MS-7610

Version 0A

CPU:

Intel Conroe (95W Dual core)

System Chipset:

Intel G41 - MCH (North Bridge)
Intel ICH7 (South Bridge)

On Board Chipset:

BIOS -- SPI
HD -- ALC889
LPC Super I/O -- F71889G
LAN-- REALTEK RTL8111D Co-lay RTL8103E
CLOCK -- RTM875-605

Main Memory:

DDR II *2 (Max 4GB)

Expansion Slots:

PCI2.3 SLOT * 3

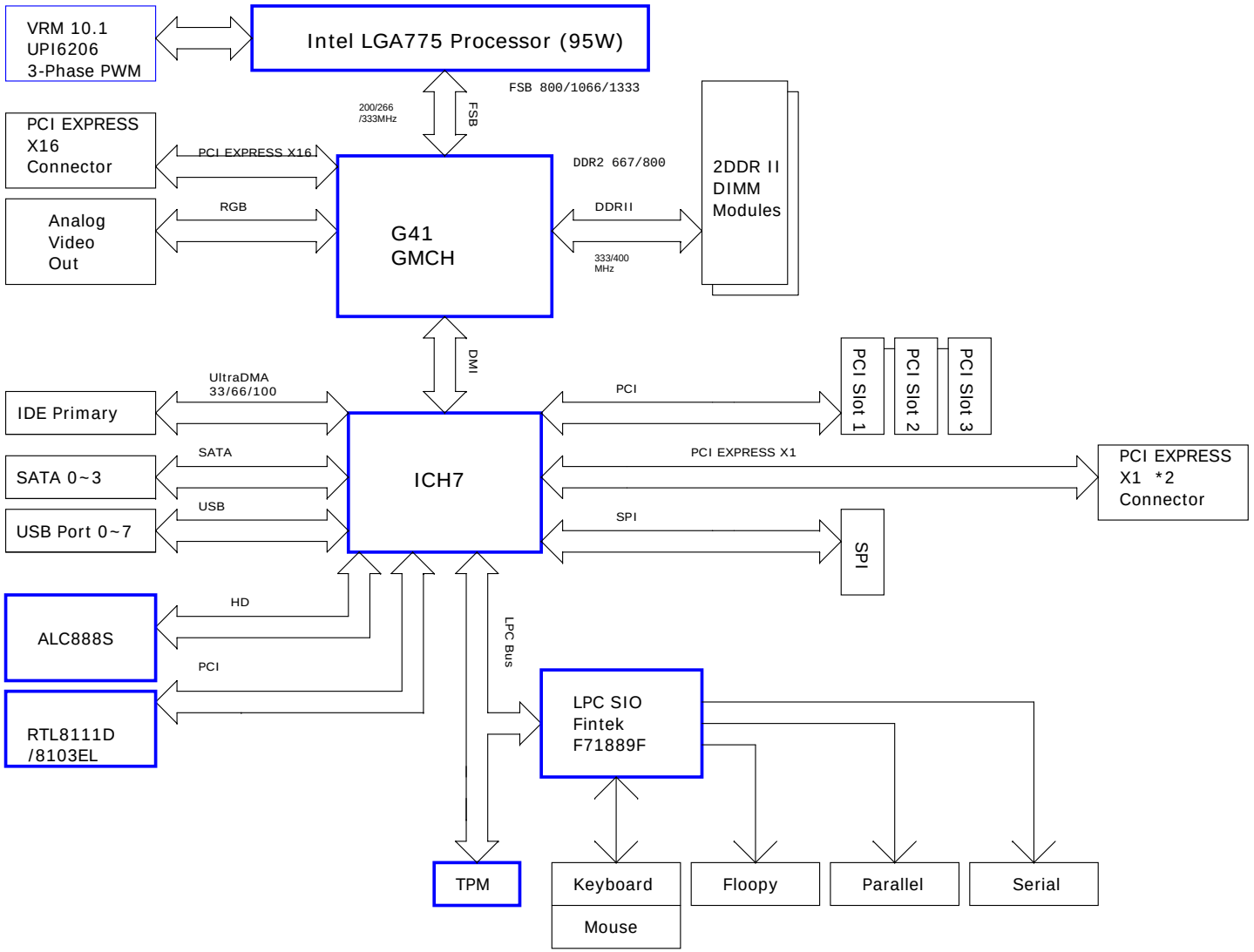
PCI EXPRESS X1 SLOT *2

PCI EXPRESS X16 SLOT *1

UPI PWM:

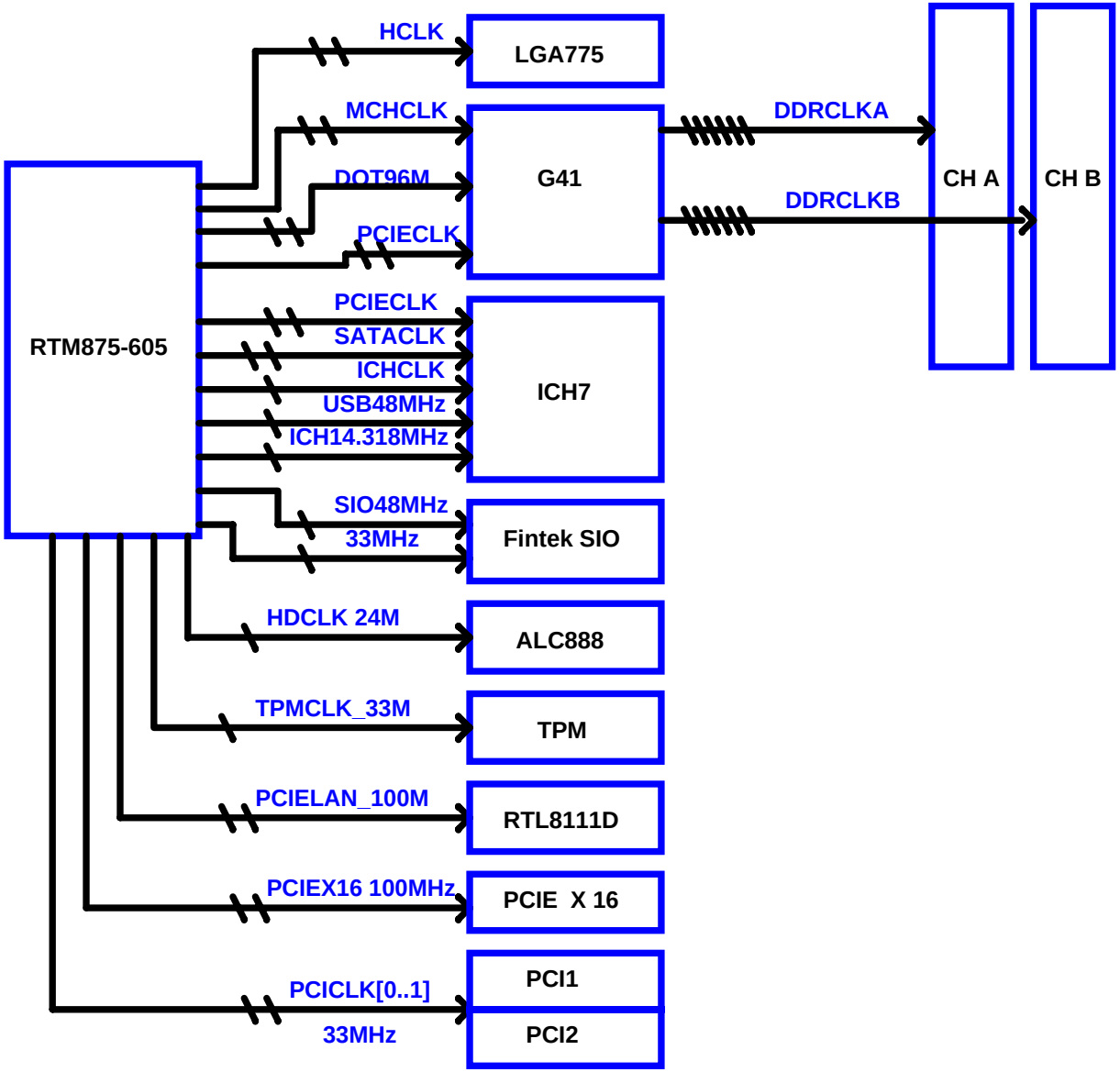
Controller: 3 PHASES + APS

Block Diagram

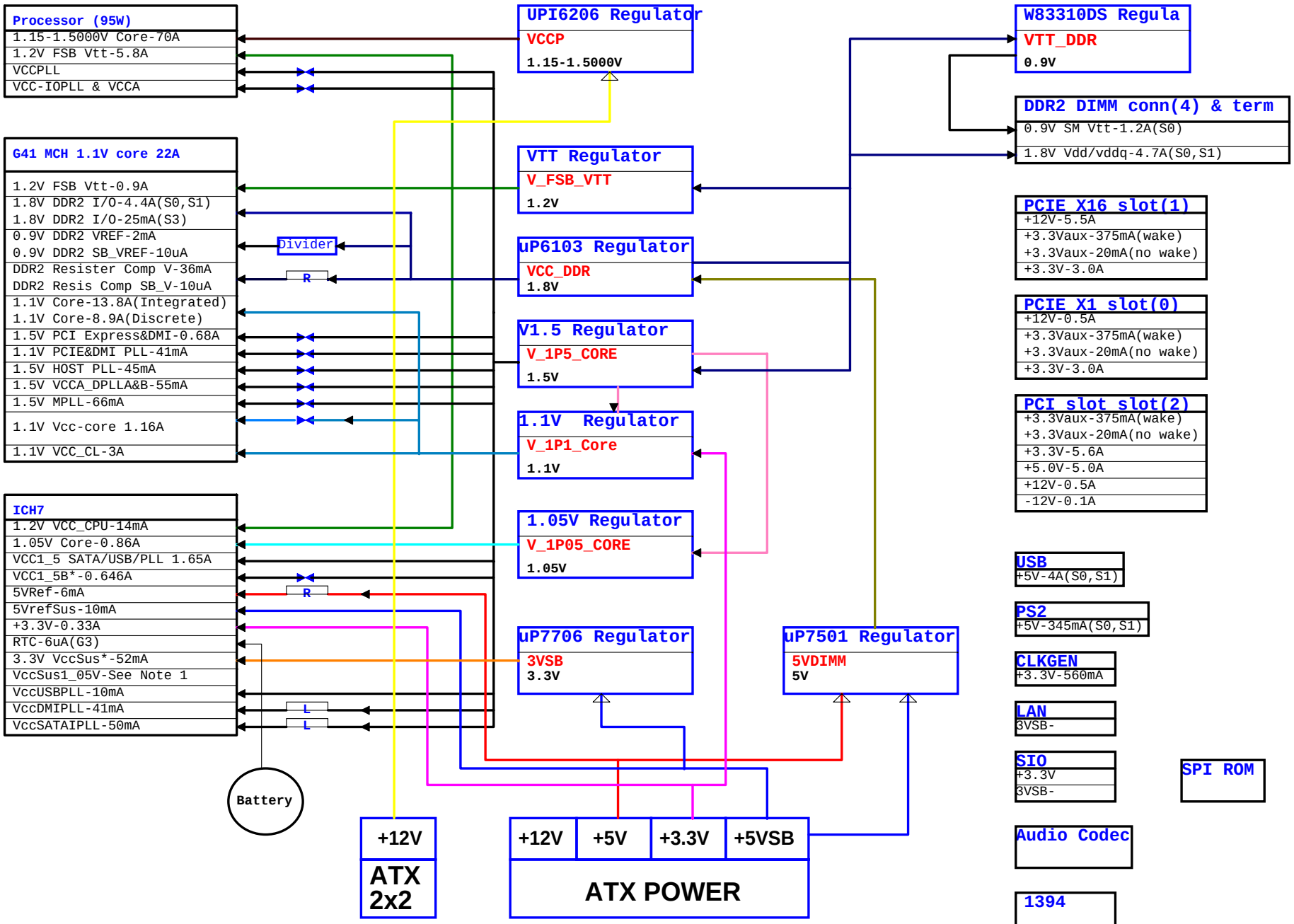


MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7610	
Size: Custom	Document Description: BLOCK DIAGRAM	Rev: 1.0
Date: Monday, March 02, 2009	Sheet 2 of 33	

CLOCK MAP



MICRO-STAR INT'L CO.,LTD		
MS-7610		
Size: Custom	Document Description: CLOCK MAP	Rev: 1.0
Date: Monday, March 02, 2009	Sheet 3 of 33	



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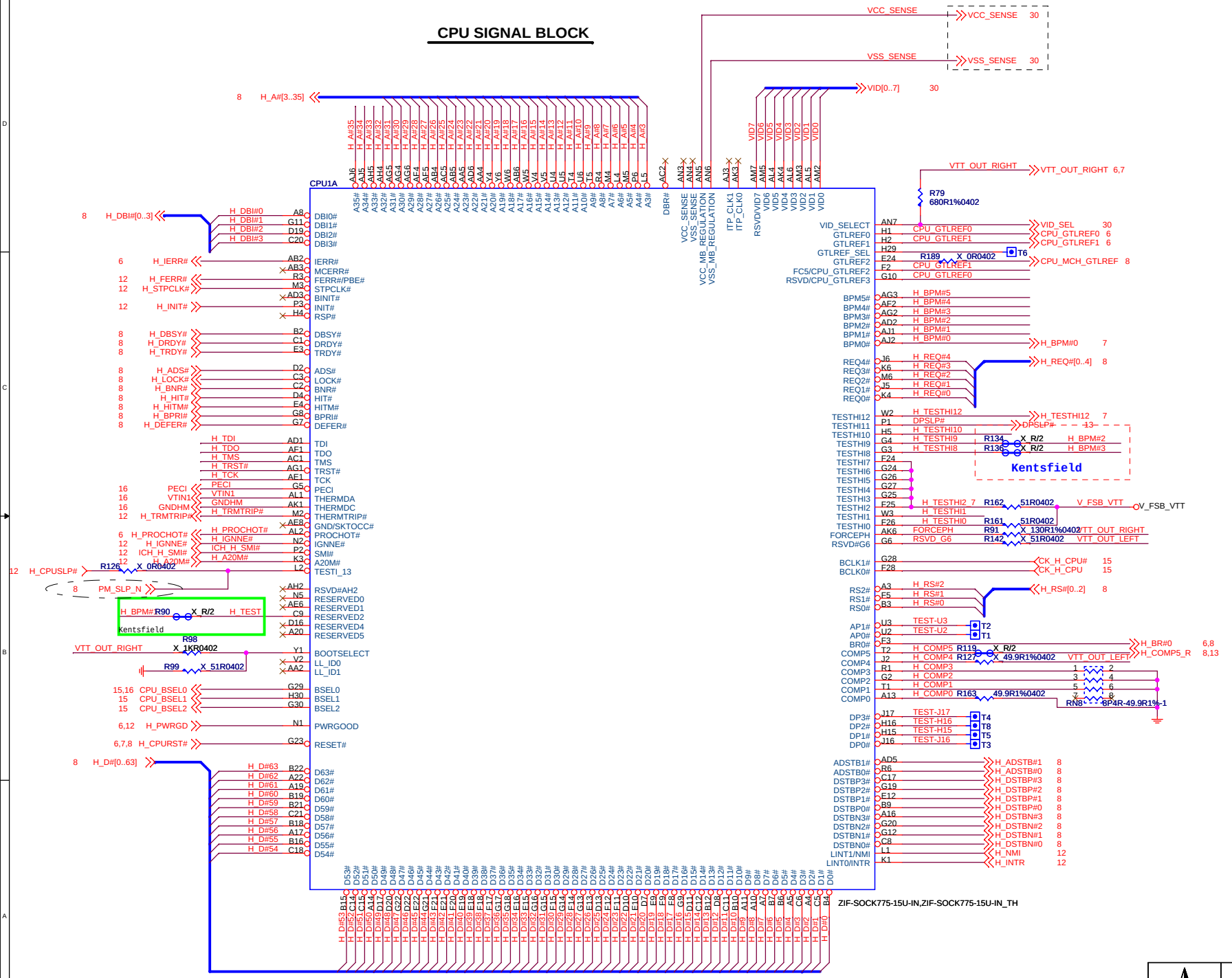
MS-7610

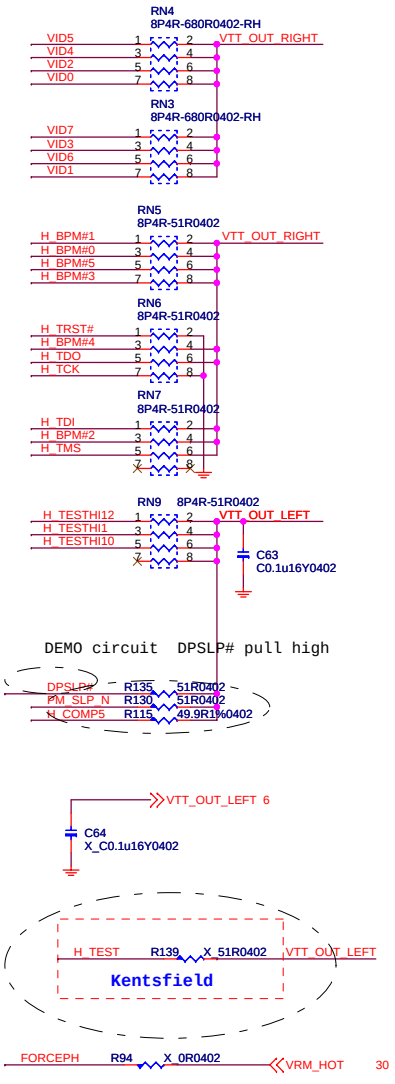
Size	Document Description	Rev
Custom	LGA775 - Signal	1.0

Date: Monday, March 02, 2009 Sheet 4 of 33

CPU SIGNAL BLOCK



PULL HIGHT PULL DOWN



MICRO-STAR INT'L CO.,LTD		
MS-7610		
Size: Custom	Document Description: LGA775 - Signal	Rev: 1.0
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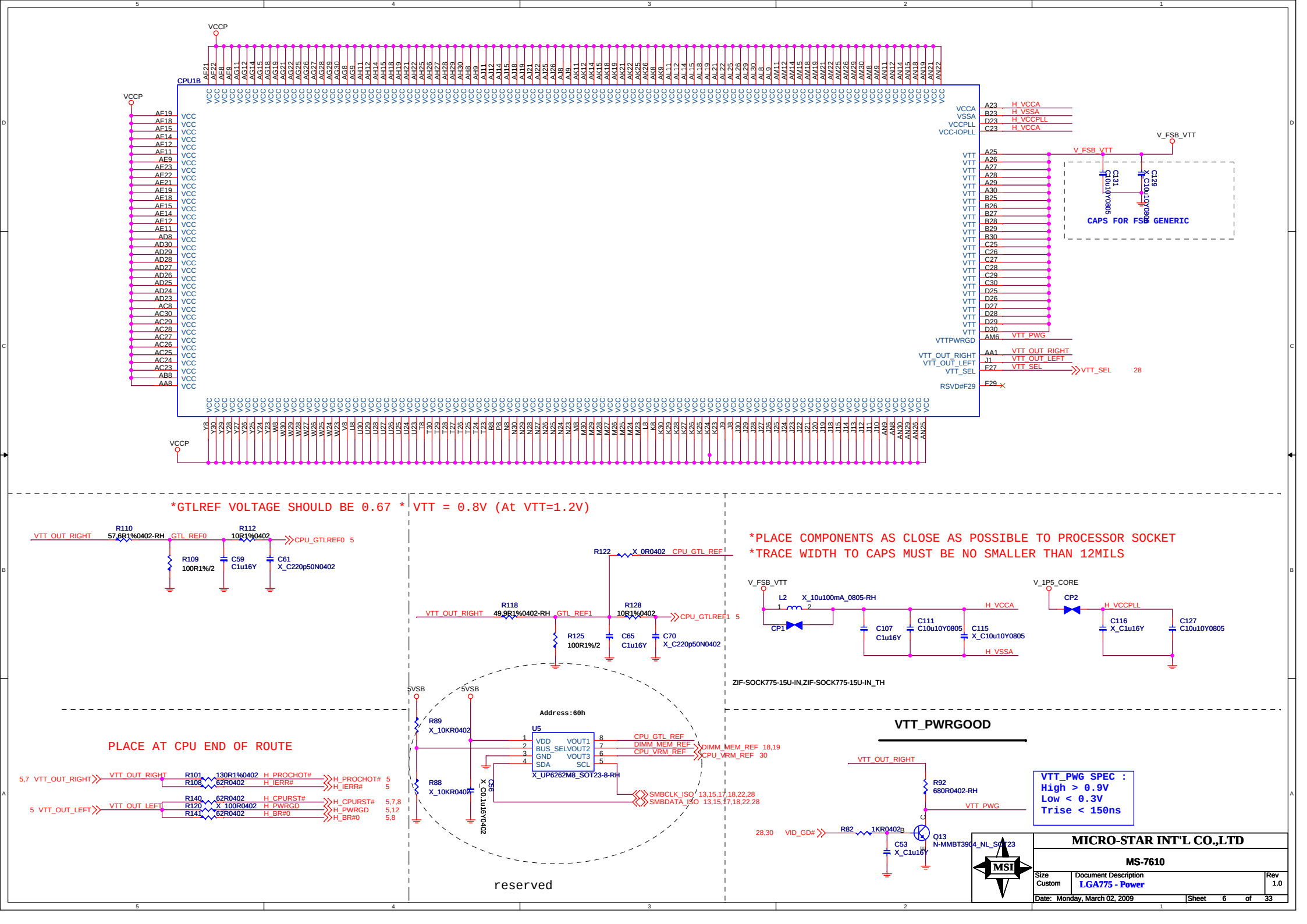
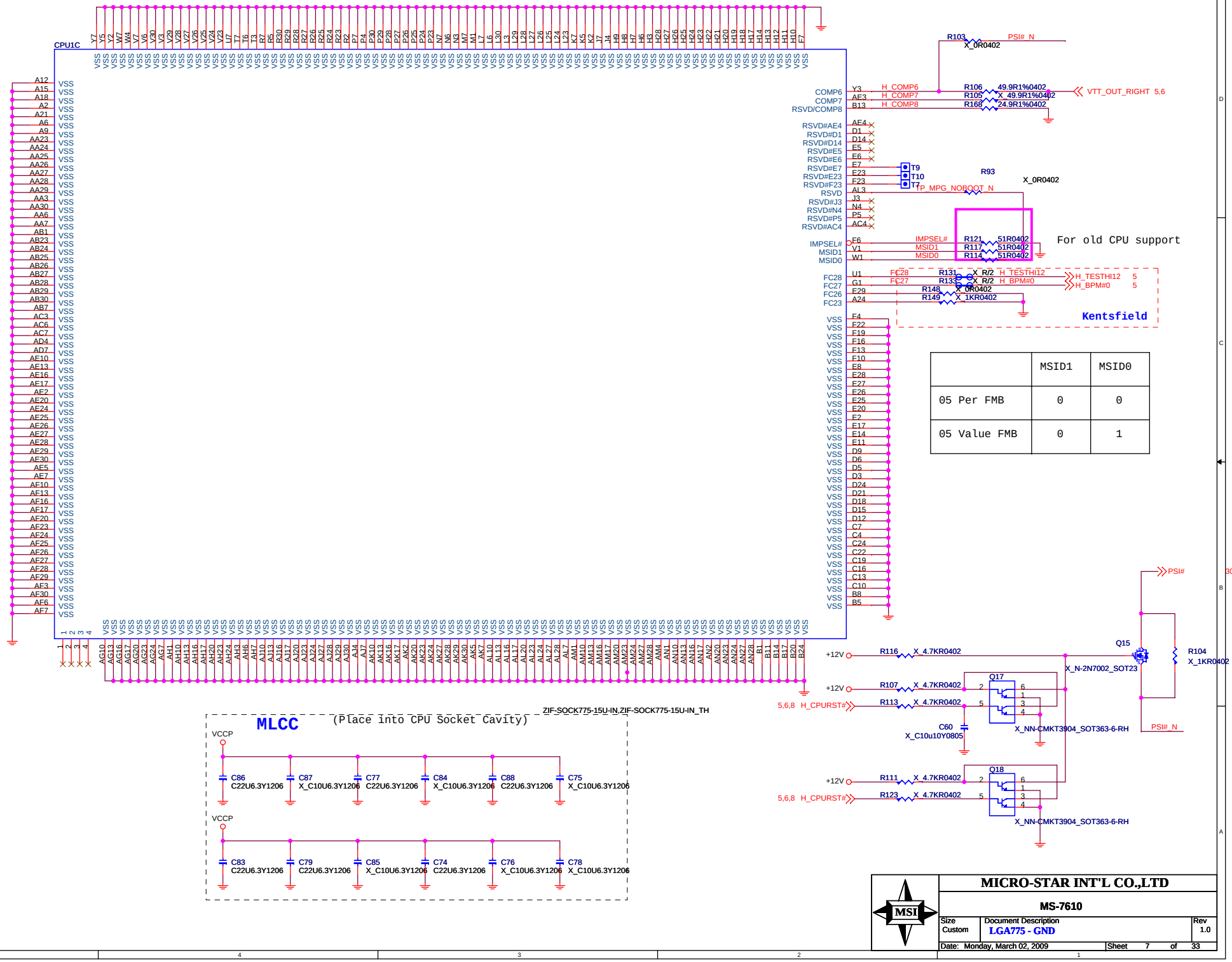

CPU1B
VCCP
VCCA
VSSA
VCCPLL
VCC-IOPLL
H_VCCA
H_VSSA
H_VCCPLL
H_VCCA
V_FSB_VTT
VTT
VTTPWRGD
VTT_PWG
VTT_OUT_RIGHT
VTT_OUT_LEFT
VTT_SEL
RSVD#F29
C131
C10u10Y0805
C129
C10u10Y0805
CAPS FOR FSB GENERIC
*GTLREF VOLTAGE SHOULD BE 0.67 * VTT = 0.8V (At VTT=1.2V)
R110
57.6R1%0402-RH
R112
10R1%0402
CPU_GTLREF0
R109
100R1%/2
C59
C1u16Y
C61
X_C220p50N0402
R122
X_0R0402
CPU_GTL_REF
R118
49.9R1%0402-RH
GTL_REF1
R128
10R1%0402
CPU_GTLREF1
R125
100R1%/2
C65
C1u16Y
C70
X_C220p50N0402
*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET
*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS
V_FSB_VTT
L2
X_10u100mA_0805-RH
CP1
C107
C1u16Y
C111
C10u10Y0805
C115
X_C10u10Y0805
H_VCCA
H_VSSA
V_1P5_CORE
CP2
H_VCCPLL
C116
X_C1u16Y
C127
C10u10Y0805
ZIF-SOCK775-15U-IN,ZIF-SOCK775-15U-IN_TH
PLACE AT CPU END OF ROUTE
5,7 VTT_OUT_RIGHT
R101
130R1%0402
H_PROCHOT#
R108
62R0402
H_IERR#
H_PROCHOT# 5
H_IERR# 5
5 VTT_OUT_LEFT
R140
62R0402
H_CPURST#
R120
X_100R0402
H_PWRGD
R141
62R0402
H_BR#0
H_CPURST# 5,7,8
H_PWRGD 5,12
H_BR#0 5,8
5VSB
R89
X_10KR0402
R88
X_10KR0402
C55
X_C0.1u16Y0402
Address:60h
U5
VDD
BUS_SEL
GND
SDA
VOUT1
VOUT2
VOUT3
SCL
X_UP6262M8_SOT23-8-RH
CPU_GTL_REF
DIMM_MEM_REF
CPU_VRM_REF
DIMM_MEM_REF 18,19
CPU_VRM_REF 30
SMBCLK_ISO 13,15,17,18,22,28
SMBDATA_ISO 13,15,17,18,22,28
reserved
VTT_PWRGOOD
VTT_OUT_RIGHT
R92
680R0402-RH
VTT_PWG
28,30 VID_GD#
R82
1KR0402
Q13
N-MMBT3904_NL_SOT23
C53
X_C1u16Y
VTT_PWG SPEC :
High > 0.9V
Low < 0.3V
Trise < 150ns
MICRO-STAR INT'L CO.,LTD
MS-7610
Size
Custom
Document Description
LGA775 - Power
Rev
1.0
Date: Monday, March 02, 2009
Sheet 6 of 33



	MSID1	MSID0
05 Per FMB	0	0
05 Value FMB	0	1

MICRO-STAR INT'L CO.,LTD

MS-7610

Size	Document Description	Rev
Custom	LGA775 - GND	1.0

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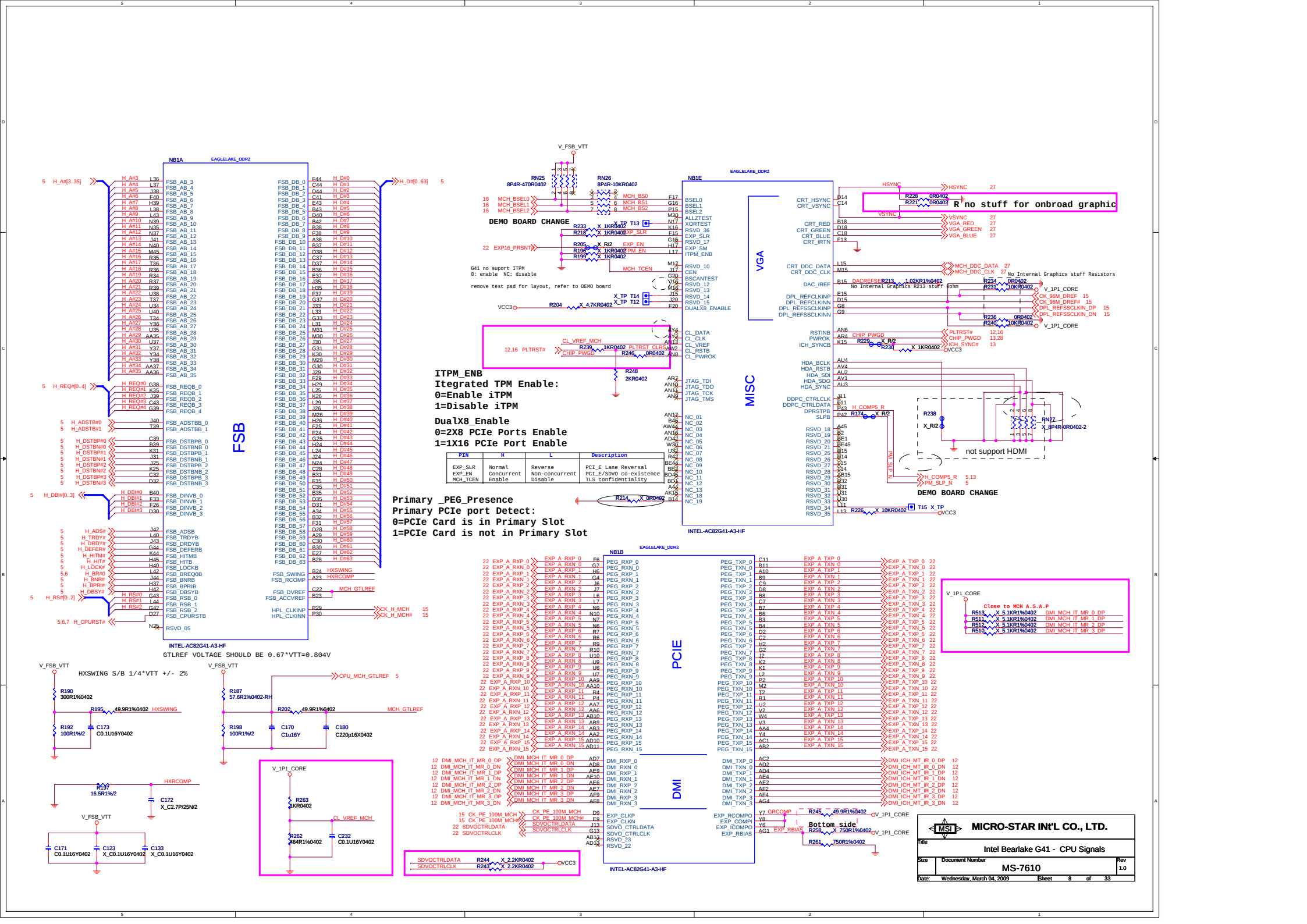
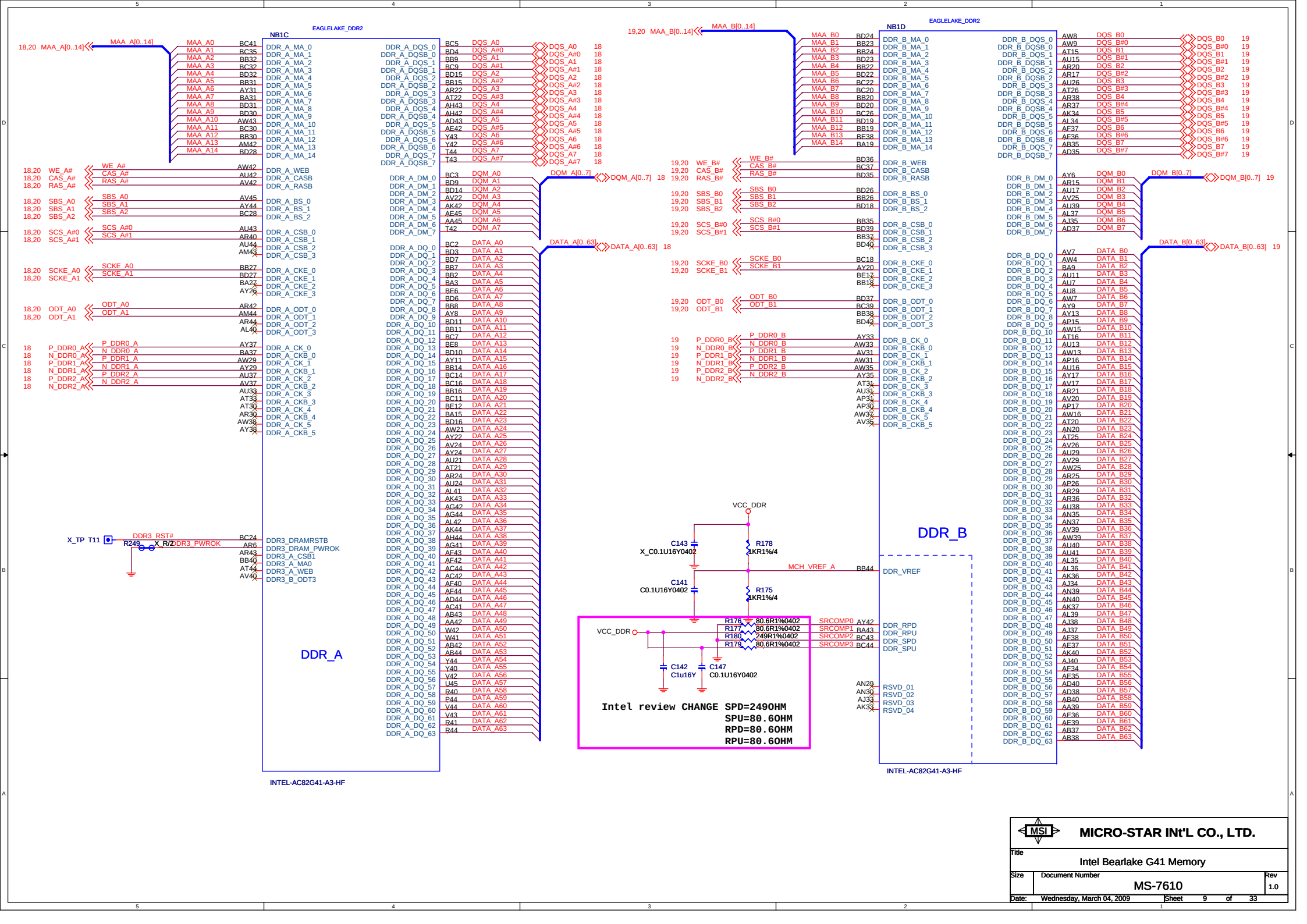

NB1A
EAGLELAKE_DDR2
FSB
INTEL-AC82G41-A3-HF
GTLREF VOLTAGE SHOULD BE 0.67*VTT=0.804V
HXSWING S/B 1/4*VTT +/- 2%
V_FSB_VTT
DEMO BOARD CHANGE
ITPM_ENB
Itegrated TPM Enable:
0=Enable iTPM
1=Disable iTPM
DualX8_Enable
0=2X8 PCIe Ports Enable
1=1X16 PCIe Port Enable
Primary _PEG_Presence
Primary PCIe port Detect:
0=PCIe Card is in Primary Slot
1=PCIe Card is not in Primary Slot
NB1E
VGA
MISC
R no stuff for onbroad graphic
No Internal Graphics stuff Resistors
not support HDMI
NB1B
PCIE
DMI
Bottom side
Close to MCH A.S.A.P
MICRO-STAR INt'L CO., LTD.
Intel Bearlake G41 - CPU Signals
MS-7610
Wednesday, March 04, 2009


NB1C
EAGLELAKE_DDR2
DDR_A
INTEL-AC82G41-A3-HF
NB1D
EAGLELAKE_DDR2
DDR_B
INTEL-AC82G41-A3-HF
VCC_DDR
C143
X_C0.1U16Y0402
R178
1KR1%/4
MCH_VREF_A
C141
C0.1U16Y0402
R175
1KR1%/4
R176 80.6R1%0402
R177 80.6R1%0402
R180 249R1%0402
R179 80.6R1%0402
SRCOMP0
SRCOMP1
SRCOMP2
SRCOMP3
C142
C1u16Y
C147
C0.1U16Y0402
Intel review CHANGE SPD=249OHM
SPU=80.6OHM
RPD=80.6OHM
RPU=80.6OHM
X_TP T11
DDR3_RST#
R249
X_R/2
DDR3_PWROK
MSI
MICRO-STAR INt'L CO., LTD.
Title
Intel Bearlake G41 Memory
Size
Document Number
MS-7610
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1.0
Date: Wednesday, March 04, 2009
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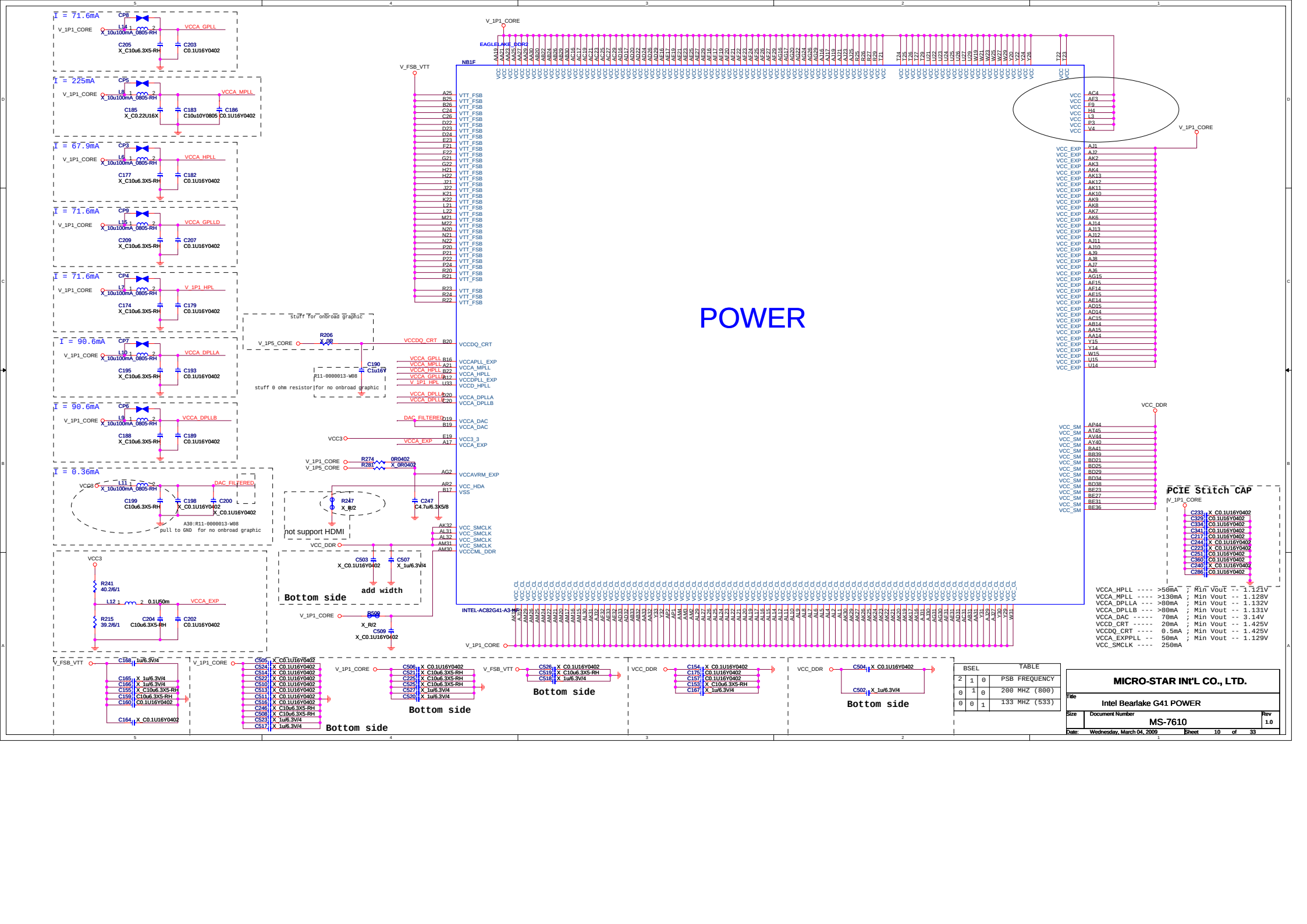
POWER
I = 71.6mA
I = 225mA
I = 67.9mA
I = 71.6mA
I = 71.6mA
I = 90.6mA
I = 90.6mA
I = 0.36mA
V_1P1_CORE
V_FSB_VTT
V_1P5_CORE
VCC3
VCC_DDR
EAGLELAKE_DDR2
NB1F
INTEL-AC82G41-A3-HF
stuff for onbroad graphic
stuff 0 ohm resistor for no onbroad graphic
not support HDMI
Bottom side
add width
PCIE Stitch CAP
VCCA_HPLL ---- >50mA ; Min Vout -- 1.121V
VCCA_MPLL ---- >130mA ; Min Vout -- 1.128V
VCCA_DPLLA --- >80mA ; Min Vout -- 1.132V
VCCA_DPLLB --- >80mA ; Min Vout -- 1.131V
VCCA_DAC ----- 70mA ; Min Vout -- 3.14V
VCCD_CRT ----- 20mA ; Min Vout -- 1.425V
VCCDQ_CRT ---- 0.5mA ; Min Vout -- 1.425V
VCCA_EXPPLL -- 50mA ; Min Vout -- 1.129V
VCC_SMCLK ---- 250mA
BSEL TABLE
2 1 0 PSB FREQUENCY
0 1 0 200 MHZ (800)
0 0 1 133 MHZ (533)
MICRO-STAR INt'L CO., LTD.
Intel Bearlake G41 POWER
MS-7610
Rev 1.0
Wednesday, March 04, 2009
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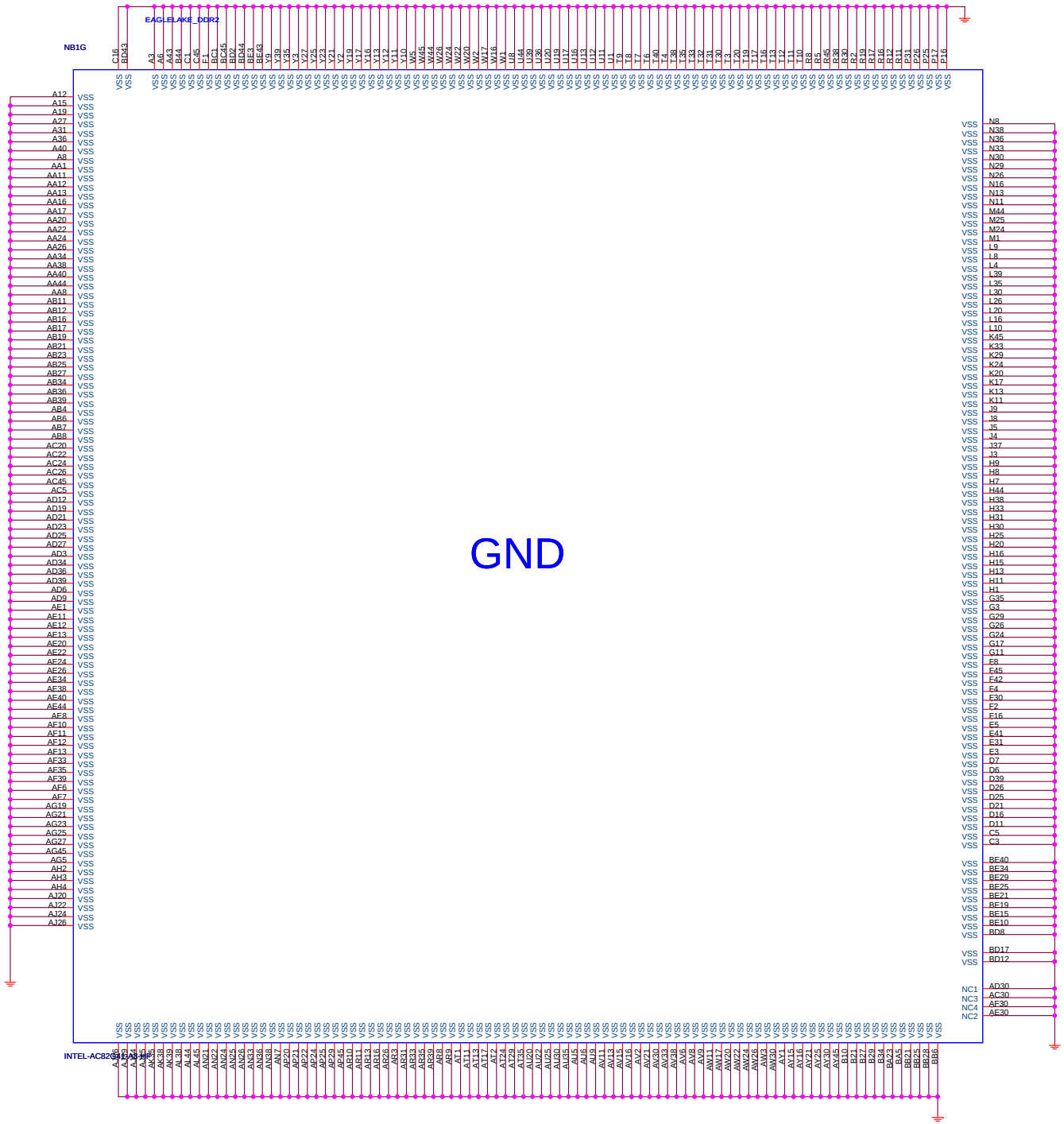

MSI	MICRO-STAR INt'L CO., LTD.
Title	Intel Bearlake G41 GND
Size	Document Number: MS-7610
Rev	1.0
Date:	Wednesday, March 04, 2009
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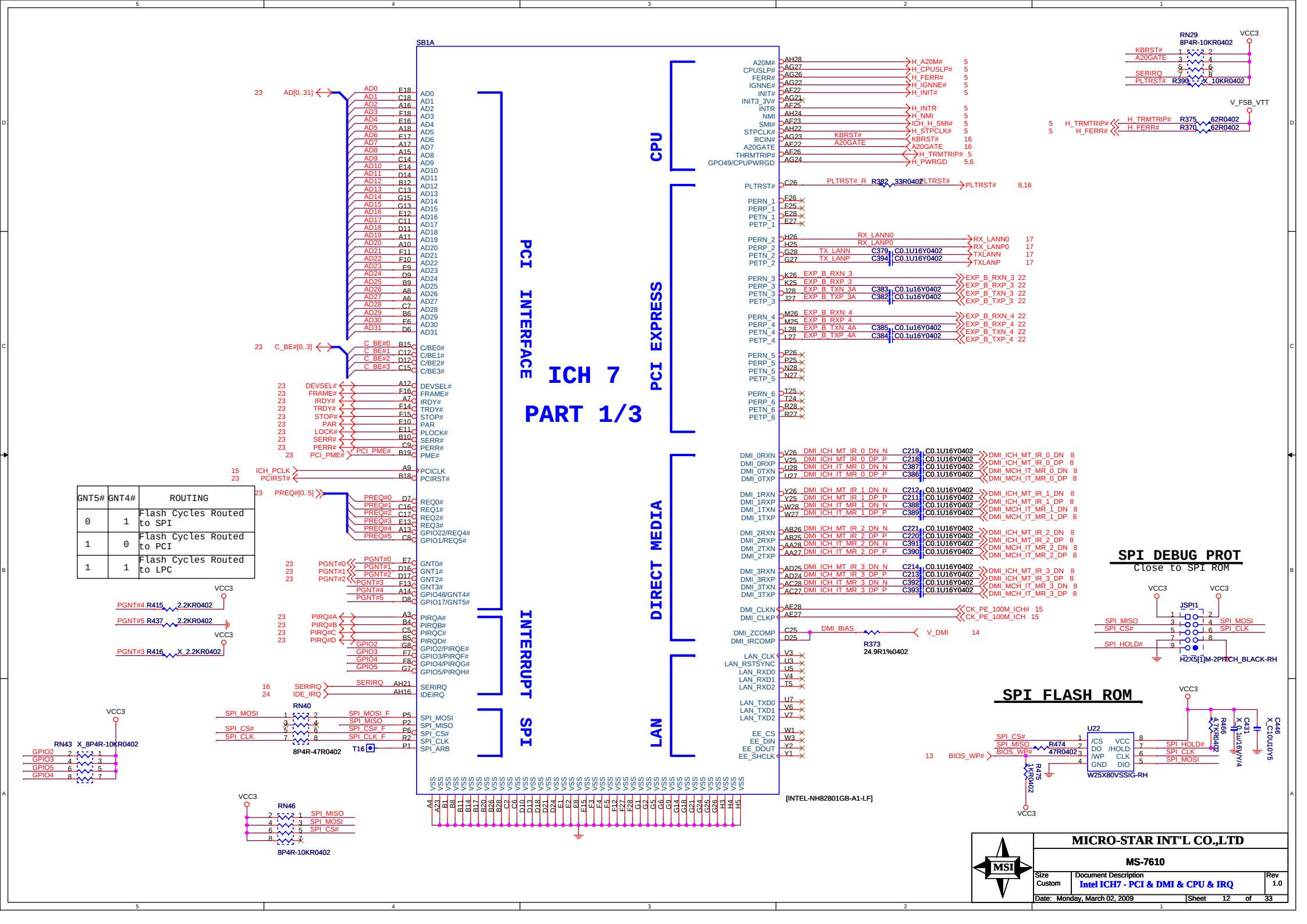
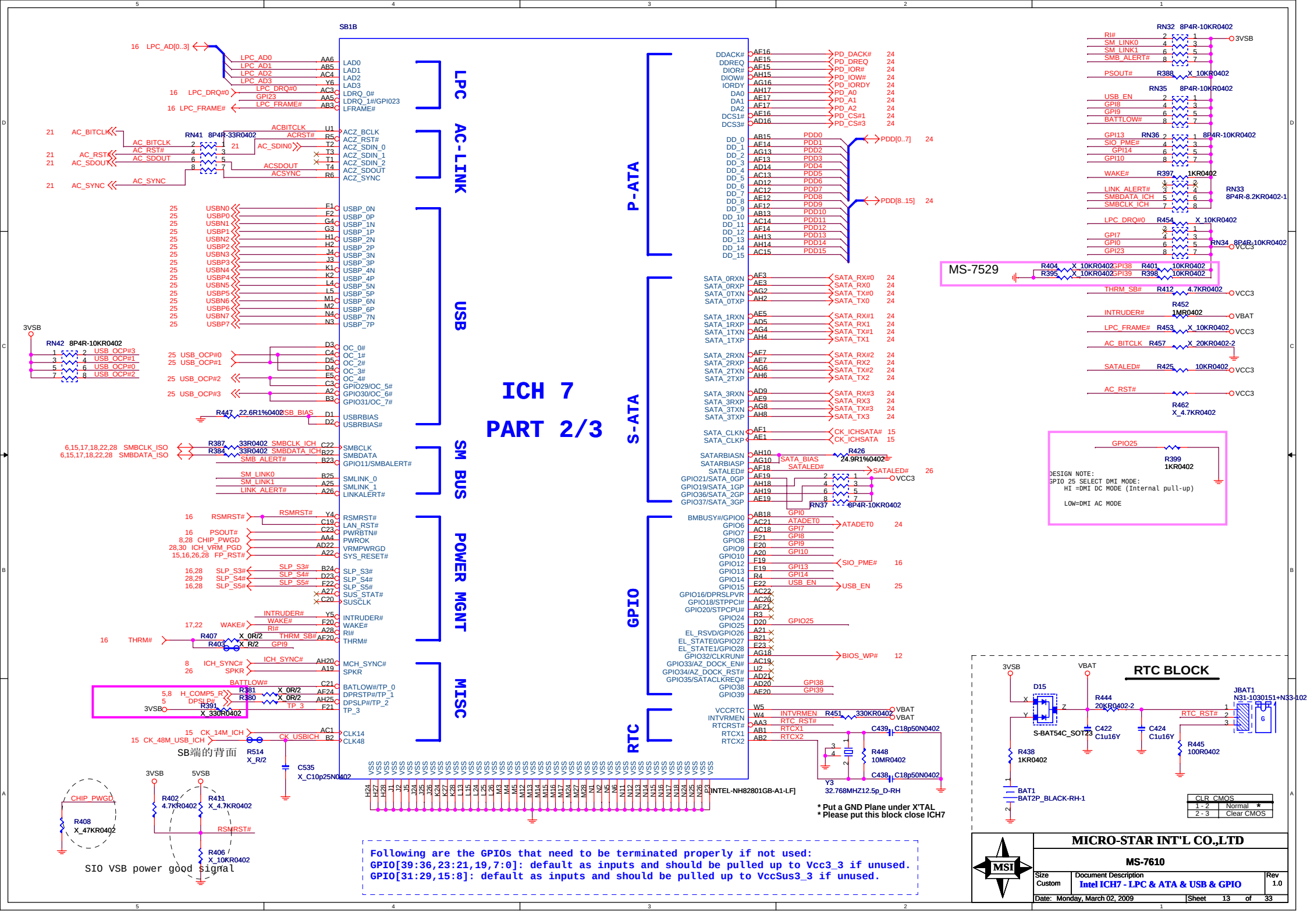


GNT5#	GNT4#	ROUTING
0	1	Flash Cycles Routed to SPI
1	0	Flash Cycles Routed to PCI
1	1	Flash Cycles Routed to LPC


SB1B
LPC
AC-LINK
USB
SM BUS
POWER MGNT
MISC
P-ATA
S-SATA
GPIO
RTC
ICH 7
PART 2/3
[INTEL-NH82801GB-A1-LF]
SB端的背面
SIO VSB power good signal
MS-7529
RTC BLOCK
* Put a GND Plane under X'TAL
* Please put this block close ICH7
Following are the GPIOs that need to be terminated properly if not used:
GPIO[39:36,23:21,19,7:0]: default as inputs and should be pulled up to Vcc3_3 if unused.
GPIO[31:29,15:8]: default as inputs and should be pulled up to VccSus3_3 if unused.
MICRO-STAR INT'L CO.,LTD
MS-7610
Intel ICH7 - LPC & ATA & USB & GPIO
Date: Monday, March 02, 2009
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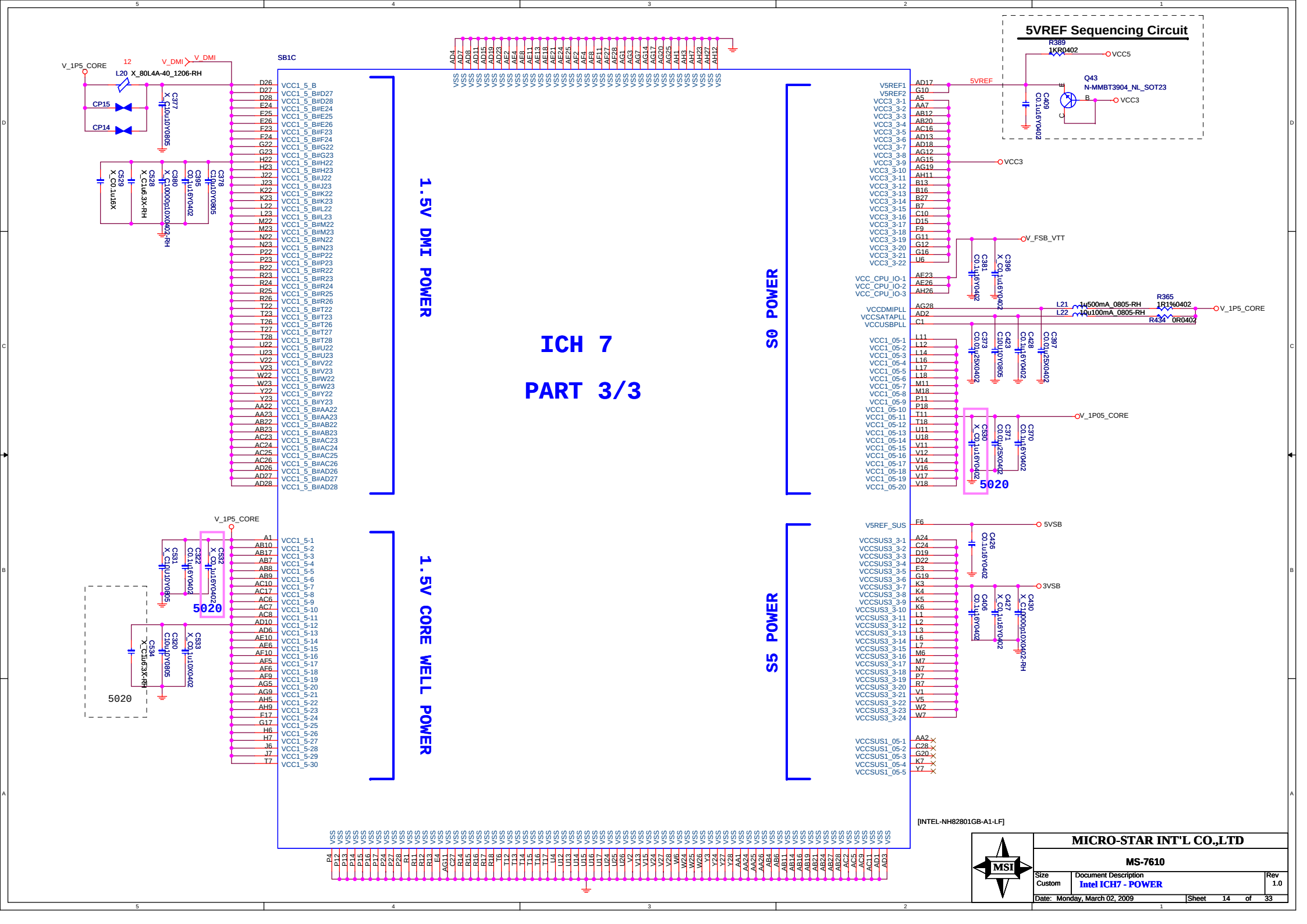
ICH 7
PART 3/3
1.5V DMI POWER
1.5V CORE WELL POWER
S0 POWER
S5 POWER
SB1C
5VREF Sequencing Circuit
[INTEL-NH82801GB-A1-LF]
MICRO-STAR INT'L CO.,LTD
MS-7610
Intel ICH7 - POWER
Date: Monday, March 02, 2009
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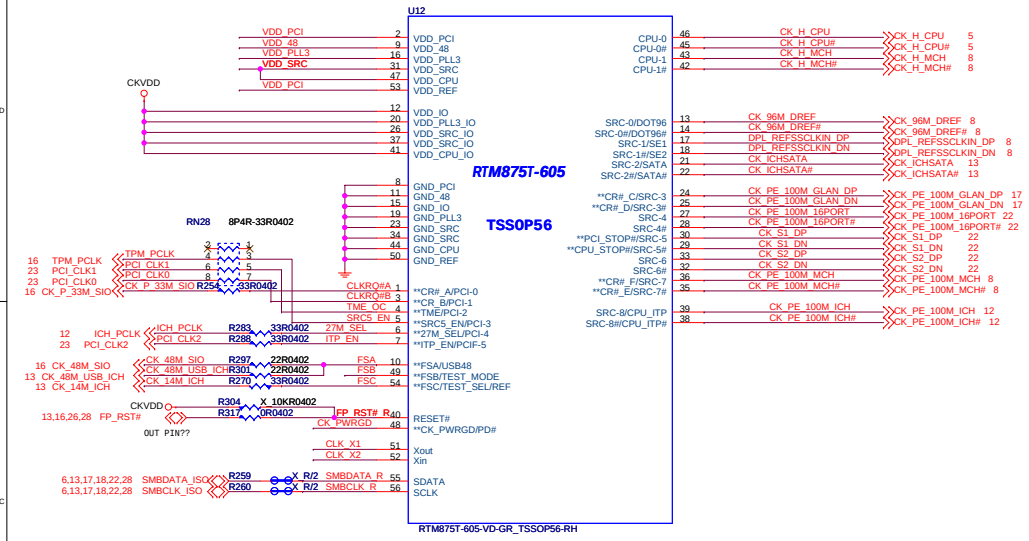
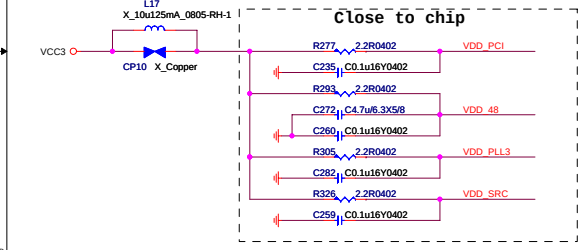
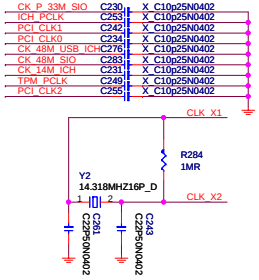
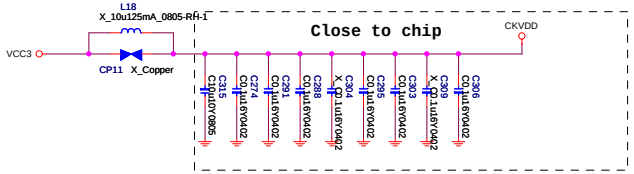
Clock Generator - RTM875T-605

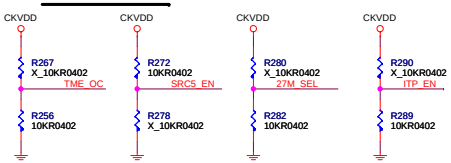








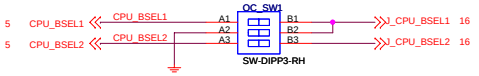
STRAPPING RESISTOR

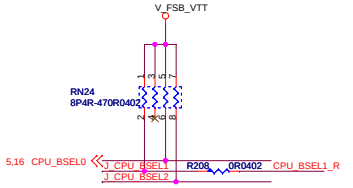


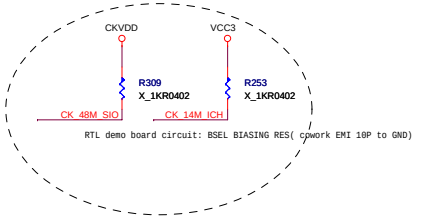
	0	1
TME_OC	Normal Run	No Overclocking
SRC5_EN	Pin29/30 is PCI STOP/CPU_STOP	Pin29/30 is SRC 5
27M_SEL	Pin17/18 is SRC 1	Pin17/18 is 27MHz
ITP_EN	Pin38/39 is SRC 8	Pin38/39 is CPUITP

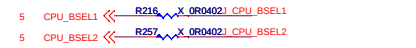
OC_SW1

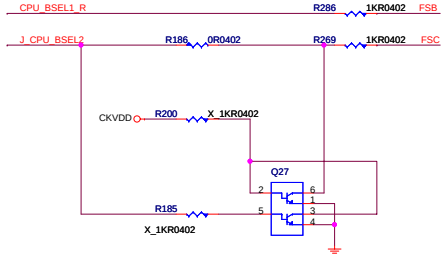
Default	200-->266	200-->333	200-->400
1:ON	1:ON	1:ON	1:OFF/ON
2:OFF	2:ON	2:ON	2:OFF
3:ON	3:ON	3:OFF	3:OFF
		266-->333	266-->400
		1:ON	1:OFF
		2:OFF	2:OFF
		3:OFF	3:OFF
			333-->400
			1:OFF
			2:OFF
			3:OFF



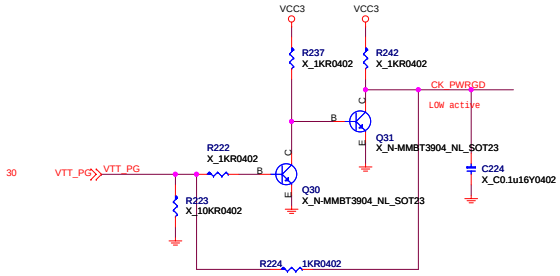


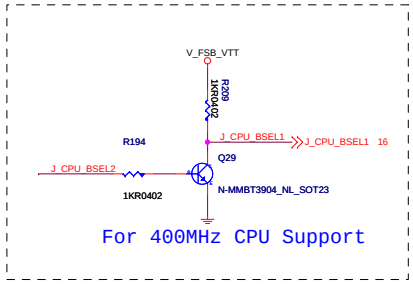






Clock Generator Power Good Block

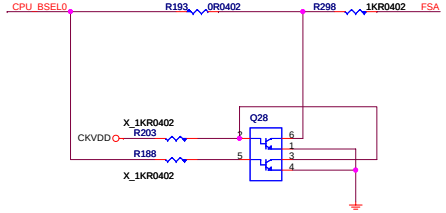




CPU Frequency Selection

FS_C	FS_B	FS_A	CPU
0	0	1	133M
0	1	0	200M
0	0	0	266M
1	0	0	333M
1	1	0	400M

Only the selection in the table is valid



MICRO-STAR INT'L CO.,LTD	
MS-7610	
Size: Custom	Document Description: CLK-RTM 875T-605
Rev: 1.0	
Date: Monday, March 02, 2009	Sheet 15 of 33

JLPC port for TPM

CASE OPEN CIRCUIT

(RESERVE)

COM1

COM2

(RESERVE)

Thermal Resistor

near the PWM MOS

STRAPPING RESISTOR

F71889 STRAPPING RESISTOR

FLOPPY CONNECTOR

PARALLAL PORT

	Don't STUFF	STUFF
RTSB#	PWM FAN	LINEAR FAN
RTSA#	80Port enable	80Port disable=> application circuit
SOUTA	4E	2E
DTRB#, SOUTB	SPI_DISABLE	SPI_ENABLE
DTRA#	FAN START DUTY 60%	FAN START DUTY 100%
LPC_DRQ#0	PIN51~56 as BUS I/F	PIN51~56 as GPIO

EXTRA_GPIO0:L--- with VGA
EXTRA_GPIO0:H---without VGA MTK name:P41T-C33

LPC_DRQ#0 PIN51~56 as BUS I/F PIN51~56 as GPIO

MICRO-STAR INT'L CO.,LTD

MS-7610

Size: Custom | Document Description: SIO-Fintek F71882F & IO-Port | Rev: 1.0

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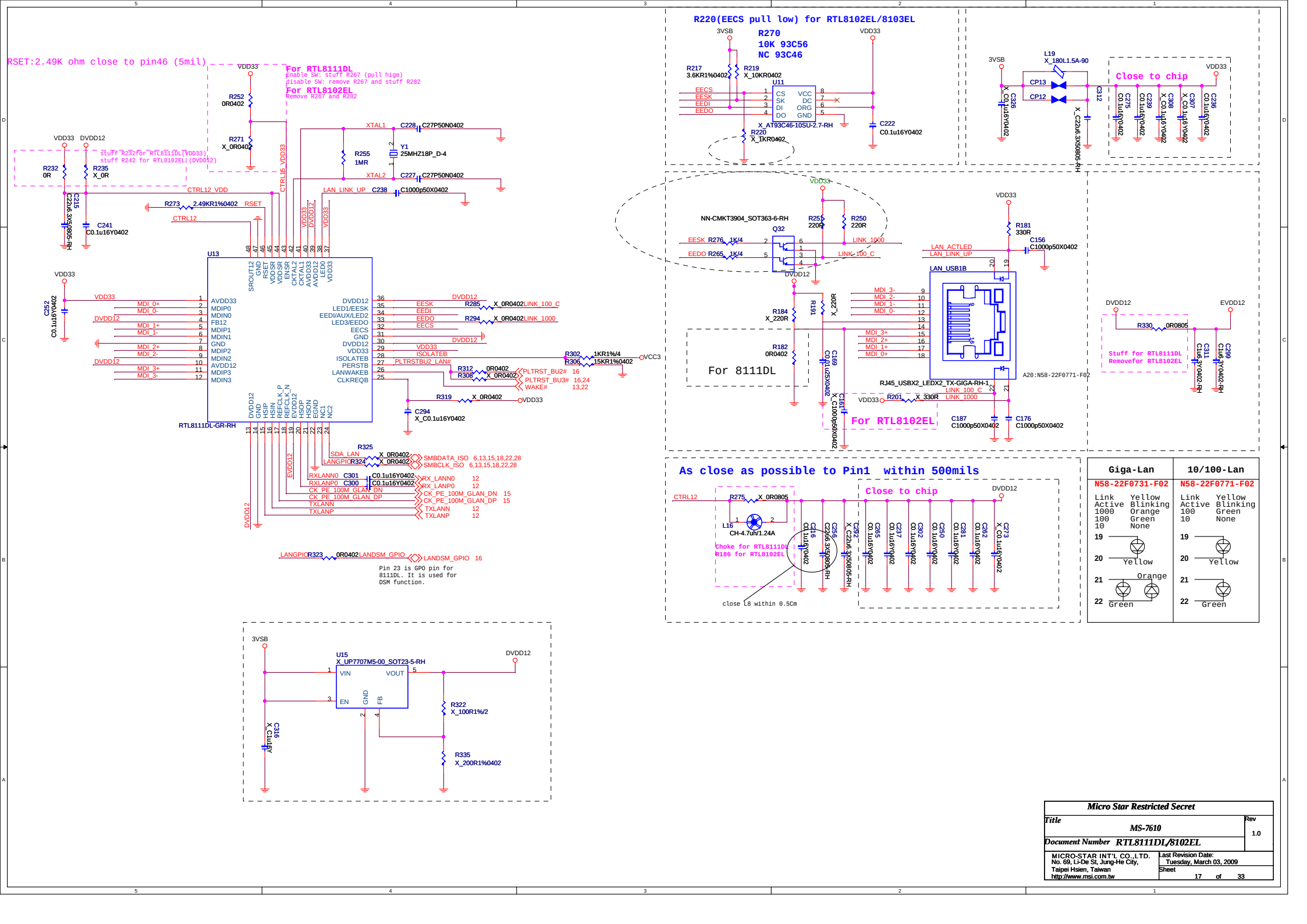

Giga-Lan		10/100-Lan	
N58-22F0731-F02		N58-22F0771-F02	
Link	Yellow	Link	Yellow
Active	Blinking	Active	Blinking
1000	Orange	100	Green
100	Green	10	None
10	None		

19	
20	Yellow
21	Orange
22	Green

19	
20	Yellow
21	
22	Green

Micro Star Restricted Secret

Title	MS-7610
Rev	1.0
Document Number	RTL8111DL/8102EL

MICRO-STAR INT'L CO.,LTD.
No. 69, Li-De St, Jung-He City,
Taipei Hsien, Taiwan
http://www.msi.com.tw

Last Revision Date: Tuesday, March 03, 2009
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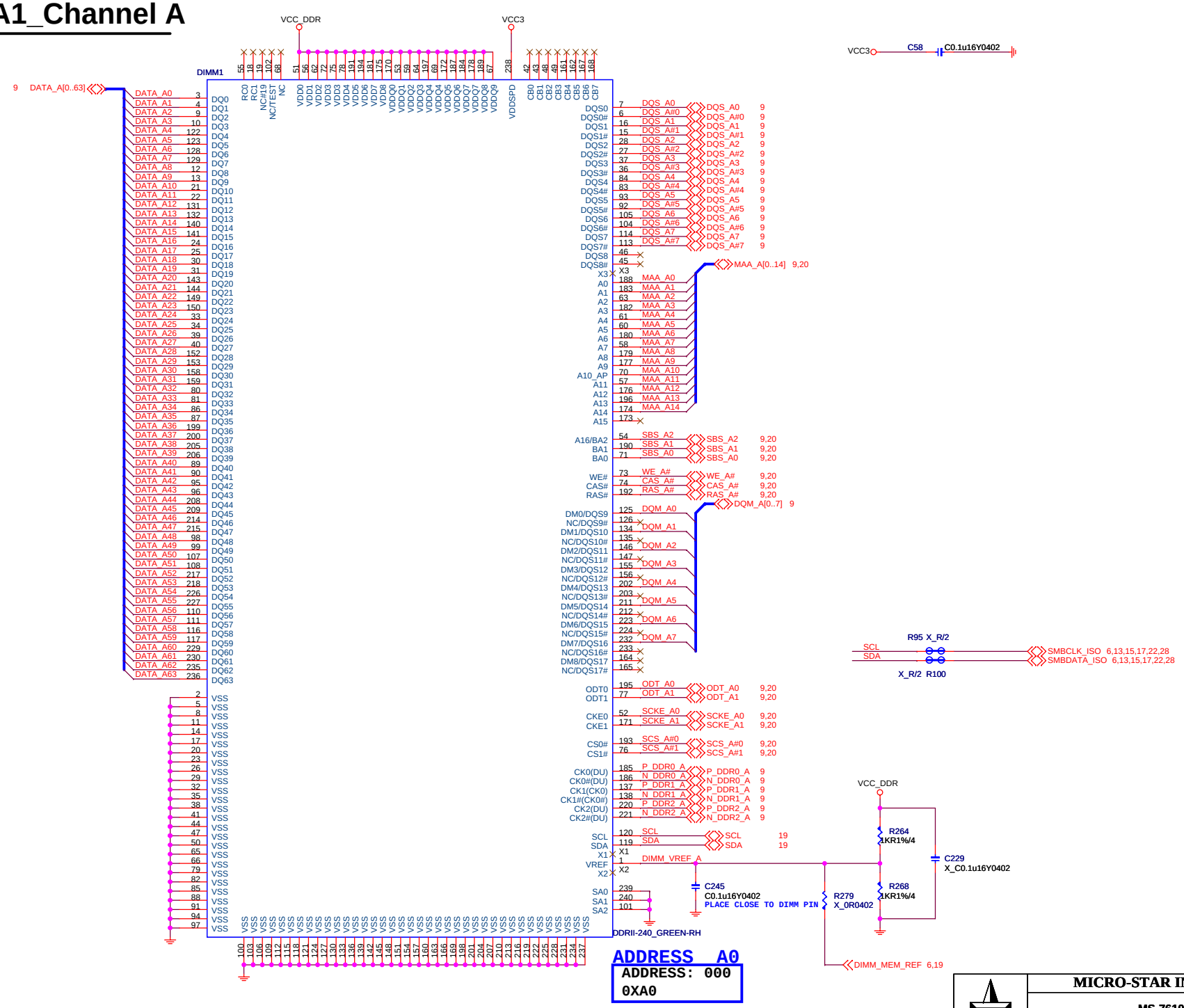
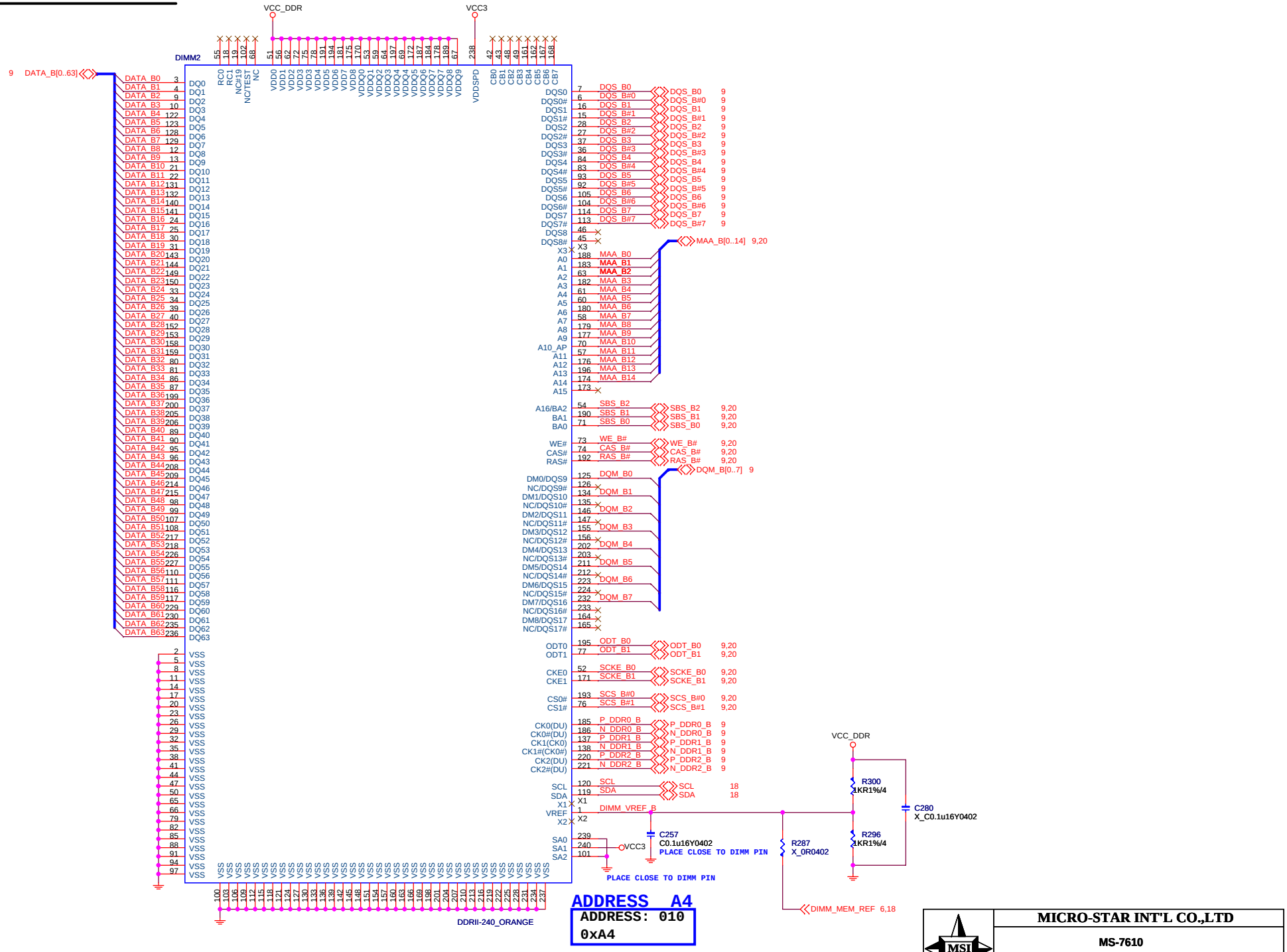
DDRII DIMM_A1_Channel A



MICRO-STAR INT'L CO.,LTD		
MS-7610		
Size: Custom	Document Description: DDR II DIMM A	Rev: 1.0
Date: Monday, March 02, 2009	Sheet 18 of 33	

DDRII DIMM_B1_Channel B



MICRO-STAR INT'L CO.,LTD

MS-7610

Size	Document Description	Rev
Custom	DDR II DIMM B	1.0

Date: Friday, March 06, 2009 Sheet 19 of 33

CHANNEL A V_SM_VTT DECOUPLING CAPS

VTT_DDR
C92 X_C4.7u6.3X5
C112 X_C4.7u6.3X5

VTT_DDR
C130 X_C0.1u16Y0402
C119 X_C0.1u16Y0402
C101 X_C0.1u16Y0402

VCC_DDR
C139 X_C0.1u16Y0402
C104 X_C0.1u16Y0402

CHANNEL B V_SM_VTT DECOUPLING CAPS

VTT_DDR
C135 C4.7u6.3X5

VTT_DDR
C98 X_C0.1u16Y0402
C95 X_C0.1u16Y0402
C126 X_C0.1u16Y0402
C102 X_C0.1u16Y0402

EMI 10/29

VCC_DDR VTT_DDR
C122 X_C0.1U16Y0402
C138 X_C0.1U16Y0402
C108 X_C0.1U16Y0402
C93 X_1u/6.3V/4
C97 X_1u/6.3V/4

VTT_DDR

RN18 8P4R-33R0402
MAA_A4 MAA_A3 MAA_A2 MAA_A1

RN20 8P4R-33R0402
MAA_A7 MAA_A8 MAA_A5 MAA_A6

RN22 8P4R-33R0402
9,18 SBS_A2
MAA_A12 MAA_A11 MAA_A9 RAS_A#

RN15 8P4R-33R0402
9,18 RAS_A#
9,18 WE_A#
9,18 CAS_A#
CAS_A# MAA_A13

MAA_A14 R164 33R0402

RN17 8P4R-33R0402
MAA_A0 SBS_A1 MAA_A10 SBS_A0
9,18 SBS_A1
9,18 SBS_A0

RN13 8P4R-43R0402
9,18 ODT_A1
9,18 SCS_A#1
9,18 ODT_A0
9,18 SCS_A#0

SCKE_A0 R167 43R0402
SCKE_A1 R170 43R0402
9,18 SCKE_A0
9,18 SCKE_A1

change RN

9,18 MAA_A[0..14]

VTT_DDR

RN19 8P4R-33R0402
MAA_B4 MAA_B3 MAA_B1 MAA_B2

RN21 8P4R-33R0402
MAA_B7 MAA_B8 MAA_B6 MAA_B5

RN23 8P4R-33R0402
9,19 SBS_B2
SBS_B2 MAA_B12 MAA_B11 MAA_B9

RN14 8P4R-33R0402
9,19 RAS_B#
9,19 WE_B#
9,19 CAS_B#
RAS_B# WE_B# CAS_B# MAA_B13

MAA_B14 R166 33R0402

RN16 8P4R-33R0402
MAA_B0 SBS_B1 MAA_B10 SBS_B0
9,19 SBS_B1
9,19 SBS_B0

RN12 8P4R-43R0402
9,19 ODT_B1
9,19 SCS_B#1
9,19 SCS_B#0
9,19 ODT_B0

SCKE_B0 R172 43R0402
SCKE_B1 R169 43R0402
9,19 SCKE_B0
9,19 SCKE_B1

change RN

9,19 MAA_B[0..14]

VCC_DDR VCC_DDR
C137 X_C0.1u16Y0402
C89 X_C0.1u16Y0402
C289 X_1u/6.3V/4
C96 X_1u/6.3V/4
C94 X_1u/6.3V/4
C144 X_1u/6.3V/4
C178 X_1u/6.3V/4
C184 X_1u/6.3V/4

VCC_DDR
C114 1u/6.3V/4
C100 X_1u/6.3V/4
C140 X_1u/6.3V/4
C515 X_1u/6.3V/4
C162 1u/6.3V/4
C109 X_1u/6.3V/4
C208 X_1u/6.3V/4

EMI solution(2009/01/14)

12VIN
C43 X_C0.1u16Y0402 C17 X_C0.1u16Y0402

VCC3
C318 X_C0.1u16Y0402 C362 X_C0.1u16Y0402

VCC3
C412 X_C0.1u16Y0402 C457 X_C0.1u16Y0402

+12V
C372 X_C0.1u16Y0402 C366 X_C0.1u16Y0402

3VSB
C485 X_C0.1u16Y0402

VCC5
C464 X_C0.1u25X

EMI solution(2009/01/20)

VCC3
C466 X_C0.1u16Y0402

+12V
C465 X_C0.1u16Y0402 C484 X_C0.1u16Y0402 C413 X_C0.1u16Y0402 C321 X_C0.1u16Y0402 C376 X_C0.1u16Y0402

3VSB
C468 X_C0.1u16Y0402 C368 X_C0.1u16Y0402 C421 X_C0.1u16Y0402 C445 X_C0.1u16Y0402 C467 X_C0.1u16Y0402

VCC5
C134 X_C0.1u25X

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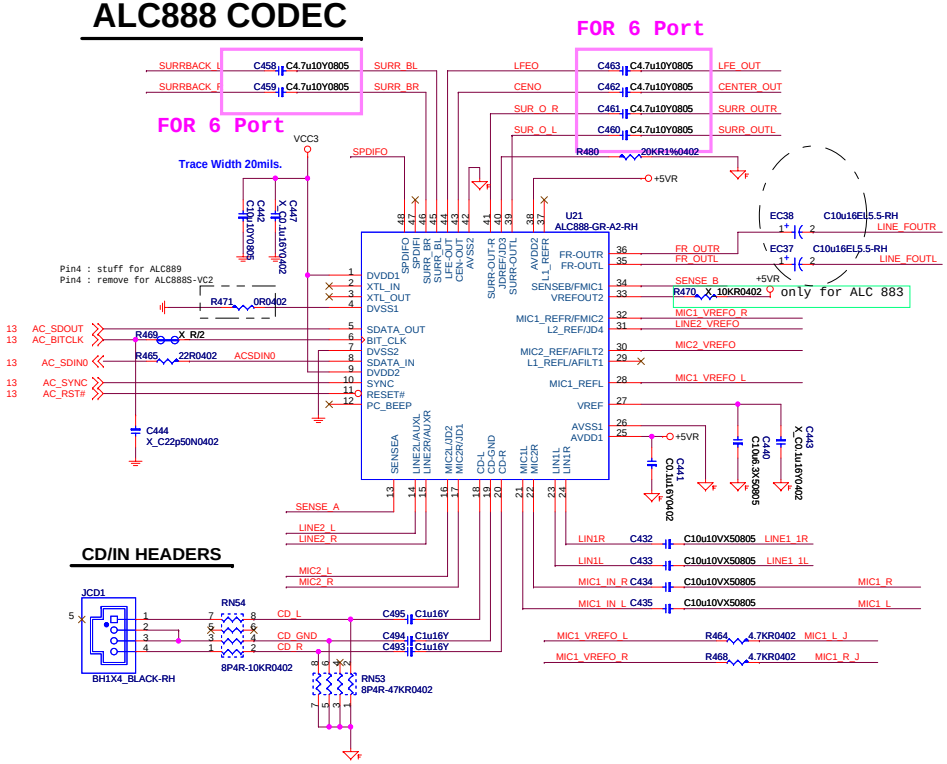
ALC888 CODEC

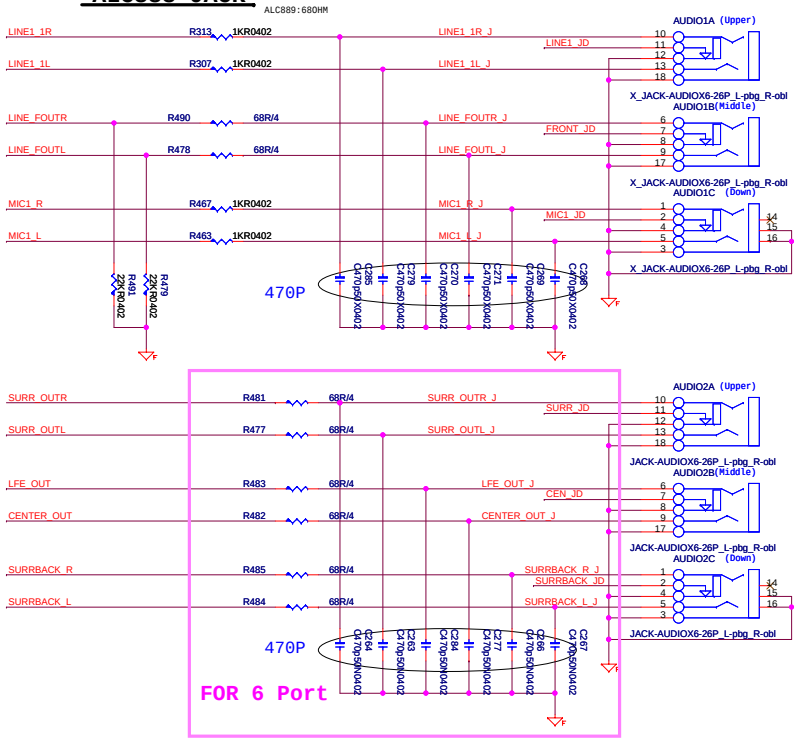


CD/IN HEADERS

FOR 6 Port

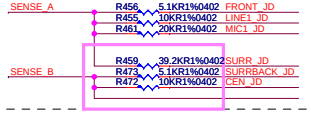
3 hole : line1/Mic1 change to 75 ohm

ALC888 JACK

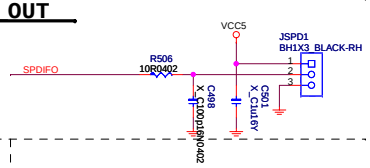


PIN	ALC888	ALC888S VC2
2	GPIO0/DMIC_CLK	SPDIF02
3	GPIO1/DMIC_DATA	GPIO0/DMIC_CLK
4	DVSS	GPIO1/DMIC_DATA
33	NC	SENSE C

ALC883 JACK DETECT

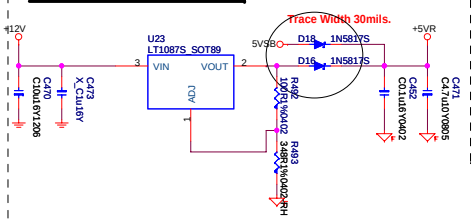


SPDIF OUT

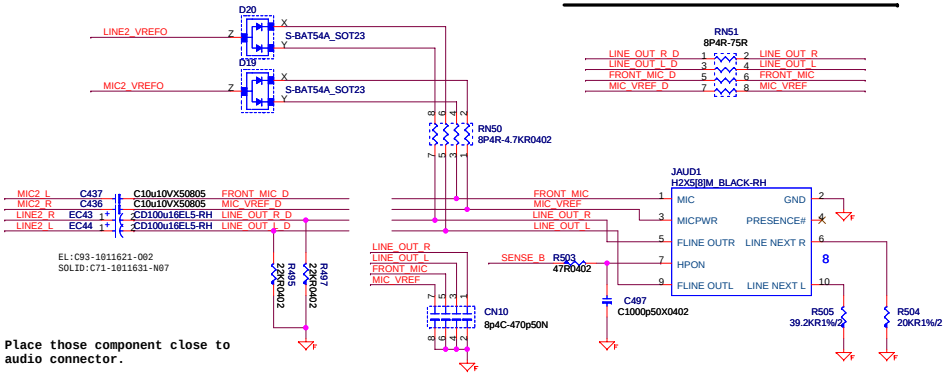


AUDIO CODE REGULATORS

FOR 6 Port



Azalia Front Audio Connector



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Size Custom
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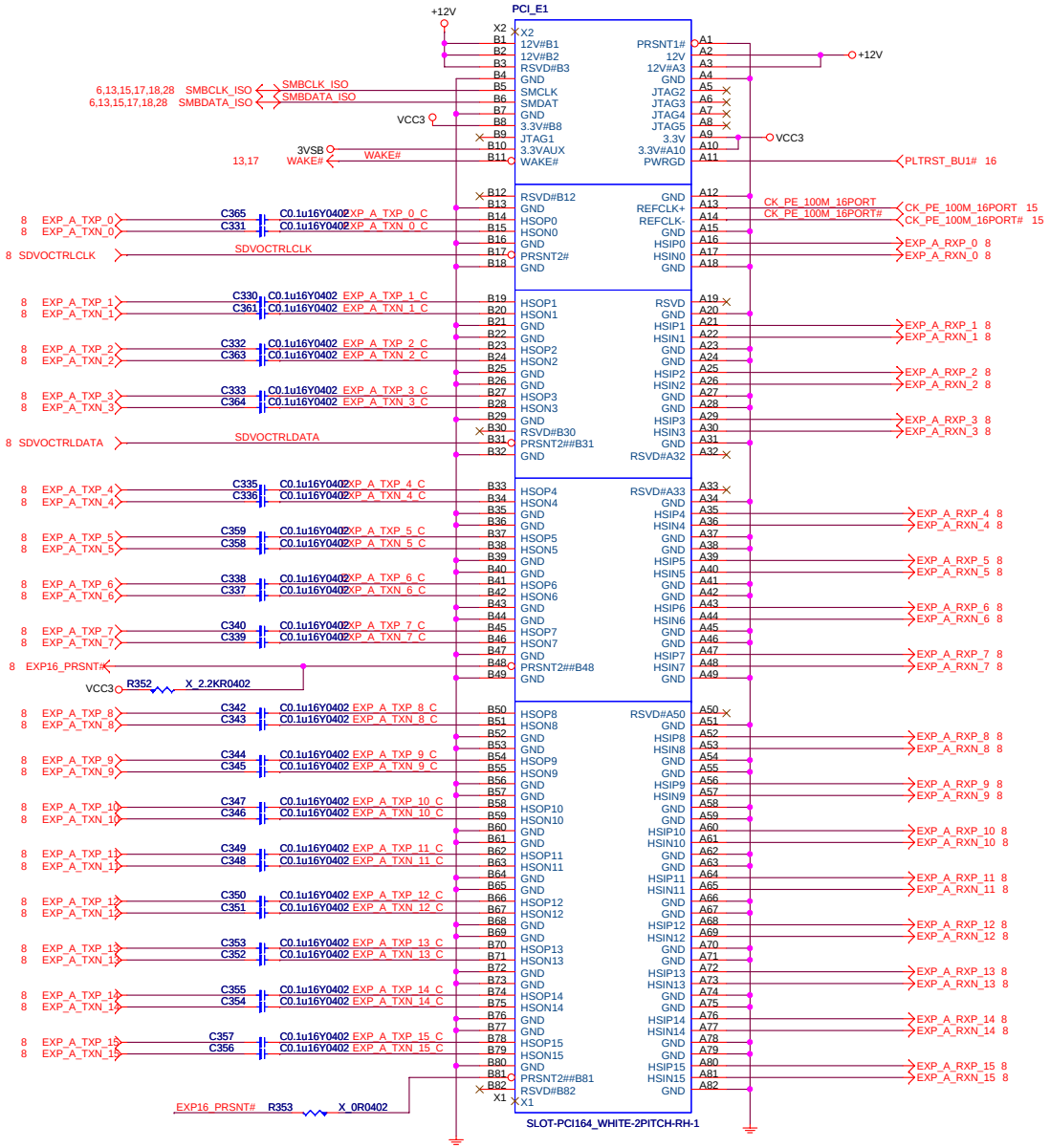
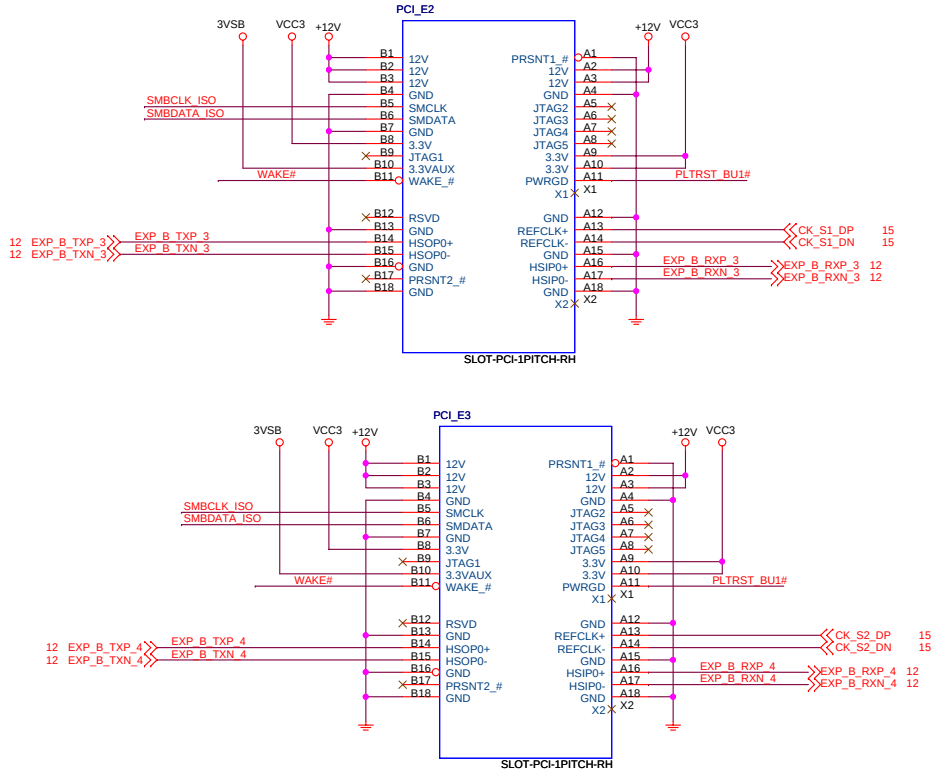
PCIE X16 PORT



PCIE X1 PORT



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Size: Custom	Document Description: PCI EXPRESSX16&X1	Rev: 1.0
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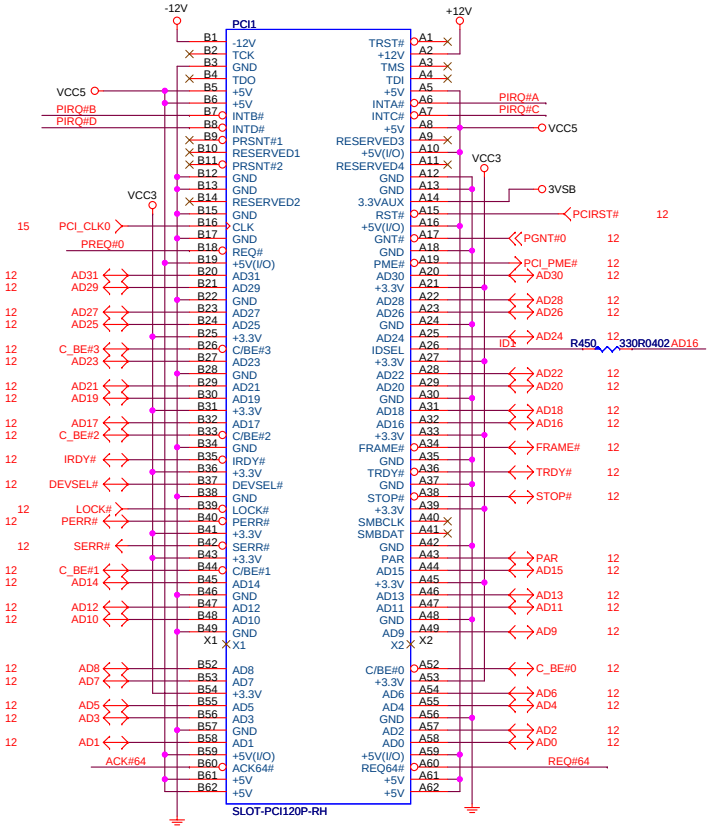
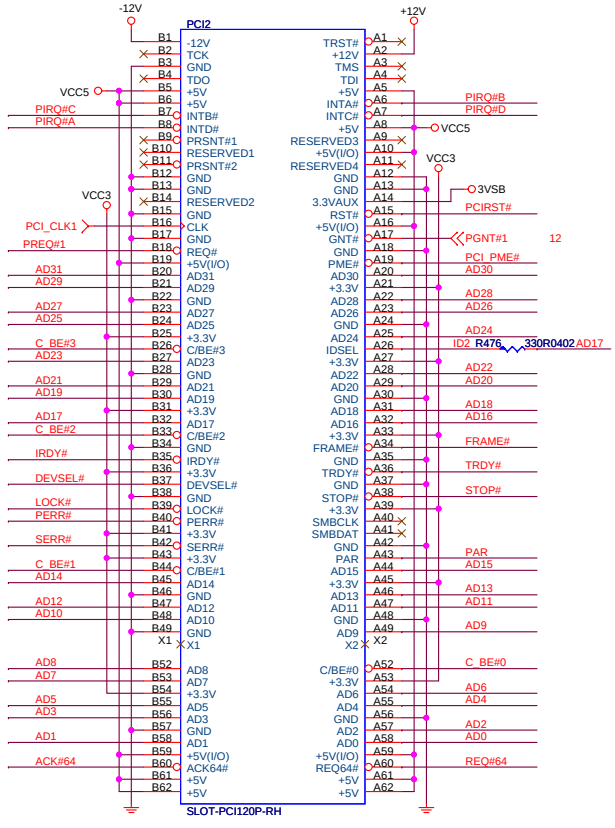
PCI SLOT 1 (PCI VER: 2.2 COMPLY)



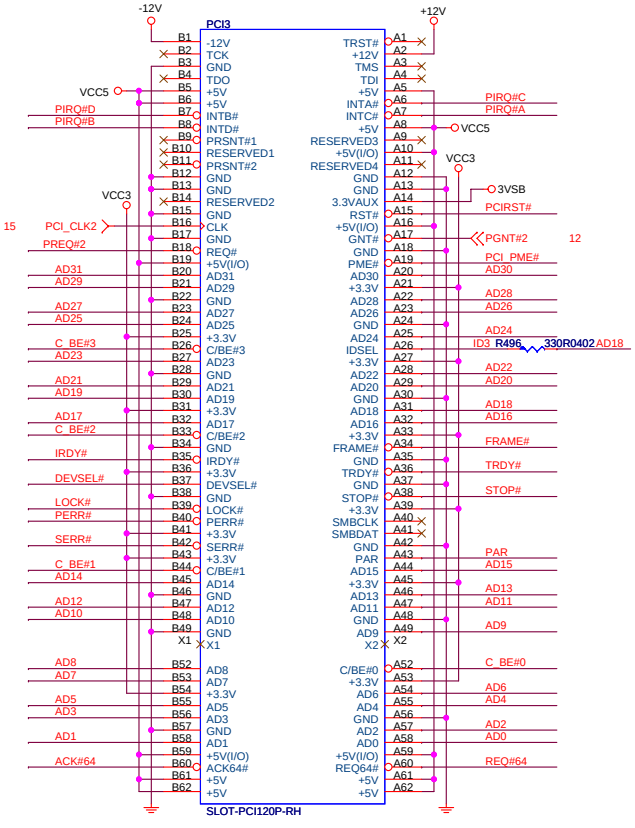
IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

PCI SLOT 2 (PCI VER: 2.2 COMPLY)



IDSEL = AD17
MASTER = PREQ#1
PIRQ#B

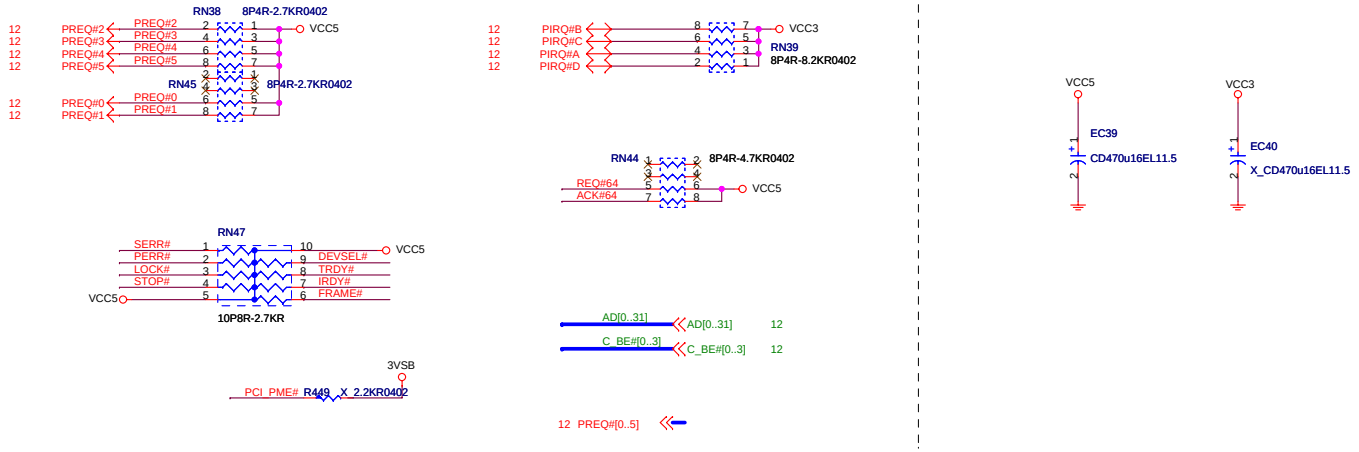
PCI SLOT3 (PCI VER: 2.2 COMPLY)



IDSEL = AD18
MASTER = PREQ#2

PIRQ#C

PCI PULL-UP / DOWN RESISTORS



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7610	
Size: Custom	Document Description: PCI Slot 1 &2	Rev: 1.0
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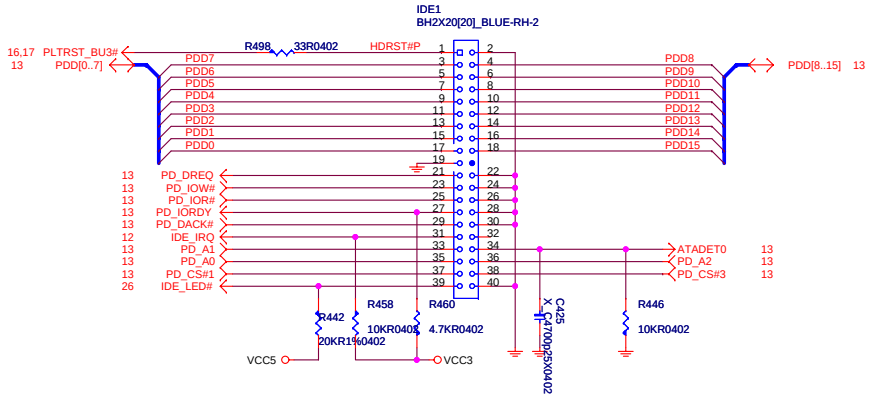
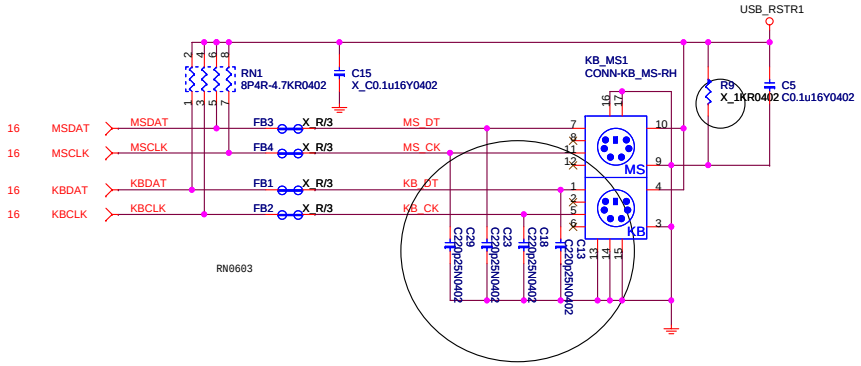
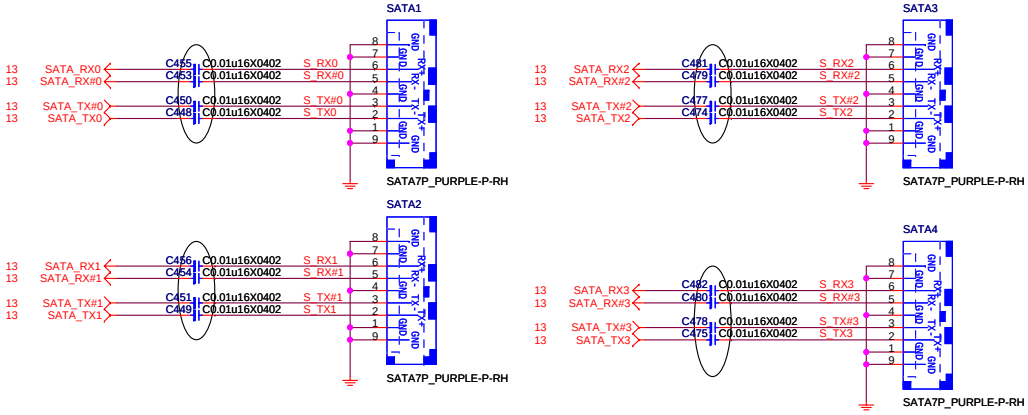
ATA 33/66/100 IDE Connectors



PS2 KEYBOARD & MOUSE CONNECTOR



SERIAL ATA CONNECTOR BLOCK



MICRO-STAR INT'L CO.,LTD

MS-7610

Size	Document Description	Rev
Custom	IDE & SATA Connectors	1.0

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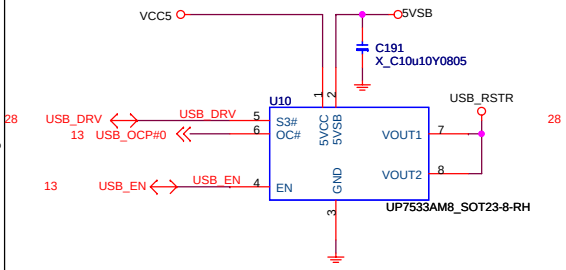
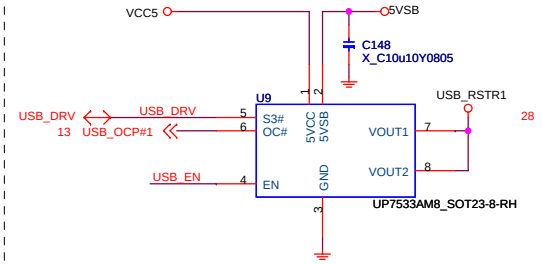
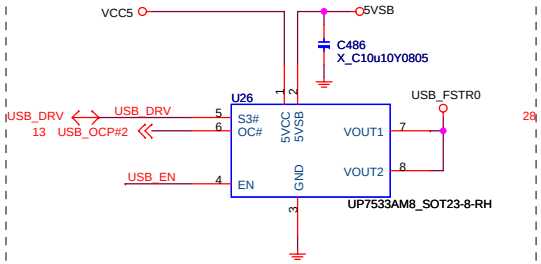
POWER CIRCUIT FOR USB PORT 0,1



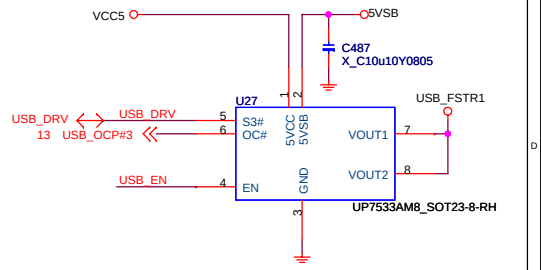
POWER CIRCUIT FOR USB PORT 2,3



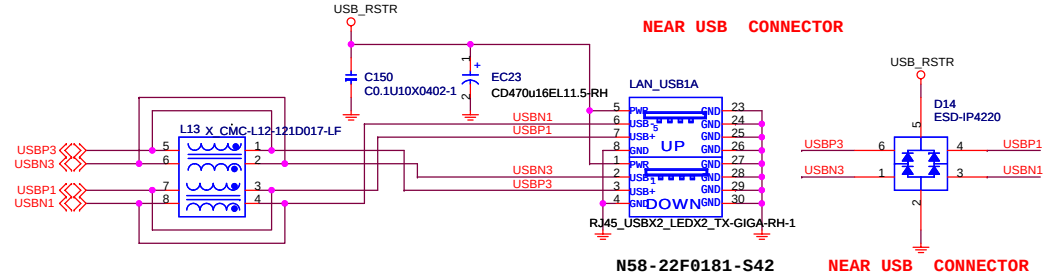
POWER CIRCUIT FOR USB PORT 4,5



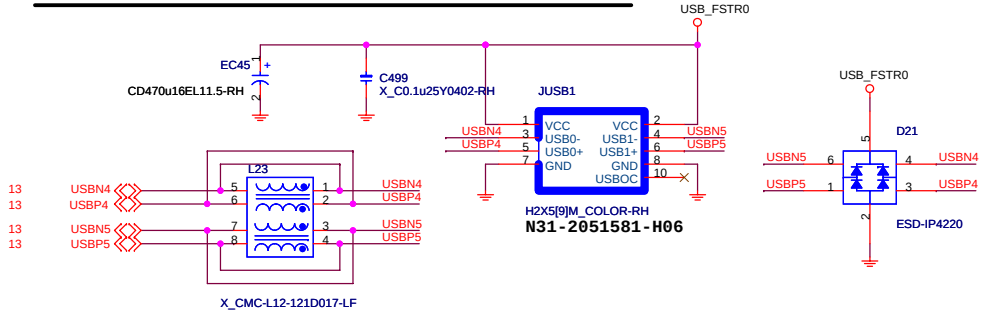
POWER CIRCUIT FOR USB PORT 6,7



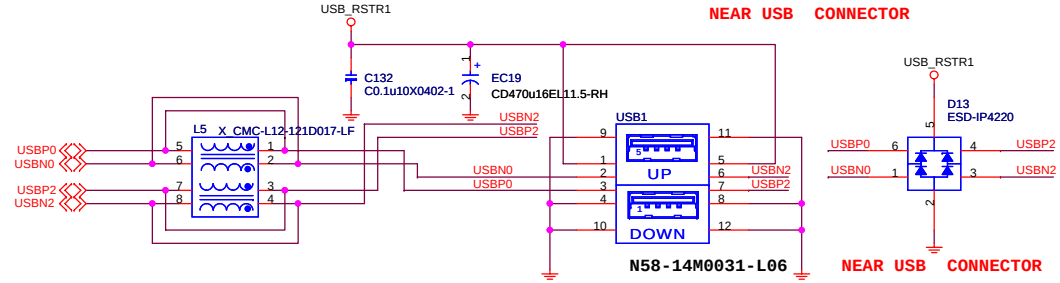
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



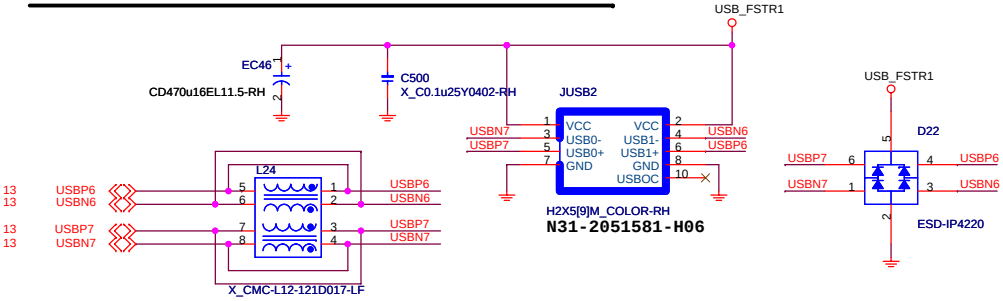
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



REAR PANEL USB CONNECTOR FOR USB PORT 2,3



FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



MICRO-STAR INT'L CO.,LTD

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Size	Document Description	Rev
Custom	USB CONNECTORS	1.0

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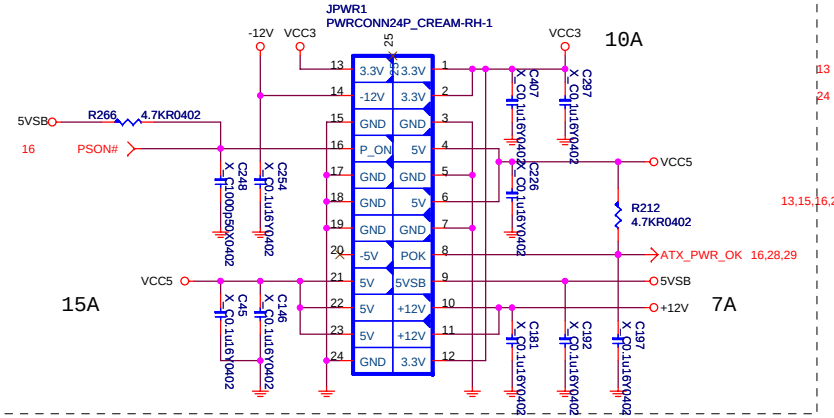
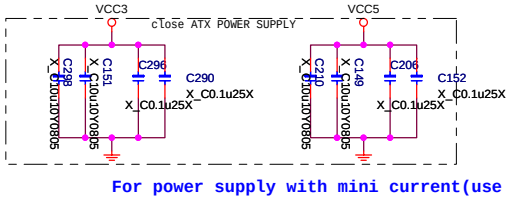
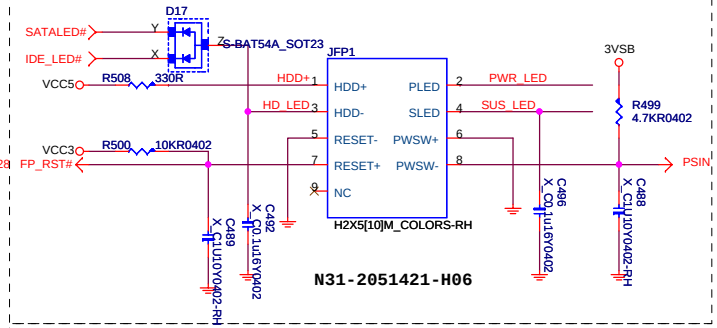
ATX Connector



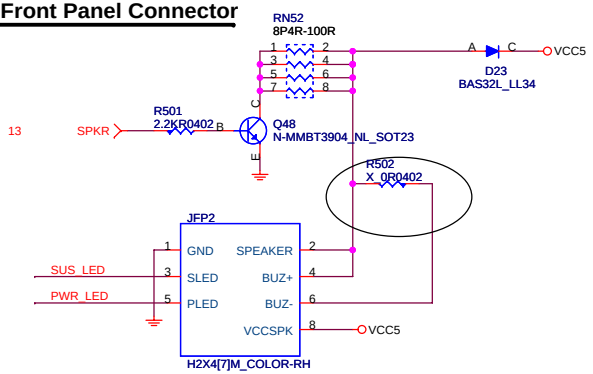


For power supply with mini current(use resistor)

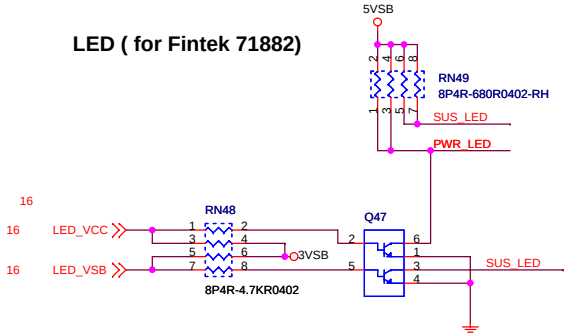
INTEL/PB Front Panel Connector



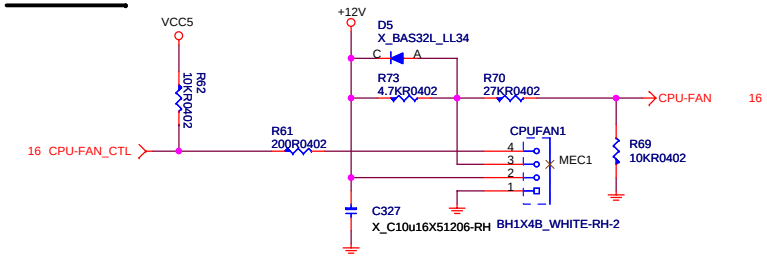
MSI Front Panel Connector



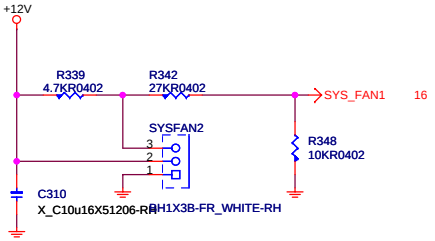
LED (for Fintek 71882)



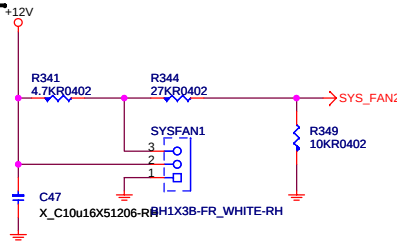
CPU FAN



SYSTEM FAN



PWR FAN



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MS-7610		
Size: Custom	Document Description: ATX & Front Panel & FAN	Rev: 1.0
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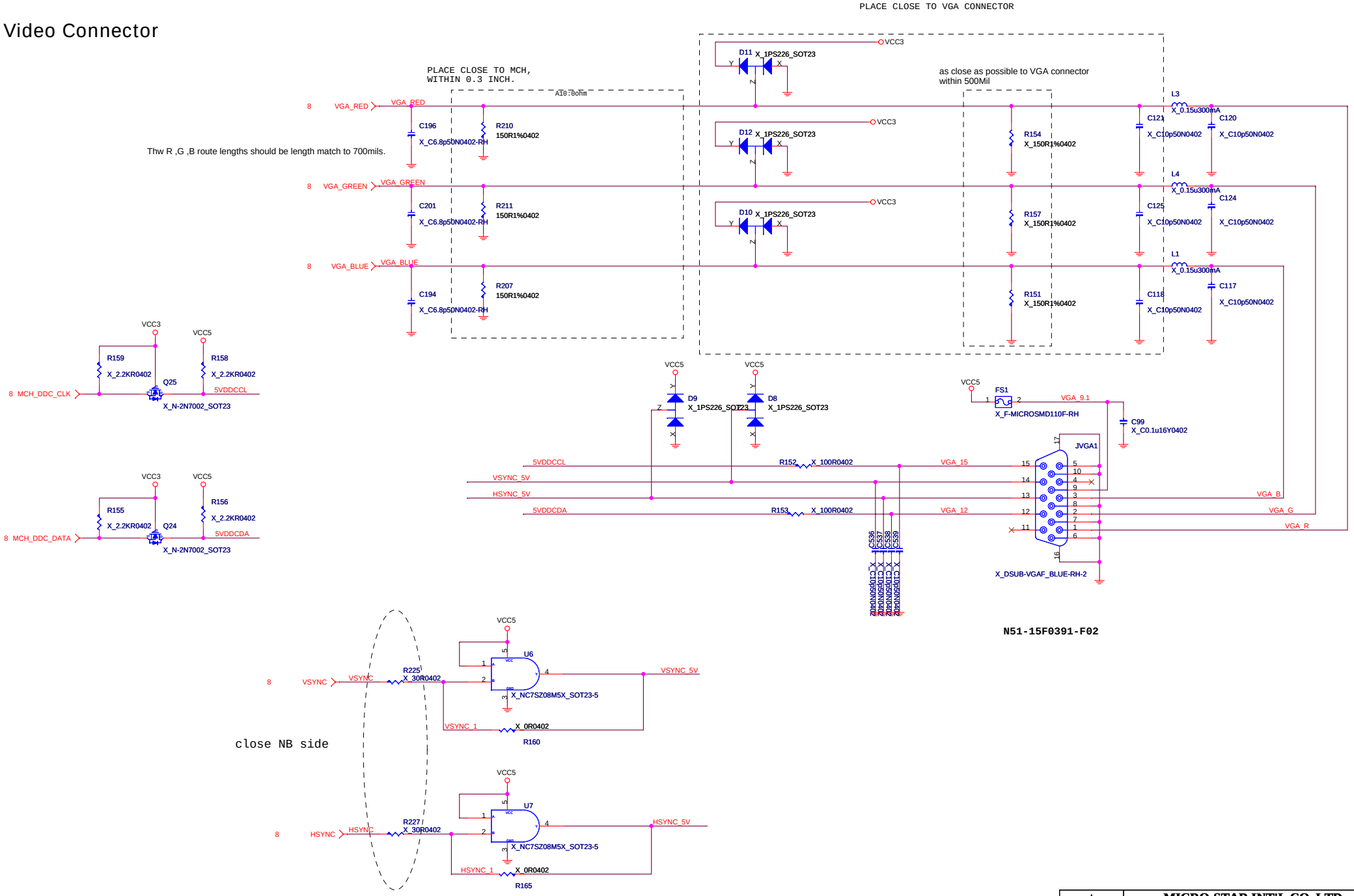
Video Connector



MICRO-STAR INT'L CO.,LTD		
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Size: Custom	Document Description: VGA Connector	Rev: 1.0
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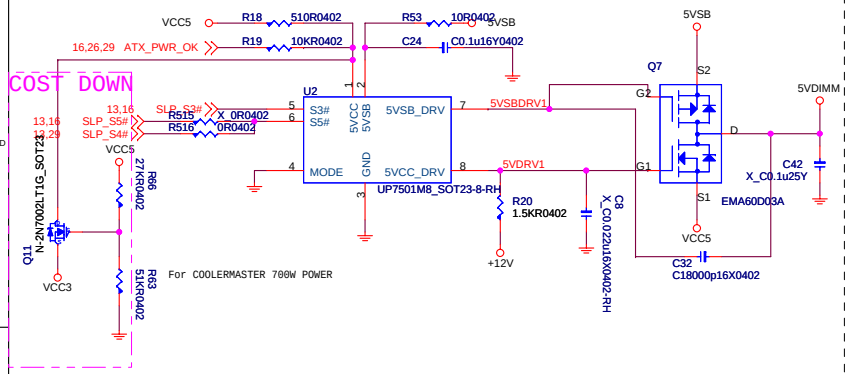
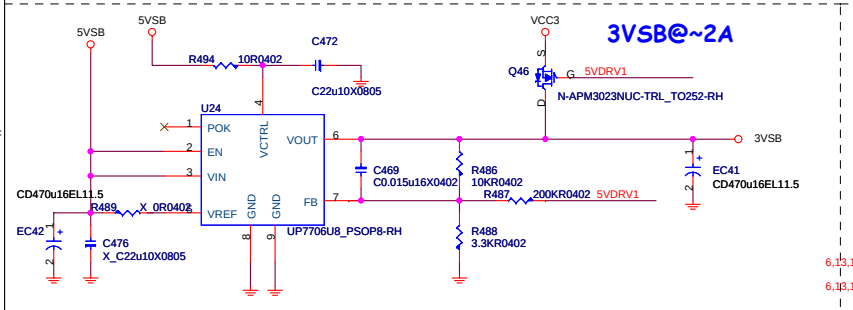
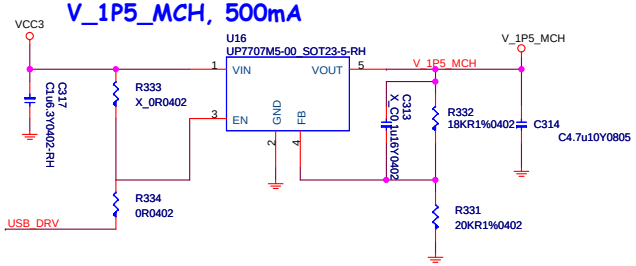
5VDIMM FOR DDR



3VSB@~2A

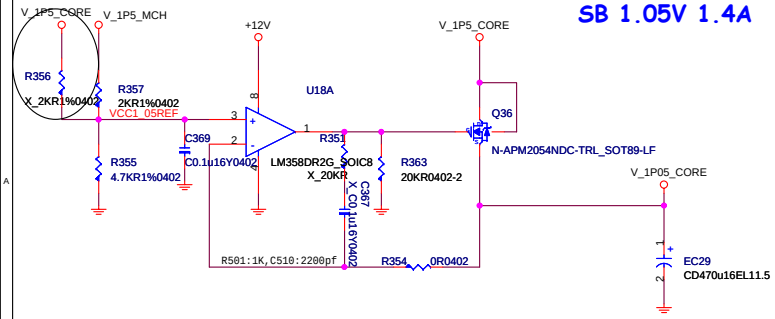


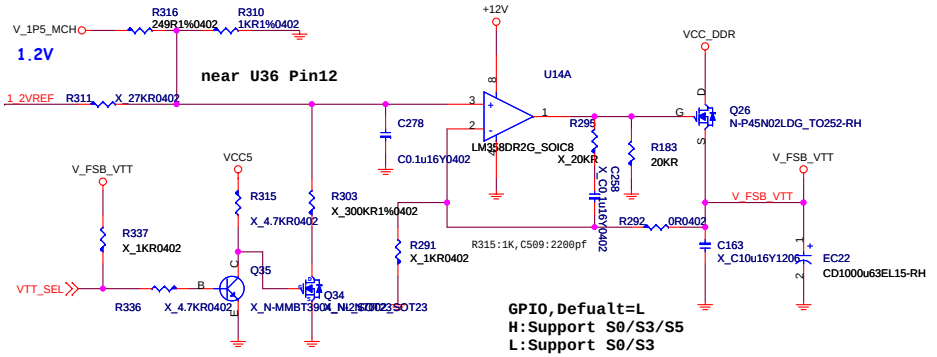
V_1P5_MCH, 500mA



cost down u7707 UPI

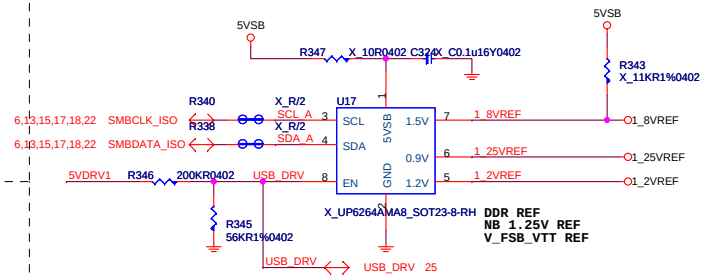
SB 1.05V 1.4A

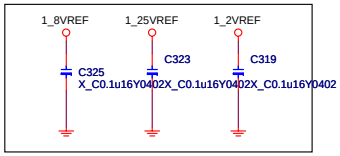




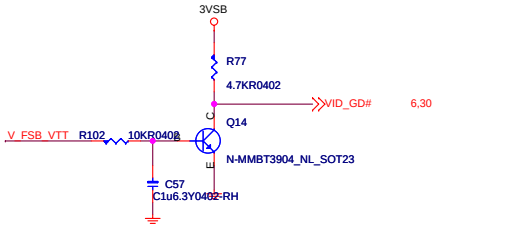
VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB1333, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.

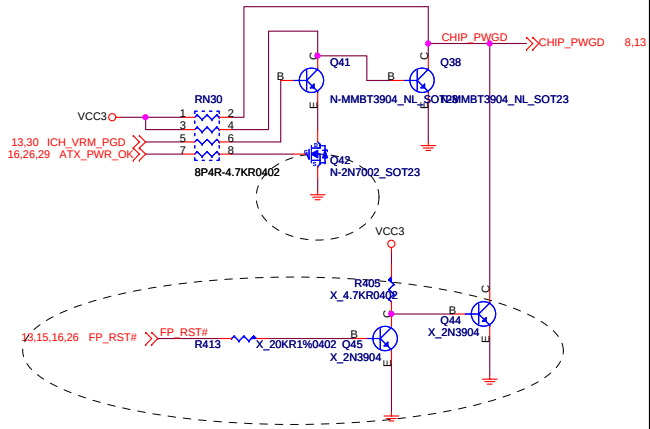
Reference Voltage





PLACE NEAR PIN OUT





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MS-7610	
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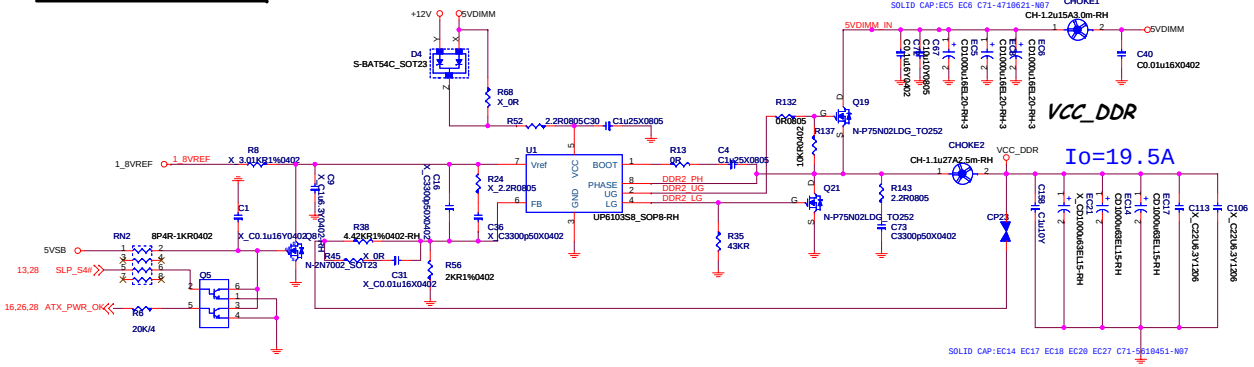
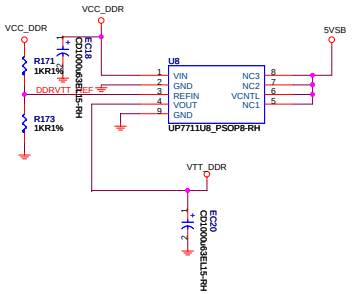
DDR II 1.8V POWER

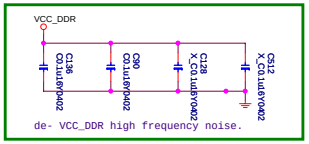


IF stuff UPI6264: use pin7 (Vref is 1.5V), pin 6 is 3.01K &15K ohm

DDR VTT Power

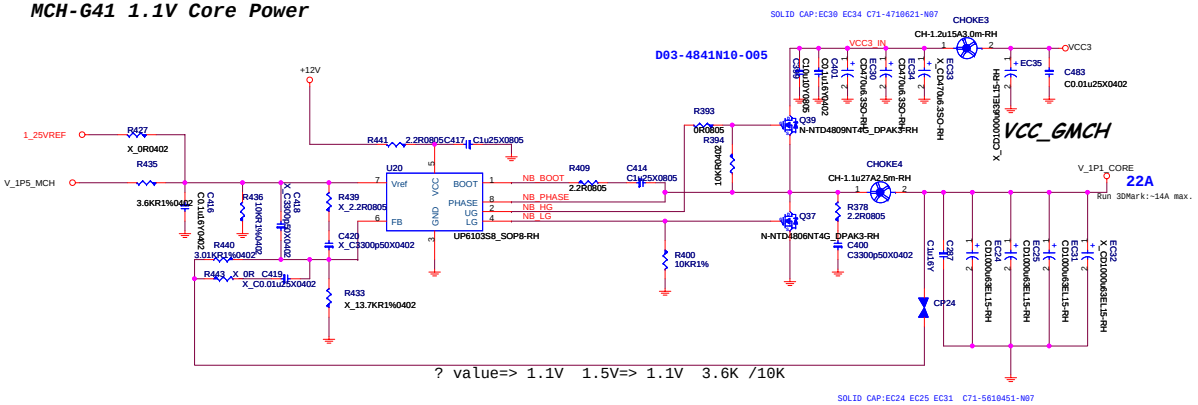
To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .





de- VCC_DDR high frequency noise.

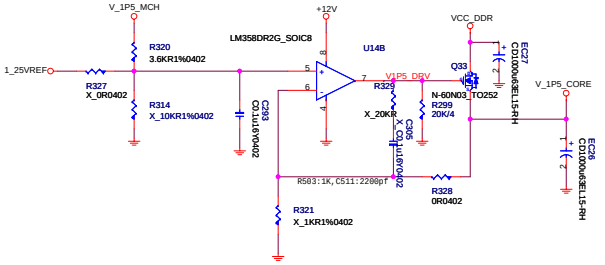
MCH-G41 1.1V Core Power



? value=> 1.1V 1.5V=> 1.1V 3.6K /10K

V_1P5 CORE

SB ~2A@1.5V+1.4A



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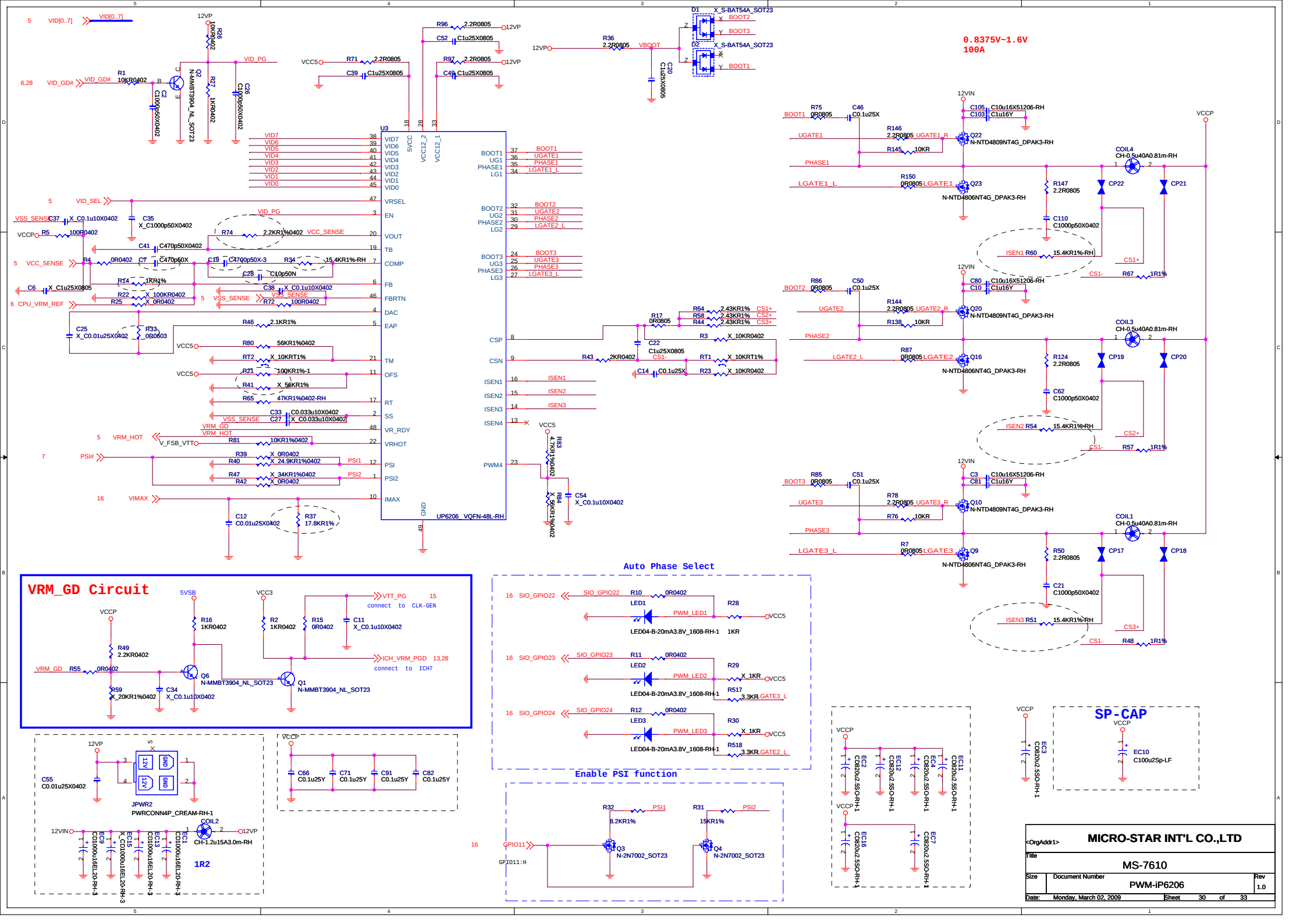
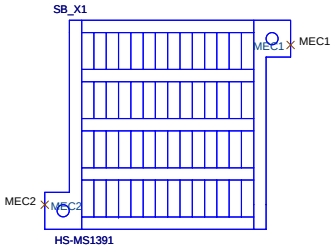
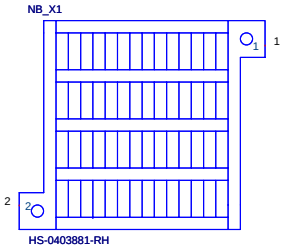

0.8375V~1.6V
100A
U3
UP6206_VQFN-48L-RH
VRM_GD Circuit
Auto Phase Select
Enable PSI function
SP-CAP
MICRO-STAR INT'L CO.,LTD
MS-7610
PWM-iP6206
1R2

ICH7 HEATSINK



MCH HEATSINK



PCB1 — CON2_1

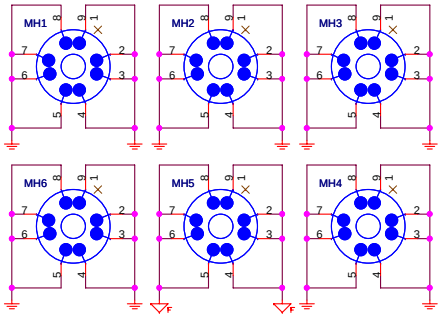
Rubber1 — rubber1/2

Rubber2 — rubber1/2

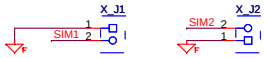
OPT1	OPT2	OPT3	OPT4	OPT5	OPT6	OPT7	OPT8	OPT9
0R0402	10/100 LAN CONN	RTL8103	68R/4	0R0603	270uF/16V	470uF/6.3V	560uF/4V	820uF/2.5V

P80-076100A-G37

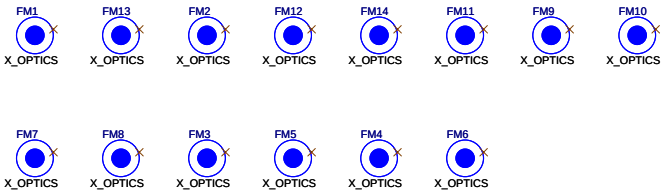
Mounting Holes



Simulation



Optics Orientation Holes



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ICH7

GPIO	Alt Func	PIN	I/O/NC	POWER	PU	SMI	TOL	DEFAULT	SIGNAL NAME
GPIO0	Unmultiplexed	AB18	I/O	CORE	N	Y	3.3V	GPI	GPI0(pull high)
GPIO1	REQ5#	C8	I/O	CORE	N	Y	5V	GPI	PREQ#5
GPIO2	PIRQE#	G8	I/OD	CORE	N	Y	5V	GPI	GPIO2(pull high)
GPIO3	PIRQF#	F7	I/OD	CORE	N	Y	5V	GPI	GPIO3(pull high)
GPIO4	PIRQG#	F8	I/OD	CORE	N	Y	5V	GPI	GPIO4(pull high)
GPIO5	PIRQH#	G7	I/OD	CORE	N	Y	5V	GPI	GPIO5(pull high)
GPIO6	Unmultiplexed	AC21	I/O	CORE	N	Y	3.3V	GPI	ATADET0
GPIO7	Unmultiplexed	AC18	I/O	CORE	N	Y	3.3V	GPI	STRAPPED HI
GPIO8	Unmultiplexed	E21	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO9	Unmultiplexed	E20	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO10	Unmultiplexed	A20	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO11	SMBALERT#	B23	I/O	Resume	N	Y	3.3V	Native	STRAPPED HI
GPIO12	Unmultiplexed	F19	I/O	Resume	N	Y	3.3V	GPI	SIO_PME#
GPIO13	Unmultiplexed	E19	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO14	Unmultiplexed	R4	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO15	Unmultiplexed	E22	I/O	Resume	N	Y	3.3V	GPI	STRAPPED HI
GPIO16	Unmultiplexed	AC22	I/O	CORE	N	N	3.3V	GPO	NC
GPIO17	GNT5#	D8	I/O	CORE	N	N	3.3V	GPO	STRAPPED L
GPIO18	Unmultiplexed	AC20	I/O	CORE	N	N	3.3V	GPO	NC
GPIO19	SATA_1GP	AH18	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO20	Unmultiplexed	AF21	I/O	CORE	N	N	3.3V	GPO	NC
GPIO21	SATA_0GP	AF19	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO22	REQ4#	A13	I/O	CORE	N	N	3.3V	Native	STRAPPED HI
GPIO23	LDRQ_1#	AA5	I/O	CORE	N	N	3.3V	Native	STRAPPED HI
GPIO24	Unmultiplexed	R3	I/O	Resume	N	N	3.3V	GPO	NC
GPIO25	Unmultiplexed	D20	I/O	Resume	Y	N	3.3V	GPO	GPIO25(high 7507,low 7398)
GPIO26	Unmultiplexed	A21	I/O	Resume	N	N	3.3V	GPO	USB_EN
GPIO27	Unmultiplexed	B21	I/O	Resume	N	N	3.3V	GPO	NC
GPIO28	Unmultiplexed	E23	I/O	Resume	N	N	3.3V	GPO	NC
GPIO29	OC5#	C3	I/O	Resume	N	N	3.3V	GPI	USB_OCP#2
GPIO30	OC6#	A2	I/O	Resume	N	N	3.3V	GPI	USB_OCP#3
GPIO31	OC7#	B3	I/O	Resume	N	N	3.3V	GPI	USB_OCP#3
GPIO32	Unmultiplexed	AG18	I/O	CORE	N	N	3.3V	GPO	BIOS_WP#(fill with 1)
GPIO33	Unmultiplexed	AC19	I/O	CORE	N	N	3.3V	GPO	NC
GPIO34	Unmultiplexed	U2	I/O	CORE	N	N	3.3V	GPO	NC
GPIO35	SATACLKREQ#	AD21	I/O	CORE	N	N	3.3V	GPO	NC
GPIO36	SATA2GP	AH19	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO37	SATA3GP	AE19	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO38	Unmultiplexed	AD20	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO39	Unmultiplexed	AE20	I/O	CORE	N	N	3.3V	GPI	STRAPPED HI
GPIO48	GNT4#	A14	I/O	CORE	N	N	3.3V	Native	STRAPPED HI
GPIO49	CPUPWRGD	AG24	I/O	V_CPU_IO	N	N	V_CPU_IO	Native	H_PWRGD

Following are the GPIOs that need to be terminated properly if not used:
GPIO[39:36,23:21,19,7:0]: default as inputs and should be pulled up to Vcc3_3 if unused.
GPIO[31:29,15:8]: default as inputs and should be pulled up to VccSus3_3 if unused.

SIO Fintek71882FG(CONTINUE)

GPIO	Alt Func	PIN	Usage	Input/Output	NOTES
GPIO0	VIDOUT0	49	MCH_BSEL0	O12	
GPIO1	VIDOUT1	50	MCH_BSEL1	O12	
GPIO2	VIDOUT2	51	MCH_BSEL2	O12	
GPIO3	VIDOUT3	52	NC	O12	
GPIO4	VIDOUT4	53	NC	O12	
GPIO5	VIDOUT5/SIC	54	NC	I/OOD12t	
GPIO6	SLOTOCC#	55	GPO	I/OOD12t	
GPIO7	Turbo1#/WDTRST#	56	WDTRST#	OD12-5v	
GPIO15	LED_VSB/ALERT#	64	LED_VSB	OD12	
GPIO16	LED_VCC/Turbo2#	65	LED_VCC	OD12	
GPIO20	PCIRST1#	74	PCIRST1#	OD12	
GPIO21	PCIRST2#	75	PCIRST2#	O12	
GPIO22	PCIRST3#	76	PCIRST3#	O12	
GPIO23	RSTCON#	77	RSTCON#	OD12	
GPIO24	ATXPG_IN	78	ATXPG_IN	AIN	
GPIO32	PWROK	84	PWROK	OD12	
GPIO26	PWSIN#	80	PWSIN#	INts5v	
GPIO27	PWSOUT#	80	PWSOUT#	OD12	
GPIO30	S3#	82	S3#	INts5v	
GPIO31	PSON#	83	PSON#	OD12-5v	
GPIO33	RSMRST#	85	RSMRST#	OD12	
GPIO40	FANIN3	25	FANIN3	INts5v	
GPIO41	FAN_CTL3	26	FAN_CTL3(NC)	OD12-5v	
GPIO25	PME#	79	PME#	OD12-5v	
GPIO10	SPI_SLK/FANIN4	59	GPIO10(NC)	I/OOD12t	
GPIO11	SPI_CS0#/FANCTL4	60	GPIO11(NC)	I/OOD12t	
GPIO12	SPI_MISO/FANCTL1_1	61	GPIO12(NC)	I/OOD12t	
GPIO13	SPI_MOSI/BEEP	62	BEEP(NC)	OD24	
GPIO14	FWH_DIS/WDTRST#/SPI_CS1#	63	GPIO14	I/OOD12t	
GPIO42	IRTX	27	IRTX	O12	
GPIO43	IRRX	28	IRRX	INts	
GPIO17		66	NC	I/OOD12t	

PCI Config.

DEVICE	MCP1 INT PIN	REQ#/GNT#	IDSEL	CLOCK
PCI1	PIRQ#A PIRQ#B PIRQ#C PIRQ#D	PREQ#0 PGNT#0	AD16	PCI_CLK0
PCI2	PIRQ#B PIRQ#C PIRQ#D PIRQ#A	PREQ#1 PGNT#1	AD17	PCI_CLK1

DDRII DIMM Config.

DEVICE	ADRRESS	CLOCK
DIMM A	A0H	P_DDR0_A/N_DDR0_A P_DDR1_A/N_DDR1_A P_DDR2_A/N_DDR2_A
DIMM B	A4H	P_DDR0_B/N_DDR0_B P_DDR1_B/N_DDR1_B P_DDR2_B/N_DDR2_B

JCI1	*Chassis Intrusion*
Open	Normal
(1-2)	Chassis Open

JUMPER SETTING		
JBAT1	(1-2)NORMAL	(2-3)CLEAR

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0A Change list:

1. Add pcie x1 *2,add one pci slot
2. change 1P1_core power mode
3. add APS function
4. modify Audio ALC888S circuit for realtek suggestion
5. add OC_SW1
6. add C14 C56 C61 C505 C506 C504 C370 for power supply with mini current(use resistor)
7. Update TO252 footprint to DPAKSGD
8. Add PLTRST#_R,EXP_RBIAS,SCL_A,SDA_A,SDA_LAN net name
9. add Q34 Q37 R315
10. For power:add C536 C509 C510 C511 R504 R315 R501 R591 R500 R503 R502 EC47

1.0 Change list:

1. switch CPU_BSEL0 to J_CPU_BSEL2
2. load power solution
3. add R515 R516 and update new solution for 5VDIMM
4. delete CN7 add C536-539
5. add R517 R518, follow msi-newheader_0216,change JPWR1 JPWR2 JCD1 KB_MS1
6. change EC20 footprint

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