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MS-7358 uATX **Version: 3.2**

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

System Chipset:

Intel Bearlake - Q35 North Bridge
Intel ICH9 (DO South Bridge)

On Board Device:

CLOCK Gen ICS 9LPRS906
LPC Super I/O -- Fintek F71882F
LPC TPM -- SLB9635

LAN -- INTEL Nineveh
HD Audio Codec -- ALC888
1394 Controller -- VT6308 (2-port) Option
PCIE to PATA Bridge -- Marvel 88SE6111 Option

Main Memory:

Dual-channel DDR-II * 4


Expansion Slots:

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

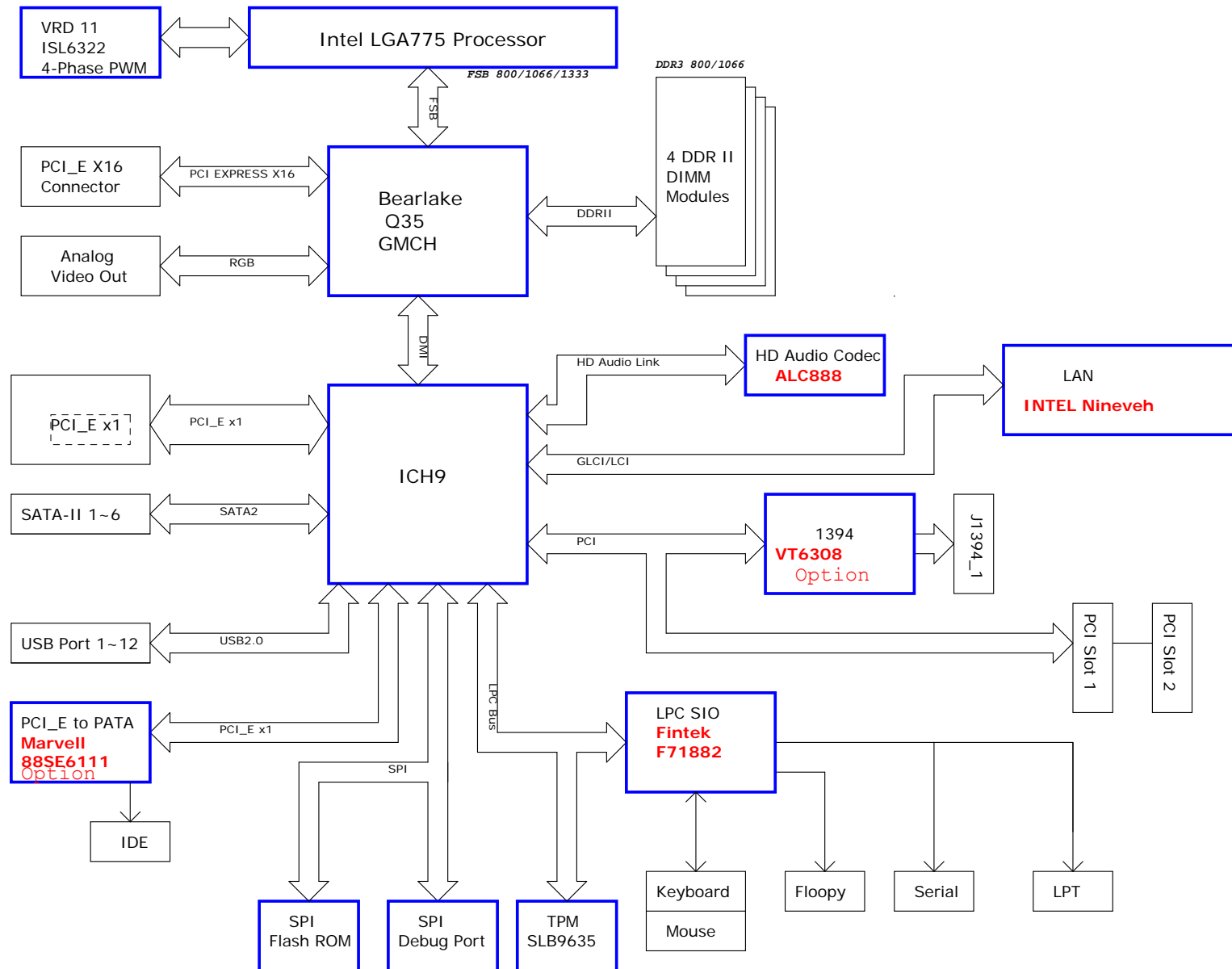
PWM: Intersil ISL6322 (4 Phases) w/ ISL6612 driver

Configuration and BOM match up

Option	Function	Orcad Configure	BOM
STD	Bearlake-Q35/ICH9DO	CFG-LG7358-STD	

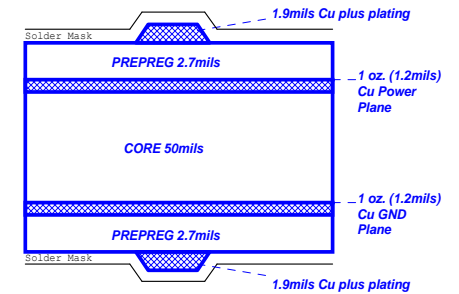
	MICRO-STAR INT'L CO.,LTD									
	MS-7345									
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Block Diagram



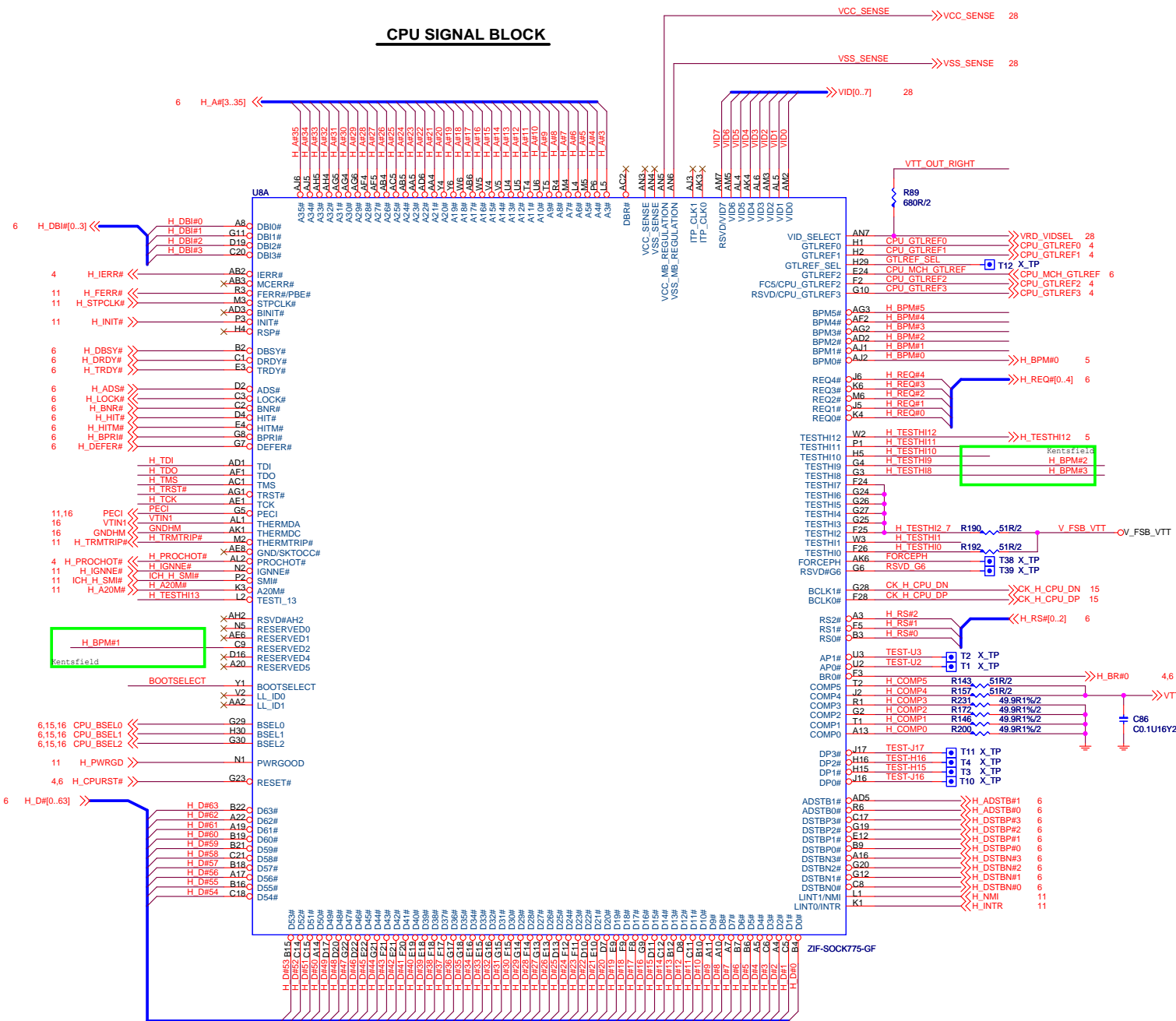
Board Stack-up

(1080 Prepreg Considerations)

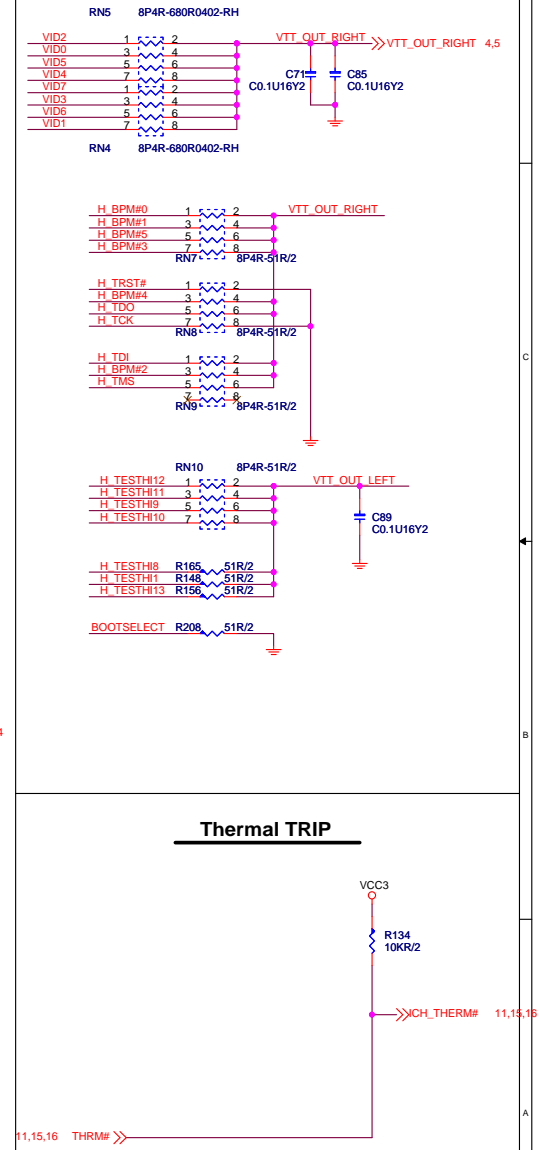


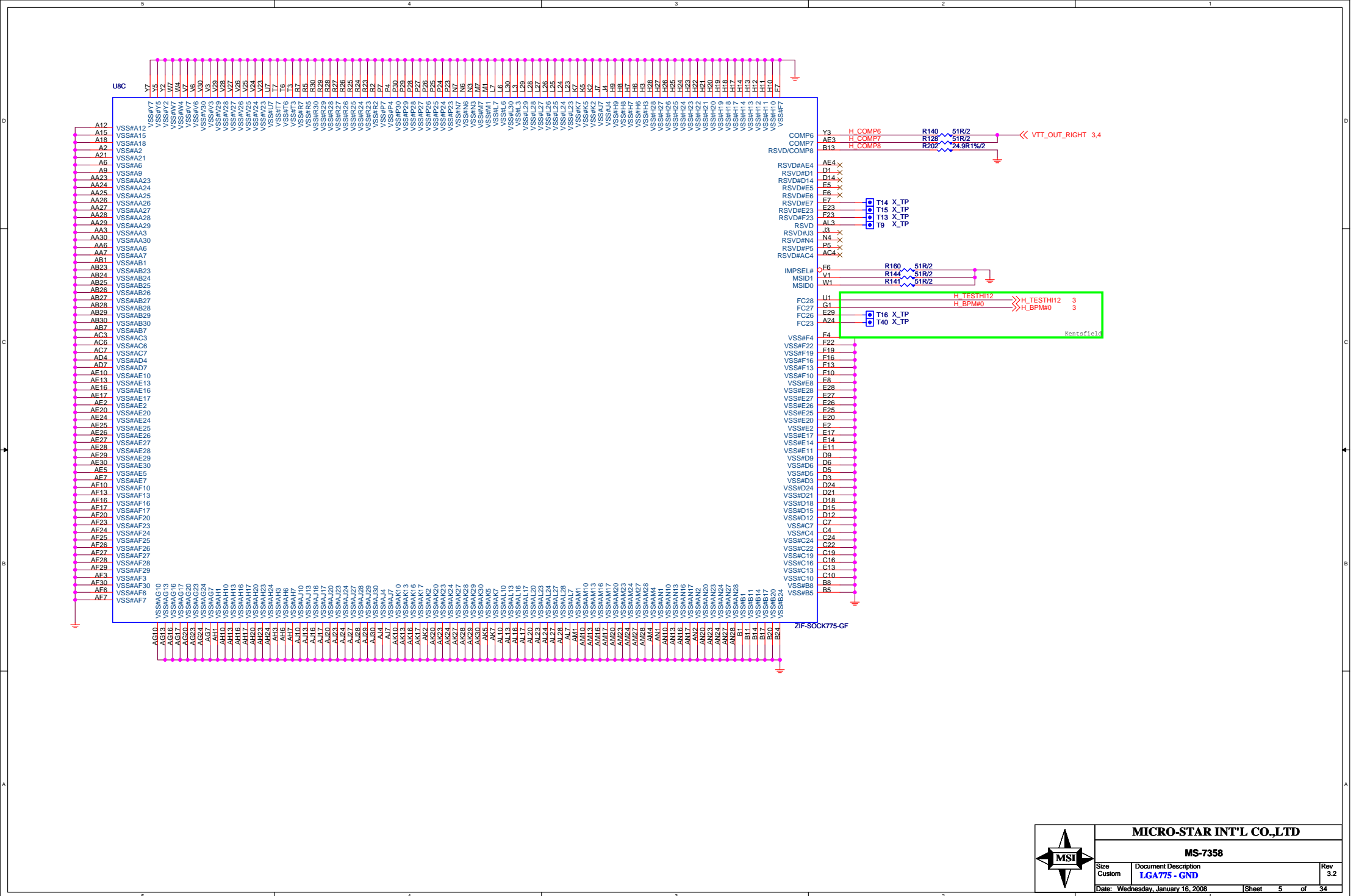
Single End 50ohm Top/Bottom : 4mils
 USB2.0 - 90ohm : 15/4.5/7.5/4.5/15
 SATA - 95ohm : 15/4/8/4/15
 LAN - 100ohm : 15/4/8/4/15
 PCIE - 95ohm : 15/4/8/4/15
 IEEE1394 - 110ohm : 15/4/9/4/15
 IDE : 15/4/8/4/15

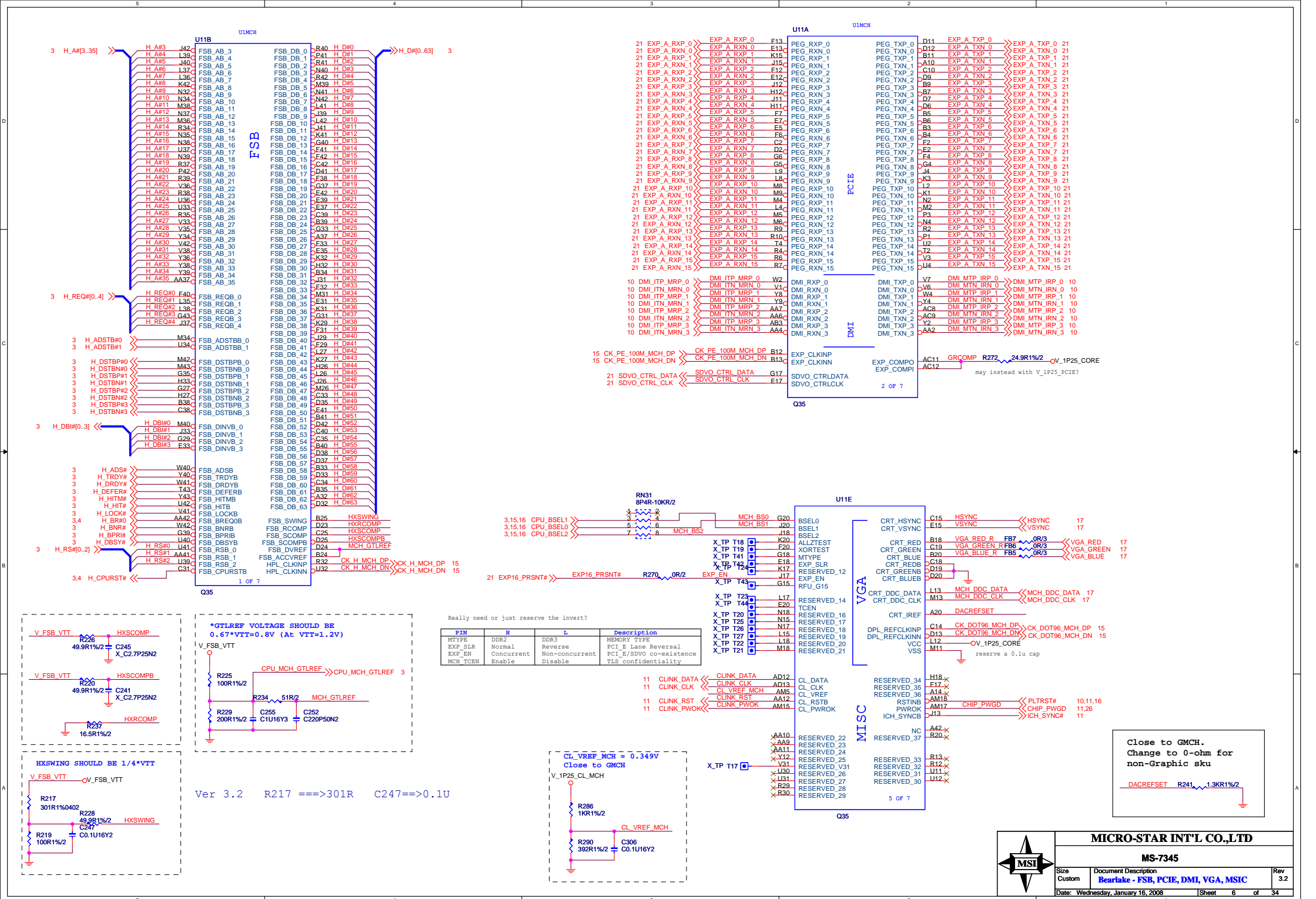
CPU SIGNAL BLOCK

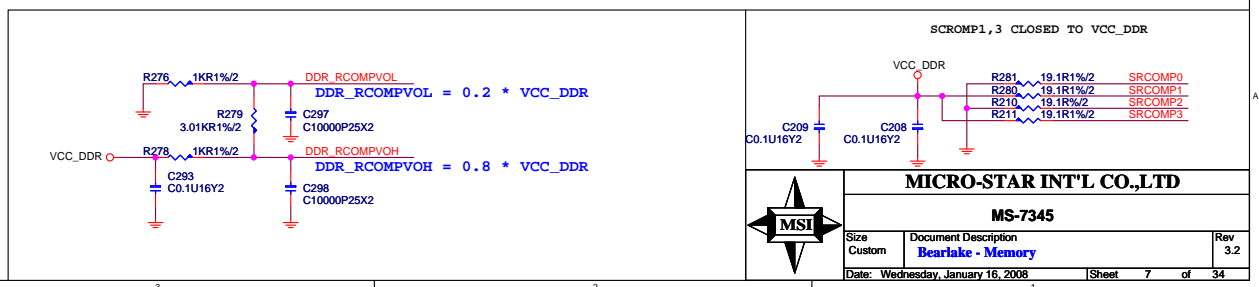
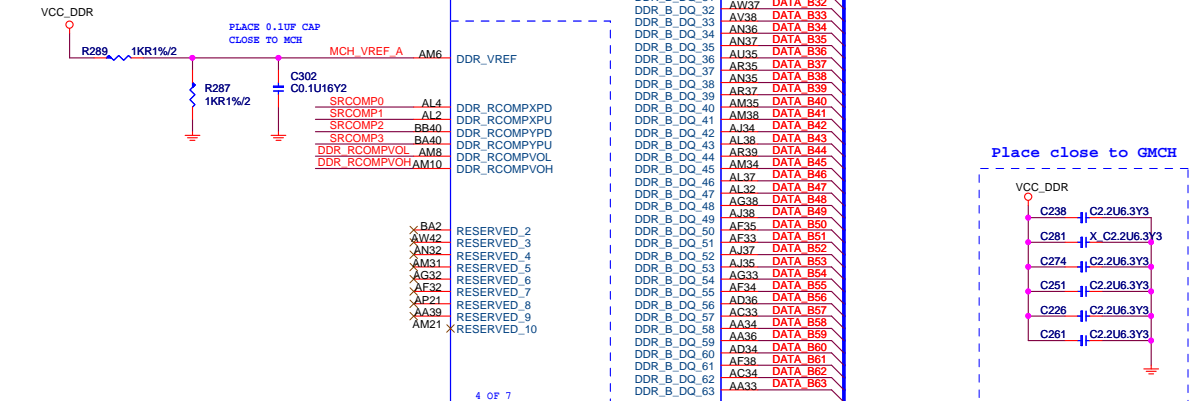
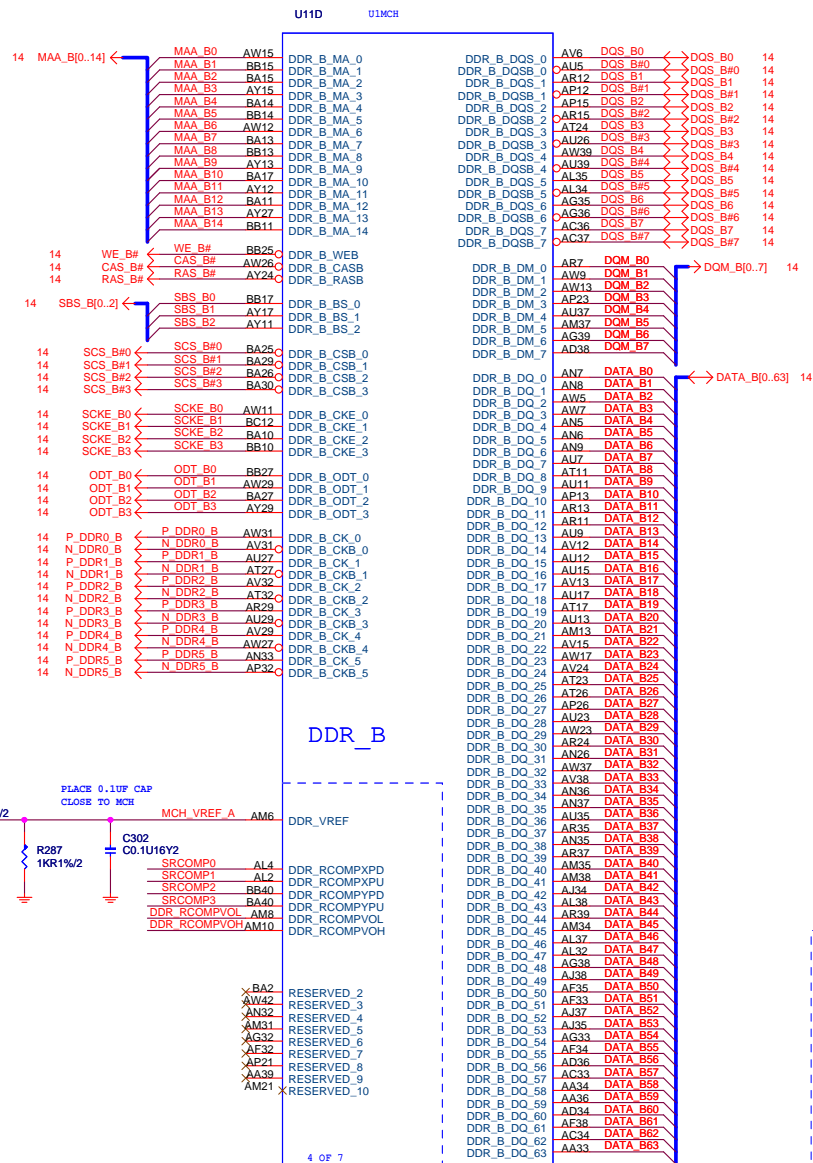
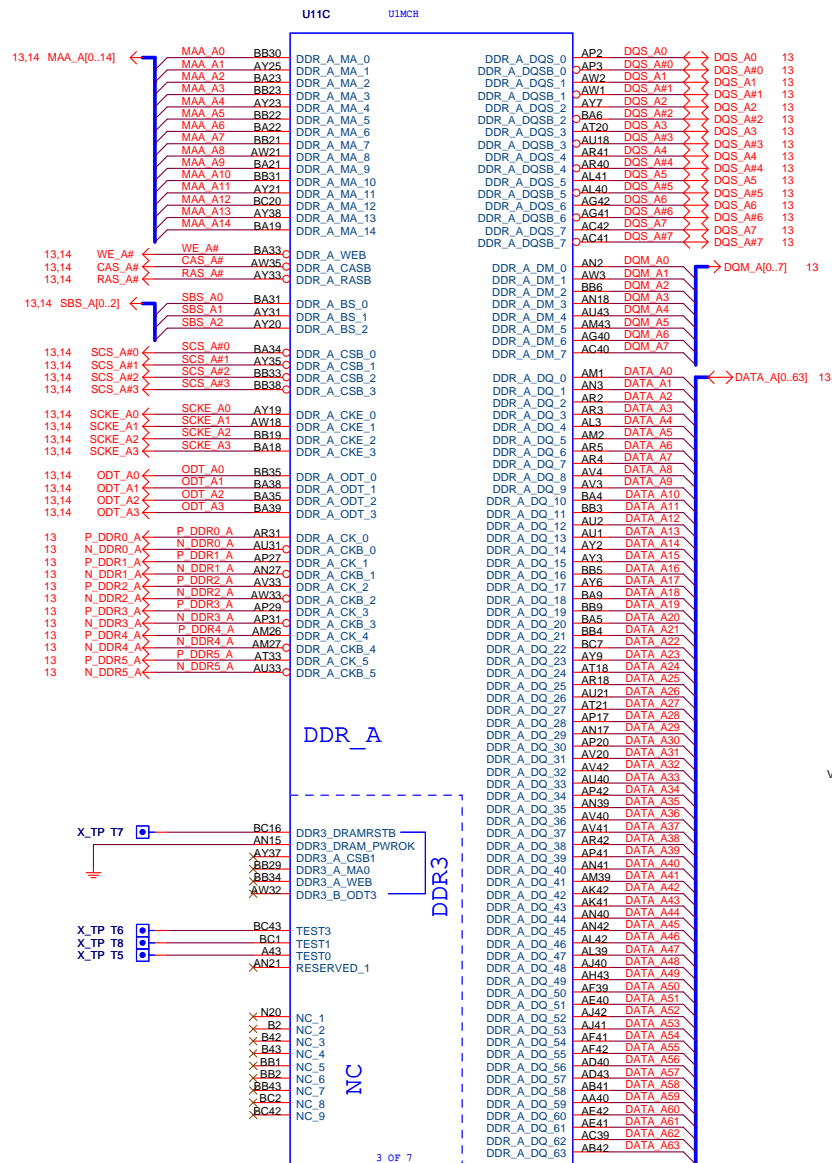


PULL HIGHT PULL DOWN

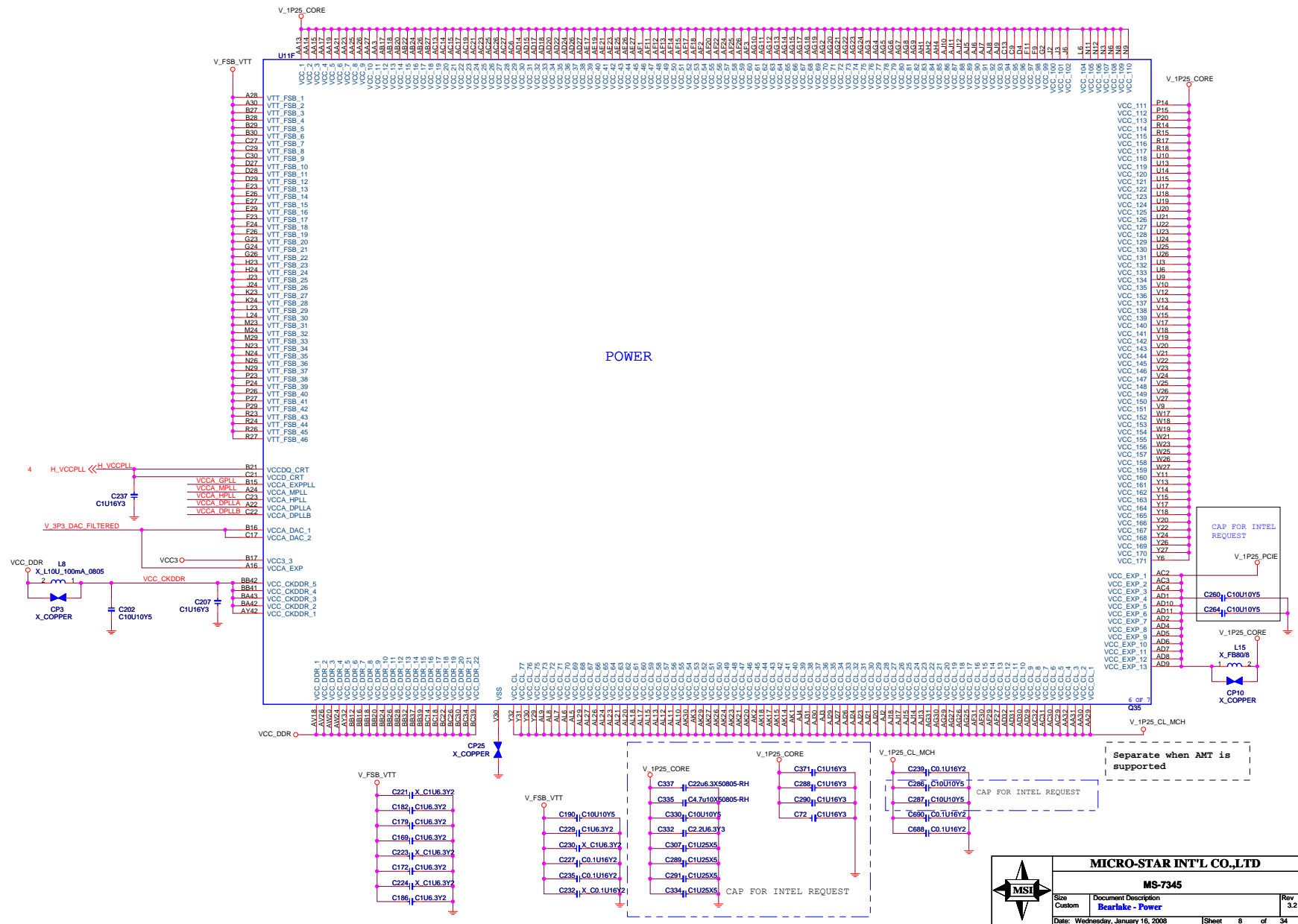
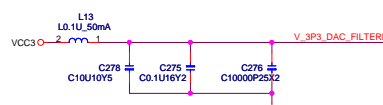
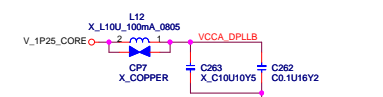
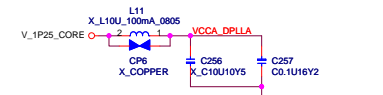
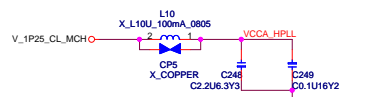
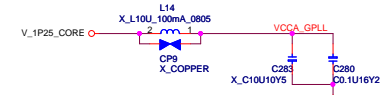






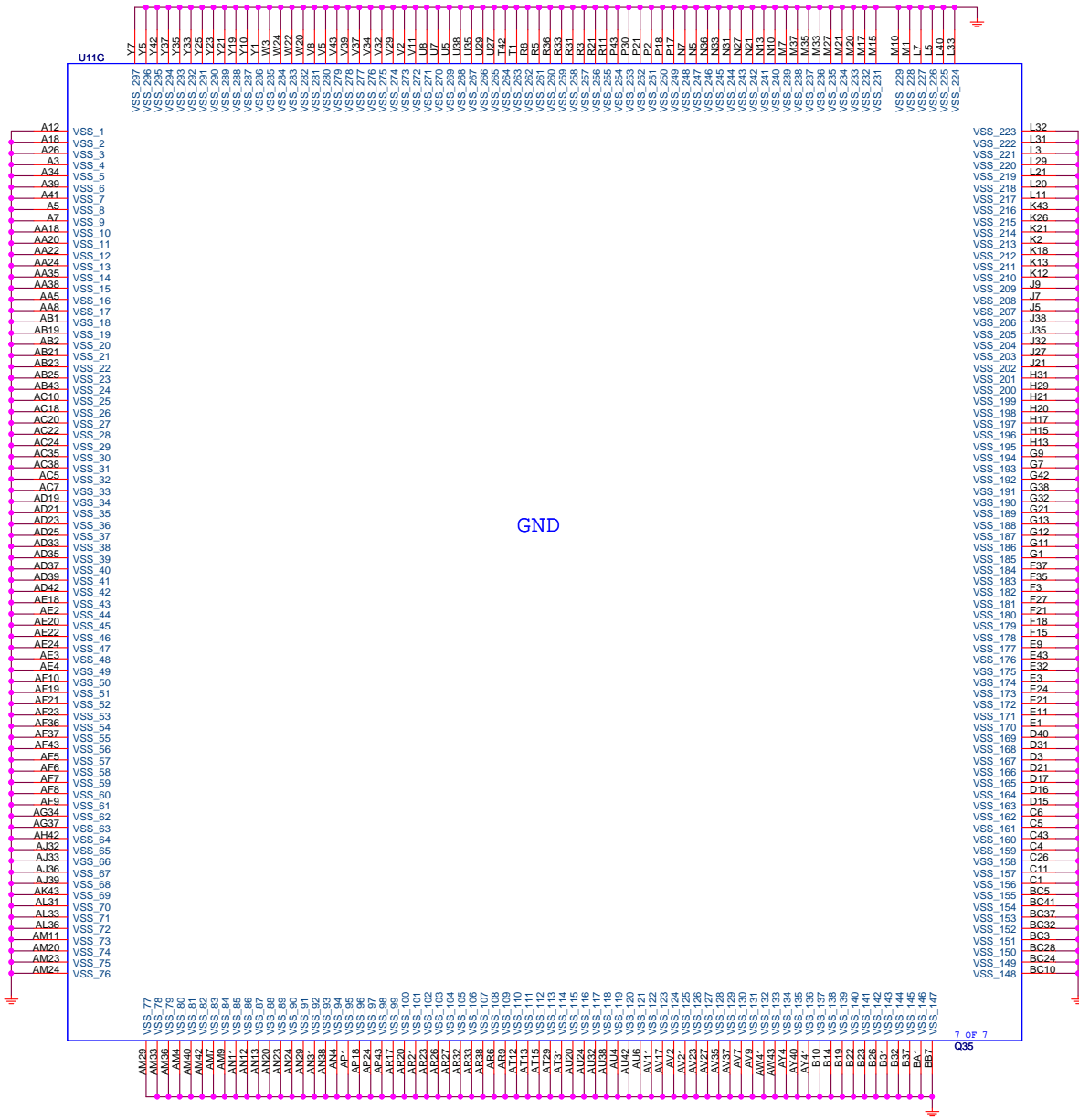


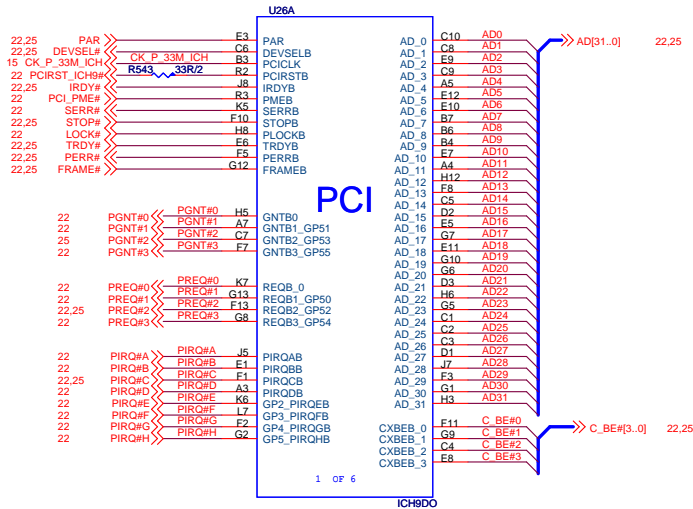
NB POWER



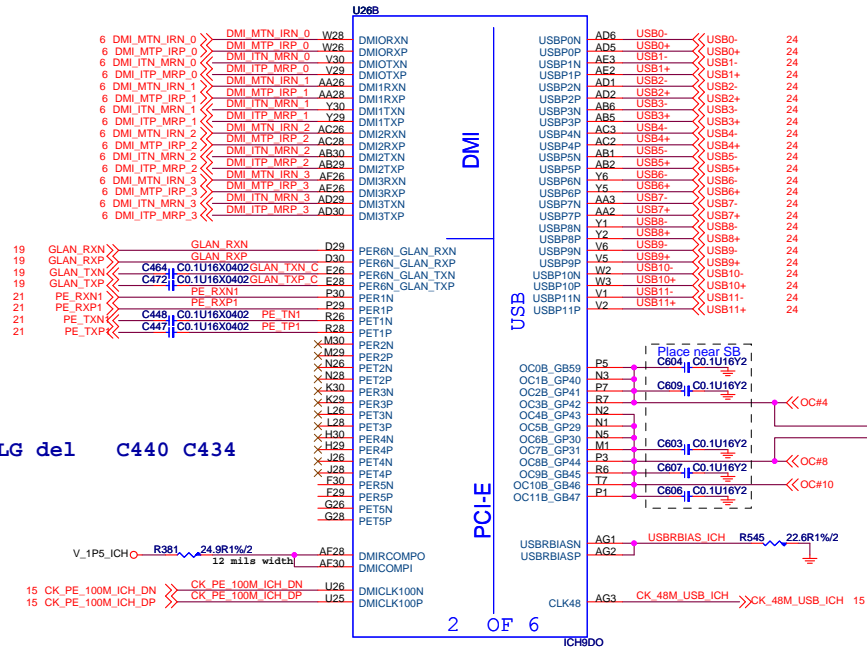
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For LG del C440 C434



SB STRAPPING RESISTOR

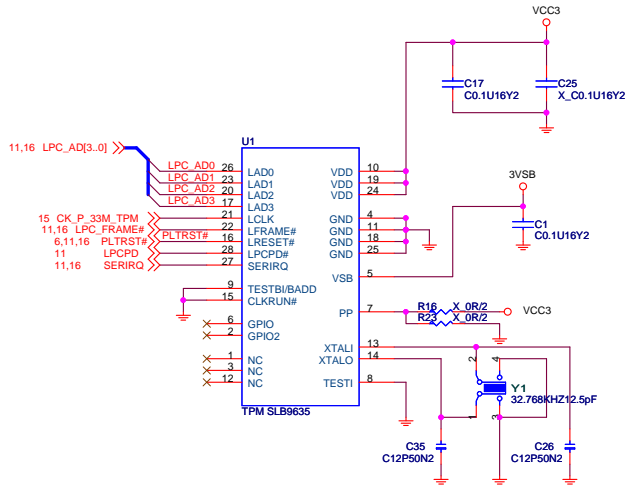


BOOT SELECT STRAPS		
BOOT DEVICE	GNT#0	SPI_CS1#
FWH	1	1
SPI	0	1
PCI	1	0

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

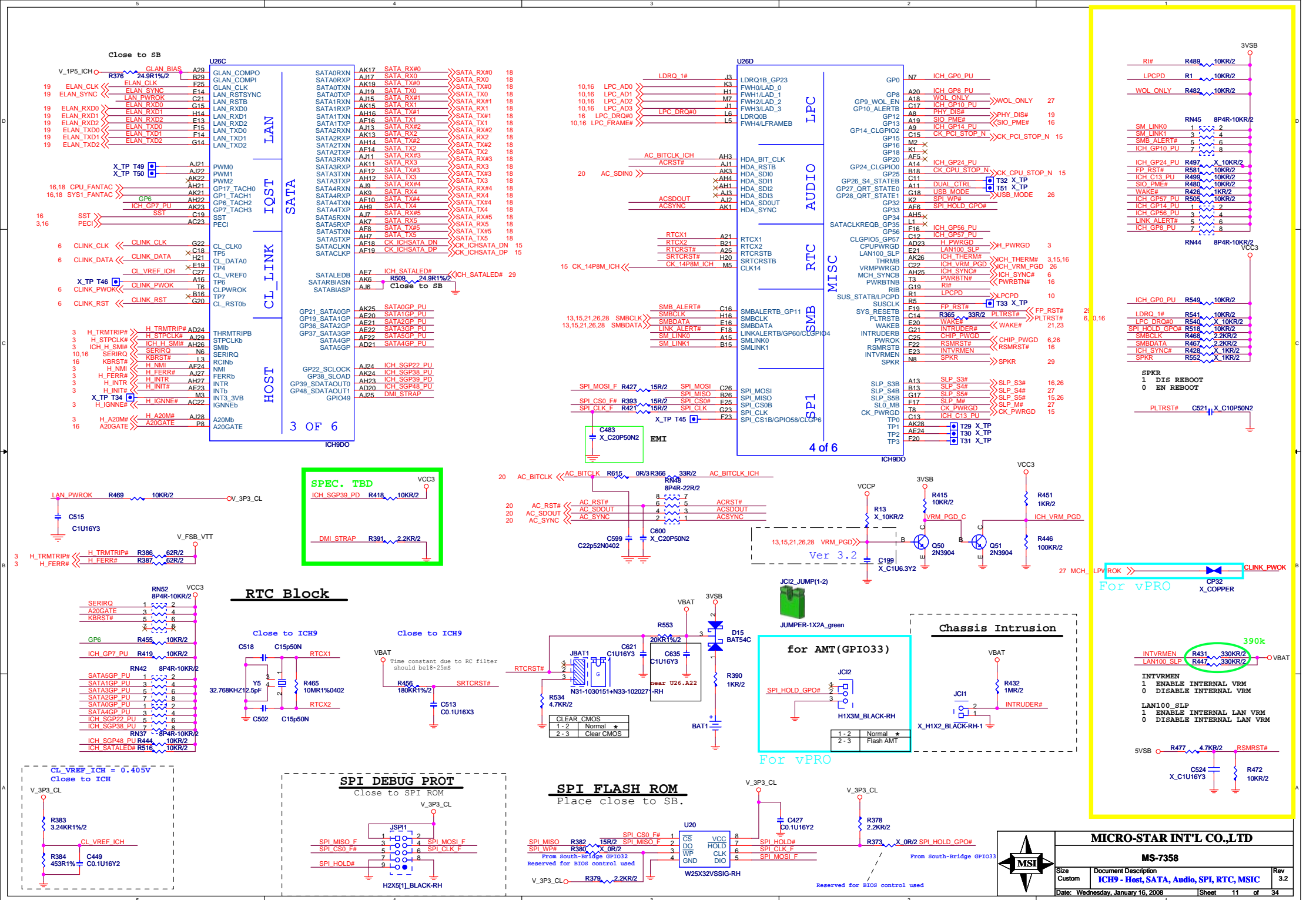


MICRO-STAR INT'L CO.,LTD

MS-7358

Size Custom Document Description **ICH9 - PCI, DMI, USB, PCIE & Slots** Rev 3.2

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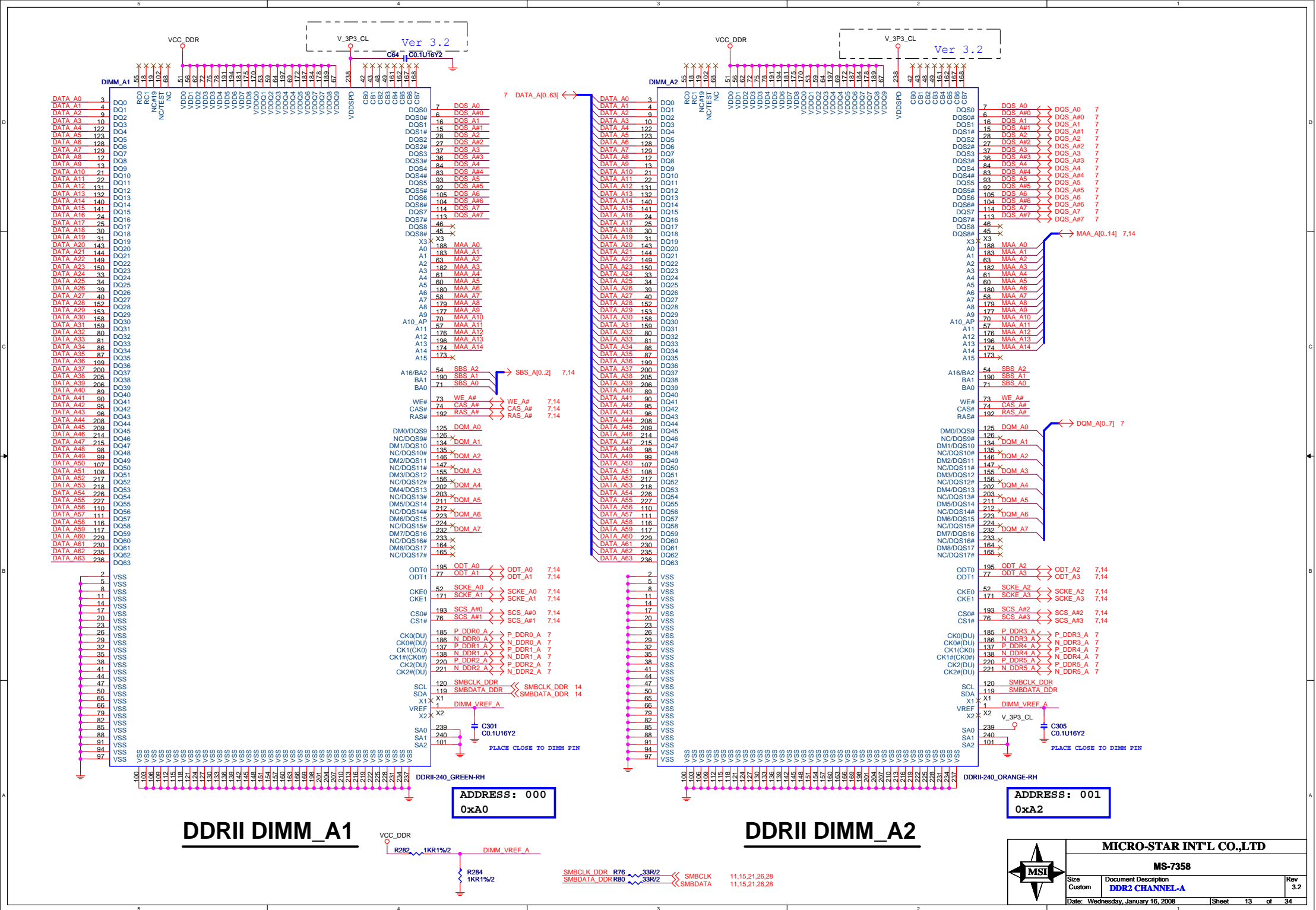
V5REF must be powered up before VCC3 or after VCC3 within 0.7V. Also, V5REF must power down after VCC3 or before VCC3 within 0.7V. This rule is also applies to V5REF_SUS and 3VSB. However, the 3VSB is derived from the 5VSB on the power supply thru a voltage regulator and therefore, they can satisfy the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

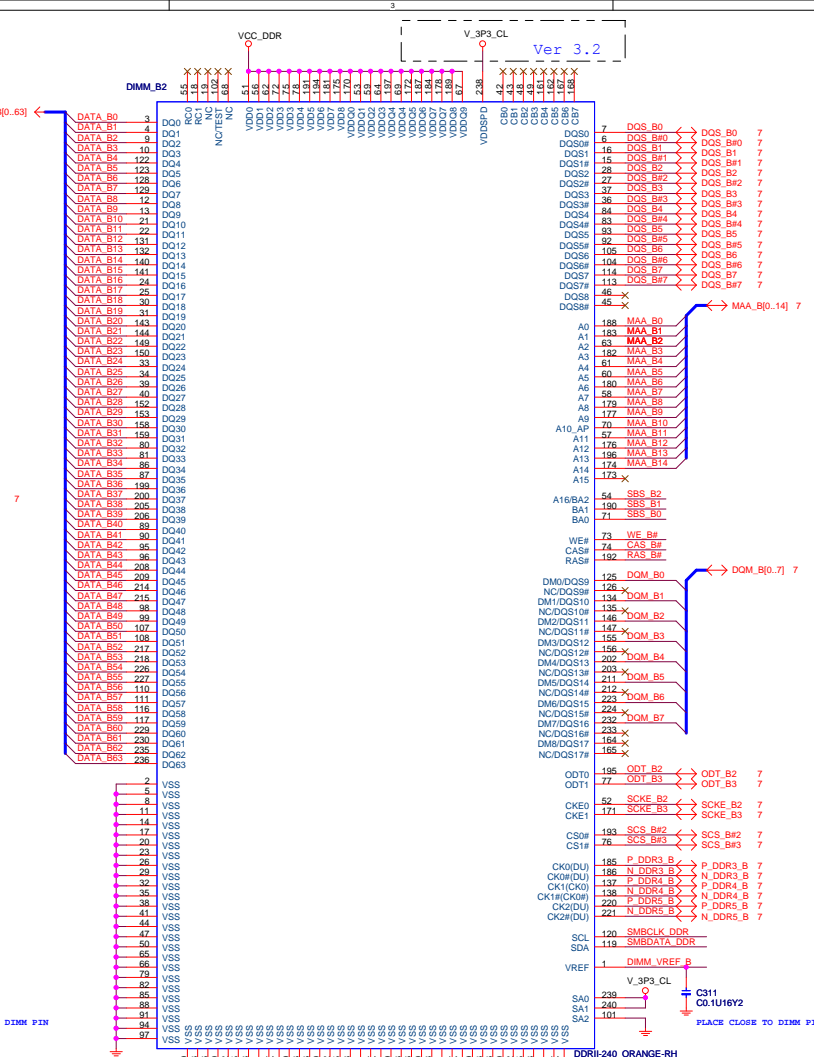


U26



Size Custom	Document Description ICH9 - Power, GND	Rev 3.2
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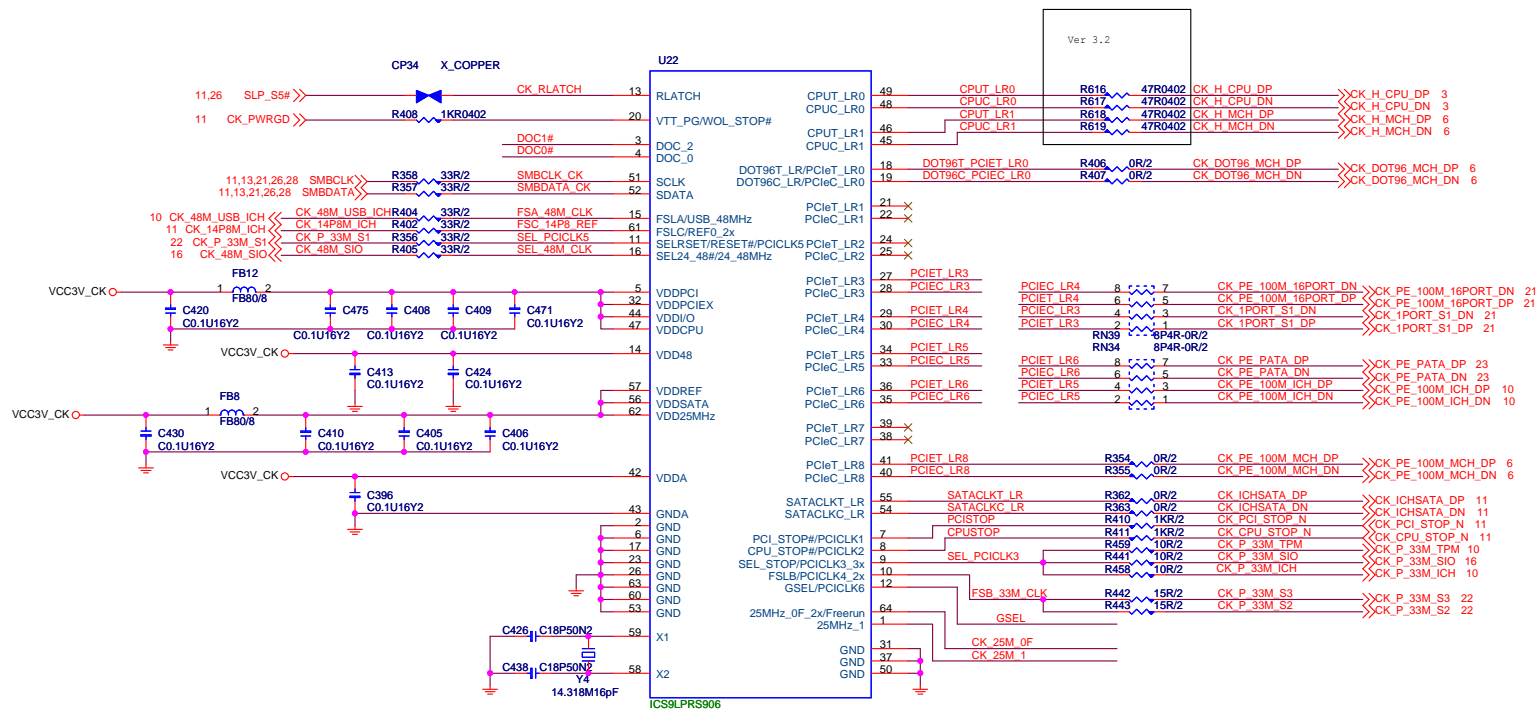




DDRII DIMM_B2

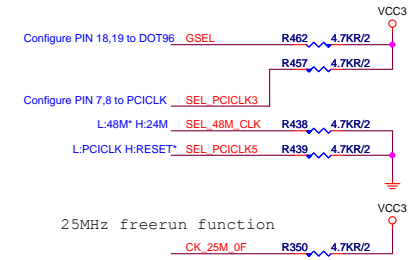


MS-7358		
Size Custom	Document Description DDR2 CHANNEL-B/DDR II Termination	Rev 3.2
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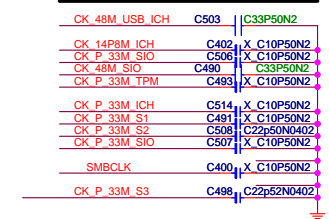


R410 R411 only for vPRO

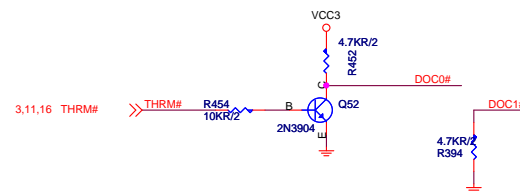
CLOCK GEN STRAPPING



EMI

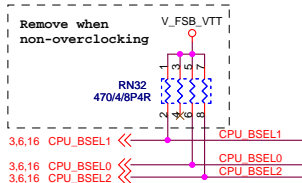
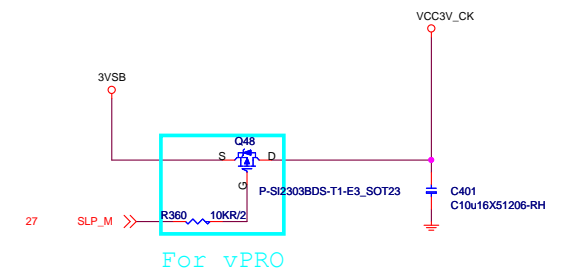


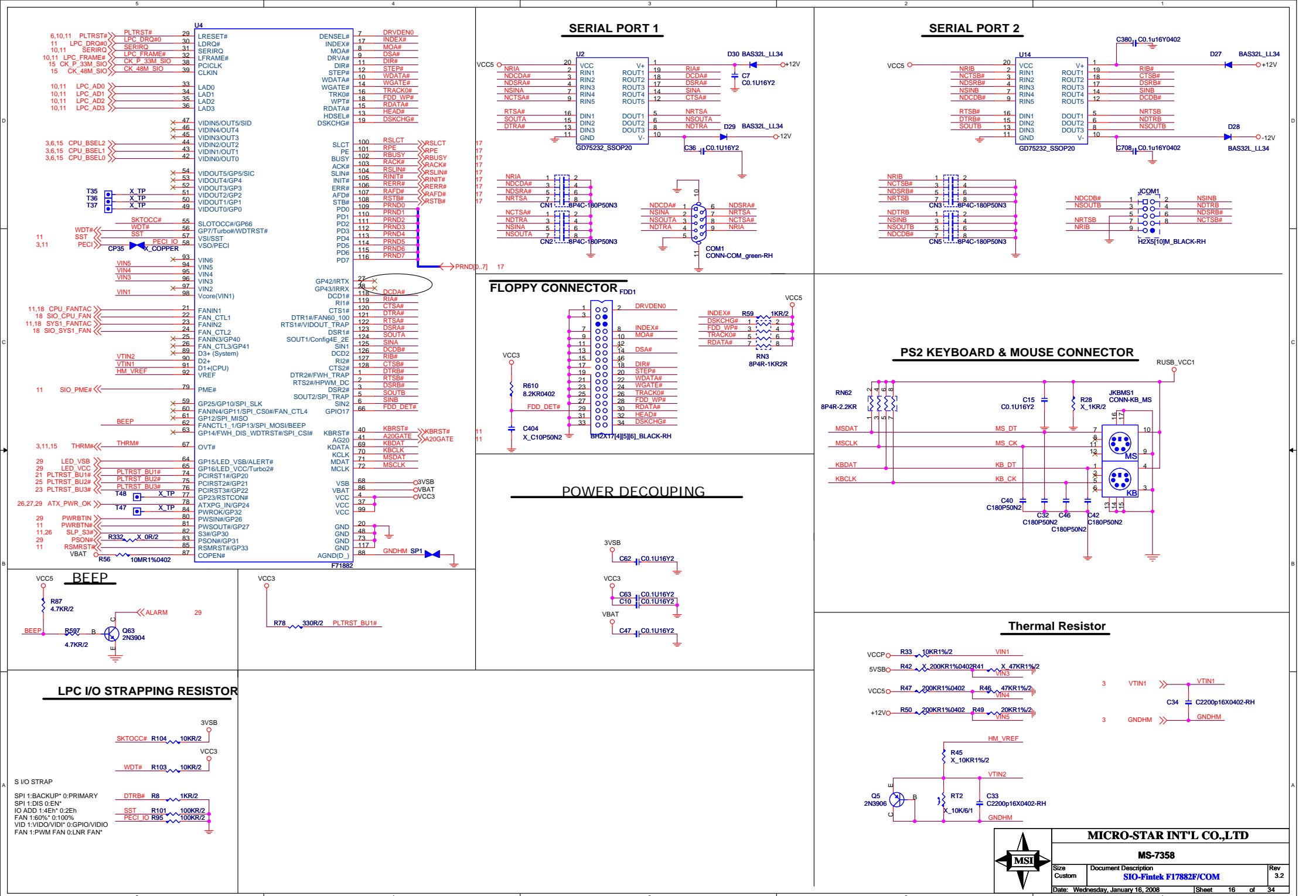
D.O.T



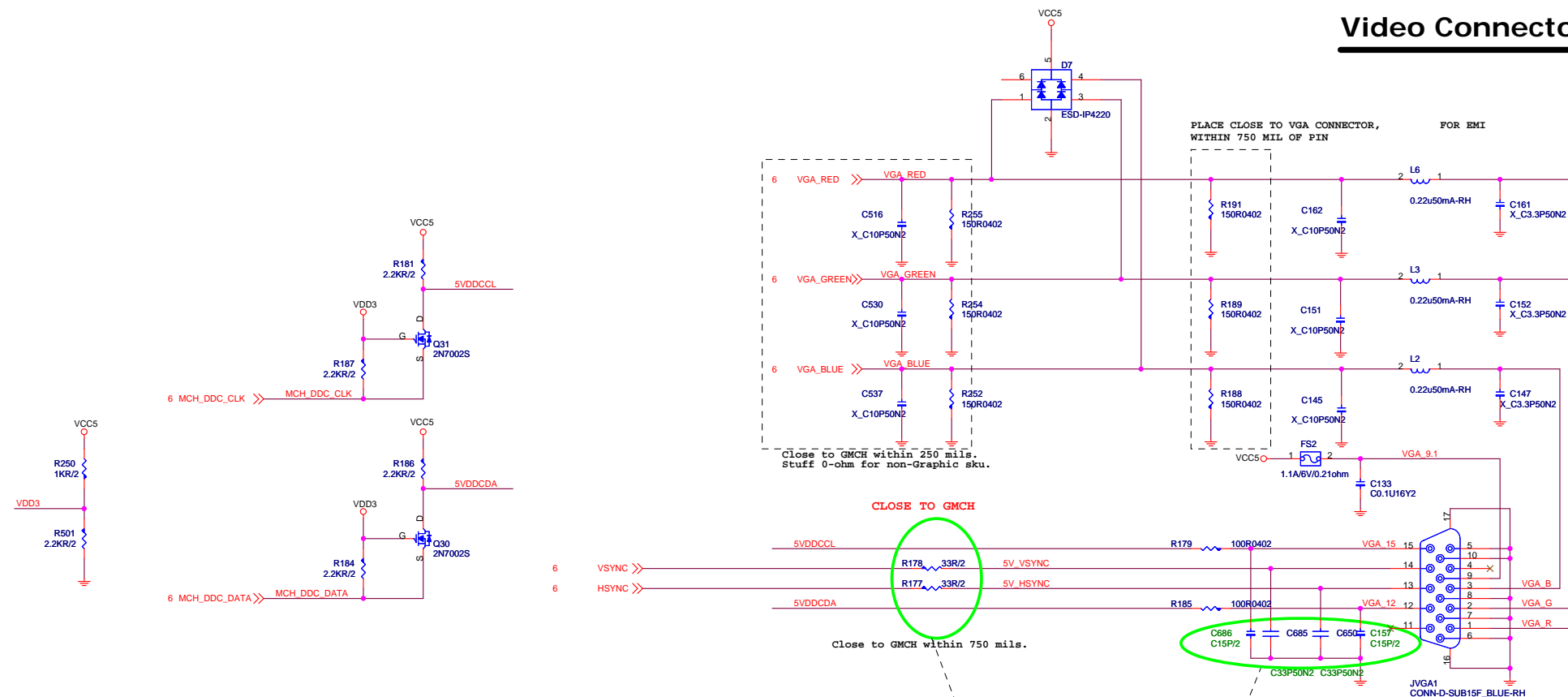
BSEL	TABLE
2 1 0	FSB FREQUENCY
0 0 0	266 MHz (1066)
0 0 1	133 MHz (533)
0 1 0	200 MHz (800)
1 0 0	333 MHz (1333)
1 1 0	400 MHz (1600)

AMT POWER

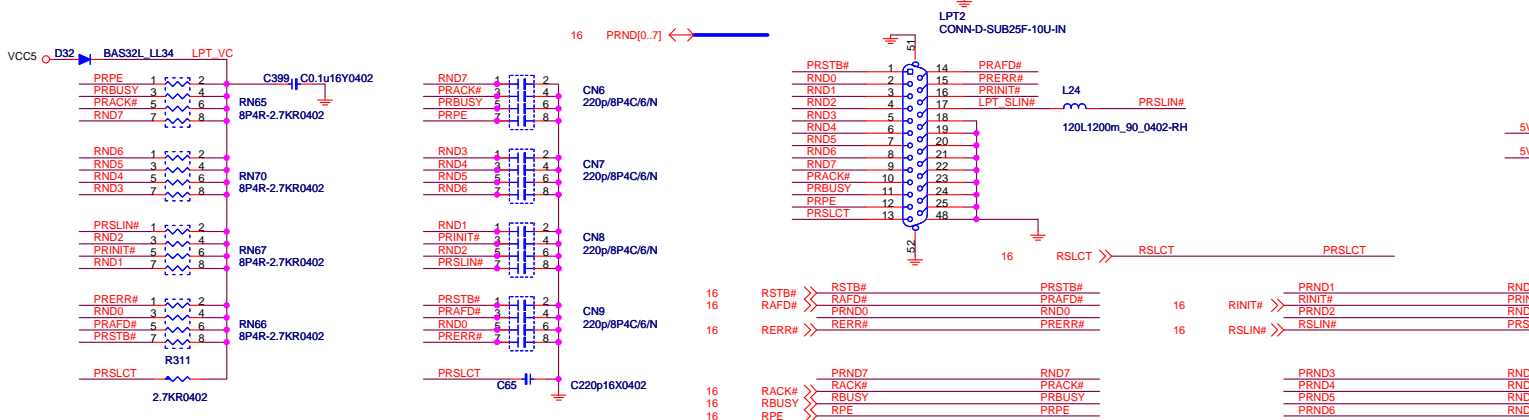




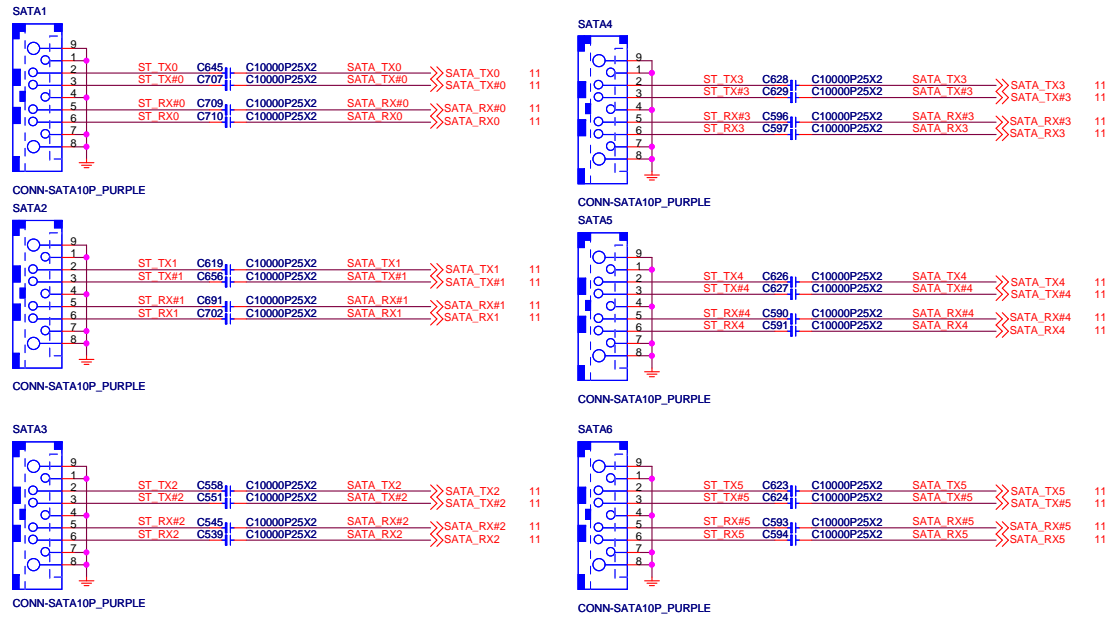
Video Connector



PARALLAL PORT

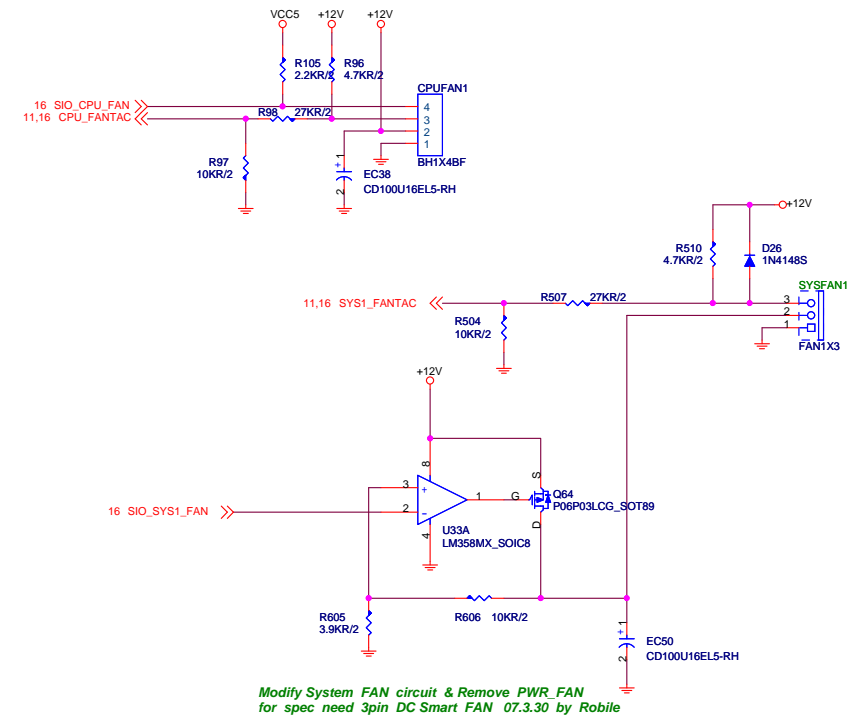


SATA 1- 6 PORT



james modify

FAN-COUNTROL CIRCUIT

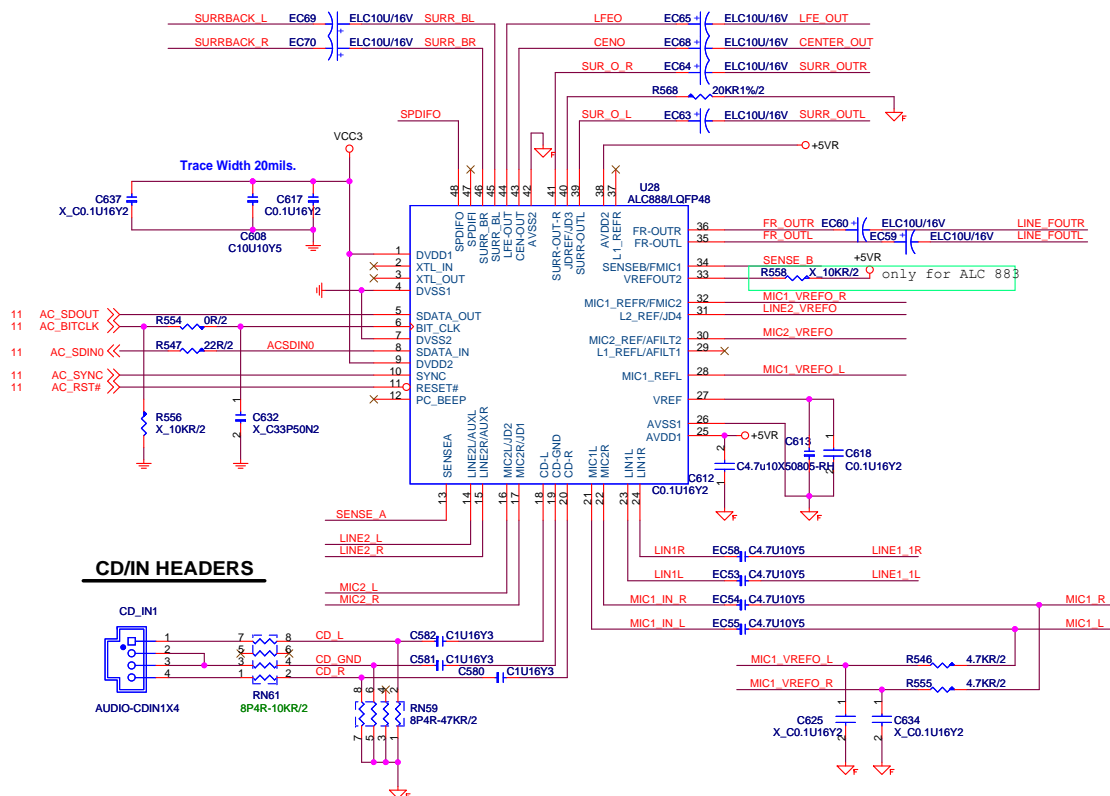


MICRO-STAR INT'L CO.,LTD

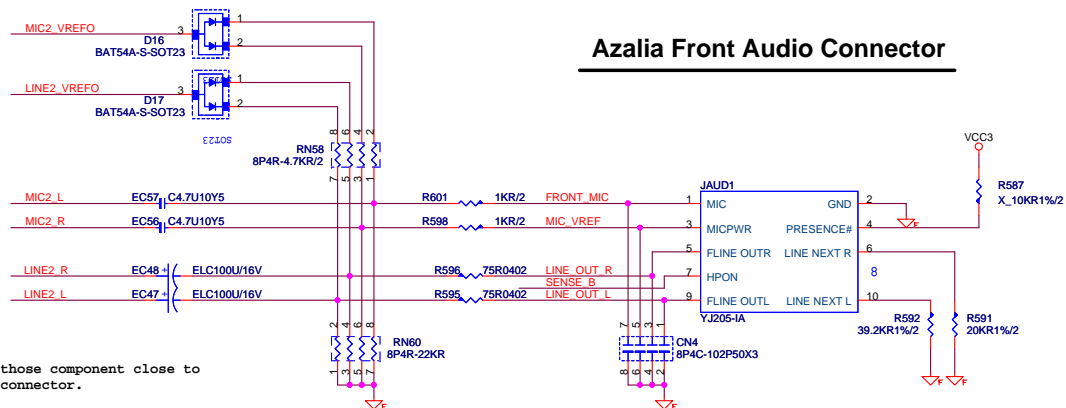
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ALC888 CODEC

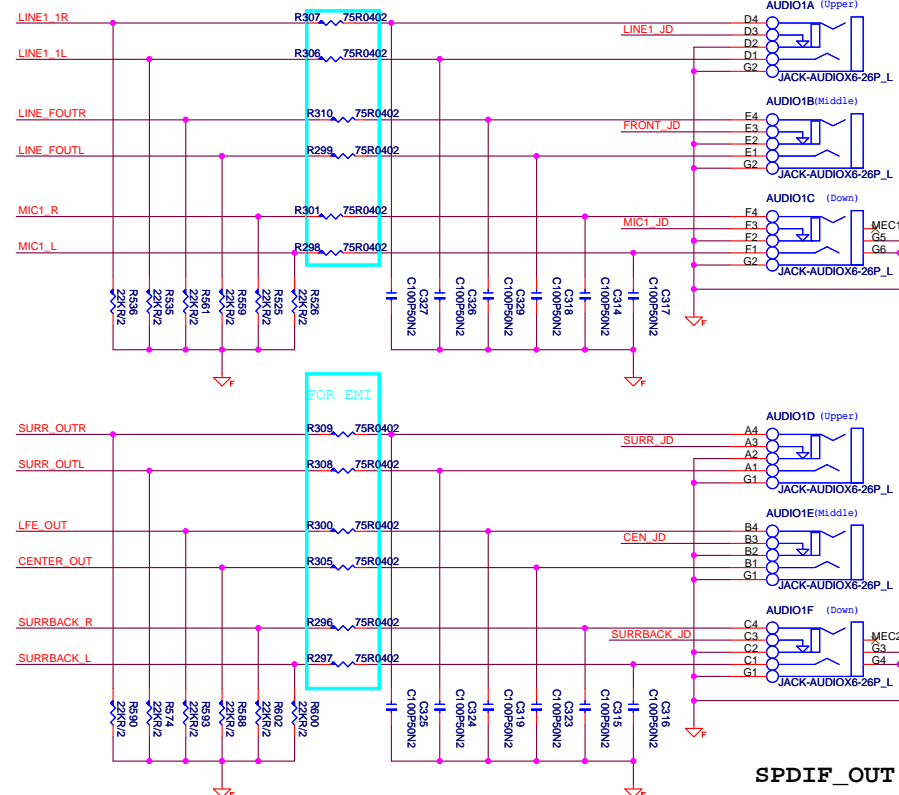


Azalia Front Audio Connector

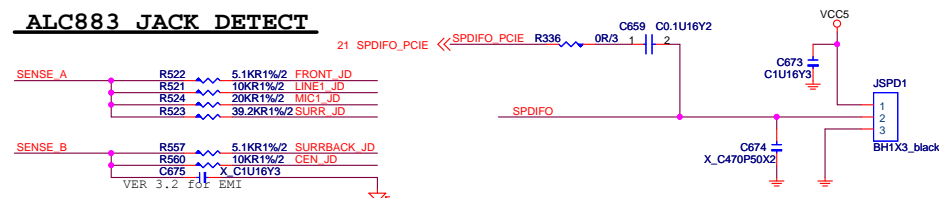


Place those component close to
audio connector.

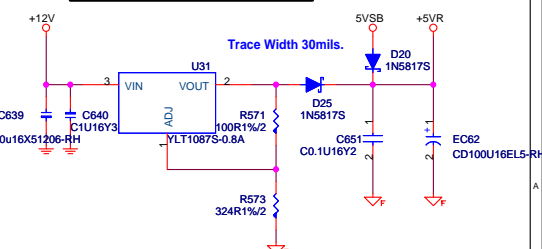
ALC883 JACK



ALC883 JACK DETECT



AUDIO CODE REGULATORS

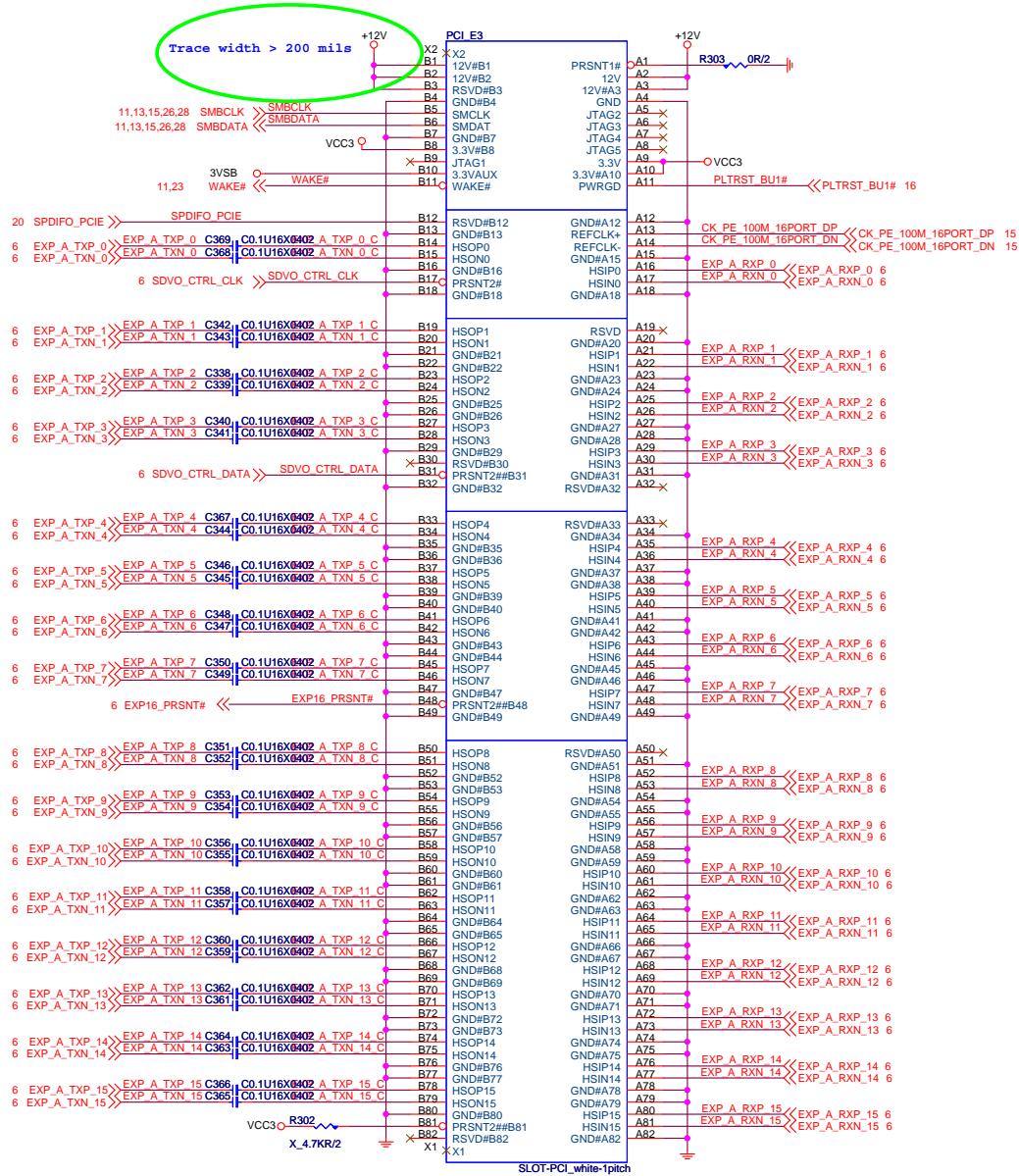


MICRO-STAR INT'L CO.,LTD

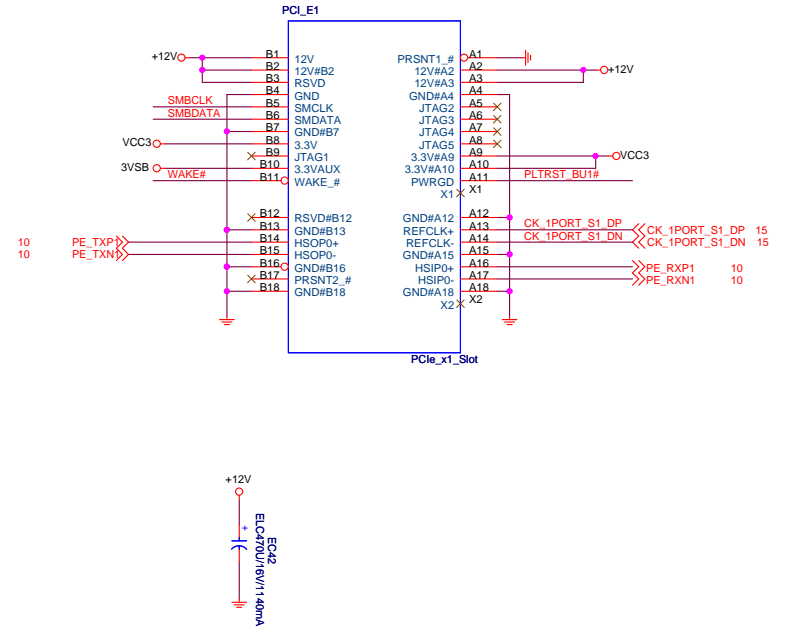
MS-7358

Size Custom	Document Description ALC888	Rev 3.2
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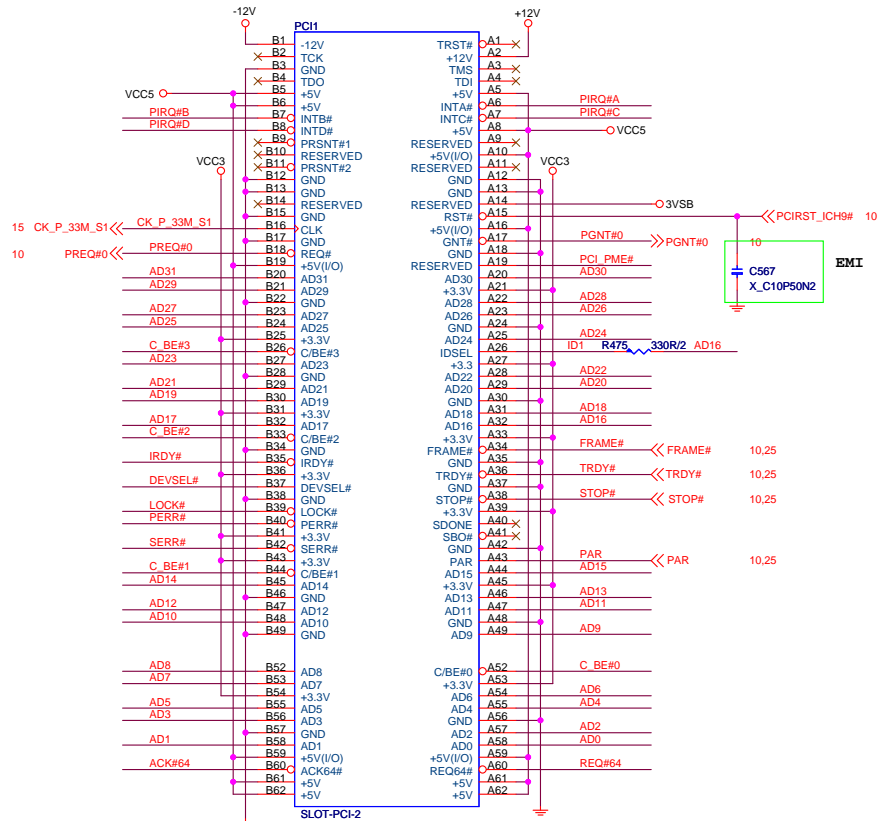
PCI_Express X16 Slot



PCI_Express X4 Slot (Share with PCI_E x1 Slots)



PCI SLOT 1 (PCI VER: 2.2 COMPLY)



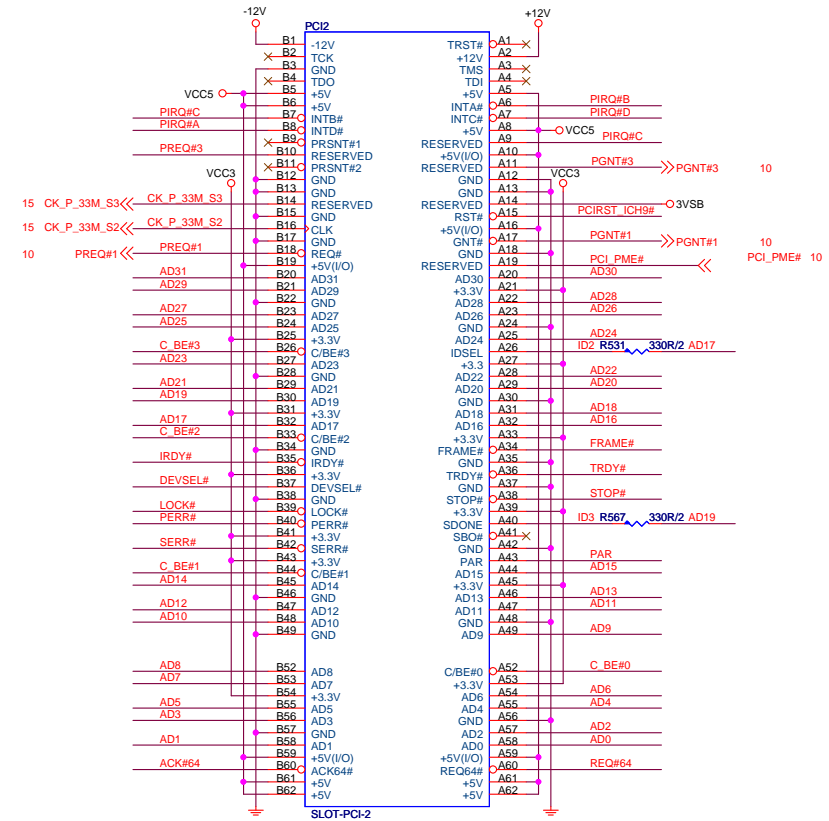
IDSEL = AD16

MASTER = PREQ#0

PIRQ#A

10.25 AD[31..0] << AD[31..0]
10.25 C_BE#[3..0] << C_BE#[3..0]

PCI SLOT 2 (PCI VER: 2.2 COMPLY)

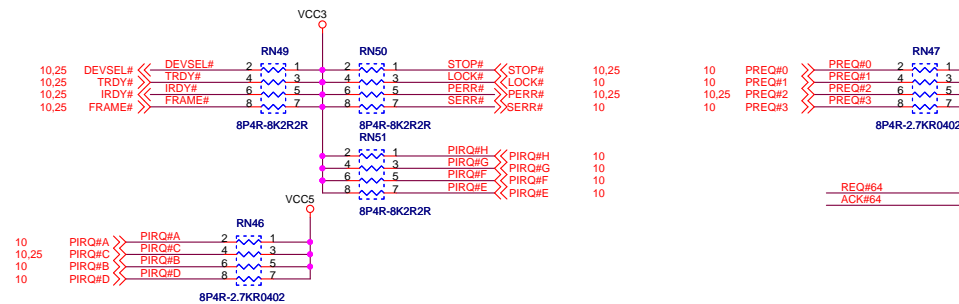


IDSEL = AD17

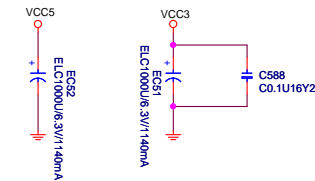
MASTER = PREQ#1

PIRQ#B

PCI PULL-UP / DOWN RESISTORS



PCI SLOT DECOUPLING CAPACITORS




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Custom	PCI Slot 1 & 2	3.2
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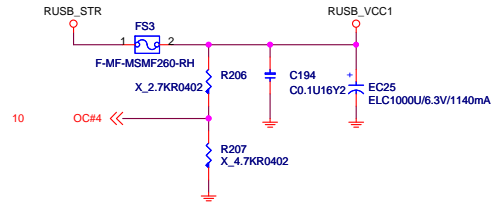
resver

			MICRO-STAR INT'L CO.,LTD	
			MS-7358	
Size	Document Description			Rev
Custom	Marvell 88SE6111 PCIE to PATA/SATA			3.2
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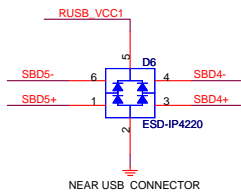
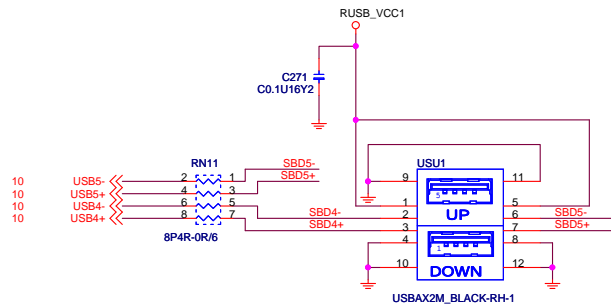
Rear USB Connector

USB POWER FOR PORT 1,2,3,4

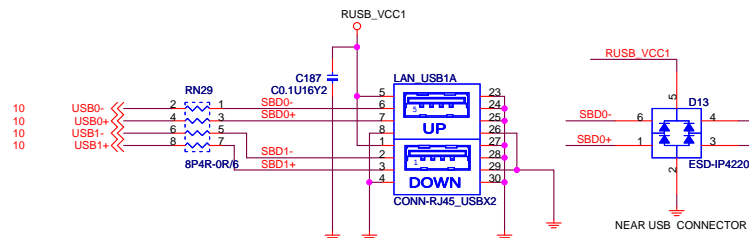
NEAR CONNECTOR



REAR USB PORT 0,1 (1394)



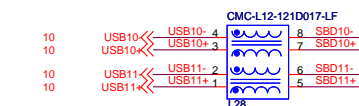
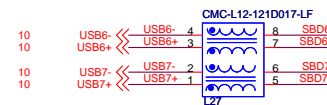
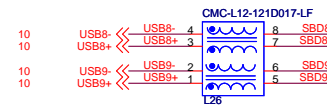
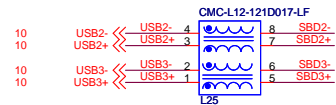
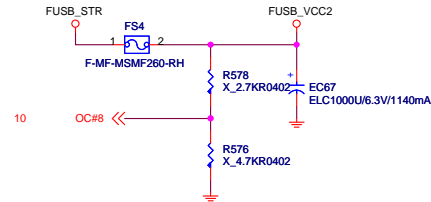
REAR USB PORT 4,5 (With LAN)



Front USB Connector

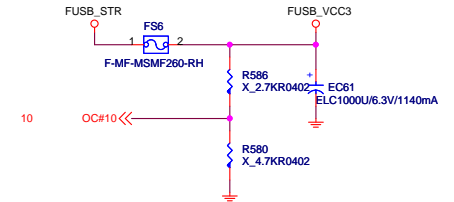
USB POWER FOR PORT 7,8,11,12

NEAR CONNECTOR

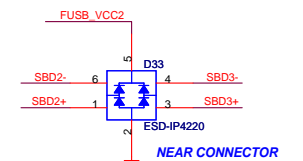
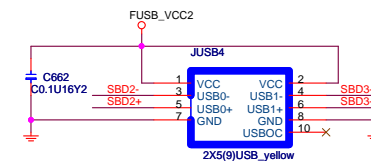


USB POWER FOR PORT 5,6,9,10

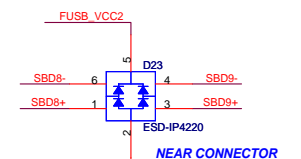
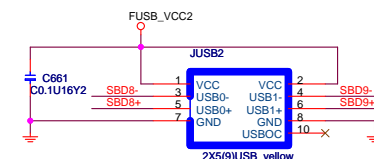
NEAR CONNECTOR



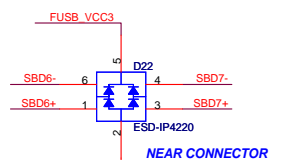
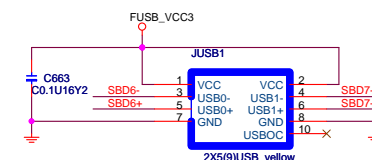
FRONT USB PORT 8,9



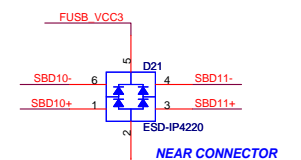
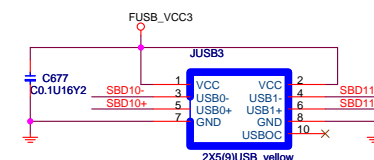
FRONT USB PORT 8,9




FRONT USB PORT 6,7



FRONT USB PORT 10,11

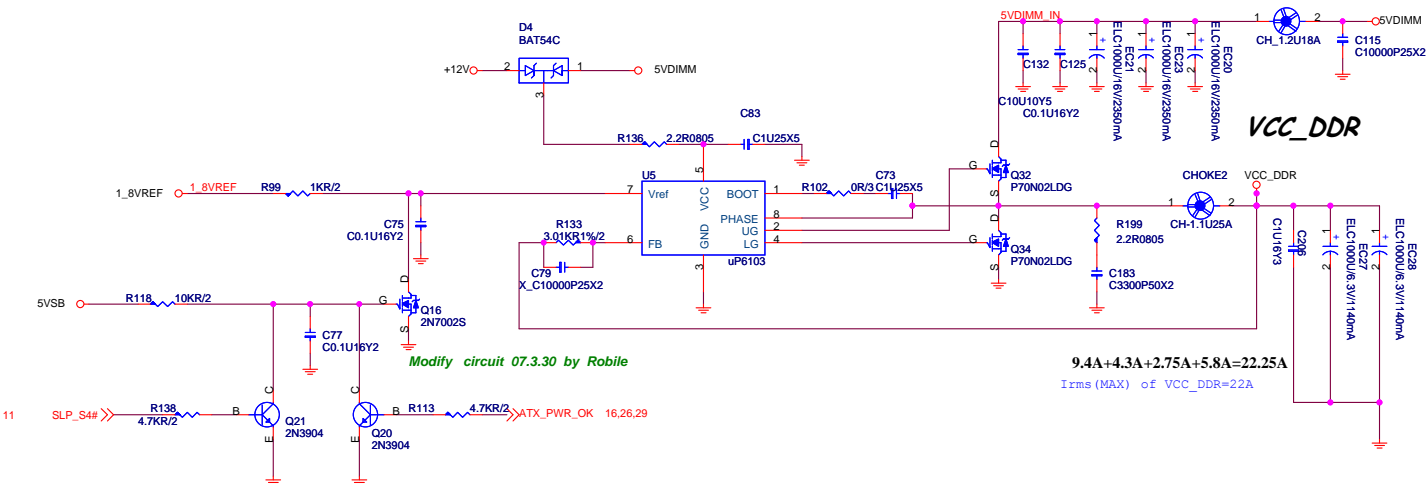


resver



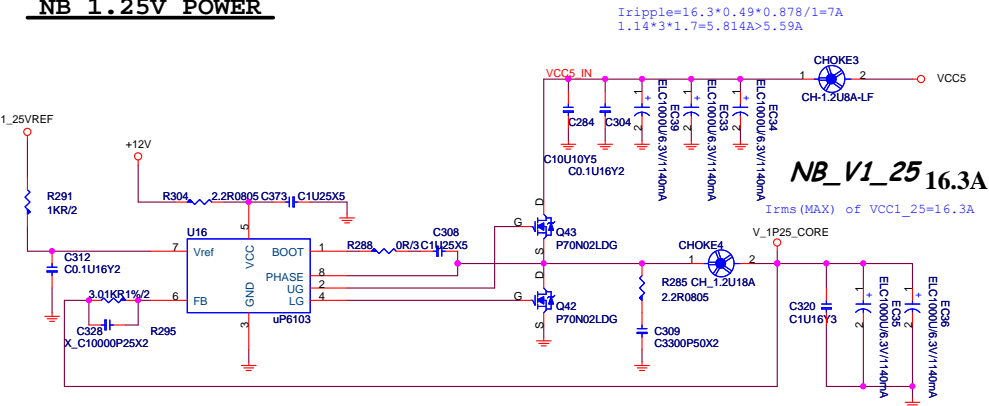
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MS-7358		
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DDR II 1.8V POWER

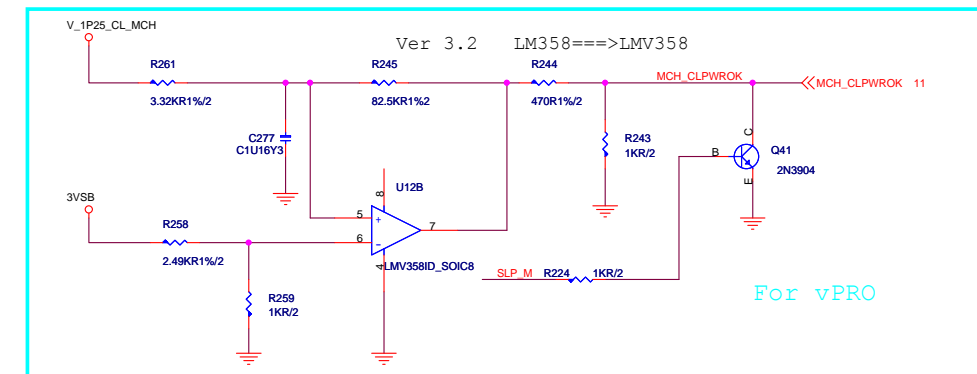


To meet Intel power down sequence.

NB 1.25V POWER



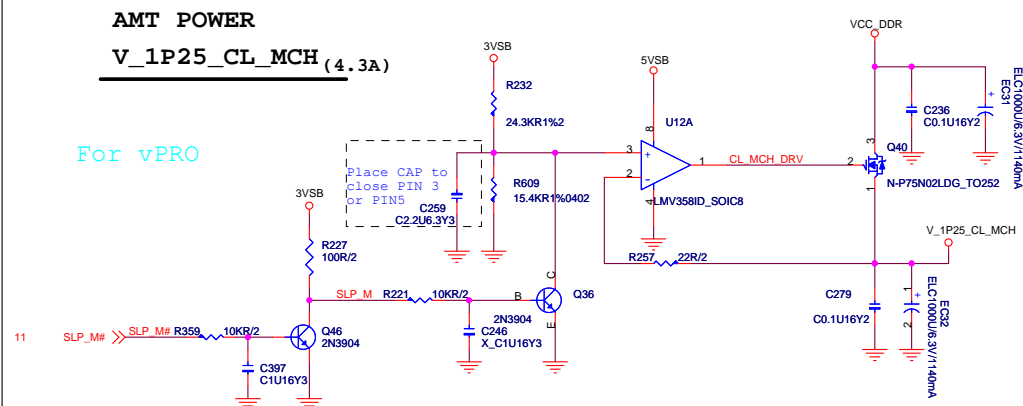
CLINK PWROK GENERATION



AMT POWER

V_1P25_CL_MCH (4.3A)

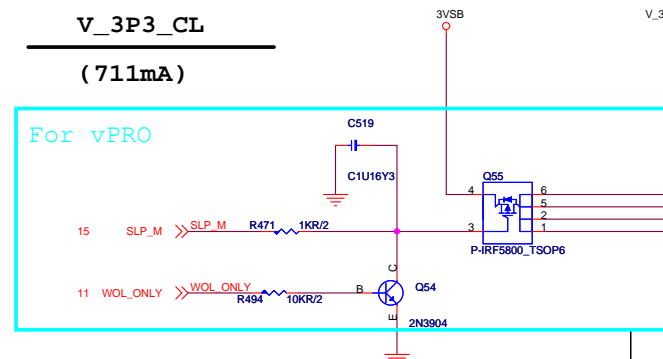
For vPRO



V 3P3 CL

(711mA)

For vPRO



MICRO-STAR INT'L CO.,LTD

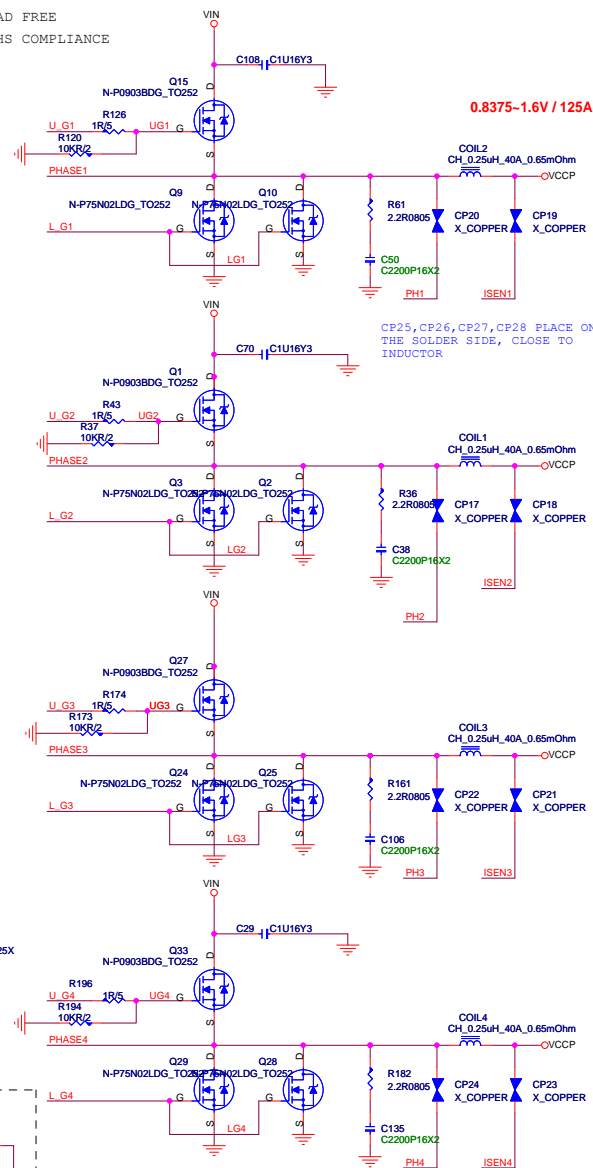
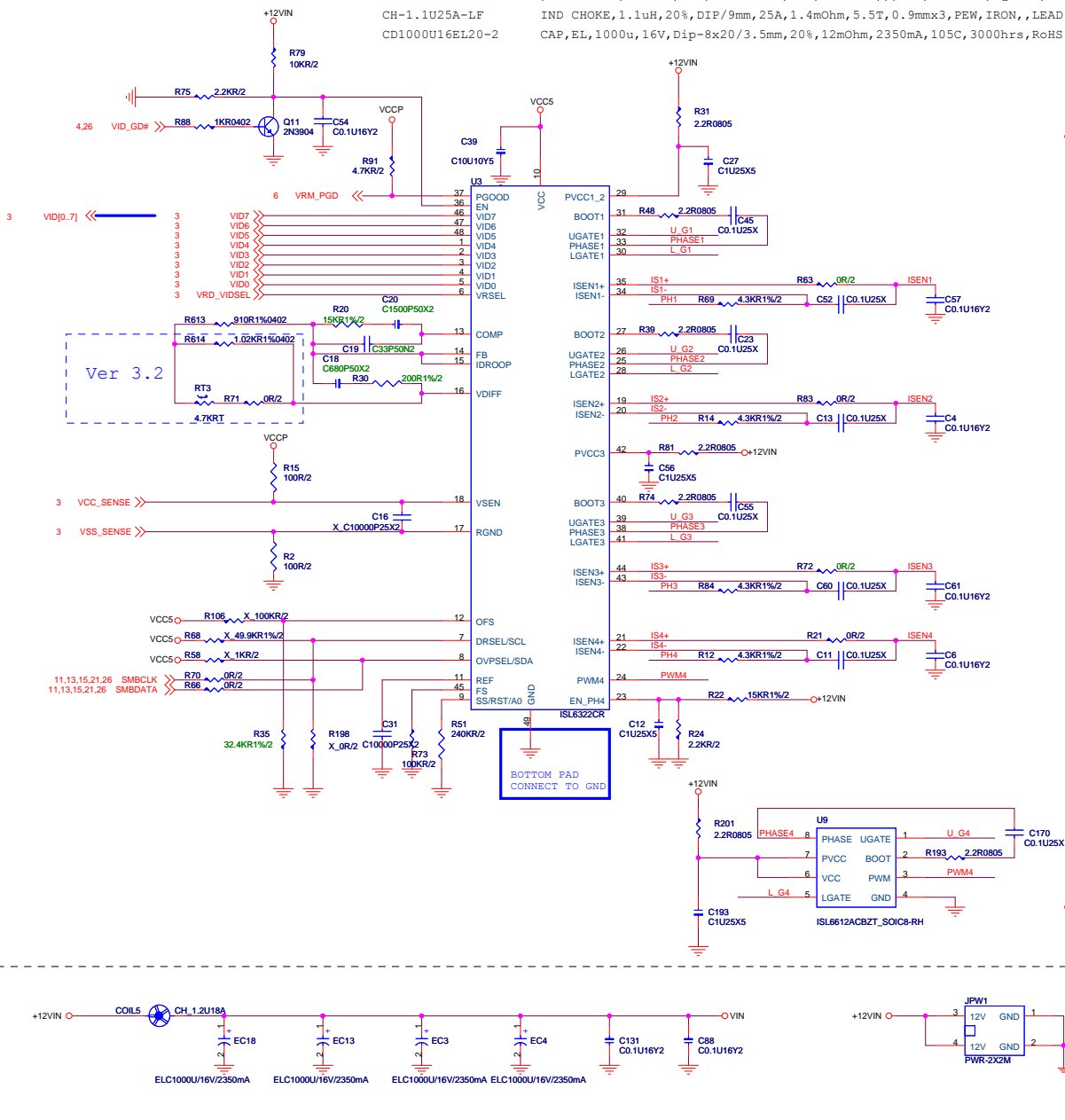
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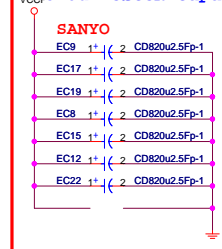
Voltage Regular Module

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

nosfet/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
 RSOFET/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, Ripple cur.<7.5A, Lc<121uA, 105C
 CAP, OS-CON, 560uF, 4V, Dip-2/8*9/3.5mm, ESR<70mohm, Ripple cur.=6100mA, Lc.<500uA, SPEC series, RoHS compliance
 ESR<12mΩ, Ripple cur.<2350mA, 105C, longlife change from 20000hrs to 30000hrs, KJZ
 series
 IND 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, 1000uF, 16V, Dip-8x20/3.5mm, 20%, 12mOhm, 2350mA, 105C, 30000hrs, RoHS COMPLIANCE

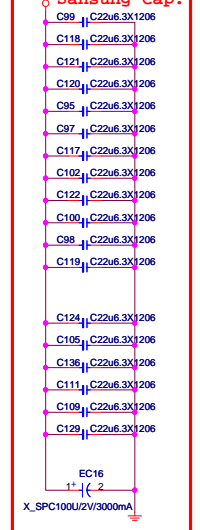


VCCP 820uF OSCON Capactors



MLCC Inside Socket

VCCP Samsung Cap



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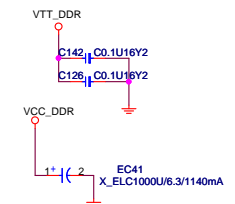
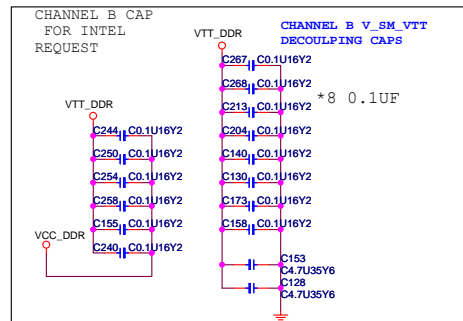
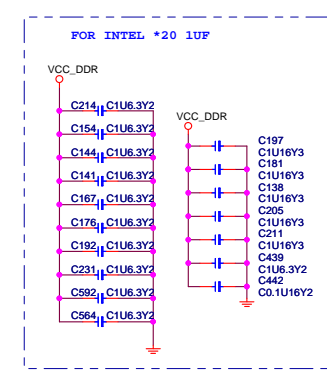
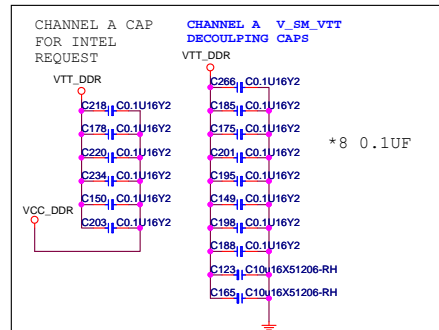
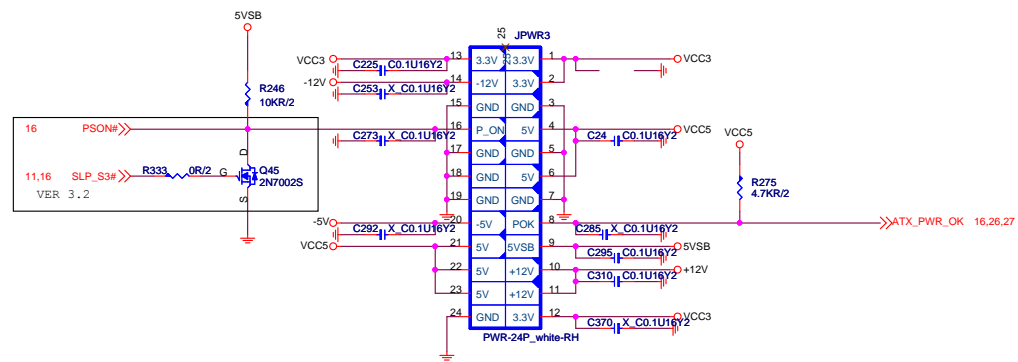
MS-7358

Size	Document Description
Custom	VRD11-ISL6322 4-phase

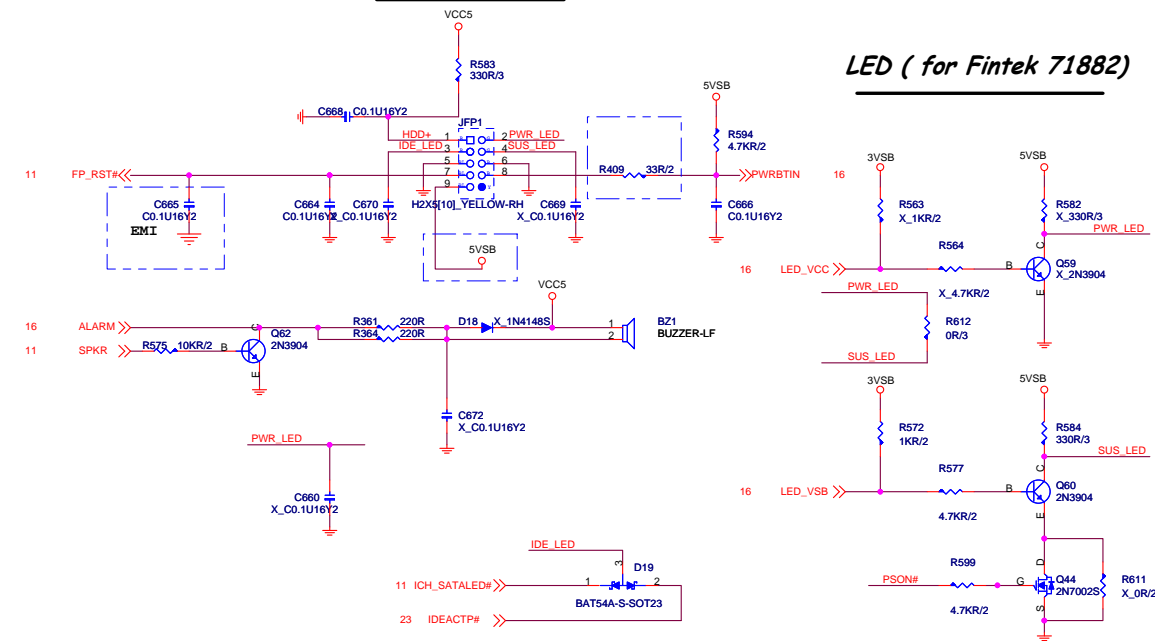
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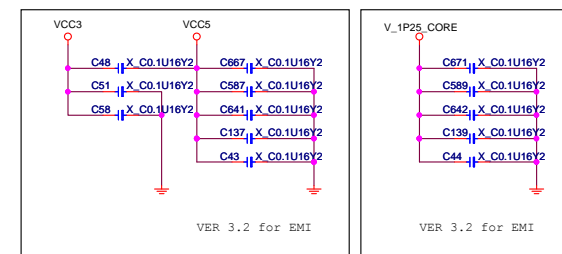
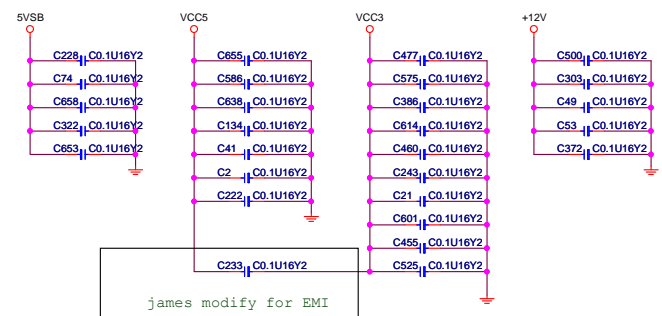
ATX POWER CONNECTOR



FRONT PANNEL



Cap. for EMI & Power



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MS-7358

Size Custom	Document Description ATX PWR-Connector & Front Panel
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Rev	3.2
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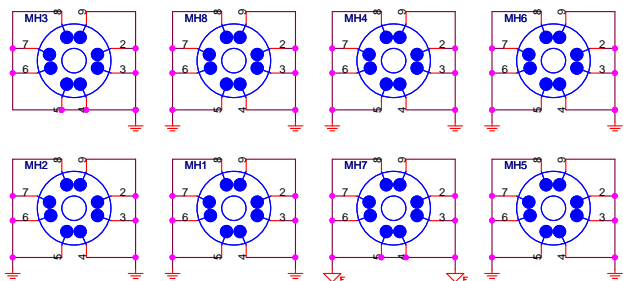
Optical Fiducial Marks-120



Optical Fiducial Marks-100



Mounting Holes



Simulation

