MS-7717 Ver: 22 uATX(244mm X 244mm)

CPU:

INTEL -Sandy Bridge LGA 1155 (SOCKET H2)

System Chipset:

INTEL-H67 (COUGAR POINT)

OnBoard Chipset:

Audio Codec ALC887-VD
LAN: Gigabit LAN - INTEL 82579
IO: Fintek F71889AD
Flash ROM: 32 Mb SPI (CHIP)

Main Memory:

DDRIII (1066/1333MHz) * 4 (Dual Channel) max:16GB

Expansion Slots:

PCI Express (X16) Slot * 1
PCI Express (X1) Slot * 2
PCI Slot * 1

PWM:

Controller:Intersil ISL6364 4-Phase -- 95W

Other:

SATA(SATA2-300MB/s) *4+(SATA3-600MB/s) *2
USB2.0 *12 (Rear*6 / Front*6)
DVI-I PORT*1
COM port * 2

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Size: Custom | Document Description: Cover Sheet | Rev: 22
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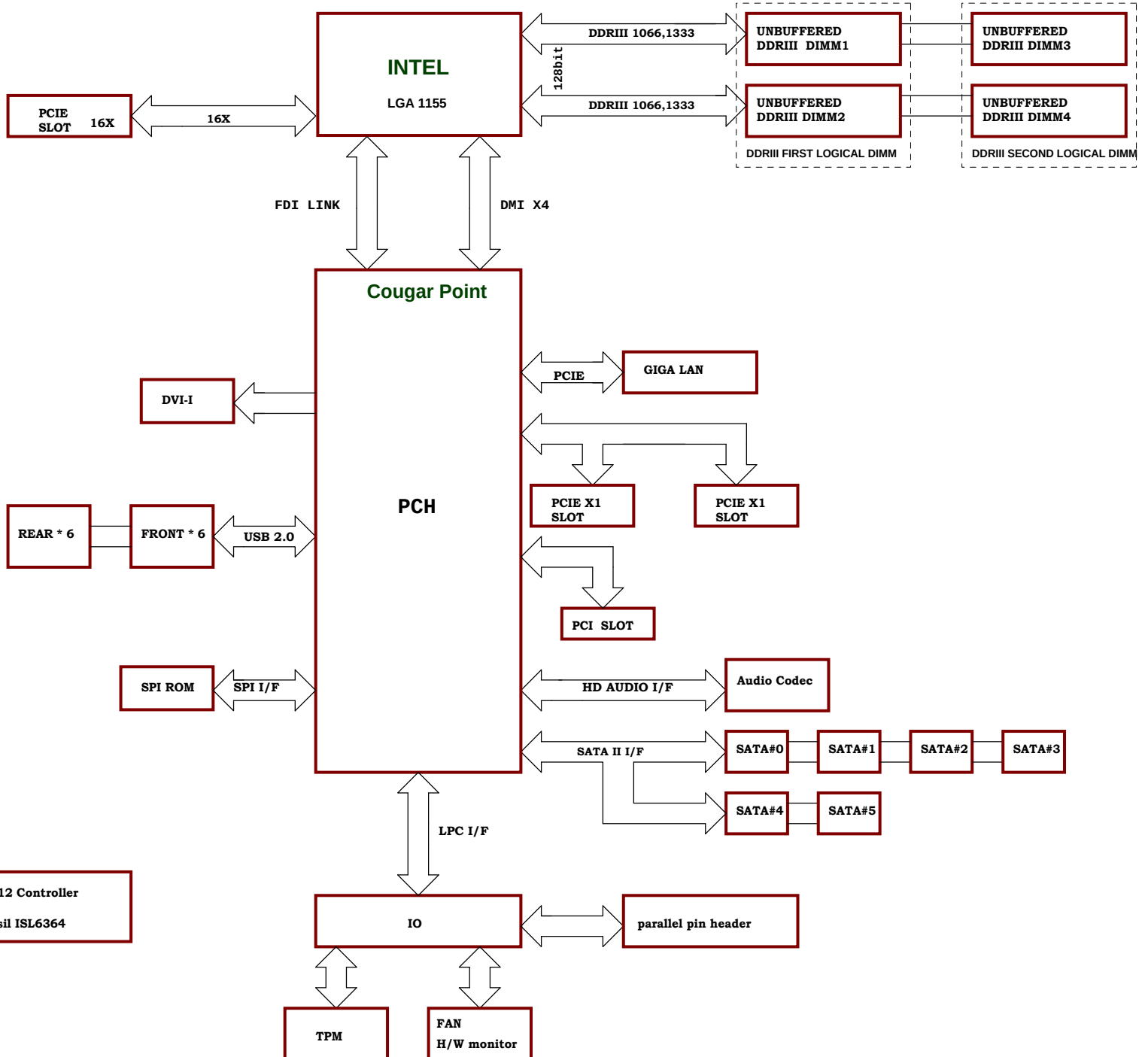

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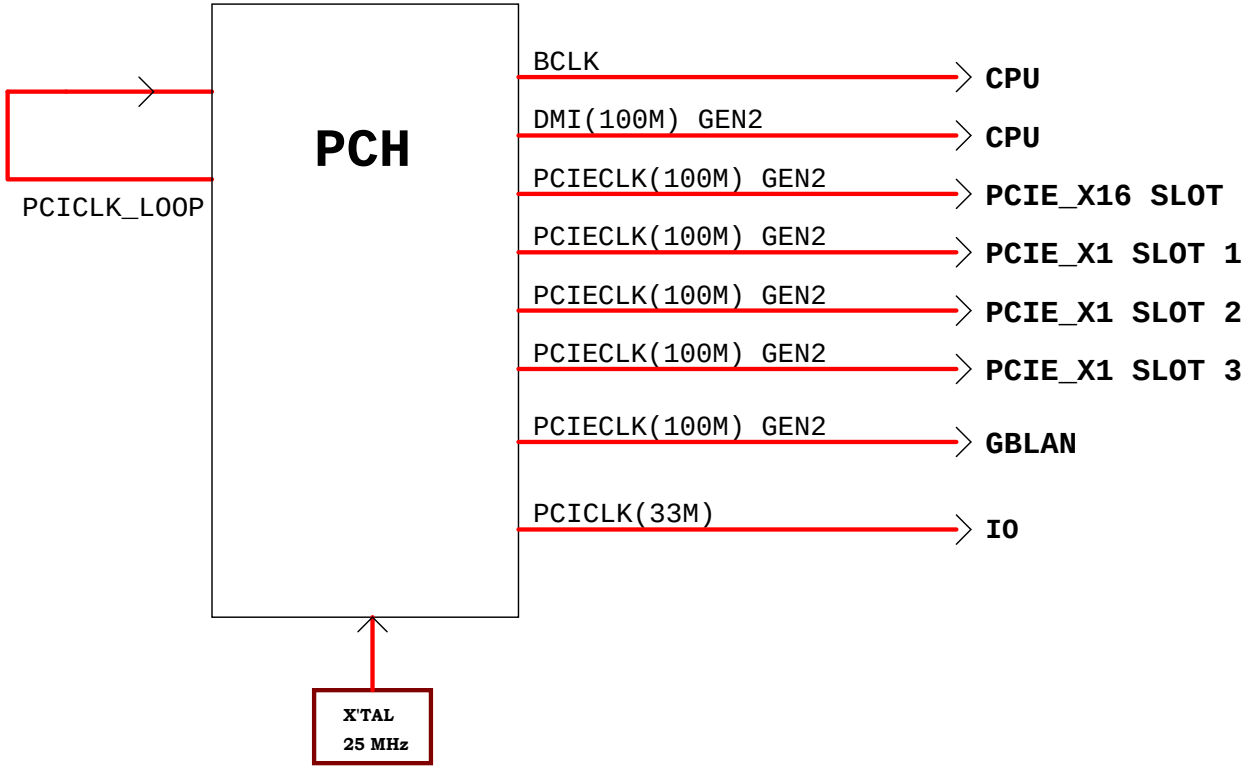
DDR DIMM Config.

DEVICE	ADDRESS	CLOCK
DIMM 2 CH-A	10100001B	MEM_MA_CLK_H2/L2 MEM_MA_CLK_H3/L3
DIMM 1 CH-A	10100000B	MEM_MA_CLK_H0/L0 MEM_MA_CLK_H1/L1
DIMM 4 CH-B	10100011B	MEM_MB_CLK_H2/L2 MEM_MB_CLK_H3/L3
DIMM 3 CH-B	10100010B	MEM_MB_CLK_H0/L0 MEM_MB_CLK_H1/L1



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Name	Net Name	Power Well	Default	NOTES
GPIO00	BM_BUSY#	Core	GPI	not use pull up VCC3
GPIO01	CPC_BPC_SW	Core	GPI	not use pull up VCC3
GPIO02	PIRQ#E	Core	GPI	not use pull up VCC3
GPIO03	PIRQ#F	Core	GPI	not use pull up VCC3
GPIO04	PIRQ#G	Core	GPI	not use pull up VCC3
GPIO05	PIRQ#H	Core	GPI	not use pull up VCC3
GPIO06	Mini_PCIE1_GPIO	Core	GPI	not use pull up VCC3
GPIO07	Mini_PCIE2_GPIO	Core	GPI	not use pull up VCC3
GPIO08	IGC_EN_N	Suspend	GPO	not use 1K to GND (FCIM Function)
GPIO09	OC#4_5	Suspend	Native	not use pull up 3VSB
GPIO10	OC#6_7	Suspend	Native	not use pull up 3VSB
GPIO11	PCH_SMBALERT#	Suspend	Native	not use pull up 3VSB
GPIO12	LAN_DISABLE#	Suspend	Native	pull up 3VSB LAN_PHY_PWR_CTRL
GPIO13	SLOT_PWR_SW	Suspend	GPI	pull up 3VSB (GPO: Slot power function)
GPIO14	OC#6_7	Suspend	Native	not use pull up 3VSB
GPIO15	PCH_GPIO15	Suspend	GPO	not use Strapping : internal pull-down(TLS function)
GPIO16	JUSB30_SENSE#A	Core	GPI	not use pull up VCC3
GPIO17	BOOT_BLOCK_RECOVERY	Core	GPI	not use pull up VCC3
GPIO18 (Mobile Only)		Core	Native	NA
GPIO19	JUSB2_SENSE#B	Core	GPI	Strapping :Pull-up resistors are not required
GPIO20	PCH_GP20	Core	Native	not use pull up VCC3
GPIO21	JUSB2_SENSE#A	Core	GPI	not use pull up VCC3
GPIO22	MB_ID0	Core	GPI	not use pull up VCC3
GPIO23	LDRQ1#	Core	Native	internal pull-up
GPIO24	H_SKTOCC_PCH_R	Suspend	GPO	pull up 3VSB (GPI:CPU detect: Low Active)
GPIO25 (Mobile Only)		Suspend	Native	NA
GPIO26 (Mobile Only)		Suspend	Native	NA
GPIO27	HDOUT_AMP_DIS#	DSW	GPI	not use pu 3VA
GPIO28	OD_PLL_VR_EN	Suspend	GPO	not use pull up 3VSB
GPIO29	SLP_LAN#	Suspend	GPI	SLP_LAN# function
GPIO30	SUS_WARN#	Suspend	Native	SUS_WARN# function

GPIO31	FRONT_OUT_DISABLE	DSW	GPI	not use pu 3VA
GPIO32	SPI_WP#	Core	GPO	pull up 3VSB SPI_WP# function Active Low
GPIO33	SPI_HOLD_GPO#	Core	GPO	SPI_HOLD_GPO# Active Low
GPIO34	HOOD_SW_DET#	Core	GPI	not use pull up VCC3
GPIO35	PCH_GPIO35	Core	GPO	not use
GPIO36	JUSB3_SENSE#A	Core	GPI	not used NC
GPIO37	JUSB3_SENSE#B	Core	GPI	not used NC
GPIO38	MB_ID1	Core	GPI	not use pull up VCC3
GPIO39	MB_ID2	Core	GPI	not use pull up VCC3
GPIO40	OC#0_1	Suspend	Native	not use pull up 3VSB
GPIO41	OC#2_3	Suspend	Native	not use pull up 3VSB
GPIO42	OC#2_3	Suspend	Native	not use pull up 3VSB
GPIO43	OC#4_5	Suspend	Native	not use pull up 3VSB
GPIO44	PCIECLKRQ5#	Suspend	Native	pull up 3VSB
GPIO45	PCH_GPIO45	Suspend	Native	not use pull up 3VSB
GPIO46	CLEAR_PWD	Suspend	Native	not use pull up 3VSB
GPIO47 (Mobile Only)		Suspend	Native	NA
GPIO48	MB_ID3	Core	GPI	not use pull up VCC3
GPIO49	JUSB30_SENSE#B	Core	GPI	not use pull up VCC3
GPIO50	PREQ#1	Core	Native	not use pull up VCC3
GPIO51	PGNT#1	Core	Native	Strapping :Pull-up resistors are not required
GPIO52	PREQ#2	Core	Native	not use pull up VCC3
GPIO53	PGNT#2	Core	Native	not use Do not pull low.
GPIO54	PREQ#3	Core	Native	not use pull up VCC3
GPIO55	PGNT#3	Core	Native	Pull-up resistors are not required on these signals
GPIO56 (Mobile Only)		Suspend	Native	NA
GPIO57	USB_DET1	Suspend	GPI	not use pull up 3VSB
GPIO58	PCH_SML1CLK	Suspend	Native	not use pull up 3VSB
GPIO59	OC#0_1	Suspend	Native	not use pull up 3VSB
GPIO60	PCH_SML0ALERT#	Suspend	Native	not use pull up 3VSB
GPIO61	USB_DET2	Suspend	Native	not use pull up 3VSB
GPIO62	SUSCLK	Suspend	Native	No external resistors required
GPIO63	SLP_S5#	Suspend	Native	No pull up/down resistors needed
GPIO64	TP_CLKOUTFLEX0	Core	Native	not use
GPIO65	TP_CLKOUTFLEX1	Core	Native	not use
GPIO66	TP_CLKOUTFLEX2	Core	Native	not use
GPIO67	CK_48M_SIO_R	Core	Native	SIO_48M_clock
GPIO68	JUSB1_SENSE#A	Core	GPI	not use pull up VCC3
GPIO69	JUSB1_SENSE#B	Core	GPI	not use pull up VCC3
GPIO70	TP_GPIO70	Core	Native	not use pull up VCC3
GPIO71	TP_GPIO71	Core	Native	not use pull up VCC3
GPIO72	HOOD_SENSE#	Suspend	Native (Mobile Only)	not use pull up 3VSB
GPIO73 (Mobile Only)				NA
GPIO74	PCH_SML1ALERT#	Suspend	Native	not use pull up 3VSB
GPIO75	PCH_SML1DATA	Suspend	Native	not use pull up 3VSB

ADD:

GPIO46 : Use to control ME Flash function

Enable : Low

Disable : High

Default : High

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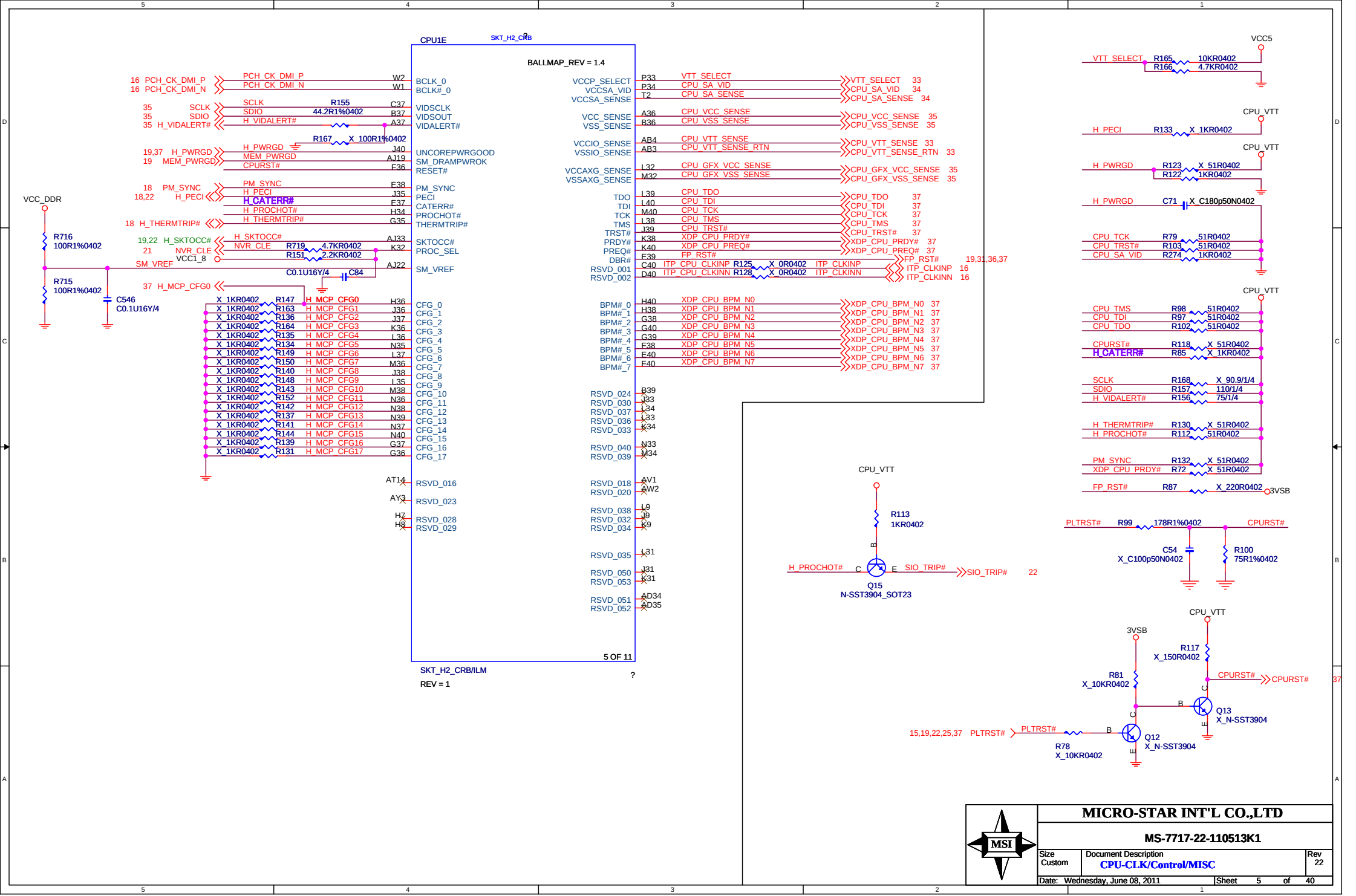
CPU1E
SKT_H2_CRB
BALLMAP_REV = 1.4
BCLK_0
BCLK#_0
VIDSCLK
VIDSOUT
VIDALERT#
UNCOREPWRGOOD
SM_DRAMPWROK
RESET#
PM_SYNC
PECI
CATERR#
PROCHOT#
THERMTRIP#
SKTOCC#
PROC_SEL
SM_VREF
CFG_0
CFG_1
CFG_2
CFG_3
CFG_4
CFG_5
CFG_6
CFG_7
CFG_8
CFG_9
CFG_10
CFG_11
CFG_12
CFG_13
CFG_14
CFG_15
CFG_16
CFG_17
RSVD_016
RSVD_023
RSVD_028
RSVD_029
VCCP_SELECT
VCCSA_VID
VCCSA_SENSE
VCC_SENSE
VSS_SENSE
VCCIO_SENSE
VSSIO_SENSE
VCCAXG_SENSE
VSSAXG_SENSE
TDO
TDI
TCK
TMS
TRST#
PRDY#
PREQ#
DBR#
RSVD_001
RSVD_002
BPM#_0
BPM#_1
BPM#_2
BPM#_3
BPM#_4
BPM#_5
BPM#_6
BPM#_7
RSVD_024
RSVD_030
RSVD_037
RSVD_036
RSVD_033
RSVD_040
RSVD_039
RSVD_018
RSVD_020
RSVD_038
RSVD_032
RSVD_034
RSVD_035
RSVD_050
RSVD_053
RSVD_051
RSVD_052
5 OF 11
SKT_H2_CRB/ILM
REV = 1
VTT_SELECT
CPU_SA_VID
CPU_SA_SENSE
CPU_VCC_SENSE
CPU_VSS_SENSE
CPU_VTT_SENSE
CPU_VTT_SENSE_RTN
CPU_GFX_VCC_SENSE
CPU_GFX_VSS_SENSE
CPU_TDO
CPU_TDI
CPU_TCK
CPU_TMS
CPU_TRST#
XDP_CPU_PRDY#
XDP_CPU_PREQ#
FP_RST#
ITP_CPU_CLKINP
ITP_CPU_CLKINN
XDP_CPU_BPM_N0
XDP_CPU_BPM_N1
XDP_CPU_BPM_N2
XDP_CPU_BPM_N3
XDP_CPU_BPM_N4
XDP_CPU_BPM_N5
XDP_CPU_BPM_N6
XDP_CPU_BPM_N7
PCH_CK_DMI_P
PCH_CK_DMI_N
SCLK
SDIO
H_VIDALERT#
H_PWRGD
MEM_PWRGD
CPURST#
PM_SYNC
H_PECI
H_CATERR#
H_PROCHOT#
H_THERMTRIP#
H_SKTOCC#
NVR_CLE
VCC1_8
SM_VREF
H_MCP_CFG0
H_MCP_CFG1
H_MCP_CFG2
H_MCP_CFG3
H_MCP_CFG4
H_MCP_CFG5
H_MCP_CFG6
H_MCP_CFG7
H_MCP_CFG8
H_MCP_CFG9
H_MCP_CFG10
H_MCP_CFG11
H_MCP_CFG12
H_MCP_CFG13
H_MCP_CFG14
H_MCP_CFG15
H_MCP_CFG16
H_MCP_CFG17
VCC_DDR
R716 100R1%0402
R715 100R1%0402
C546 C0.1U16Y/4
C84 C0.1U16Y/4
R155 44.2R1%0402
R167 X_100R1%0402
R719 4.7KR0402
R151 2.2KR0402
R125 X_0R0402
R128 X_0R0402
X_1KR0402
CPU_VTT
R113 1KR0402
Q15 N-SST3904_SOT23
H_PROCHOT#
SIO_TRIP#
VCC5
R165 10KR0402
R166 4.7KR0402
R133 X_1KR0402
R123 X_51R0402
R122 1KR0402
C71 X_C180p50N0402
R79 51R0402
R103 51R0402
R274 1KR0402
R98 51R0402
R97 51R0402
R102 51R0402
R118 X_51R0402
R85 X_1KR0402
R168 X_90.9/1/4
R157 110/1/4
R156 75/1/4
R130 X_51R0402
R112 51R0402
R132 X_51R0402
R72 X_51R0402
R87 X_220R0402
3VSB
PLTRST#
R99 178R1%0402
C54 X_C100p50N0402
R100 75R1%0402
CPURST#
R117 X_150R0402
R81 X_10KR0402
Q13 X_N-SST3904
Q12 X_N-SST3904
R78 X_10KR0402
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Size Custom
Document Description CPU-CLK/Control/MISC
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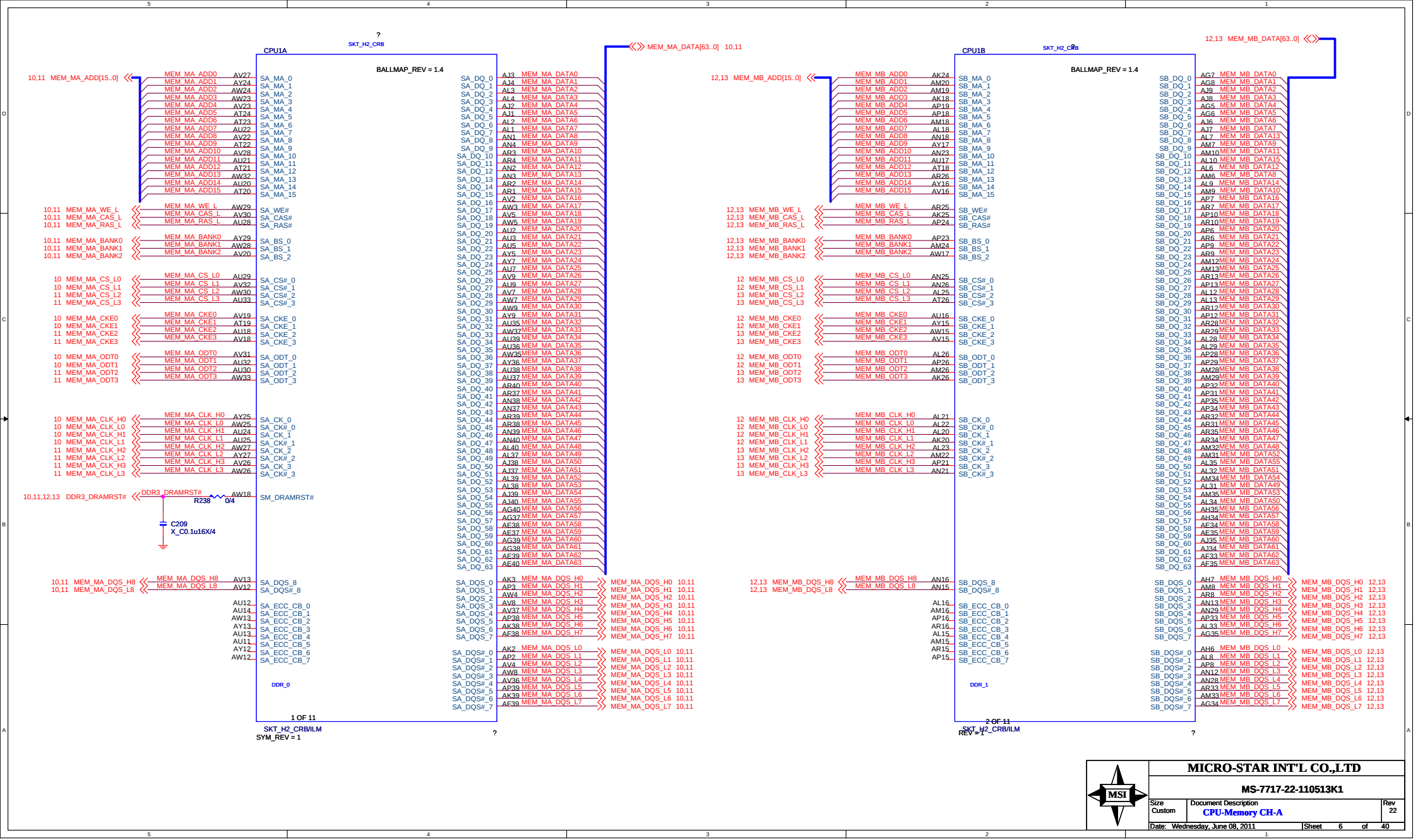

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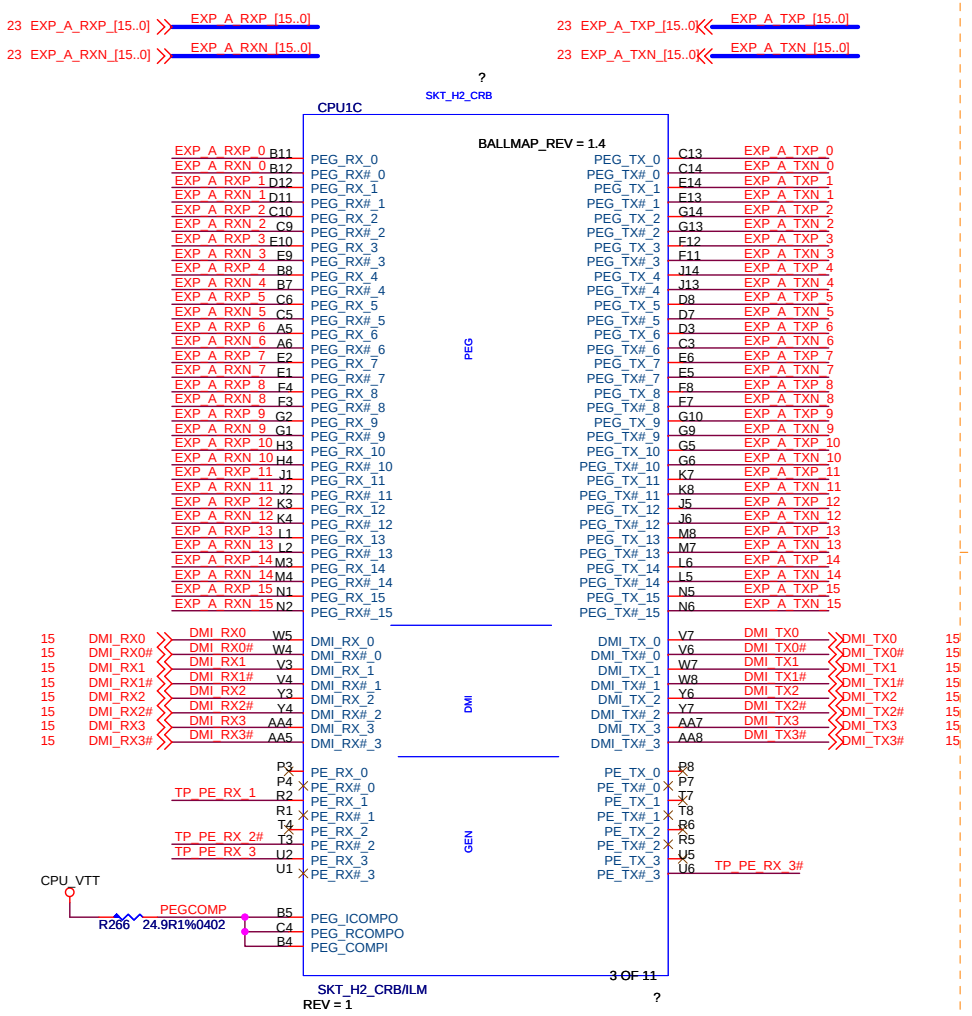
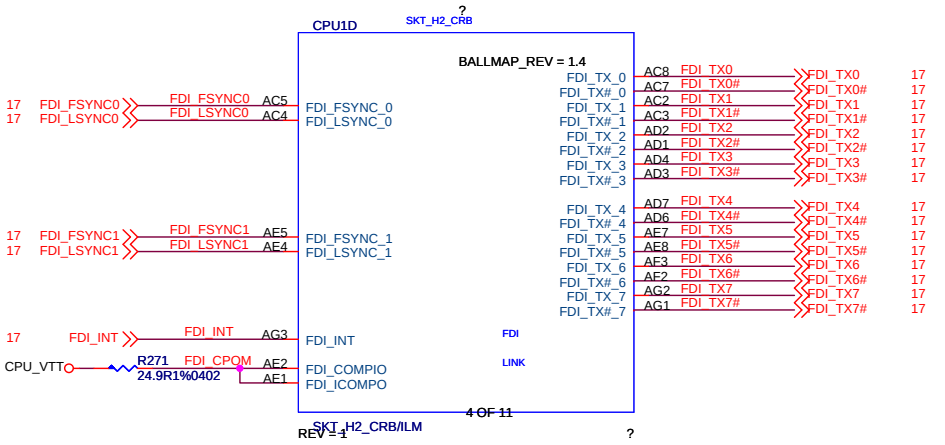
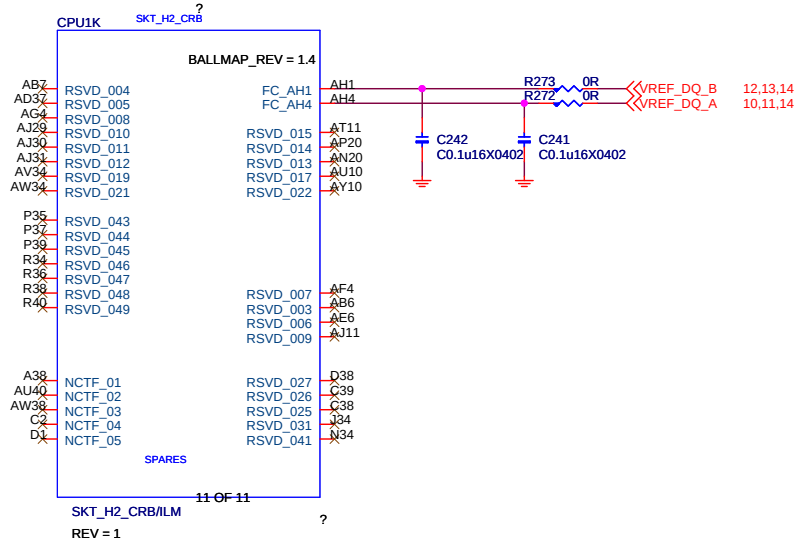
PEG & DMI



FDI





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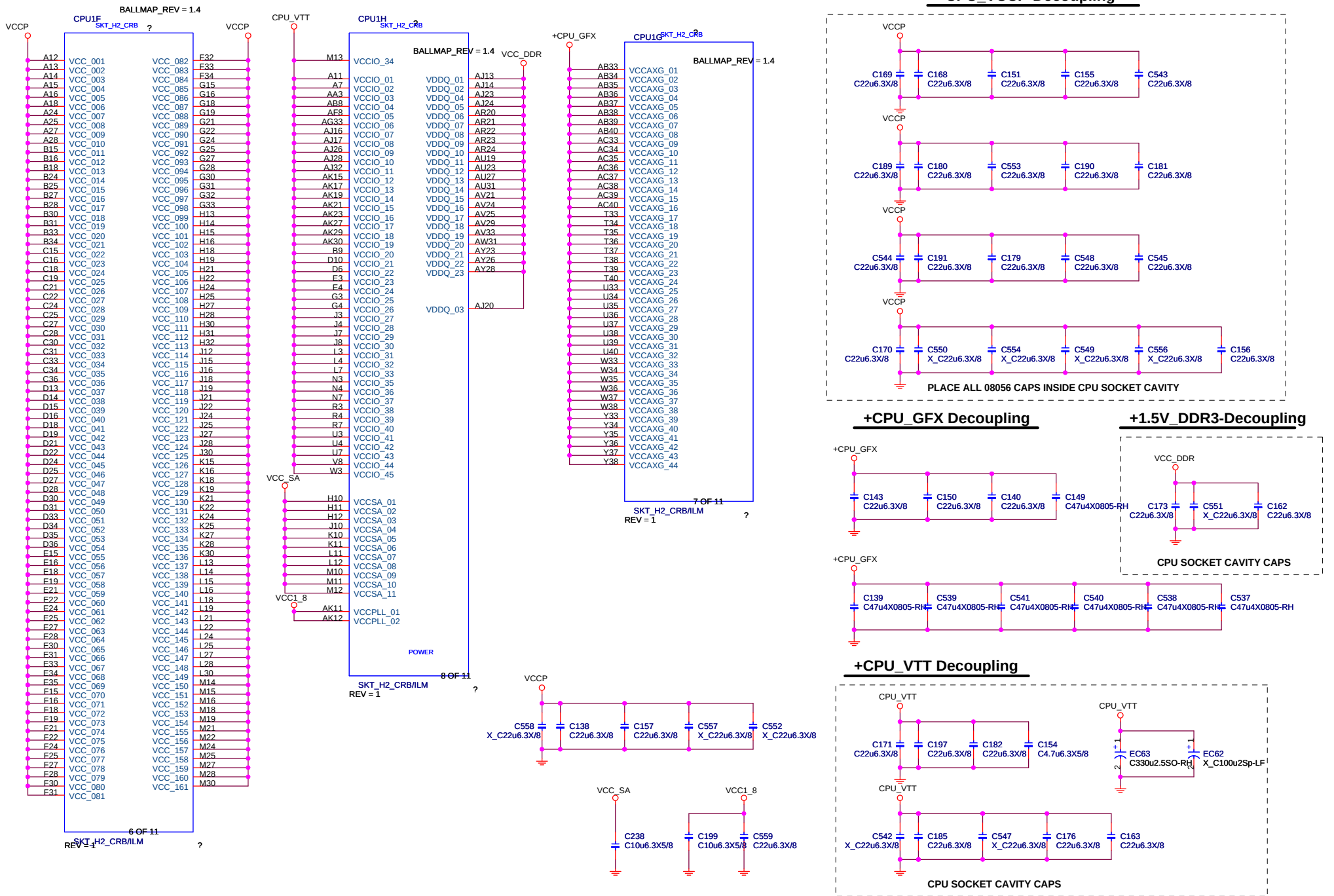

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MS-7717-22-110513K1		
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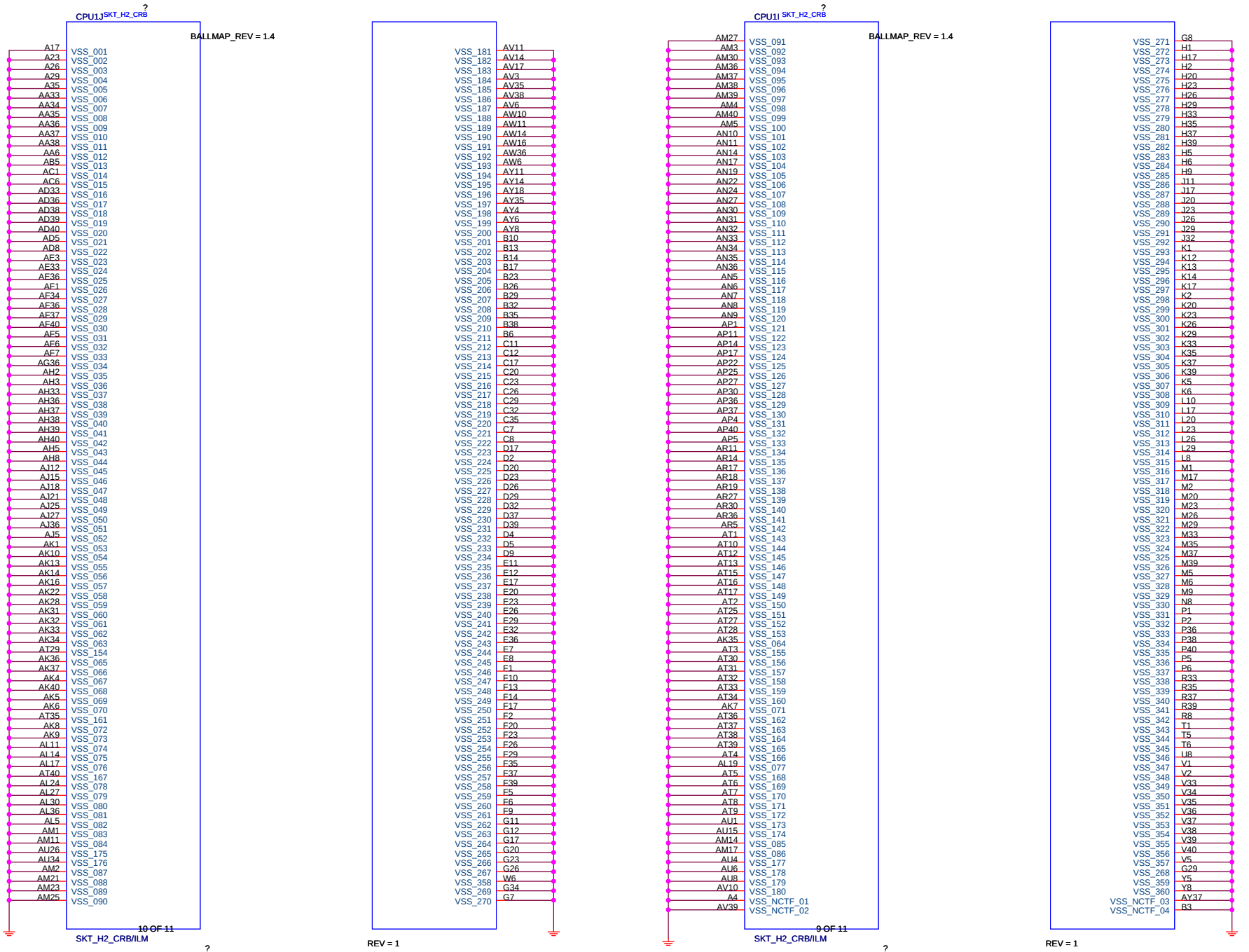

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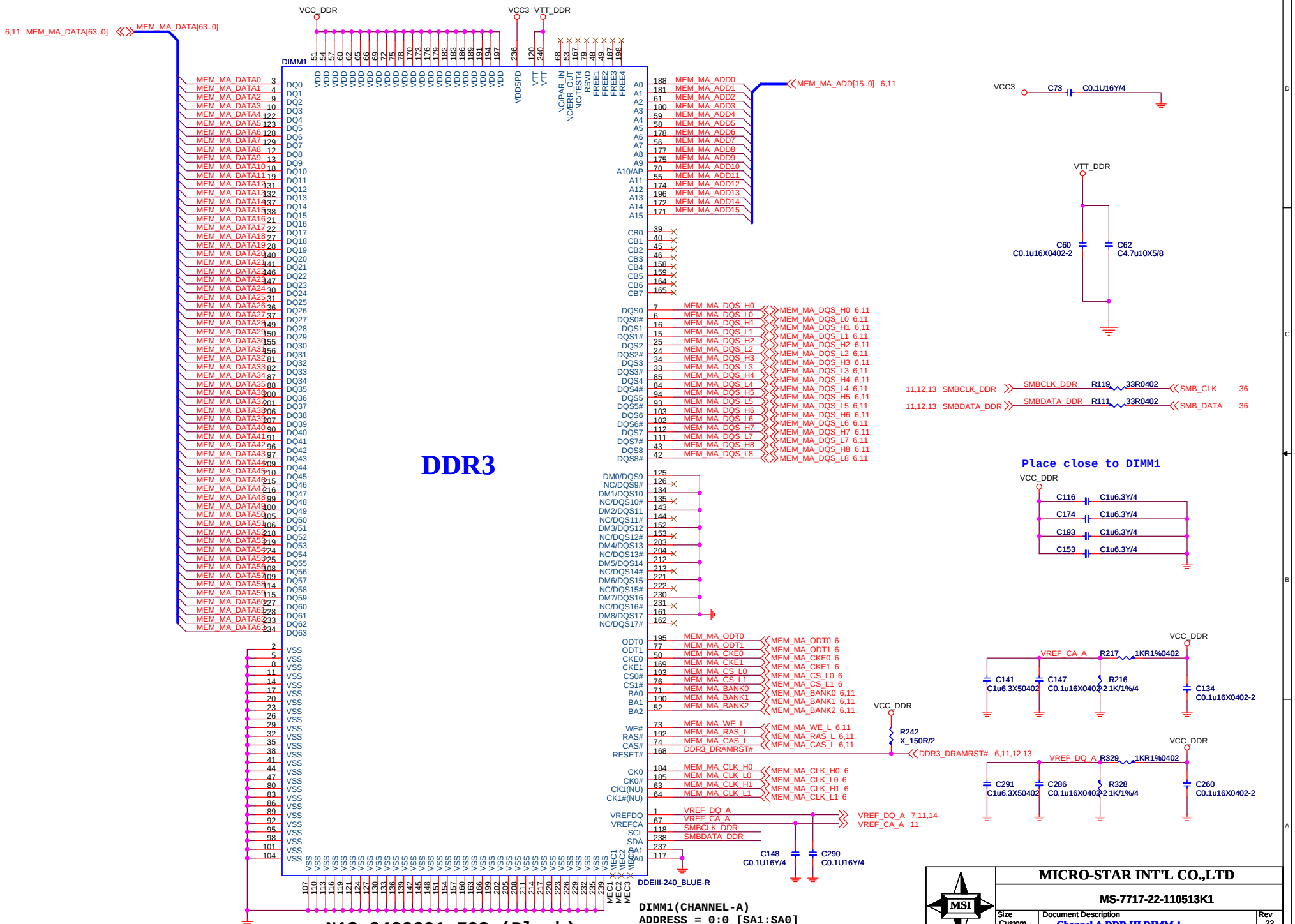
DDRIII DIMM_A1



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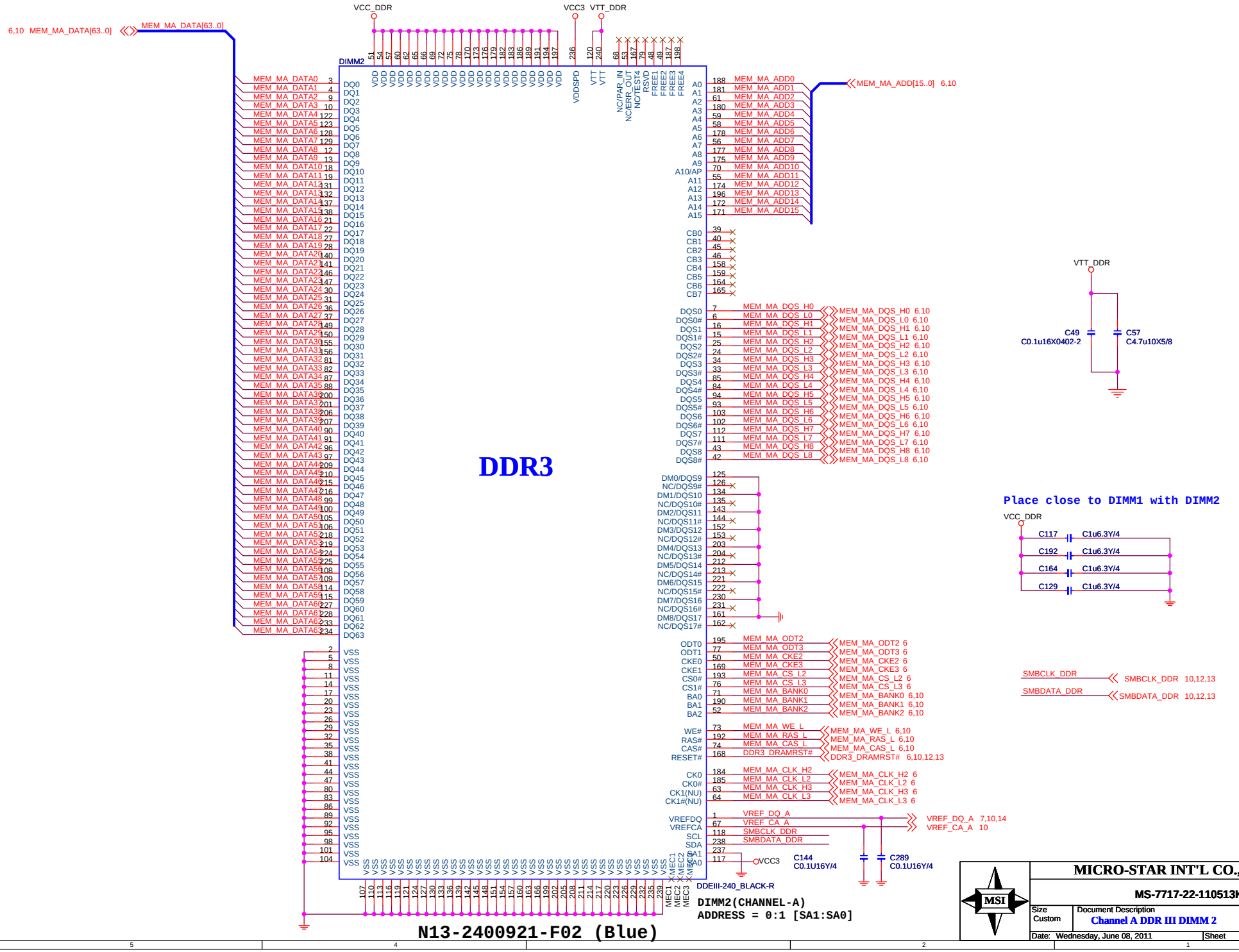
DDRIII DIMM_A2



MICRO-STAR INT'L CO.,LTD	
MS-7717-22-110513K1	
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Rev: 22	
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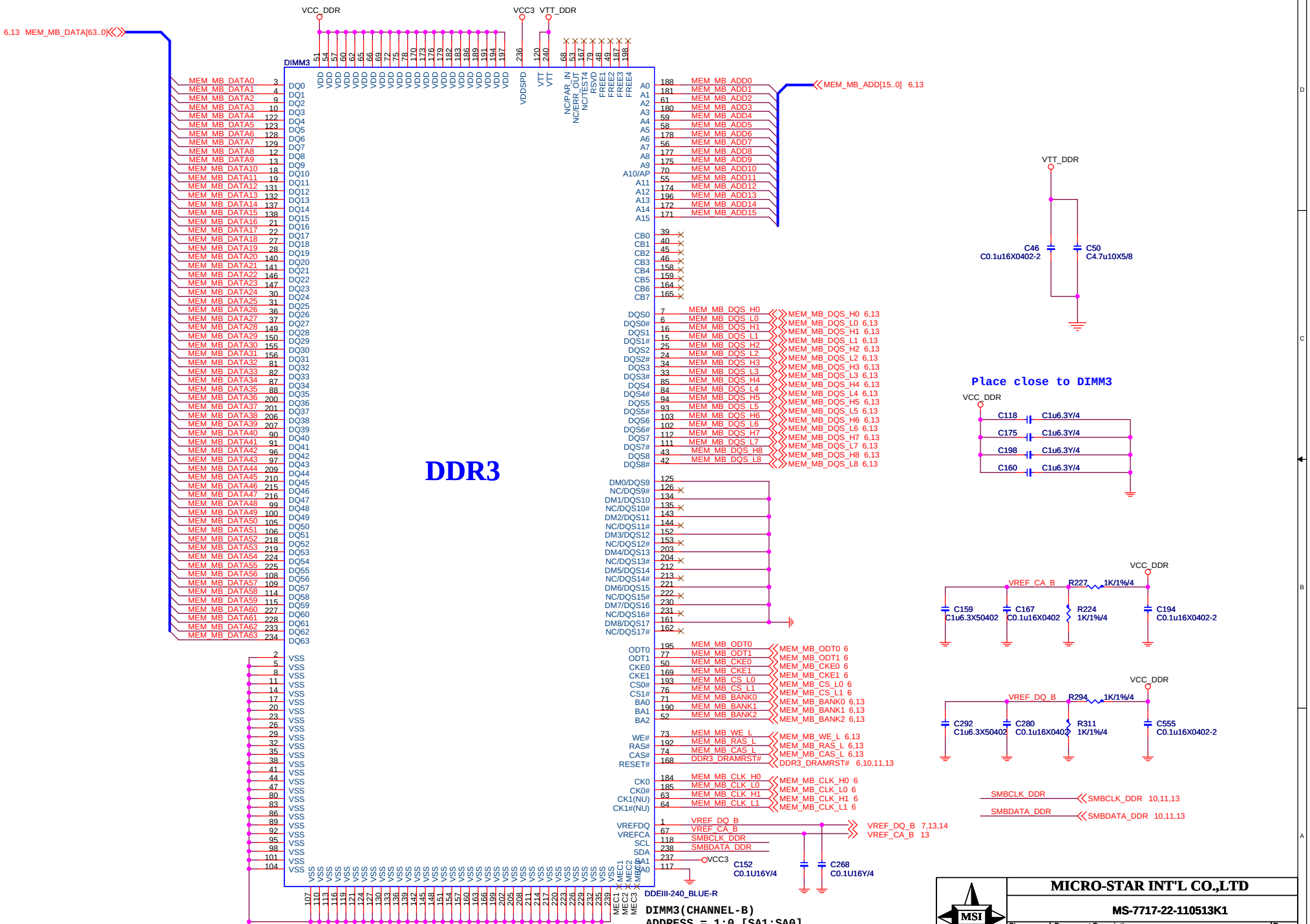
DDRIII DIMM_B1



MICRO-STAR INT'L CO.,LTD	
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Rev: 22	
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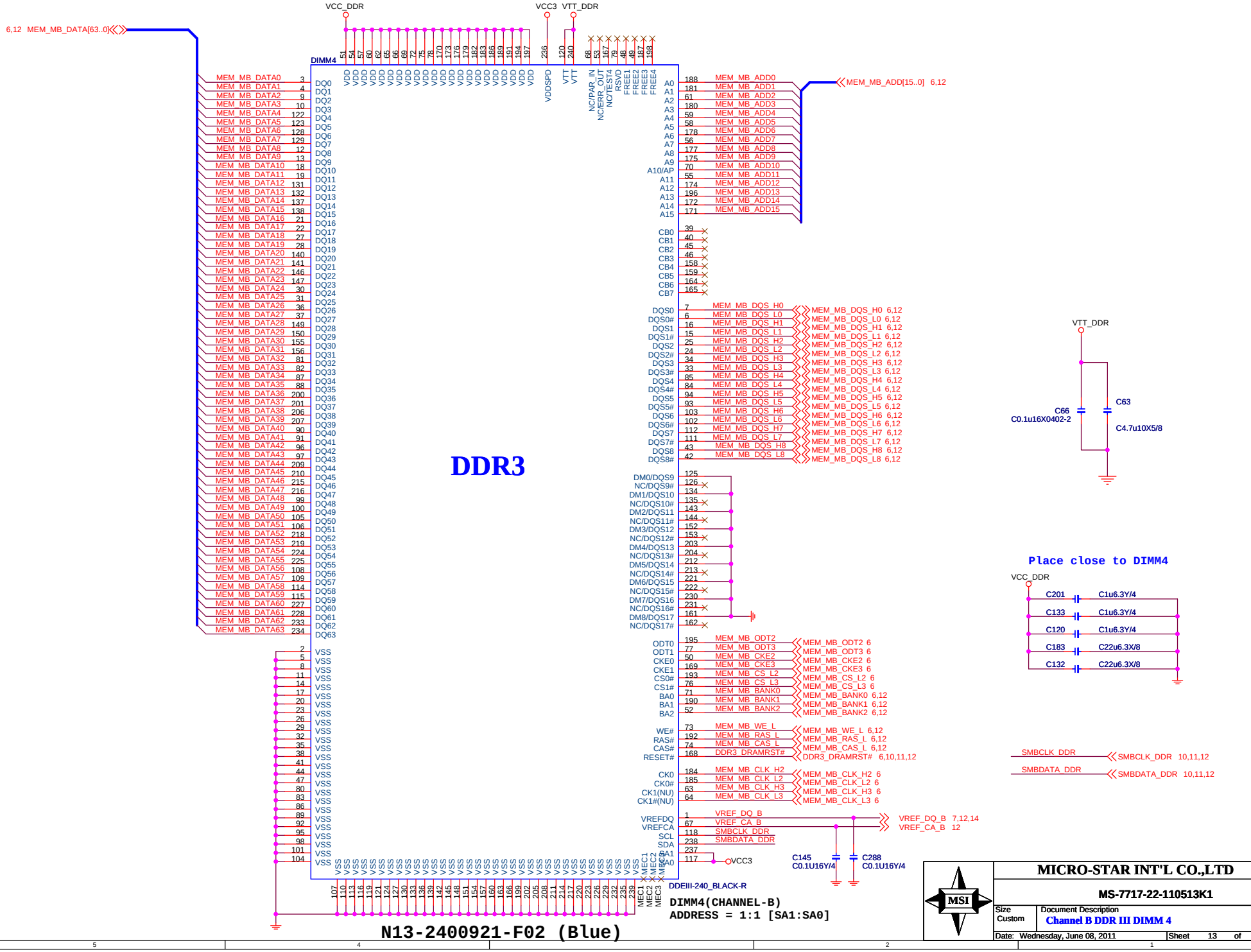
DDRIII DIMM_B2



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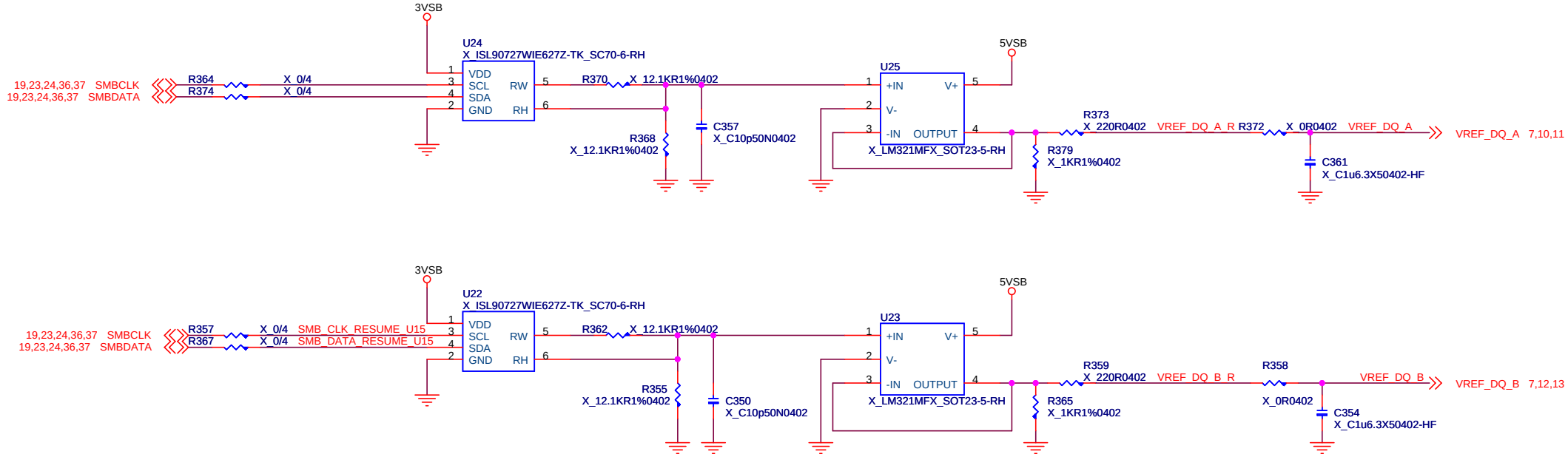
Rev: 22	
Date: Wednesday, June 08, 2011	Sheet 13 of 40



MICRO-STAR INT'L CO.,LTD

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Size	Document Description	Rev
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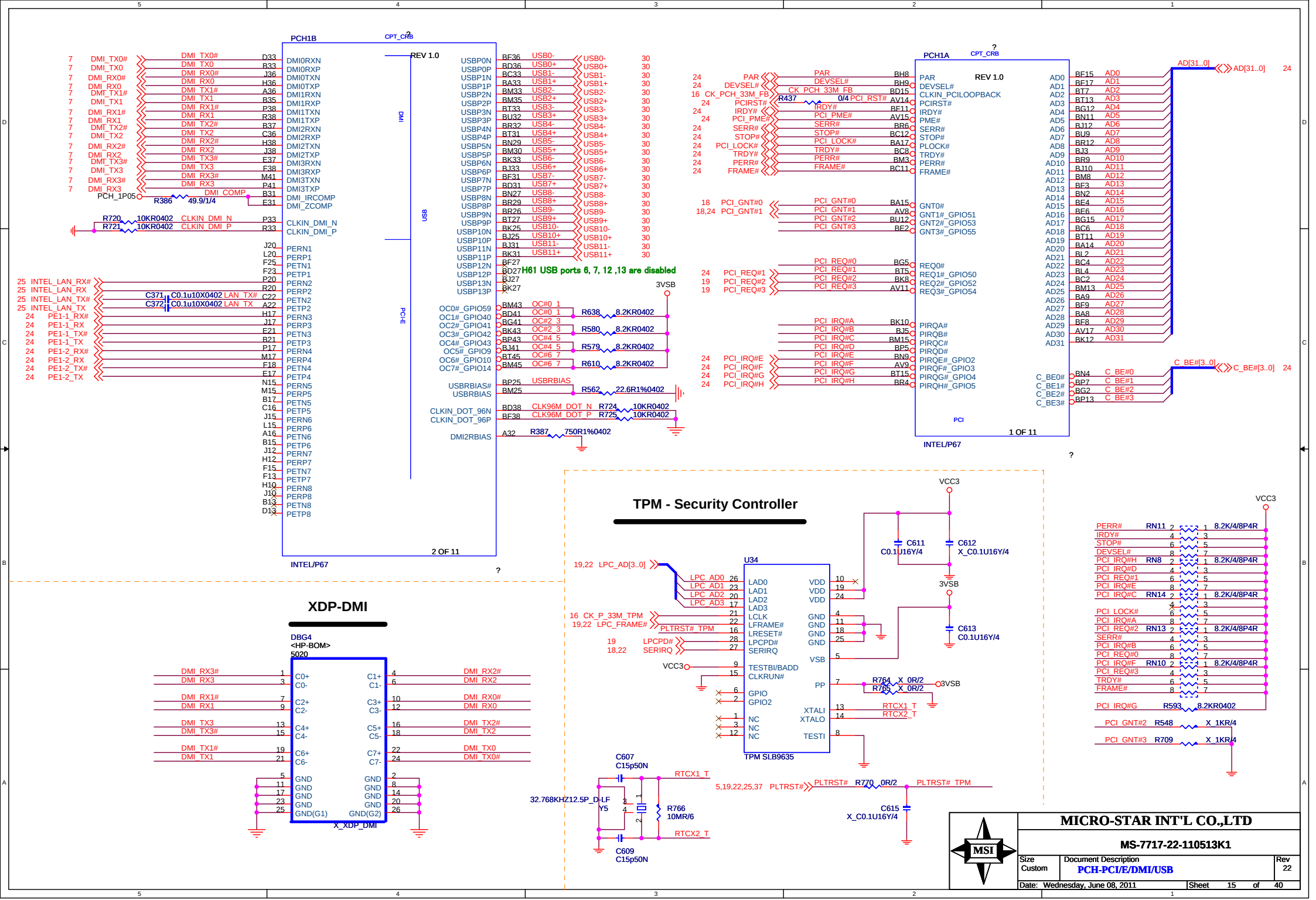
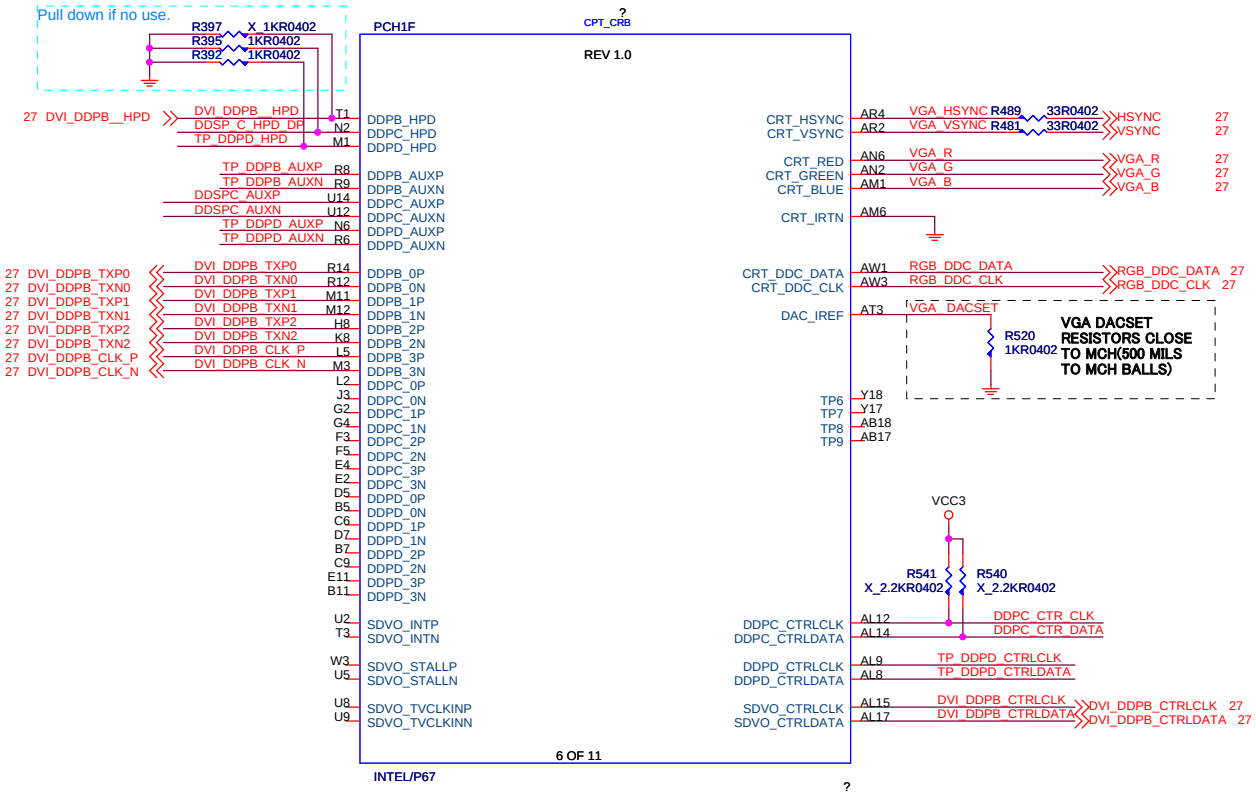
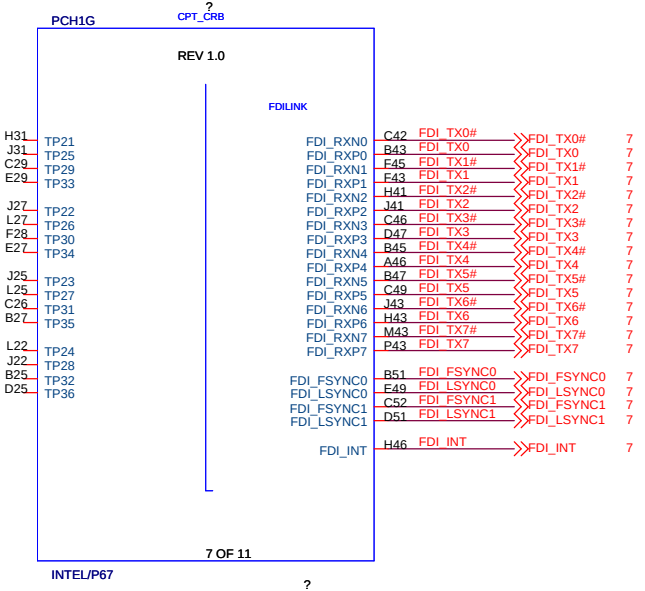
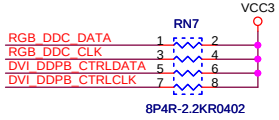

PCH1B
CPT_CRB
REV 1.0
DMI0RXN
DMI0RXP
DMI0TXN
DMI0TXP
DMI1RXN
DMI1RXP
DMI1TXN
DMI1TXP
DMI2RXN
DMI2RXP
DMI2TXN
DMI2TXP
DMI3RXN
DMI3RXP
DMI3TXN
DMI3TXP
DMI_IRCOMP
DMI_ZCOMP
CLKIN_DMI_N
CLKIN_DMI_P
PERN1
PERP1
PETN1
PETP1
PERN2
PERP2
PETN2
PETP2
PERN3
PERP3
PETN3
PETP3
PERN4
PERP4
PETN4
PETP4
PERN5
PERP5
PETN5
PETP5
PERN6
PERP6
PETN6
PETP6
PERN7
PERP7
PETN7
PETP7
PERN8
PERP8
PETN8
PETP8
DMI
USB
PCIE
USBP0N
USBP0P
USBP1N
USBP1P
USBP2N
USBP2P
USBP3N
USBP3P
USBP4N
USBP4P
USBP5N
USBP5P
USBP6N
USBP6P
USBP7N
USBP7P
USBP8N
USBP8P
USBP9N
USBP9P
USBP10N
USBP10P
USBP11N
USBP11P
USBP12N
USBP12P
USBP13N
USBP13P
H61 USB ports 6, 7, 12 ,13 are disabled
OC0#_GPIO59
OC1#_GPIO40
OC2#_GPIO41
OC3#_GPIO42
OC4#_GPIO43
OC5#_GPIO9
OC6#_GPIO10
OC7#_GPIO14
USBRBIAS#
USBRBIAS
CLKIN_DOT_96N
CLKIN_DOT_96P
DMI2RBIAS
2 OF 11
INTEL/P67
PCH1A
CPT_CRB
REV 1.0
PAR
DEVSEL#
CLKIN_PCILOOPBACK
PCIRST#
IRDY#
PME#
SERR#
STOP#
PLOCK#
TRDY#
PERR#
FRAME#
GNT0#
GNT1#_GPIO51
GNT2#_GPIO53
GNT3#_GPIO55
REQ0#
REQ1#_GPIO50
REQ2#_GPIO52
REQ3#_GPIO54
PIRQA#
PIRQB#
PIRQC#
PIRQD#
PIRQE#_GPIO2
PIRQF#_GPIO3
PIRQG#_GPIO4
PIRQH#_GPIO5
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
AD8
AD9
AD10
AD11
AD12
AD13
AD14
AD15
AD16
AD17
AD18
AD19
AD20
AD21
AD22
AD23
AD24
AD25
AD26
AD27
AD28
AD29
AD30
AD31
C_BE0#
C_BE1#
C_BE2#
C_BE3#
PCI
1 OF 11
INTEL/P67
TPM - Security Controller
U34
LAD0
LAD1
LAD2
LAD3
LCLK
LFRAME#
LRESET#
LPCPD#
SERIRQ
TESTBI/BADD
CLKRUN#
GPIO
GPIO2
NC
NC
NC
VDD
VDD
VDD
GND
GND
GND
GND
VSB
PP
XTALI
XTALO
TESTI
TPM SLB9635
XDP-DMI
DBG4
<HP-BOM>
5020
C0+
C0-
C1+
C1-
C2+
C2-
C3+
C3-
C4+
C4-
C5+
C5-
C6+
C6-
C7+
C7-
GND
GND(G1)
GND(G2)
X_XDP_DMI
MICRO-STAR INT'L CO.,LTD
MS-7717-22-110513K1
Size
Custom
Document Description
PCH-PCI/E/DMI/USB
Rev
22
Date: Wednesday, June 08, 2011
Sheet 15 of 40

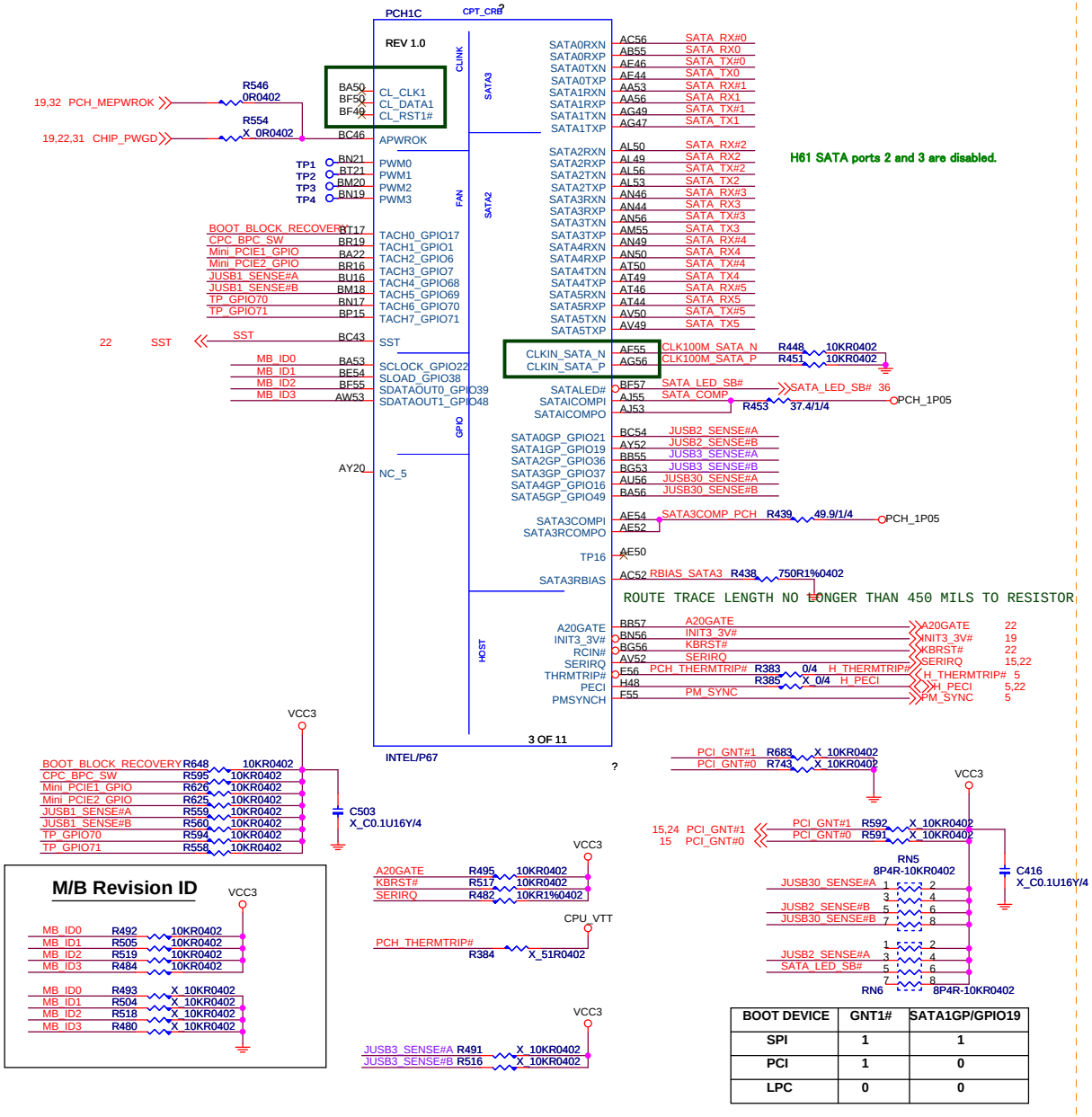
MICRO-STAR INT'L CO.,LTD		
MS-7717-22-110513K1		
Size: Custom	Document Description: PCH-CLOCK	Rev: 22
Date: Wednesday, June 08, 2011	Sheet 16 of 40	





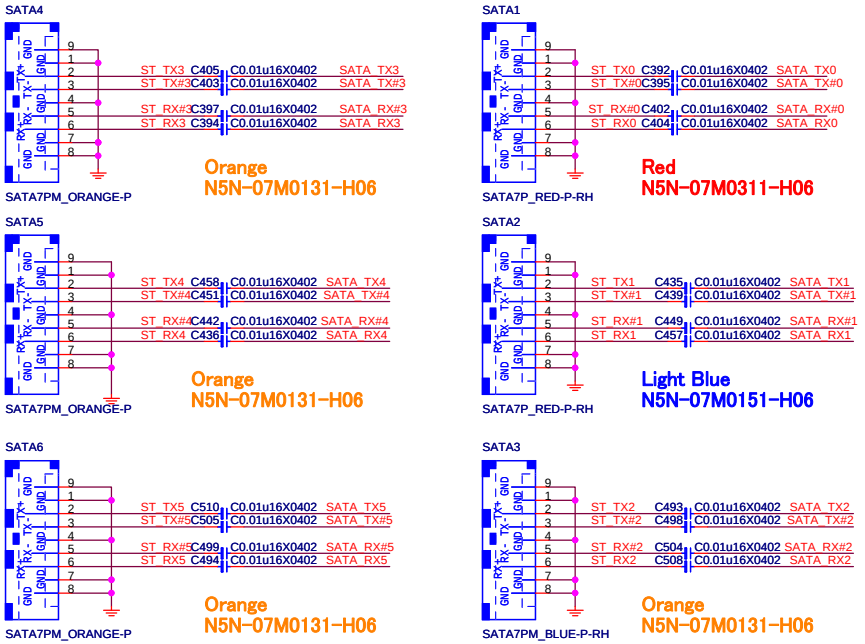


MICRO-STAR INT'L CO.,LTD		
MS-7717-22-110513K1		
Size: Custom	Document Description: PCH-DISPLAY/ SPI ROM	Rev: 22
Date: Wednesday, June 08, 2011	Sheet 17 of 40	



BOOT DEVICE	GNT1#	SATA1GP/GPIO19
SPI	1	1
PCI	1	0
LPC	0	0

SATA connector



SATA Master / Slave CFG	
Orange Secondary Slave (Port 3)	Red Primary Master (Port 0)
Orange Primary Master (Port 4)	Light Blue Secondary Master (Port 0)
Orange Secondary Master (Port 5)	Orange Secondary Master (Port 1)

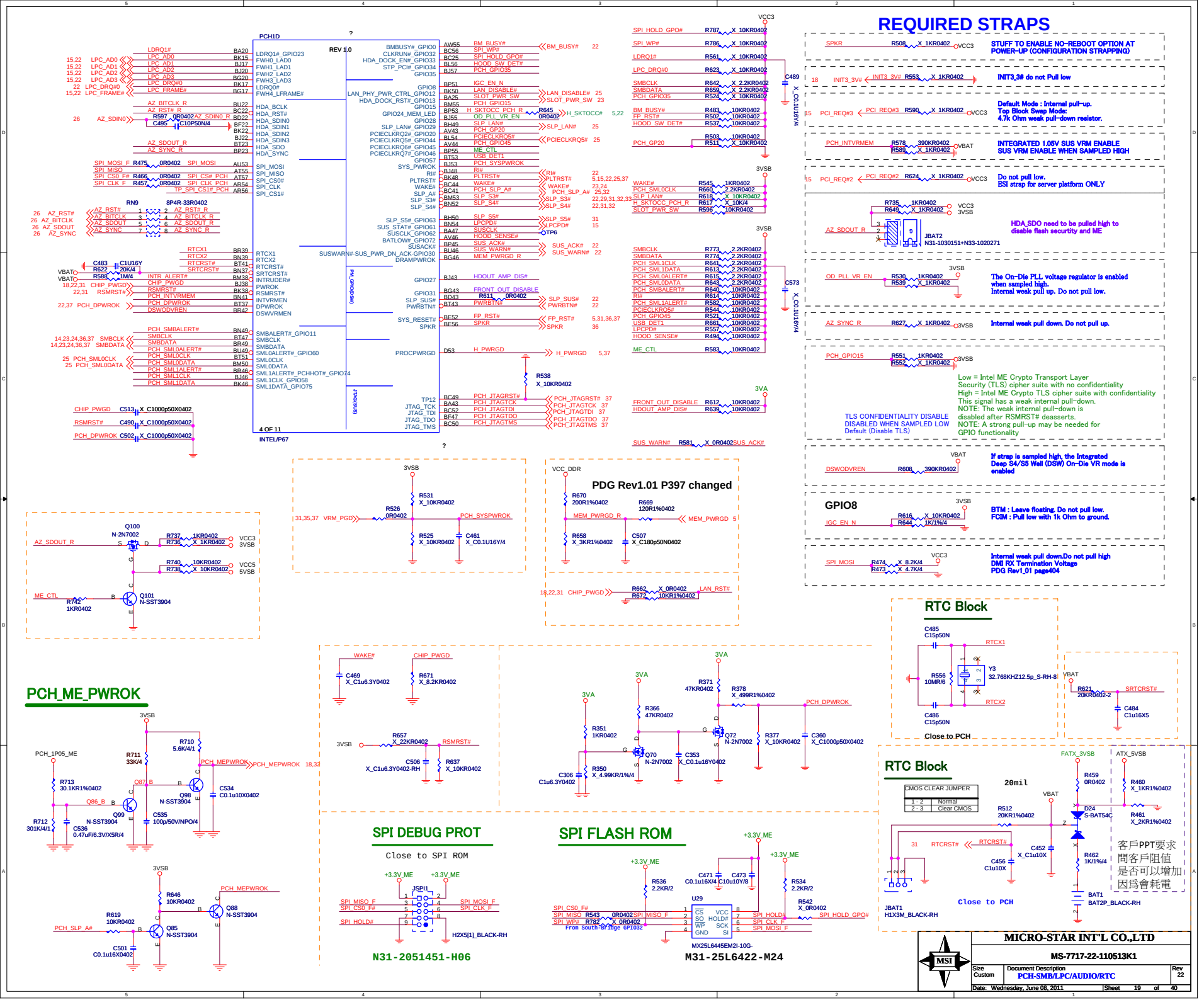
SATA#0	Primary Master
SATA#1	Secondary Master
SATA#2	Primary Slave
SATA#3	Secondary Slave
SATA#4	Primary Master
SATA#5	Secondary Master

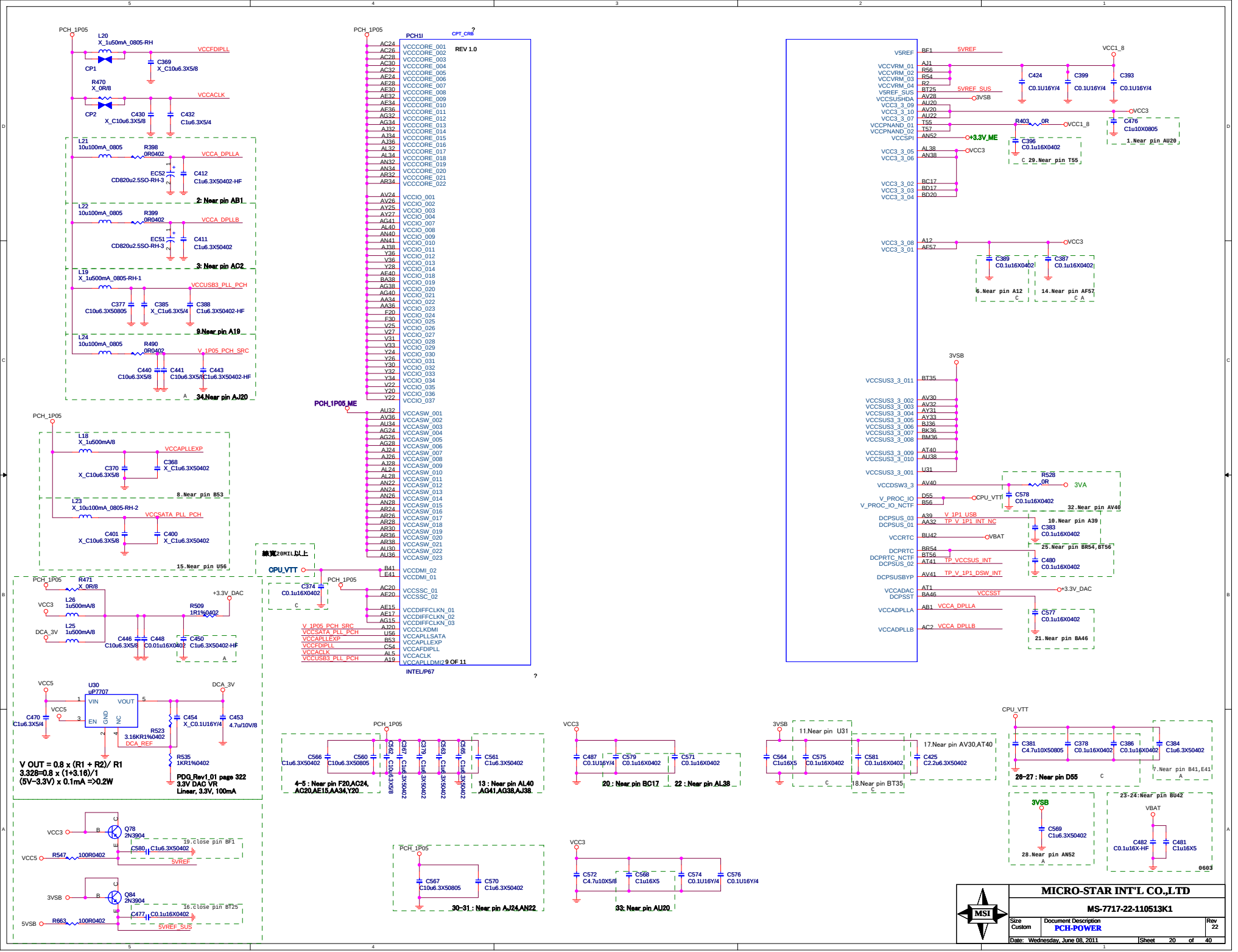
MICRO-STAR INT'L CO.,LTD

MS-7717-22-110513K1

Size	Document Description	Rev
Custom	PCH-SATA/HOST/FAN/GPIO	22

Date: Wednesday, June 08, 2011 Sheet 18 of 40


REQUIRED STRAPS
STUFF TO ENABLE NO-REBOOT OPTION AT POWER-UP (CONFIGURATION STRAPPING)
INIT3_3# do not Pull low
Default Mode : Internal pull-up.
Top Block Swap Mode:
4.7k Ohm weak pull-down resistor.
INTEGRATED 1.05V SUS VRM ENABLE
SUS VRM ENABLE WHEN SAMPLED HIGH
Do not pull low.
ESI strap for server platform ONLY
HDA_SDO need to be pulled high to disable flash security and ME
The On-Die PLL voltage regulator is enabled when sampled high.
Internal weak pull up. Do not pull low.
Internal weak pull down. Do not pull up.
Low = Intel ME Crypto Transport Layer Security (TLS) cipher suite with no confidentiality
High = Intel ME Crypto TLS cipher suite with confidentiality
This signal has a weak internal pull-down.
NOTE: The weak internal pull-down is disabled after RSMRST# deasserts.
NOTE: A strong pull-up may be needed for GPIO functionality
TLS CONFIDENTIALITY DISABLE
DISABLED WHEN SAMPLED LOW
Default (Disable TLS)
If strap is sampled high, the Integrated Deep S4/S5 Well (DSW) On-Die VR mode is enabled
GPIO8
BTM : Leave floating. Do not pull low.
FCIM : Pull low with 1k Ohm to ground.
Internal weak pull down.Do not pull high
DMI RX Termination Voltage
PDG Rev1_01 page404
PDG Rev1.01 P397 changed
PCH_ME_PWROK
RTC Block
Close to PCH
RTC Block
CMOS CLEAR JUMPER
1 - 2 Normal
2 - 3 Clear CMOS
20mil
Close to PCH
SPI DEBUG PROT
Close to SPI ROM
N31-2051451-H06
SPI FLASH ROM
M31-25L6422-M24
客戶PPT要求
問客戶阻值
是否可以增加
因爲會耗電
MICRO-STAR INT'L CO.,LTD
MS-7717-22-110513K1
Document Description
PCH-SMB/LPC/AUDIO/RTC
Rev 22
Date: Wednesday, June 08, 2011
Sheet 19 of 40


PCH_1P05
L20
X_1u50mA_0805-RH
VCCFDIPLL
C369
X_C10u6.3X5/8
CP1
R470
X_0R/8
VCCACLK
CP2
C430
X_C10u6.3X5/8
C432
C1u6.3X5/4
L21
10u100mA_0805
R398
0R0402
VCCA_DPLLA
EC52
CD820u2.5SO-RH-3
C412
C1u6.3X50402-HF
2: Near pin AB1
L22
10u100mA_0805
R399
0R0402
VCCA_DPLLB
EC51
CD820u2.5SO-RH-3
C411
C1u6.3X50402
3: Near pin AC2
L19
X_1u500mA_0805-RH-1
VCCUSB3_PLL_PCH
C377
C10u6.3X50805
C385
X_C1u6.3X5/4
C388
C1u6.3X50402-HF
9.Near pin A19
L24
10u100mA_0805
R490
0R0402
V_1P05_PCH_SRC
C440
C10u6.3X5/8
C441
C10u6.3X5/8
C443
C1u6.3X50402-HF
34.Near pin AJ20
PCH_1P05
L18
X_1u500mA/8
VCCAPLLEXP
C370
X_C10u6.3X5/8
C368
X_C1u6.3X50402
8.Near pin B53
L23
X_10u100mA_0805-RH-2
VCCSATA_PLL_PCH
C401
X_C10u6.3X5/8
C400
X_C1u6.3X50402
15.Near pin U56
PCH_1P05
R471
X_0R/8
VCC3
L26
1u500mA/8
+3.3V_DAC
R509
1R1%0402
DCA_3V
L25
1u500mA/8
C446
C10u6.3X5/8
C448
C0.01u16X0402
C450
C1u6.3X50402-HF
VCC5
U30
uP7707
VIN
VOUT
EN
GND
NC
DCA_3V
C470
C1u6.3X5/4
VCC5
C454
X_C0.1U16Y/4
C453
4.7u10V/8
R523
3.16KR1%0402
DCA_REF
R535
1KR1%0402
V OUT = 0.8 x (R1 + R2)/ R1
3.328=0.8 x (1+3.16)/1
(5V~3.3V) x 0.1mA =>0.2W
PDG_Rev1_01 page 322
3.3V DAC VR
Linear, 3.3V, 100mA
VCC3
Q78
2N3904
C580
C1u6.3X50402
19.close pin BF1
VCC5
R547
100R0402
5VREF
3VSB
Q84
2N3904
C477
C0.1u16X0402
16.close pin BT25
5VSB
R663
100R0402
5VREF_SUS
PCH_1P05
PCH1I
CPT_CR8
REV 1.0
VCCCORE_001
VCCCORE_002
VCCCORE_003
VCCCORE_004
VCCCORE_005
VCCCORE_006
VCCCORE_007
VCCCORE_008
VCCCORE_009
VCCCORE_010
VCCCORE_011
VCCCORE_012
VCCCORE_013
VCCCORE_014
VCCCORE_015
VCCCORE_016
VCCCORE_017
VCCCORE_018
VCCCORE_019
VCCCORE_020
VCCCORE_021
VCCCORE_022
VCCIO_001
VCCIO_002
VCCIO_003
VCCIO_004
VCCIO_007
VCCIO_008
VCCIO_009
VCCIO_010
VCCIO_011
VCCIO_012
VCCIO_013
VCCIO_014
VCCIO_018
VCCIO_019
VCCIO_020
VCCIO_021
VCCIO_022
VCCIO_023
VCCIO_024
VCCIO_025
VCCIO_026
VCCIO_027
VCCIO_028
VCCIO_029
VCCIO_030
VCCIO_031
VCCIO_032
VCCIO_033
VCCIO_034
VCCIO_035
VCCIO_036
VCCIO_037
PCH_1P05_ME
VCCASW_001
VCCASW_002
VCCASW_003
VCCASW_004
VCCASW_005
VCCASW_006
VCCASW_007
VCCASW_008
VCCASW_009
VCCASW_010
VCCASW_011
VCCASW_012
VCCASW_013
VCCASW_014
VCCASW_015
VCCASW_016
VCCASW_017
VCCASW_018
VCCASW_019
VCCASW_020
VCCASW_021
VCCASW_022
VCCASW_023
CPU_VTT
C374
C0.1u16X0402
PCH_1P05
VCCDMI_02
VCCDMI_01
VCCSSC_01
VCCSSC_02
VCCDIFFCLKN_01
VCCDIFFCLKN_02
VCCDIFFCLKN_03
VCCCLKDMI
VCCAPLLSATA
VCCAPLLEXP
VCCAFDIPLL
VCCACLK
VCCAPLLDMI2
9 OF 11
INTEL/P67
V_1P05_PCH_SRC
VCCSATA_PLL_PCH
VCCAPLLEXP
VCCFDIPLL
VCCACLK
VCCUSB3_PLL_PCH
V5REF
5VREF
VCCVRM_01
VCCVRM_02
VCCVRM_03
VCCVRM_04
VSREF_SUS
VCCSUSHDA
VCC3_3_09
VCC3_3_10
VCC3_3_07
VCCPNAND_01
VCCPNAND_02
VCCSPI
+3.3V_ME
VCC3_3_05
VCC3_3_06
VCC3_3_02
VCC3_3_03
VCC3_3_04
VCC1_8
C424
C0.1U16Y/4
C399
C0.1U16Y/4
C393
C0.1U16Y/4
3VSB
VCC3
C476
C1u10X0805
1.Near pin AU20
R403
0R
VCC1_8
C396
C0.1u16X0402
C 29.Near pin T55
VCC3_3_08
VCC3_3_01
VCC3
C389
C0.1u16X0402
C387
C0.1u16X0402
6.Near pin A12
14.Near pin AF57
3VSB
VCCSUS3_3_011
VCCSUS3_3_002
VCCSUS3_3_003
VCCSUS3_3_004
VCCSUS3_3_005
VCCSUS3_3_006
VCCSUS3_3_007
VCCSUS3_3_008
VCCSUS3_3_009
VCCSUS3_3_010
VCCSUS3_3_001
VCCDSW3_3
R528
0R
3VA
C578
C0.1u16X0402
32.Near pin AV40
V_PROC_IO
V_PROC_IO_NCTF
CPU_VTT
DCPSUS_03
DCPSUS_01
V_1P1_USB
TP_V_1P1_INT_NC
10.Near pin A39
C383
C0.1u16X0402
VCCRTC
VBAT
25.Near pin BR54,BT56
DCPRTC
DCPRTC_NCTF
DCPSUS_02
TP_VCCSUS_INT
C480
C0.1u16X0402
DCPSUSBYP
TP_V_1P1_DSW_INT
VCCADAC
DCPSST
VCCSST
+3.3V_DAC
VCCADPLLA
VCCA_DPLLA
C577
C0.1u16X0402
21.Near pin BA46
VCCADPLLB
VCCA_DPLLB
4~5 : Near pin F20,AC24,
AC20,AE15,AA34,Y20
C566
C1u6.3X50402
C560
C10u6.3X50805
C562
C10u6.3X5/8
C567
C1u6.3X50402
C379
C1u6.3X50402
C563
C1u6.3X50402
C565
C1u6.3X50402
C561
C1u6.3X50402
13 : Near pin AL40
AG41,AG38,AJ38
VCC3
C487
C0.1U16Y/4
C579
C0.1u16X0402
C571
C0.1u16X0402
20 : Near pin BC17
22 : Near pin AL38
3VSB
11.Near pin U31
C564
C1u16X5
C575
C0.1u16X0402
C581
C0.1u16X0402
C425
C2.2u6.3X50402
17.Near pin AV30,AT40
18.Near pin BT35
CPU_VTT
C381
C4.7u10X50805
C378
C0.1u16X0402
C386
C0.1u16X0402
C384
C1u6.3X50402
26~27 : Near pin D55
7.Near pin B41,E41
3VSB
C569
C1u6.3X50402
28.Near pin AN52
23~24:Near pin BU42
VBAT
C482
C0.1u16X-HF
C481
C1u16X5
0603
PCH_1P05
C567
C10u6.3X50805
C570
C1u6.3X50402
30~31 : Near pin AJ24,AN22
VCC3
C572
C4.7u10X5/8
C568
C1u16X5
C574
C0.1U16Y/4
C576
C0.1U16Y/4
33: Near pin AU20
MICRO-STAR INT'L CO.,LTD
MS-7717-22-110513K1
Size
Custom
Document Description
PCH-POWER
Rev
22
Date: Wednesday, June 08, 2011
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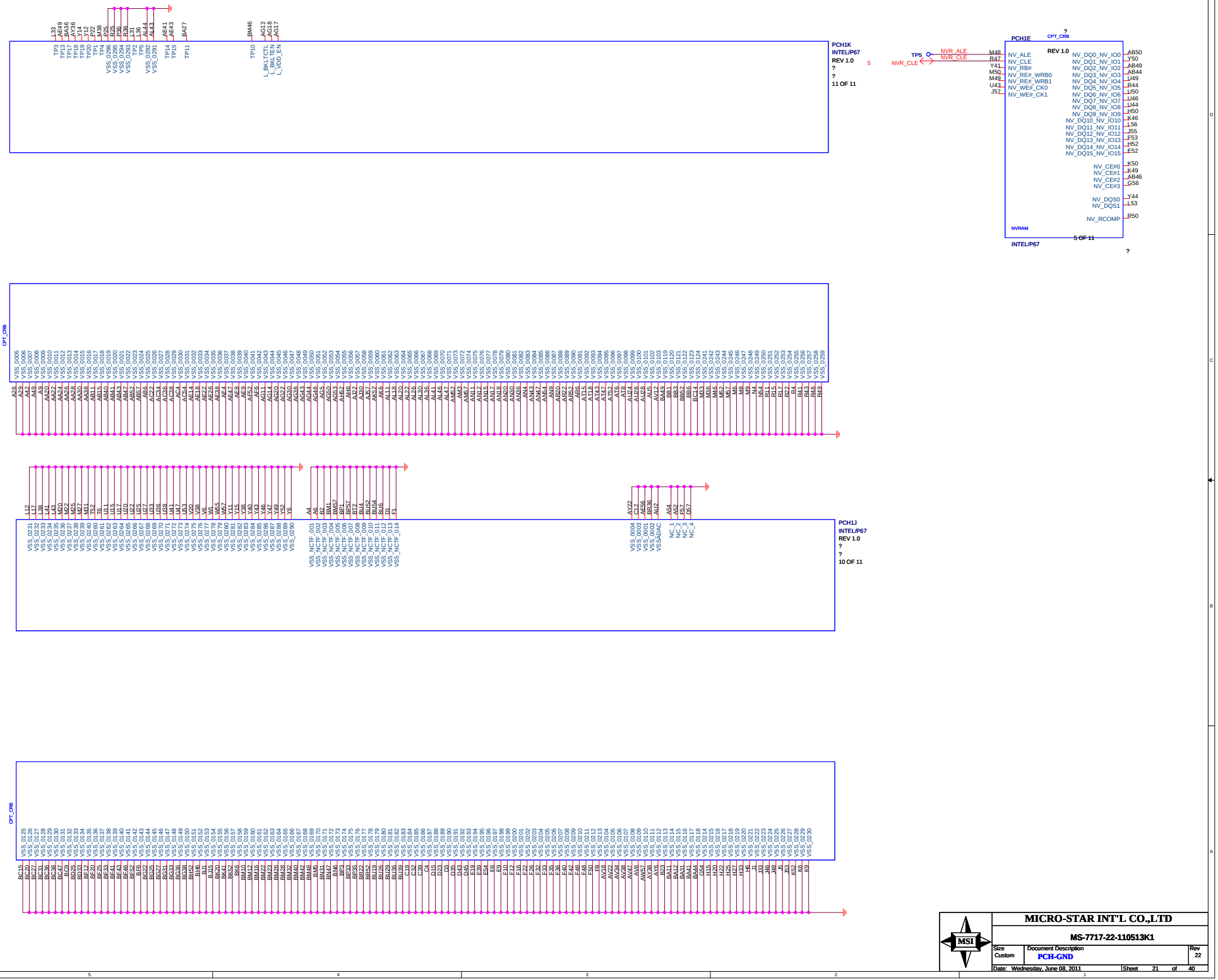
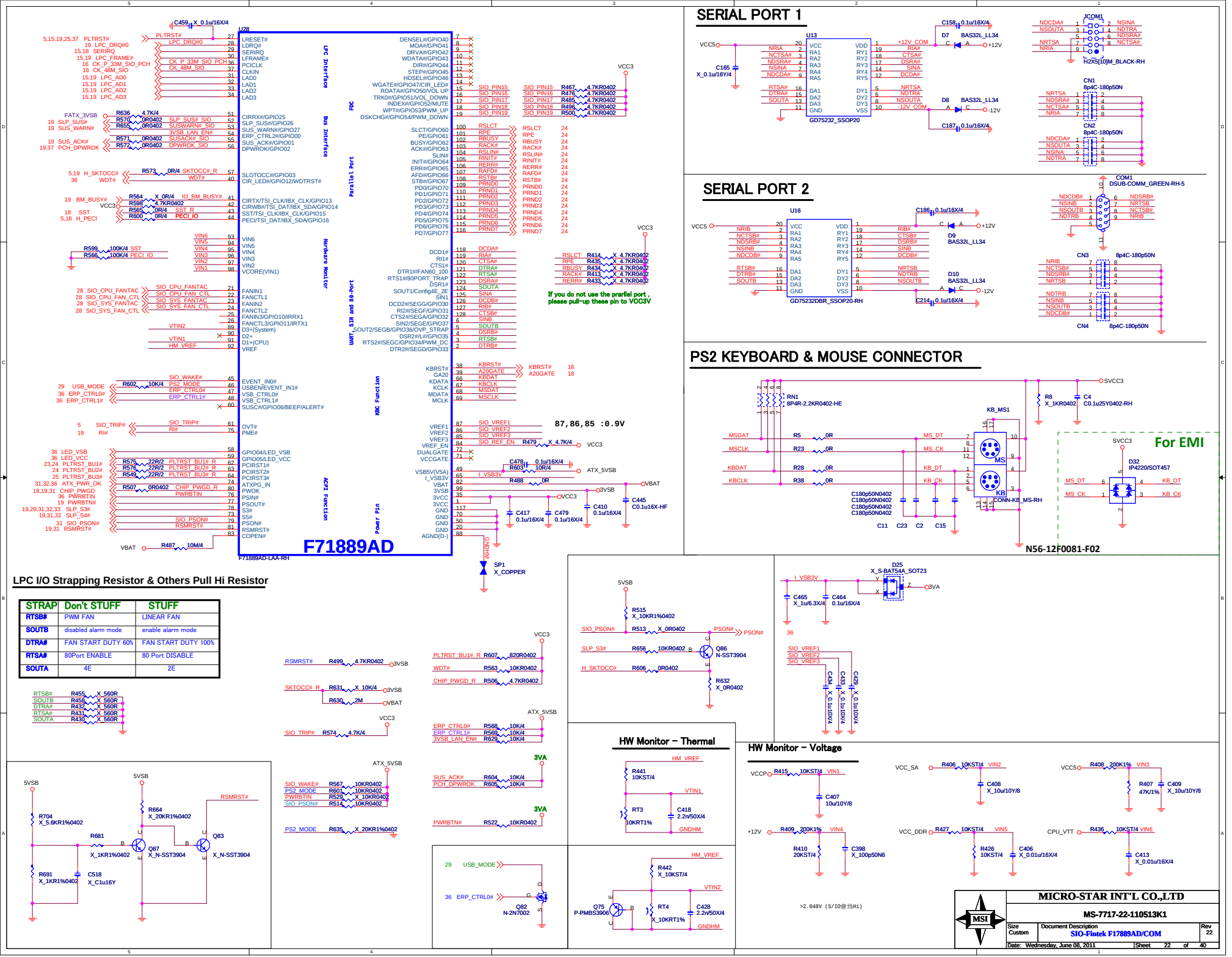
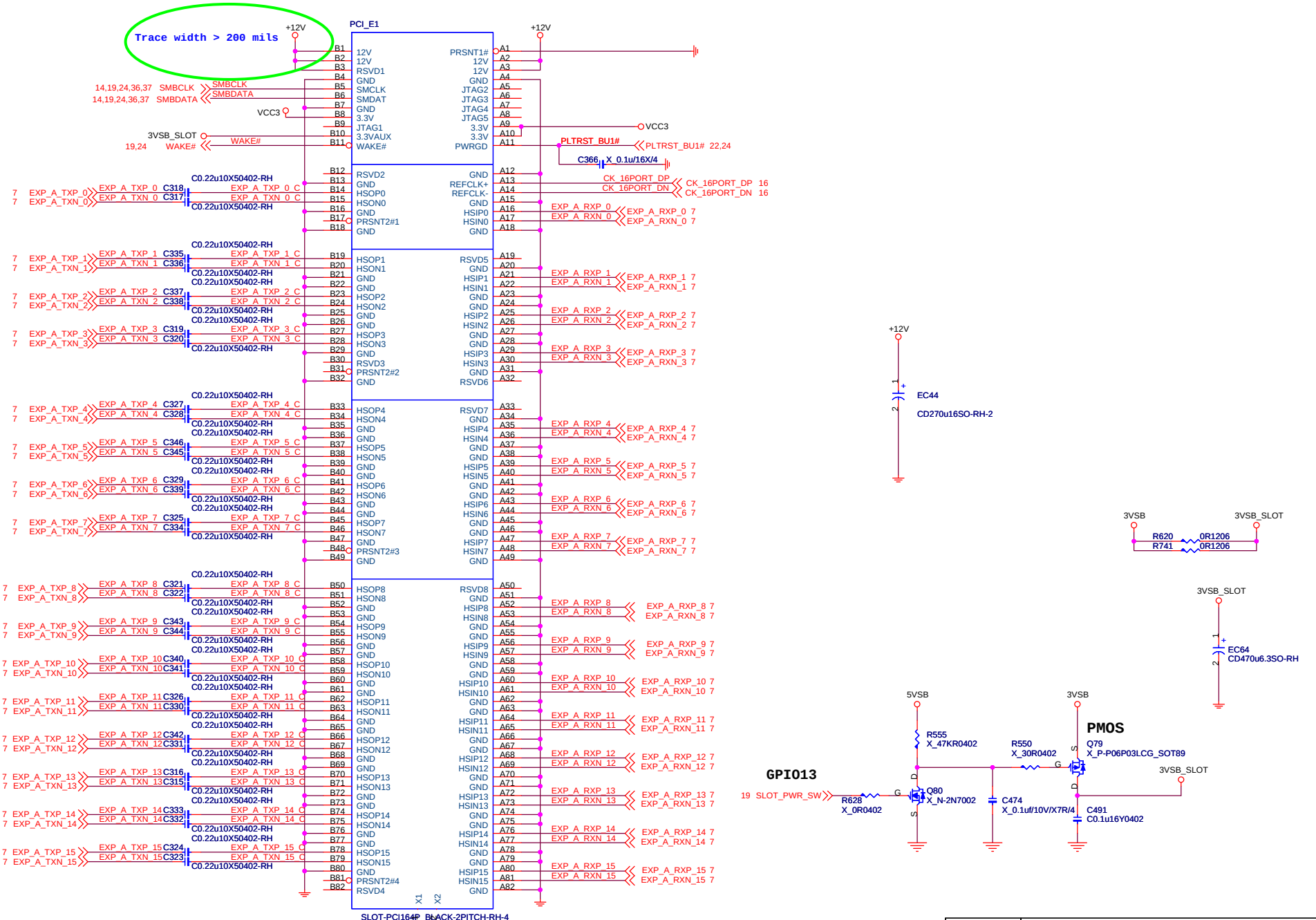
20
of
40



MICRO-STAR INT'L CO.,LTD			
MS-7717-22-110513K1			
Size: Custom	Document Description: PCH-GND		Rev: 22
Date: Wednesday, June 08, 2011		Sheet: 21	of: 40

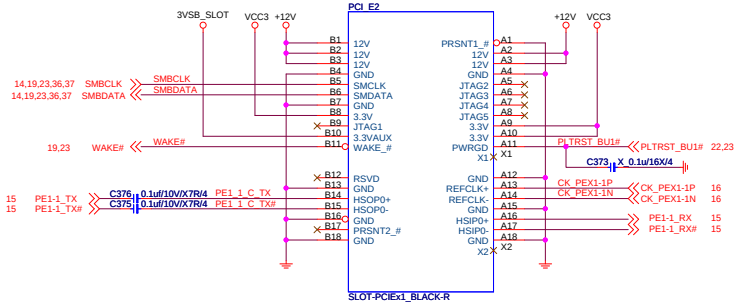

SERIAL PORT 1
SERIAL PORT 2
PS2 KEYBOARD & MOUSE CONNECTOR
F71889AD
F71889AD-LAA-RH
LPC I/O Strapping Resistor & Others Pull Hi Resistor
HW Monitor - Thermal
HW Monitor - Voltage
For EMI
N56-12F0081-F02
MICRO-STAR INT'L CO.,LTD
MS-7717-22-110513K1
SIO-Fintek F71889AD/COM

PCI_Express X16 Slot



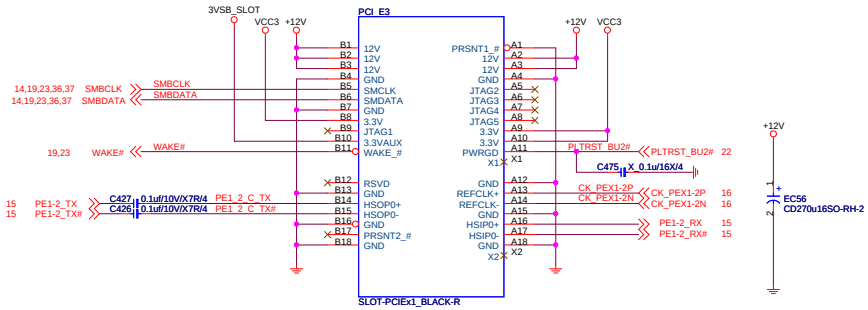
MICRO-STAR INT'L CO.,LTD	
MS-7717-22-110513K1	
Size: Custom	Document Description: PCIE X16 SLOT — Rev: 22
Date: Wednesday, June 08, 2011	Sheet 23 of 40

PCI EXPRESS x1-PORT1

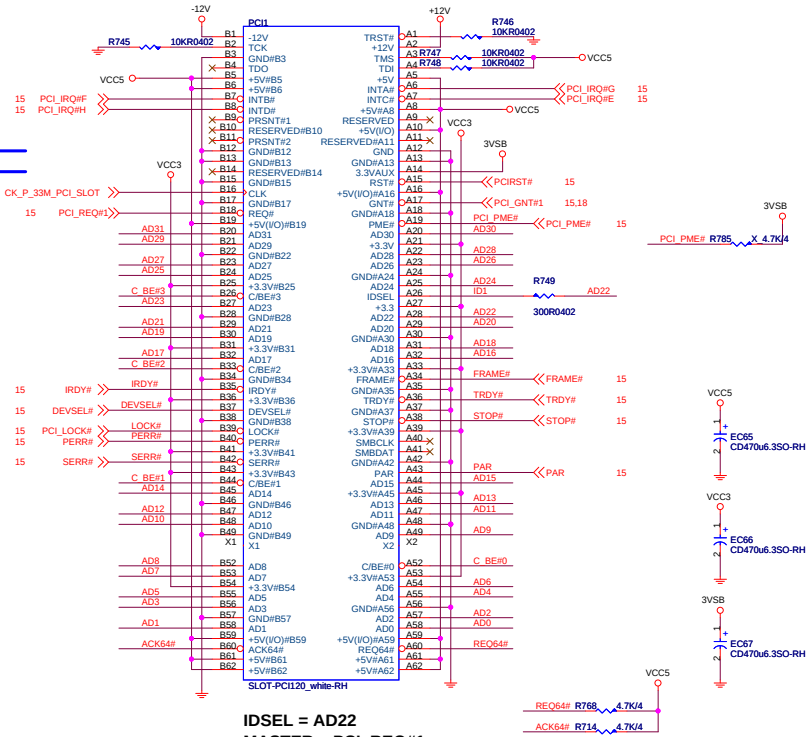


N11-0360281-K06

PCI EXPRESS x1-PORT2

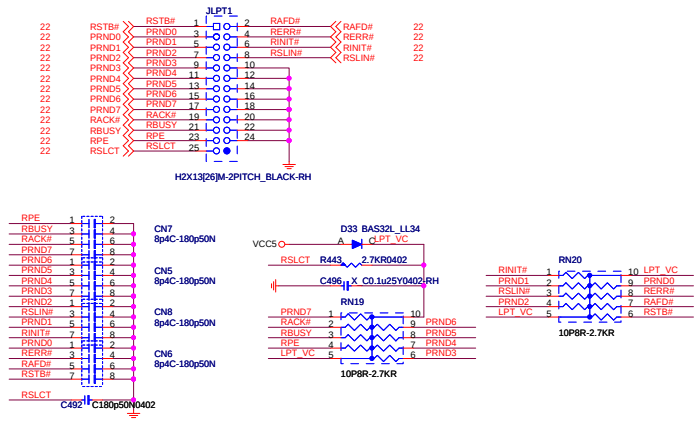


N11-0360281-K06



IDSEL = AD22
MASTER = PCI_REQ#1
PCI_GNT#1

Parallel Port



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-7717-22-110513K1	
Size: C	Document Description: PCIE X1 SLOT	Rev: 22
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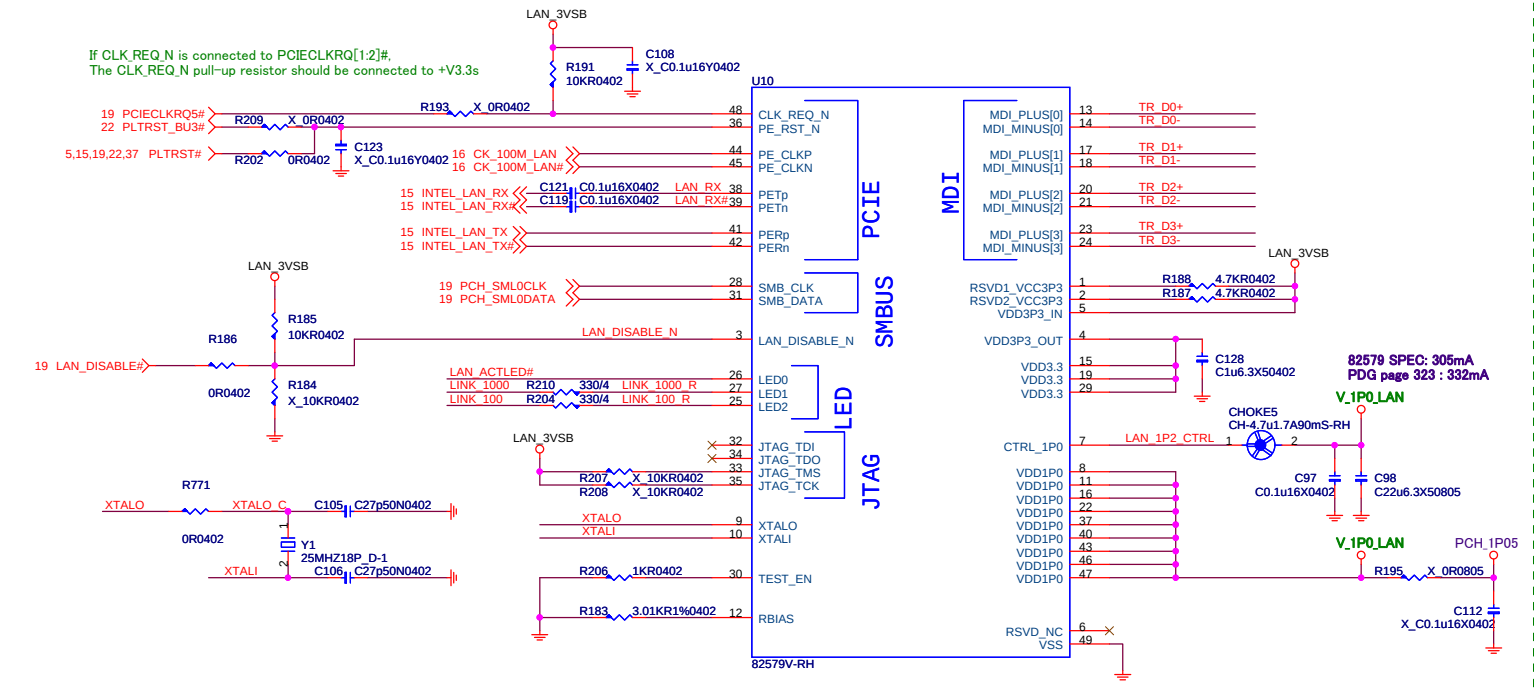
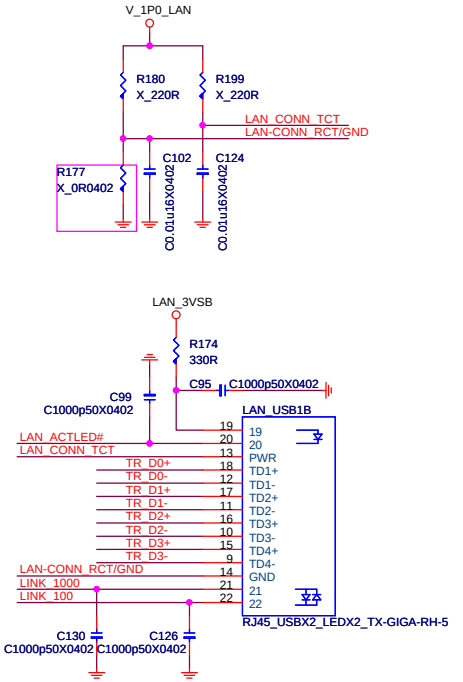
Gigabit LAN INTEL 82579

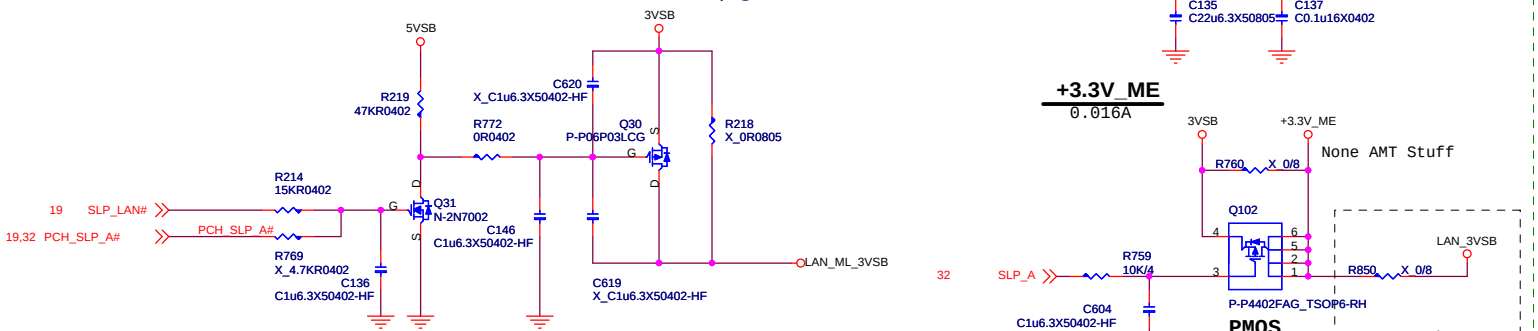


LAN Connector



LAN Power

Note:These caps closed to PHY
82579 SPEC: 94mA
PDG page 323 : 0.218A



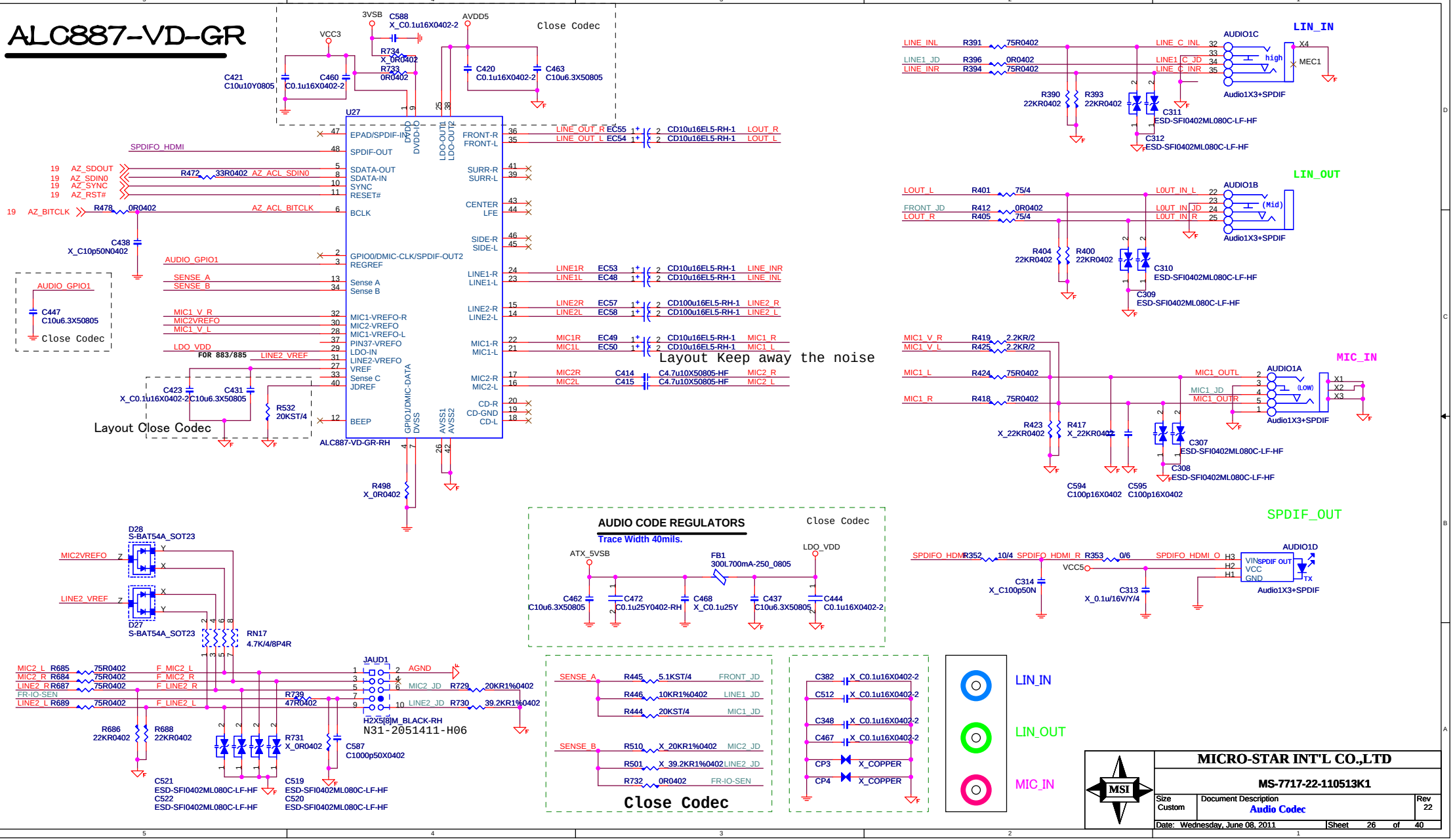
MICRO-STAR INT'L CO.,LTD

MS-7717-22-110513K1

Size	Document Description	Rev
Custom	LAN - WG82579	22

Date: Wednesday, June 08, 2011 Sheet 25 of 40

ALC887-VD-GR


Close Codec
U27
ALC887-VD-GR-RH
EPAD/SPDIF-IN
SPDIF-OUT
SDATA-OUT
SDATA-IN
SYNC
RESET#
BCLK
GPIO0/DMIC-CLK/SPDIF-OUT2
REGREF
Sense A
Sense B
MIC1-VREFO-R
MIC2-VREFO
MIC1-VREFO-L
PIN37-VREFO
LDO-IN
LINE2-VREFO
VREF
Sense C
JDREF
BEEP
FRONT-R
FRONT-L
SURR-R
SURR-L
CENTER
LFE
SIDE-R
SIDE-L
LINE1-R
LINE1-L
LINE2-R
LINE2-L
MIC1-R
MIC1-L
MIC2-R
MIC2-L
CD-R
CD-GND
CD-L
Layout Close Codec
Layout Keep away the noise
LIN_IN
LIN_OUT
MIC_IN
SPDIF_OUT
AUDIO CODE REGULATORS
Trace Width 40mils.
JAUD1
H2X5[8]M_BLACK-RH
N31-2051411-H06
Close Codec
MICRO-STAR INT'L CO.,LTD
MS-7717-22-110513K1
Audio Codec
Rev 22
Date: Wednesday, June 08, 2011
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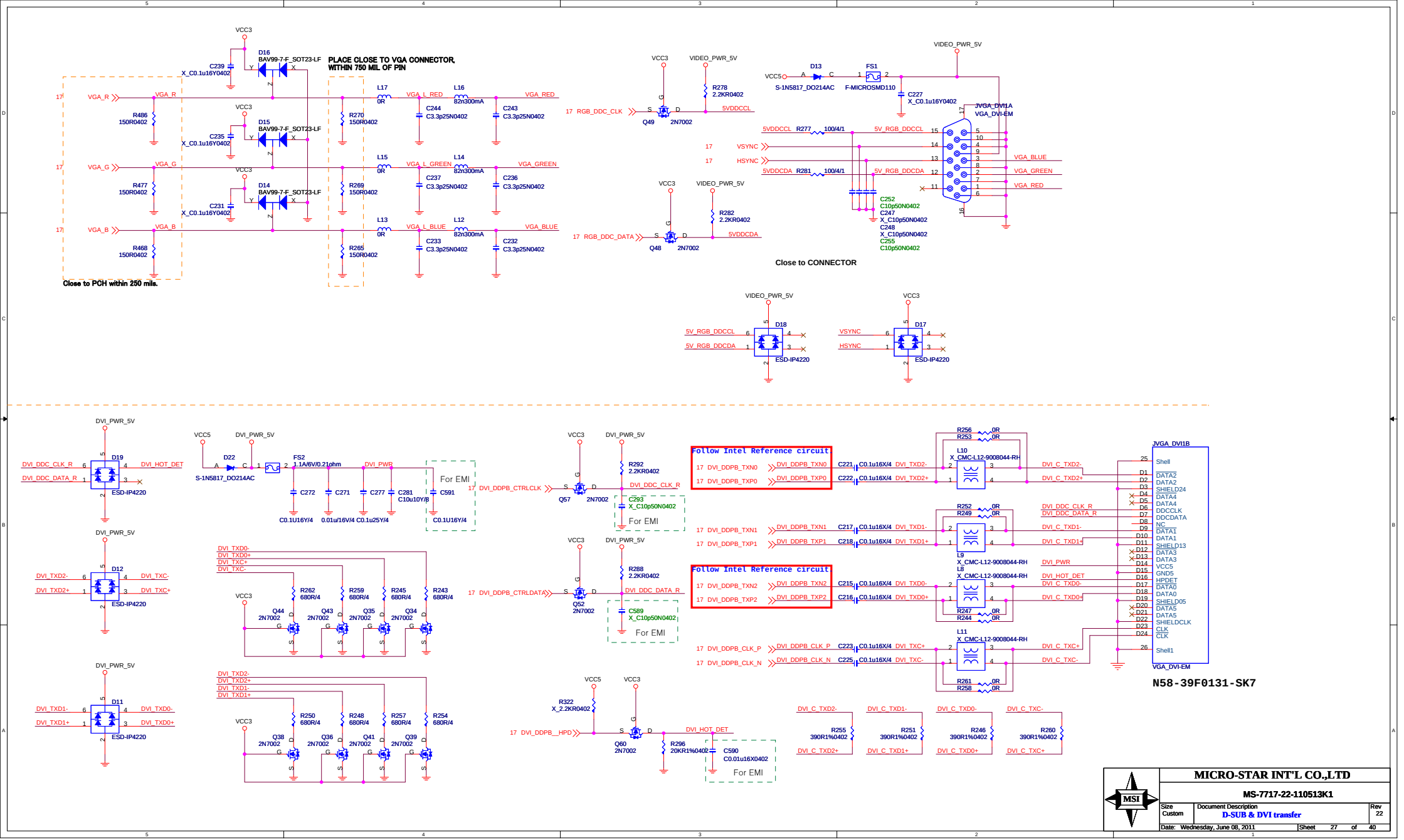
PLACE CLOSE TO VGA CONNECTOR, WITHIN 750 MIL OF PIN
Close to PCH within 250 mils.
Close to CONNECTOR
Follow Intel Reference circuit
Follow Intel Reference circuit
For EMI
JVGA_DVI1A
VGA_DVI-EM
JVGA_DVI1B
VGA_DVI-EM
N58-39F0131-SK7
MICRO-STAR INT'L CO.,LTD
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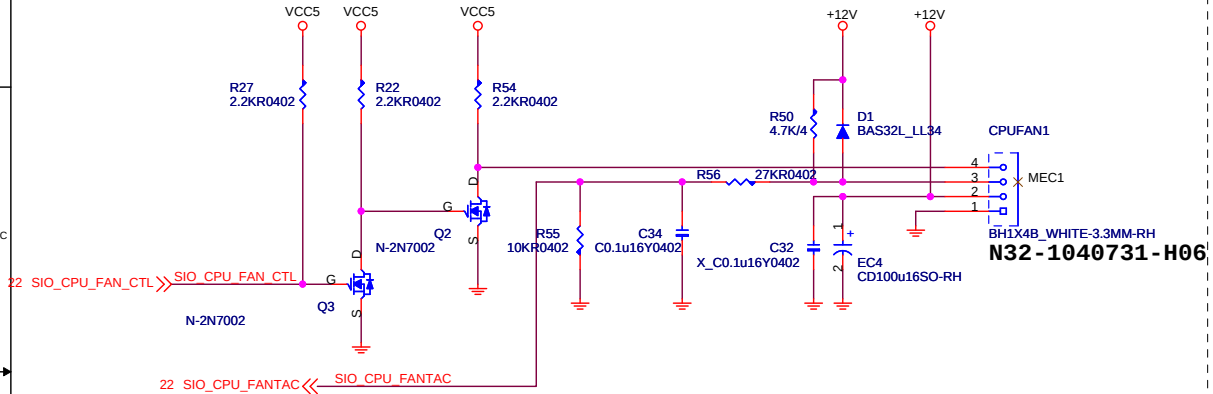
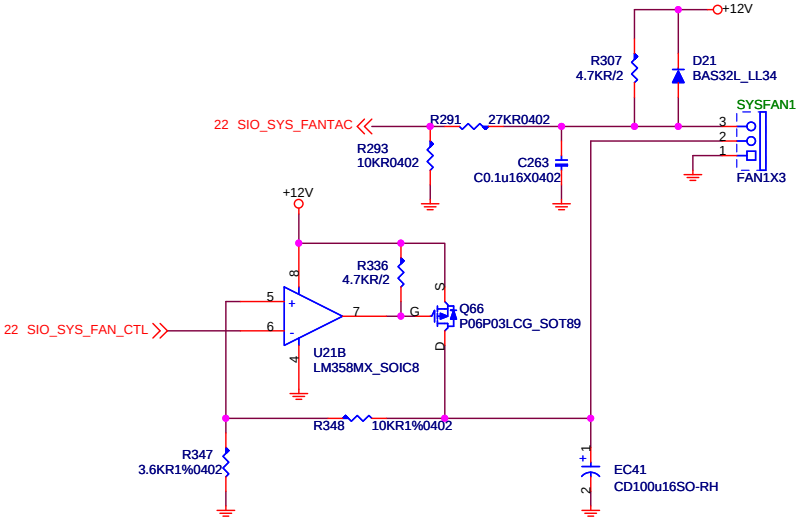
FAN-COUNTROL CIRCUIT





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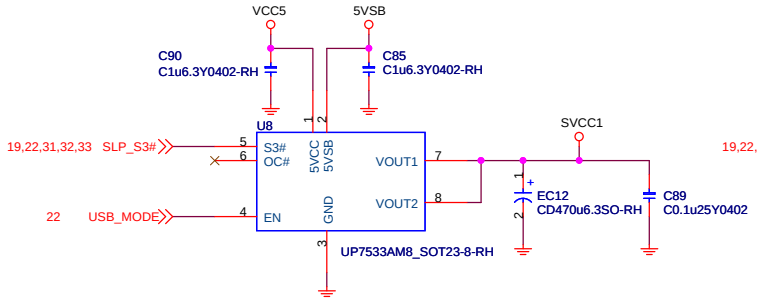
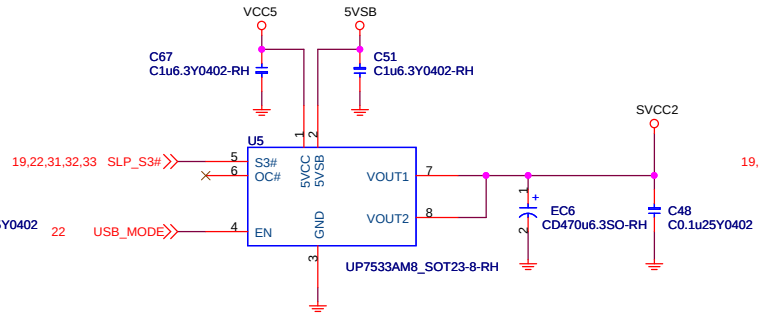
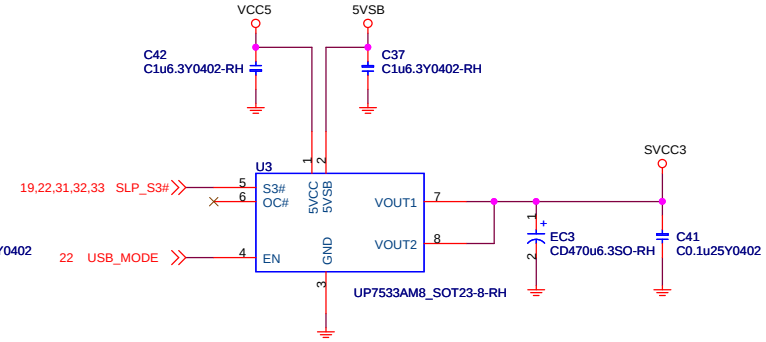
POWER CIRCUIT FOR USB PORT 10, 11



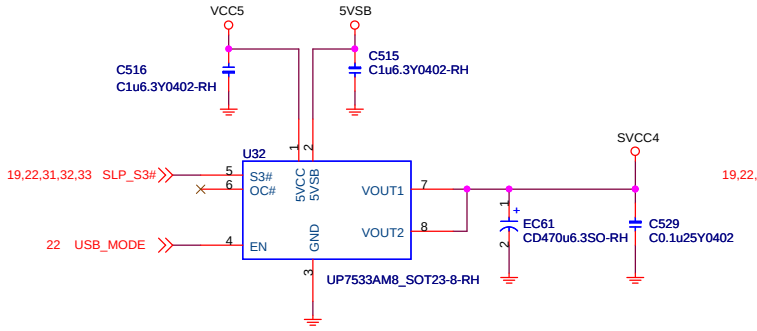
POWER CIRCUIT FOR USB PORT 4, 5



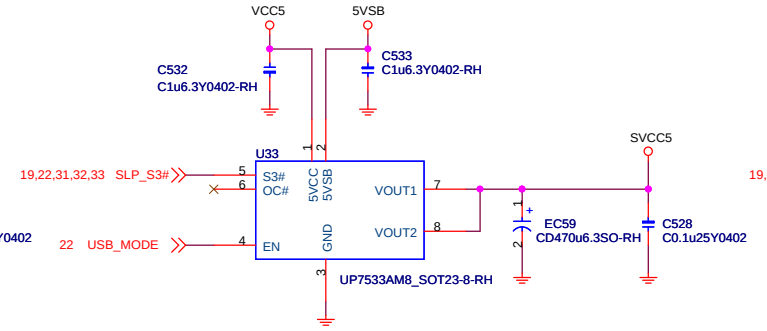
POWER CIRCUIT FOR USB PORT 0, 1



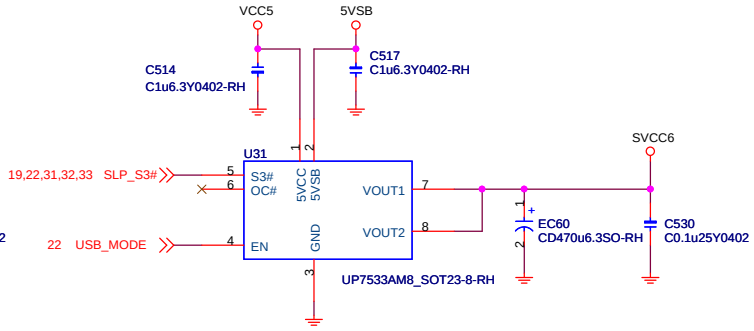
POWER CIRCUIT FOR USB PORT 2, 3

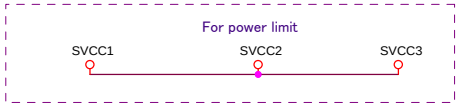


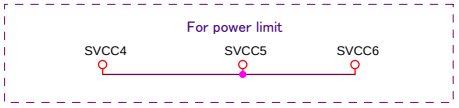
POWER CIRCUIT FOR USB PORT 6, 7



POWER CIRCUIT FOR USB PORT 8, 9







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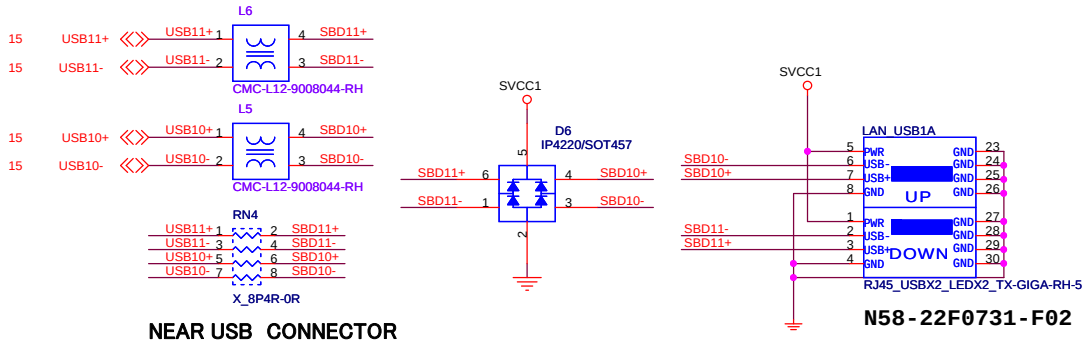
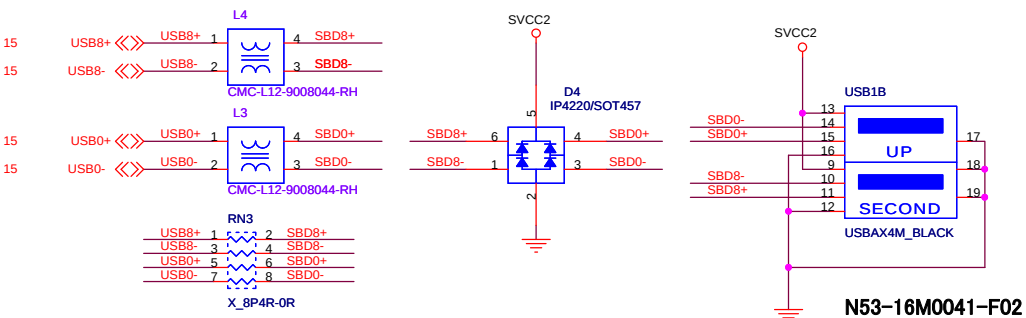
REAR PANEL USB CONNECTOR FOR USB PORT 10,11



NEAR USB CONNECTOR

N58-22F0731-F02

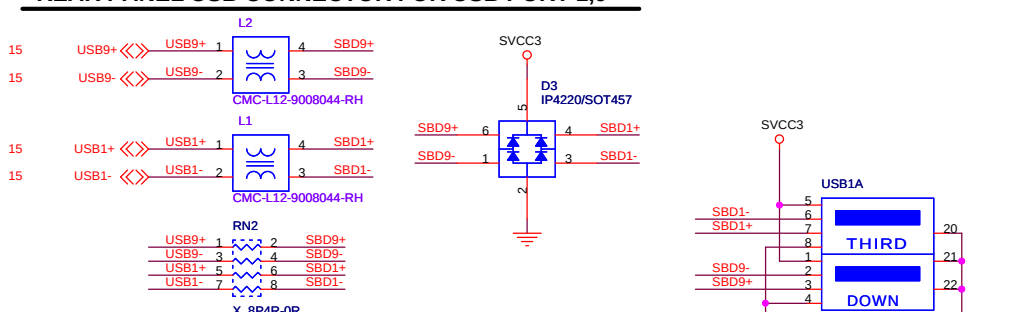
REAR PANEL USB CONNECTOR FOR USB PORT 0,8



NEAR USB CONNECTOR

N53-16M0041-F02

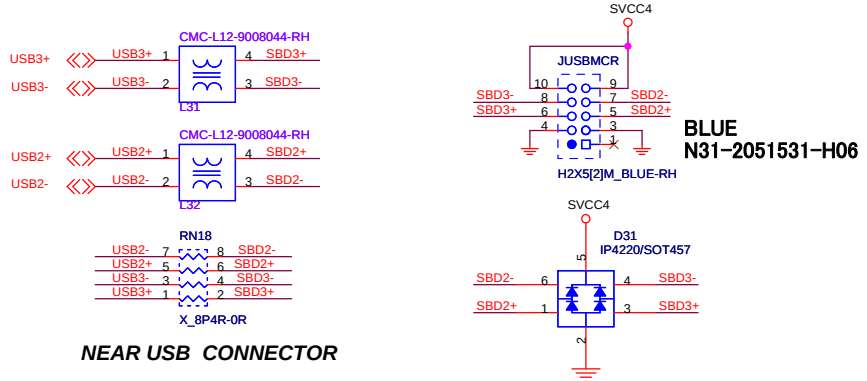
REAR PANEL USB CONNECTOR FOR USB PORT 1,9



NEAR USB CONNECTOR

N53-16M0041-F02

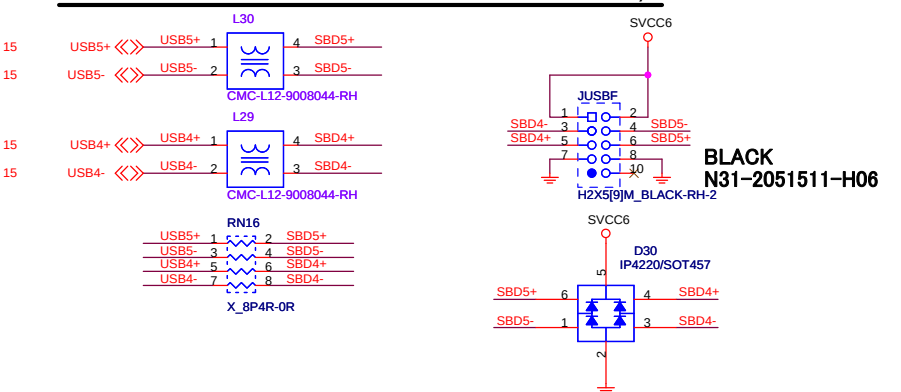
FRONT PANEL USB CONNECTOR FOR USB PORT 2,3



NEAR USB CONNECTOR

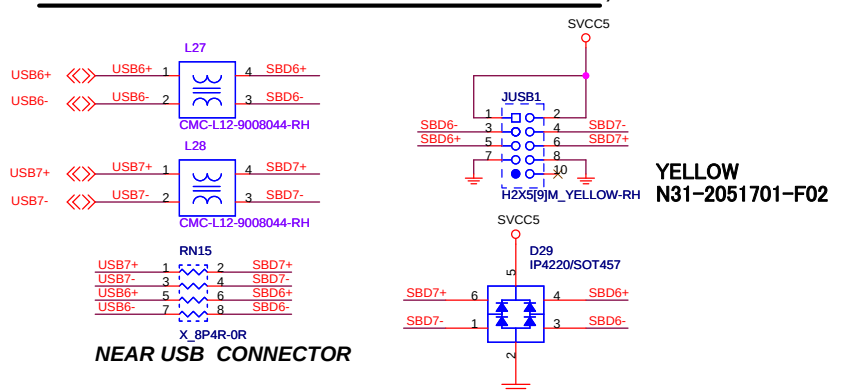
BLUE
N31-2051531-H06

FRONT PANEL USB CONNECTOR FOR USB PORT 12,13



BLACK
N31-2051511-H06

FRONT PANEL USB CONNECTOR FOR USB PORT 6,7



NEAR USB CONNECTOR

YELLOW
N31-2051701-F02

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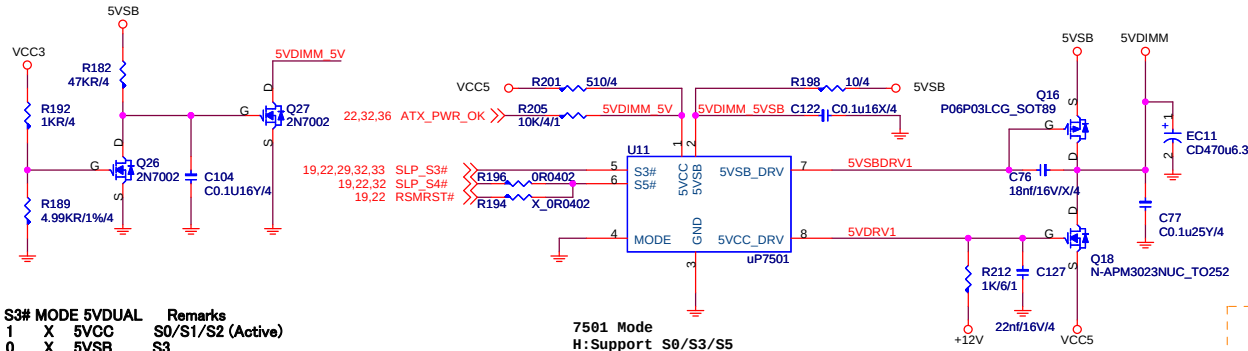
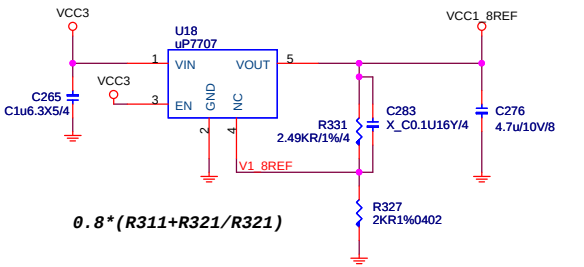
5VDIMM FOR DDR



S5#	S3#	MODE	5VDUAL	Remarks
1	1	X	5VCC	S0/S1/S2 (Active)
1	0	X	5VSB	S3
0	X	1	5VSB	S4/S5
0	X	0	Shutdown	S4/S5

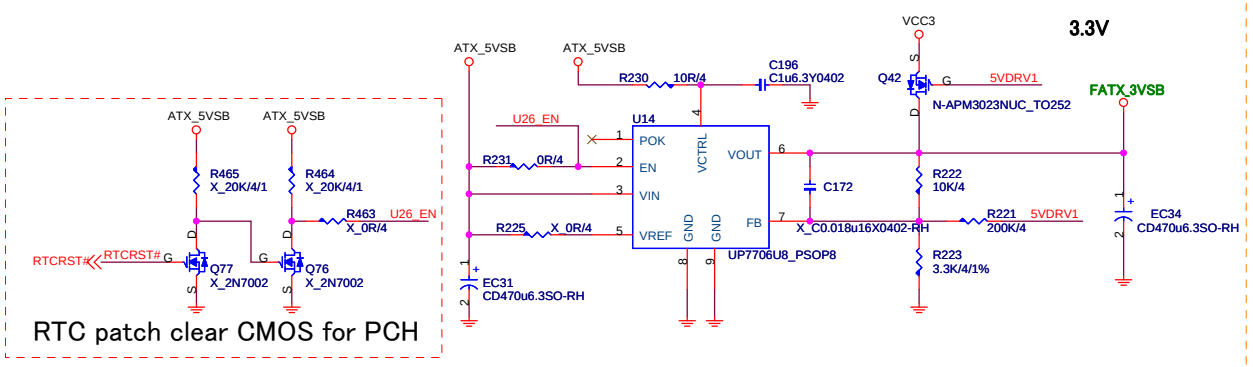
7501 Mode
H:Support S0/S3/S5
L:Support S0/S3

VCC1_8REF

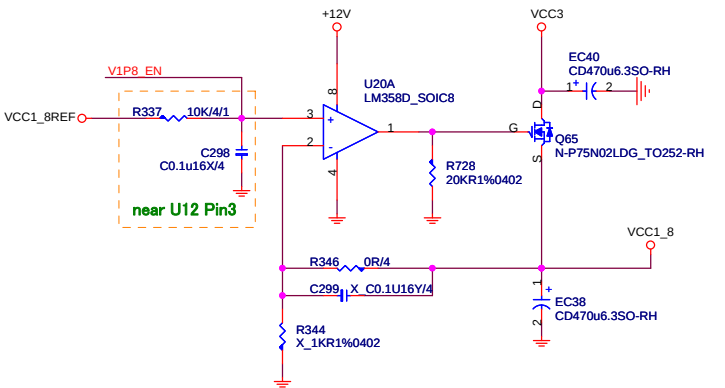


DSW_3VSB

3.3V

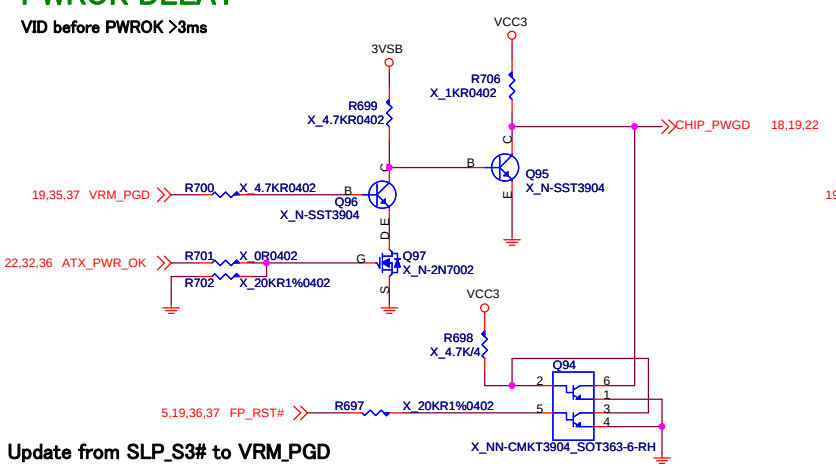


1.8 V Power For CPU & PCH

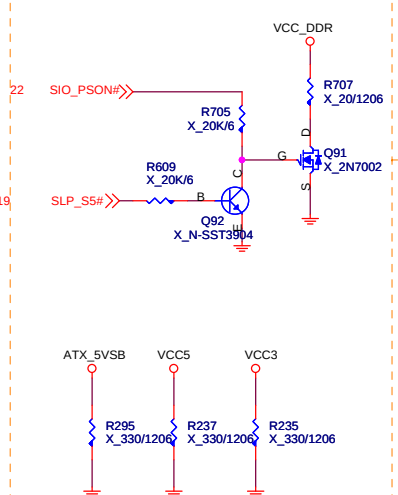


PWROK DELAY

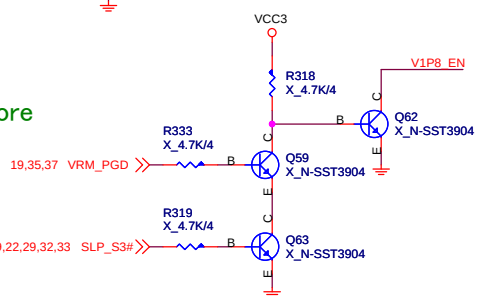
VID before PWROK >3ms



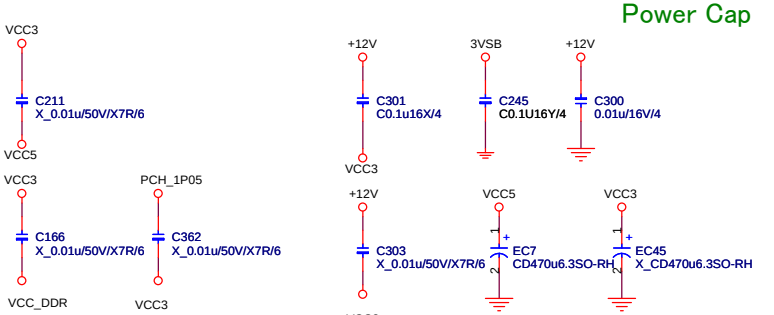
Discharge Circuit



CPUVtt & PCH VCore wait 1.8v



Power Cap



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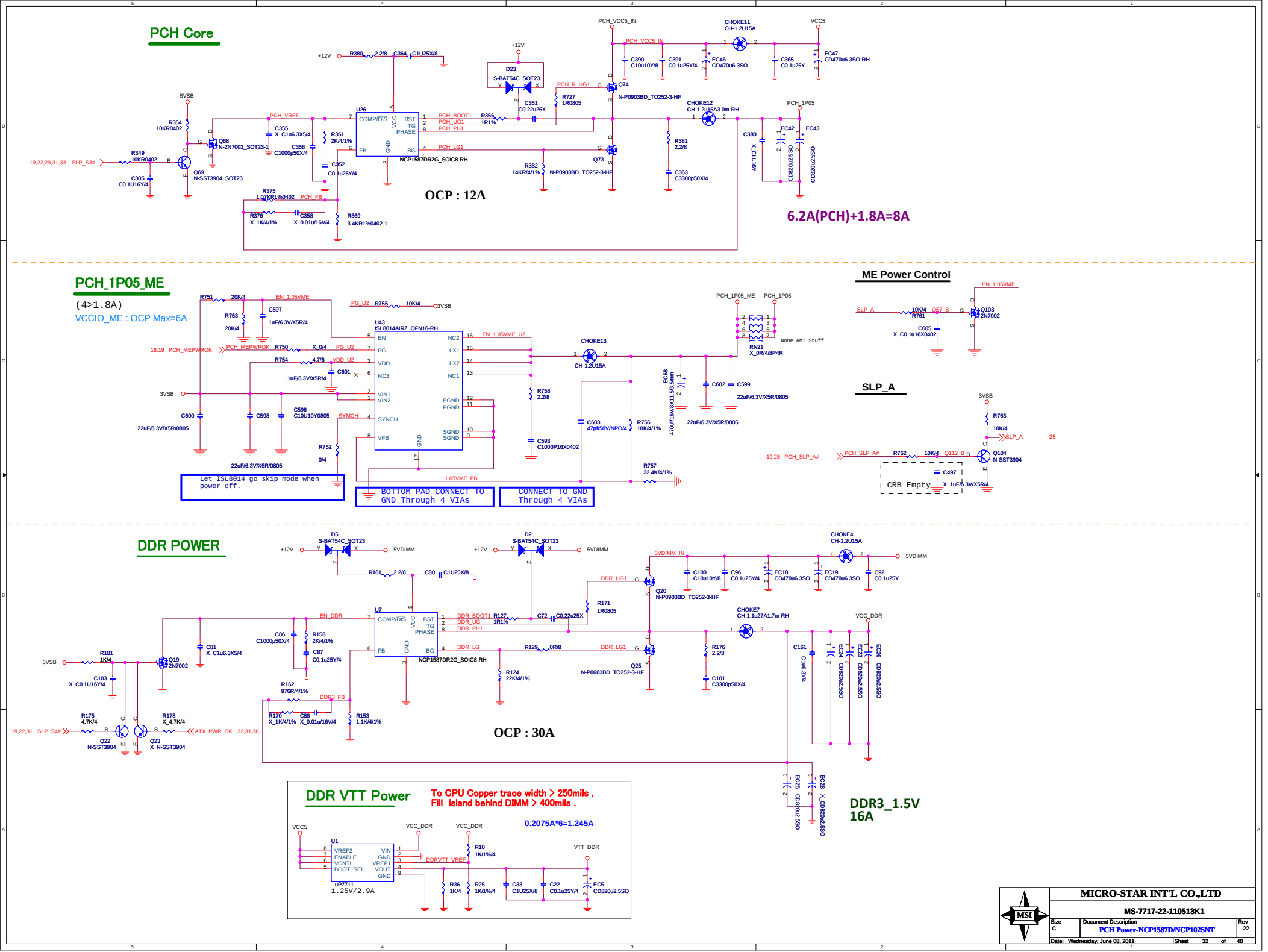

MICRO-STAR INT'L CO.,LTD			
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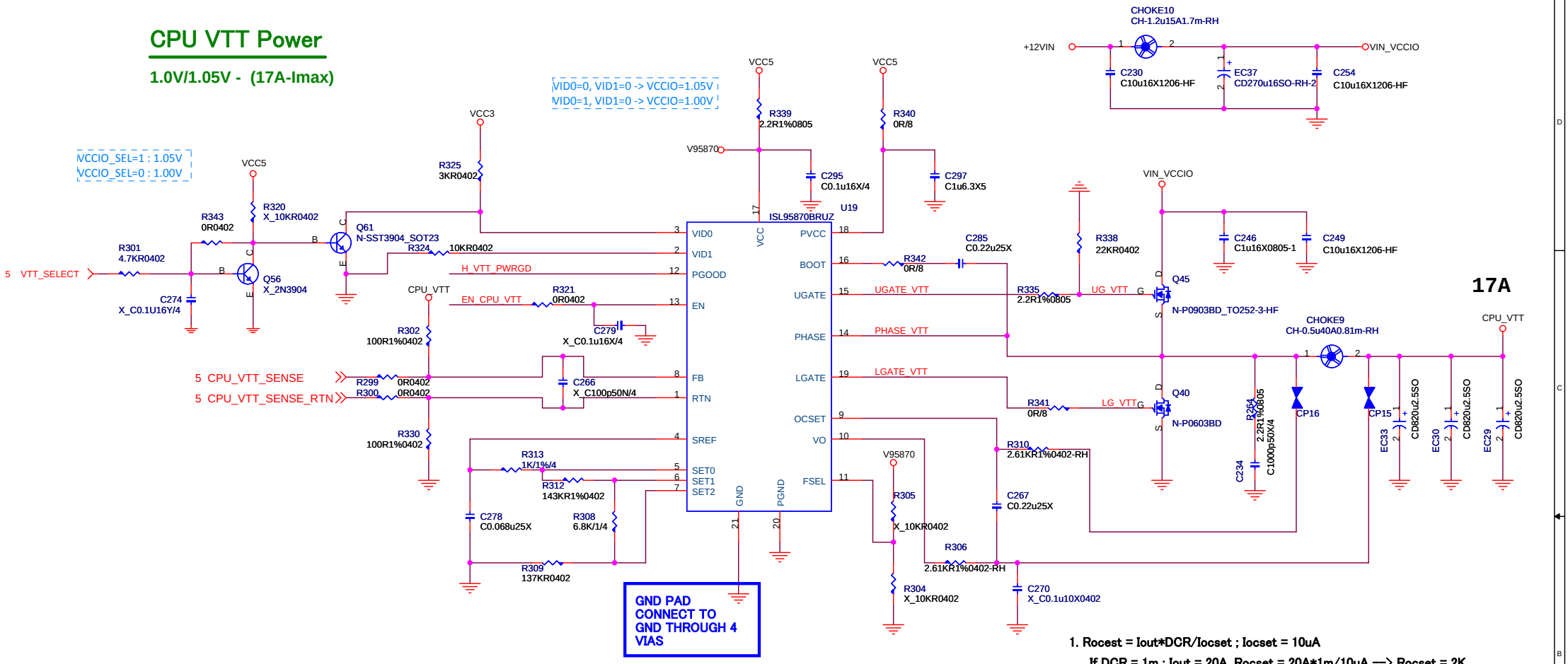
CPU VTT Power

1.0V/1.05V - (17A-Imax)



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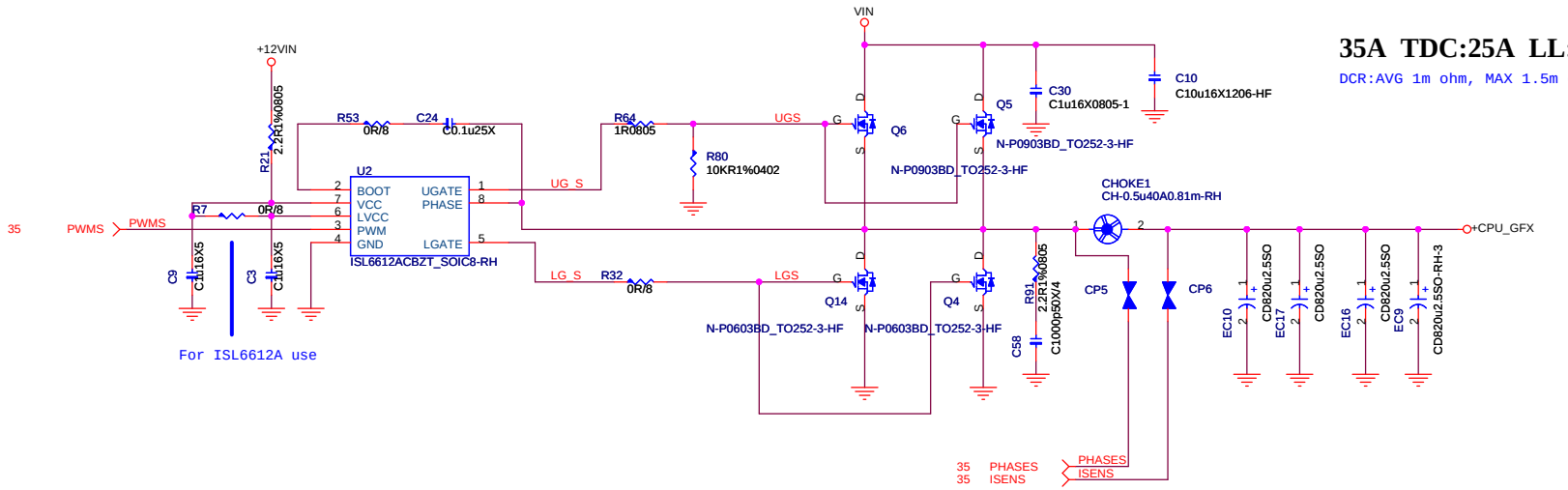
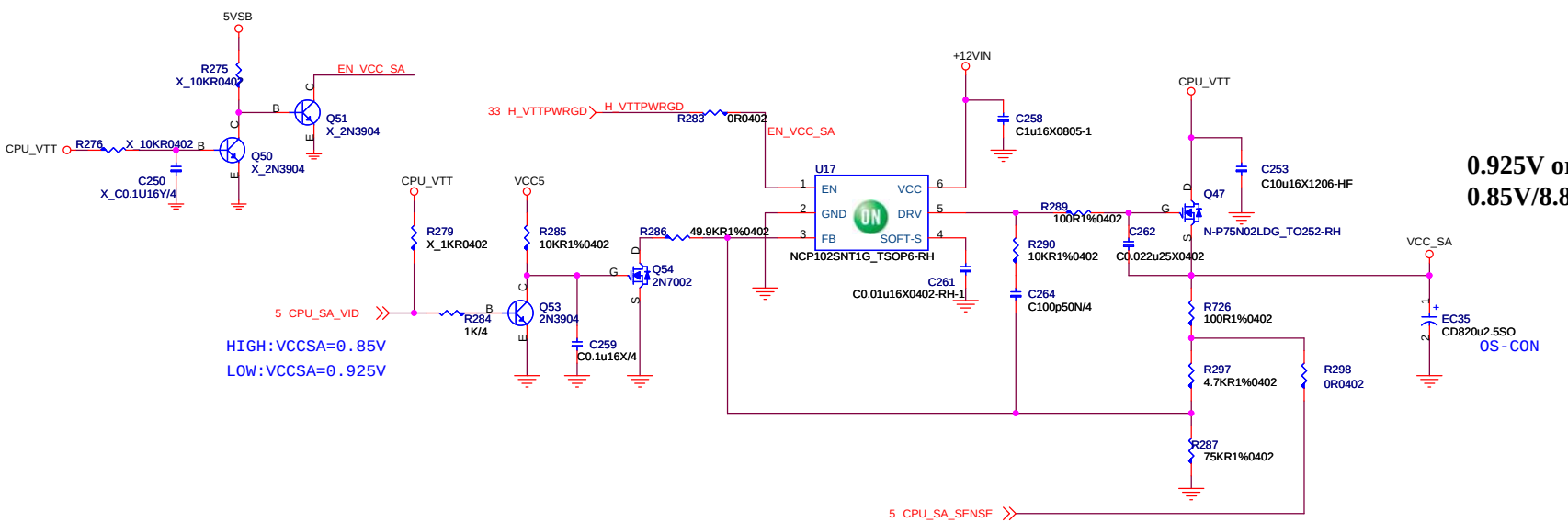
GPU POWER



VCCSA



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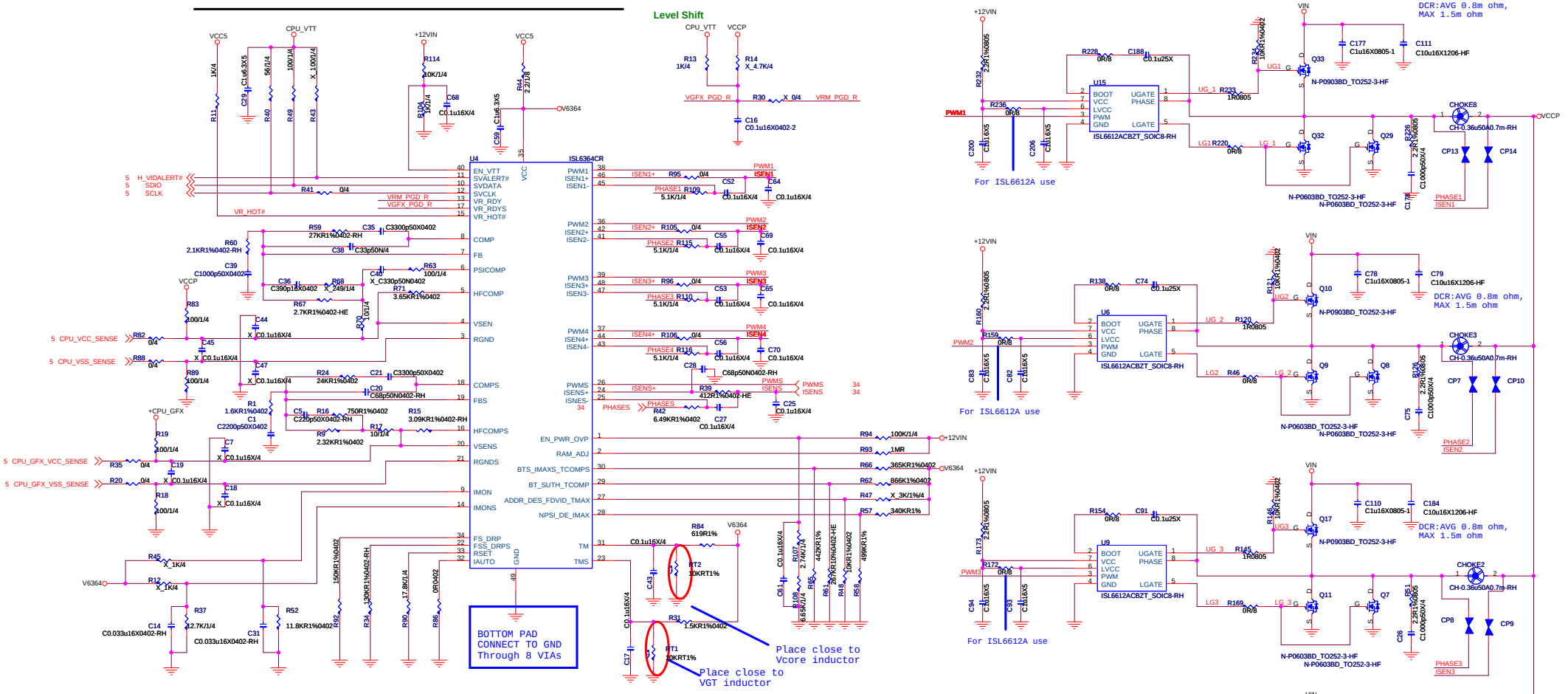
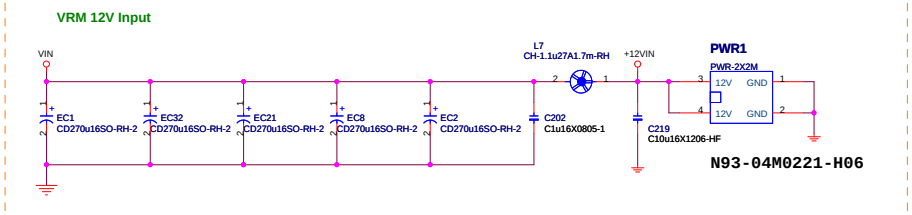
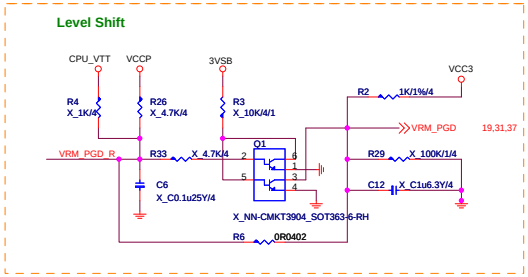
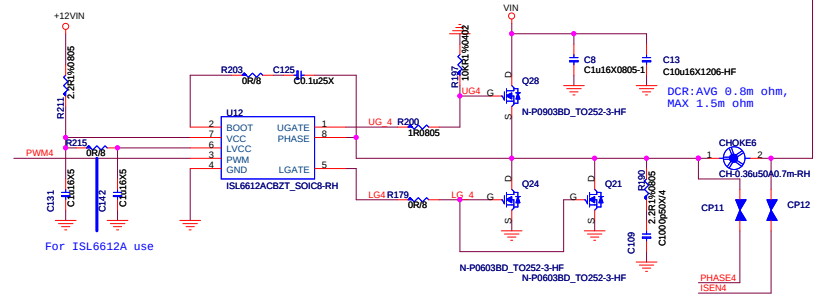
Voltage Regular Module (VRD12)

112A TDC:85A
LL:1.7m
DCR:AVG 0.8m ohm,
MAX 1.5m ohm









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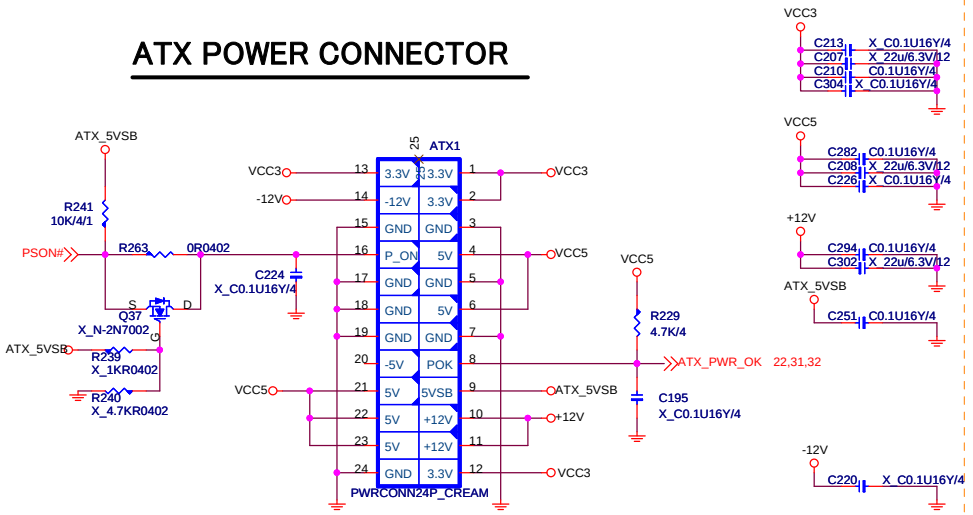
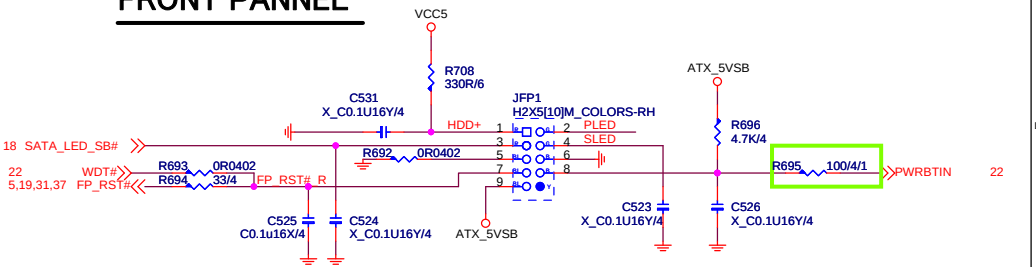
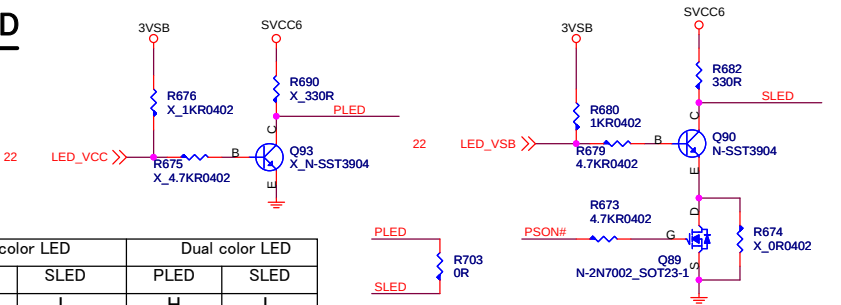
ATX POWER CONNECTOR



FRONT PANNEL

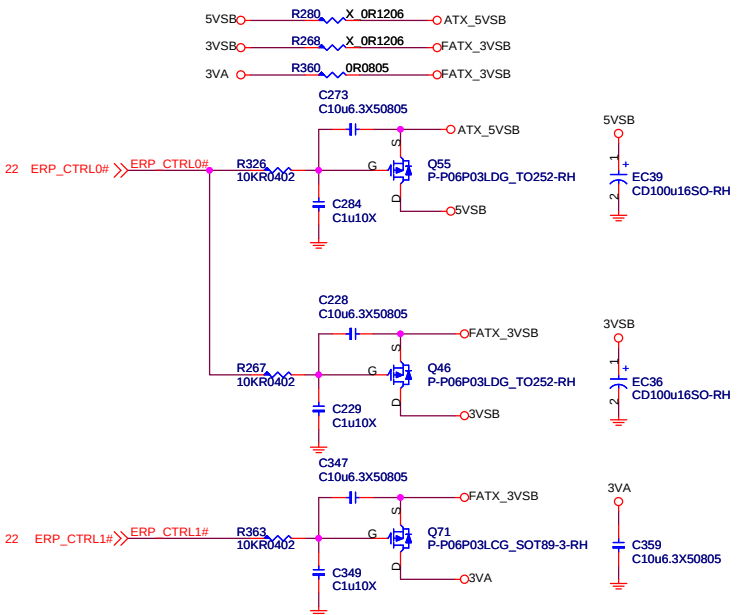


LED

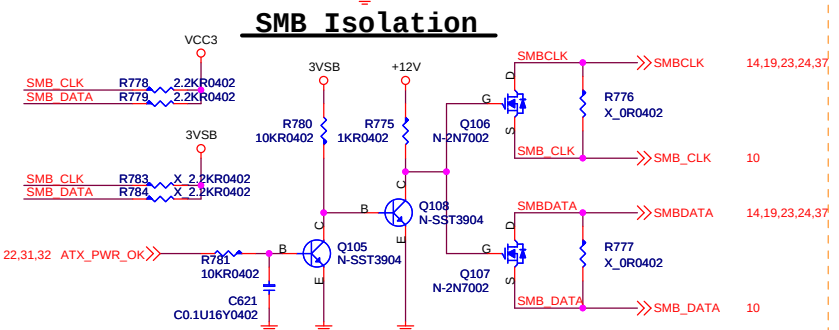


	Single color LED		Dual color LED	
	PLED	SLED	PLED	SLED
S0	H	L	H	L
S1/S3	Blinking	Blinking	L	H
S4/S5	L	L	L	L

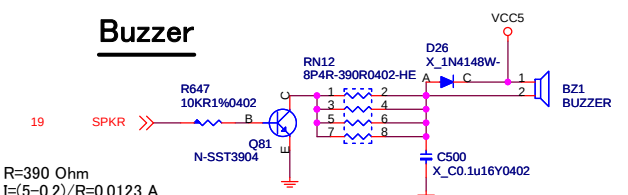
DSW POWER CONTROL



SMB Isolation



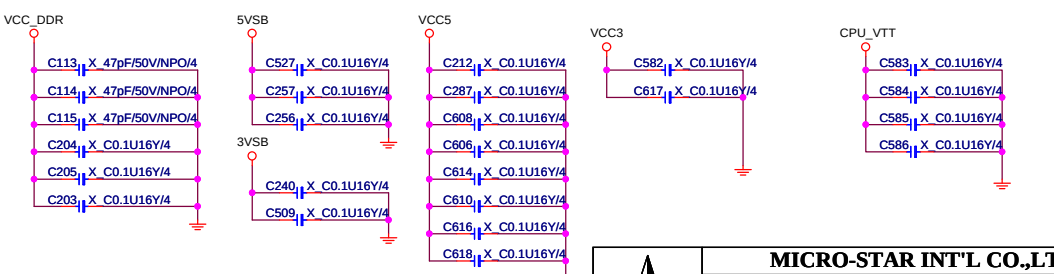
Buzzer



R=390 Ohm
I=(5-0.2)/R=0.0123 A
W=0.0123A x 5v=0.0615W(夠耐電阻)
R=1/16W=0.062W

CP17 X_COPPER

For EMI



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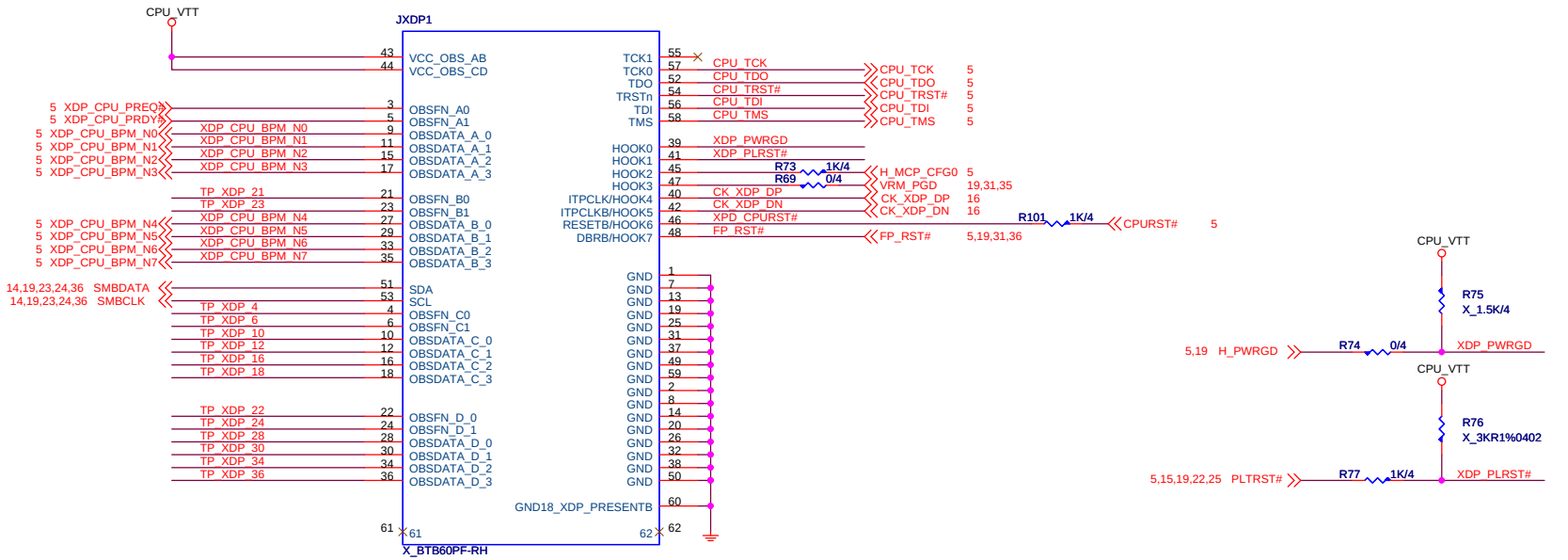
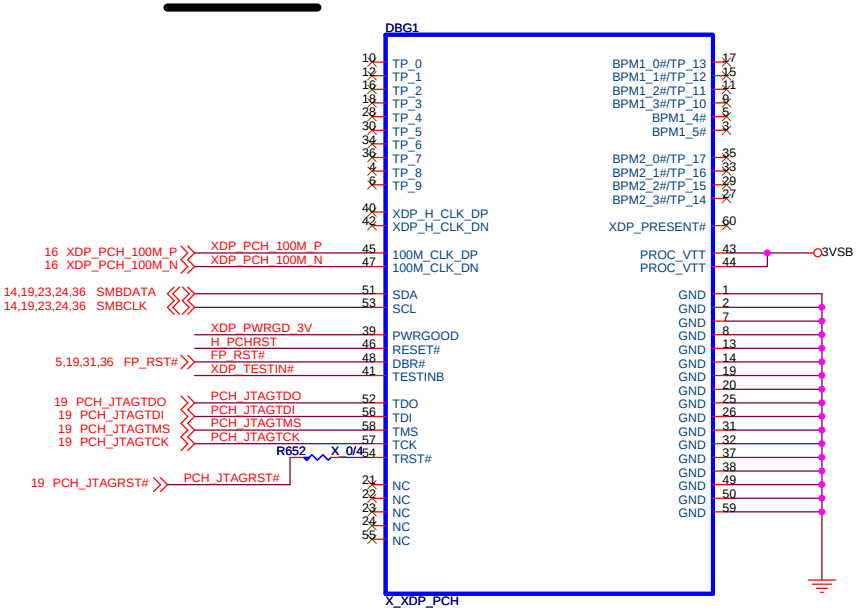
CPU XDP



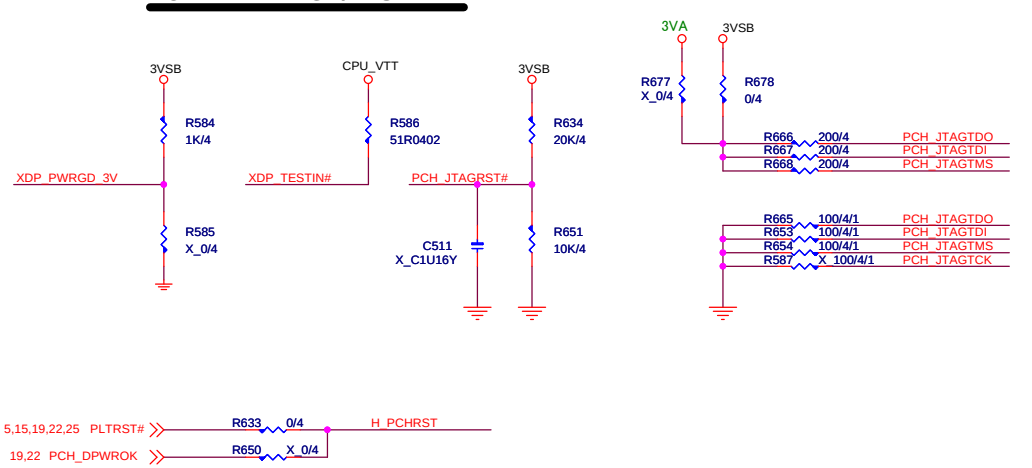
N5C-60F0040-S88

PCH XDP



N5C-60F0040-S88

PCH XDP PWRGD/RESET



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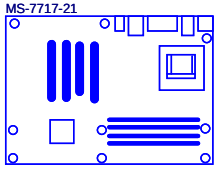
PCB

PCB1
MS-7717-21



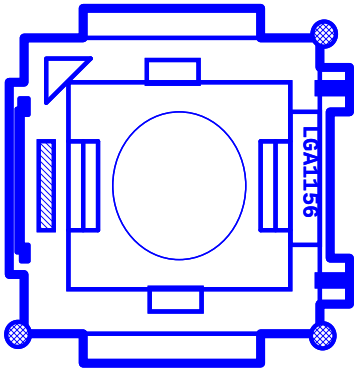
PCB
PN : P30-0771722-G37
AVL : P30-0771722-E36

BAT1_X1

BAT-BCR2032P-RH

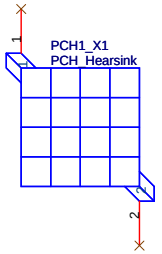
CPU SOCKET

CPU1_X1
CPU SOCKET



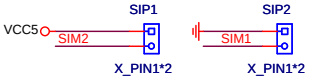
E21-7557050-L06

PCH1_X1
PCH_Hearsink

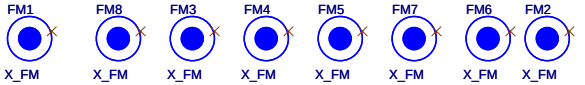


E31-0401634-K08

Simulation

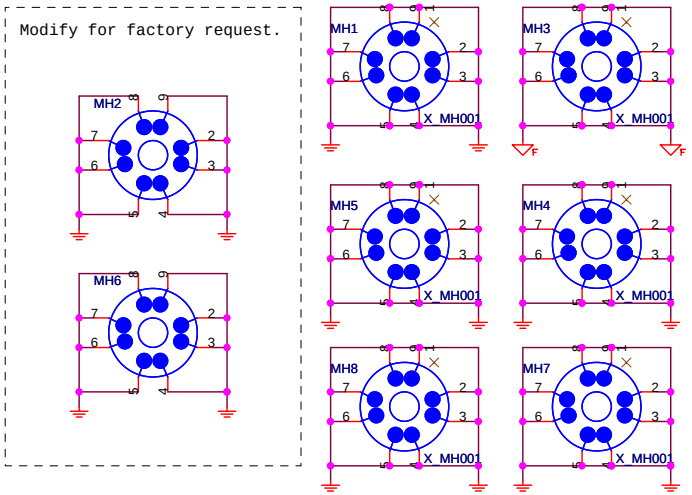


Optical Fiducial Marks-120



Mounting Holes

Modify for factory request.



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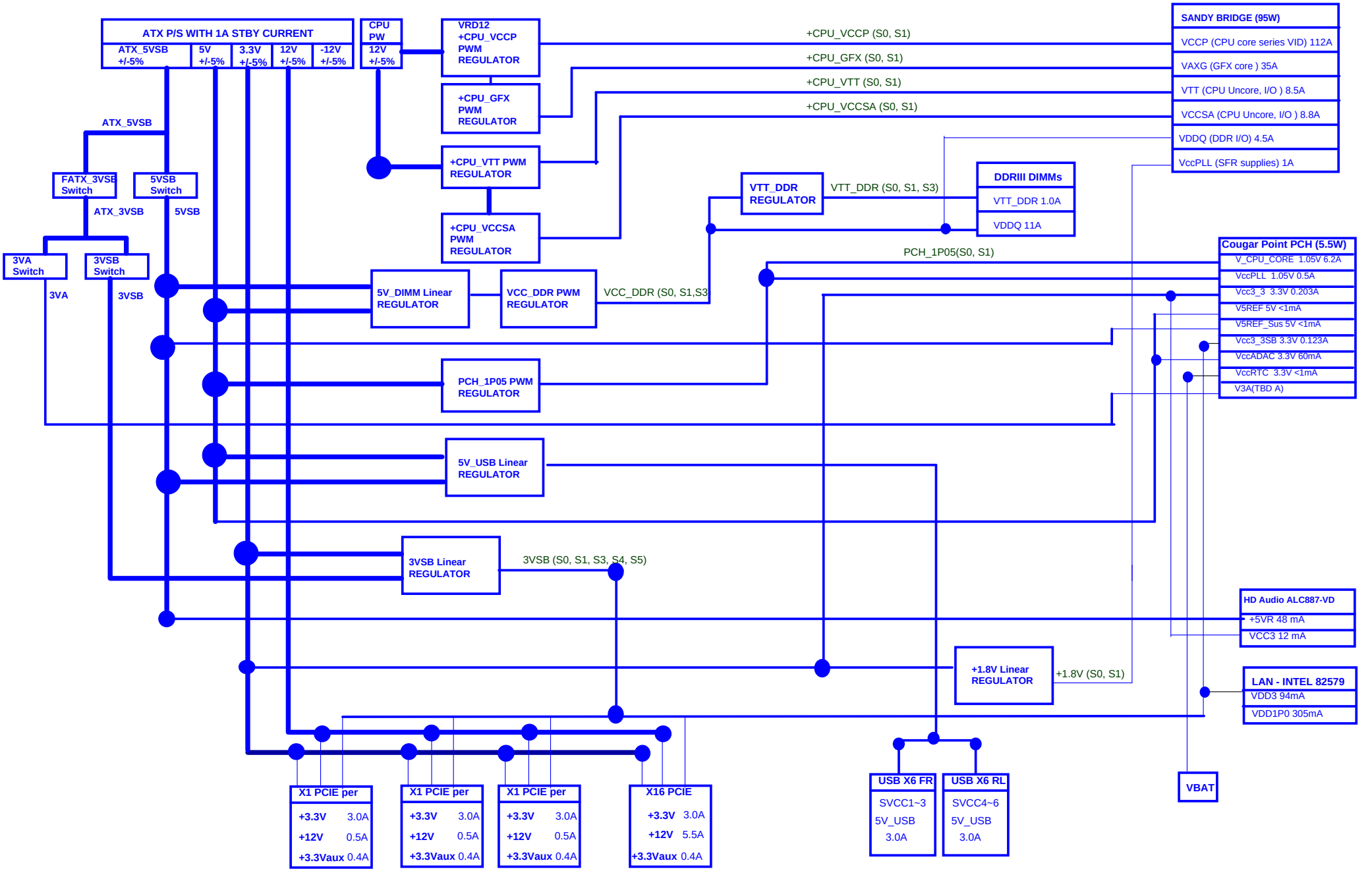

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1.EC63 change to 330uF C71-33102YE-P01 For power solution
2.CHOKE1 change to 0.5uH L04-05A7211-L65 For power solution
3.R42 change to 6.2K Ohm R11-0622T12-W08 For power solution
4.R39 change to 412 Ohm R11-4120T12-W08 For power solution
5.R9 change to 2.05K Ohm R11-2051T12-W08 For power solution
6.R84 change to 2.7K Ohm R11-0272T13-W08 For power solution
7.R92 change to 180K Ohm R11-0184T12-W08 For power solution
8.R34 change to 180K Ohm R11-0184T12-W08 For power solution
9.R67 change to 2.7K Ohm R11-0272T12-W08 For power solution
10.R24 change to 10K Ohm R11-0103T12-W08 For power solution
11.C21 Keep 2.2nF C11-2222022-W08 For power solution
12.C20 change to 68pF C11-6801812-W08 For power solution
13.R15 change to 2.15K Ohm R11-2151T12-W08 For power solution
14.C5 Keep 1nF C11-1022012-W08 For power solution
15.R71 change to 3.65K Ohm R11-3651T12-W08 For power solution
16.C35 change to 3.3nF C11-3322012-W08 For power solution
17.R59 change to 10K Ohm R11-0103T12-W08 For power solution
18.C40 Keep 330pF C11-3311812-W08 For power solution
19.EC9 change to 820uF C71-8210271-N07 For power solution
20.C139 change to 47uF C11-4767224-M09 For power solution
21.C537 change to 47uF C11-4767224-M09 For power solution
22.C538 change to 47uF C11-4767224-M09 For power solution
23.C539 change to 47uF C11-4767224-M09 For power solution
24.C540 change to 47uF C11-4767224-M09 For power solution
25.C541 change to 47uF C11-4767224-M09 For power solution
26.c1 change to 2.2nF C11-2222022-W08 For power solution
27.Add Q100 Q101 R742 R737 R740 for HAD_SDO(JBAT2) jumper change
28.Add R733 R735 Not Stuff R734 R649 C588 for HAD_SDO Reserved
29.Add R728 For U20.G driving pin loading
30.Not Stuff R515 R529 For double pull-up
31.Not Stuff R280,R268 For Deep Sleep
32.Add R730 R732 R739 C587 R729 Not Stuff R501 R731 R510 For Audio jack detection change
33.Not Stuff R692 For Touch switc
34.C105 C106 change to 27pF For made Y1 more close 25MHz
35.R375 change to 1.07k ohm For adjust PCH_1P05 more close 1.05V
36. Add C293 C589 C591 C590For EMI
37.R246 R251 R255 R260 change to180 ohm For EMI
38.Reserve C592 For EMI
39.change PCIE X16 SLOT remove JP1
40.change D7 D8 footprint the same with D9D10
41.Change the power source from ATX_5VSB
42.Add C594 C595 For Rear Mic port circuit
43.Add CP17 For EMI
44. R65 change to 442k Ohm For power solution
45. R66 change to 365k Ohm For power solution
46. R31 change to 1.5k Ohm For power solution
47. RT1 change to 10k Ohm For power solution
48. R92 change to 150k Ohm For power solution
49. R34 change to 130k Ohm For power solution
50. R42 change to 7.5k Ohm For power solution
51. R9 change to 2.32k Ohm For power solution
52. R24 change to 34.8k Ohm For power solution
53. R93 change to 1m Ohm For power solution
54. R59 change to 27k Ohm For power solution
55. C20 change to 33pF For power solution
56. C21 change to 3.3nF For power solution
57. C149 change to 47uF For power solution
58. C40 change to NC For power solution
59. R15 change to NC For power solution
60. Add R343 and Q61 change to 3904 Reserve R320.Q56 For power solution
61. PCIE _E1 Chang Footprint to SLOT_PCIEXP164_3
62. 3VDual Disable circuit Q76,Q77,R463,R464,R465 change to reserve
63. R740 pull to VCC5,R738 pull to 5VSB
64. Add D32 ,C4 ,CP18 For EMI
65 R246 R251 R255 R260 change to 330ohm
66 Add PECI sot 3VSB CAP EC64 R741 page 23
67.REmove CP18 For EMI requests
68.R84 change to 2k Ohm For power solution
69.R67 change to 3.3k Ohm For power solution

V10 Modify List:

1. R15 Change to 3.09k Ohm P/N: R11-3091T12-W08 For power solution
2. R16 Change to 750 Ohm P/N: R11-0751T12-R01 For power solution
3. R24 Change to 24K Ohm P/N: R11-0243T12-W08 For power solution
4. R42 Change to 6.49K Ohm P/N: R11-6491T12-W08 For power solution
5. R52 Change to 11.8K Ohm P/N: R11-1182T12-W08 For power solution
6. R61 Change to 267K Ohm P/N: R11-2673T12-Y01 For power solution
7. R62 Change to 866KOhm P/N: R11-8663T12-W08 For power solution
8. R67 Change to 2.7k Ohm P/N: R11-0272T12-W08 For power solution
9. R84 Change to 619Ohm P/N: R11-6190T12-W08 For power solution
10. R86 Change to 0 Ohm P/N: R11-0000012-W08 For power solution
11. RT2 Change to 10K Ohm P/N: R51-0103T13-M05 For power solution
12. C5? Change to 220 pF P/N: C11-2212812-W08 For power solution
13. C16 Change to 0.1 uF P/N: C11-1047512-W08 For power solution
14. C20 Change to 68 pF P/N: C11-6801812-W08 For power solution
15. R68 Remov For power solution
16. C247 Remove For D-sub SA
17. C248 Remove For D-sub SA

2.0 Modify List:

1. 2011 01 20 Modify and Add the power item for ME power Page.32
2. 2011 01 20 Add TPM function Page.32
3. 2011 01 20 Add the PCI Slot Page.24 (The layout trace spacing is 4/4/5 and impact the PCI trace law in Design Guide (4/5/5) because the spacing is not enough in MB after add PCI function.)
4. 2011 01 20 Add the parallel pin header Page.24
5. 2011 01 21 Add EMI reservr CAP C606,C614,C610,C616,C608
6. 2011 01 24 Modify the R749 from 100ohm to 300ohm
7. 2011 01 25 Modify the C607,C609 value from 12p to 15p
8. 2011 01 26 Add EMI requirement the C617,C618 value 104p

2.1 Modify List:

1. 2011 03 08 Modify value R255.R251.R246.R260 from 330ohm to 390ohm
2. 2011 03 08 Add Q102,R759,C604 and unload R850 for ME +3.3V_ME power
3. 2011 03 12 Add R772 and resever C620,619 for LAN power

2.2 Modify List:

1. 2011 05 18 Add solution for ME MOff wakeup issue.
Add Part :Q106,Q107,Q105,Q108,R775,R773,R774,R778,R779,R780,R781,C621
Remove Part: R642,R659
2. 2011 05 18 Modify LAN Voltage schematic
Modify Part : R772 from 10k to 0 ohm; R214 from 4.7k to 15k ohm
3. 2011 05 20 Stuff R551 for support ME function.
4. 2011 05 20 Use R782 to Cut of SPI_WP# reference CRB design.
Reserve GPIO32(SPI_WP#) pull-high to VCC3 with R786
5. 2011 05 20 Reserve PCI_PME# pull-high to 3VSB
6. 2011 05 20 Reserve GPIO33(SPI_HOLD_GPO#) pull-high to VCC3 with R787
7. 2011 05 20 Change the SATA2 connector color from RED to BLUE.
Change the SATA3 color from BLUE to Orange.

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