

MS-7047 ATX

***AMD PGA 462 Processor**

***VIA KT880 / VT8237 Chipset
(DDR 400 / AGP 8X / VLink 8X)**

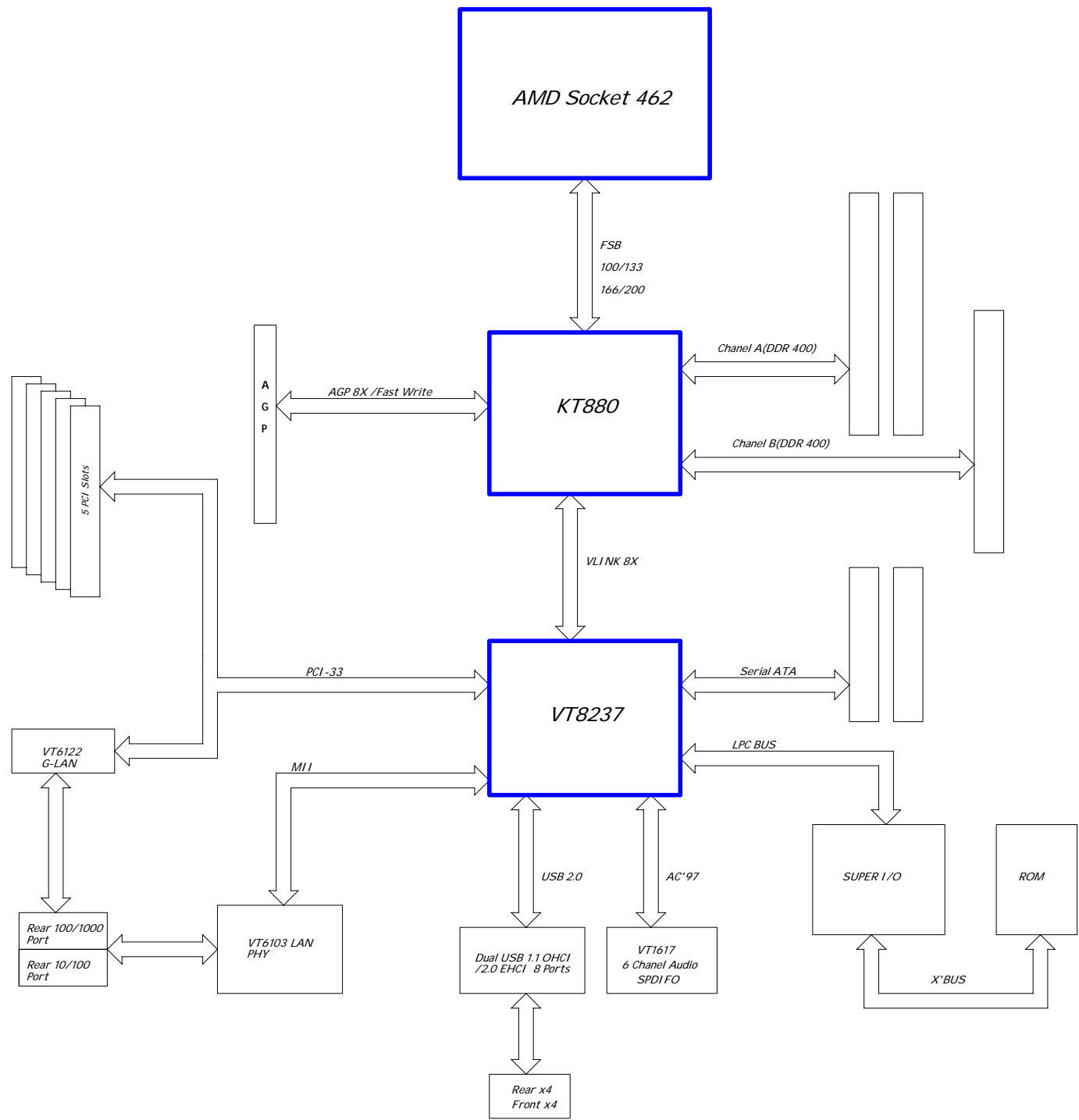
***Winbond 83697HF-VF LPC I/O**

***VT6103 LAN PHY/VT6122 Gigabit LAN
VT1617 AC'97 CODEC**

***USB 2.0 support (VT8237)**

Title	Page
Cover Sheet	1
Block Diagram	2
GPIO SPEC	3
AMD 462 PGA Socket	4,5
Clock Synthesizer	6
KT880	7,8,9,10
System Memory	11,12
DDR Terminations	13,14
AGP SLOT	15
VT8237	16,17,18
PCI Connectors	19,20,21
AC'97 CODEC	22
ATA 66/100 Connectors	23
VT6103 LAN PHY	24
VT1611 Gigabit LAN	25
Front USB Port	26
Rear USB Port	27
LPC I/O	28
K/M & CPU Thermal Protection	29
LPT/COM Port	30
VRM HIP6301 / 6302	31
CPU Ratio / Vcore	32
MS-7 ACPI POWER	33
Front Panel	34
BULK / Decoupling	35
PWR map/CLOCK map	36
Manual Part	37

Block Diagram



GPI O FUNCTION

VT8235 (CE) GPIO Function Define

PIN NAME	Function define
GPO0 (VSUS33)	GPO0
GPO1/SUSA#(VSUS33)	SUSA#
GPO2/SUSB#(VSUS33)	SUSB#
GPO3/SUSST1#(VSUS33)	SUSST1#
GPO4/SUSCLK(VSUS33)	SUSCLK
GPO5/CPUSTP#	CPUSTP#
GPO6/PCISTP#	PCISTP#
GPO7/GNT5#	GNT5#
GPO8/GPI8/PCREQA	Exteranl Pull up to VCC3
GPO9/GPI9/PCREQB	Exteranl Pull up to VCC3
GPO10/GPI10	
GPO11/GPI11	
GPO12/GPI12/INTE#/PCGMA	GPO12
GPO13/GPI13/INTF#/PCGMB	GPO13
GPO14/GPI14/INTG#	GPO14
GPO15/GPI15/INTH#	GPO15
GPO16/SA16/STRAP	CPU FID0 Strapping
GPO17/SA17/STRAP	CPU FID1 Strapping
GPO18/SA18/STRAP	CPU FID2 Strapping
GPO19/SA19/STRAP	CPU FID3 Strapping
GPO20/GPI20/ACSDIN2/PCS0#	GPO20
GPO21/GPI21/ACSDIN3/PCS1#/SLPBTN#	GPO21
GPO22/GPI22/GHI#	GPO22
GPO23/GPI23/PPSLP#	GPO23
GPO24/GPI24/GPIOA	
GPO25/GPI25/GPIOC	
GPO26/GPI26/SMBDT2(VSUS33)	SMBDATA2/Slave SMBUS
GPO27/GPI27/SMBCK2(VSUS33)	SMBCLK2/Slave SMBUS
GPO28/GPI28/VIDSEL/SATA LED	
GPO29/GPI29/VRDSLP	
GPO30/GPI30/GPIOD	
GPO31/GPI31/GPIOE	

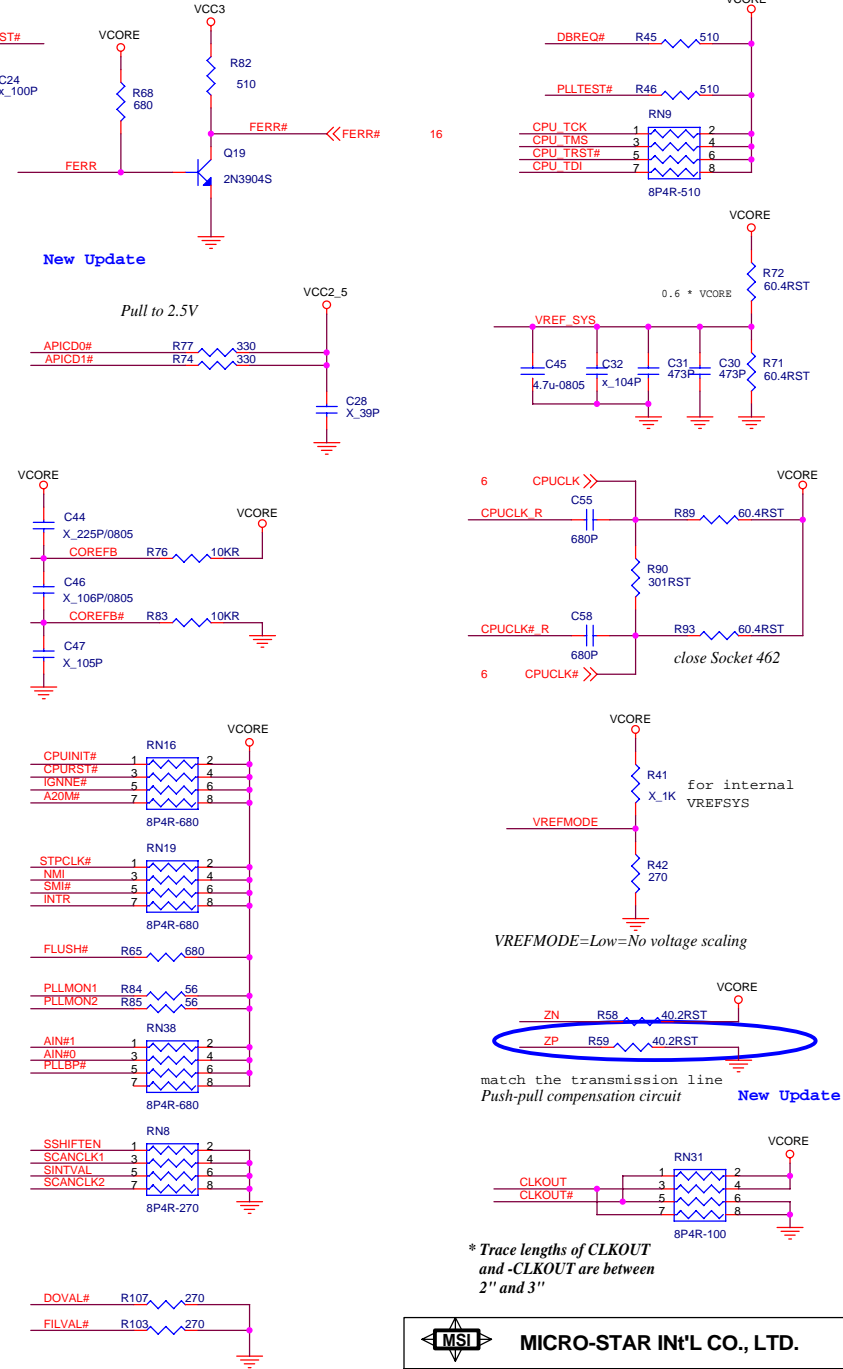
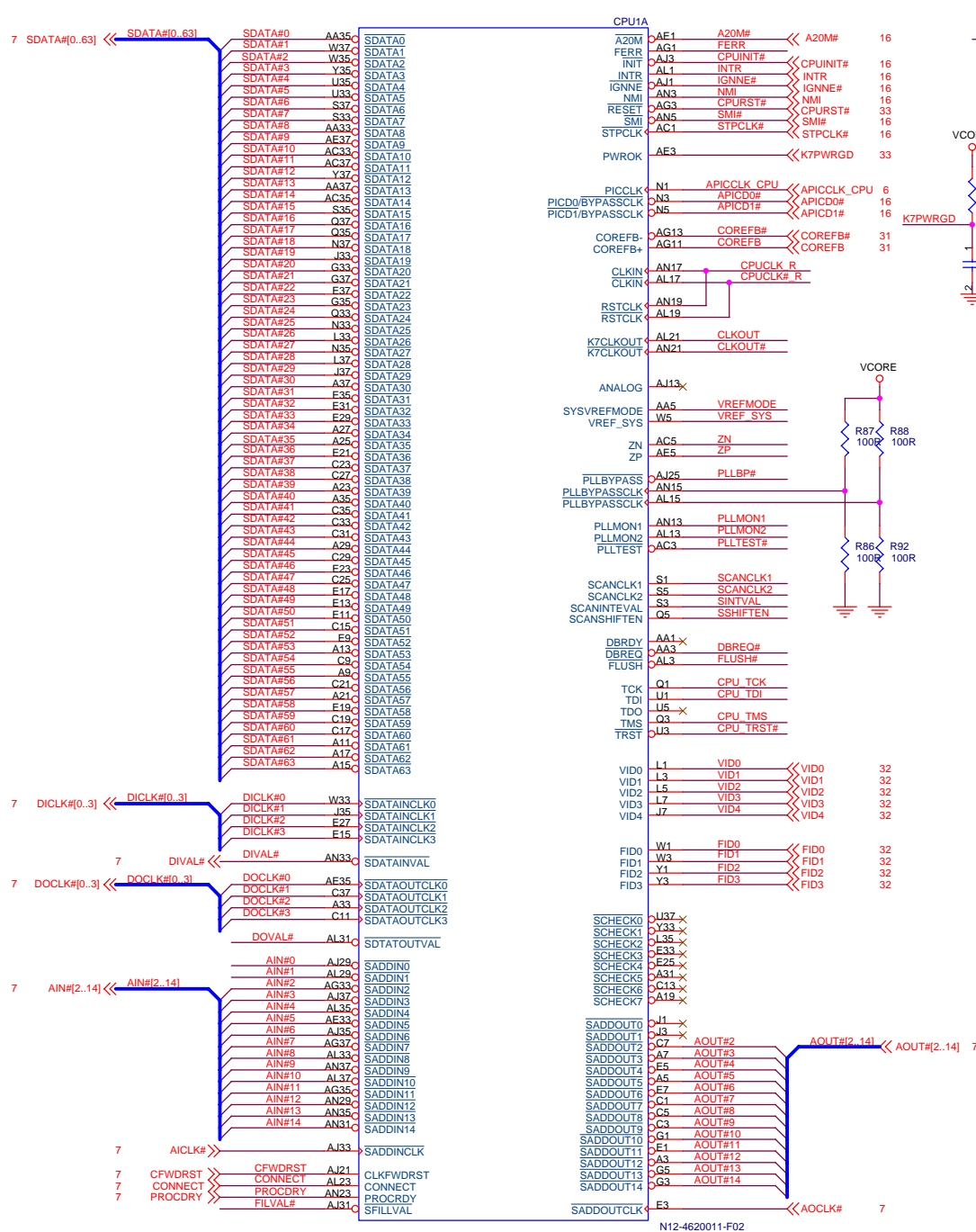
PIN NAME	Function define
GPI0	GPI0
GPI1	ATADET0=>Detect IDE1 ATA100/66
GPI2/EXTSMI#	EXTSMI#
GPI3/RING#	RING#
GPI4/LID#	ATADET1=>Detect IDE2 ATA100/66
GPI5/BATLOW#	Exteranl Pull up to 3VDUAL
GPI6/AGPBZ#	PME#
GPI7/REQ5#	Exteranl Pull up to 3VDUAL
GPI16/INTRUDER#	Exteranl Pull down
GPI17/CPUMISS	Exteranl Pull up to 3VDUAL
GPI18/AOLGP1/THRM#	THRM#
GPI19/IORDY	Exteranl Pull up to VCC3

DDR Voltage	SET1	SET2
2.5V	1	1
2.6V	0	1
2.7V	1	0
2.8V	0	0

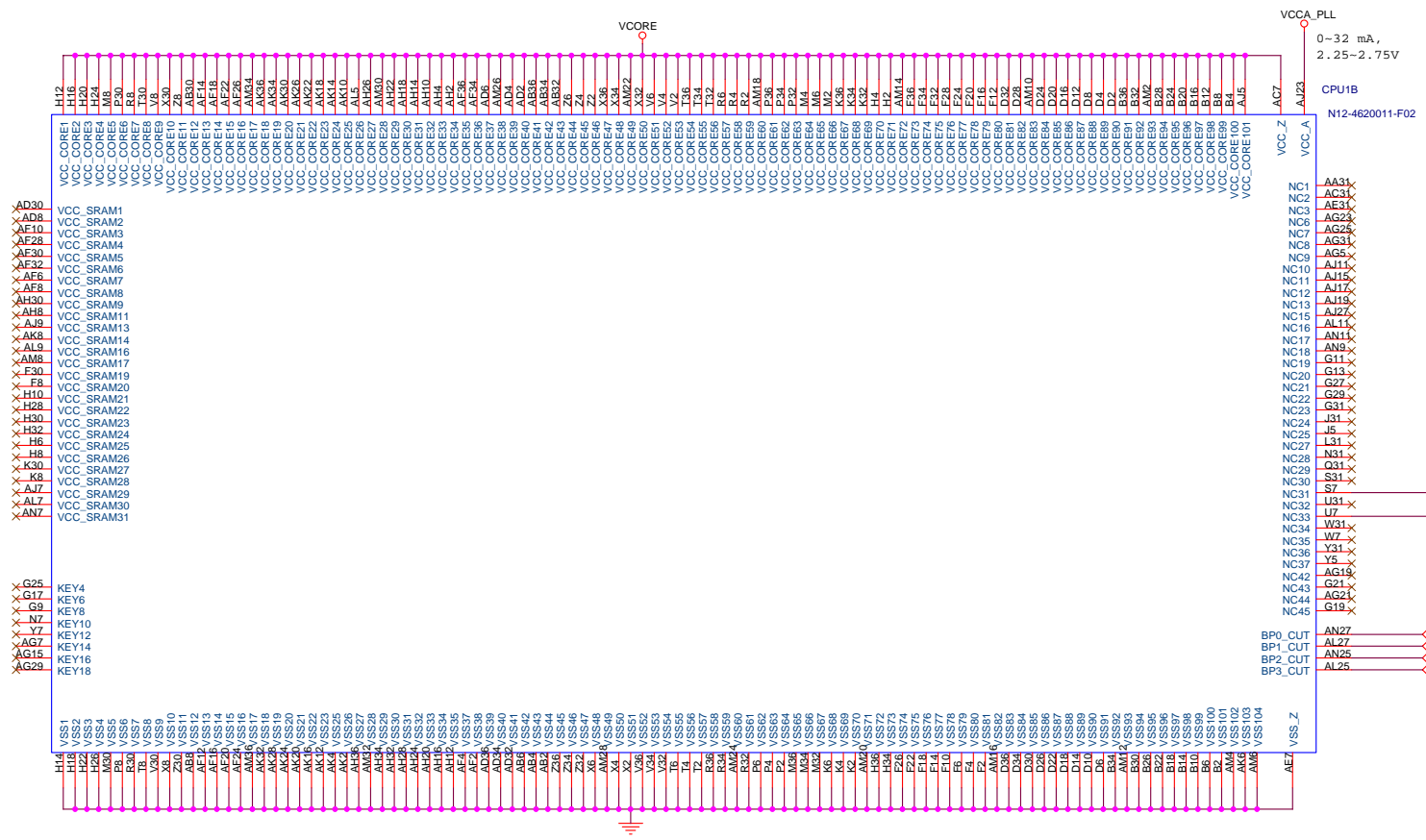
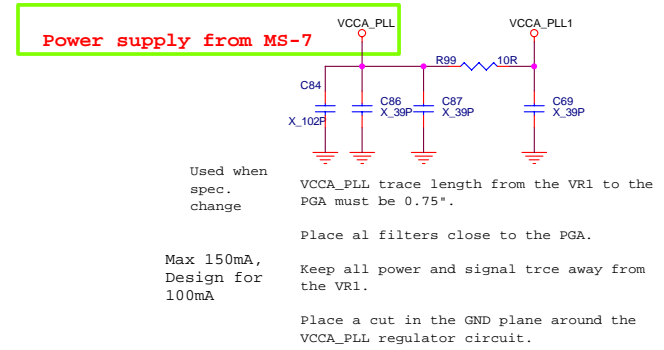
PCI

DEVICES	INT#	IDSEL	REQ#/GNT#	CLOCK
PCI SLOT 1	INT#A INT#B INT#C INT#D	AD16	PREQ#0 PGNT#0	PCICLK1
PCI SLOT 2	INT#B INT#C INT#D INT#A	AD17	PREQ#1 PGNT#1	PCICLK2
PCI SLOT 3	INT#C INT#D INT#A INT#B	AD18	PREQ#2 PGNT#2	PCICLK3
PCI SLOT 4	INT#D INT#A INT#B INT#C	AD19	PCIREQ#3 PCIGNT#3	PCICLK4
PCI SLOT 5	INT#B INT#C INT#D INT#A	AD21	PCIREQ#4 PCIGNT#4	PCICLK5
Gigabit LAN	INT#C	AD22	PCIREQ#5 PCIGNT#5	LANPCLK

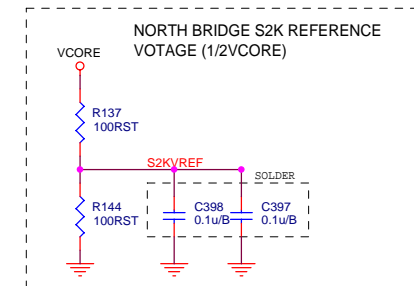
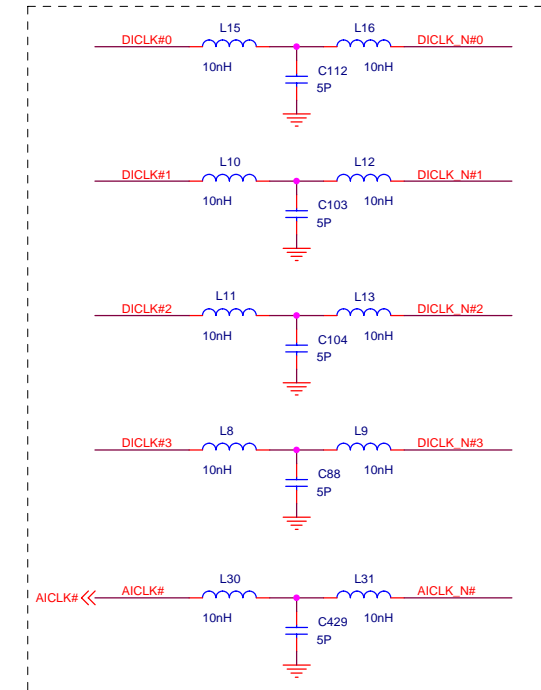
SOCKET 462 Part 1



SOCKET 462 Part 2



For AMD CPU Thermal protection

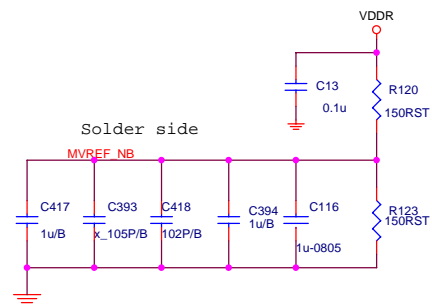
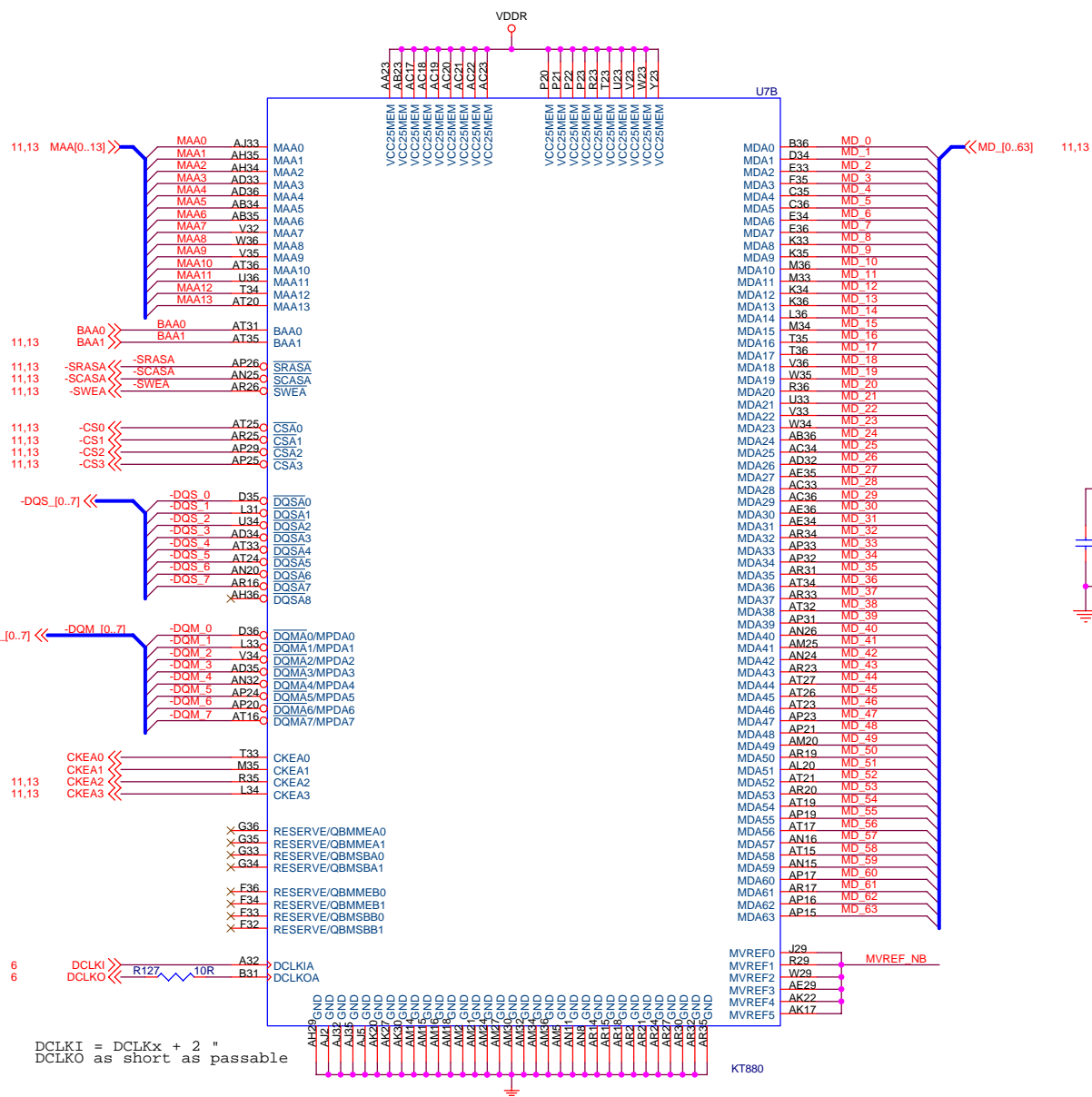


KT880 CPU

MS-7047

Date: Monday, February 02, 2004

Sheet	7	of	37
-------	---	----	----



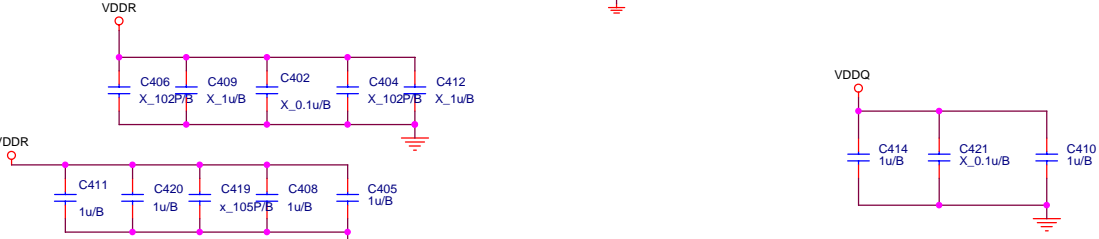
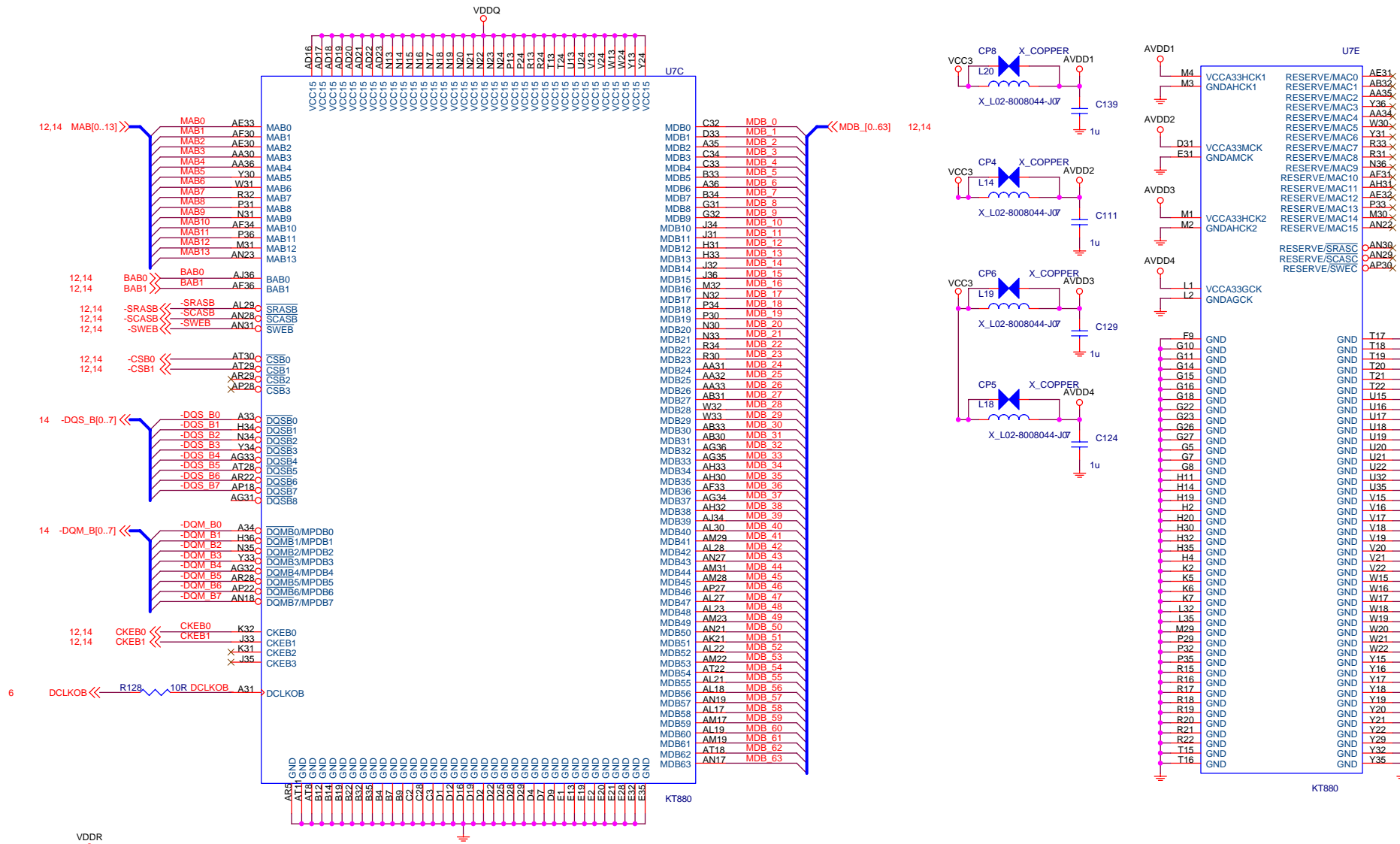
DCLKI = DCLKx + 2 "
DCLKO as short as passable

KT880



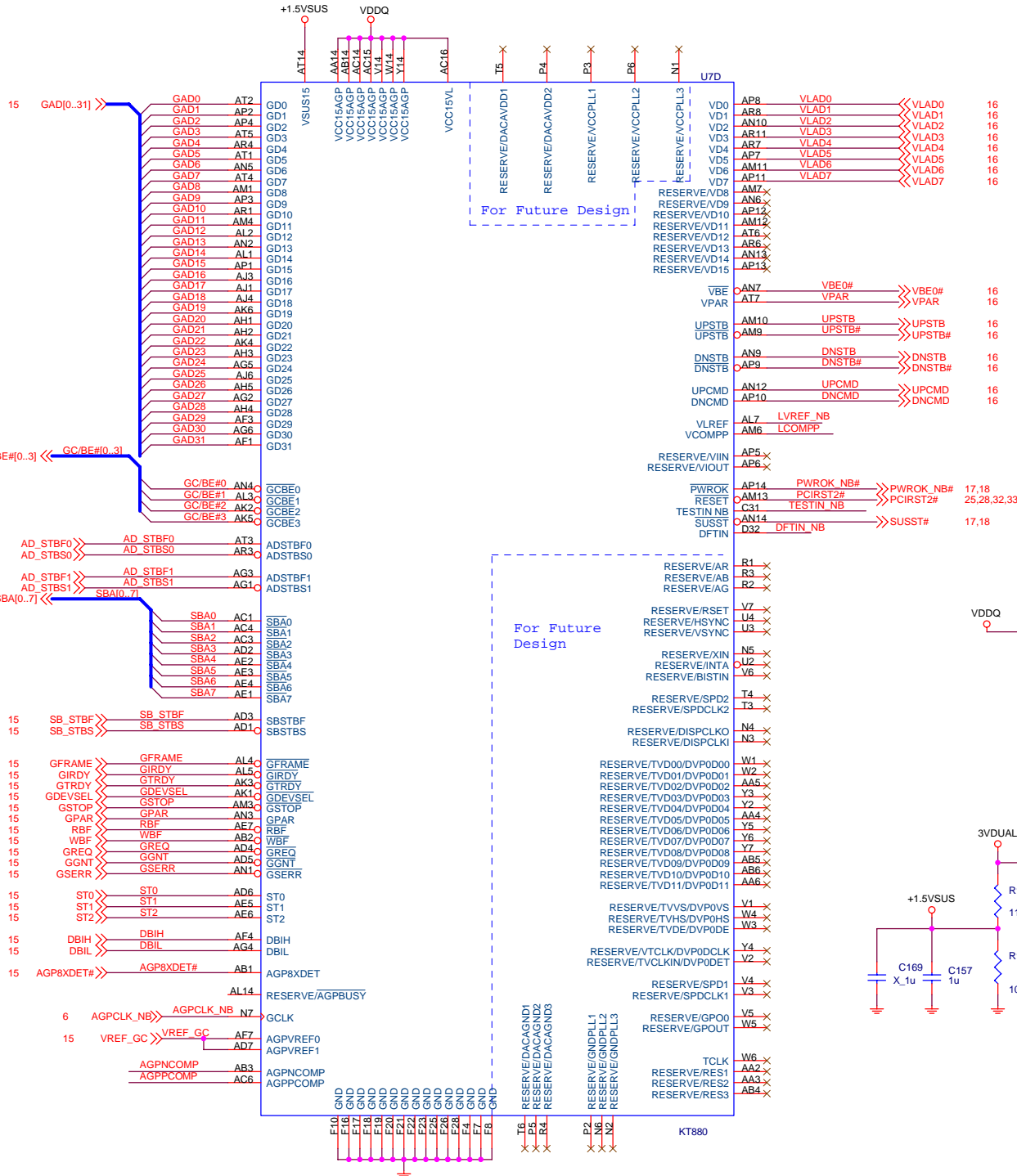
MICRO-STAR INT'L CO., LTD.

Title			KT880 Memory part1
Size	Document Number	Rev	
	MS-7047	100	
Date:	Monday, February 02, 2004	Sheet	8 of 37



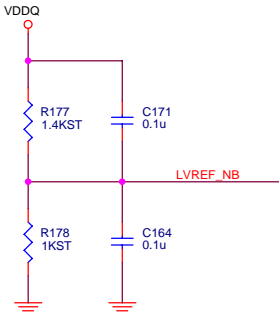
Decoupling capacitors

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

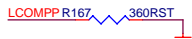


VLINK

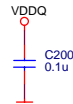
1. VLINK REFERENCE VOLTAGE 0.625V



2. VLINK P-CHANNEL COMPENSATION

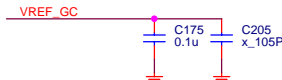


3. VLINK INTERFACE POWER : VCCVI

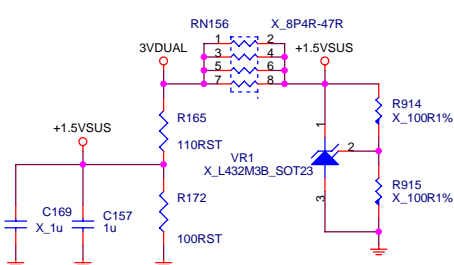


AGF

1. AGPVREF (PROVIDED BY AGP 8X CARD OR BY SYSTEM FOR OTHERS)

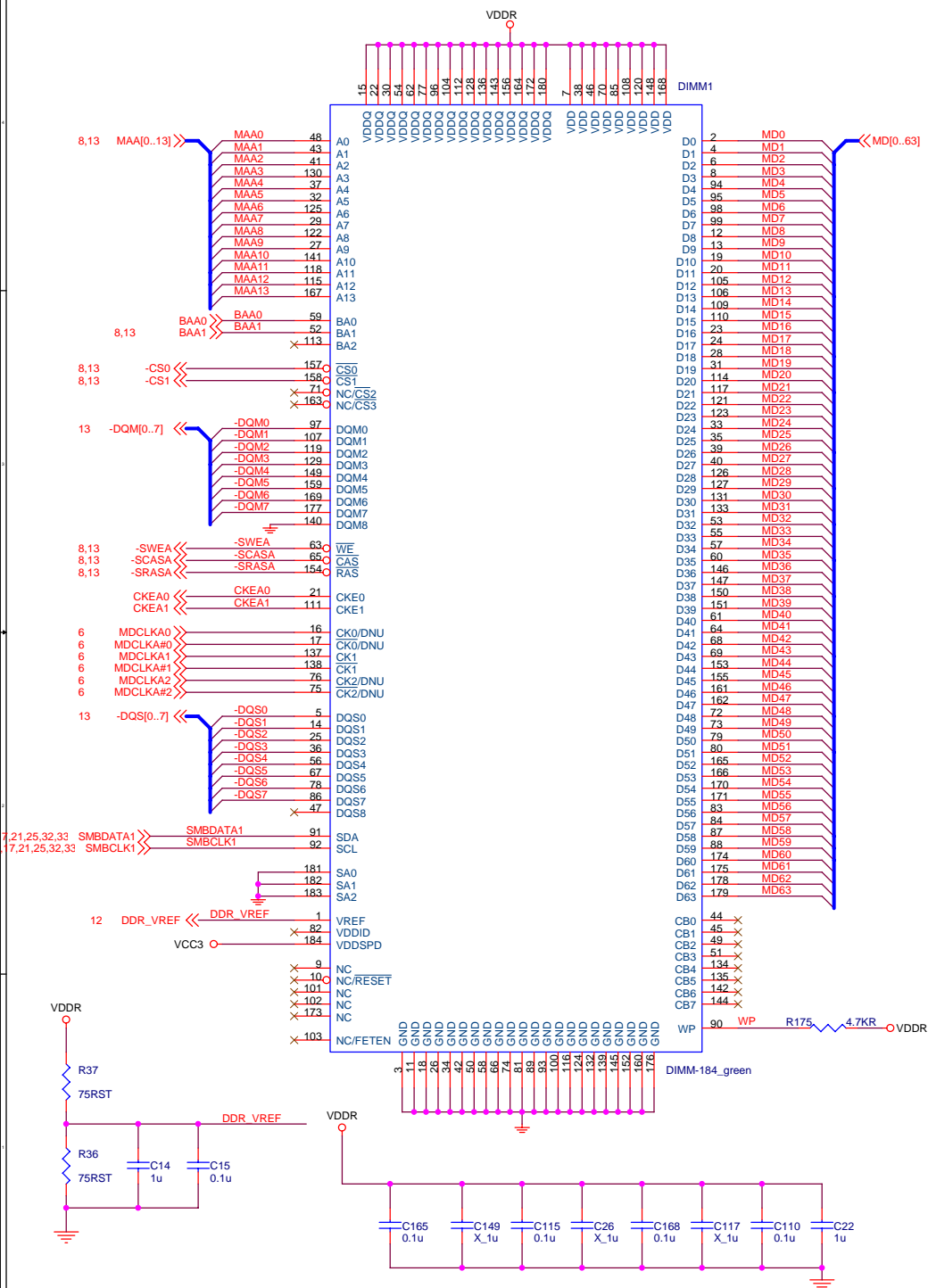


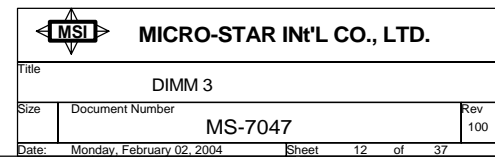
2. AGPNCOMP : AGP N-CHANNEL COMPENSATION



MICRO-STAR INT'L CO., LTD.

Title			
KT880 AGP VLINK			
Size	Document Number		
	MS-7047		
Date:	Tuesday, February 03, 2004	Sheet	10 of 37



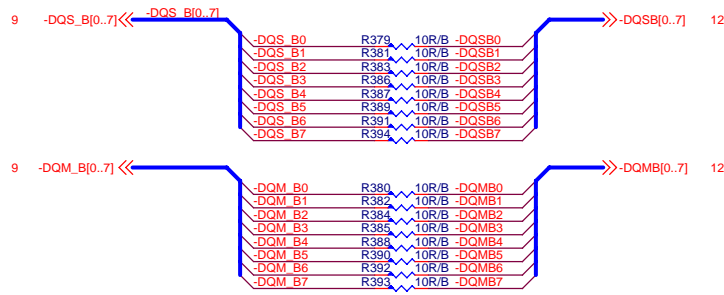


MDB [0..63] << MDB [0..63] 9,12

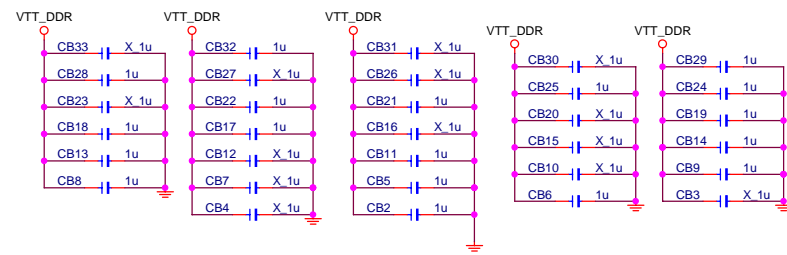
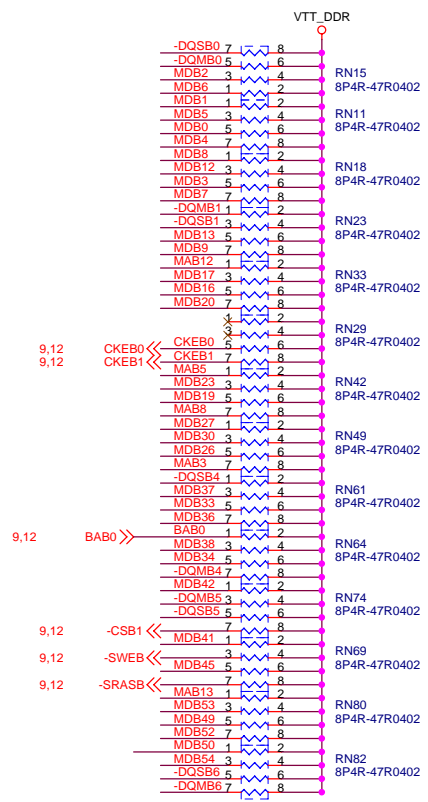
MDB [0..63] << MDB [0..63] 9,12

MDB 6	MDB6
MDB 2	MDB2
MDB 7	MDB7
MDB 3	MDB3
MDB 4	MDB4
MDB 0	MDB0
MDB 5	MDB5
MDB 1	MDB1
MDB 14	MDB14
MDB 15	MDB15
MDB 10	MDB10
MDB 11	MDB11
MDB 8	MDB8
MDB 12	MDB12
MDB 9	MDB9
MDB 13	MDB13
MDB 18	MDB18
MDB 22	MDB22
MDB 19	MDB19
MDB 23	MDB23
MDB 20	MDB20
MDB 16	MDB16
MDB 17	MDB17
MDB 21	MDB21

MDB 24	MDB24
MDB 25	MDB25
MDB 29	MDB29
MDB 26	MDB26
MDB 30	MDB30
MDB 27	MDB27
MDB 31	MDB31
MDB 28	MDB28



MDB 32	MDB32
MDB 36	MDB36
MDB 33	MDB33
MDB 37	MDB37
MDB 34	MDB34
MDB 38	MDB38
MDB 39	MDB39
MDB 35	MDB35
MDB 42	MDB42
MDB 43	MDB43
MDB 46	MDB46
MDB 47	MDB47
MDB 40	MDB40
MDB 44	MDB44
MDB 45	MDB45
MDB 41	MDB41
MDB 48	MDB48
MDB 49	MDB49
MDB 52	MDB52
MDB 53	MDB53
MDB 54	MDB54
MDB 55	MDB55
MDB 50	MDB50
MDB 51	MDB51
MDB 62	MDB62
MDB 58	MDB58
MDB 63	MDB63
MDB 59	MDB59
MDB 60	MDB60
MDB 61	MDB61
MDB 56	MDB56
MDB 57	MDB57



9,12 MAB [0..13] << MAB [0..13]

MAB1	1	2
MDB31	3	4
MAB2	5	6
MDB25	7	8
MDB28	9	10
MAB6	11	12
MDB24	13	14
MDB22	15	16
MAB7	17	18
-DQMB2	19	20
MDB18	21	22
MAB9	23	24
MAB11	25	26
MDB21	27	28
-DQSB2	29	30
MDB11	31	32
MDB10	33	34
MDB15	35	36
MDB14	37	38
-SCASB	39	40
-CSB0	41	42
MDB59	43	44
MDB63	45	46
MDB58	47	48
MDB62	49	50
-DQSB7	51	52
-DQMB7	53	54
MDB57	55	56
MDB56	57	58
MAB4	59	60
-DQMB3	61	62
MDB29	63	64
-DQSB3	65	66
MDB61	67	68
MDB60	69	70
MDB55	71	72
MDB51	73	74
MDB32	75	76
BAB1	77	78
MAB10	79	80
MAB0	81	82
MDB40	83	84
MDB44	85	86
MDB35	87	88
MDB39	89	90
MDB48	91	92
MDB47	93	94
MDB43	95	96
MDB46	97	98

AGP PRO Connector

The schematic diagram illustrates the AGP PRO connector and its internal circuitry. It shows the connection of various pins to power planes (VDDQ, VCC3, 3VDUAL) and signal lines. Key components include resistors (R245, R213, R217, R214, R212, R215, R211, R210, R207, R205, R182, R180, R179, R220, R196, R206), capacitors (C206, C203, EC24, C253, C246, C249, C251, C214, C423, C178, C248, C198, C202, C196), and transistors (Q29, Q37, Q39). The diagram also includes a table for add-in card power requirements.

	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

Add-in Card Power

	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

MSI MICRO-STAR INT'L CO., LTD.

Title: AGP PRO Slot

Size: Document Number: MS-7047

Date: Monday, February 02, 2004 Sheet 15 of 37

[illegible]

AGP PRO Connector

The schematic diagram illustrates the AGP PRO connector and its internal circuitry. It shows the connection of various pins to power planes (VDDQ, VCC3, 3VDUAL) and signal lines. Key components include resistors (R245, R213, R217, R214, R212, R215, R211, R210, R207, R205, R182, R180, R179, R220, R196, R206), capacitors (C206, C203, EC24, C253, C246, C249, C251, C214, C423, C178, C248, C198, C202, C196), and transistors (Q29, Q37, Q39). The diagram also includes a table for add-in card power requirements.

	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

Add-in Card Power

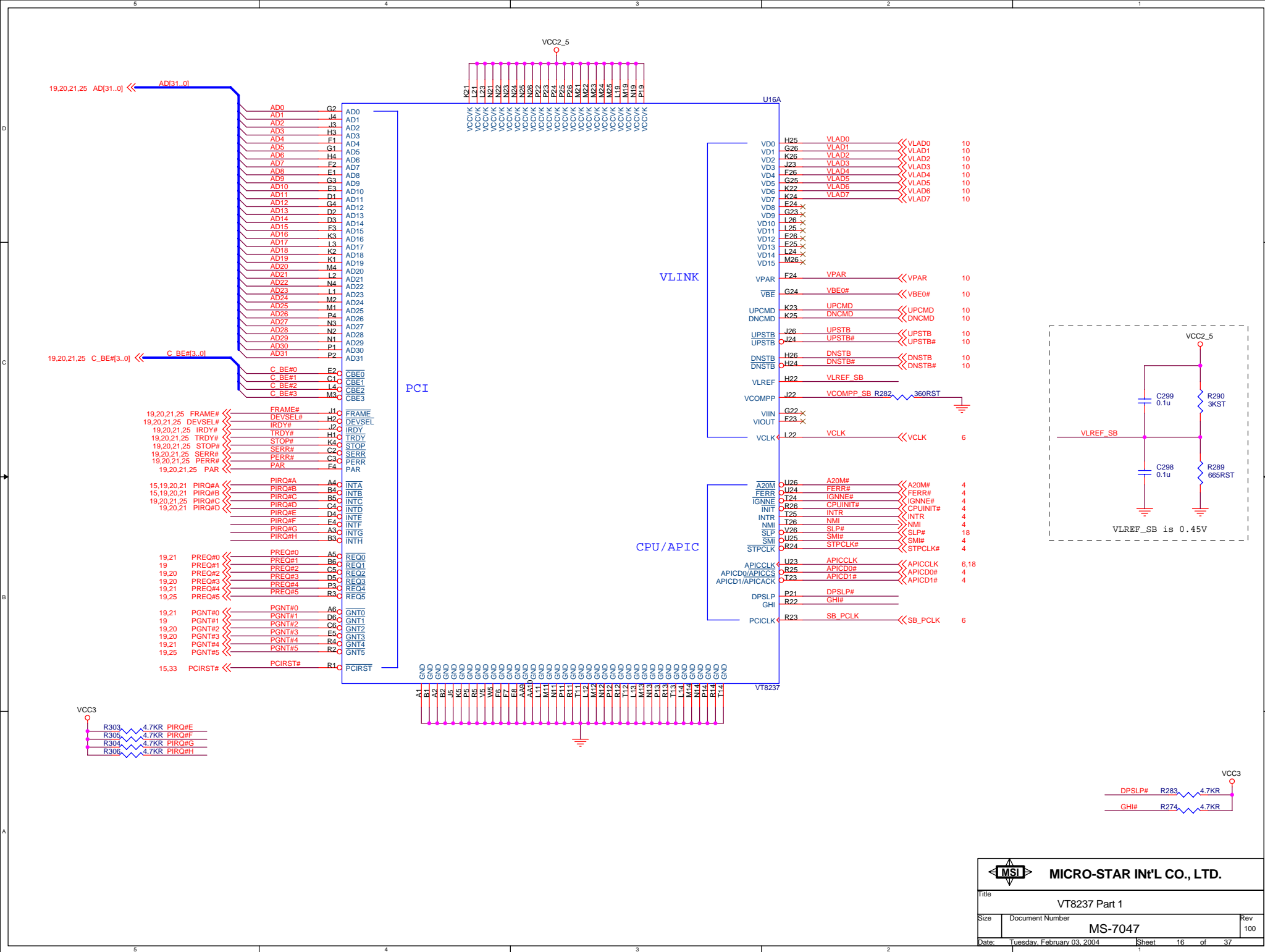
	<i>I_{max}</i>	<i>V_{Min}</i>	<i>V_{Max}</i>	<i>Units</i>
VDDQ	2.0A	1.425	1.575	V
VCC3	6.0A	3.15	3.45	V
3VDUAL	0.75A	3.15	3.45	V
VCC5	2.0A	4.75	5.25	V
VCC12	1.0A	11.4	12.6	V

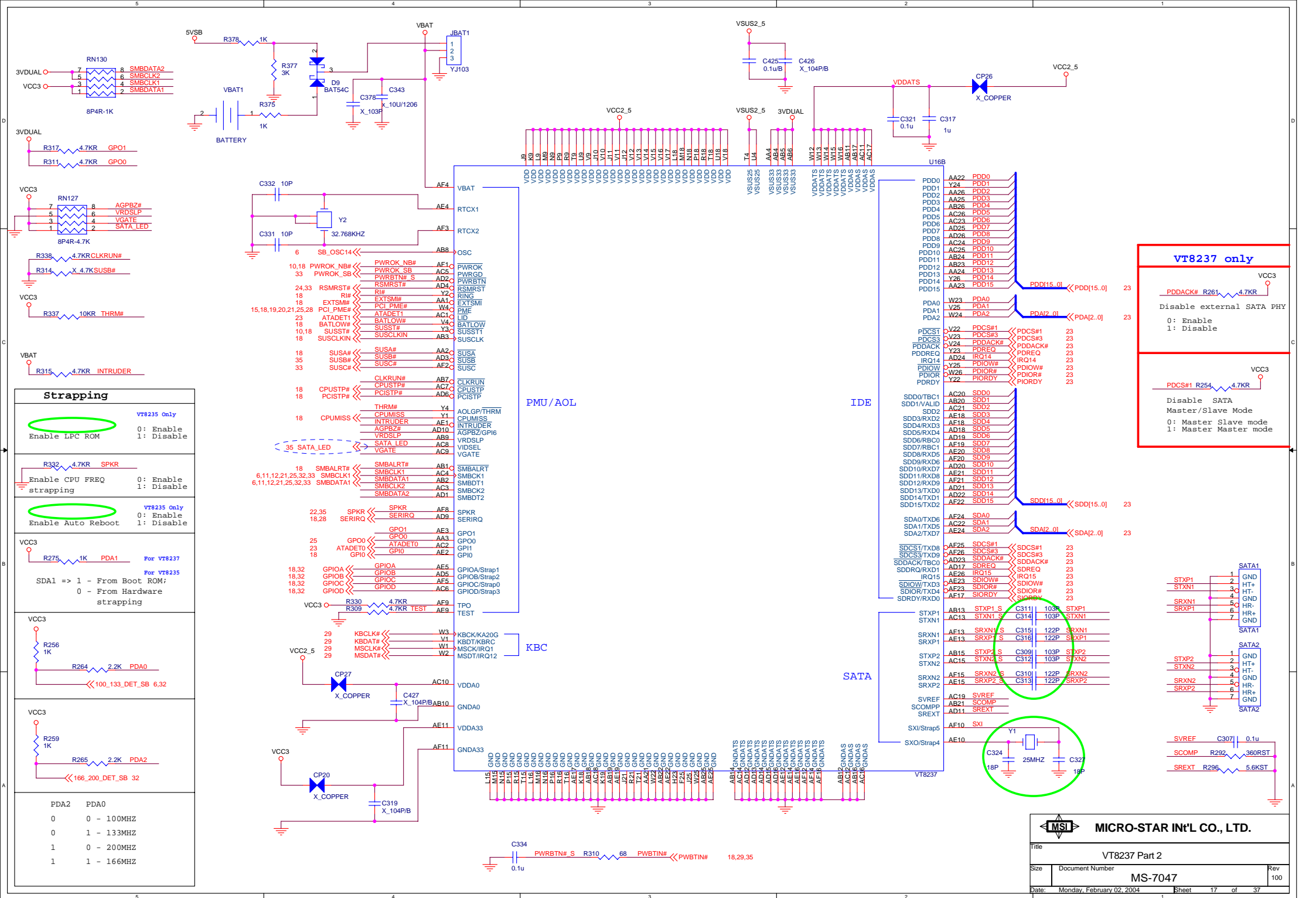
MSI MICRO-STAR INT'L CO., LTD.

Title: AGP PRO Slot

Size: Document Number: MS-7047

Date: Monday, February 02, 2004 Sheet 15 of 37





VT8237 only

PDDACK# R261 4.7KR

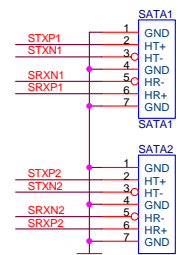
Disable external SATA PHY

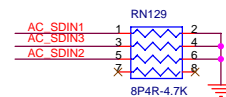
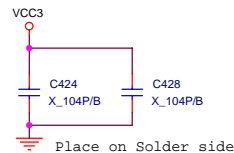
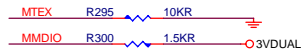
0: Enable
1: Disable

PDCS#1 R254 4.7KR

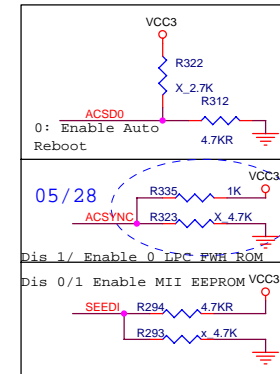
Disable SATA Master/Slave Mode

0: Master Slave mode
1: Master Master mode

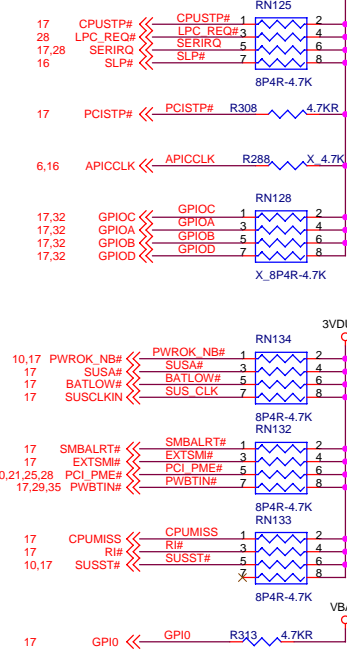




8237 strapping



SB Pull up resistors



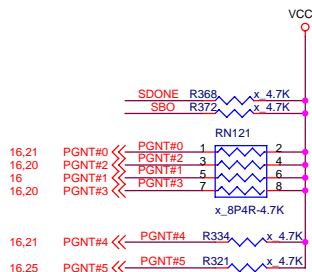
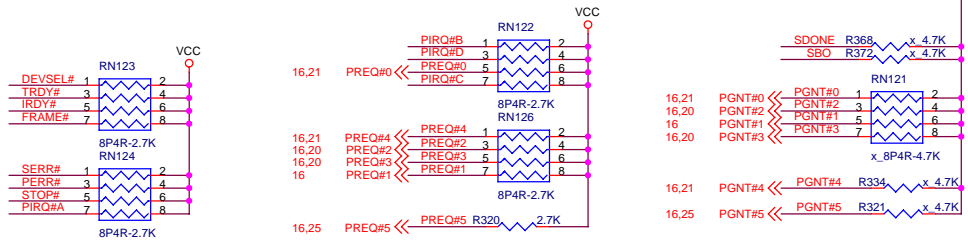
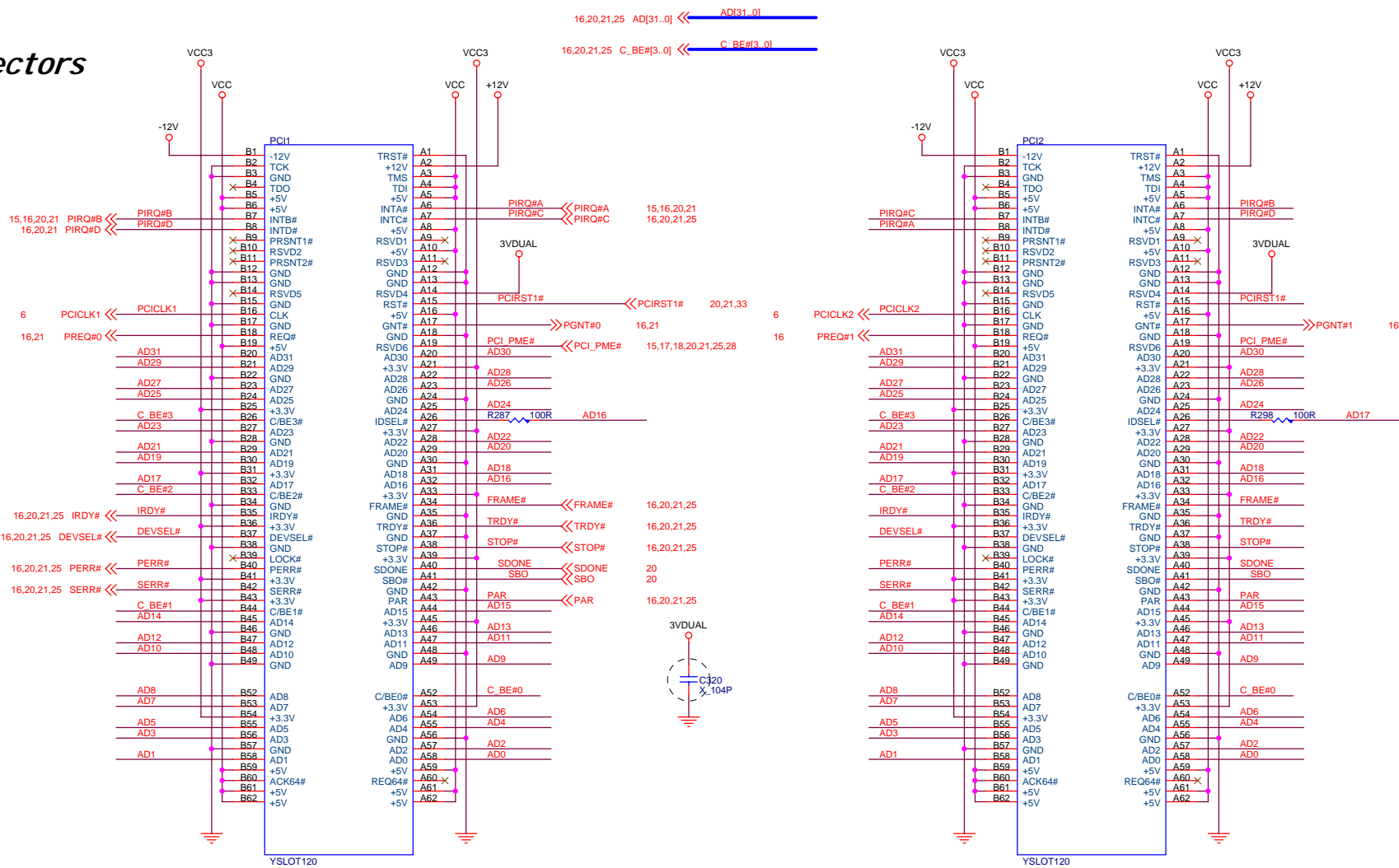
03/05/2003



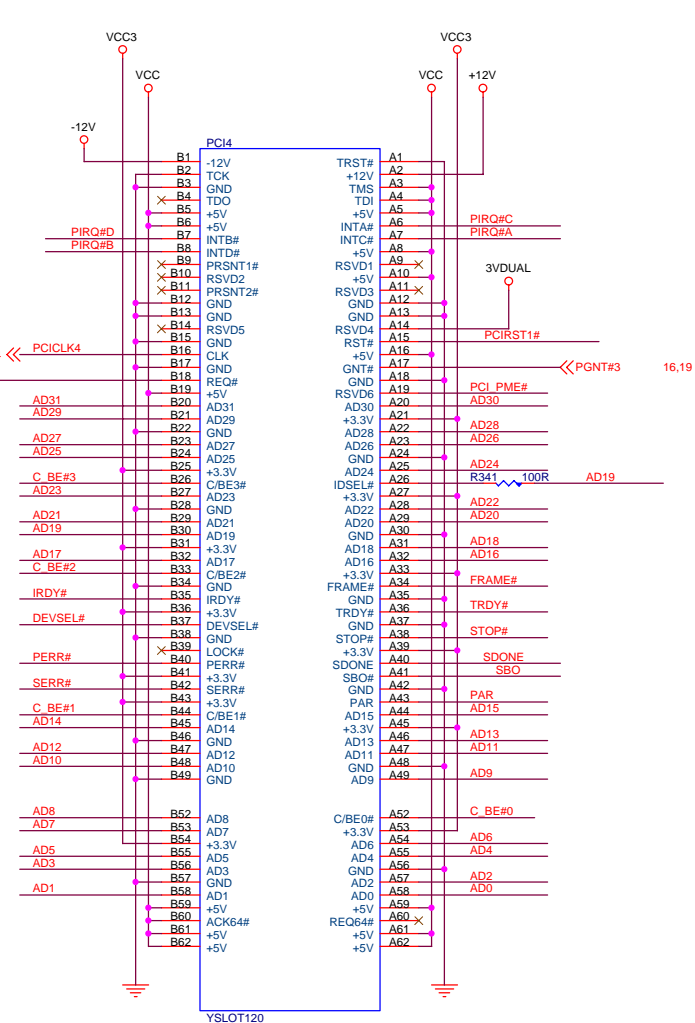
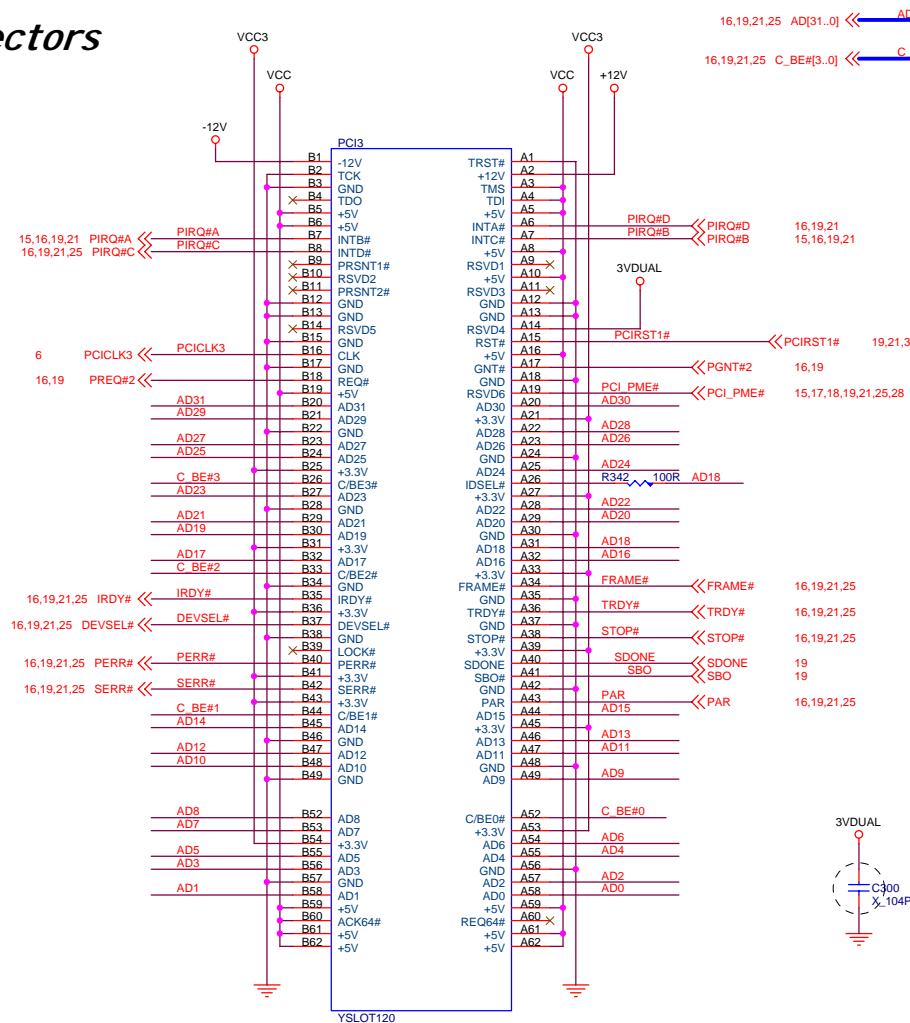
MICRO-STAR IN'L CO., LTD.

Title			VT8237 Part 3
Size	Document Number	MS-7047	
Date:	Tuesday, February 03, 2004	Sheet	18 of 37

PCI Connectors



PCI Connectors



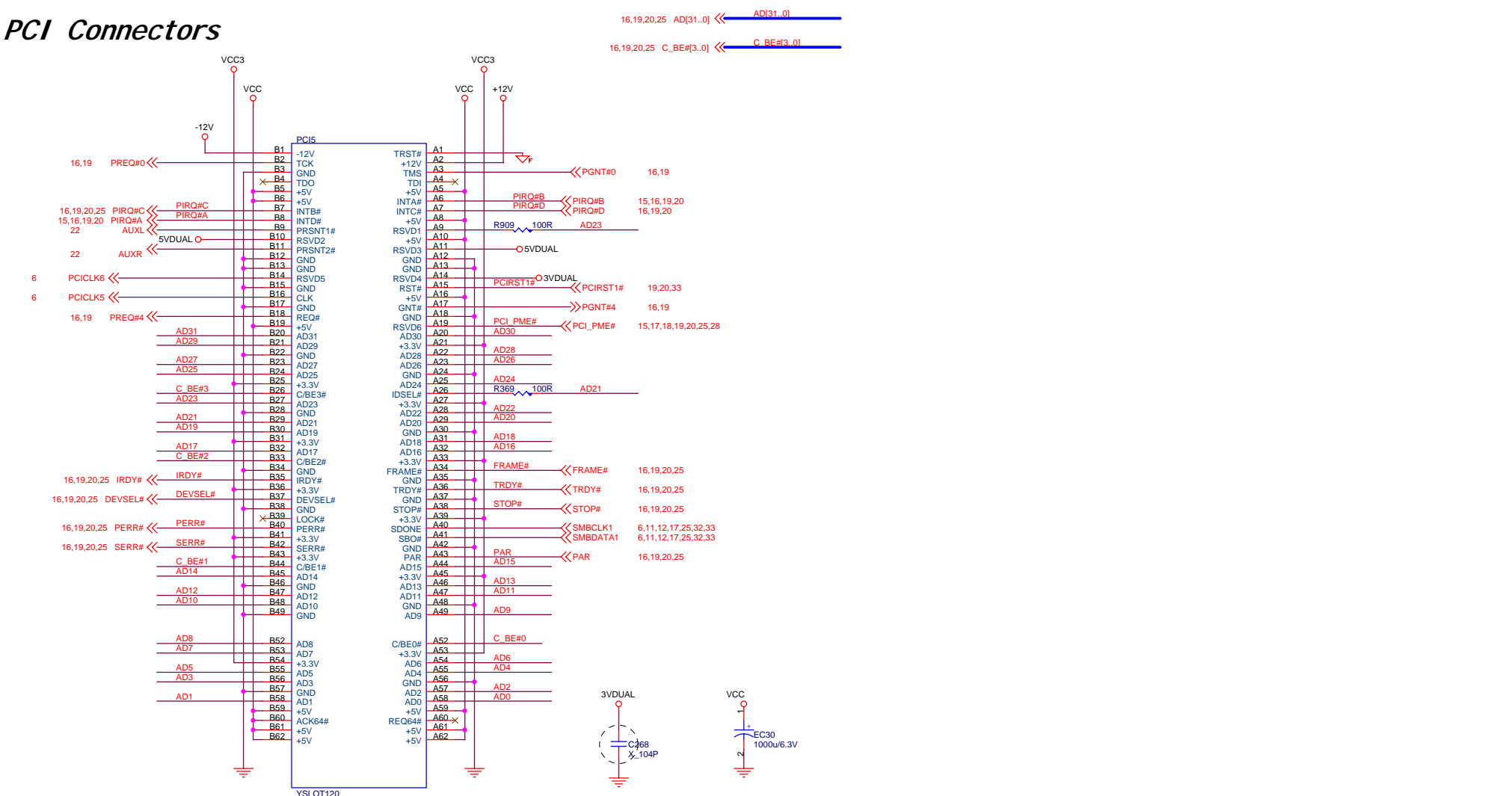
MICRO-STAR INT'L CO., LTD.

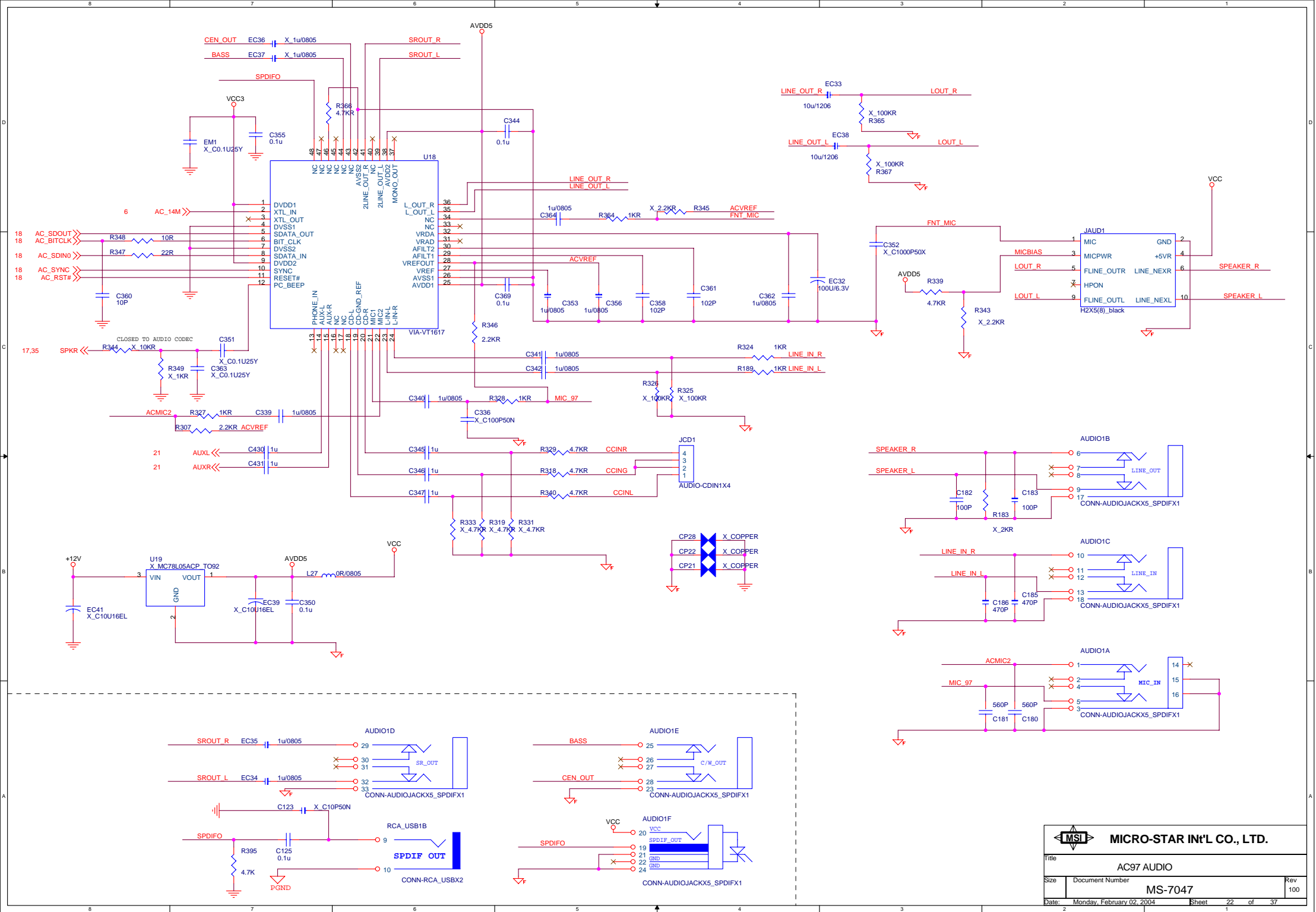
Title	PCI Connector 3 & 4
-------	---------------------

Size	Document Number
	MS-7047

Date:	Monday, February 02, 2004	Sheet	20	of	37
-------	---------------------------	-------	----	----	----

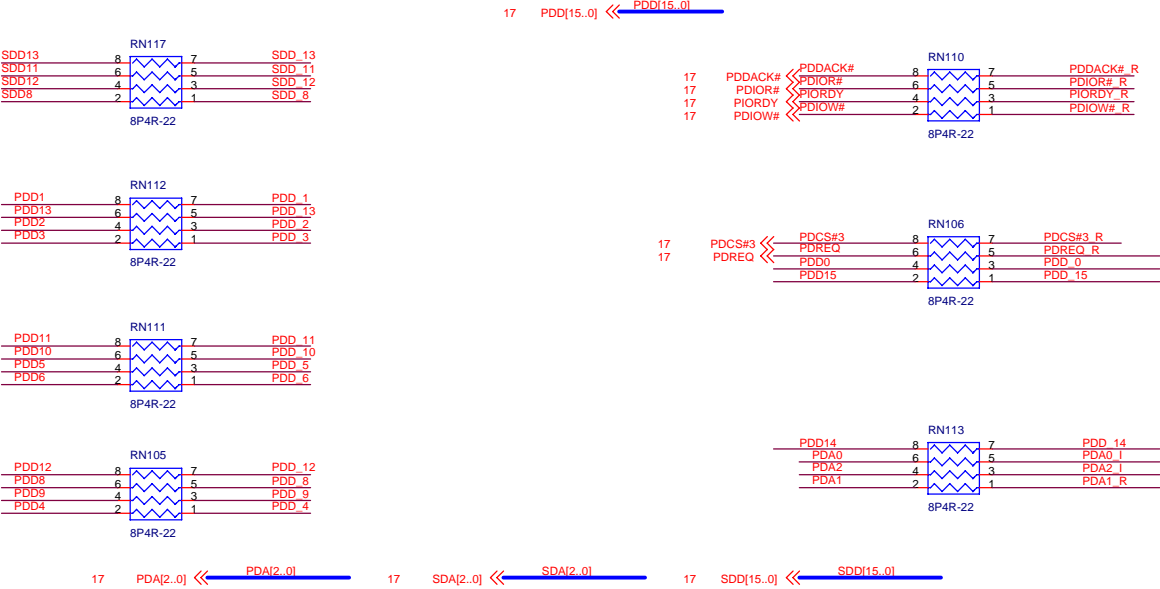
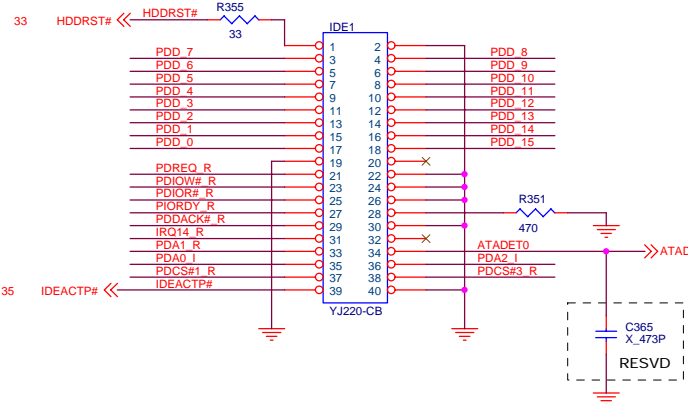
PCI Connectors



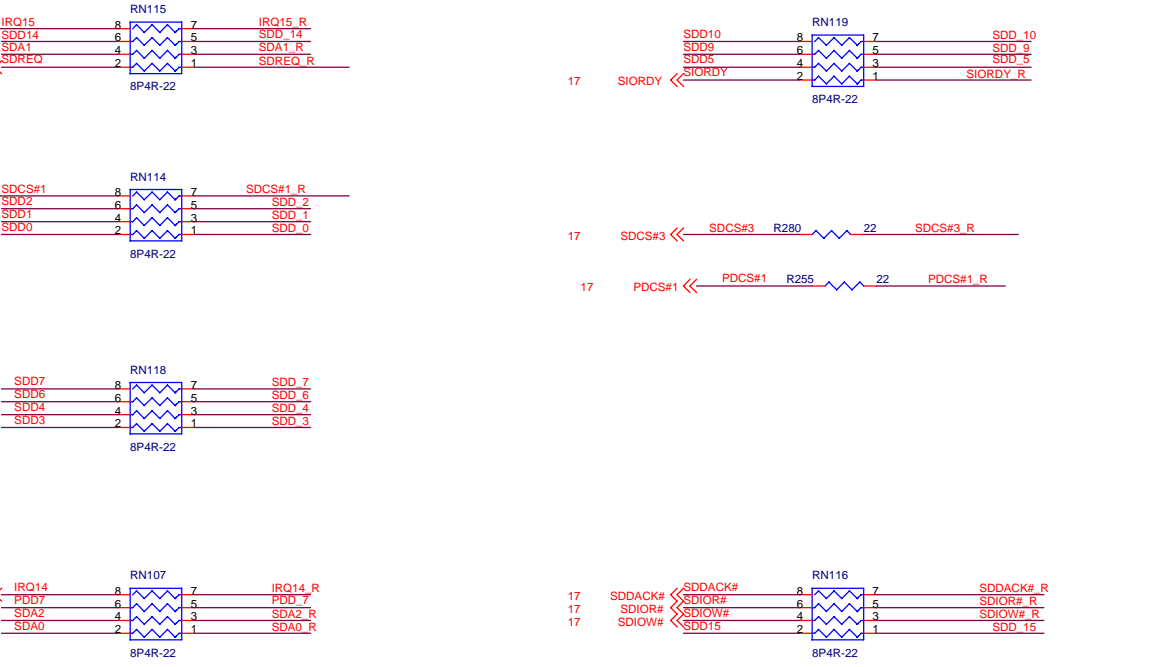
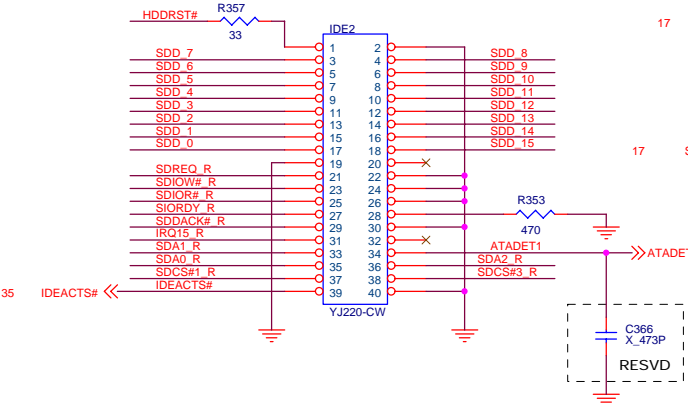


ATA 33/66/100 Connector

PRIMARY IDE CONN.

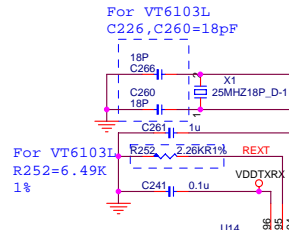
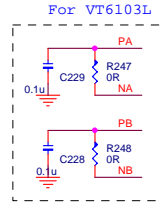


SECONDARY IDE CONN.

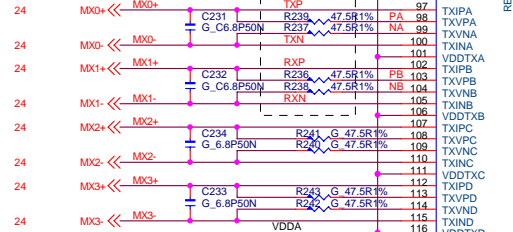


For 100/133/166 power strapping

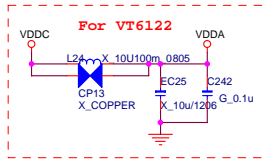
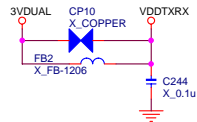
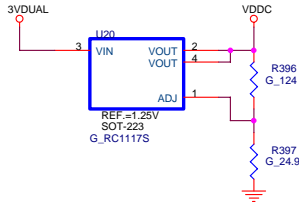
USB-RJ45-LED-P35-152-1GJ9(Speed Tech) for VT6122
 USB-RJ45-LED-P35-152-1GP9(Speed Tech) for VT6103L



For VT6103L
 R236-r239=49.9 1%



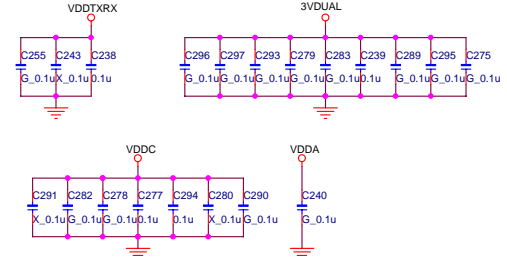
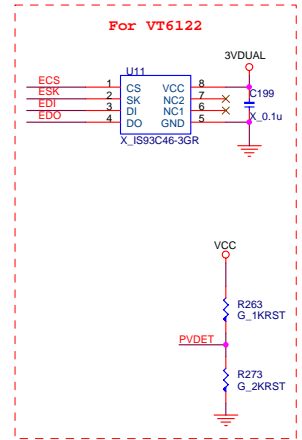
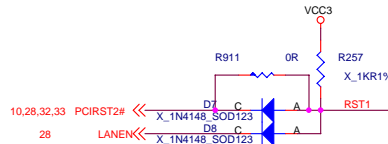
VT6122
 GIGA NIC
 LQFP-128



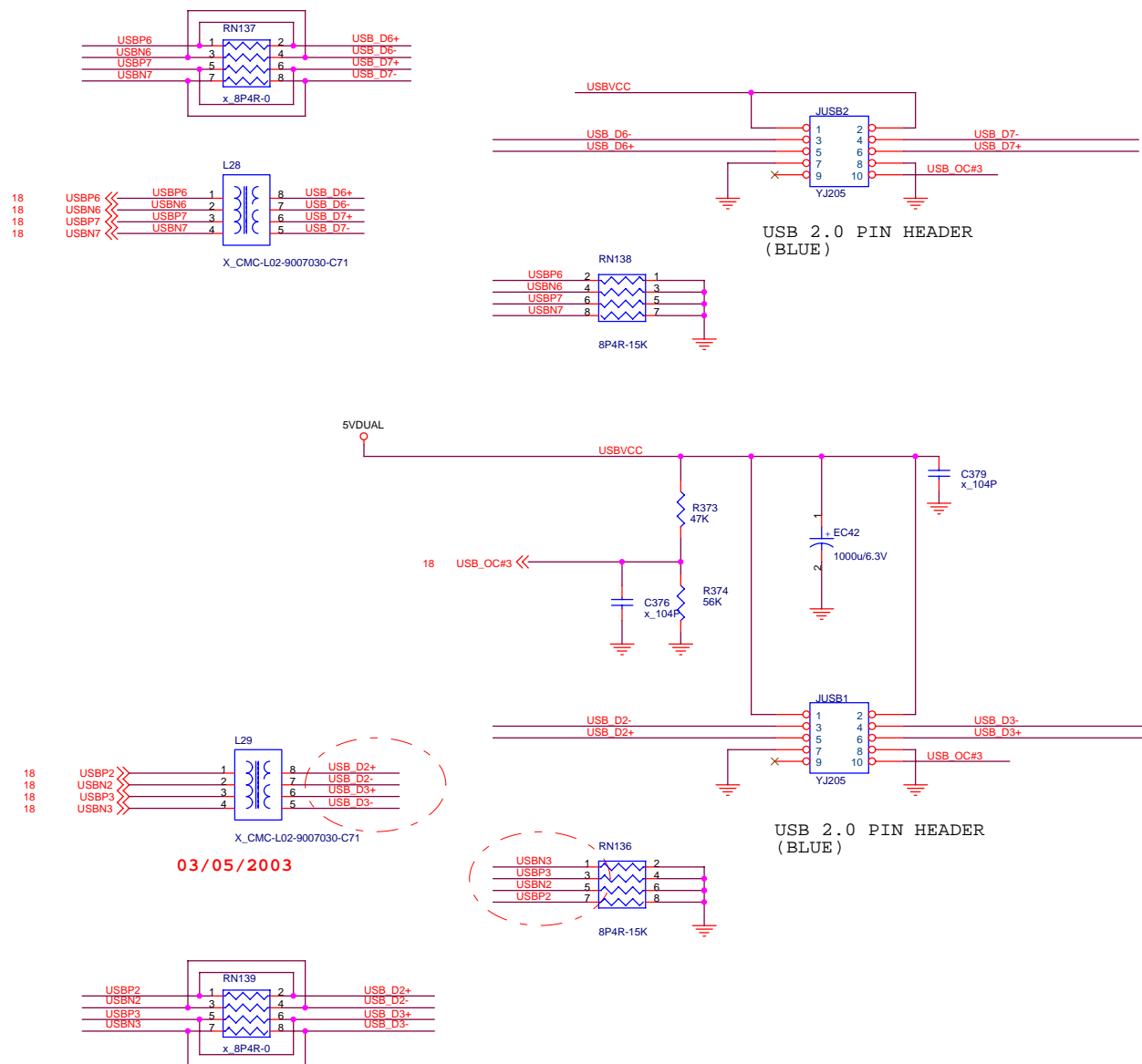
VT6122 Gigabit Ethernet Solution

Remove Part

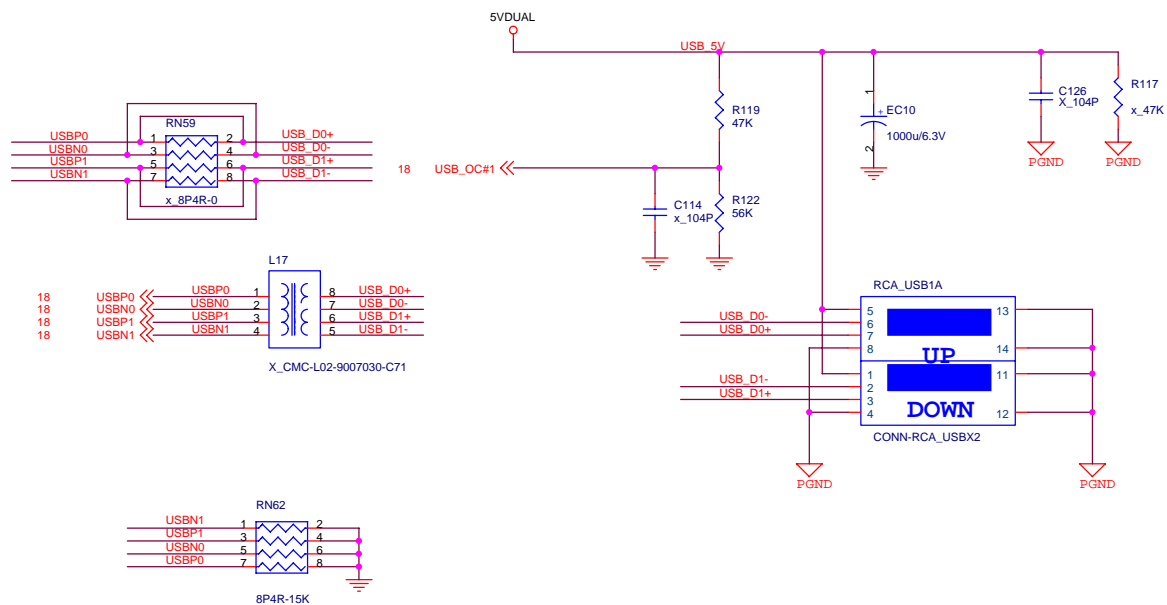
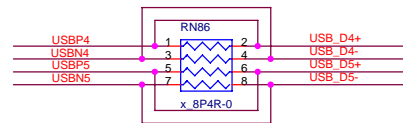
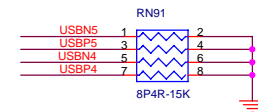
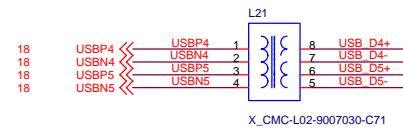
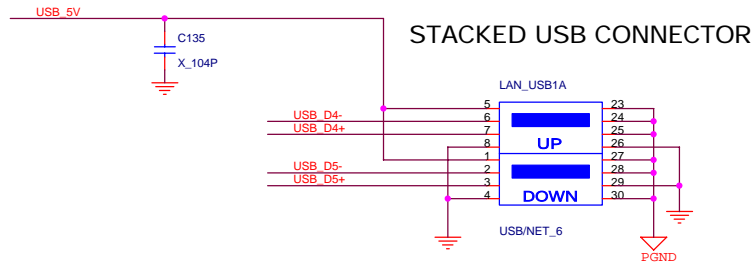
Capacitor	C4,C12,C15,C16,C24
Resistor	RN1,R11,R14,R24,R25,R27,R30,R32,R35
Other	U5




FRONT USB PORT



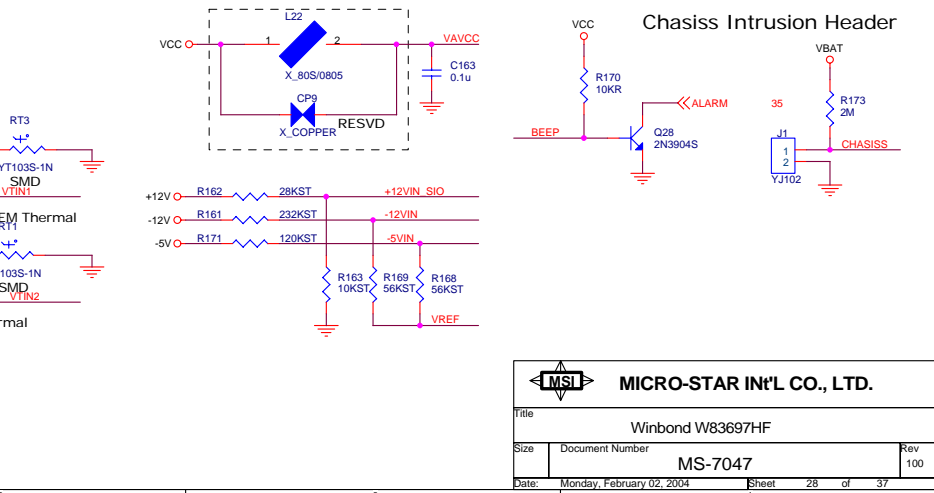
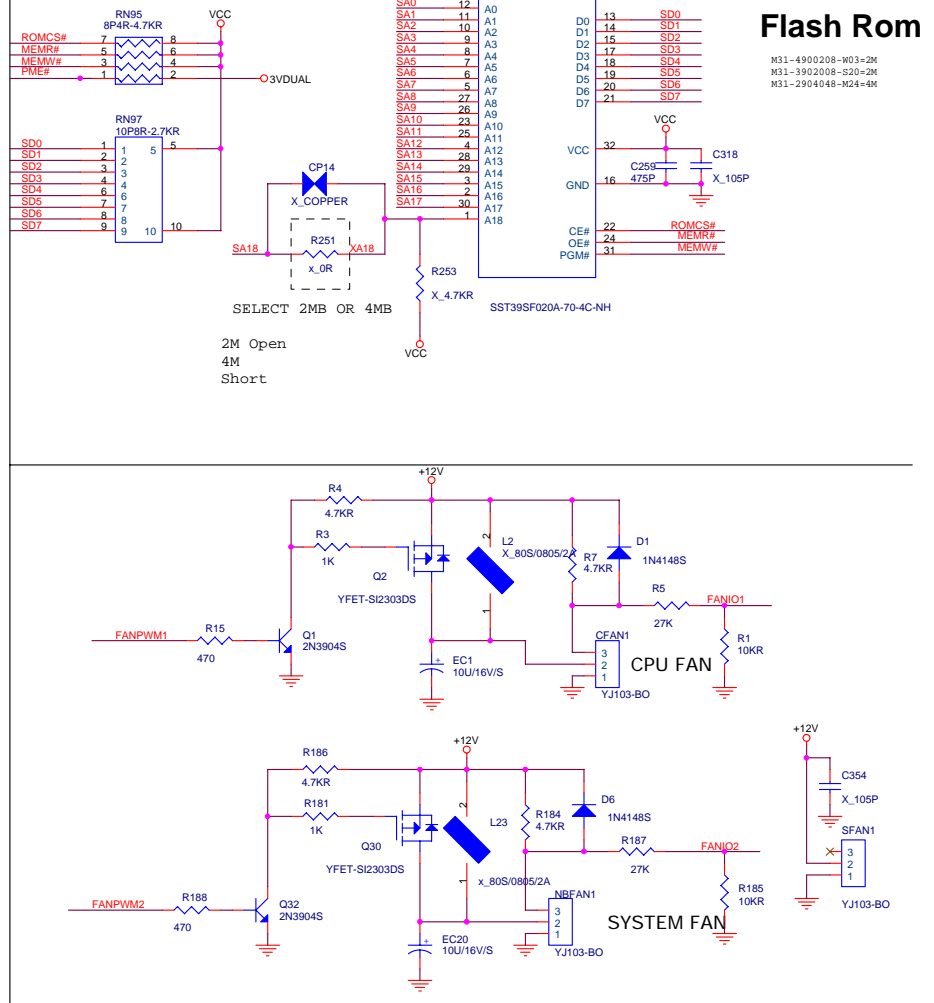
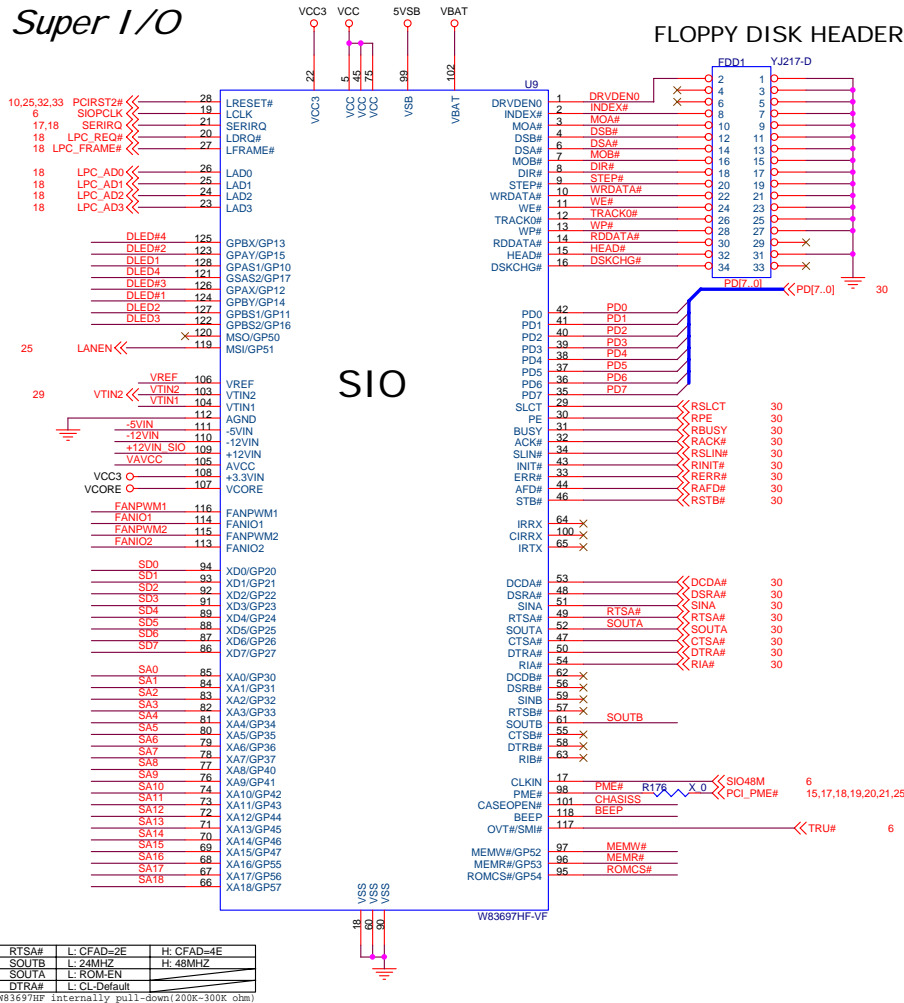
REAR USB PORT



03/05/2003

 MICRO-STAR INT'L CO., LTD.			
Title Rear USB Port			
Size	Document Number MS-7047		Rev 100
Date: Monday, February 02, 2004 Sheet 27 of 37			

Super I/O



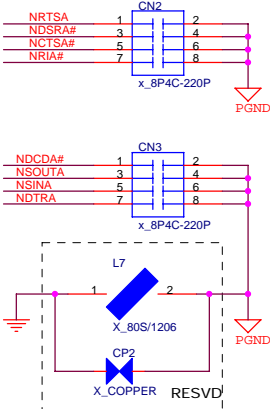
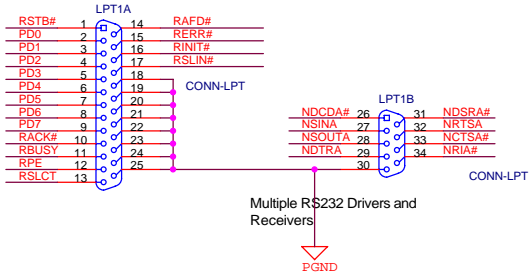
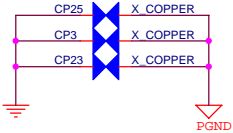
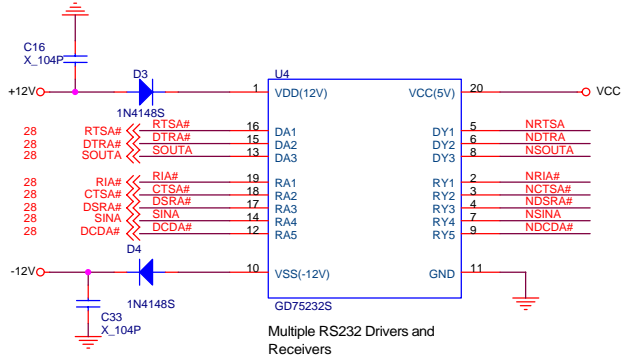
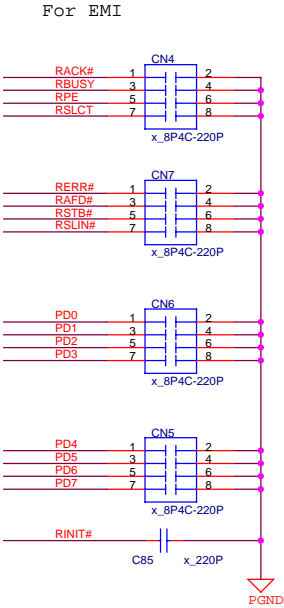
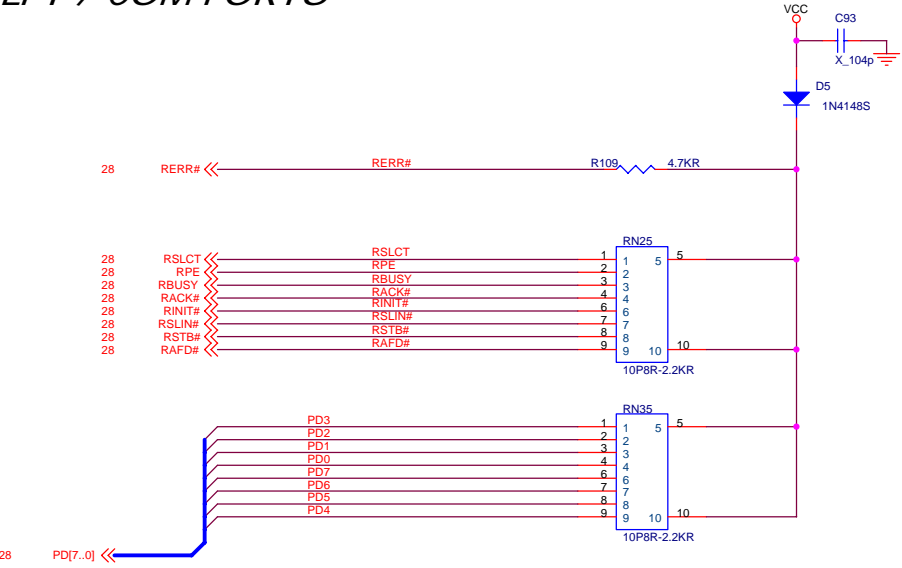
The diagram illustrates the PCB layout for the PS2 module, showing the following components and connections:

- Power Section:**
 - 5VDUAL input connected to F1 (x_YFUSE1.5AS-P).
 - KBVCC input connected to C3 (x_39P) and EC2 (x_10U/16V/S).
 - RESVD input connected to L1 (X_80S/1206) and CP1 (X_COPPER).
 - C1 (X_104P) connected to PGND.
- Signal Section:**
 - KB DAT# and KB CLK# signals connected to L4 and L6 (x_121S/0603).
 - MS CLK# signal connected to L5 (x_121S/0603).
 - MS DAT# signal connected to L3 (x_121S/0603).
 - Corresponding module signals: XKBDAT1, XKBDAT1, XM SCLK1, and XM DAT1.
- Connector Section:**
 - JKBMS1 connector connected to the YMD12P-1 module.
 - Module pins 14, 4, 6, 2, 13, 1, 5, 3, 15, 16, 10, 12, 8, 7, 11, 9, 17 connected to the module.
 - PGND connections for the module.
- Bottom Section:**
 - MS DAT# signal connected to RN6 (8P4R-4.7K) and R14 (330).
 - KBVCC input connected to RN6 and R14.
 - Module signals: XKBDAT1, XM SCLK1, and XM DAT1 connected to CN1 (x_8P4C-180P).
 - PGND connection for the module.

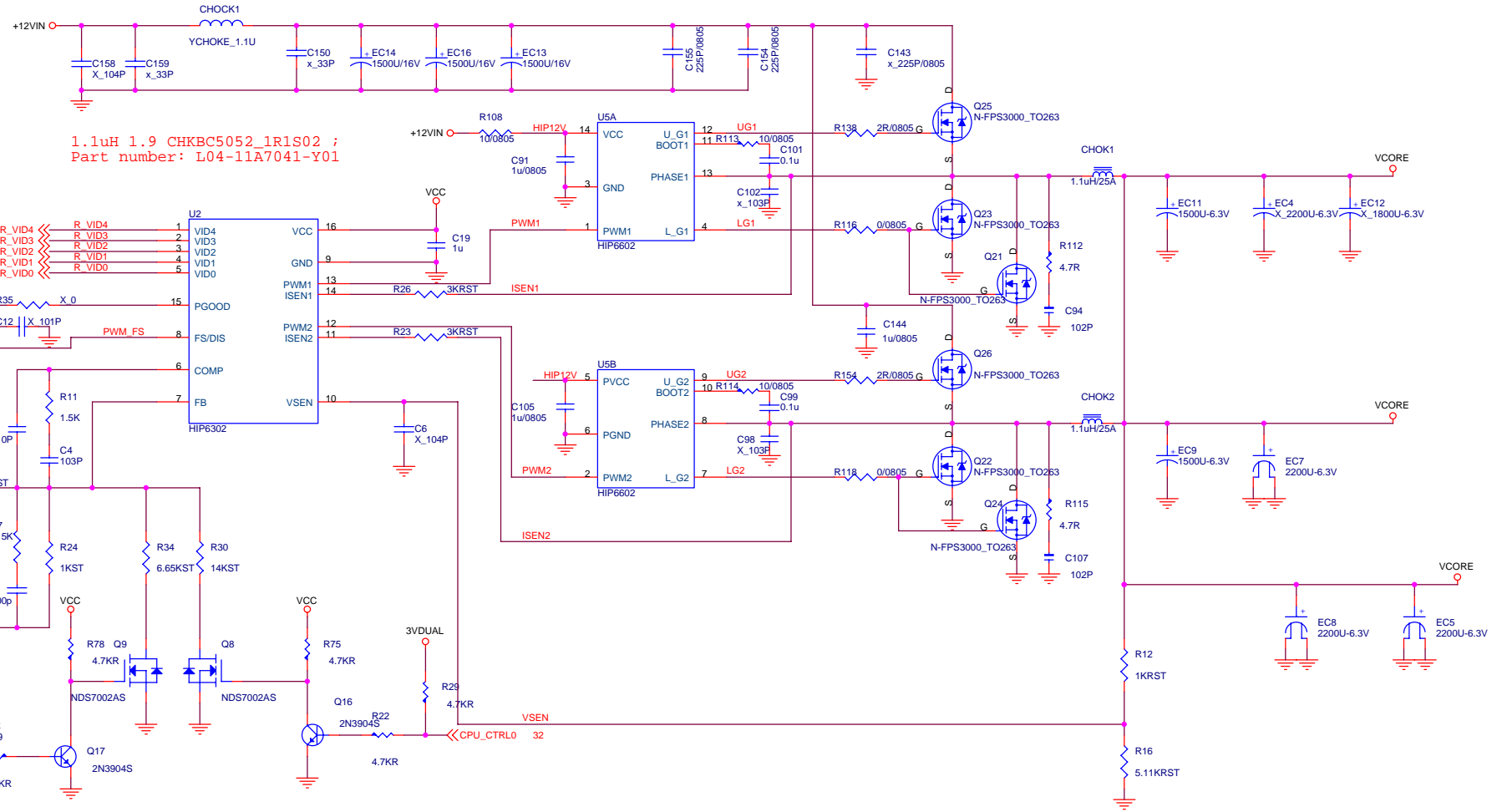
AMD CPU Thermal Protection Circuit

The schematic diagram illustrates the AMD CPU Thermal Protection Circuit. It features a temperature sensor (X_3906) connected to a comparator (U3) and a thermal protection device (CP24). The comparator's output (PS_OUT_1#) drives the thermal protection device. The circuit also includes a thermal protection device (X_COPPER) connected to the thermal protection device (CP24). The circuit is powered by 5VSB and 5V. Key components include resistors R43, R47, R48, R20, R28, R38, and capacitors C10, C8. The circuit is labeled with various pins and signals, including THERMDP, THERMDN, TMP_SPK, PS_IN#, PS_OUT_1#, and VTIN2.

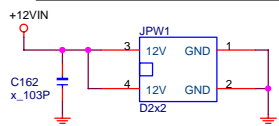
LPT / COM PORTS



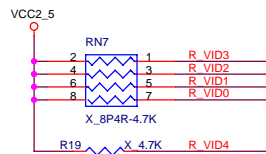
Voltage Regular Module



ATX12V Power Connector



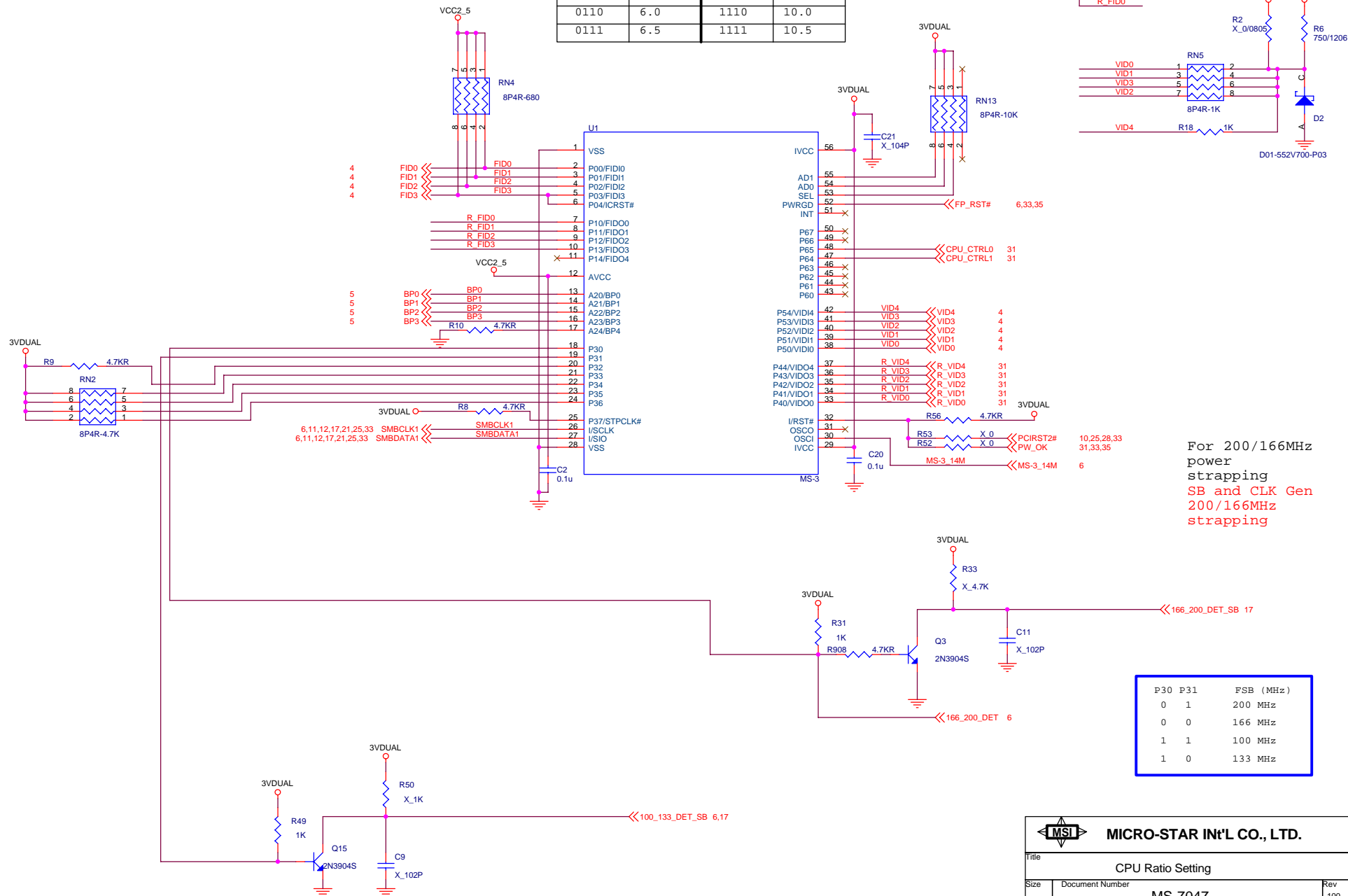
VID Pull-Up Rresistors

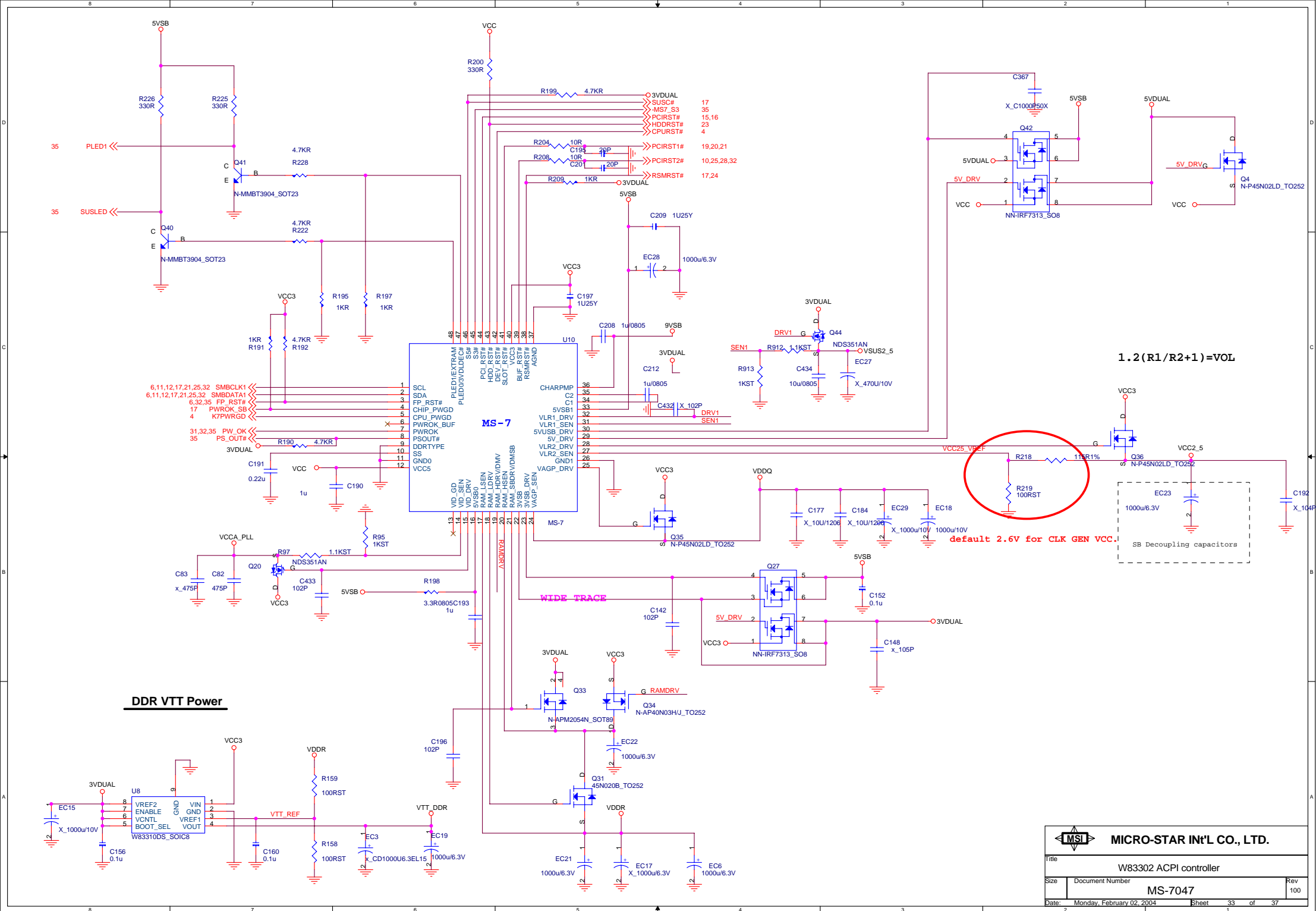


MICRO-STAR INT'L CO., LTD.			
Title VRM 9.0 / HIP6302			
Size	Document Number		Rev
	MS-7047		100
Date:	Monday, February 02, 2004		Sheet 31 of 37

CPU Ratio / CPU Vcore / Smart LEDSetting

FID[3:0]	Clock Multiplier	FID[3:0]	Clock Multiplier
0000	11.0	1000	7.0
0001	11.5	1001	7.5
0010	12.0	1010	8.0
0011	12.5	1011	8.5
0100	5.0	1100	9.0
0101	5.5	1101	9.5
0110	6.0	1110	10.0
0111	6.5	1111	10.5

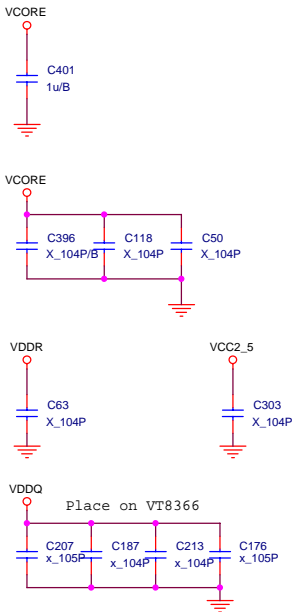
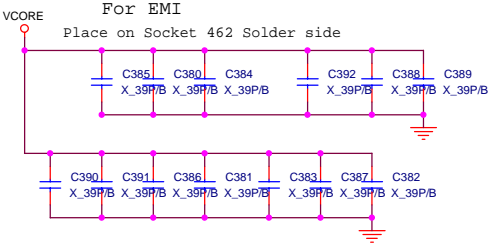
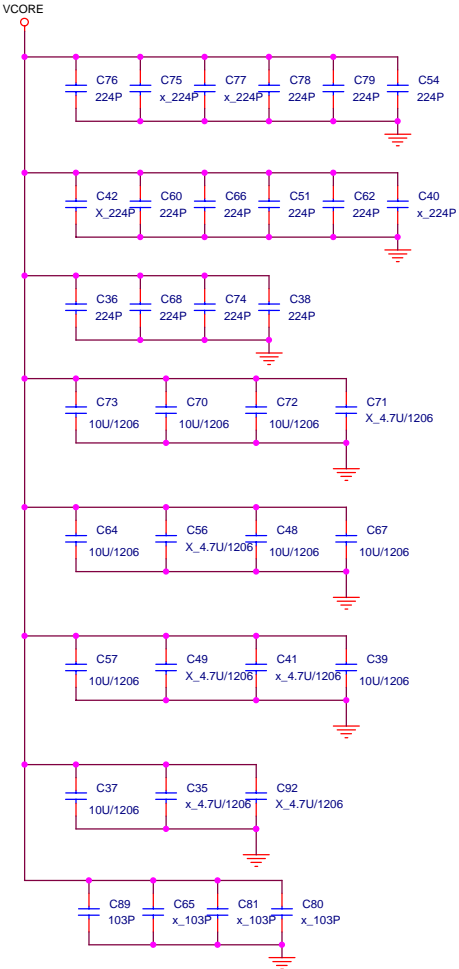




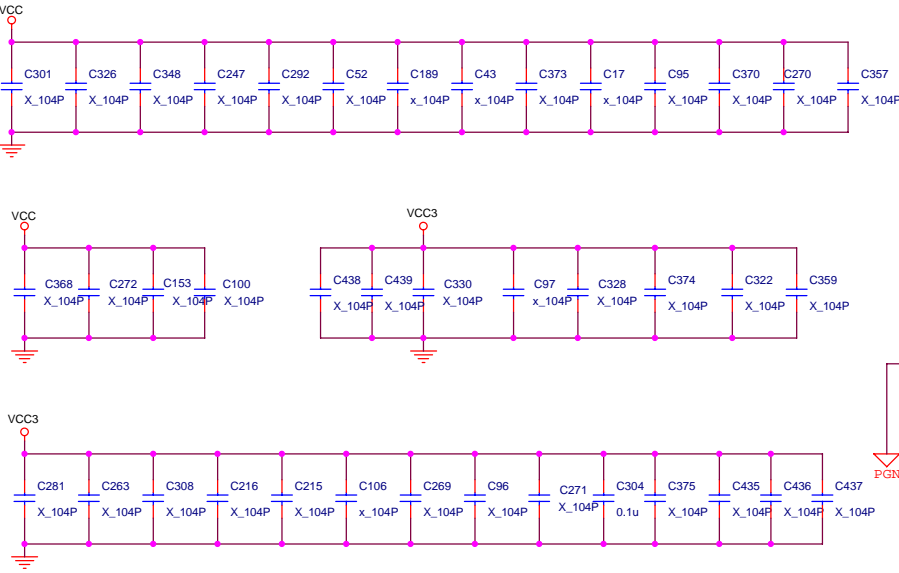
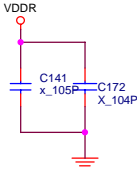
BULK / Decopuling

CPU

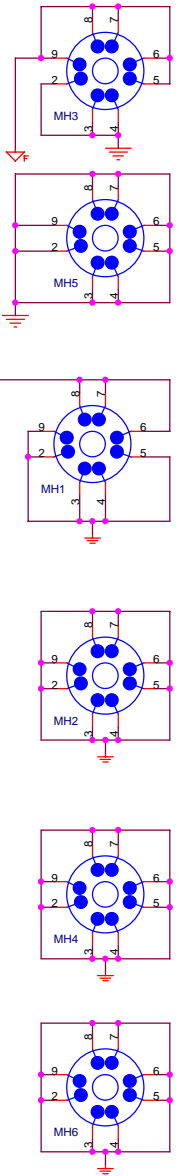
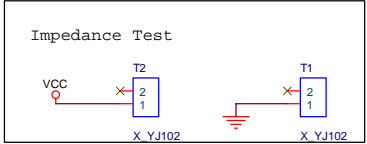
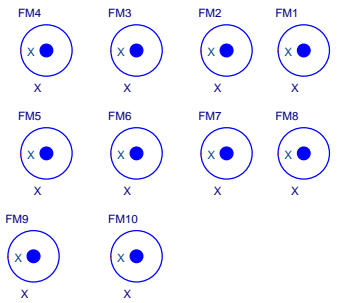
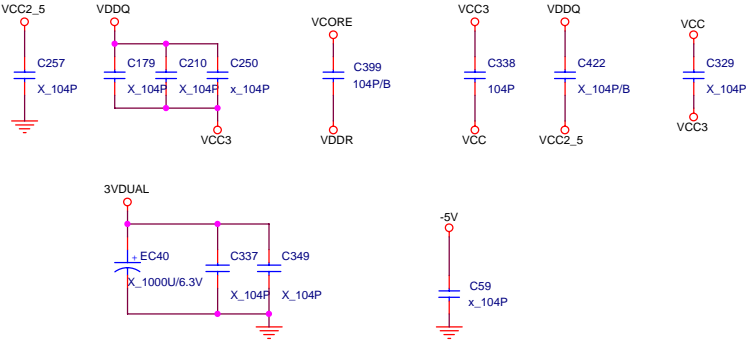
Place on SOCKET 462 Cavity



DDR

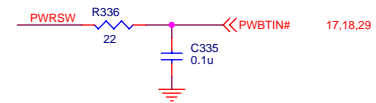
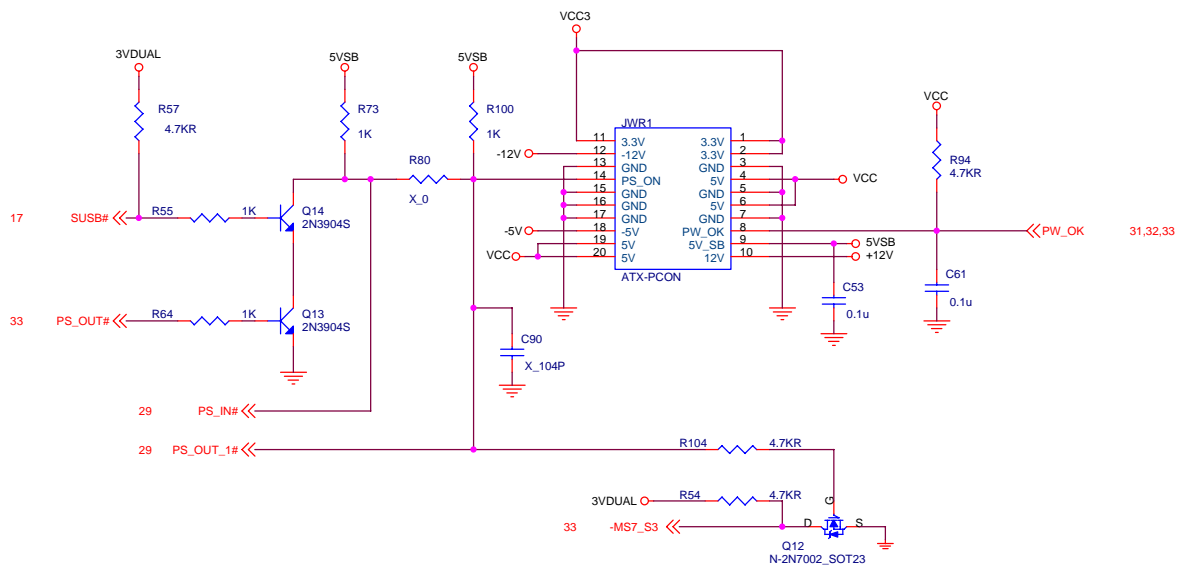
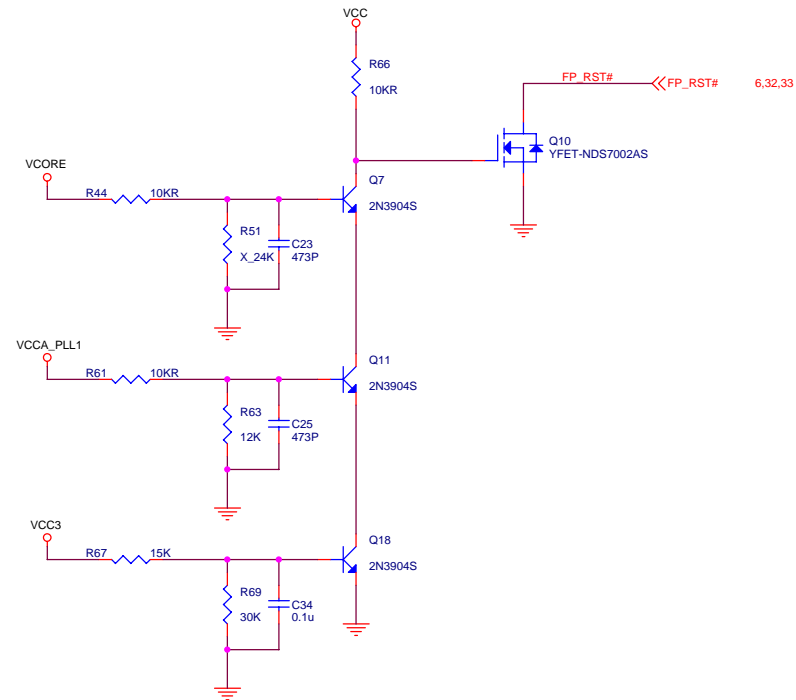
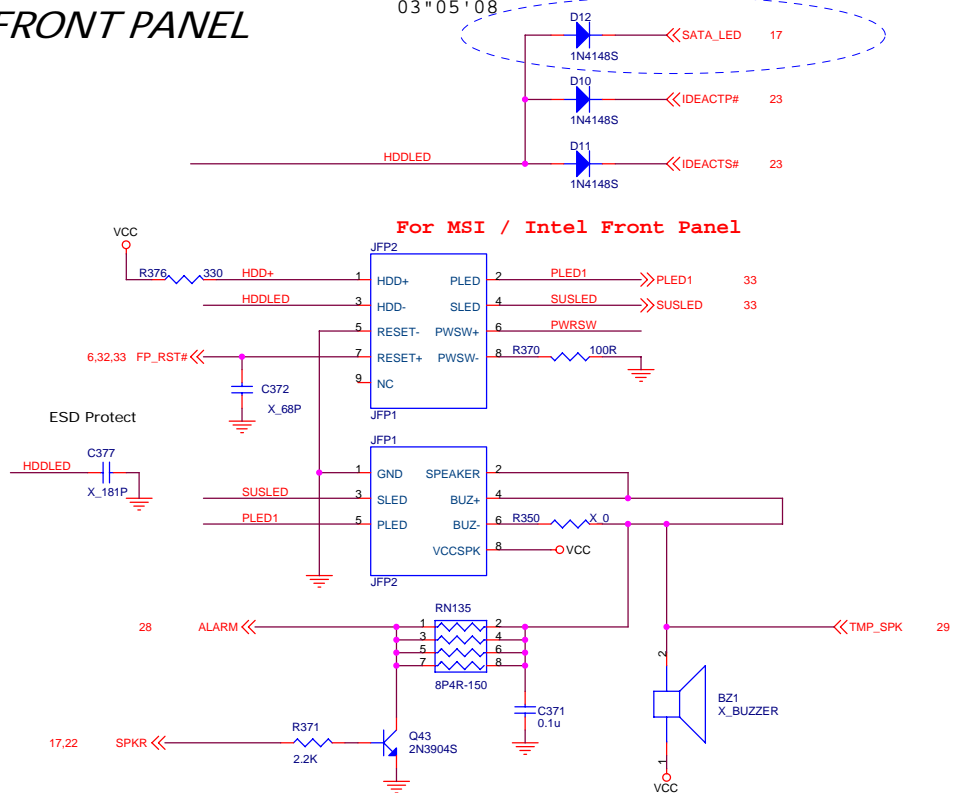


For EMI



FRONT PANEL

03"05'08



MICRO-STAR INT'L CO., LTD.

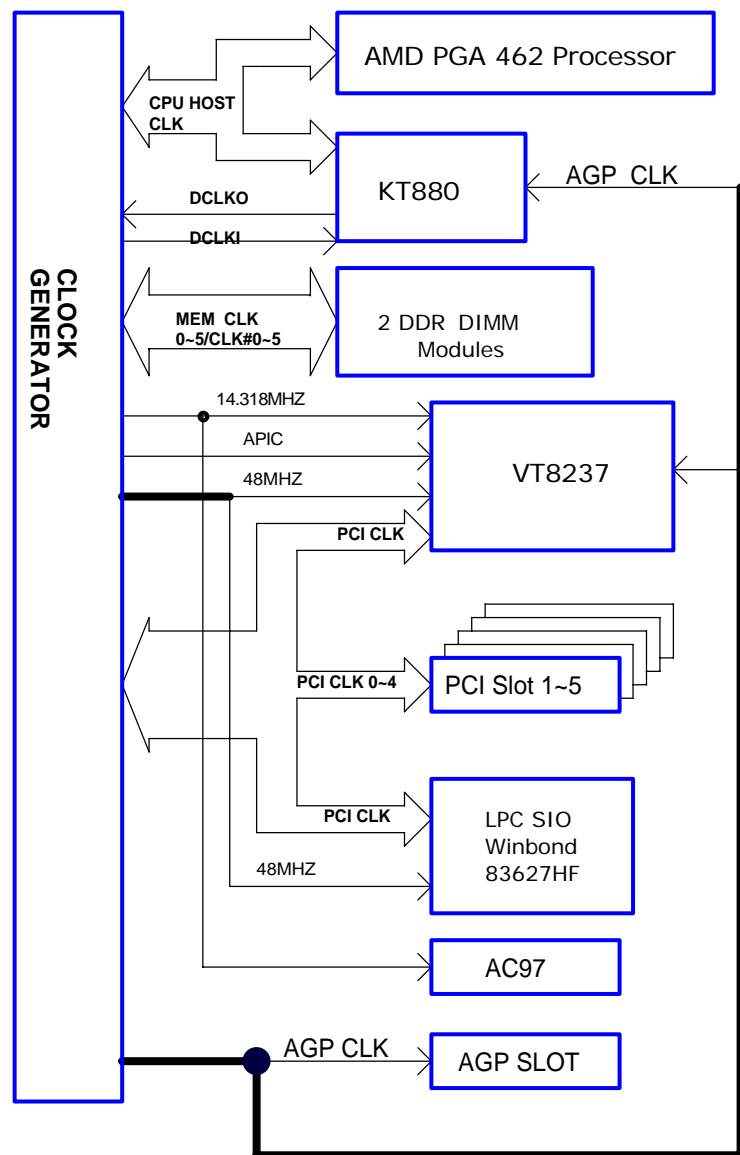
Title	FRONT PANEL
-------	-------------

Size	Document Number
	MS-7047

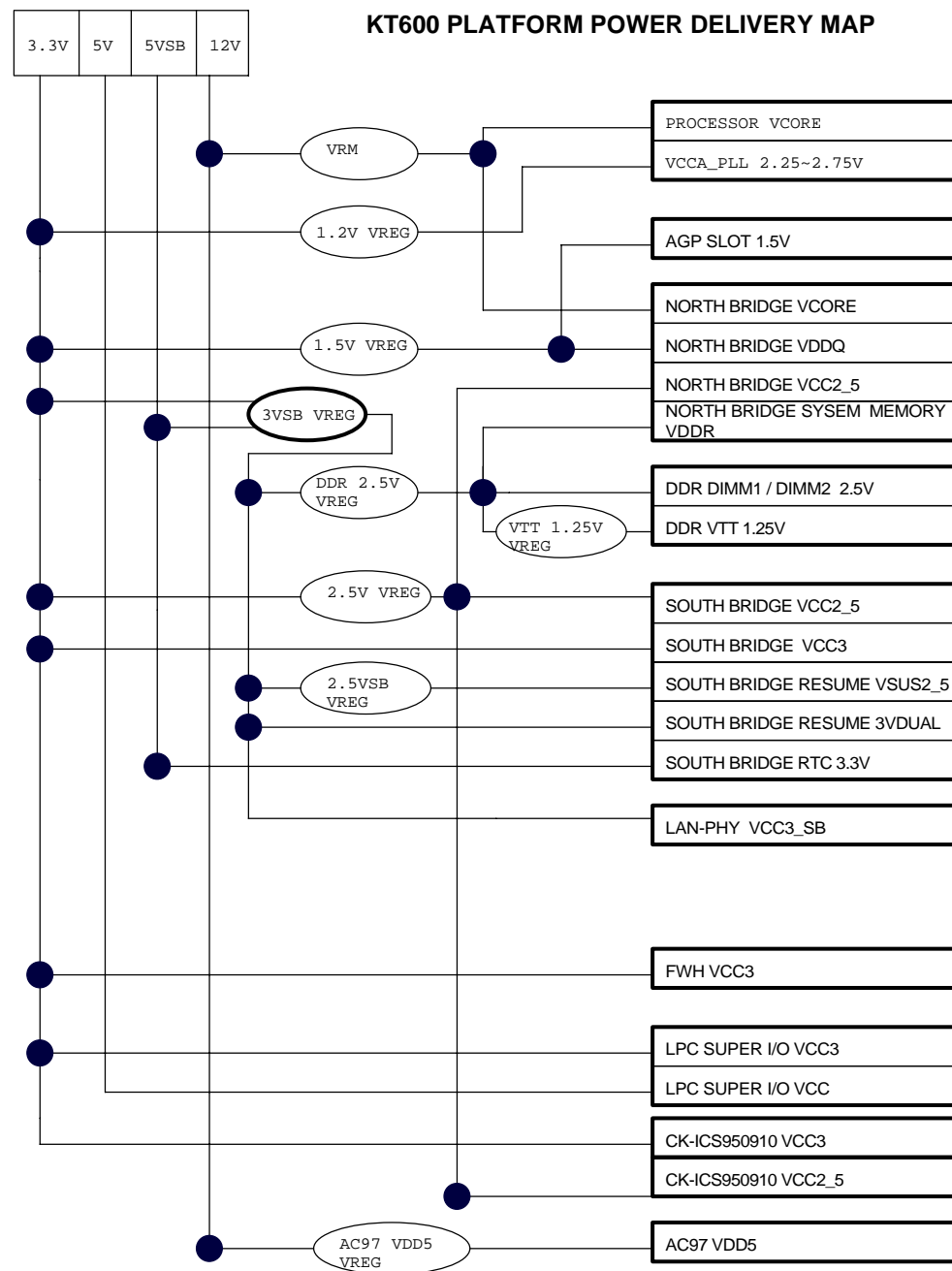
Date:	Monday, February 02, 2004	Sheet	35	of	37
-------	---------------------------	-------	----	----	----

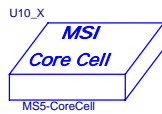
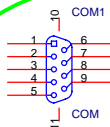
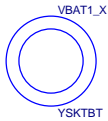
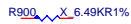
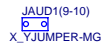
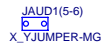
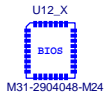
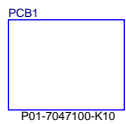
100

PT800 PLATFORM CLOCK GENERATOR MAP



KT600 PLATFORM POWER DELIVERY MAP





MICRO-STAR INT'L CO., LTD.

Title			Manual Part
Size	Document Number		Rev
	MS-7047		100
Date:	Tuesday, February 03, 2004	Sheet	37 of 37