B365

Version : 11

CPU :

Intel CoffeeLake-S

System Chipset :

Intel KabyLake-H Chipset

On Board Chipset :

IMVP8 -- NCP81220+NCP81258 7Phase
Gigabit LAN -- RTL8111HN
HDA Codec -- Realtek ALC623
Super I/O --NCT6686D-L
SPI Flash 128Mb + 64Mb

Main Memory :

2 Channel DDR 4 * 4 (Max 64GB)

Expansion Slot :

PCI Express x16 Slot * 1
PCI Express x4 Slot * 1
PCI Express x1 Slot * 1
PCI SLOT * 1

lenovo

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Title: Cover Sheet		
Size	Document Number: B365	Rev: 11
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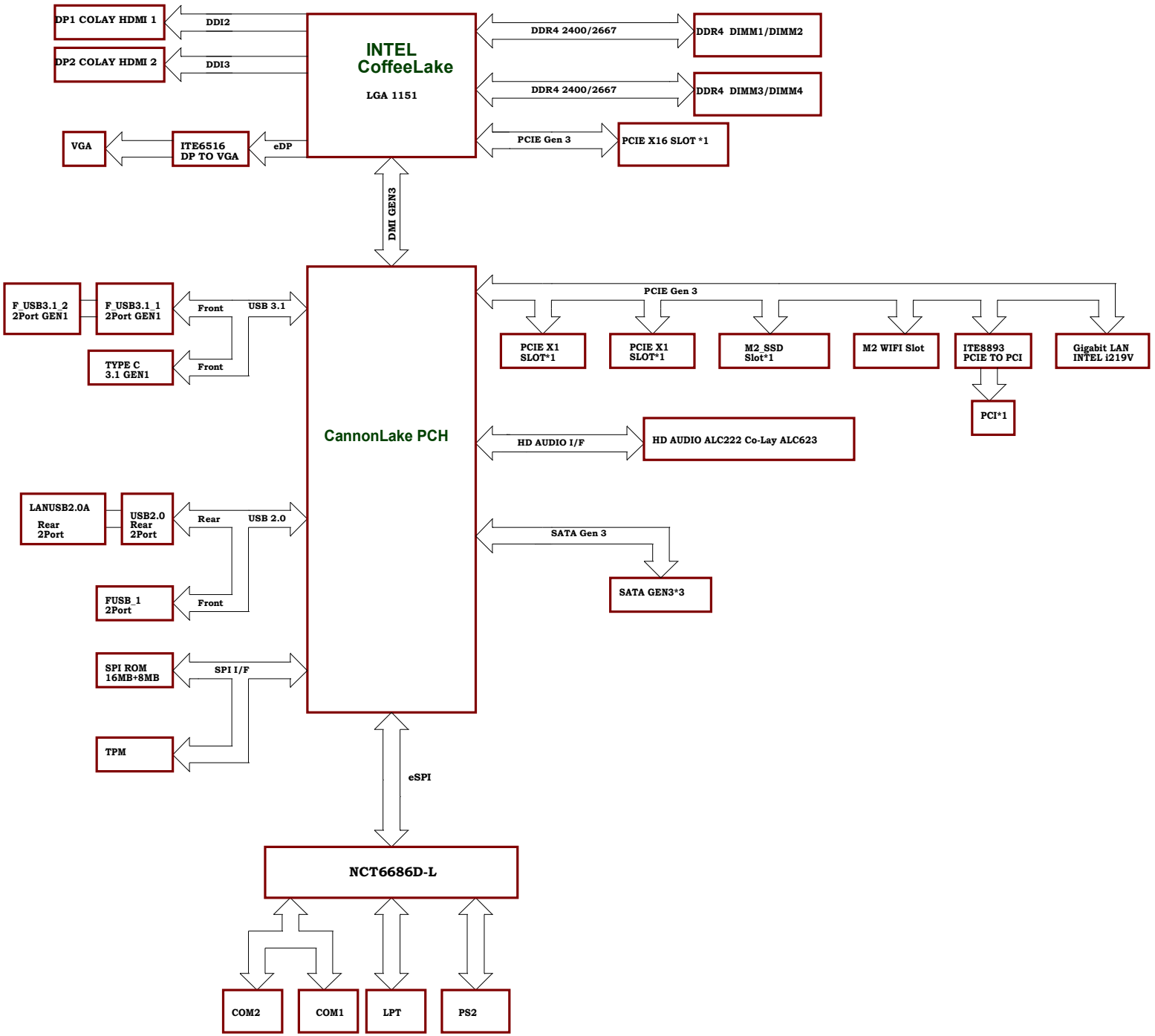

Slot Sequence:

- PCIE X16
- PCIE X1
- PCIE X16(signal x4)
- PCI SLOT

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Title: ***Block Diagram***		
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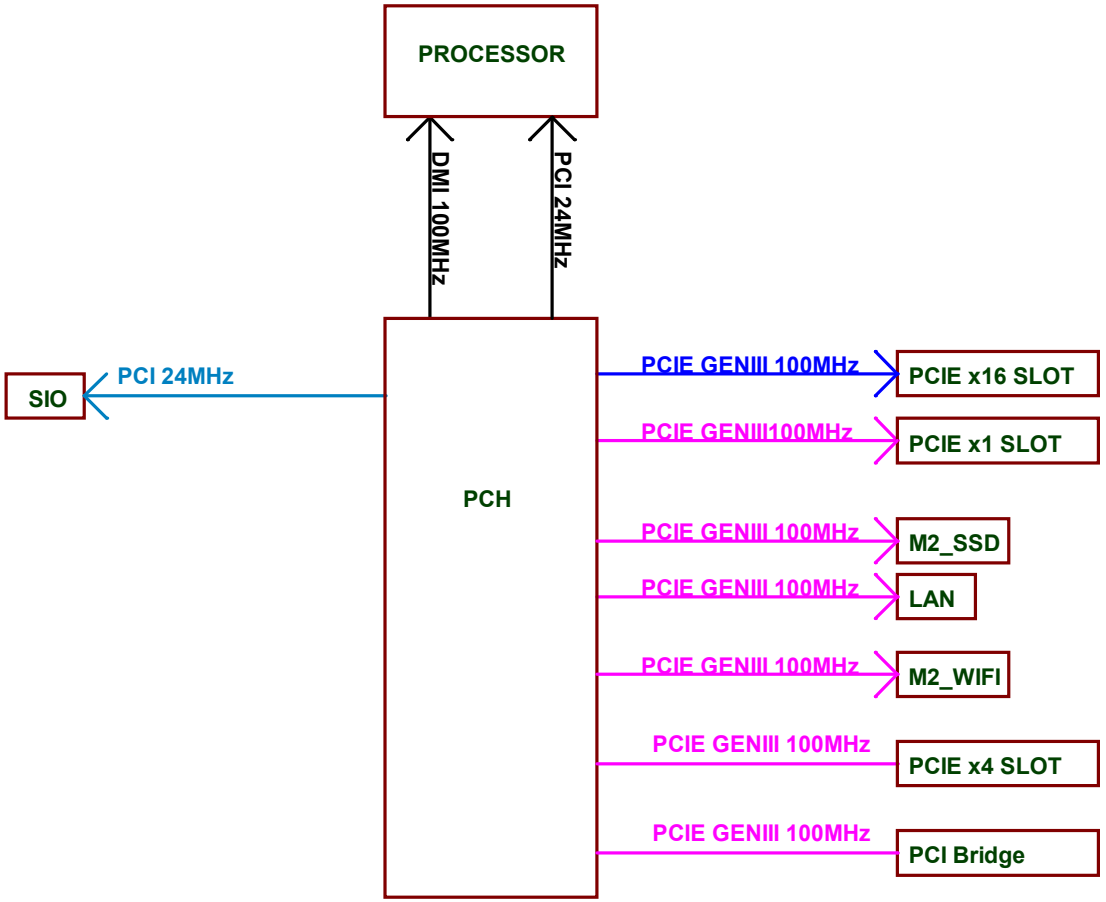

MSI Link to the Future MICRO-START INT'L CO.,LTD.

Title: Clock Distribution		
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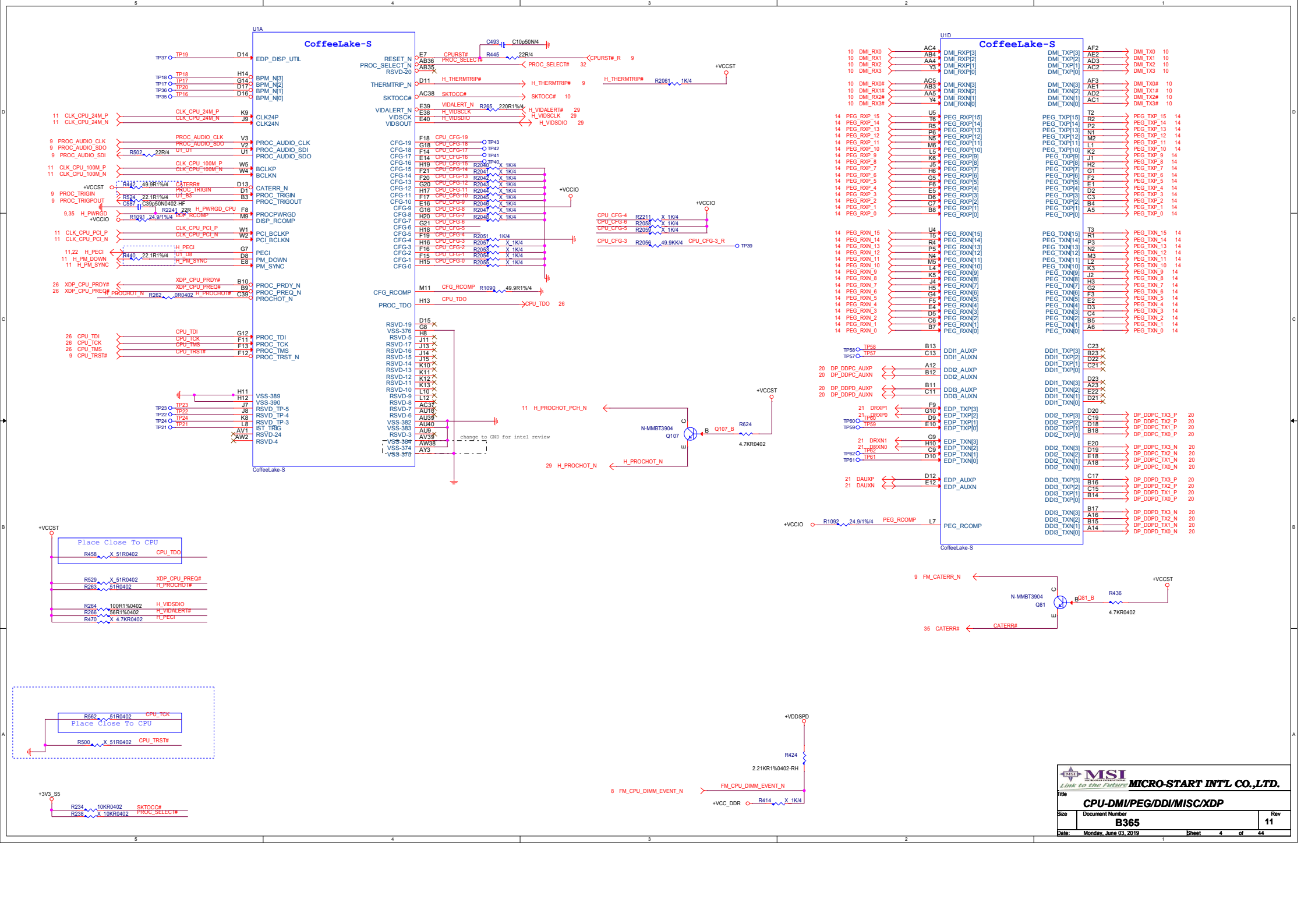
U1A
CoffeeLake-S
EDP_DISP_UTIL
BPM_N[3]
BPM_N[2]
BPM_N[1]
BPM_N[0]
CLK24P
CLK24N
PROC_AUDIO_CLK
PROC_AUDIO_SDI
PROC_AUDIO_SDO
BCLKP
BCLKN
CATERR_N
PROC_TRIGIN
PROC_TRIGOUT
PROCPWRGD
DISP_RCOMP
PCI_BCLKP
PCI_BCLKN
PECI
PM_DOWN
PM_SYNC
PROC_PRDY_N
PROC_PREQ_N
PROCHOT_N
PROC_TDI
PROC_TCK
PROC_TMS
PROC_TRST_N
VSS-389
VSS-390
RSVD_TP-5
RSVD_TP-4
RSVD_TP-3
IST_TRIG
RSVD-24
RSVD-4
RESET_N
PROC_SELECT_N
RSVD-20
THERMTRIP_N
SKTOCC#
VIDALERT_N
VIDSCK
VIDSOUT
CFG_RCOMP
PROC_TDO
change to GND for intel review
U1D
CoffeeLake-S
DMI_RXP[3]
DMI_RXP[2]
DMI_RXP[1]
DMI_RXP[0]
DMI_RXN[3]
DMI_RXN[2]
DMI_RXN[1]
DMI_RXN[0]
DMI_TXP[3]
DMI_TXP[2]
DMI_TXP[1]
DMI_TXP[0]
DMI_TXN[3]
DMI_TXN[2]
DMI_TXN[1]
DMI_TXN[0]
PEG_RXP[15]
PEG_RXP[14]
PEG_RXP[13]
PEG_RXP[12]
PEG_RXP[11]
PEG_RXP[10]
PEG_RXP[9]
PEG_RXP[8]
PEG_RXP[7]
PEG_RXP[6]
PEG_RXP[5]
PEG_RXP[4]
PEG_RXP[3]
PEG_RXP[2]
PEG_RXP[1]
PEG_RXP[0]
PEG_RXN[15]
PEG_RXN[14]
PEG_RXN[13]
PEG_RXN[12]
PEG_RXN[11]
PEG_RXN[10]
PEG_RXN[9]
PEG_RXN[8]
PEG_RXN[7]
PEG_RXN[6]
PEG_RXN[5]
PEG_RXN[4]
PEG_RXN[3]
PEG_RXN[2]
PEG_RXN[1]
PEG_RXN[0]
PEG_TXP[15]
PEG_TXP[14]
PEG_TXP[13]
PEG_TXP[12]
PEG_TXP[11]
PEG_TXP[10]
PEG_TXP[9]
PEG_TXP[8]
PEG_TXP[7]
PEG_TXP[6]
PEG_TXP[5]
PEG_TXP[4]
PEG_TXP[3]
PEG_TXP[2]
PEG_TXP[1]
PEG_TXP[0]
PEG_TXN[15]
PEG_TXN[14]
PEG_TXN[13]
PEG_TXN[12]
PEG_TXN[11]
PEG_TXN[10]
PEG_TXN[9]
PEG_TXN[8]
PEG_TXN[7]
PEG_TXN[6]
PEG_TXN[5]
PEG_TXN[4]
PEG_TXN[3]
PEG_TXN[2]
PEG_TXN[1]
PEG_TXN[0]
DDI1_AUXP
DDI1_AUXN
DDI2_AUXP
DDI2_AUXN
DDI3_AUXP
DDI3_AUXN
EDP_TXP[3]
EDP_TXP[2]
EDP_TXP[1]
EDP_TXP[0]
EDP_TXN[3]
EDP_TXN[2]
EDP_TXN[1]
EDP_TXN[0]
EDP_AUXP
EDP_AUXN
PEG_RCOMP
DDI1_TXP[3]
DDI1_TXP[2]
DDI1_TXP[1]
DDI1_TXP[0]
DDI1_TXN[3]
DDI1_TXN[2]
DDI1_TXN[1]
DDI1_TXN[0]
DDI2_TXP[3]
DDI2_TXP[2]
DDI2_TXP[1]
DDI2_TXP[0]
DDI2_TXN[3]
DDI2_TXN[2]
DDI2_TXN[1]
DDI2_TXN[0]
DDI3_TXP[3]
DDI3_TXP[2]
DDI3_TXP[1]
DDI3_TXP[0]
DDI3_TXN[3]
DDI3_TXN[2]
DDI3_TXN[1]
DDI3_TXN[0]
N-MMBT3904
Q107
Q107_B
R624
4.7KR0402
N-MMBT3904
Q81
Q81_B
R436
4.7KR0402
Place Close To CPU
Place Close To CPU
+VCCST
+VCCIO
+3V3_S5
+VDDSPD
+VCC_DDR
R424
2.21KR1%0402-RH
R414
X_1K/4
FM_CPU_DIMM_EVENT_N
MSI
MICRO-STAR INT'L CO.,LTD.
Link to the Future
CPU-DMI/PEG/DDI/MISC/XDP
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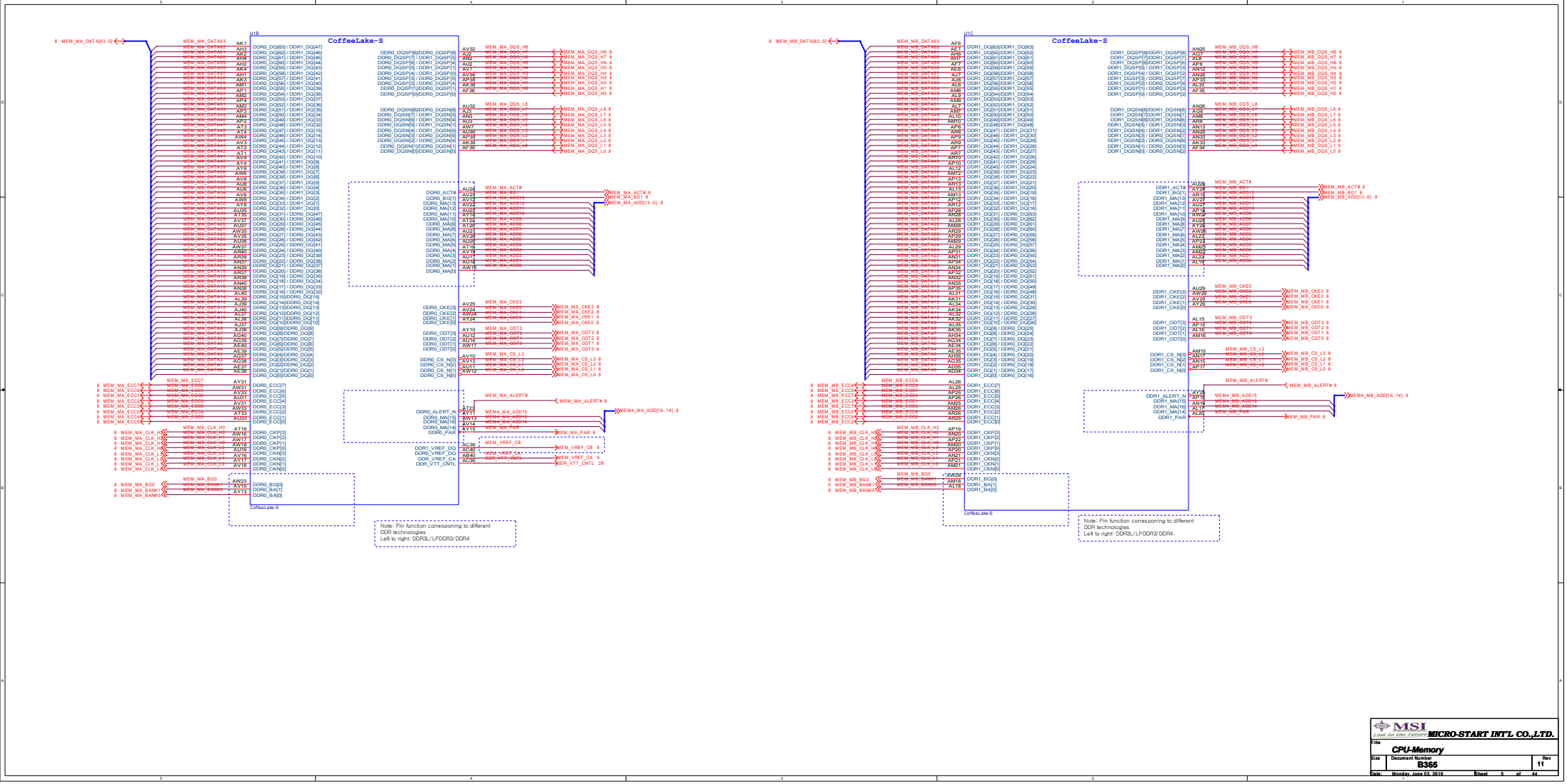

MSI — Link to the Future — MICRO-START INT'L CO.,LTD.

Title	CPU-Memory	
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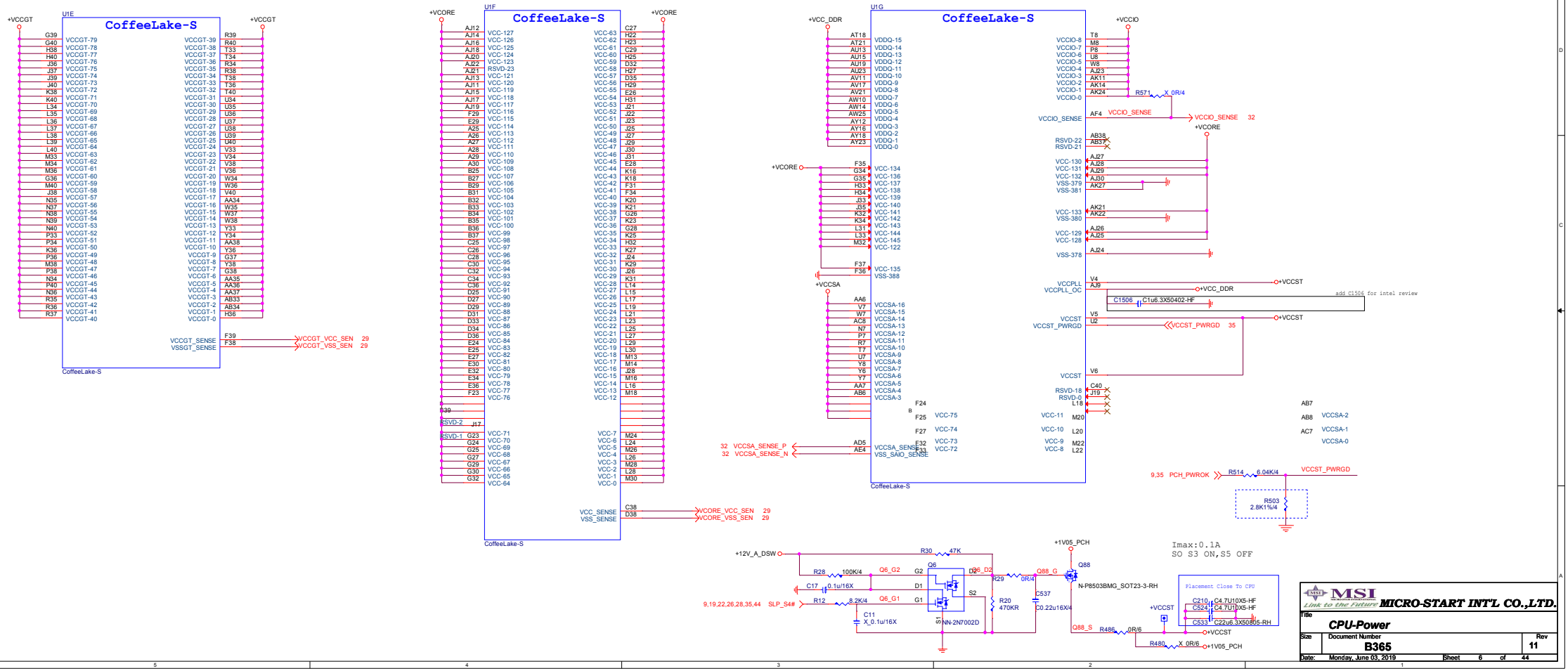

MICRO-START INT'L CO.,LTD.

Title: CPU-Power

Size	Document Number	Rev
	B365	11

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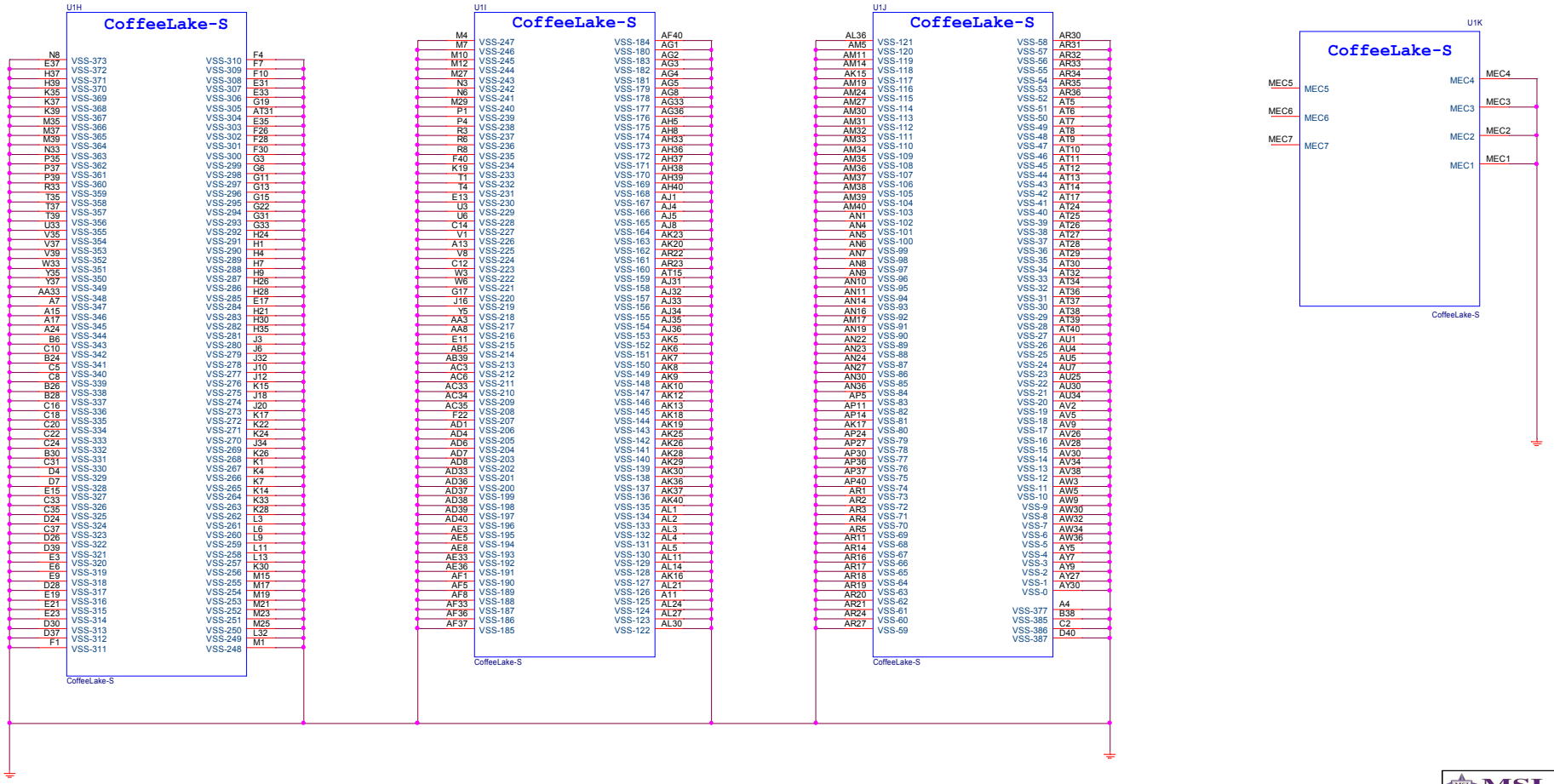

MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future

Title: CPU-GND

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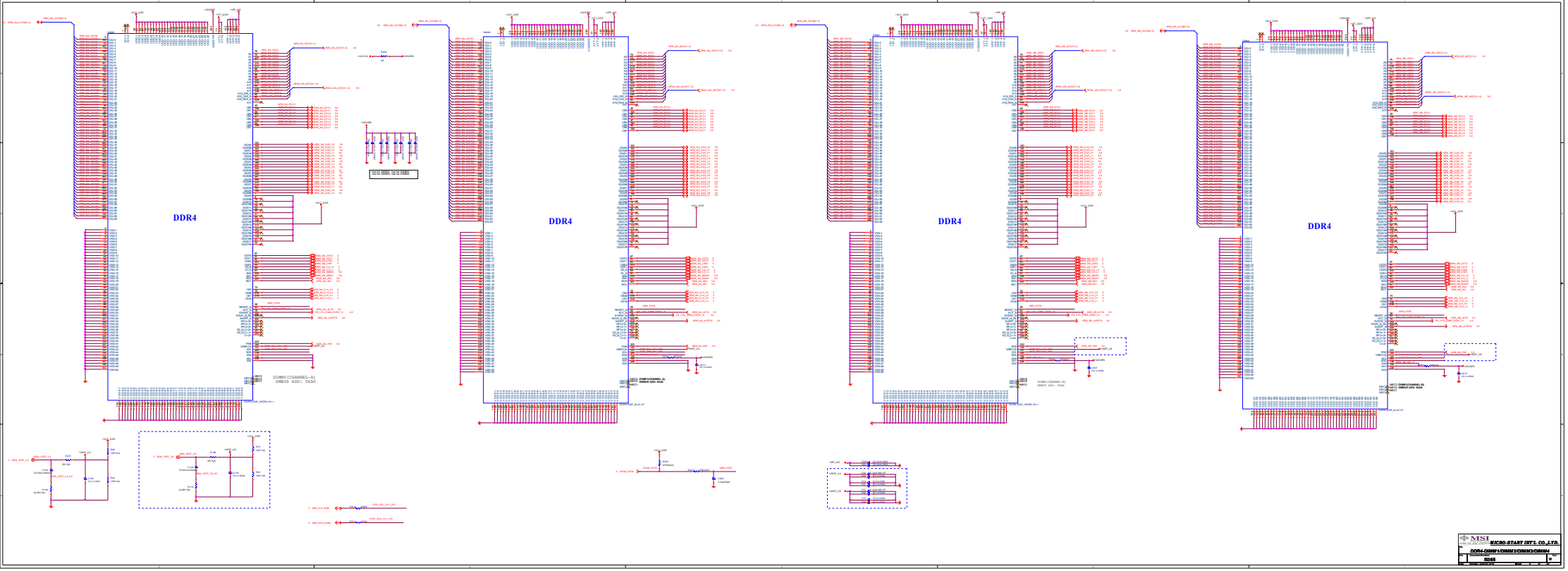
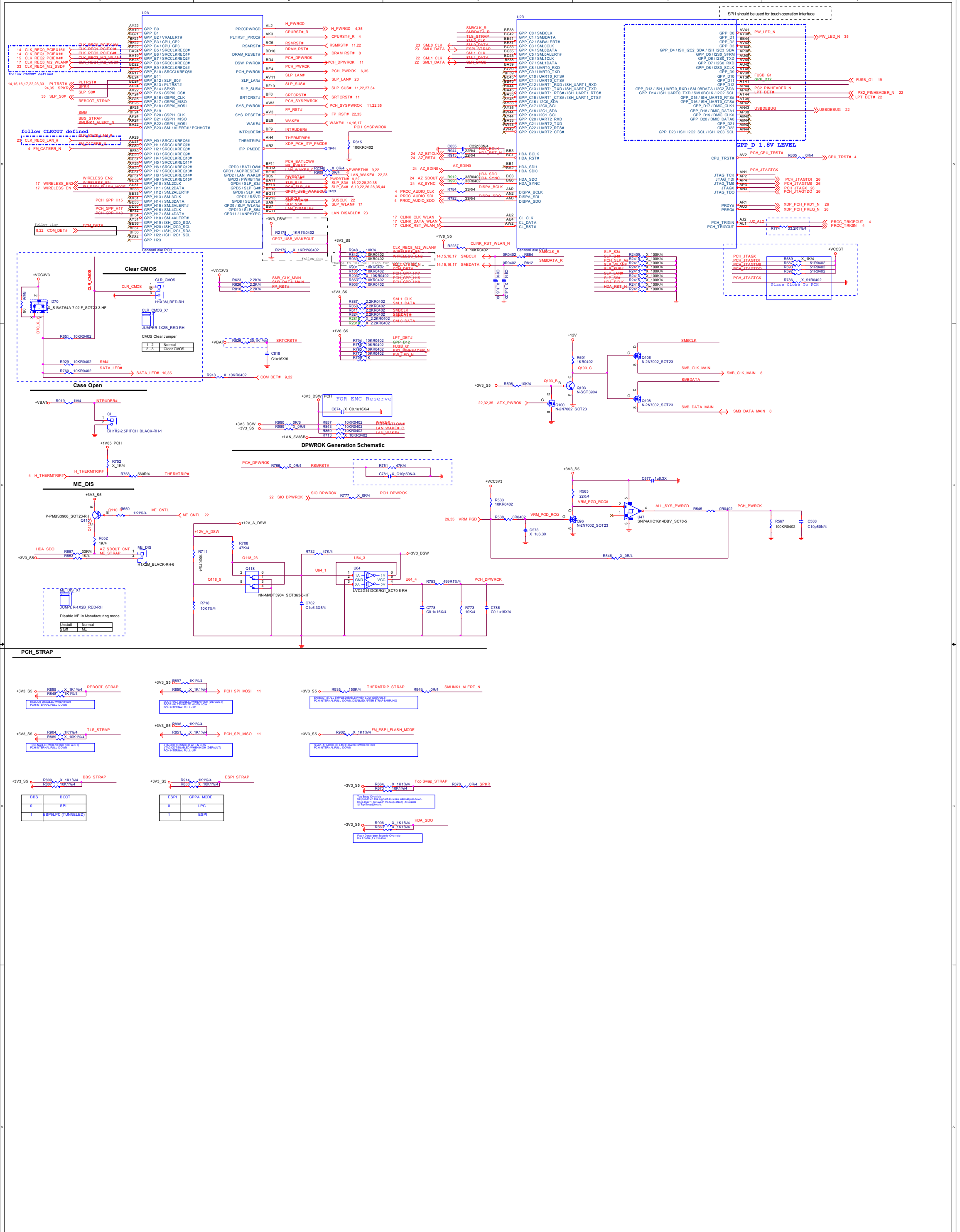

DDR4
DDR4
DDR4
DDR4
DIMM0(CHANNEL-A)
DIMM1(CHANNEL-B)
MICRO-STAR INT'L CO.,LTD.
DDR4-DIMM1/DIMM2/DIMM3/DIMM4
R565



MSI
Link to the Future
MICRO-START INTL CO.,LTD.

Title	PCH-PME/SMBUS/UART/I2C/HDA	
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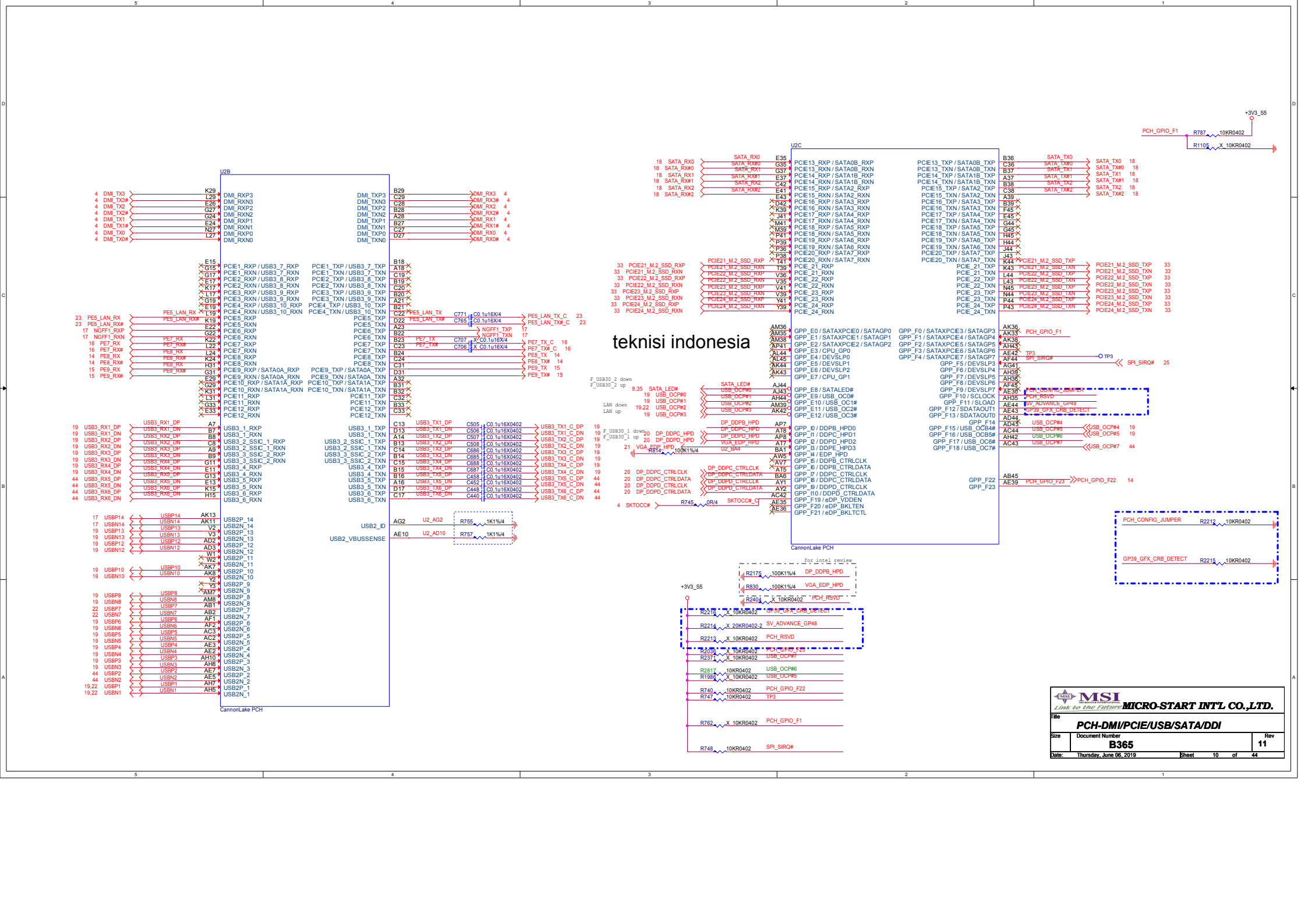
U2B
CannonLake PCH
U2C
CannonLake PCH
teknisi indonesia
+3V3_S5
PCH_GPIO_F1
R787 10KR0402
R1105 X_10KR0402
PCH_CONFIG_JUMPER
R2212 10KR0402
GP39_GFX_CRB_DETECT
R2215 10KR0402
for intel review
R2175 100K1%/4 DP_DDPB_HPD
R830 100K1%/4 VGA_EDP_HPD
R2401 X_10KR0402 PCH_RSVD
R2216 X_10KR0402 GP39_GFX_CRB_DETECT
R2214 X_20KR0402-2 SV_ADVANCE_GP48
R2213 X_10KR0402 PCH_RSVD
R2038 X_10KR0402 PCH_GPIO_F23
R2371 X_10KR0402 USB_OCP#7
R2817 10KR0402 USB_OCP#6
R1986 X_10KR0402 USB_OCP#5
R740 10KR0402 PCH_GPIO_F22
R747 10KR0402 TP3
R762 X_10KR0402 PCH_GPIO_F1
R748 10KR0402 SPI_SIRQ#
MSI MICRO-STAR INT'L CO.,LTD.
Link to the Future
Title
PCH-DMI/PCIE/USB/SATA/DDI
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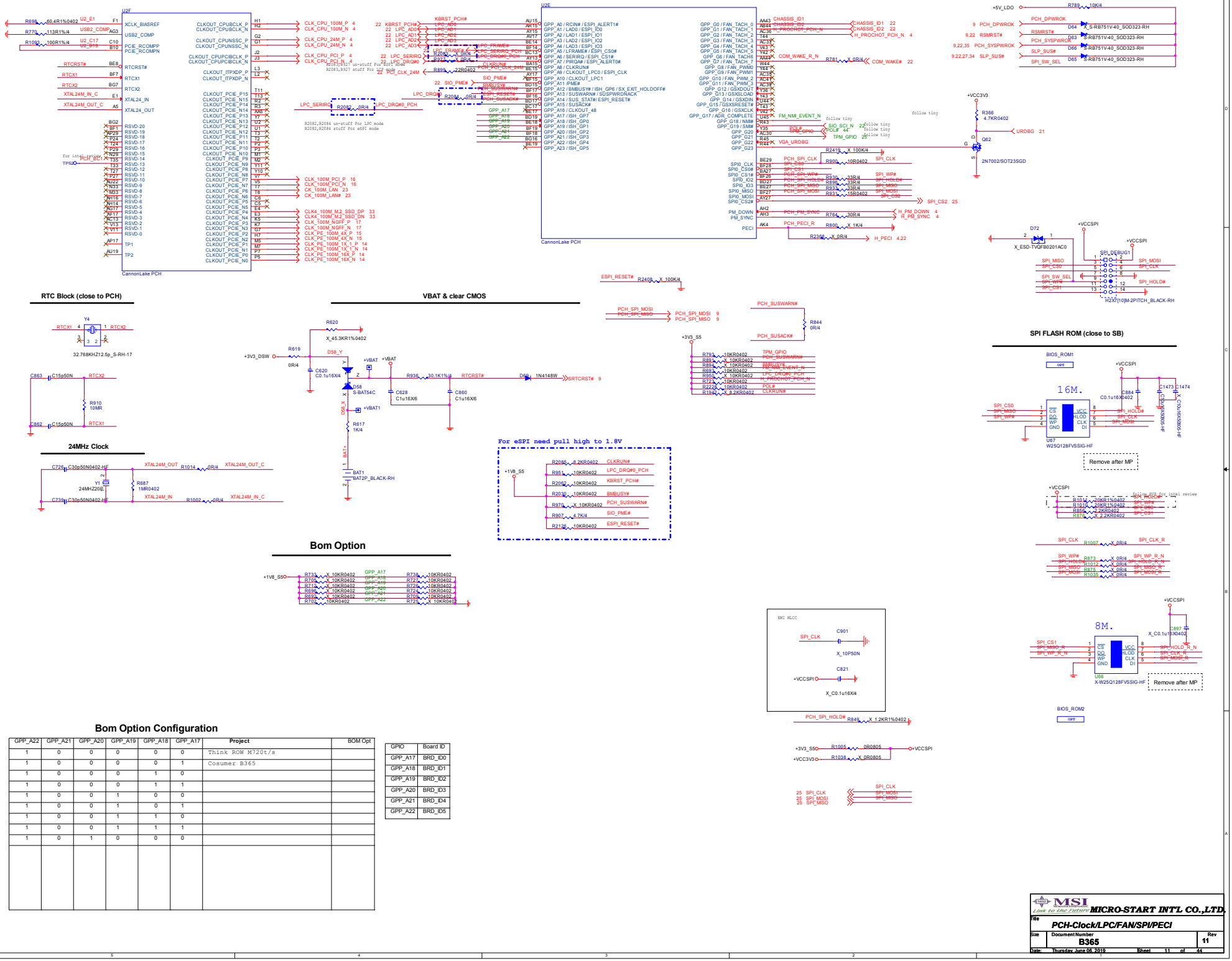
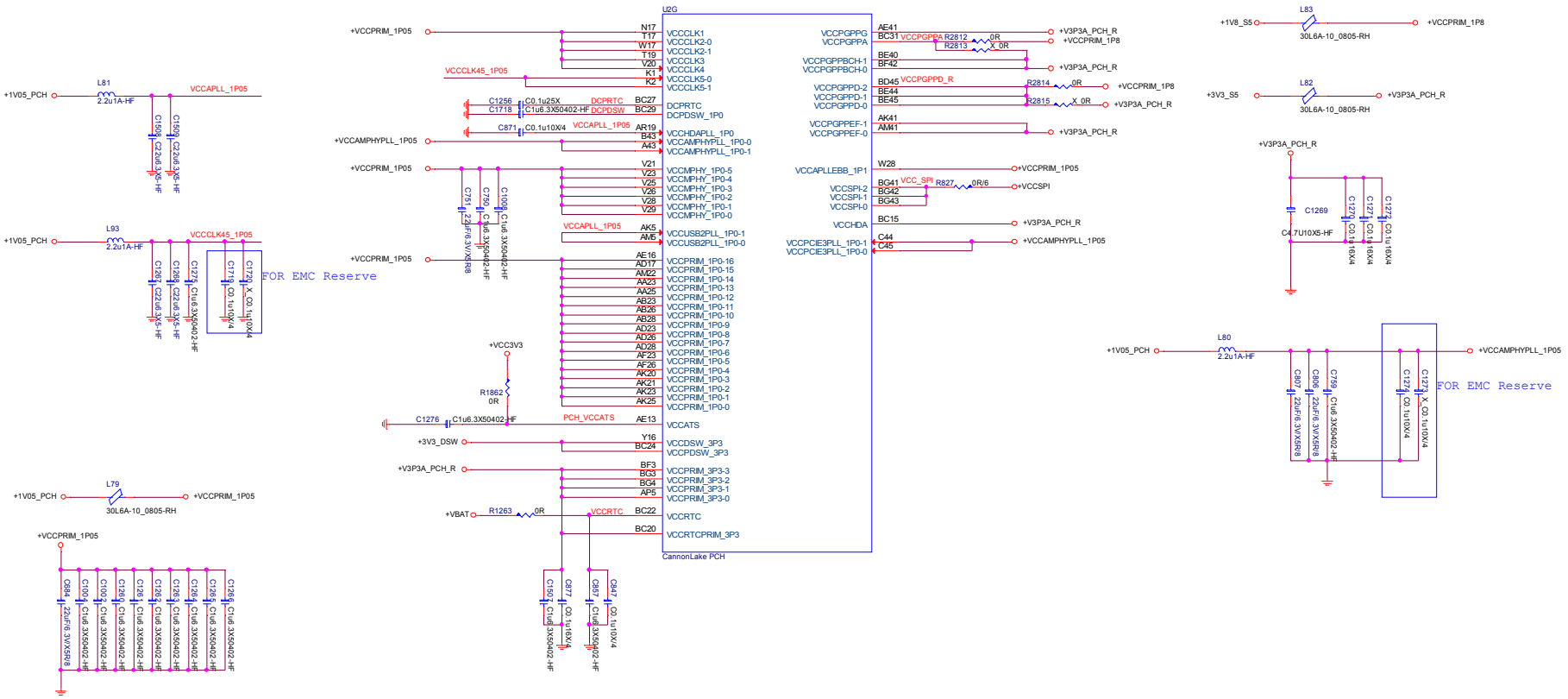


Bom Option Configuration

GPP_A22	GPP_A21	GPP_A20	GPP_A19	GPP_A18	GPP_A17	Project	BOM Opt
1	0	0	0	0	0	Think ROM M720t/s	
1	0	0	0	0	1	Cosumer B365	
1	0	0	0	1	0		
1	0	0	0	1	1		
1	0	0	1	0	0		
1	0	0	1	0	1		
1	0	0	1	1	0		
1	0	0	1	1	1		
1	0	1	0	0	0		

GPIO	Board ID
GPP_A17	BRD_ID0
GPP_A18	BRD_ID1
GPP_A19	BRD_ID2
GPP_A20	BRD_ID3
GPP_A21	BRD_ID4
GPP_A22	BRD_ID5



MSI MICRO-STAR INTERNATIONAL Link to the Future MICRO-START INTL CO.,LTD.			
Title: PCH-Power			
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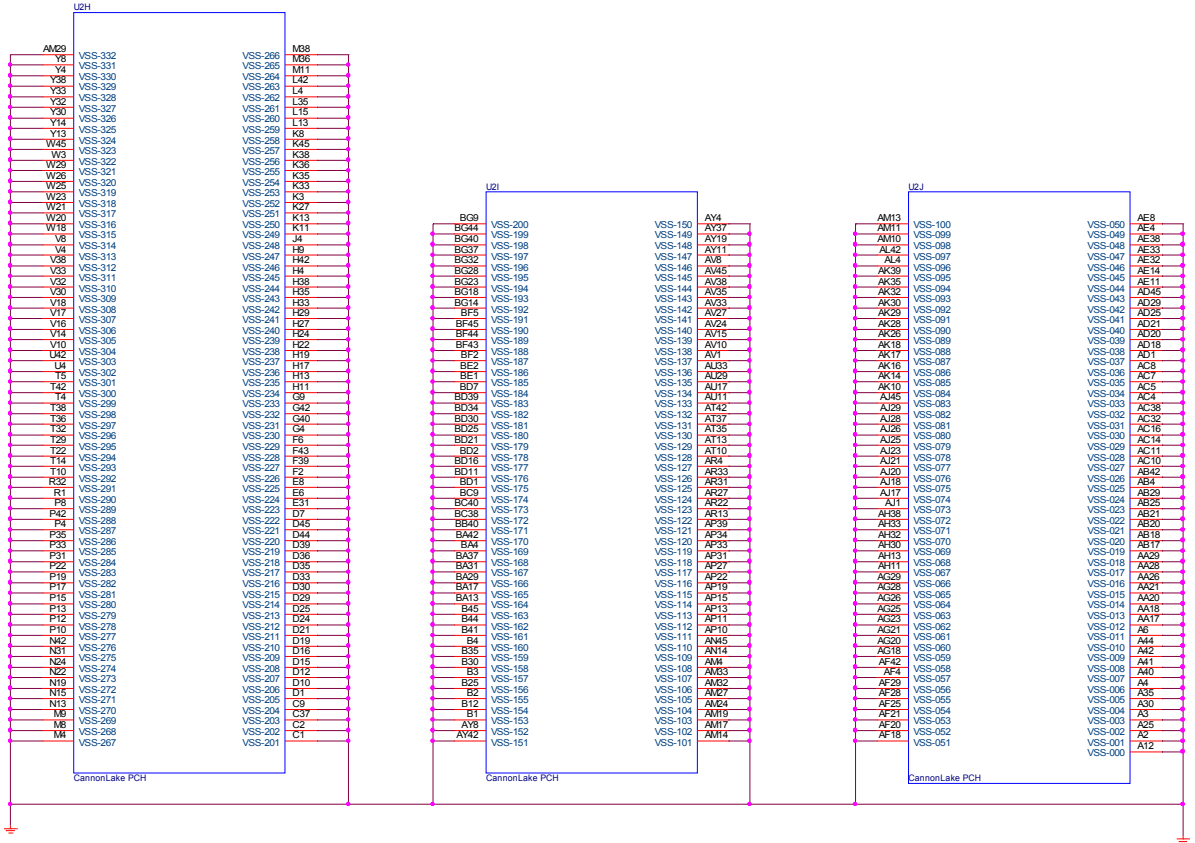

MICRO-START INT'L CO.,LTD.

Link to the Future

Title	PCH-GND	
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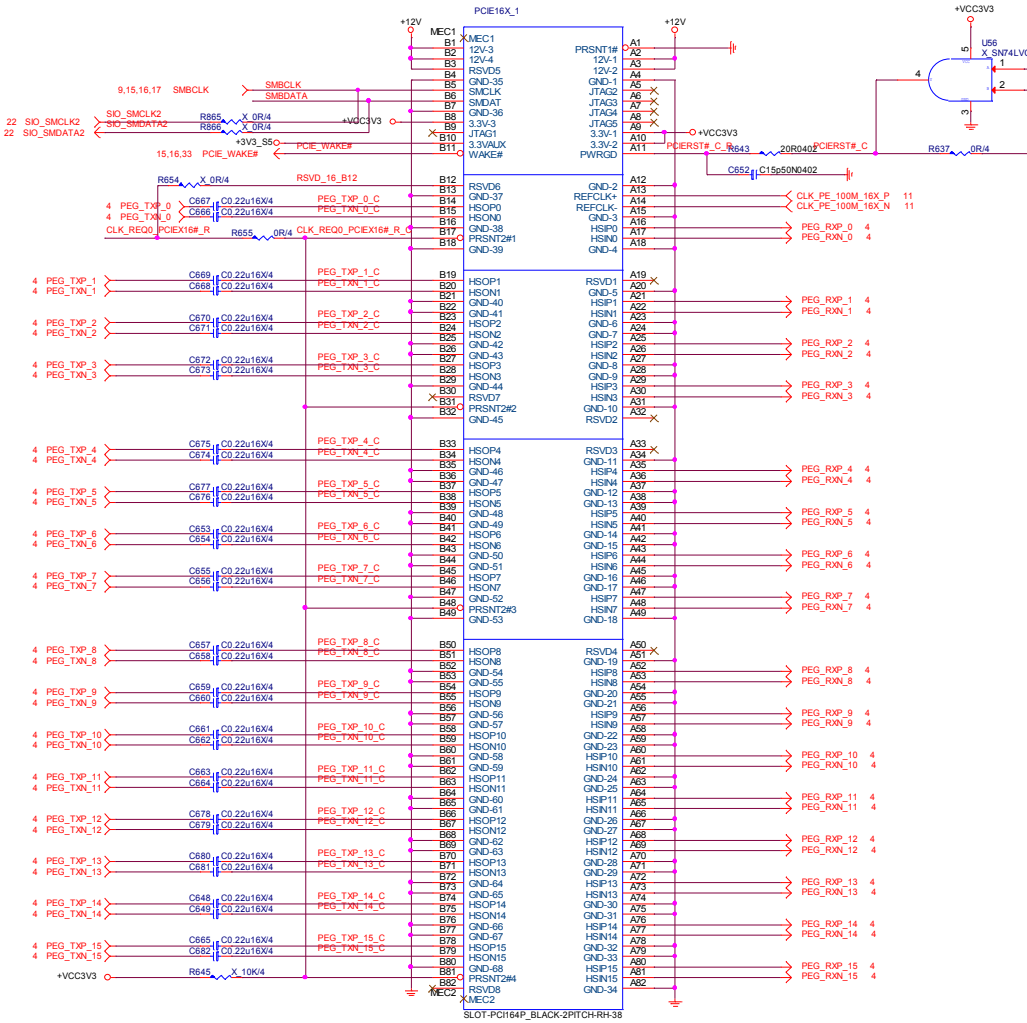
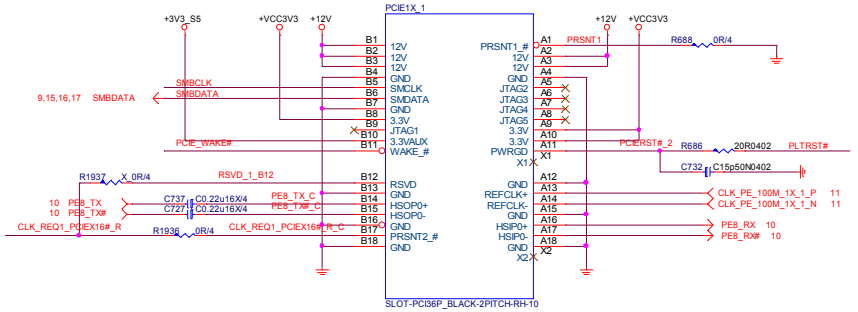
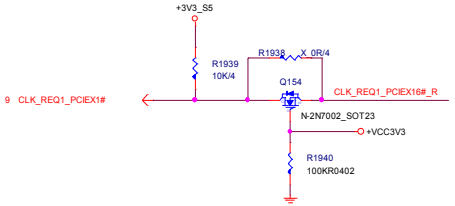
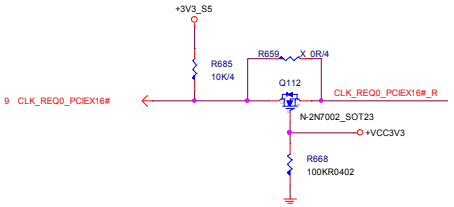
PCI_EXPRESS X16 SLOT

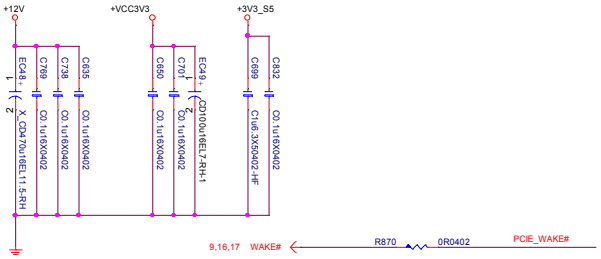


PCI_EXPRESS x1-PORT









MSI MICRO-STAR INTERNATIONAL Link to the Future MICRO-START INTL CO.,LTD.		
Title: PCIE x16/x1 slot		
Size	Document Number: B365	Rev: 11
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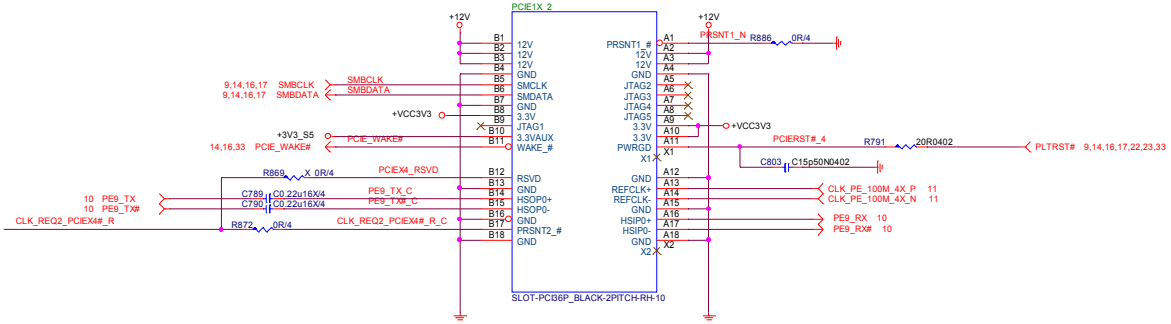
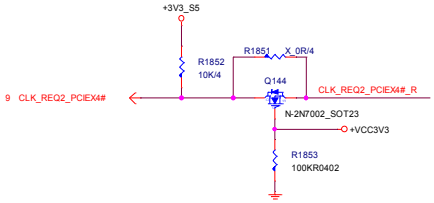
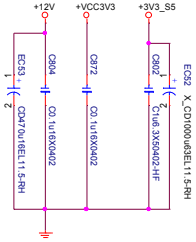
PCI_EXPRESS X1







MSI MICRO-STAR INT'L CO.,LTD.		
Title: PCIE 4X		
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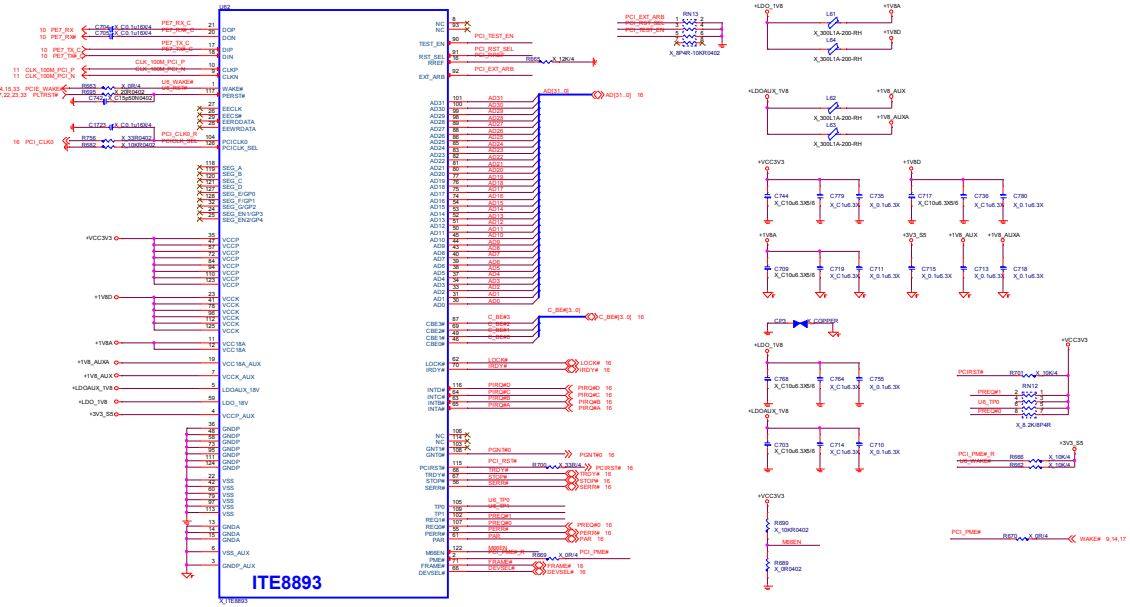

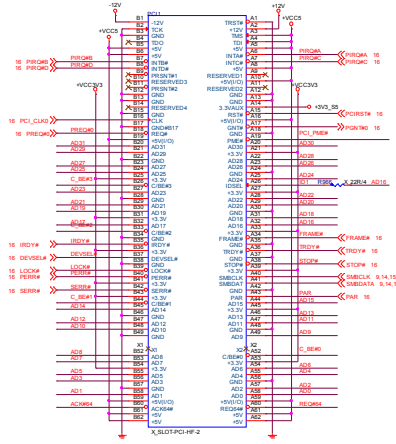

IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

PCI PULL-UP / DOWN RESISTORS

PCI slot		
+3VSB	(wake)	- 375mA
+3VSB	(no wake)	- 20mA
+3.3V		- 7.6A
+5V		- 5A
+12V		- 0.5A

MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title: PCI Slot			
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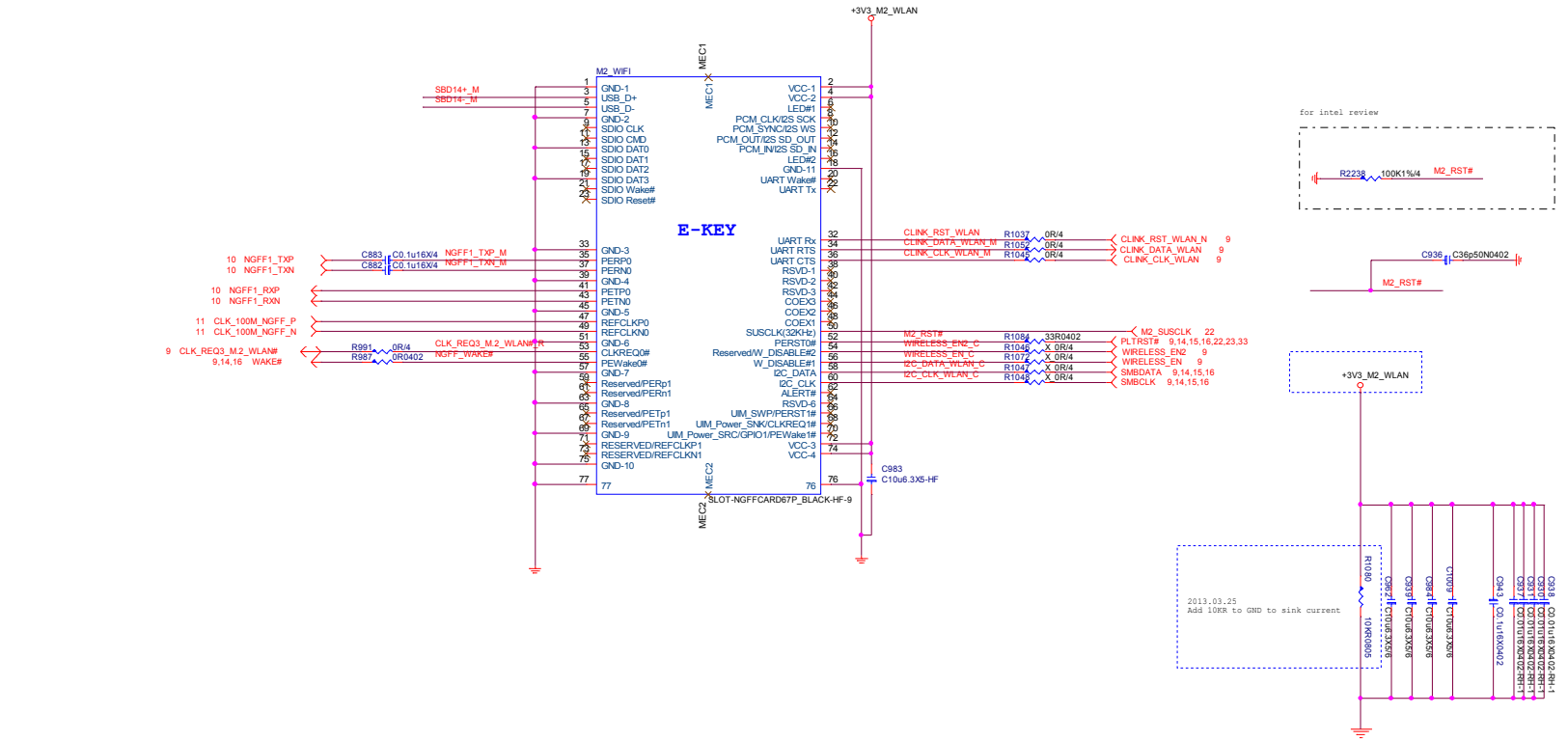

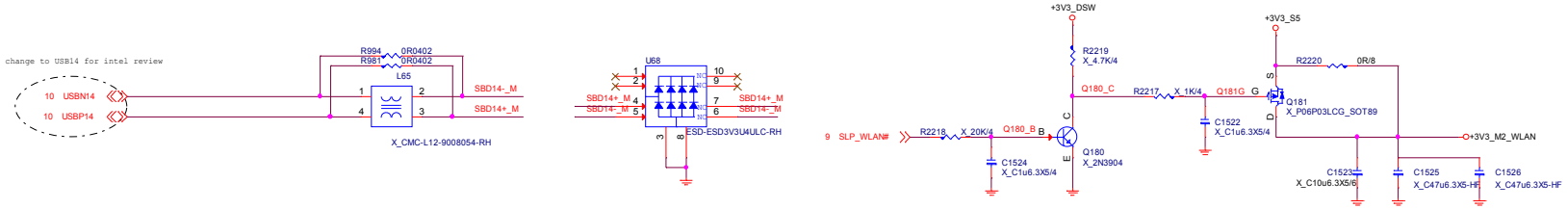

MSI COMPUTER CORP. Link to the Future **MICRO-START INT'L CO.,LTD.**

Title	**M2 Connector**	
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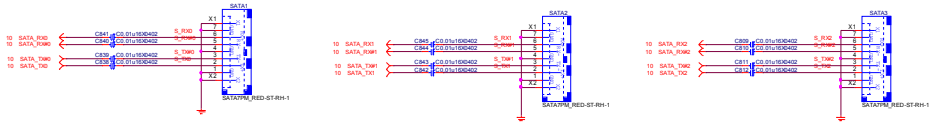
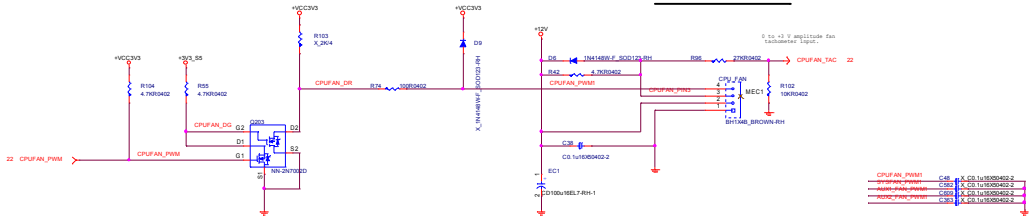
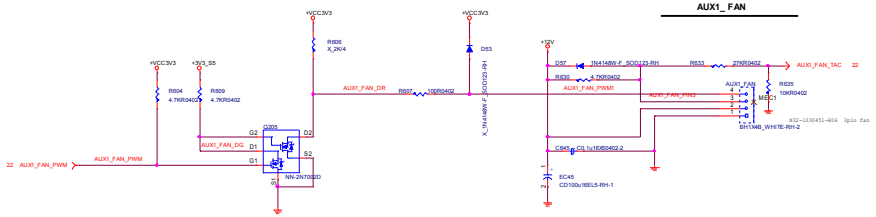
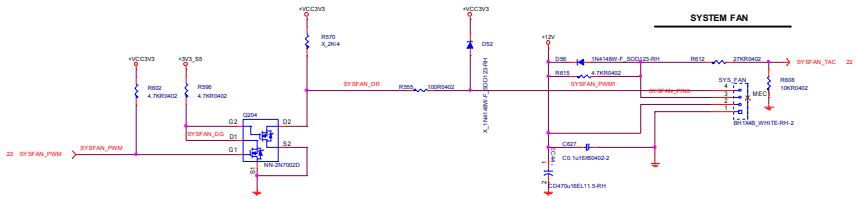
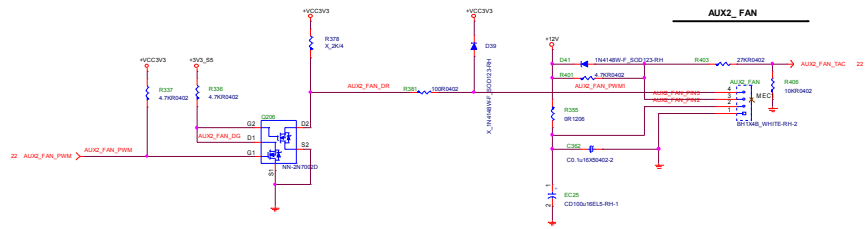


CPU FAN /SYSTEM FAN /POWER FAN









MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	SATA/FAN	
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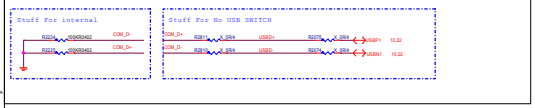
Front Panel USB Connnector For USB Port 3 / 4

Front Panel USB Connnector For USB Port 1/2

Rear USB Connnector For USB Port 9 / 10

Front IO USB Connnector For USB Port 1/2/3/4

Rear IO USB Connnector For USB Port 7/8



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

Title: Front / Rear USB Connectors

Size	Document Number	Rev
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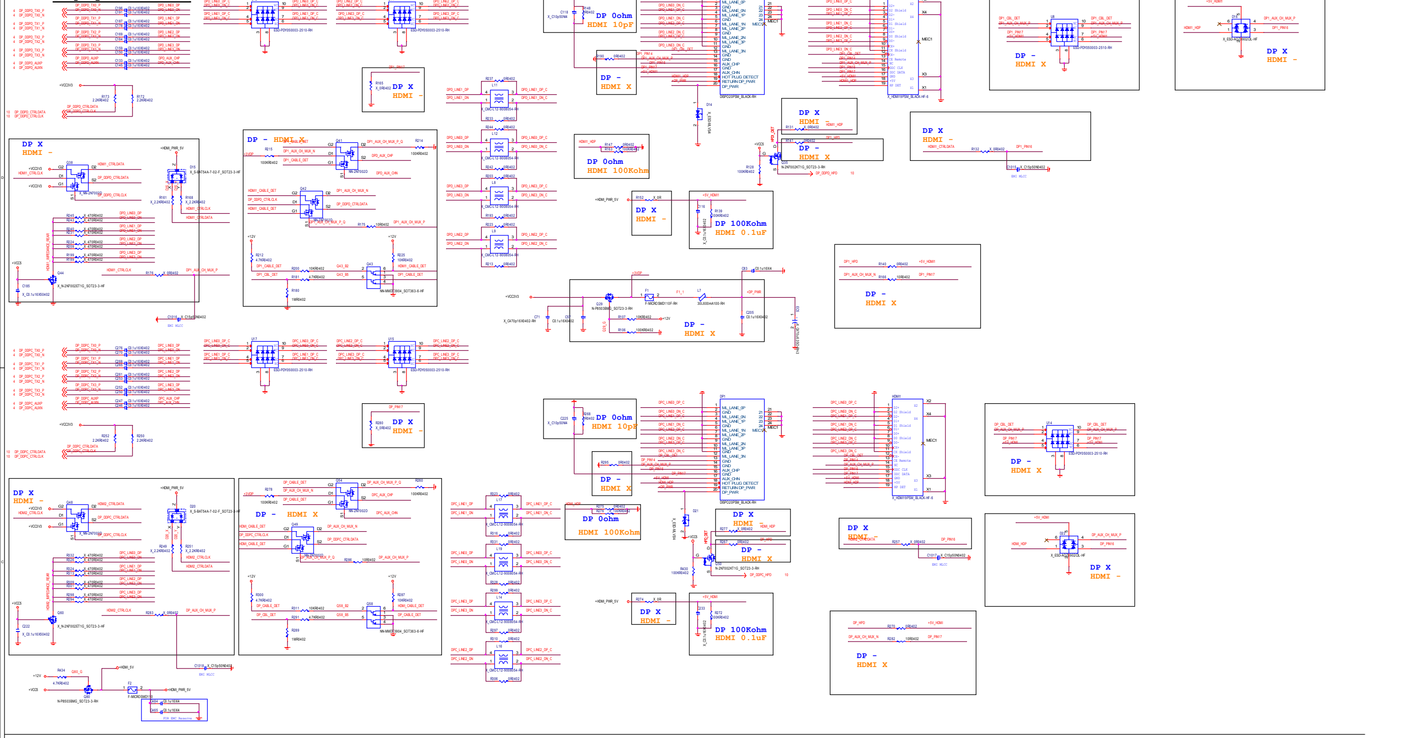
Display & HDMI CONN



MICRO-START INT'L CO.,LTD.

Title	Display Port/HDMI Port	
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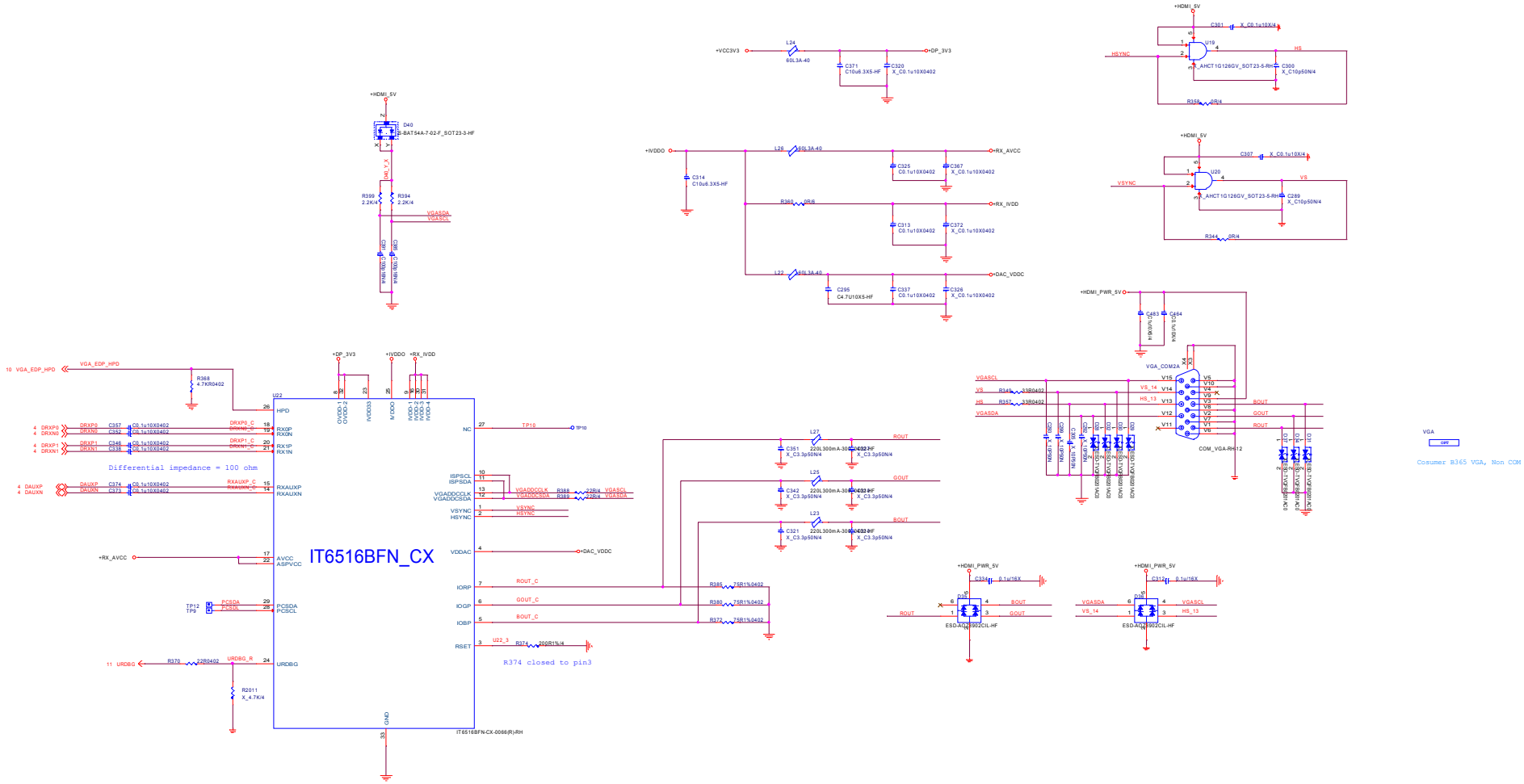

MSI MICRO-STAR INT'L CO.,LTD.

Title: VGA		
Size	Document Number: B365	Rev: 11
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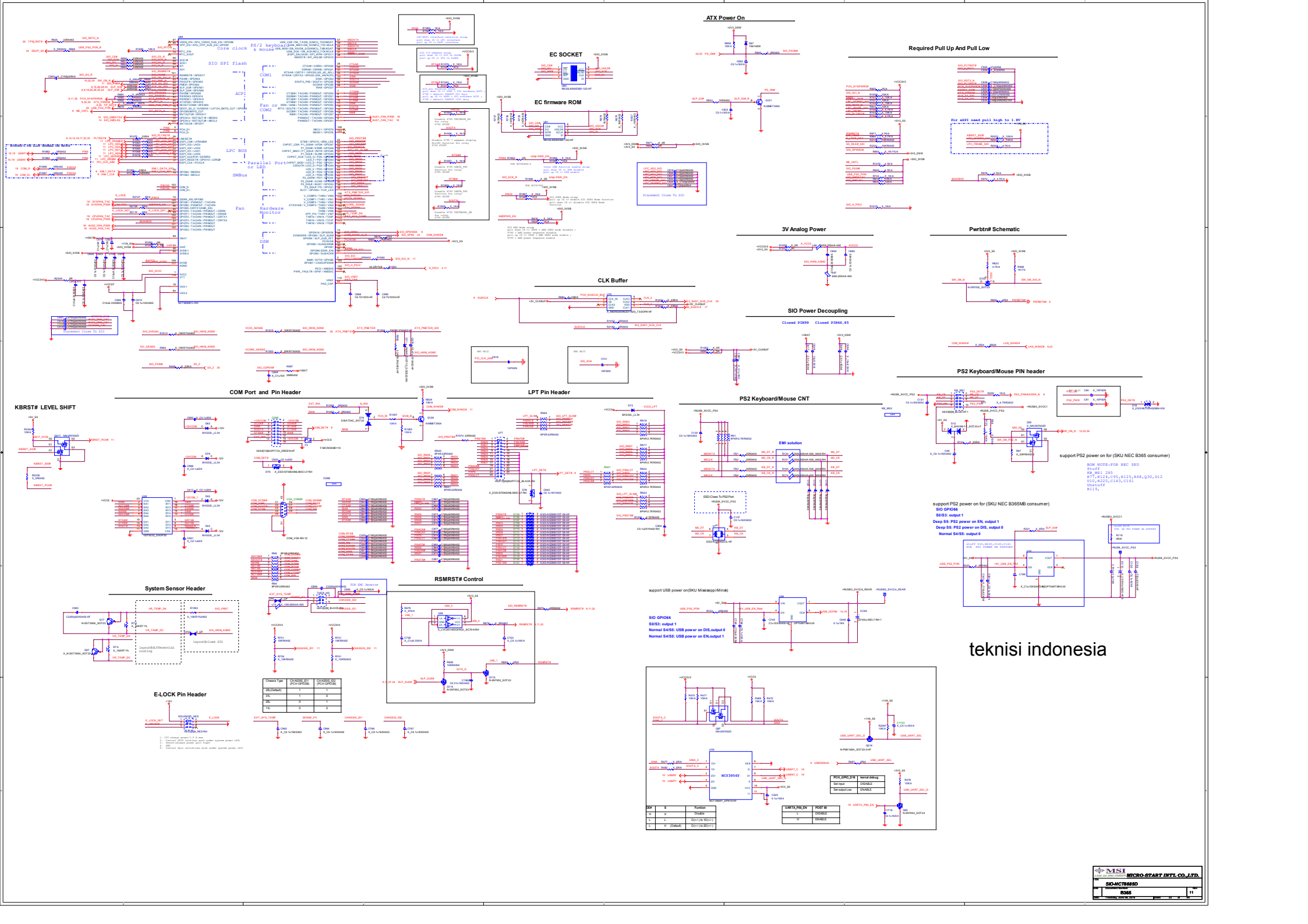
ATX Power On
Required Pull Up And Pull Low
EC SOCKET
EC firmware ROM
3V Analog Power
Pwrbtn# Schematic
CLK Buffer
SIO Power Decoupling
PS2 Keyboard/Mouse PIN header
COM Port and Pin Header
LPT Pin Header
PS2 Keyboard/Mouse CNT
KBRST# LEVEL SHIFT
System Sensor Header
RSMRST# Control
E-LOCK Pin Header
support PS2 power on for (SKU NEC B365 consumer)
SIO GPIO66
S0/S3: output 1
Deep S5: PS2 power on EN, output 1
Deep S5: PS2 power on DIS, output 0
Normal S4/S5: output 0
support USB power on(SKU Mississippi/Minsk)
Normal S4/S5: USB power on DIS,output 0
Normal S4/S5: USB power on EN,output 1
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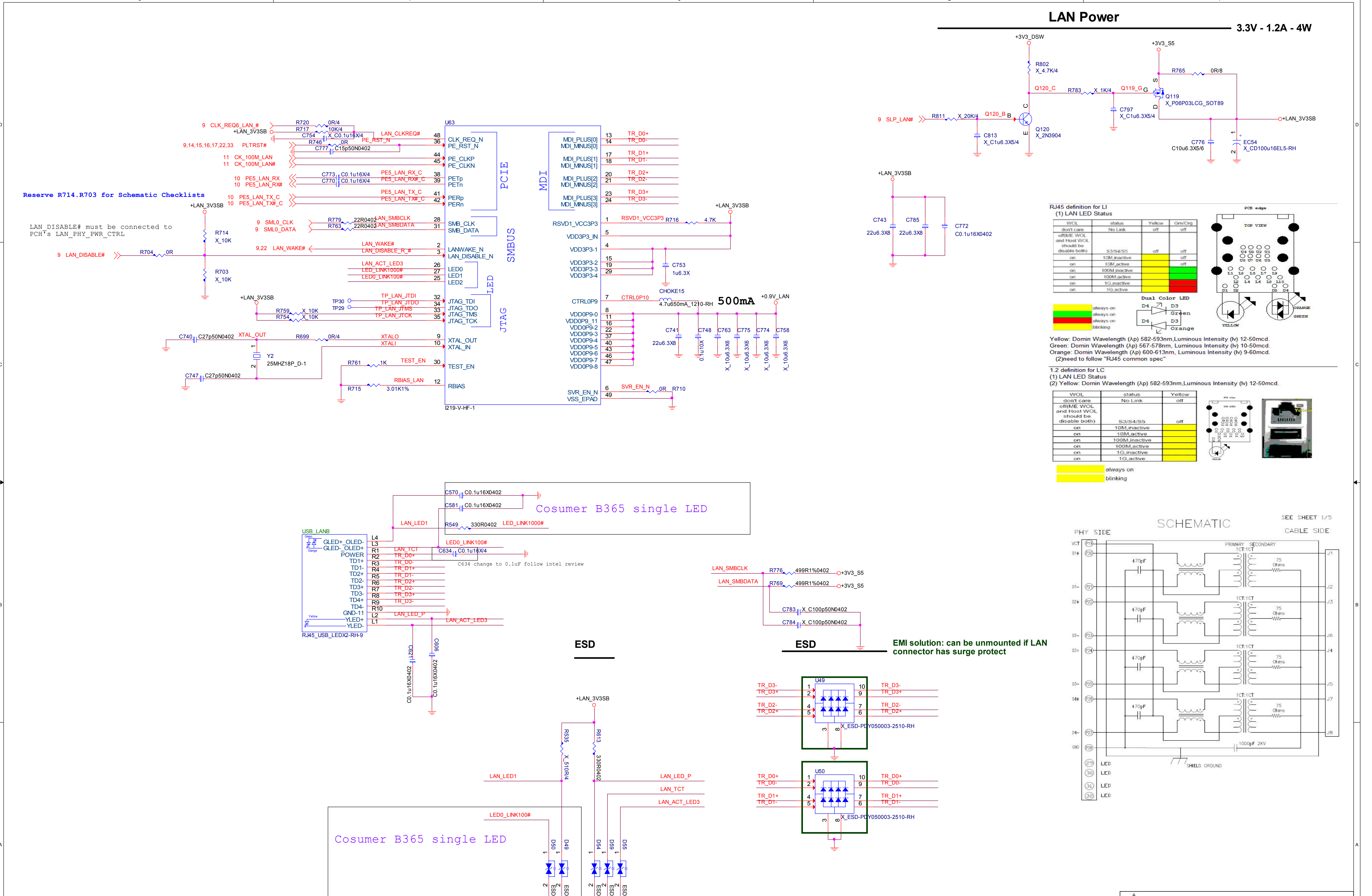
MICRO-STAR INT'L CO.,LTD.
SIO-NCT6685D
B365



LAN Power
3.3V - 1.2A - 4W
+3V3_DSW
+3V3_S5
R802 X_4.7K/4
R765 0R/8
Q120_C
R783 X_1K/4
Q119_G
Q119 X_P06P03LCG_SOT89
9 SLP_LAN#
R811 X_20K/4
Q120_B
Q120 X_2N3904
C813 X_C1u6.3X5/4
C797 X_C1u6.3X5/4
C776 C10u6.3X5/6
EC54 X_CD100u16EL5-RH
+LAN_3V3SB
U63
9 CLK_REQ6_LAN_#
R720 0R/4
R717 10K/4
C754 X_C0.1u16X/4
R746 0R
C777 C15p50N0402
LAN_CLKREQ#
PE_RST_N
9,14,15,16,17,22,33 PLTRST#
11 CK_100M_LAN
11 CK_100M_LAN#
10 PE5_LAN_RX
10 PE5_LAN_RX#
C773 C0.1u16X/4
C770 C0.1u16X/4
PE5_LAN_RX_C
PE5_LAN_RX#_C
10 PE5_LAN_TX_C
10 PE5_LAN_TX#_C
Reserve R714.R703 for Schematic Checklists
CLK_REQ_N
PE_RST_N
PE_CLKP
PE_CLKN
PETp
PETn
PERp
PERn
PCIE
MDI
MDI_PLUS[0]
MDI_MINUS[0]
MDI_PLUS[1]
MDI_MINUS[1]
MDI_PLUS[2]
MDI_MINUS[2]
MDI_PLUS[3]
MDI_MINUS[3]
TR_D0+
TR_D0-
TR_D1+
TR_D1-
TR_D2+
TR_D2-
TR_D3+
TR_D3-
9 SML0_CLK
9 SML0_DATA
R779 22R0402
R763 22R0402
LAN_SMBCLK
LAN_SMBDATA
SMB_CLK
SMB_DATA
SMBUS
LAN_DISABLE# must be connected to PCH's LAN_PHY_PWR_CTRL
R714 X_10K
R703 X_10K
9 LAN_DISABLE#
R704 0R
9,22 LAN_WAKE#
LAN_WAKE#
LAN_DISABLE_R_#
LANWAKE_N
LAN_DISABLE_N
LAN_ACT_LED3
LED_LINK1000#
LED0_LINK100#
LED0
LED1
LED2
LED
RSVD1_VCC3P3
R716 4.7K
VDD3P3_IN
VDD3P3-1
VDD3P3-2
VDD3P3-3
VDD3P3-4
C753 1u6.3X
CHOKE15
CTRL0P9
CTRL0P10
4.7u650mA_1210-RH
500mA
+0.9V_LAN
VDD0P9-0
VDD0P9_11
VDD0P9-2
VDD0P9-3
VDD0P9-4
VDD0P9-5
VDD0P9-6
VDD0P9-7
VDD0P9-8
C741 22u6.3X8
C748 0.1u10X
C763 X_10u6.3X6
C775 X_10u6.3X6
C774 X_10u6.3X6
C758 X_10u6.3X6
TP30
TP29
TP_LAN_JTDI
TP_LAN_JTDO
TP_LAN_JTMS
TP_LAN_JTCK
R759 X_10K
R754 X_10K
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
JTAG
C740 C27p50N0402
XTAL_OUT
R699 0R/4
XTALO
XTALI
Y2 25MHZ18P_D-1
C747 C27p50N0402
XTAL_OUT
XTAL_IN
R761 1K
TEST_EN
R715 3.01K1%
RBIAS_LAN
RBIAS
SVR_EN_N
R710 0R
VSS_EPAD
I219-V-HF-1
C743 22u6.3X8
C785 22u6.3X8
C772 C0.1u16X0402
RJ45 definition for LI
(1) LAN LED Status
Yellow: Domin Wavelength (λp) 582-593nm,Luminous Intensity (Iv) 12-50mcd.
Green: Domin Wavelength (λp) 567-578nm, Luminous Intensity (Iv) 10-50mcd.
Orange: Domin Wavelength (λp) 600-613nm, Luminous Intensity (Iv) 9-60mcd.
(2)need to follow "RJ45 common spec"
Dual Color LED
1.2 definition for LC
(1) LAN LED Status
(2) Yellow: Domin Wavelength (λp) 582-593nm,Luminous Intensity (Iv) 12-50mcd.
always on
blinking
C570 C0.1u16X0402
C581 C0.1u16X0402
Cosumer B365 single LED
LAN_LED1
R549 330R0402
LED_LINK1000#
USB_LANB
LED0_LINK100#
C634 C0.1u16X/4
C634 change to 0.1uF follow intel review
LAN_TCT
LAN_LED_P
LAN_ACT_LED3
RJ45_USB_LEDX2-RH-9
C621 C0.1u16X0402
C606 C0.1u16X0402
LAN_SMBCLK
LAN_SMBDATA
R776 499R1%0402
R769 499R1%0402
+3V3_S5
C783 X_C100p50N0402
C784 X_C100p50N0402
ESD
EMI solution: can be unmounted if LAN connector has surge protect
U49
U50
X_ESD-PDY050003-2510-RH
+LAN_3V3SB
R535 X_510R/4
R613 330R0402
D50
D49
D54
D59
D55
ESD-MLVS04
TP27
TP2
TP28
+0.9V_LAN
PLTRST#
+LAN_3V3SB
SCHEMATIC
SEE SHEET 1/5
PHY SIDE
CABLE SIDE
SHIELD GROUND

MSI

Link to the Future

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Title	LAN-i219V		
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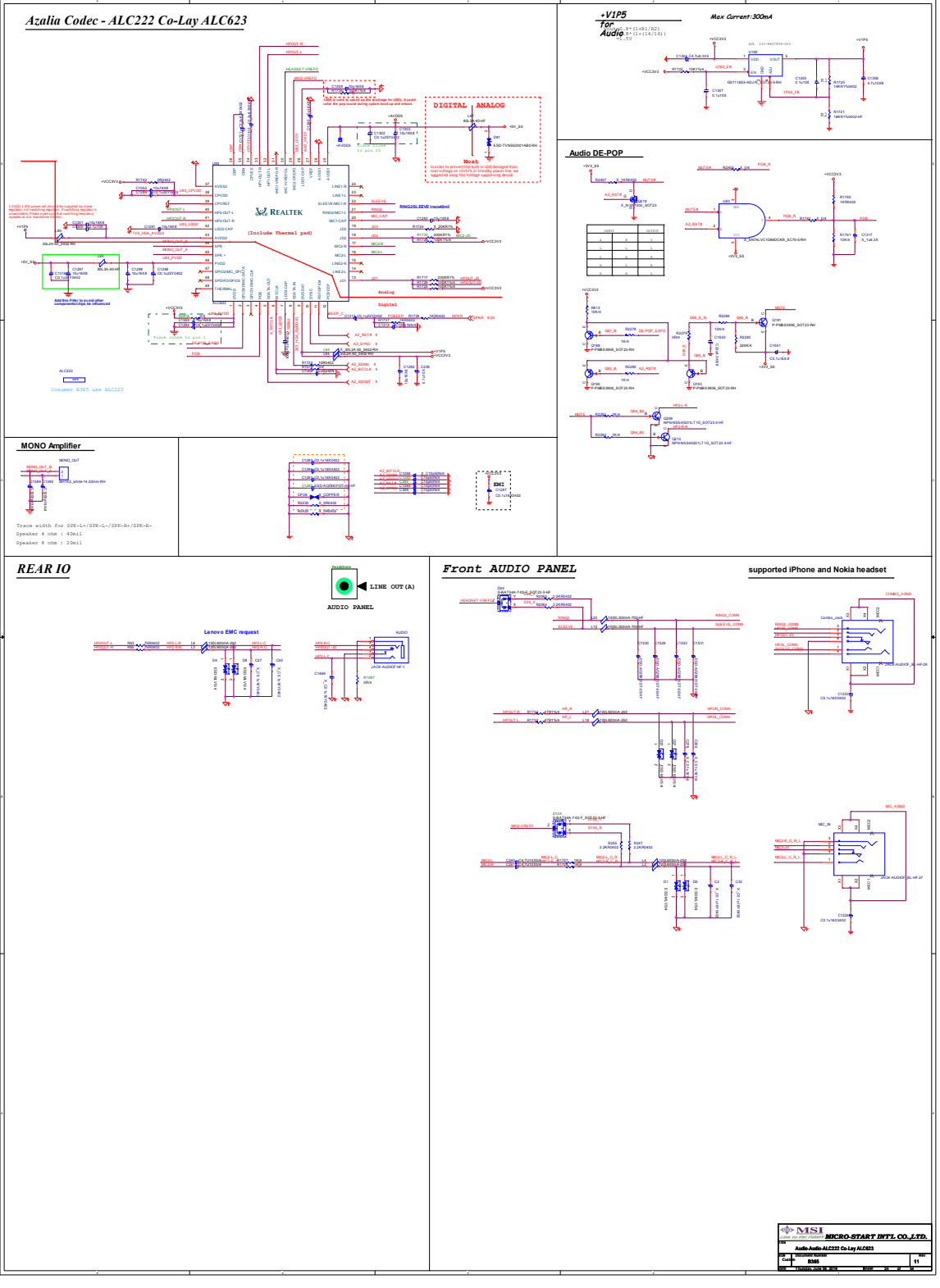
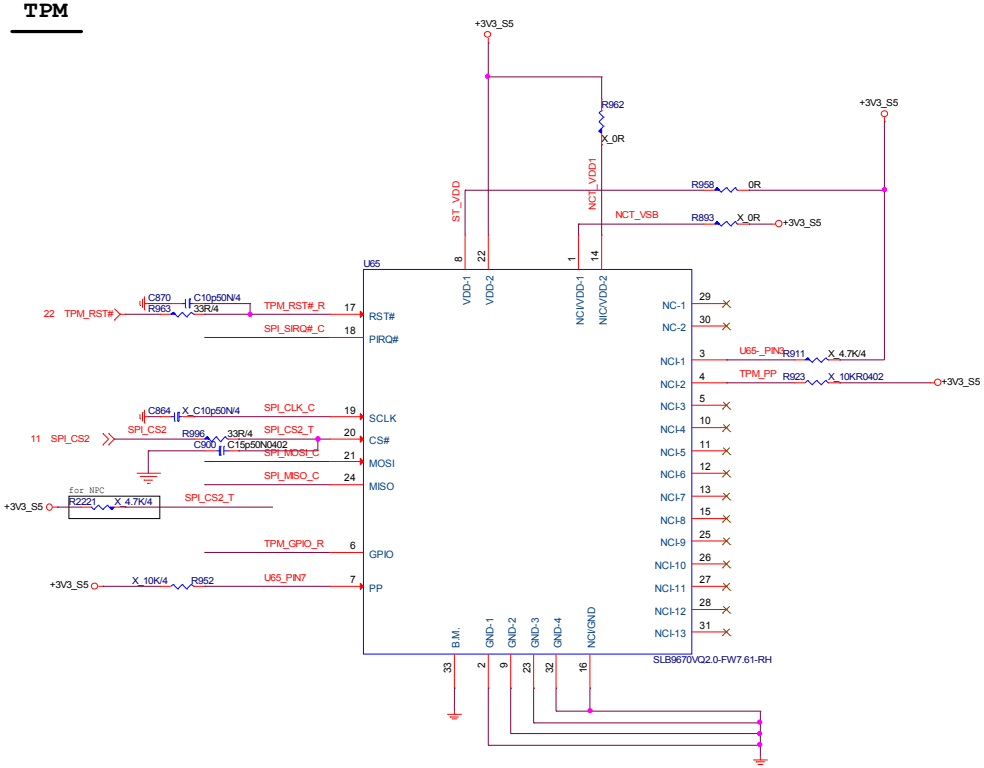
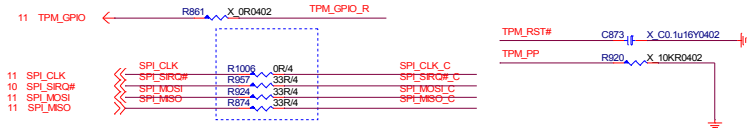
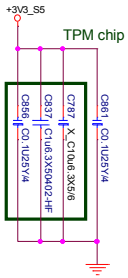

Azalia Codec - ALC222 Co-Lay ALC623
REALTEK
(Include Thermal pad)
DIGITAL
ANALOG
Mic4C
Analog
Digital
Consumer 8363 use ALC222
MONO Amplifier
Trace width for SPK-L+/SPK-L-/SPK-R+/SPK-R-
Speaker 4 ohm : 40mil
Speaker 8 ohm : 20mil
REAR IO
LINE OUT (A)
AUDIO PANEL
Lenovo EMC request
Front AUDIO PANEL
supported iPhone and Nokia headset
+V1P5
for Audio
Max Current:300mA
Audio DE-POP
www.teknisi-indonesia.com
MICRO-START INTL CO.,LTD.
Audio-Audio-ALC222 Co-Lay ALC623
Config
8366
Document Number
Rev
11

TPM





	R893	R911	R923	R920	R952	R958	R962	R861
ST----ST33HTPH2E32AHB4(SPI)	X	X	X	X	X	X	X	X
NPC----NPCT750 (SPI)	V	X	X	X	X	V	V	X
Infineon SLB 9670VQ2.0 (SPI)	X	X	X	X	X	V	X	X



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Link to the Future

Title: TPM & Asset ID

Size: | Document Number: B365 | Rev: 11

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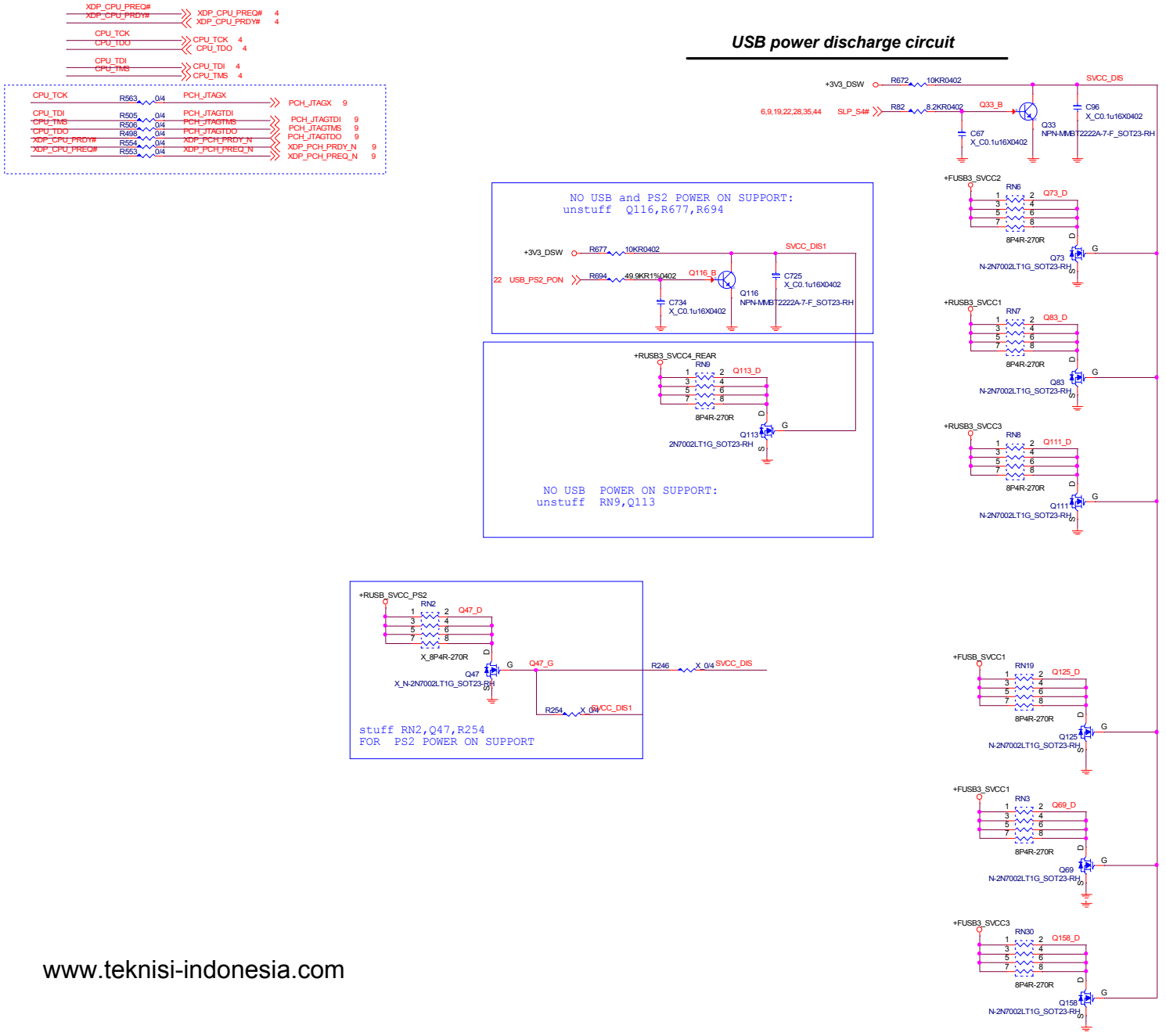

MICRO-START INT'L CO.,LTD.

Title: XDP/USB Power Dischage

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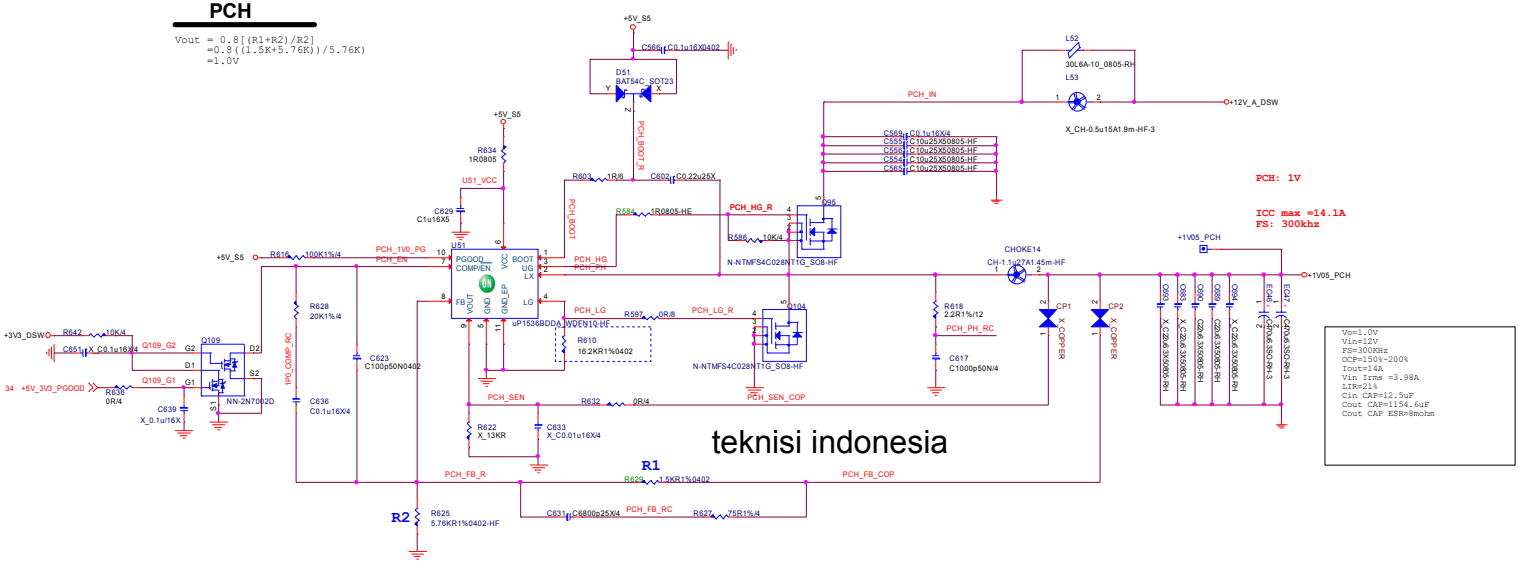
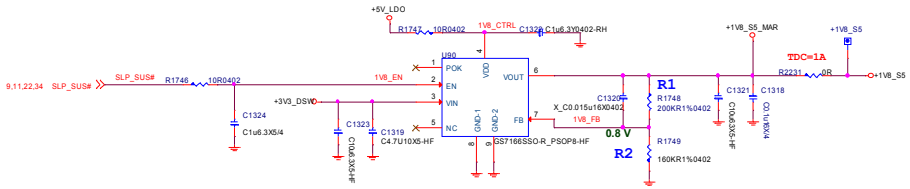
PCH

Vout = 0.8[(R1+R2)/R2]
=0.8((1.5K+5.76K))/5.76K)
=1.0V



+1V8_S5

Vout = 0.8[(R1+R2)/R2]
=0.8((15K+12K))/12K)
=1.8V



MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title: PCH Core Power		
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DDR4

Vout = 0.8[(R1+R2)/R2]
=0.8((1K+2K))/2K)
=1.2V

Vo=1.2V
Vin=12V
FS=300KHz
OCP=150%~200%
Iout=15.6A
Vin Irms =4.68A
LIR=21%
Cin CAP=15.6uF
Cout CAP=1241.22uF
Cout CAP ESR=8mohm

DDR4: 1.2V
ICC max =17.113A
FS: 300khz

DDRIII I/O power decoulping caps.

DDR4 Termination Power

0.6V - 1.1A - 0.825W

VPP_2.5V

Vout = 0.6[(R1+R2)/R2]
=0.6((162K+51K))/51K)
=2.5V

2.5V/2.24A

BOTTOM PAD CONNECT TO GND Through 4 VIAs

Vo=2.5V
Vin=5V
FS=1000KHz
OCP=150%~200%
Iout=2.24A
Vin Irms =0.56A
LIR=25%
Cin CAP=1.86uF
Cout CAP=25.6uF

MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	DDR4 Power		
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Intel Coffee Lake IMVP8 POWER CKT - 4+2 PHASE

CFL S-line 62_65W
Vcore loadline=2.1mohm
VGT loadline=3.1mohm

O/P Choke:
0.3uH/0.6mohm

Unstuff Q20,Stuff R1016

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VCORE PORTION

VCCGT PORTION

6X6 52PIN QFN

PUT CLOSE TO PWM

PUT COLSE TO VCORE HOT SPOT

PUT COLSE TO VCCGT HOT SPOT

BOTTOM PAD CONNECT TO GND Through 4 VIAs

3 PHASE OPTION

Power Sequence

Title	IMVP8-NCP81203 5 Phase
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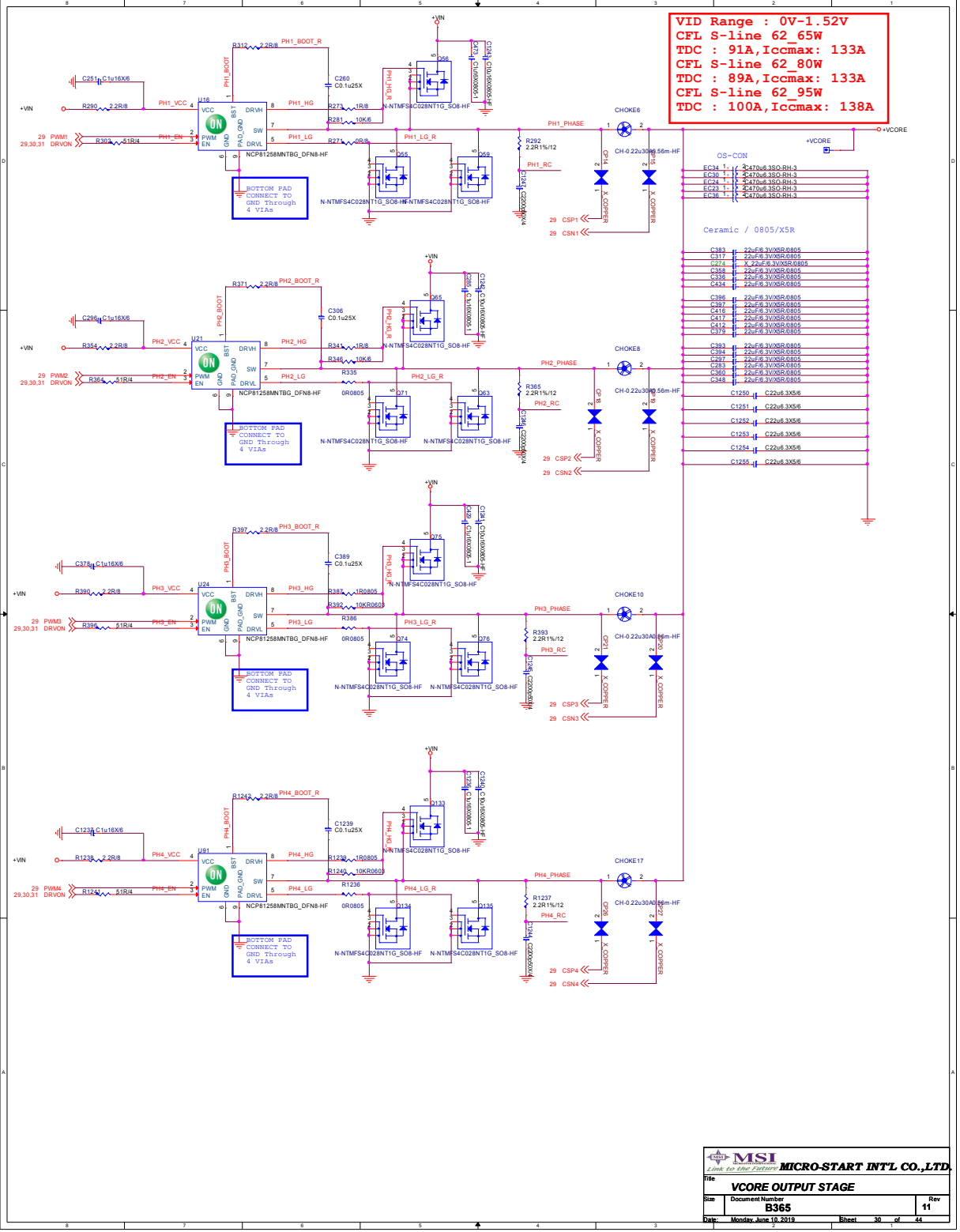
MICRO-START INT'L CO.,LTD.



MICRO-START INT'L CO.,LTD.

Title: VCORE OUTPUT STAGE

Size	Document Number	Rev
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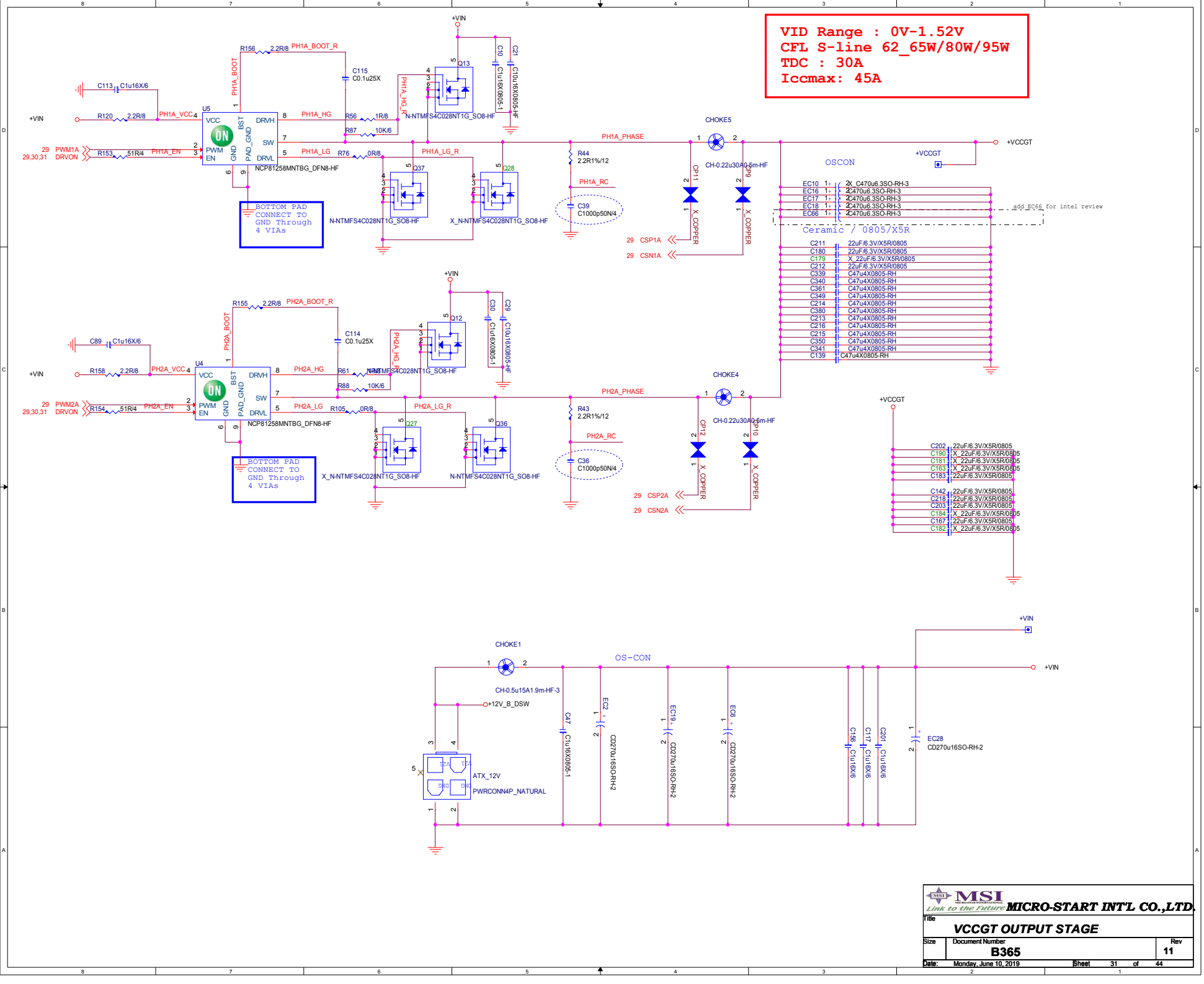
VID Range : 0V-1.52V
CFL S-line 62_65W/80W/95W
TDC : 30A
Iccmax: 45A
+VIN
PH1A_BOOT_R
PH1A_BOOT
PH1A_VCC
PH1A_EN
PH1A_HG
PH1A_LG
PH1A_HG_R
PH1A_LG_R
PH1A_PHASE
PH1A_RC
PWM1A
DRVON
NCP81258MNTBG_DFN8-HF
N-NTMFS4C028NT1G_SO8-HF
X_N-NTMFS4C028NT1G_SO8-HF
BOTTOM PAD CONNECT TO GND Through 4 VIAs
CHOKE5
CH-0.22u30A0-5m-HF
OSCON
+VCCGT
Ceramic / 0805/X5R
add EC66 for intel review
CSP1A
CSN1A
PH2A_BOOT_R
PH2A_BOOT
PH2A_VCC
PH2A_EN
PH2A_HG
PH2A_LG
PH2A_HG_R
PH2A_LG_R
PH2A_PHASE
PH2A_RC
PWM2A
DRVON
CHOKE4
CSP2A
CSN2A
CHOKE1
CH-0.5u15A1.9m-HF-3
OS-CON
+12V_B_DSW
ATX_12V
PWRCONN4P_NATURAL
EC28
CD270u16SO-RH-2
MSI
MICRO-START INT'L CO.,LTD.
Link to the Future
Title
VCCGT OUTPUT STAGE
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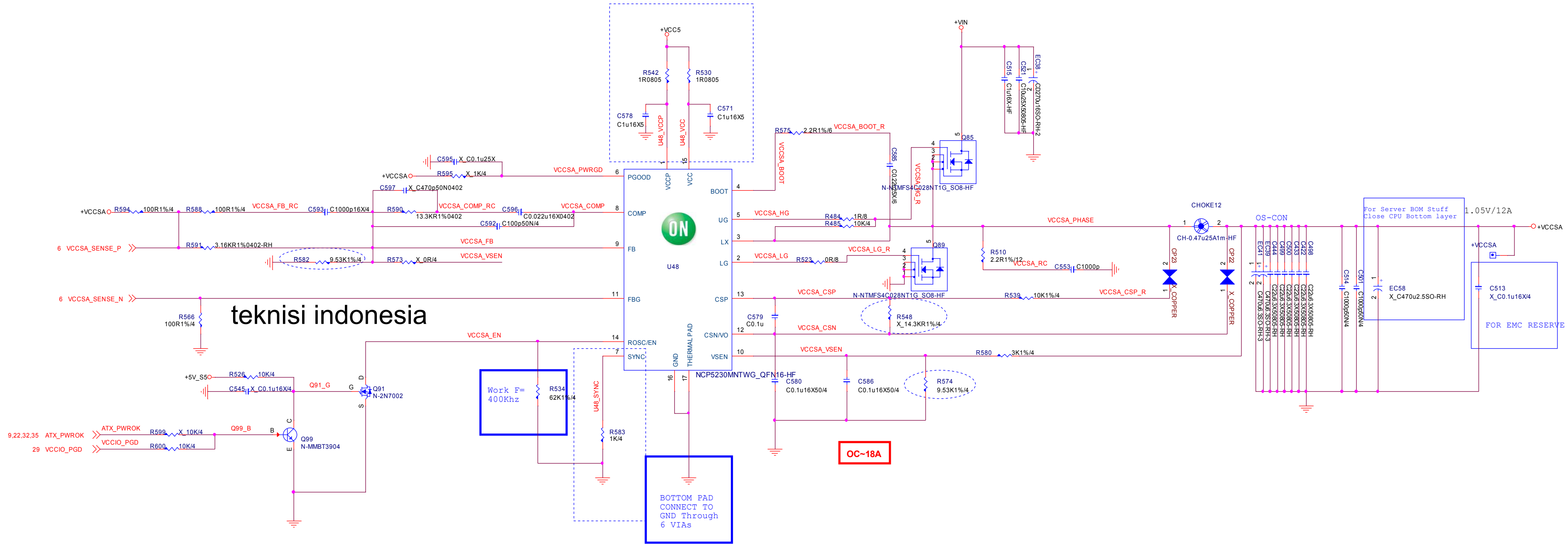
VCCSA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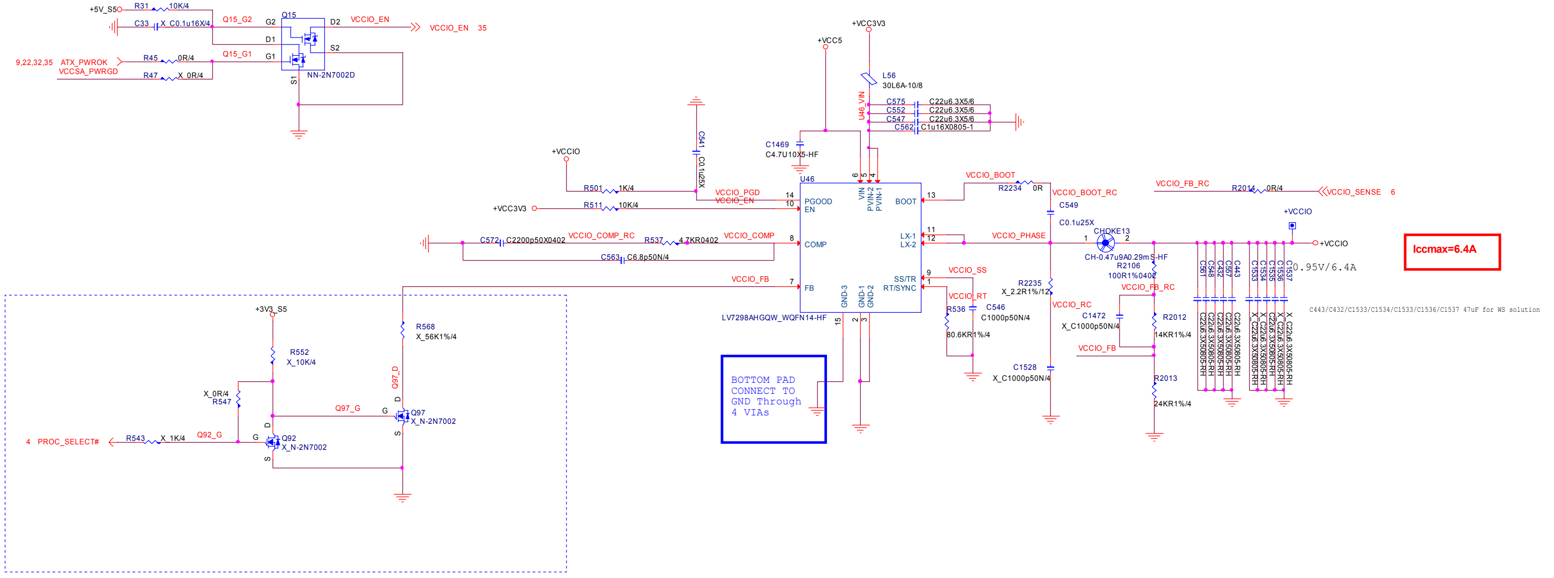
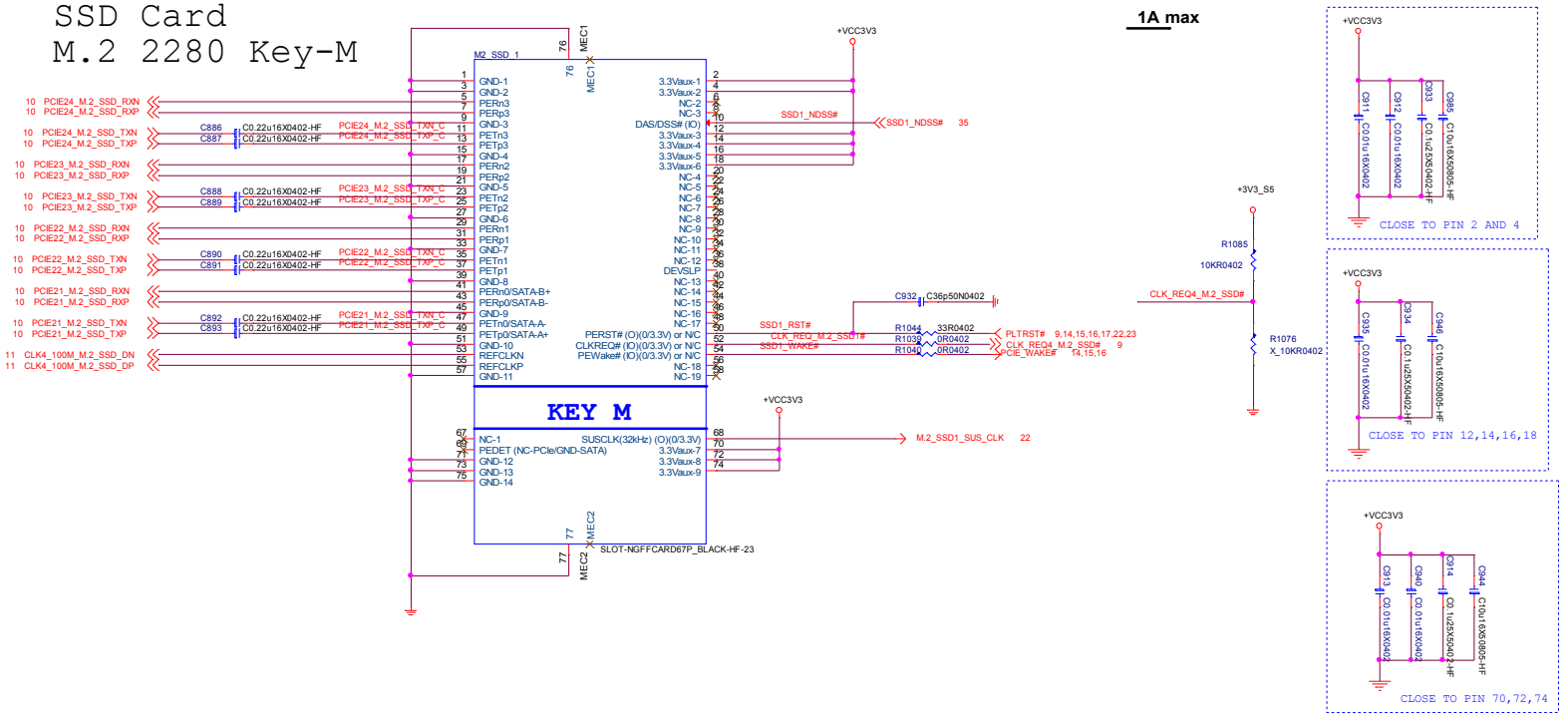
U48
NCP5230MNTWG_QFN16-HF
1.05V/12A
OC~18A
Work F= 400Khz
BOTTOM PAD CONNECT TO GND Through 6 VIAs
For Server BOM Stuff Close CPU Bottom layer
FOR EMC RESERVE
OS-CON
CHOKE12
CH-0.47u25A1m-HF
VCCSA_PHASE
VCCSA_BOOT_R
VCCSA_PWRGD
VCCSA_COMP
VCCSA_FB
VCCSA_VSEN
VCCSA_EN
VCCSA_CSP
VCCSA_CSN
VCCSA_SENSE_P
VCCSA_SENSE_N
ATX_PWROK
VCCIO_PGD
+VCCSA
+VIN
+VCC5
+5V_S5

VCCIO


U46
LV7298AHGQW_WQFN14-HF
Iccmax=6.4A
0.95V/6.4A
BOTTOM PAD CONNECT TO GND Through 4 VIAs
CHOKE13
CH-0.47u9A0.29mS-HF
VCCIO_EN
VCCIO_PGD
VCCIO_BOOT
VCCIO_PHASE
VCCIO_COMP
VCCIO_FB
VCCIO_SENSE
VCCIO_FB_RC
PROC_SELECT#
ATX_PWROK
VCCSA_PWRGD
+VCCIO
+VCC3V3
+VCC5
+3V3_S5
+5V_S5
C443/C432/C1533/C1534/C1536/C1537 47uF for WS solution

SSD Card
M.2 2280 Key-M



VCC3&VCC5 Power

MOS AVL
1. D03-4C10N03-C05
D03-4C10N03-C05
2. D03-516BA0C-N03
D03-516BA0C-N03
3. D03-4377N00-ST8
D03-4377N00-ST8

Vo=5V
Vin=12V
FS=360KHz
OCP=150%~200%
Iout=20A
Vin Irms =9.86A
LIR=22%
Cin CAP=54.01uF
Cout CAP=989.6uF
Cout CAP ESR=8mohm

Vo=3.3V
Vin=12V
FS=300KHz
OCP=150%~200%
Iout=20A
Vin Irms =8.93A
LIR=36%
Cin CAP=44.3uF
Cout CAP=853.15uF
Cout CAP ESR=8mohm

OCP 37.94A
OCP 35.14A

VCC3&VCC5 Power Output Connector

support NEC Consumer PS2 power on
SIO GPIO40 output
Deep S5: PS2 power on EN, output 0
Deep S5: PS2 power on DIS, output 1

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

Title	VCC3/VCC5/3VSB/5VSB	
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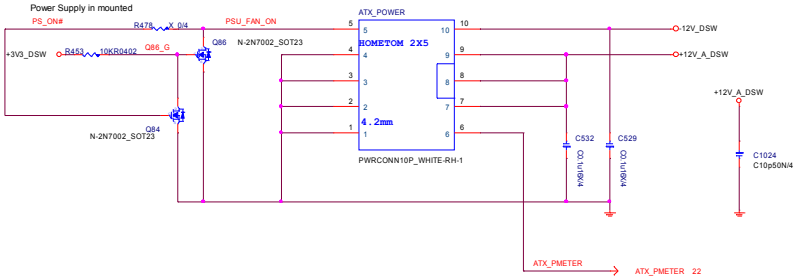
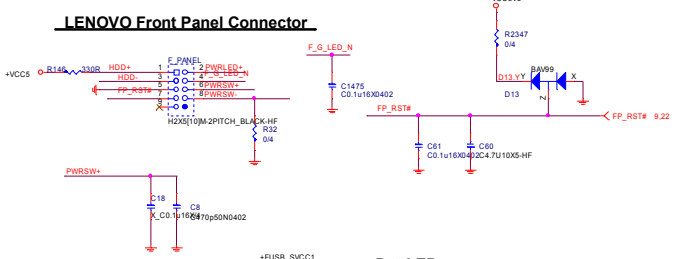
ATX Power Connector / Front Panel / LED/DSW

8 Pin ATX Power Connector

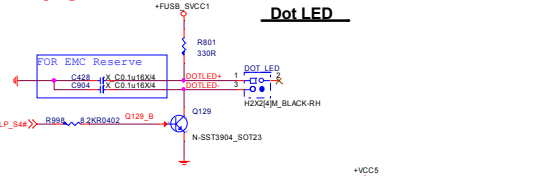
Power Supply in mounted



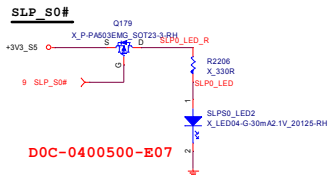
LENOVO Front Panel Connector



Dot LED

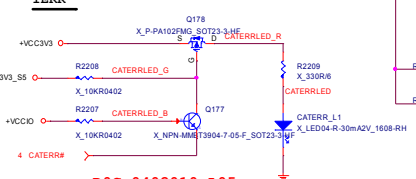


SLP_S0#



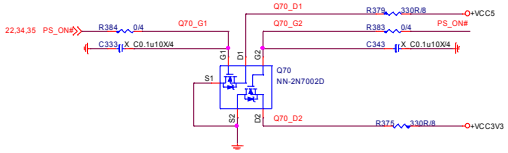
D0C-0400500-E07

IERR

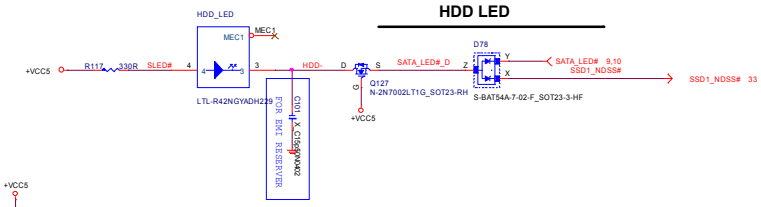


D0C-0402010-L05

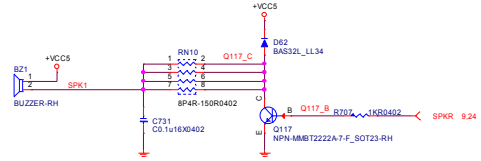
VCC3/VCC5 Discharge



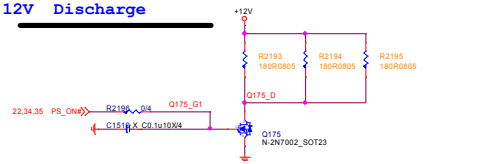
HDD LED



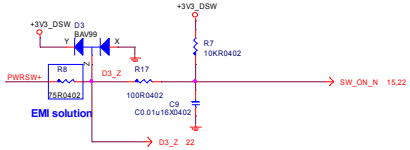
Buzzer Circuit



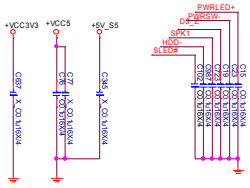
12V Discharge



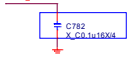
EMI solution

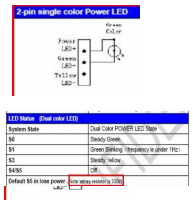


Cap For EMI

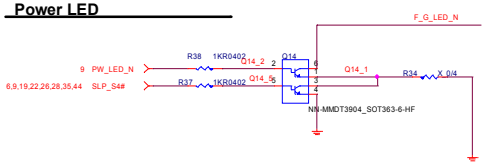


Lenovo EMC suggestion for 144MHz harmonic wave





Power LED



HD （IDE Hard Disk Active LED）	Pin 1:LED anode(+) Pin 8:LED cathode(-)
(Power LED)	Pin 3:LED cathode(-) (green) Pin 2:LED cathode(-) (yellow)
Power Switch	Open:Normal Operation Close:Power on /Off

MICRO-START INT'L CO.,LTD.

Title	ATX/F_Panel/EMI/LED	
Size	Document Number B365	Rev 11
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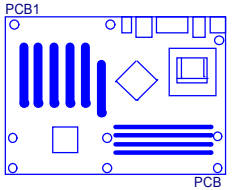
Manual Parts

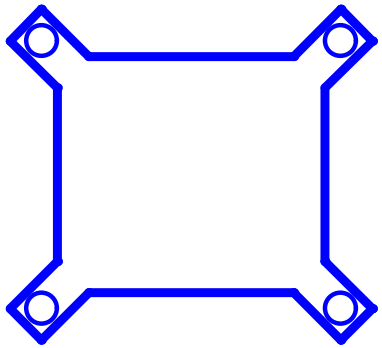
PCB1



PCB

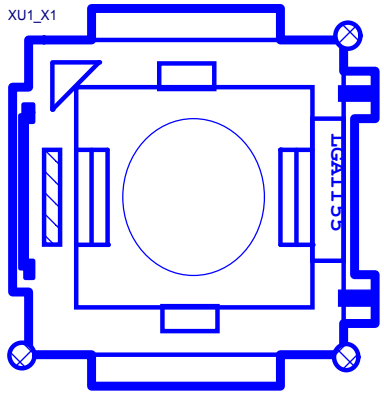
P30-07C5011-E48

XU1_X2



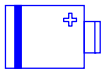
X_CPU Backplate

XU1_X1



CPU SOCKET

VBAT-S1



BAT-BCR2032P-RH

USB_LAN

OPT

LABEL1 OPT

HDMI_LABEL OPT

HDMI_LABEL1 OPT

WIN10KEY1 OPT

WIN10KEY2 OPT

AMI_KEY1 OPT

USB_LAN5 OPT Q270LC 6KV

with surge single LED +USB3.0 X2 connector: N58-30F0151-F02

USB_LAN2 OPT Q270LI

without surge +USB3.0 X2 connector: N58-32F0531-S42

USB_LAN4 OPT NEC Q270

without surge +USB3.0 X2 connector: N58-32F0221-F02

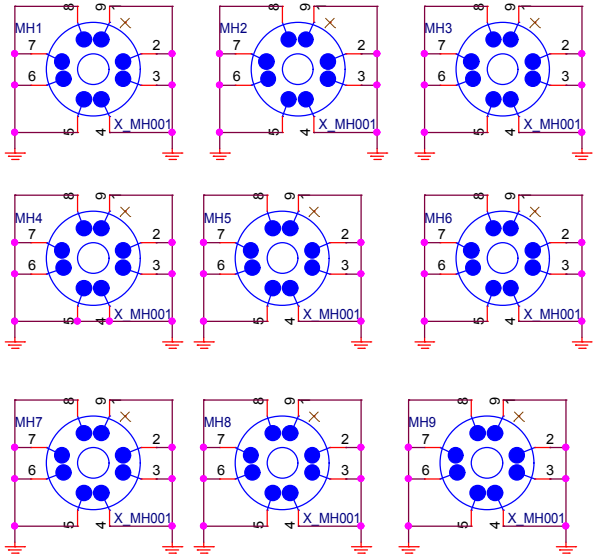
USB_LAN6 OPT

without surge +USB2.0 X2 connector: N58-27F0021-F02

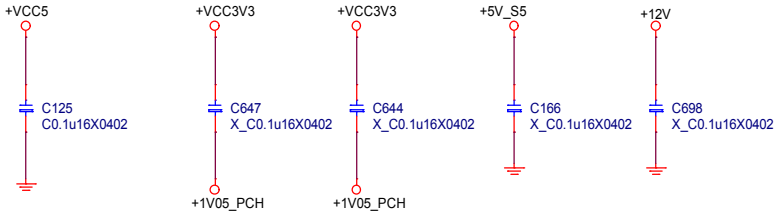
USB_LAN3 OPT Cosumer B360 6KV N58-25F0321-S42 N58-27F0071-U30

with surge single LED +USB2.0 X2 connector: N58-25F0291-F02

MH1 MH2 MH3 MH4 MH5 MH6 MH7 MH8 MH9



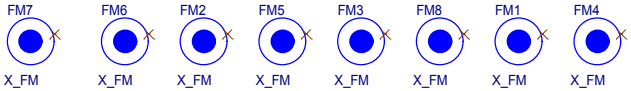
For EMI For Moat CAP



Optics Orientation Holes

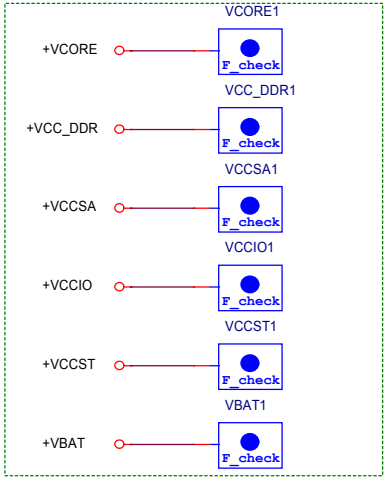
Optical Fiducial Marks-120

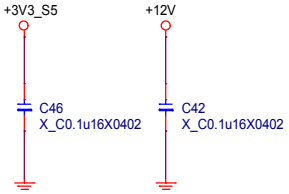
FM7 FM6 FM2 FM5 FM3 FM8 FM1 FM4



X_FM

VCORE1





MICRO-STAR INT'L CO.,LTD.

Link to the Future

Title: **Manual & Option Parts**

Size	Document Number	Rev
	B365	11

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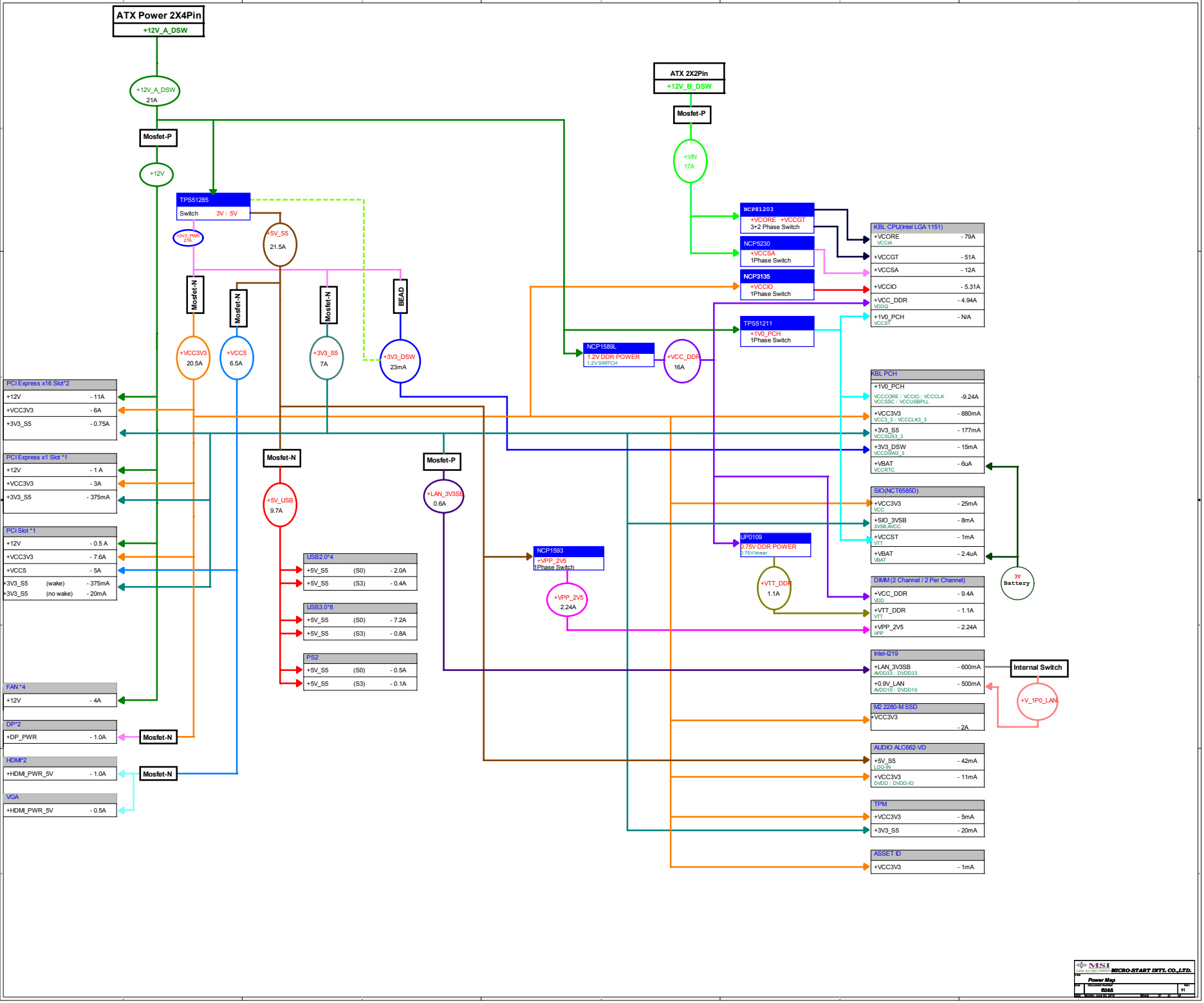
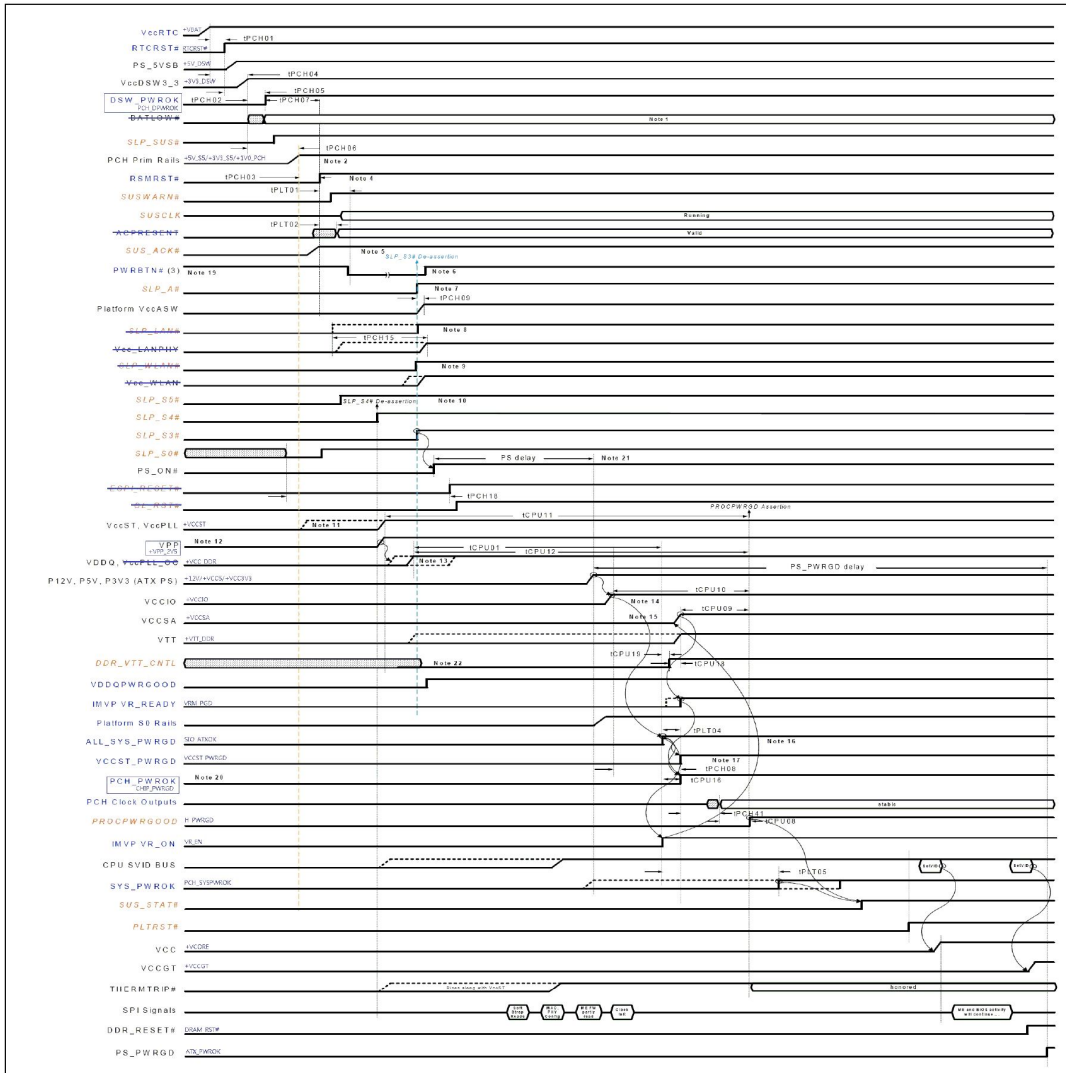

ATX Power 2X4Pin
+12V_A_DSW
+12V_A_DSW
21A
Mosfet-P
+12V
TPS51285
Switch 3V / 5V
+3V3_PWR
2.5A
+5V_S5
21.5A
Mosfet-N
Mosfet-N
Mosfet-N
BEAD
+VCC3V3
20.5A
+VCC5
6.5A
+3V3_S5
7A
+3V3_DSW
23mA
PCI Express x16 Slot*2
+12V - 11A
+VCC3V3 - 6A
+3V3_S5 - 0.75A
PCI Express x1 Slot *1
+12V - 1 A
+VCC3V3 - 3A
+3V3_S5 - 375mA
PCI Slot *1
+12V - 0.5 A
+VCC3V3 - 7.6A
+VCC5 - 5A
+3V3_S5 (wake) - 375mA
+3V3_S5 (no wake) - 20mA
FAN *4
+12V - 4A
DP*2
+DP_PWR - 1.0A
Mosfet-N
HDMI*2
+HDMI_PWR_5V - 1.0A
Mosfet-N
VGA
+HDMI_PWR_5V - 0.5A
Mosfet-N
+5V_USB
9.7A
USB2.0*4
+5V_S5 (S0) - 2.0A
+5V_S5 (S3) - 0.4A
USB3.0*8
+5V_S5 (S0) - 7.2A
+5V_S5 (S3) - 0.8A
PS2
+5V_S5 (S0) - 0.5A
+5V_S5 (S3) - 0.1A
Mosfet-P
+LAN_3V3SB
0.6A
NCP1593
+VPP_2V5
1Phase Switch
+VPP_2V5
2.24A
ATX 2X2Pin
+12V_B_DSW
Mosfet-P
+VIN
17A
NCP81203
+VCORE +VCCGT
3+2 Phase Switch
NCP5230
+VCCSA
1Phase Switch
NCP3135
+VCCIO
1Phase Switch
TPS51211
+1V0_PCH
1Phase Switch
NCP1589L
1.2V DDR POWER
1.2V SWITCH
+VCC_DDR
16A
UP0109
0.75V DDR POWER
0.75V linear
+VTT_DDR
1.1A
KBL CPU(Intel LGA 1151)
+VCORE VCCIA - 79A
+VCCGT - 51A
+VCCSA - 12A
+VCCIO - 5.31A
+VCC_DDR VDDQ - 4.94A
+1V0_PCH VCCST - N/A
KBL PCH
+1V0_PCH
VCCCORE / VCCIO / VCCCLK VCCSSC / VCCUSBPLL -9.24A
+VCC3V3 VCC3_3 / VCCCLK3_3 - 880mA
+3V3_S5 VCCSUS3_3 - 177mA
+3V3_DSW VCCDSW3_3 - 15mA
+VBAT VCCRTC - 6uA
SIO(NCT6585D)
+VCC3V3 VCC - 25mA
+SIO_3VSB 3VSB,AVCC - 8mA
+VCCST VTT - 1mA
+VBAT VBAT - 2.4uA
3V Battery
DIMM (2 Channel / 2 Per Channel)
+VCC_DDR VDD - 9.4A
+VTT_DDR VTT - 1.1A
+VPP_2V5 VPP - 2.24A
Intel-I219
+LAN_3V3SB AVDD33 / DVDD33 - 600mA
+0.9V_LAN AVDD10 / DVDD10 - 500mA
Internal Switch
+V_1P0_LAN
M2 2280-M SSD
+VCC3V3 - 2A
AUDIO ALC662-VD
+5V_S5 LDO-IN - 42mA
+VCC3V3 DVDD / DVDD-IO - 11mA
TPM
+VCC3V3 - 5mA
+3V3_S5 - 20mA
ASSET ID
+VCC3V3 - 1mA
MSI
MICRO-STAR INTL CO.,LTD.
Power Map
Document Number
R946
REV
11

SKL-S Timing Diagram for G3 to S0 [Deep Sx Platform]



with Deep Sx support

source	destination		G3	DEEP S5	S0
board	PCH	VBAT			
board	PCH	RTCRST#			
PSU	board	+5VSB_DSW			
board	PCH	+3VSB_DSW			
board	PCH	PCH_DPWROK			
PCH	SIO	PCH_SUSWARN#			
SIO	PCH	PCH_SUSACK#			
PCH	SIO	SLP_SUS#			
board	board	+5V_S5			
board	PCH	+3V3_S5			
board	PCH	+1V0_PCH			
SIO	PCH	RSMRST#			

MSI — Leads the Way Forward — MICRO-START INT'L CO.,LTD.

Title: Power Sequence1

Size: Document Number: B365 — Rev: 11

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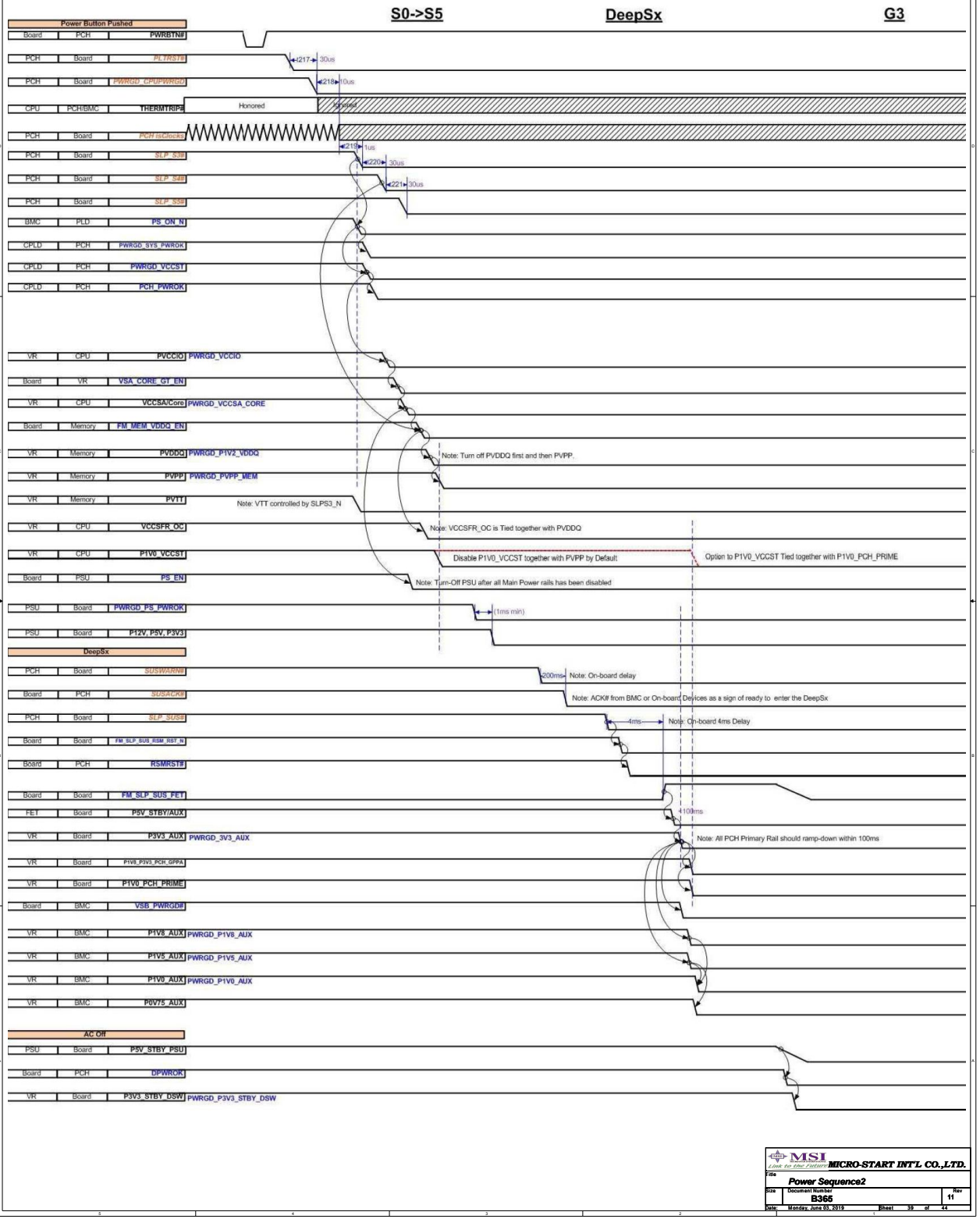
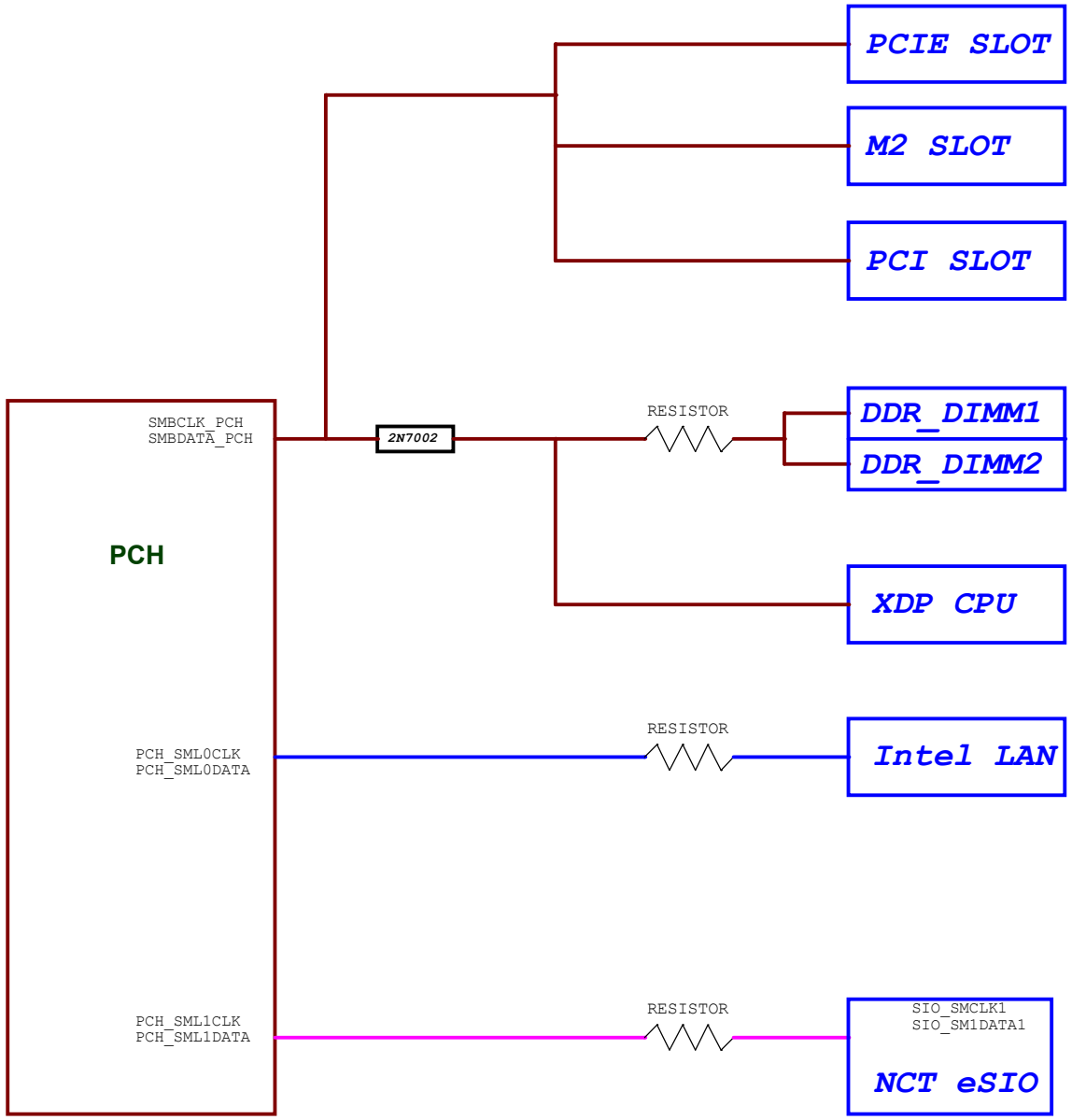


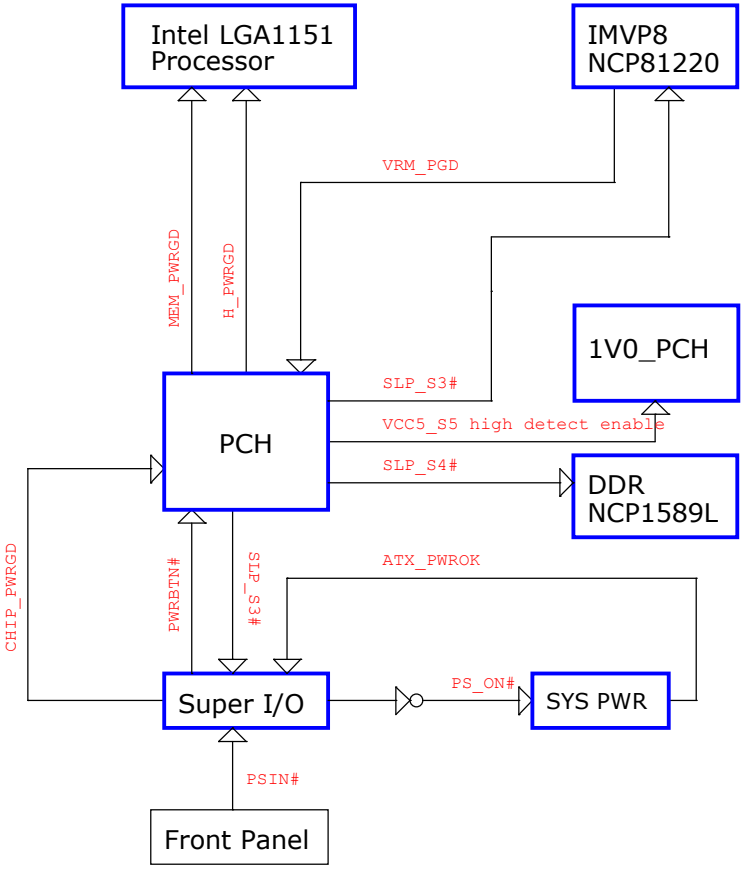


MSI MICRO-STAR INT'L CO.,LTD.

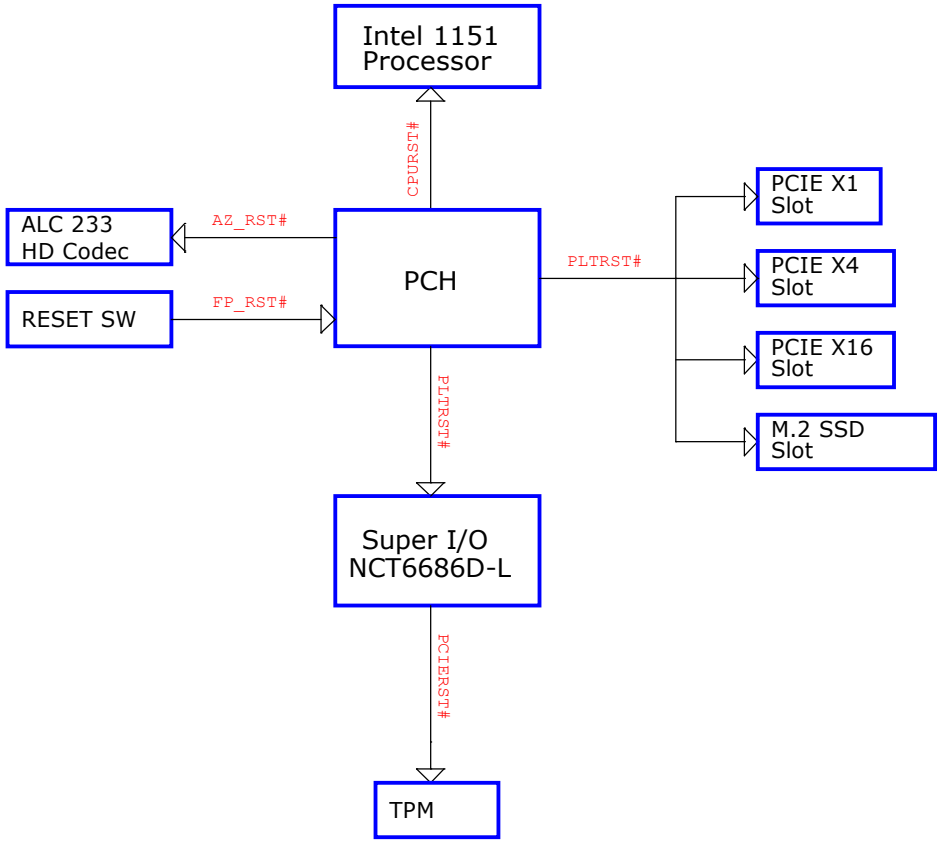
Link to the Future

Title: SMBUS Block Diagram		
Size	Document Number: B365	Rev: 11
Date: Monday, June 03, 2019	Sheet 40 of 44	

PWROK MAP



RESET MAP



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

Title: Power & Reset Map		
Size	Document Number: B365	Rev: 11
Date: Monday, June 03, 2019	Sheet 41 of 44	

GPIO	Signal Name	Power Well	IN/OUT	Usage
GPP_A0	GPP_A0_RCIN_N_ESPI_ALERT1_N	SB3V	Native	KBRST#
GPP_A1	GPP_A1_LAD0_ESPI_IO0	SB3V	Native	LPC_AD0
GPP_A2	GPP_A2_LAD1_ESPI_IO1	SB3V	Native	LPC_AD1
GPP_A3	GPP_A3_LAD2_ESPI_IO2	SB3V	Native	LPC_AD2
GPP_A4	GPP_A4_LAD3_ESPI_IO3	SB3V	Native	LPC_AD3
GPP_A5	GPP_A5_LFRAME_N_ESPI_CS_N	SB3V	Native	LPC_FRAME#
GPP_A6	GPP_A6_SERIRQ	SB3V	Native	LPC_SERIRQ
GPP_A7	GPP_A7_PIRQA_N_ESPI_ALERT0_N	SB3V	Native	LPC_DRQ#0
GPP_A8	GPP_A8_CLKRUN_N	SB3V	Native	CLKRUN#
GPP_A9	GPP_A9_CLKOUT_LPC0_ESPI_CLK	SB3V	Native	LEO_CHIP_CLK
GPP_A10	GPP_A10_CLKOUT_LPC1	SB3V	Native	PCI_CLK_24M
GPP_A11	GPP_A11_PME_N	SB3V	Native	SIO_PME#
GPP_A12	GPP_A12_BM8USY_N	SB3V	Native	BM8USY#
GPP_A13	GPP_A13_SUSWARN_N_SUSPWRDNACK	SB3V	Native	PCH_SUSWARN#
GPP_A14	GPP_A14_SUS_STAT_N_ESPI_RST_N	SB3V	Native	SUS_STAT#
GPP_A15	GPP_A15_SUSACK_N	SB3V	Native	PCH_SUSACK#
GPP_A16	GPP_A16_CLKOUT_48	SB3V	Native	N.C
GPP_A17	GPP_A17_ISH_GP7	SB3V	OUT	BT_DISABLE_N
GPP_A18	GPP_A18_ISH_GP0	SB3V	IN	OE#
GPP_A19	GPP_A19_ISH_GP1	SB3V	Native	N.C
GPP_A20	GPP_A20_ISH_GP2	SB3V	OUT	SEL#
GPP_A21	GPP_A21_ISH_GP3	SB3V	IN	WLAN_DETECT_N
GPP_A22	GPP_A22_ISH_GP4	SB3V	IN	COM_GPIO1
GPP_A23	GPP_A23_ISH_GP5	SB3V	IN	LEO_CHIP_GPIO
GPP_B0	GPP_B0	SB3V	Native	N.C
GPP_B1	GPP_B1	SB3V	Native	N.C
GPP_B2	GPP_B2_VRALERT_N	SB3V	Native	PCH_VRALERT#
GPP_B3	GPP_B3_CPU_GP2	SB3V	Native	N.C
GPP_B4	GPP_B4_CPU_GP3	SB3V	Native	N.C
GPP_B5	GPP_B5_SRCCLKREQ0_N	SB3V	IN	PCIEX16_PRSNT2_R2_N
GPP_B6	GPP_B6_SRCCLKREQ1_N	SB3V	Native	PCIECLKREQ1#
GPP_B7	GPP_B7_SRCCLKREQ2_N	SB3V	IN	PCIEX4_SLOT3_PRSNT2_R_N
GPP_B8	GPP_B8_SRCCLKREQ3_N	SB3V	IN	CLK_REQ1_M.2_WLAN_N
GPP_B9	GPP_B9_SRCCLKREQ4_N	SB3V	Native	CLK_REQ1_M.2_SSD#
GPP_B10	GPP_B10_SRCCLKREQ5_N	SB3V	Native	N.C
GPP_B11	GPP_B11	SB3V	Native	N.C
GPP_B12	GPP_B12_SLP_S0_N	SB3V	Native	SLP_S0#
GPP_B13	GPP_B13_PLTRST_N	SB3V	Native	PLTRST#
GPP_B14	GPP_B14_SPKR	SB3V	Native	SPKR
GPP_B15	GPP_B15_GSPI0_CS_N	SB3V	Native	N.C
GPP_B16	GPP_B16_GSPI0_CLK	SB3V	Native	N.C
GPP_B17	GPP_B17_GSPI0_MISO	SB3V	Native	N.C
GPP_B18	GPP_B18_GSPI0_MOSI	SB3V	Native	REBOOT_STRAP
GPP_B19	GPP_B19_GSPI1_CS_N	SB3V	Native	N.C
GPP_B20	GPP_B20_GSPI1_CLK	SB3V	IN	SMI#
GPP_B21	GPP_B21_GSPI1_MISO	SB3V	Native	N.C
GPP_B22	GPP_B22_GSPI1_MOSI	SB3V	IN	BBS_STRAP
GPP_B23	GPP_B23_SML1ALERT_N_PCHHOT_N	SB3V	IN	SML1NK1_ALERT_N
GPP_C0	GPP_C0_SMBCLK	SB3V	Native	SMBCLK_R
GPP_C1	GPP_C1_SMBDATE	SB3V	Native	SMBDATA_R
GPP_C2	GPP_C2_SMBALERT_N	SB3V	Native	TLS_STRAP
GPP_C3	GPP_C3_SML0CLK	SB3V	Native	SML0_CLK
GPP_C4	GPP_C4_SML0DATA	SB3V	Native	SML0_DATA
GPP_C5	GPP_C5_SML0ALERT_N	SB3V	Native	ESPI_STRAP
GPP_C6	GPP_C6_SML1CLK	SB3V	Native	SML1_CLK
GPP_C7	GPP_C7_SML1DATA	SB3V	Native	SML1_DATA
GPP_C8	GPP_C8_UART0_RXD	SB3V	IN	CLR_CMOS
GPP_C9	GPP_C9_UART0_TXD	SB3V	Native	N.C
GPP_C10	GPP_C10_UART0_RTS	SB3V	Native	IBUTTON
GPP_C11	GPP_C11_UART0_CTS_N	SB3V	Native	N.C
GPP_C12	GPP_C12_UART1_RXD_ISH_UART1_RXD	SB3V	IN	PCH_GPIO22
GPP_C13	GPP_C13_UART1_TXD_ISH_UART1_TXD	SB3V	IN	PCH_GPIO23
GPP_C14	GPP_C14_UART1_RTS_N_ISH_UART1_RTS_	SB3V	IN	PCH_GPIO21
GPP_C15	GPP_C15_UART1_CTS_N_ISH_UART1_CTS_	SB3V	OUT	WLAN_DISABLE_N
GPP_C16	GPP_C16_I2C0_SDA	SB3V	Native	N.C
GPP_C17	GPP_C17_I2C0_SCL	SB3V	Native	N.C
GPP_C18	GPP_C18_I2C1_SDA	SB3V	Native	N.C
GPP_C19	GPP_C19_I2C1_SCL	SB3V	Native	N.C
GPP_C20	GPP_C20_UART2_RXD	SB3V	Native	N.C
GPP_C21	GPP_C21_UART2_TXD	SB3V	Native	N.C
GPP_C22	GPP_C22_UART2_RTS_N	SB3V	Native	N.C
GPP_C23	GPP_C23_UART2_CTS_N	SB3V	Native	N.C

GPIO	Signal Name	Power Well	IN/OUT	Usage
GPP_D0	GPP_D0_SPI1_CS_N	SB3V	Native	N.C
GPP_D1	GPP_D1_SPI1_CLK	SB3V	OUT	PW_LED_N
GPP_D2	GPP_D2_SPI1_MISO	SB3V	IN	PD_PCH_GPP_D_2
GPP_D3	GPP_D3_ SPI1_MOSI	SB3V	IN	PD_PCH_GPP_D_3
GPP_D4	GPP_D4_ISH_I2C2_SDA	SB3V	OUT	SUS_LED_N
GPP_D5	GPP_D5_SSP0_SFRM	SB3V	Native	N.C
GPP_D6	GPP_D6_SSP0_TXD	SB3V	Native	N.C
GPP_D7	GPP_D7_SSP0_RXD	SB3V	Native	N.C
GPP_D8	GPP_D8_SSP0_SCLK	SB3V	Native	N.C
GPP_D9	GPP_D9_ISH_SPI_CS_N	SB3V	Native	N.C
GPP_D10	GPP_D10_ISH_SPI_CLK	SB3V	Native	N.C
GPP_D11	GPP_D11_ISH_SPI_MISO	SB3V	IN	FUSB_01
GPP_D12	GPP_D12_ISH_SPI_MOSI	SB3V	IN	FUSB_02
GPP_D13	GPP_D13_ISH_UART0_RXD	SB3V	IN	FUSB_03
GPP_D14	GPP_D14_ISH_UART0_TXD	SB3V	IN	PS2_PINHEADER_N
GPP_D15	GPP_D15_ISH_UART0_RTS_N	SB3V	IN	LPT_DET#
GPP_D16	GPP_D16_ISH_UART0_CTS_N	SB3V	Native	N.C
GPP_D17	GPP_D17_DMIC_CLK1	SB3V	Native	COM_WAKE#
GPP_D18	GPP_D18_DMIC_DATA1	SB3V	IN	PCH_GPIO_D18
GPP_D19	GPP_D19_DMIC_CLK0	SB3V	Native	N.C
GPP_D20	GPP_D20_DMIC_DATA0	SB3V	Native	N.C
GPP_D21	GPP_D21_SPI1_IO2	SB3V	Native	N.C
GPP_D22	GPP_D22_SPI1_IO3	SB3V	Native	N.C
GPP_D23	GPP_D23_ISH_I2C2_SCL	SB3V	Native	N.C
GPP_E0	GPP_E0_SATAXPCIE0_SATAGP	SB3V	Native	N.C
GPP_E1	GPP_E1_SATAXPCIE1_SATAGP1	SB3V	Native	N.C
GPP_E2	GPP_E2_SATAXPCIE2_SATAGP2	SB3V	Native	N.C
GPP_E3	GPP_E3_CPU_GP0	SB3V	Native	BMC_PCH_SCI_N
GPP_E4	GPP_E4_DEVSLP0	SB3V	Native	BMC_FORCE_SMI_N
GPP_E5	GPP_E5_DEVSLP1	SB3V	Native	N.C
GPP_E6	GPP_E6_DEVSLP2	SB3V	Native	N.C
GPP_E7	GPP_E7_CPU_GP1	SB3V	Native	N.C
GPP_E8	GPP_E8_SATALED_N	SB3V	OUT	SATA_LED#
GPP_E9	GPP_E9_USB2_OC0_N	SB3V	Native	USB_OCP#0
GPP_E10	GPP_E10_USB2_OC1_N	SB3V	Native	USB_OCP#1
GPP_E11	GPP_E11_USB2_OC2_N	SB3V	Native	USB_OCP#2
GPP_E12	GPP_E12_USB2_OC3_N	SB3V	Native	USB_OCP#3
GPP_F0	GPP_F0_SATAXPCIE4_SATAGP4	SB3V	Native	PCH_GPIO_F1
GPP_F1	GPP_F1_SATAXPCIE4_SATAGP4	SB3V	IN	M.2_SSD1_PEDET#
GPP_F2	GPP_F2_SATAXPCIE5_SATAGP5	SB3V	Native	PCH_GPIO_F2
GPP_F3	GPP_F3_SATAXPCIE5_SATAGP5	SB3V	Native	N.C
GPP_F4	GPP_F4_SATAXPCIE7_SATAGP7	SB3V	Native	TP20
GPP_F5	GPP_F5_DEVSLP3	SB3V	IN	SPI_SIRQ#
GPP_F6	GPP_F6_DEVSLP4	SB3V	Native	PCH_GPIO_F6
GPP_F7	GPP_F7_DEVSLP5	SB3V	Native	SSD1_SATA_DEVSLP
GPP_F8	GPP_F8_DEVSLP6	SB3V	Native	N.C
GPP_F9	GPP_F9_DEVSLP7	SB3V	Native	USB_DISABLE#
GPP_F10	GPP_F10_SCLOCK	SB3V	OUT	N.C
GPP_F11	GPP_F11_SLOAD	SB3V	OUT	N.C
GPP_F12	GPP_F12_SDATAOUT1	SB3V	OUT	N.C
GPP_F13	GPP_F13_SDATAOUT0	SB3V	OUT	N.C
GPP_F14	GPP_F14	SB3V	IN	SKTOCC#
GPP_F15	GPP_F15_USB2_OCB_4	SB3V	Native	USB_OCP#4
GPP_F16	GPP_F16_USB2_OCB_5	SB3V	Native	USB_OCP#5
GPP_F17	GPP_F17_USB2_OCB_6	SB3V	Native	USB_OCP#6
GPP_F18	GPP_F18_USB2_OCB_7	SB3V	Native	USB_OCP#7
GPP_F19	GPP_F19_EDP_VDDEN	SB3V	Native	N.C
GPP_F20	GPP_F20_EDP_BKLTEN	SB3V	Native	N.C
GPP_F21	GPP_F21_EDP_BKLTCTL	SB3V	Native	N.C
GPP_F22	GPP_F22	SB3V	OUT	PCH_GPIO_F22
GPP_F23	GPP_F23	SB3V	Native	N.C
GPD0	GPD0_BATLOW_N	SB3V_DSW	Native	PCH_BATLOW#
GPD1	GPD1_ACPRESENT	SB3V_DSW	OUT	SUS_LED_N
GPD2	GPD2_LAN_WAKE_N	SB3V_DSW	Native	LAN_WAKE#_C
GPD3	GPD3_PWRBTN_N	SB3V_DSW	Native	PWRBTN#
GPD4	GPD4_SLP_S3_N	SB3V_DSW	Native	SLP_S3#
GPD5	GPD5_SLP_S4_N	SB3V_DSW	Native	SLP_S4#
GPD6	GPD6_SLP_A_	SB3V_DSW	Native	PCH_SLP_A#
GPD7	GPD7_USB2_WAKEOUT_N	SB3V_DSW	Native	N.C
GPD8	GPD8_SUSCL	SB3V_DSW	Native	SUSCLK
GPD9	GPD9_SLP_WLAN_N	SB3V_DSW	Native	N.C
GPD10	GPD10_SLP_S5_N	SB3V_DSW	Native	SLP_S5#
GPD11	GPD11_LANPHYPC	SB3V_DSW	Native	LAN_DISABLE#

GPIO	Signal Name	Power Well	IN/OUT	Usage
GPP_G0	GPP_G0_FAN_TACH_0	SB3V	IN	CHASSIS_ID1
GPP_G1	GPP_G1_FAN_TACH_1	SB3V	IN	CHASSIS_ID2
GPP_G2	GPP_G2_FAN_TACH_2	SB3V	IN	H_PROCHOT_PCH_N
GPP_G3	GPP_G3_FAN_TACH_3	SB3V	Native	PCH_BMC_FOURCE_INT_N
GPP_G4	GPP_G4_FAN_TACH_4	SB3V	Native	N.C
GPP_G5	GPP_G5_FAN_TACH_5	SB3V	Native	N.C
GPP_G6	GPP_G6_FAN_TACH_6	SB3V	Native	N.C
GPP_G7	GPP_G7_FAN_TACH_7	SB3V	Native	N.C
GPP_G8	GPP_G8_FAN_PWM_0	SB3V	Native	N.C
GPP_G9	GPP_G9_FAN_PWM_1	SB3V	Native	N.C
GPP_G10	GPP_G10_FAN_PWM_2	SB3V	Native	N.C
GPP_G11	GPP_G11_FAN_PWM_3	SB3V	IN	BMC_THROTTLE_N
GPP_G12	GPP_G12_GSXDOUT	SB3V	IN	GPP_G0
GPP_G13	GPP_G13_GSXSLOAD	SB3V	IN	GPP_G1
GPP_G14	GPP_G14_GSXDIN	SB3V	IN	GPP_G2
GPP_G15	GPP_G15_GSXSRESET_N	SB3V	IN	GPP_G3
GPP_G16	GPP_G16_GSXCLK	SB3V	IN	GPP_G4
GPP_G17	GPP_G17_ADR_COMPLETE	SB3V	IN	GPP_G5
GPP_G18	GPP_G18_NMI_N	SB3V	Native	FM_NMI_EVENT_N
GPP_G19	GPP_G19_SMI_N	SB3V	IN	SIO_SCI_N
GPP_G20	GPP_G20	SB3V	Native	BMC_READY
GPP_G21	GPP_G21	SB3V	IN	PCH_GPIO20
GPP_G22	GPP_G22	SB3V	Native	BMC_CARD_DET_R_N
GPP_G23	GPP_G23	SB3V	OUT	VGA_URDBG
GPP_H0	GPP_H0_SRCCLKREQ8_N	SB3V	Native	FM_MEM_THERM_EVENT_LVT3_N
GPP_H1	GPP_H1_SRCCLKREQ7_N	SB3V	Native	FM_NM_THROTTLE_N
GPP_H2	GPP_H2_SRCCLKREQ6_N	SB3V	OUT	FM_CATERR_N
GPP_H3	GPP_H3_SRCCLKREQ9_N	SB3V	Native	PCH_BMC_ALERT
GPP_H4	GPP_H4_SRCCLKREQ10_N	SB3V	Native	N.C
GPP_H5	GPP_H5_SRCCLKREQ11_N	SB3V	Native	N.C
GPP_H6	GPP_H6_SRCCLKREQ12_N	SB3V	Native	N.C
GPP_H7	GPP_H7_SRCCLKREQ13_N	SB3V	Native	N.C
GPP_H8	GPP_H8_SRCCLKREQ14_N	SB3V	Native	N.C
GPP_H9	GPP_H9_SRCCLKREQ15_N	SB3V	Native	N.C
GPP_H10	GPP_H10_SML2CLK	SB3V	OUT	WIRELESS_EN2
GPP_H11	GPP_H11_SML2DATA	SB3V	OUT	WIRELESS_EN
GPP_H12	GPP_H12_SML2ALERT_N	SB3V	Native	FM_ESPI_FLASH_MODE
GPP_H13	GPP_H13_SML3CLK	SB3V	Native	N.C
GPP_H14	GPP_H14_SML3DATA	SB3V	Native	N.C
GPP_H15	GPP_H15_SML3ALERT_N	SB3V	Native	PCH_GPP_H15
GPP_H16	GPP_H15_SML4CLK	SB3V	Native	N.C
GPP_H17	GPP_H17_SML4DATA	SB3V	Native	N.C
GPP_H18	GPP_H18_SML4ALERT_N	SB3V	Native	PCH_GPP_H18
GPP_H19	GPP_H19_ISH_I2C0_SDA	SB3V	Native	N.C
GPP_H20	GPP_H20_ISH_I2C0_SCL	SB3V	Native	N.C
GPP_H21	GPP_H21_ISH_I2C1_SDA	SB3V	Native	N.C
GPP_H22	GPP_H22_ISH_I2C1_SCL	SB3V	Native	N.C
GPP_H23	GPP_H23	SB3V	Native	N.C
GPP_I0	GPP_I0_DDPB_HPD0	SB3V	IN	VGA_DDI3_HPD
GPP_I1	GPP_I1_DDPC_HPD1	SB3V	IN	DP_DDPC_HPD
GPP_I2	GPP_I2_DDPD_HPD2	SB3V	IN	DP_DDPD_HPD
GPP_I3	GPP_I3_DDPE_HPD3	SB3V	IN	U2_BA4
GPP_I4	GPP_I4_EDP_HPD	SB3V	IN	U2_BD7
GPP_I5	GPP_I5_DDPB_CTRLCLK	SB3V	Native	TP30
GPP_I6	GPP_I6_DDPB_CTRLDATA	SB3V	Native	DDPD_CTRLDATA
GPP_I7	GPP_I7_DDPC_CTRLCLK	SB3V	Native	DP_DDPC_CTRLCLK
GPP_I8	GPP_I8_DDPC_CTRLDATA	SB3V	Native	DP_DDPC_CTRLDATA
GPP_I9	GPP_I9_DDPD_CTRLCLK	SB3V	Native	DP_DDPD_CTRLCLK
GPP_I10	GPP_I10_DDPD_CTRLDATA	SB3V	Native	DP_DDPD_CTRLDATA

SIO GPIO (NCT6685D)

GPIO	Signal Name	PIN	Power We	In/Out	Usage
GPIO00	PWMOUT/TACHIN/GPIO00	9	SB3V	IN	FM_CATERR_N
GPIO95	GPIO95/BKPD_CUT	74	SB3V	OUT	ME_CNTL
GPIO85	SMI#/OVT#/GPIO85	2	SB3V	---	SIO_SCI_N
GPIO74	GPIO74 / TACHIN / PWMOUT	37	SB3V	OD	BMC_THROTTLE_N
GPIO77	SKTOCC# / GPIO77	102	SB3V	IN	IS100M_BOARDID
GPIO66	IF_55_0 / 3VSBSW / LATCH_BKFD_CUT / GP	70	SB3V	OUT	USB_PS2_PON
GPIO93	3VSBSW/GPIO93/SLP_SUS#	89	3V_DSW	OUT	SIO_GPS1
GPIO94	GPIO94/SLP_SUS_FET	88	3V_DSW	IN	COM_WAKE#

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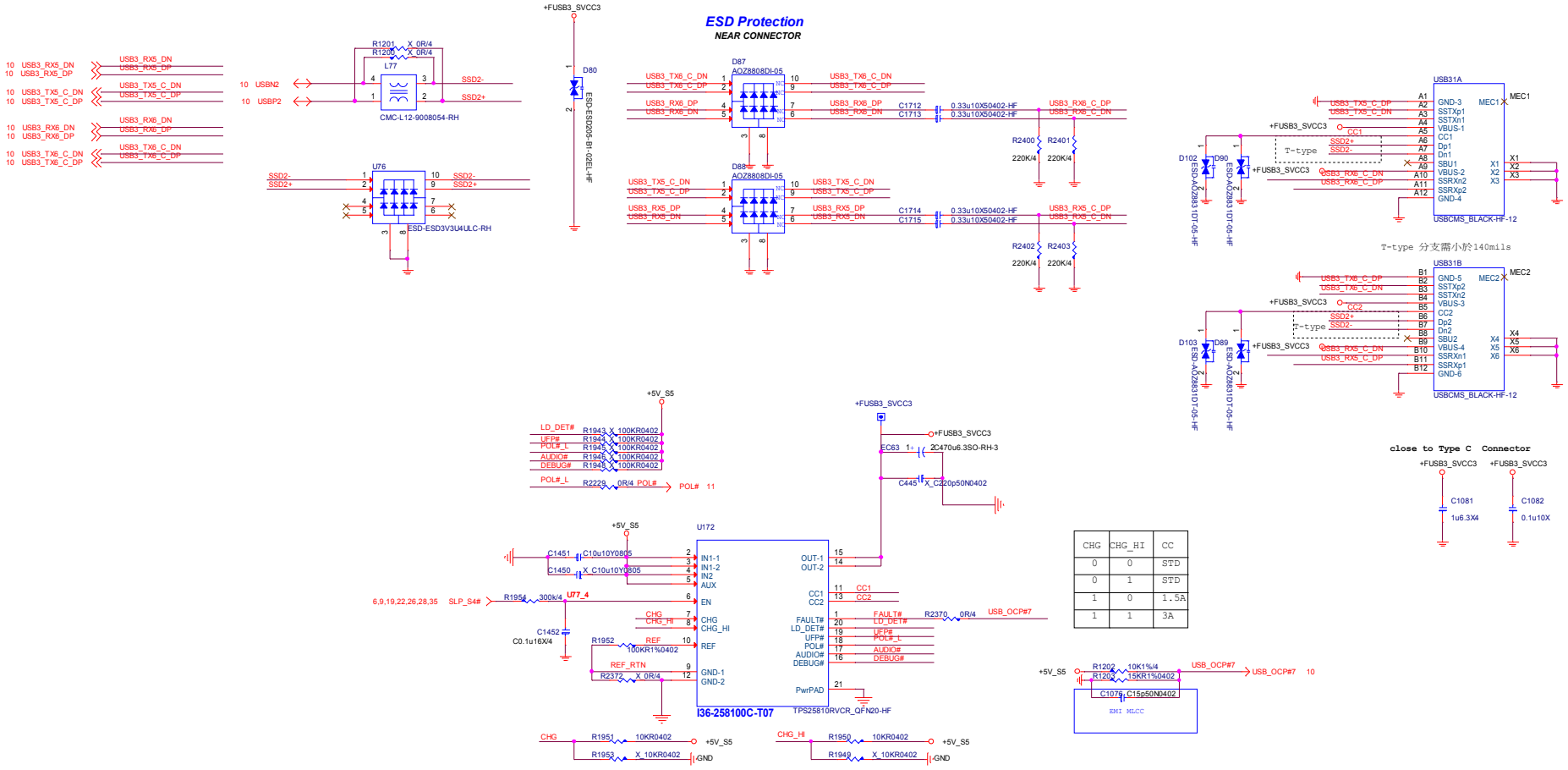

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