MS-7C26

Version : 1.0

CPU :

AMD AM4

System Chipset :

AMD PROMONTORY

On Board Chipset :

Intersil 6377HRZ 6Phase
Gigabit LAN -- RTL8111GN/RTL8111EPV
HDA Codec -- Realtek ALC662VD
Super I/O ---IT8738E
SPI Flash 256Mb

Main Memory :

2 Channel DDR 4 * 4 (Max 64GB)

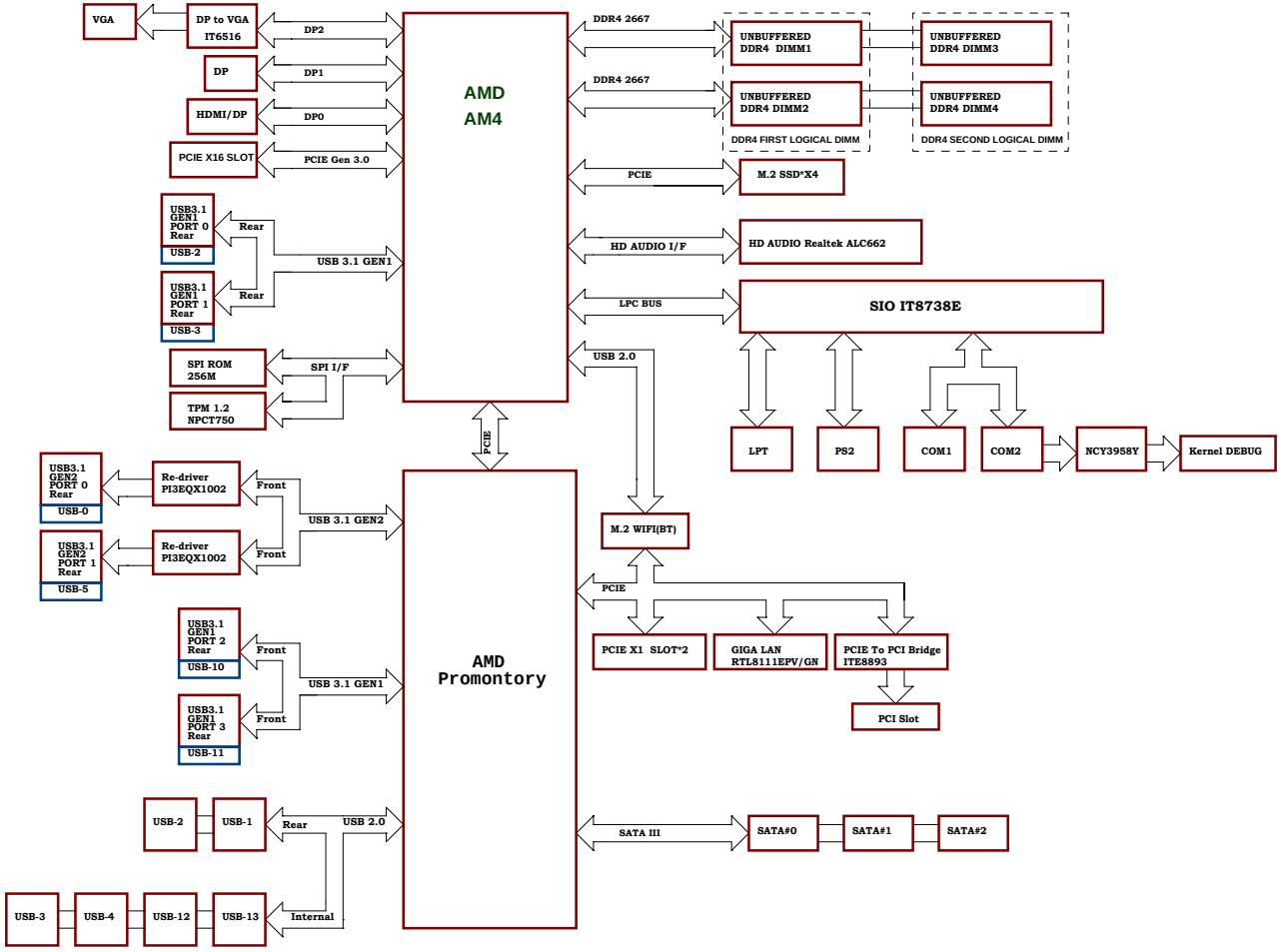
Expansion Slot :

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

lenovo

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

Title	Cover Sheet	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 1 of 47	



Slot Sequence:

- PCIE X16
- PCIE X1
- PCIE X1
- PCI

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

Title: **Block Diagram**

Size	Document Number	Rev
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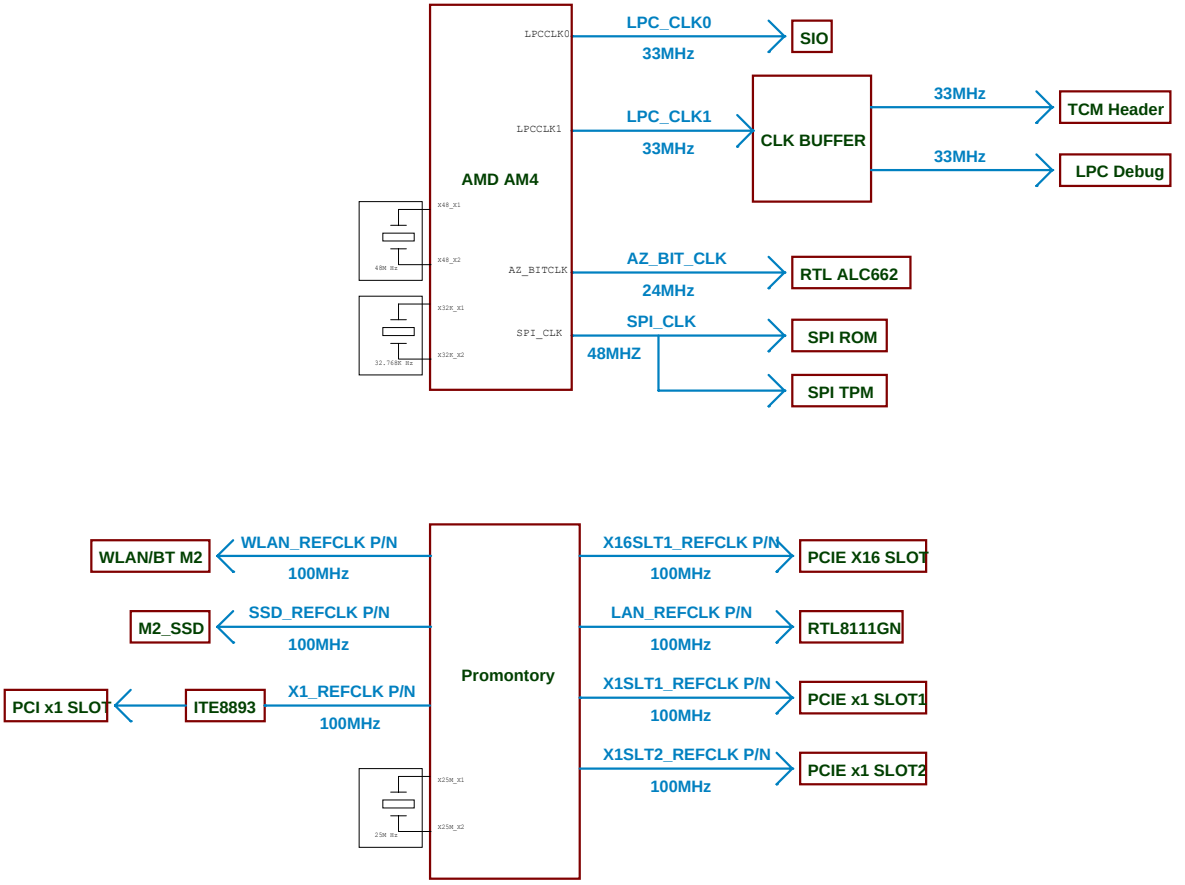

MICRO-START INTL CO.,LTD.

Title: Clock Distribution

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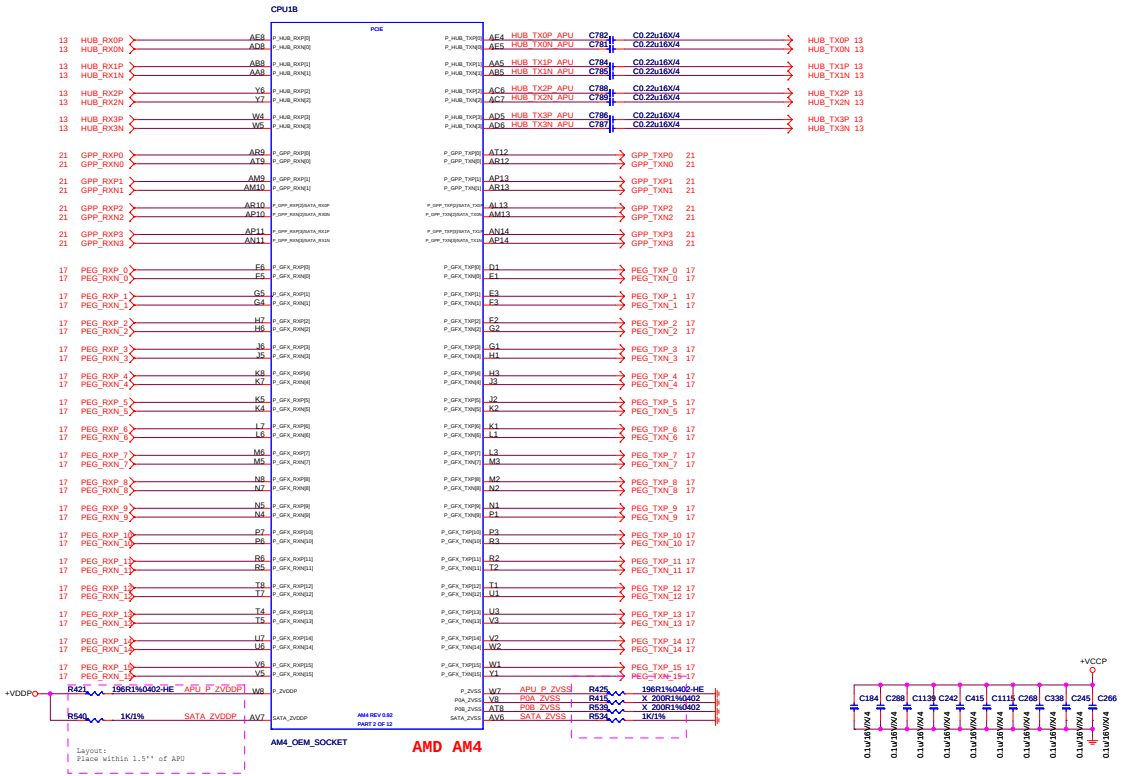
AM4 PCIE I/F

PCIe 3.0
Allowable Range: 176 to 265 nF
Recommended Value: 220 nF



MICRO-START INT'L CO.,LTD.			
Title: CPU-Memory			
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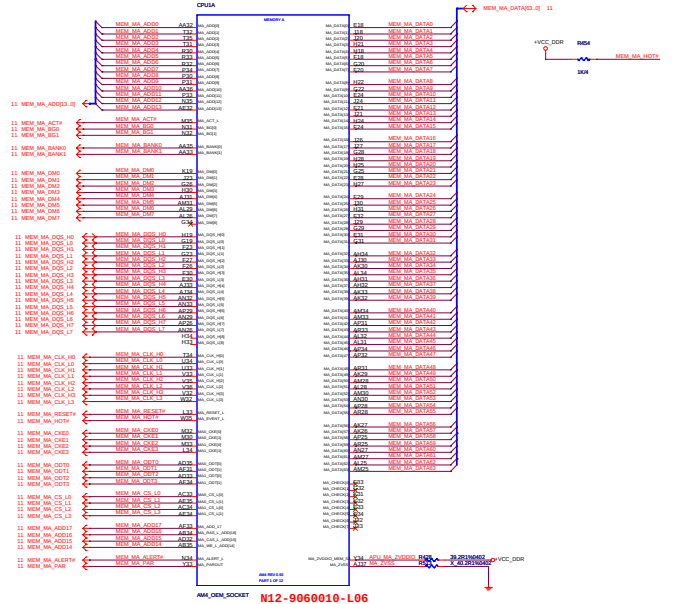
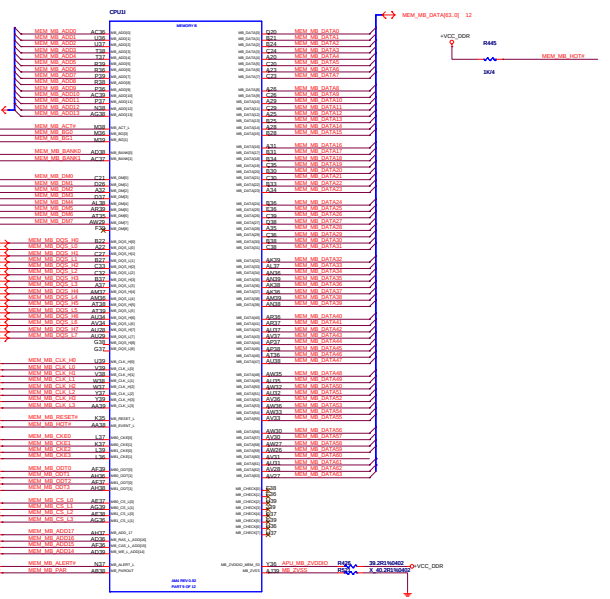
AM4 DDR4 I/F(A)



AM4 DDR4 I/F(B)



MSI	MICRO-START INTL CO.,LTD.		
Title	CPU-Memory		
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AM4 DISPLAY /MSIC

PULL UP

VID OVERRIDE CIRCUIT

HDT+ Connector

WARM RESET

AMD AM4

	CORETYPE 1	Function	PIN4
Type 0	0	S2 Connected to D	Pull high to +1.8V
Type 2	1	S1 Connected to D	Pull high to +VCC3V3
Type 3	1	S1 Connected to D	Pull high to +VCC3V3

CORETYPE1	CORETYPE0	Family/Model Numbers	AM4 Processor Type
0	0	Family 15h/Models 60h-6Fh	Type 0 Bristol
0	1	Reserved	Type 1
1	0	Family 17h/Models 00h-0Fh	Type 2 Summit
1	1	Family 17h/Models 10h-1Fh	Type 3 Raven

CORETYPE to Model Number Mapping

CORETYPE DEFINITION	
BR	00
ST	10
SP	10
RV	11

20170119 AMD checklist update all apu HDT_PWR always to 1V8_S5

BR 0 RTC_CLK_PU=+1.8v

SP/RV/ST 1 RTC_CLK_PU=+1V8_S5

Title	CPU-Memory
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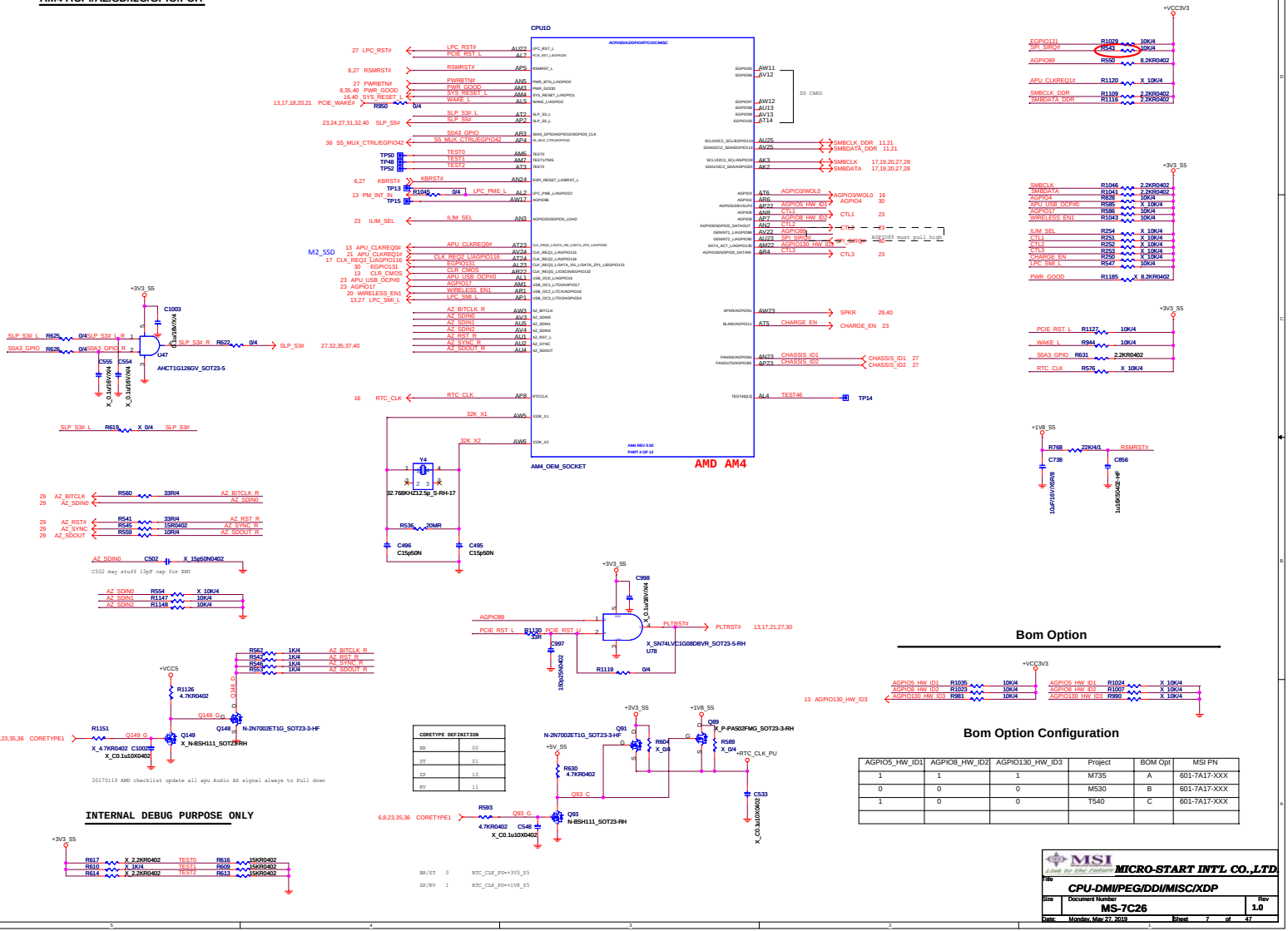
MICRO-START INT'L CO.,LTD.

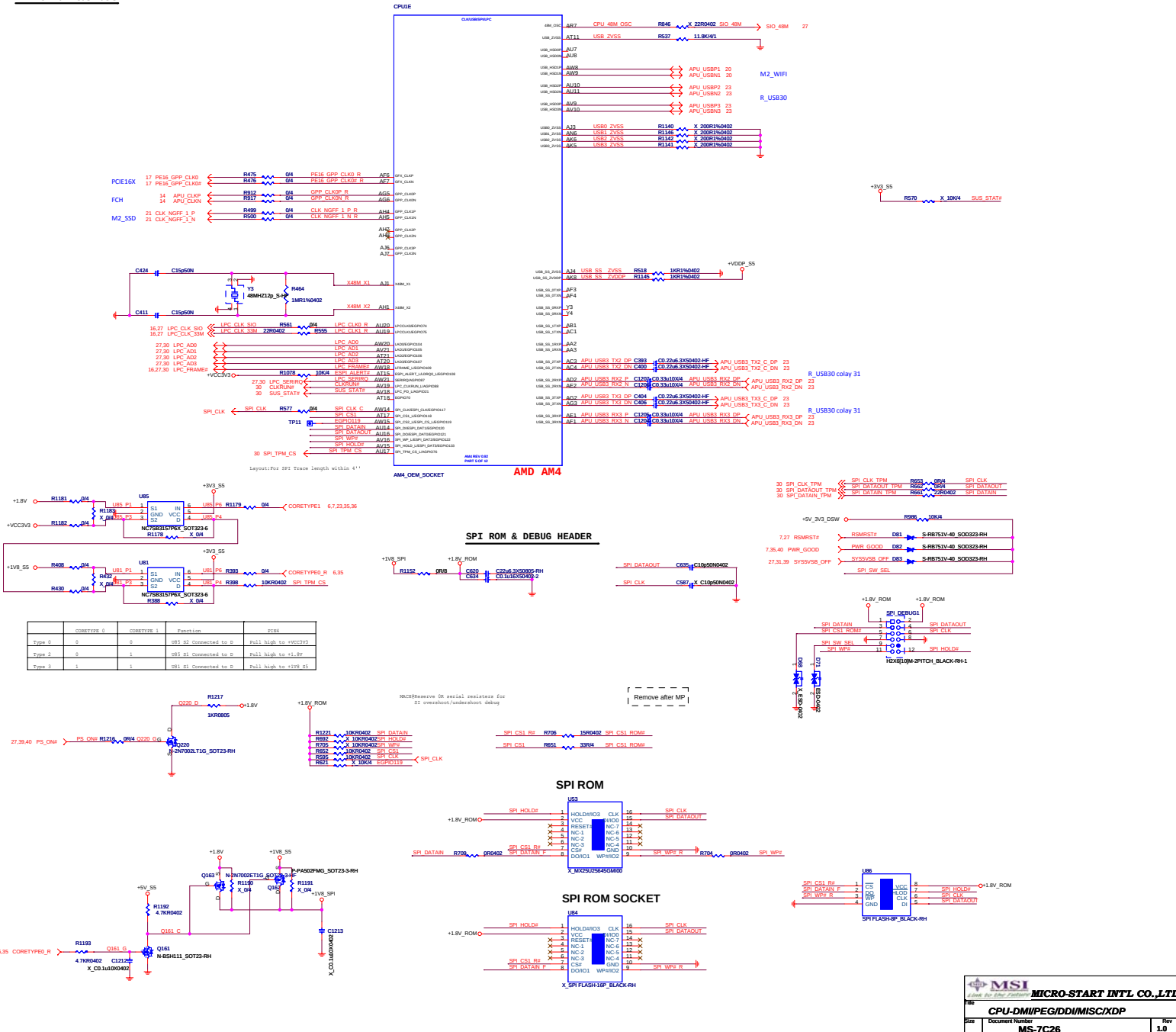
AM4 ACPI/AZ/SD/I2C/GPIO/FCH

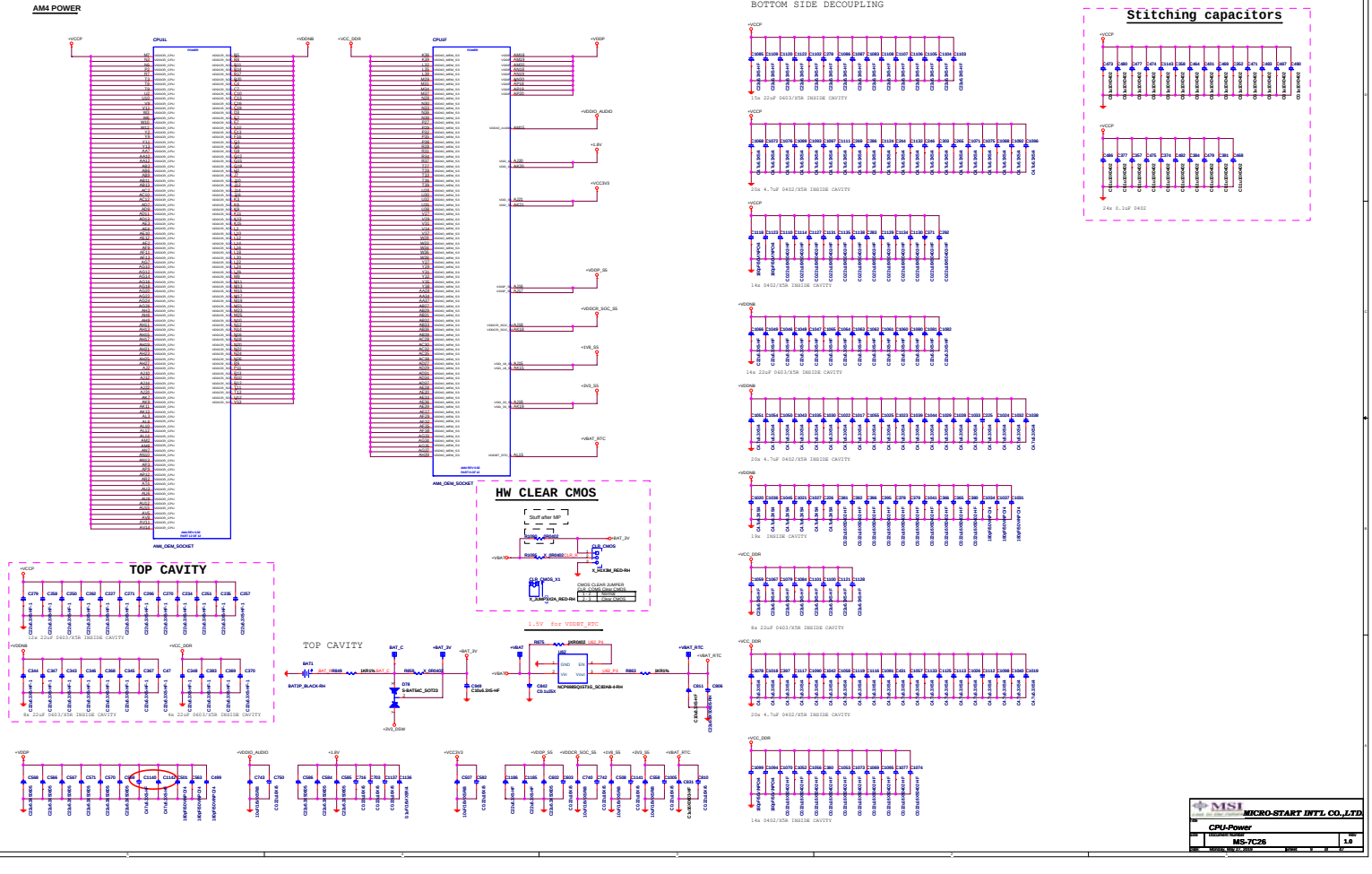


Bom Option Configuration

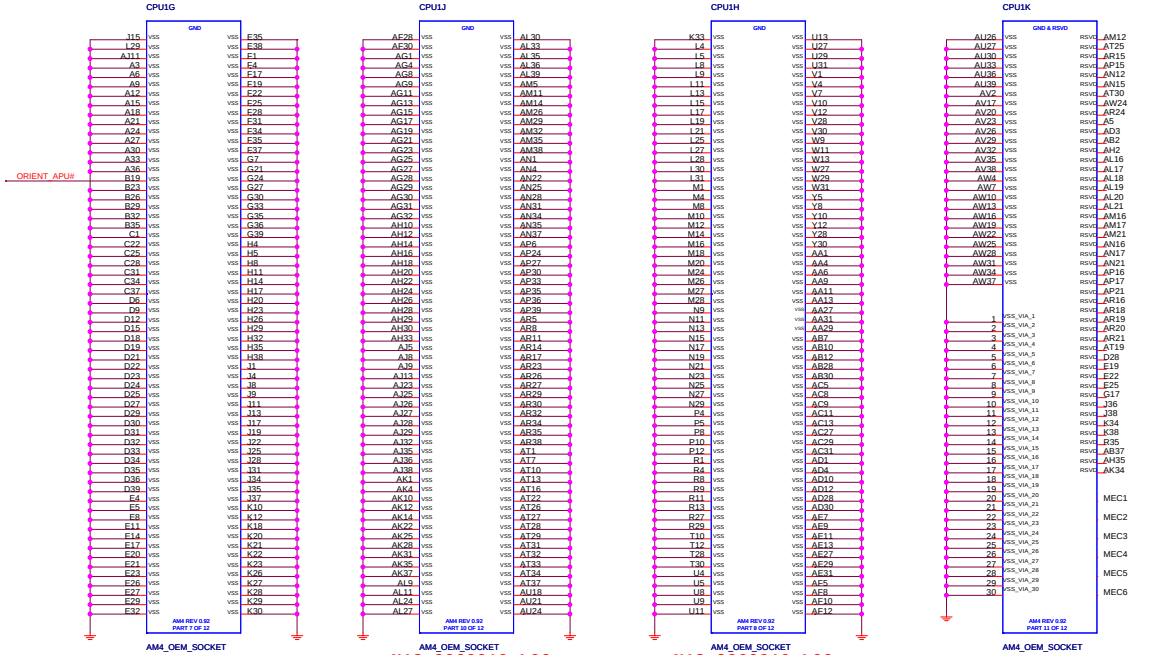
AGPIO5_HW_ID1	AGPIO8_HW_ID2	AGPIO130_HW_ID3	Project	BOM Opt	MSI PN
1	1	1	M735	A	601-7A17-XXX
0	0	0	M530	B	601-7A17-XXX
1	0	0	T540	C	601-7A17-XXX

AM4 CLK/LPC/SPI/USB




AM4 POWER
BOTTOM SIDE DECOUPLING
Stitching capacitors
15x 22uF 0603/X5R INSIDE CAVITY
20x 4.7uF 0402/X5R INSIDE CAVITY
24x 0.1uF 0402
14x 0402/X5R INSIDE CAVITY
14x 22uF 0603/X5R INSIDE CAVITY
20x 4.7uF 0402/X5R INSIDE CAVITY
19x INSIDE CAVITY
8x 22uF 0603/X5R INSIDE CAVITY
20x 4.7uF 0402/X5R INSIDE CAVITY
14x 0402/X5R INSIDE CAVITY
HW CLEAR CMOS
Dsuff after MP
CLR_CMOS
X_RX38_5ED-RH
CLR_CMOS_X3
X_CLRPCH_RED-RH
CMOS CLEAR JUMPER
Pin 1-2 Normal (Default)
Pin 2-3 Clear CMOS
TOP CAVITY
1.5V for VDDIT_RTC
AM4_OEM_SOCKET
MICRO-START INT'L CO.,LTD.
CPU-Power
MS-7C26
1.0

AM4 GND

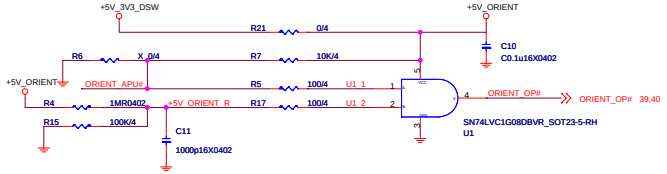


N12-9060010-L06

N12-9060010-L06

N12-9060010-L06

N12-9060010-L06



MSI Link to the Future MICRO-START INT'L CO.,LTD.		
Title: CPU-GND		
Size	Document Number: MS-7C26	Rev: 1.0
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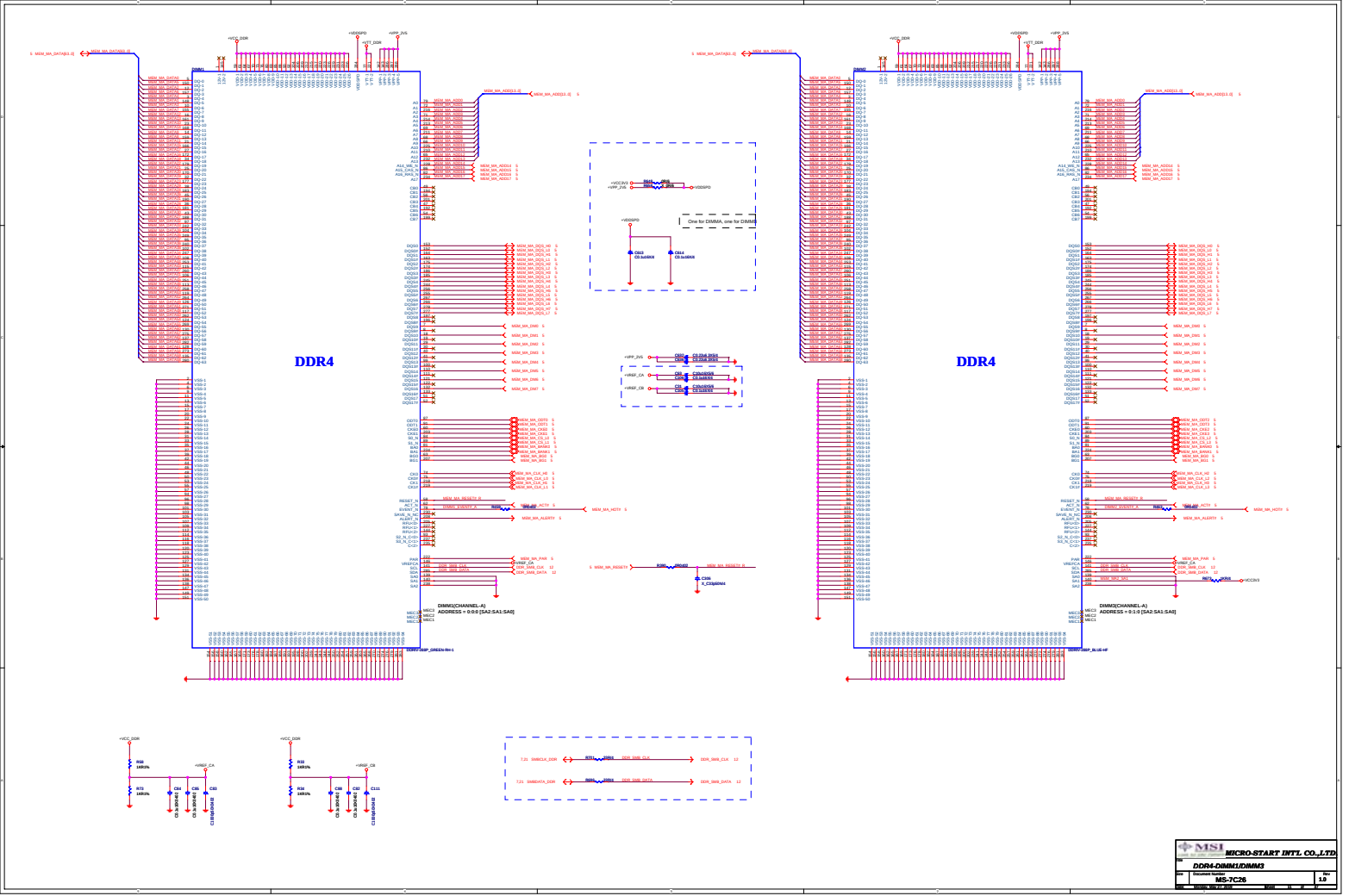
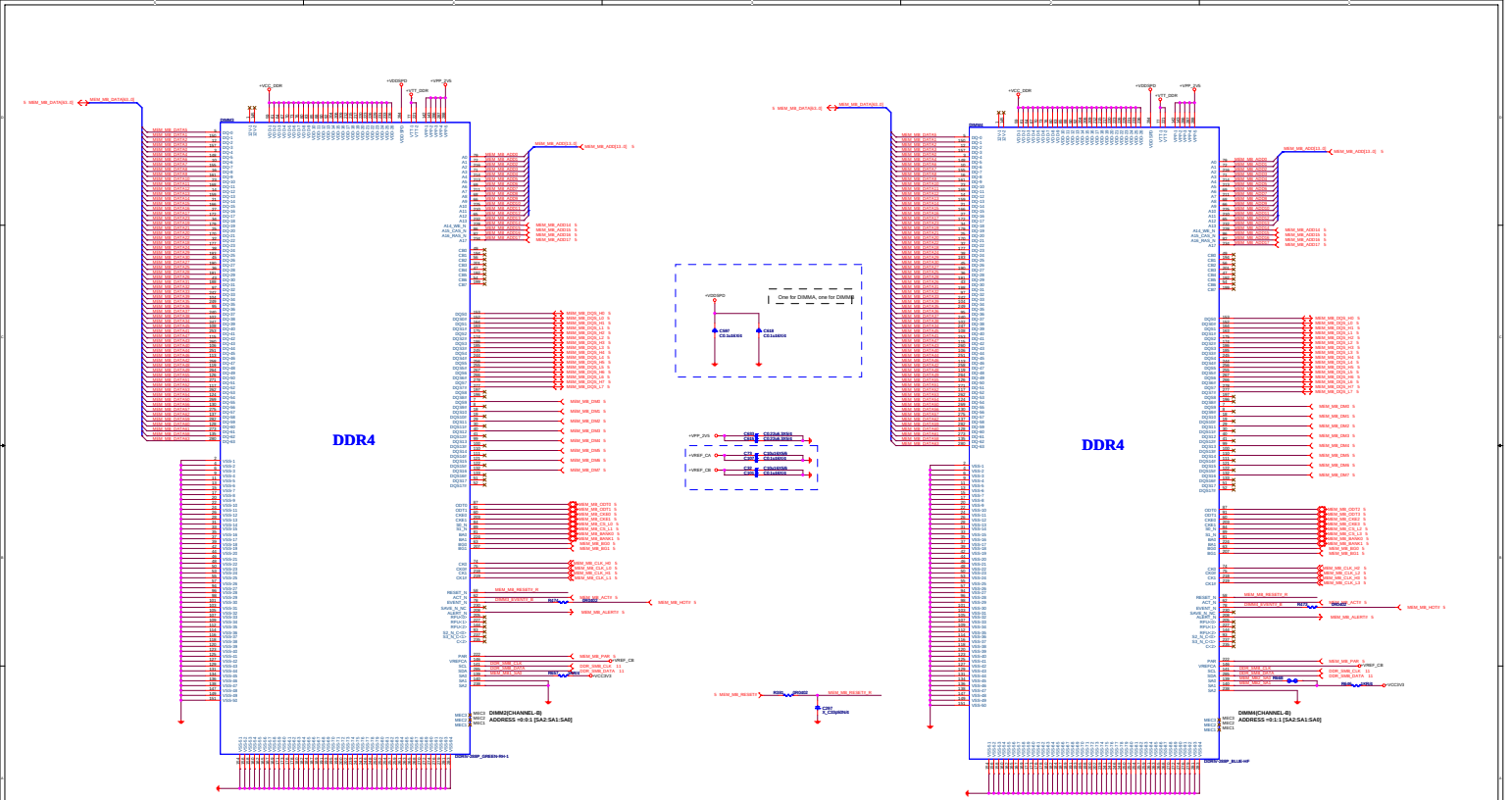
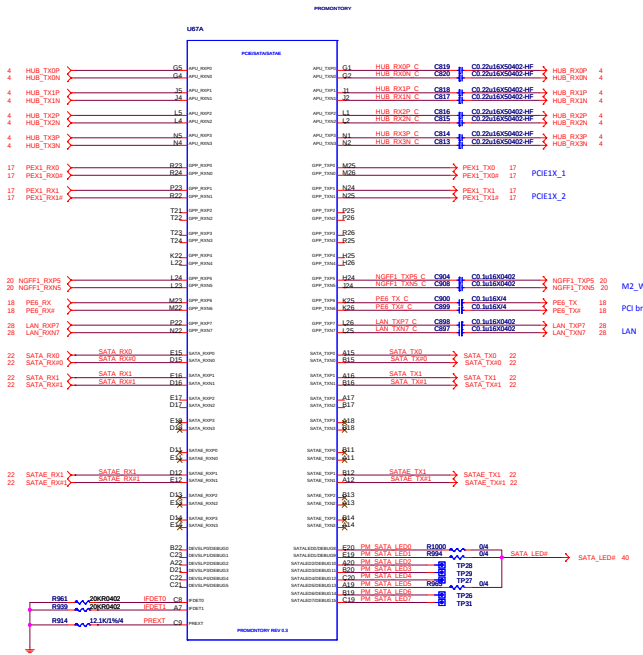
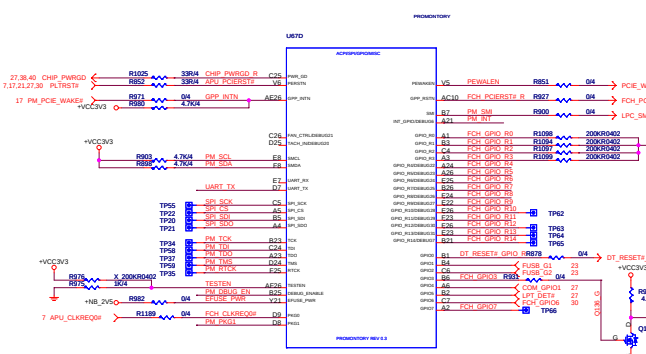

DDR4
DDR4
DIMM1(CHANNEL-A)
ADDRESS = 0:0:0 [SA2-SA1-SA0]
DIMM3(CHANNEL-A)
ADDRESS = 0:1:0 [SA2-SA1-SA0]
One for DIMM4, one for DIMM3
MICRO-START INTL CO.,LTD
DDR4-DIMM1/DIMM3
MS-7C26
1.0

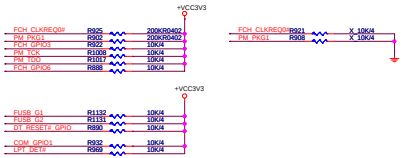


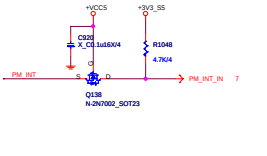
MSI
MICRO-START INT'L CO.,LTD
DDR4-DIMM2/DIMM4
MS-7C26
1.0

PROMONTORY PCIe/SATA/GPIO

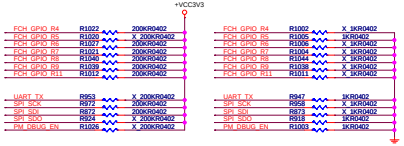




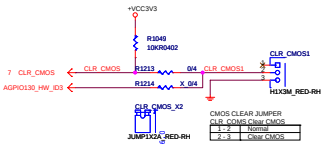




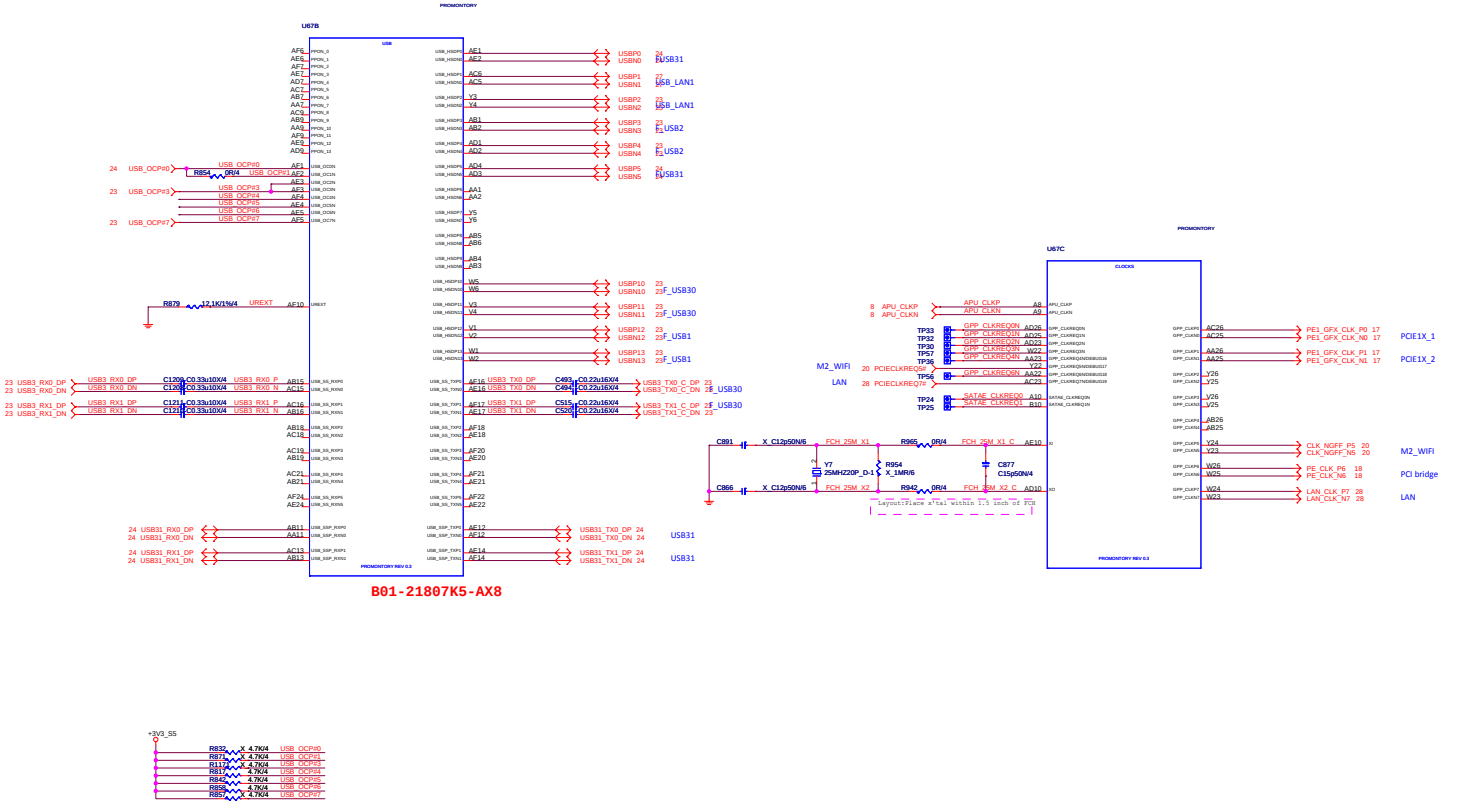
STRAPS PIN



CLEAR CMOS



PROMONTORY USB/CLOCK



B01-21807K5-AX8

MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	PCH-Clock/LPC/FAN/SPI/PECI		
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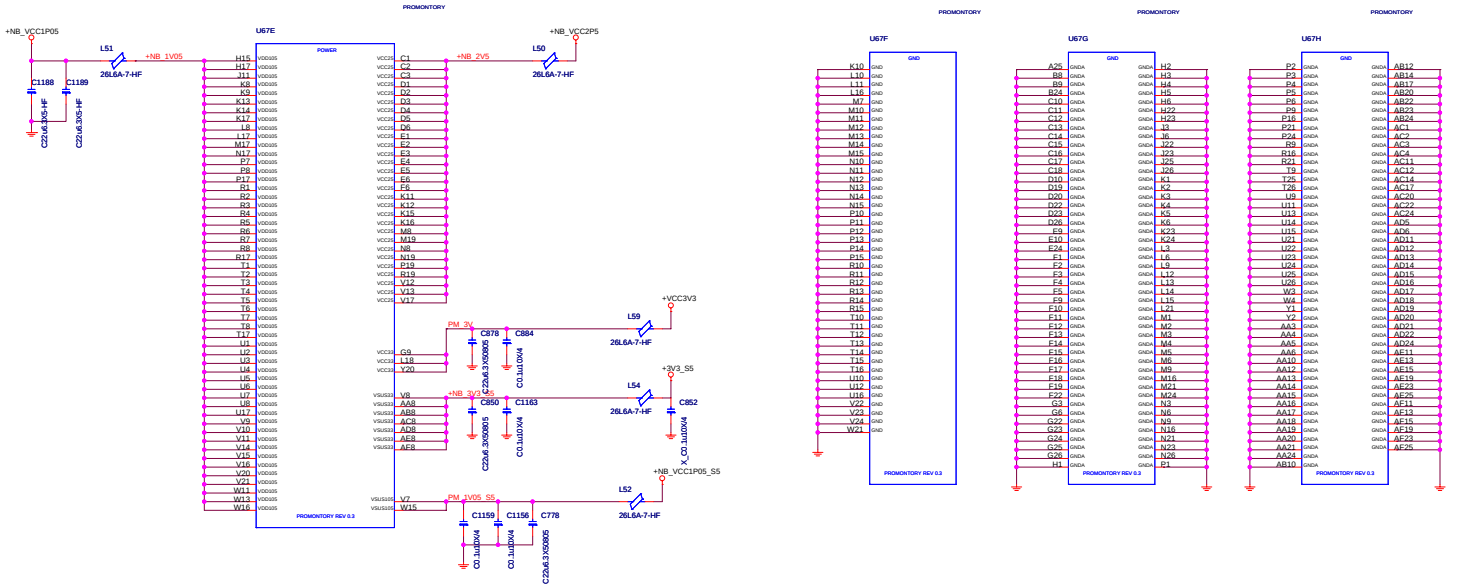
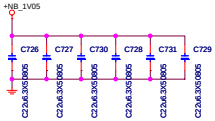
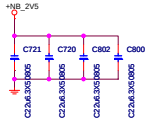
PROMONTORY POWER

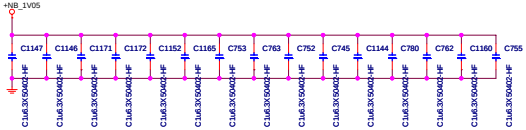


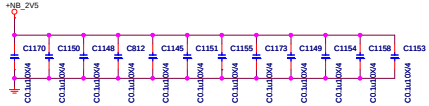


6x 22uF 0805/X5R

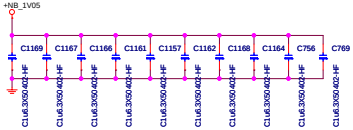


4x 22uF 0603/X5R





300 Series:12x 0.1uF 0402
400 Series:12x 1uF 0402



25x 1uF 0402

MSI Link for the Future	MICRO-START INT'L CO.,LTD.	
Title: PCH-Power		
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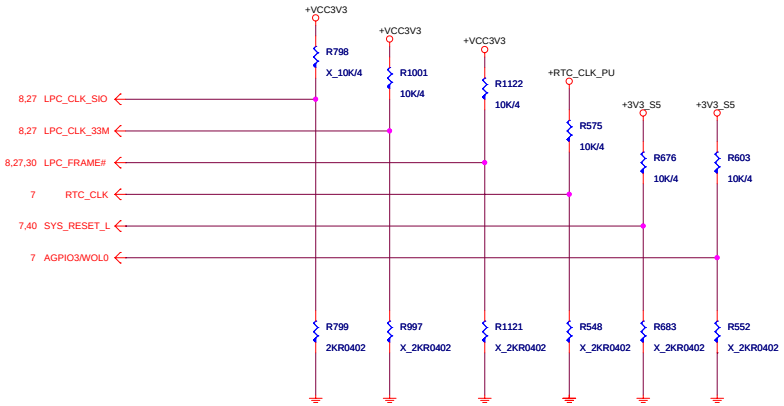
REQUIRED STRAPS



	LPC_CLK0	LPC_CLK1	AGPIO3	RTC_CLK	LFRAME_L	SYS_RST#	SPI CLK (ZP)
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)	Enhanced reset logic (for quicker S5 S5 resume) (DEFAULT)	Coin battery is on board. (DEFAULT)	SPI ROM (DEFAULT)	normal reset mode (DEFAULT)	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)
PULL LOW	BOOT FAIL TIMER DISABLED (DEFAULT)	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	Default to traditional reset logic	Coin battery is not on board.	LPC ROM	short reset mode	Use 100Mhz PCIE clock as reference clock and generate internal clocks only
	CZ/ST DIE ONLY						ZP DIE ONLY

MICRO-START INTL CO.,LTD.

Title: PCH-GND

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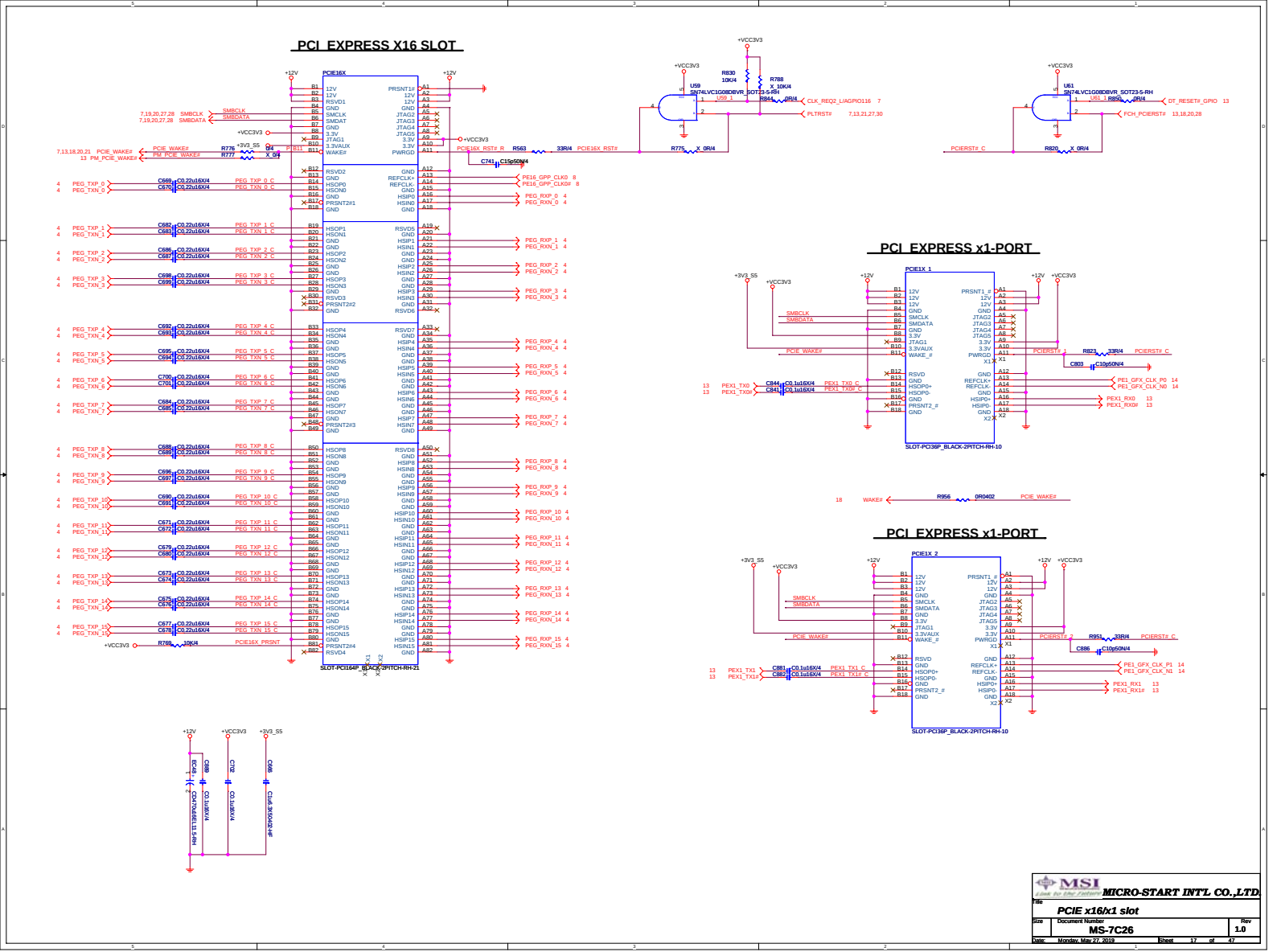
PCI EXPRESS X16 SLOT
PCIE16X
SLOT-PCI164P_BLACK-2PITCH-RH-21
PCI EXPRESS x1-PORT
PCIE1X 1
SLOT-PCI36P_BLACK-2PITCH-RH-10
PCI EXPRESS x1-PORT
PCIE1X 2
SLOT-PCI36P_BLACK-2PITCH-RH-10
+12V
+VCC3V3
+3V3_S5
SMBCLK
SMBDATA
PCIE_WAKE#
PCIE16X_RST#
PCIERST# 2
PCIERST# C
PEX1_TX0
PEX1_TX0#
PEX1_RXD
PEX1_RXD#
PEG_GFX_CLK_P0
PEG_GFX_CLK_N0
PEG_GFX_CLK_P1
PEG_GFX_CLK_N1
WAKE#
R956 0R0402
C886 C10p50N/4
R951 33R/4
R823 33R/4
C803 C10p50N/4
R830 10K/4
R788 X_10K/4
R775 X_0R/4
R820 X_0R/4
R563 33R/4
C741 C15p50N/4
U59 SN74LVC1G08DBVR_SOT23-5-RH
U61 SN74LVC1G08DBVR_SOT23-5-RH
CLK_REQ2_LIAGPIO116
PLTRST#
DT_RESET#_GPIO
FCH_PCIERST#
MICRO-START INTL CO.,LTD
PCIE x16/x1 slot
MS-7C26
1.0
Monday, May 27, 2019
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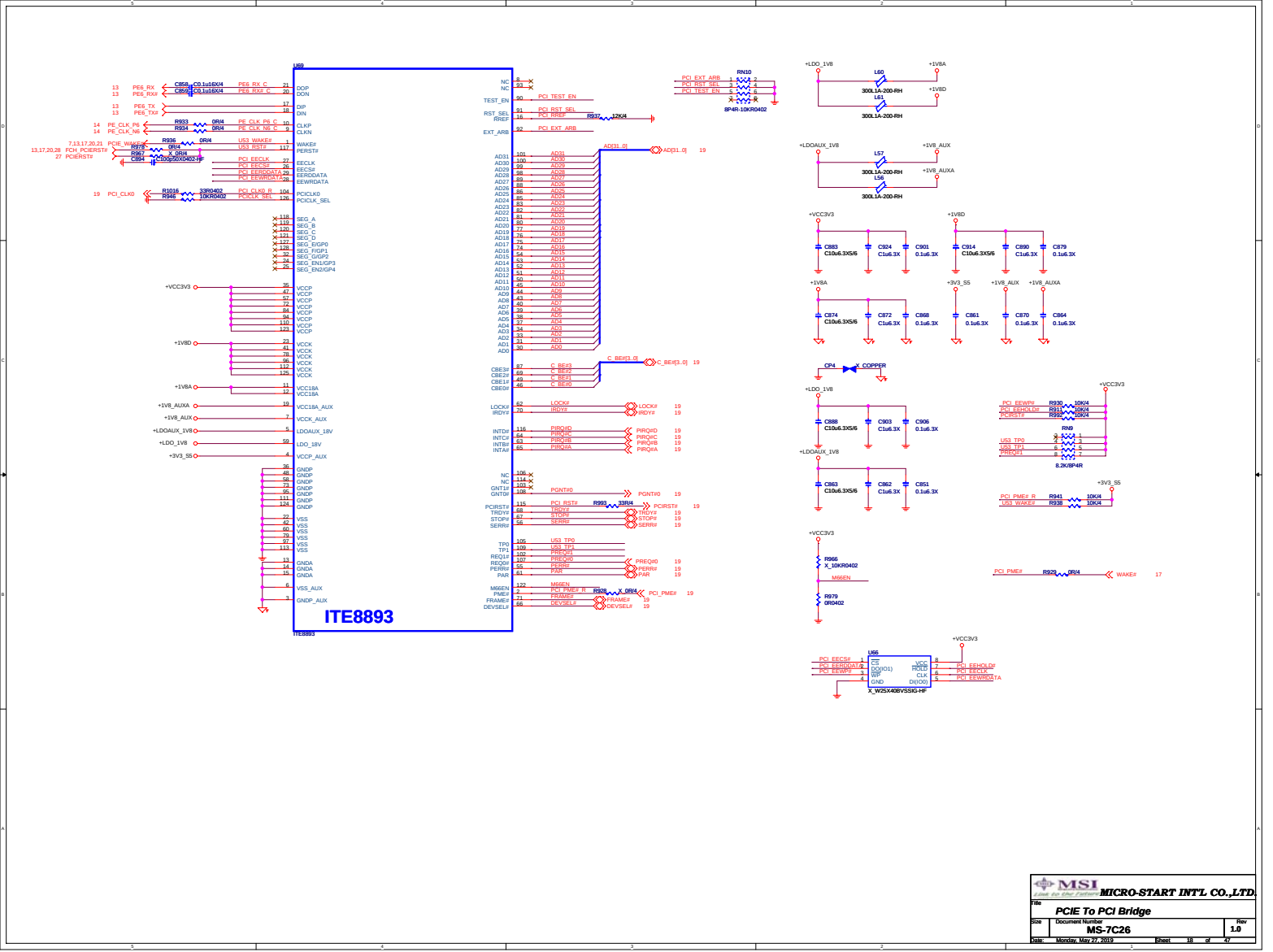

Title	PCIE To PCI Bridge
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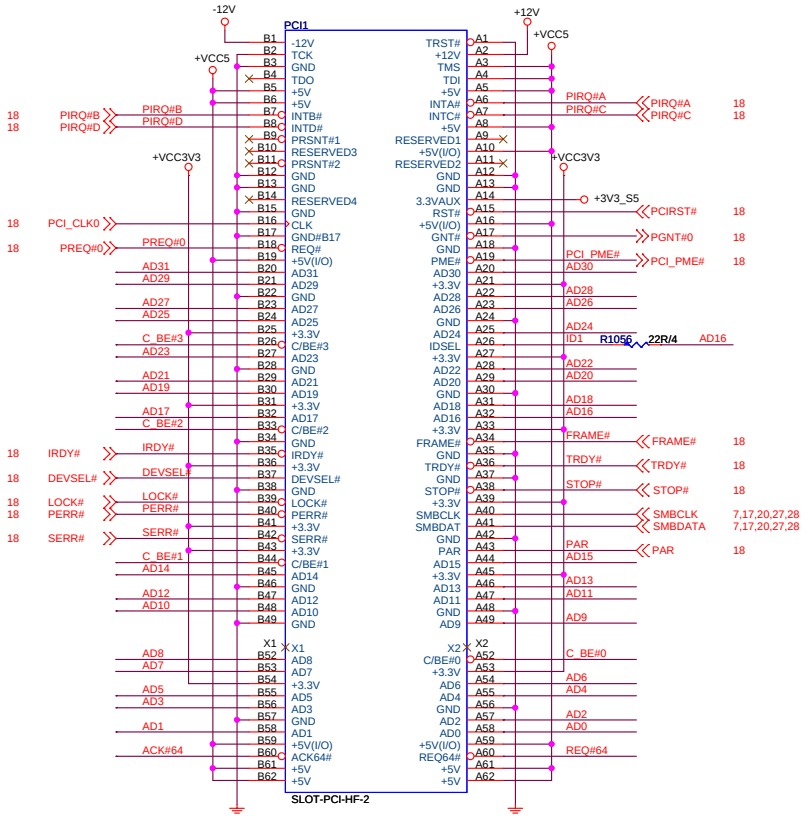
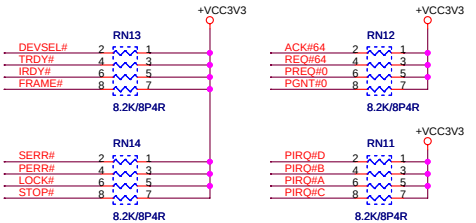
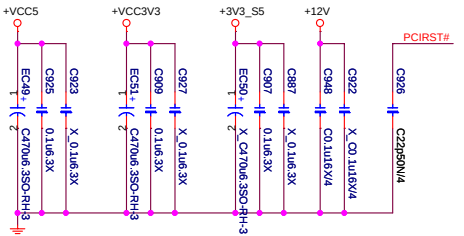
MSI Link to the Future MICRO-START INT'L CO.,LTD.



PCI PULL-UP / DOWN RESISTORS



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



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

Title	PCI Slot	
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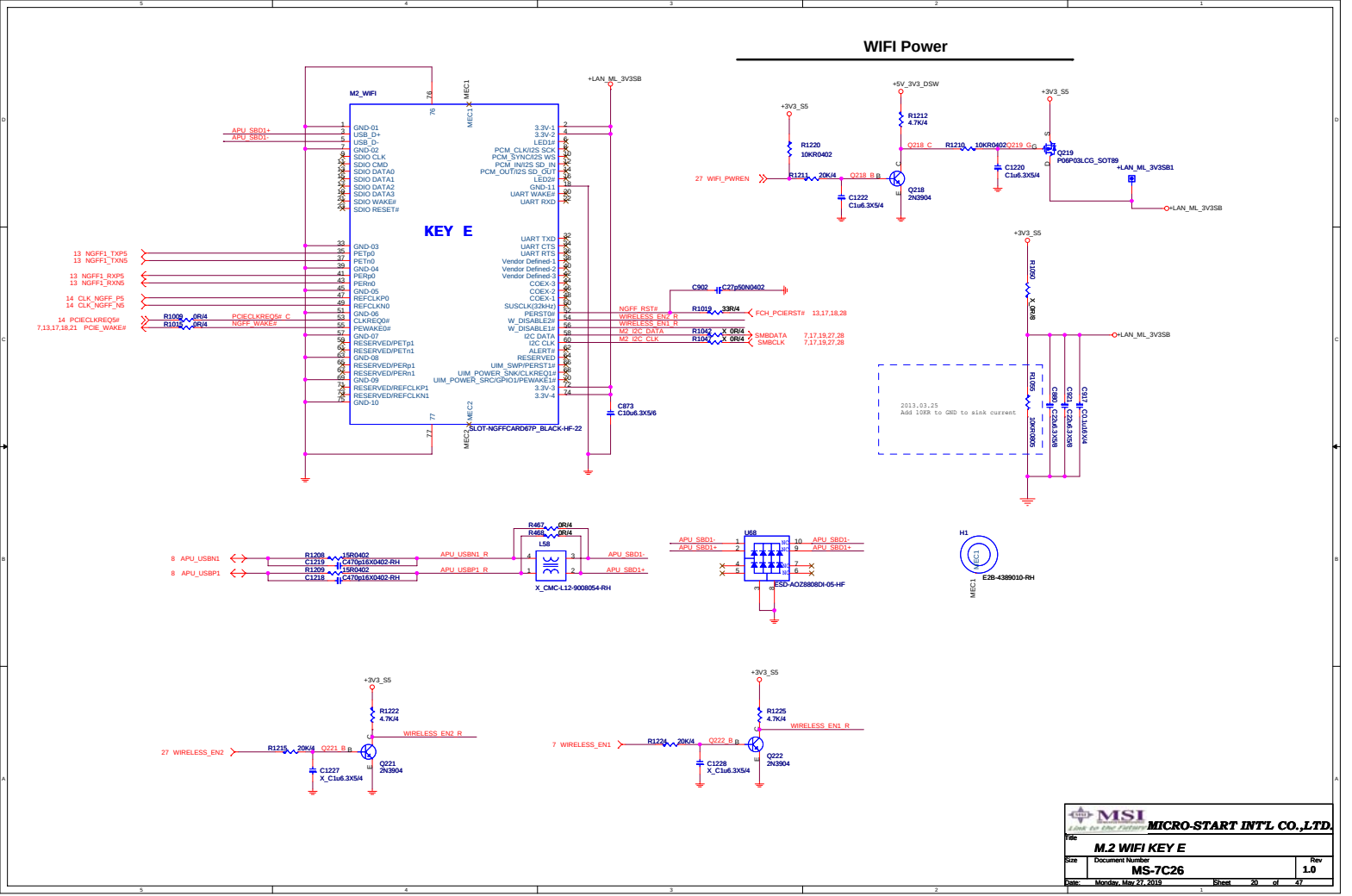
WIFI Power



Title	M.2 WIFI KEY E		
Size	Document Number		Rev
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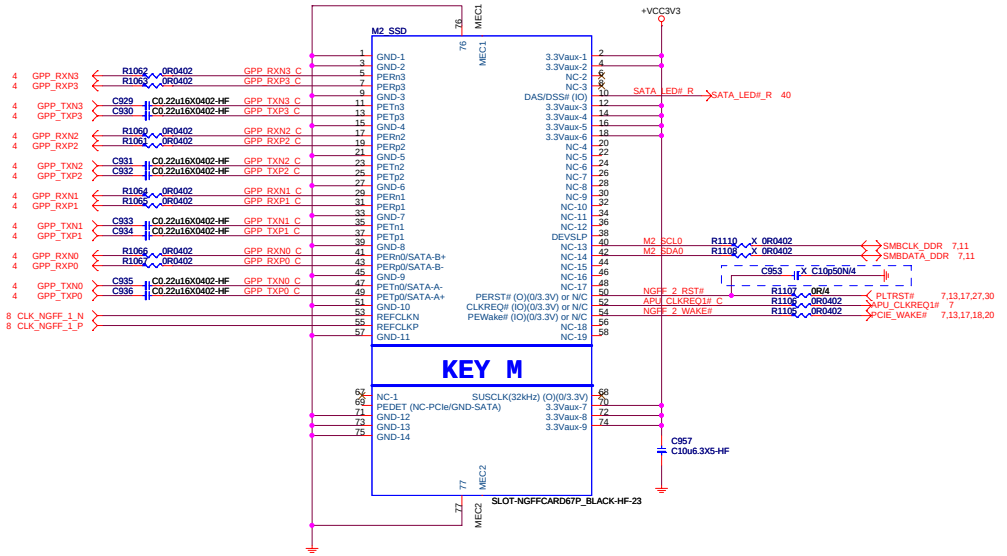
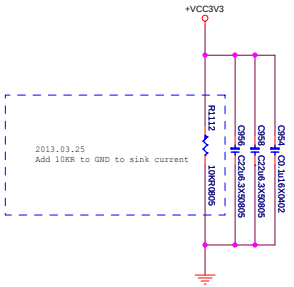
MICRO-START INT'L CO.,LTD.





MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	M.2 SSD KEY M		
Size	Document Number MS-7C26		Rev 1.0
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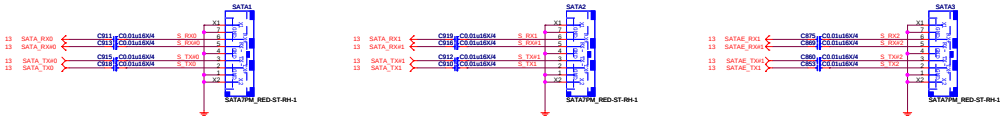
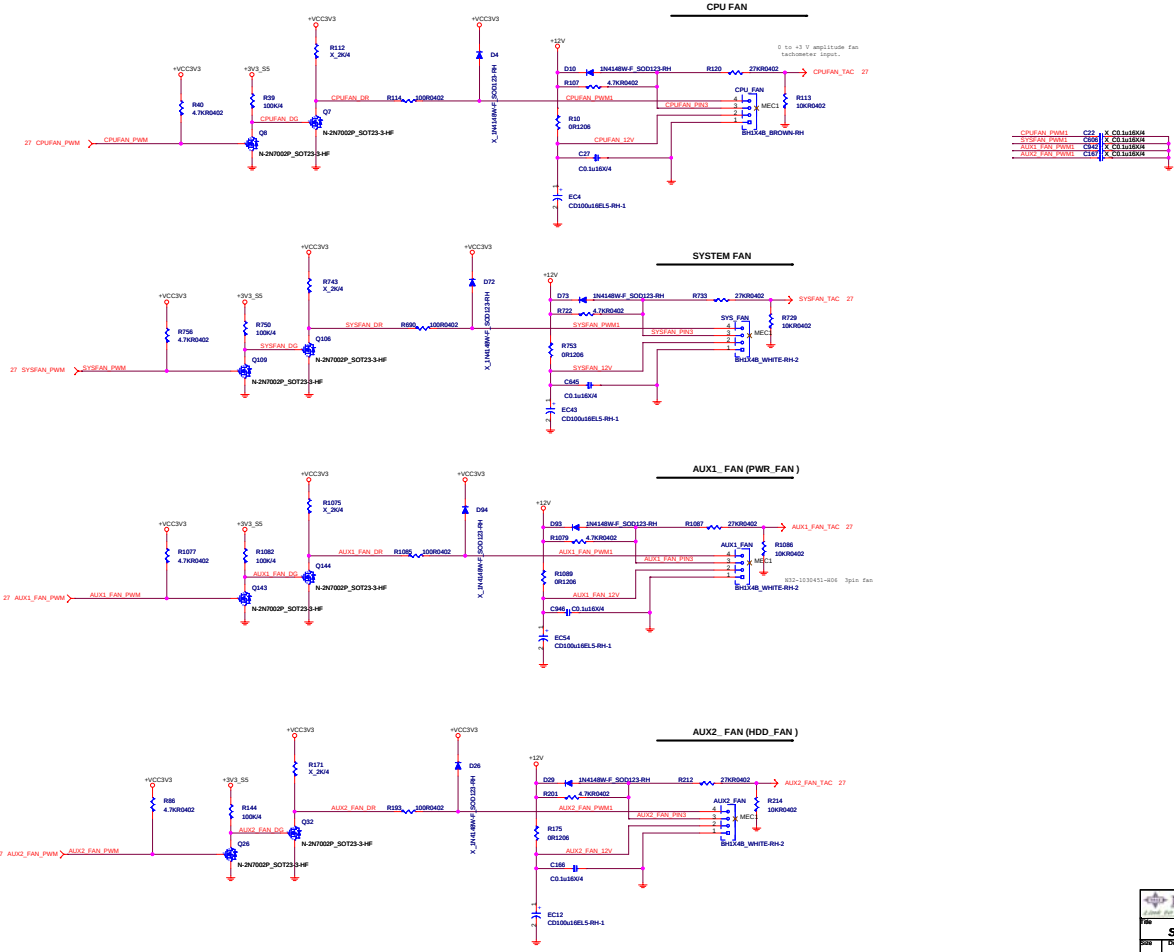


CPU FAN /SYSTEM FAN /POWER FAN



CPUFAN_PWM1	C22	X C0.1u16X/4
SYSFAN_PWM1	C906	X C0.1u16X/4
AUX1_FAN_PWM1	C942	X C0.1u16X/4
AUX2_FAN_PWM1	C167	X C0.1u16X/4

Title	SATA/FAN
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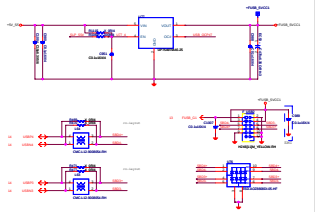
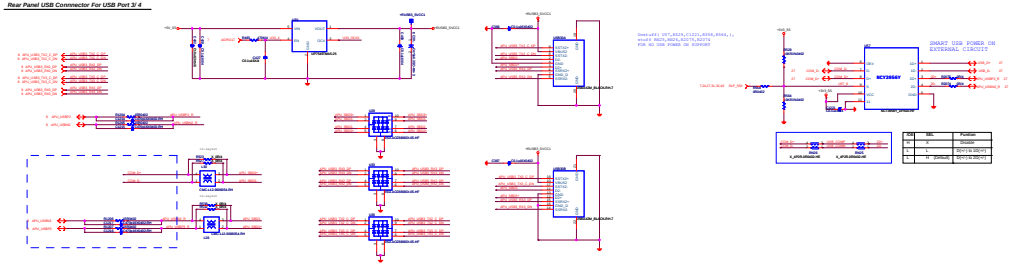
MICRO-START INT'L CO.,LTD.

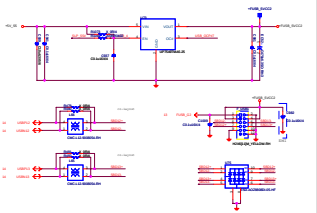
Front Panel USB Connnector For USB Port 2 / 3



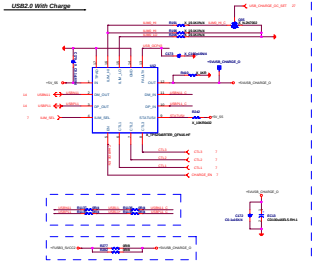
Rear Panel USB Connnector For USB Port 3/ 4

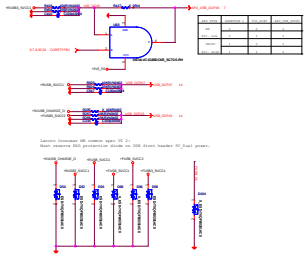


Front Panel USB Connnector For USB Port 1

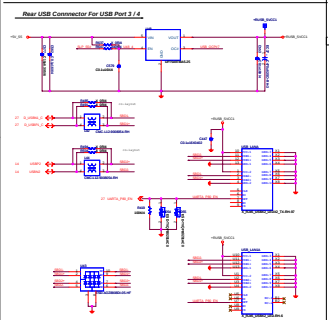


USB2.0 With Charge

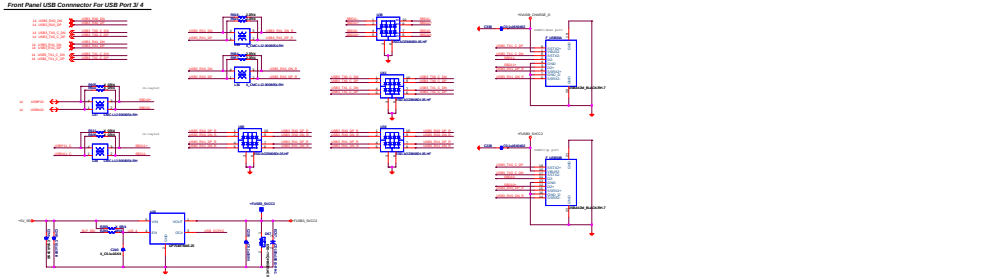




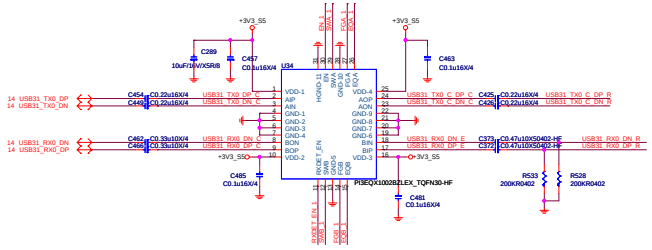
Rear USB Connnector For USB Port 3 / 4

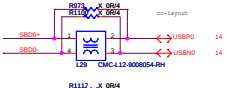


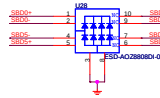
Front Panel USB Connnector For USB Port 3/ 4

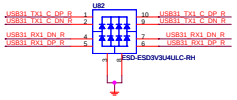


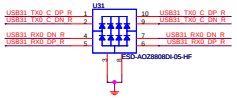
USB3.1 Re-driver

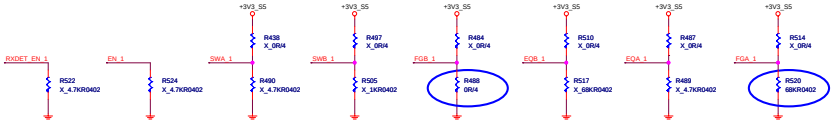


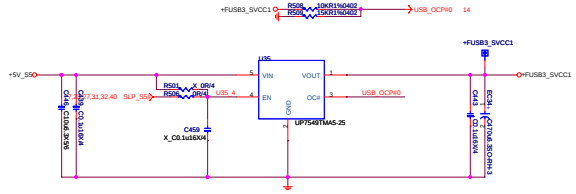


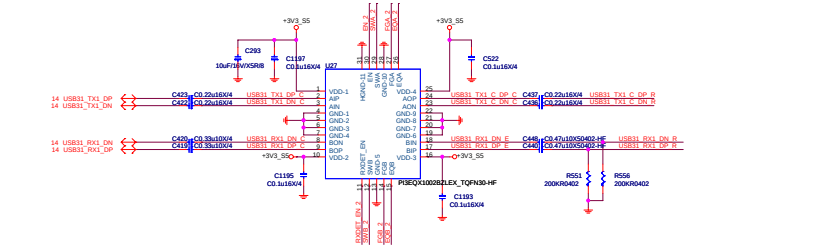


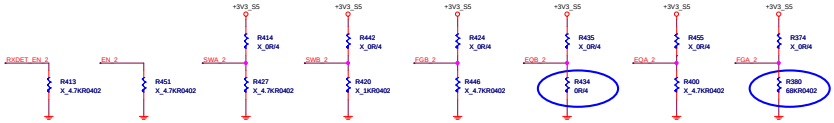




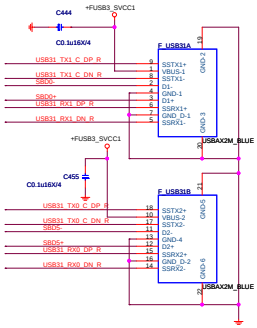






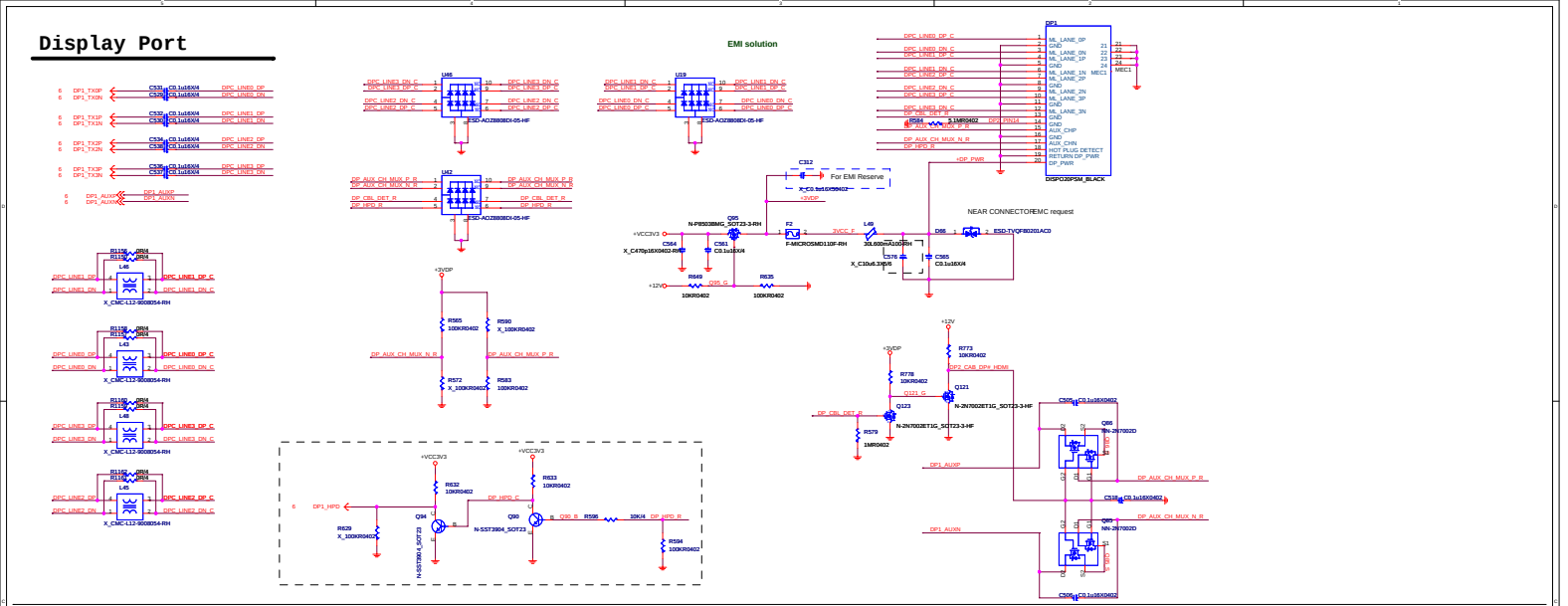


USB3.1 Connnector

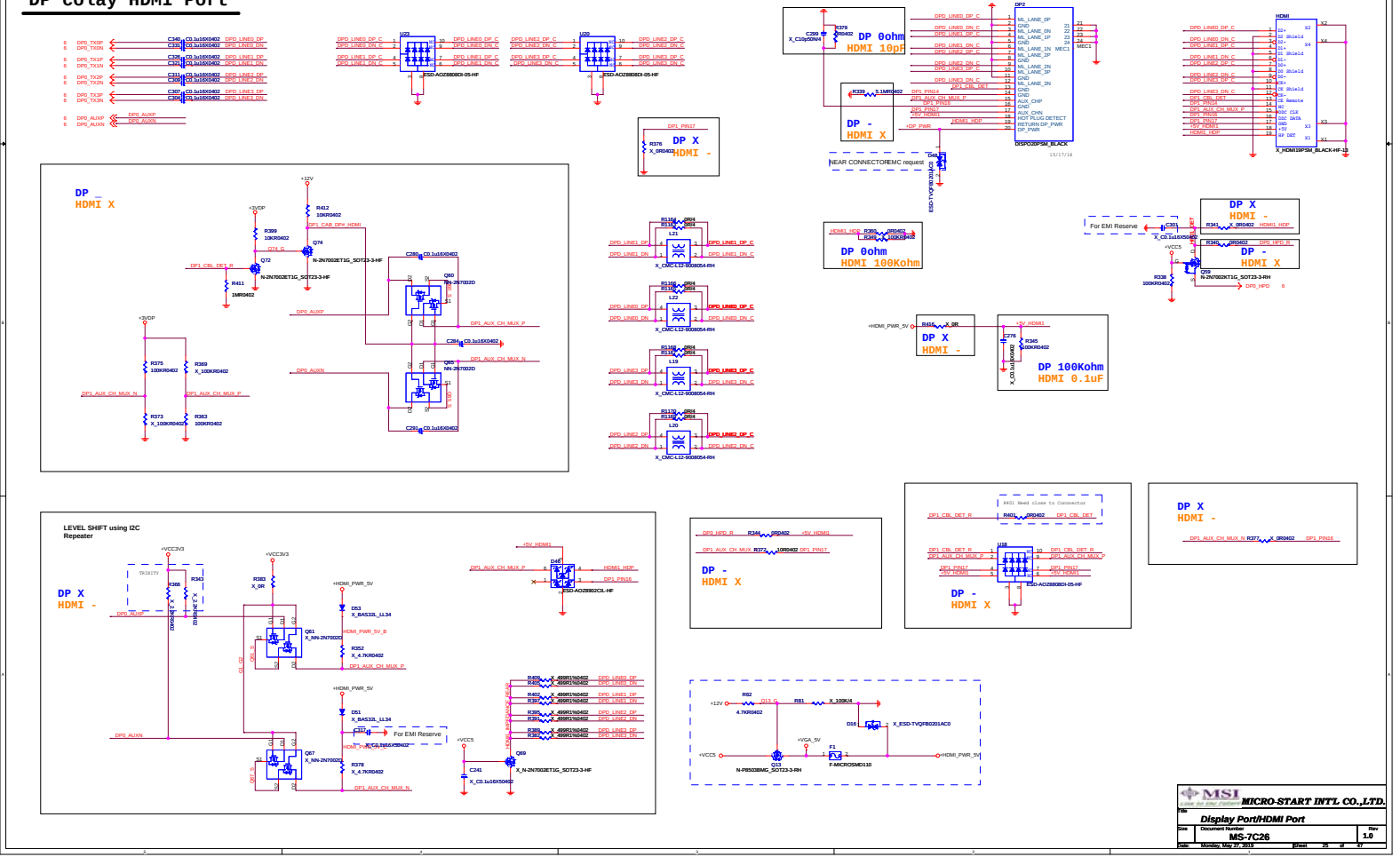


MSI	MICRO-START INT'L CO.,LTD.		
Title	USB3.1 Connectors		
Size	Document Number MS-7C26		Rev 1.0
Date: Monday, May 27, 2019	Sheet 24 of 47		

Display Port



DP colay HDMI Port



Title	Display Port/HDMI Port
Size	Document Number: MS-7C26
Rev	1.0
Date	Monday, May 27, 2019
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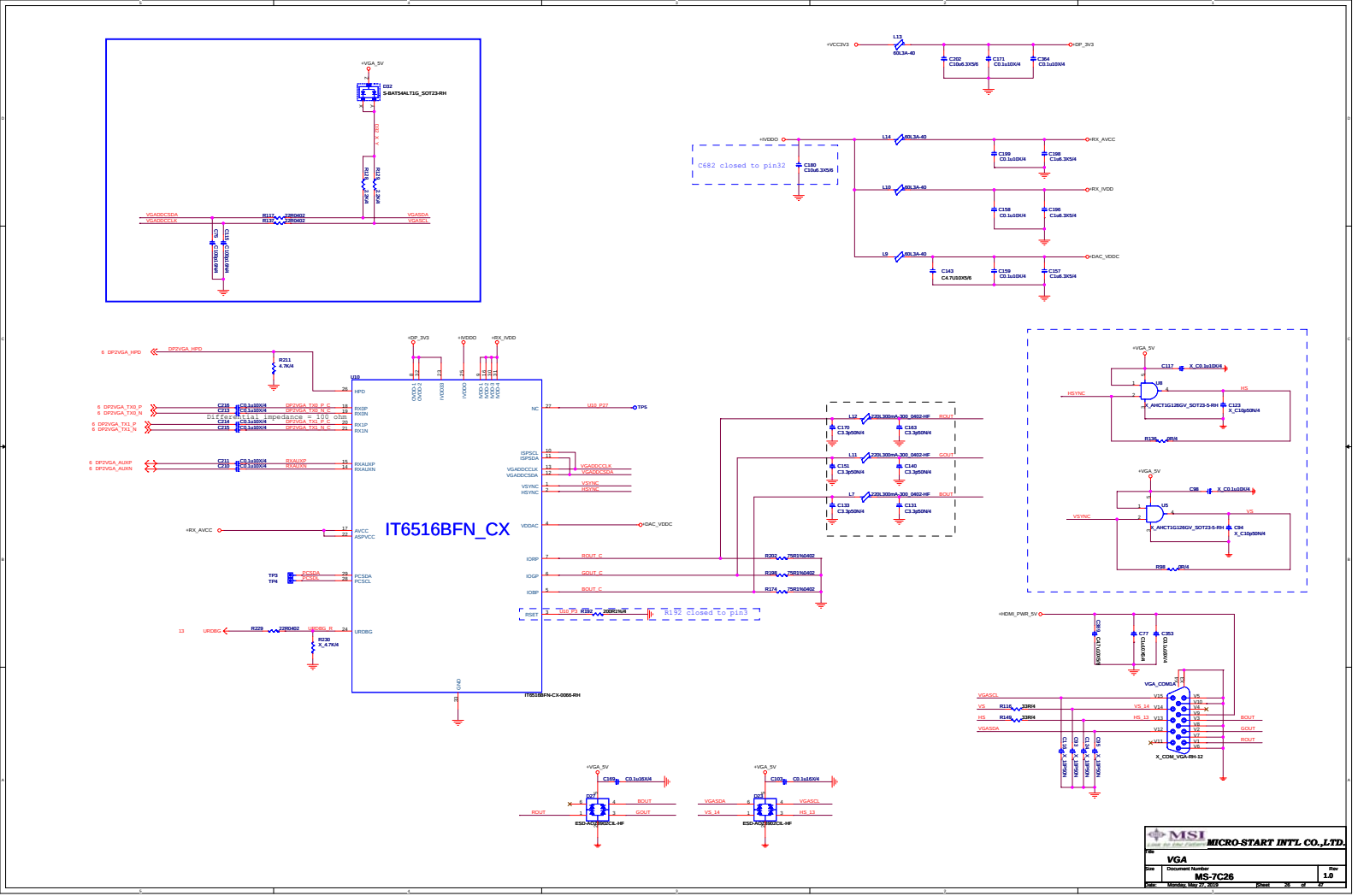
MSI MICRO-STAR INT'L CO.,LTD.


+VGA_5V
D32
S-BAT54ALT1G_SOT23-RH
R117 2.2R0402
R118 2.2R0402
VGADDCSDA
VGADDCCLK
VGASDA
VGASCL
C119 C0.1u6.3X5/6
C120 C0.1u6.3X5/6
+3V3
L13
60L3A-40
C202 C10u6.3X5/6
C171 C0.1u10X/4
C364 C0.1u10X/4
+DP_3V3
+IVDDO
L14
L10
L9
C682 closed to pin32
C180 C10u6.3X5/6
C199 C0.1u10X/4
C198 C1u6.3X5/4
C158 C0.1u10X/4
C196 C1u6.3X5/4
C143 C4.7U10X5/6
C159 C0.1u10X/4
C157 C1u6.3X5/4
+RX_AVCC
+RX_IVDD
+DAC_VDDC
6 DP2VGA_HPD
R211 4.7K/4
U10
IT6516BFN_CX
IT6516BFN-CX-0066-RH
HPD
NC
U10_P27
TPS
ISPSCL
ISPSDA
VGADDCCLK
VGADDCSDA
VSYNC
HSYNC
VDDAC
IORP
IOGP
IOBP
RSET
R192 2.49K/1%/4
R192 closed to pin3
R207 75R1%0402
R198 75R1%0402
R174 75R1%0402
6 DP2VGA_TX0_P
6 DP2VGA_TX0_N
6 DP2VGA_TX1_P
6 DP2VGA_TX1_N
6 DP2VGA_AUXP
6 DP2VGA_AUXN
C216 C0.1u10X/4
C213 C0.1u10X/4
C214 C0.1u10X/4
C215 C0.1u10X/4
C211 C0.1u10X/4
C210 C0.1u10X/4
Differential impedance = 100 ohm
RX0P
RX0N
RX1P
RX1N
RXAUXP
RXAUXN
DP2VGA_TX0_P_C
DP2VGA_TX0_N_C
DP2VGA_TX1_P_C
DP2VGA_TX1_N_C
+RX_AVCC
AVCC
ASPVCC
TP3
TP4
PCSDA
PCSCL
13
URDBG
R229 22R0402
URDBG_R
R230 X_4.7K/4
24
L12 220,300mA,300_0402-HF
L11 220,300mA,300_0402-HF
L7 220,300mA,300_0402-HF
C170 C3.3p50N/4
C163 C3.3p50N/4
C151 C3.3p50N/4
C140 C3.3p50N/4
C133 C3.3p50N/4
C131 C3.3p50N/4
ROUT
GOUT
BOUT
+VGA_5V
C117 X_C0.1u10X/4
U9
X_AHCT1G126GV_SOT23-5-RH
C123 X_C10p50N/4
HSYNC
HS
R136 0R/4
C98 X_C0.1u10X/4
U5
VSYNC
VS
C84 X_C10p50N/4
R98 0R/4
+HDMI_PWR_5V
R182 C0.1u50X/4
C77 C0.1u50X/4
C353 C0.1u50X/4
VGA_COM1A
VGASCL
VS
HS
VGASDA
R116 33R/4
R115 33R/4
VS_14
HS_13
VS
VS0
VS1
VS2
VS3
VS4
VS5
VS6
VS7
VS8
VS9
VS10
VS11
VS12
VS13
VS14
VS15
X_COM_VGA-RH-12
C181 X_C0.1u6X/4
C182 X_C0.1u6X/4
C183 X_C0.1u6X/4
C184 X_C0.1u6X/4
+VGA_5V
C183 C0.1u16X/4
D27
ESD-ACE5600D3CIL-HF
VGASDA
VS_14
VGASCL
HS_13
MICRO-START INT'L CO.,LTD.
Title
VGA
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1.0
Date: Monday, May 27, 2013
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Chassis Type	CHASSIS_ID1 (APU AGPIO84)	CHASSIS_ID2 (APU AGPIO85)
18L(Default)	1	1
8.4L	1	0
15L	0	1
11L	0	0

OE#	S	Funtion
H	X	Disable
L	L	D(+/-) to 1D(+/-)
L	H (Default)	D(+/-) to 2D(+/-)

PCH_GPIO_D16	kernel debug
Set input	DISABLE
Set output Low	ENABLE

UARTA_P80_EN	POST 80
L	DISABLE
H	ENABLE

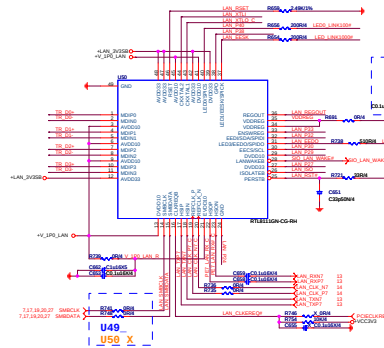
MICRO-START INT'L CO.,LTD.

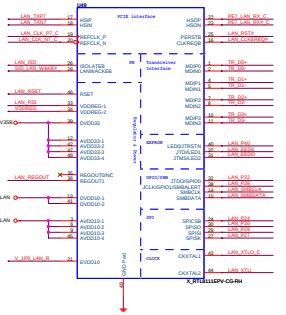
Title: SUPER IO-IT8738E-EX

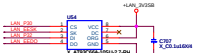
Size | Document Number: MS-7C26 | Rev: 1.0

Date: Monday, May 27, 2019 | Sheet 27 of 47

Gigabit LAN RTL8111GN Co-lay RTL8111EPV

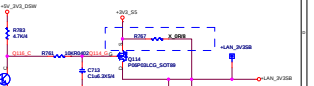






LAN Power

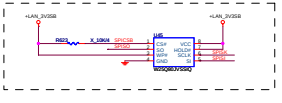
3.3V - 1.2A - 4W



(58mA+289mA)

	LAN_PWR0	Q114_S	output
4:1 EEE disabled	0	0	3.3V
4:1 EEE disabled	0	1	0V

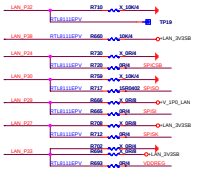
SPI Flash for RTL8111EPV



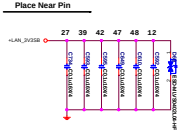
WOL	status	Yellow	Grn/Org
don't care	No Link	off	off
off	S3/S4/S5	off	off
on	S3/S4/S5	off	on
on	10M,inactive		off
on	10M,active		off
on	100M,inactive		
on	100M,active		
on	1G,inactive		
on	1G,active		

always on
always on
always on
blinking

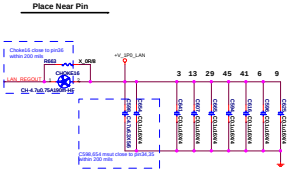
RTL8111GN co-lay RTL8111EPV



Place Near Pin

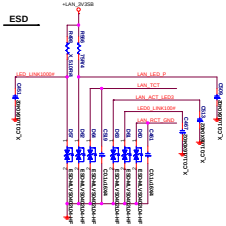


Place Near Pin



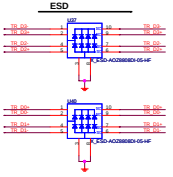
LAN Connector

ESD

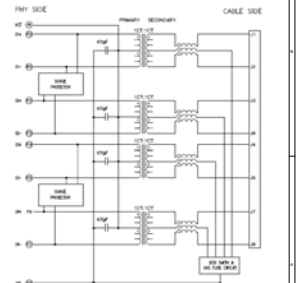


EMI solution: can be unmounted if LAN connector has surge protect

ESD



SCHEMATIC



MSI	MICRO-START INT'L CO.,LTD.		
Title	LAN-RTL8111GN/RTL8111EPV		
Size	Document Number		Rev
	MS-7C26		1.0
Date:	Monday, May 27, 2019	Sheet 26 of 47	

Azalia Codec - ALC662-VD

removed ALC662VC co-lay schematic on 0D

Layout Follow Route

Reference Resistor For Jack Detection(Close To The Codec)

Spilt by DGND

Analog Area

Digital Area

AUDIO CODE REGULATORS

Trace Width 30mils.

AUDIO PANEL

LINE IN(A) — LINE_OUT (front channel)

LINE OUT(B) — SURROUND or LINE_IN

MIC IN(C) — CENTER-LEF or MIC INPUT

Lenovo EMC request

MONO Amplifier

Front Audio Jack

EMC Request

change for 180pf for signal overshoot issue

change for audio Voltage out amplitude issue

Close To Codec

Closed to pin25

Closed to pin38

manufacturer suggestion: add for voltage reliability(LDO of audio chip shakes with reason what we don't know)

Audio DE-POP

Title	Audio-ALC662VD
Size: Custom	Document Number: MS-7C26
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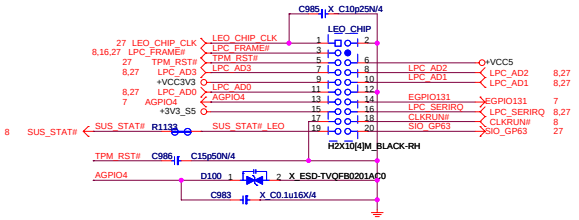
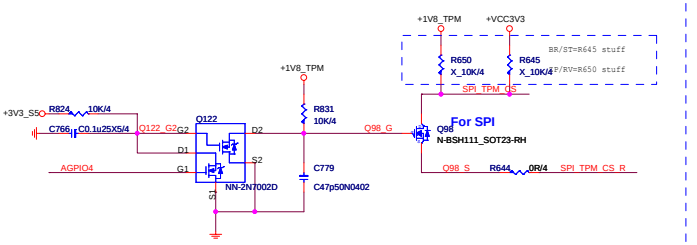
MICRO-START INT'L CO.,LTD

TCM Header

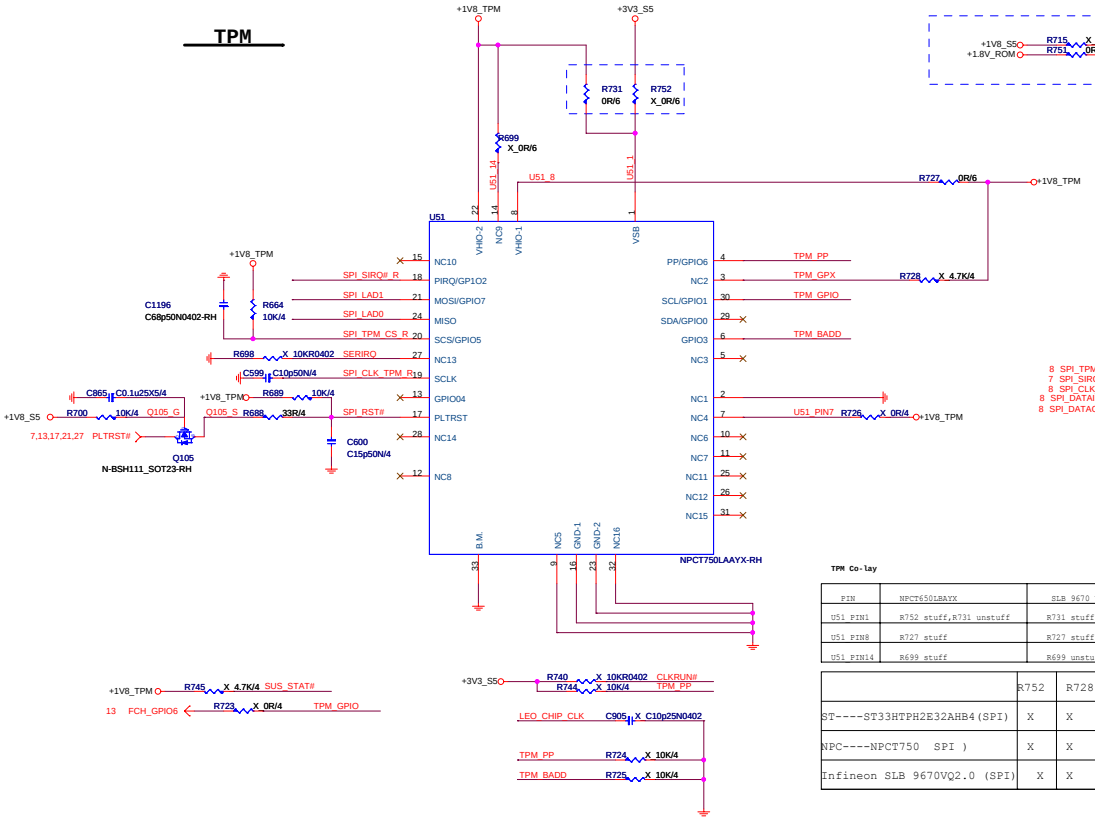


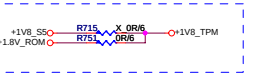
TPM disable circuit

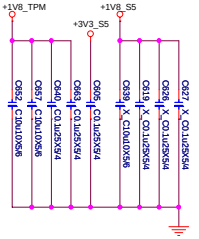


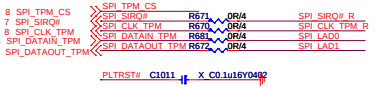
AGPIO4	HIGH	LOW
TPM	ENABLE	DISABLE

TPM









TPM Co-lay

PIN	NPCT650LBAYX	SLB 9670 VQ2.0	ST33HTPH2E32AAE6	NPCT750LAAYX
U51 PIN1	R752 stuff,R731 unstuff	R731 stuff,R752 unstuff	R752,R731 unstuff	R731 stuff,R752 unstuff
U51 PIN8	R727 stuff	R727 stuff	R727 unstuff	R727 stuff
U51 PIN14	R699 stuff	R699 unstuff	R699 unstuff	R699 unstuff

	R752	R728	R744	R724	R725	R726	R727	R698	R699	R725	R731
ST----ST33HTPH2E32AHB4(SPI)	X	X	X	X	X	X	X	X	X	X	X
NPC----NPCT750 SPI)	X	X	X	X	X	X	V	X	X	X	V
Infineon SLB 9670VQ2.0 (SPI)	X	X	X	X	X	X	V	X	X	X	V

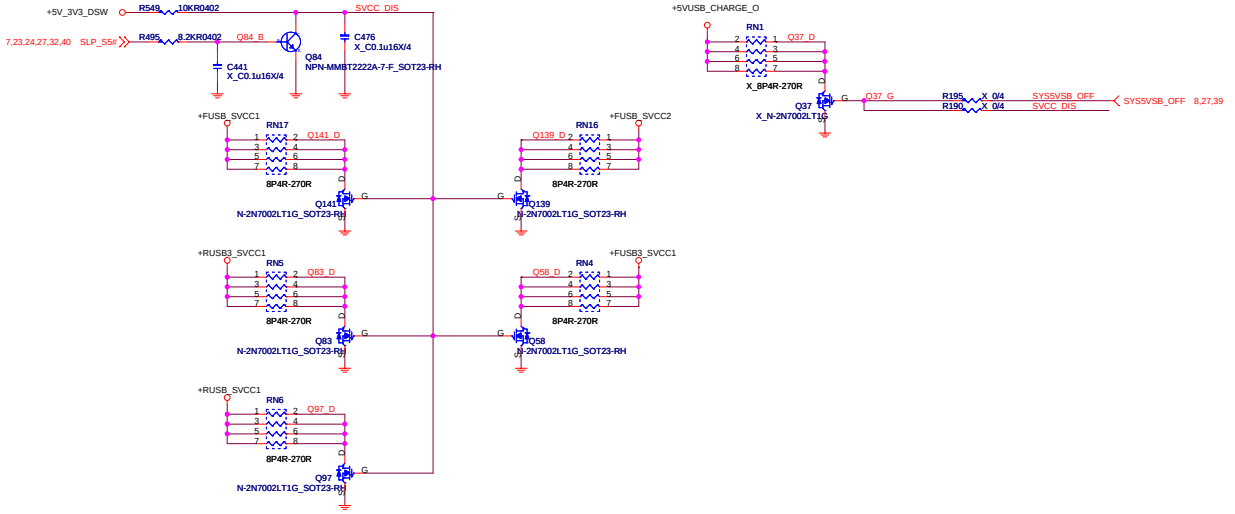
MSI Link to the Future MICRO-START INT'L CO.,LTD.

Title: TPM & TCM

Size | Document Number: MS-7C26 | Rev: 1.0

Date: Monday, May 27, 2019 | Sheet 30 of 47

USB power discharge circuit



MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	USB Power Dischage	
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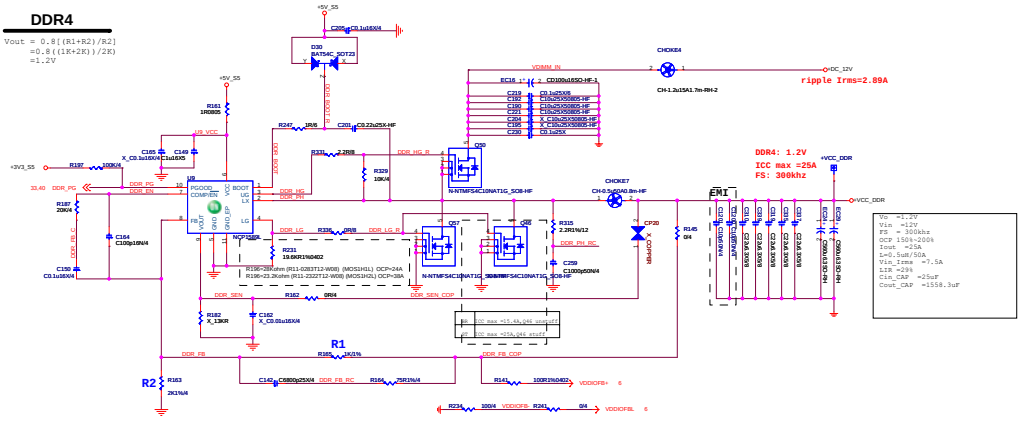
Date: Monday, May 27, 2019	Sheet 31 of 47	

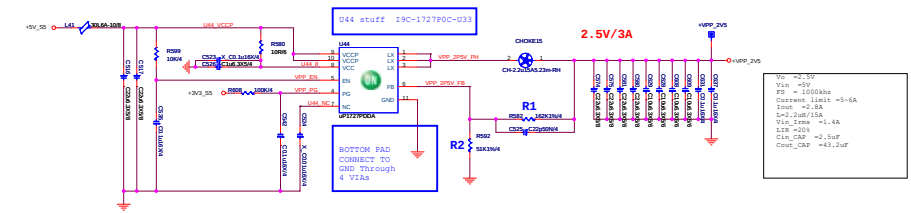
DDR4

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



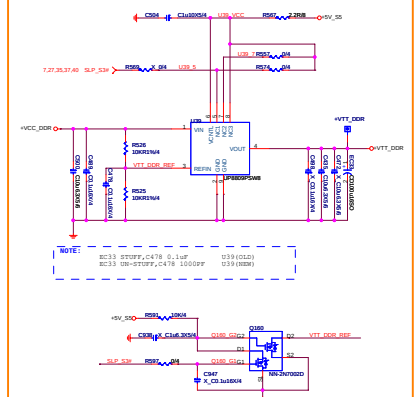
VPP_2.5V

Vout = 0.6[(R1+R2)/R2]
=0.6((10K+3.16K))/3.16K)
=2.5V

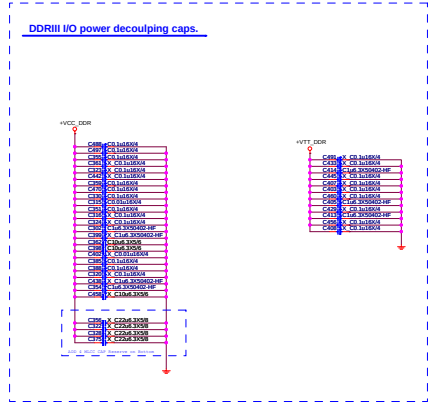


DDR4 Termination Power

0.6V - 1.1A - 0.825W



DDRIII I/O power decoupling caps.



Title	DDR4 Power		
Size	Document Number	MS-7C26	Rev 1.0
Date:	Monday, May 27, 2013	Sheet 32 of 40	

MICRO-START INT'L CO.,LTD.

ISL6377HRZ
95W(A-Group) 4+2 Phase
65W(C-Group) 3+2 Phase

65W(SPECIAL)
R233 0R OPT
C186 1500pf OPT
C145 0.1u OPT
C191 150pf OPT

95W:R219=200K
65W:R219=137K
R219_200K OPT

95W:R207=4.02K
65W:R207=2.55K
R207_2K55 OPT

95W:R189=0
65W:R189=249R
R189_0R OPT

95W:
R176=499R, OCP=187.5A
65W:
R176=442R,OCP=150A
R176_442R OPT

BOTTOM PAD
CONNECT TO GND
Through 8 VIAs

65W
95W X

CLOSE Q31
CLOSE Q9

Make sure +12VIN connector plug in

MINIMUM LOW CIRCUIT

ISL6377HRZ_QFN48-RH

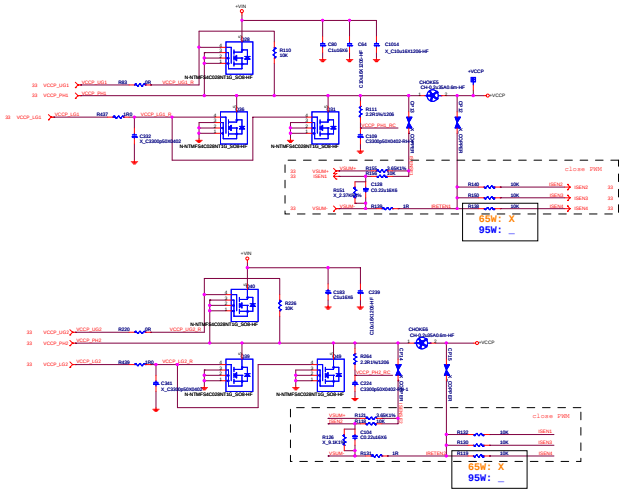
OTP:R735 R736

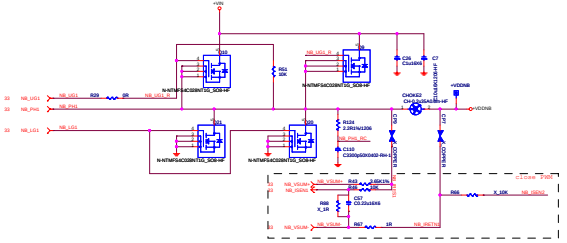
Title	ISL6377HRZ 95W colay 65W(A)
Size	Document Number: MS-7C26
Rev	1.0
Date:	Wednesday, June 05, 2019
Sheet	33 of 47

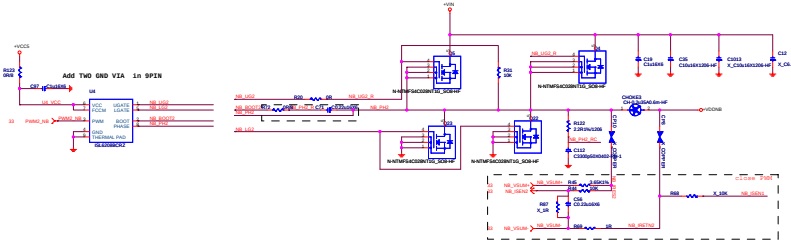
MICRO-START INTL CO.,LTD

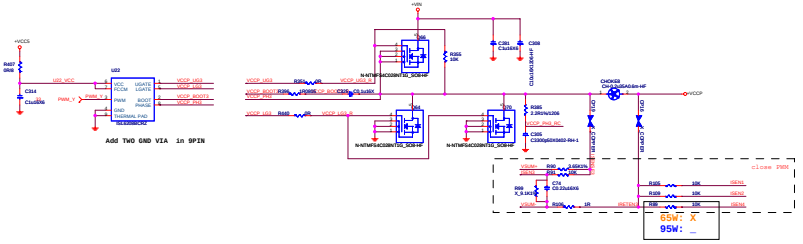
VCCP=0.75V~1.5V
95W(A-Group) TDC:80A, EDC:125A
65W(C-Group) TDC:65A, EDC:95A

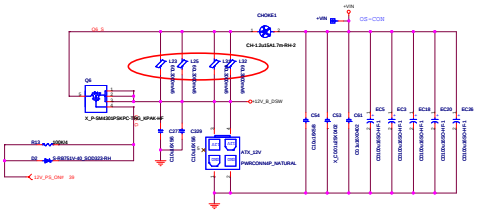
VCCP_NB=0.75V~1.2V
95W(A-Group) TDC:30A, EDC:35A
65W(C-Group) TDC:50A, EDC:75A

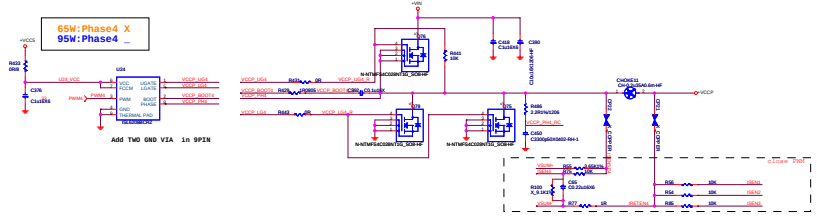


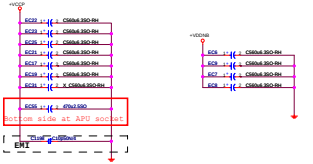










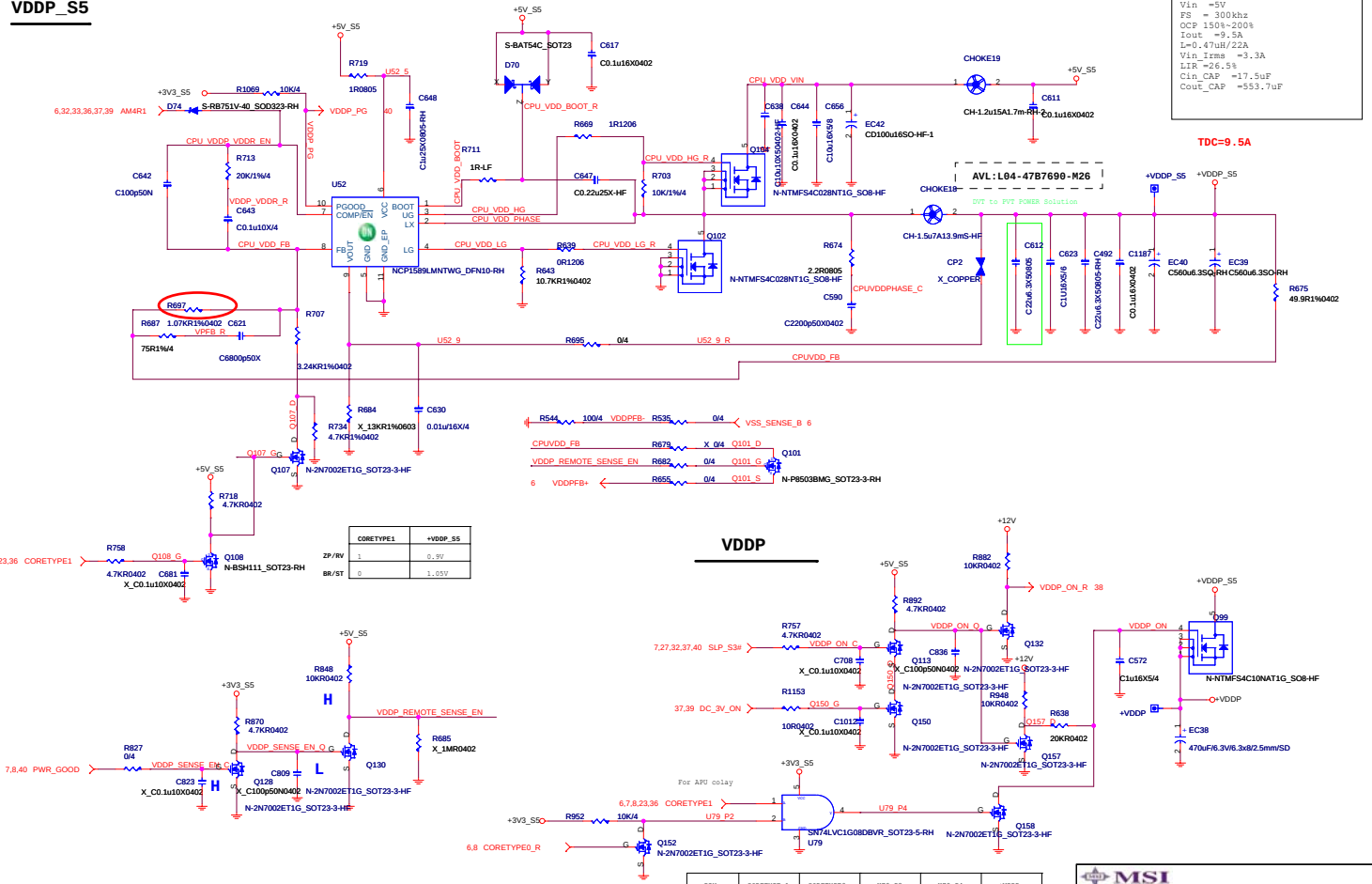


MSI	MICRO-START INT'L CO.,LTD	
Title	ISL6377HRZ 95W colay 65W(B)	
Size	Document Number: MS-7C26	Rev: 1.0
Date: Wednesday, June 06, 2012	Sheet 36 of 41	

VDDP_S5

Vo =1.05V
Vin =5V
FS = 300khz
OCP 150%~200%
Iout =9.5A
L=0.47uH/22A
Vin_Irms =3.3A
LIR =26.5%
Cin_CAP =17.5uF
Cout_CAP =553.7uF

TDC=9.5A



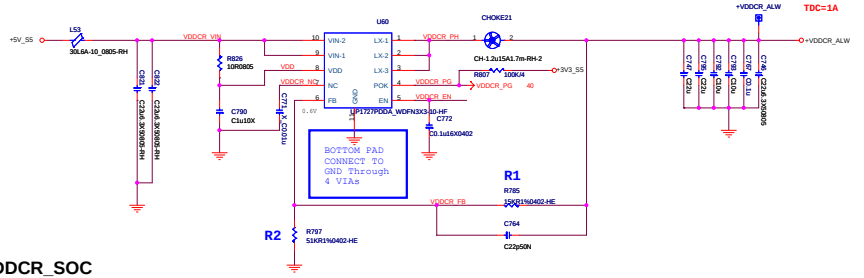
MSI Link to the Future MICRO-START INT'L CO.,LTD.

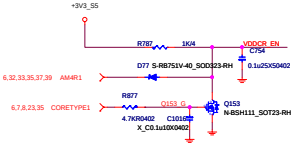
Title: VDDP/VDDP_S5

Size: | Document Number: MS-7C26 | Rev: 1.0

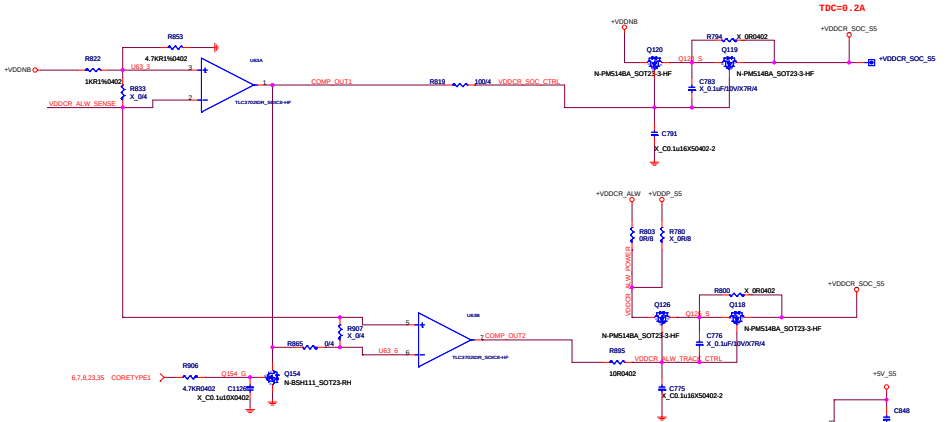
Date: Monday, May 27, 2019 Sheet 35 of 47

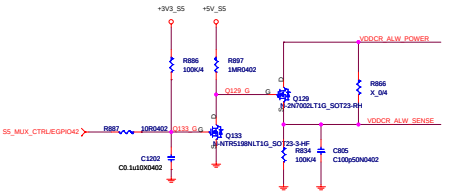
VDDCR_ALW





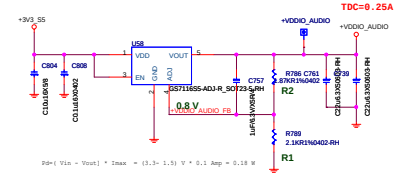
VDDCR_SOC





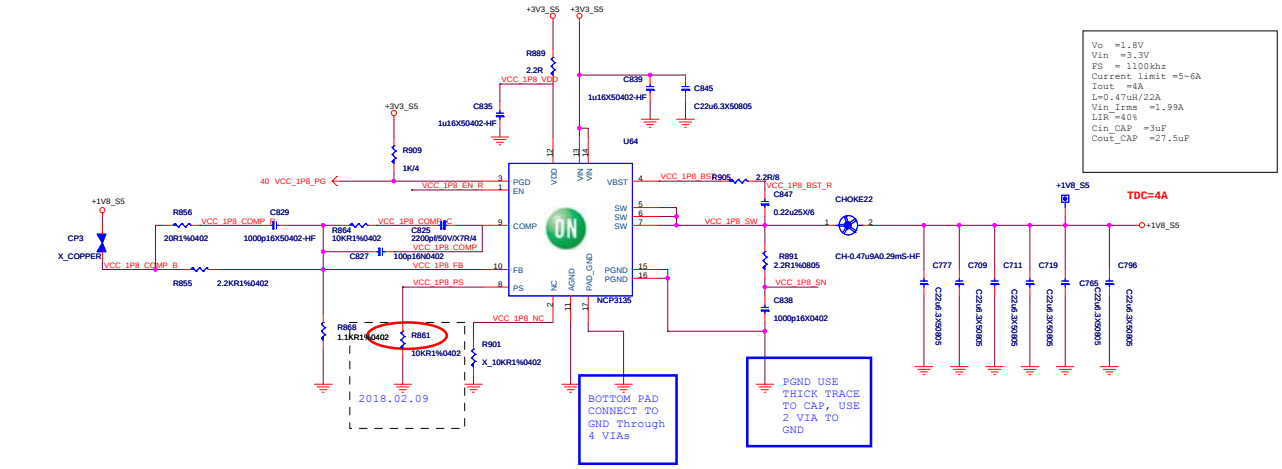
State	s5_mux_ctrl	s3#	s5#	VDDCR_SOC_S5 Voltage
G3	X	0	0	OFF
S5	0	0	0	ON(=+VDDCR_ALW)
S3	0	0	1	ON(=+VDDCR_ALW)
s0,but still in Reset	0	1	1	ON(=+VDDCR_ALW) or if VDDNB>=VDDCR_ALW, Tracks VDDNB
S0	1	1	1	Tracks +VDDNB

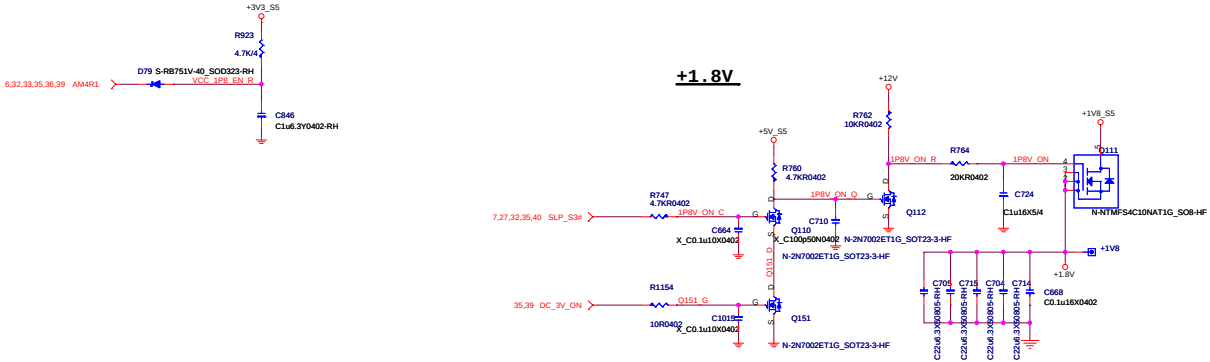
+VDDIO_AUDIO Nominal Vout=1.50V



Vo=0.8*(R1+R2)/R1

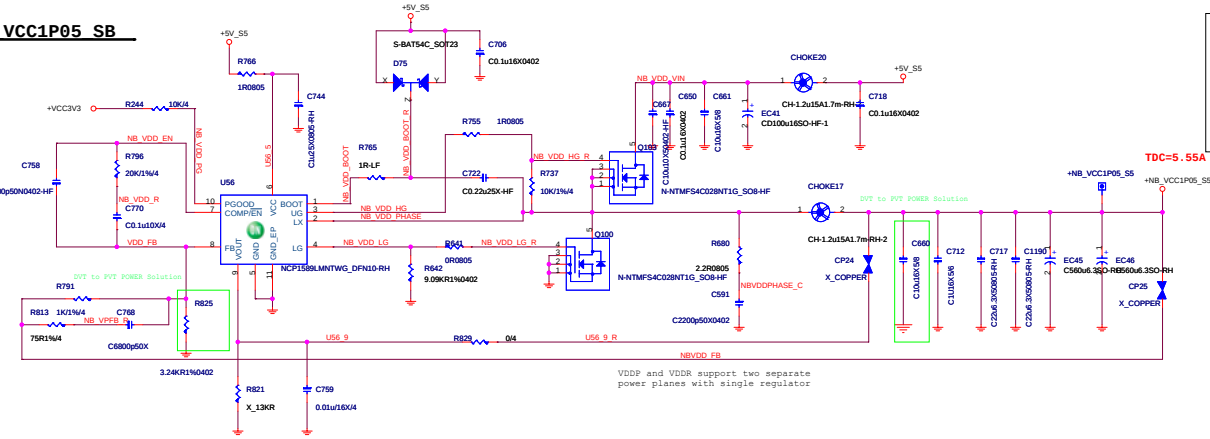
+1.8v & +1.8v_S5



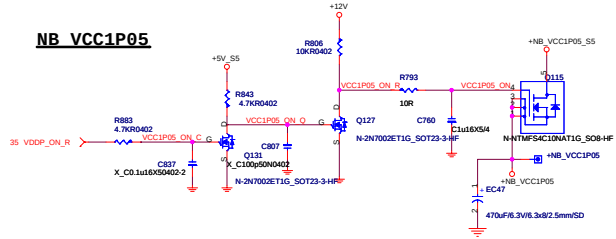


MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	+1.8V/+1.8V_AUX		
Size	Document Number MS-7C26		Rev 1.0
Date: Monday, May 27, 2019		Sheet 37 of 47	

NB_VCC1P05_SB

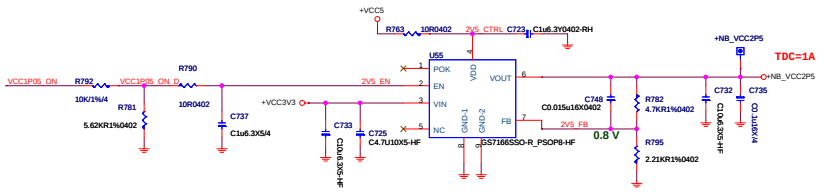


NB_VCC1P05



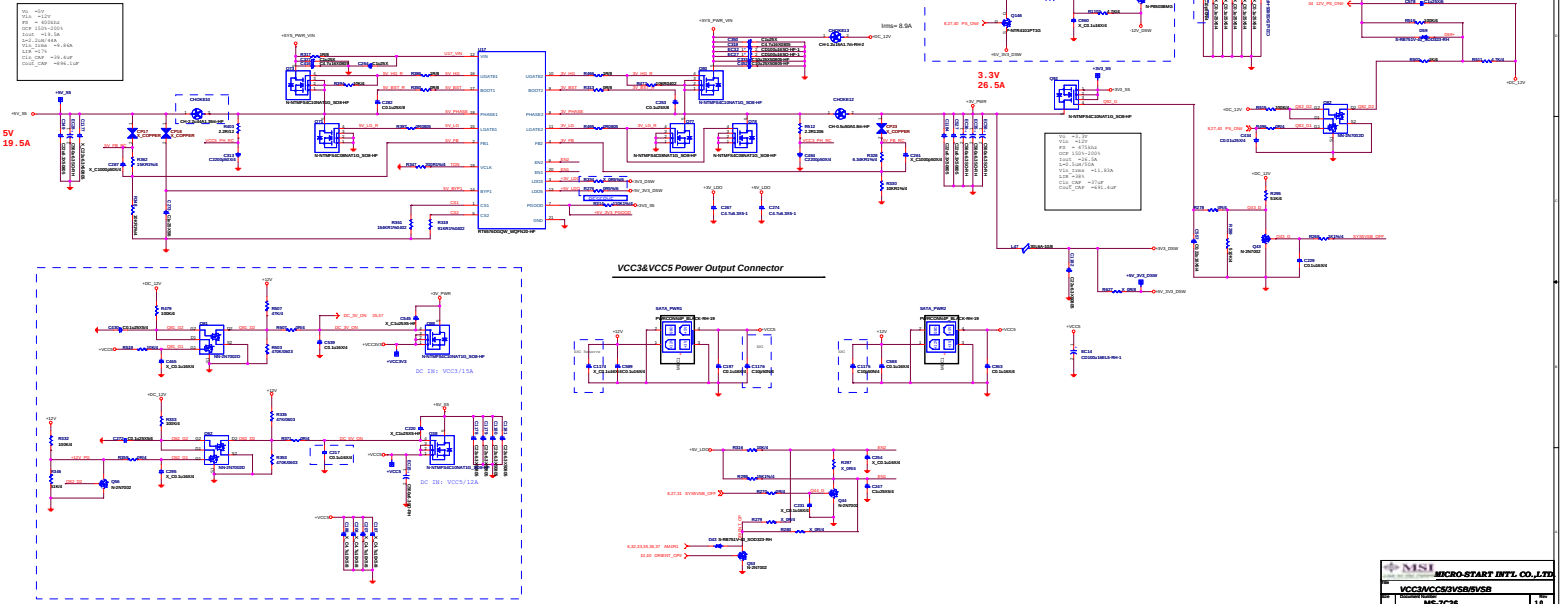
NB_VCCP2P5

Vout = 0.8[(R1+R2)/R2]
=0.8((4.7K+2.21K))/2.21K)
=2.5V



Title	MICRO-START INTL CO.,LTD.	
	PROMONTORY Core Power	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 38 of 47	

VCC3&VCC5 Power



MICRO-START INT'L CO.,LTD

VCC3/VCC5/3VSB/5VSB

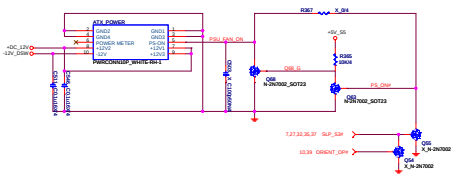
MS-7C26

1.0

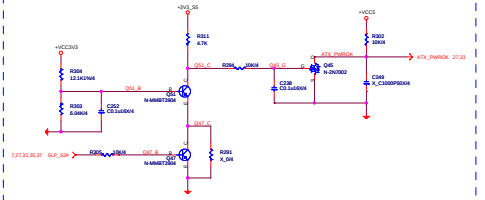
ATX Power Connector / Front Panel / LED/DSW

8 Pin ATX Power Connector

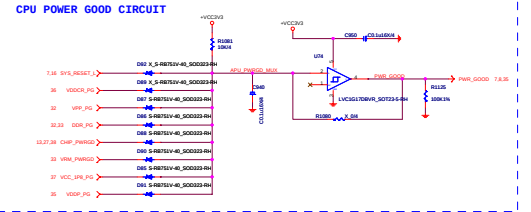
Power Supply in mounted



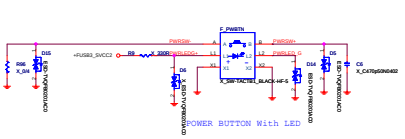
ATX_PWRGD



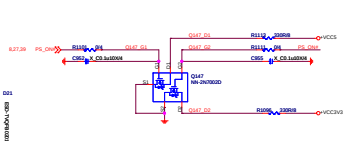
CPU POWER GOOD CIRCUIT



LENOVO Front Panel power button

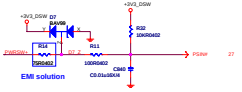


VCC3/VCC5 Discharge

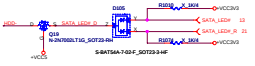


LENOVO Front Panel Connector

Power Button

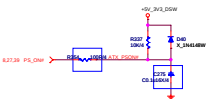


HDD LED

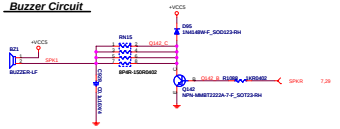


Power LED

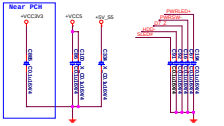
ATX Power On



Buzzer Circuit

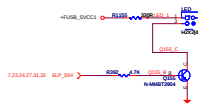


Cap For EMI



Lenovo EMC suggestion for 144MHz harmonic wave

Dot Led header



MICRO-START INT'L CO.,LTD.			
Title: ATX/F_Panel/EMI/LED			
Size	Document Number: MS-7C26		Rev: 1.0
Date: Monday, May 27, 2019	Sheet 40 of 47		

Manual Parts

PCB1

PCB

For AMD

+VCC5	C1203	C0.1u16X/4	+VCCP
+VDDNB	C1231	C0.1u16X/4	+VCCP
+VCC5	C1232	C0.1u16X/4	
+VCC5	C1233	C0.1u16X/4	

U4_X1

MEC1 X MEC1

MEC2 X MEC2

PCH Heatsink

Simulation

SIP1 SIM2 X_PIN1*2

SIP2 +5V_S5 SIM1 X_PIN1*2

VBAT-S1 BAT-BCR2032P-RH

+VCC5	C394	X_C0.1u16X/4	
	C412	X_C0.1u16X/4	
+VCC3V3	C417	X_C0.1u16X/4	
	C421	X_C0.1u16X/4	
	C453	X_C0.1u16X/4	
	C514	X_C0.1u16X/4	

U4_X1_1 螺絲

U4_X1_2 卡榫

Mounting Holes

MH1 MH2 MH3 MH4 MH5 MH6 MH7 MH8 MH9

X_MH001

R1149 0R/6

FRU_WIN10_BOM_stuff

MSI_DPK OPT X_MSI_DPK

FRU_Label OPT X_WIN7_Label

AMI_KEY1 OPT X

HDMI_LABEL OPT X_Label

HDMI_LABEL1 OPT X_Label

Mylar OPT

For EMI

EMI Suggestion
VRM part has high frequence noise

+VCC5 C945 C0.1u16X/4

+5V_S5 C222 X_C0.1u16X/4

+12V C943 X_C0.1u16X/4

32M

BIOS_ROM1 OPT MX25U6435FM2I-10G

FRU_WIN10_DG_BOM_stuff

U51_INFINEON OPT

VGA_INFINEON OPT

AUDIO OPT

VGA_COM1 OPT

Without SURGE

USB_LAN OPT

With 6KV SURGE

USB_LAN_SURGE OPT

REF8 OPT X_VGA

REF9 OPT X_EC

REF10 OPT X_EC

Reserve with surge single LED

USB_LAN1 OPT

Optics Orientation Holes

Optical Fiducial Marks-120

FM8 FM5 FM6 FM7 FM3 FM1 FM2 FM4

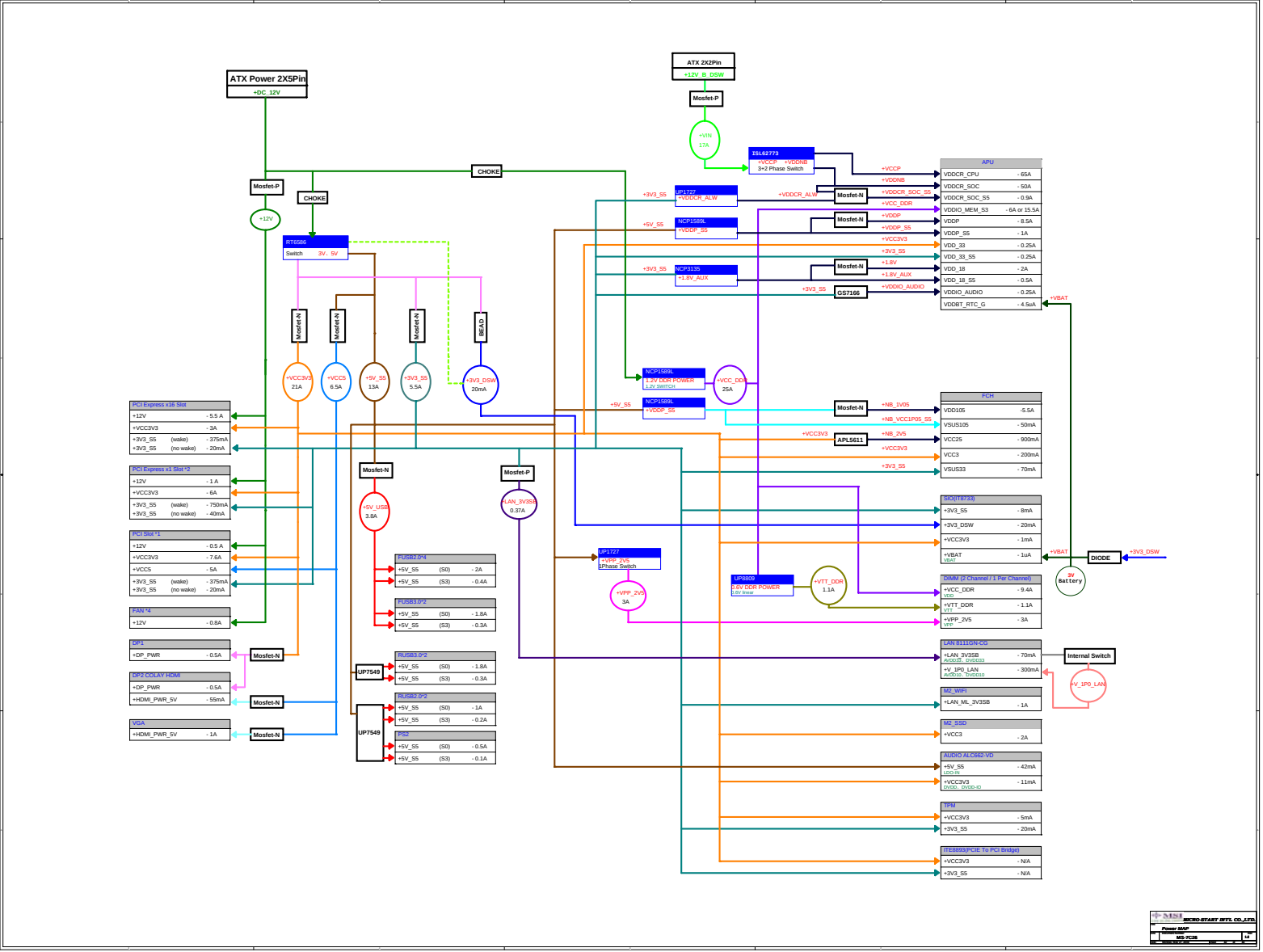
X_FM

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

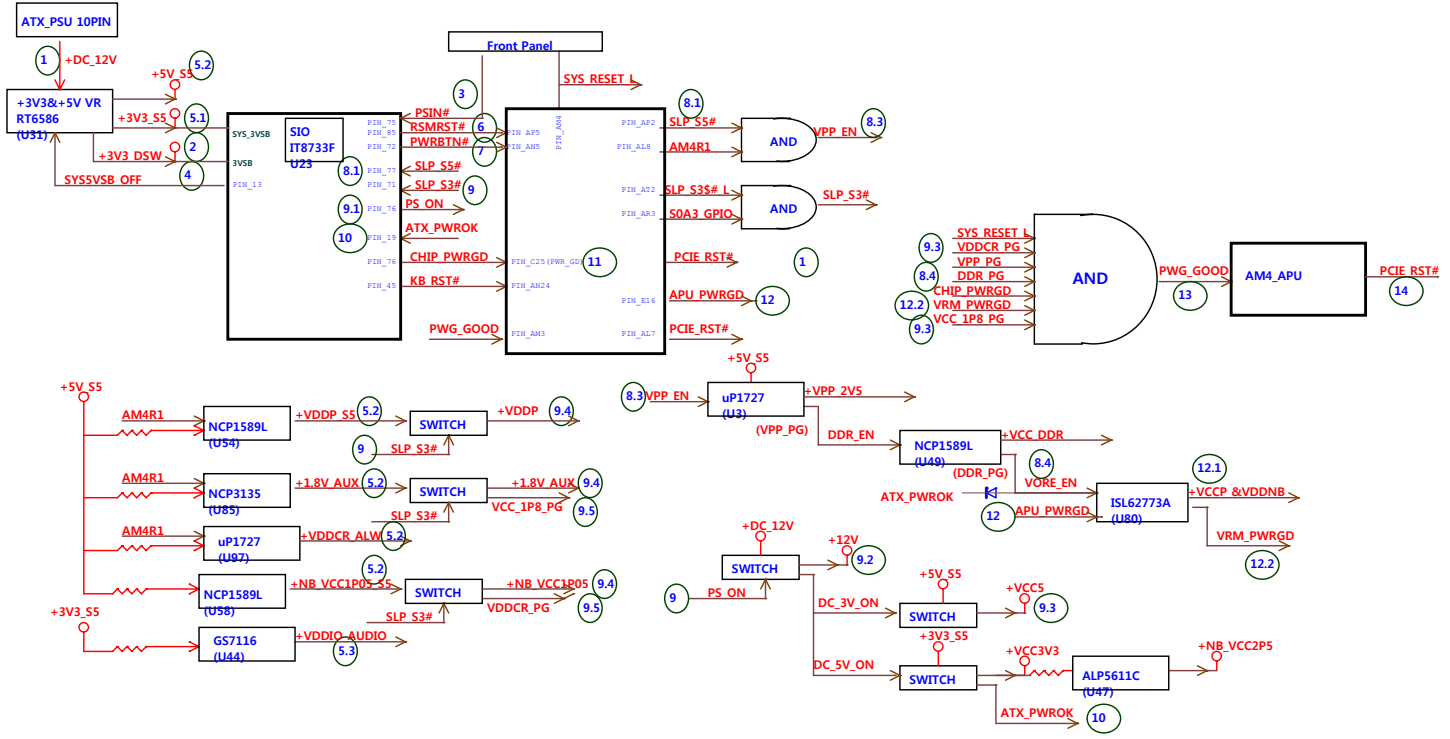
Title: Manual & Option Parts

Size | Document Number: MS-7C26 | Rev: 1.0

Date: Wednesday, May 29, 2019 | Sheet 41 of 47

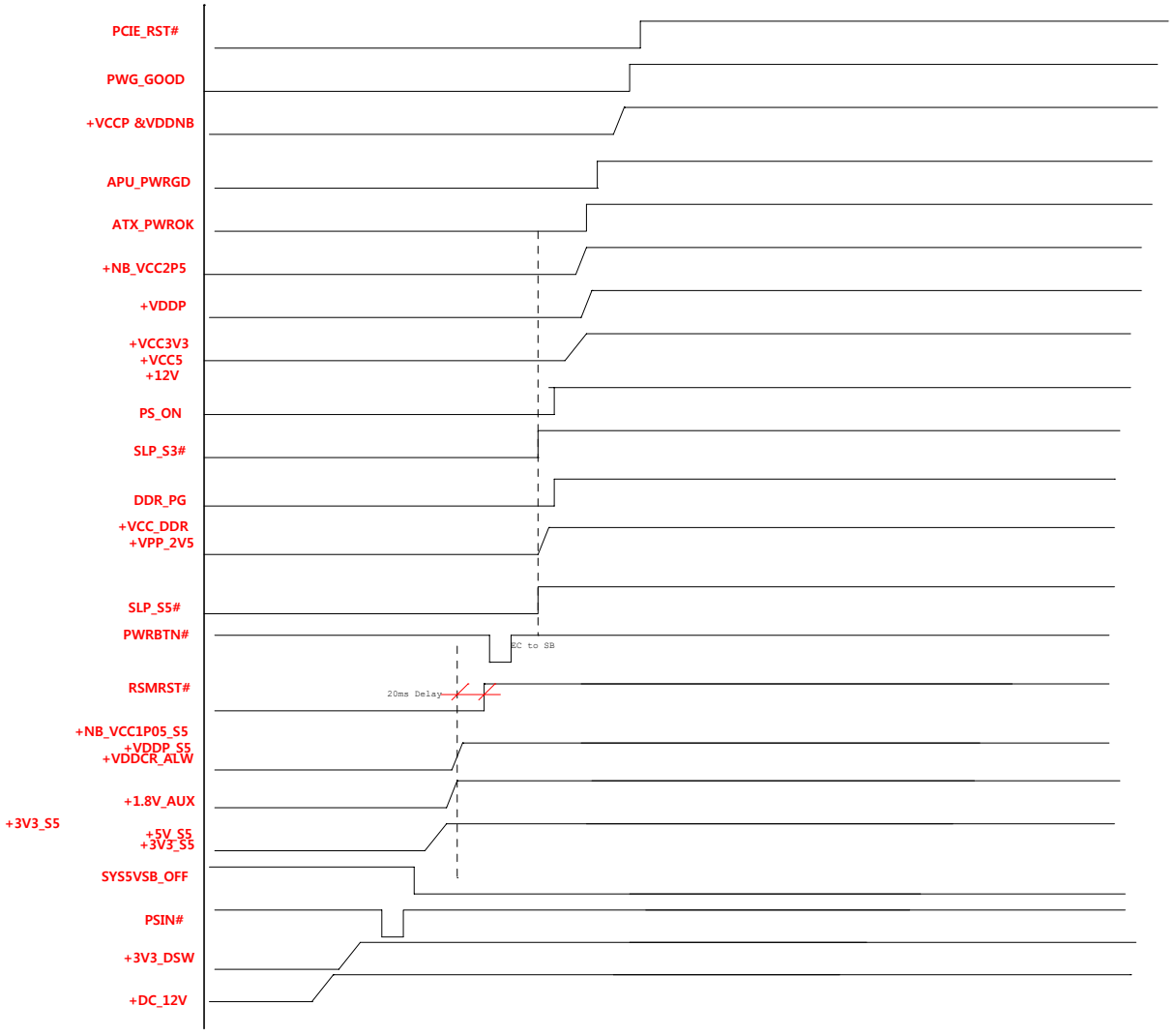

ATX Power 2X5Pin
+DC_12V
ATX 2X2Pin
+12V_B_DSW
Mosfet-P
+VIN
17A
ISL62773
+VCCP +VDDNB
3+2 Phase Switch
CHOKE
Mosfet-P
CHOKE
+12V
RT6586
Switch 3V , 5V
UP1727
+VDDCR_ALW
NCP1589L
+VDDP_S5
NCP3135
+1.8V_AUX
GS7166
Mosfet-N
Mosfet-N
Mosfet-N
BEAD
+VCC3V3
21A
+VCC5
6.5A
+5V_S5
13A
+3V3_S5
5.5A
+3V3_DSW
20mA
NCP1589L
1.2V DDR POWER
1.2V SWITCH
+VCC_DDR
25A
NCP1589L
+VDDP_S5
APLS611
Mosfet-N
Mosfet-N
Mosfet-P
+5V_USB
3.8A
+LAN_3V3SB
0.37A
UP1727
+VPP_2V5
1Phase Switch
+VPP_2V5
3A
UP8809
0.6V DDR POWER
0.6V Brake
+VTT_DDR
1.1A
UP7549
UP7549
Mosfet-N
Mosfet-N
Mosfet-N
APU
VDDCR_CPU - 65A
VDDCR_SOC - 50A
VDDCR_SOC_S5 - 0.9A
VDDIO_MEM_S3 - 6A or 15.5A
VDDP - 8.5A
VDDP_S5 - 1A
VDD_33 - 0.25A
VDD_33_S5 - 0.25A
VDD_18 - 2A
VDD_18_S5 - 0.5A
VDDIO_AUDIO - 0.25A
VDDBT_RTC_G - 4.5uA
FCH
VDD105 -5.5A
VSUS105 - 50mA
VCC25 - 900mA
VCC3 - 200mA
VSUS33 - 70mA
SIO(IT8783)
+3V3_S5 - 8mA
+3V3_DSW - 20mA
+VCC3V3 - 1mA
+VBAT - 1uA
DIMM (2 Channel / 1 Per Channel)
+VCC_DDR - 9.4A
+VTT_DDR - 1.1A
+VPP_2V5 - 3A
LAN 8111GN-CG
+LAN_3V3SB - 70mA
+V_1P0_LAN - 300mA
M2_WIFI
+LAN_ML_3V3SB - 1A
M2_SSD
+VCC3 - 2A
AUDIO ALC662-VD
+5V_S5 - 42mA
+VCC3V3 - 11mA
TPM
+VCC3V3 - 5mA
+3V3_S5 - 20mA
ITE8893(PCIE To PCI Bridge)
+VCC3V3 - N/A
+3V3_S5 - N/A
PCI Express x16 Slot
+12V - 5.5 A
+VCC3V3 - 3A
+3V3_S5 (wake) - 375mA
+3V3_S5 (no wake) - 20mA
PCI Express x1 Slot *2
+12V - 1 A
+VCC3V3 - 6A
+3V3_S5 (wake) - 750mA
+3V3_S5 (no wake) - 40mA
PCI Slot *1
+12V - 0.5 A
+VCC3V3 - 7.6A
+VCC5 - 5A
+3V3_S5 (wake) - 375mA
+3V3_S5 (no wake) - 20mA
FAN *4
+12V - 0.8A
DP1
+DP_PWR - 0.5A
DP2 COLAY HDMI
+DP_PWR - 0.5A
+HDMI_PWR_5V - 55mA
VGA
+HDMI_PWR_5V - 1A
FUSB2.0*4
+5V_S5 (S0) - 2A
+5V_S5 (S3) - 0.4A
FUSB3.0*2
+5V_S5 (S0) - 1.8A
+5V_S5 (S3) - 0.3A
RUSB3.0*2
+5V_S5 (S0) - 1.8A
+5V_S5 (S3) - 0.3A
RUSB2.0*2
+5V_S5 (S0) - 1A
+5V_S5 (S3) - 0.2A
PS2
+5V_S5 (S0) - 0.5A
+5V_S5 (S3) - 0.1A
+VBAT
DIODE
+3V3_DSW
3V Battery
Internal Switch
+V_1P0_LAN
MICRO-STAR INT'L CO.,LTD.
Power MAP
MS-7C85

Power Sequence Diagram



MSI	MICRO-START INT'L CO.,LTD
Power Sequence	
MS-7C26	1.0

Power Sequence Timings



MICRO-START INTL CO.,LTD.

Power Sequence Timings

MS-7C26 1.0

AM1

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AT33	GP10092	CLK_REQ0_1/SATA_ISO_L/SATA_2PO_L /AGP10092	GPI	GP10	CON_GPIO1_TEST	TP Point (design guide no require RIGH/LOW)
AV24	GP10115	CLK_REQ1_1_AGP10115	GPI	GP10	LPT_DETN_TEST	TP Point (design guide no require RIGH/LOW)
AT24	GP10116	CLK_REQ2_1/AGP10116	GPI	GPI	CLK_REQ2_1/AGP10116	GPI (NO_3 SIM Select)
AL33	GP10131	CLK_REQ3_1/SATA_ISI_L/SATA_IPI_L /RGP10131	GPI	GP10	RGP10131	TP Point (design guide no require RIGH/LOW)
AR32	GP10132	CLK_REQ_L/USOCIN/RGP10132	GPI	GP10	RGP10132	TP Point (design guide no require RIGH/LOW)

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AM4	GP1001	SYS_RESET_L/AGP1001	GPI/GP0	GPI	SYS_RESET_L	SYS_RESET_L
AL7	GP1002	PCIE_RST_L/RGP1002	GPI	GPI	PCIE_RST_L	PCIE_RST_L
AN5	GP1000	PWR_BTN_L/AGP1000	GPI	GPI	PWRBTN#	PWR_BTN_L
AL5	GP102	MARK_L/AGP102	GPI	GPI	MARK_L	Pull High
AT9	GP1011	SLINK/SIB_OCT_L/ AGP1011	GPO	GPO	CHARGE_EN	Pull High
AN24	GP10129	RSPI_RESET_L/ RESET_L/AGP10129	GPI	RESET_L	RESET#	RESET_L
AP4	GP1042	SL_MUX_CTRL/ RGP1042	GPI/GP0	GP0	SL_MUX_CTRL/RGP1042	GPO (SH:High / SS & IS:Low)
AR3	GP1010	SDA3_GP10/AGP1010	GPI/GP0	GP0	SDA3_GP10	SDA3_GP10

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AL1	GP1016	WSB_SCO_L/AGP1016	GPI	GPI	WIRELESS_EN1	GPO (External Pull High)
AM1	GP1017	WSB_SCI_L/TDI1/ AGP1017	GPI	GPI	WIRELESS_EN2	GPO (External Pull High)
AR1	GP1018	WSB_SCS_L/TCK/ AGP1018	GPI	GPI	CON_GPIO1	GPI (External Pull High)
AP1	GP1024	WSB_SCS_L/TDO/ AGP1024	GPI	GPI	LPT_DET#	GPI (External Pull High)

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW23	GP10091	SPKR/AGP1091	GP0	SPKR	SPKR	SPKR

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AU25	GP10113	SCL0/I2C3_SCL/ RGP10113	GPI/GP0	SMB	SMBCLK_SUM	SCL0
AK3	GP1019	SCL1/I2C3_SCL/AGP1019	GPI/GP0	SMB	SMBCLK	SCL1
AV25	GP10114	SDA0/I2C3_SDA/ RGP10114	GPI/GP0	SMB	SMBDATA_SUM	SDA0
AK2	GP1020	SDA1/I2C3_SDA/ AGP1020	GPI/GP0	SMB	SMBDATA	SDA1

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW18	GP10109	LFRAME_L/RGP10109	GP0	LPC	LPC_FRAME#	LFRAME_L
AU20	GP1074	LPCCLK0/RGP1074	GPI/GP0	LPC	LPC_CLK0_R	LPCCLK0
AU19	GP1075	LPCCLK1/RGP1075	GPI/GP0	LPC	LPC_CLK1_R	LPCCLK1
AV19	GP1088	LPC_CLKRUN_L/ AGP1088	GP0	LPC	CLKRUN#	LPC_CLKRUN_L
AV18	GP1021	LPC_PD_L/AGP1021	GP0	LPC	SUS_STAT#	LPC_PD_L
AL2	GP1022	LPC_PME_L/AGP1022	GP0	LPC	LPC_PME_L	GP0 High

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW20	GP10104	LAD0/RGP10104	GPI/GP0	LPC	LPC_AD0	LAD0
AV21	GP10105	LAD1/RGP10105	GPI/GP0	LPC	LPC_AD1	LAD1
AT21	GP10106	LAD2/RGP10106	GPI/GP0	LPC	LPC_AD2	LAD2
AT20	GP10107	LAD3/RGP10107	GPI/GP0	LPC	LPC_AD3	LAD3
AW21	GP1067	SERIRQ/AGP1067	GP0	SERIRQ	SPI_SIRQ#	SERIRQ

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AV15	GP10133	SPI_HOLD_L/ RSPI_DAT3/RGP10133	GPI/GP0	SPI	SPI_HOLD#	SPI_HOLD_L
AV16	GP10122	SPI_WP_L/RSPI_DAT2/ RGP10122	GPI/GP0	SPI	SPI_WP#	SPI_WP_L
AW14	GP10117	SPI_CLK/RSPI_CLK/ RGP10117	GPI/GP0	SPI	SPI_CLK	SPI_CLK
AU16	GP10121	SPI_D0/RSPI_DAT0/ RGP10121	GPI/GP0	SPI	SPI_DATAOUT	SPI_D0
AU14	GP10120	SPI_D1/RSPI_DAT1/ RGP10120	GPI/GP0	SPI	SPI_DATAIN	SPI_D1
AT17	GP10119	SPI_CS1_L/RGP10119	GPI/GP0	SPI	SPI_CS1	SPI_CS1_L
AW15	GP10119	SPI_CS2_L/RSPI_CS_L/ RGP10119	GPI/GP0	GP0	RGP10119	GPO (External Pull High)

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AU17	GP1076	SPI_TPM_CS_L/ AGP1076	GPI/GP0	SPI_TPM_CS_L	SPI_TPM_CS	SPI_TPM_CS_L

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
AN23	GP10084	PAWRG/AGP10084	GPI	GP10	AGP10084	TP Point (design guide no require RIGH/LOW)
AP23	GP1085	PAWRTG/AGP1085	GP0	GP10	PAWRTG	TP Point (design guide no require RIGH/LOW)
H19	GP1066	AGP1066/ DSTTCOMM_L	GPI/GP0	GPI	APS_PROCHOT#	DSTTCOMM_L

PCH-PROMONTORY

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
B5	GP1100	GP1100	GPI/GP0	GP0	DT_RESET#_GP10_R	PCIE 816 Reset CTL
B4	GP1101	GP1101	GPI/GP0	GPI	PCIE_C1	816 Cable DET
C6	GP102	GP102	GPI/GP0	GPI	PCIE_C2	816 Cable DET
B6	GP103	GP103	GPI/GP0	GP0	NC	GP0 High
A6	GP104	GP104	GPI/GP0	GP0	PCH_GP104	GP0 High
B2	GP106	GP106	GPI/GP0	GP1	SMDAC	GP0 High
C7	GP106	GP106	GPI/GP0	GP1	PCH_GP106	GP0 High
A2	GP107	GP107	GPI/GP0	GP0	NC	GP0 High

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
A2	GP10_B0	GP10_B0	GPI/GP0	GP0	DP1_CAB_DP_SDA1#	DP/HDMI CTL
B3	GP10_B1	GP10_B1	GPI/GP0	GP0	DP1_CAB_DP_SDA1#	DP/HDMI CTL
C4	GP10_B2	GP10_B2	GPI/GP0	GP1	CBASSI1_IS1	GP1
A3	GP10_B3	GP10_B3	GPI/GP0	GP1	CBASSI1_IS0	GP1

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
A24	GP10_B4	GP10_B4/DBB0023	GPI/GP0	GP0	PCH_GP10_B4	TCH_EN1
A20	GP10_B5	GP10_B5/DBB0023	GPI/GP0	GP1	PCH_GP10_B5	TCH_EN2
E25	GP10_B6	GP10_B6/DBB0024	GPI/GP0	GP0	BIB_CHARGE_OC_DET	GP0 High
B20	GP10_B7	GP10_B7/DBB0025	GPI/GP0	GP1	CLK_CM00	CLK_CM00
F24	GP10_B8	GP10_B8/DBB0026	GPI/GP0	GP0	NC	GP0 High
E22	GP10_B9	GP10_B9/DBB0027	GPI/GP0	GP1	BM_ID4	BOM OPTION
E20	GP10_B10	GP10_B10/DBB0028	GPI/GP0	GP1	BM_ID5	BOM OPTION

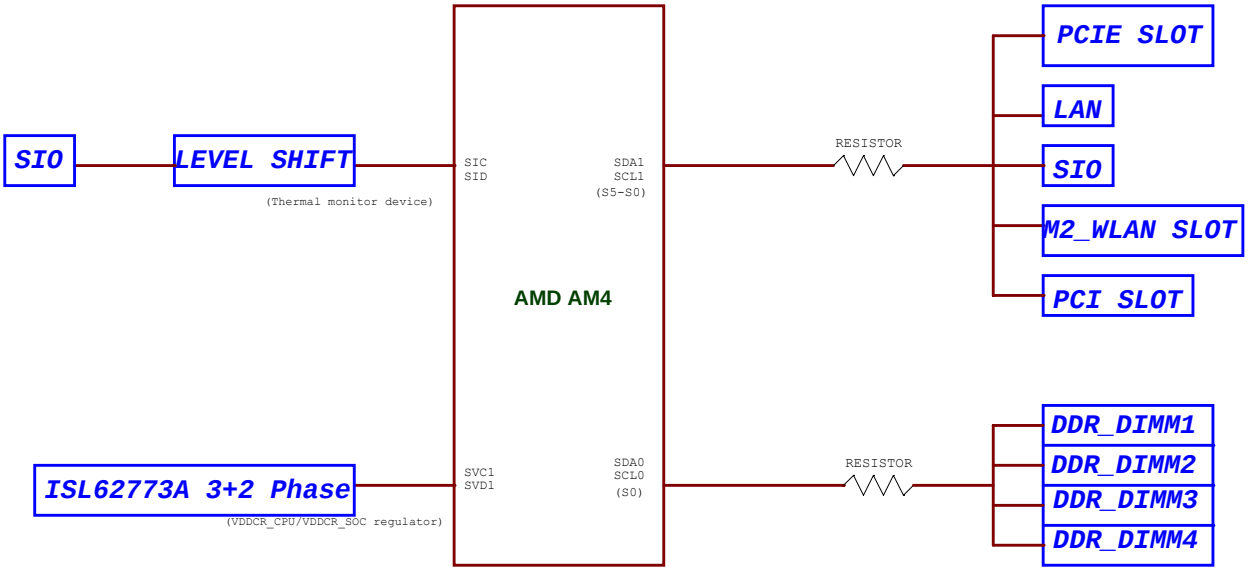
F23	GP10_B11	GP10_B11/DBB0029	GPI/GP0	GP1	BM_ID6	BOM OPTION
F26	GP10_B12	GP10_B12/DBB0030	GPI/GP0	GP1	BM_ID1	BOM OPTION
E23	GP10_B13	GP10_B13/DBB0031	GPI/GP0	GP1	BM_ID2	BOM OPTION

PIN	GP10	Name	Default	Define	Signal Name V1.0	Setting V1.0
B21	GP10_B14	GP10_B14/DBB0C7	GPI/GP0	GP1	BM_ID3	BOM OPTION
A21	INT_GP10	INT_GP10/DBB0B5	GP0	GP1	PM_INT	PM_INT

SUPER IO-IT8772E

PIN	GPIO	Function description	Type	Setting
36	GPIO17	RI2#/GP17	RI2#	RI2#
7	GPIO10	SVID_CTRL#/CIRRX2/GP10	DEEP_S5	SVID_CTRL#
5	GPIO15	PCIRST3#/CIRTX2/GP15/CPU_PO	NC	Pull High
31	GPIO14	VCORE_EN#/PCH_CLK/GP14	LPC_SMI_L	Pull Low
32	GPIO13	PWRON1/GP13	SIO_PWRON	PWRON1 (High)
35	GPIO12	PCIRST1#/GP12	PCIRST1#	PCIRST1#
34	GPIO11	PCIRST2#/GP11	PCIRST2#	PCIRST2#
94	GPIO10	PCIRST3#/GP10	SIO_LAN_WAKE#	Pull Low
20	GPIO27	SIN2/GP27	SIN2	SIN2
21	GPIO26	SOUT2/GP26	SOUT2	SOUT2
22	GPIO25	DSR2#/GP25	DSR2#	DSR2#
23	GPIO24	RTS2#/GP24	RTS2#	RTS2#
24	GPIO23	SIN2/P23	SIO_SI	SI
25	GPIO22	SCK/GP22	SIO_SCK_R	SCK
26	GPIO21	DCD2#/GP21	DCD2#	DCD2#
27	GPIO20	CTS2#/GP20	CTS2#	CTS2#
17	GPIO17	FAN_TAC3/GP17	AUX1_FAN_TAC	FAN
13	GPIO36	FAN_CTL3/GP36	AUX1_FAN_PWM	FAN
14	GPIO35	FAN_TAC4/GP35	AUX2_FAN_TAC	FAN
15	GPIO34	SUSWARN#/GP34	PWR_LED	Pull High
16	GPIO33	SUSACK#/GP33	NC	Pull High
17	GPIO32	DPWROK/GP32	SUS_LED	Pull High

18	GPIO31	PWMOUT/GP31/USBPWREN2#	NC	Pull High
19	GPIO30	ATXPG/GP30	ATX_PWROK_R	ATXPG
72	GPIO44	PWRON#/GP44	PWRBTN#_R	PWRON#
75	GPIO43	PANSWH#/GP43	PSIN#	PANSWH#
76	GPIO42	PSON#/GP42	PS_ON#	PSON#
78	GPIO41	PWRCK2/GP41	NC	Pull High
79	GPIO40	3VSBSWI/GP40	LAN_PWREN	Pull High
87	GPIO58	MCLK/GP58	MSCLK	MCLK
82	GPIO57	MDAT/GP57	MSDATA	MDAT
81	GPIO60	KCLK/GP60	KBCLK	KCLK
80	GPIO61	KDAT/GP61	KBDATA	KDAT
45	GPIO62	KRST#/GP62	KBRST#	KRST#
85	GPIO55	RSMRST#/CIRRX1/GP55	RSMRST#	RSMRST#
73	GPIO54	PME#/GP54/USBPWREN1#	WUC_GPIO	Input GPIO
77	GPIO53	SUSC#/GP53	SLP_SUS_SIO	SUSC#
10	GPIO52	FAN_TAC2/GP52	SYSFAN_TAC	FAN
11	GPIO51	FAN_CTL2/GP51	SYSFAN_PWM	FAN
48	GPIO50	SO/GP50	SIO_SO_R	SO



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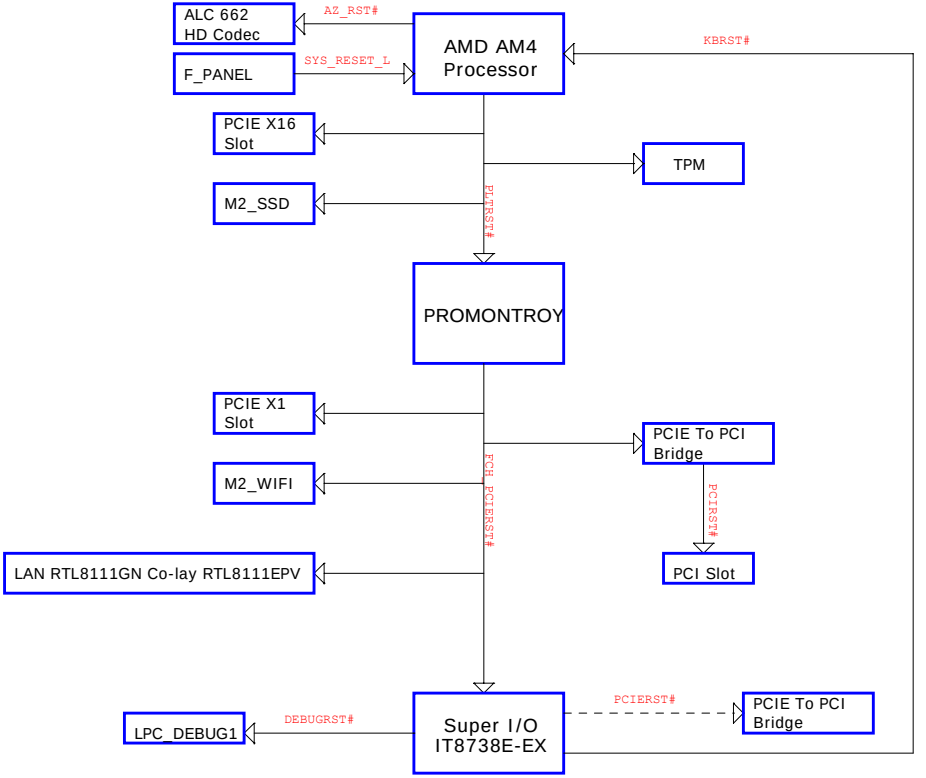
RESET MAP



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