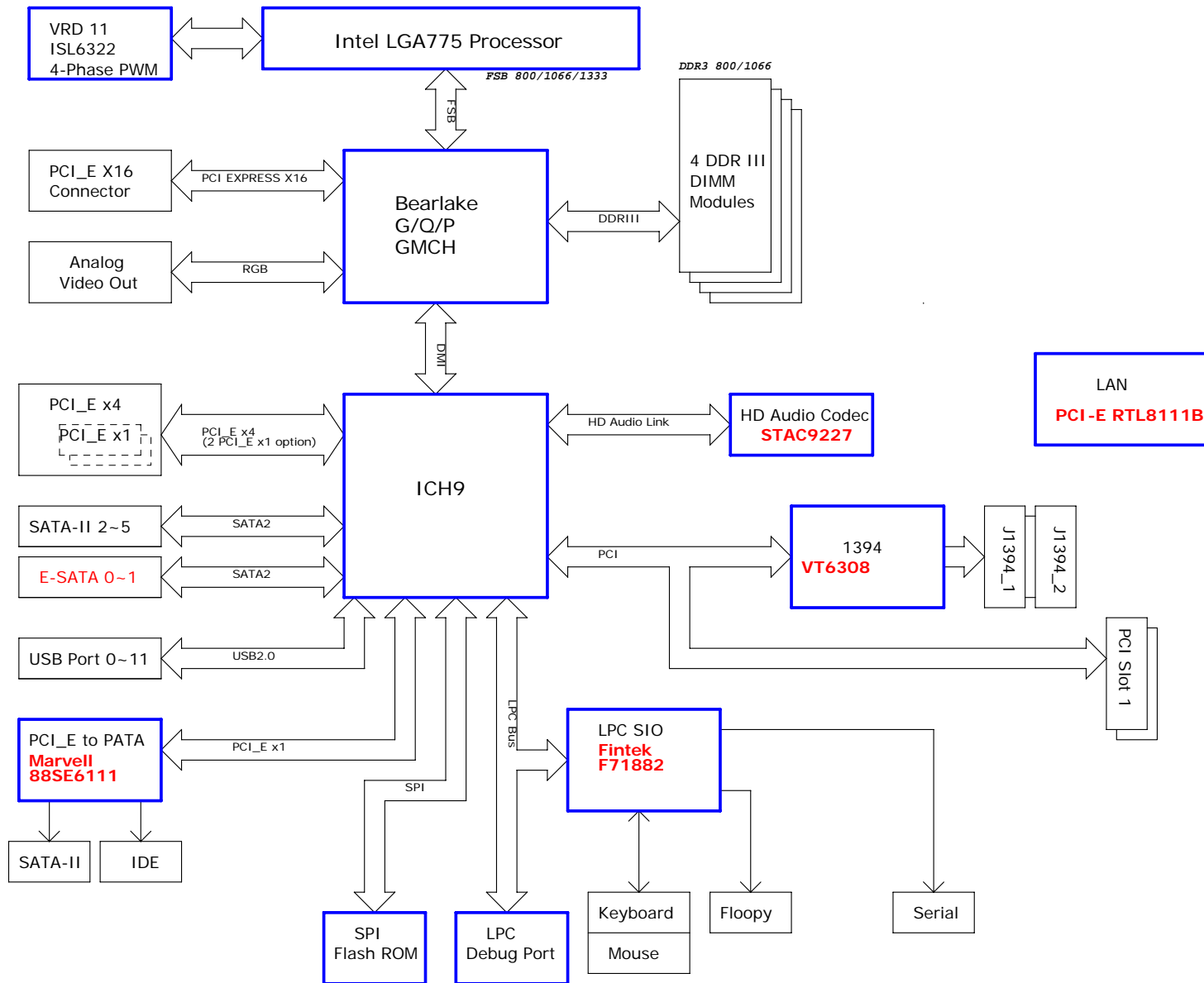
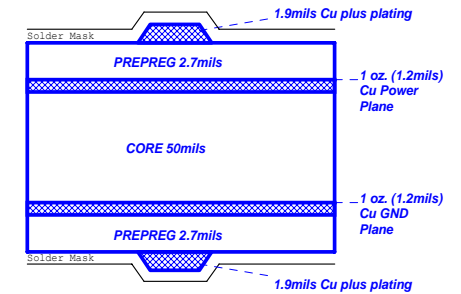


Block Diagram

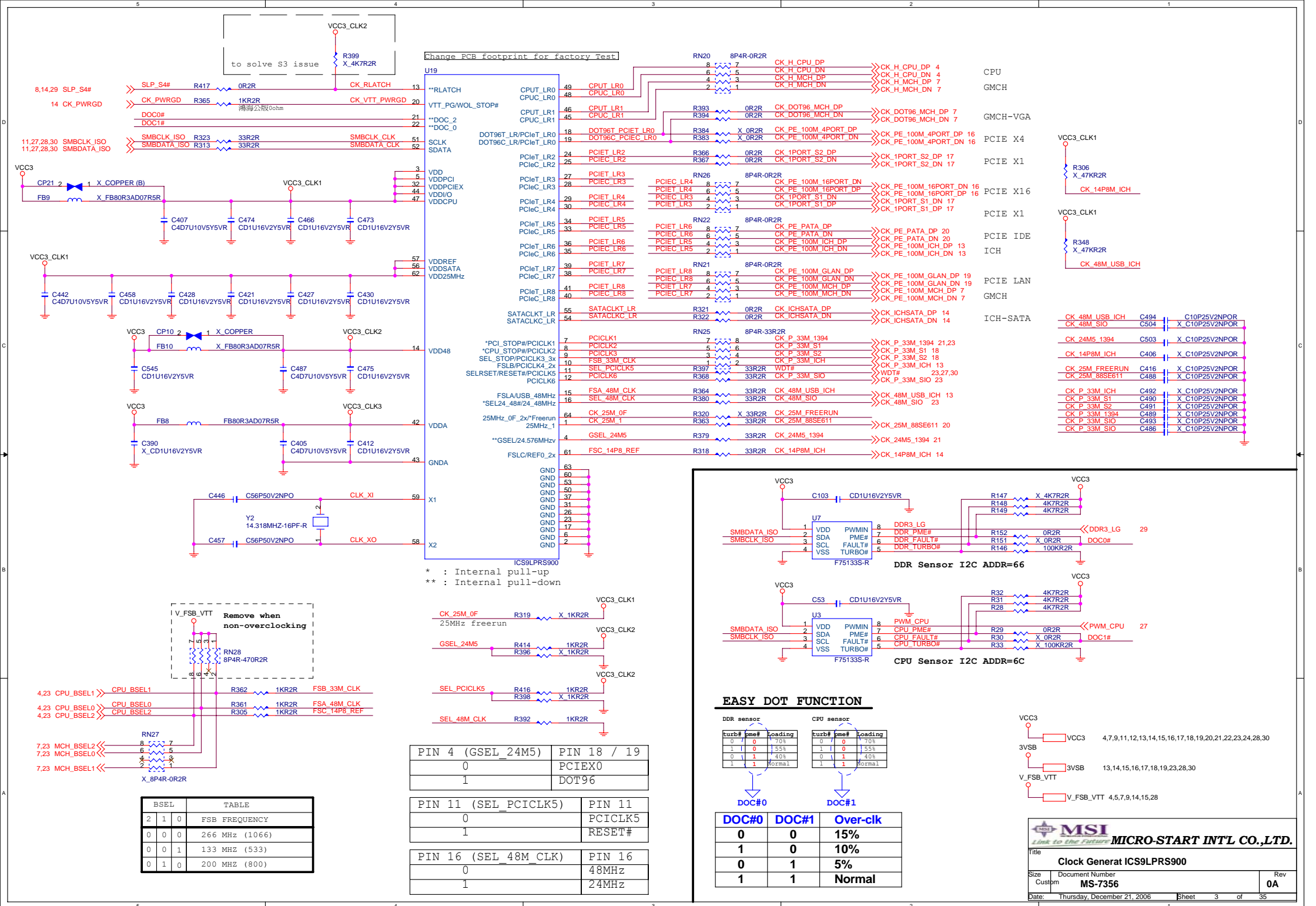


Board Stack-up

(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



CPU SIGNAL BLOCK

7 H_A# [3..35] << H_A# [3..35]
 MCERR# Chipset does not support this signal
 BINIT# Chipset does not support this signal

7 H_DB# [0..3] << H_DB# [0..3]

5 H_IERR# << H_IERR#
 14 H_FERR# << H_FERR#
 14 H_STPCLK# << H_STPCLK#
 14 H_INIT# << H_INIT#
 7 H_DBSY# << H_DBSY#
 7 H_DRDY# << H_DRDY#
 7 H_TRDY# << H_TRDY#
 7 H_ADS# << H_ADS#
 7 H_LOCK# << H_LOCK#
 7 H_BNR# << H_BNR#
 7 H_HIT# << H_HIT#
 7 H_HITM# << H_HITM#
 7 H_BPR# << H_BPR#
 7 H_DEFER# << H_DEFER#

14,23 PECI << PECI
 23 VTI# << VTI#
 14 GNDHM << GNDHM
 14 H_TRMTRIP# << H_TRMTRIP#
 23 SKTOCC# << SKTOCC#
 14 H_PROCHOT# << H_PROCHOT#
 14 H_IGNNE# << H_IGNNE#
 14 ICH_H_SMI# << ICH_H_SMI#
 14 H_A20M# << H_A20M#

VTT_OUT_LEFT
 R129 51R2FR
 C100 CD1U16V2Y5VR
 BOOTSELECT 51ohm

3,23 CPU_BSEL0 << CPU_BSEL0
 3,23 CPU_BSEL1 << CPU_BSEL1
 3,23 CPU_BSEL2 << CPU_BSEL2
 5,14 H_PWRGD << H_PWRGD
 5,7 H_CPURST# << H_CPURST#

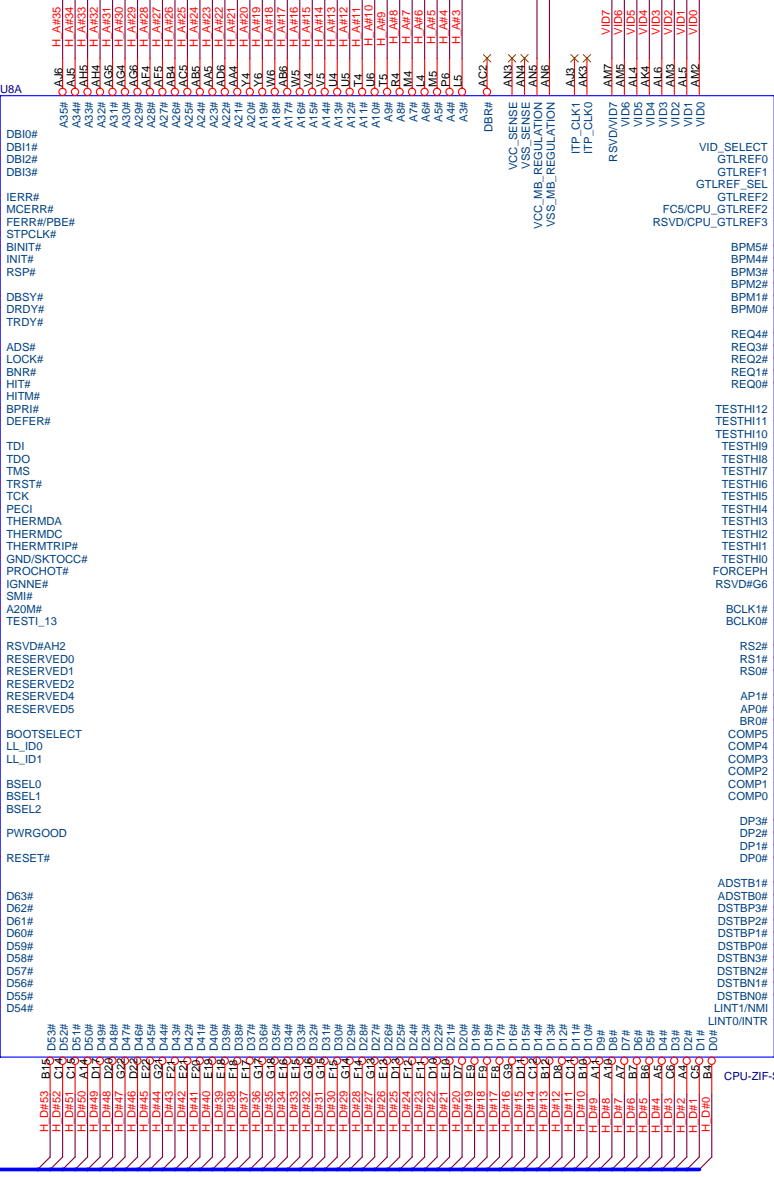
H_D#63 << D#63
 H_D#62 << D#62
 H_D#61 << D#61
 H_D#60 << D#60
 H_D#59 << D#59
 H_D#58 << D#58
 H_D#57 << D#57
 H_D#56 << D#56
 H_D#55 << D#55
 H_D#54 << D#54

7 H_D# [0..63] << H_D# [0..63]

for Kentsfield
 6 H_BPM#0_G1 << H_BPM#0_G1
 H_BPM#1_C9 << H_BPM#1_C9
 H_TESTHI8 << H_TESTHI8
 H_TESTHI9 << H_TESTHI9
 H_TESTHI10 << H_TESTHI10
 H_TESTHI11 << H_TESTHI11
 H_TESTHI12 << H_TESTHI12

V_FSB_VTT
 V_FSB_VTT 3,5,7,9,14,15,28
 VCC3 3,7,9,11,12,13,14,15,16,17,18,19,20,21,22,23,24,28,30

VTT_OUT_LEFT
 VTT_OUT_LEFT 5
 VTT_OUT_RIGHT
 VTT_OUT_RIGHT 5,6,27



VID_SELECT
 GTLREF0
 GTLREF1
 GTLREF2
 GTLREF3
 FC5/CPU_GTLREF2
 RSVD/CPU_GTLREF3
 AN7 VRO_VIDSEL
 H2 CPU_GTLREF0
 H29 GTLREF_SEL
 E24 CPU_MCH_GTLREF
 F2 CPU_GTLREF2
 G10 CPU_GTLREF3
 Pull 1k 1K VTT_OUT_RIGHT on PWM

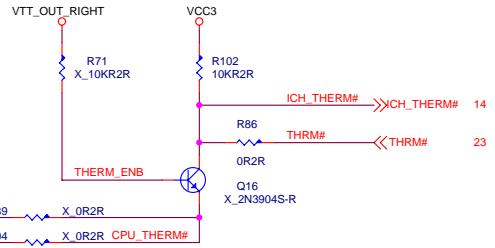
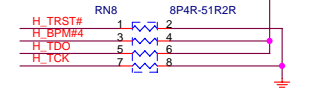
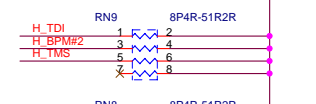
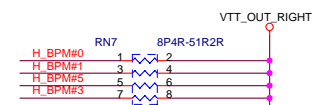
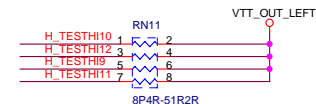
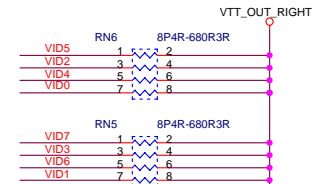
BPM5#
 BPM4#
 BPM3#
 BPM2#
 BPM1#
 BPM0#
 REQ4#
 REQ3#
 REQ2#
 REQ1#
 REQ0#
 H_REQ# [0..4]
 H_REQ# [0..4] 7

TESTHI12
 TESTHI11
 TESTHI10
 TESTHI9
 TESTHI8
 TESTHI7
 TESTHI6
 TESTHI5
 TESTHI4
 TESTHI3
 TESTHI2
 TESTHI1
 TESTHI0
 FORCEPH
 RSVD/G6
 W2 H_TESTHI12
 P1 H_TESTHI11
 H5 H_TESTHI10
 G4 H_TESTHI9
 G3 H_TESTHI8
 F24
 G24
 G22
 G25
 F25 H_TESTHI2_7
 W13 H_TESTHI0
 R171 51R2FR
 R115 51R2FR
 R169 51R2FR
 R91 X 130R2FR
 R142 X 51R2FR

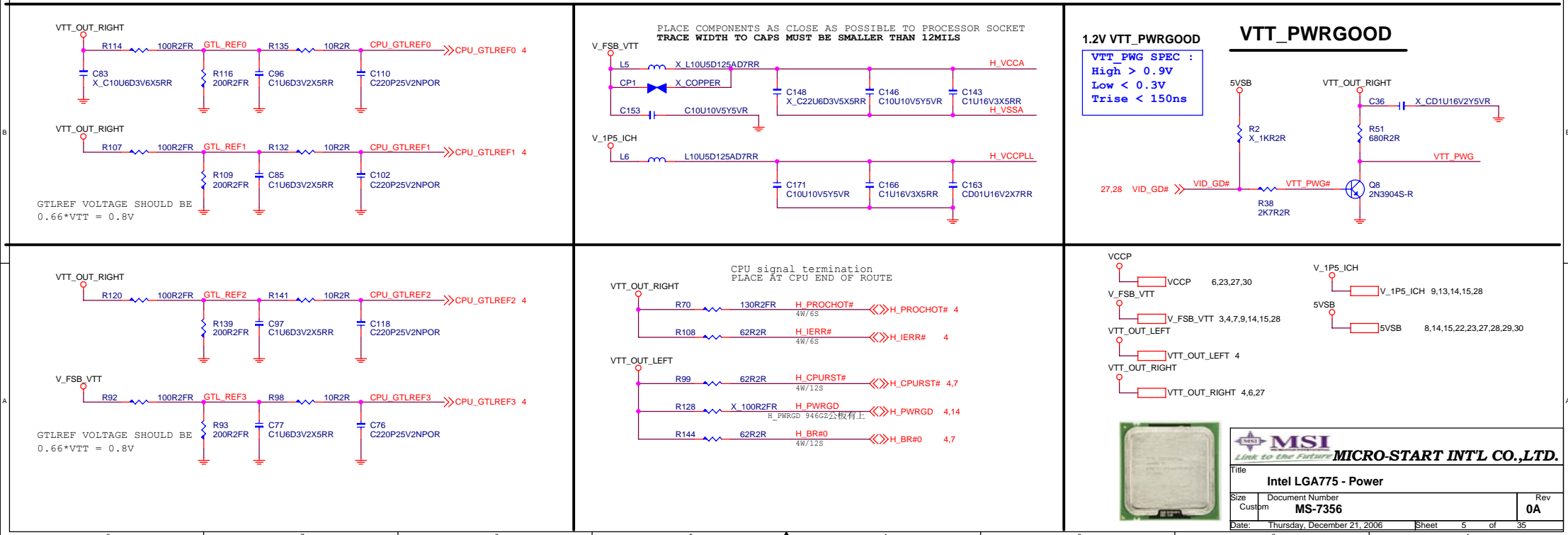
BCLK1#
 BCLK0#
 RS2#
 RS1#
 RS0#
 AP1#
 AP0#
 BR0#
 COMPS
 COMP4
 COMP3
 COMP2
 COMP1
 COMP0
 DP3#
 DP2#
 DP1#
 DP0#
 TEST-U3
 TEST-U2
 H_BR#0
 H_COMP#0
 H_COMP#1
 H_COMP#2
 H_COMP#3
 H_COMP#4
 H_COMP#5
 H_COMP#6
 H_COMP#7
 H_COMP#8
 H_COMP#9
 H_COMP#10
 H_COMP#11
 H_COMP#12
 H_COMP#13
 H_COMP#14
 H_COMP#15
 H_COMP#16
 H_COMP#17
 H_COMP#18
 H_COMP#19
 H_COMP#20
 H_COMP#21
 H_COMP#22
 H_COMP#23
 H_COMP#24
 H_COMP#25
 H_COMP#26
 H_COMP#27
 H_COMP#28
 H_COMP#29
 H_COMP#30
 H_COMP#31
 H_COMP#32
 H_COMP#33
 H_COMP#34
 H_COMP#35
 H_COMP#36
 H_COMP#37
 H_COMP#38
 H_COMP#39
 H_COMP#40
 H_COMP#41
 H_COMP#42
 H_COMP#43
 H_COMP#44
 H_COMP#45
 H_COMP#46
 H_COMP#47
 H_COMP#48
 H_COMP#49
 H_COMP#50
 H_COMP#51
 H_COMP#52
 H_COMP#53
 H_COMP#54
 H_COMP#55
 H_COMP#56
 H_COMP#57
 H_COMP#58
 H_COMP#59
 H_COMP#60
 H_COMP#61
 H_COMP#62
 H_COMP#63
 H_COMP#64
 H_COMP#65
 H_COMP#66
 H_COMP#67
 H_COMP#68
 H_COMP#69
 H_COMP#70
 H_COMP#71
 H_COMP#72
 H_COMP#73
 H_COMP#74
 H_COMP#75
 H_COMP#76
 H_COMP#77
 H_COMP#78
 H_COMP#79
 H_COMP#80
 H_COMP#81
 H_COMP#82
 H_COMP#83
 H_COMP#84
 H_COMP#85
 H_COMP#86
 H_COMP#87
 H_COMP#88
 H_COMP#89
 H_COMP#90
 H_COMP#91
 H_COMP#92
 H_COMP#93
 H_COMP#94
 H_COMP#95
 H_COMP#96
 H_COMP#97
 H_COMP#98
 H_COMP#99
 H_COMP#100

ADSTB#0
 ADSTB#1
 ADSTB#2
 ADSTB#3
 ADSTB#4
 ADSTB#5
 ADSTB#6
 ADSTB#7
 ADSTB#8
 ADSTB#9
 ADSTB#10
 ADSTB#11
 ADSTB#12
 ADSTB#13
 ADSTB#14
 ADSTB#15
 ADSTB#16
 ADSTB#17
 ADSTB#18
 ADSTB#19
 ADSTB#20
 ADSTB#21
 ADSTB#22
 ADSTB#23
 ADSTB#24
 ADSTB#25
 ADSTB#26
 ADSTB#27
 ADSTB#28
 ADSTB#29
 ADSTB#30
 ADSTB#31
 ADSTB#32
 ADSTB#33
 ADSTB#34
 ADSTB#35
 ADSTB#36
 ADSTB#37
 ADSTB#38
 ADSTB#39
 ADSTB#40
 ADSTB#41
 ADSTB#42
 ADSTB#43
 ADSTB#44
 ADSTB#45
 ADSTB#46
 ADSTB#47
 ADSTB#48
 ADSTB#49
 ADSTB#50
 ADSTB#51
 ADSTB#52
 ADSTB#53
 ADSTB#54
 ADSTB#55
 ADSTB#56
 ADSTB#57
 ADSTB#58
 ADSTB#59
 ADSTB#60
 ADSTB#61
 ADSTB#62
 ADSTB#63
 ADSTB#64
 ADSTB#65
 ADSTB#66
 ADSTB#67
 ADSTB#68
 ADSTB#69
 ADSTB#70
 ADSTB#71
 ADSTB#72
 ADSTB#73
 ADSTB#74
 ADSTB#75
 ADSTB#76
 ADSTB#77
 ADSTB#78
 ADSTB#79
 ADSTB#80
 ADSTB#81
 ADSTB#82
 ADSTB#83
 ADSTB#84
 ADSTB#85
 ADSTB#86
 ADSTB#87
 ADSTB#88
 ADSTB#89
 ADSTB#90
 ADSTB#91
 ADSTB#92
 ADSTB#93
 ADSTB#94
 ADSTB#95
 ADSTB#96
 ADSTB#97
 ADSTB#98
 ADSTB#99
 ADSTB#100

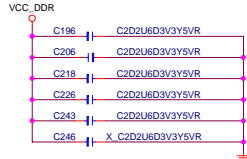
CPU_ZIF-SOCKET775-R



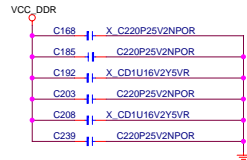
MSI Link to the Future MICRO-START INTL CO.,LTD.		
Intel LGA775 - Signal		
Size	Document Number	Rev
Custm	MS-7356	0A
Date:	Thursday, December 21, 2006	Sheet 4 of 35



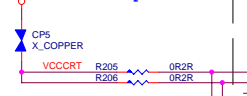
Place close to GMCH



Place close to GMCH with DIMM1



V_1P5_ICH for Graphic G33



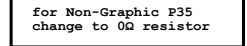
V_3P3_DAC_FILTERED



VCC_EXP



for Non-Graphic P35 change to 0Q resistor



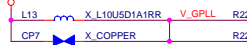
VCC_DDR



V_1P25_CORE



V_1P25_CORE



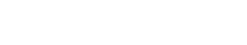
V_1P25_CORE



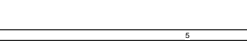
V_1P25_CORE



V_1P25_CORE



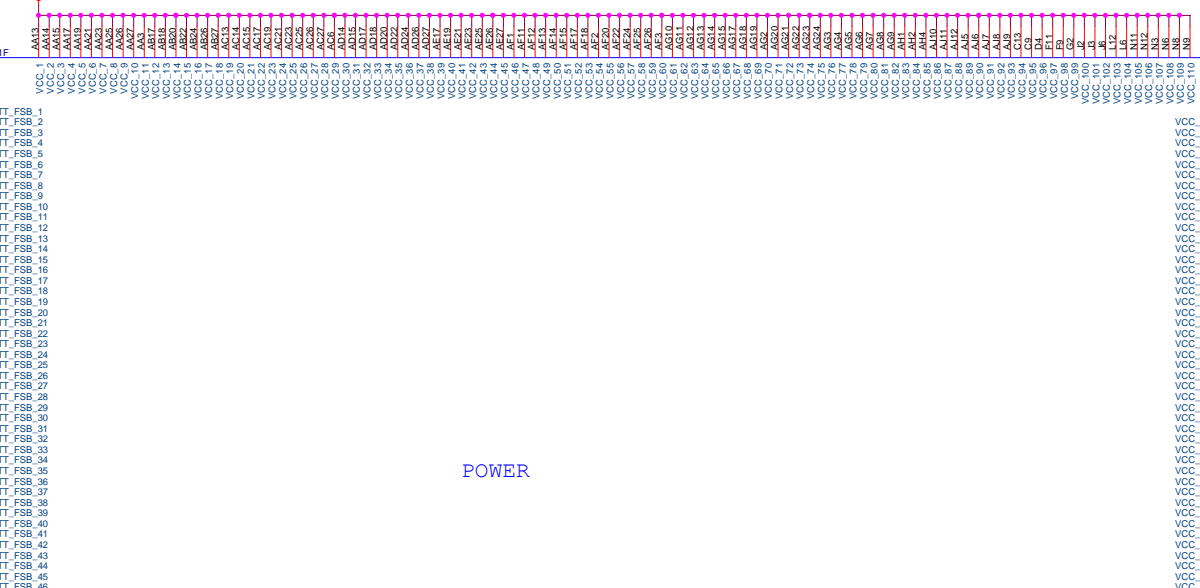
V_1P25_CORE



V_1P25_CORE

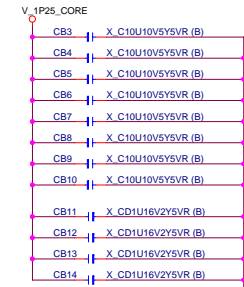


V_1P25_CORE

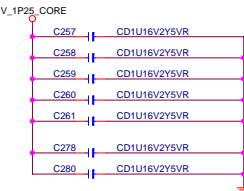


POWER

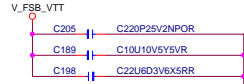
Place close to GMCH Bottom



Place close to GMCH



Place close to GMCH



V_1P25_POE



V_1P25_CORE



V_1P25_CORE



V_1P25_CORE



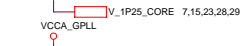
V_1P25_CORE



V_1P25_CORE



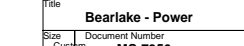
V_1P25_CORE



V_1P25_CORE



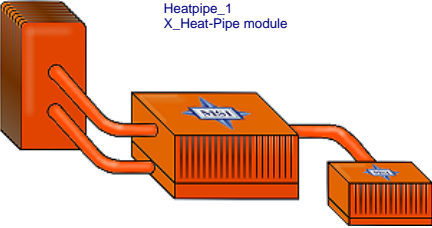
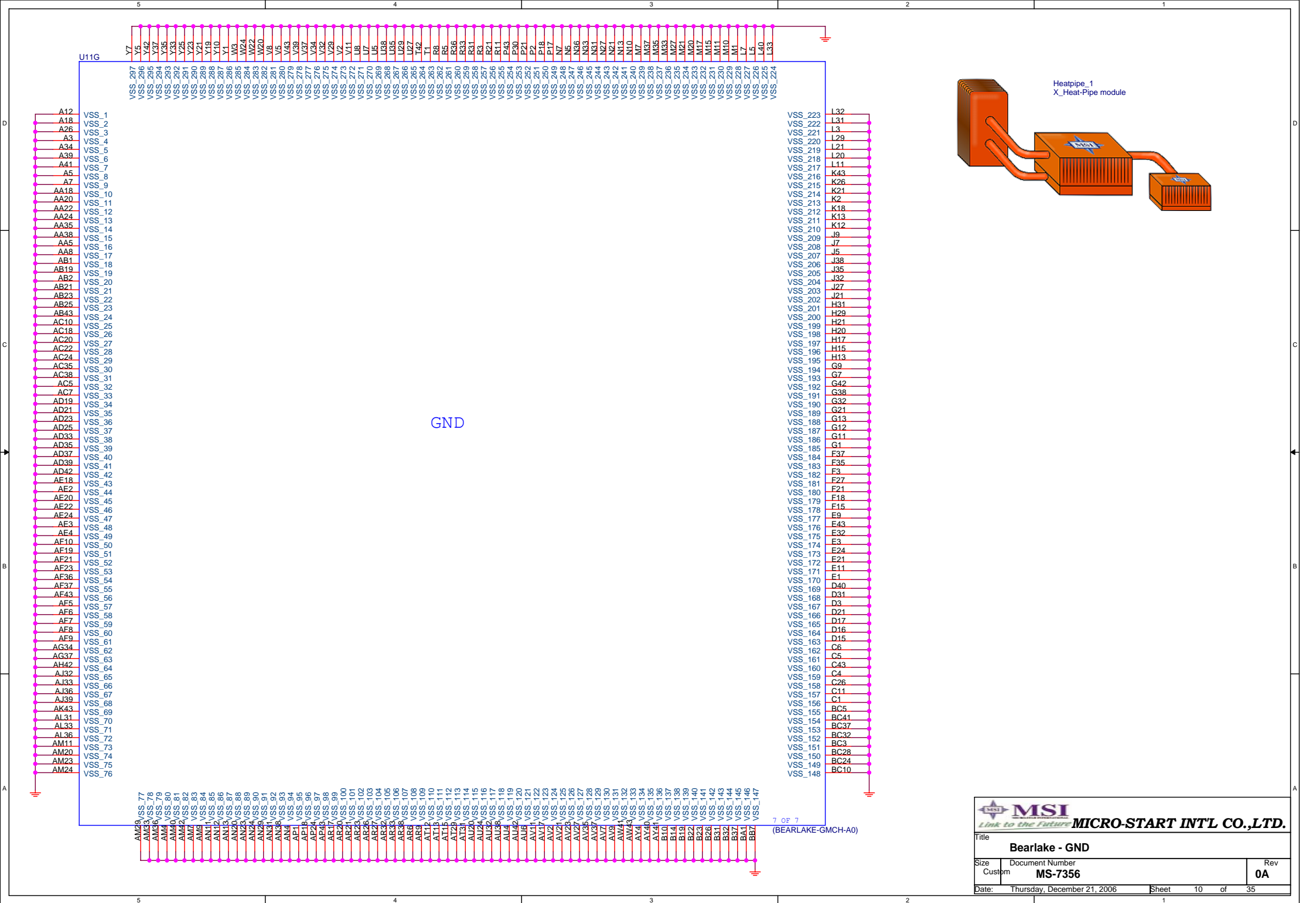
V_1P25_CORE




V_1P25_CORE



V_1P25_CORE



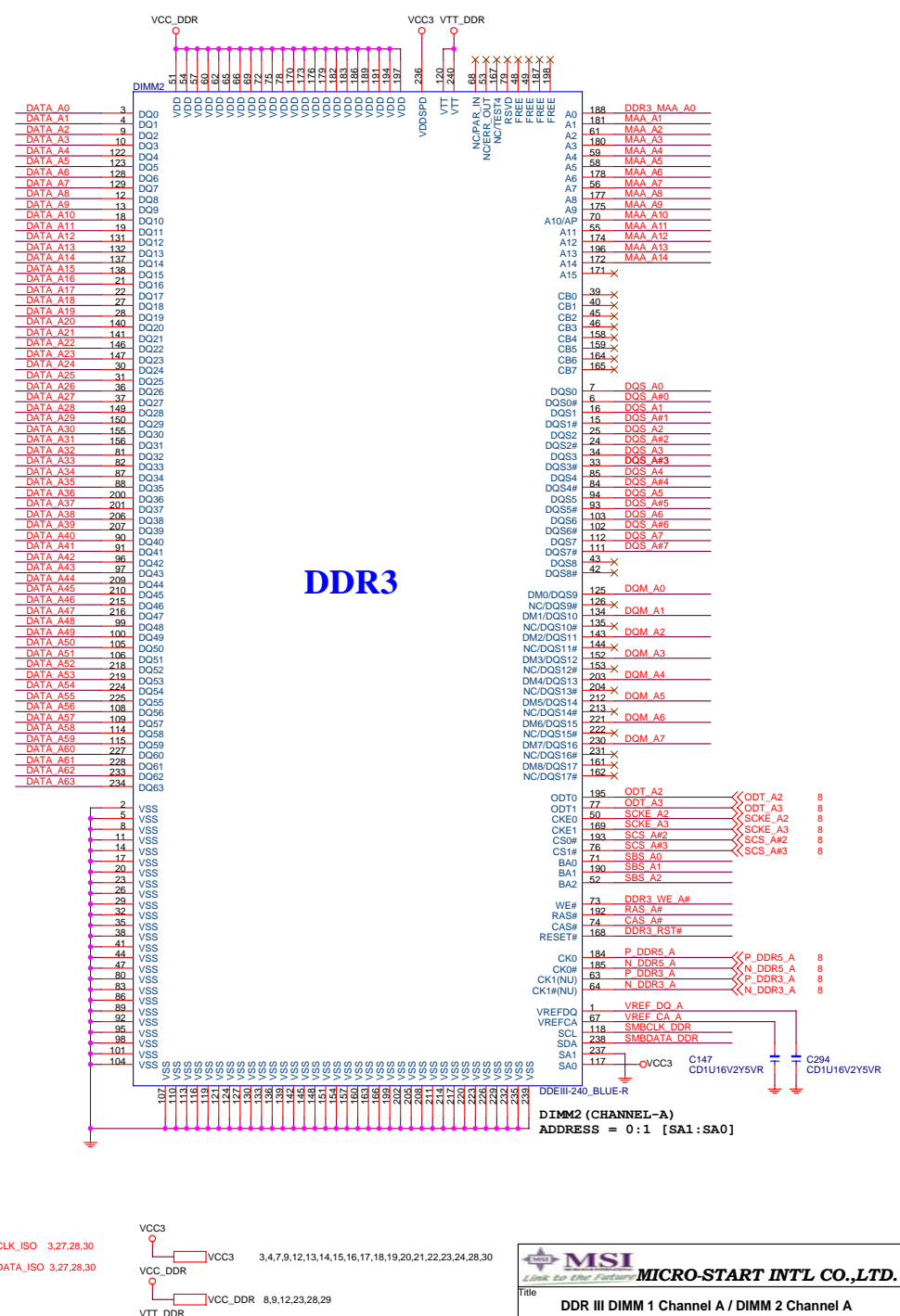
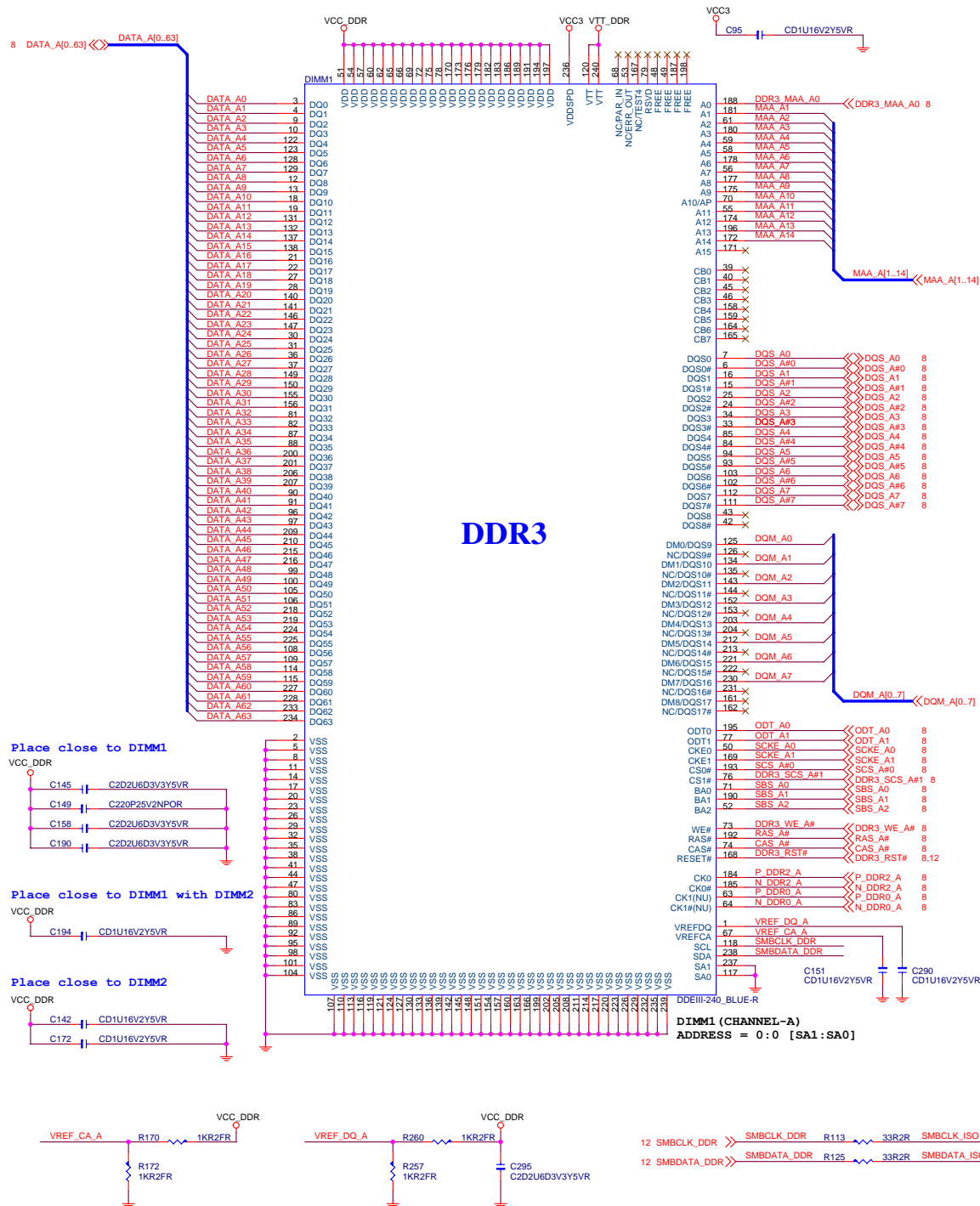


MICRO-START INTL CO.,LTD.

Title		
Bearlake - GND		
Size	Document Number	Rev
Custom	MS-7356	0A
Date:	Thursday, December 21, 2006	Sheet 10 of 35

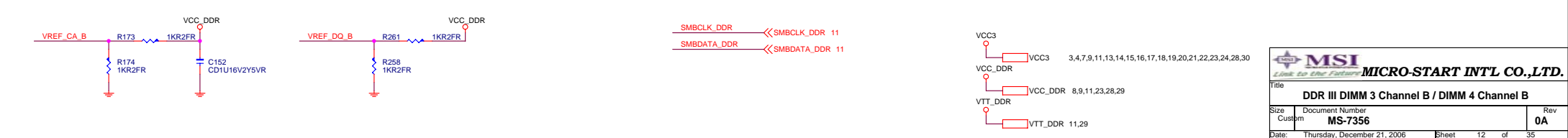
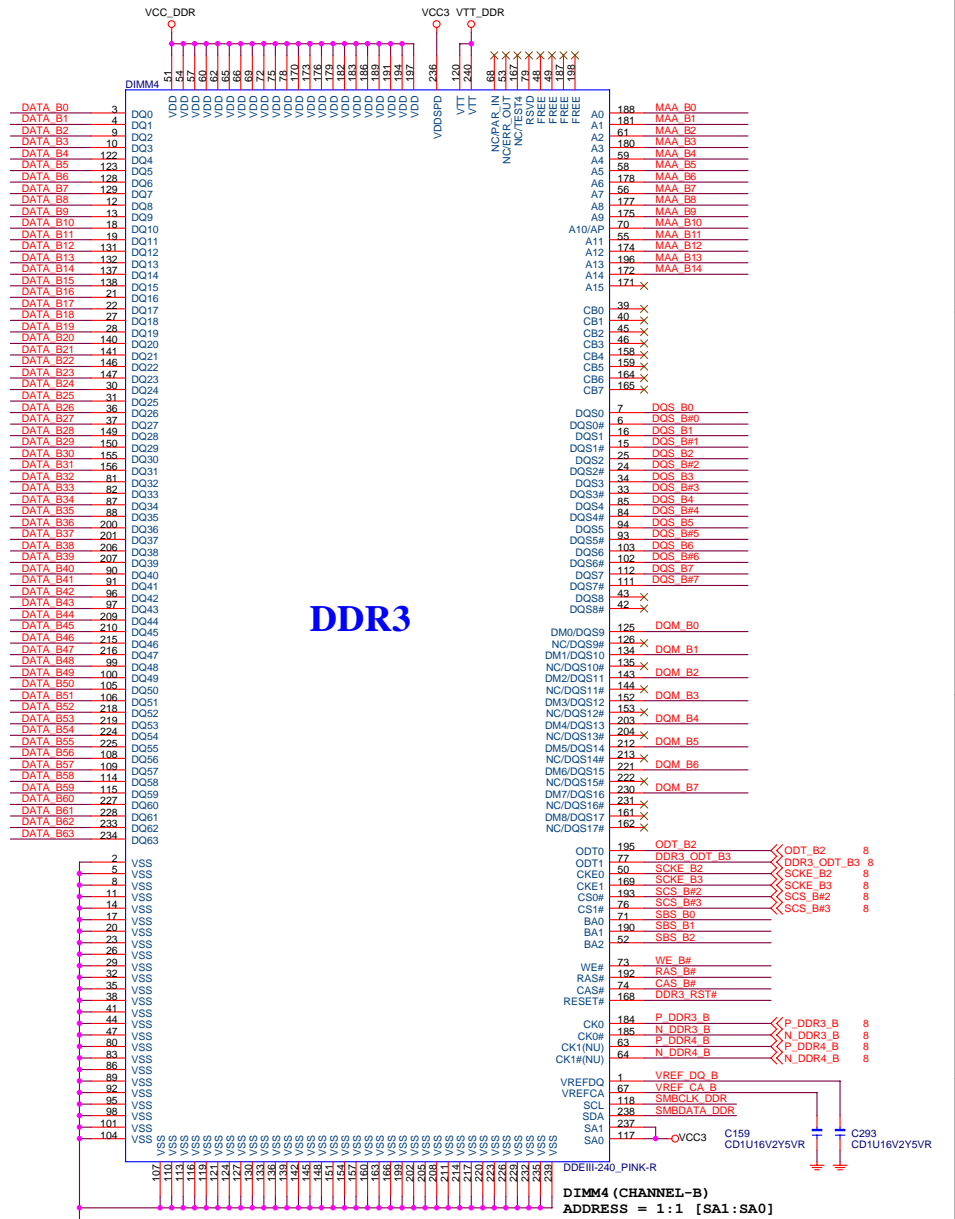
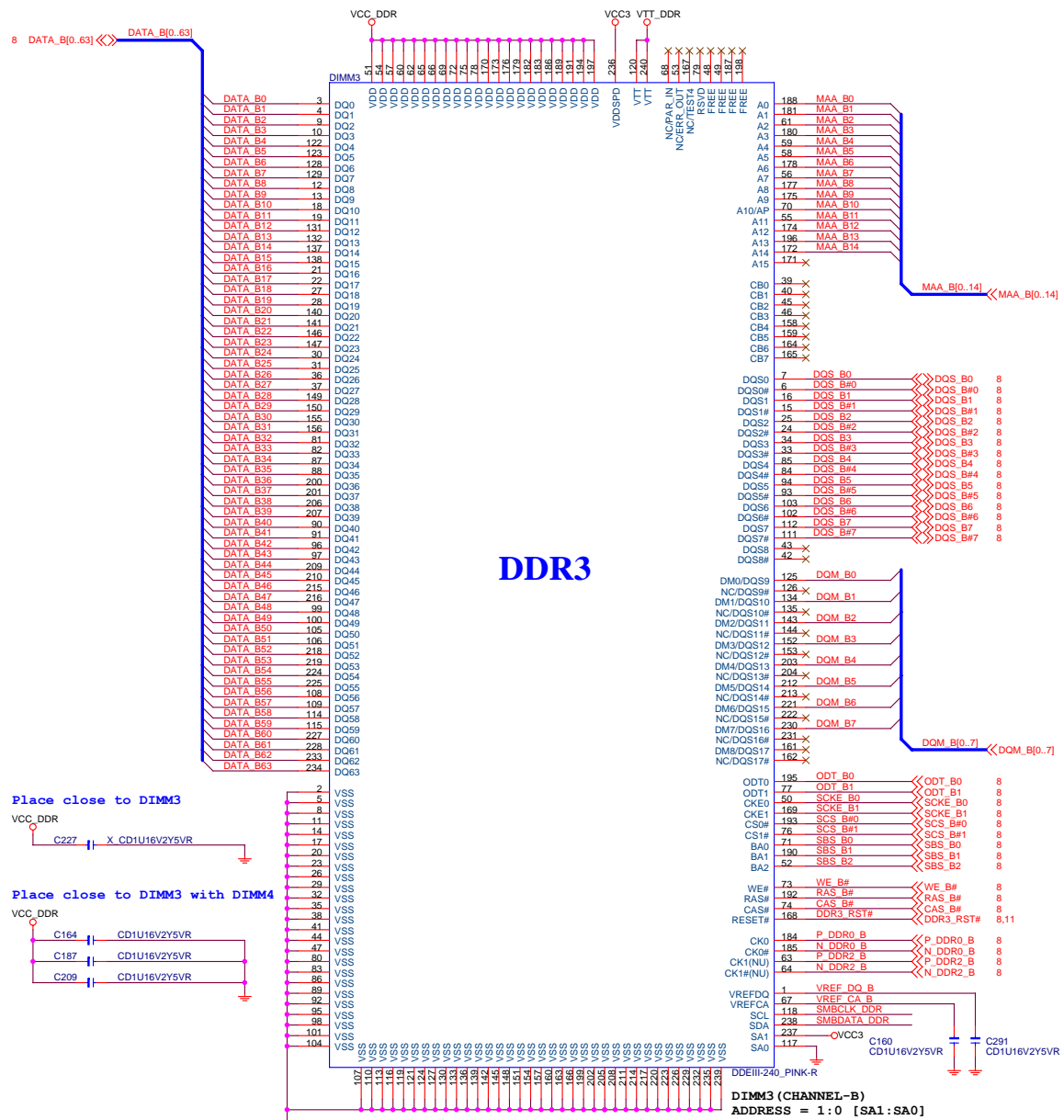
DDR3 DIMM_A1

DDR3 DIMM_A2



DDR3 DIMM_B1

DDR3 DIMM_B2



MSI
Link to the Future

MICRO-START INTL CO.,LTD.

Title: **DDR III DIMM 3 Channel B / DIMM 4 Channel B**

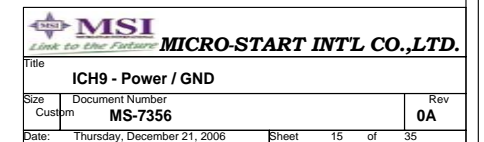
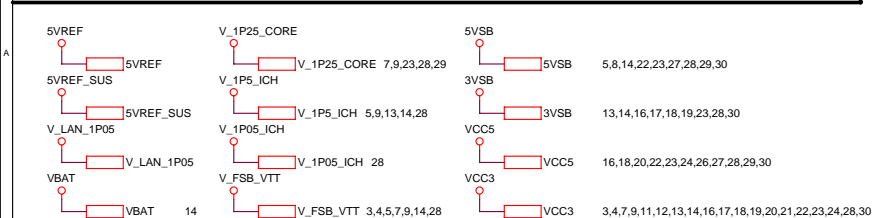
Size: Custom Document Number: **MS-7356** Rev: **0A**

Date: Thursday, December 21, 2006 Sheet: 12 of 35

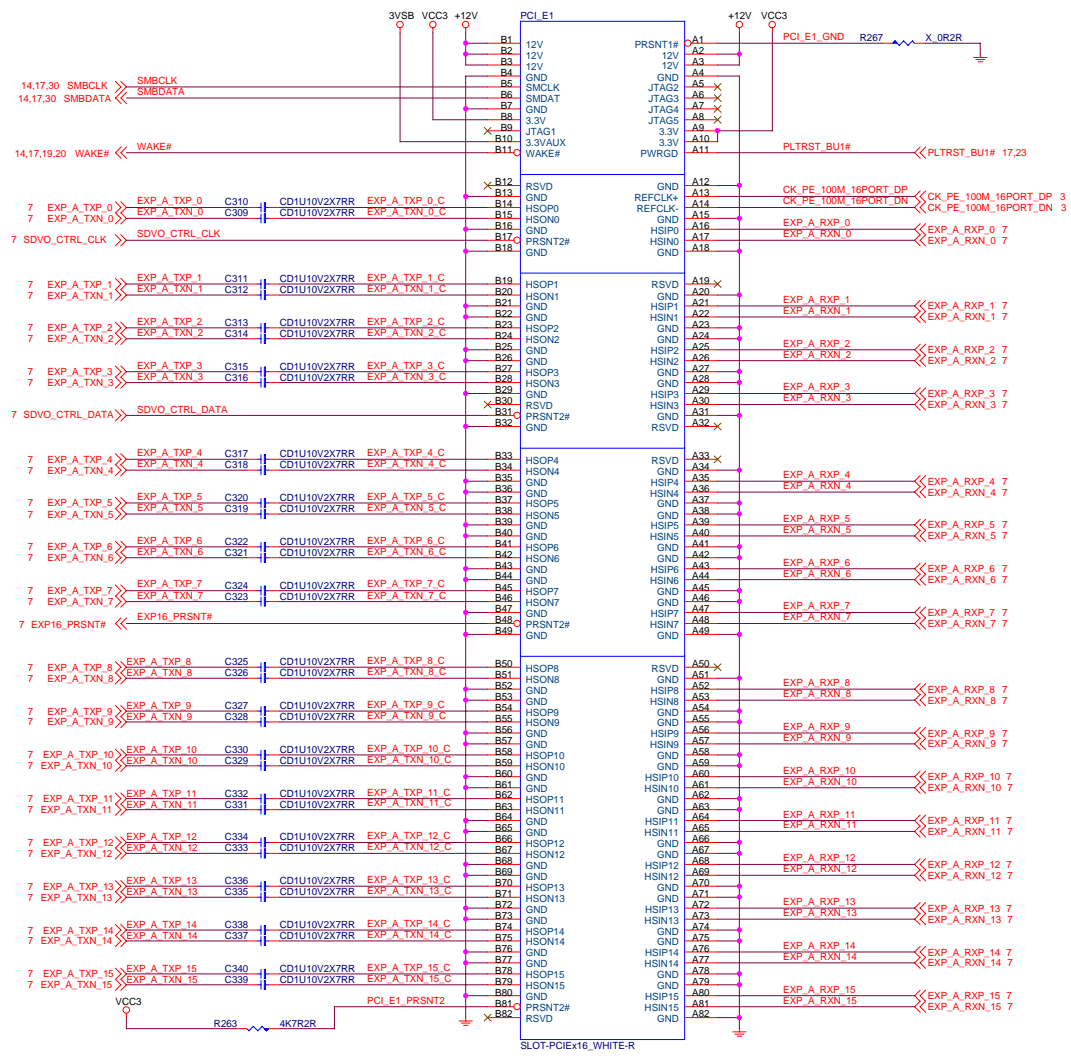
5VREF & 5VREF_SUS Sequencing Circuit

The schematic diagram illustrates the sequencing circuit for 5VREF and 5VREF_SUS. It consists of two main sections:

- 5VREF Section:** This section shows a circuit where VCC5 is connected to a 10R2R resistor (R461). The other end of R461 is connected to the base of a 2N3904S-R transistor (Q60). The emitter of Q60 is connected to ground, and its collector is connected to VCC3. The output of this section is 5VREF, which is connected to the CD1U16V2Y5VR component via a 5VREF pin.
- 5VREF_SUS Section:** This section shows a similar circuit. 5VSB is connected to a 10R2R resistor (R381). The other end of R381 is connected to the base of a 2N3904S-R transistor (Q57). The emitter of Q57 is connected to ground, and its collector is connected to 3VSB. The output of this section is 5VREF_SUS, which is connected to the CD1U16V2Y5VR component via a 5VREF_SUS pin.

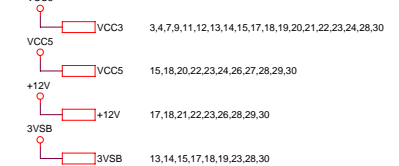
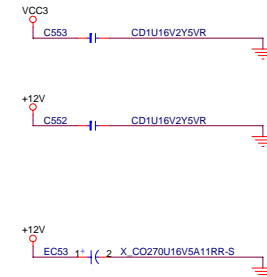
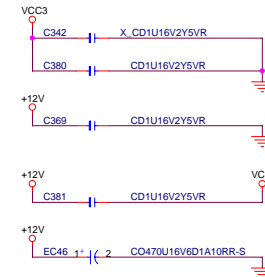
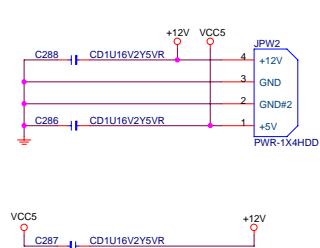
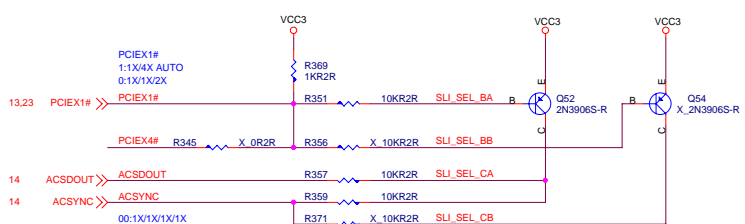
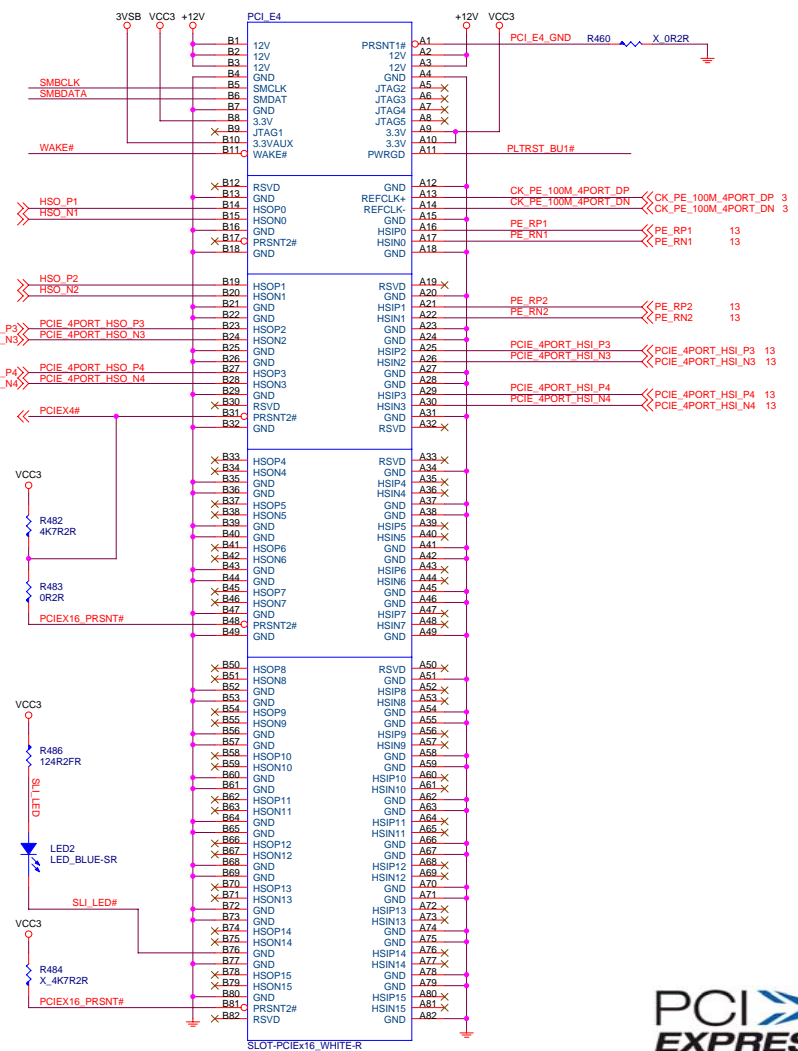


PCI Express X16 Slot



PCI Express X4 Slot

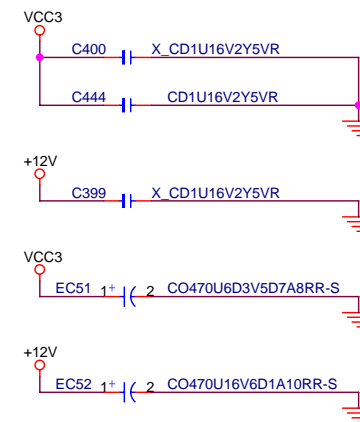
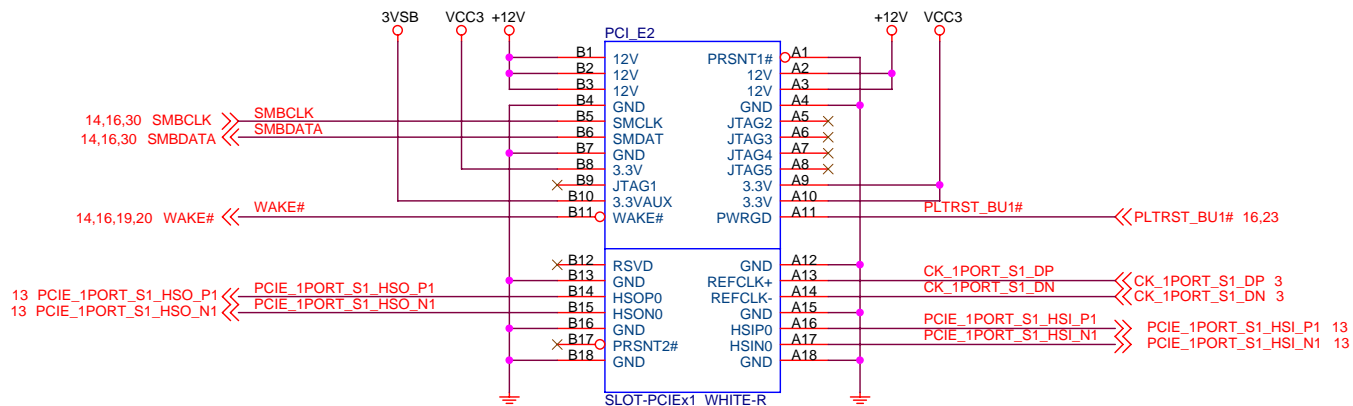
(Share with PCI E x1 Slots)



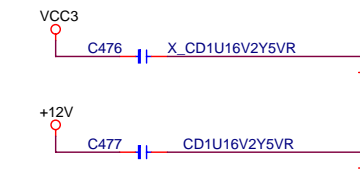
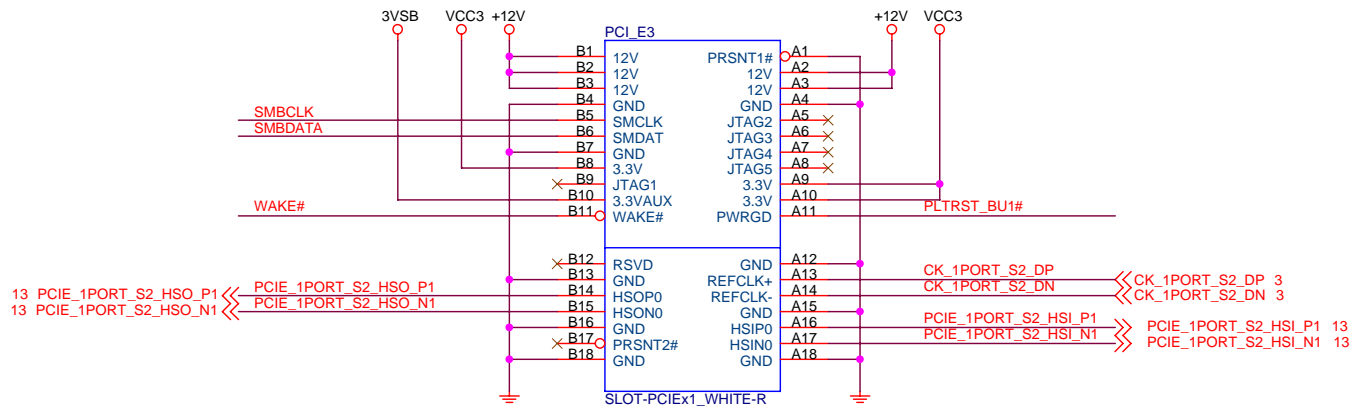
Title	PCI EXPRESS X16 / X4 SLOT
-------	---------------------------

Size	Document Number	Rev
Custom	MS-7356	0A

PCI EXPRESS x1-PORT

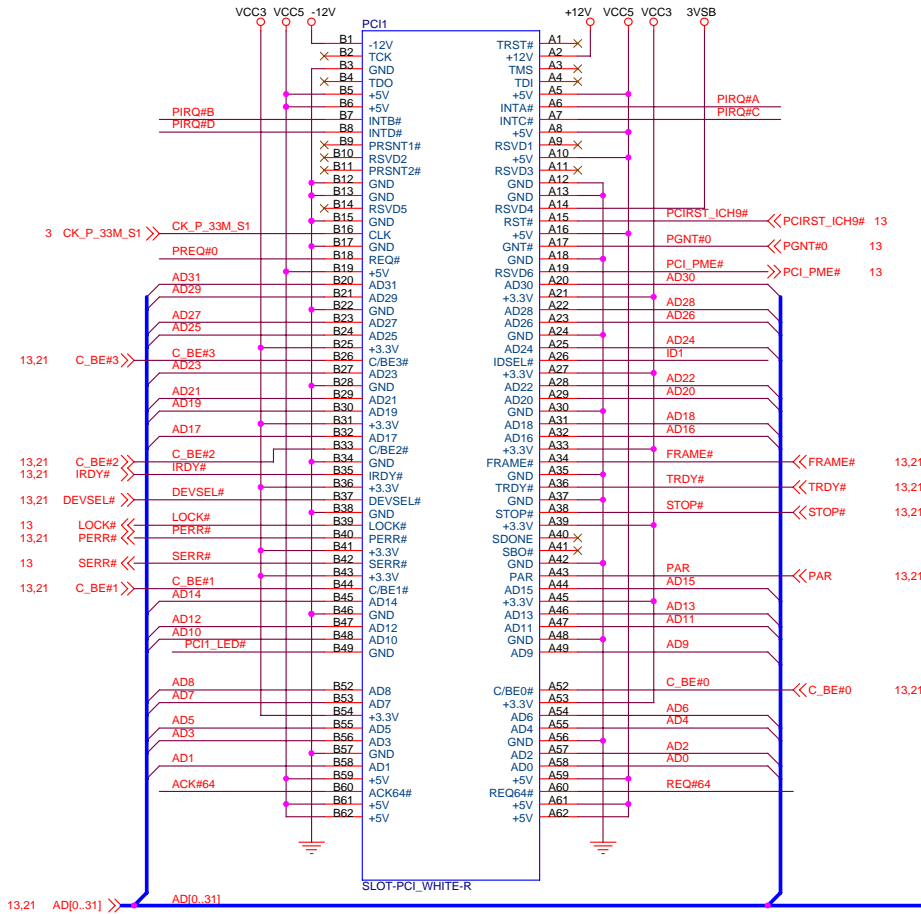


PCI EXPRESS x1-PORT

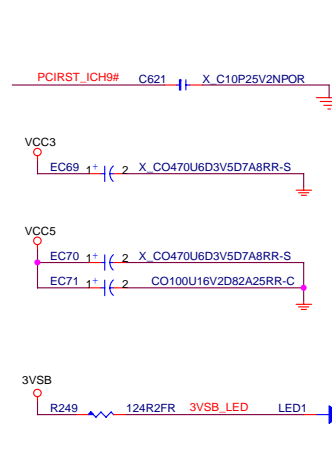
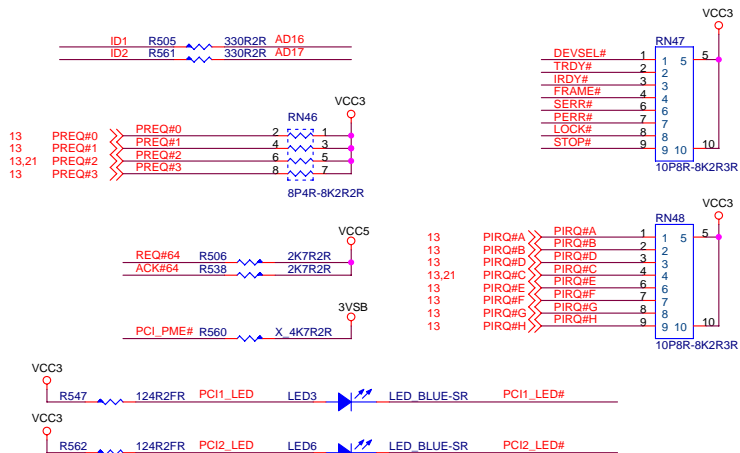
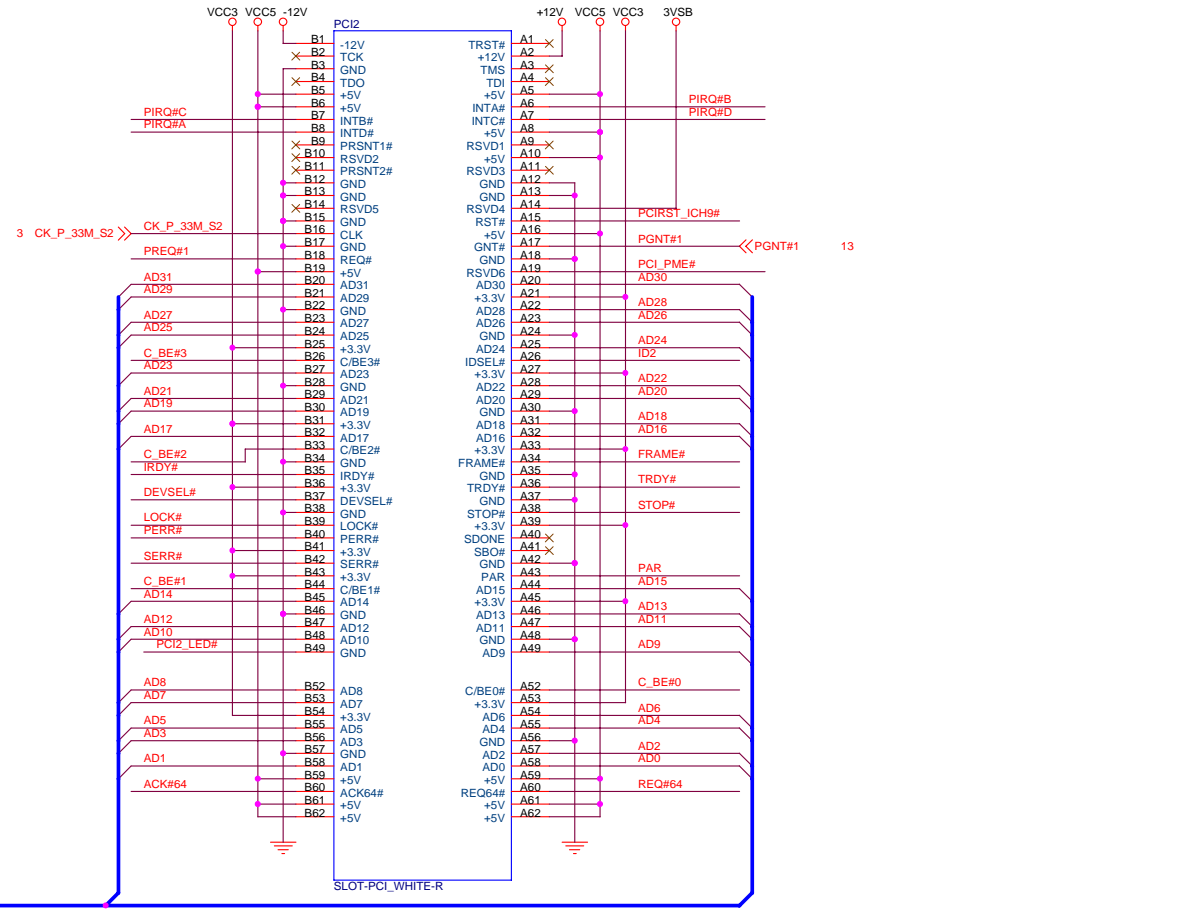


MICRO-STAR INT'L CO.,LTD.			
Title PCI EXPRESS X1 SLOT			
Size	Document Number	Rev	
Custom	MS-7356	0A	
Date:	Thursday, December 21, 2006	Sheet	17 of 35

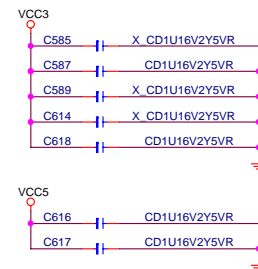
PCI1



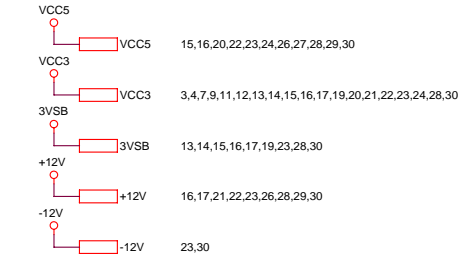
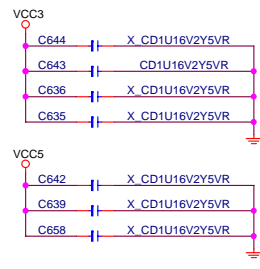
PCI2

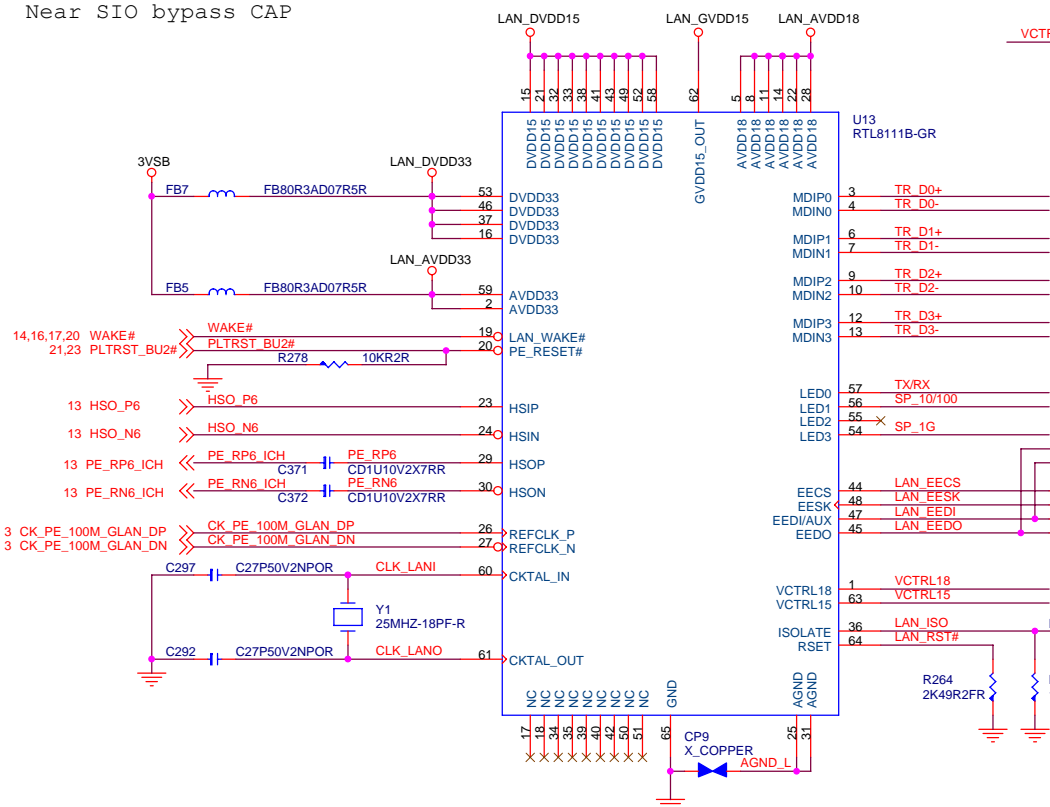
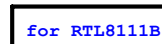
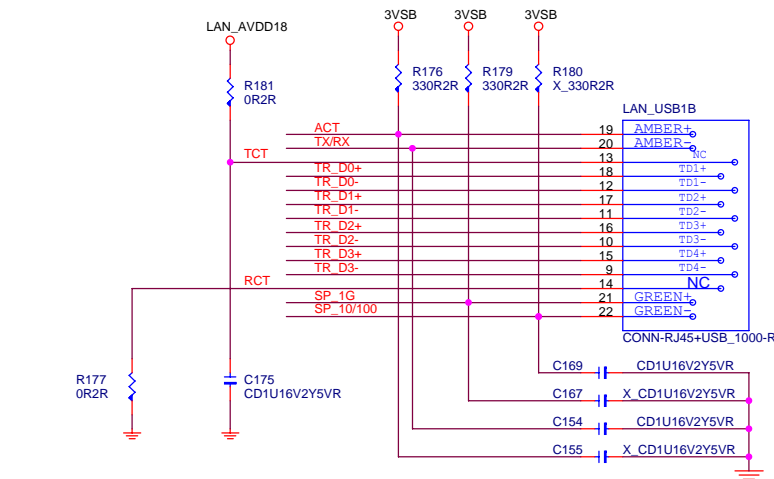


Place close to PCI1

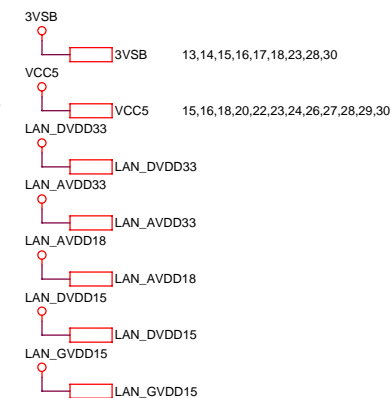


Place close to PCI2

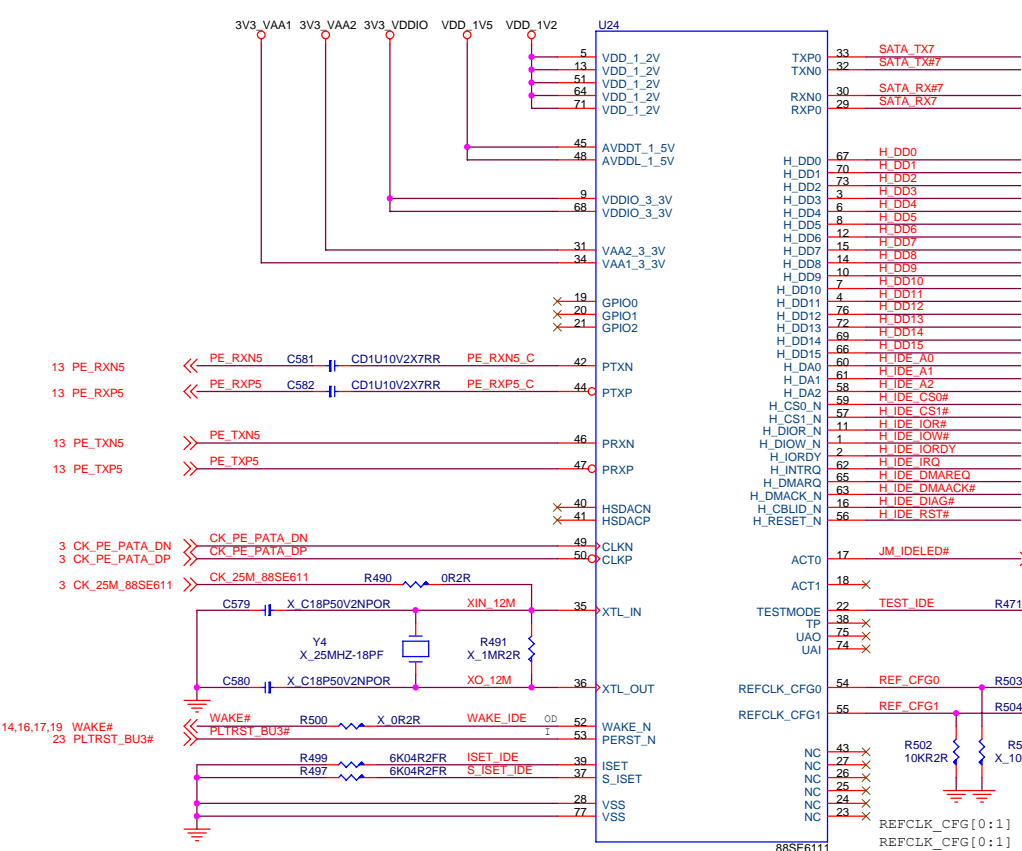




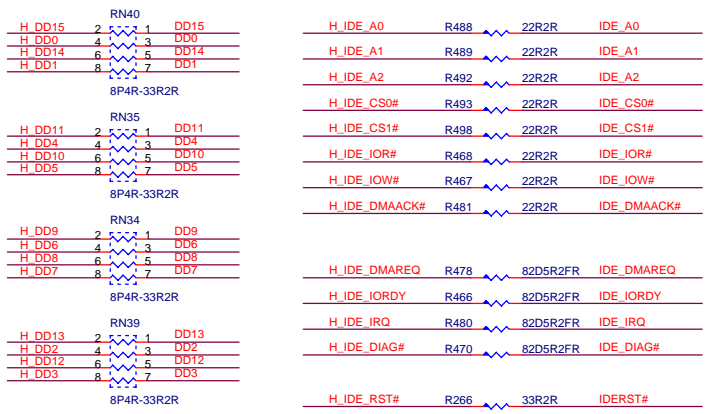
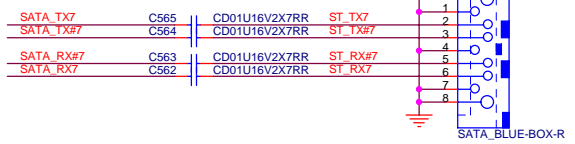
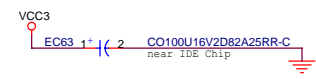
When the ORG pin is connected to VCC, the x 16 organization is selected. When it is connected to ground, the x 8 organization is selected. If the ORG pin is left unconnected and the application does not load the input beyond the capability of the internal 1 Meg ohm pullup, then the x 16 organization is selected. The feature is not available on the 1.8V devices.



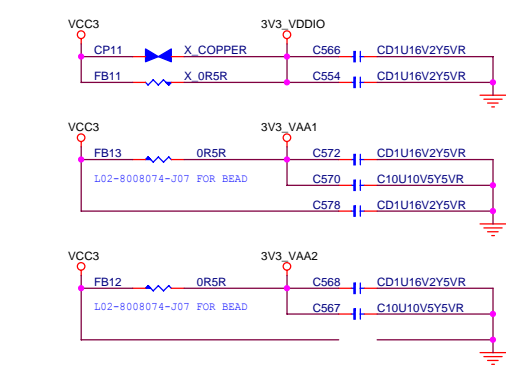
Title			
PCI - Express LAN RTL8111B			
Size	Document Number	Rev	
Custom	MS-7356	0A	
Date:	Thursday, December 21, 2006	Sheet	19 of 35



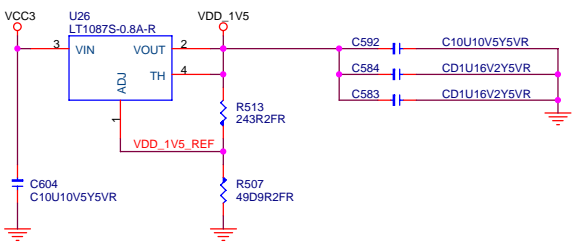
IDE 轉層電容



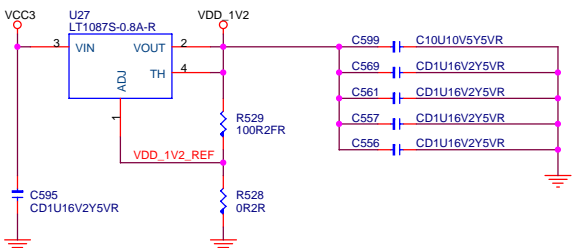
14,16,17,19 WAKE#
23 PLTRST_BU3#



Change PCB footprint for factory Test

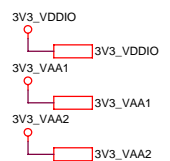
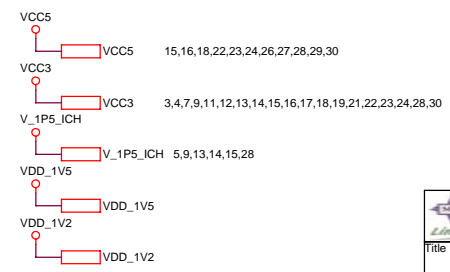
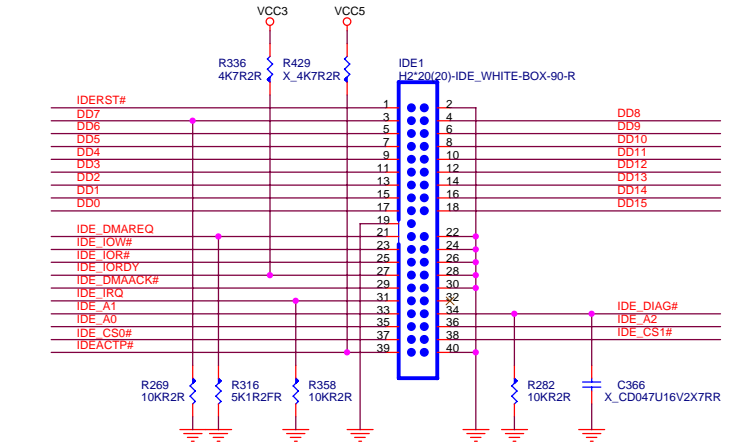


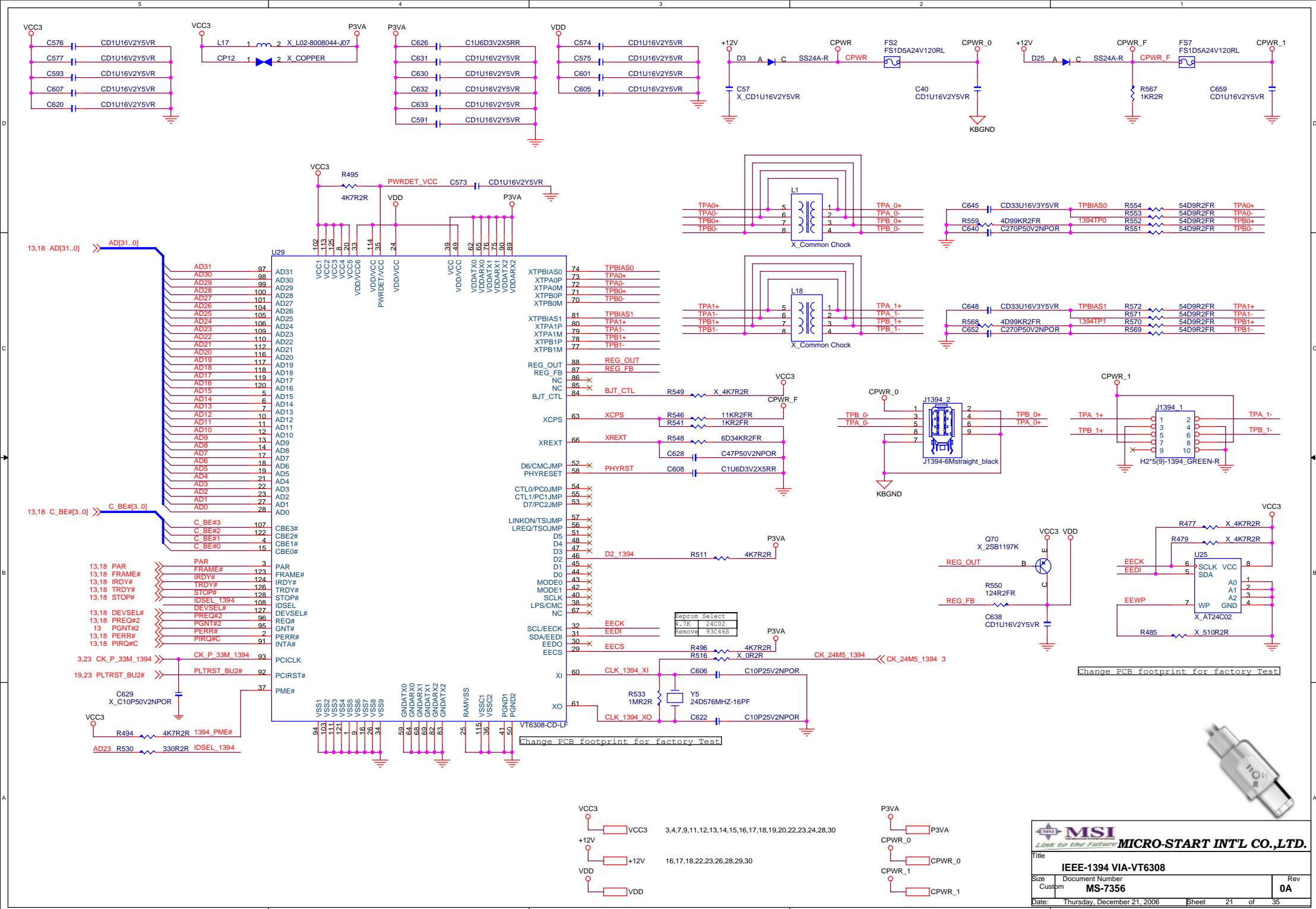
Change PCB footprint for factory Test

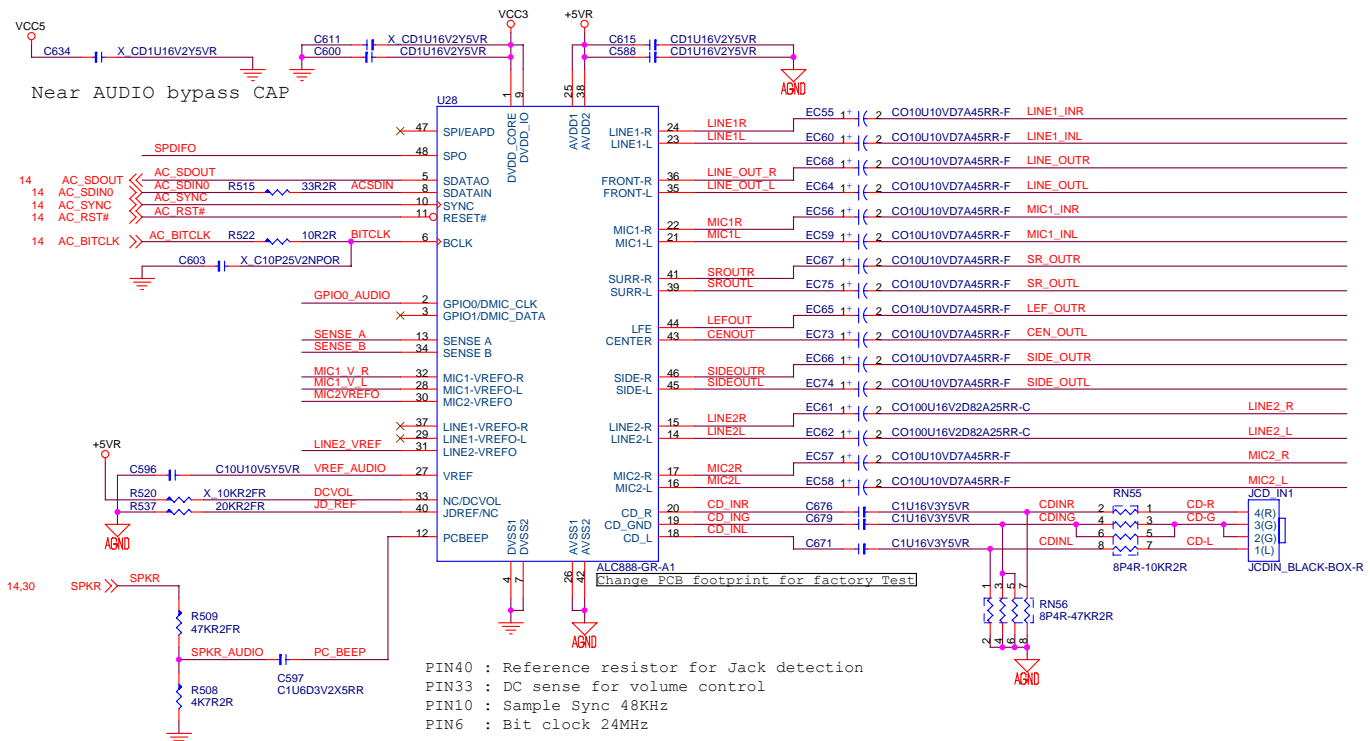


VDD ---- 170mA ; Min Vout -- 1.14V ; Max Vout -- 1.32V
AVDDT -- 65mA ; Min Vout -- 1.425V ; Max Vout -- 1.575V
AVDDL -- 65mA ; Min Vout -- 1.425V ; Max Vout -- 1.575V
VAA1 -- 25mA ; Min Vout -- 3.135V ; Max Vout -- 3.63V
VAA2 -- 75mA ; Min Vout -- 3.135V ; Max Vout -- 3.63V
VDDIO -- 30mA ; Min Vout -- 3.135V ; Max Vout -- 3.63V

Differential Impedance : 100ohm +/- 20%
Single-end Impedance : 50ohm or 60ohm







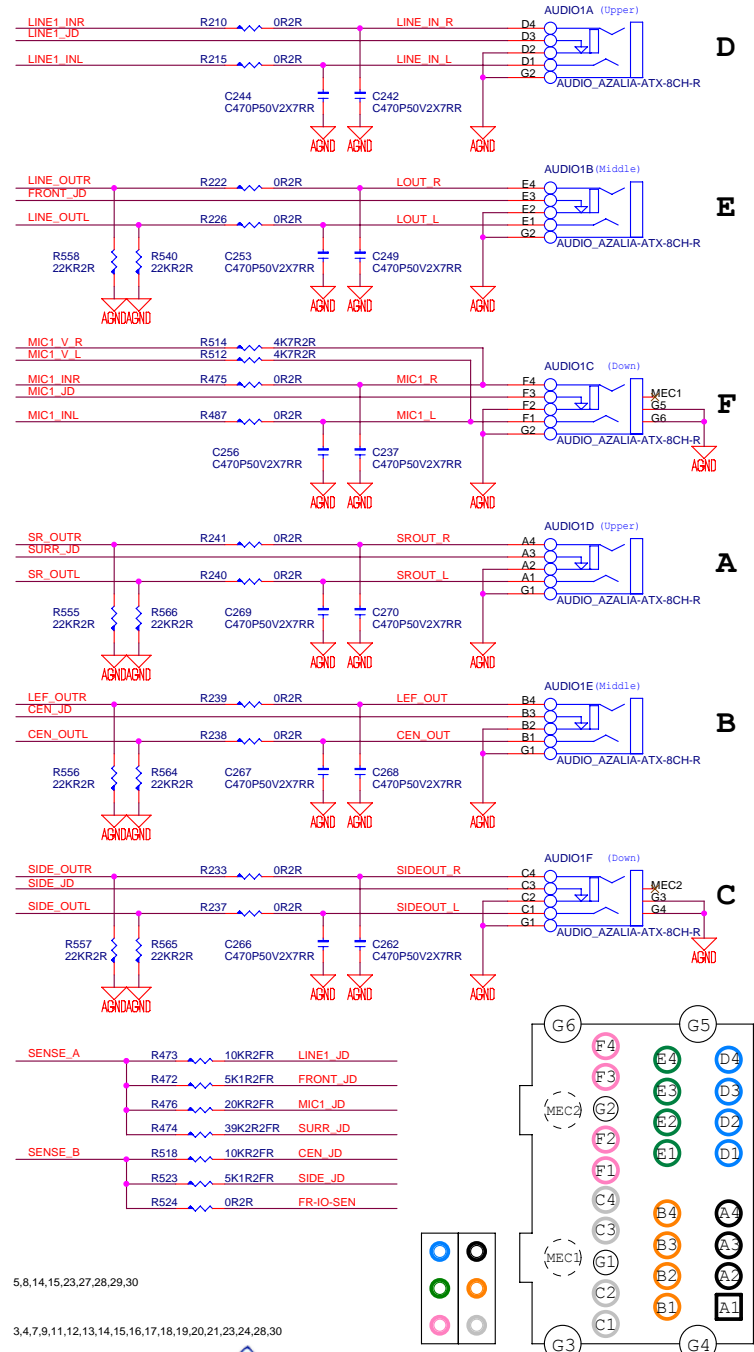
Near AUDIO bypass CAP


AUDIO CODE REGULATORS

PIN40 : Reference resistor for Jack detection
PIN33 : DC sense for volume control
PIN10 : Sample Sync 48KHz
PIN6 : Bit clock 24MHz

OPTICAL SPDIF OUT

Azalia Front Audio Connector





Link to the Future

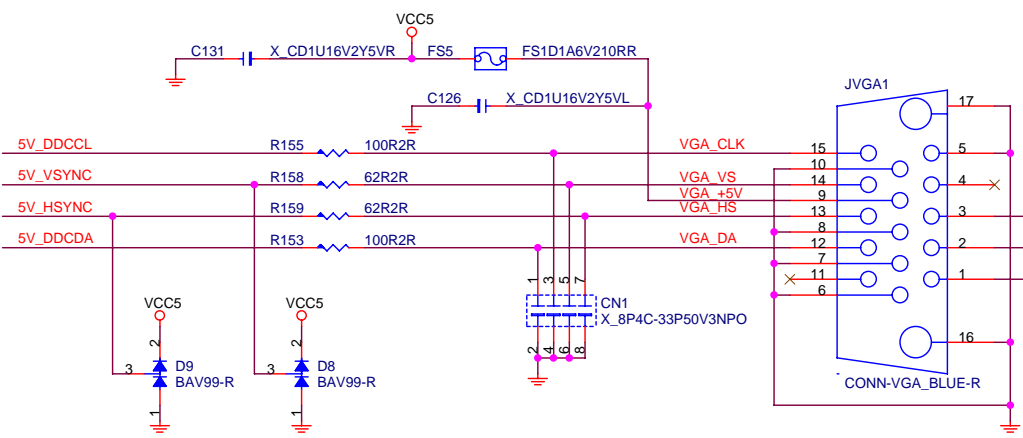
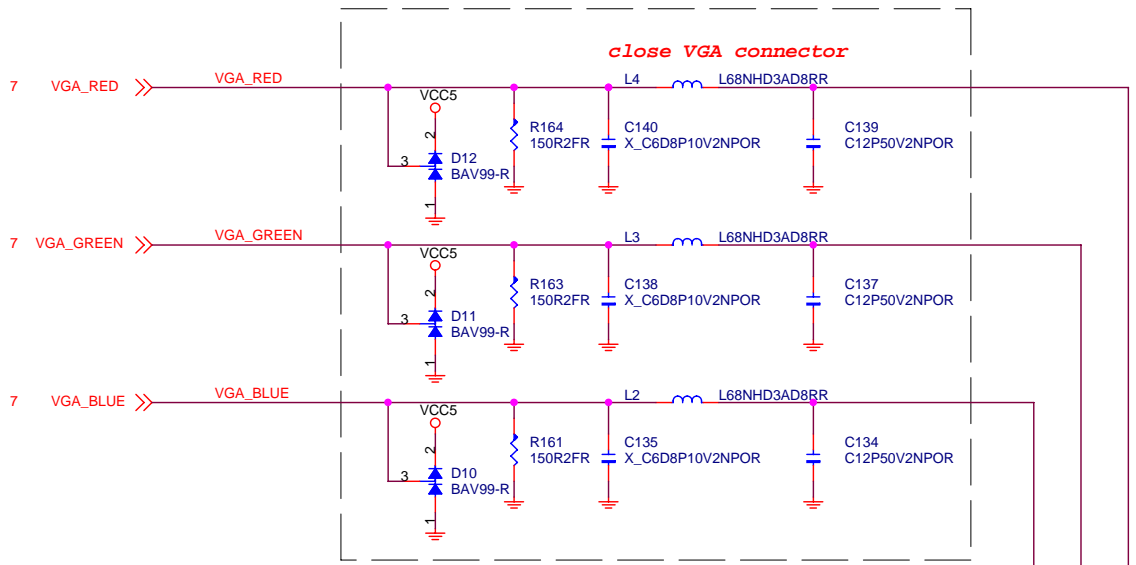
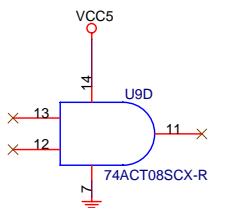
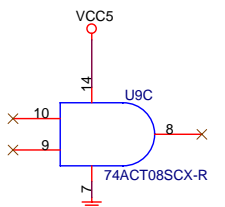
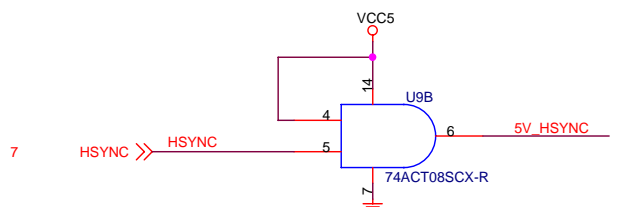
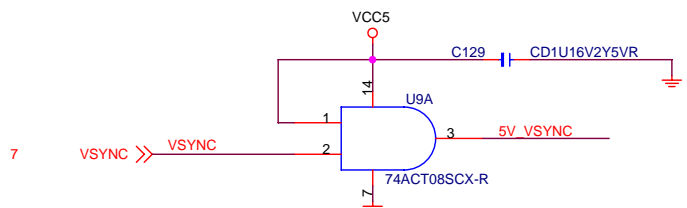
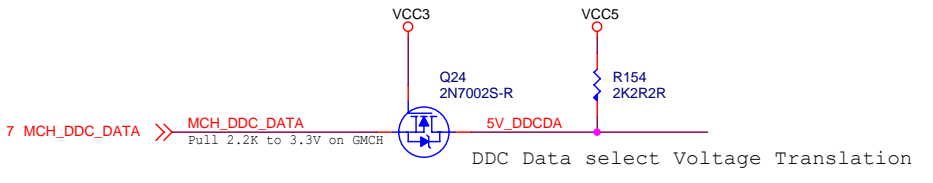
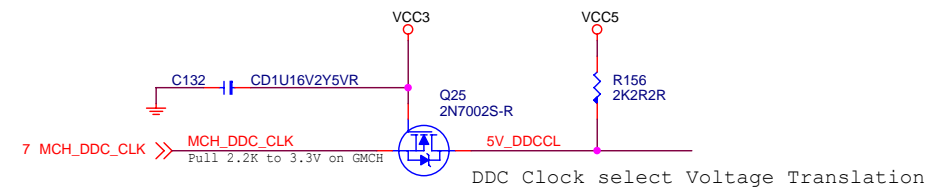
MICRO-START INT'L CO.,LTD.

Title: **Azalia Code ALC888**

Size	Document Number	Rev
Custm	MS-7356	0A

Date: Thursday, December 21, 2006 Sheet 22 of 35





VCC3	3,4,7,9,11,12,13,14,15,16,17,18,19,20,21,22,23,28,30
VCC5	15,16,18,20,22,23,26,27,28,29,30
PGND	25,26
AGND	22,30
GND	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,25,26,27,28,29,30

MSI
Link to the Future

MICRO-START INT'L CO.,LTD.

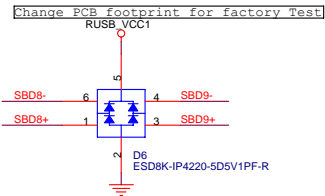
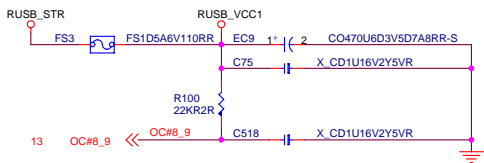
Title
On Board VGA Connector

Size Custom	Document Number MS-7356	Rev 0A
----------------	-----------------------------------	------------------

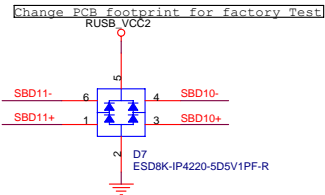
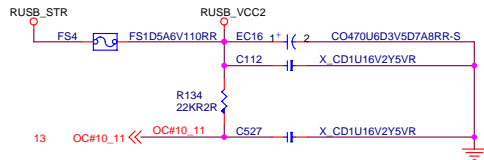
Date: Thursday, December 21, 2006 Sheet 24 of 35

Rear USB Connector

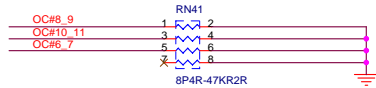
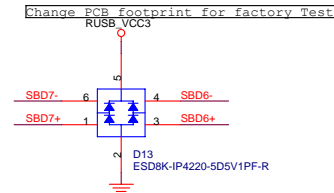
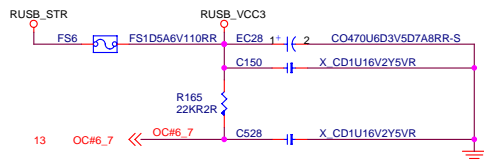
POWER CIRCUIT FOR USB PORT 3,6



POWER CIRCUIT FOR USB PORT 9,10

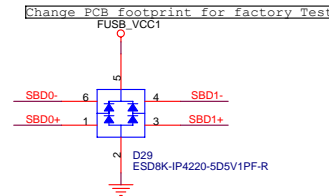
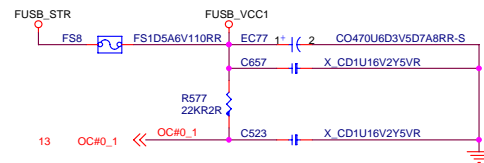


POWER CIRCUIT FOR USB PORT 0,2

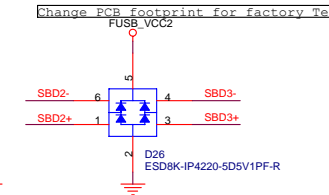
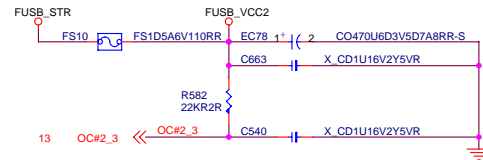


Front USB Connector

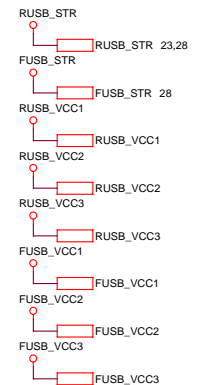
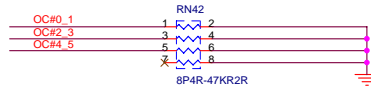
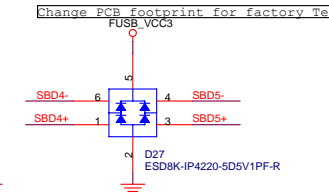
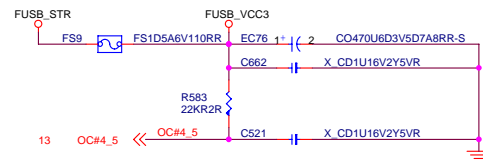
POWER CIRCUIT FOR USB PORT 1,4



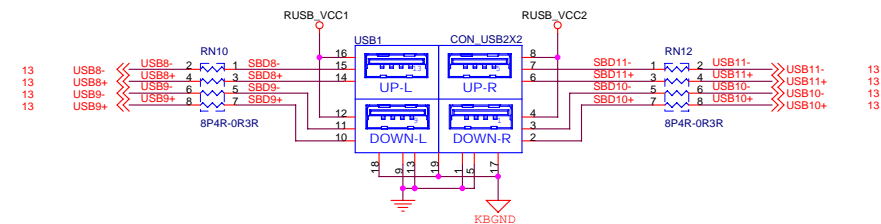
POWER CIRCUIT FOR USB PORT 5,7



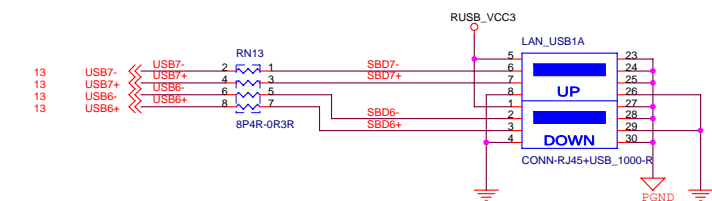
POWER CIRCUIT FOR USB PORT 8,11



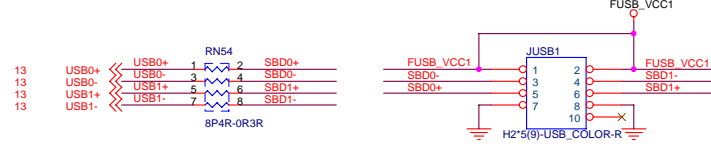
REAR PANEL USB CONNECTOR FOR USB PORT 6,3,9,10



REAR PANEL USB CONNECTOR FOR USB PORT 0,2



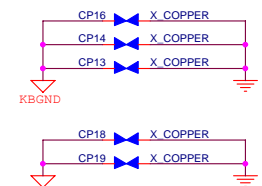
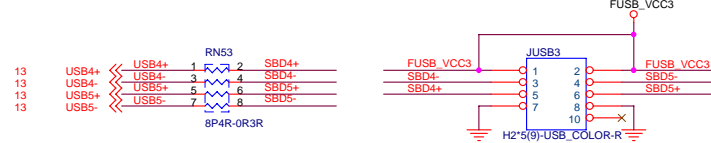
FRONT PANEL USB CONNECTOR FOR USB PORT 1,4



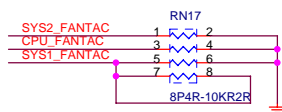
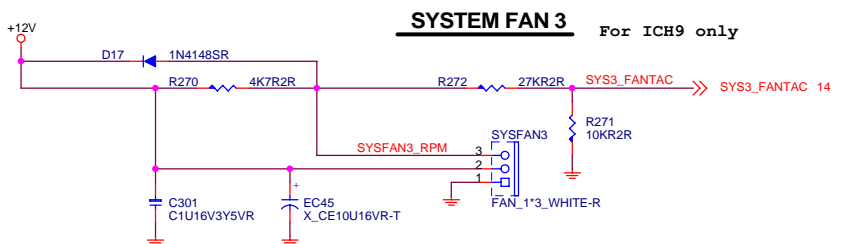
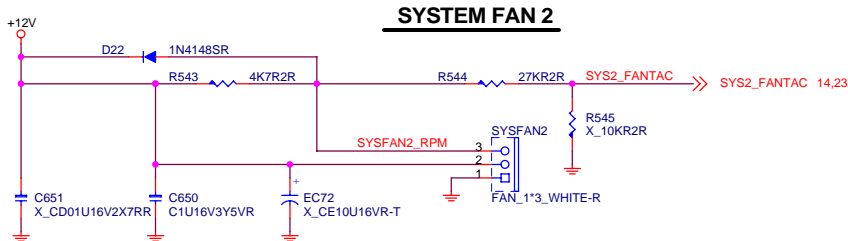
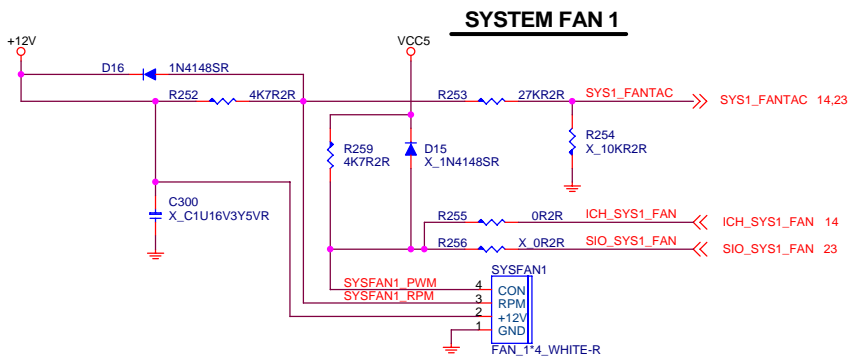
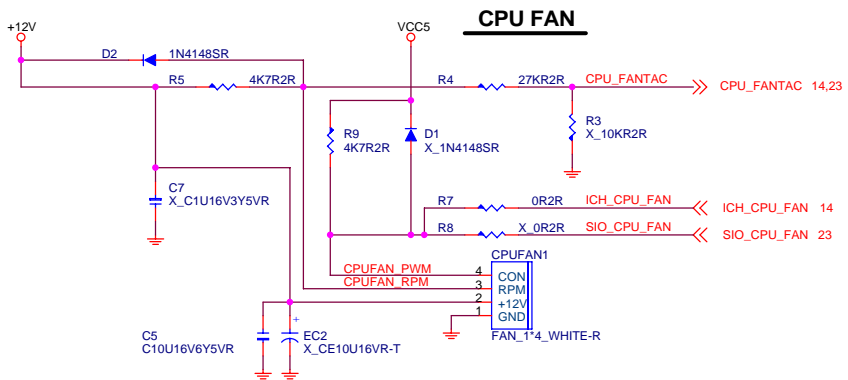
FRONT PANEL USB CONNECTOR FOR USB PORT 5,7



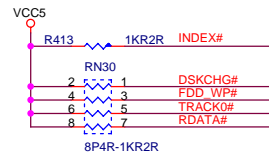
FRONT PANEL USB CONNECTOR FOR USB PORT 8,11



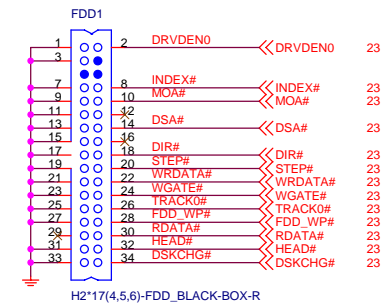
MICRO-START INT'L CO.,LTD.	
USB Connector	
Size: Custom Document Number: MS-7356	Rev: 0A
Date: Thursday, December 21, 2006 Sheet 25 of 35	



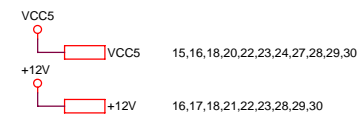
FLOPPY CONNECTOR



NEED INFORMED BIOS

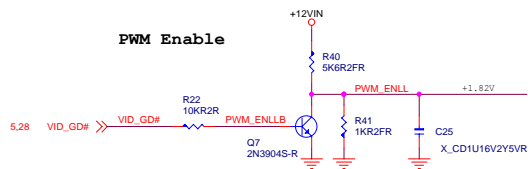


e-SATA trace length should be less than 10 inch. (Connector to Chip)



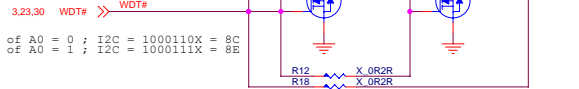
MICRO-START INTL CO.,LTD.	
Title FDD / SATA / eSATA / FAN Connector	
Size	Document Number
Custom	MS-7356
Date: Thursday, December 21, 2006	Sheet 26 of 35
Rev 0A	

PWM Enable

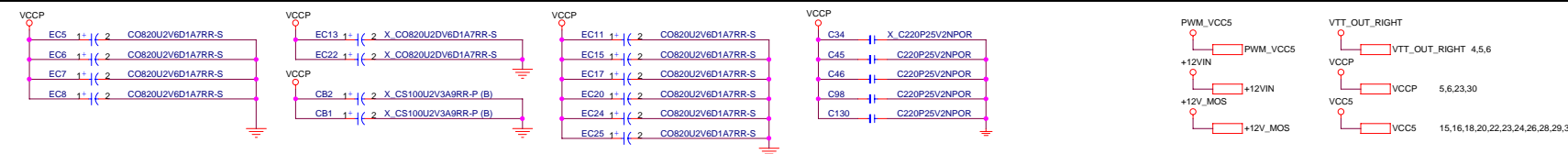
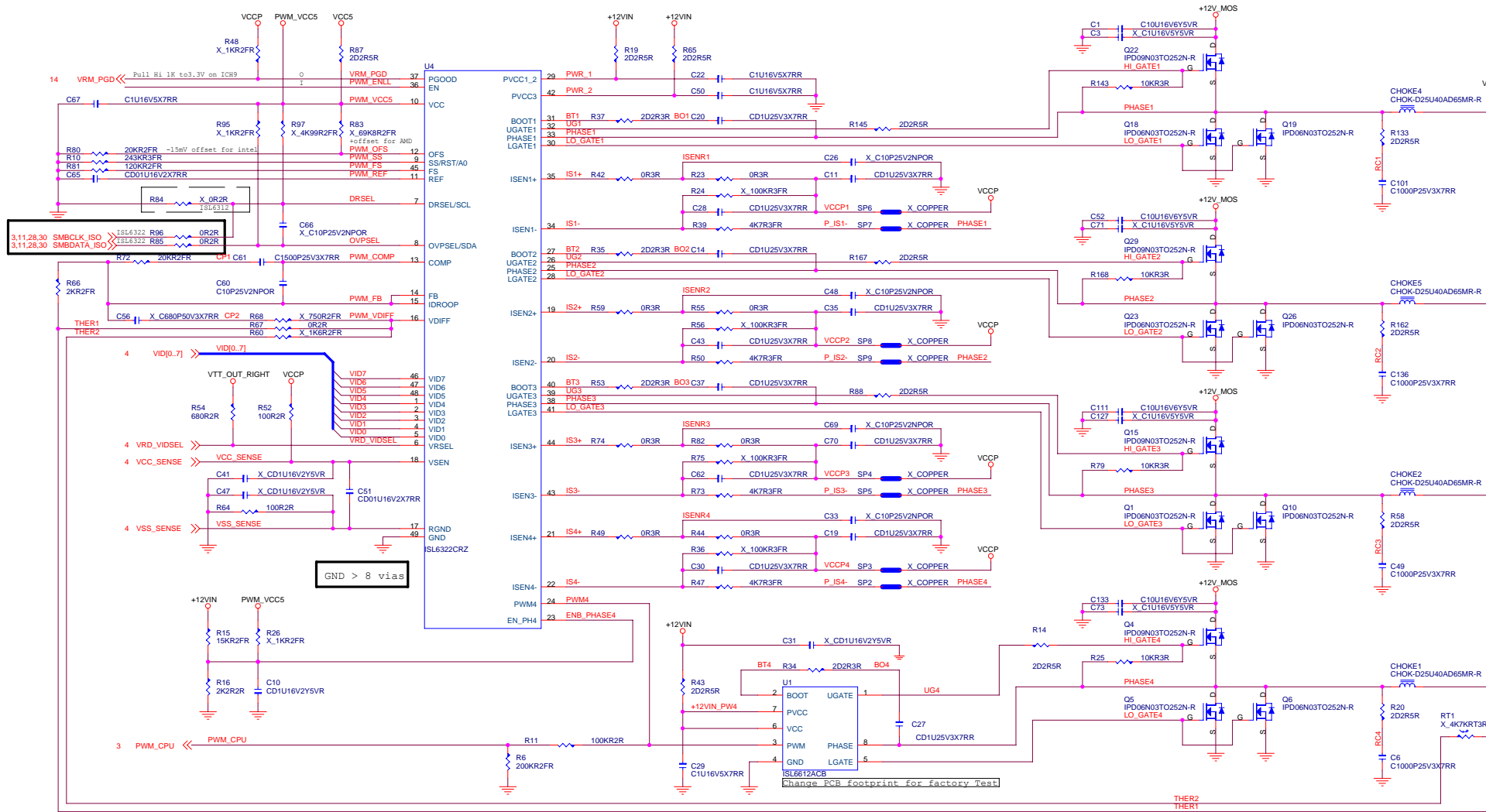
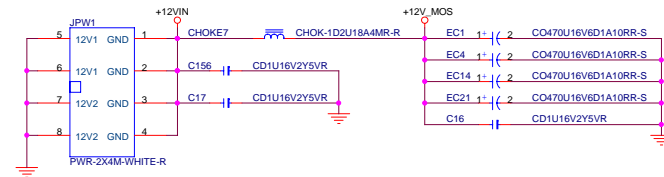


Over Voltage Reset for ISL6322CRZ

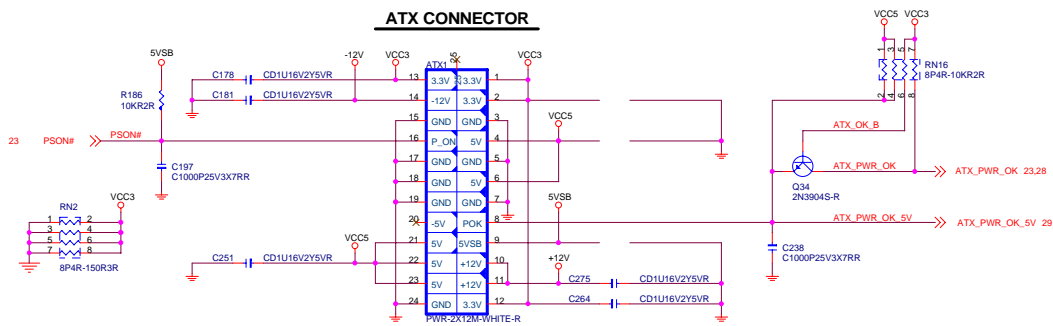
Pin9 of A0 = 0 ; I2C = 1000110X = 8C
Pin9 of A0 = 1 ; I2C = 1000111X = 8E



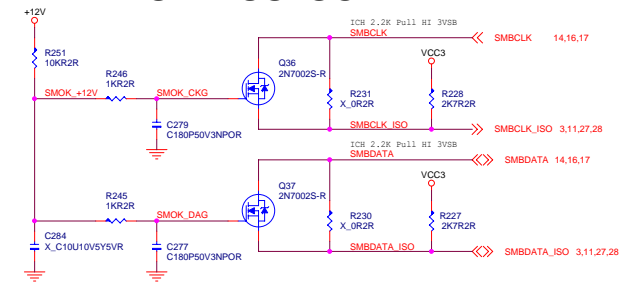
PCB footprint Error 改版時注意



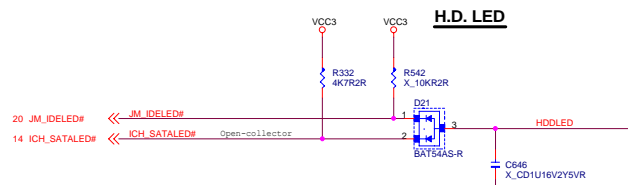
ATX CONNECTOR



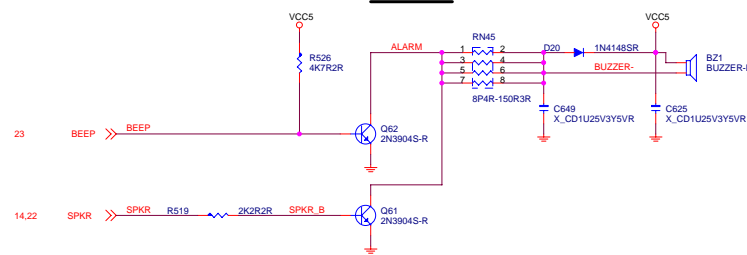
SM BUS ISO



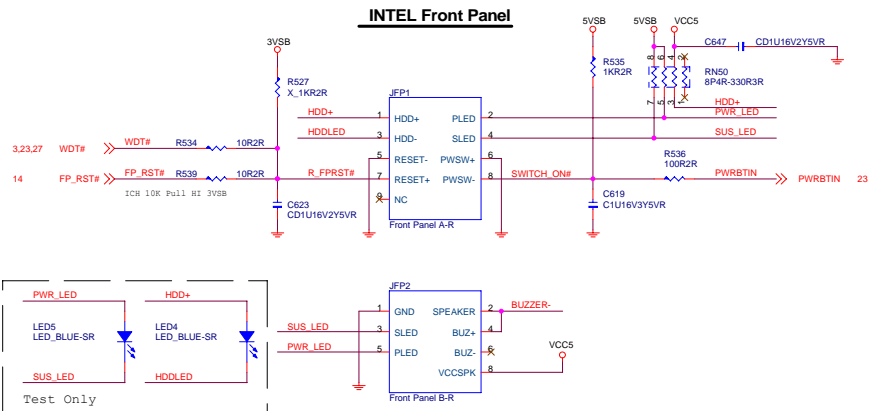
H.D. LED



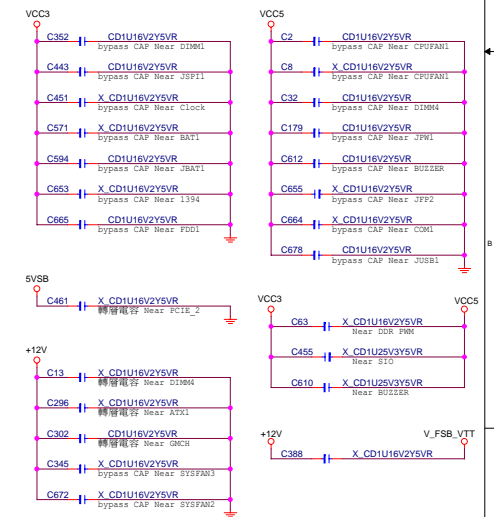
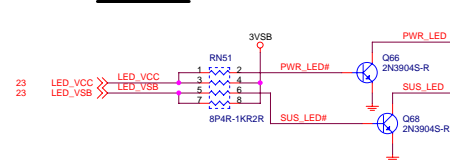
BUZZER



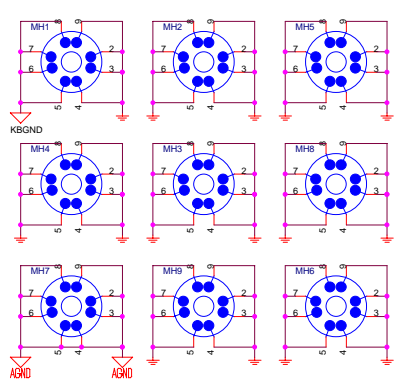
INTEL Front Panel



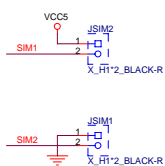
Power LED



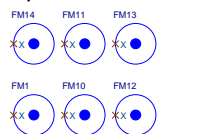
Mounting Holes



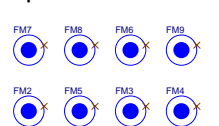
Simulation



Optical Fiducial Marks-120



Optical Fiducial Marks-100



DEBUG LED

