MS-7276 uATX Version: 20

CPU: Intel Pentium 4 Cedar Mill / Prescott , Pentium D Smithfield / Presler and Conroe family processors in LGA775 Package.

System Chipset:

Intel BroadwaterG965/Q965 (North Bridge)
Intel ICH8DO / DH (South Bridge)

On Board Device:

BIOS -- SPI Flash 16M
Azalia Codec -- ALC888
LPC Super I/O -- W83627DHG
LAN -- NINEVEH/EKRON
CLOCK Gen -- ICS 9LPR502 (56pin)
1394 Controller -- VT6307 (2-port)
Hi-USB to PATA Bridge -- JM20335

Main Memory:

Dual-channel DDR-II * 4 (Max 4GB)

Expansion Slots:

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

Intersil PWM:

Controller: Intersil ISL6312 (4 Phases)
Driver: Intersil ISL6612

Option	Function	Orcad Configure	BOM
STD	Broadwater/ICH8/W83627DHG/ALC883/82566DM/USB to IDE	cfg-STD	

MICRO-STAR INT'L CO.,LTD

MS-7276

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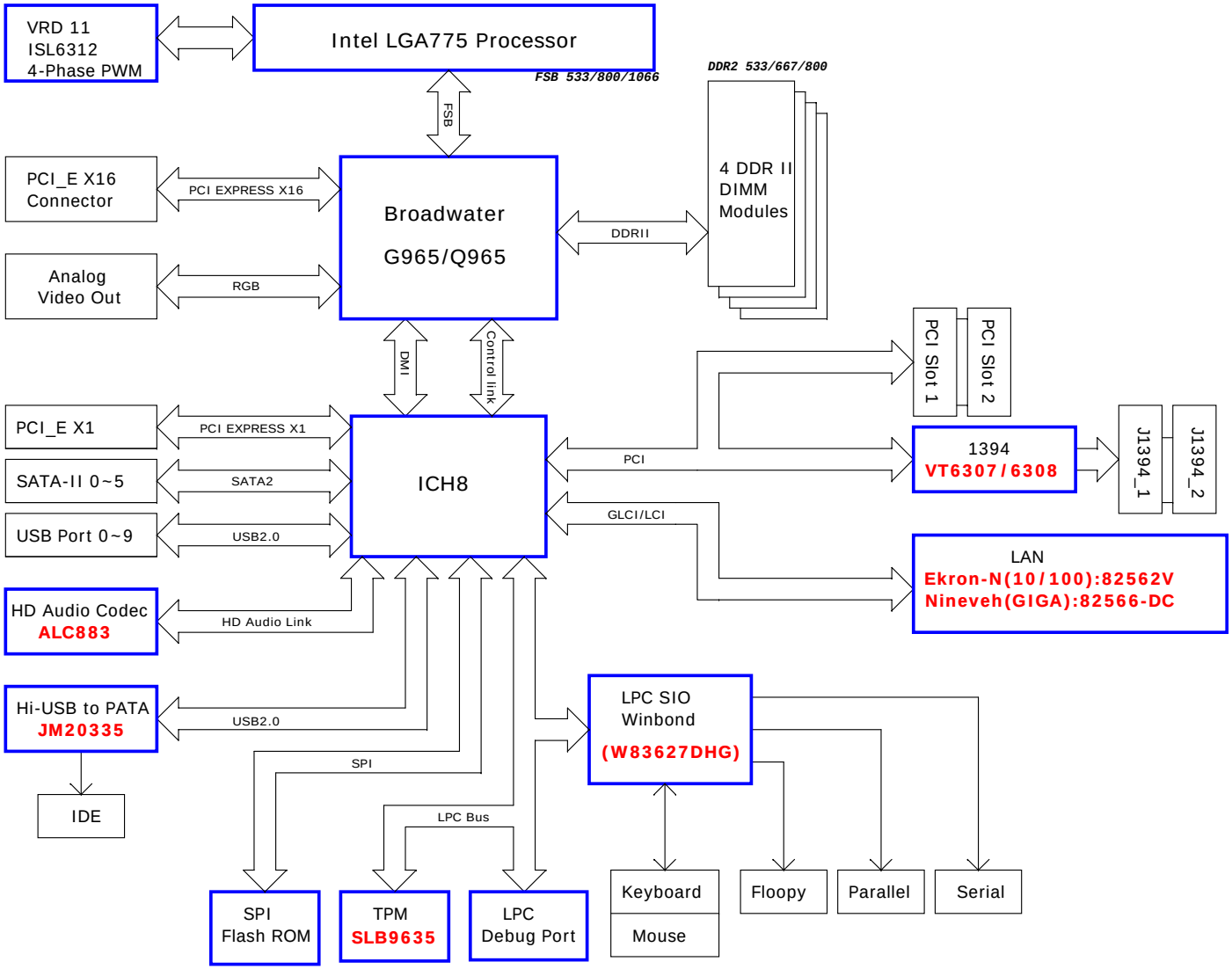
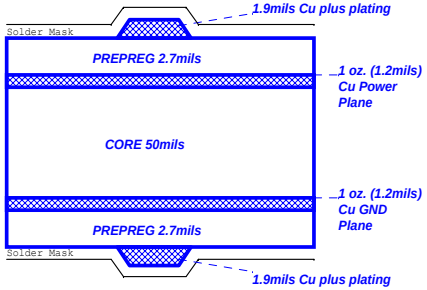
Block Diagram



Board Stack-up

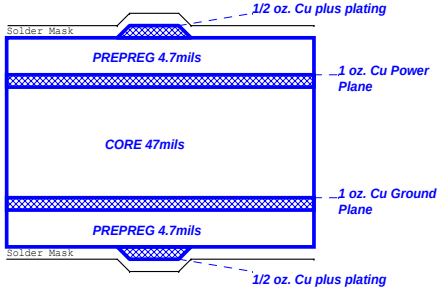
(1080 Prepreg Considerations)



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

Board Stack-up

(2116 Prepreg Considerations)



Single End 60ohm Top/Bottom : 5mils
IEEE1394 - 110ohm Top : 5/7/5
PCIE, LAN, SATA - 100ohm Top : 5/6/5
USB2.0 - 90ohm Top : 7.5/7.5/7.5

MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7276	
Size: Custom	Document Description: BLOCK DIAGRAM	Rev: 20
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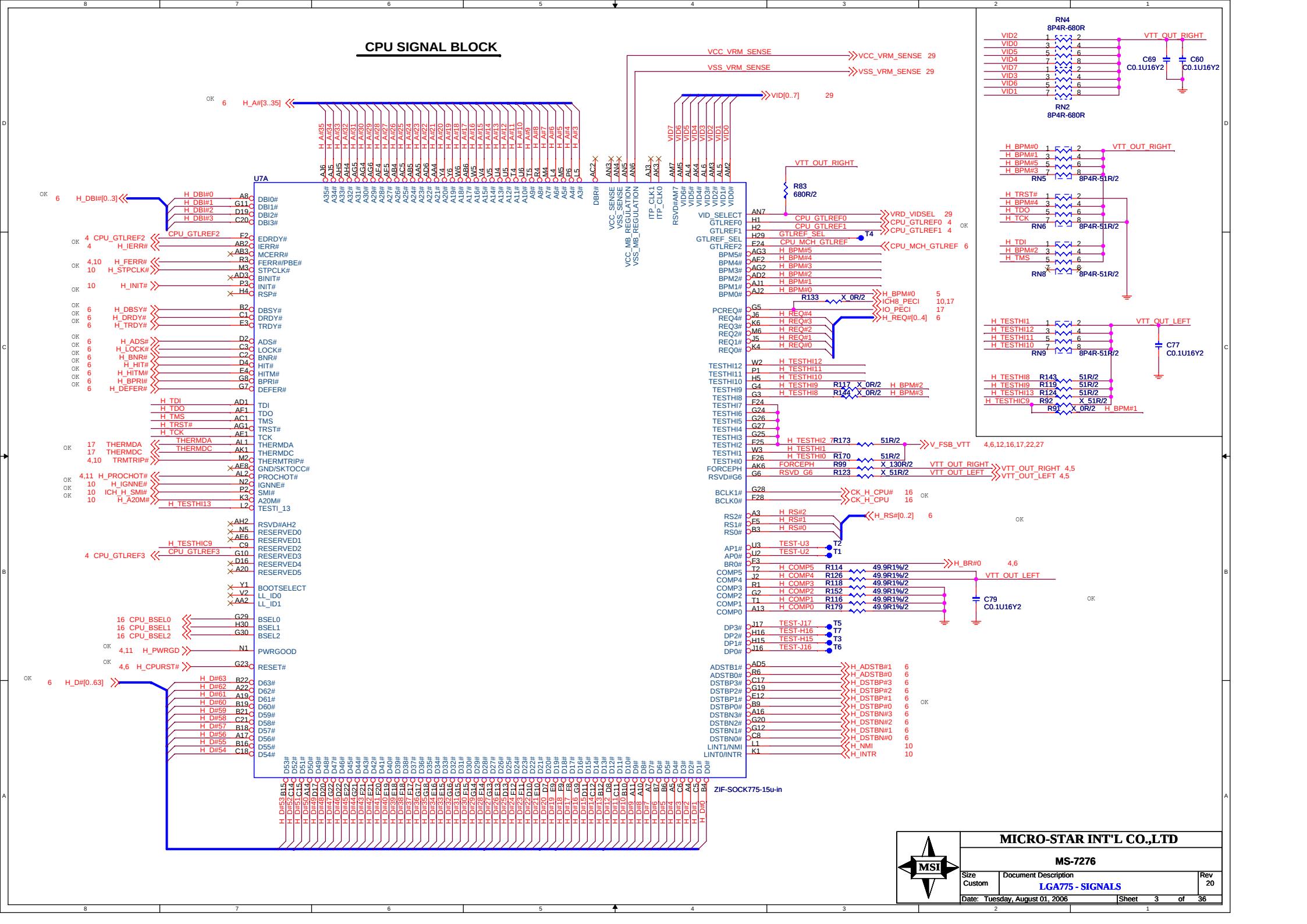
CPU SIGNAL BLOCK



Company	MICRO-STAR INT'L CO.,LTD
Model	MS-7276
Size	Custom
Document Description	LGA775 - SIGNALS
Rev	20
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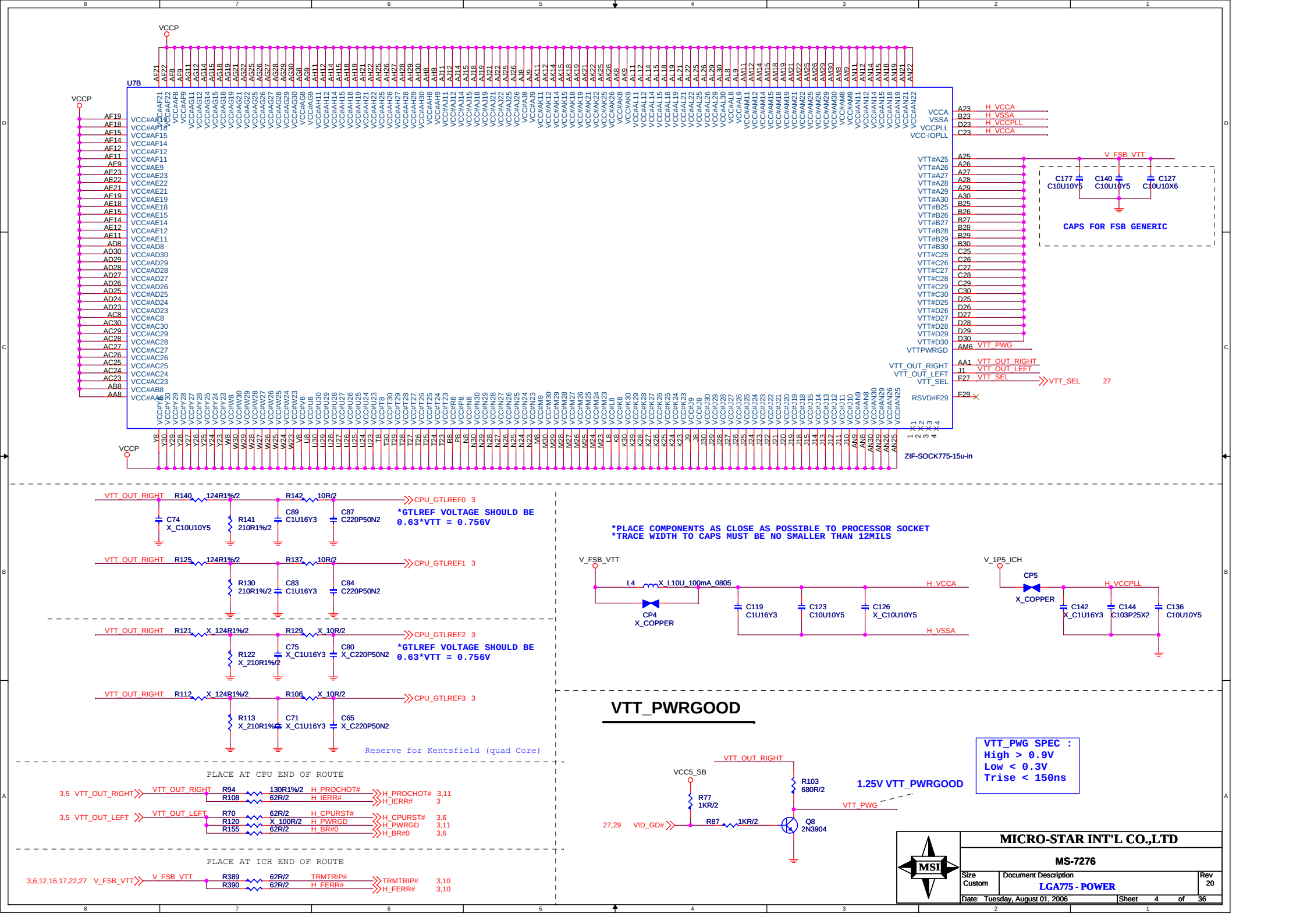

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MS-7276	
Size: Custom	Document Description: LGA775 - POWER
Rev: 20	
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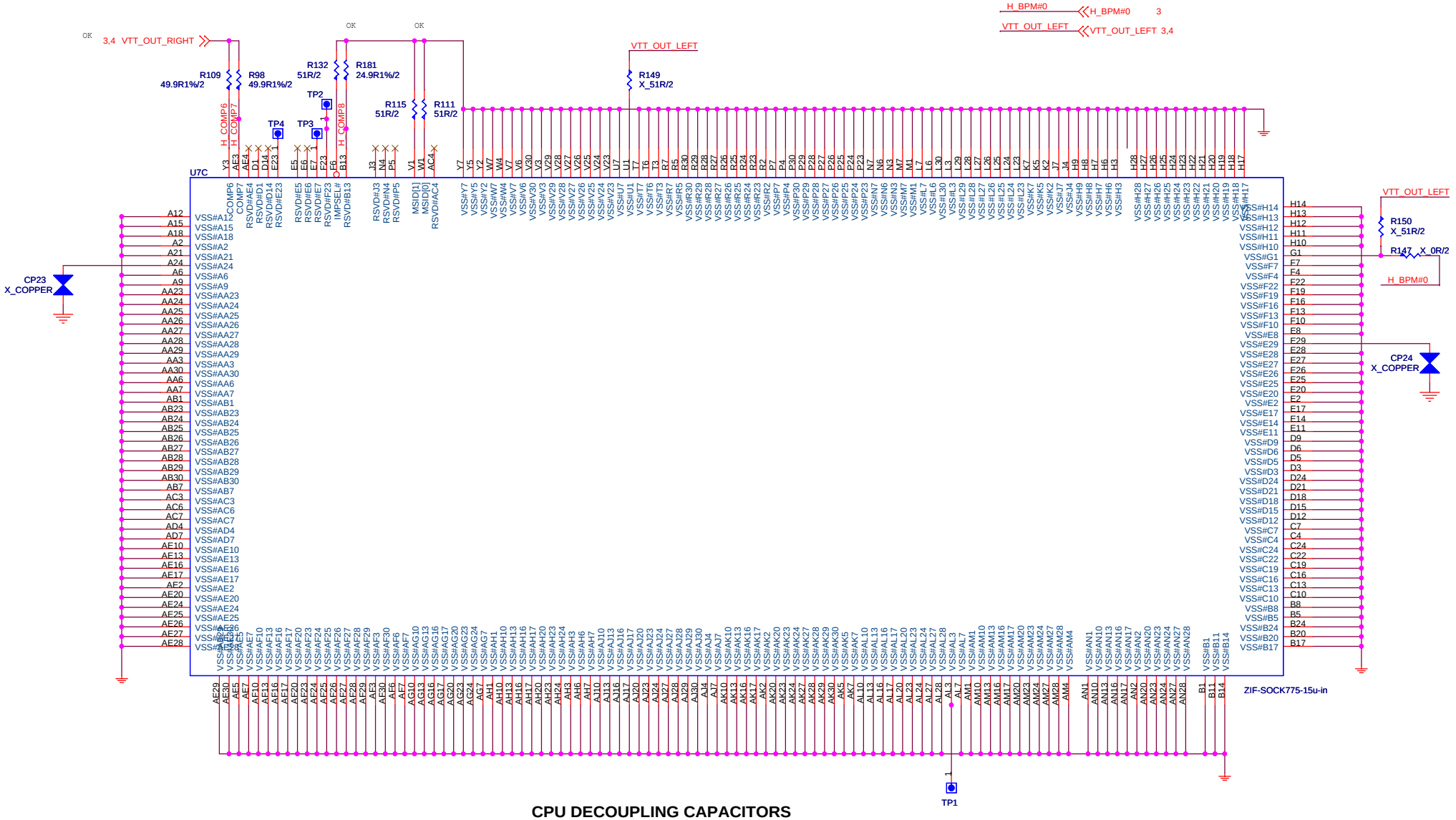
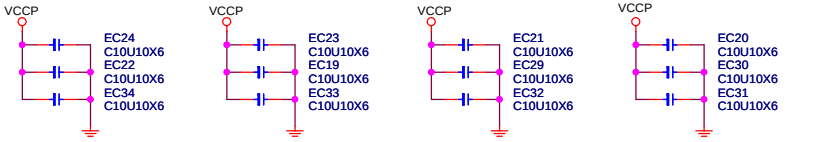


CPU DECOUPLING CAPACITORS



Place these caps within socket cavity

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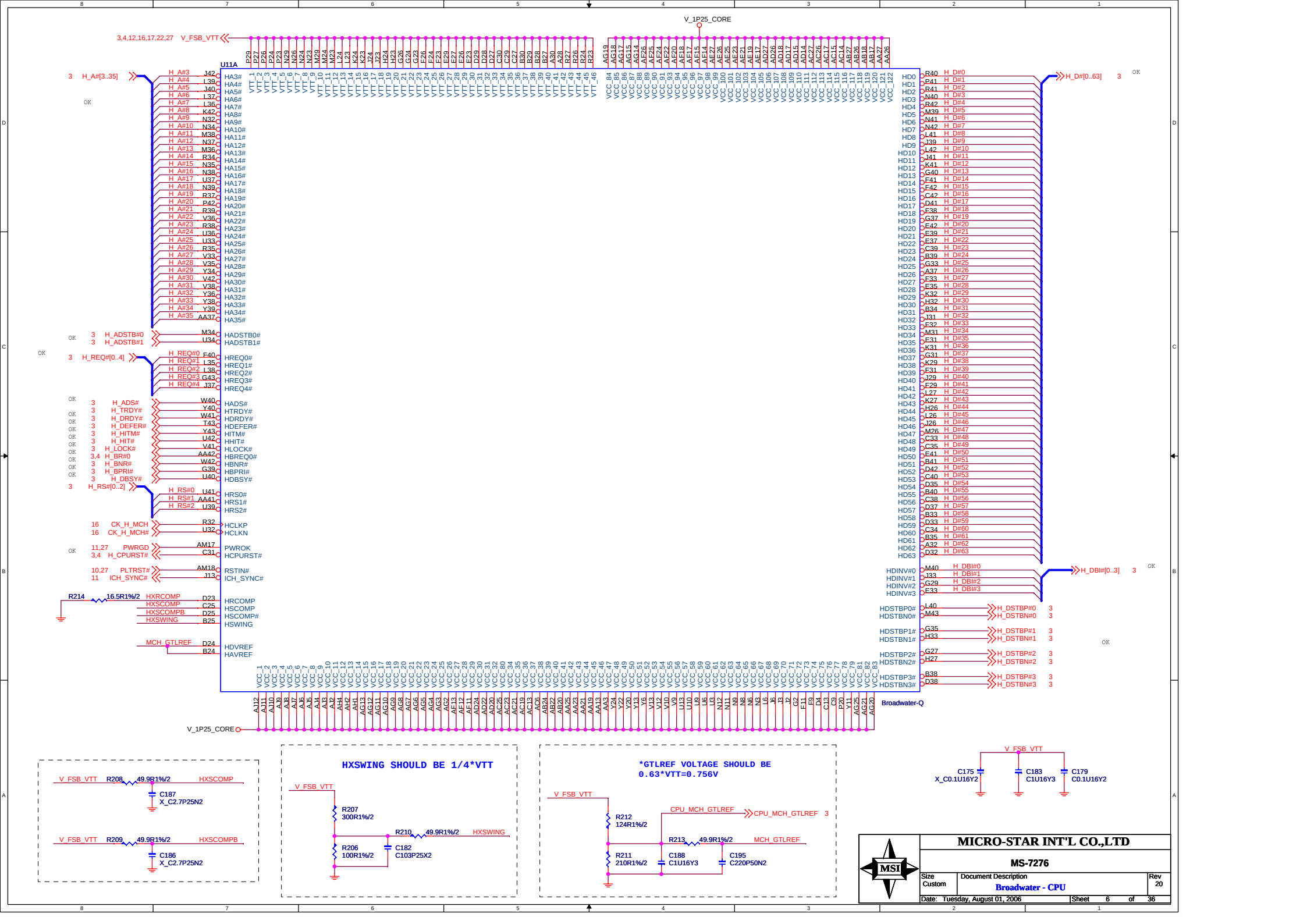
V_1P25_CORE
3,4,12,16,17,22,27 V_FSB_VTT
U11A
Broadwater-Q
HXSWING SHOULD BE 1/4*VTT
*GTLREF VOLTAGE SHOULD BE 0.63*VTT=0.756V
MICRO-STAR INT'L CO.,LTD
MS-7276
Broadwater - CPU
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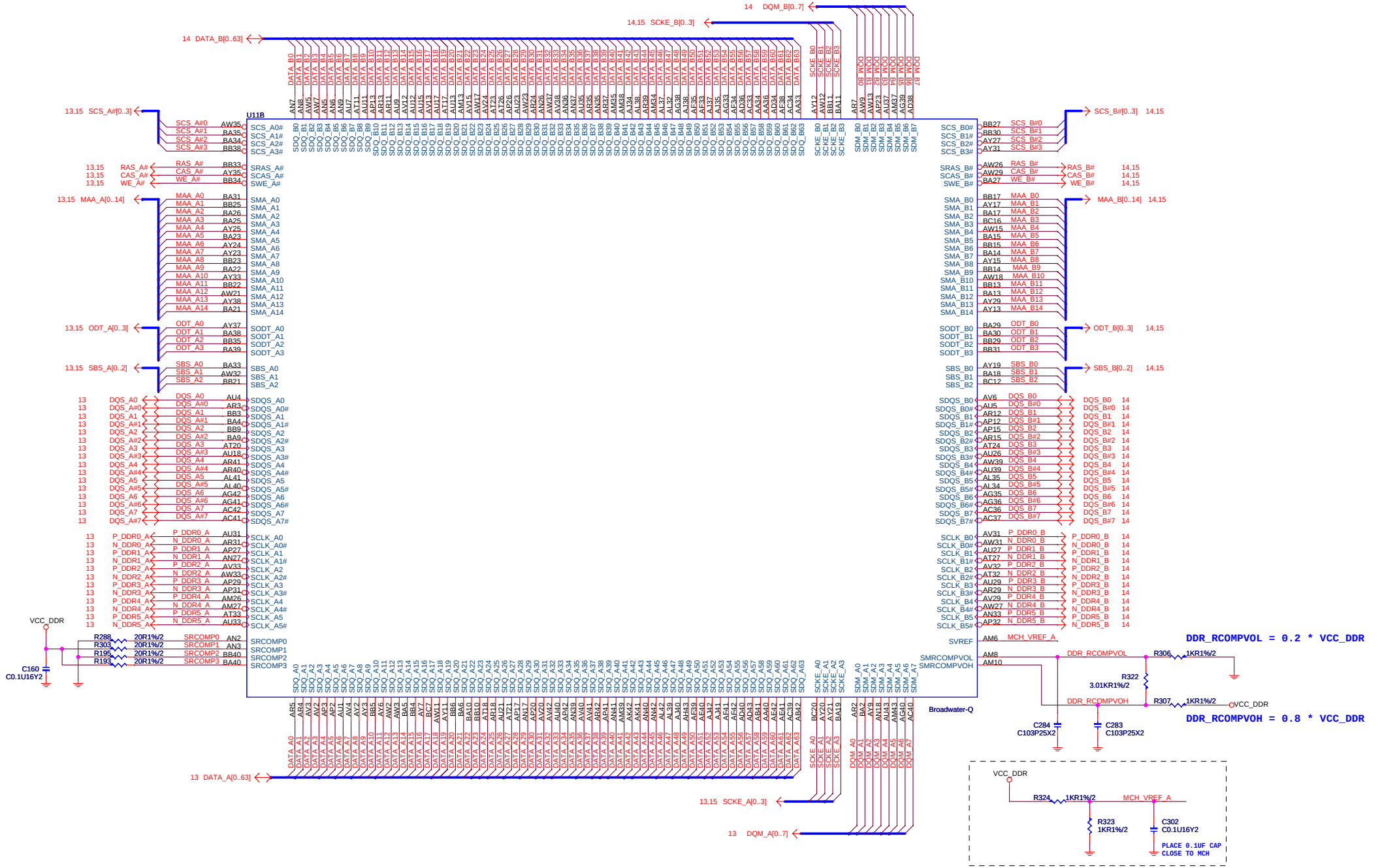

MICRO-STAR INT'L CO.,LTD

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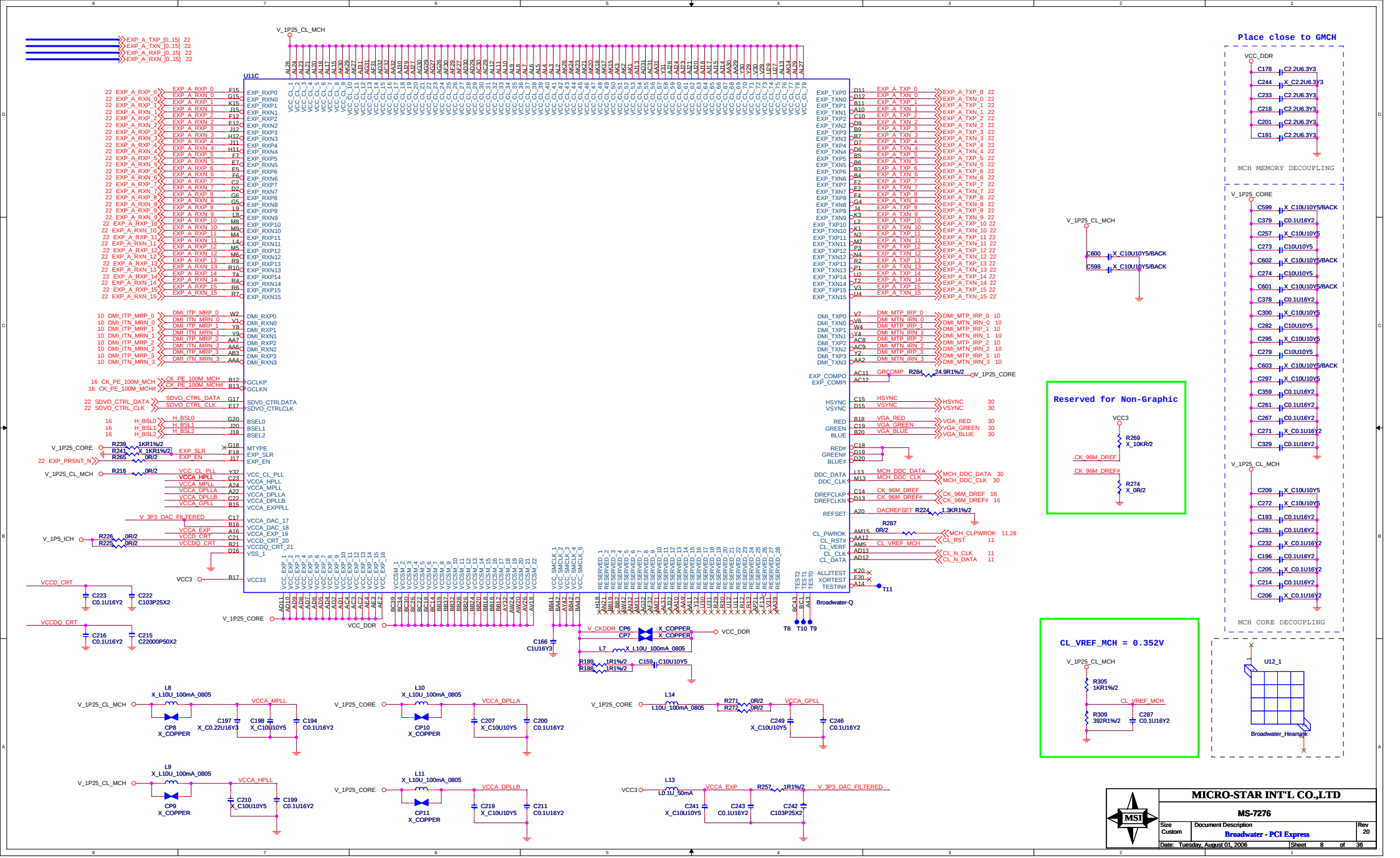
U11C
Broadwater-Q
Place close to GMCH
MCH MEMORY DECOUPLING
MCH CORE DECOUPLING
Reserved for Non-Graphic
CL_VREF_MCH = 0.352V
Broadwater_Heatsink
MICRO-STAR INT'L CO.,LTD
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Broadwater - PCI Express
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ICH8 H/W STRAPS

SIGNAL	H	L	DES.
SPKR	DIS	EN	REBOOT
GNT3	DIS	EN	A16 OVERIDE
INTVRMEN/ LAN100_SLP	EN	DIS	INT VRM (VccSus1_05,1_5,VccCL1_5) (VccLAN1_05,VccCL1_05)
SATALED	NORM	REVERSE	PCIE 0-3 ORDER
HDA_SDOUT	DFX/ PCIE	N/A	XOR MODE/PCIE PORT CONFIG BIT 1
HDA_SYNC	SET BIT	N/A	PCIE PORT CONFIG BIT 0 (1-4)
GNT2	N/A	SET BIT	PCIE PORT CONFIG 2 BIT 0 (5-6)

PGNT#2 R464 X_1KR/2

PGNT#3 R486 X_1KR/2 VCC3_SB

11 ACSDOUT ACSDOUT R477 X_1KR/2

11 ACSYNC ACSYNC R478 X_1KR/2

11,24 SPKR R489 X_1KR/2 VCC3

RN41

VCC3 2 4 6 8 1 3 5 7 SERIRQ A20GATE KBRST#

8P4R-10KR/2

BOOT SELECT STRAPS

BOOT DEVICE	GNT0	SPI_CS1#	
FWH	1	1	
SPI	0	X	
PCI	1	0	

R511 1KR/2 PGNT#0

R467 X_1KR/2 SPI_CS1#

For ESD

PCIRST_ICH8#

C608 X_C100P50N2

C609 X_C100P50N2

C610 X_C100P50N2

C611 X_C100P50N2

SPI DEBUG PROT

Place close to SPI ROM

VCC3_SB

JSPI1

SPI_MISO_F 3 4 SPI_MOSI_F

SPI_CS0_F# 5 6 SPI_CLK_F

SPI_HOLD# 7 8 9

H2X5(10)_black-RH

Part Number : N31-2051451-H06

U23A

23,26 AD[31..0] AD0 E18 AD1 A16 AD2 A14 AD3 A17 AD4 B13 AD5 F18 AD6 E17 AD7 C17 AD8 A13 AD9 C14 AD10 E14 AD11 C13 AD12 E15 AD13 F16 AD14 A11 AD15 D10 AD16 C11 AD17 E13 AD18 E12 AD19 D13 AD20 F14 AD21 E11 AD22 D8 AD23 D7 AD24 C7 AD25 F13 AD26 B7 AD27 C6 AD28 B5 AD29 F12 AD30 F8 AD31 E7

23,26 C_BE#[3..0] C_BE#0 G16 C_BE#1 A10 C_BE#2 C12 C_BE#3 A12

23,26 DEVSEL# B12 FRAME# E16 IRDY# B6 TRDY# A7 STOP# D15 PAR D9 PLOCK# D11 SERR# E6 PERR# C9 PME# D3

23,26 PCIRST_ICH8# 16 ICH_PCLK R505 33R/2 B10 PCICLK E3 PCIRST#

23 PREQ#0 PREQ#1 PREQ#2 23,26 PREQ#3 E8 C16 B16 A9 REQ0# REQ1#/GPIO50 REQ2#/GPIO52 REQ3#/GPIO54

23 PGNT#0 23 PGNT#1 PGNT#2 26 PGNT#3 A4 C15 D17 B9 GNT0# GNT1#/GPIO51 GNT2#/GPIO53 GNT3#/GPIO55

23 PIRQ#A 23 PIRQ#B 23 PIRQ#C 23,26 PIRQ#D 23 PIRQ#E 23 PIRQ#F 23 PIRQ#G 23 PIRQ#H C4 C5 A3 A8 D5 F10 G11 F9 PIRQA# PIRQB# PIRQC# PIRQD# PIRQE#/GPIO2 PIRQF#/GPIO3 PIRQG#/GPIO4 PIRQH#/GPIO5

17 SERIRQ SERIRQ AG9 SERIRQ

SPI_MOSI_F R427 15R/2 SPI_MOSI D21 SPI_MOSI

SPI_MISO B19 SPI_MISO

SPI_CS0_F# R434 15R/2 SPI_CS0# C21 SPI_CS0#

SPI_CLK_F R466 15R/2 SPI_CLK A19 SPI_CLK

SPI_CS1# A18 SPI_CS1#

RN34

V_3P3_CL 2 4 6 8 1 3 5 SPI_MOSI SPI_CS0# SPI_MISO

8P4R-10KR/2

VSS_001 VSS_002 VSS_003 VSS_004 VSS_005 VSS_006 VSS_007 VSS_008 VSS_009 VSS_010 VSS_011 VSS_012 VSS_013 VSS_014 VSS_015 VSS_016 VSS_017 VSS_018 VSS_019 VSS_020 VSS_021 VSS_022 VSS_023 VSS_024 VSS_025 VSS_026 VSS_027 VSS_028 VSS_029 VSS_030 VSS_031 VSS_032 VSS_033 VSS_034 VSS_035 VSS_036 VSS_037 VSS_038 VSS_039 VSS_040

A5 A24 A28 B2 B8 B11 B14 B17 B20 B24 C22 C27 C28 D2 D6 D12 D16 D19 D22 D25 D26 E1 E21 E24 E27 E28 F2 F7 F15 F23 F24 F25 F26 G1 G4 G6 G10 G13 G18 ICH8-DO

ICH 8 PART 1/3

PCI INTERFACE

INTERRUPT SPI

DIRECT MEDIA

PCI EXPRESS

CPU

LAN

A20M# AD23 H_A20M# 3

CPUSLP# AC24

FERR# AB22 H_FERR# 3,4

IGNNE# AC22 H_IGNNE# 3

INIT# AB19 H_INIT# 3

INIT3_3V# AC12

INTR AH28 H_INTR 3

NMI AC23 H_NMI 3

SMI# AB20 ICH_H_SMI# 3

STPCLK# AB23 H_STPCLK# 3

RCIN# AF10 KBRST# 17

A20GATE AG10 A20GATE 17

THRMTRIP# AG28 TRMTRIP# 3,4

OK

PECI AF26 ICH8_PECI ICH8_PECI 3,17

PLTRST# AF23 PLTRST_L R423 33R/2 PLTRST# PLTRST# 6,27

PERN_1 N25 PERP_1 N26 PETN_1 M28 PETP_1 M27 PE_RXN1 PE_RXP1 PE_TXN1_C C414 C0.1U16Y2 PE_TXP1_C C424 C0.1U16Y2 PE_RXN1 22 PE_RXP1 22 PE_TXN1 22 PE_TXP1 22

PERN_2 L25 PERP_2 L26 PETN_2 K28 PETP_2 K27

PERN_3 J26 PERP_3 J25 PETN_3 H28 PETP_3 H27

PERN_4 G26 PERP_4 G25 PETN_4 F28 PETP_4 F27

PERN_5 E26 PERP_5 E25 PETN_5 D28 PETP_5 D27

Stuff for NINEVEH

Empty for EKRON

PERN_6/GLAN_RXN C26 PERP_6/GLAN_RXP C25 PETN_6/GLAN_TXN B28 PETP_6/GLAN_TXP B27 GLAN_RXN GLAN_RXP GLAN_TXN_C C412 C0.1U16Y2 GLAN_TXP_C C404 C0.1U16Y2 GLAN_RXN 20 GLAN_RXP 20 GLAN_TXN 20 GLAN_TXP 20

DMI_0RXN U26 DMI_0RXP U25 DMI_0TXN T28 DMI_0TXP T27 DMI_MTN_IRN_0 8 DMI_MTP_IRP_0 8 DMI_ITN_MRN_0 8 DMI_ITP_MRP_0 8

DMI_1RXN W26 DMI_1RXP W25 DMI_1TXN V28 DMI_1TXP V27 DMI_MTN_IRN_1 8 DMI_MTP_IRP_1 8 DMI_ITN_MRN_1 8 DMI_ITP_MRP_1 8

DMI_2RXN AA25 DMI_2RXP AA24 DMI_2TXN Y28 DMI_2TXP Y27 DMI_MTN_IRN_2 8 DMI_MTP_IRP_2 8 DMI_ITN_MRN_2 8 DMI_ITP_MRP_2 8

DMI_3RXN AC26 DMI_3RXP AC25 DMI_3TXN AB28 DMI_3TXP AB27 DMI_MTN_IRN_3 8 DMI_MTP_IRP_3 8 DMI_ITN_MRN_3 8 DMI_ITP_MRP_3 8

DMI_CLKN R25 DMI_CLKP R24 CK_PE_100M_ICH# 16 CK_PE_100M_ICH 16 V_1P5_ICH

DMICOMPI AD27 DMI_IRCOMP AD28 DMI_BIAS R388 24.9R1%/2 <200mils

GLAN_CLK F22 LAN_RSTSYNC E20 LAN_RST# AF17 LAN_RXD0 E19 LAN_RXD1 C19 LAN_RXD2 D20 LAN_TXD0 C20 LAN_TXD1 C18 LAN_TXD2 D18 ELAN_CLK ELAN_SYNC LAN_PWROK ELAN_RXD0 ELAN_RXD1 ELAN_RXD2 ELAN_TXD0 ELAN_TXD1 ELAN_TXD2 ELAN_CLK 20 ELAN_SYNC 20 ELAN_RXD0 20 ELAN_RXD1 20 ELAN_RXD2 20 ELAN_TXD0 20 ELAN_TXD1 20 ELAN_TXD2 20

LAN_PWROK R471 10KR/2 V_3P3_CL

R470 X_0R/2 RSMRST# RSMRST# 11,27

C478 C1U16Y3

SPI FLASH ROM

Place close to SB.

V_3P3_CL

C426 C0.1U16Y2

R384 2.2KR/2

U17

SPI_MISO R357 15R/2 SPI_MISO_F

11 SPI_WP# From South-Bridge GPIO32

SPI_CS0_F# SPI_WP#

CE# VDD SO HOLD# WP# SCK VSS SI

SPI_HOLD# SPI_CLK_F SPI_MOSI_F

R375 X_0R/2 SPI_HOLD_GPO# 11 From South-Bridge GPIO33

V_3P3_CL R356 2.2KR/2

SPI-FLASH-W25X80VSSIG

Reserved for BIOS control used

MICRO-STAR INT'L CO.,LTD

MS-7276

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ICH8 PULL-UP RESISTORS

ALL COMPONENTS CLOSE TO ICH8

Trace length is less than 3inchs to ICH8.

SM_LINK0 R551 X_10KR/2
SM_LINK1 R552 X_10KR/2
LINK_ALERT# R553 10KR/2
GPIO_10 R554 10KR/2 → VCC3_SB

FP_RST# RN36 8P4R-10KR/2
SIO_PME#
RI#

CLEAR_CMOS# RN32 8P4R-10KR/2
SMB_ALERT#
BATTLOW#
GPIO_14

GPIO_12 R442 10KR/2 → VCC3_SB
LPCPD# R510 X_10KR/2 → VCC3_SB
WAKE# R449 1KR/2 → VCC3_SB
ATADET0 R444 X_10KR/2 → VCC3_SB
WOL_ONLY R454 X_10KR/2 → VCC3_SB
R452 10KR/2

LDRQ_1# RN39 8P4R-10KR/2
SATALED#
SIO_SMI#

SMBCLK R432 2.2KR/2
SMBDATA R436 2.2KR/2

PWRGD R383 10KR/2
INTRUDER# R416 1MR/2 → VBAT

VCC3 R468 10KR/2
27,29 VRM_GD R469 0R/2 → VRM_PWRGD
R458 100KR/2
C476 C0.1U16Y2

R425 X_0R/2 → THERM#
VCC3 R431 10KR/2
VCC3 R448 X_10KR/2
3,4 H_PROCHOT# R587 X_10KR/2
Q43 X_2N3904
Q44 X_2N3904

#Place near the SB

RN38 8P4R-22R/2
21 AC_SYNC
21 AC_SDOUT
21 AC_BITCLK
21 AC_RST#
→ ACSYNC, ACSDOUT, AC_BITCLK_ICH, ACRST#
C487 X_C20P50N2
C483 X_C20P50N2

VCC3_SB
R417 150R1%/2 → SLP_M 16,28
SLP_M# R430 10KR/2
Q38 2N3904
C450 X_C1U16Y3

U23B

ICH 8
PART 2/3

LPC
17 LPC_AD0 → F6 LAD0
17 LPC_AD1 → E5 LAD1
17 LPC_AD2 → G9 LAD2
17 LPC_AD3 → E5 LAD3
17 LPC_DRQ#0 → G8 LDRQ_0#
LDRQ_1# C3 LDRQ_1#/GPIO23
17 LPC_FRAME# → B3 LFRAME#

AC-LINK
AC_BITCLK_ICH ↔ AE12 ACZ_BCLK
ACRST# → AE13 ACZ_RST#
21 AC_SDIN0 → AE14 ACZ_SDIN_0
AH12 ACZ_SDIN_1
AD13 ACZ_SDIN_2
AH11 ACZ_SDIN_3
10 ACSDOUT ← AH10 ACZ_SDOUT
10 ACSYNC ← ACSYNC# AE11 ACZ_SYNC

USB
25 USB4- → G2 USBP_0N
25 USB4+ → G3 USBP_0P
25 USB1- → H5 USBP_1N
25 USB1+ → H4 USBP_1P
25 USB0- → H1 USBP_2N
25 USB0+ → H2 USBP_2P
25 USB5- → J3 USBP_3N
25 USB5+ → J2 USBP_3P
25 USB2- → K5 USBP_4N
25 USB2+ → K4 USBP_4P
25 USB3- → K1 USBP_5N
25 USB3+ → K2 USBP_5P
25 USB6- → L3 USBP_6N
25 USB6+ → L2 USBP_6P
25 USB7- → M5 USBP_7N
25 USB7+ → M4 USBP_7P
24 J_SBD8- → M2 USBP_8N
24 J_SBD8+ → M1 USBP_8P
N2 USBP_9N
N3 USBP_9P

25 OC#1 → AE15 OC0#
AH14 OC1#/GPIO40
AG14 OC2#/GPIO41
AG15 OC3#/GPIO42
25 OC#2 → AH15 OC4#/GPIO43
AE15 OC5#/GPIO29
25 OC#3 → AG13 OC6#/GPIO30
AF14 OC7#/GPIO31
AD14 OC8#
AG16 OC9#

R504 22.6R1%/2 USB_BIAS → E1 USBRBIASN
E2 USBRBIASP

SM BUS
13,16,22,27 SMBCLK → AD19 SMBCLK
13,16,22,27 SMBDATA → AB18 SMBDATA
SMB_ALERT# → AF21 SMBALERT#/GPIO11
SMBCLK R549 0R/2 SM_LINK0 → AE19 SMLINK0
SMBDATA R550 0R/2 SM_LINK1 → AG21 SMLINK1
LINK_ALERT# → AH21 SMLALERT#

POWER MGNT
10,27 RSMRST# → RSMRST# AD22
17 SB_PWRBTN# → PWRBTN# A1
6,27 PWRGD → PWROK AE24
VRM_PWRGD → VRMPWRGD_VGATE AC16
3,4 H_PWRGD → CPUPWRGD/GPIO49 AE25
16 CK_PWRGD → CK_PWRGD F1
24 FP_RST# → SYS_RESET# AE16
17,27 SLP_S3# → SLP_S3# AE22
27,28 SLP_S4# → SLP_S4# AH23
SLP_S5# AC17
SLP_M# AG22
VBAT R414 390KR0402 LAN100_SLP AG24
17 LPCPD# → SUS_STAT#/LPCPD# G7
T12 → SUSCLK E4

MISC
INTRUDER# → INTRUDER# AF24
22 WAKE# → WAKE# AH18
RI# RI# AG17
17 THERM# → THERM# THRM# AH9
BATTLOW# BATLOW# AF22
R456 0R/2 MCH_SYNC# AE10
6 ICH_SYNC# → SPKR AF6
10,24 SPKR
VCC3 R455 X_1KR/2
DPRSTP# AE25
DPSLP# AD24
DFXTESTB AD16
16 ICH_14M → CLK14 AG6
16 USB_48M → CLK48 B1

S-ATA
SATA_0RXN AC5 → SATA_RX#0 19
SATA_0RXP AC4 → SATA_RX0 19
SATA_0TXN AE4 → SATA_TX#0 19
SATA_0TXP AE3 → SATA_TX0 19
SATA_1RXN AF1 → SATA_RX#1 19
SATA_1RXP AF2 → SATA_RX1 19
SATA_1TXN AH2 → SATA_TX#1 19
SATA_1TXP AH1 → SATA_TX1 19
SATA_2RXN W5 → SATA_RX#2 19
SATA_2RXP W4 → SATA_RX2 19
SATA_2TXN AA3 → SATA_TX#2 19
SATA_2TXP AA4 → SATA_TX2 19
SATA_3RXN AB1 → SATA_RX#3 19
SATA_3RXP AB2 → SATA_RX3 19
SATA_3TXN AD2 → SATA_TX#3 19
SATA_3TXP AD1 → SATA_TX3 19
SATA_4RXN Y1 → SATA_RX#4 19
SATA_4RXP Y2 → SATA_RX4 19
SATA_4TXN U3 → SATA_TX#4 19
SATA_4TXP U4 → SATA_TX4 19
SATA_5RXN T1 → SATA_RX#5 19
SATA_5RXP T2 → SATA_RX5 19
SATA_5TXN V2 → SATA_TX#5 19
SATA_5TXP V1 → SATA_TX5 19
SATA_CLKN AG3 → CK_ICHSATA# 16
SATA_CLKP AG4 → CK_ICHSATA 16
SATARBIASN R2 SATA_BIAS R507 24.9R1%/2
SATABIASP R1
SATALED# AB10 → SATALED# 24
SATA0GP/GPIO21 AB11 GPIO_21
SATA1GP/GPIO19 AD8 GPIO_19
SATA2GP/GPIO36 AF8 GPIO_36
SATA3GP/GPIO37 AD9 GPIO_37
SATA4GP AD10 R479 10KR/2 → VCC3
SATA5GP AF9 R487 10KR/2

GPIO
BMBUSY#/PMSYNC#/GPIO0 AF9 SIO_SMI#
GPIO8 AE16 SIO_PME# → SIO_PME# 17
GLGP1O3/GPIO9 AG18 WOL_ONLY → WOL_ONLY 28
GLGPIO1/GPIO10 AF20 GPIO_10
GP12 AC19 GPIO_12 R441 X_0R/2 → ATADET0 24
GPIO13 AF18 CLEAR_CMOS#
CLGPIO2/GPIO14 AH24 GPIO_14
GPIO15 AE21 PCI_STOP# → PCI_STOP# 16
GPIO16 AE11
GPIO18 AC11
GPIO20 AG8
CLGPIO0/GPIO24 AG23
GPIO25 AH17 CPU_STOP# → CPU_STOP# 16
S4_STATE#/GPIO26 AH25
QRT_STATE0/GPIO27 AD20
QRT_STATE1/GPIO28 AD15 PHY_DIS#
GPIO32 AH7 SPI_WP# → PHY_DIS# 20, SPI_WP# 10
GPIO33 AG7 SPI_HOLD_GPO# → SPI_HOLD_GPO# 10
GPIO34 AG12
SATACLKREQ#/GPIO35 AD12
SCLOCK/GPIO22 AF7 GPIO_22
SLOAD/GPIO38 AH6 GPIO_38
SDATAOUT0/GPIO39 AC10 GPIO_39
SDATAOUT1/GPIO48 AF7 GPIO_48
C438 C0.1U16Y2

RTC
VCCRTC AG26
INTVRMEN AA22 INTVRMEN R415 390KR0402 → VBAT
RTCRST# AD21 RTC_RST → VBAT
RTCX1 AH26 RTCX1
RTCX2 AH27 RTCX2 → RTC_RST# 19

AMT
<200mils
GLAN_COMPO C24
GLAN_COMPI D24 R400 24.9R1%/2 → V_1P5_ICH
CL_CLK0 F21 → CL_N_CLK 8
CL_CLK1 AH20 TP5_ICH
CL_DATA0 G21 → CL_N_DATA 8
CL_DATA1 AE18 TP4_ICH
CL_VREF0 B21 CL_VREF_ICH
CL_VREF1 AG20 TP6_ICH R394 X_0R/2 → PWRGD
CL_PWROK C2 MCH_CLPWROK → MCH_CLPWROK 8,28
CL_RST# AG19 → CL_RST 8

AFSC
FAN_PWM0 AB6 → ASFC_PWM0 19
FAN_PWM1 AD6 → ASFC_PWM1 19
FAN_PWM2 AB8
TACH0/GPIO17 AC7 CFAN_TACH → CFAN_TACH 19
TACH1/GPIO1 AF5 SFAN_TACH → SFAN_TACH 19
TACH2/GPIO6 AF6 GPIO_6
TACH3/GPIO7 AC8 GPIO_7
SSTCTL AD17 → IO_SST 17

VSS_041 G24 … VSS_085 N15 → ICH8-DO

VCC3
CFAN_TACH R493 X_10KR/2
SFAN_TACH R496 X_10KR/2
GPIO_21 R495 10KR/2
GPIO_7 R492 10KR/2

RN43 8P4R-10KR/2
GPIO_6
GPIO_19
GPIO_22
GPIO_48

RN42 8P4R-10KR/2
GPIO_38
GPIO_37
GPIO_39
GPIO_36

RTCX1 C428 C18P50N3
R401 10MR
Y5 32.768KHz
RTCX2 C418 C18P50N3

TP4_ICH R451 X_1KR/2
TP5_ICH R447 X_1KR/2

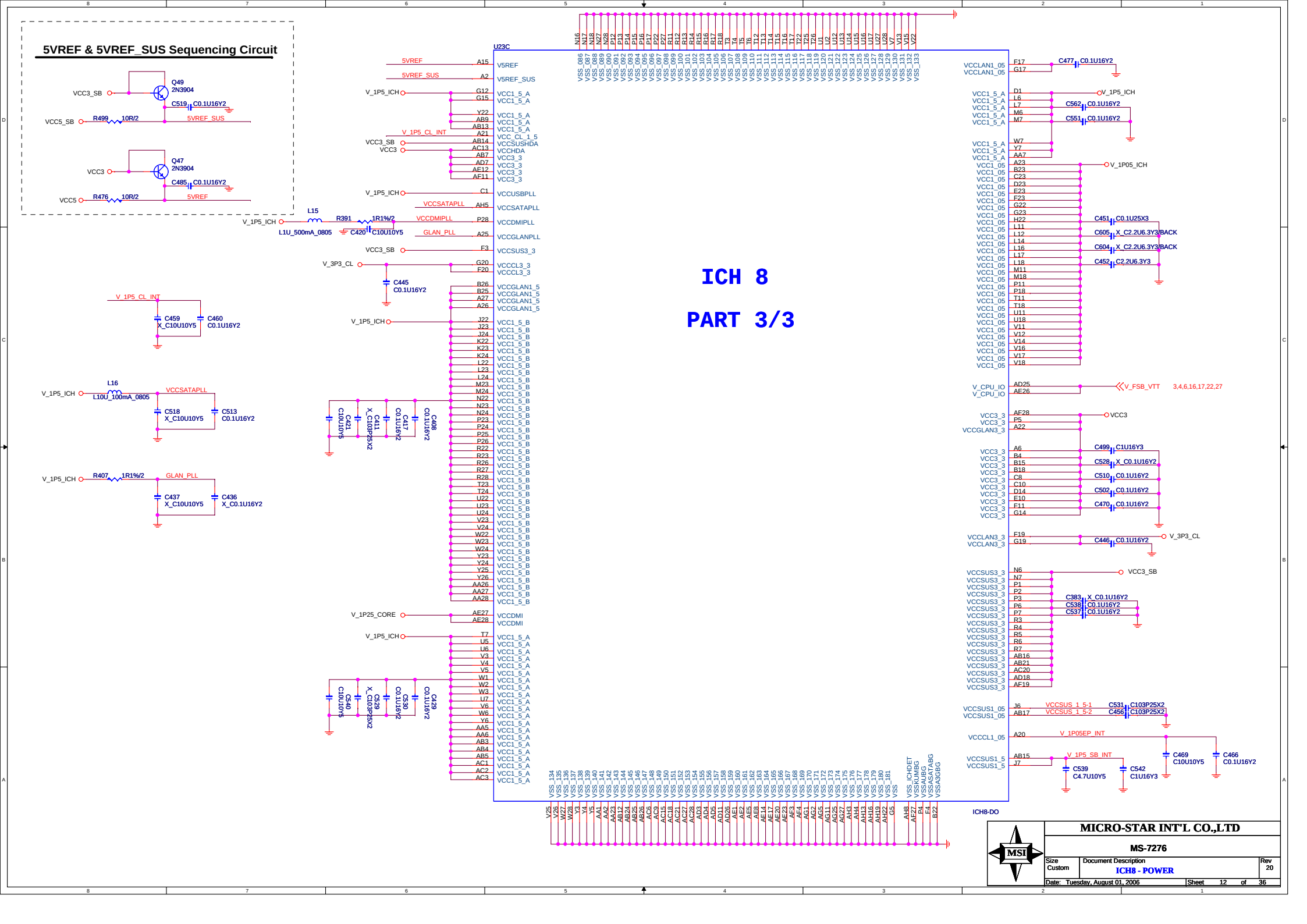
VCC3_SB
R440 X_3.24KR1%/2
TP6_ICH
R435 X_1KR/2

CL_VREF_ICH = 0.405V
V_3P3_CL
R443 3.24KR1%/2
CL_VREF_ICH
C465 C0.1U16Y2
R453 453R1%

A0 version is 5V tolerant

Open Drain Output
VCC5
ASFC_PWM0 R463 2.2KR/2
ASFC_PWM1 R497 2.2KR/2

MICRO-STAR INT'L CO.,LTD		
MS-7276		
Size: Custom	Document Description: ICH8 - LPC, SATA, USB, GPIO	Rev: 20
Date: Tuesday, August 01, 2006	Sheet 11 of 36	


5VREF & 5VREF_SUS Sequencing Circuit
Q49
2N3904
VCC3_SB
C519 C0.1U16Y2
VCC5_SB
R499 10R/2
5VREF_SUS
Q47
2N3904
VCC3
C485 C0.1U16Y2
VCC5
R476 10R/2
5VREF
U23C
ICH 8
PART 3/3
5VREF
5VREF_SUS
V_1P5_ICH
V_1P5_CL_INT
VCC3_SB
VCC3
C445 C0.1U16Y2
L15
R391 1R1%/2
C420 C10U10Y5
L1U_500mA_0805
VCCDMIPLL
GLAN_PLL
VCCSATAPLL
V5REF
V5REF_SUS
VCC1_5_A
VCC_CL_1_5
VCCSUSHDA
VCCHDA
VCC3_3
VCCUSBPLL
VCCSATAPLL
VCCDMIPLL
VCCGLANPLL
VCCSUS3_3
VCCCL3_3
VCCGLAN1_5
VCC1_5_B
V_3P3_CL
V_1P25_CORE
VCCDMI
C459 X_C10U10Y5
C460 C0.1U16Y2
L16
L10U_100mA_0805
C518 X_C10U10Y5
C513 C0.1U16Y2
R407 1R1%/2
C437 X_C10U10Y5
C436 X_C0.1U16Y2
C421 C10U10Y5
C411 X_C103P25X2
C417 C0.1U16Y2
C408 C0.1U16Y2
C540 C10U10Y5
C529 X_C103P25X2
C530 C0.1U16Y2
C429 C0.1U16Y2
VCCLAN1_05
VCC1_05
VCCSUS3_3
VCCSUS1_05
VCCCL1_05
C477 C0.1U16Y2
V_1P5_ICH
C562 C0.1U16Y2
C551 C0.1U16Y2
V_1P05_ICH
C451 C0.1U25X3
C605 X_C2.2U6.3Y3/BACK
C604 X_C2.2U6.3Y3/BACK
C452 C2.2U6.3Y3
V_CPU_IO
V_FSB_VTT
3,4,6,16,17,22,27
VCC3
C499 C1U16Y3
C528 X_C0.1U16Y2
C510 C0.1U16Y2
C502 C0.1U16Y2
C470 C0.1U16Y2
VCCLAN3_3
C446 C0.1U16Y2
V_3P3_CL
VCC3_SB
C383 X_C0.1U16Y2
C538 C0.1U16Y2
C537 C0.1U16Y2
VCCSUS_1_5-1
VCCSUS_1_5-2
C531 C103P25X2
C456 C103P25X2
V_1P05EP_INT
V_1P5_SB_INT
C539 C4.7U10Y5
C542 C1U16Y3
C469 C10U10Y5
C466 C0.1U16Y2
ICH8-DO
MICRO-STAR INT'L CO.,LTD
MS-7276
Size Custom
Document Description
ICH8 - POWER
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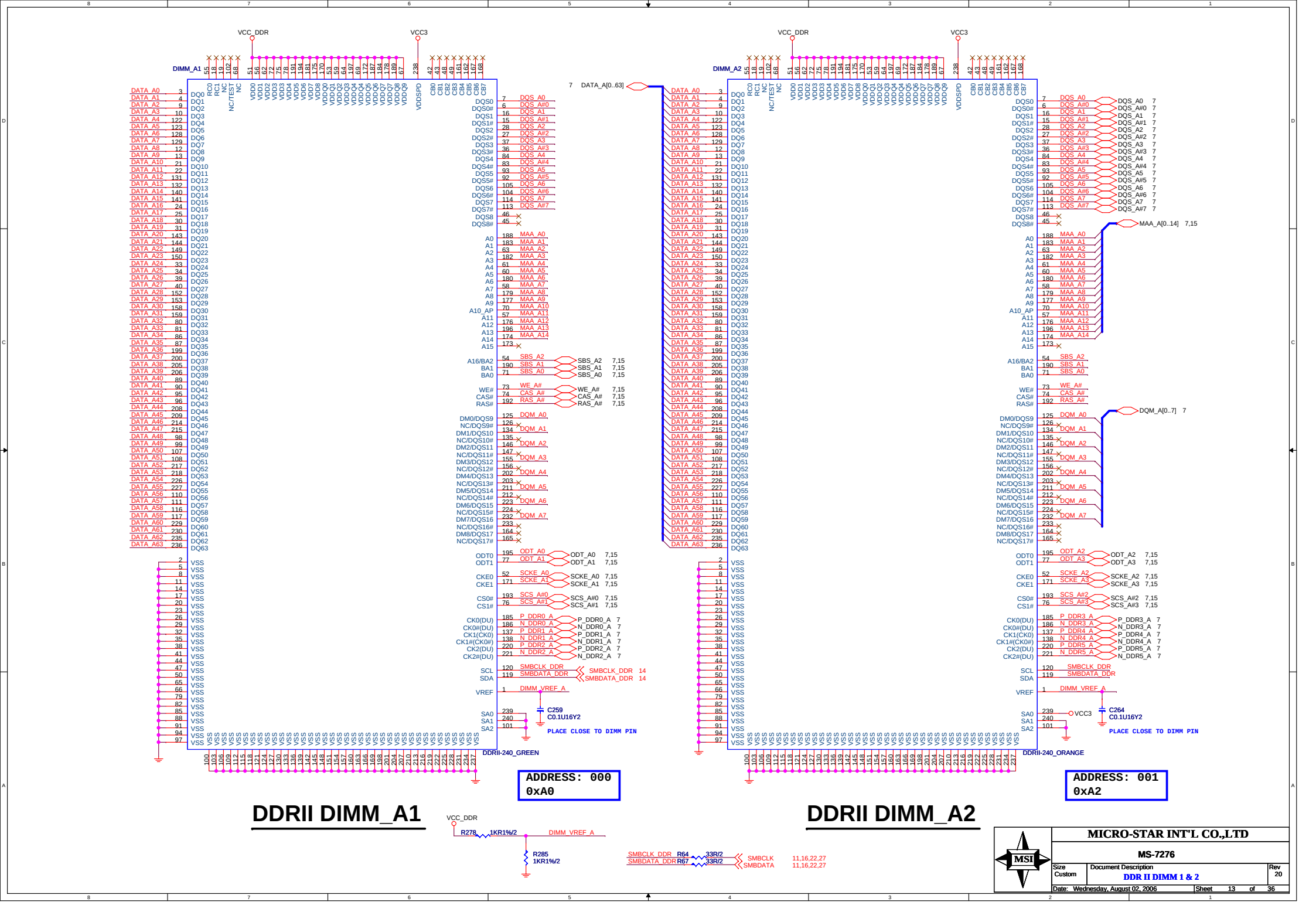
VCC_DDR
VCC3
DIMM_A1
DDRII-240_GREEN
ADDRESS: 000
0xA0
DDRII DIMM_A1
DIMM_A2
DDRII-240_ORANGE
ADDRESS: 001
0xA2
DDRII DIMM_A2
C259
C0.1U16Y2
PLACE CLOSE TO DIMM PIN
C264
C0.1U16Y2
PLACE CLOSE TO DIMM PIN
R278 1KR1%/2
R285
1KR1%/2
DIMM_VREF_A
SMBCLK_DDR R64 33R/2
SMBDATA_DDR R67 33R/2
SMBCLK 11,16,22,27
SMBDATA 11,16,22,27
MICRO-STAR INT'L CO.,LTD
MS-7276
Size Custom
Document Description
DDR II DIMM 1 & 2
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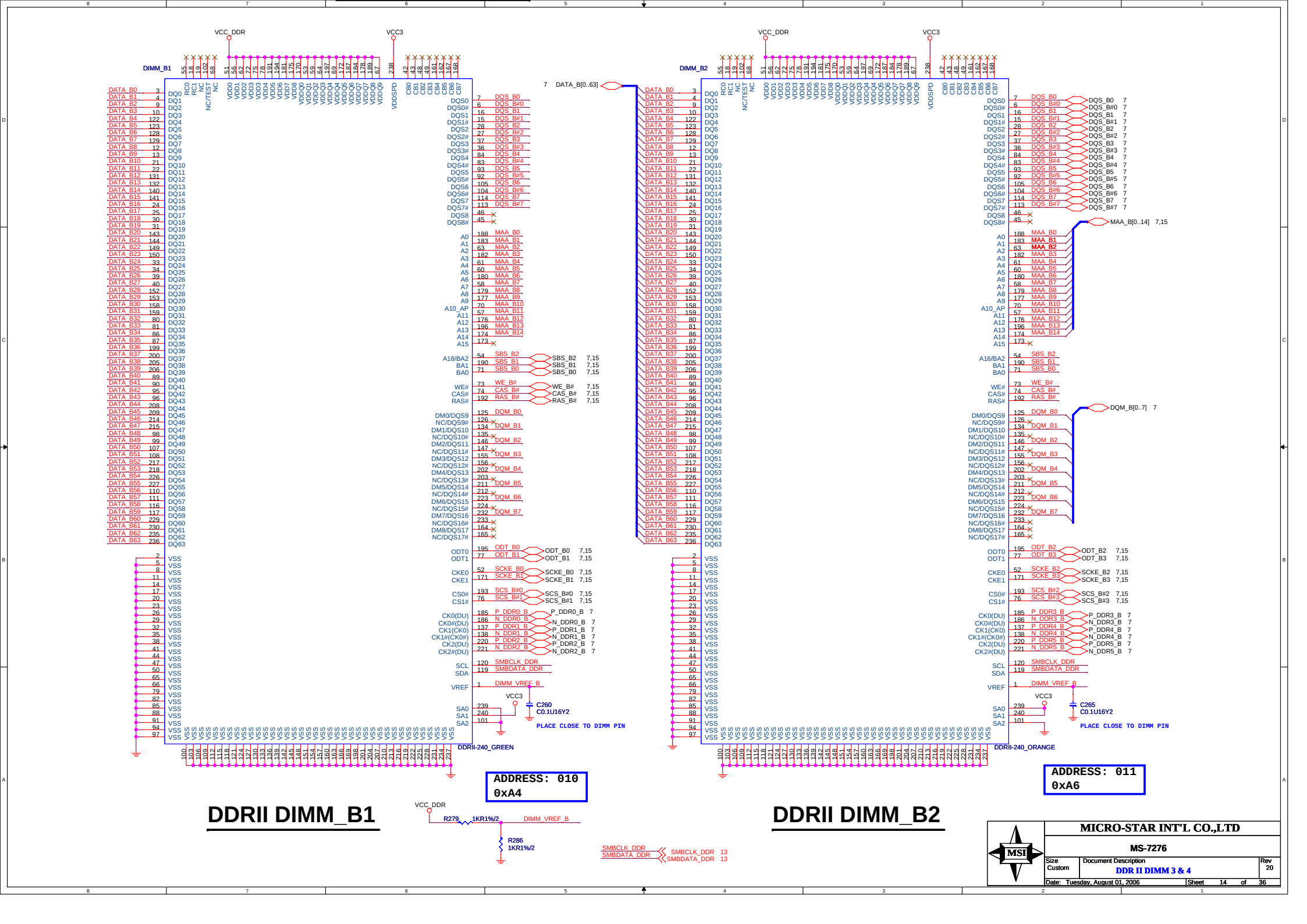
Date: Wednesday, August 02, 2006
Sheet 13 of 36


DIMM_B1
DIMM_B2
VCC_DDR
VCC3
DDRII-240_GREEN
DDRII-240_ORANGE
ADDRESS: 010
0xA4
ADDRESS: 011
0xA6
DDRII DIMM_B1
DDRII DIMM_B2
PLACE CLOSE TO DIMM PIN
C260
C0.1U16Y2
C265
C0.1U16Y2
R279 1KR1%/2
R286
1KR1%/2
DIMM_VREF_B
SMBCLK_DDR
SMBDATA_DDR
MICRO-STAR INT'L CO.,LTD
MS-7276
Size
Custom
Document Description
DDR II DIMM 3 & 4
Rev
20
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CHANNEL A V_SM_VTT DECOUPLING CAPS

VTT_DDR
C143 C0.1U16Y2
C153 C0.1U16Y2

VTT_DDR
C102 X_C0.1U16Y2
C138 C0.1U16Y2
C152 C0.1U16Y2
C107 C0.1U16Y2
C120 C0.1U16Y2

VTT_DDR
C118 C10U10X6
C72 C10U10X6

CHANNEL B V_SM_VTT DECOULPING CAPS

VTT_DDR
C157 X_C0.1U16Y2
C113 C0.1U16Y2

VTT_DDR
C105 C0.1U16Y2
C147 X_C0.1U16Y2
C130 C0.1U16Y2
C131 C0.1U16Y2
C103 C0.1U16Y2

VTT_DDR
C100 X_C4.7U35Y6
C101 X_C4.7U35Y6

VTT_DDR

7,13 MAA_A[0..14]
7,13 SBS_A[0..2]
7,13 SCS_A#[0..3]
7,13 SCKE_A[0..3]
7,13 ODT_A[0..3]

RN19 8P4R-33R/2: MAA_A4, MAA_A3, MAA_A1, MAA_A2
RN21 8P4R-33R/2: MAA_A7, MAA_A8, MAA_A5, MAA_A6
RN23 8P4R-33R/2: SBS_A2, MAA_A12, MAA_A11, MAA_A9
R183 33R/2: MAA_A14

7,13 RAS_A#
7,13 WE_A#
7,13 CAS_A#

RN15 8P4R-33R/2: RAS_A#, WE_A#, CAS_A#, MAA_A13
RN17 8P4R-33R/2: MAA_A0, SBS_A1, MAA_A10, SBS_A0
RN14 8P4R-39R/2: SCS_A#2, SCS_A#0, ODT_A0, ODT_A2
RN27 8P4R-39R/2: SCKE_A3, SCKE_A1, SCKE_A0, SCKE_A2
RN12 8P4R-39R/2: SCS_A#1, SCS_A#3, ODT_A1, ODT_A3

VTT_DDR

7,14 MAA_B[0..14]
7,14 SBS_B[0..2]
7,14 SCS_B#[0..3]
7,14 SCKE_B[0..3]
7,14 ODT_B[0..3]

RN20 8P4R-33R/2: MAA_B4, MAA_B3, MAA_B1, MAA_B2
RN22 8P4R-33R/2: MAA_B7, MAA_B8, MAA_B6, MAA_B5
RN26 8P4R-33R/2: SBS_B2, MAA_B12, MAA_B11, MAA_B9
RN18 8P4R-33R/2: MAA_B0, SBS_B1, MAA_B10, SBS_B0
R184 33R/2: MAA_B14
R160 33R/2: MAA_B13

7,14 CAS_B#

R163 33R/2: CAS_B#
R165 39R/2: SCS_B#2

7,14 RAS_B#
7,14 WE_B#

RN16 8P4R-33R/2: RAS_B#, WE_B#
RN13 8P4R-39R/2: SCS_B#0, ODT_B0, ODT_B2
RN28 8P4R-39R/2: SCKE_B1, SCKE_B2, SCKE_B3, SCKE_B0
RN11 8P4R-39R/2: SCS_B#3, ODT_B3, SCS_B#1, ODT_B1

VCC_DDR
C301 C1U16Y3
C116 C1U16Y3
C115 C1U16Y3
C122 X_C1U16Y3
C112 X_C1U16Y3
C121 C1U16Y3
C150 C1U16Y3
C139 X_C1U16Y3

VCC_DDR
C162 X_C1U16Y3
C156 C1U16Y3
C104 C1U16Y3
C158 C1U16Y3
C148 X_C1U16Y3
C117 C1U16Y3
C134 C1U16Y3
C108 C1U16Y3

VCC_DDR
EC47 ELC1000U/6.3V/1140mA
EC36 ELC1000U/6.3V/1140mA

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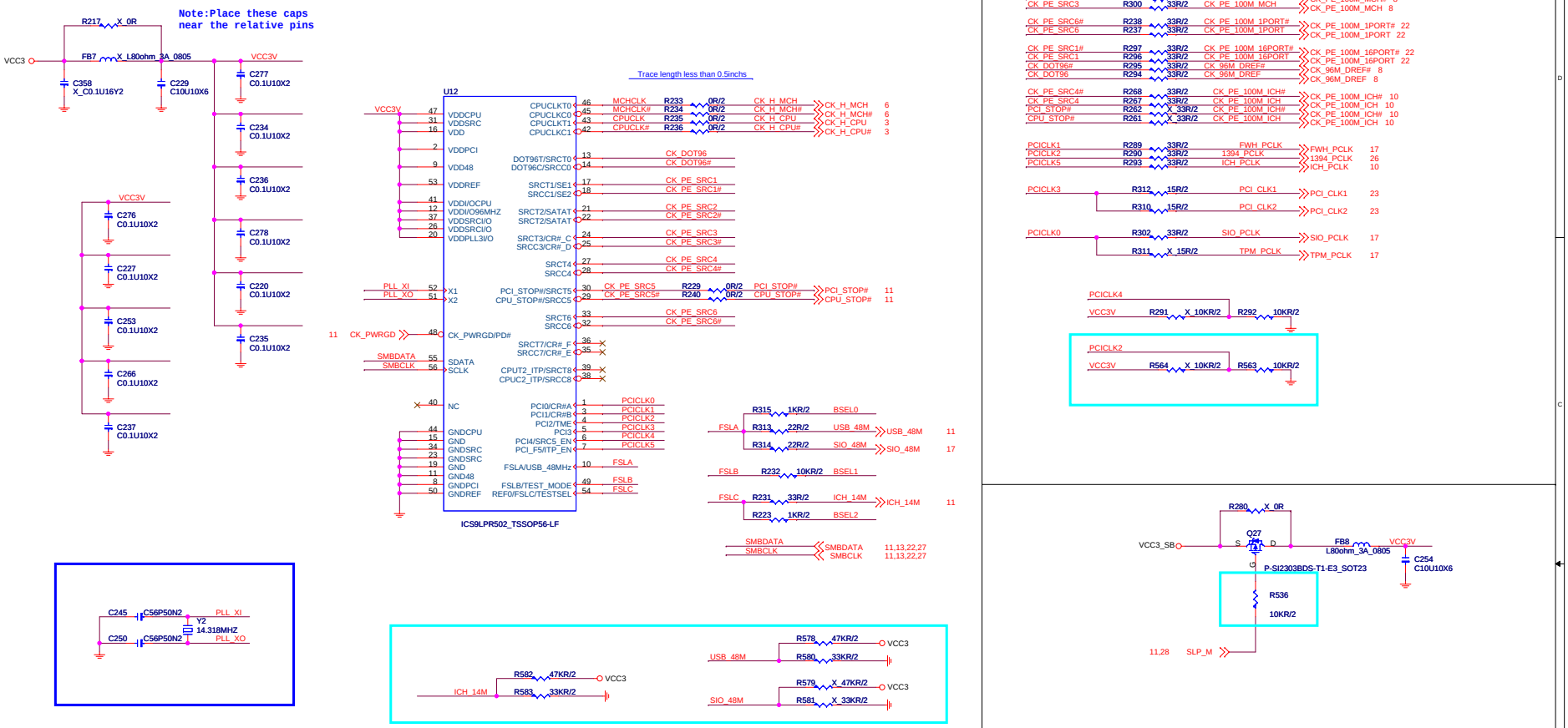
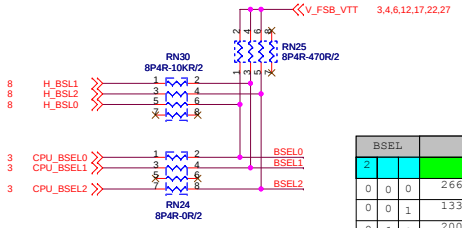
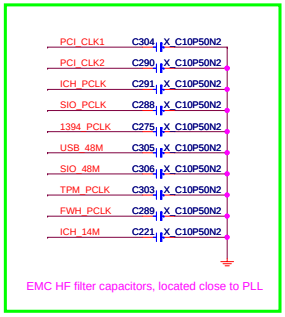
Clock Generator - ICS9LPR502



BSEL[0..2] Level Shift



BSEL			TABLE
2			
0	0	0	266 MHz (1066)
0	0	1	133 MHZ (533)
0	1	0	200 MHZ (800)



EMC HF filter capacitors, located close to PLL

MICRO-STAR INT'L CO.,LTD

MS-7276

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Custom	Clock Gen ICS9LPR502	20

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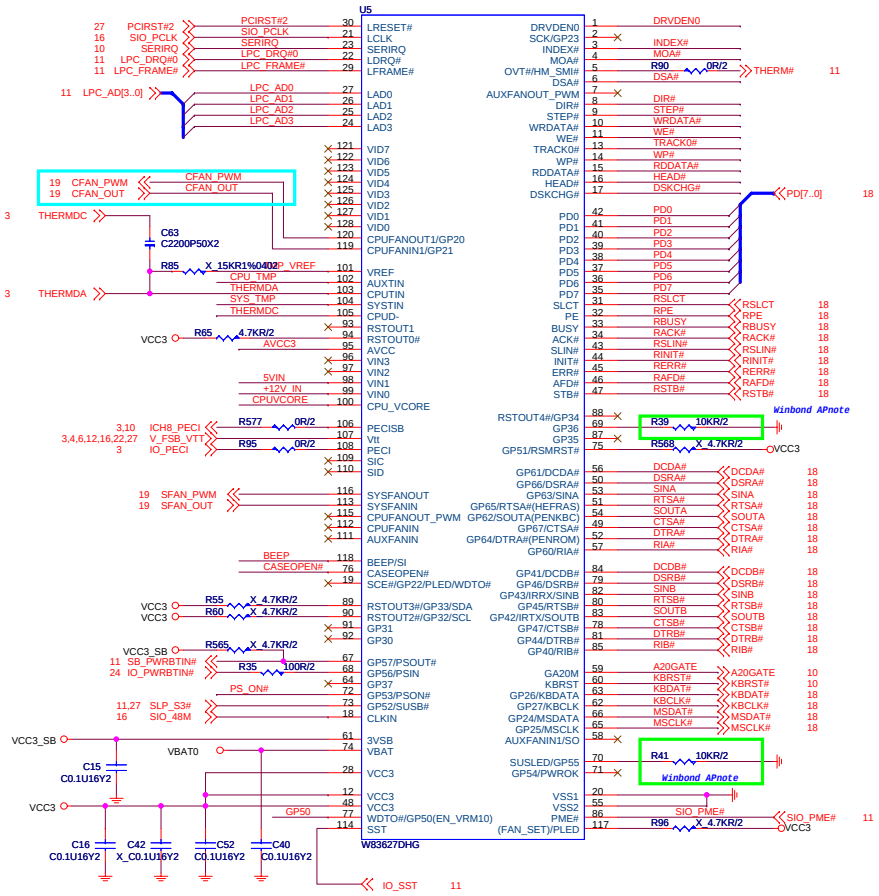
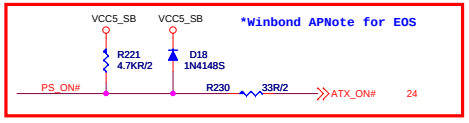
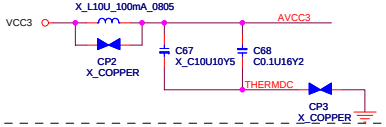
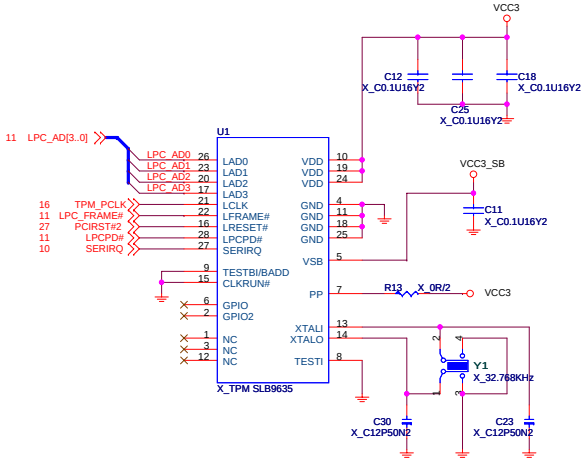
LPC SUPER I/O W83627DHG



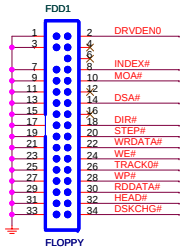


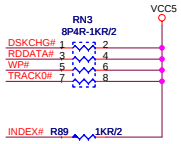


TPM - Security Controller

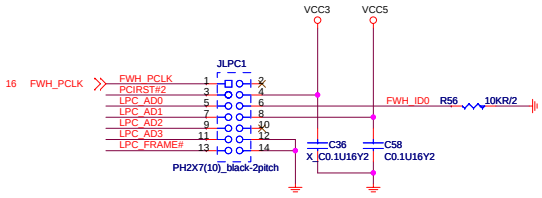


FLOPPY CONNECTOR

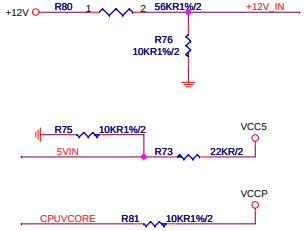




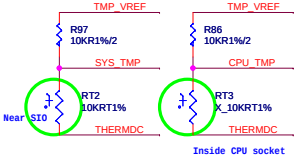
LPC Debug Port



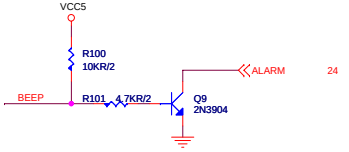
Voltage Detect



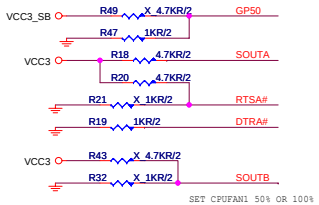
Temperature Senser



Beep

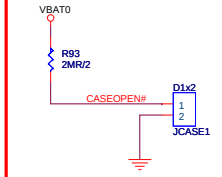


LPC I/O STRAPPING RESISTOR



RTSA#	L: CFAD=2E	H: CFAD=4E
GP50	L: TTL LEVEL	H: VRM10 LEVEL
SOUTA	L: KBC DISABLE	H: KBC ENABLE
DTRA#	L: DISABLE SPI	H: ENABLE SPI

Chassis Intrusion



MICRO-STAR INT'L CO.,LTD		
MS-7276		
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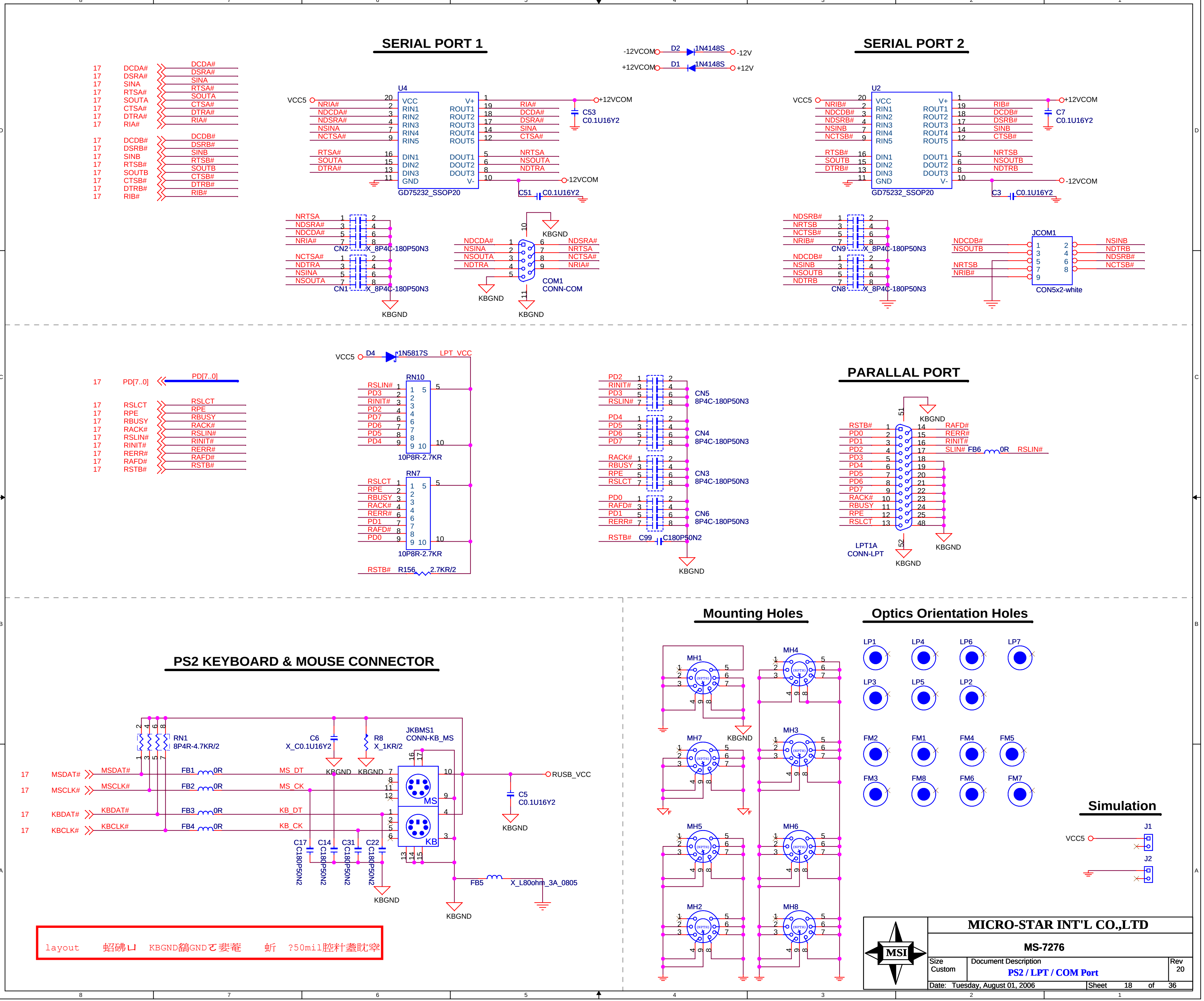
SERIAL PORT 1
SERIAL PORT 2
U4 GD75232_SSOP20
U2 GD75232_SSOP20
D2 1N4148S
D1 1N4148S
C53 C0.1U16Y2
C7 C0.1U16Y2
C51 C0.1U16Y2
C3 C0.1U16Y2
CN2 X_8P4C-180P50N3
CN1 X_8P4C-180P50N3
CN9 X_8P4C-180P50N3
CN8 X_8P4C-180P50N3
COM1 CONN-COM
JCOM1 CON5x2-white
KBGND
PARALLAL PORT
D4 1N5817S
LPT_VCC
RN10 10P8R-2.7KR
RN7 10P8R-2.7KR
R156 2.7KR/2
CN5 8P4C-180P50N3
CN4 8P4C-180P50N3
CN3 8P4C-180P50N3
CN6 8P4C-180P50N3
C99 C180P50N2
LPT1A CONN-LPT
FB6 0R
PS2 KEYBOARD & MOUSE CONNECTOR
RN1 8P4R-4.7KR/2
C6 X_C0.1U16Y2
R8 X_1KR/2
JKBMS1 CONN-KB_MS
C5 C0.1U16Y2
RUSB_VCC
FB5 X_L80ohm_3A_0805
C17 C180P50N2
C14 C180P50N2
C31 C180P50N2
C22 C180P50N2
Mounting Holes
Optics Orientation Holes
Simulation
MICRO-STAR INT'L CO.,LTD
MS-7276
Size Custom
Document Description
PS2 / LPT / COM Port
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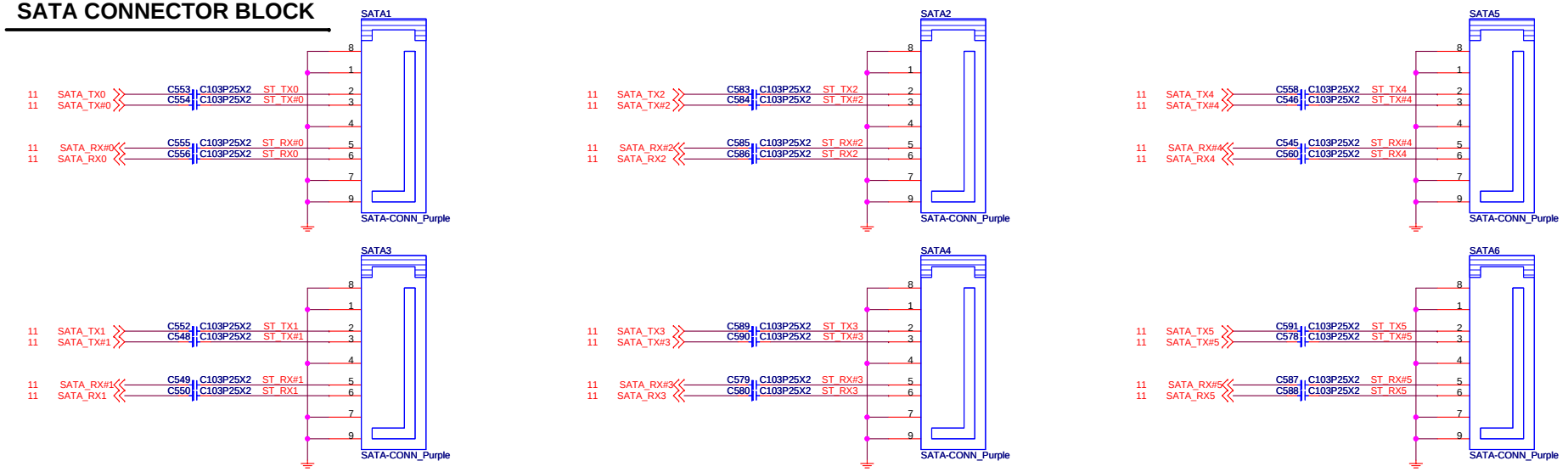
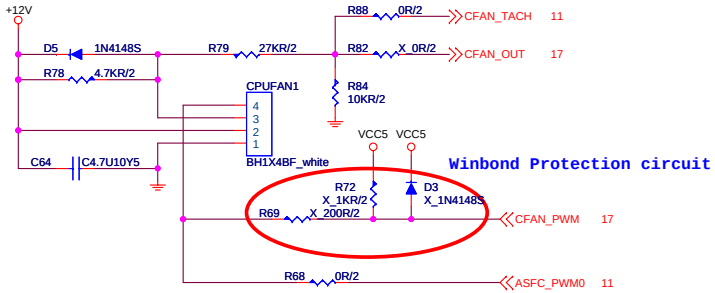
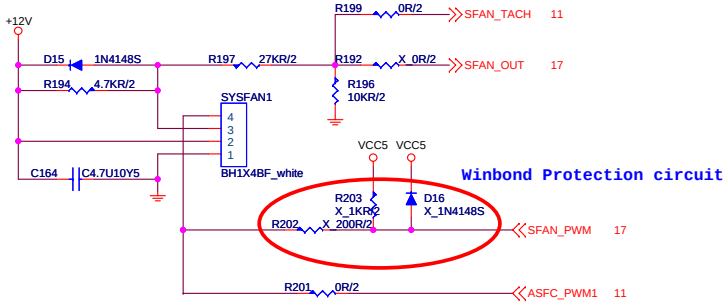
SATA CONNECTOR BLOCK



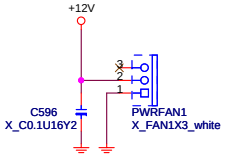
CPU FAN



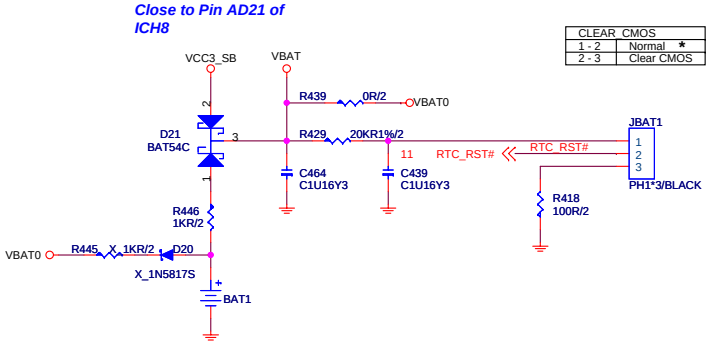
SYSTEM FAN



POWER FAN



RTC BLOCK



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MS-7276			
Size: Custom	Document Description: SATA / RTC / FAN Control		Rev: 20
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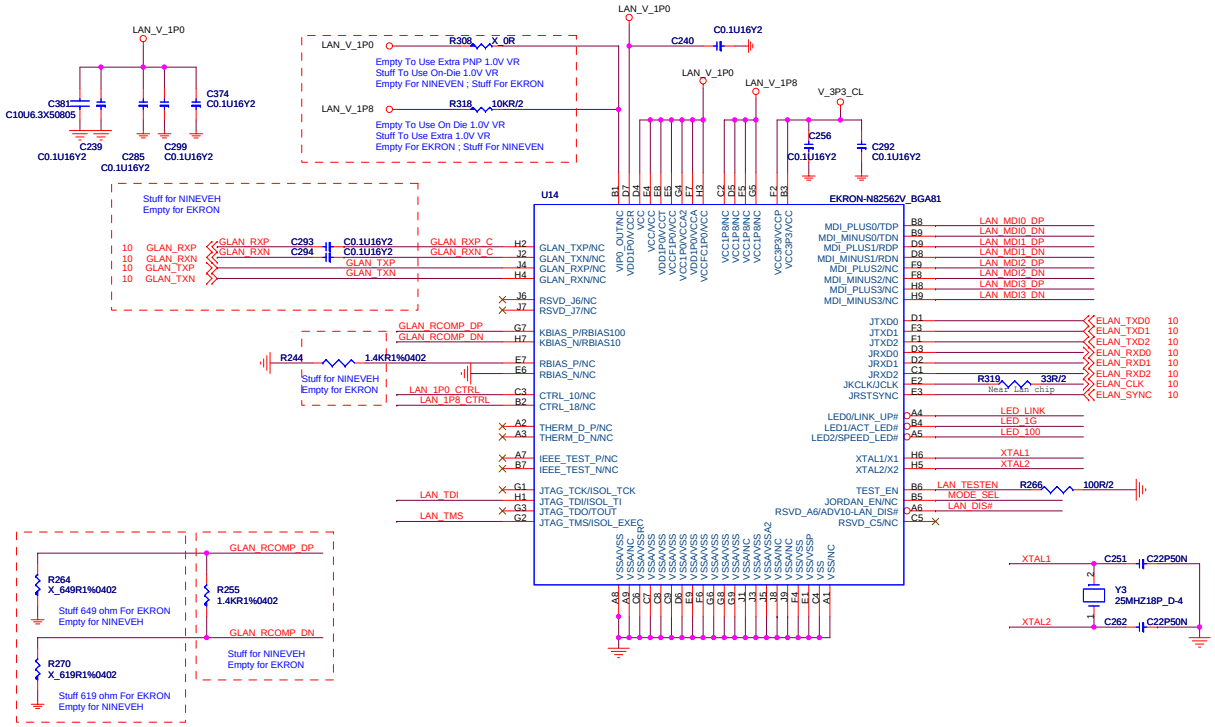
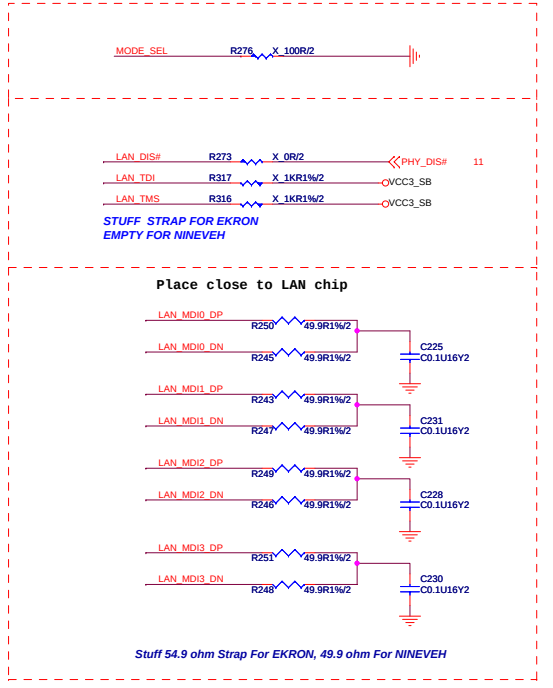
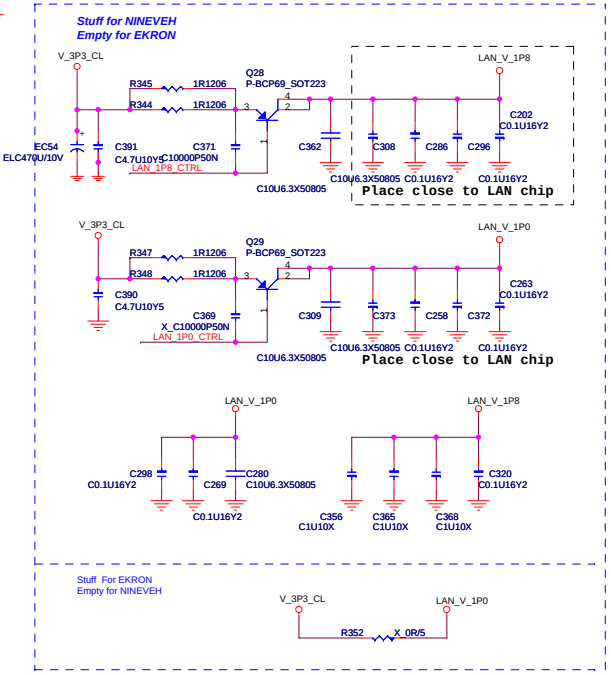
LAN - NINEVEH/EKRON







Intel 82556DM
For business desktop PCs.Support Intel AMT2 or ASF 2.0 alerting,Circuit Breaker,WoL,PXE,Multiport teaming,RSS,Intel Stable Image Platform Program drivers.
Intel 82556DC
For consumer desktop PC.Support Digital Home capabilities,WoL,PXE.
Intel 82562V
Basic 10/100 Ethernet connection.

B06-8256605-IY6
FOR NECP CONSIGN,CHIP LAN,INTEL/82566DM,,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE

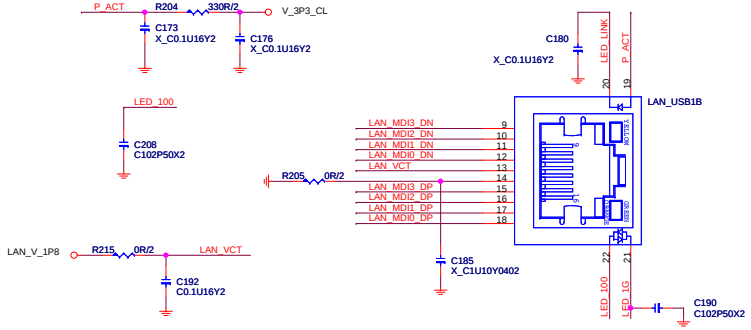
B06-8256615-I06
,CHIP LAN,INTEL/82566DC,,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE

B06-8256205-I06
,CHIP LAN,INTEL/82562V,,BGA-81pin,NINEVEH GIGA LAN CHIP(PHY),RoHS COMPLIANCE

Speed LED Type
1000Mbps : Orange
100Mbps : Green
10Mbps : LED off

YELLOW : For Active/Link

LAN CONNECTOR



ACT_LED	Link_LED
S0: LOW	S0: LOW
S1/S3/S4/S5: HIGH	S5: HIGH
	S1/S3/S4: WOL EN-->LOW WOL DIS-->HIGH

Giga-Lan	10/100-Lan
N58-22F0181-S42	**N58-22F0061-S42** **N58-22F0061-F02**
Link Yellow Active Blinking 1000 Orange 100 Green 10 None	Link Yellow Active Blinking 100 Green 10 None
19 20 Yellow	19 20 Yellow
21 Orange 22 Green	21 22 Green

MSI	**MICRO-STAR INT'L CO.,LTD**
	MS-7276
Size: Custom	Document Description: **LAN - NINEVEH/EKRON**
Rev: 20	
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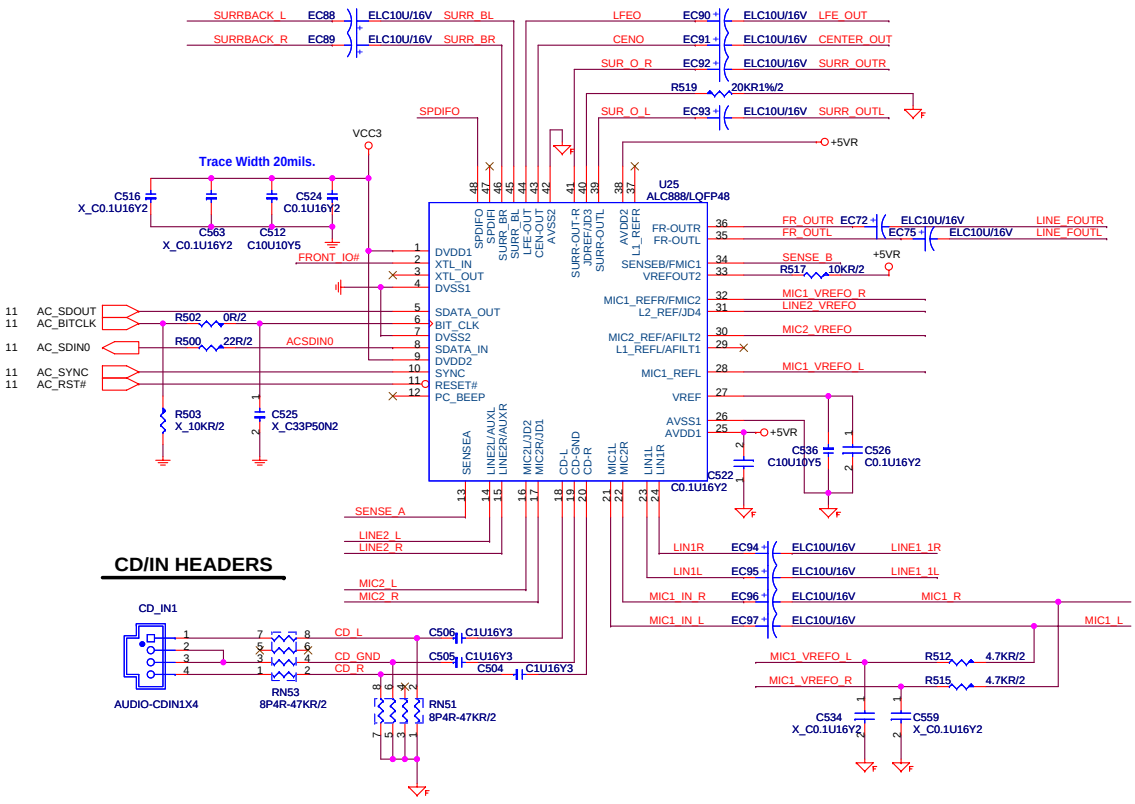
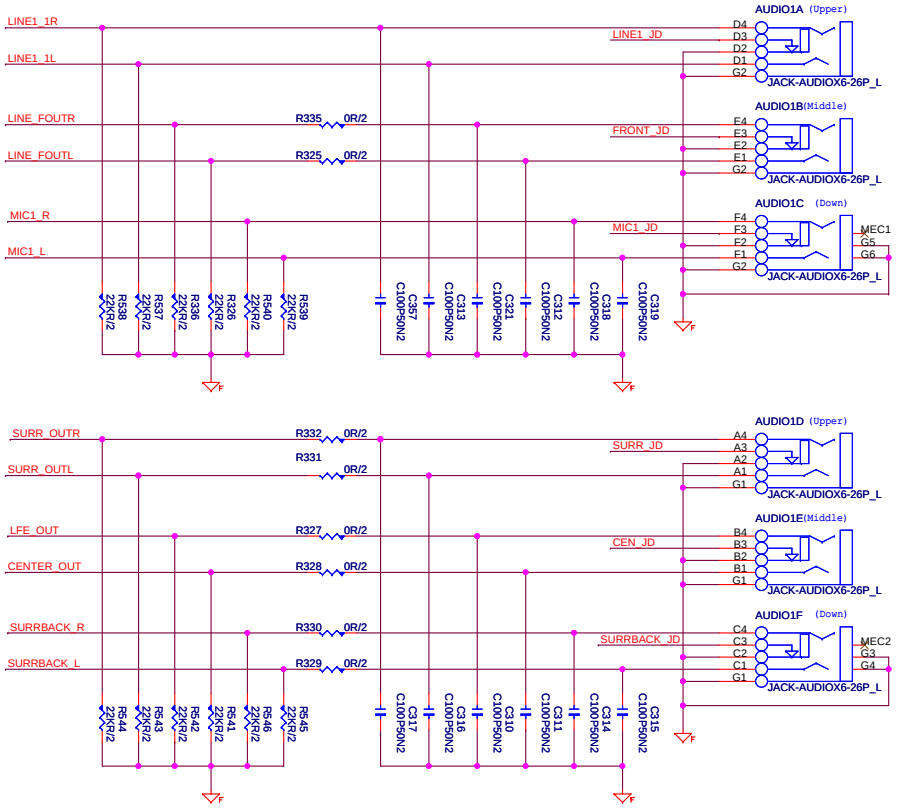
ALC888 CODEC

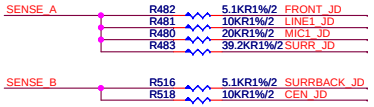


CD/IN HEADERS

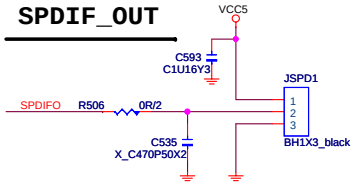
ALC883 JACK



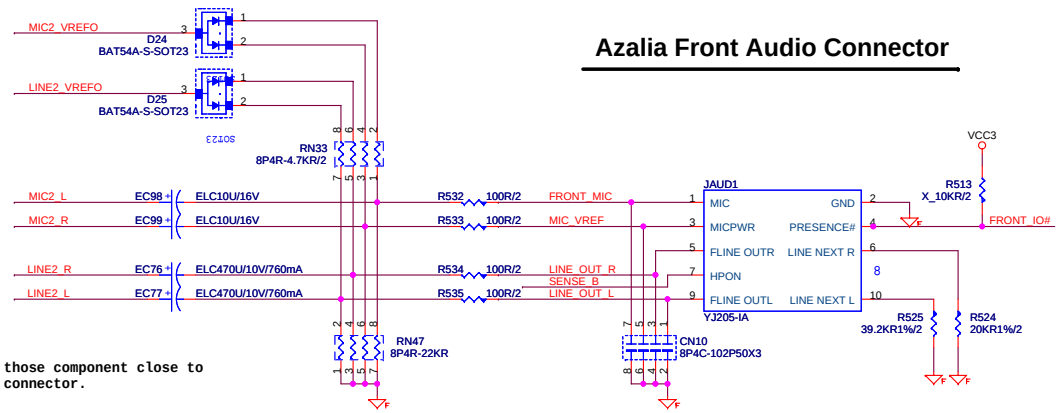
ALC883 JACK DETECT



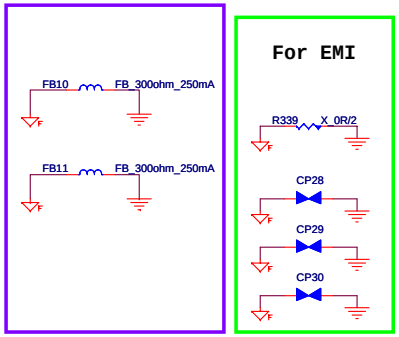
SPDIF_OUT



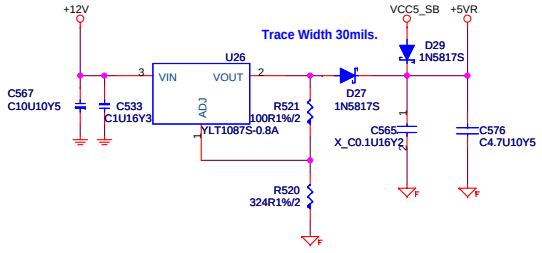
Azalia Front Audio Connector



Place those component close to audio connector.



AUDIO CODE REGULATORS



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7276	
Size: Custom	Document Description: Azalia CODEC(ALC888)	Rev: 20
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PCI EXPRESS 16-PORT

Trace width > 200 mils

PCIE1

PCIEX16CONN

*Reserved for hot plug support

PCI EXPRESS 1-PORT

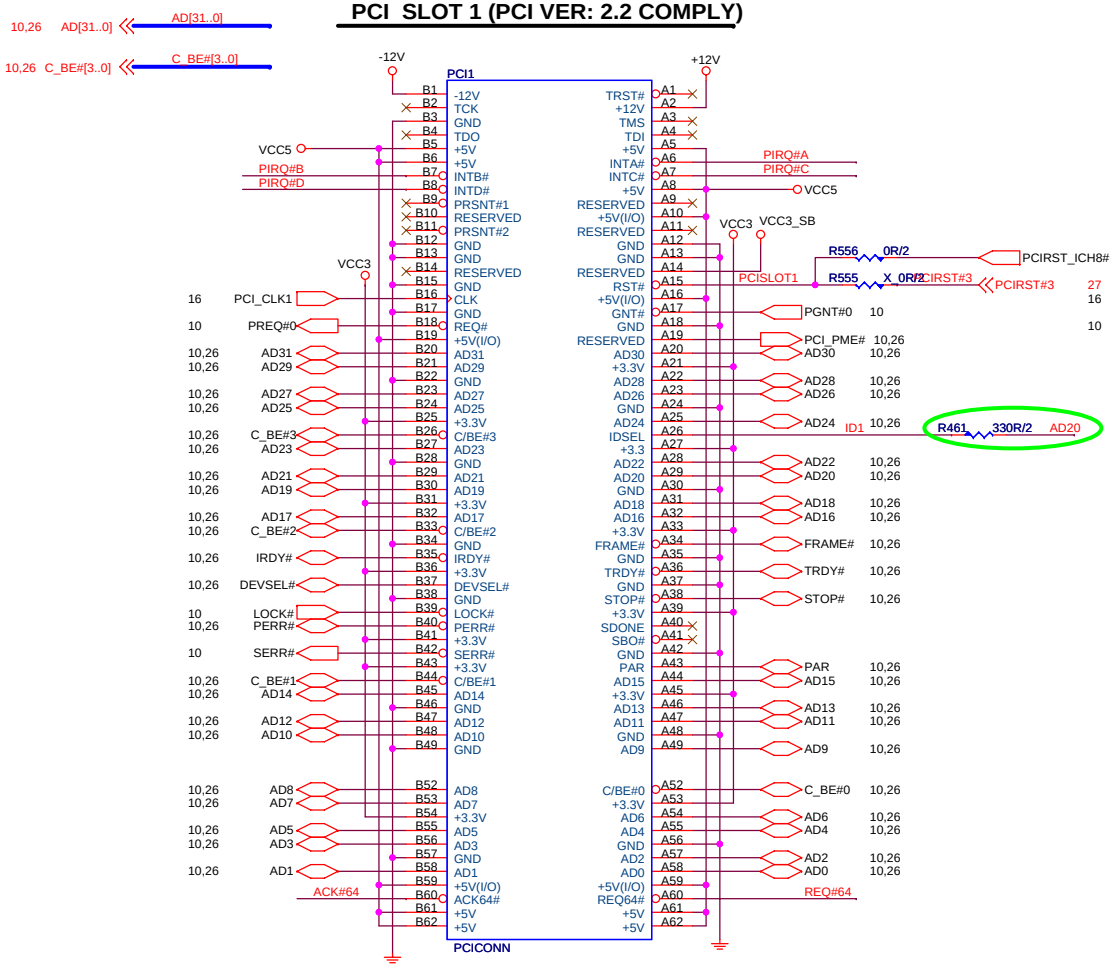
PCIE2

SLOT-PCI-E_white-1pitch

*Reserved for hot plug support

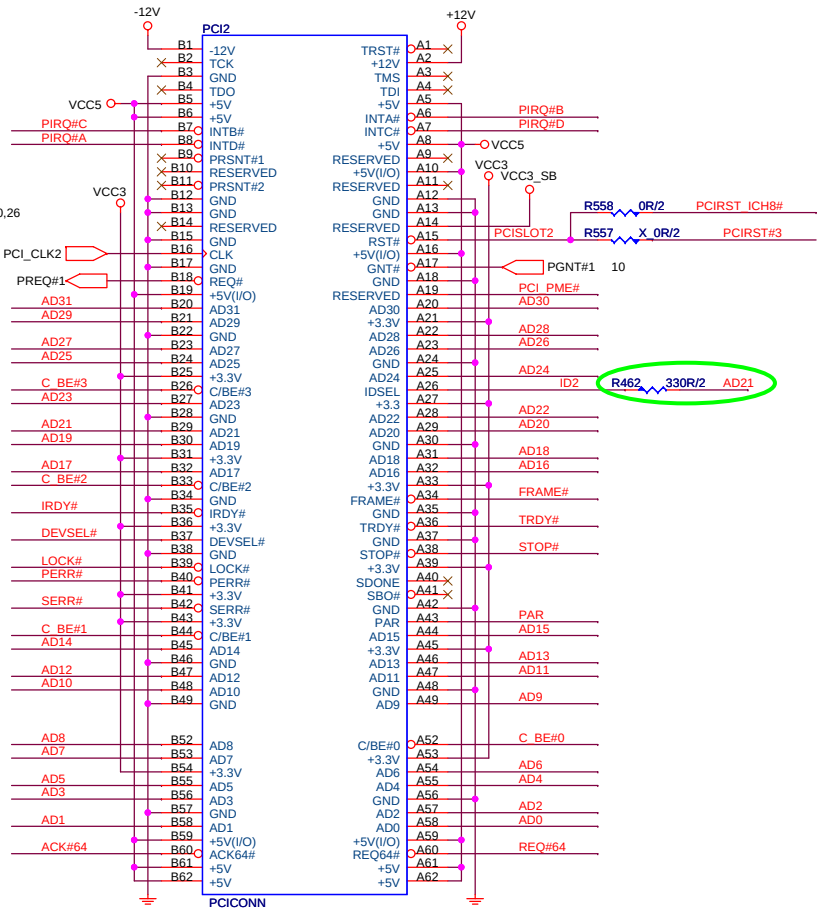
MICRO-STAR INT'L CO.,LTD	
MS-7276	
Size: Custom	Document Description: PCIE X16 & PCIE X1 Slot
Rev: 20	
Date: Tuesday, August 01, 2006	Sheet 22 of 36

PCI SLOT 1 (PCI VER: 2.2 COMPLY)



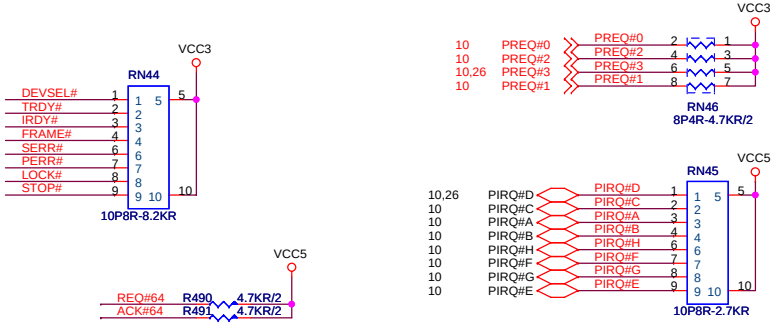
IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

PCI SLOT 2 (PCI VER: 2.2 COMPLY)

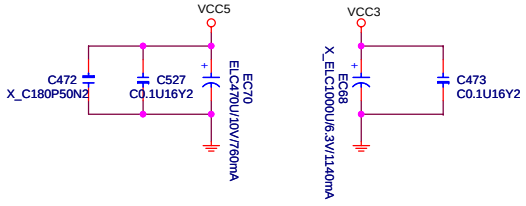


IDSEL = AD17
MASTER = PREQ#1
PIRQ#B

PCI PULL-UP / DOWN RESISTORS



PCI SLOT DECOUPLING CAPACITORS



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7276	
Size: Custom	Document Description: PCI Slot 1 & 2	Rev: 20
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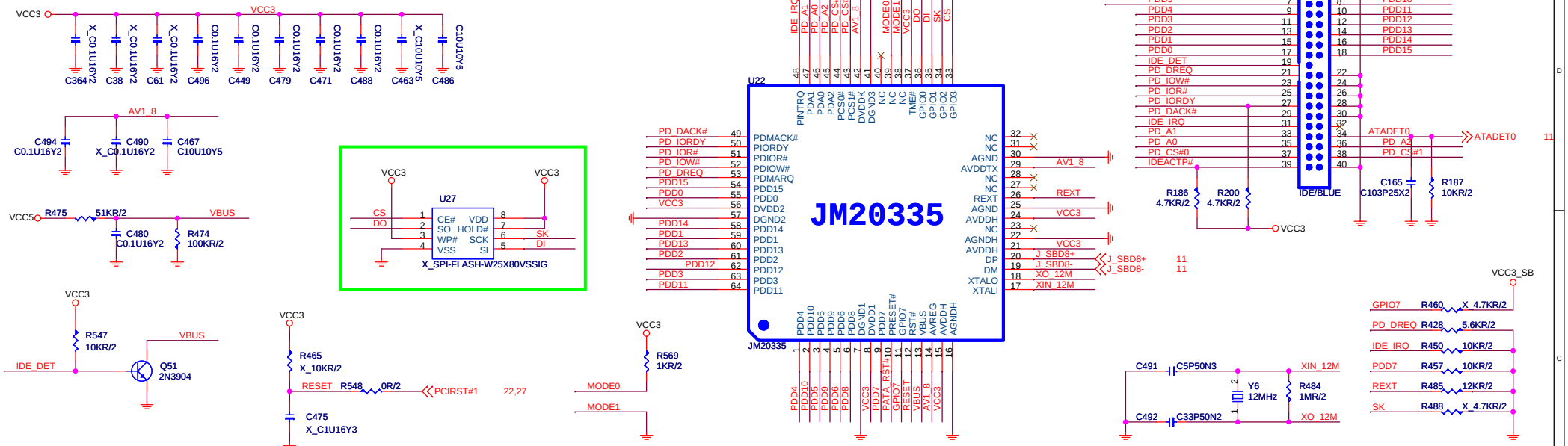
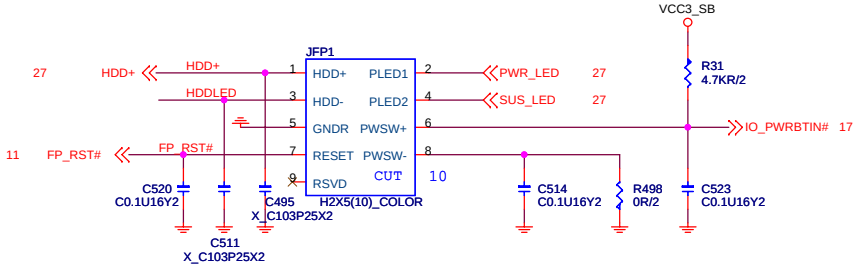
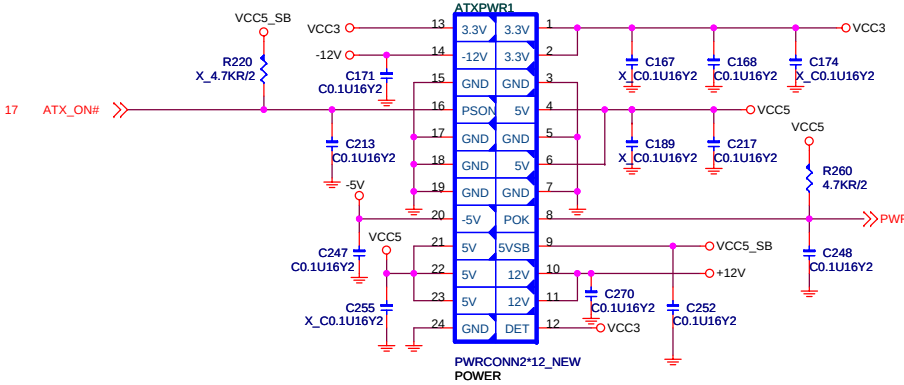
Hi-Speed USB to PATA Bridge



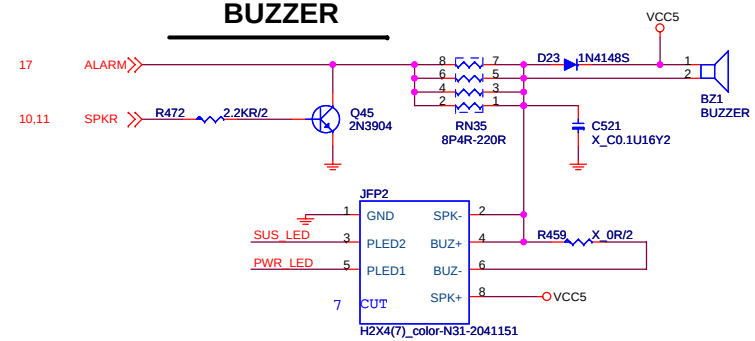
Front Panel



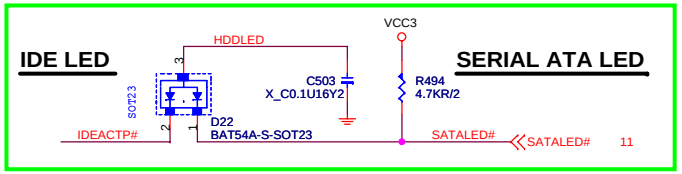
ATX CONNECTOR



BUZZER



IDE LED / SERIAL ATA LED



MICRO-STAR INT'L CO.,LTD	
MS-7276	
Size: Custom	Document Description: ATX, IDE Connector & F_Panel — Rev: 20
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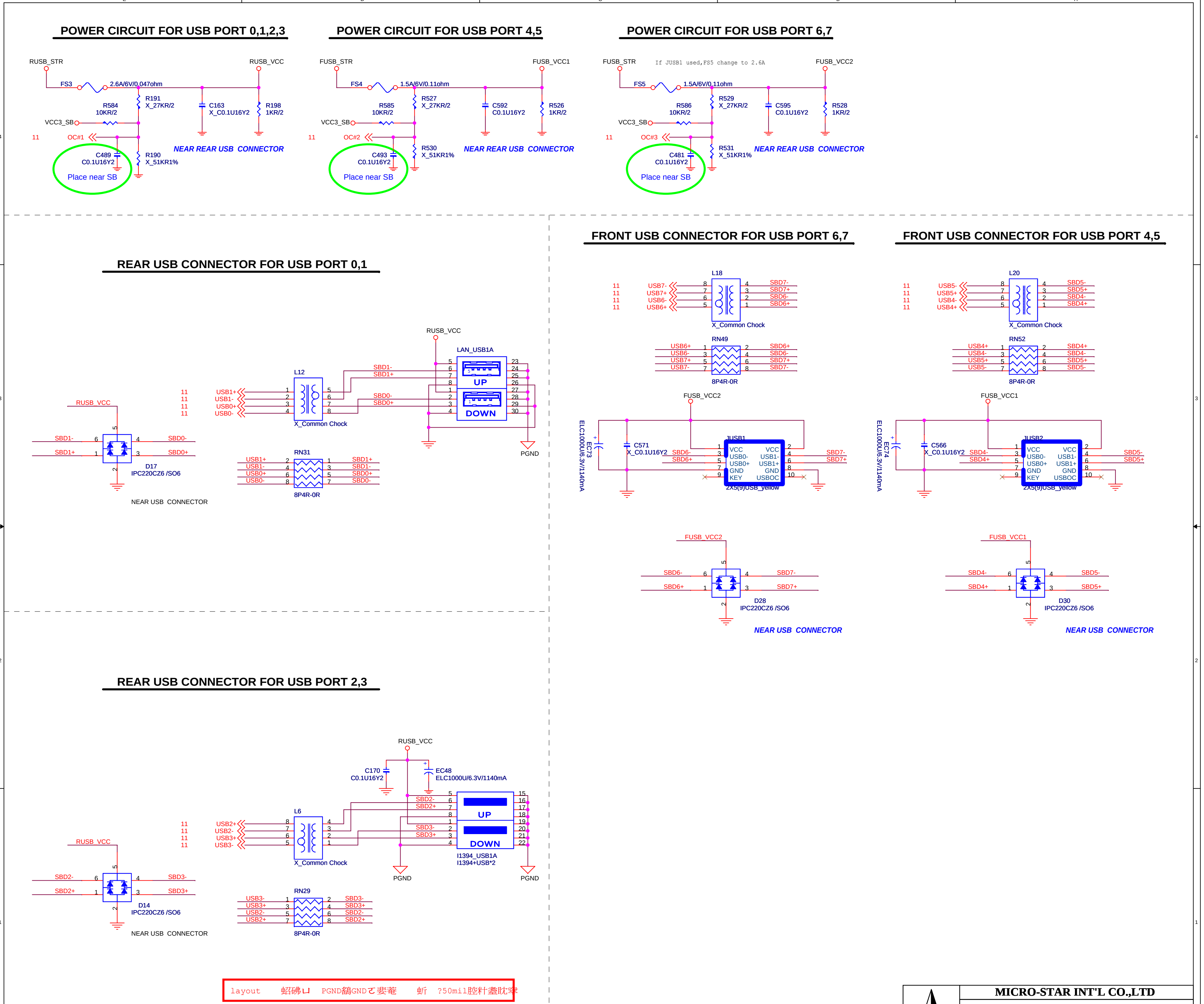
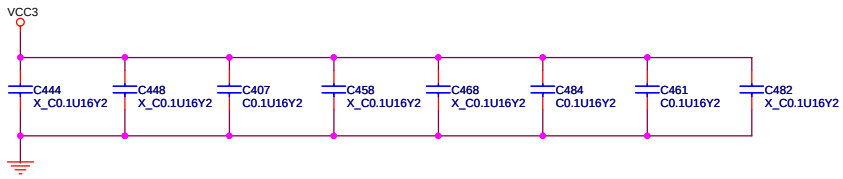
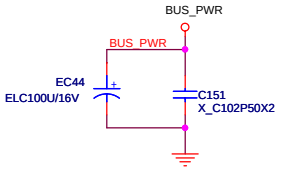
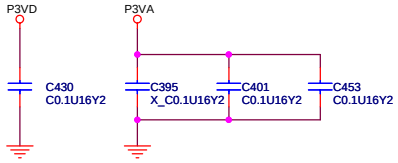


MICRO-STAR INT'L CO.,LTD		
MS-7276		
Size: Custom	Document Description: USB Connector	Rev: 20
Date: Tuesday, August 01, 2006	Sheet 25 of 36	

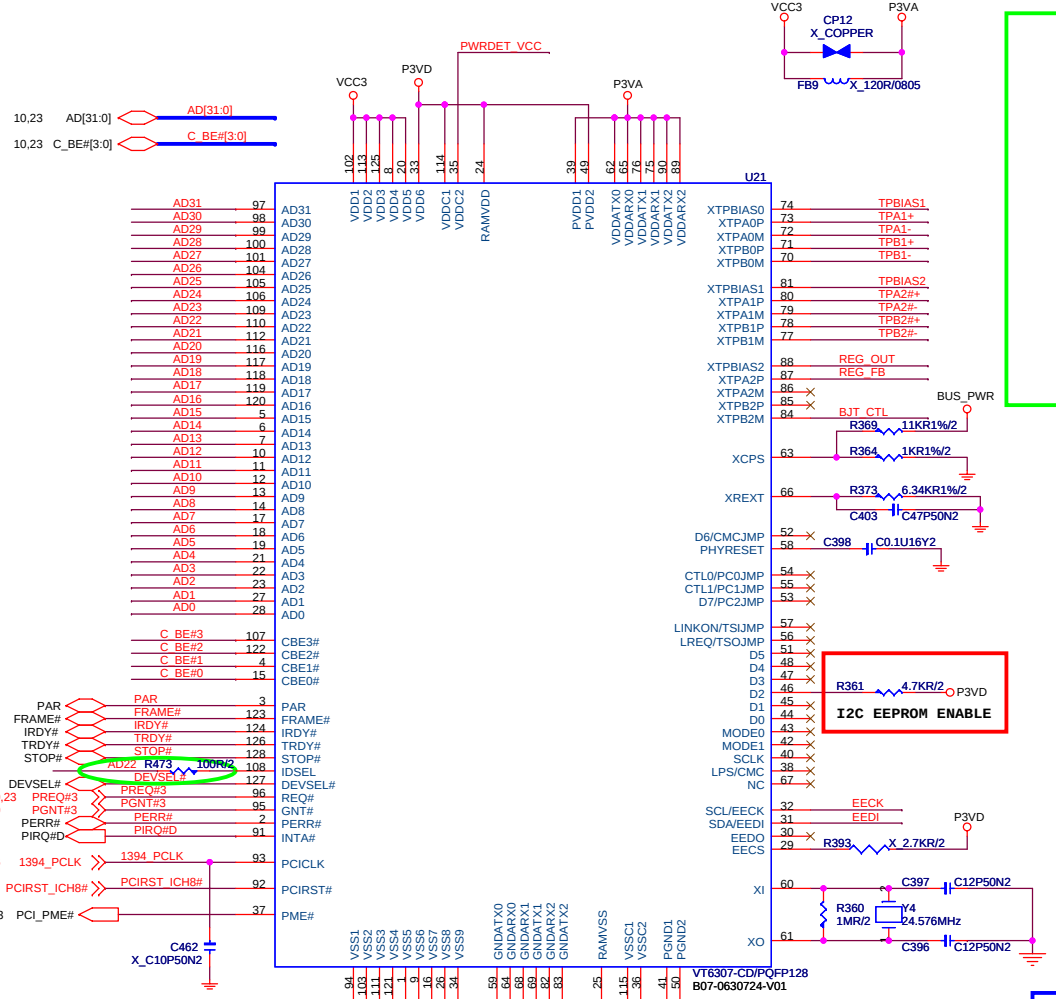
IEEE-1394



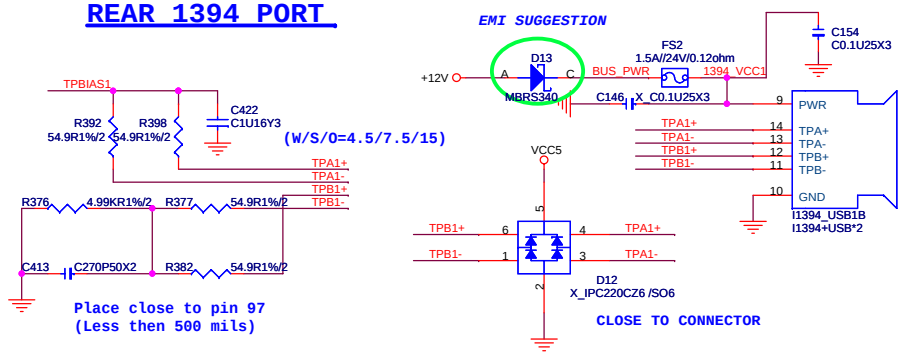




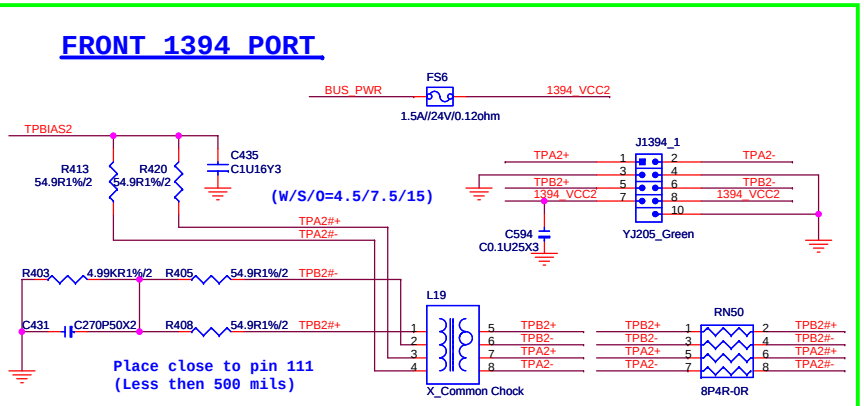
NEAR EACH POWER PIN

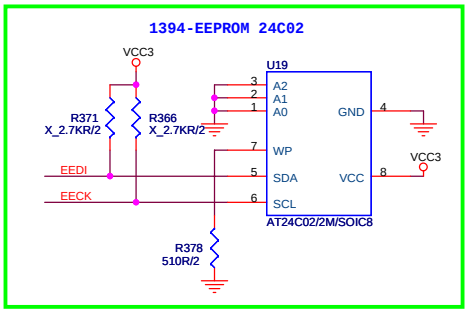


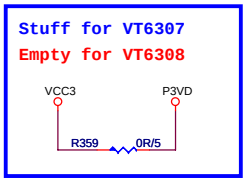
REAR 1394 PORT

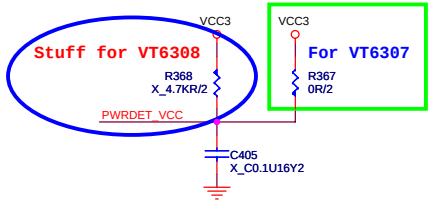


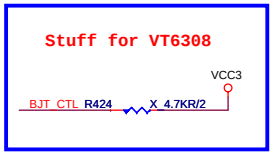
FRONT 1394 PORT

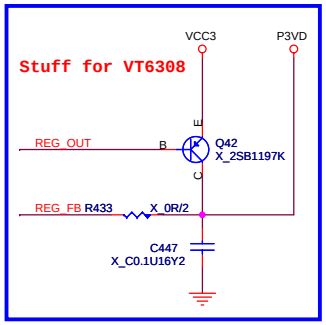












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Size: Custom	Document Description: IEEE-1394 VT6307 / 6308	Rev: 20
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ACPI Controller MS-7

VDIMM LINEAR OR PWM SELECT

VDIMM MODE	EXTRAM
LINEAR REGULATOR	PULL LOW
PWM REGULATOR	PULL HIGH

3VSB MODE SELECT

3VSB MODE	3VDLDEC#
SINGLE MOSFET	PULL HIGH
DUAL MOSFET	PULL LOW

DDR I & DDR II VOLT SELECT

DDRTYPE	VDIMM
PULL LOW	2.5V
PULL HIGH	1.8V

V_FSB_VTT 6.2A

Reserved for KENTSFIELD Processor.
(FSB1333, Quad-Core, Low Power)

THIS PIN IS OPEN DRAIN OUTPUT

Wide Trace

Close to MS11

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

5V DUAL Power 5A

FRONT USB — Q50 NN-P07D03LVG_SO8

REAR USB — Q23 NN-P07D03LVG_SO8

VCC3_SB Power

Q39 NN-P07D03LVG_SO8

5VDIMM

Q10 N-APM2054NDC_SOT89

Q12 P75N02LDG/TO252

V_1P25_CORE POWER...21.34A + 3.8A

*Short to V_1P25_CL if no iAMT support

Note:Iripple=Iout*[D/N-(D*D)]^0.5...D=Vout/Vin

Iripple=25*0.48=12A
(2.35*2)*1.7=7.99A<12A

DCR=1.68mohm

Layout Note:
1.Add more and more via at MS11's GND
2.All small signal shoule be referenced to GND

V_1P5_ICH...2A + 1.17A

V_1P05_ICH...1.17A

MICRO-STAR INT'L CO.,LTD		
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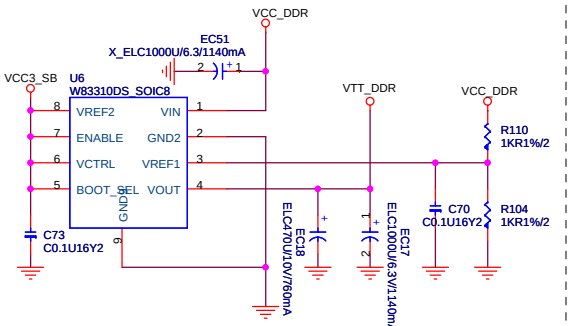
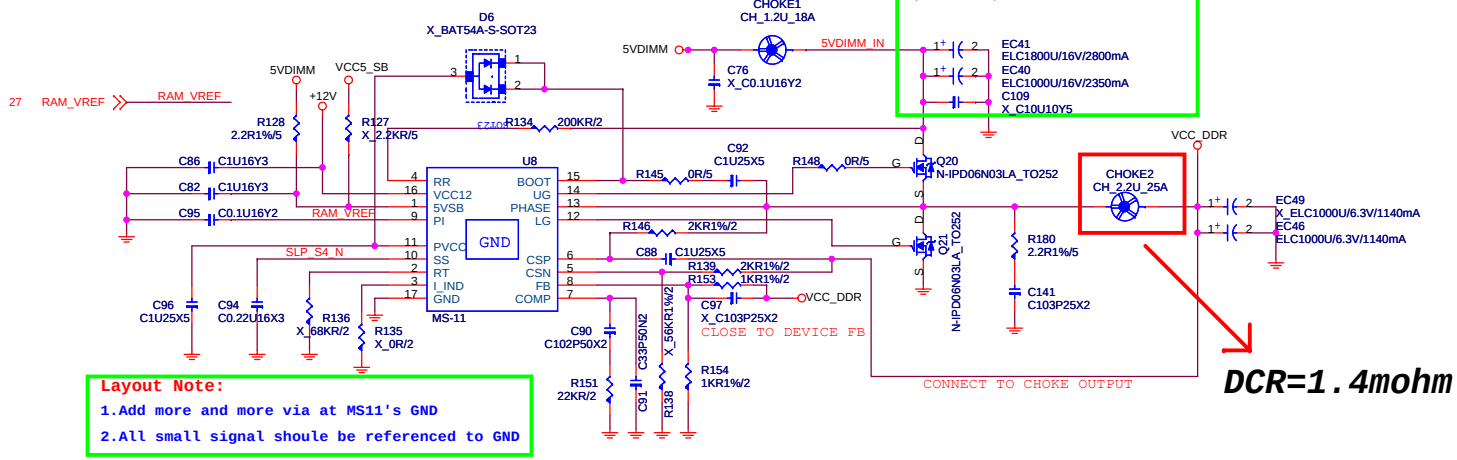
DDR II VTT POWER



DDR II 1.8V POWER...25A

Note:Iripple=Iout*[D/N-(D*D)]^0.5...D=Vout/Vin

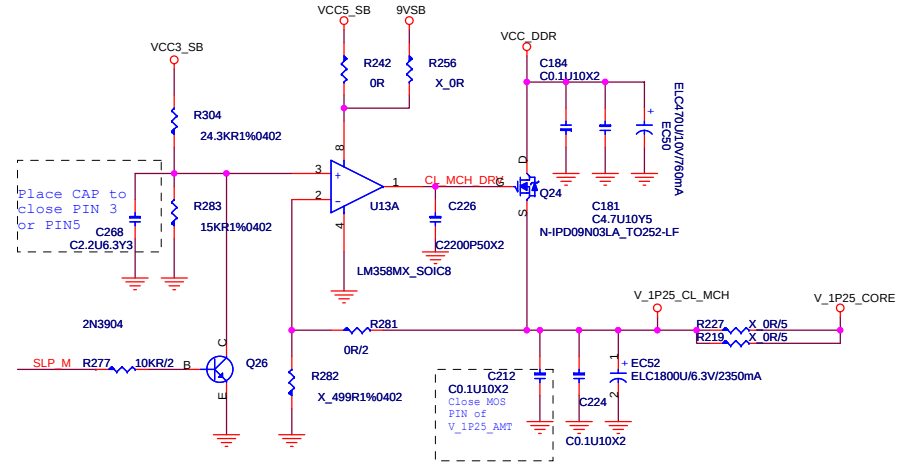
Iripple=25*0.48=12A
(2.8+2.35)*1.7=8.755A<12A

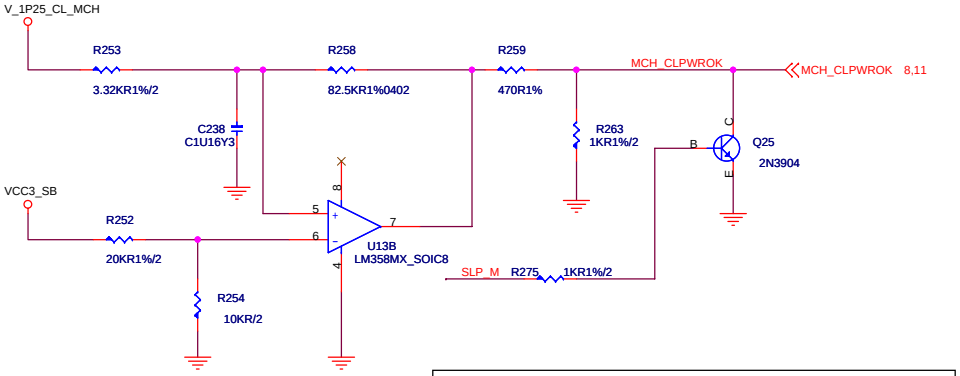


Layout Note:
1.Add more and more via at MS11's GND
2.All small signal shoule be referenced to GND

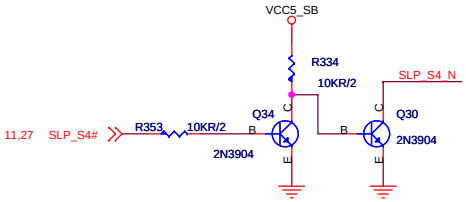
V_1P25_CL_MCH (3.8A)

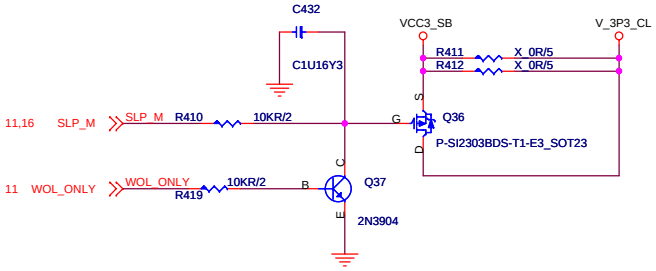
For AMT power





S4_SATE#
AMT Enable-->indication of ACPI S4 state
SLP_S4#
AMT Disable-->indicate ACPI S4 state,DRAM power off.
AMT Enable-->not be assered ACPI S4 state,DRAM power ON
AMT Enable SLP_M#-->Control the overall power to Intel
AMT during ACPI S3-S5.





MICRO-STAR INT'L CO.,LTD

MS-7276

Size	Document Description	Rev
Custom	MS7 ACPI Controller	20

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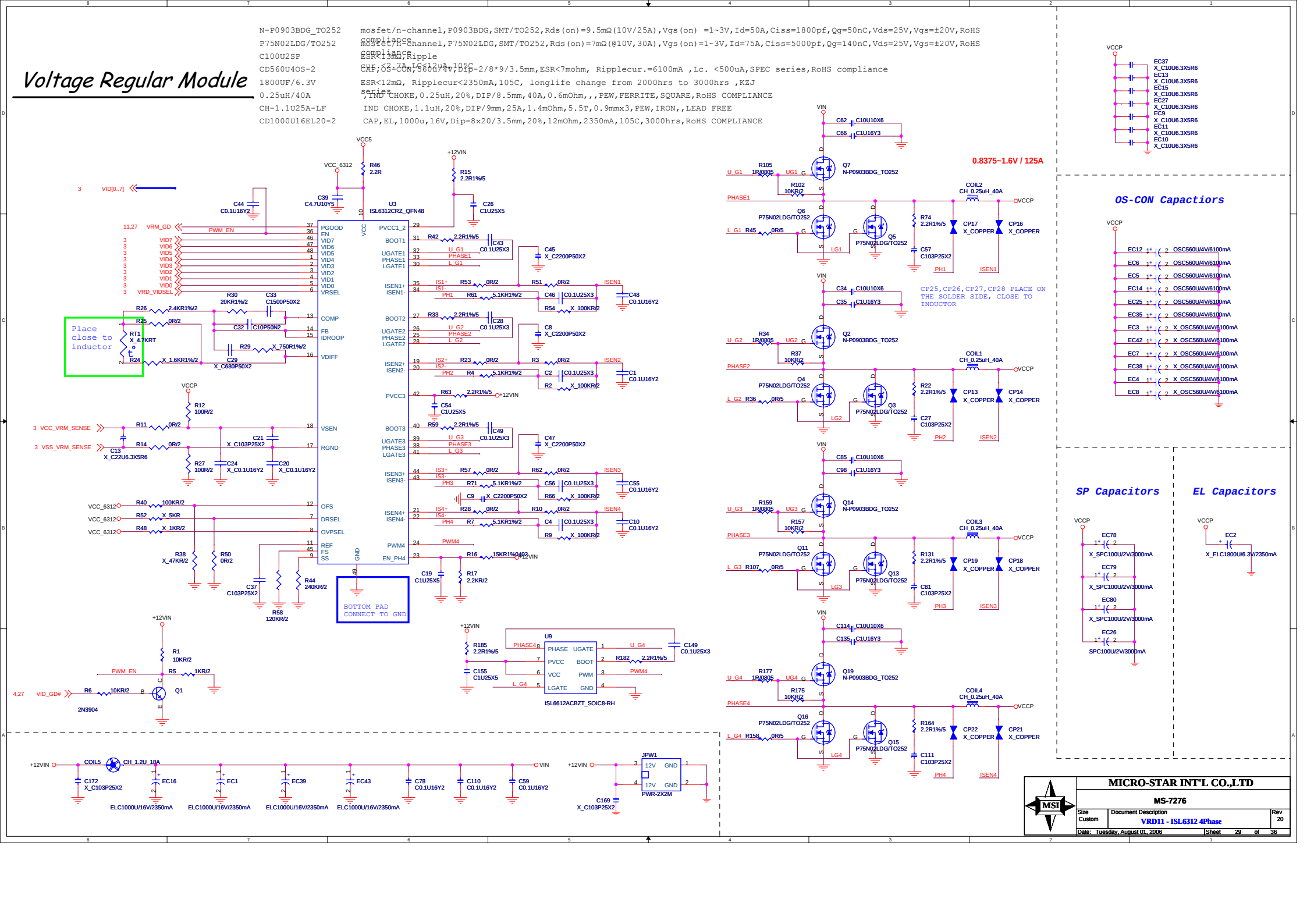
Voltage Regular Module

N-P0903BDG_TO252	mosfet/n-channel,P0903BDG,SMT/TO252,Rds(on)=9.5mΩ(10V/25A),Vgs(on) =1~3V,Id=50A,Ciss=1800pf,Qg=50nC,Vds=25V,Vgs=±20V,RoHS compliance
P75N02LDG/TO252	mosfet/n-channel,P75N02LDG,SMT/TO252,Rds(on)=7mΩ(@10V,30A),Vgs(on)=1~3V,Id=75A,Ciss=5000pf,Qg=140nC,Vds=25V,Vgs=±20V,RoHS compliance
C100U2SP	ESR<13mΩ,Ripple cur.>2.7A,Lc<12uA,105c
CD560U4OS-2	CAP,OS-CON,560U/4V,D10-2/8*9/3.5mm,ESR<7mohm, Ripplecur.=6100mA ,Lc. <500uA,SPEC series,RoHS compliance
1800UF/6.3V	ESR<12mΩ, Ripplecur<2350mA,105C, longlife change from 2000hrs to 3000hrs ,KZJ series
0.25uH/40A	,IND CHOKE,0.25uH,20%,DIP/8.5mm,40A,0.6mOhm,,,PEW,FERRITE,SQUARE,RoHS COMPLIANCE
CH-1.1U25A-LF	IND CHOKE,1.1uH,20%,DIP/9mm,25A,1.4mOhm,5.5T,0.9mmx3,PEW,IRON,,LEAD FREE
CD1000U16EL20-2	CAP,EL,1000u,16V,Dip-8x20/3.5mm,20%,12mOhm,2350mA,105C,3000hrs,RoHS COMPLIANCE



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MS-7276	
Size: Custom	Document Description: VRD11 - ISL6312 4Phase
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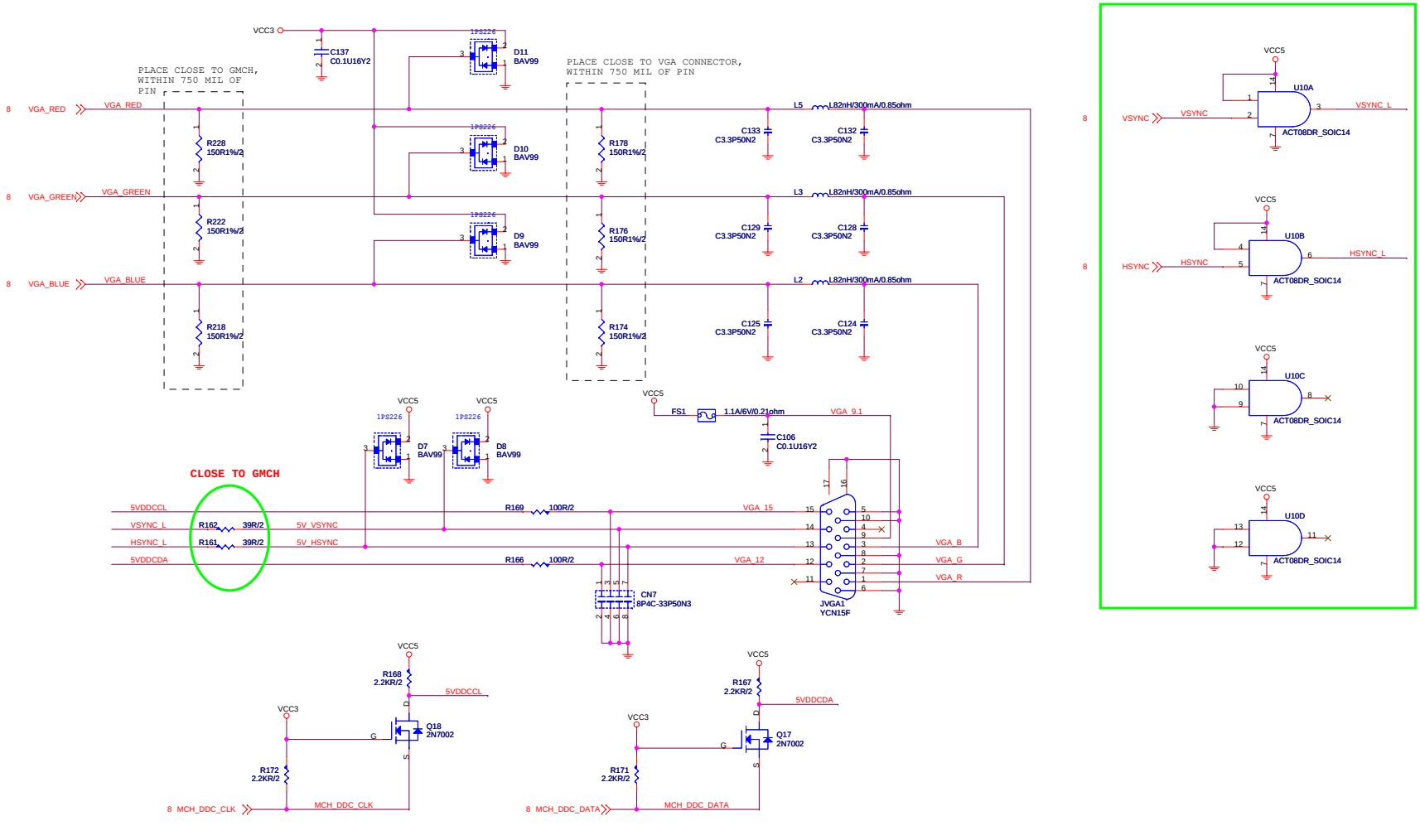
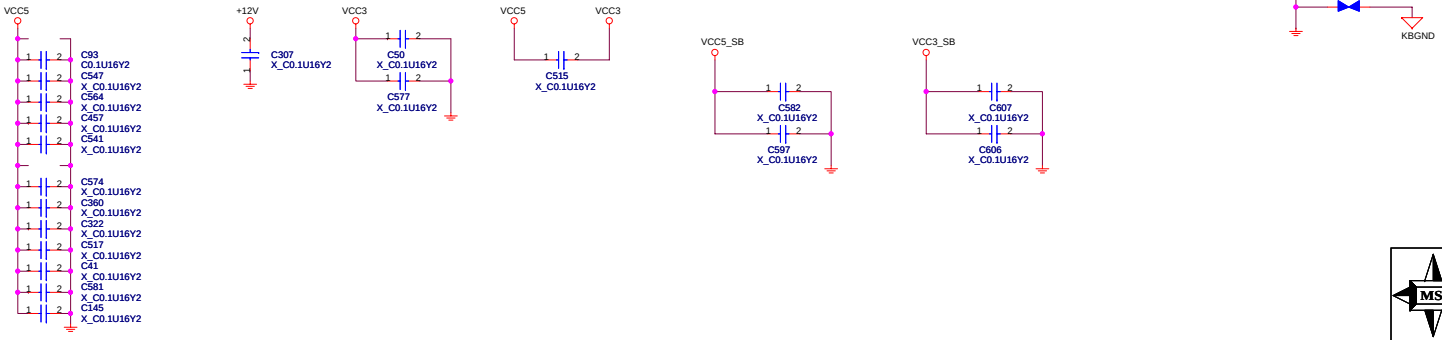
Video Connector



EMI Reserved



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Size: Custom	Document Description: VGA Connector	Rev: 20
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ICH8

GPIO	Alt Func	Pin	I/O/NC	Power	PU	SMI	Tol	Default	Signal Name
GPIO[0]	unmuxed		I/O	Core	Y	Y	3.3V	GPI	SIO_SMI#
GPIO[1]	TACH1		I/O	Core	Y	Y	3.3V	GPI	SFAN_TACH
GPIO[5:2]	PIRQ[H:E]#		I/OD	Core	Y	Y	5V	GPI	PIRQ#[H:E]
GPIO[7:6]	TACH[3:2]		I/O	Core	Y	Y	3.3V	GPI	GPIO_[7:6]
GPIO[8]	unmuxed		I/O	Resume	Y	Y	3.3V	GPI	SIO_PME#
GPIO[9]	WOL_EN		I/O	Resume	Y	Y	3.3V	Native	GPIO_9
GPIO[10]	CLGPIO1		I/O	Resume	Y	Y	3.3V	GPI	GPIO_10
GPIO[11]	SMBALERT#		I/O	Resume	Y	Y	3.3V	Native	SMB_ALERT#
GPIO[12]	unmuxed		I/O	Resume	Y	Y	3.3V	GPI	ATADET0
GPIO[13]	unmuxed		I/O	Resume	Y	Y	3.3V	GPI	CLEAR_CMOS#
GPIO[14]	CLGPIO2		I/O	Resume	Y	Y	3.3V	GPI	GPIO_14
GPIO[15]	unmuxed		I/O	Resume			3.3V	GPO	
GPIO[16]	unmuxed		I/O	Core			3.3V	GPO	
GPIO[17]	TACH0		I/O	Core	Y		3.3V	GPI	CFAN_TACH
GPIO[18]	unmuxed		I/O	Core			3.3V	GPO	
GPIO[19]	SATA1GP		I/O	Core	Y		3.3V	GPI	GPIO_19
GPIO[20]	unmuxed		I/O	Core			3.3V	GPO	
GPIO[21]	SATA0GP		I/O	Core	Y		3.3V	GPI	GPIO_21
GPIO[22]	SCLOCK		I/O	Core	Y		3.3V	GPI	GPIO_22
GPIO[23]	LDRQ1#		I/O	Core	Y		3.3V	Native	LDRQ_1#
GPIO[24]	CLGPIO0		I/O	Resume			3.3V	GPO	
GPIO[25]	unmuxed		I/O	Resume			3.3V	Native	FRONT_IO#
GPIO[26]	S4_STATE#		I/O	Resume			3.3V	GPO	
GPIO[27]	EL_STATE0		I/O	Resume			3.3V	GPO	
GPIO[28]	EL_STATE1		I/O	Resume			3.3V	GPO	
GPIO[29]	OC5#		I/O	Resume	Y		3.3V	Native	OC#2
GPIO[30]	OC6#		I/O	Resume	Y		3.3V	Native	OC#3
GPIO[31]	OC7#		I/O	Resume	Y		3.3V	Native	OC#3
GPIO[32]	unmuxed		I/O	Core			3.3V	GPO	SPI_WP#
GPIO[33]	unmuxed		I/O	Core			3.3V	GPO	SPI_HOLD_GPO#
GPIO[34]	unmuxed		I/O	Core			3.3V	GPO	
GPIO[35]	SATACLKREQ#		I/O	Core			3.3V	GPO	
GPIO[36]	SATA2GP		I/O	Core	Y		3.3V	GPI	GPIO_36
GPIO[37]	SATA3GP		I/O	Core	Y		3.3V	GPI	GPIO_37
GPIO[38]	SLOAD		I/O	Core	Y		3.3V	GPI	GPIO_38
GPIO[39]	SDATAOUT0		I/O	Core	Y		3.3V	GPI	GPIO_39
GPIO[43:40]	OC[4:1]#		I/O	Resume	Y		3.3V	Native	OC#1;OC#2
GPIO[47:44]	NA		NA	NA			NA	NA	Not implemented
GPIO[48]	SDATAOUT1		I/O	Core	Y		3.3V	GPI	GPIO_48
GPIO[49]	CPUPWRGD		I/O	V_CPU_IO			CPU	Native	H_PWRGD
GPIO[50]	REQ1#		I/O	Core	Y		5.5V	Native	PREQ#1
GPIO[51]	GNT1#		I/O	Core			3.3V	Native	PGNT#1
GPIO[52]	REQ2#		I/O	Core	Y		5.5V	Native	PREQ#2
GPIO[53]	GNT2#		I/O	Core			3.3V	Native	PGNT#2
GPIO[54]	REQ3#		I/O	Core	Y		5.5V	Native	PREQ#3
GPIO[55]	GNT3#		I/O	Core			3.3V	Native	PGNT#3

PCI Config.

DEVICE	MCP1 INT Pin	REQ#/GNT#	IDSEL	CLOCK
PCI Slot 1	PIRQ#A PIRQ#B PIRQ#C PIRQ#D	PREQ#0 PGNT#0	AD20	PCI_CLK1
PCI Slot 2	PIRQ#B PIRQ#C PIRQ#D PIRQ#A	PREQ#1 PGNT#1	AD21	PCI_CLK2
1394	PIRQ#D	PREQ#3 PGNT#3	AD22	1394_PCLK

PCI RESET DEVICE

Signals	Target
PCIRST#1	PCI_E X16 & PCI_E X1
PCIRST#2	SIO, 1394, FWH, TPM
PCIRST#3	PCI SLOT1&2,
PCIRST_ICH8#	MS7
HD_RST#	Primary IDE

DDRII DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 1	A0H	MCLK_A0/MCLK_A#0 MCLK_A1/MCLK_A#1 MCLK_A2/MCLK_A#2
DIMM 2	A1H	MCLK_A3/MCLK_A#3 MCLK_A4/MCLK_A#4 MCLK_A5/MCLK_A#5
DIMM 3	A2H	MCLK_B0/MCLK_B#0 MCLK_B1/MCLK_B#1 MCLK_B2/MCLK_B#2
DIMM 4	A3H	MCLK_B3/MCLK_B#3 MCLK_B4/MCLK_B#4 MCLK_B5/MCLK_B#5

JUMPER SETTING

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

0A modify 10 change list

1. Add R536 for SLP_M
2. Q30.C connect to U8.10
3. change VTT_DDR drived from VCC_DDR
4. modify ALC883 circuit to meet the Vista "premium" SPEC
5. 1394 circuit modify, change net name from "VDD" to "P3VD" (page 26)
4. modify ALC883 circuit to meet the Vista "premium" SPEC
5. modify JM20335 circuit (page 24)
6. modify SMBLINK and SMBCLK/DATA circuit (page 11)
7. add C469 C539 for margin (page 12)
8. add R564 and R563 for ICS (page 16)
9. CPU FAN mornitor from AUXFANOUT change to CPUFANOUT1 (page 17)
10. add R566 and R567 for JM20335 (page 25)
11. modify V_FSB_VTT circuit (page 27)
12. change R51 R3 R62 R10 to 0ohm for power team solution (page 29)
13. modify V_1P5_ICH circuit from Vcc3 change to VCC_DDR (page 27)
14. Add Q54 and Q53 for S3 sequence (page 27)
15. reserve R522 R523 R575 R576 蘚滅欄砑?霜 (page 27)
16. add R578 R579 R580 R581 R582 R583 for 48M and 14M pull high and pull down (page 16)
17. Add C606 C607 for EMI (page 30)
18. Add R584 R585 R586 for option USB OC# function (page 25)
19. change C369 and C371 footprint to 0805 (page 20)

10 modify 20 change list

1. Add C608, C609, C610, C611 for ESD. (Page 10)
2. Add FB10, FB11 for passing Vista premium. (Page 21)
3. Delete JUSB3 circuit. (Page 25)

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