

MS-6786

Version 0A
03/24/2003 Update

VIA (R) KM400(8378) / VT8235CE Chipset
AMD PGA 462 Processor Schematics

***AMD PGA 462 Processor**

***VIA KM400 / VT8235CE Chipset
(DDR 400 / AGP 8X / VLink 8X)**

***Winbond 83697HF-VF LPC I/O**

***VT6103 PHY 10 / 100**

***AC'97 Codec ALC650 Codec**

***USB 2.0 support (integrated into VT8235)**

***AGP SLOT * 1 (8X)**

***PCI SLOT * 3**

***CNR SLOT * 1**

***DDR DIMM * 2**

MS-6786 Ver:0A

Option L BOM (with LAN)

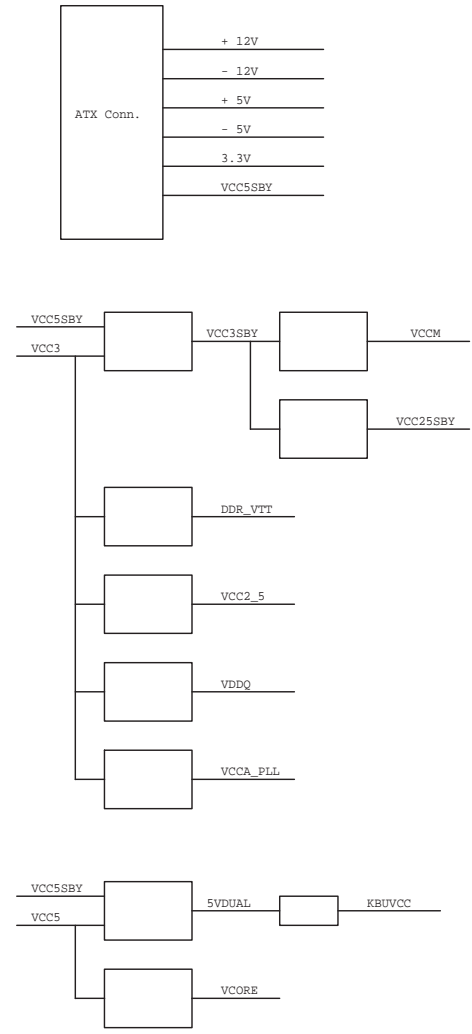
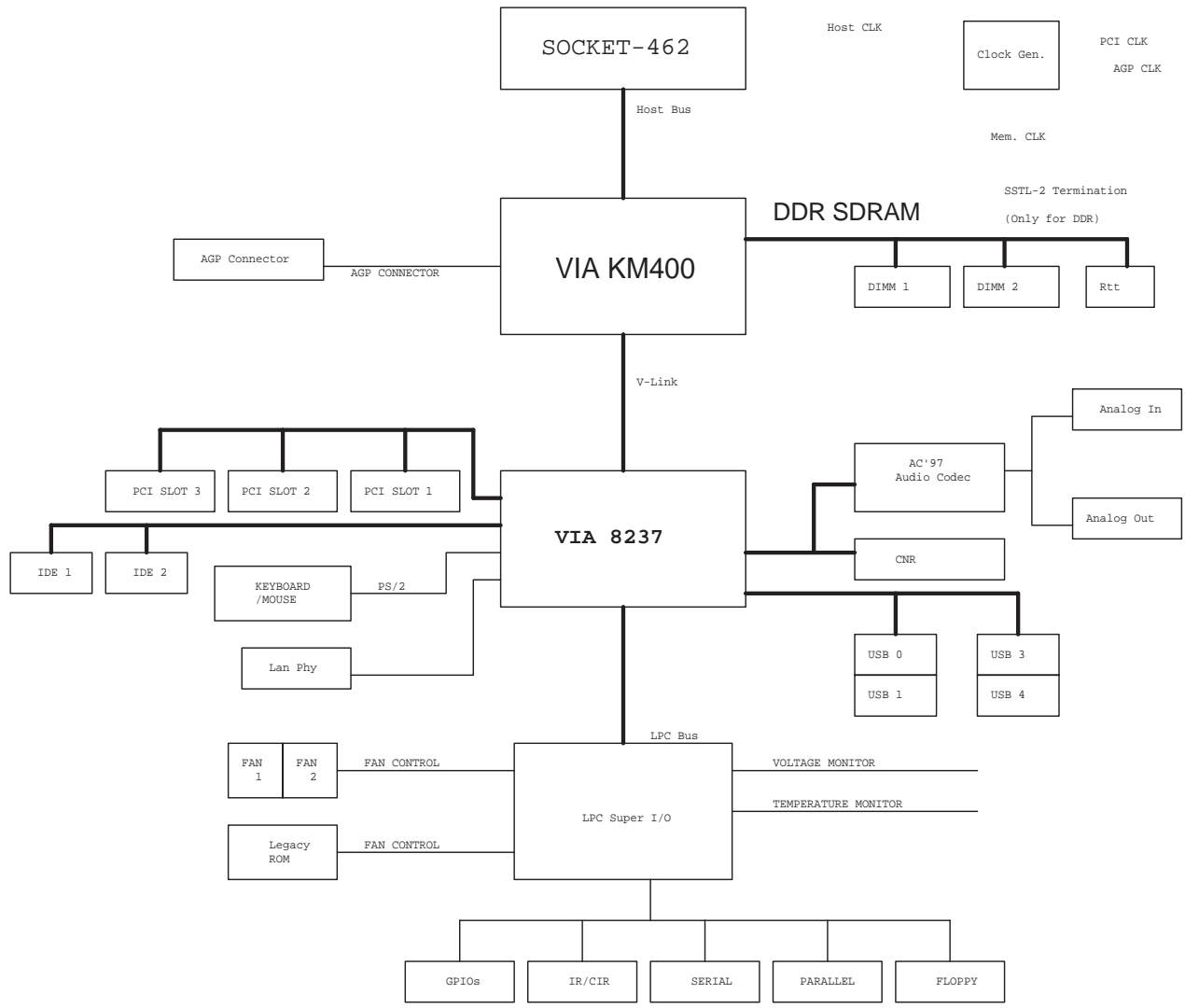
KM400	SMT5010	781
8235CE	SMT5020	44
	DIP	74
	Total	899

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Orcad Config	ERP BOM	Function Description		Create Date.
6786-A10 <small>BOM</small>	601-6786-A10	MS-6786P1 0A MSI Standard	With LAN. MSI Standard KM400+VT8235CE	
<small>BOM</small>			With LAN. MSI Standard KM400+VT8237CD	

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Title COVER PAGE			
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System Block Diagram

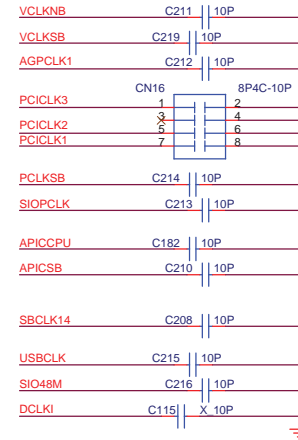
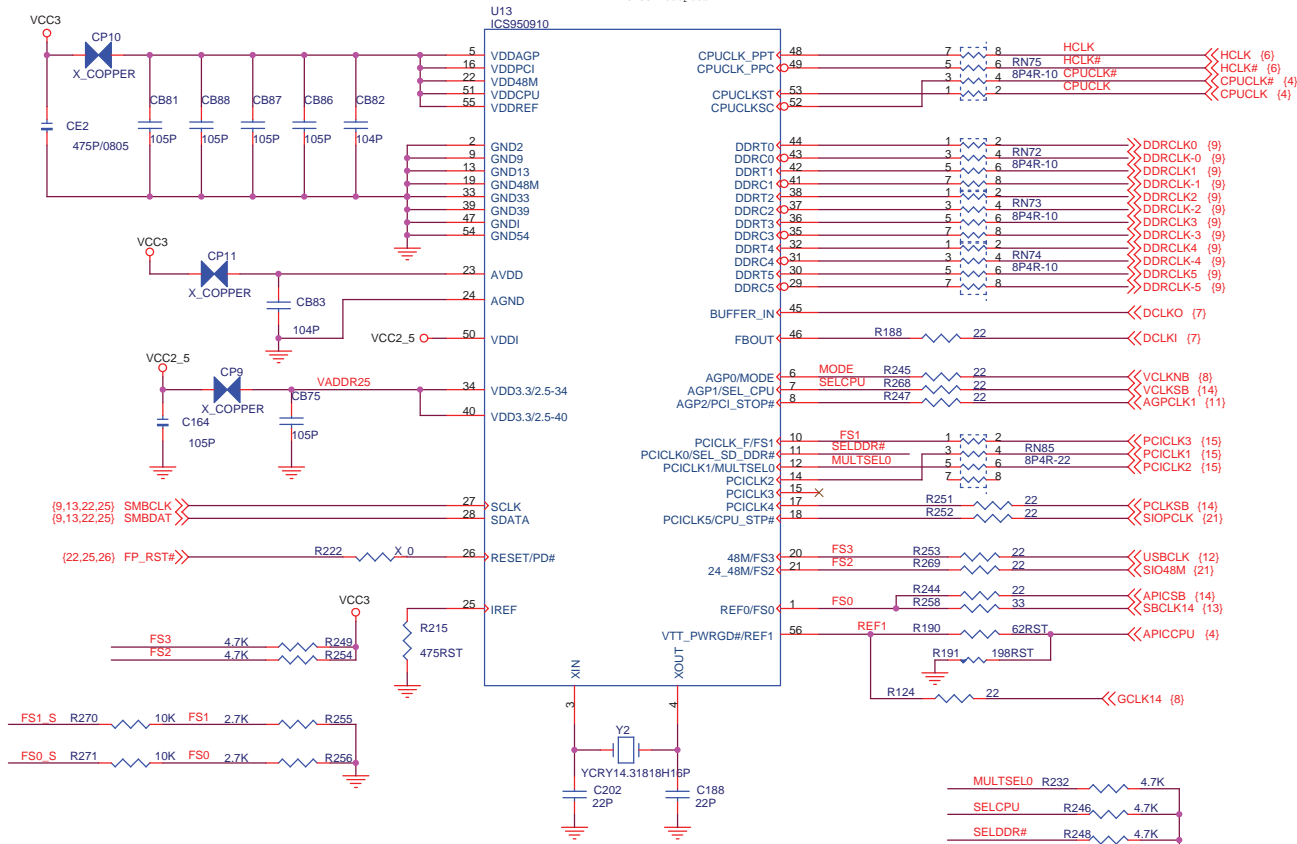


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Title: System Block Diagram			
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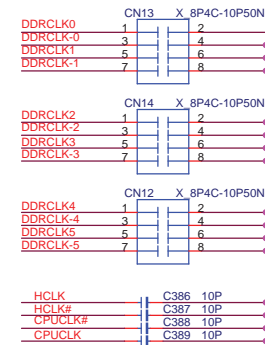
By-Pass Capacitors
Place near to the Clock Outputs

Main Clock Generator

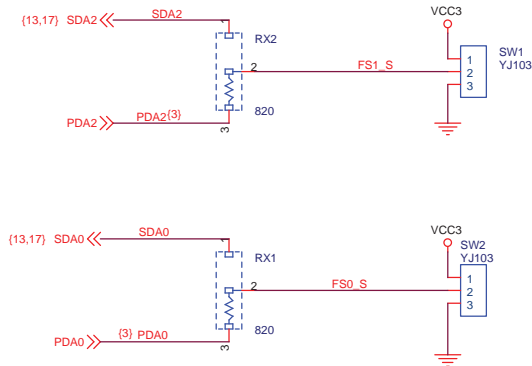
Damping Resistors
Place near to the
Clock Outputs



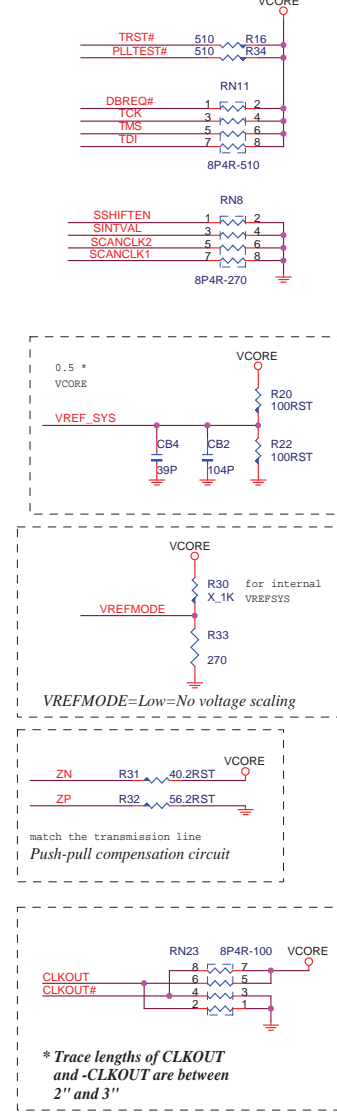
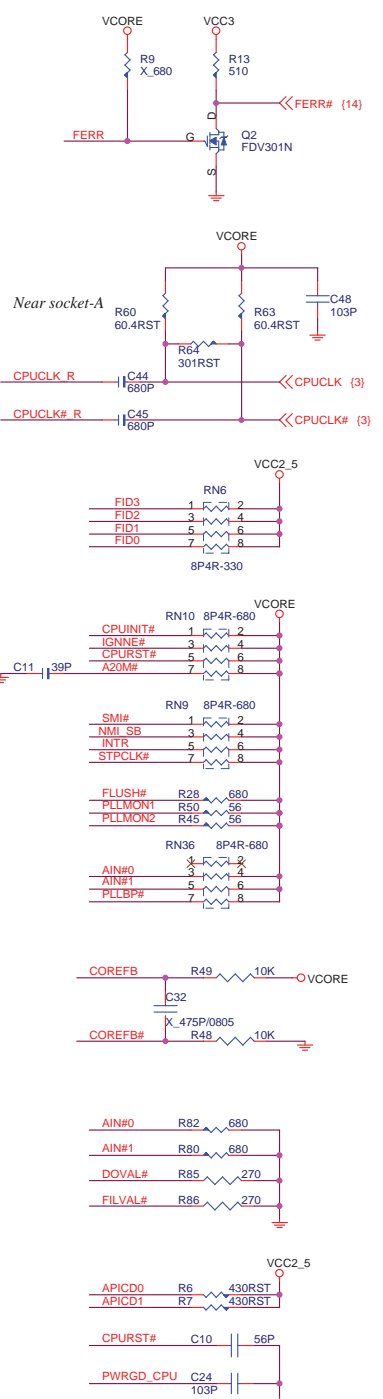
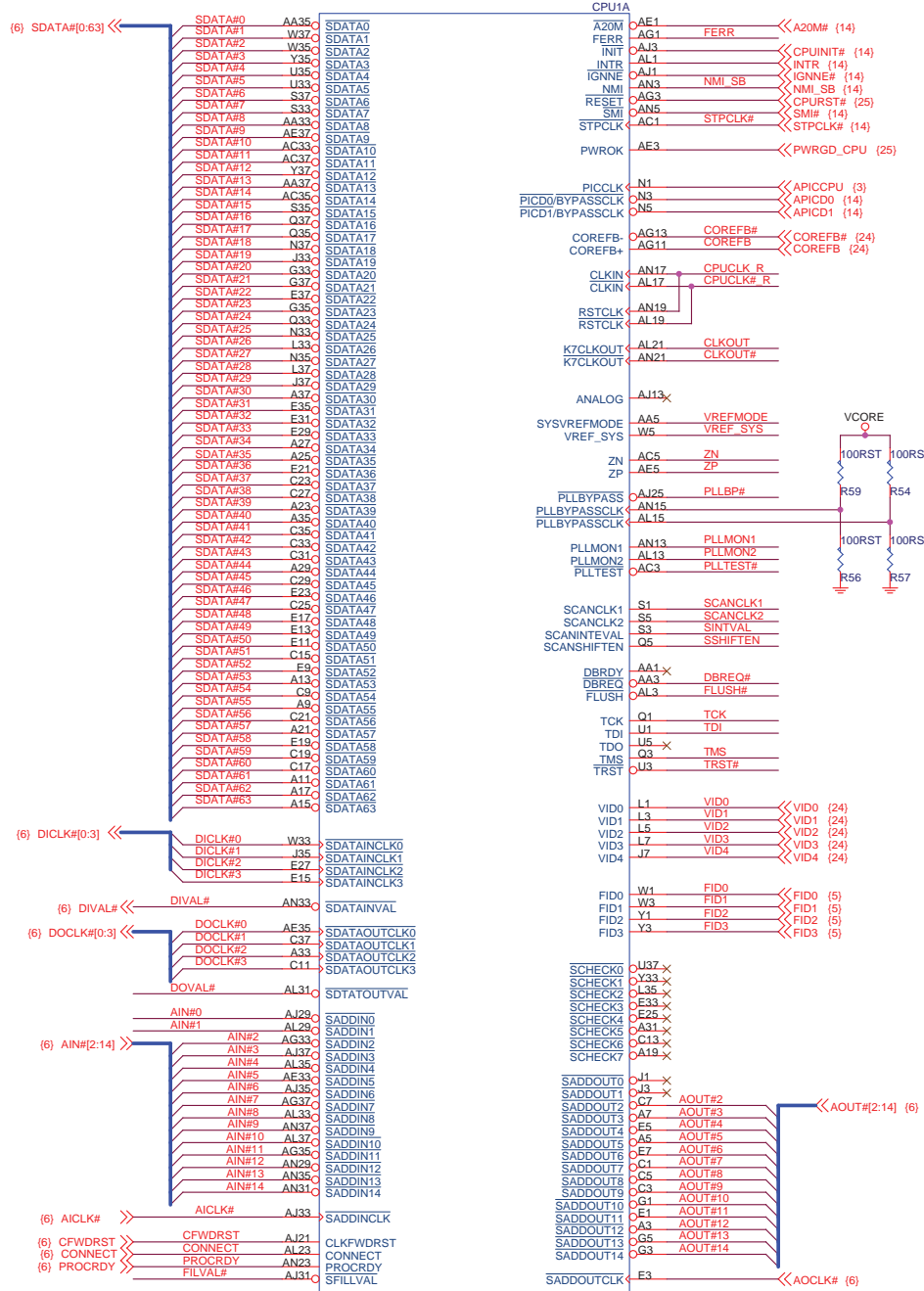
By-Pass Capacitors
Place near to the Clock Buffer



Notice: When populate VT8235CE ,RX1&RX2 location will be (1-2).
When populate VT8237CD ,RX1&RX2 location will be (2-3).

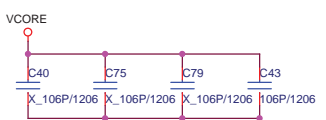
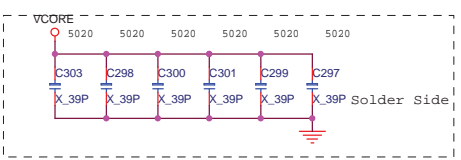
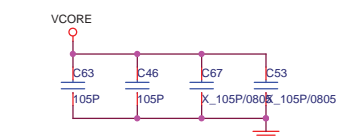
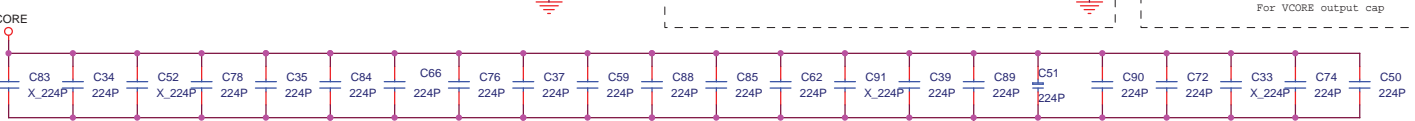
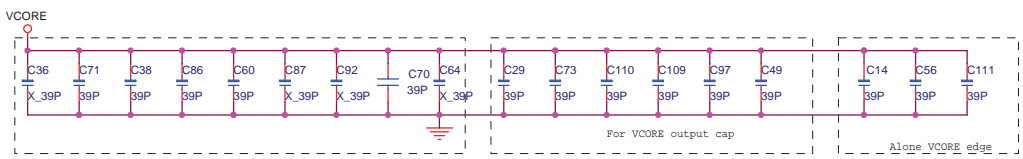
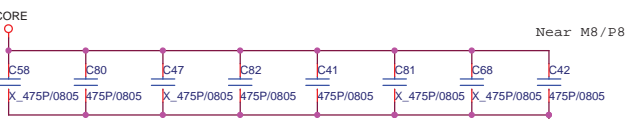
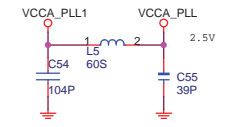
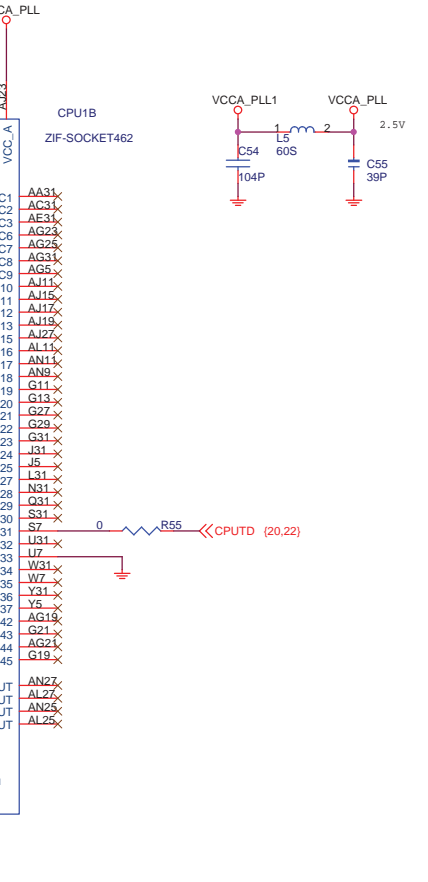
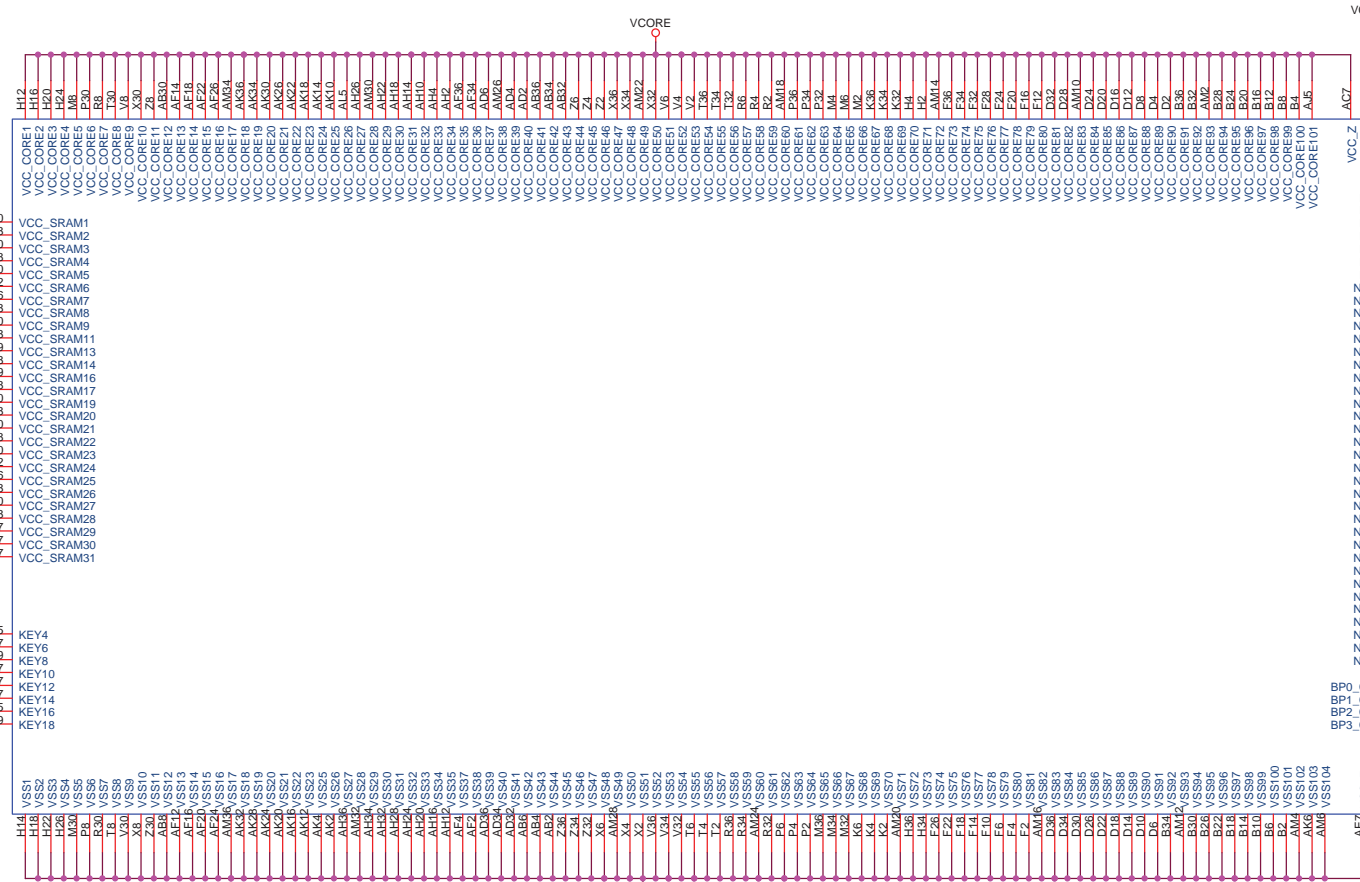
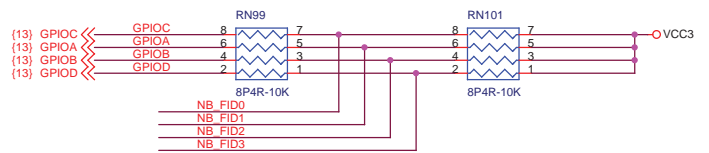
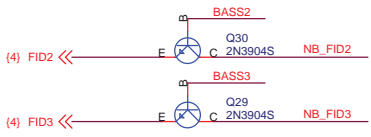
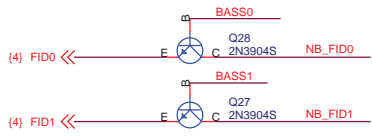
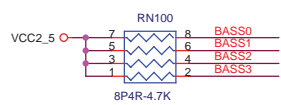


	FS1	FS0
1.00MHz	0	0
1.33MHz	0	1
1.66MHz	1	1
2.00MHz	1	0



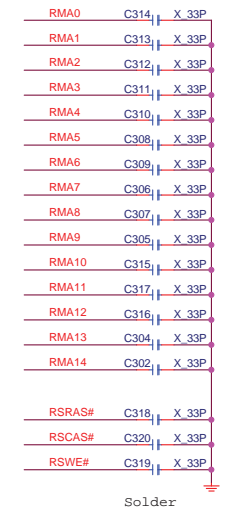
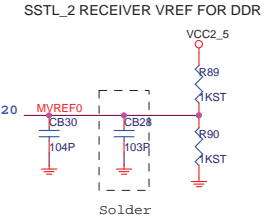
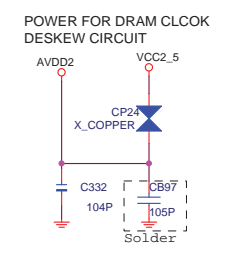
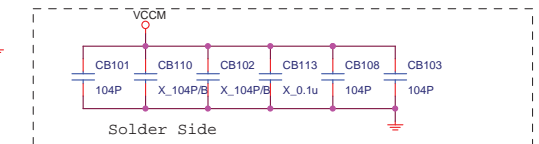
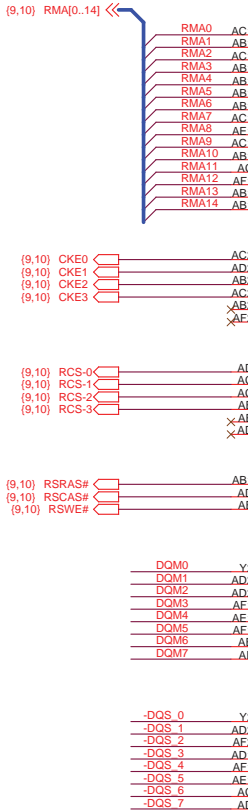
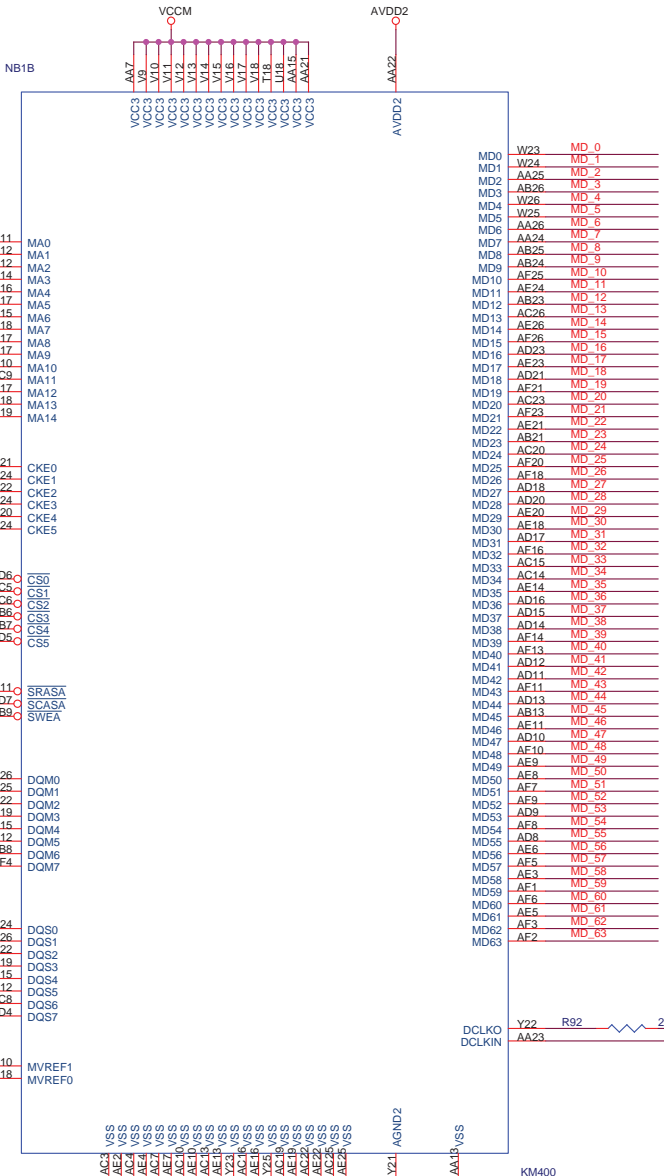
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* Trace lengths of CLKOUT and -CLKOUT are between 2" and 3"

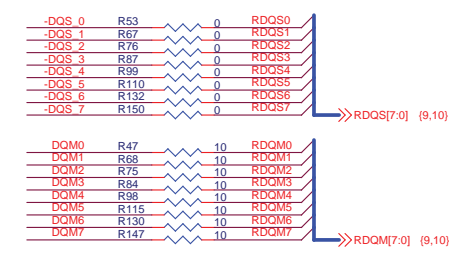
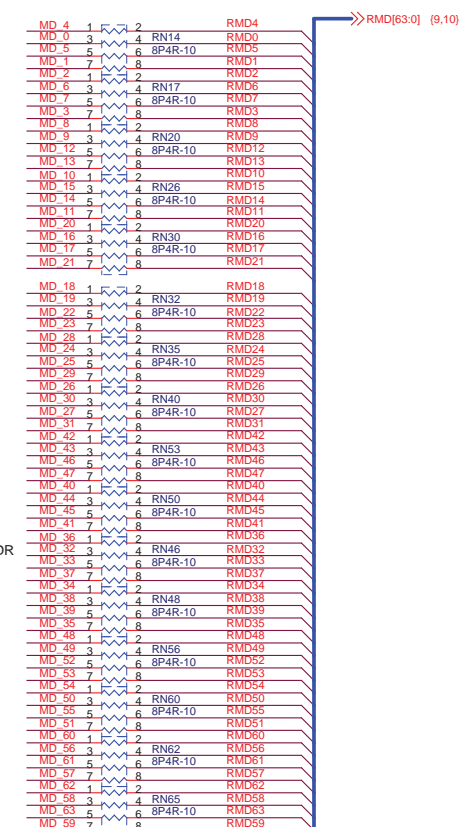


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NORTH BRIDGE 2 of 3 (MEMORY)

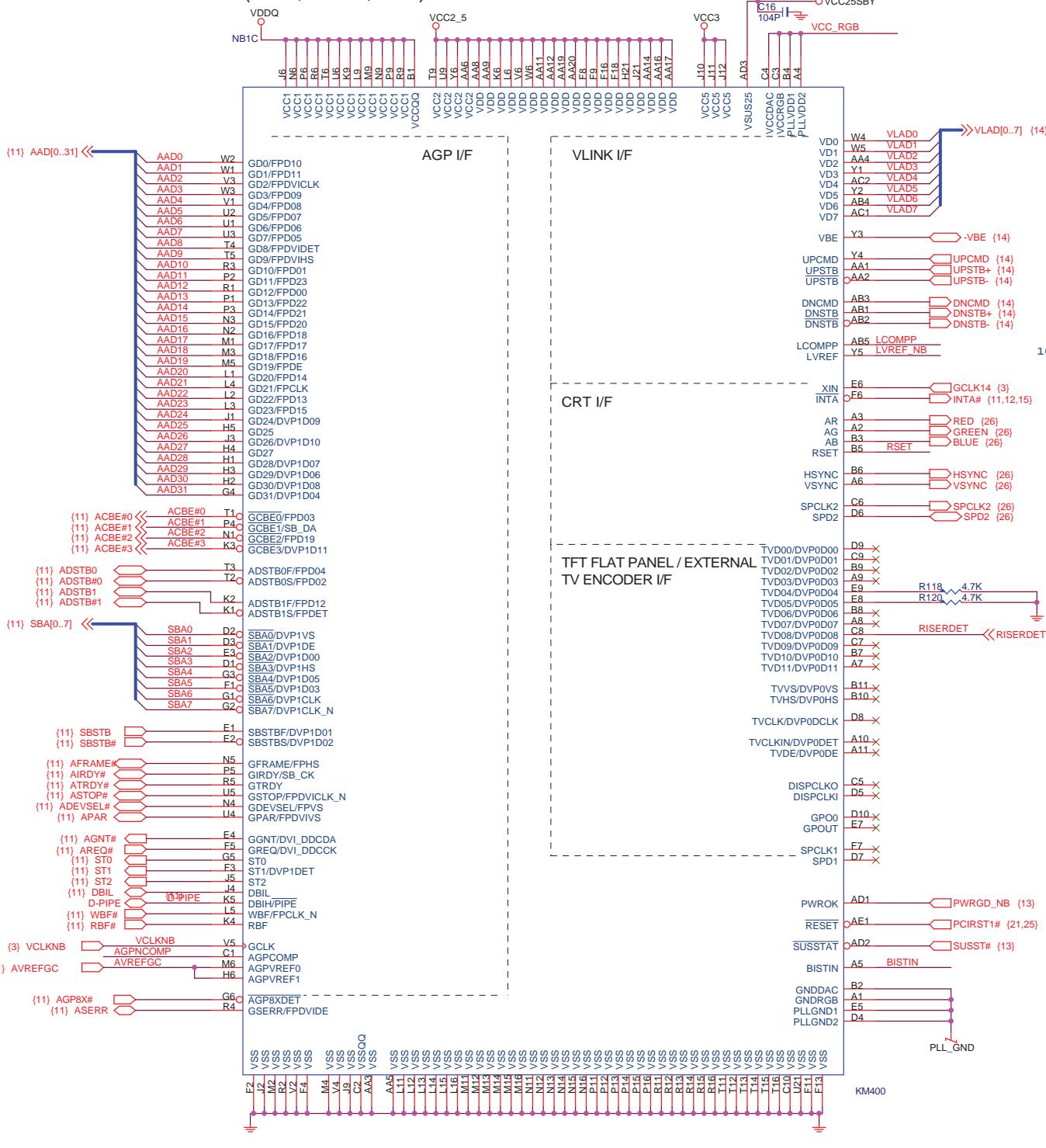


Place these damping resistors close to DIMM1



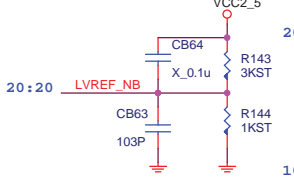
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NORTH BRIDGE 3 of 3 (AGP,VLINK,VGA)



VLINK

1. VLINK REFERENCE VOLTAGE - 0.625V

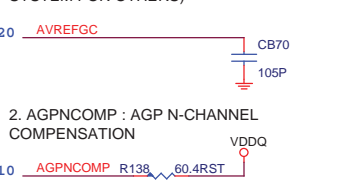


2. VLINK P-CHANNEL COMPENSATION



AGP

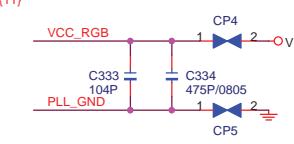
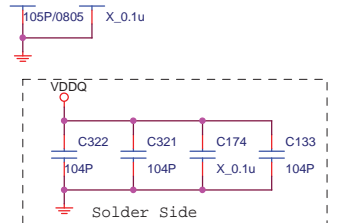
1. AGPVREF (PROVIDED BY AGP 4X CARD OR BY SYSTEM FOR OTHERS)



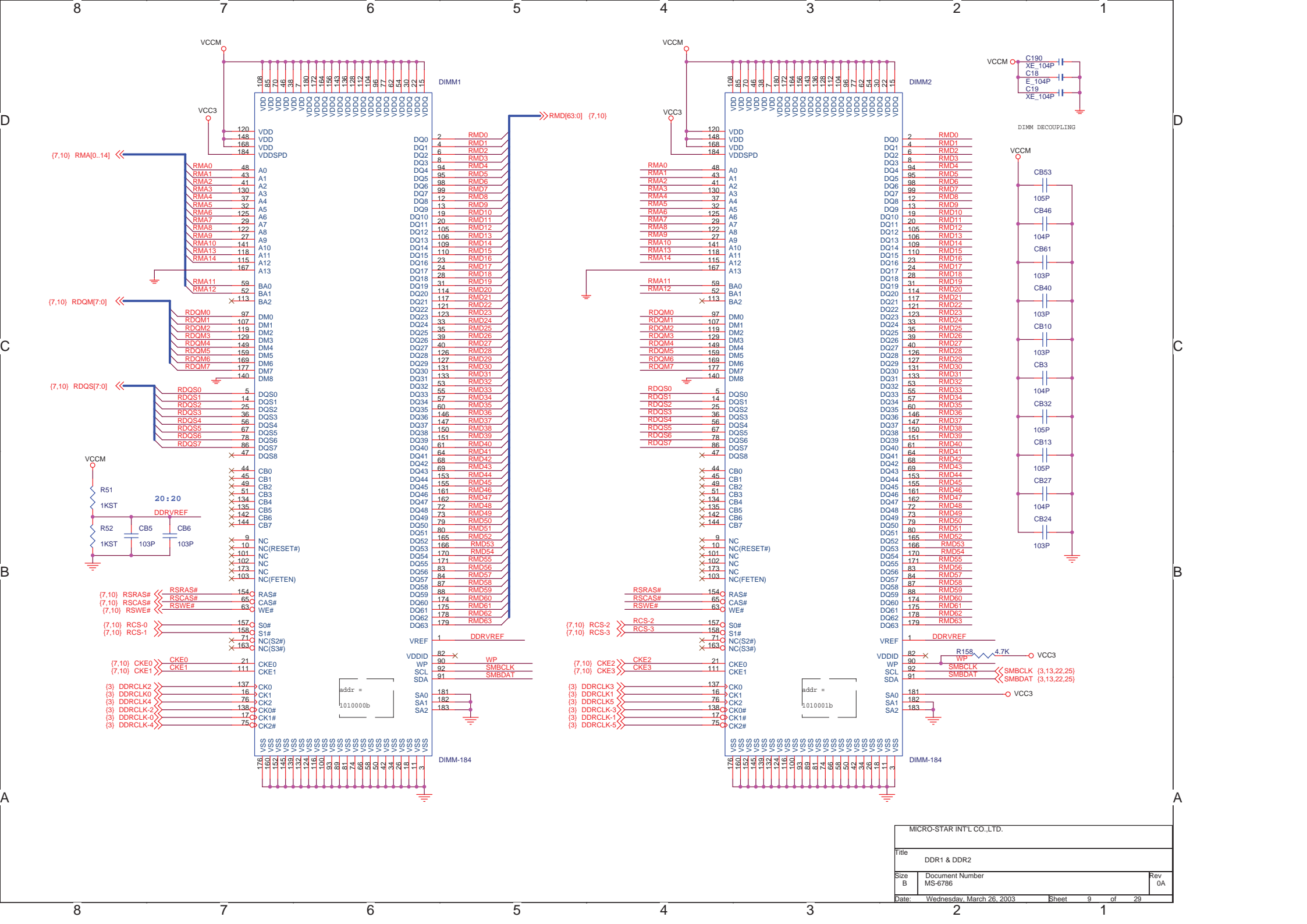
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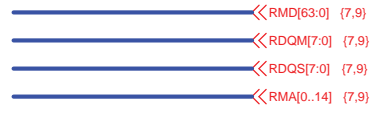
3. AGP POWER : VCCAGP



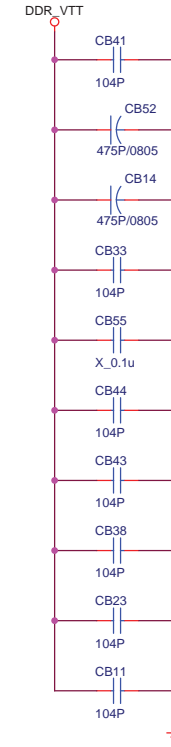
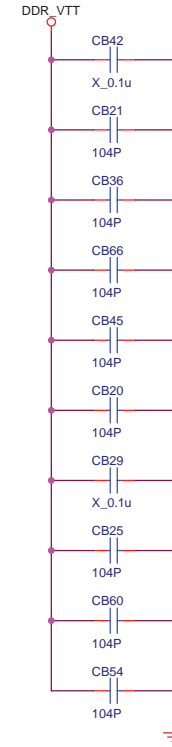
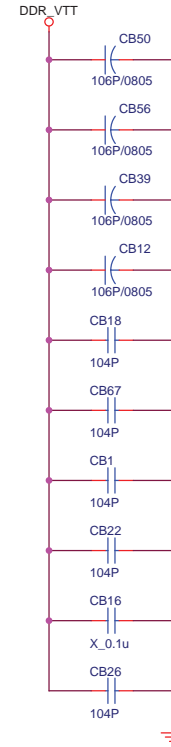
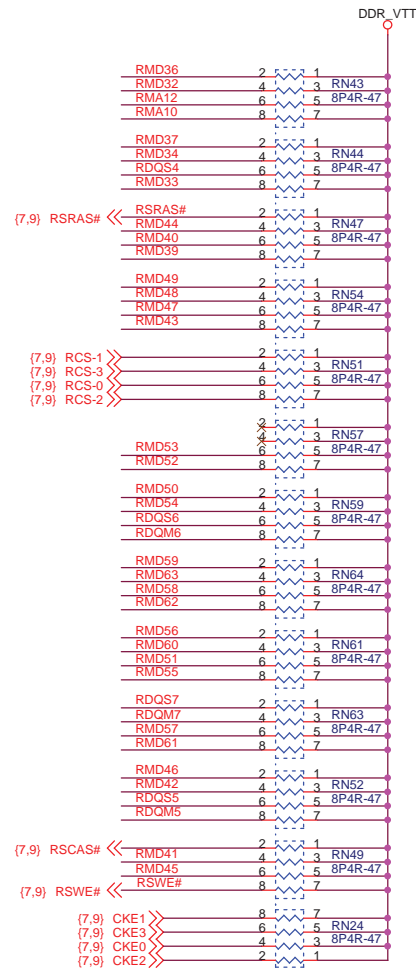
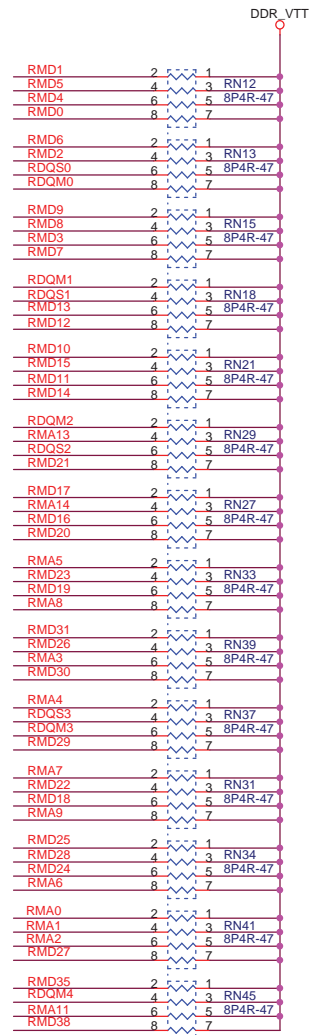
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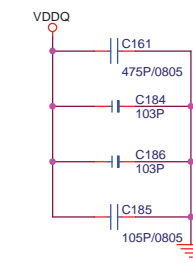
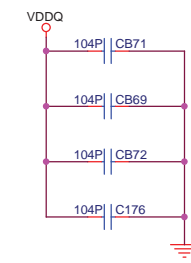
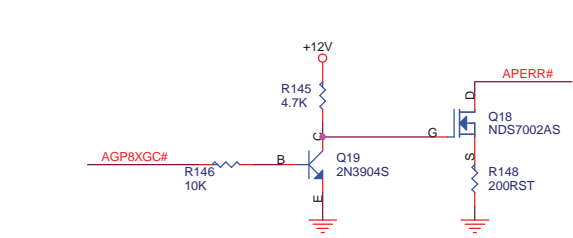
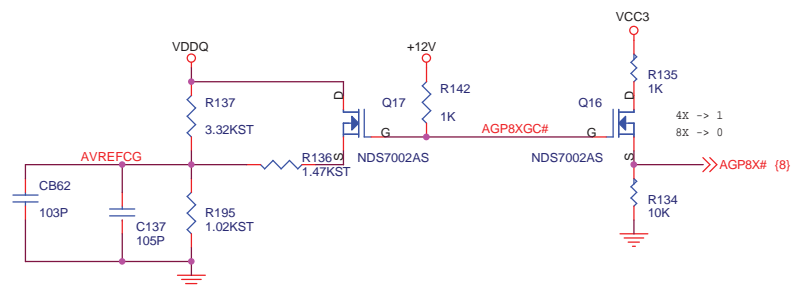
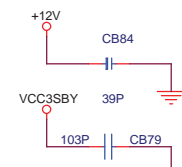
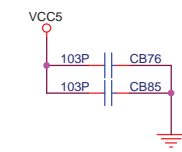
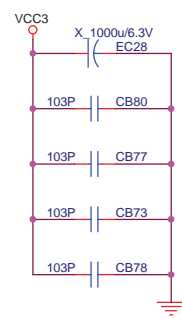
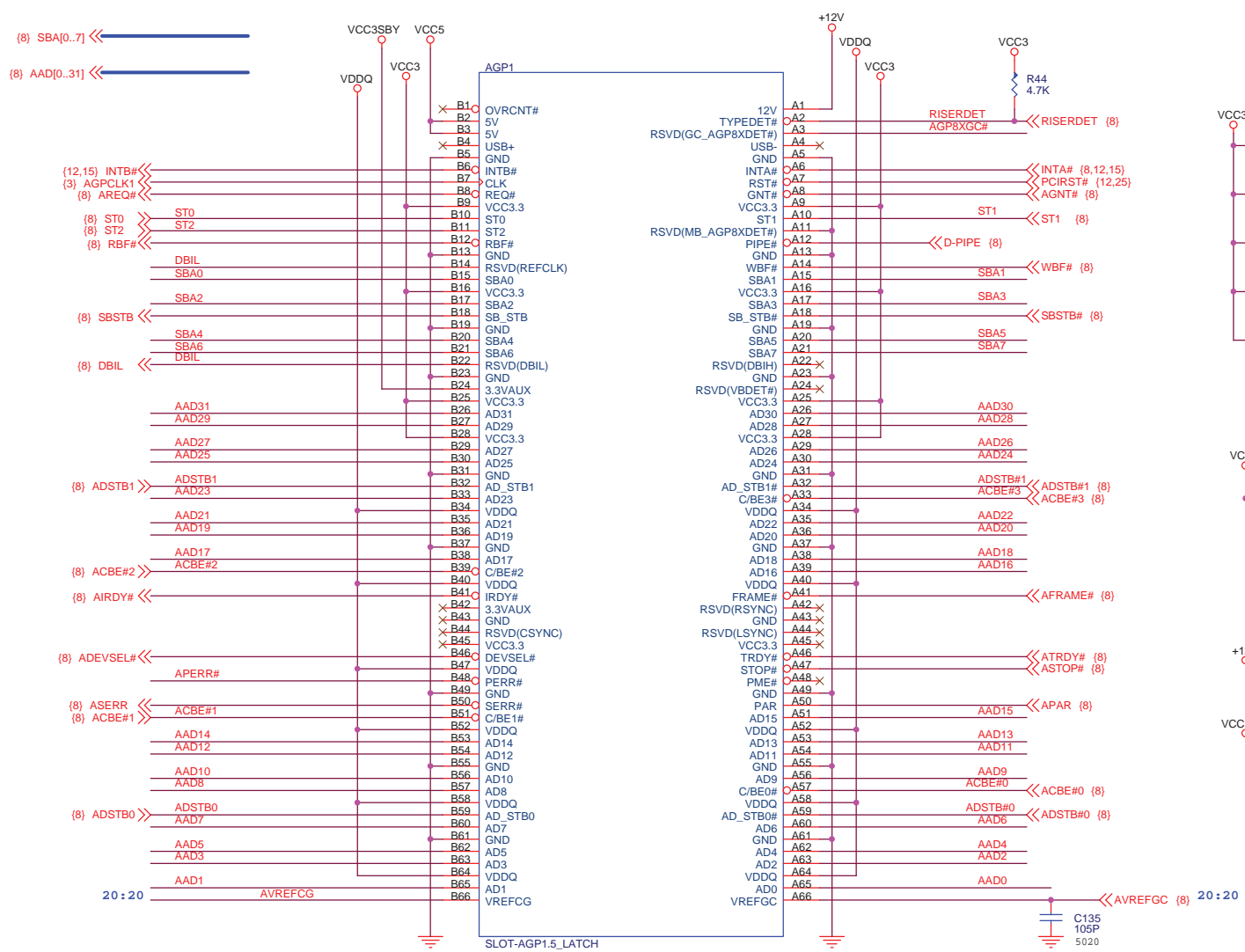


SSTL-2 Termination Resistors

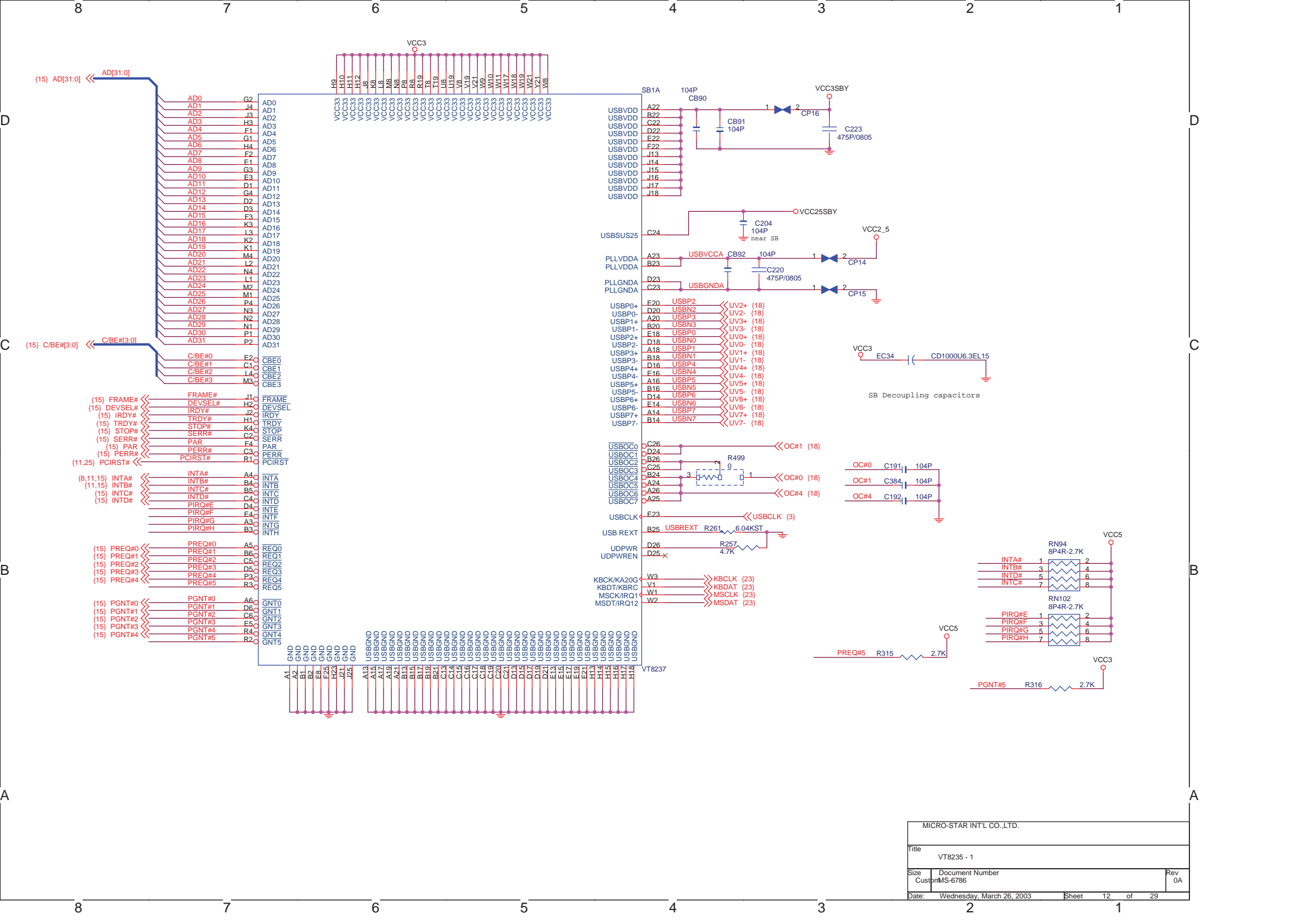


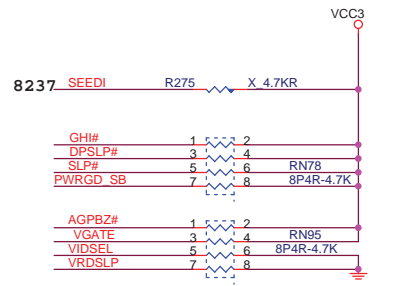
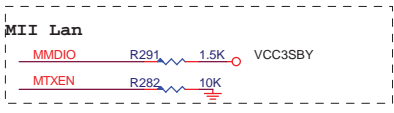
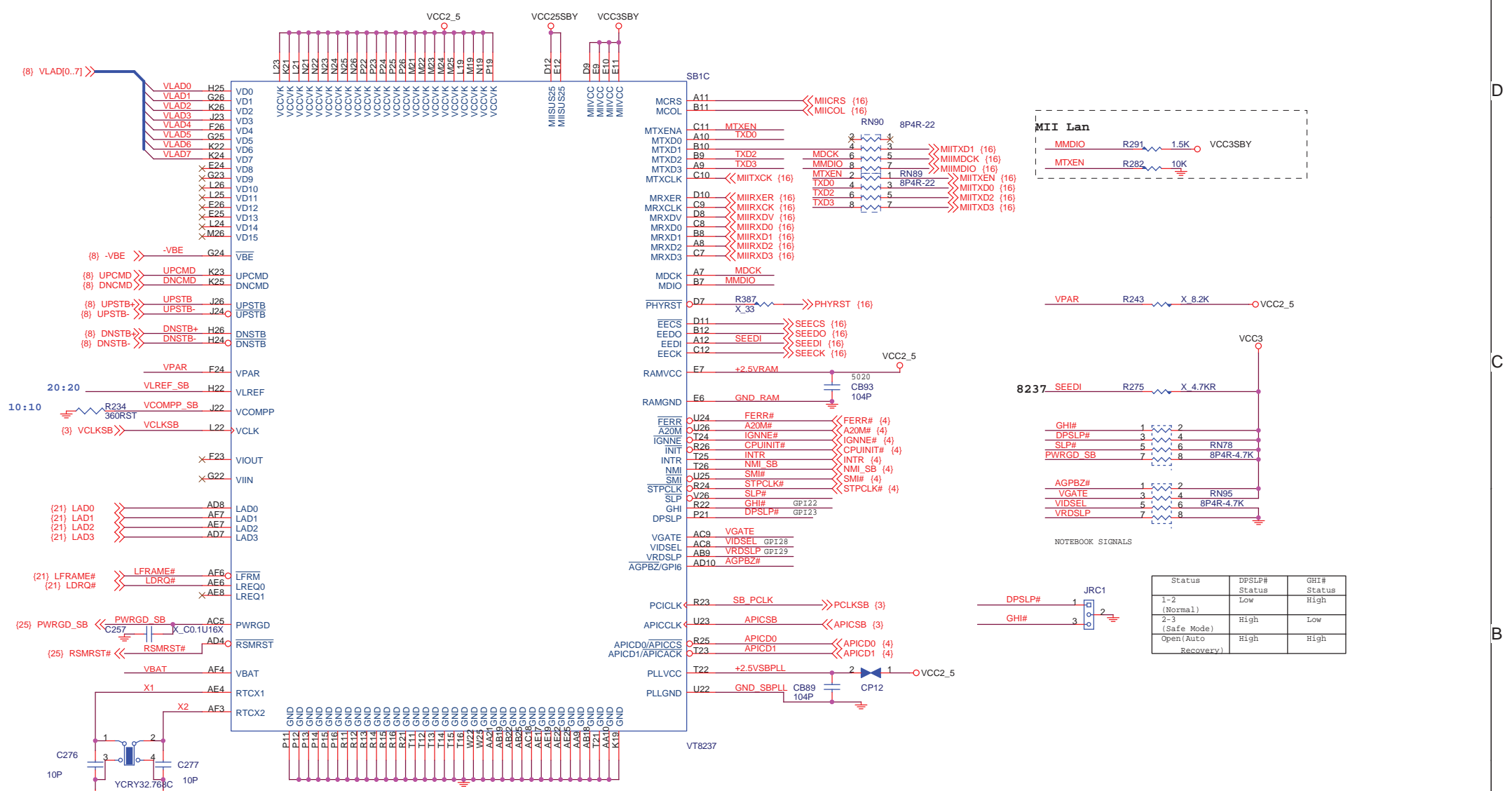
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MD/DQM (/DQS)	LV-CMOS		0/10/-	SSTL-2	10	47
MA/Control	LV-CMOS		10	SSTL-2	b	47
CS	LV-CMOS		0	SSTL-2	b	47
CKE	DD 2.3V			DD 2.5V		





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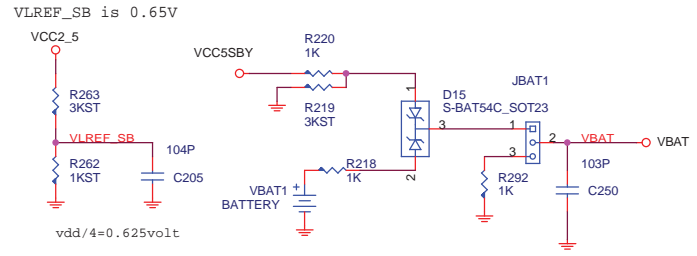




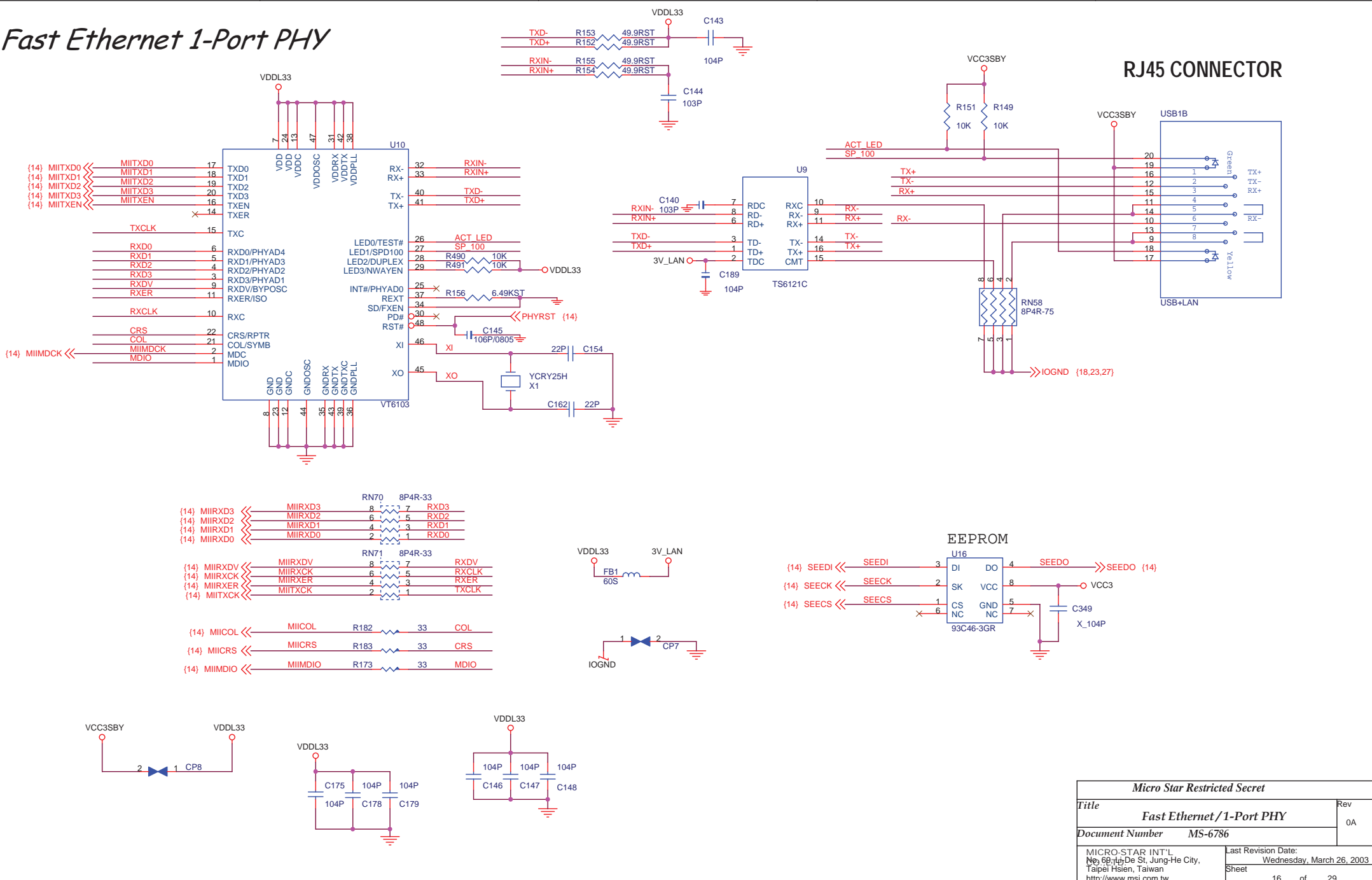
NOTEBOOK SIGNALS



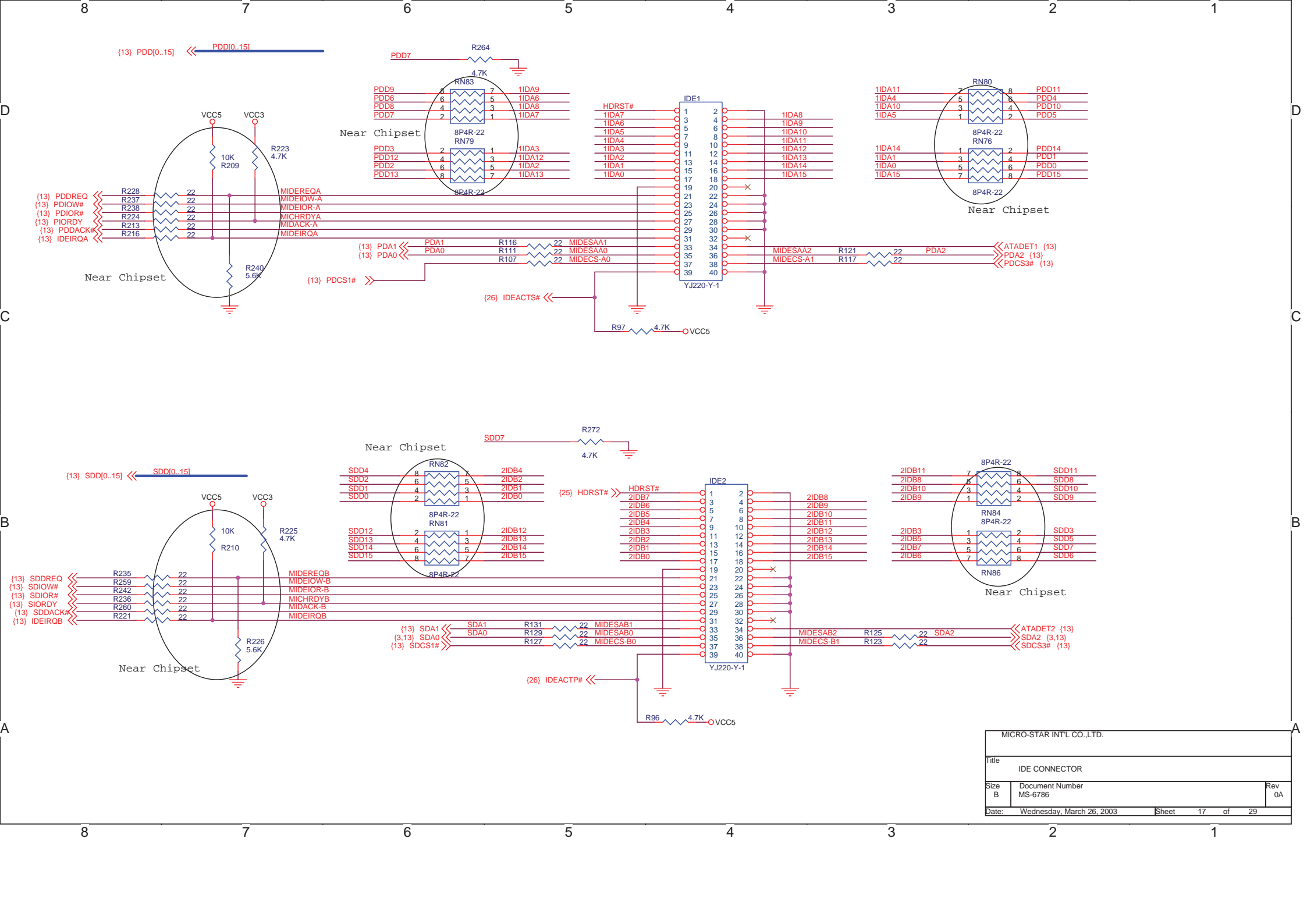
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1-2 (Normal)	Low	High
2-3 (Safe Mode)	High	Low
Open (Auto Recovery)	High	High



Fast Ethernet 1-Port PHY

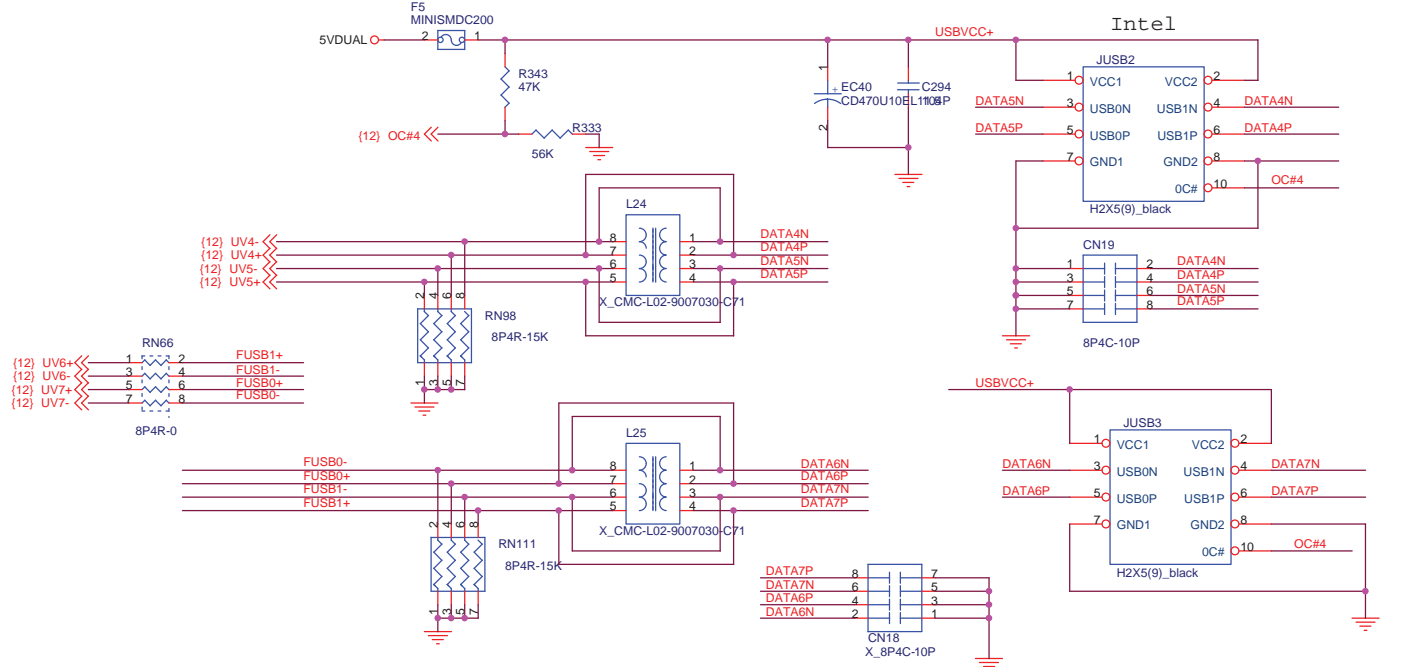
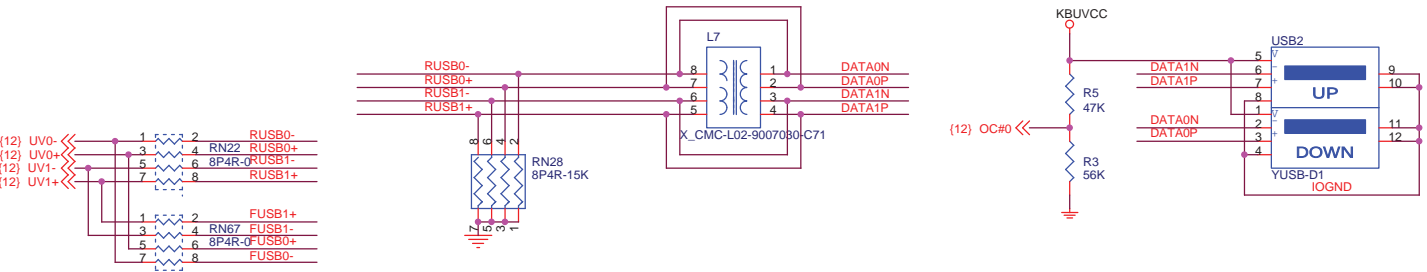
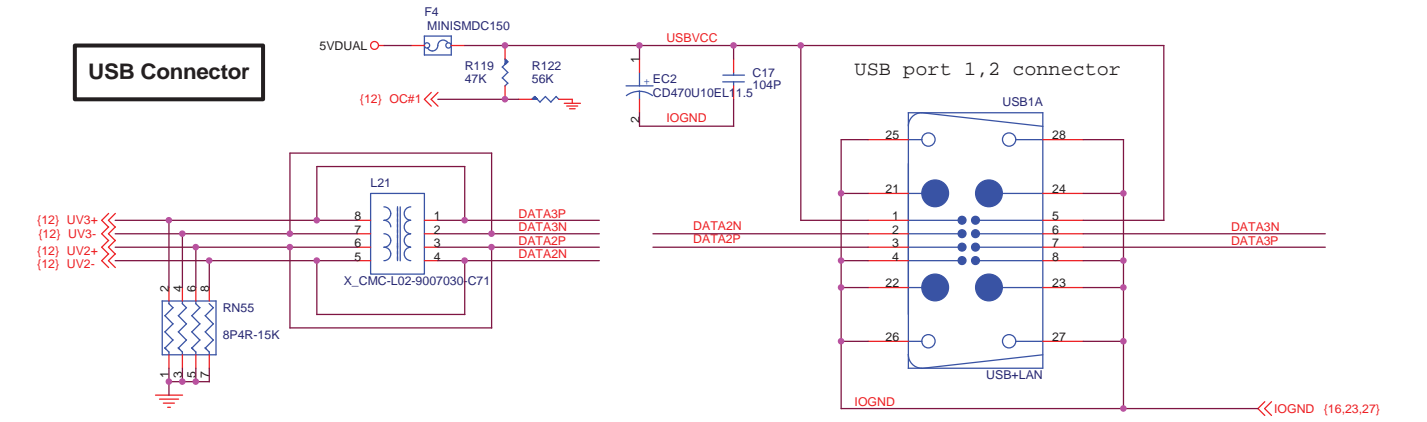


<i>Micro Star Restricted Secret</i>	
Title	Fast Ethernet /1-Port PHY
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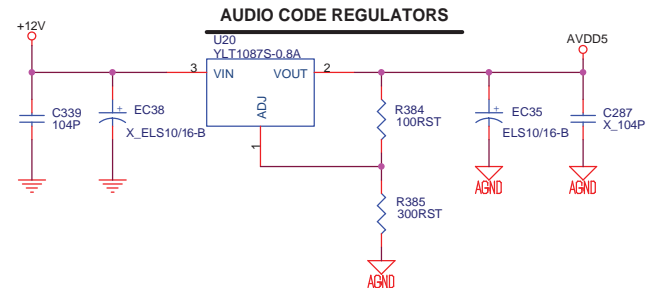
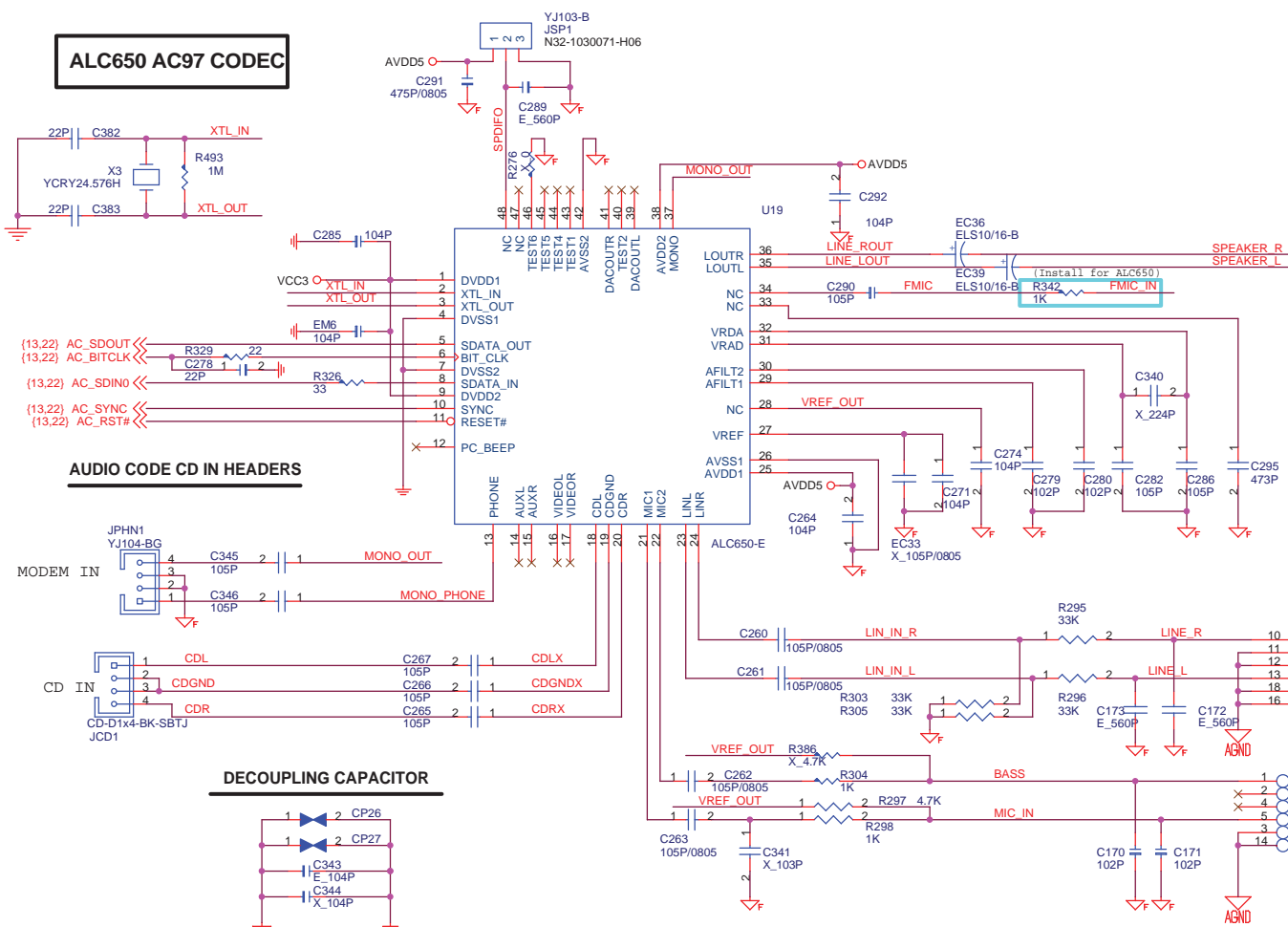
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USB Connector

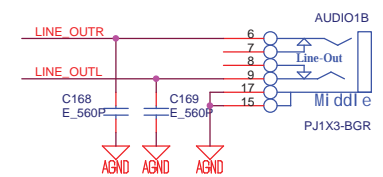


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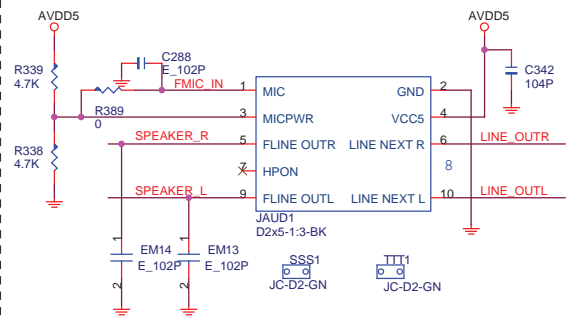
ALC650 AC97 CODEC



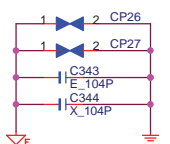
SPEAKER OUT JACK



Intel Front Audio Connector

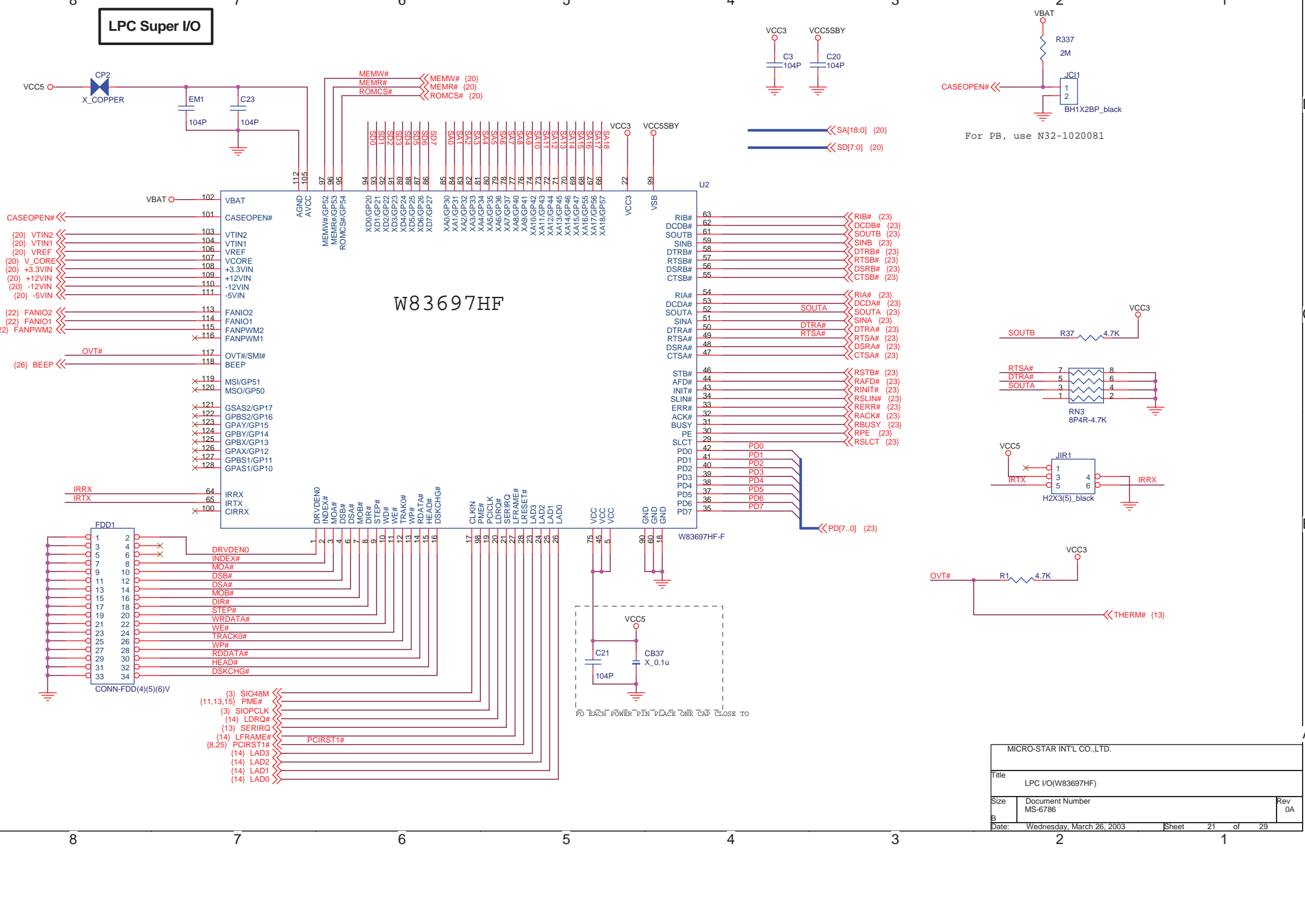


DECOUPLING CAPACITOR



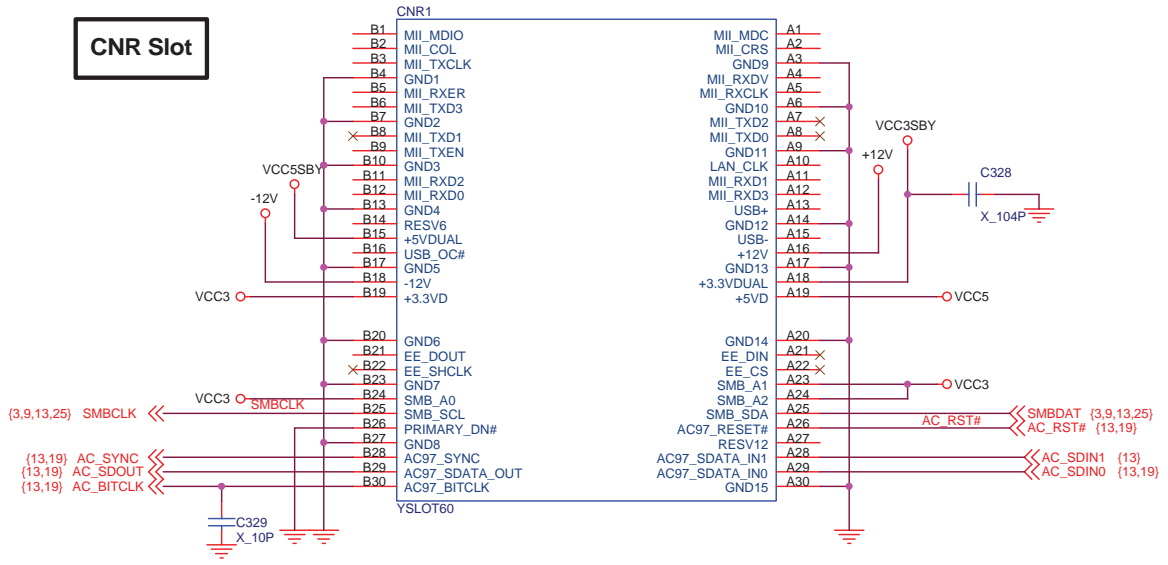
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MICRO-STAR INT'L No. 66, Ly De St, Jung-He City, Taipei Hsien, Taiwan http://www.msi.com.tw	Last Revision Date: Wednesday, March 26, 2003 Sheet 19 of 29

LPC Super I/O

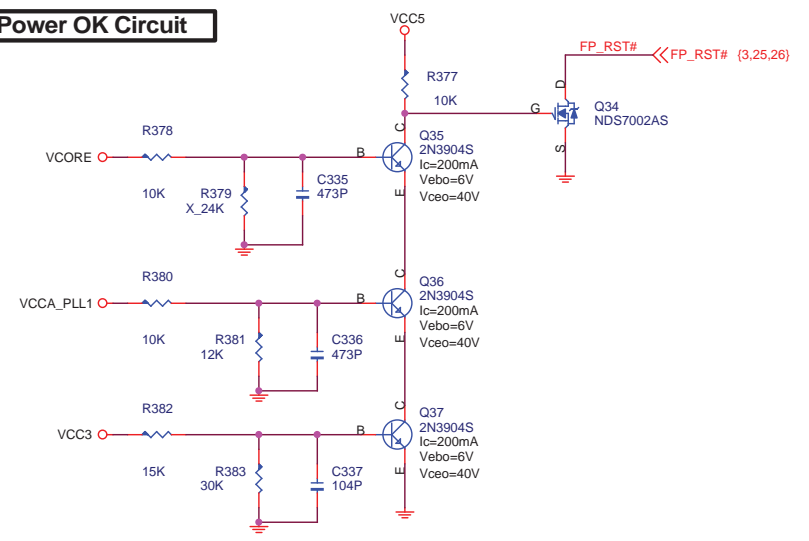


MICRO-STAR INT'L CO.,LTD.		
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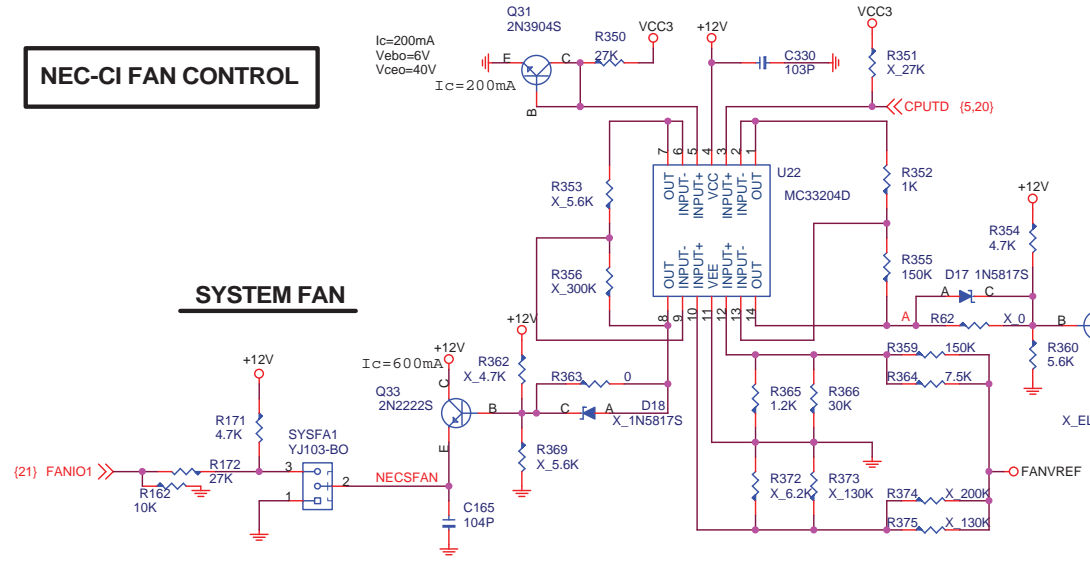
CNR Slot



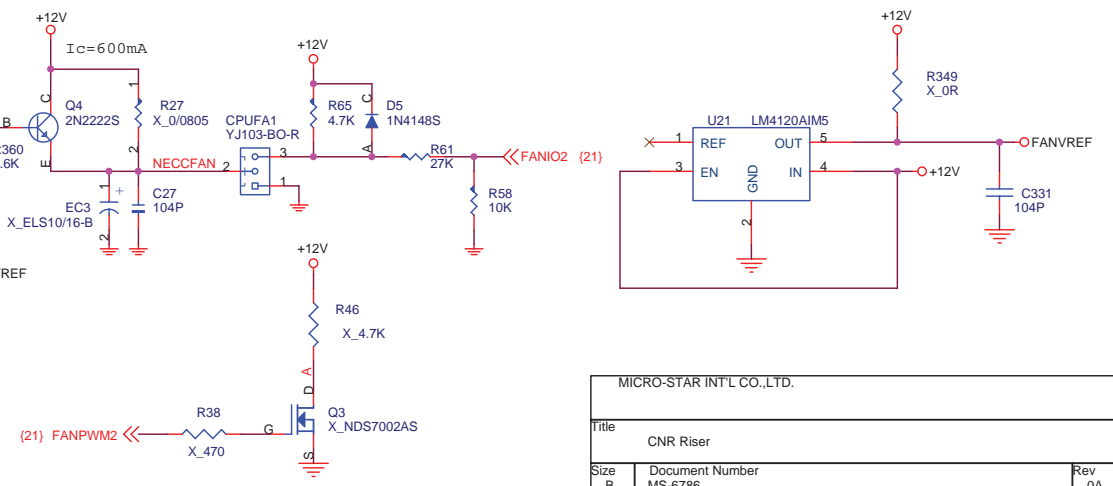
Power OK Circuit



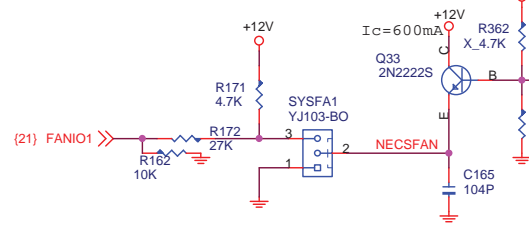
NEC-CI FAN CONTROL



CPU FAN

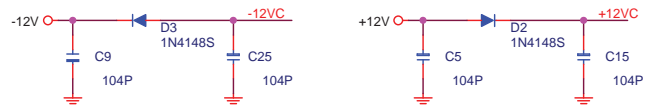
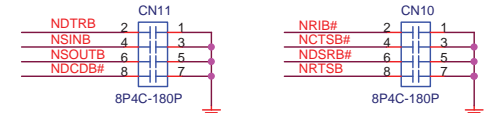
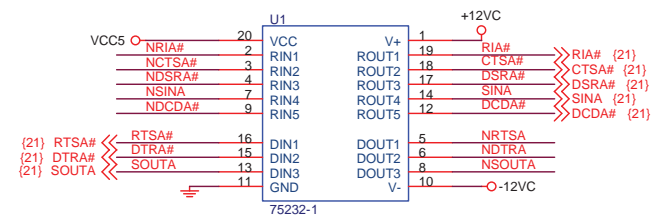
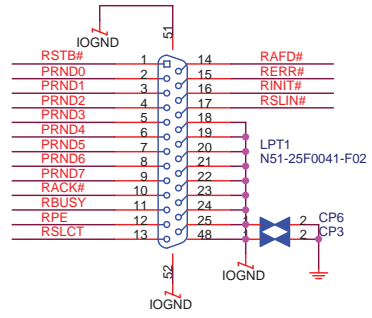
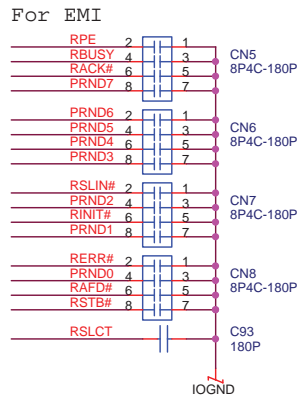
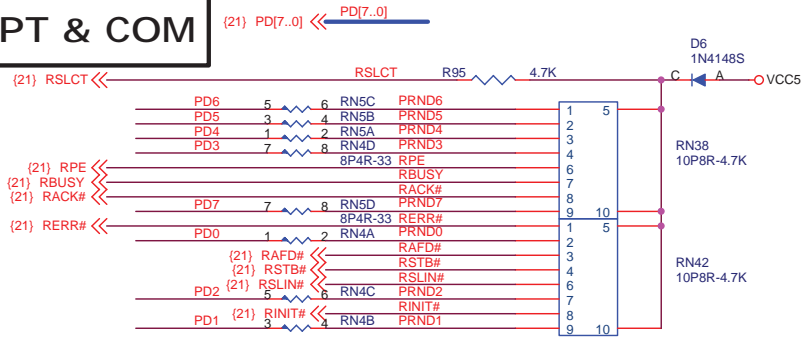


SYSTEM FAN

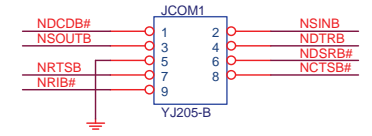


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Title CNR Riser		
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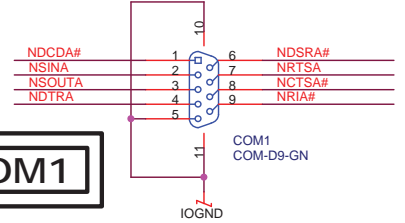
LPT & COM



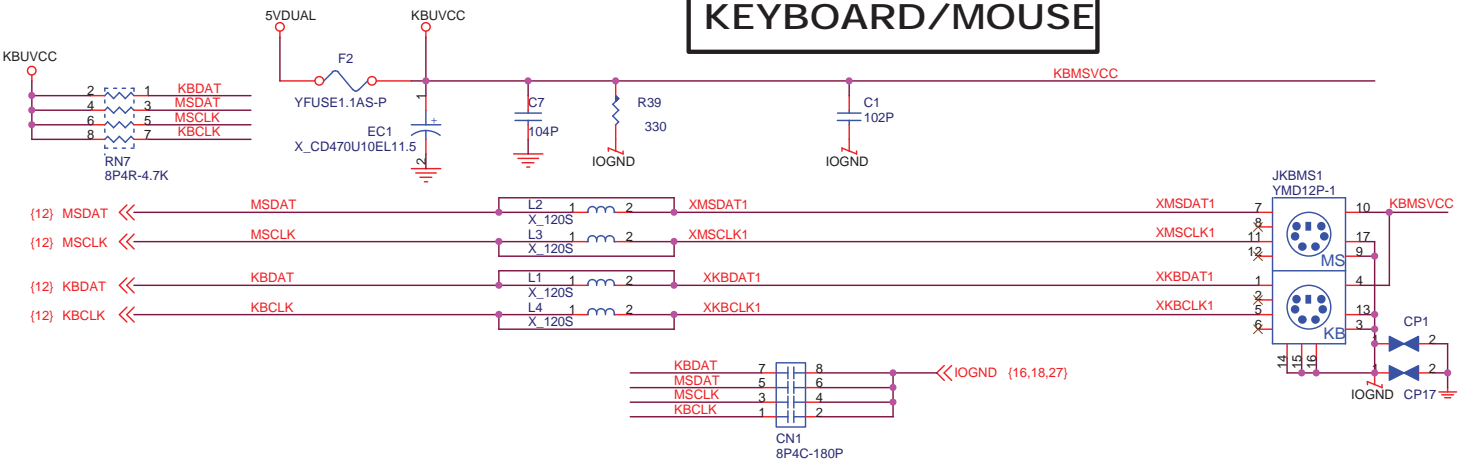
COM2



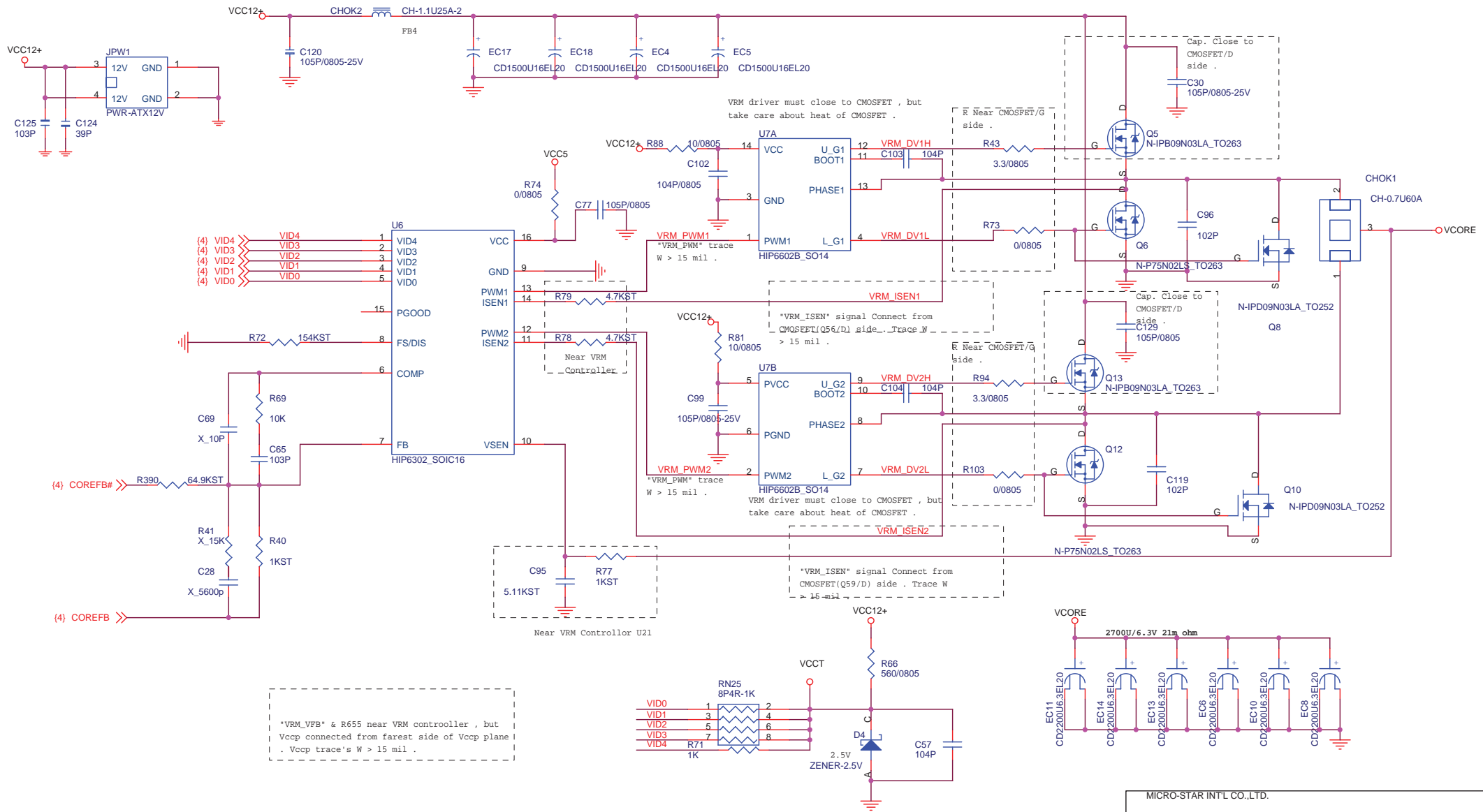
COM1



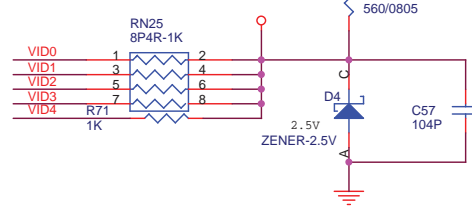
KEYBOARD/MOUSE



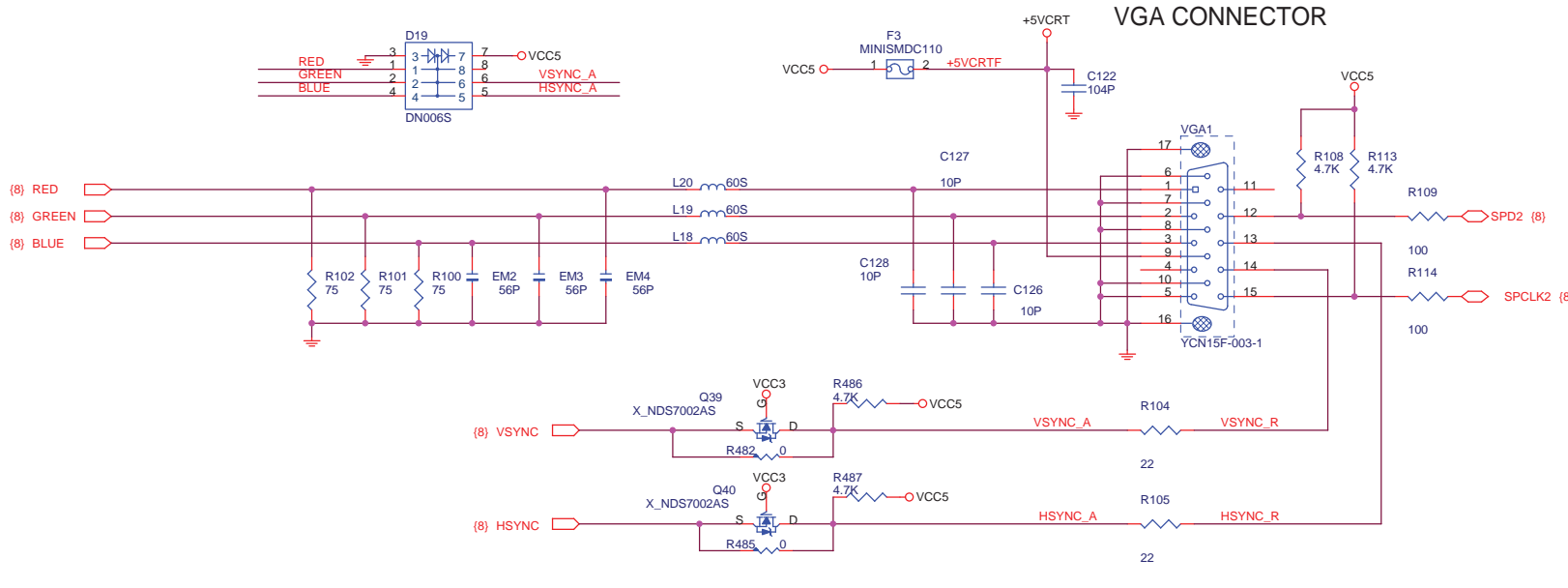
MICRO-STAR INT'L CO.,LTD.		
Title: Parallel Port		
Size: B	Document Number: MS-6786	Rev: 0A
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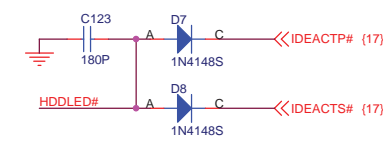
"VRM_VFB" & R655 near VRM controller, but Vccp connected from farrest side of Vccp plane. Vccp trace's W > 15 mil.



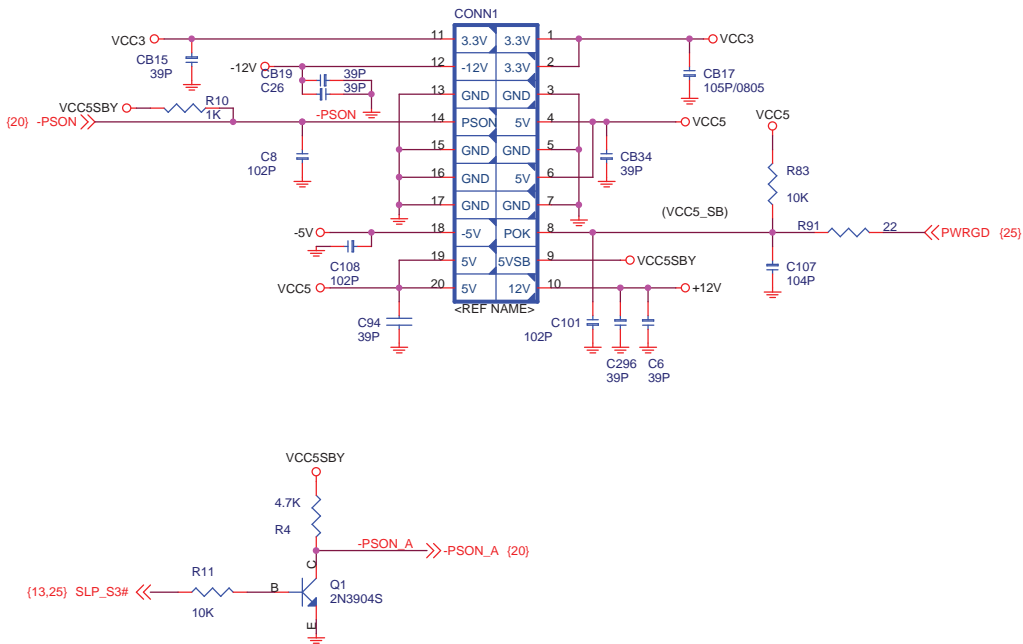
MICRO-STAR INT'L CO.,LTD.		
Title VRM 9.0		
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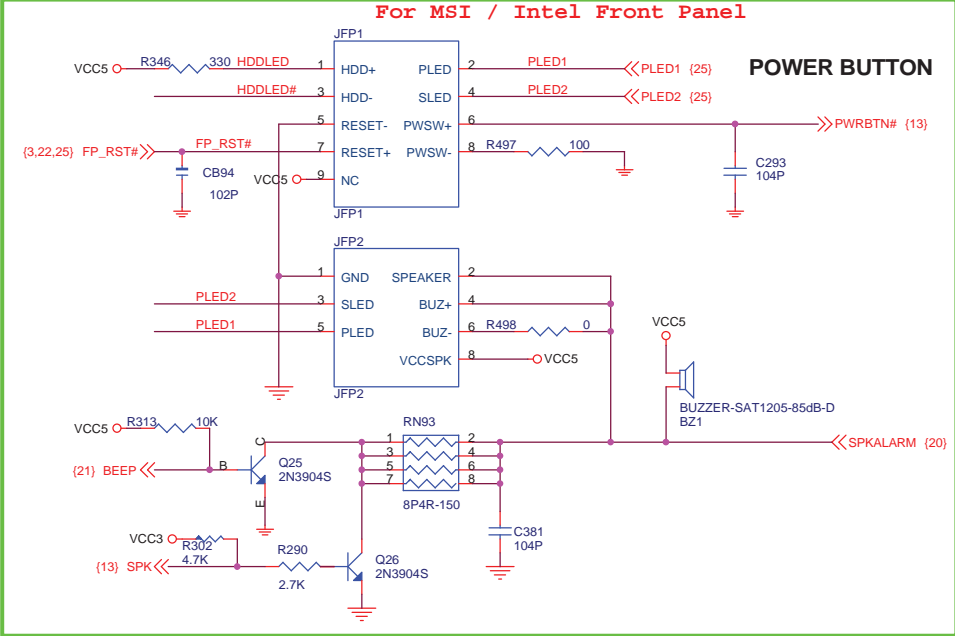
	PLED1	PLED2
S0	1	0
S1	0	1
S3	0	1
S5	0	0



ATX CONNECTOR

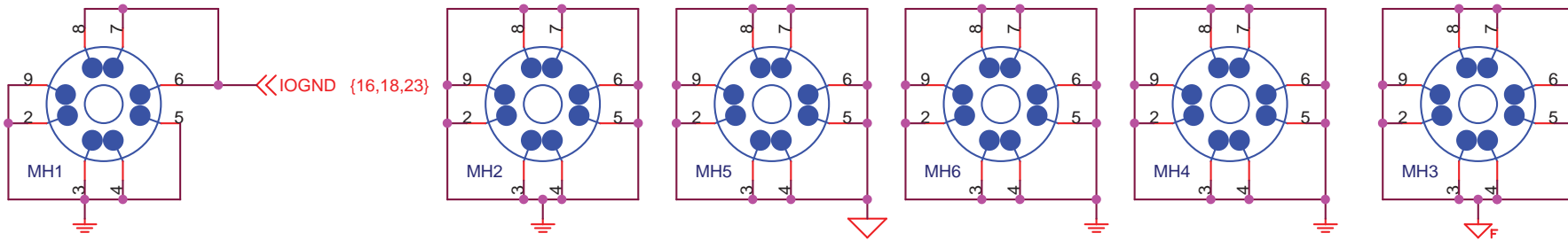


For MSI / Intel Front Panel



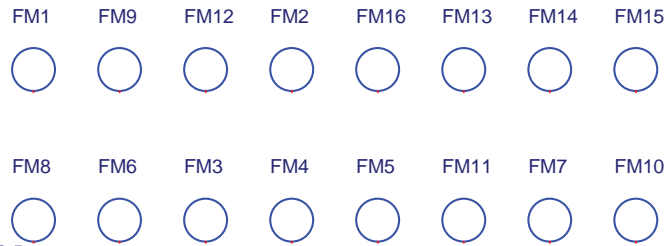
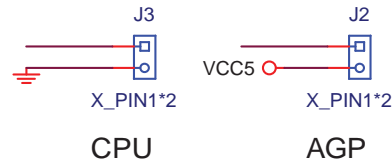
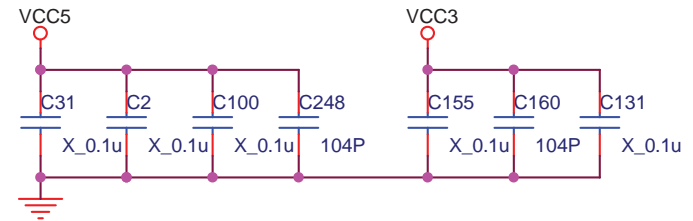
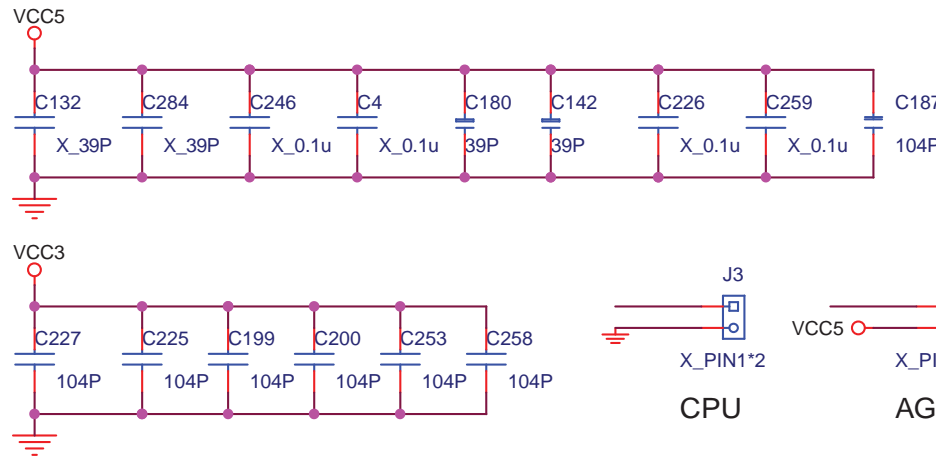
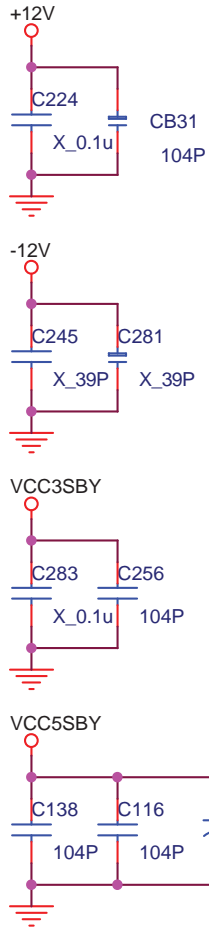
PCB OTHER COMPONENT

BS1_X1 BS2_X1 BS3_X1 BS4_X1 BS5_X1



System Decoupling Capacitors

High Freq. return current decoupling

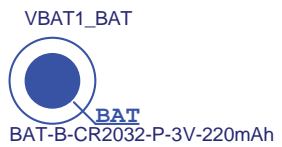
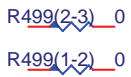
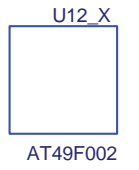
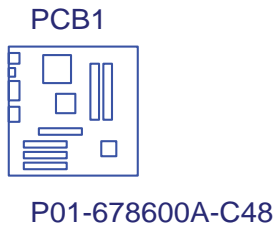


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0A Revision History

Sheet	Description
25	Add two PI filters on VCCA_PLL Power Signals.
14	Remove Twice Pull-Up Resistors on APICD[0..1] Change VPAR Pull-Up from 3.3V to 2.5V.(03/12)
03	Change R191 Value from 261rst to 198rst. Add FSB 200MHz Strapping.
04	Change Q2 to FDV301N and not populate R9.
24	Change D4 Zener from 3.3V to 2.5V Clamping. Change R66 from 0603 size to 0805 size.
05	Add connect with Bead between VCCA_PLL1 and VCCA_PLL.
06	Add ADDINCLK with LCL Filters.

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