MS-7313

Version 0A

CPU:

- Intel Prescott (L2=2MB) - 3.4G & Above
- Intel Cendar Mill (65nm) - 3.73G & Above
- Intel Smithfield (90nm Dual core)
- Intel Conroe (65W Dual core)

System Chipset:

- Intel Lakeport - MCH (North Bridge)
- Intel ICH7R (South Bridge)

On Board Chipset:

- BIOS -- SPI
- HD -- ALC888
- LPC Super I/O -- F71882FG
- LAN-- REALTEK RTL8111C Co-lay RTL8101E
- CLOCK -- RTM876-665

Main Memory:

- DDR II *2 (Max 4GB)

Expansion Slots:

- PCI2.3 SLOT * 2
- PCI EXPRESS X16 SLOT

ST PWM:

- Controller: 3 PHASES

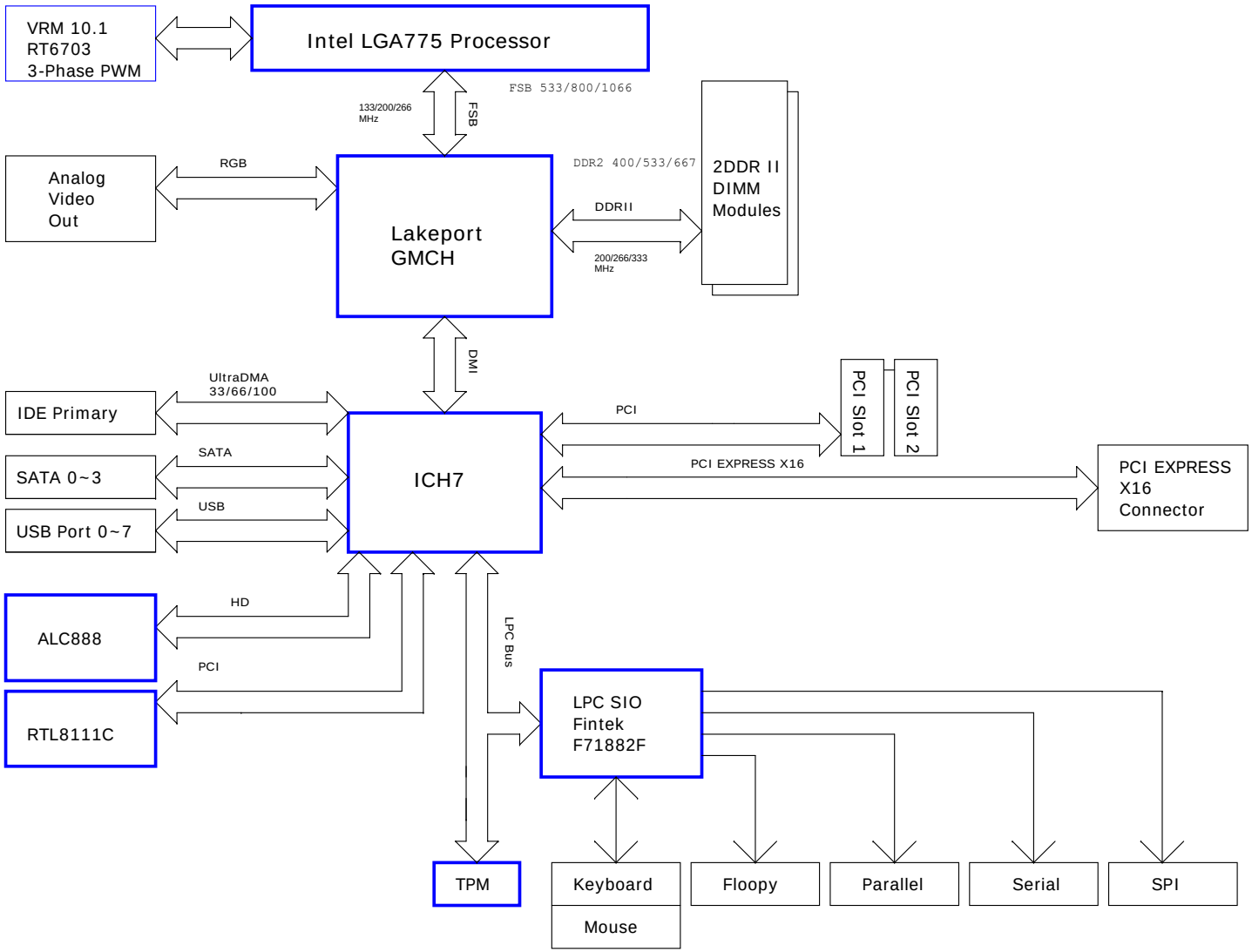
MICRO-STAR INT'L CO.,LTD

MS-7313

Size	Document Description	Rev
Custom	Cover Sheet	0A

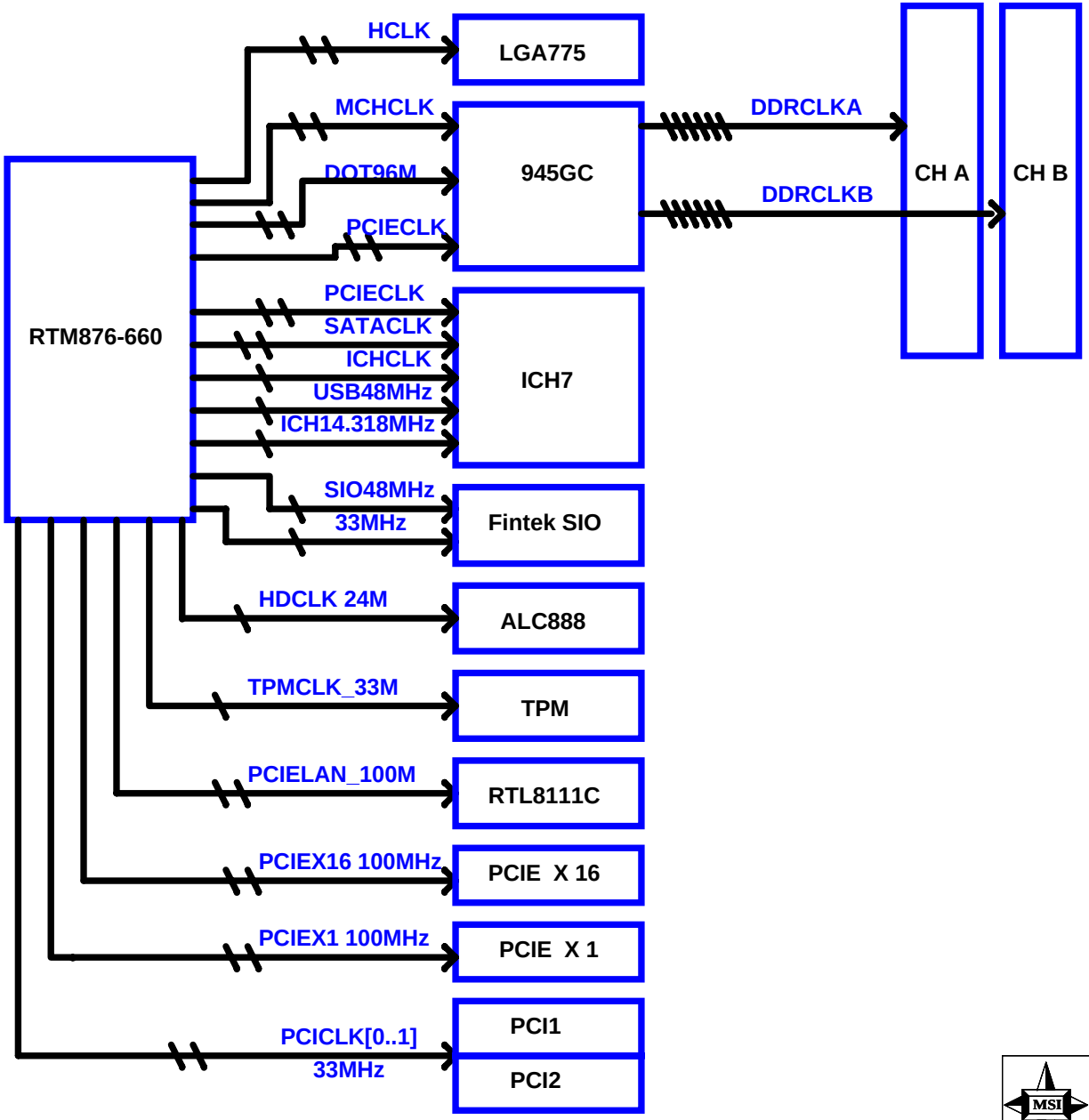
Date: Monday, November 26, 2007 Sheet 1 of 33

Block Diagram

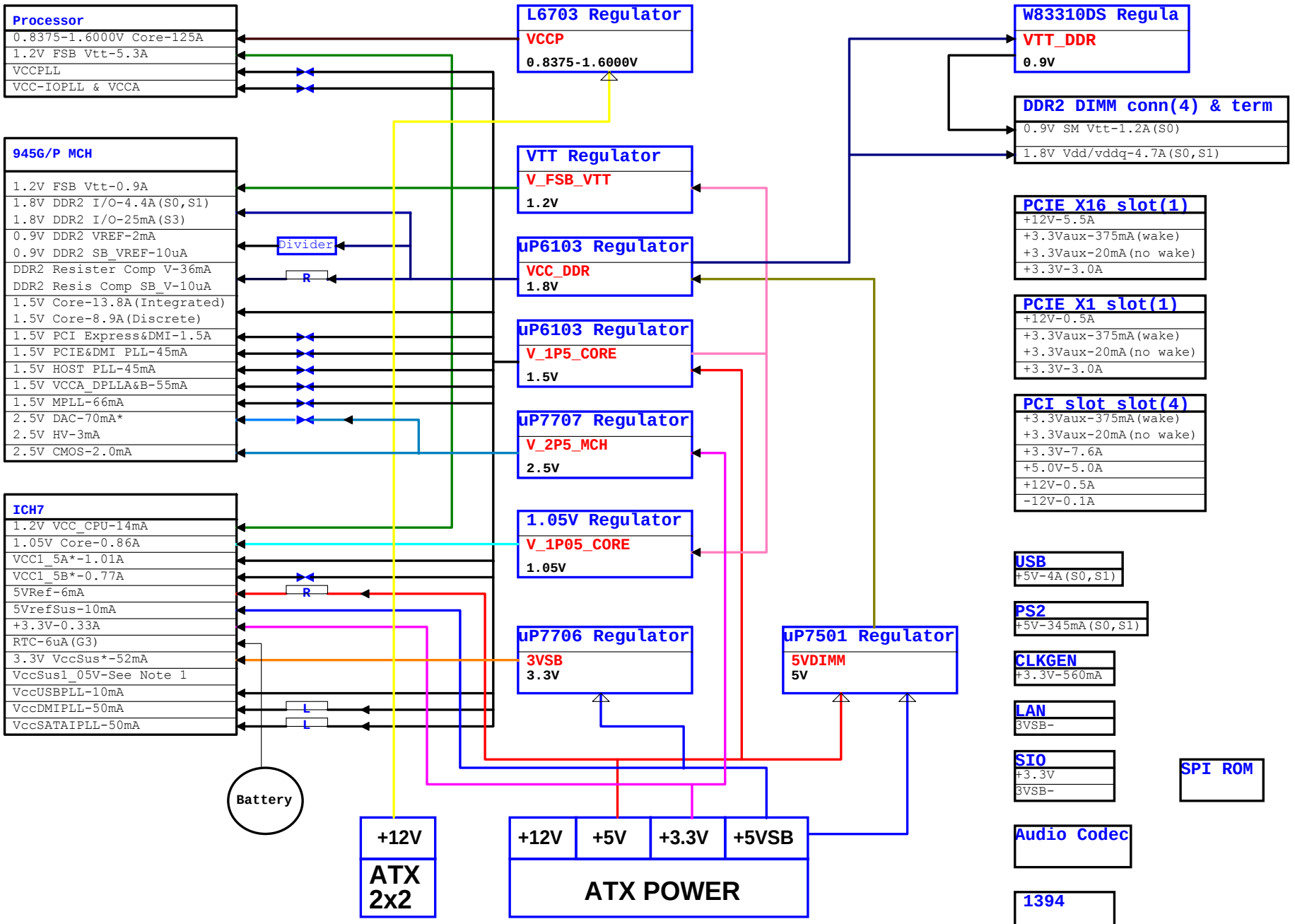


MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: BLOCK DIAGRAM	Rev: 0A
Date: Friday, November 09, 2007	Sheet 2 of 33	

CLOCK MAP



MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: CLOCK MAP	Rev: 0A
Date: Friday, November 09, 2007	Sheet 3 of 33	



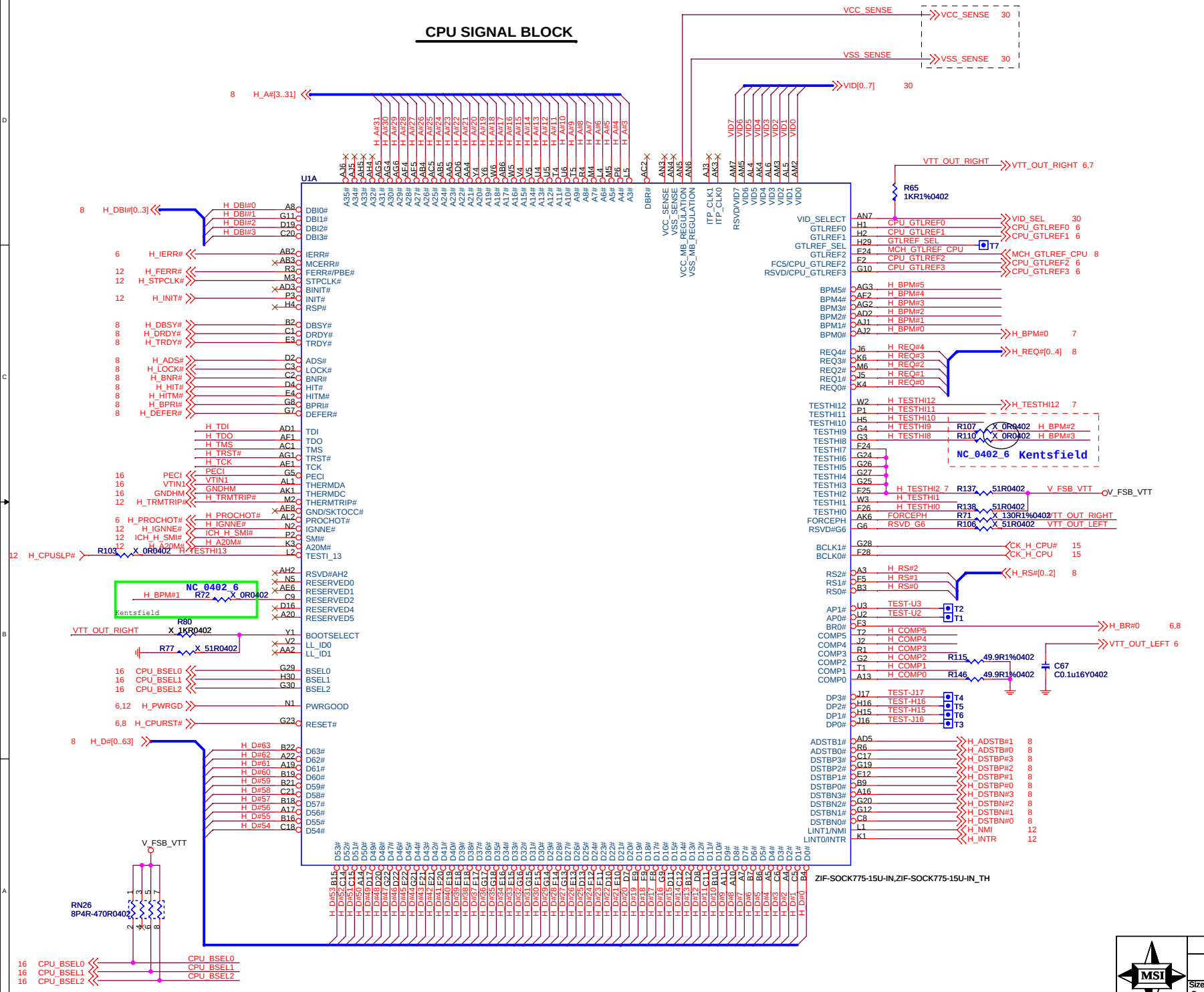
MICRO-STAR INT'L CO.,LTD

MS-7313

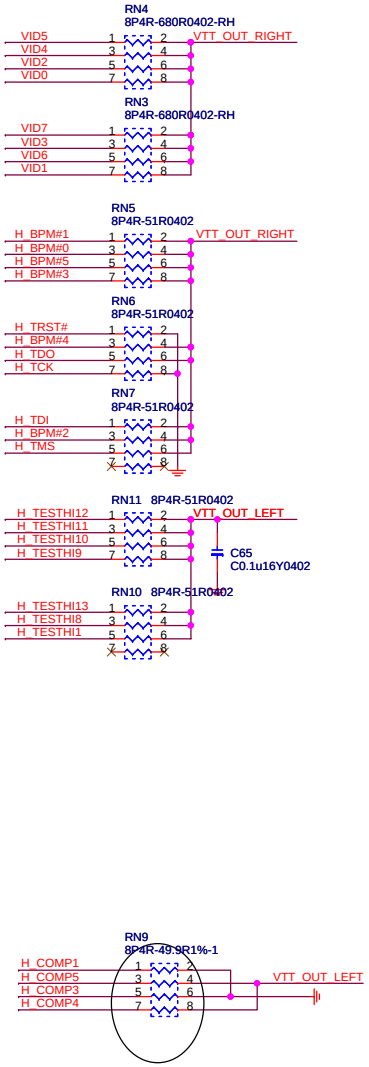
Size	Document Description	Rev
Custom	LGA775 - Signal	0A

Date: Friday, November 09, 2007 Sheet 4 of 33

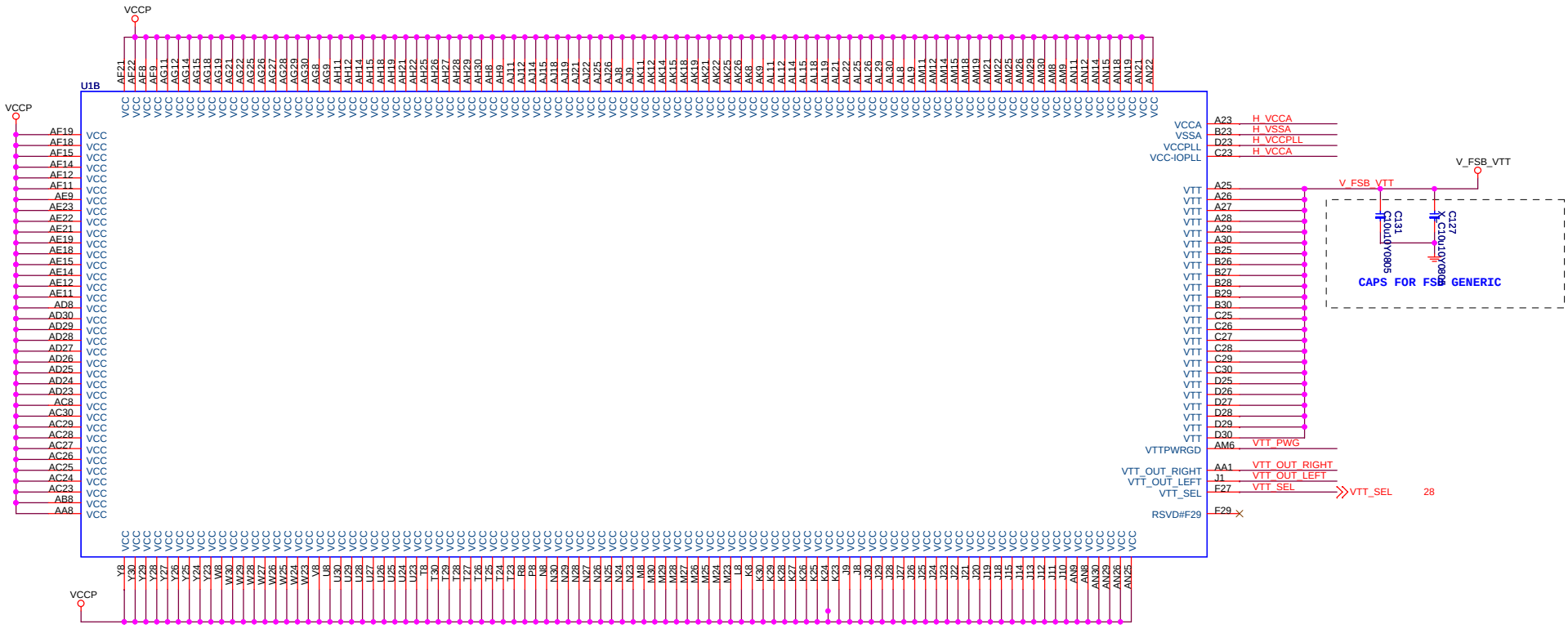
CPU SIGNAL BLOCK



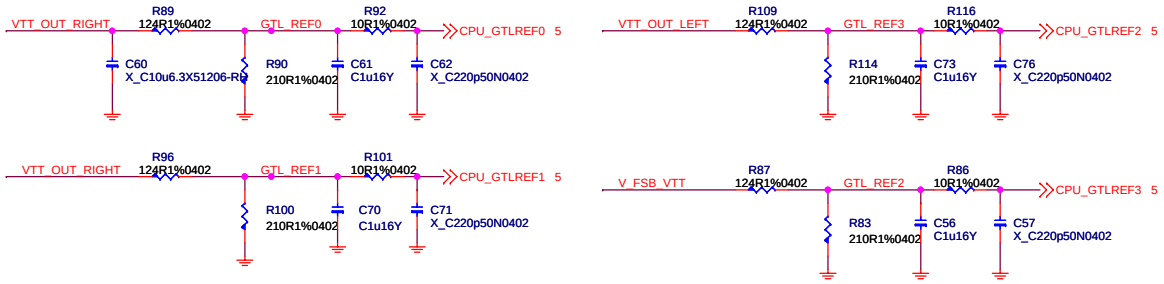
PULL HIGHT PULL DOWN



MICRO-STAR INT'L CO.,LTD			
MS-7313			
Size: Custom	Document Description: LGA775 - Signal		Rev: 0A
Date: Friday, November 09, 2007		Sheet 5 of 33	

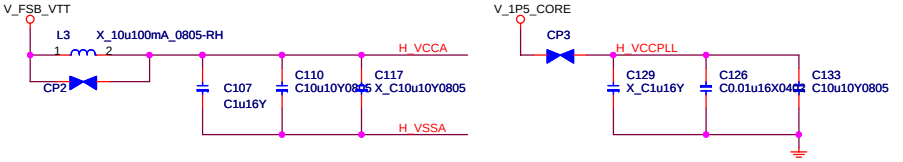


*GTLREF VOLTAGE SHOULD BE 0.67 * VTT = 0.8V (At VTT=1.2V)

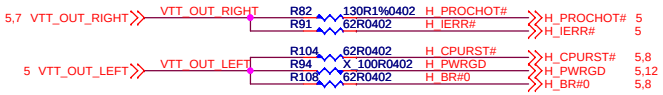


ZIF-SOCK775-15U-IN,ZIF-SOCK775-15U-IN_TH

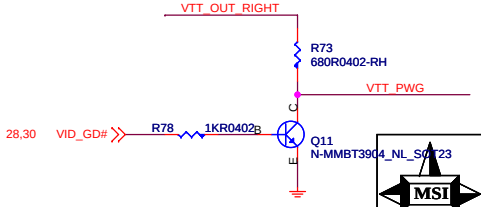
*PLACE COMPONENTS AS CLOSE AS POSSIBLE TO PROCESSOR SOCKET
*TRACE WIDTH TO CAPS MUST BE NO SMALLER THAN 12MILS



PLACE AT CPU END OF ROUTE

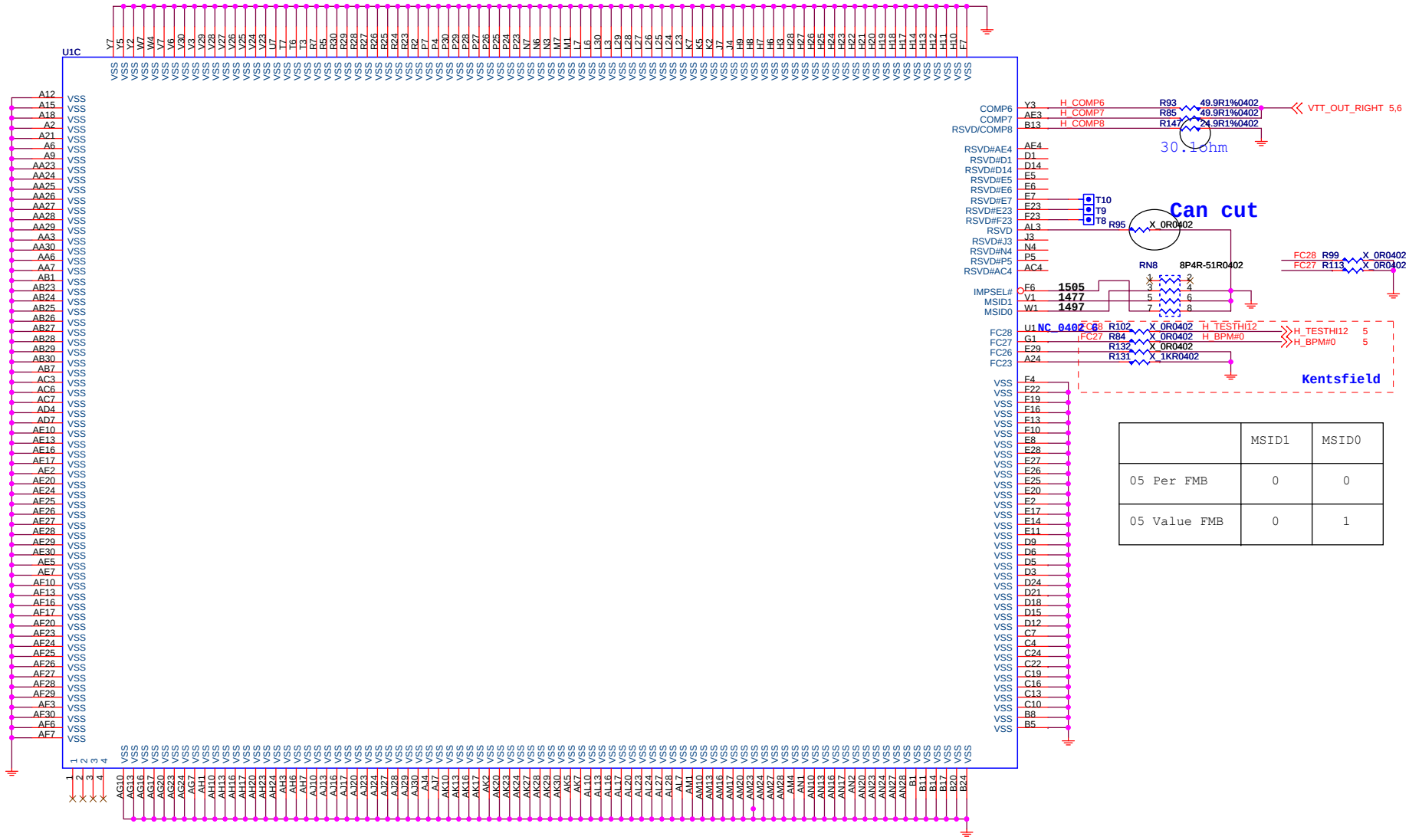


VTT_PWRGOOD

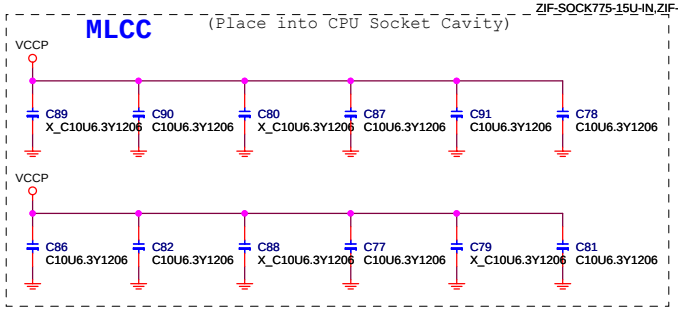


VTT_PWG SPEC :
High > 0.9V
Low < 0.3V
Trise < 150ns

MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: LGA775 - Power	Rev: 0A
Date: Friday, November 09, 2007	Sheet 6 of 33	



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

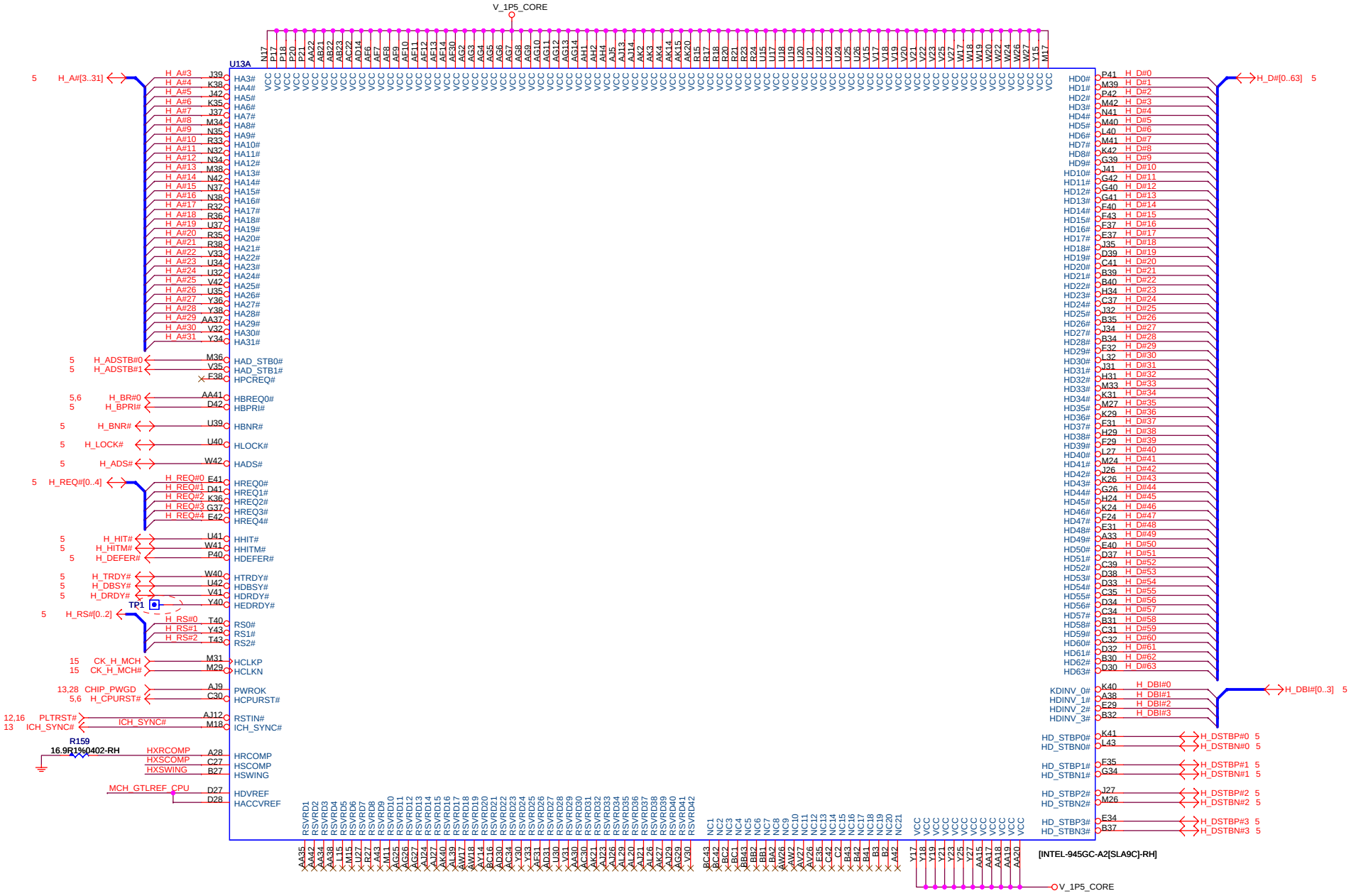


MICRO-STAR INT'L CO.,LTD

MS-7313

Size	Document Description	Rev
Custom	LGA775 - GND	0A

Date: Friday, November 09, 2007 Sheet 7 of 33

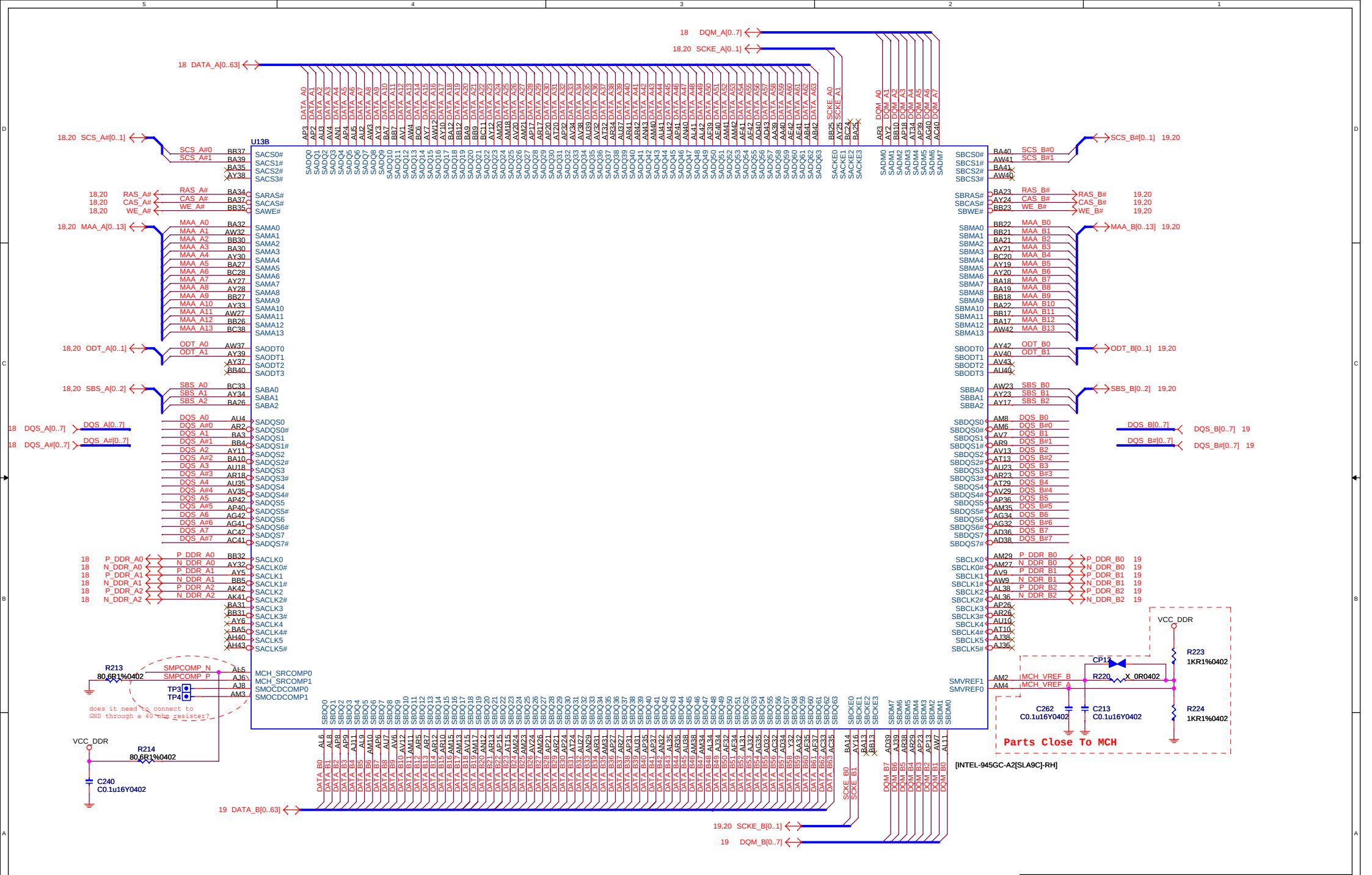


MICRO-STAR INT'L CO.,LTD

MS-7313

Size	Document Description	Rev
Custom	945GC - CPU Signals	0A

Date: Friday, November 09, 2007 | Sheet 8 of 33

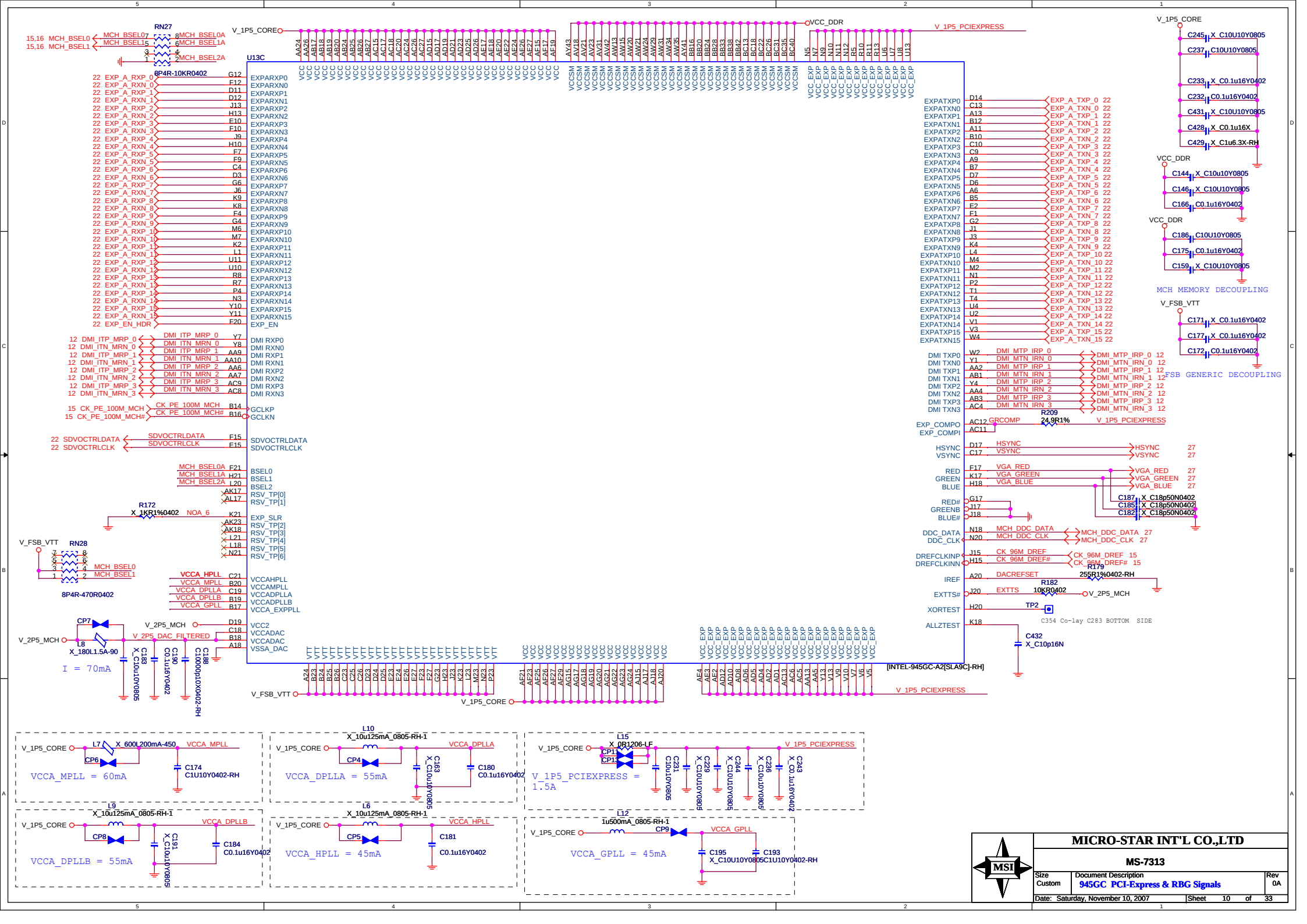


MICRO-STAR INT'L CO.,LTD

MS-7313

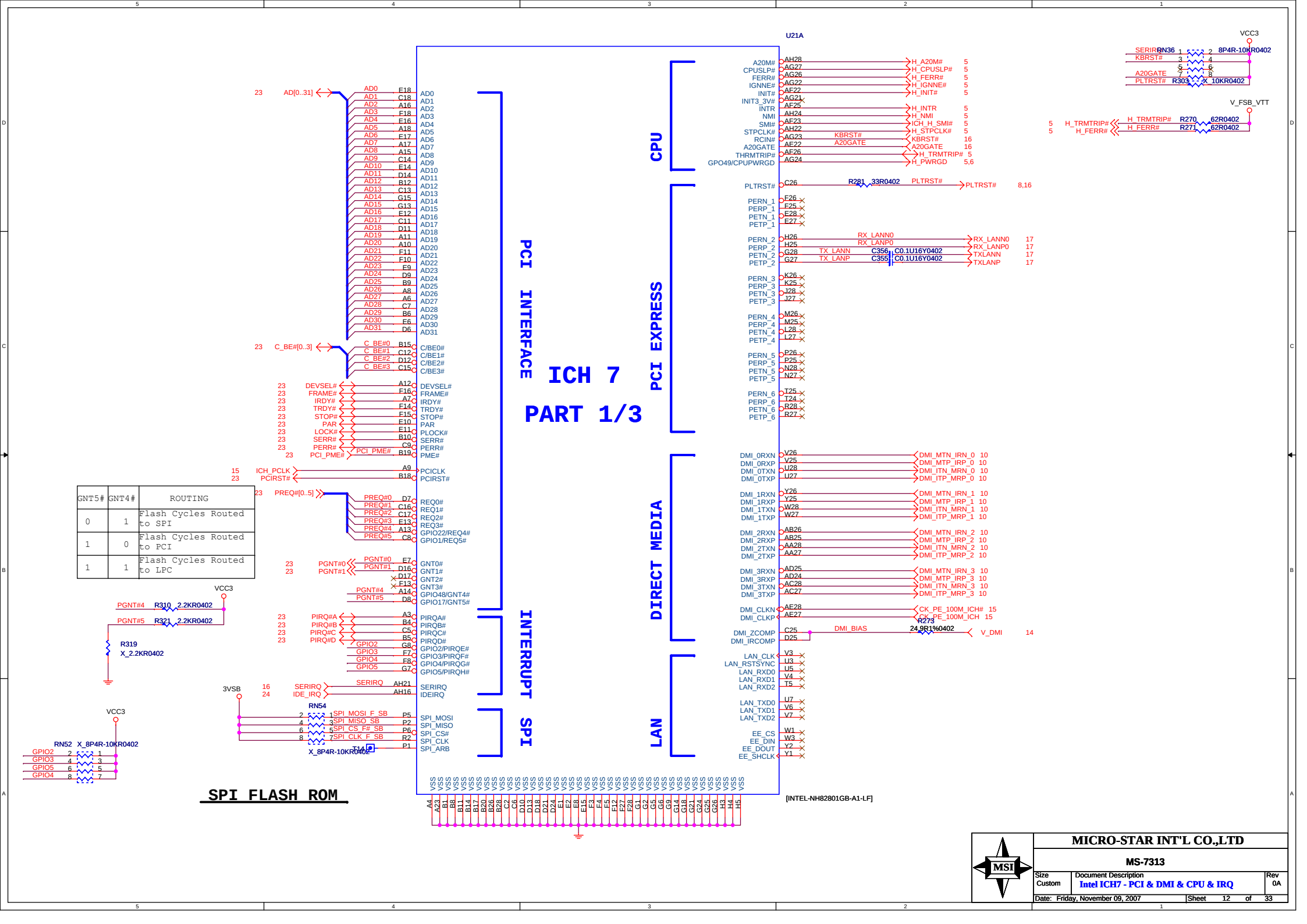
Size	Document Description	Rev
Custom	945GC - Memory Signals	0A

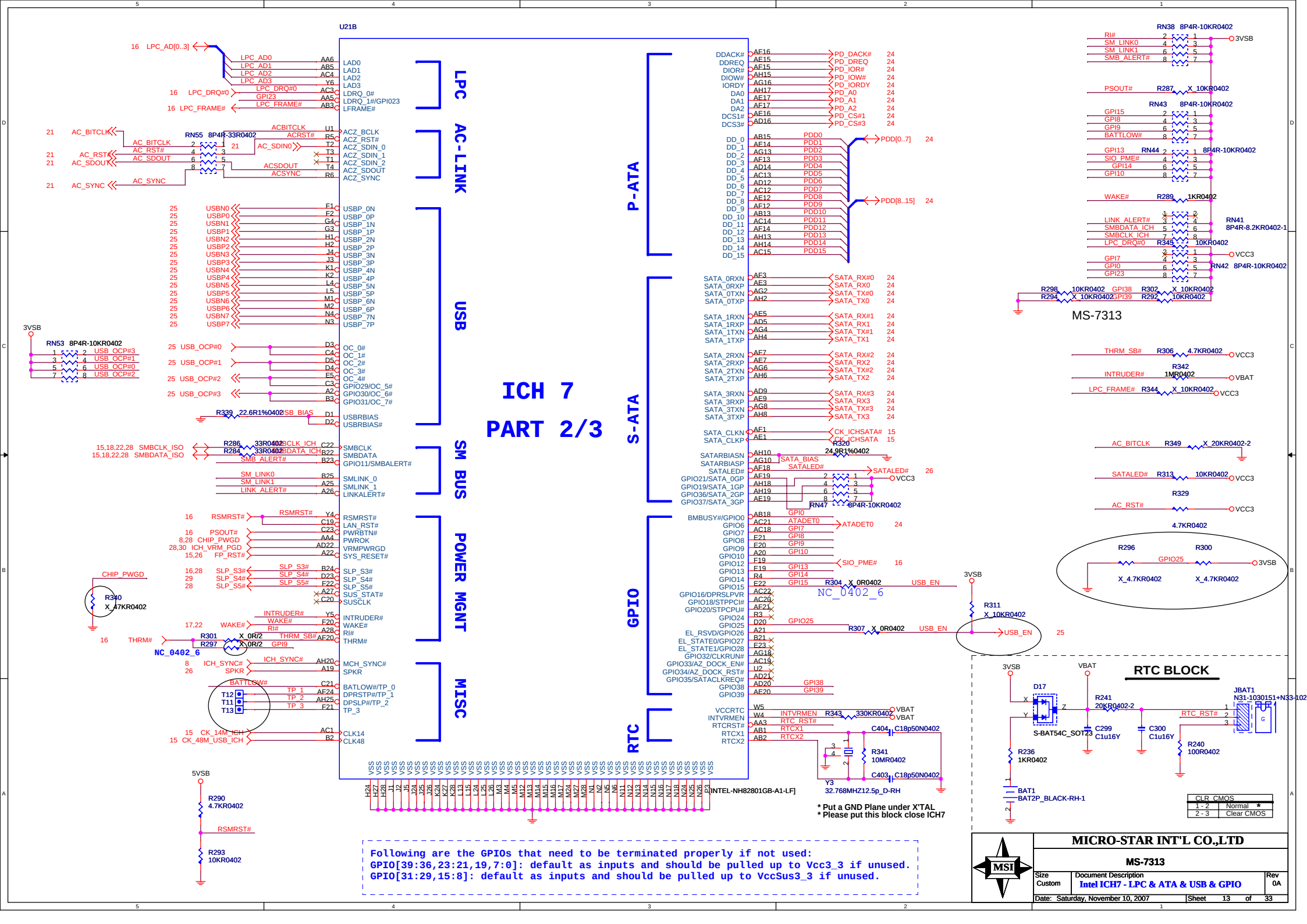
Date: Friday, November 09, 2007 | Sheet 9 of 33

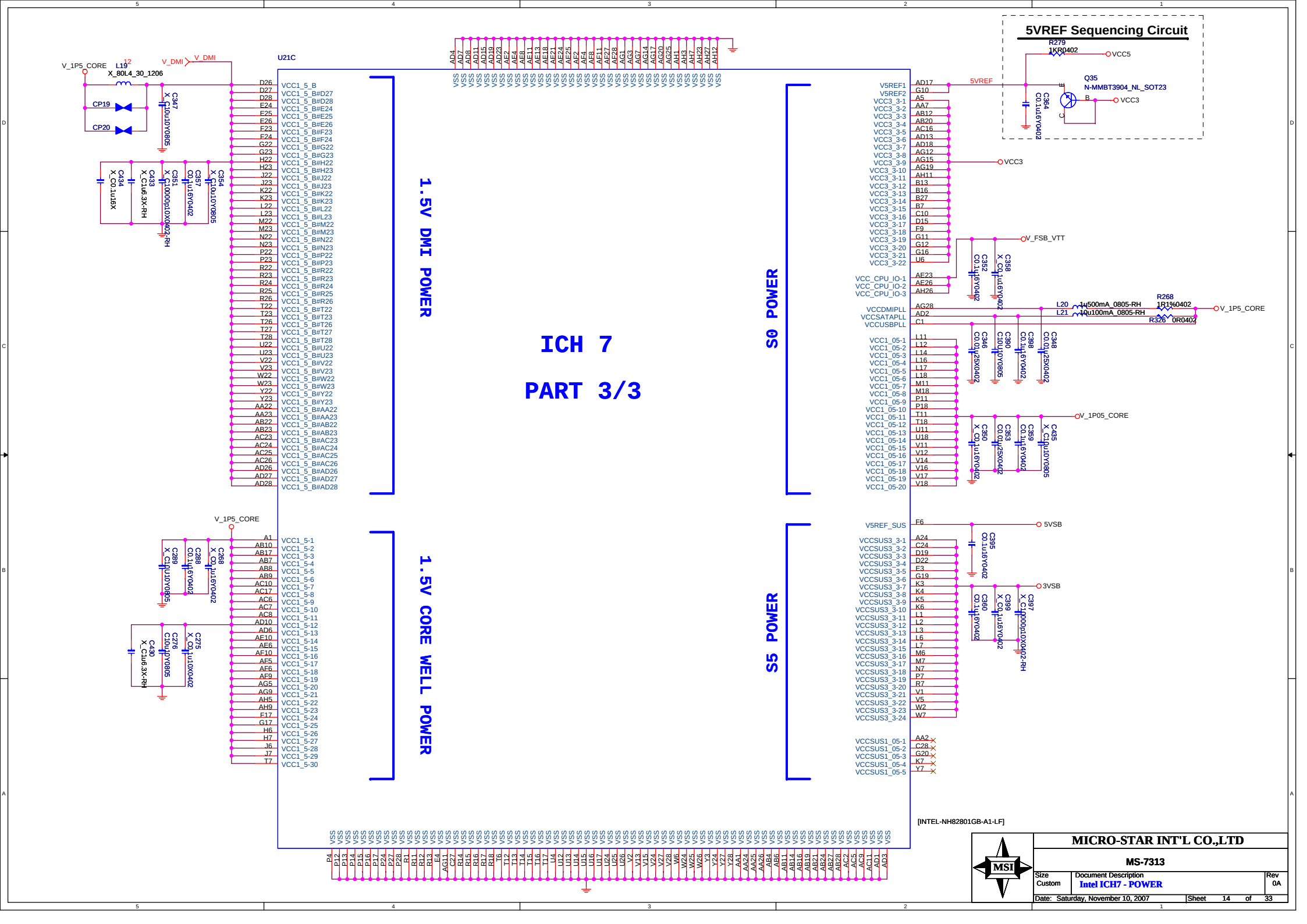


MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: 945GC PCI-Express & RBG Signals
Rev: 0A	
Date: Saturday, November 10, 2007	Sheet 10 of 33

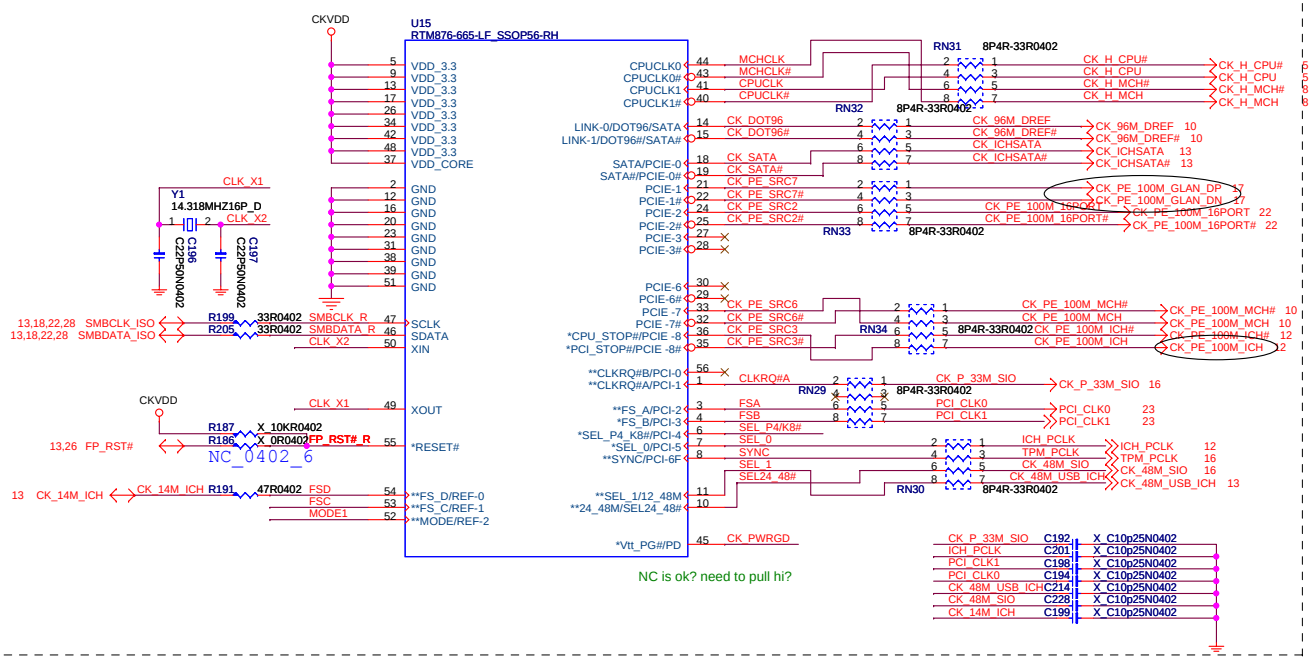
MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: Intel .945GC - GND
Rev: 0A	
Date: Friday, November 09, 2007	Sheet 11 of 33

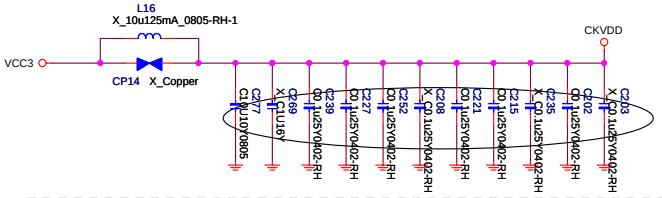

ICH 7
PART 1/3
U21A
PCI INTERFACE
CPU
PCI EXPRESS
DIRECT MEDIA
INTERRUPT
SPI
LAN
SPI FLASH ROM
[INTEL-NH82801GB-A1-LF]
GNT5# GNT4# ROUTING
0 1 Flash Cycles Routed to SPI
1 0 Flash Cycles Routed to PCI
1 1 Flash Cycles Routed to LPC
MICRO-STAR INT'L CO.,LTD
MS-7313
Intel ICH7 - PCI & DMI & CPU & IRQ
Rev 0A
Date: Friday, November 09, 2007
Sheet 12 of 33


U21B
ICH 7
PART 2/3
LPC
AC-LINK
USB
SM BUS
POWER MGNT
MISC
P-ATA
S-SATA
GPIO
RTC
LPC_AD[0..3]
LPC_AD0
LPC_AD1
LPC_AD2
LPC_AD3
LPC_DRQ#0
GPI23
LPC_FRAME#
LAD0
LAD1
LAD2
LAD3
LDRQ_0#
LDRQ_1#/GPIO23
LFRAME#
AC_BITCLK
AC_RST#
AC_SDOUT
AC_SYNC
ACBITCLK
ACRST#
AC_SDIN0
ACSDOUT
ACSYNC
ACZ_BCLK
ACZ_RST#
ACZ_SDIN_0
ACZ_SDIN_1
ACZ_SDIN_2
ACZ_SDOUT
ACZ_SYNC
RN55 8P4R-33R0402
USBN0
USBP0
USBN1
USBP1
USBN2
USBP2
USBN3
USBP3
USBN4
USBP4
USBN5
USBP5
USBN6
USBP6
USBN7
USBP7
USBP_0N
USBP_0P
USBP_1N
USBP_1P
USBP_2N
USBP_2P
USBP_3N
USBP_3P
USBP_4N
USBP_4P
USBP_5N
USBP_5P
USBP_6N
USBP_6P
USBP_7N
USBP_7P
USB_OCP#0
USB_OCP#1
USB_OCP#2
USB_OCP#3
RN53 8P4R-10KR0402
OC_0#
OC_1#
OC_2#
OC_3#
OC_4#
GPIO29/OC_5#
GPIO30/OC_6#
GPIO31/OC_7#
R339 22.6R1%0402
USB_BIAS
USBRBIAS
USBRBIAS#
SMBCLK_ISO
SMBDATA_ISO
R286 33R0402
R284 33R0402
SMBCLK_ICH
SMBDATA_ICH
SMB_ALERT#
SMBCLK
SMBDATA
GPIO11/SMBALERT#
SM_LINK0
SM_LINK1
LINK_ALERT#
SMLINK_0
SMLINK_1
LINKALERT#
RSMRST#
PSOUT#
CHIP_PWGD
ICH_VRM_PGD
FP_RST#
SLP_S3#
SLP_S4#
SLP_S5#
R340 X_47KR0402
RSMRST#
LAN_RST#
PWRBTN#
PWROK
VRMPWRGD
SYS_RESET#
SLP_S3#
SLP_S4#
SLP_S5#
SUS_STAT#
SUSCLK
INTRUDER#
WAKE#
RI#
THRM#
R301 X_0R/2
R297 X_0R/2
THRM_SB#
GPI9
NC_0402_6
ICH_SYNC#
SPKR
MCH_SYNC#
SPKR
BATTLOW#
TP_1
TP_2
TP_3
BATLOW#/TP_0
DPRSTP#/TP_1
DPSLP#/TP_2
TP_3
CK_14M_ICH
CK_48M_USB_ICH
CLK14
CLK48
5VSB
R290 4.7KR0402
RSMRST#
R293 10KR0402
DDACK#
DDREQ
DIOR#
DIOW#
IORDY
DA0
DA1
DA2
DCS1#
DCS3#
PD_DACK#
PD_DREQ
PD_IOR#
PD_IOW#
PD_IORDY
PD_A0
PD_A1
PD_A2
PD_CS#1
PD_CS#3
DD_0
DD_1
DD_2
DD_3
DD_4
DD_5
DD_6
DD_7
DD_8
DD_9
DD_10
DD_11
DD_12
DD_13
DD_14
DD_15
PDD0
PDD1
PDD2
PDD3
PDD4
PDD5
PDD6
PDD7
PDD8
PDD9
PDD10
PDD11
PDD12
PDD13
PDD14
PDD15
PDD[0..7]
PDD[8..15]
SATA_0RXN
SATA_0RXP
SATA_0TXN
SATA_0TXP
SATA_1RXN
SATA_1RXP
SATA_1TXN
SATA_1TXP
SATA_2RXN
SATA_2RXP
SATA_2TXN
SATA_2TXP
SATA_3RXN
SATA_3RXP
SATA_3TXN
SATA_3TXP
SATA_RX#0
SATA_RX0
SATA_TX#0
SATA_TX0
SATA_RX#1
SATA_RX1
SATA_TX#1
SATA_TX1
SATA_RX#2
SATA_RX2
SATA_TX#2
SATA_TX2
SATA_RX#3
SATA_RX3
SATA_TX#3
SATA_TX3
SATA_CLKN
SATA_CLKP
CK_ICHSATA#
CK_ICHSATA
R320 24.9R1%0402
SATARBIASN
SATARBIASP
SATA_BIAS
SATALED#
RN47 8P4R-10KR0402
GPIO21/SATA_0GP
GPIO19/SATA_1GP
GPIO36/SATA_2GP
GPIO37/SATA_3GP
BMBUSY#/GPIO0
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16/DPRSLPVR
GPIO18/STPPCI#
GPIO20/STPCPU#
GPIO24
GPIO25
EL_RSVD/GPIO26
EL_STATE0/GPIO27
EL_STATE1/GPIO28
GPIO32/CLKRUN#
GPIO33/AZ_DOCK_EN#
GPIO34/AZ_DOCK_RST#
GPIO35/SATACLKREQ#
GPIO38
GPIO39
ATADET0
SIO_PME#
R304 X_0R0402
USB_EN
NC_0402_6
R307 X_0R0402
R311 X_10KR0402
VCCRTC
INTVRMEN
RTCRST#
RTCX1
RTCX2
R343 330KR0402
C404 C18p50N0402
C403 C18p50N0402
R341 10MR0402
Y3 32.768MHZ12.5p_D-RH
[INTEL-NH82801GB-A1-LF]
* Put a GND Plane under X'TAL
* Please put this block close ICH7
RN38 8P4R-10KR0402
RI#
SM_LINK0
SM_LINK1
SMB_ALERT#
PSOUT#
R287 X_10KR0402
RN43 8P4R-10KR0402
GPI15
GPI8
GPI9
BATTLOW#
RN44 8P4R-10KR0402
GPI13
SIO_PME#
GPI14
GPI10
WAKE#
R289 1KR0402
LINK_ALERT#
SMBDATA_ICH
SMBCLK_ICH
LPC_DRQ#0
RN41 8P4R-8.2KR0402-1
R345 10KR0402
GPI7
GPI0
GPI23
RN42 8P4R-10KR0402
R298 10KR0402
R294 X_10KR0402
GPI38
GPI39
R302 X_10KR0402
R292 10KR0402
MS-7313
THRM_SB#
R306 4.7KR0402
R342 1MR0402
INTRUDER#
LPC_FRAME#
R344 X_10KR0402
AC_BITCLK
R349 X_20KR0402-2
SATALED#
R313 10KR0402
AC_RST#
R329
4.7KR0402
R296 X_4.7KR0402
R300 X_4.7KR0402
GPIO25
RTC BLOCK
D17
S-BAT54C_SOT23
R241 20KR0402-2
C299 C1u16Y
C300 C1u16Y
R240 100R0402
R236 1KR0402
JBAT1 N31-1030151+N33-102
RTC_RST#
BAT1 BAT2P_BLACK-RH-1
CLR_CMOS
1 - 2 Normal *
2 - 3 Clear CMOS
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-7313
Size Custom
Document Description
Intel ICH7 - LPC & ATA & USB & GPIO
Rev 0A
Date: Saturday, November 10, 2007
Sheet 13 of 33

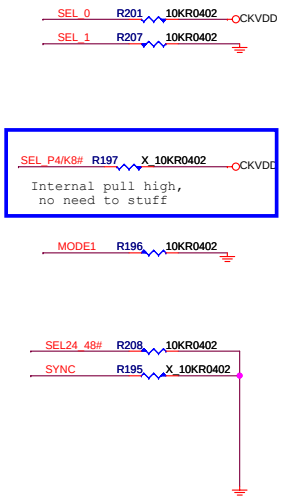

5VREF Sequencing Circuit
R279
1KR0402
VCC5
Q35
N-MMBT3904_NL_SOT23
VCC3
C364
C0.1u16Y0402
5VREF
U21C
ICH 7
PART 3/3
1.5V DMI POWER
1.5V CORE WELL POWER
S0 POWER
S5 POWER
V_1P5_CORE
L19
X_80L4_30_1206
V_DMI
CP19
CP20
C347
X_C10u10Y0805
C434
X_C0.1u16X
C433
X_C1u6.3X-RH
C351
X_C10000p10X0402-RH
C357
C0.1u16Y0402
C354
X_C10u10Y0805
V_FSB_VTT
C352
C0.1u16Y0402
C358
X_C0.1u16Y0402
VCC3
L20
1u500mA_0805-RH
L21
10u100mA_0805-RH
R268
1R1%0402
R326
0R0402
V_1P5_CORE
C346
C0.01u25X0402
C380
C10u10Y0805
C398
C0.1u16Y0402
C348
C0.01u25X0402
V_1P05_CORE
C350
X_C0.1u16Y0402
C353
C0.01u25X0402
C359
C0.1u16Y0402
C435
X_C10u10Y0805
5VSB
C395
C0.1u16Y0402
3VSB
C360
C0.1u16Y0402
C399
X_C0.1u16Y0402
C397
X_C10000p10X0402-RH
C289
X_C10u10Y0805
C288
C0.1u16Y0402
C268
X_C0.1u16Y0402
C430
X_C1u6.3X-RH
C276
C10u10Y0805
C275
X_C0.1u10X0402
[INTEL-NH82801GB-A1-LF]
MICRO-STAR INT'L CO.,LTD
MS-7313
Size
Custom
Document Description
Intel ICH7 - POWER
Rev
0A
Date: Saturday, November 10, 2007
Sheet 14 of 33

Clock Generator - RTM876-665





STRAPPING RESISTOR



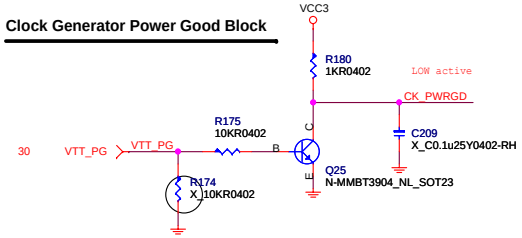
SEL_1	SEL_0	Chipset Support
0	0	SIS
1	0	VIA
0	1	Intel W/GFX
1	1	Intel

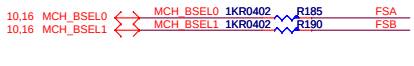
SEL_P4/K8#	PIN#40,41,43,44
0	K8_3.3V_swing
1	P4_0.8V_swing

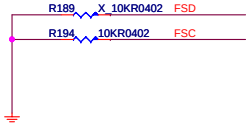
MODE	PIN#35/36
0	PCIE-8_T/C
1	PCI_STOP#/CPU_STOP#

SEL24_48#	PIn#10
0	48Mhz
1	24Mhz

Clock Generator Power Good Block





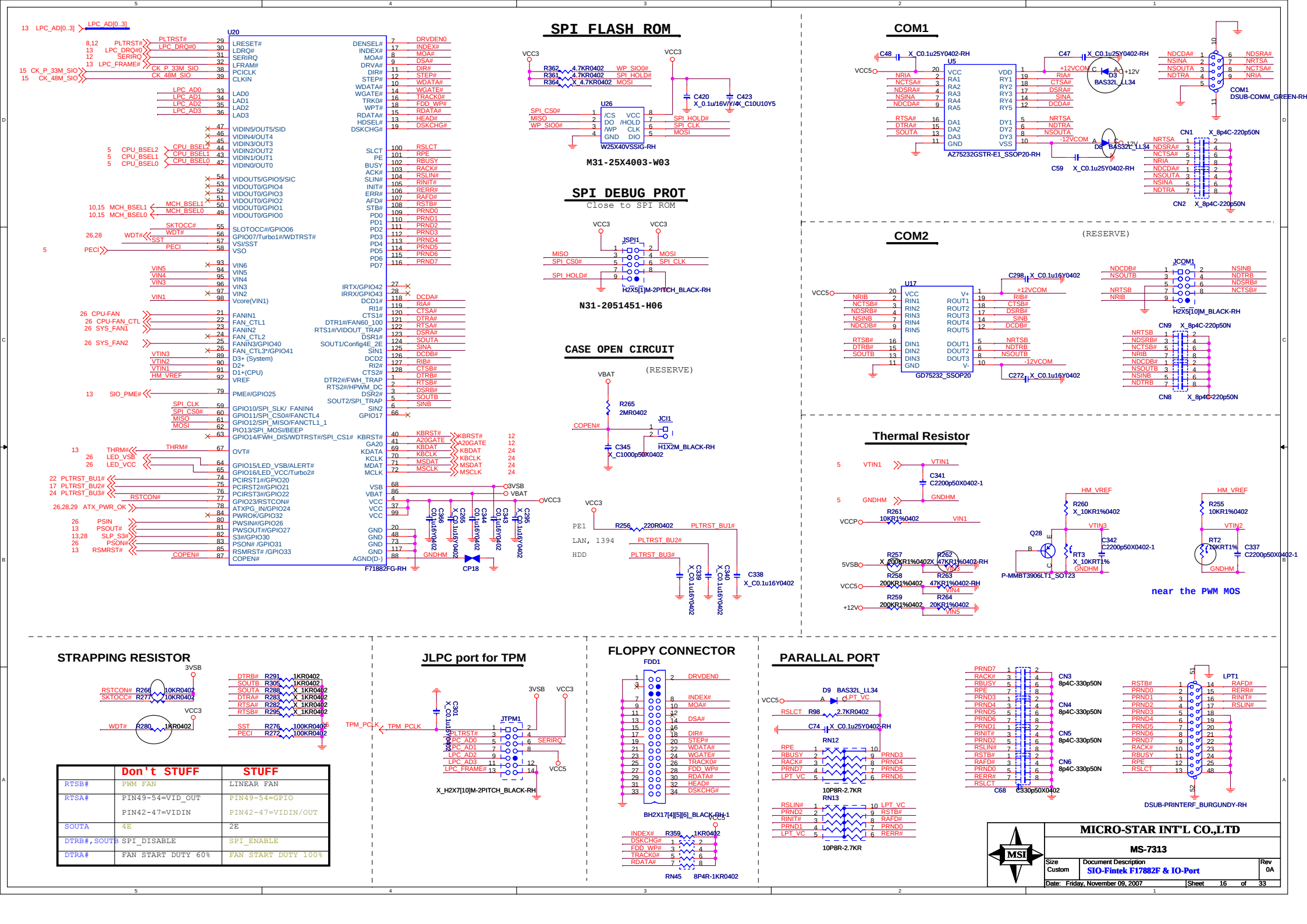


CPU Frequency Selection

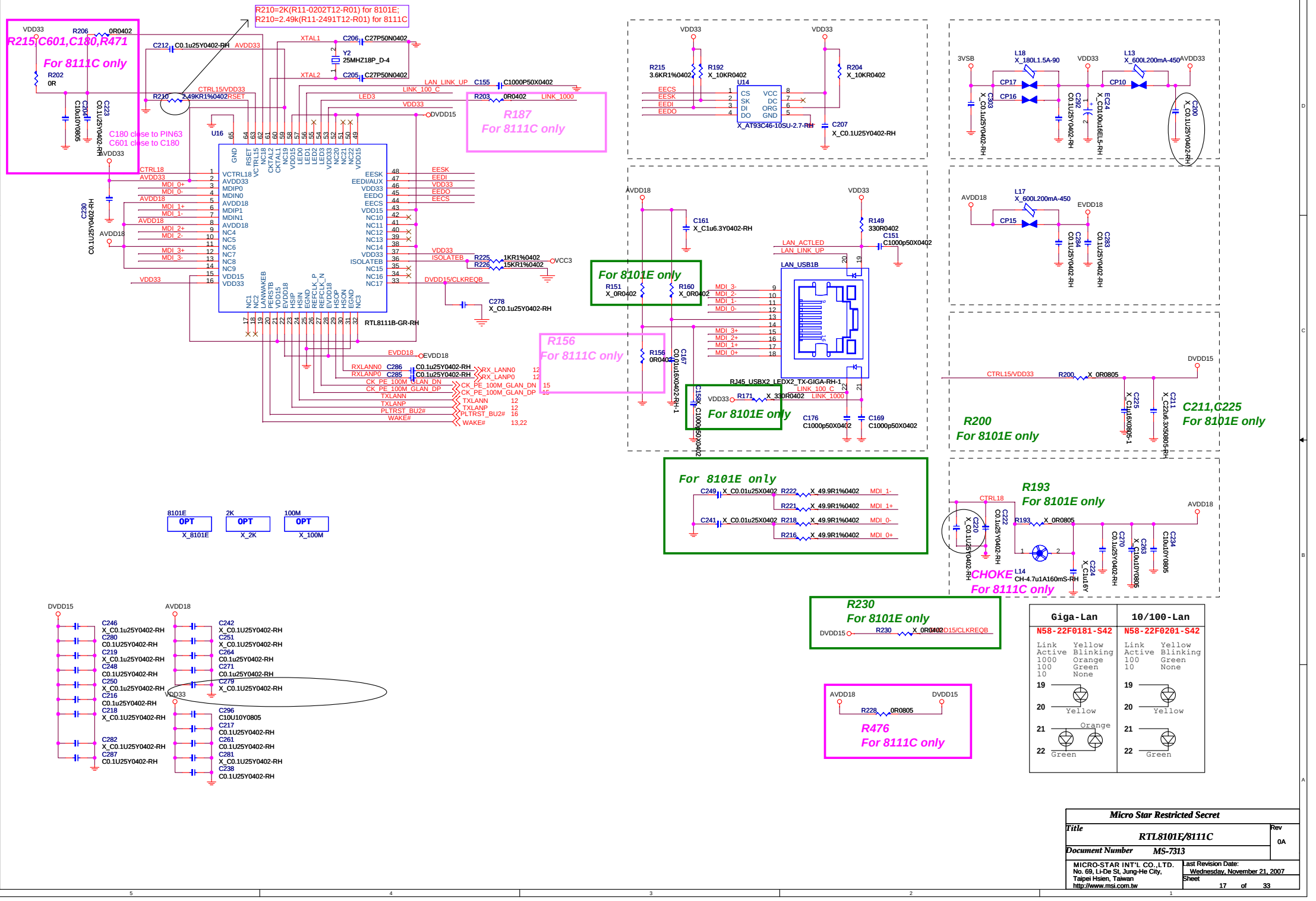
FS_C	FS_B	FS_A	CPU
0	0	1	133M
0	1	0	200M
0	0	0	266M
1	0	0	333M
1	1	0	400M

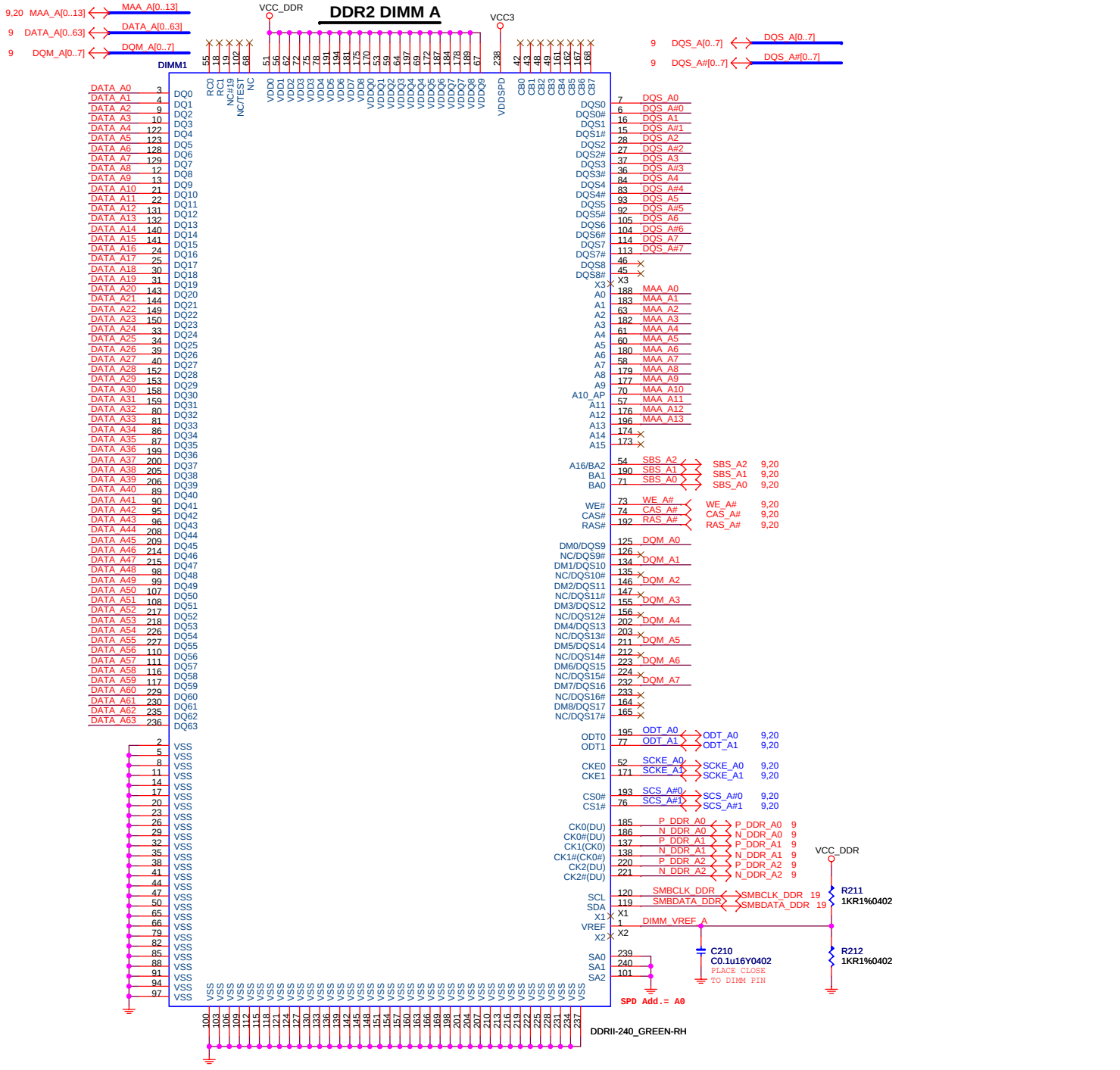
Only the selection in the table is valid

MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: CLK-RTM 876-665
Rev: 0A	
Date: Friday, November 09, 2007	Sheet 15 of 33

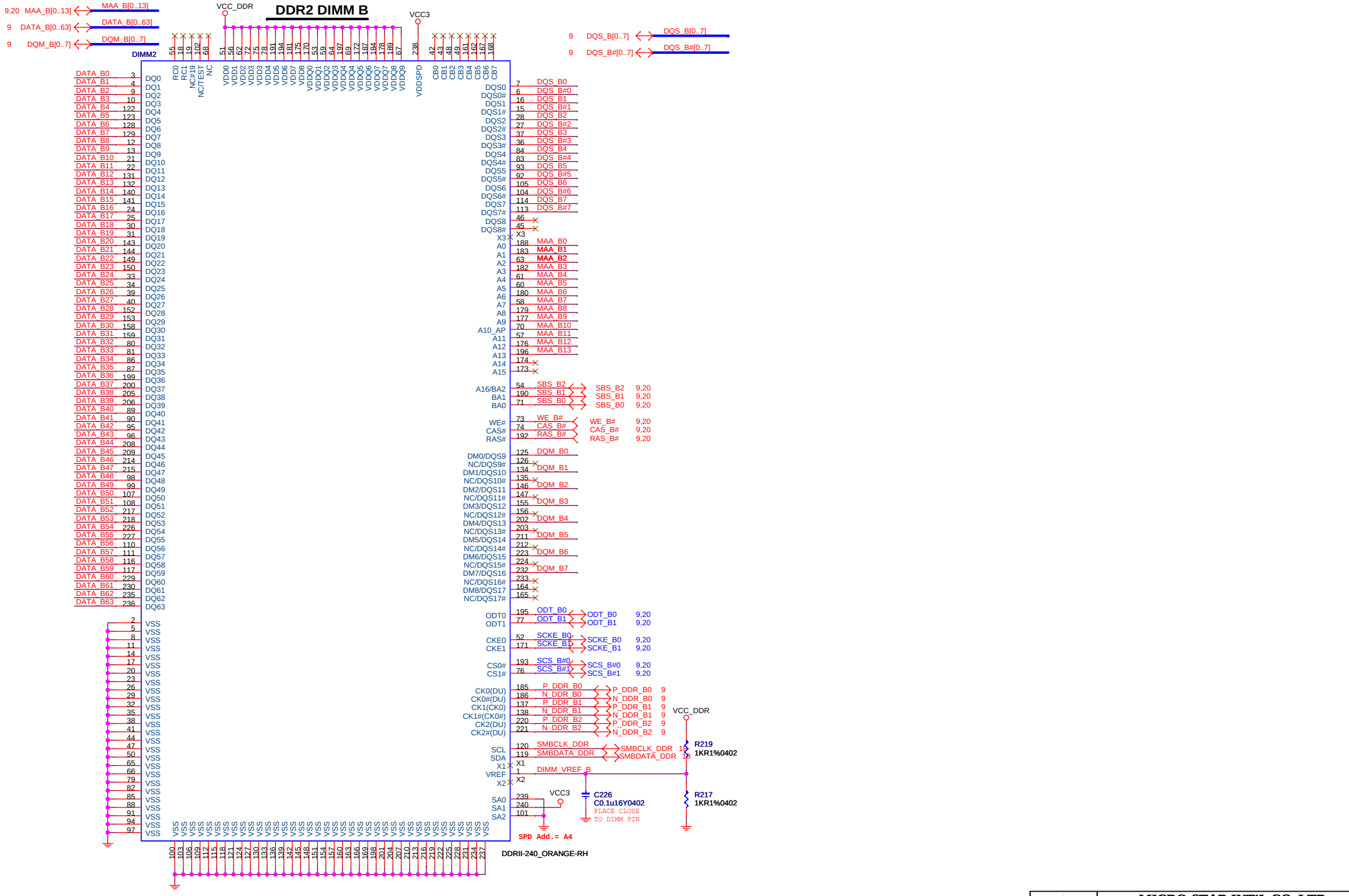


	Don't STUFF	STUFF
RTSB#	PWM FAN	LINEAR FAN
RTSA#	PIN49-54=VID_OUT PIN42-47=VIDIN	PIN49-54=GPIO PIN42-47=VIDIN/OUT
SOUTA	4E	2E
DTRB#,SOUTB	SPI_DISABLE	SPI_ENABLE
DTRA#	FAN START DUTY 60%	FAN START DUTY 100%


R210=2K(R11-0202T12-R01) for 8101E;
R210=2.49k(R11-2491T12-R01) for 8111C
R215,C601,C180,R471
For 8111C only
C180 close to PIN63
C601 close to C180
R187
For 8111C only
R156
For 8111C only
For 8101E only
R200
For 8101E only
C211,C225
For 8101E only
R193
For 8101E only
CHOKE
For 8111C only
R230
For 8101E only
R476
For 8111C only
RTL8111B-GR-RH
8101E
2K
100M
0PT
X_8101E
X_2K
X_100M
Giga-Lan
10/100-Lan
N58-22F0181-S42
N58-22F0201-S42
Link Active 1000 100 10
Yellow Blinking Orange Green None
Yellow
Orange
Green
Micro Star Restricted Secret
Title
RTL8101E/8111C
Rev
0A
Document Number
MS-7313
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:
Wednesday, November 21, 2007
Sheet
17 of 33



MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: DDR II DIMM A & B
Rev: 0A	
Date: Friday, November 09, 2007	Sheet 18 of 33



MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: DDR II DIMM A & B
Rev: 0A	
Date: Friday, November 09, 2007	Sheet 19 of 33

CHANNEL A V_SM_VTT DECOULPING CAPS

VTT_DDR

C138 X_C4.7u6.3X5

VTT_DDR

C109 C0.1u16Y0402
C99 X_C0.1u16Y0402
C135 X_C0.1u16Y0402

CHANNEL B V_SM_VTT DECOULPING CAPS

VTT_DDR

C108 X_C4.7u6.3X5
C111 C4.7u6.3X5

VTT_DDR

C124 X_C0.1u16Y0402
C101 X_C0.1u16Y0402
C134 X_C0.1u16Y0402
C105 C0.1u16Y0402

VTT_DDR

MAA_A4 2 1 RN20
MAA_A3 4 3 8P4R-33R0402
MAA_A2 6 5
MAA_A1 8 7
MAA_A9 2 1 RN22
MAA_A5 4 3 8P4R-33R0402
MAA_A8 6 5
MAA_A6 8 7
SBS_A2 2 1 RN23
MAA_A12 4 3 8P4R-33R0402
MAA_A11 6 5
MAA_A7 8 7
9,18 RAS_A# 2 1 RN17
9,18 WE_A# 4 3 8P4R-33R0402
9,18 CAS_A# 6 5
MAA_A13 8 7
MAA_A0 2 1 RN19
MAA_A10 4 3 8P4R-33R0402
SBS_A0 6 5
SBS_A1 8 7
ODT_A1 1 2 RN15
SCS_A#1 3 4 8P4R-43R0402
ODT_A0 5 6
SCS_A#0 7 8
change RN
SCKE_A0 R141 43R0402
SCKE_A1 R142 43R0402

9,18 MAA_A[0..13]
9,18 SBS_A[0..2]
9,18 SCS_A#[0..1]
9,18 SCKE_A[0..1]
9,18 ODT_A[0..1]

VTT_DDR

MAA_B4 2 1 RN21
MAA_B3 4 3 8P4R-33R0402
MAA_B2 6 5
MAA_B1 8 7
SBS_B2 2 1 RN25
MAA_B12 4 3 8P4R-33R0402
MAA_B11 6 5
MAA_B7 8 7
MAA_B9 2 1 RN24
MAA_B5 4 3 8P4R-33R0402
MAA_B8 6 5
MAA_B6 8 7
9,19 WE_B# 2 1 RN16
9,19 RAS_B# 4 3 8P4R-33R0402
9,19 CAS_B# 6 5
MAA_B13 8 7
MAA_B10 2 1 RN18
MAA_B0 4 3 8P4R-33R0402
SBS_B0 6 5
SBS_B1 8 7
ODT_B1 1 2 RN14
SCS_B#1 3 4 8P4R-43R0402
ODT_B0 5 6
SCS_B#0 7 8
change RN
SCKE_B0 R145 43R0402
SCKE_B1 R144 43R0402

9,19 MAA_B[0..13]
9,19 SBS_B[0..2]
9,19 SCS_B#[0..1]
9,19 SCKE_B[0..1]
9,19 ODT_B[0..1]

VCC_DDR

C93 C1U10Y0402-RH
C116 C1U10Y0402-RH
C104 C0.1u16Y0402
C94 X_C0.1u16Y0402
C92 X_C0.1u16Y0402
C106 C0.1u16Y0402
C103 C0.1u16Y0402

VCC_DDR

C136 C1U10Y0402-RH
C143 X_C1U10Y0402-RH
C152 X_C0.1u16Y0402
C112 X_C0.1u16Y0402
C125 X_C0.1u16Y0402
C137 C0.1u16Y0402

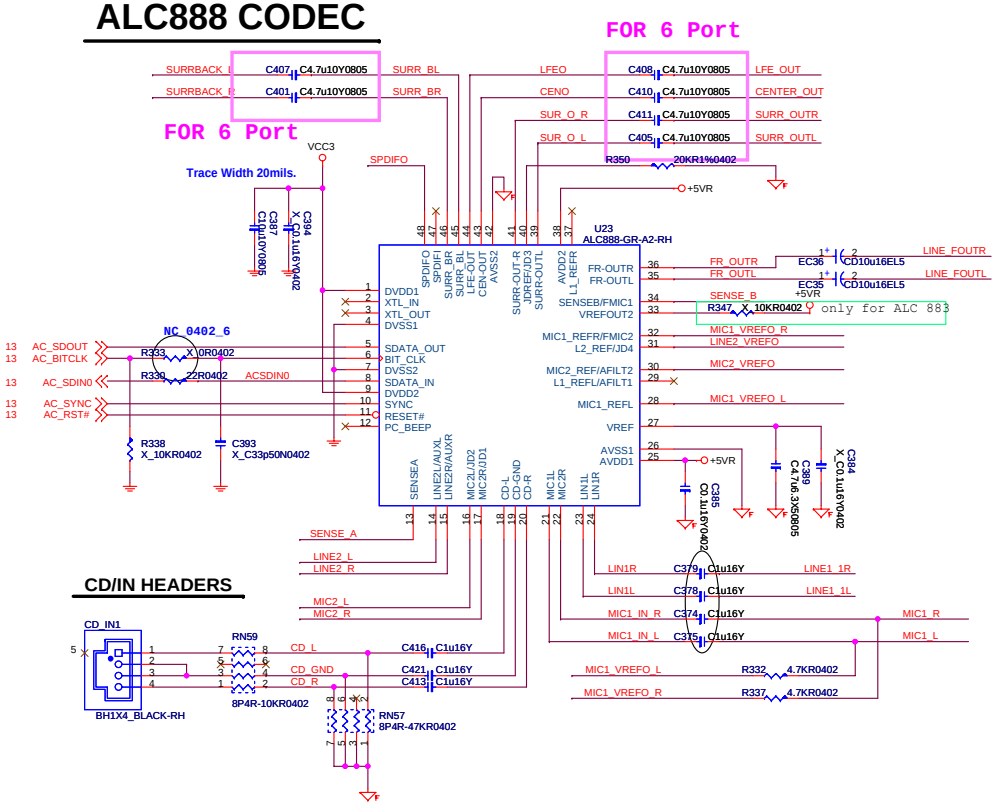
EMI

VCC_DDR VTT_DDR

C118 X_C0.1u16Y0402

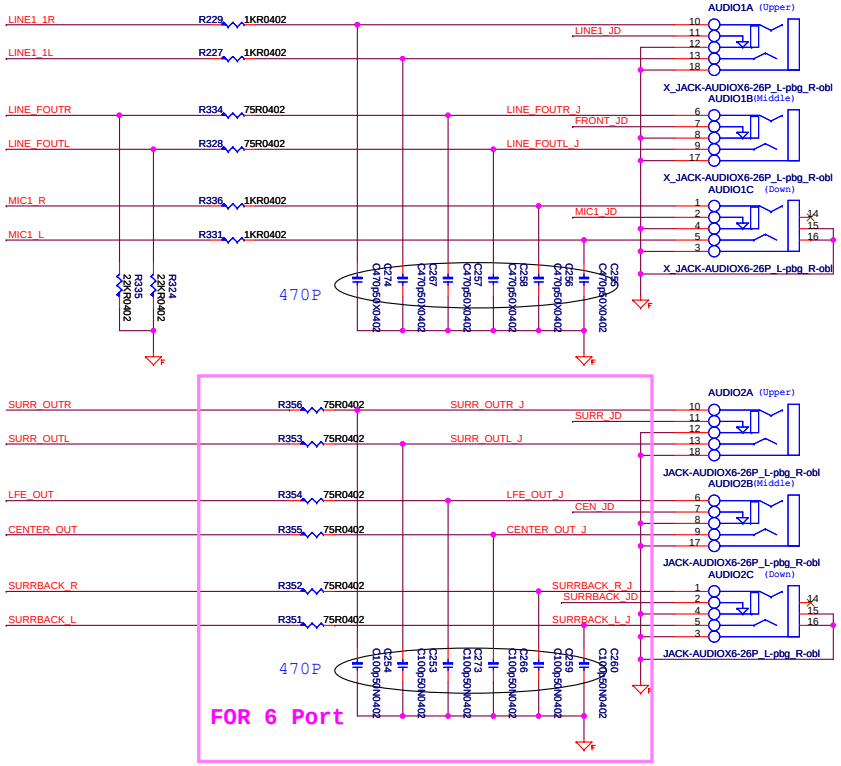
MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: DDR II VTT DECOUPLING	Rev: 0A
Date: Friday, November 09, 2007	Sheet 20 of 33	

ALC888 CODEC

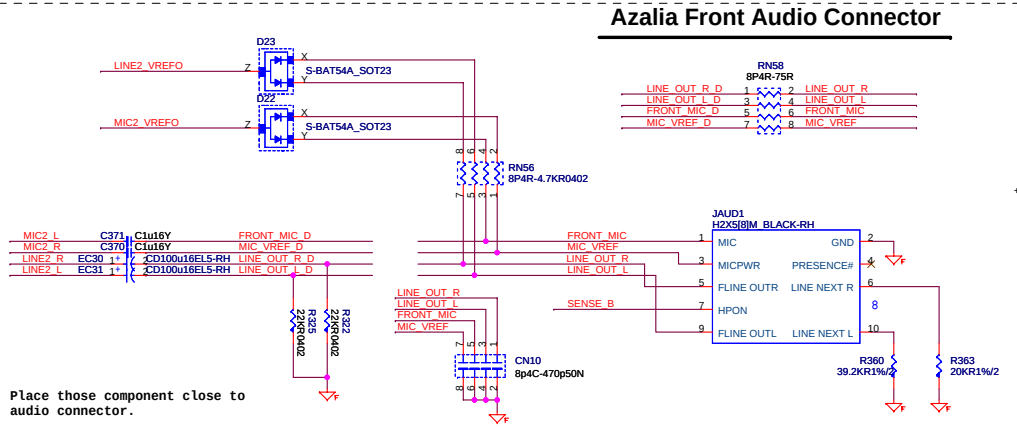


CD/IN HEADERS

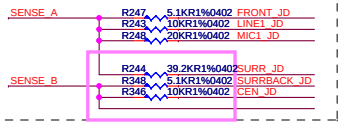
ALC888 JACK



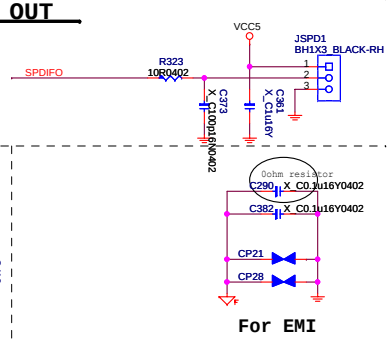
Azalia Front Audio Connector



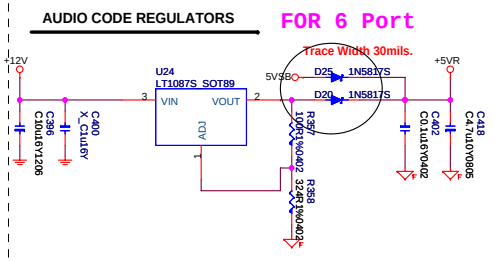
ALC883 JACK DETECT



SPDIF OUT

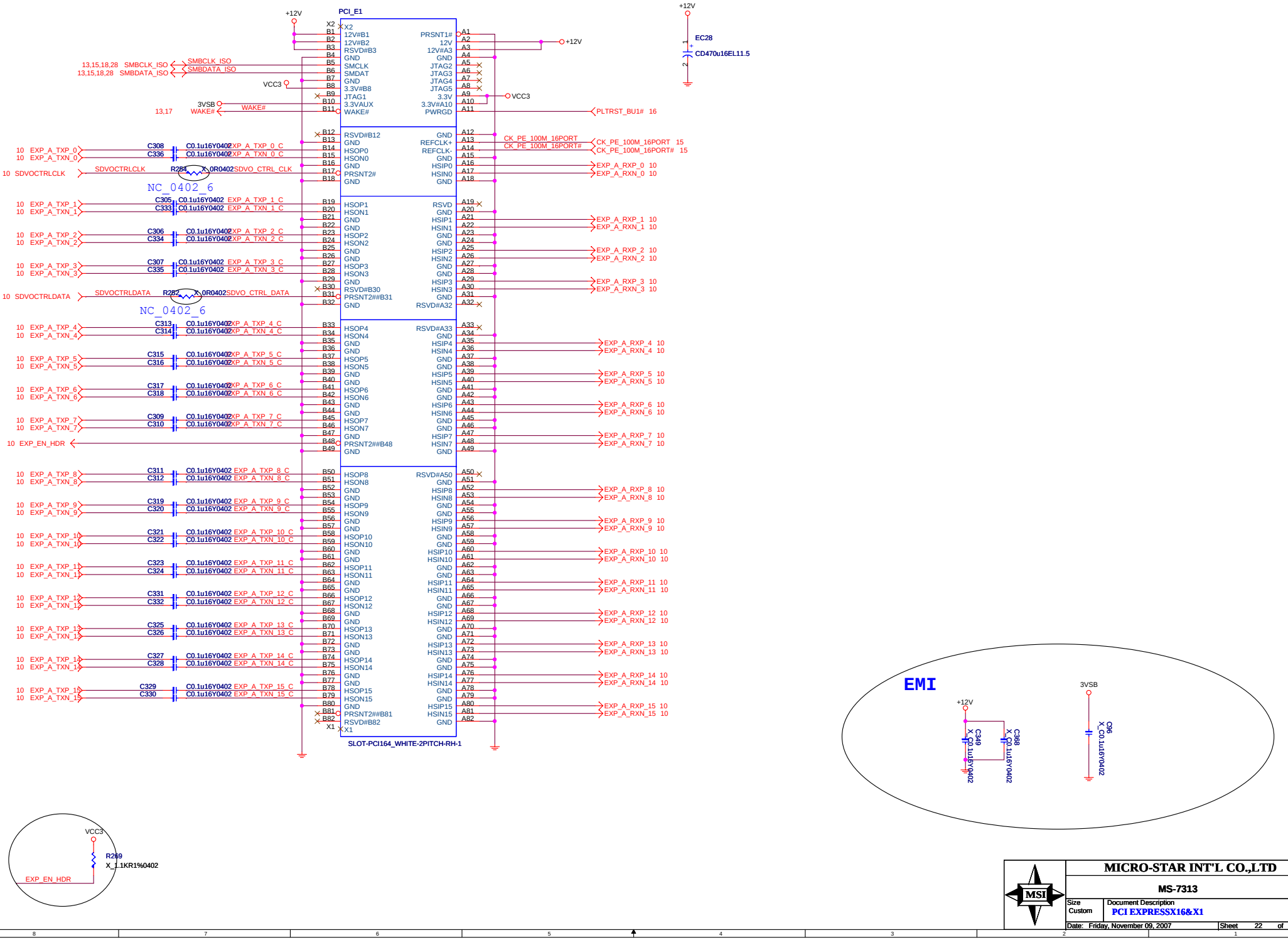


AUDIO CODE REGULATORS



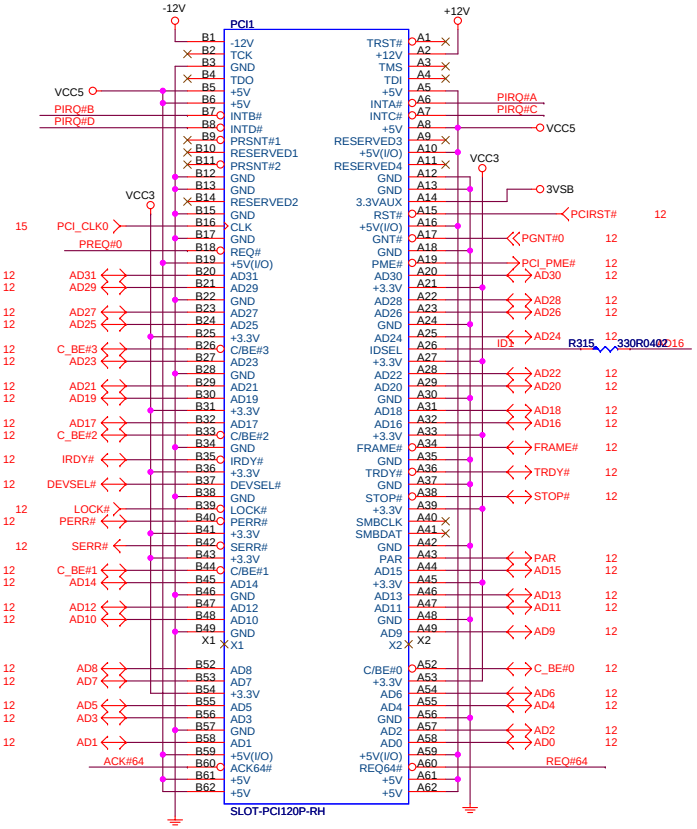
MICRO-STAR INT'L CO.,LTD
MS-7313
Size: Custom
Document Description: 21 HD ALC888
Rev: 0A
Date: Friday, November 09, 2007
Sheet 21 of 33

PCIE X16 PORT

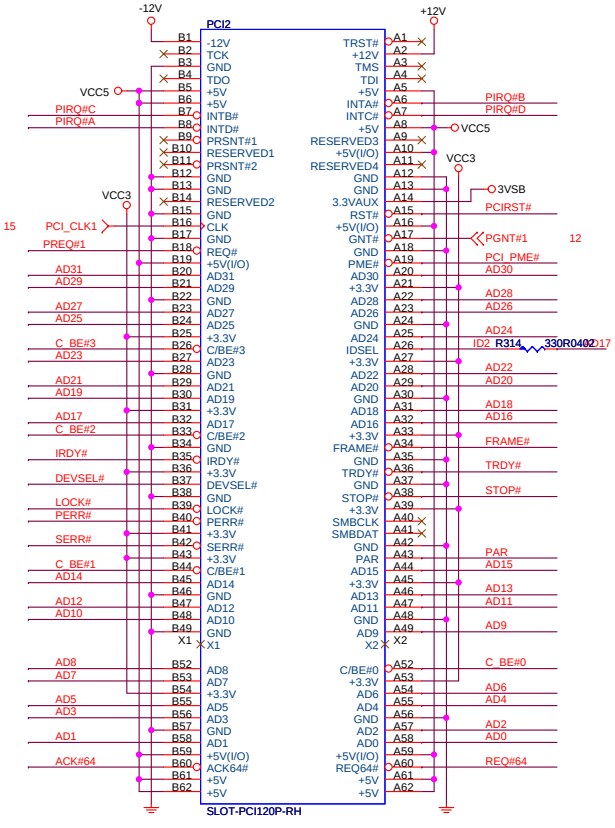


MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: PCI EXPRESSX16&X1
Rev: 0A	
Date: Friday, November 09, 2007	Sheet 22 of 33

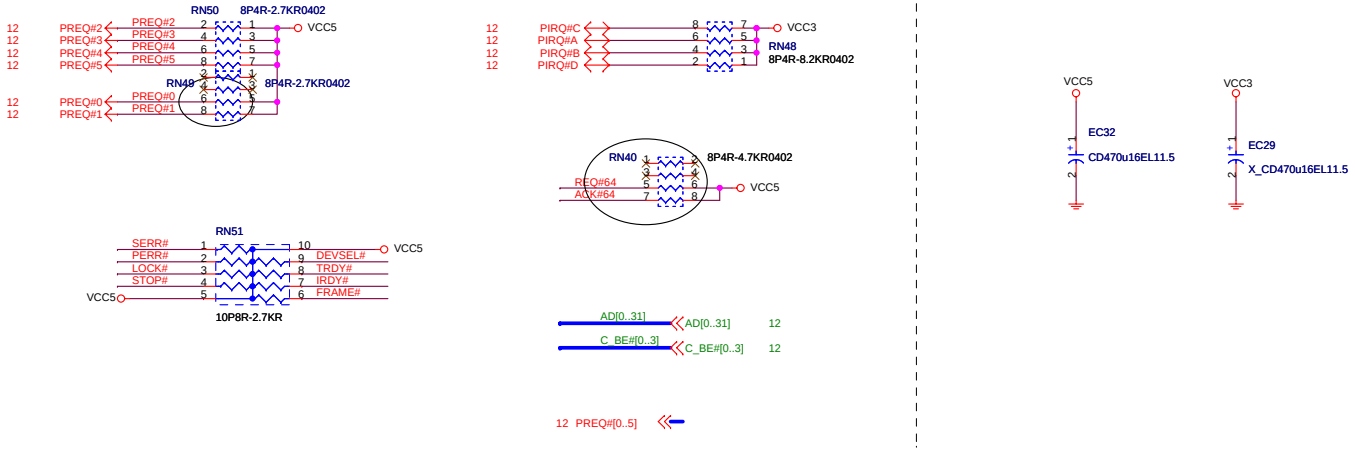
PCI SLOT 1 (PCI VER: 2.2 COMPLY)



PCI SLOT 2 (PCI VER: 2.2 COMPLY)

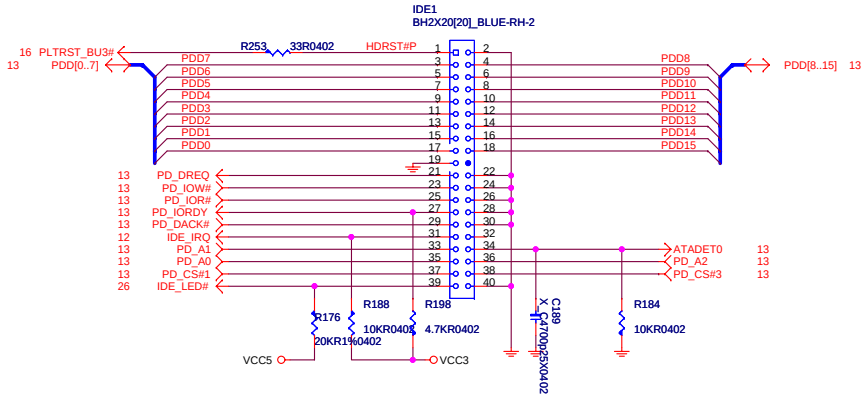


PCI PULL-UP / DOWN RESISTORS

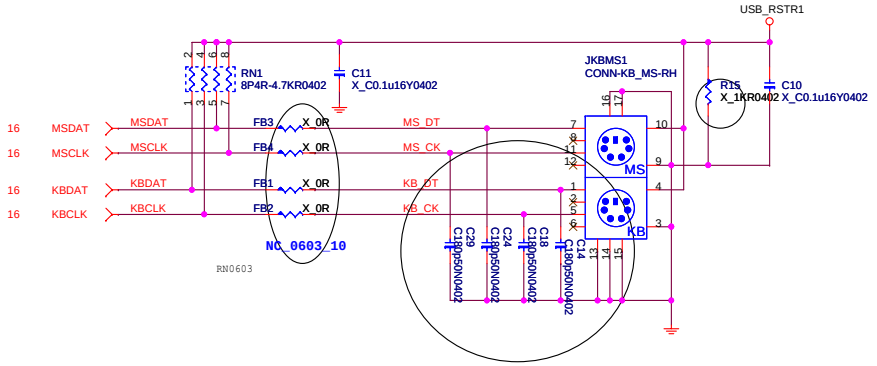


MICRO-STAR INT'L CO.,LTD	
MS-7313	
Size: Custom	Document Description: PCI Slot 1 &2
Rev: 0A	
Date: Tuesday, November 13, 2007	Sheet 23 of 33

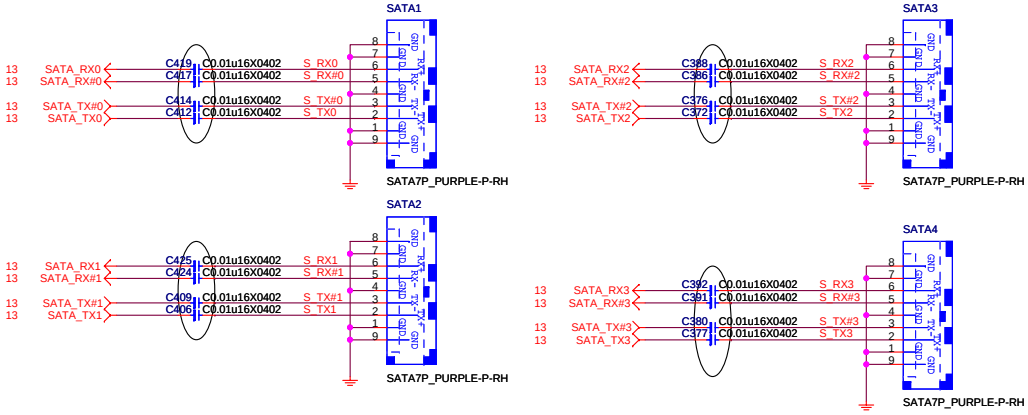
ATA 33/66/100 IDE Connectors



PS2 KEYBOARD & MOUSE CONNECTOR



SERIAL ATA CONNECTOR BLOCK



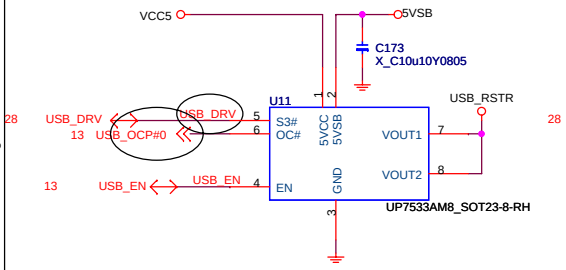
MICRO-STAR INT'L CO.,LTD

MS-7313

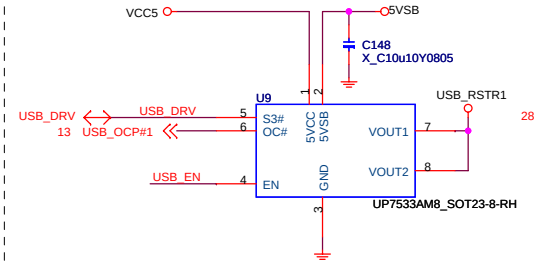
Size	Document Description	Rev
Custom	IDE & SATA Connectors	0A

Date: Friday, November 09, 2007 Sheet 24 of 33

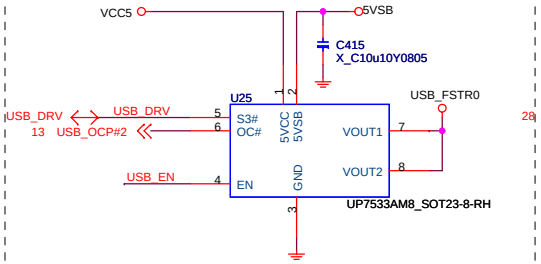
POWER CIRCUIT FOR USB PORT 0,1



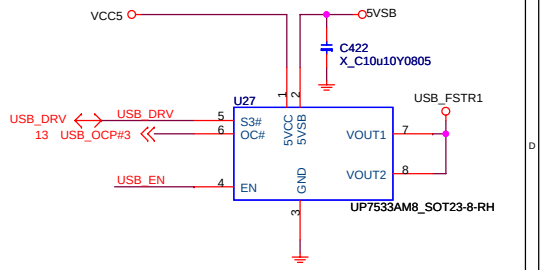
POWER CIRCUIT FOR USB PORT 2,3



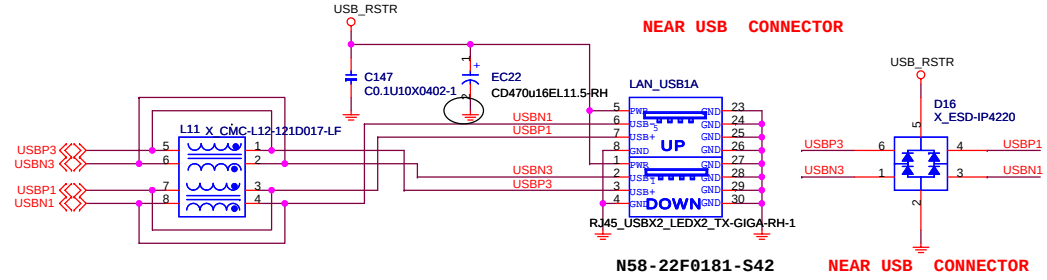
POWER CIRCUIT FOR USB PORT 4,5



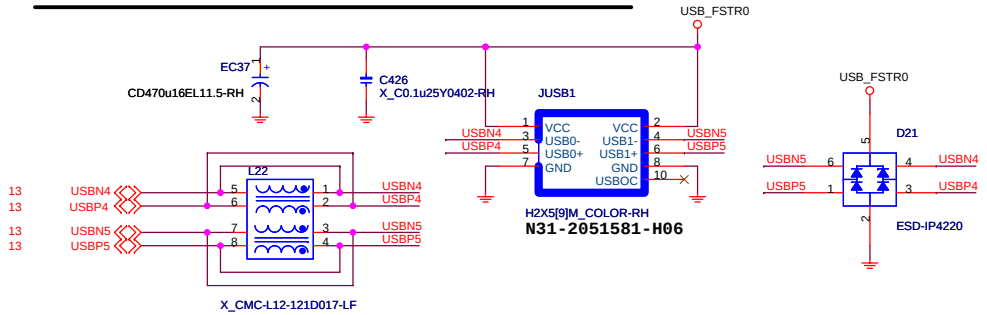
POWER CIRCUIT FOR USB PORT 6,7



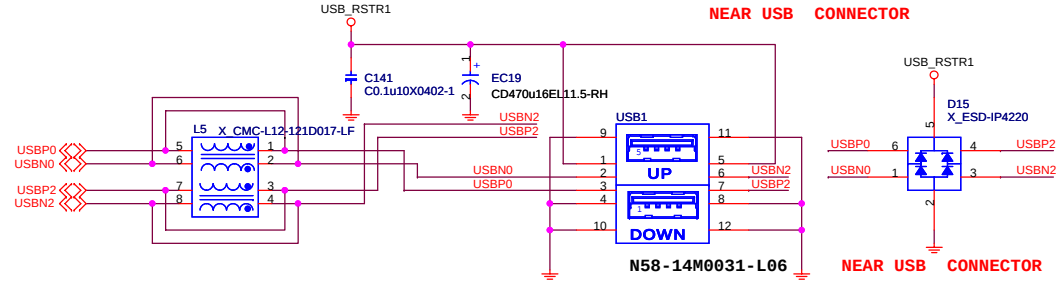
REAR PANEL USB CONNECTOR FOR USB PORT 0,1



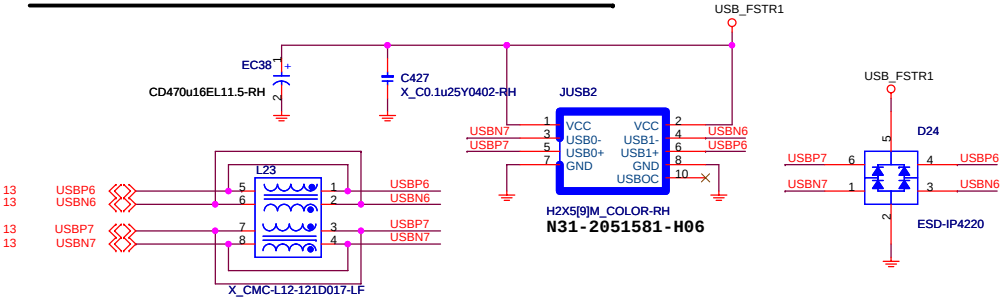
FRONT PANEL USB CONNECTOR FOR USB PORT 4,5



REAR PANEL USB CONNECTOR FOR USB PORT 2,3



FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



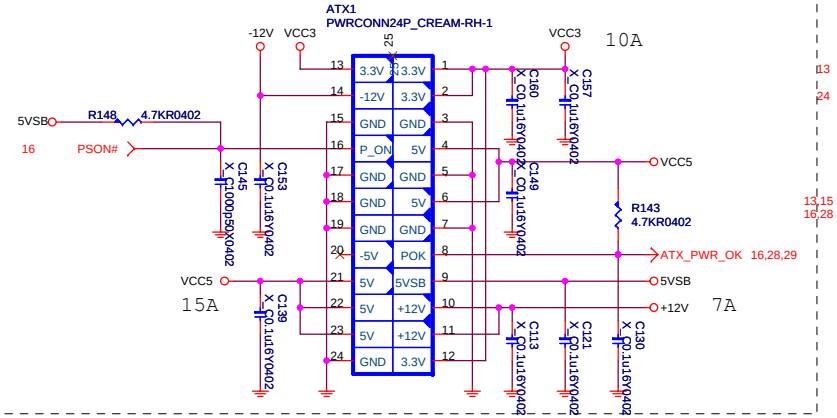
MICRO-STAR INT'L CO.,LTD

MS-7313

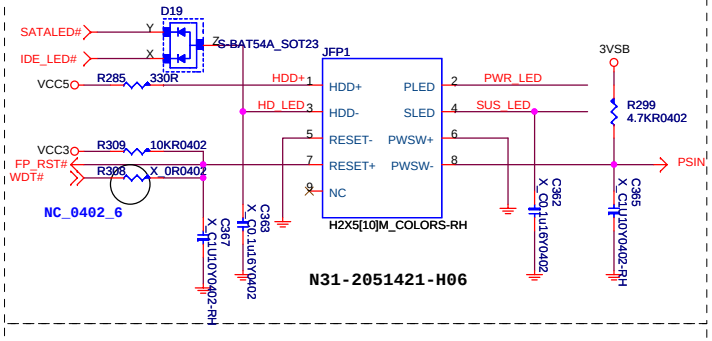
Size	Document Description	Rev
Custom	USB CONNECTORS	0A

Date: Tuesday, November 20, 2007 | Sheet 25 of 33

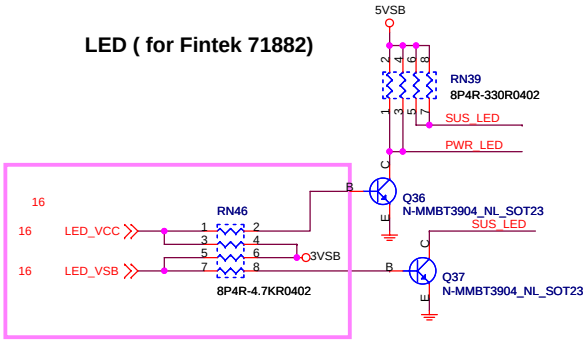
ATX Connector



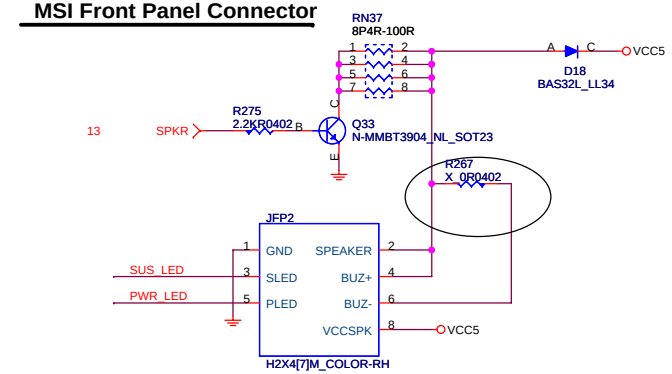
INTEL/PB Front Panel Connector



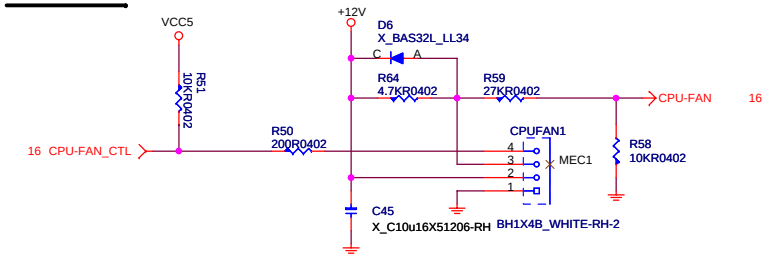
LED (for Fintek 71882)



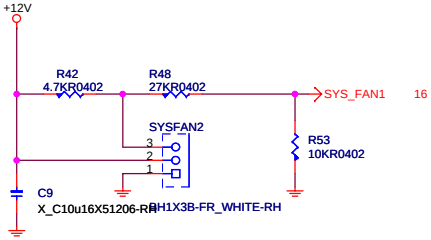
MSI Front Panel Connector



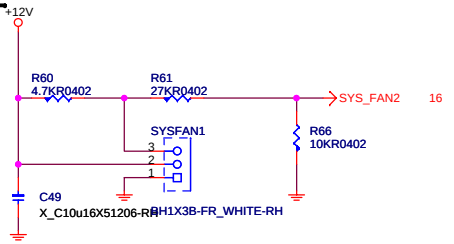
CPU FAN



SYSTEM FAN

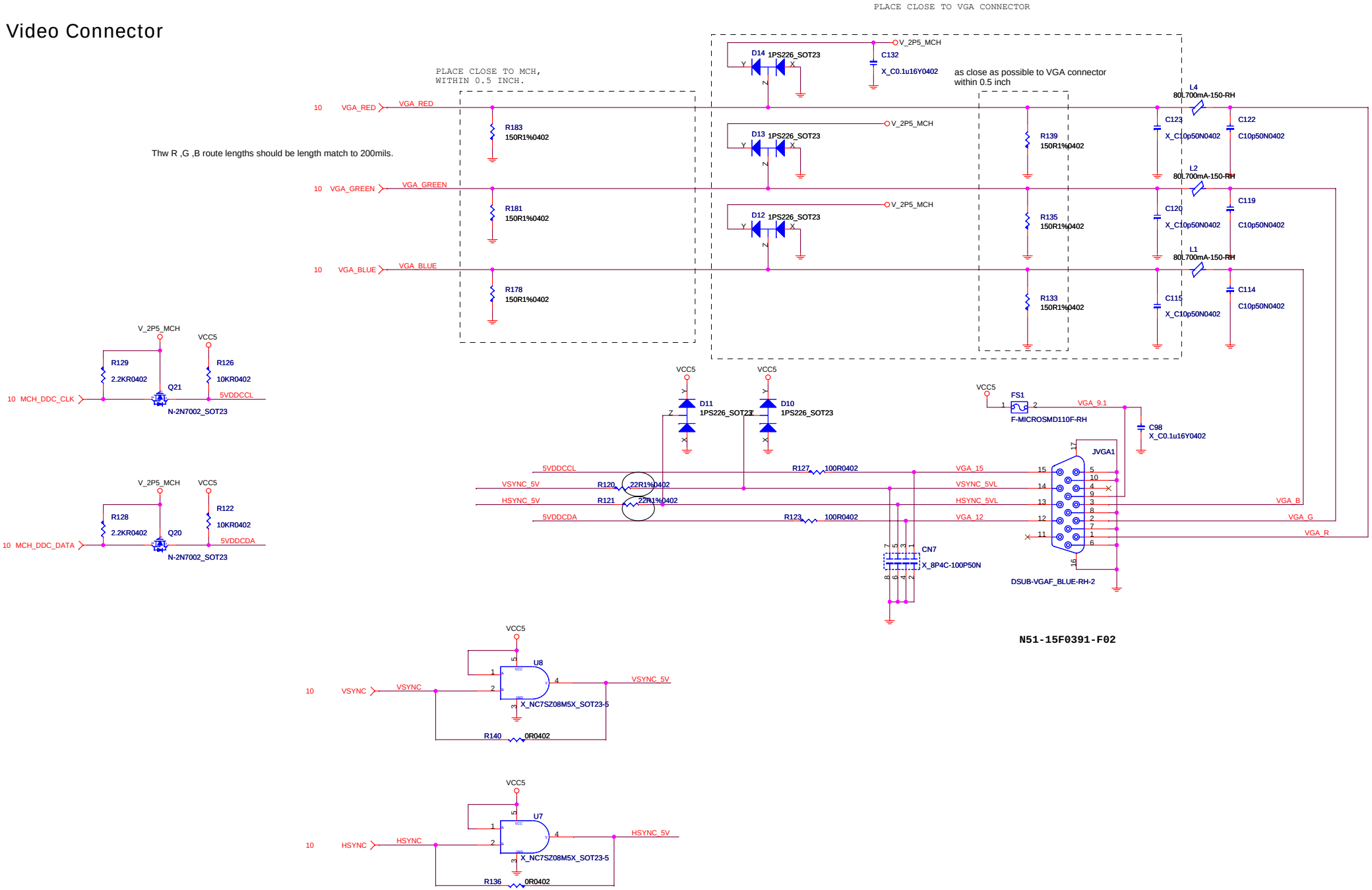


PWR FAN



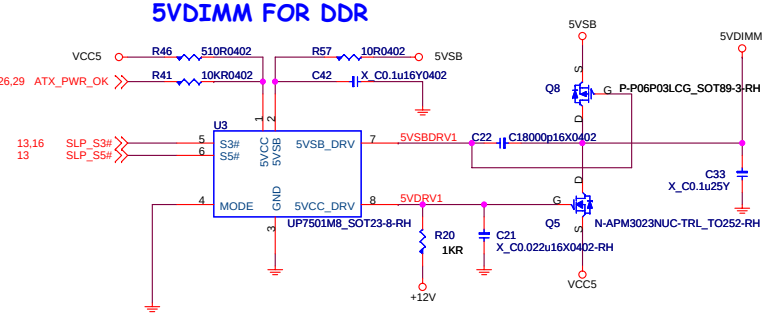
MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: ATX & Front Panel & FAN	Rev: 0A
Date: Friday, November 09, 2007	Sheet 26 of 33	

Video Connector

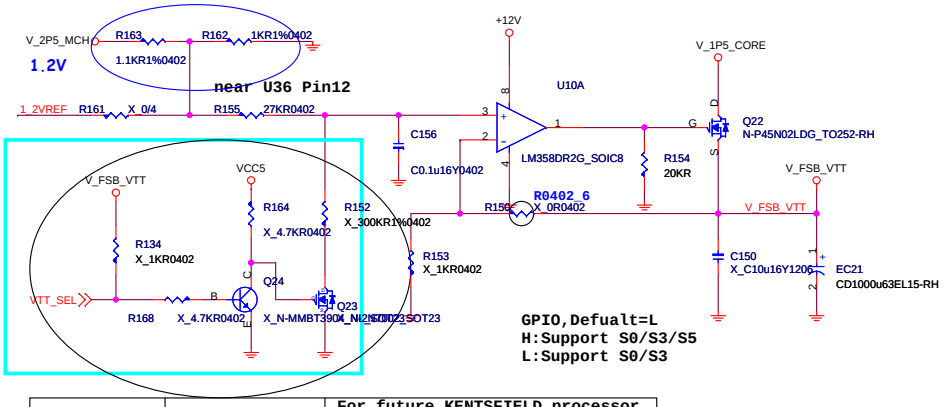


MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: VGA Connector	Rev: 0A
Date: Friday, November 09, 2007	Sheet 27 of 33	

5VDIMM FOR DDR

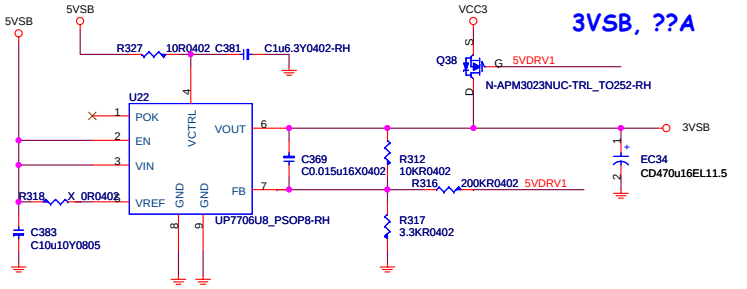


1.2V

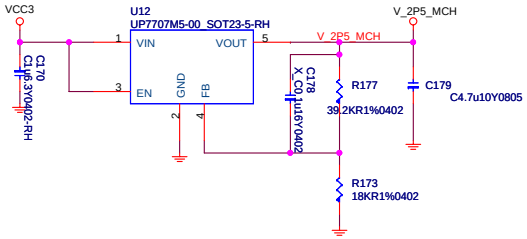


VTT_SEL = L	V_FSB_VTT=1.1V	For future KENTSFIELD processor. (FSB1333, Quad-Core)
VTT_SEL = H	V_FSB_VTT=1.2V	For normal processors.

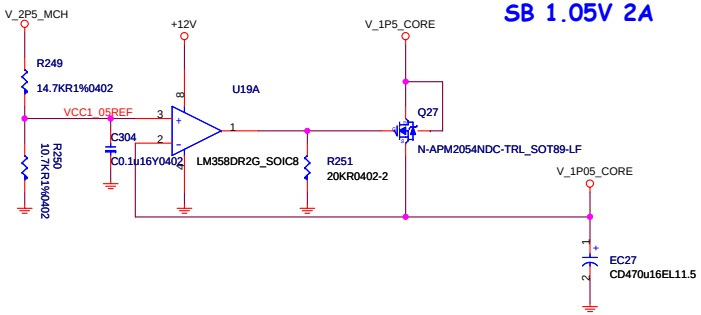
3VSB, ??A



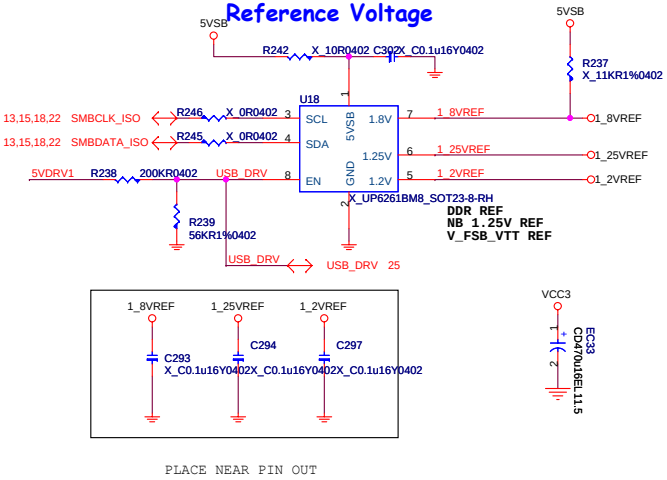
V_2P5_MCH, 100mA

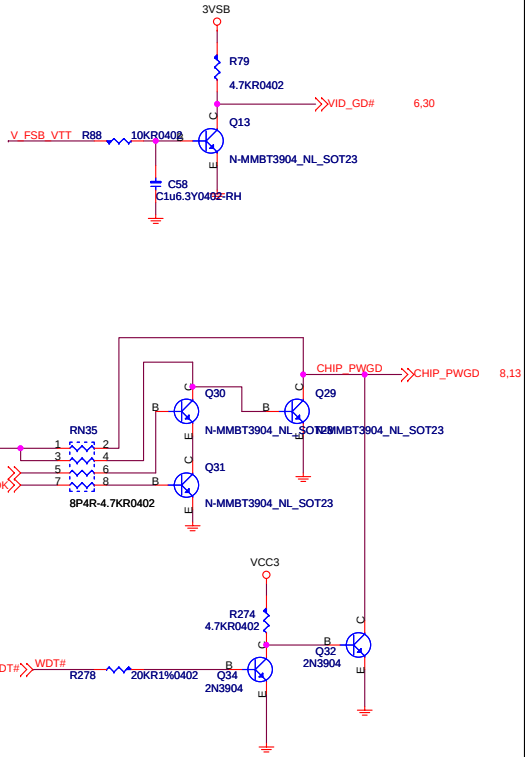


SB 1.05V 2A



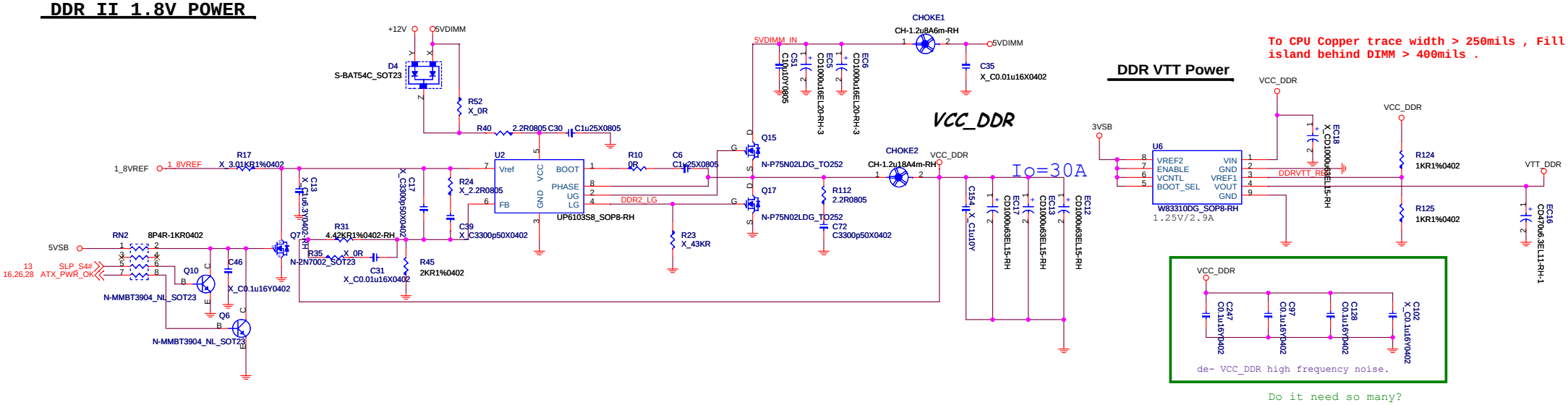
Reference Voltage





MICRO-STAR INT'L CO.,LTD			
MS-7313			
Size: Custom	Document Description: ACPI controller UPI		Rev: 0A
Date: Friday, November 09, 2007		Sheet 28 of 33	

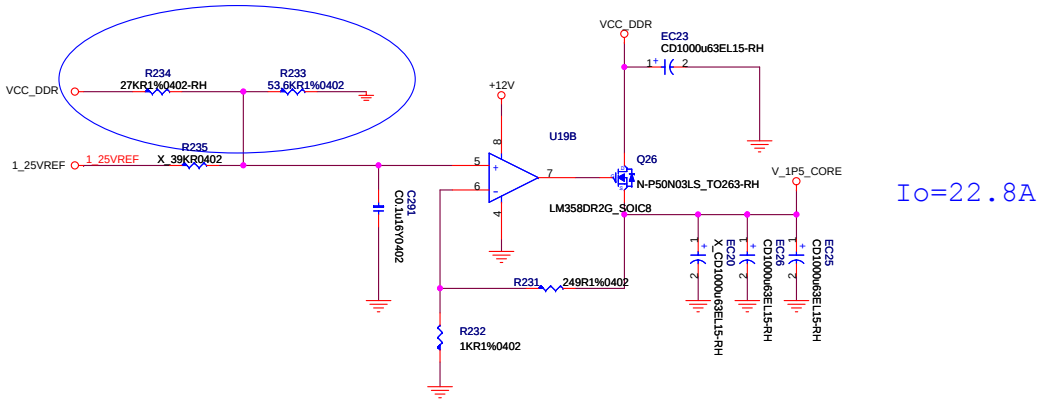
DDR II 1.8V POWER



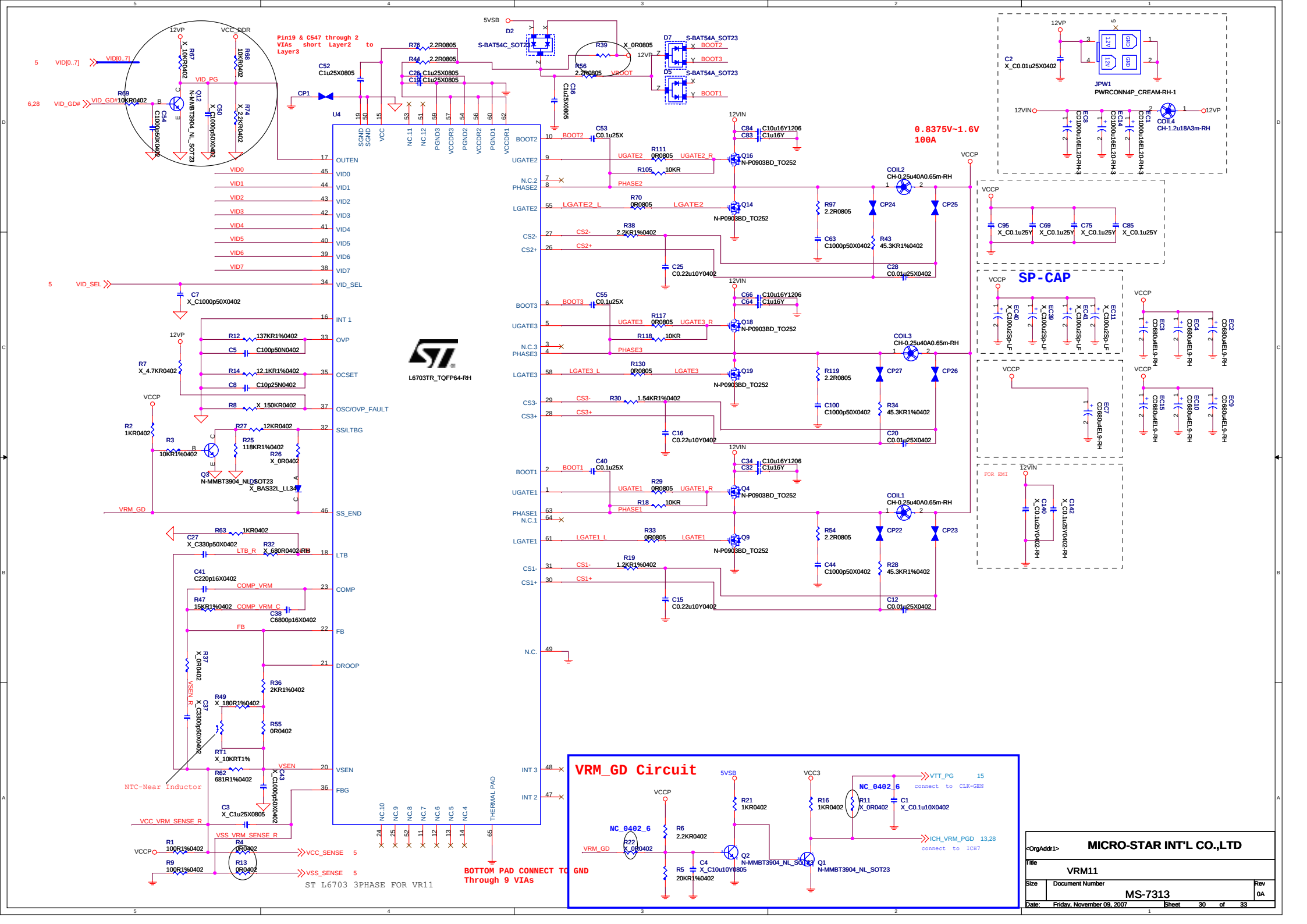
To CPU Copper trace width > 250mils , Fill island behind DIMM > 400mils .

1.5V Core

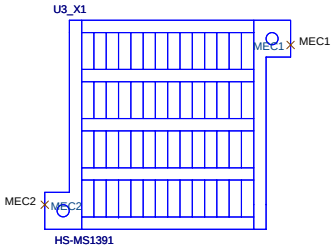
For cost down



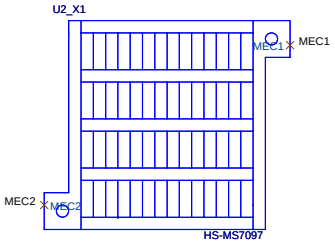
MICRO-STAR INT'L CO.,LTD		
MS-7313		
Size: Custom	Document Description: NB Core Power & DDR Power	Rev: 0A
Date: Friday, November 09, 2007	Sheet 29 of 33	

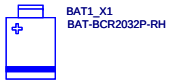

Pin19 & C547 through 2 VIAs short Layer2 to Layer3
U4
L6703TR_TQFP64-RH
0.8375V~1.6V
100A
SP-CAP
VRM_GD Circuit
NTC-Near Inductor
ST L6703 3PHASE FOR VR11
BOTTOM PAD CONNECT TO GND Through 9 VIAs
MICRO-STAR INT'L CO.,LTD
VRM11
MS-7313
Friday, November 09, 2007

ICH7 HEATSINK

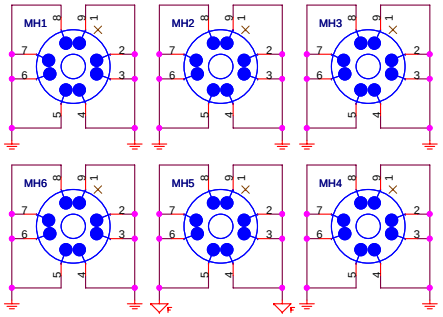


MCH HEATSINK

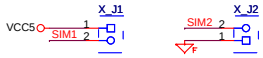




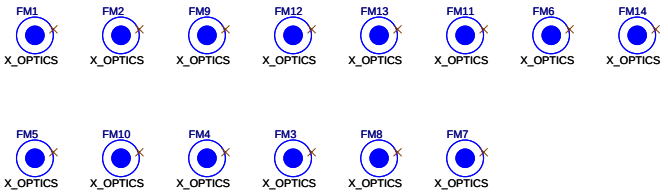
Mounting Holes



Simulation



Optics Orientation Holes



MICRO-STAR INT'L CO.,LTD		
MS-7507		
Size: Custom	Document Description: MANUAL PARTS	Rev: 0A
Date: Tuesday, November 13, 2007	Sheet 31 of 33	

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

Title	BIOS Request Form	
Size: C	Document Number: MS-7313	Rev: 0A
Date: Friday, November 09, 2007	Sheet 32 of 33	

0A Change list:

1.Remove 1394 & PCIE-X1;
2.modify usb1
3.Remove EC18,EC19,EC57,EC62,D19, D22, D24, D25; R87,R91,R92,R96
4.5VREF Change 5817 to 3904

6.Change DDR Chock to 8A, 18A
7.LAN的EEPROM部分： R201,U29,R213不上件;
8.合并LED_VCC,LED_VSB两个信号的电阻为排阻;ICH_VRM_PGD;ATX_PWR_OK两个信号的电阻为排阻
9.Modify page NO. and off page ;
10.Change EC64,EC65,EC88 TO MLCC C76 , C77 , C85
11.Change audio 6 Port to 3 Port
12.power circuit update :R372 上件, RT3 & R244不上件
13.remove D52 , change C278 to 0805 10U
14.For EMI Request:remove C91 ,ADD 2 pcs VCC_DDR→VTT_DDR 0.1uf cap : C262 C266 ;
ADD CTRL18→GND 0.1ufcap: C221 , AVDD33→GND 0.1uf cap:C230 , AVDD18→GND 0.1ufcap: C219
15.Modify LPT:remove D7,D8 ;change 8P4R to 10P8R RN74,RN75;
16.Modify PCI RN39,RN40 8P4R to RN76 10P8R AND remove c148, c187 for EMI;
17.统一 USB CONNECTOR netname

For CostDown

18.Delet: EC33,EC35 (VCC5) for USB power;EC31 for 3VSB power;EC45 for 5VCC power;EC49,EC89 for 3VCC power
19.Delet EC68 (VCCP) for power team ; Change H/L-mos to D03-0903BDB-N03 H-MOS, D03-75N022B-N03 L-MOS
20.Change EC40 to C616(1206) ; C608,C609 change to 1206
21.Change Q17 TO252 to SOT_89
22.Remove C206,C267,C238,RN16 ,R265,R266,C138; Change C237,C601 22uf to 10uf;
Remove R118,R119 USE RN31; Remove R384,R388,R389 USE RN77;
23.Change R215 0805 to 0603 ,Remove C269, R226 ,R75; Change L-mos D03-75N022B-N03 to D03-0903BDB-N03;
Remove R163,RT1,Stuff Q19 for system Tem;
RemoveC173,C224,C56,C57,C58
24.Delet Q26,R393,R202,Q42,R343,C277,R168,Q43,C276,C276,D19,R435,R161
25.Remove U9,U10,And stuff R479,R480 for VGA; Remove C189,C200,C271
26.Swap JUSB1 PIN and LPT PIN ,Delet EC12 for Power Team,Delet c224 C186;
Delet R400 R403 R406 change to line,Delet R335 C266 D28 CP34 C229 C345 C465 C109 C148 CP48 C43 CP27 CP28
27.Dealet CP32 CP46 For EMI ,Rename ,Delet C23 for power team ,Change R171 0603 to 0402
28.Change PGND to GND For EMI
28.Change X_J2 GND to GNDF For LAYOUT

Title: History		
Size: Custom	Document Number: MS-7313	Rev: 0A
Date: Saturday, November 10, 2007	Sheet 33 of 33	