MS-7466 Version : 1.0

CPU :

Intel Lynnfield/ Clarkdale Processor

System Chipset :

Intel Ibex Peak (H57)

On Board Chipset :

VRM 11.1 -- On-Semi NCP5395
Gigabit LAN -- BROADCOM BCM57780
HDA Codec -- Realtek ALC662
ACPI Controller -- uPI Solution
Super I/O -- FinTek F71882FG
SPI Flash 64Mb

Main Memory :

2 Channel DDR III * 4 (Max 8GB)

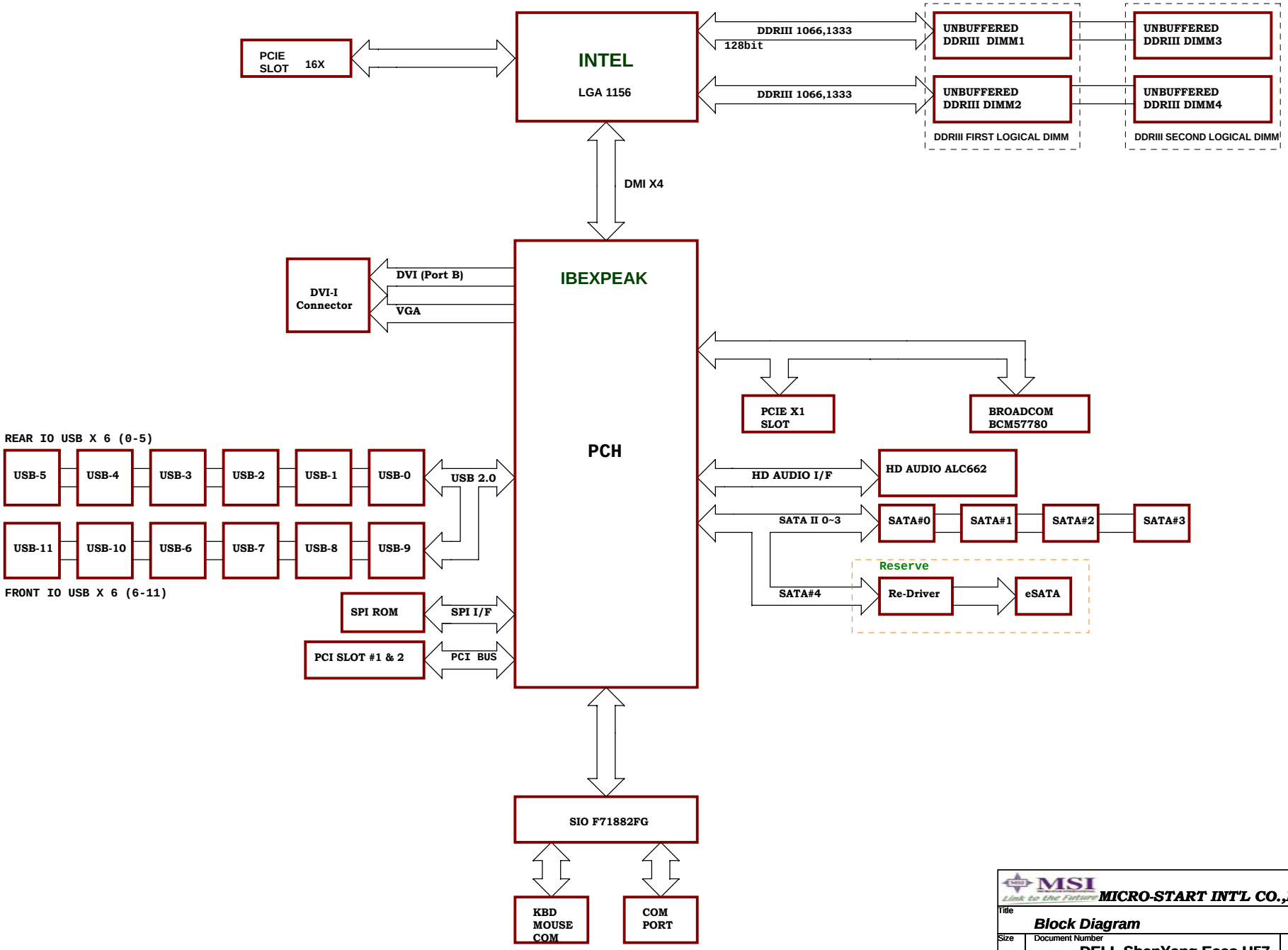
Expansion Slot :

PCI Express x16 Slot * 1
PCI Express x1 Slot * 1
PCI Slot * 2

DELL Shen Yang / ECCO H57 Project Version: A00

MICRO-START INT'L CO.,LTD.

Title: Cover Sheet		
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 1 of 34	

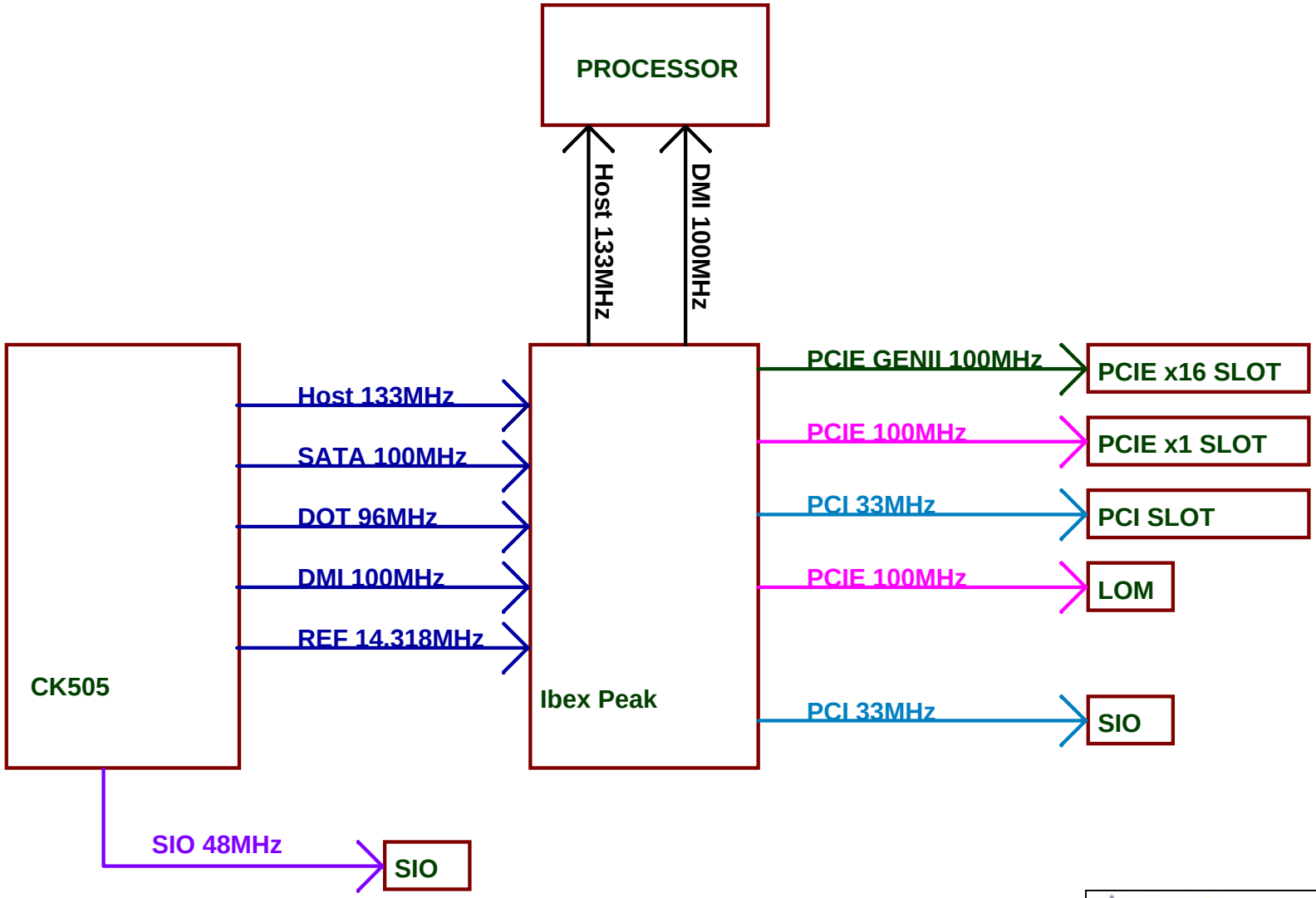


MSI MICRO-START INT'L CO.,LTD.

Title: Block Diagram

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

Date: Monday, November 02, 2009 | Sheet 2 of 34

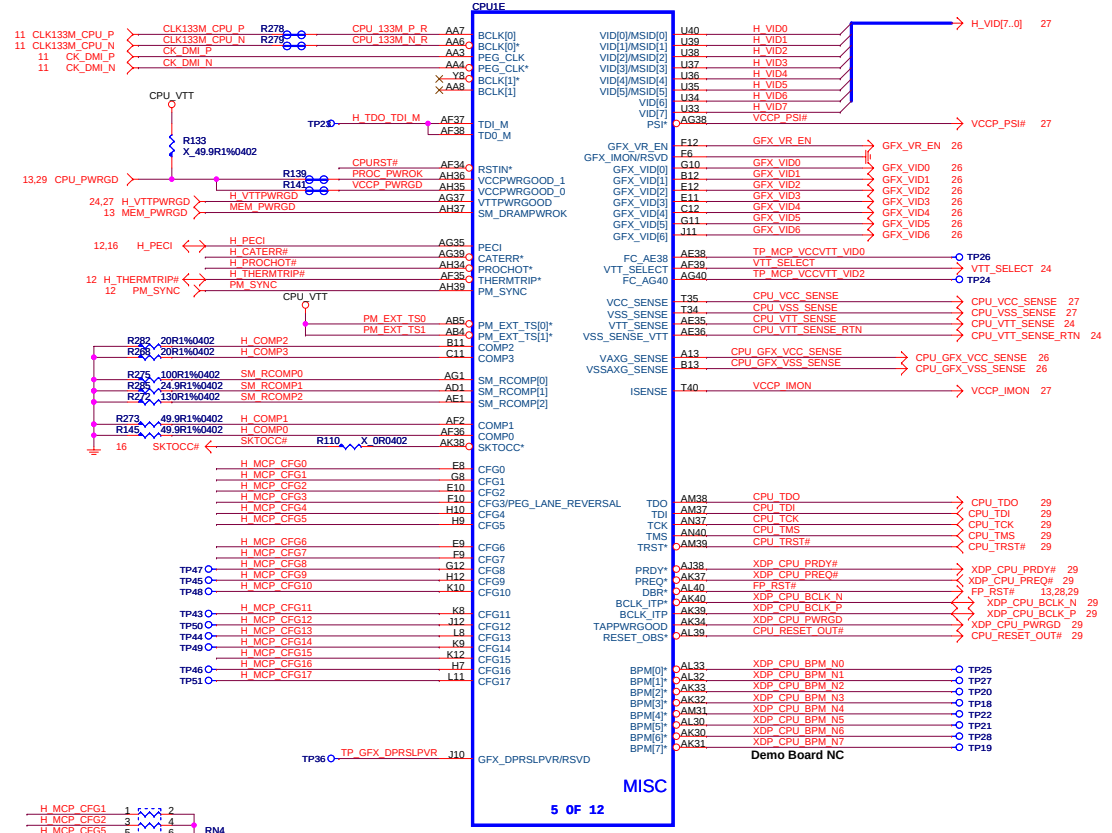


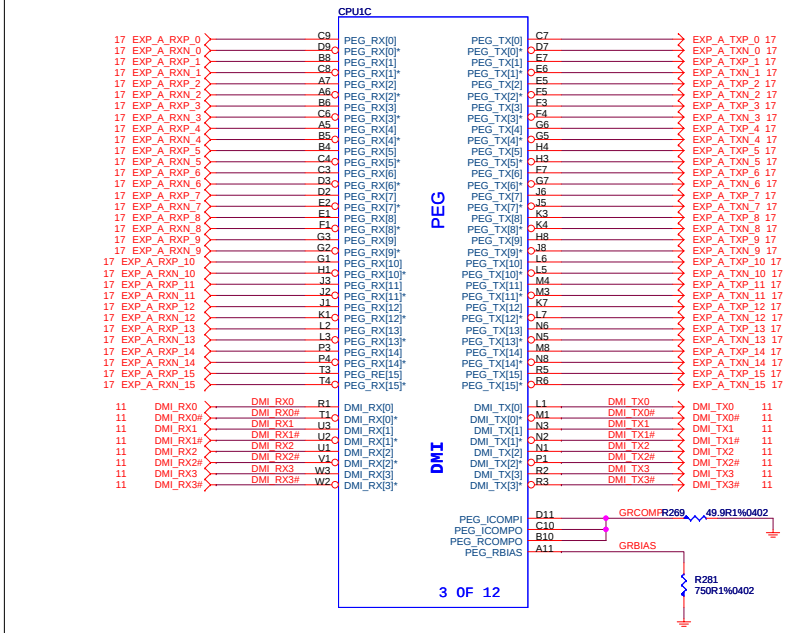
MSI MICRO-START INT'L CO.,LTD.

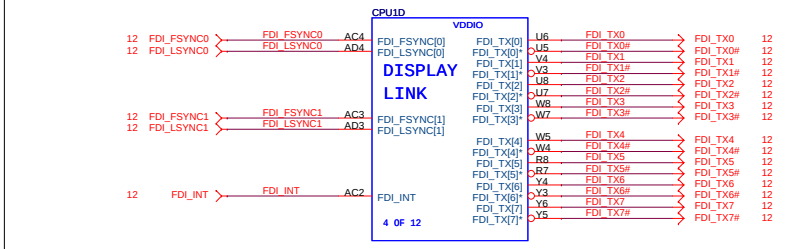
Title: Clock Distribution

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

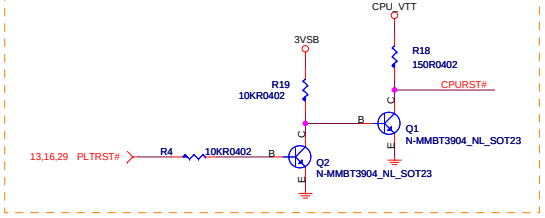
Date: Monday, November 02, 2009 | Sheet 3 of 34

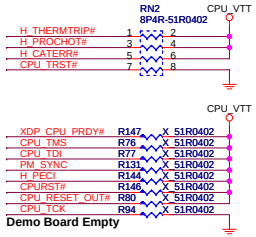






Follow Intel MOW, reverve for CPU Reset. - 2/10





CFG	H	L	DESCRIPTION
0	SEE PEG CONFIG TABLE		PEG SEL0
1	RSVD		PEG SEL1
2	RSVD		PEG SEL2
3	NORM	REVERSED	PEG LANE REVERSAL
4	DISABLE	ENABLED	DP PRESENCE
5	RSVD		
6	RSVD		
7	RSVD		ENGINEERING EXPERIMENT
15	RSVD		ENGINEERING EXPERIMENT

PEG CONFIG TABLE

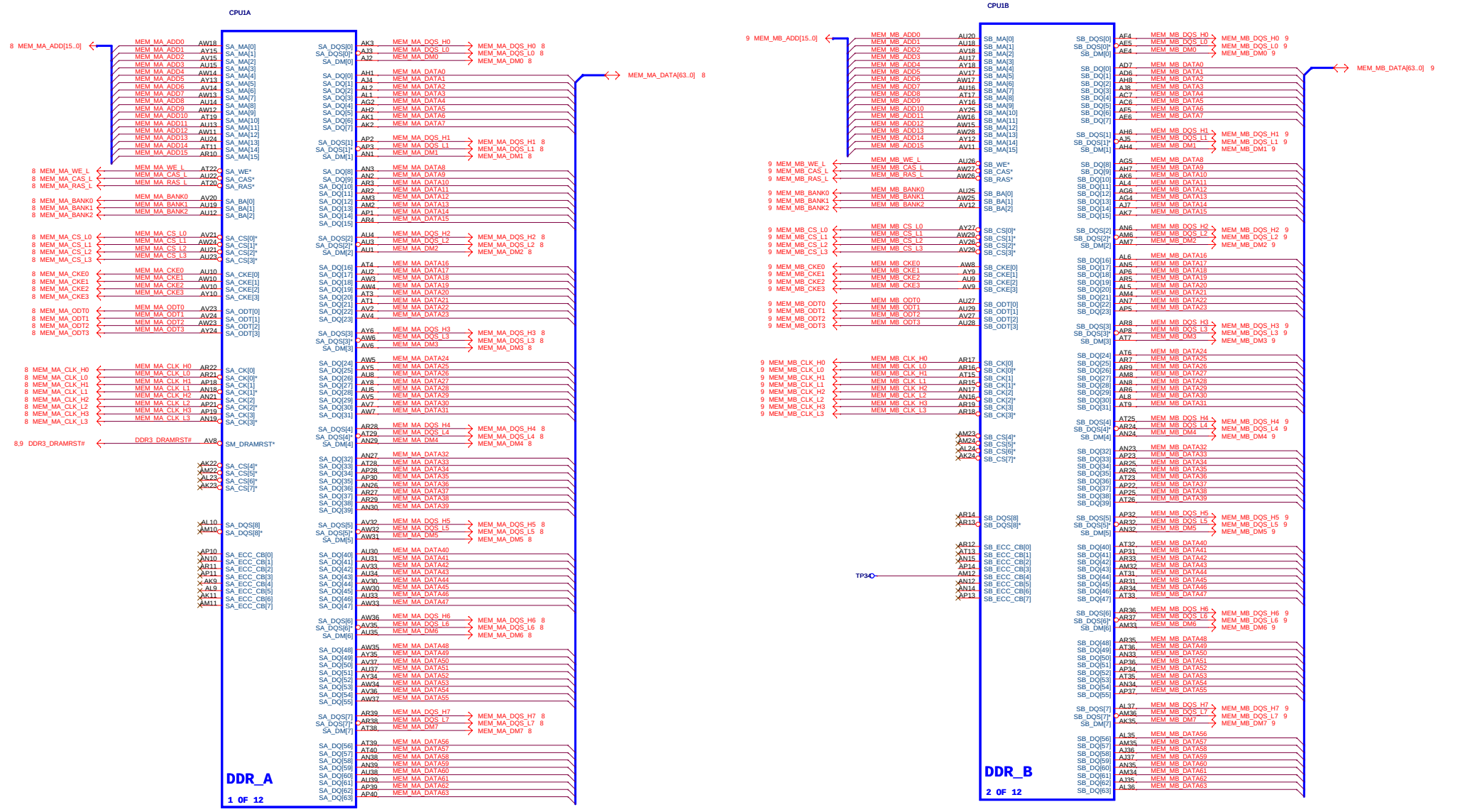
SEL2	SEL1	SEL0	PCIE CONFIG
1	1	1	1 X 16
1	1	0	2 X 8

MSI — Link to the Future — MICRO-START INT'L CO.,LTD.

Title: CPU-CNTL/CLK/MISC

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

Date: Monday, November 02, 2009 | Sheet 4 of 34

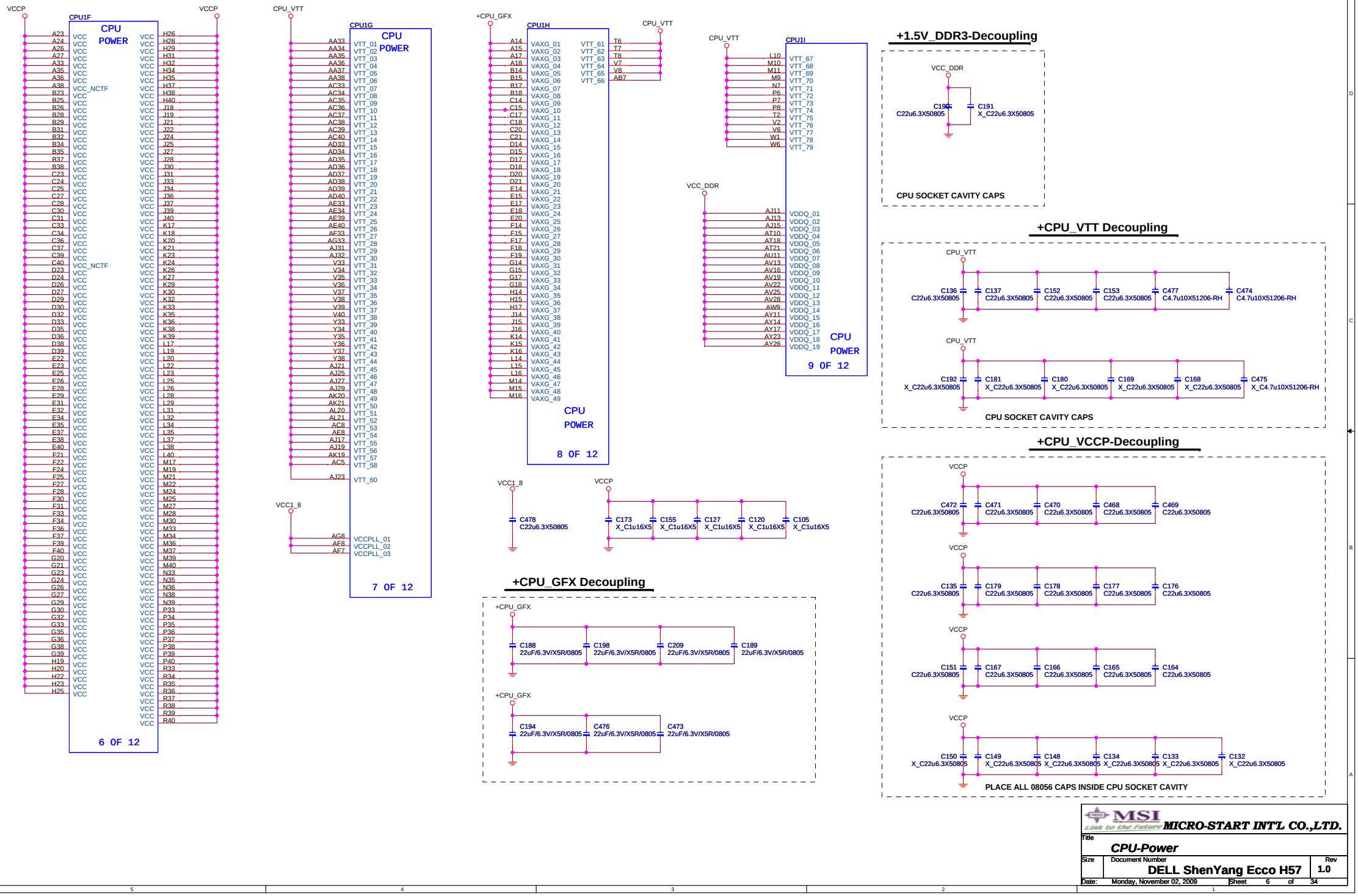


MSI MICRO-START INT'L CO.,LTD.

Title: CPU-Memory

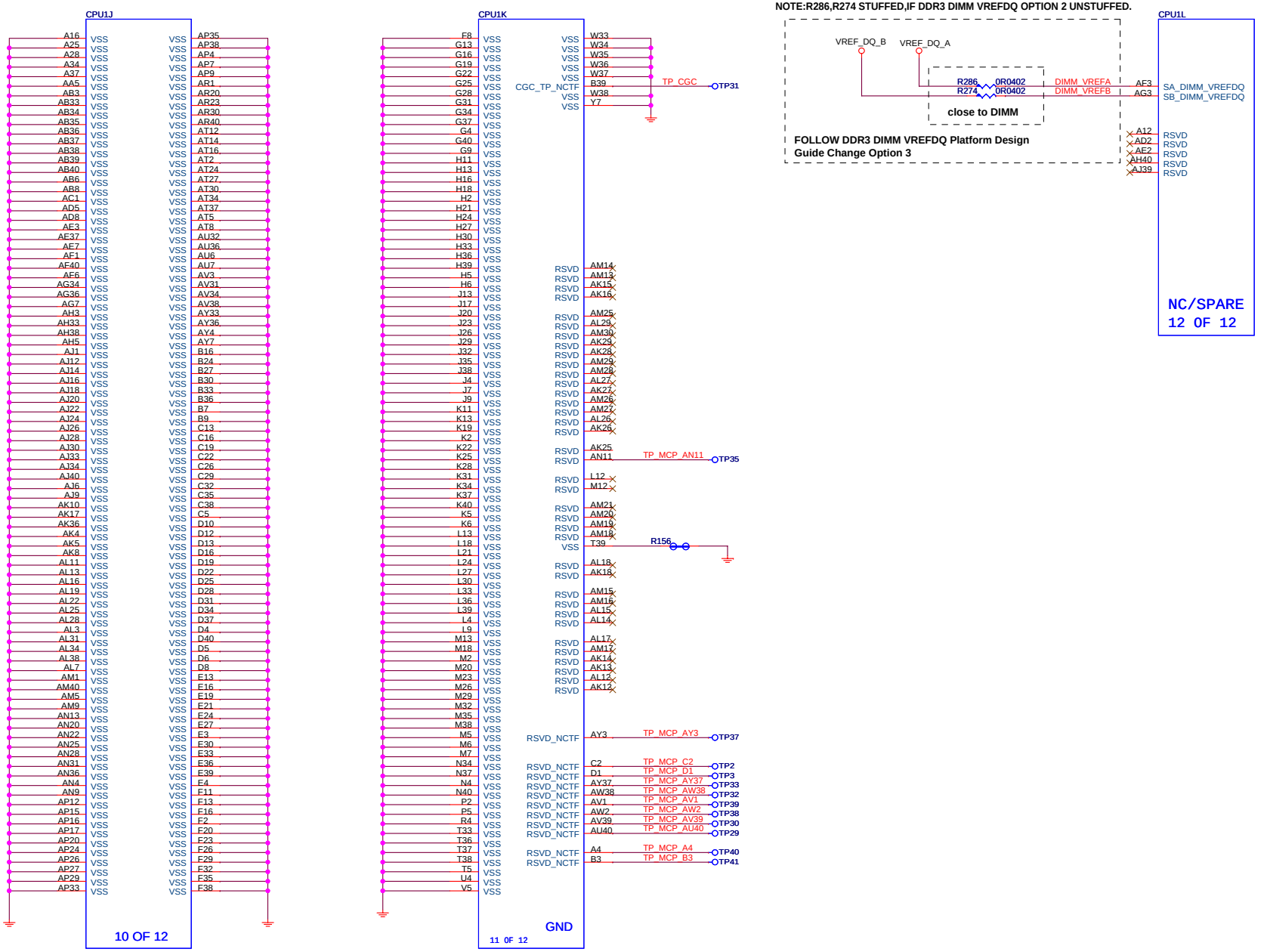
Size	Document Number	Rev
	DELL ShenYang Ecco H57	1.0

Date: Monday, November 02, 2009 Sheet 5 of 34



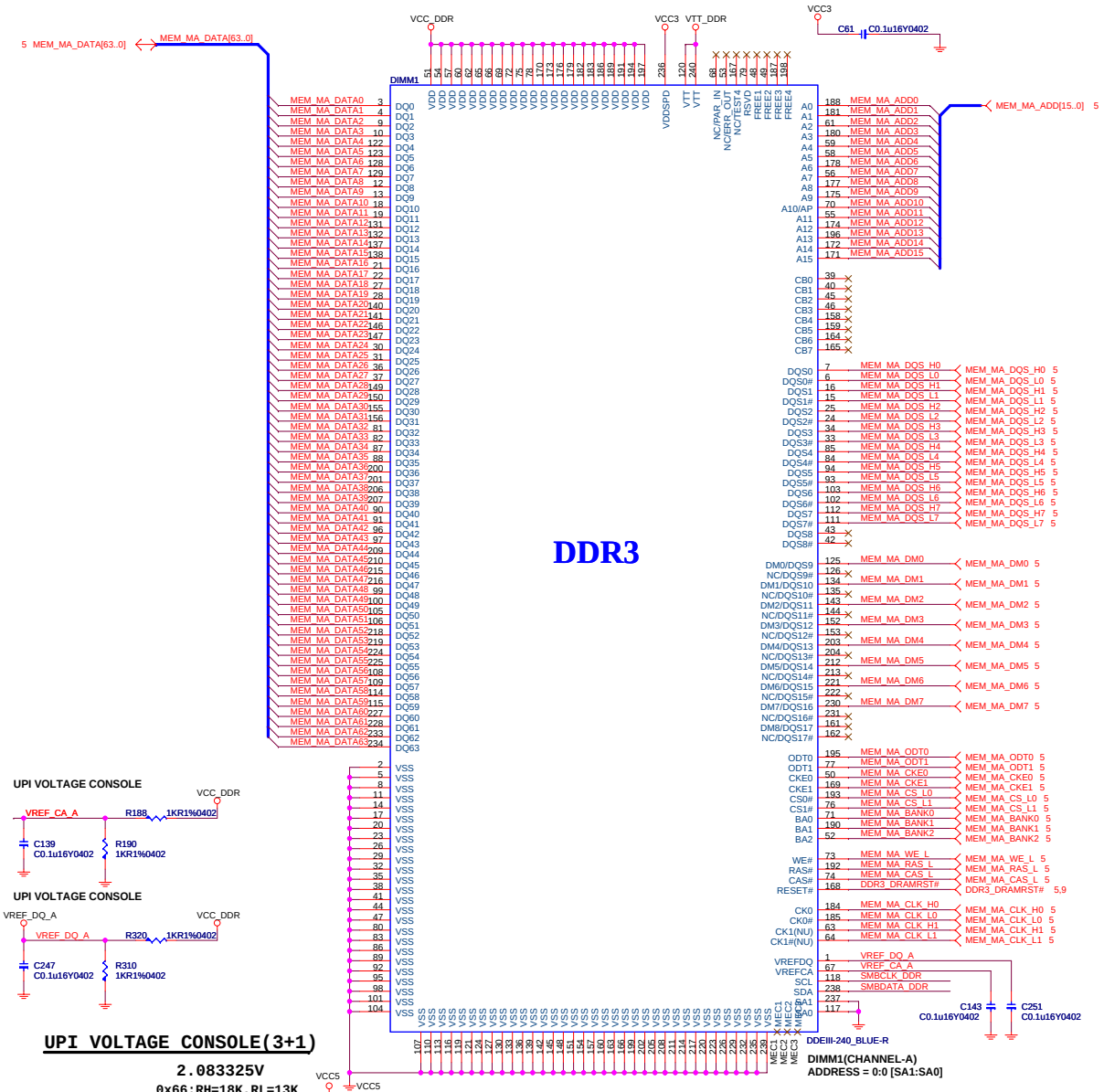
MICRO-START INT'L CO.,LTD.

Title	CPU-Power	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 6 of 34	

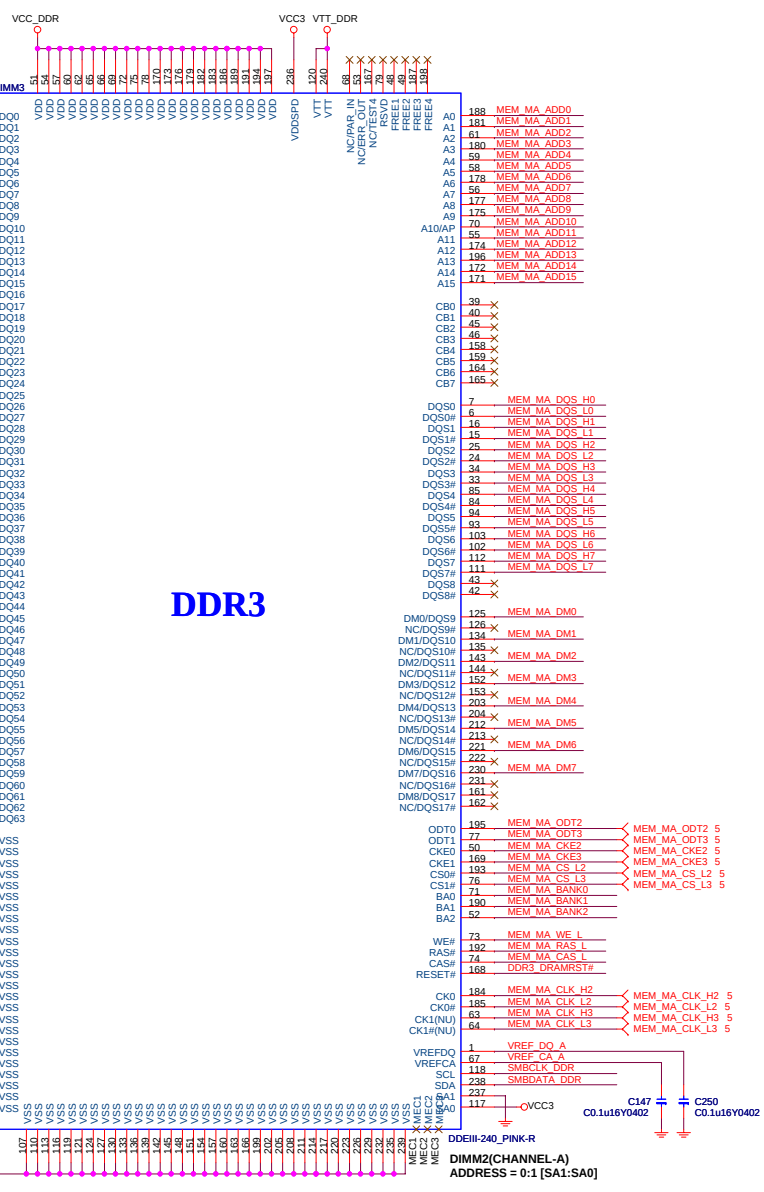


MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	CPU-GND	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 7 of 34	

DDRIII DIMM_A1



DDRIII DIMM_A2



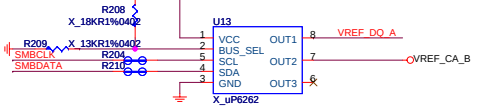
UPI VOLTAGE CONSOLE

UPI VOLTAGE CONSOLE

UPI VOLTAGE CONSOLE(3+1)

2.083325V

0x66:RH=18K,RL=13K



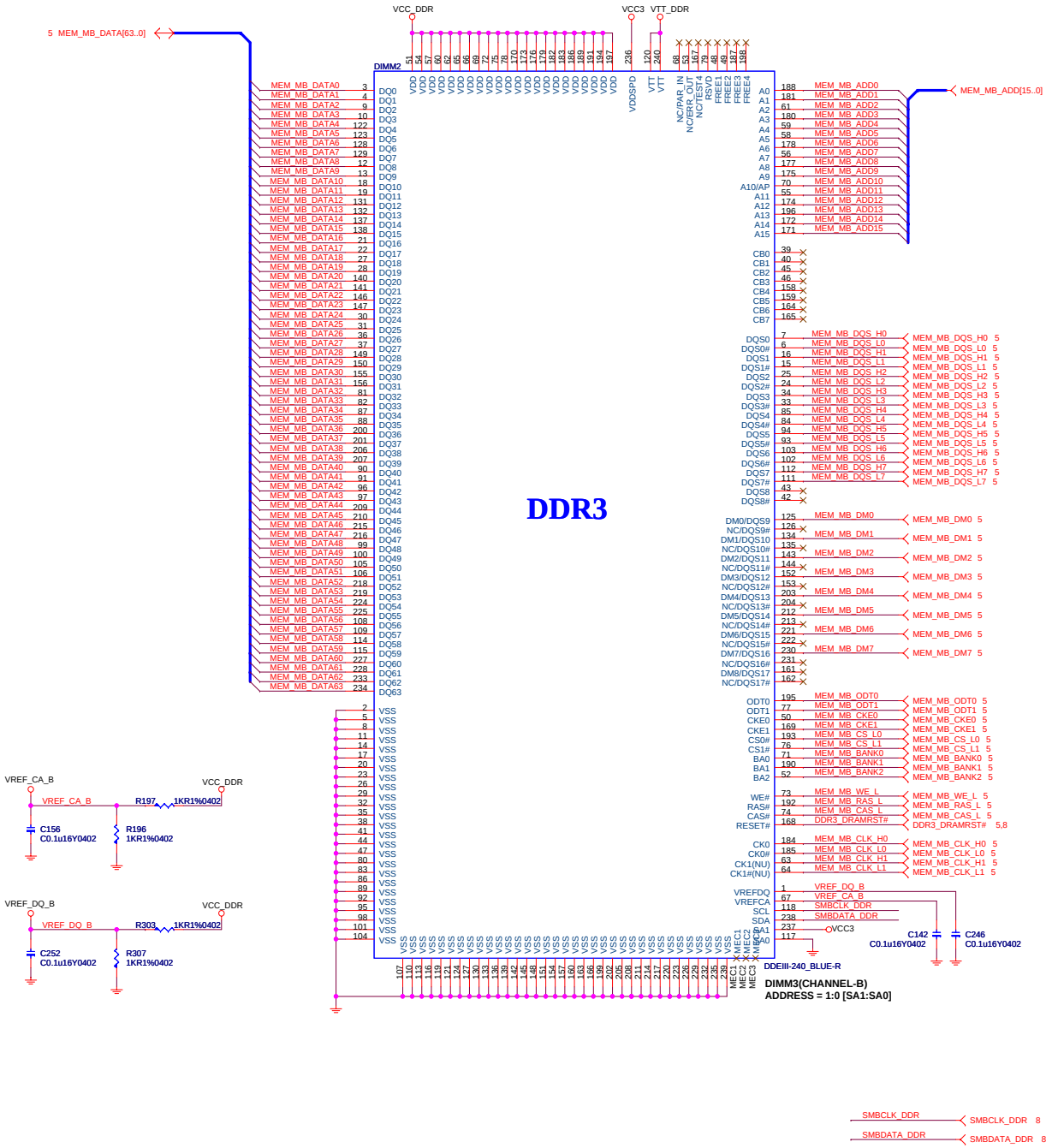
MSI Link to the Future MICRO-START INT'L CO.,LTD.

Title: DDR3 Chanel-A DIMM1/2

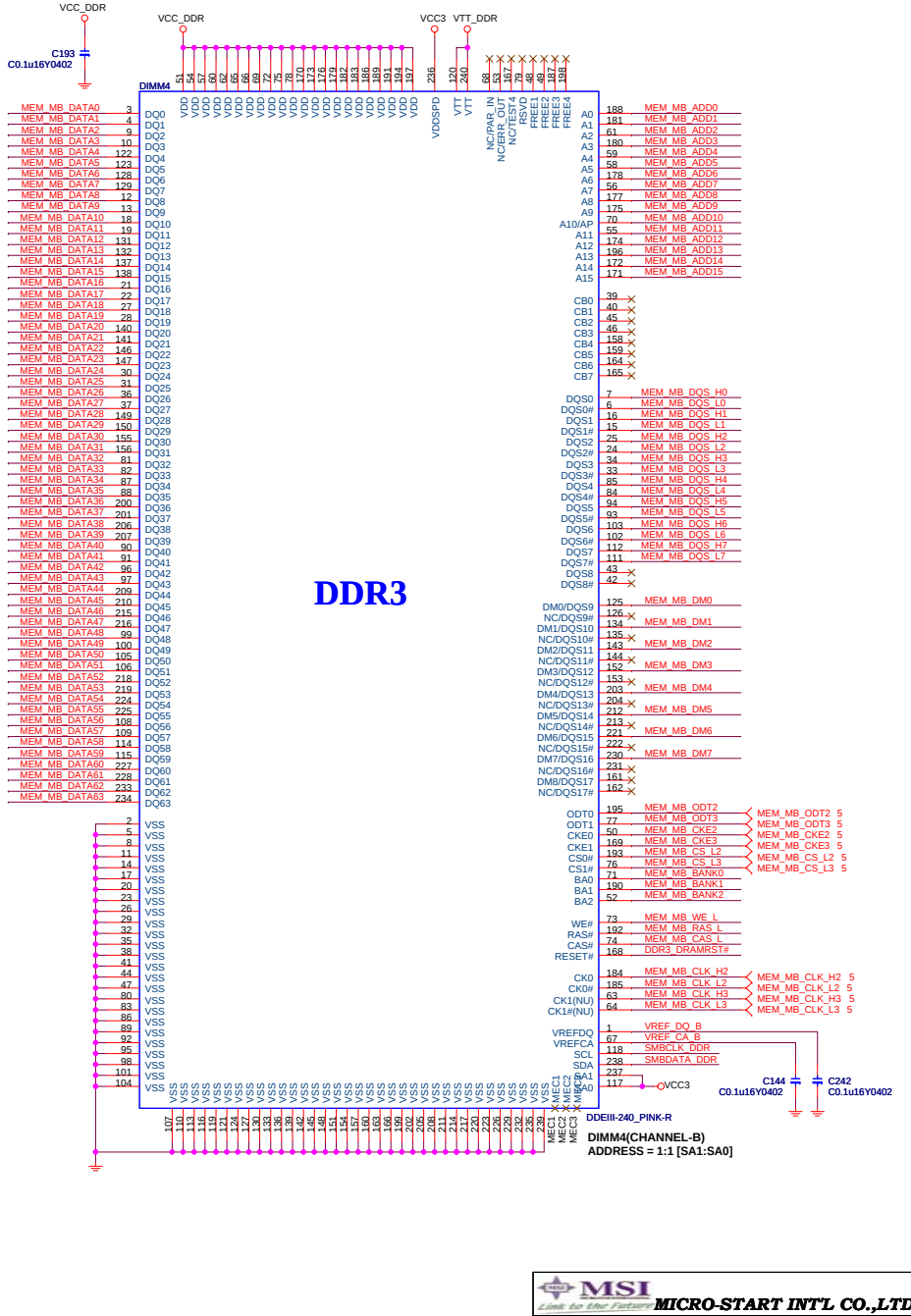
Size	Document Number	Rev
	DELL ShenYang Ecco H57	1.0

Date: Monday, November 02, 2009 Sheet 8 of 34

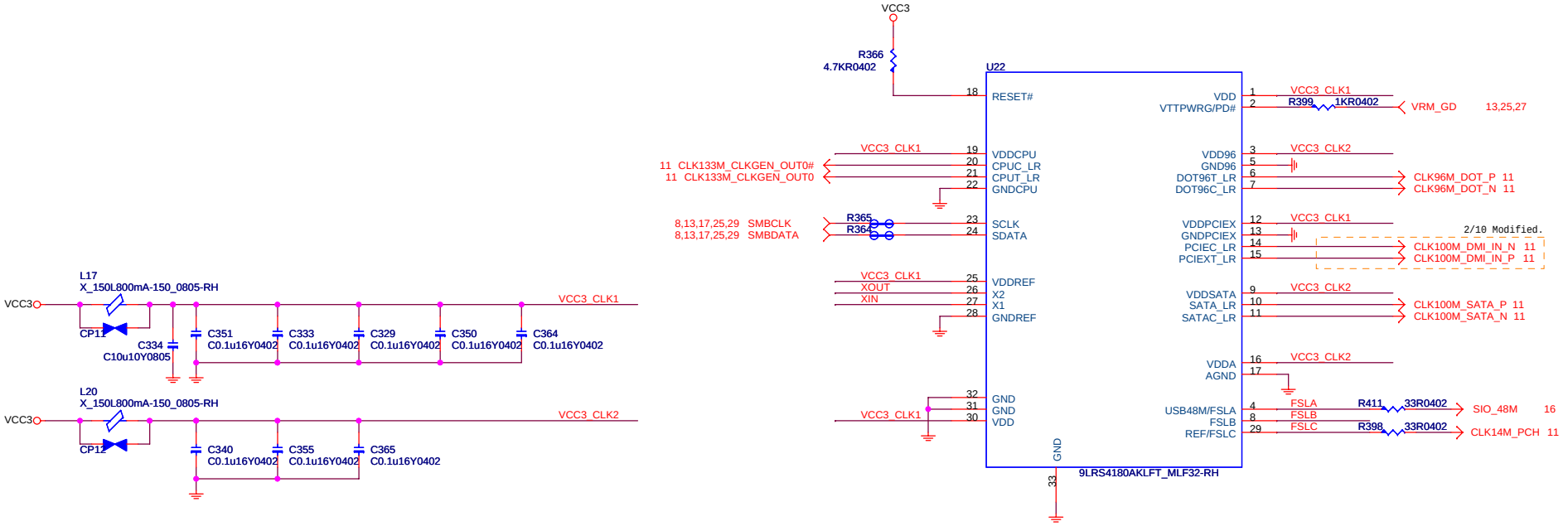
DDRIII DIMM_B1



DDRIII DIMM_B2



MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	DDR3 Chanel-B DIMM3/4		
Size	Document Number	DELL ShenYang Ecco H57	Rev 1.0
Date: Monday, November 02, 2009	Sheet 9 of 34		

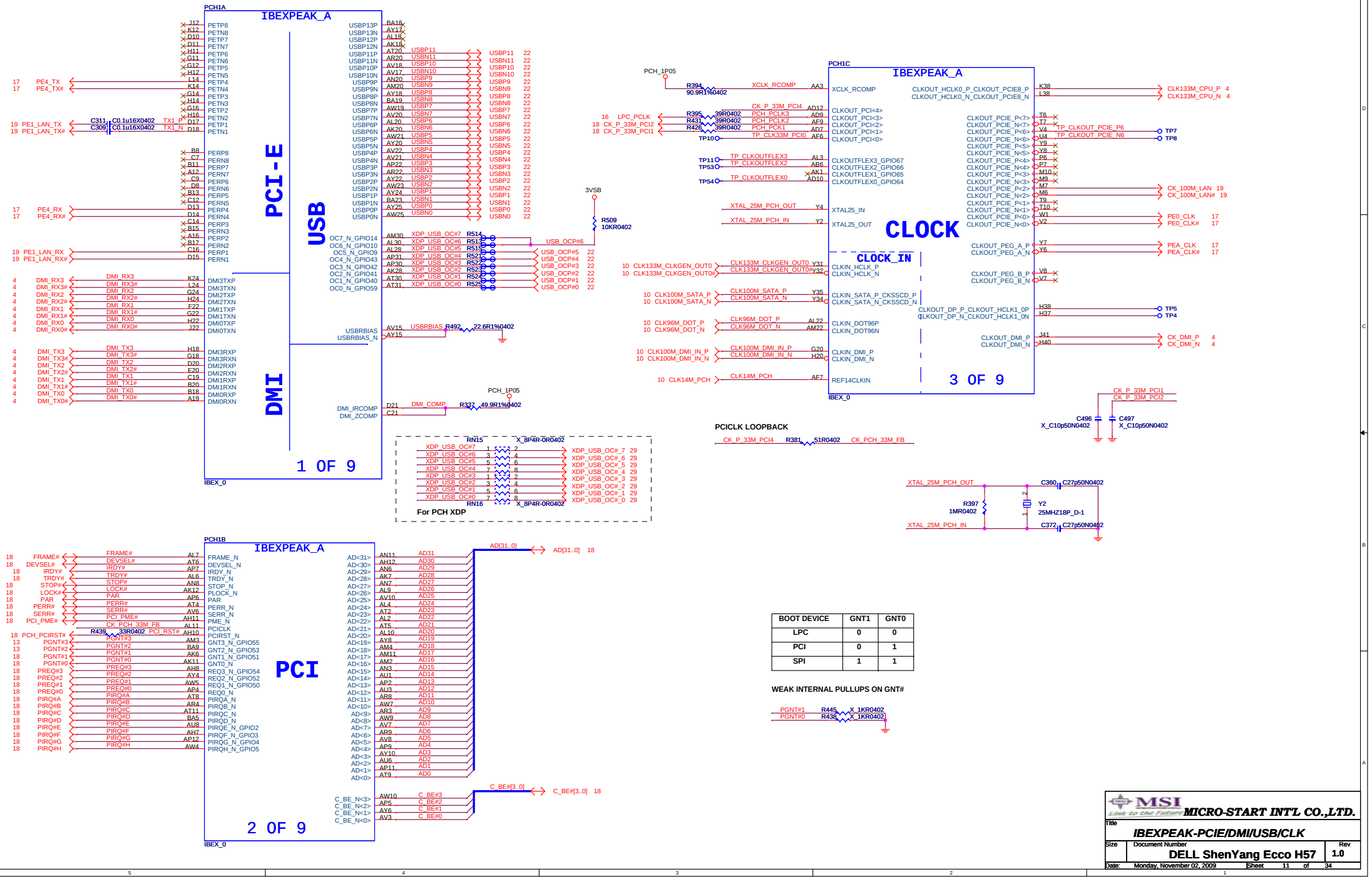


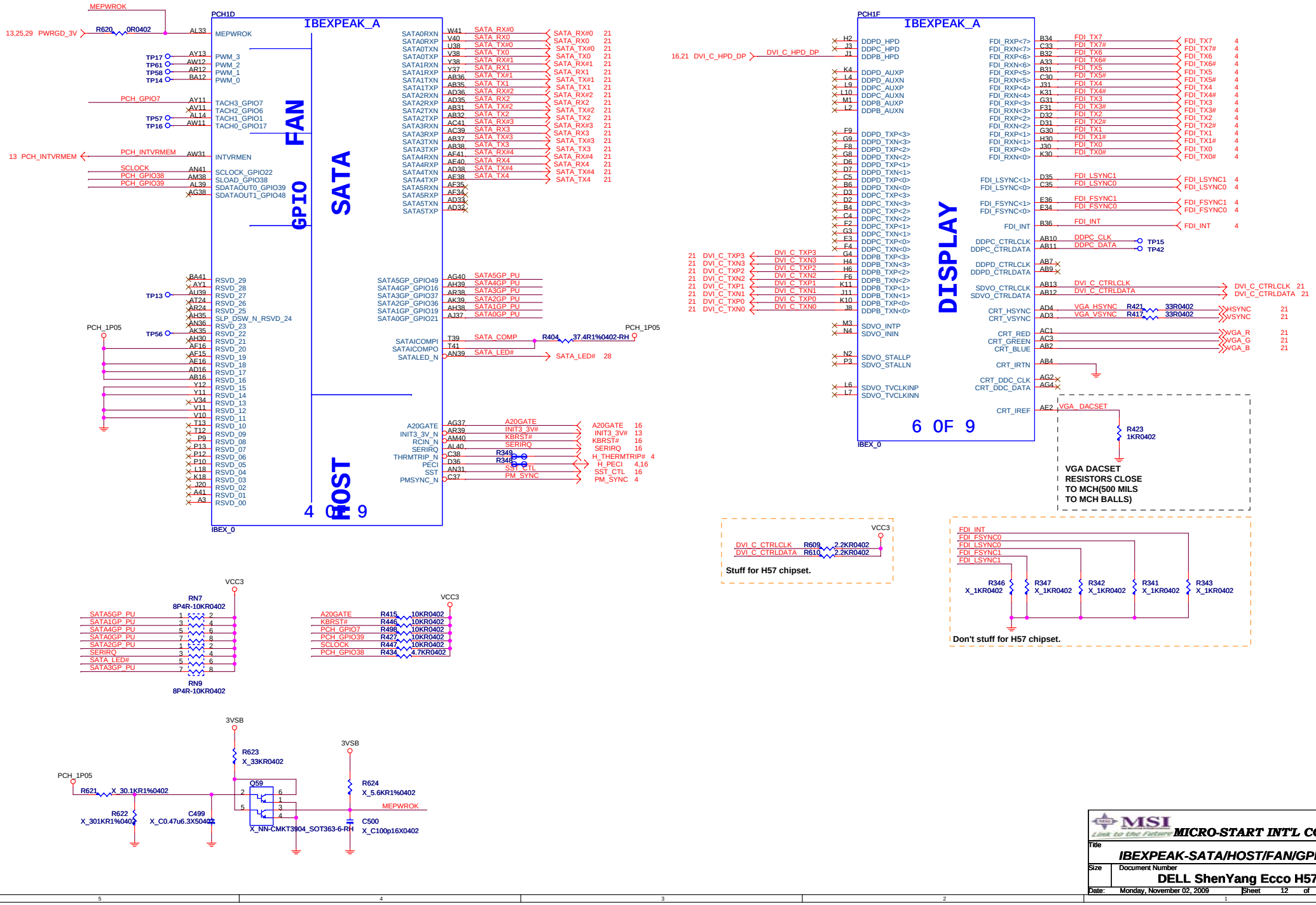
MICRO-START INT'L CO.,LTD.

Title: CLOCK GEN SILEGO ICS9LPRS4180

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

Date: Monday, November 02, 2009 | Sheet 10 of 34


PCH1A
IBEXPEAK_A
PCI-E
USB
DMI
1 0F 9
IBEX_0
PCH1C
IBEXPEAK_A
CLOCK
CLOCK_IN
3 0F 9
IBEX_0
PCH1B
IBEXPEAK_A
PCI
2 0F 9
IBEX_0
PCICLK LOOPBACK
For PCH XDP
BOOT DEVICE
GNT1
GNT0
LPC
PCI
SPI
WEAK INTERNAL PULLUPS ON GNT#
MSI
MICRO-START INT'L CO.,LTD.
IBEXPEAK-PCIE/DMI/USB/CLK
DELL ShenYang Ecco H57
1.0
Monday, November 02, 2009



MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	IBEXPEAK-SATA/HOST/FAN/GPIO	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 12 of 34	

REQUIRED STRAPS

DMI AC COUPLING
FULL VOLTAGE MODE WHEN SAMPLED LOW

A16 SWAP OVERRIDE
OVERRIDE IF SAMPLED LOWT

OD PLL VR SUPPLY SEL
1.8V SUPPLY WHEN LOW
1.5V SUPPLY WHEN HI

DANBURY (ANTI-THEFT) TECHNOLOGY
ENABLE WHEN SAMPLED HIGH

DMI TERMINATION VOLTAGE
AC COUP: TX/RX TO VCC IF SAMPLED HIGH
DC COUP: HALF SWING IF SAMPLED LOW

INTEGRATED 1.05V SUS VRM ENABLE
SUS VRM ENABLE WHEN SAMPLED HIGH

TLS CONFIDENTIALITY DISABLE
DISABLED WHEN SAMPLED LOW

CLOCK VALIDATION STRAP
EMPTY JUMPER FOR BUFFER THROUGH MODE

STUFF TO ENABLE NO-REBOOT OPTION AT
POWER-UP (CONFIGURATION STRAPPING)

JBAT1 Clear CMOS

CMOS CLEAR JUMPER	
1 - 2	Normal
2 - 3	Clear CMOS

JLOCK1 — Short pin1 & pin2 for FW override.

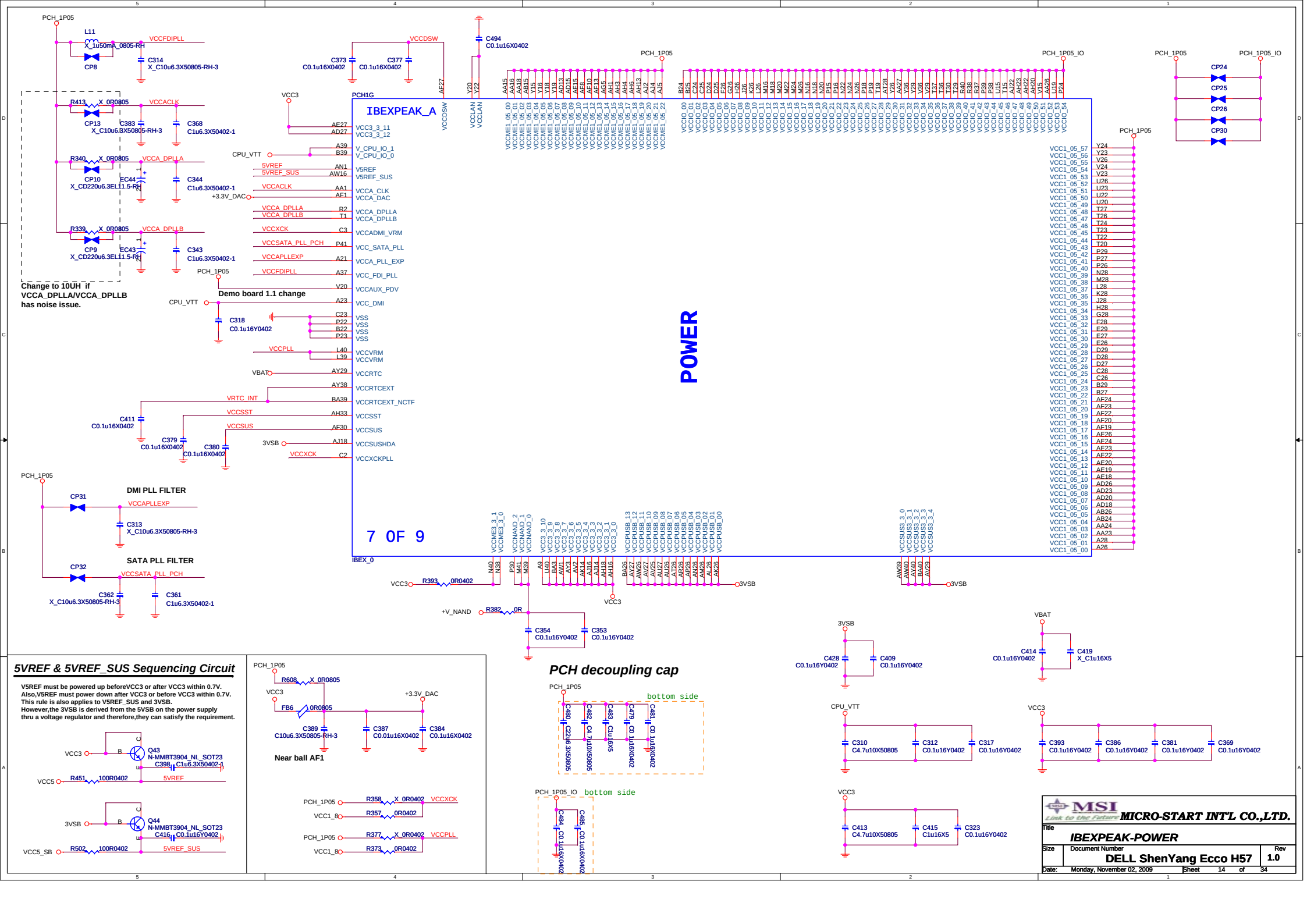
PCH1E — IBEXPEAK_A — 5 OF 9 — IBEX_0

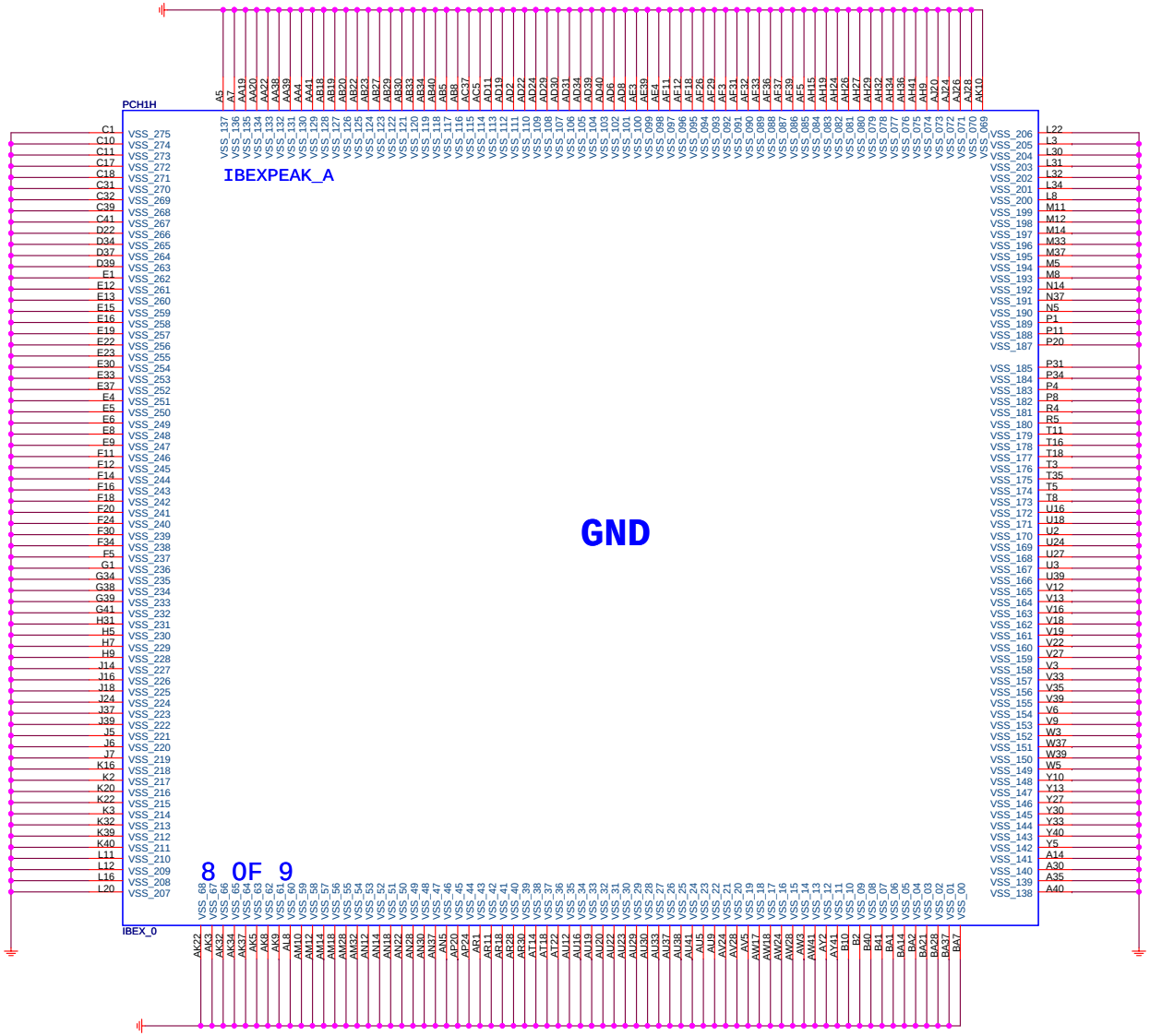
RTC Block
Close to PCH

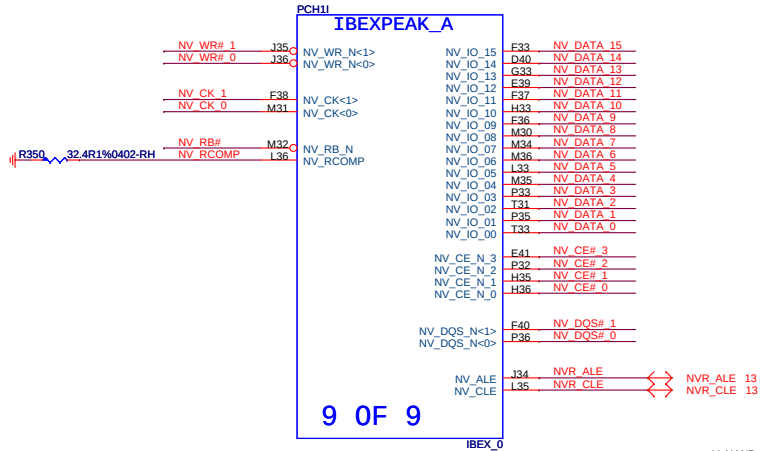
SPI DEBUG PROT
Close to SPI ROM

SPI FLASH ROM
Place close to SB.

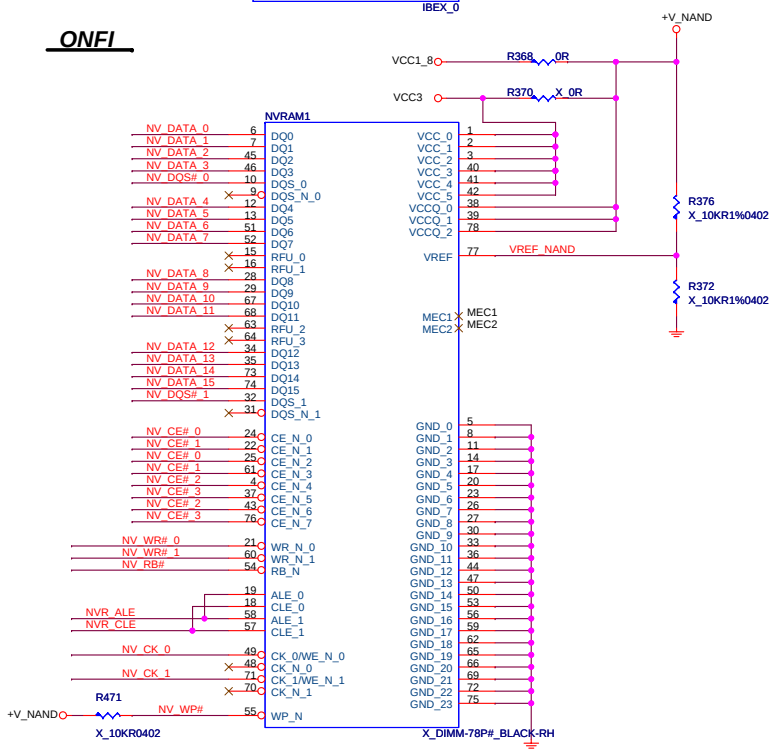
MICRO-START INT'L CO.,LTD.
Title: IBEXPEAK-SMB/LPC/AUDIO/RTC
Size: | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0
Date: Monday, November 02, 2009 | Sheet 13 of 34


POWER
IBEXPEAK_A
PCH1G
7 OF 9
IBEX_0
Change to 10UH if VCCA_DPLLA/VCCA_DPLLB has noise issue.
Demo board 1.1 change
DMI PLL FILTER
SATA PLL FILTER
5VREF & 5VREF_SUS Sequencing Circuit
V5REF must be powered up beforeVCC3 or after VCC3 within 0.7V.
Also,V5REF must power down after VCC3 or before VCC3 within 0.7V.
This rule is also applies to V5REF_SUS and 3VSB.
However,the 3VSB is derived from the 5VSB on the power supply thru a voltage regulator and therefore,they can satisfy the requirement.
Near ball AF1
PCH decoupling cap
bottom side
MICRO-START INT'L CO.,LTD.
IBEXPEAK-POWER
DELL ShenYang Ecco H57
1.0
Monday, November 02, 2009
14 of 34

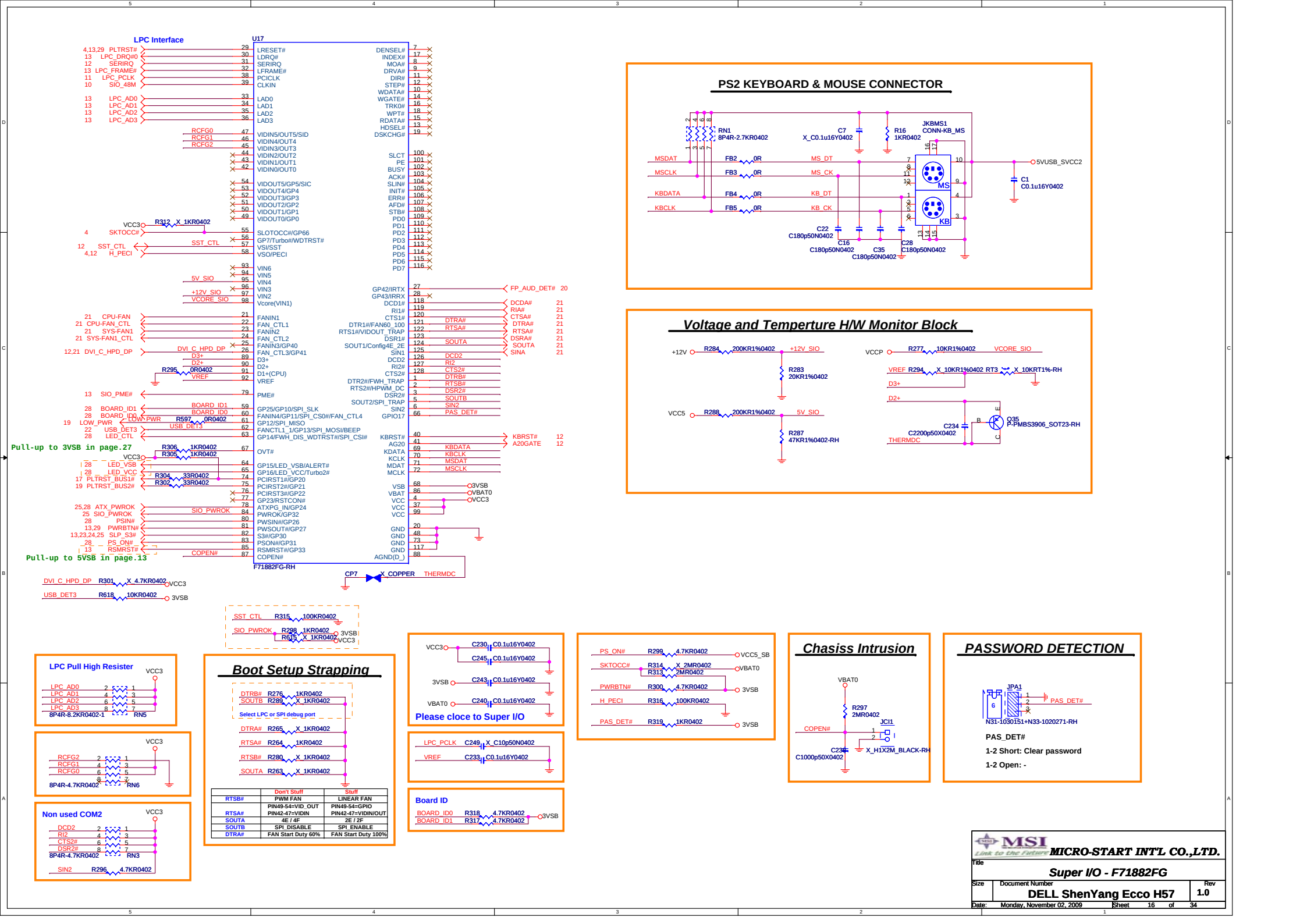




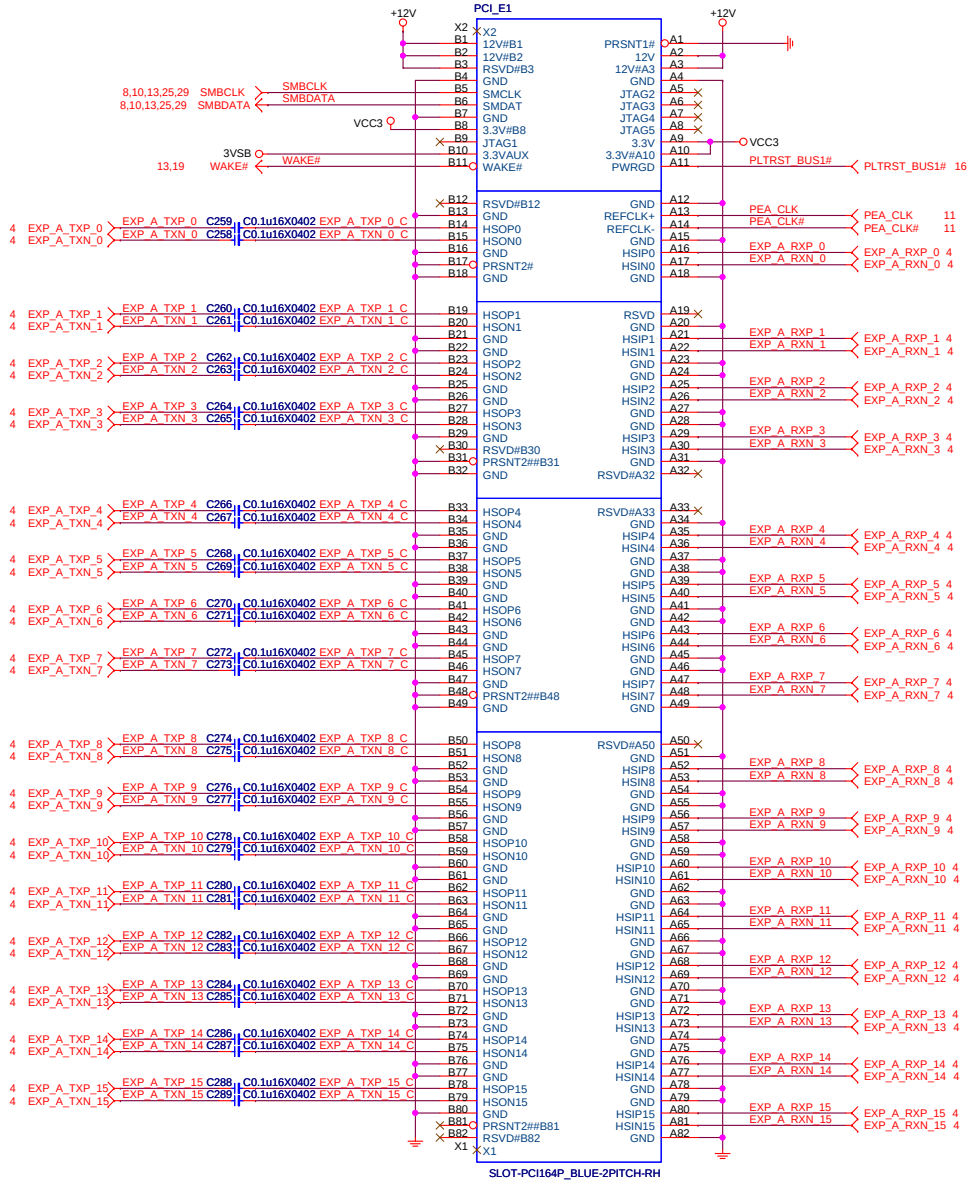
ONFI



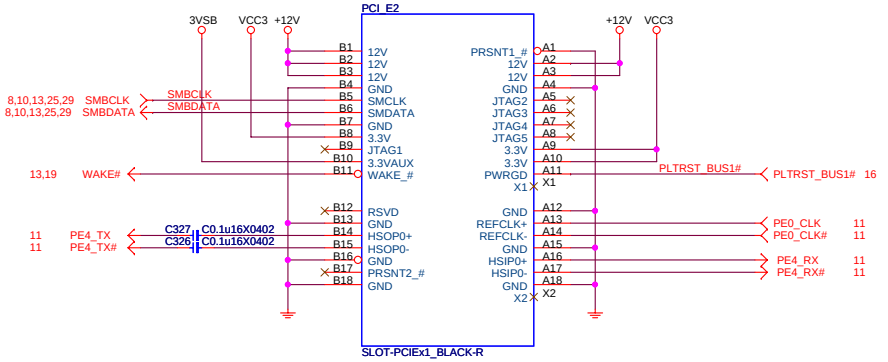
MSI MICRO-START INT'L CO.,LTD.			
Title: IBEXPEAK-GND/NVRAM			
Size	Document Number: DELL ShenYang Ecco H57		Rev: 1.0
Date: Monday, November 02, 2009	Sheet 15 of 34		

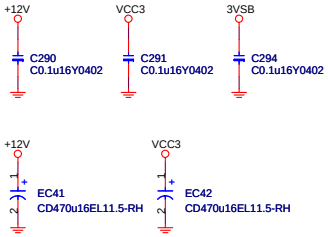

LPC Interface
U17
F71882FG-RH
PS2 KEYBOARD & MOUSE CONNECTOR
JKBMS1
CONN-KB_MS
RN1
8P4R-2.7KR0402
C7
X_C0.1u16Y0402
R16
1KR0402
MSDAT
MSCLK
KBDATA
KBCLK
FB2 0R
FB3 0R
FB4 0R
FB5 0R
MS_DT
MS_CK
KB_DT
KB_CK
5VUSB_SVCC2
C1
C0.1u16Y0402
C22
C180p50N0402
C16
C180p50N0402
C35
C180p50N0402
C28
C180p50N0402
Voltage and Temperture H/W Monitor Block
+12V
R284 200KR1%0402
+12V_SIO
R283
20KR1%0402
VCC5
R288 200KR1%0402
5V_SIO
R287
47KR1%0402-RH
VCCP
R277 10KR1%0402
VCORE_SIO
VREF R294 X_10KR1%0402 RT3 X_10KRT1%-RH
D3+
D2+
C234
C2200p50X0402
Q35
P-PMBS3906_SOT23-RH
THERMDC
Pull-up to 3VSB in page.27
Pull-up to 5VSB in page.13
DVI_C_HPD_DP R301 X_4.7KR0402 VCC3
USB_DET3 R618 10KR0402 3VSB
SST_CTL R315 100KR0402
SIO_PWROK R298 1KR0402 3VSB
R615 X_1KR0402 VCC3
LPC Pull High Resister
LPC_AD0
LPC_AD1
LPC_AD2
LPC_AD3
8P4R-8.2KR0402-1
RN5
RCFG2
RCFG1
RCFG0
8P4R-4.7KR0402
RN6
Non used COM2
DCD2
RI2
CTS2#
DSR2#
8P4R-4.7KR0402
RN3
SIN2 R296 4.7KR0402
Boot Setup Strapping
DTRB# R276 1KR0402
SOUTB R289 X_1KR0402
Select LPC or SPI debug port
DTRA# R265 X_1KR0402
RTSA# R264 1KR0402
RTSB# R280 X_1KR0402
SOUTA R263 X_1KR0402
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 / 4F 2E / 2F
SOUTB SPI_DISABLE SPI_ENABLE
DTRA# FAN Start Duty 60% FAN Start Duty 100%
Please cloce to Super I/O
C230 C0.1u16Y0402
C245 C0.1u16Y0402
C243 C0.1u16Y0402
C240 C0.1u16Y0402
LPC_PCLK C249 X_C10p50N0402
VREF C233 C0.1u16Y0402
Board ID
BOARD_ID0 R318 4.7KR0402
BOARD_ID1 R317 4.7KR0402
3VSB
PS_ON# R299 4.7KR0402 VCC5_SB
SKTOCC# R314 X_2MR0402 VBAT0
R313 2MR0402
PWRBTN# R300 4.7KR0402 3VSB
H_PECI R316 100KR0402
PAS_DET# R319 1KR0402 3VSB
Chasiss Intrusion
VBAT0
R297
2MR0402
COPEN#
JCI1
C236
C1000p50X0402
X_H1X2M_BLACK-RH
PASSWORD DETECTION
JPA1
PAS_DET#
N31-1030151+N33-1020271-RH
PAS_DET#
1-2 Short: Clear password
1-2 Open: -
MSI
MICRO-STAR INT'L CO.,LTD.
Title
Super I/O - F71882FG
Size
Document Number
DELL ShenYang Ecco H57
Rev
1.0
Date: Monday, November 02, 2009
Sheet 16 of 34

PCI EXPRESS X16 SLOT



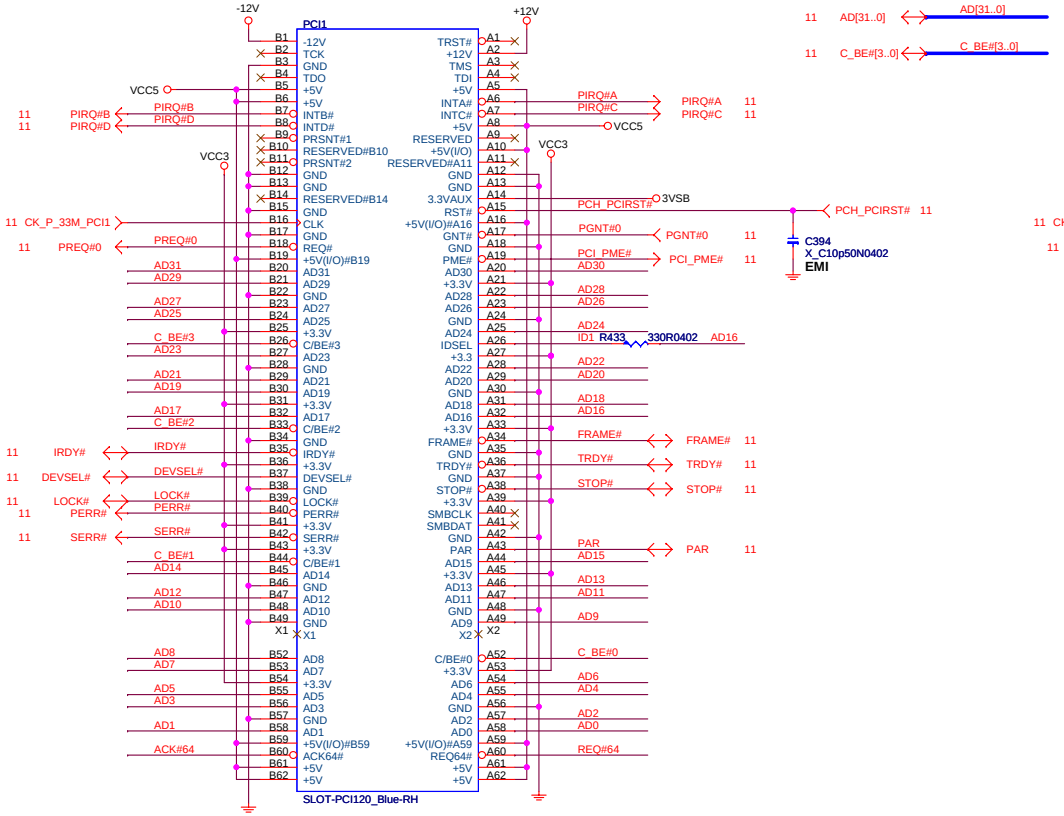
PCI EXPRESS x1-PORT





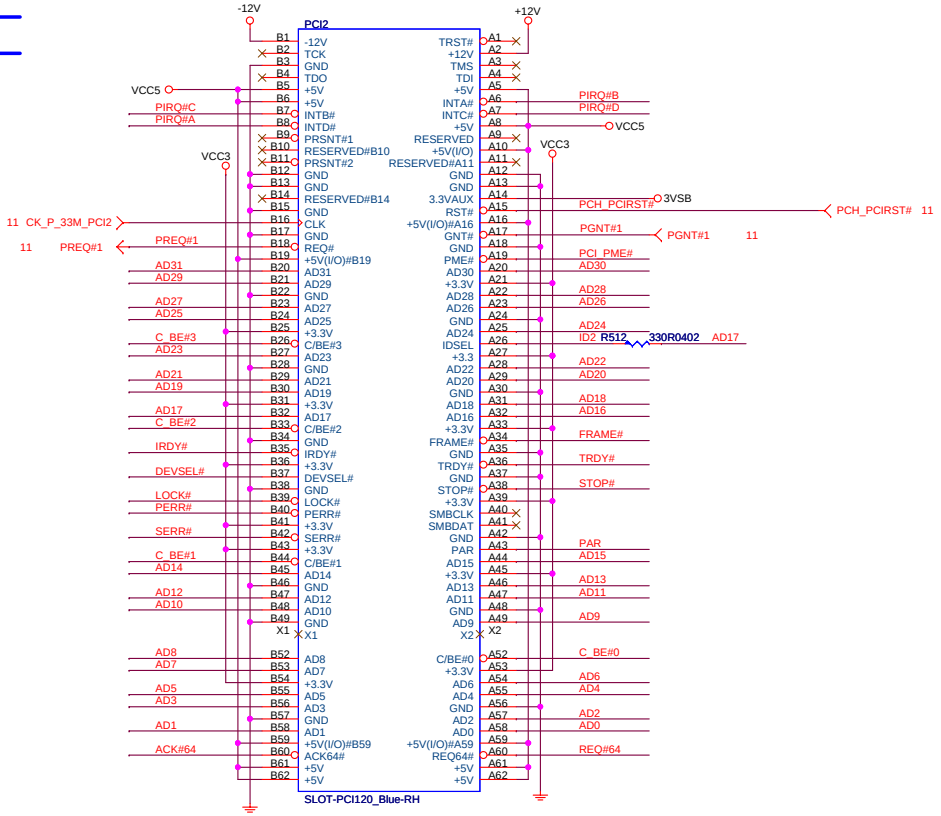
MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	PCIE x16, x1	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 17 of 34	

PCI SLOT 1 (PCI VER: 2.2 COMPLY)



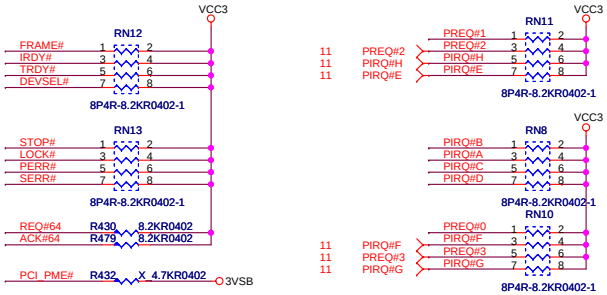
IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

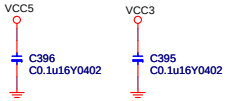
PCI SLOT 2 (PCI VER: 2.2 COMPLY)



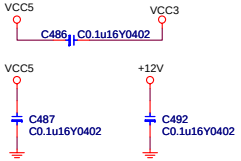
IDSEL = AD17
MASTER = PREQ#1
PIRQ#B

PCI PULL-UP / DOWN RESISTORS





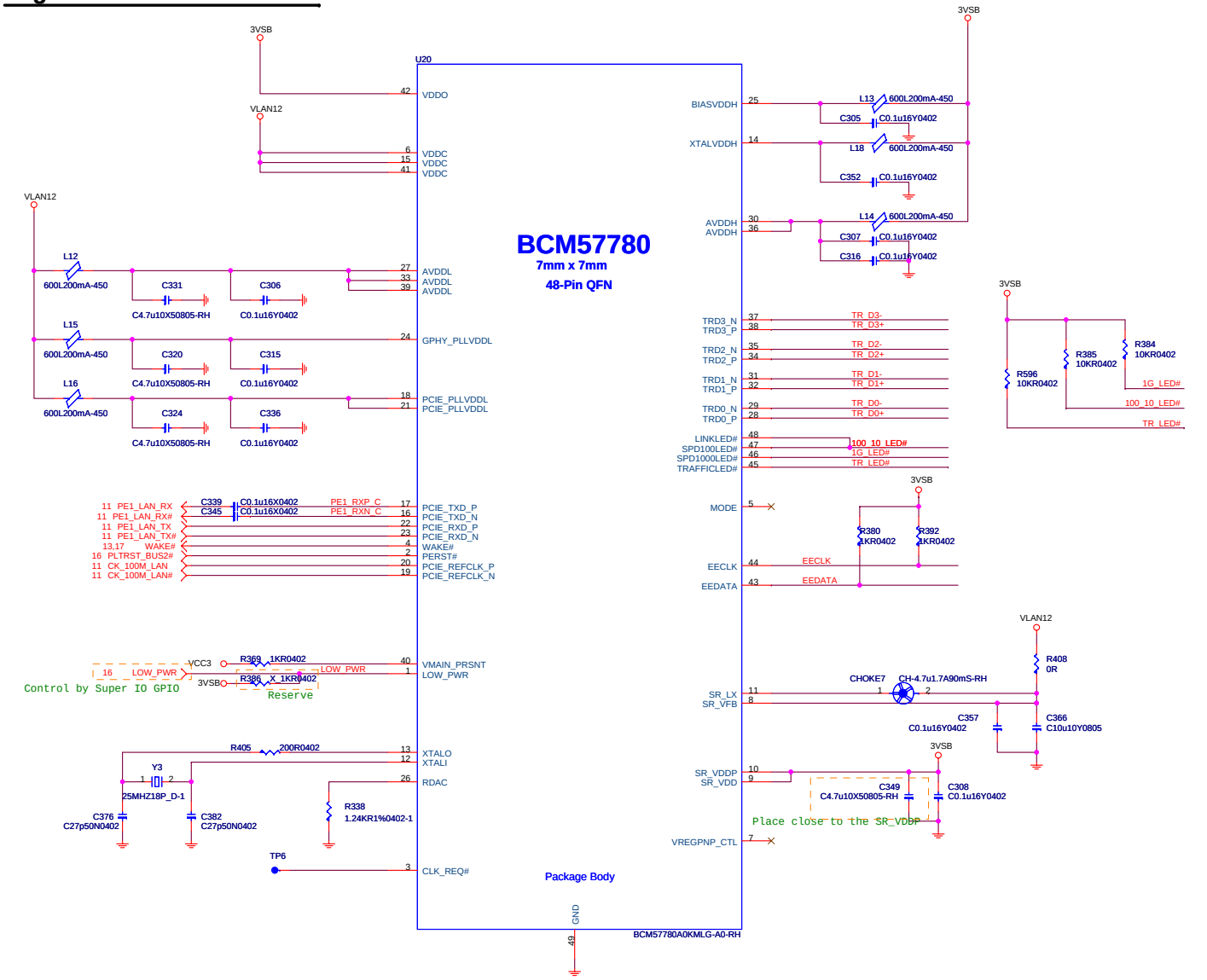
EMI CAPs



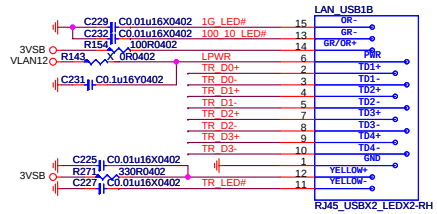
MSI Link to the Future **MICRO-START INT'L CO.,LTD.**

Title: **PCI Slot**		
Size	Document Number: **DELL ShenYang Ecco H57**	Rev: **1.0**
Date: Monday, November 02, 2009	Sheet 18 of 34	

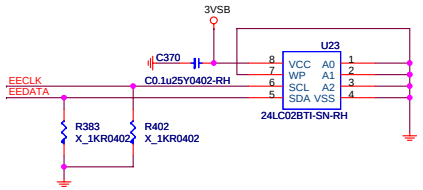
Gigabit LAN BCM57780



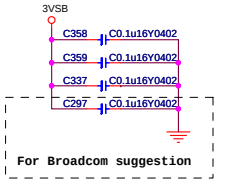
LAN Connector

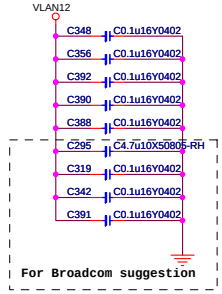


LAN EEPROM

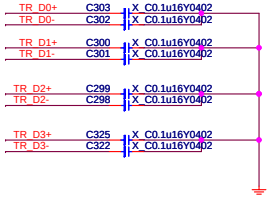


Bypass CAPs



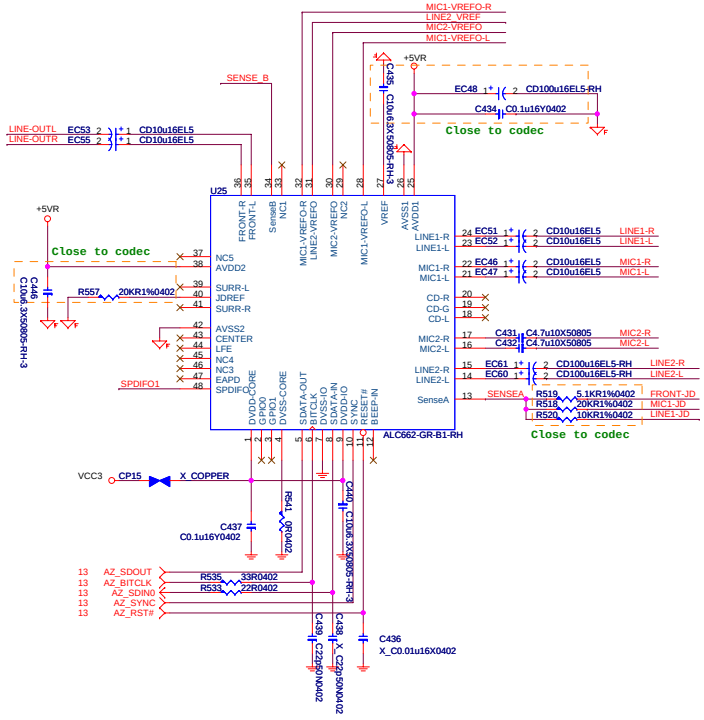


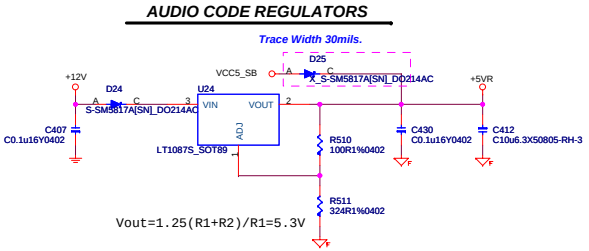
EMI SUGGESTION

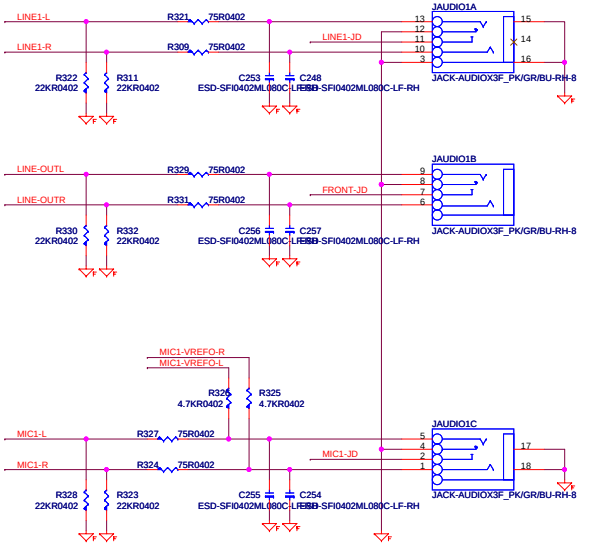


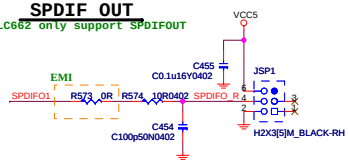
MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	LAN - BCM57780	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 19 of 34	

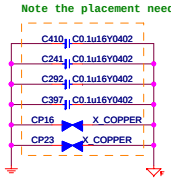
Azalia Codec - ALC662

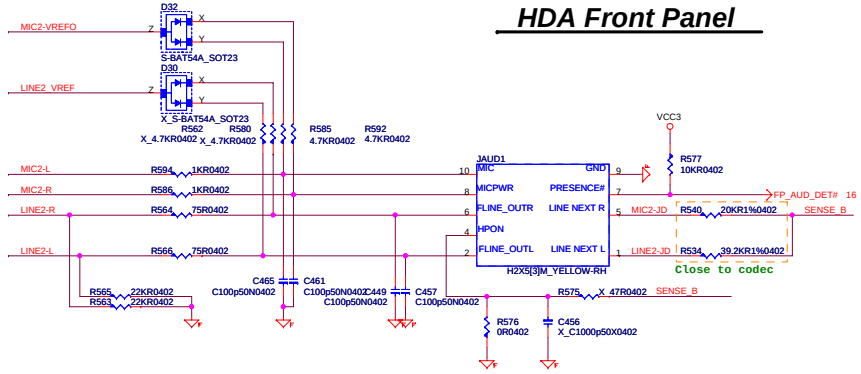






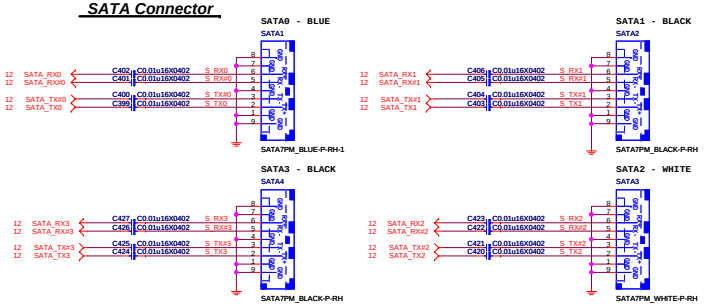




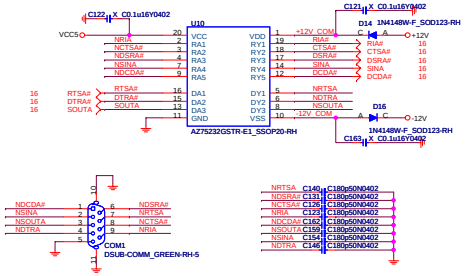


MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title: Azalia Codec - ALC662			
Size: Custom	Document Number: DELL ShenYang Ecco H57		Rev: 1.0
Date: Monday, November 02, 2009	Sheet 20 of 34		

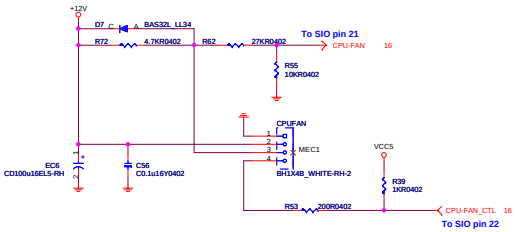
SATA Connector



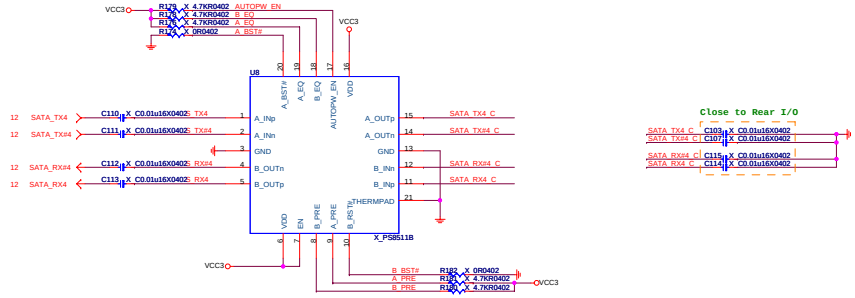
Serial Port



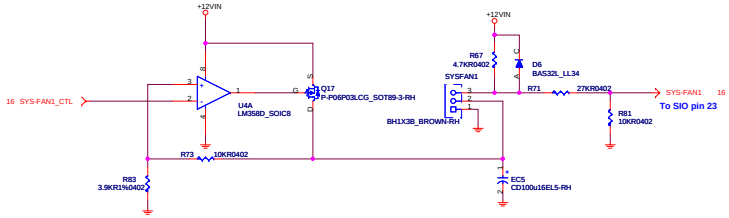
CPU Fan



eSATA Re-Driver (Optional)

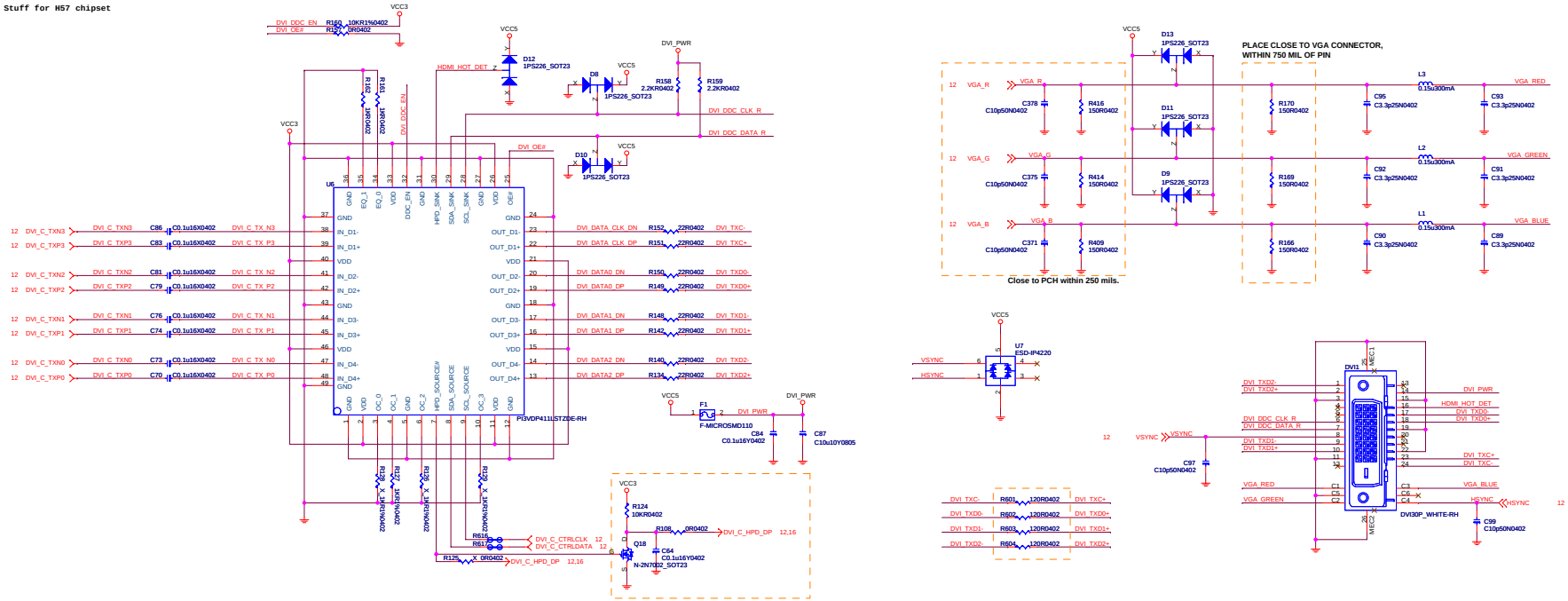


System Fan



DVI-I Connector

Stuff for H57 chipset



MICRO-START INT'L CO.,LTD.

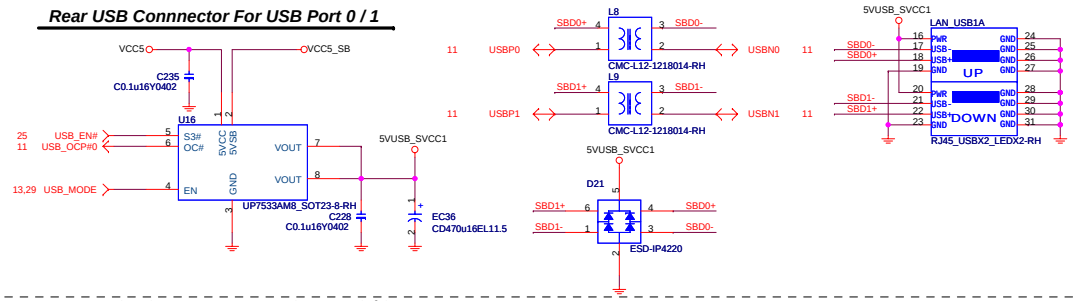
Title: SATA & Fan Control & COM

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

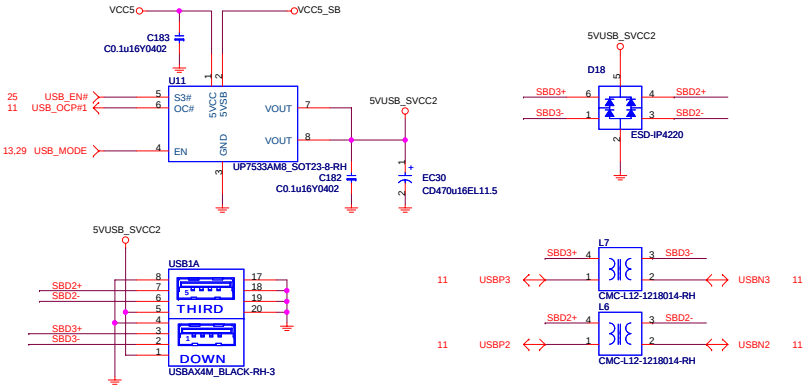
Date: Monday, November 02, 2009 | Sheet 21 of 34

Front Panel and Rear I/O USB Connector

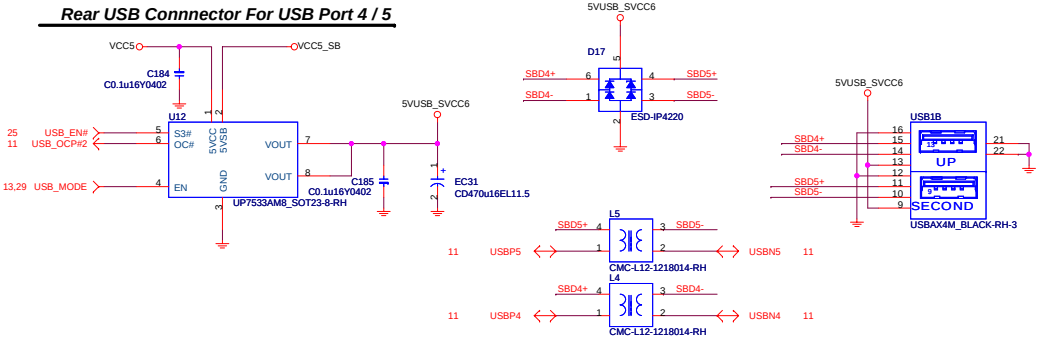
Rear USB Connnector For USB Port 0 / 1

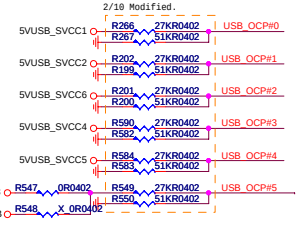


Rear USB Connnector For USB Port 2 / 3

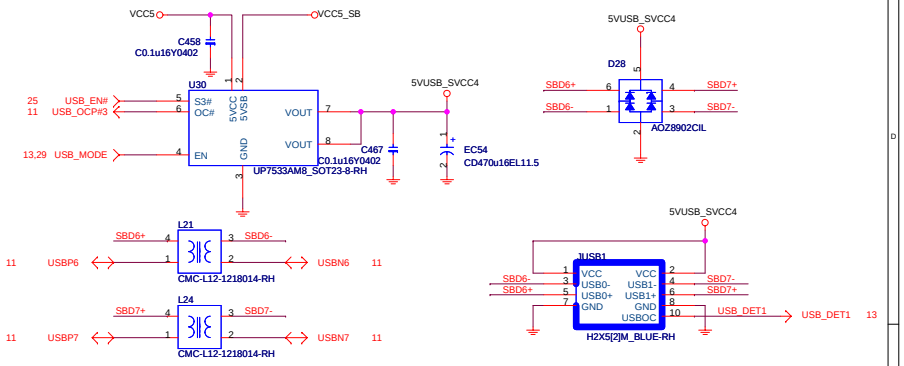


Rear USB Connnector For USB Port 4 / 5

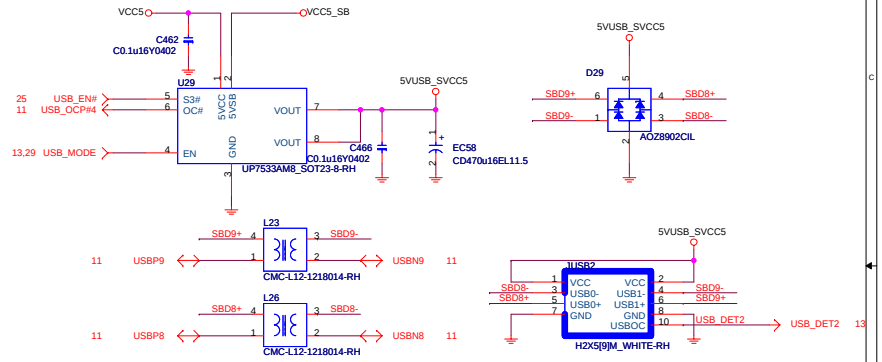




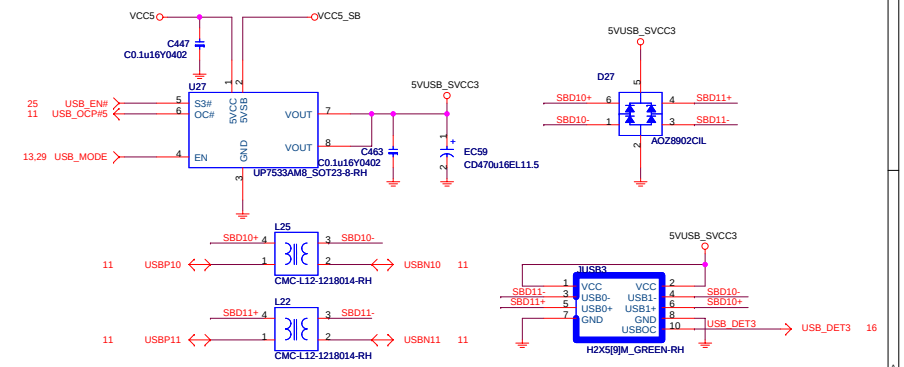
Front Panel USB Connnector For USB Port 6 / 7



Front Panel USB Connnector For USB Port 8 / 9

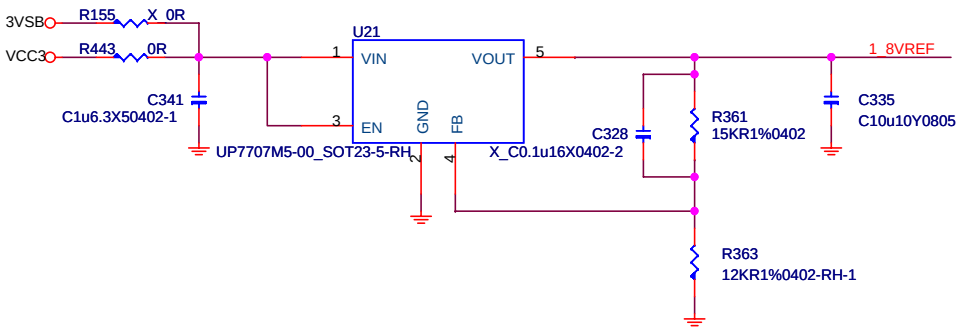


Front Panel USB Connnector For USB Port 10 / 11

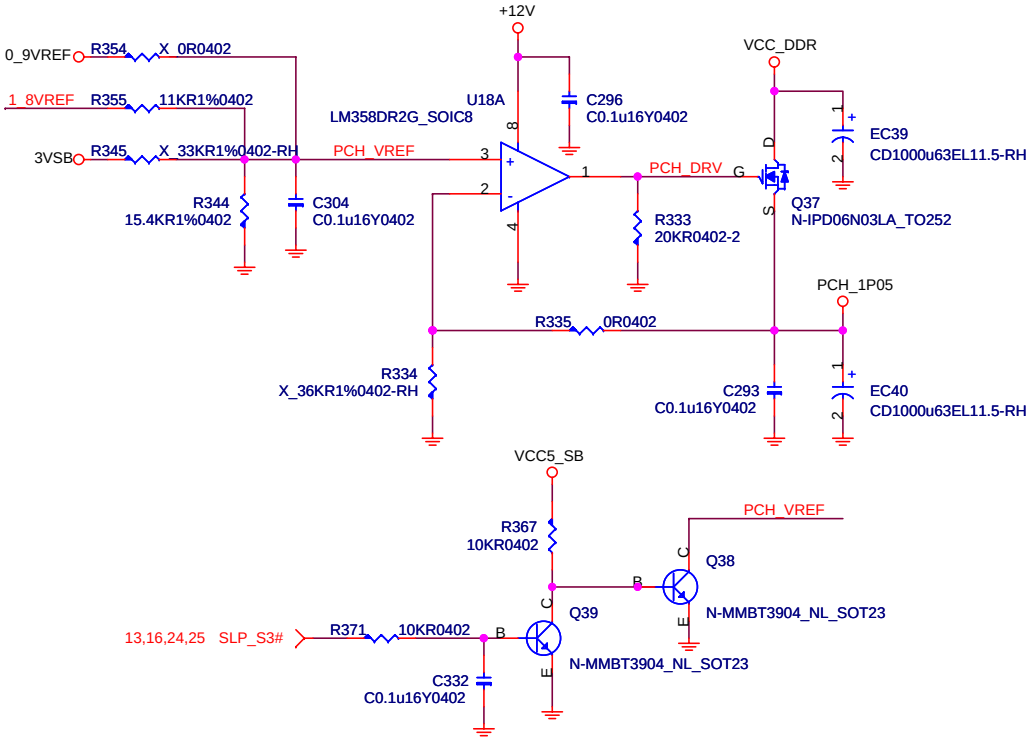


MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title: Front / Rear USB Connectors		
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 22 of 34	

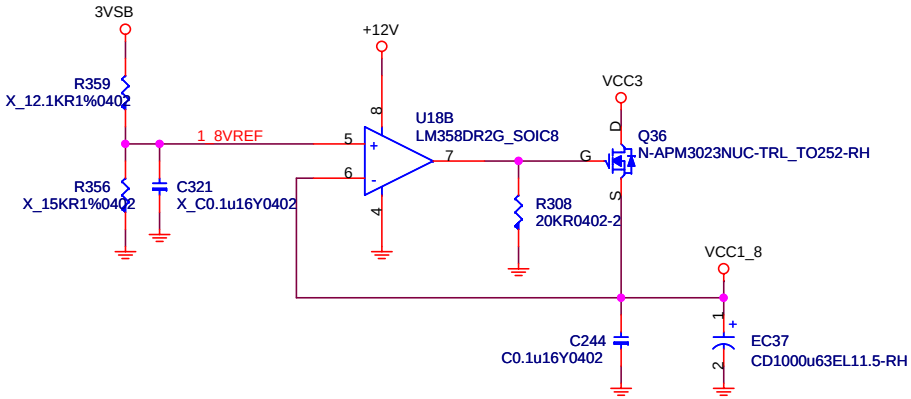
1.8V Reference Power



PCH Core Power 1.05V - 6.5A



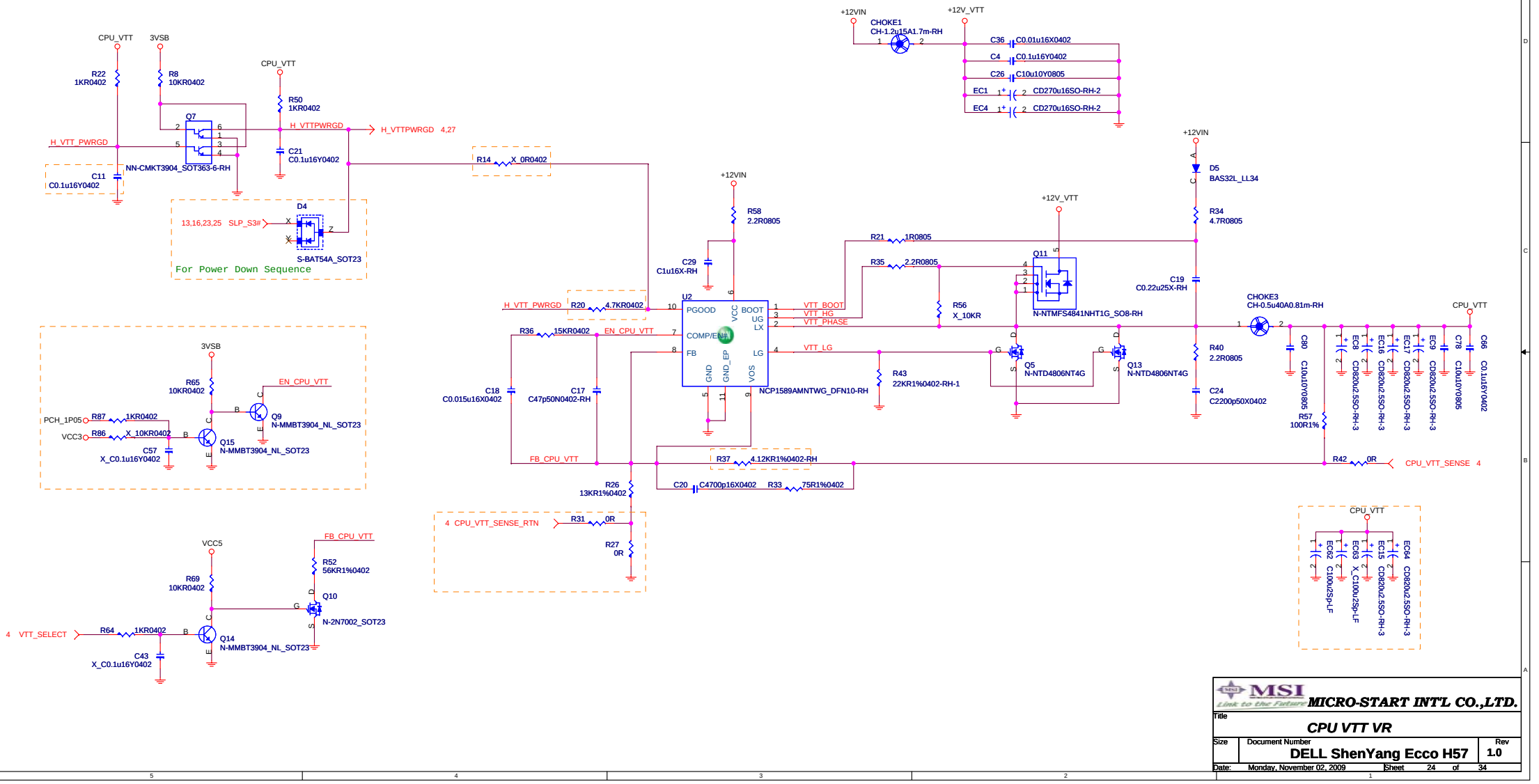
1.8V VSFR 1.5A



MSI MICRO-STAR INTERNATIONAL Link to the Future **MICRO-START INT'L CO.,LTD.**

Title: **PCH Core Power**		
Size	Document Number: **DELL ShenYang Ecco H57**	Rev: **1.0**
Date: Monday, November 02, 2009	Sheet 23 of 34	

CPU VTT Power
1.1V - 30A - 29W

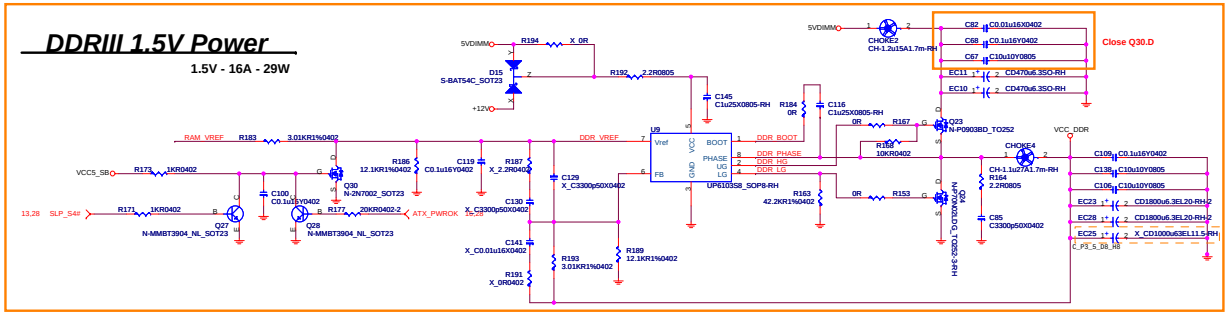


MICRO-START INT'L CO.,LTD.

Title	CPU VTT VR	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Monday, November 02, 2009	Sheet 24 of 34	

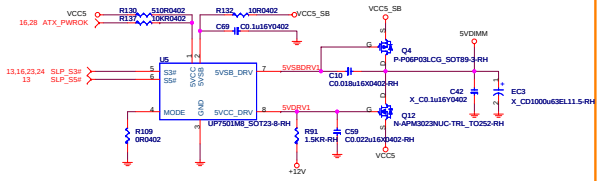
DDRIII 1.5V Power

1.5V - 16A - 29W



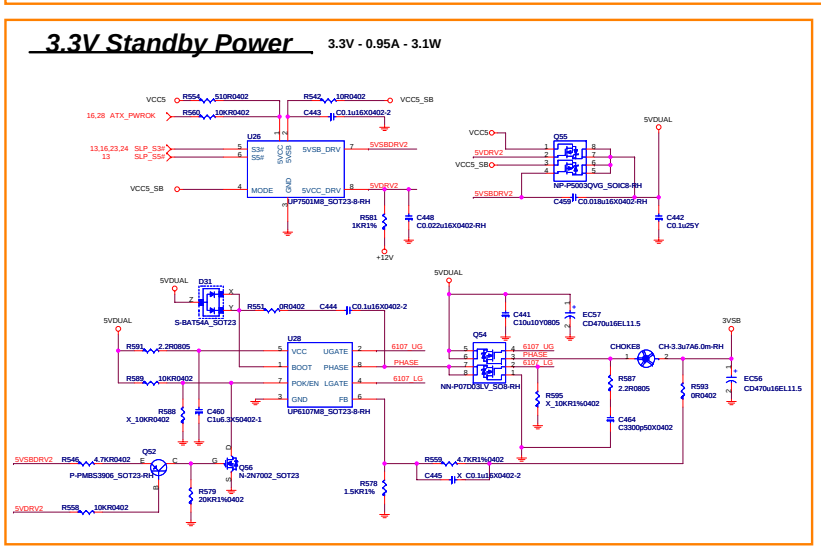
DDRIII Regulator Power Source

5V - 5.8A - 29W

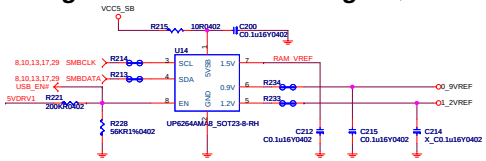


3.3V Standby Power

3.3V - 0.95A - 3.1W

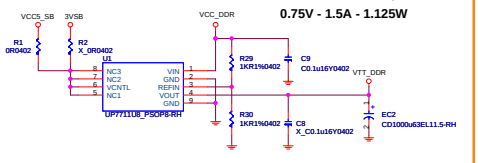


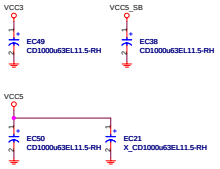
Regulator reference Voltage

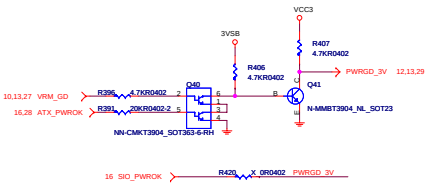


DDRIII Termination Power

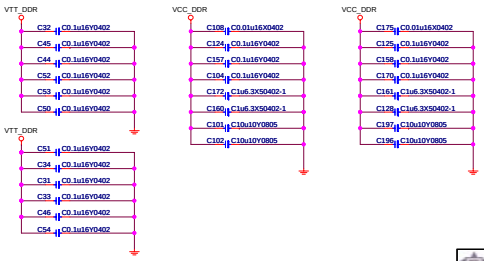
0.75V - 1.5A - 1.125W







DDRIII I/O power decoulping caps.



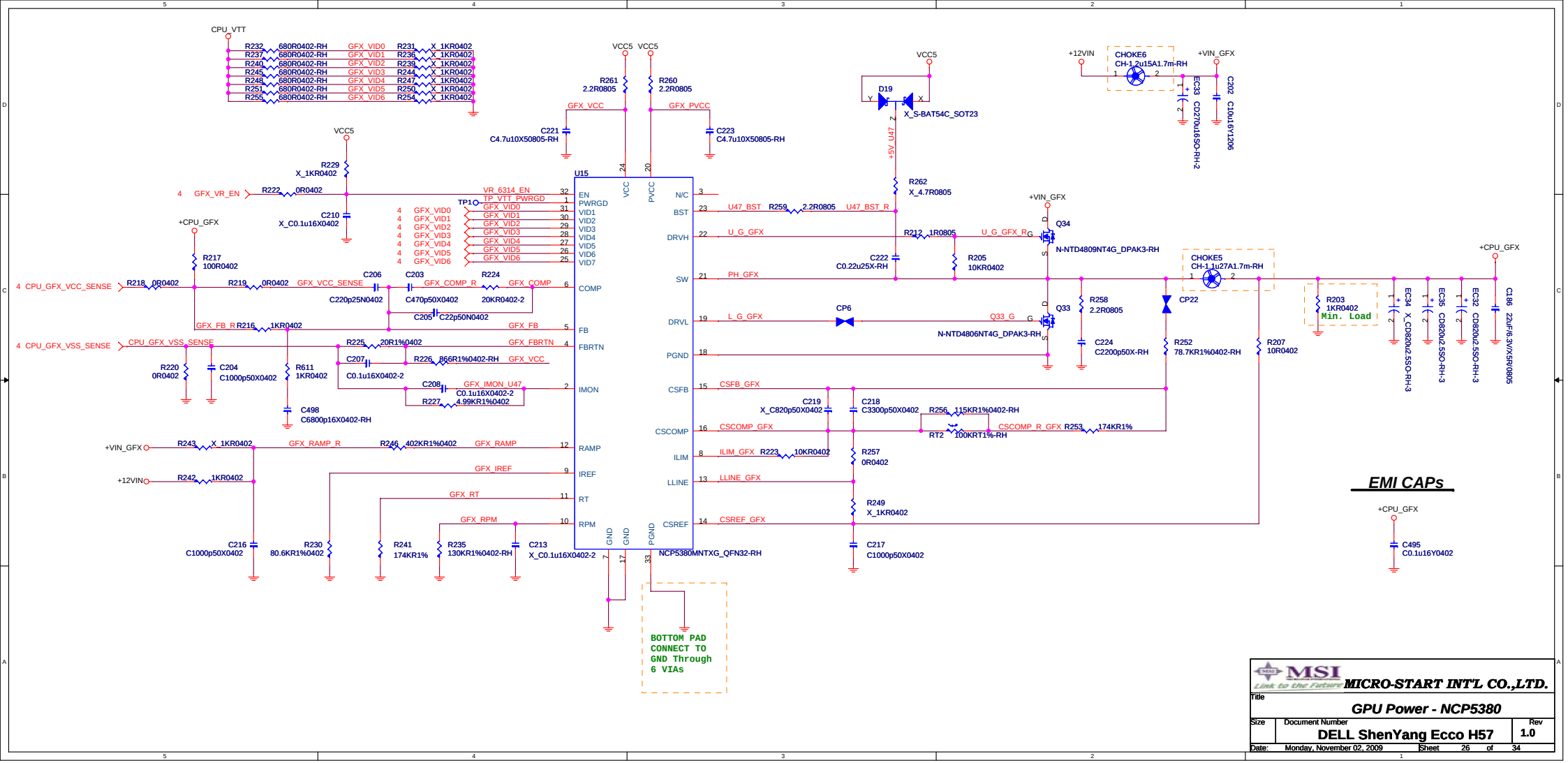
EMI CAPs

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

Title: DDR Power

Size	Document Number	Rev
	DELL ShenYang Ecco H57	1.0

Date: Monday, November 09, 2009 Sheet 25 of 34



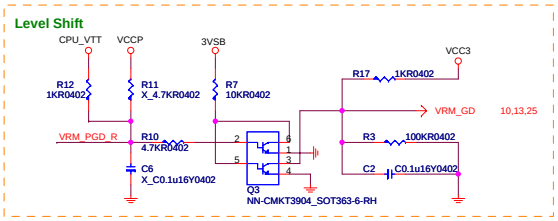
MICRO-START INT'L CO.,LTD.

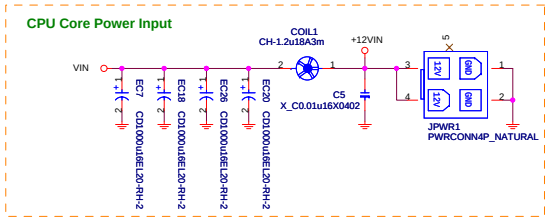
Title: GPU Power - NCP5380

Size	Document Number	Rev
	DELL ShenYang Ecco H57	1.0

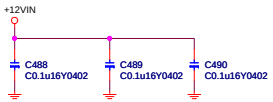
Date: Monday, November 02, 2009 Sheet 26 of 34

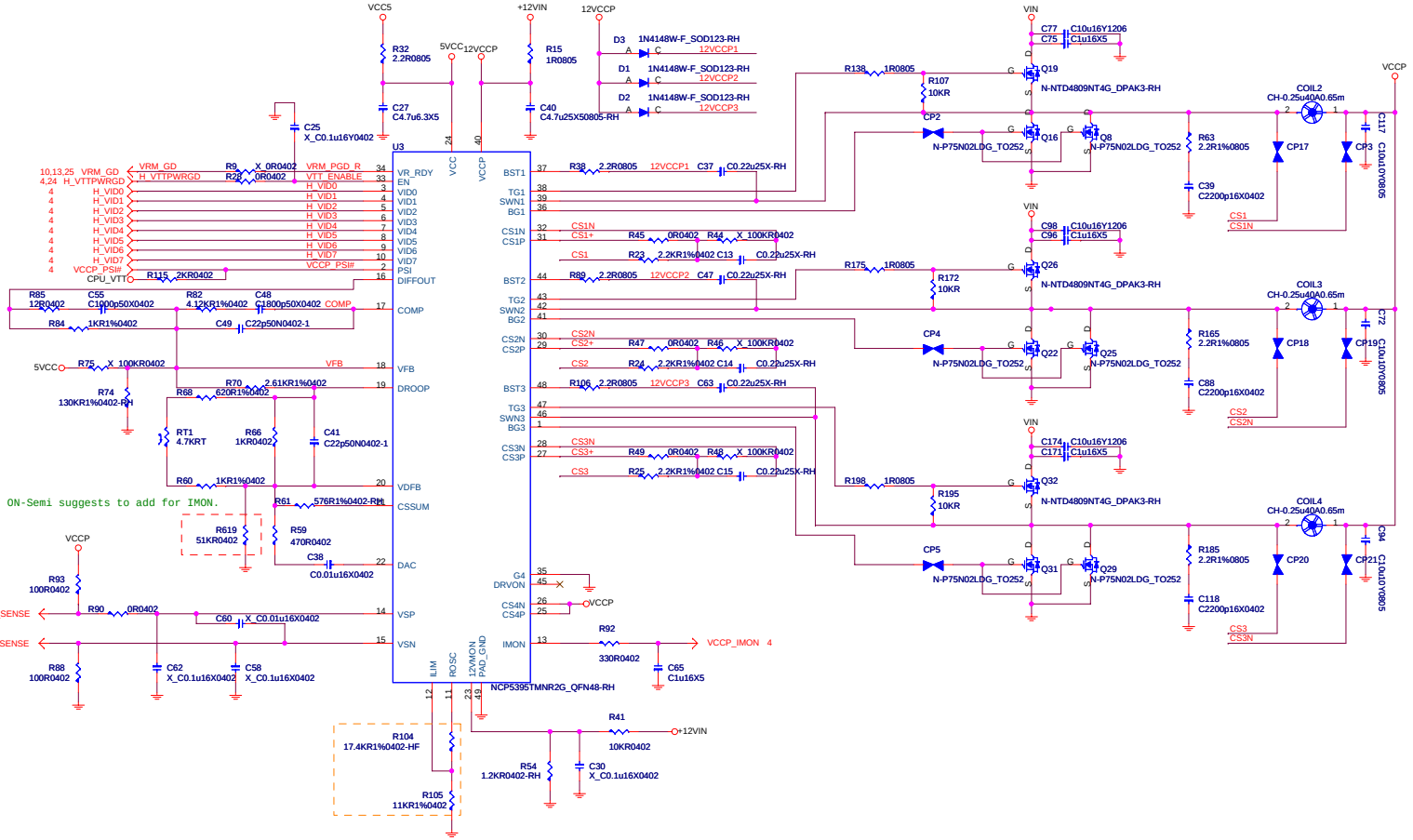
Voltage Regular Module (VRD11.1)



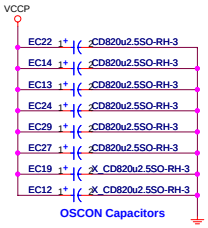


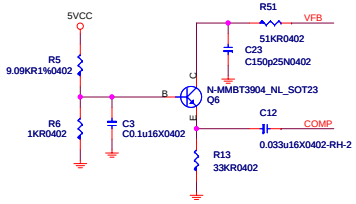
EMI CAPs

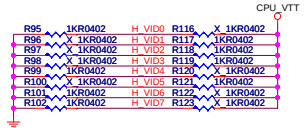




Core Power Output cap.

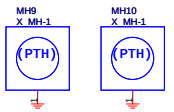






POWER ON CONFIGURATION TABLE

	FUNCTION	DEFAULT
H_VID0	MSI0	
H_VID1	MSI1	
H_VID2	MSI2	
H_VID3	IMON CONFIG0	
H_VID4	IMON CONFIG1	
H_VID5	IMON CONFIG3	
H_VID6	RESERVED	
H_VID7	VRD SELECT	LOW
PSI#	RESERVED	LOW



MICRO-START INT'L CO.,LTD.

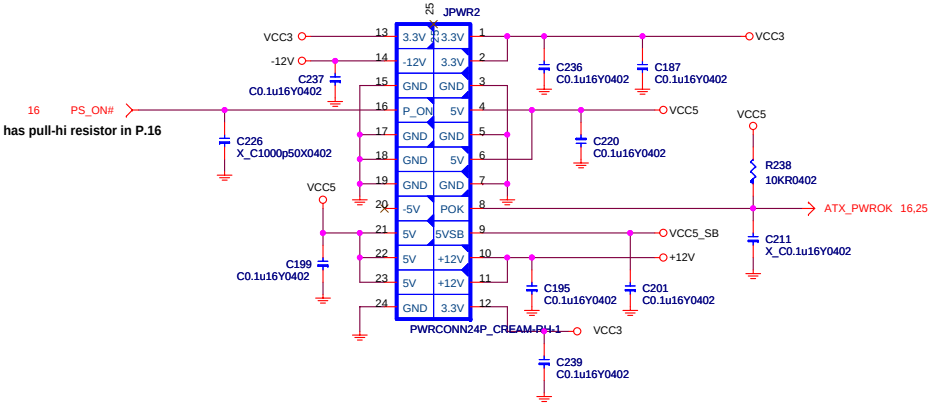
Title: VRD11- NCP5395 3 Phase

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

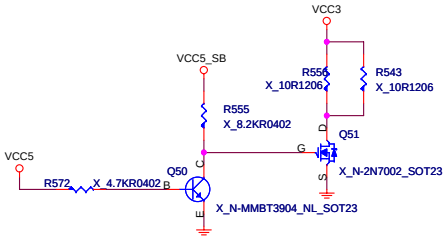
Date: Monday, November 02, 2009 | Sheet 27 of 34

ATX Power Connector / Front Panel / LED

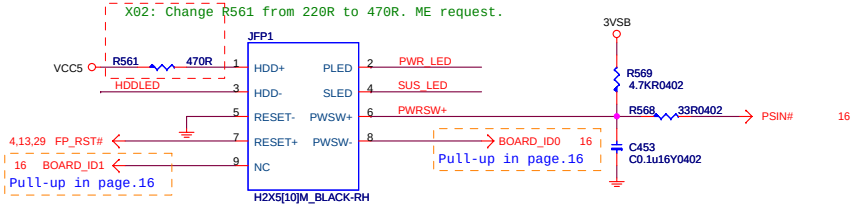
24 Pin ATX Power Connector



Dummy Load

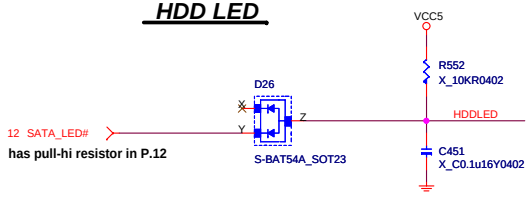


Front Panel



	BOARD_ID0	BOARD_ID1
No Cable	H	H
Shen-Yang	L	L
ECCO	L	H

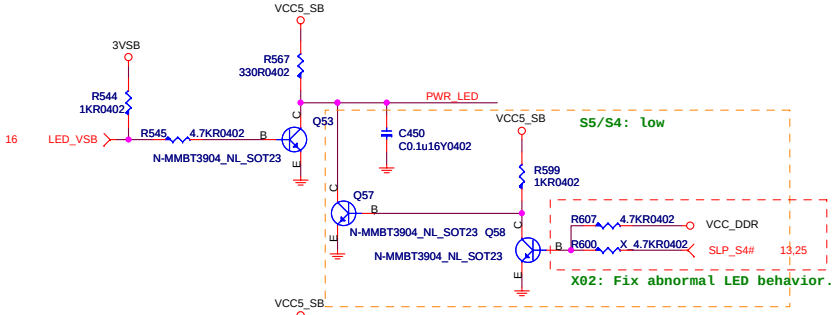
HDD LED

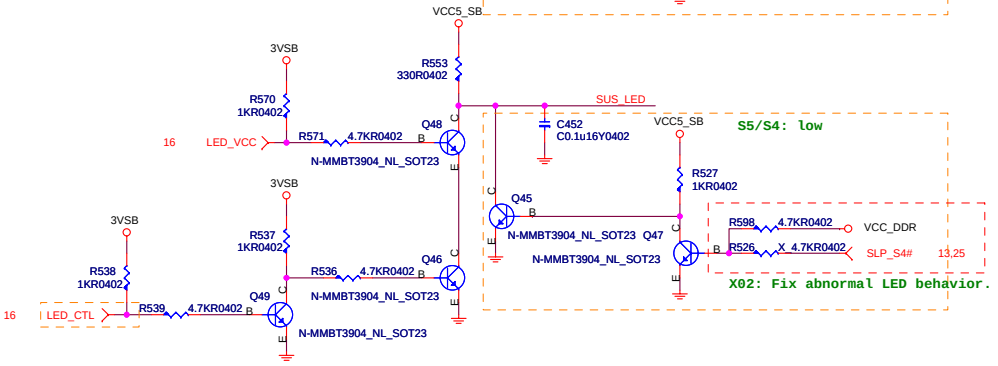


Power LED

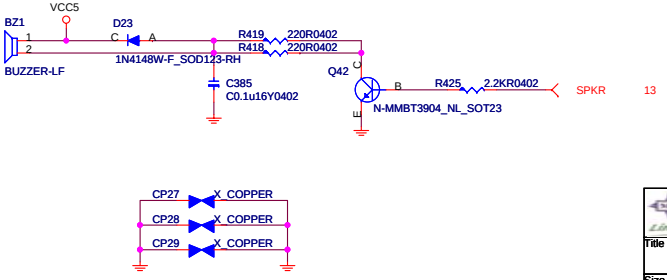
BLUE AMBER

	LED_VSB	LED_VCC	LED_CTL	PWR_LED	SUS_LED
S4/S5	H	H	L	L	L
S0	L	H	L	H	L
S1/S3	Blinking	H	L	Blinking	L
Failure to Post	Blinking	L	L	Blinking	H
No Post	H	H	H	L	H





Buzzer Circuit



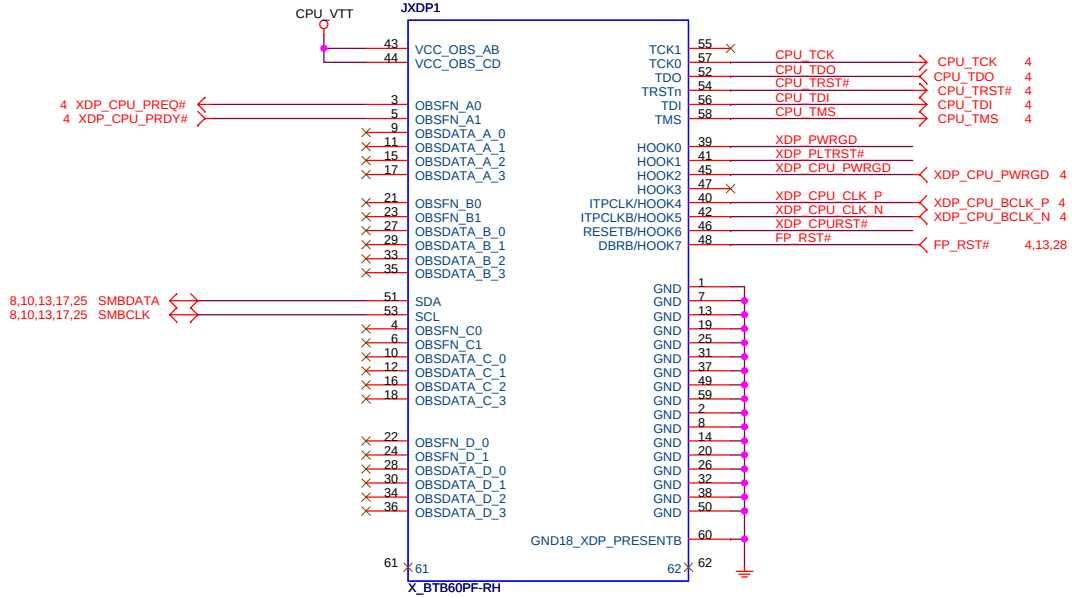
MICRO-START INT'L CO.,LTD.

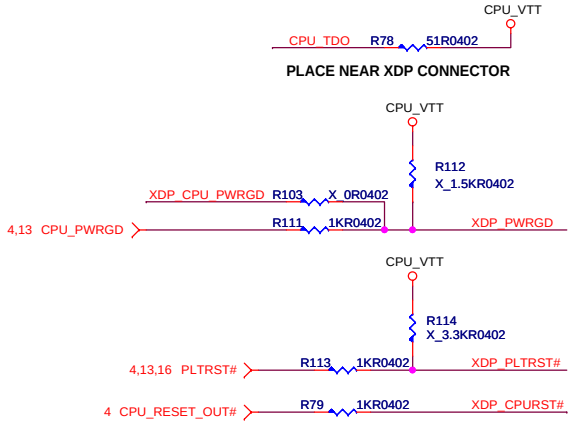
Title: ATX Connector / Front Panel / LED

Size | Document Number: DELL ShenYang Ecco H57 | Rev: 1.0

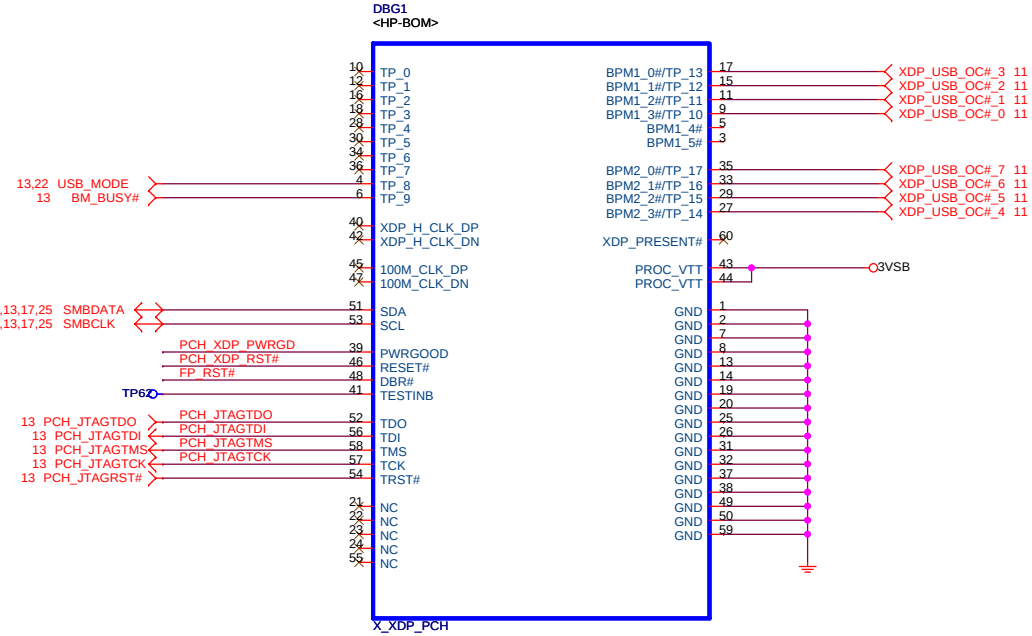
Date: Monday, November 02, 2009 | Sheet 28 of 34

Reserve debug port 5020

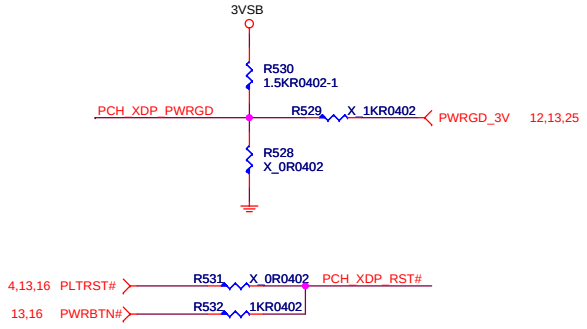




PCH XDP



PCH XDP PWRGD/RESET

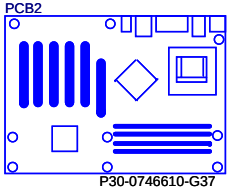


MSI Link to the Future MICRO-START INT'L CO.,LTD.

Title	CPU/PCH XDP	
Size	Document Number: DELL ShenYang Ecco H57	Rev: 1.0
Date: Wednesday, November 04, 2009	Sheet 29 of 34	

Manual Parts

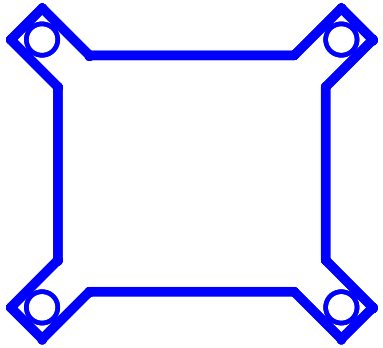
PCB2



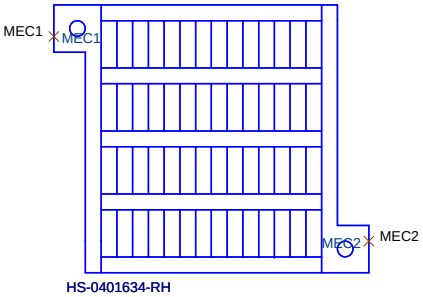
P30-0746610-G37
PCB

P30-0746610-E55
P30-0746610-G37

XU1_X2
CPU RETENTION BACKPLATE

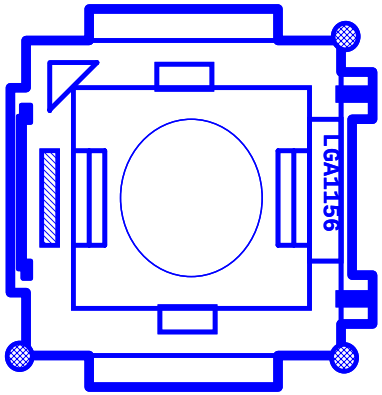


U3_X1

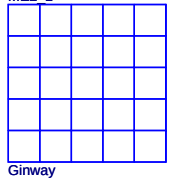


HS-0401634-RH

XU1_X1
CPU SOCKET

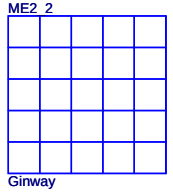


ME2_1



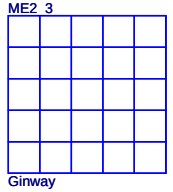
Ginway

ME2_2



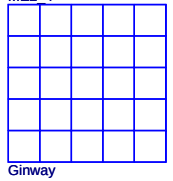
Ginway

ME2_3



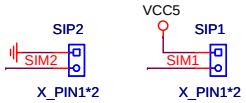
Ginway

ME2_4

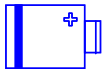


Ginway

Simulation



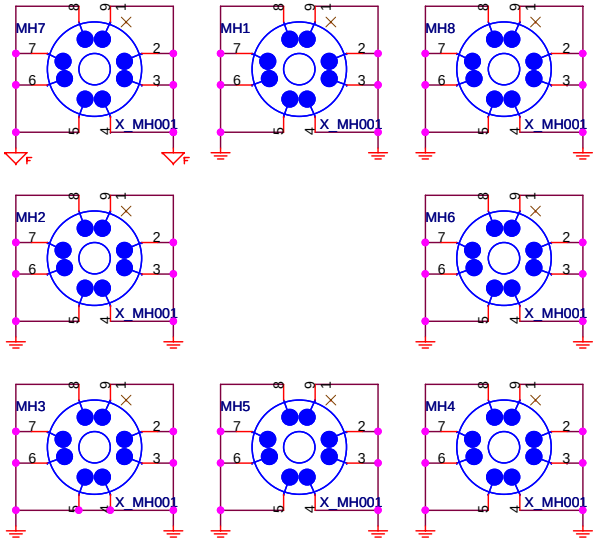
VBAT-S1



BAT-BCR2032P-RH

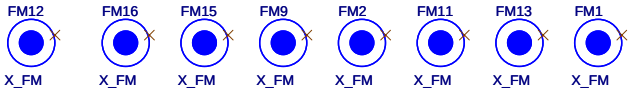
PCB Mounting Holes

Mounting Holes

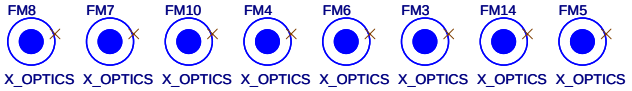


Optics Orientation Holes

Optical Fiducial Marks-120



Optical Fiducial Marks-100



MSI Link to the Future **MICRO-START INT'L CO.,LTD.**

Title: **Manual Parts & Option Parts**		
Size	Document Number: **DELL ShenYang Ecco H57**	Rev: **1.0**
Date: Monday, November 09, 2009	Sheet 30 of 34	