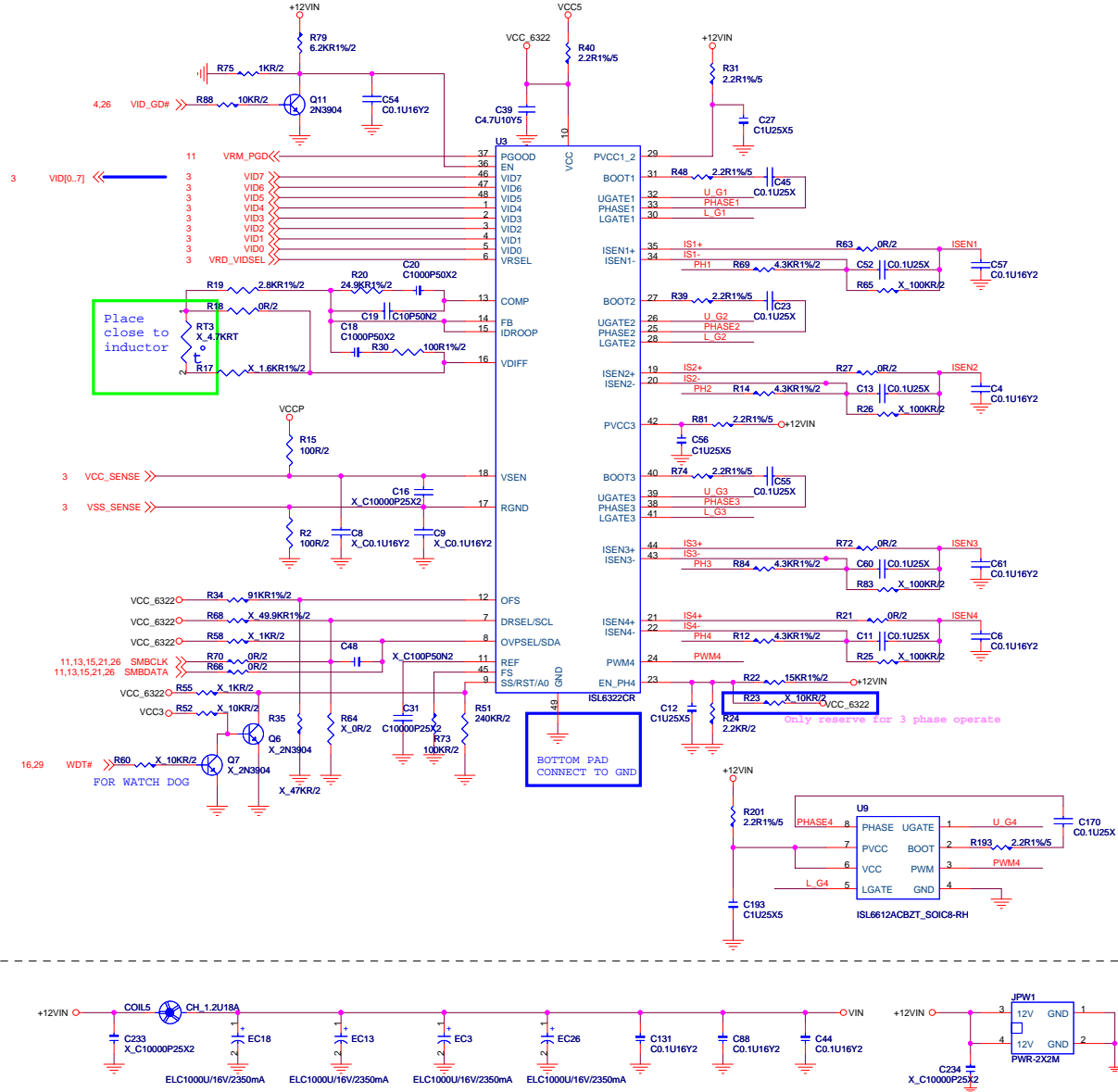
MS-7358

Size Custom	Document Description NB Core Power & DDR Power	Rev 0A
Date: Friday, February 09, 2007		Sheet 27 of 34

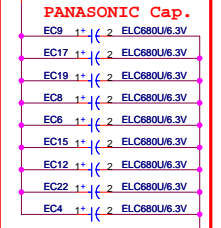
Voltage Regular Module

N-P0903BDG_TO252
P75N02LDG_TO252
C100U2SP
CD560U40S-2
1800UF/6.3V
0.25uH/40A
CH-1.1U25A-LF
CD1000U16EL20-2

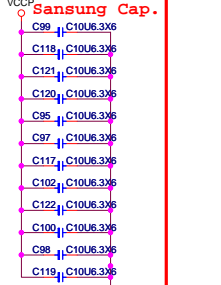
mosfet/n-channel,P0903BDG,SMT/TO252,Rds(on)=9.5m (10V/25A),Vgs(on)=1-3V,Id=50A,Ciss=1800pf,Qg=50nC,Vds=25V,Vgs= 20V,RoHS COMPLIANCE
mosfet/n-channel,P75N02LDG,SMT/TO252,Rds(on)=7m (@10V,30A),Vgs(on)=1-3V,Id=75A,Ciss=5000pf,Qg=140nC,Vds=25V,Vgs= 20V,RoHS COMPLIANCE
ESR<13m, Ripplecur=6100mA,LC. <500uA,SPEC series,RoHS compliance
ESR<12m , Ripplecur<2350mA,105C, longlife change from 2000hrs to 3000hrs ,KZJ
SMT 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



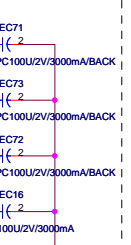
680uF EL Capacitors



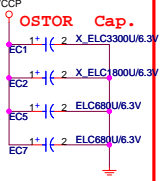
MLCC Inside Socket



SP Capacitors



EL Capacitors

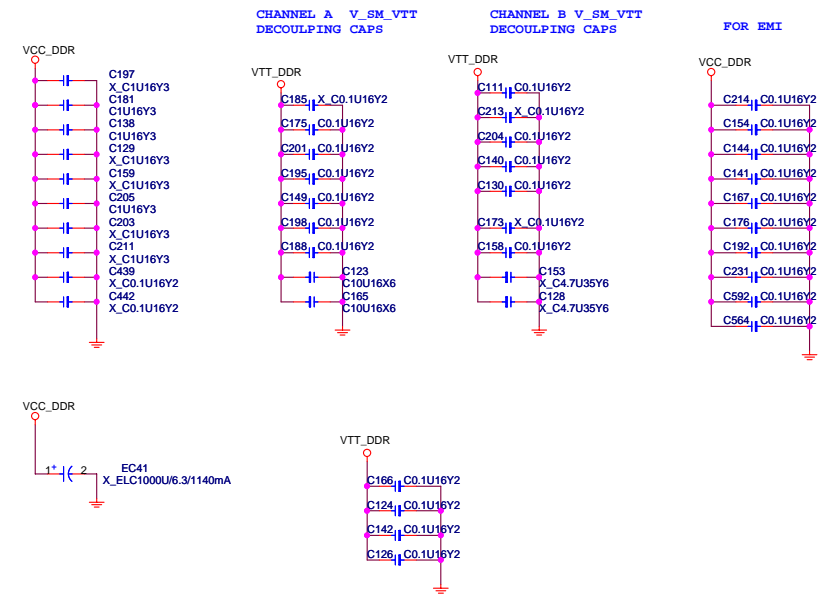
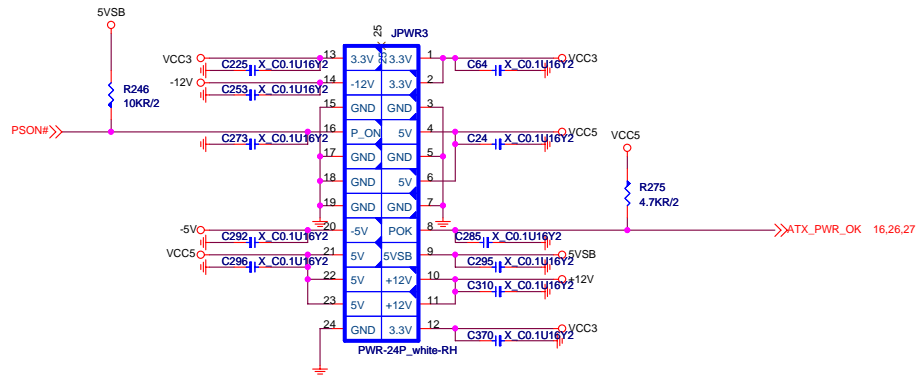


MICRO-STAR INT'L CO.,LTD

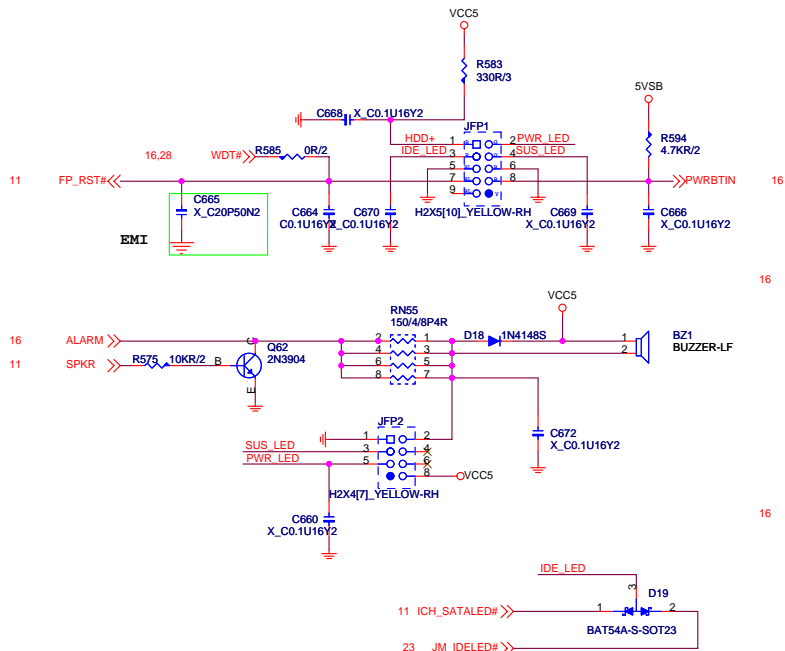
MS-7358

Size	Custom	Document Description	VRD11-ISL6322 4-phase	Rev	0A
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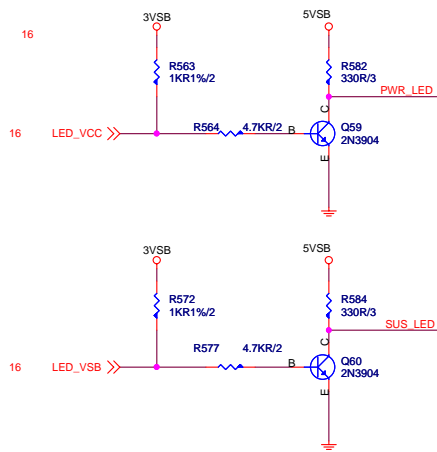
ATX POWER CONNECTOR



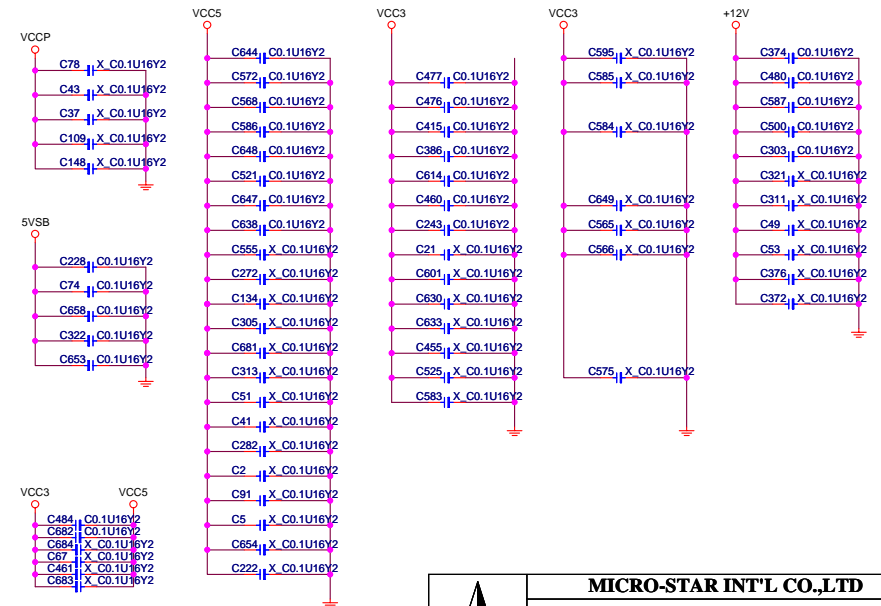
FRONT PANNEL



LED (for Fintek 71882)



Cap. for EMI & Power



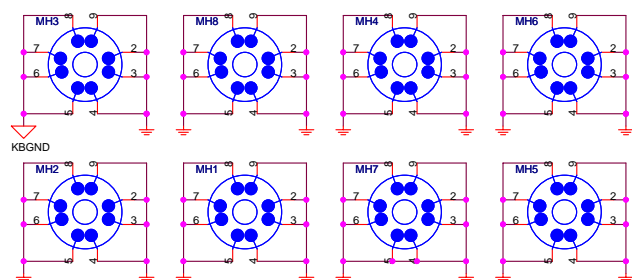
Optical Fiducial Marks-120



Optical Fiducial Marks-100



Mounting Holes



Simulation

