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)

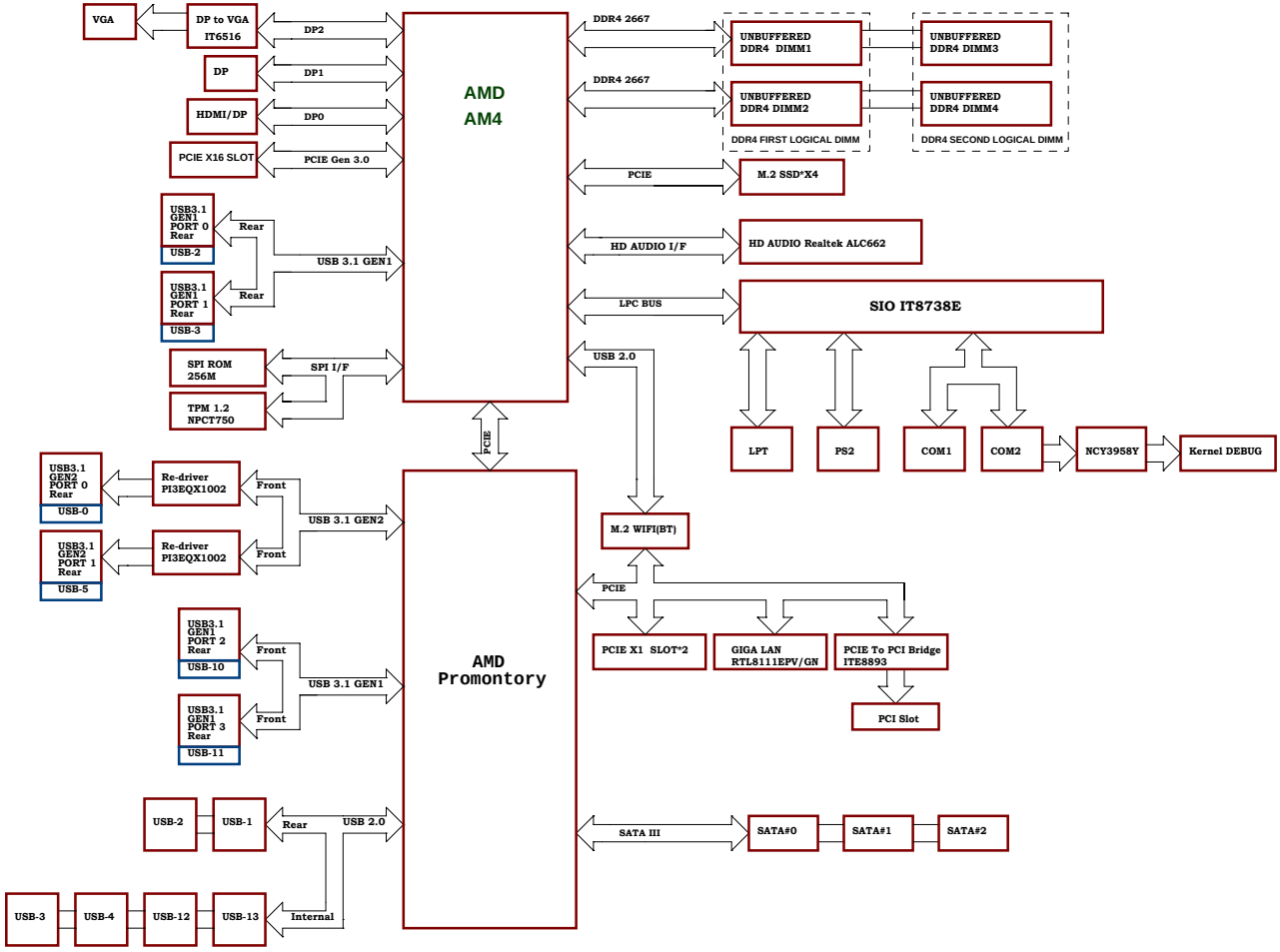
Expansion Slot :

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

lenovo

MSI 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

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Title: **Block Diagram**

Size	Document Number	Rev
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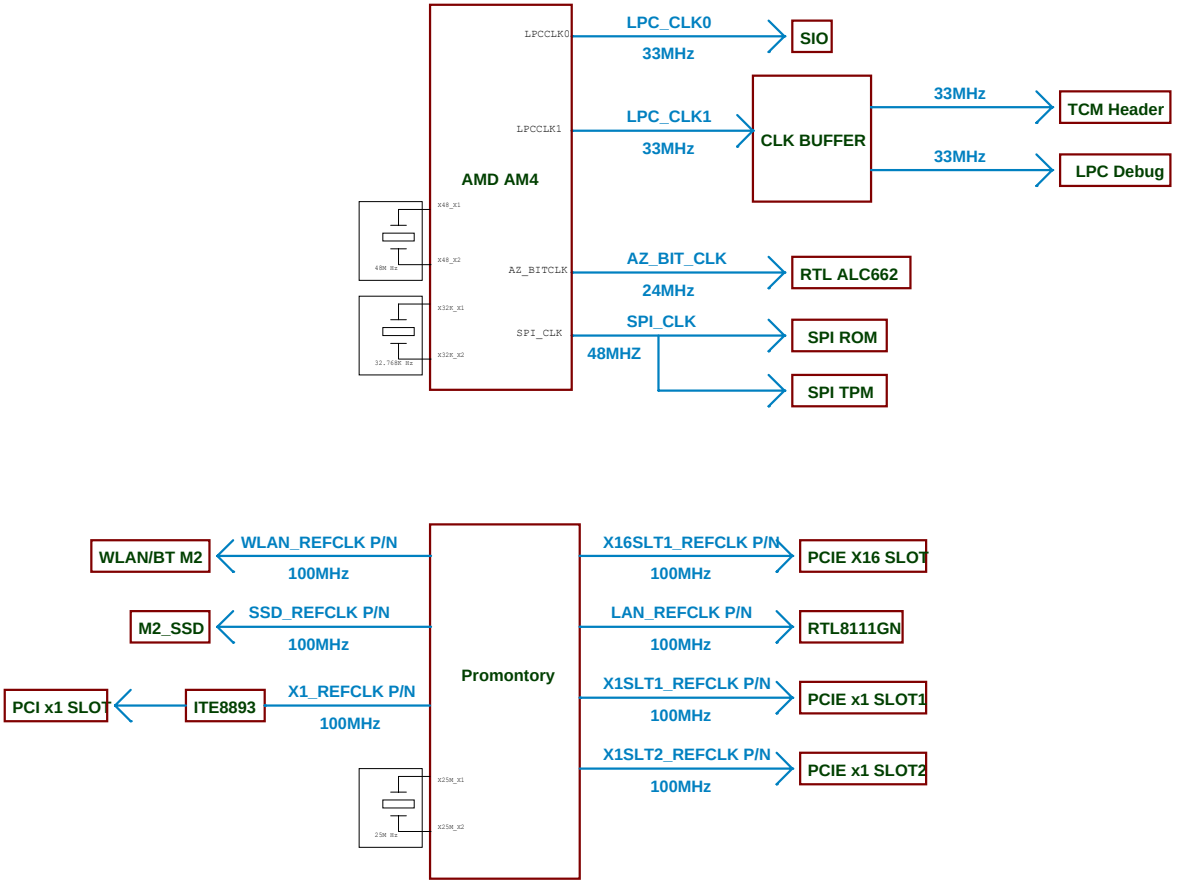

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Title: Clock Distribution

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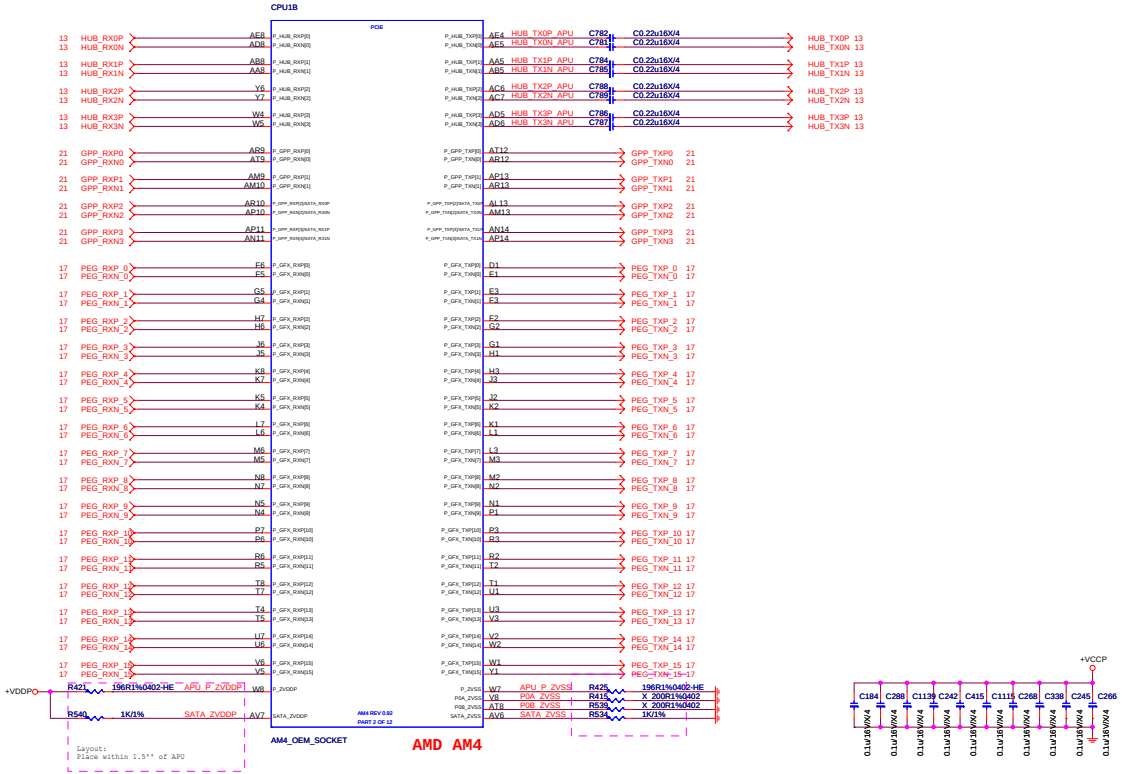
Date: Monday, May 27, 2019 | Sheet 3 of 47

AM4 PCIE I/F

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



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

Title	CPU-Memory	
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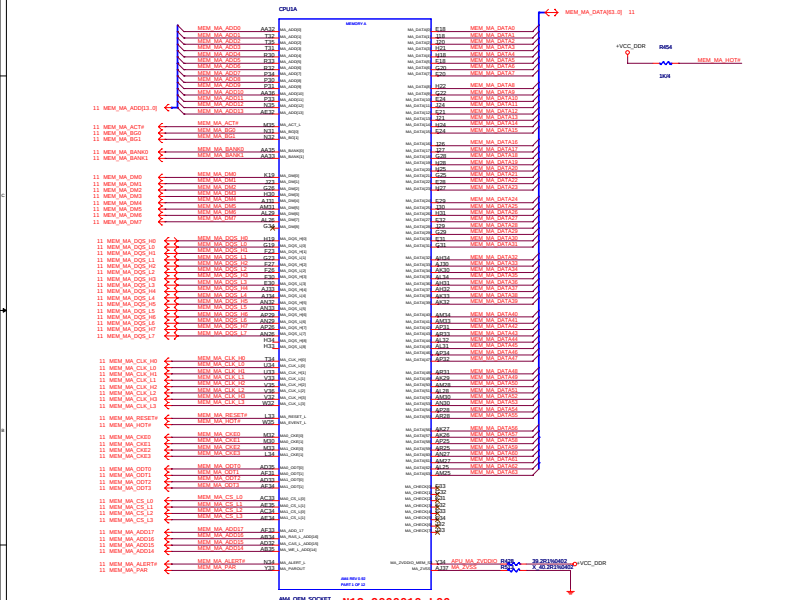
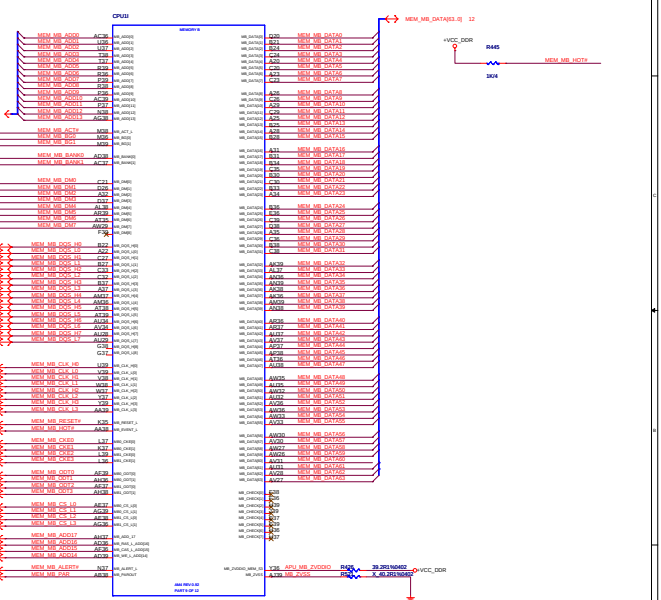
Date: Monday, May 27, 2019	Sheet 4 of 47	

AM4 DDR4 I/F(A)



AM4 DDR4 I/F(B)



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Title	CPU-Memory	
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AM4 DISPLAY /MSIC

PULL UP

HDT+ Connector

VID OVERRIDE CIRCUIT

WARM RESET

AMD AM4

N31-2100170-S88

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	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
Size	Document Number MS-7C26 Rev 1.0
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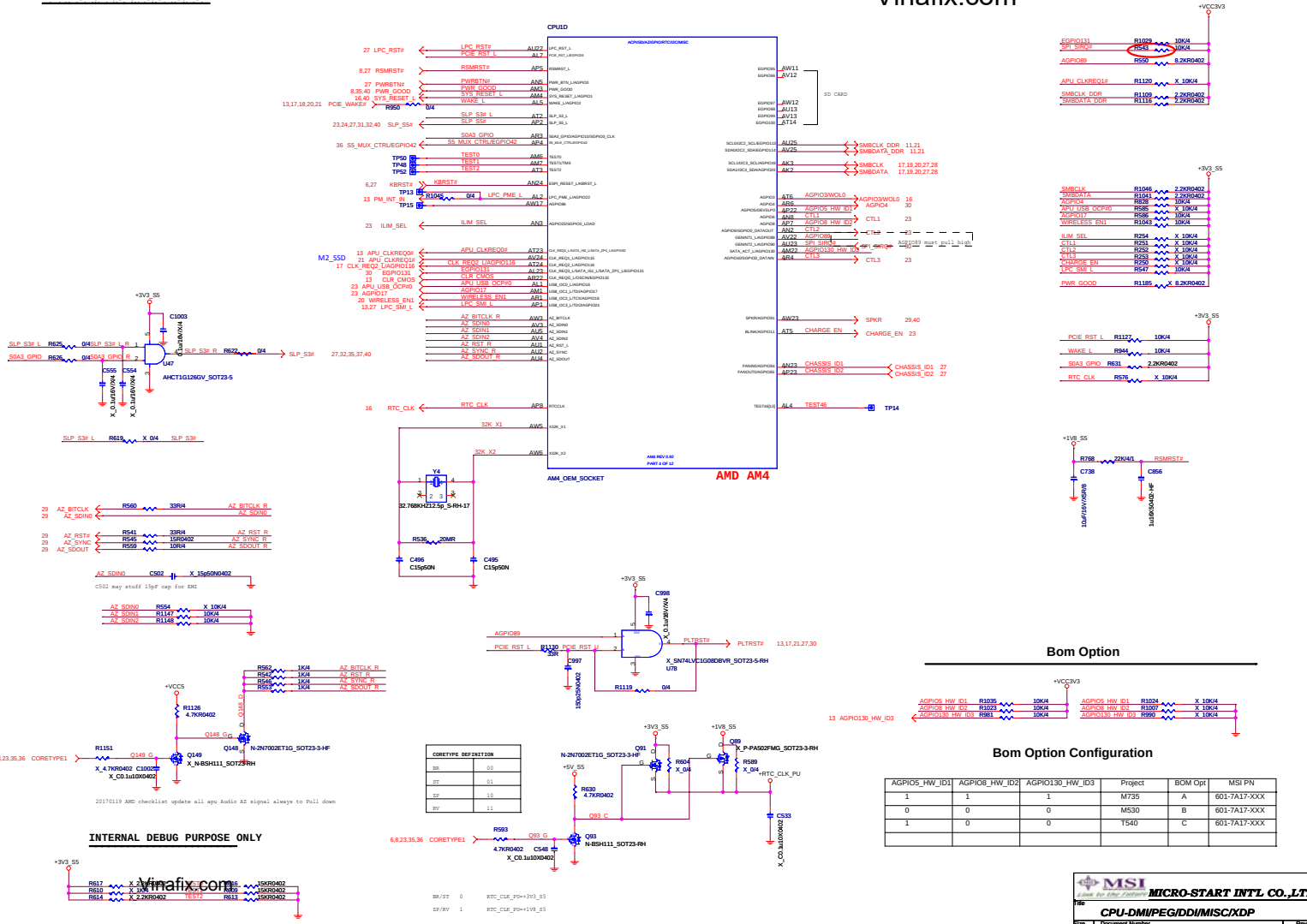
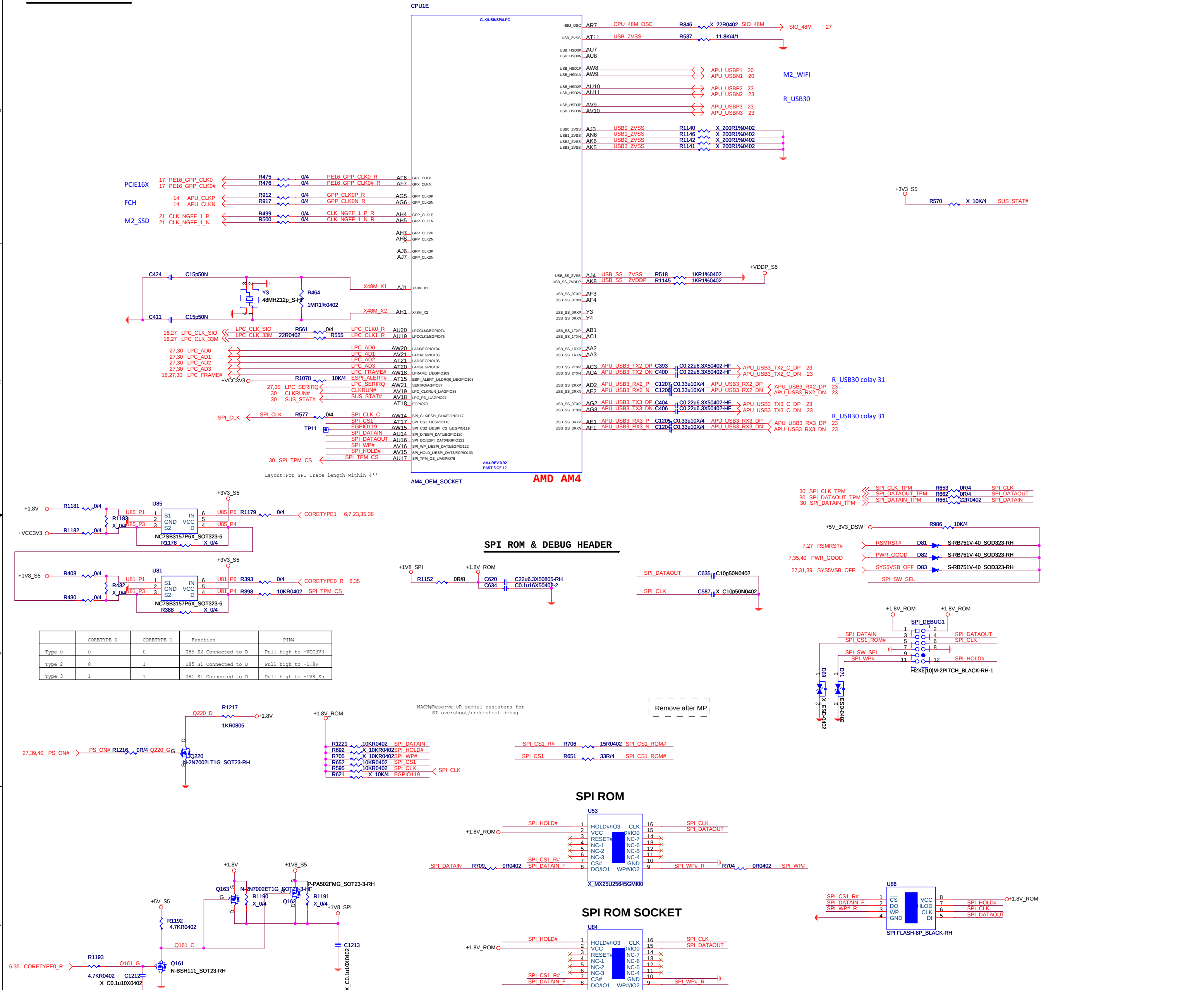
MICRO-START INT'L CO.,LTD.



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



	CORETYPE 0	CORETYPE 1	Function	PIN4
Type 0	0	0	U85 S2 Connected to D	Pull high to +VCC3V3
Type 2	0	1	U85 S1 Connected to D	Pull high to +1.8V
Type 3	1	1	U81 S1 Connected to D	Pull high to +1V8_S5

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Title: CPU-DMI/PEG/DDI/MISC/XDP

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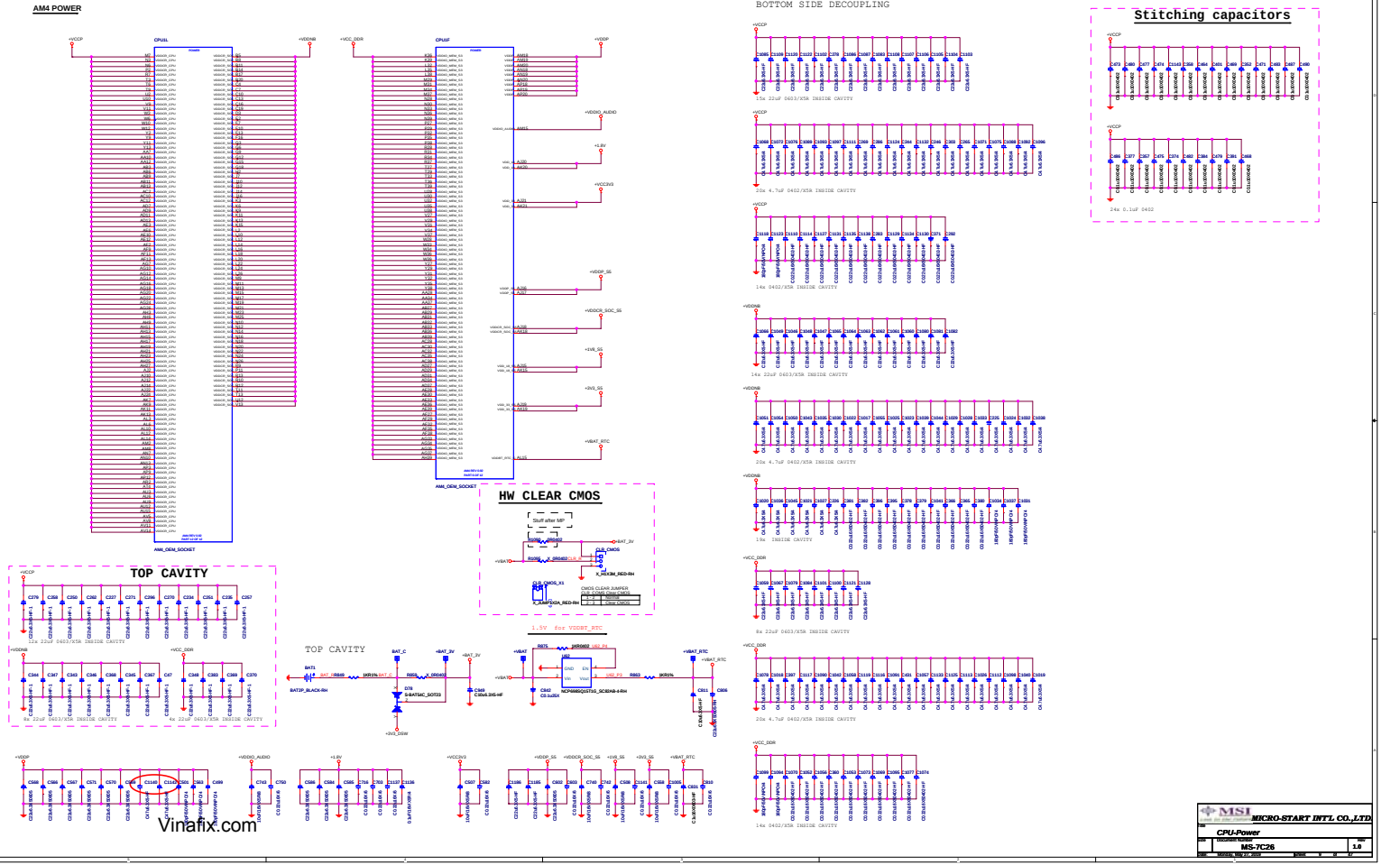
AM4 POWER
CPU1L
CPU1F
AM4_OEM_SOCKET
BOTTOM SIDE DECOUPLING
Stitching capacitors
15x 22uF 0603/X5R INSIDE CAVITY
20x 4.7uF 0402/X5R INSIDE CAVITY
24x 0.1uF 0402
14x 0402/X5R INSIDE CAVITY
14x 22uF 0603/X5R INSIDE CAVITY
TOP CAVITY
19x INSIDE CAVITY
8x 22uF 0603/X5R INSIDE CAVITY
HW CLEAR CMOS
Stuff after MP
CLR_CMOS
CLR_CMOS_X1
X_RX3M_RED-RH
CMOS CLEAR JUMPER
1.5V for VDDMT_RTC
BAT1
BAT2P_BLACK-RH
D76
B-BAT54C_SOT23
U52
NCP4685QS15T1G_SC82AB-4-RH
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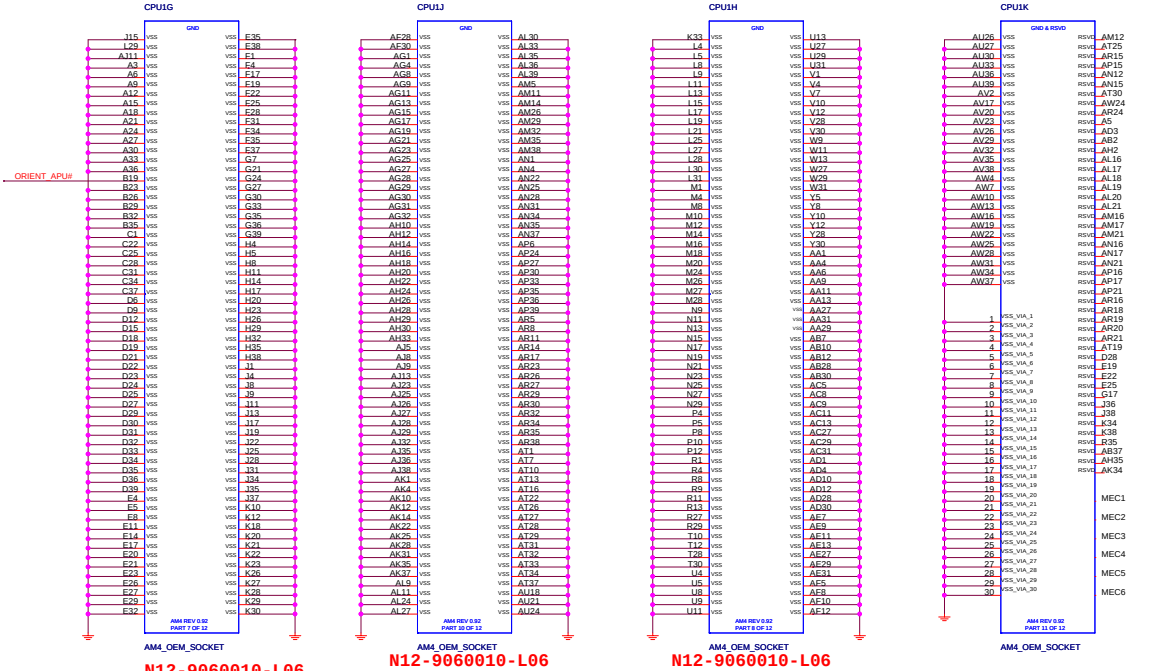
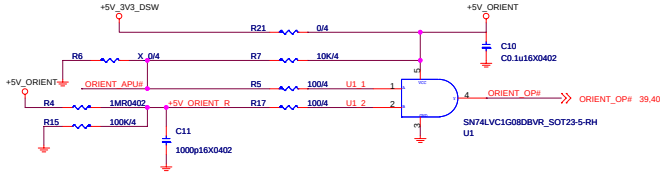
MSI
MICRO-STAR INT'L CO.,LTD.
CPU-Power
MS-7C26
1.0

AM4 GND





MICRO-START INT'L CO.,LTD.

Title	CPU-GND	
Size	Document Number MS-7C26	Rev 1.0
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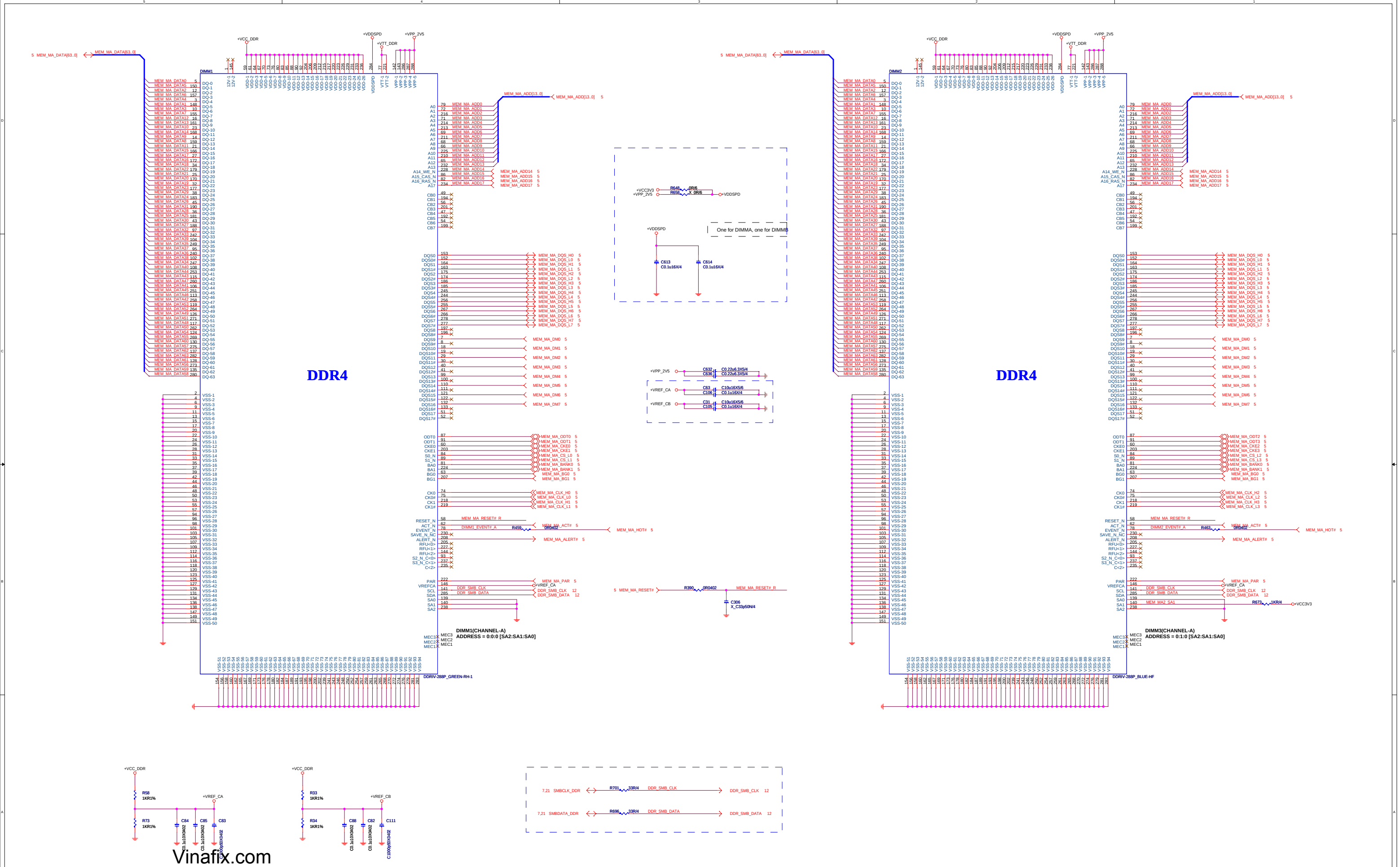
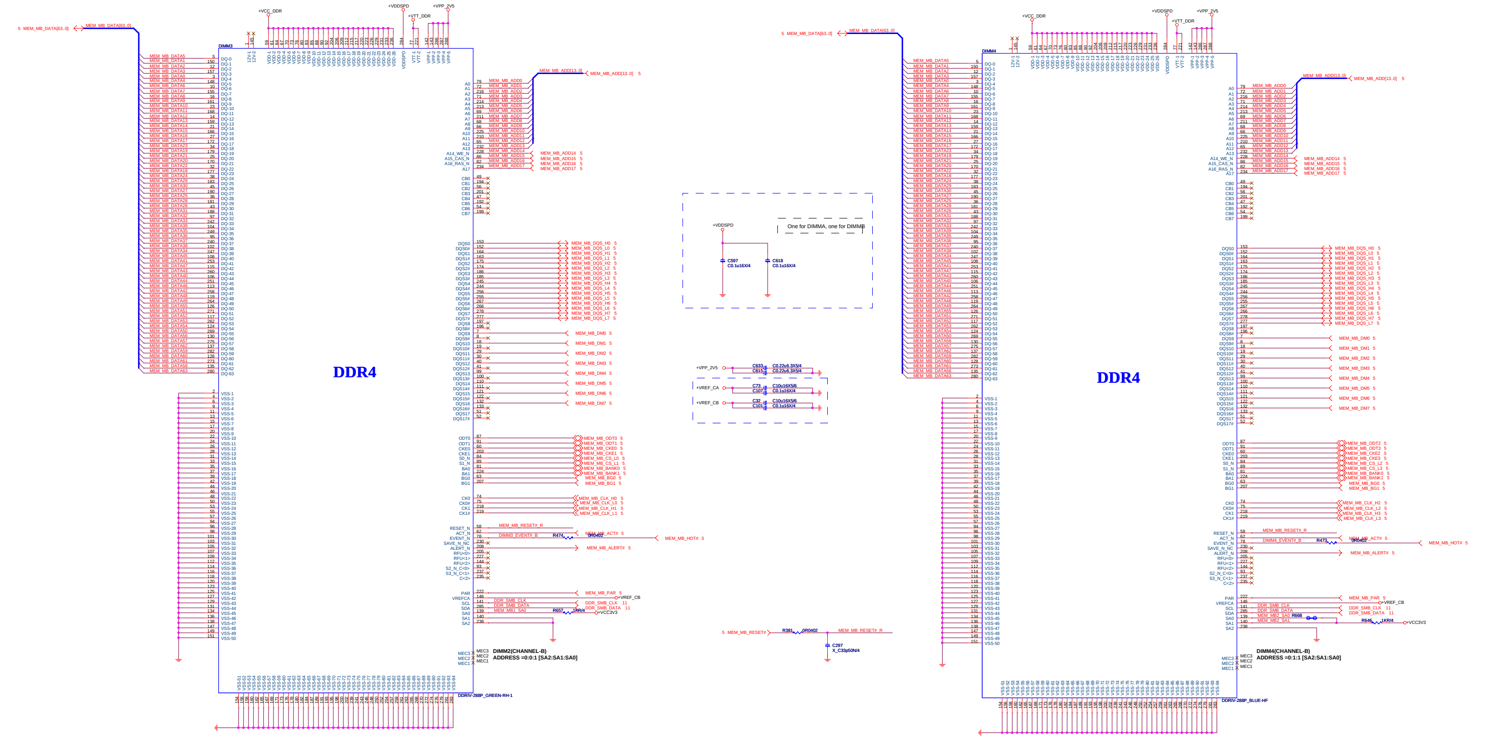


MICRO-START INT'L CO.,LTD.

Title: DDR4-DIMM1/DIMM3

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

Date: Monday, May 27, 2019 | Sheet 11 of 47



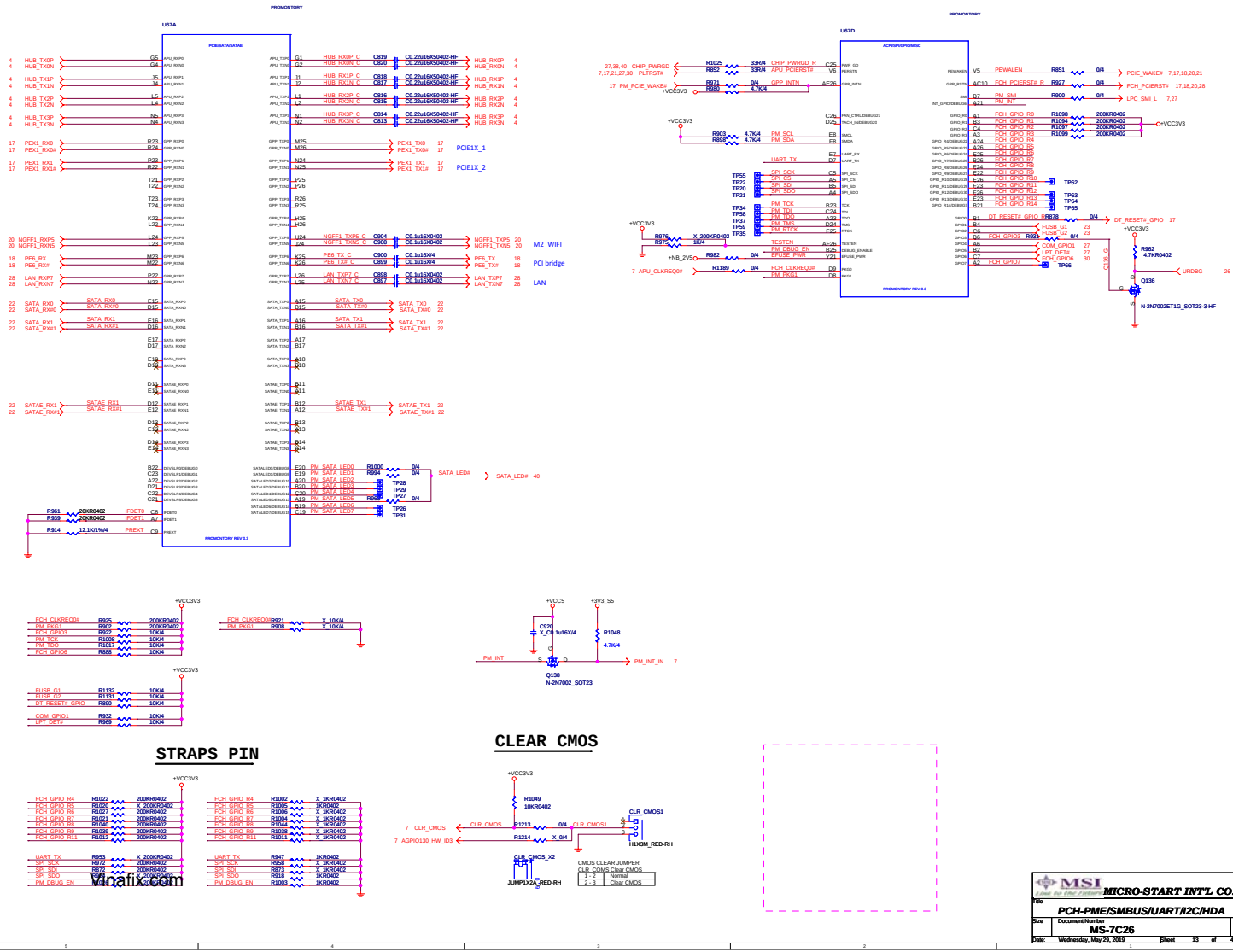
MSI MICRO-START INT'L CO.,LTD.

Title: DDR4-DIMM2/DIMM4

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

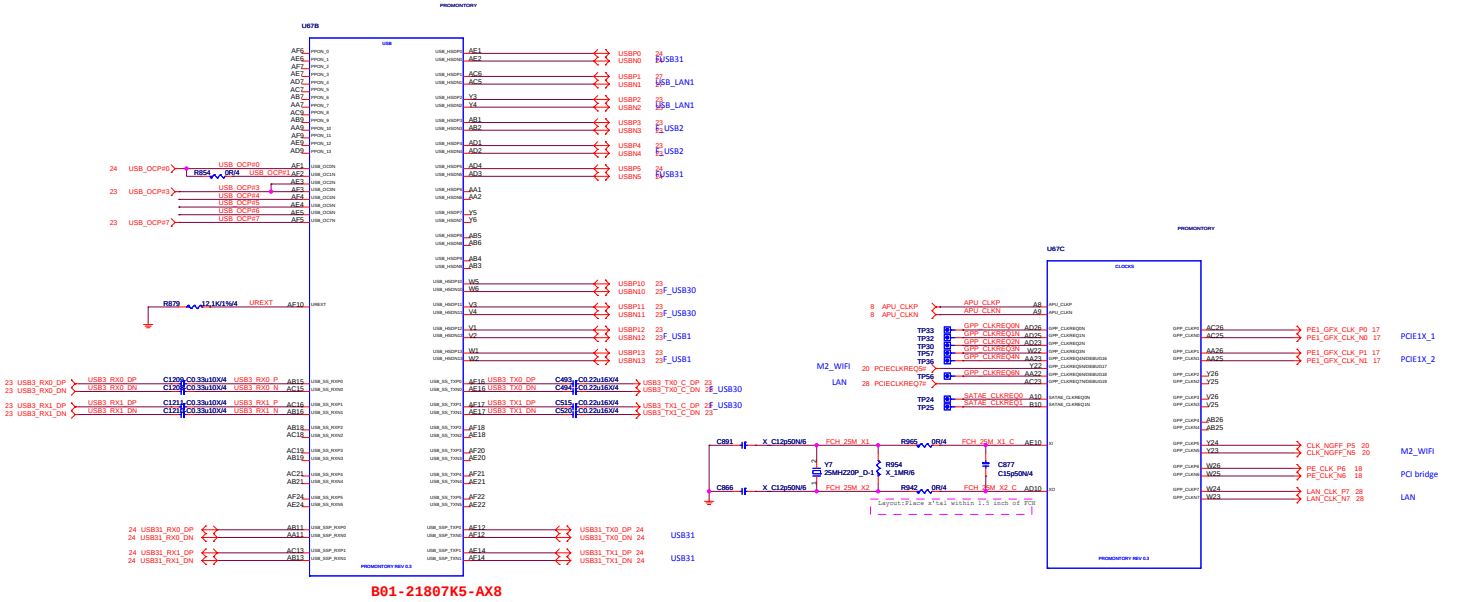
Date: Monday, May 27, 2019 | Sheet 12 of 47

PROMONTORY PCIe/SATA/GPIO



MSI	MICRO-START INT'L CO.,LTD	
Title	PCH-PME/SMBUS/UART/I2C/HDA	
Size	Document Number MS-7C26	Rev 1.0
Date: Wednesday, May 29, 2013	Sheet 13 of 47	

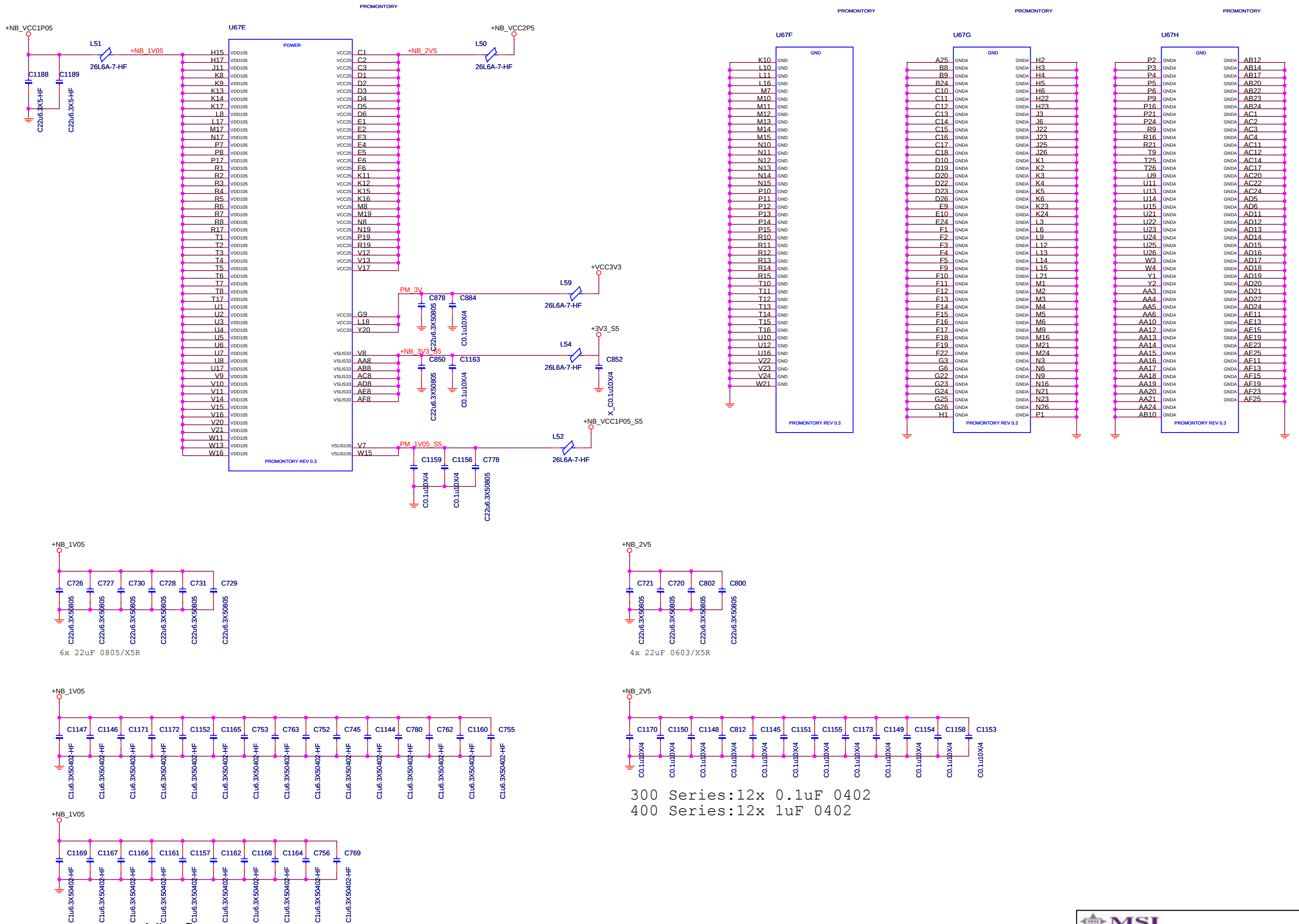
PROMONTORY USB/CLOCK



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

Title	PCH-Clock/LPC/FAN/SPI/PECI	
Size	Document Number MS-7C26	Rev 1.0
Date: Wednesday, May 29, 2019	Sheet 14 of 47	

PROMONTORY POWER



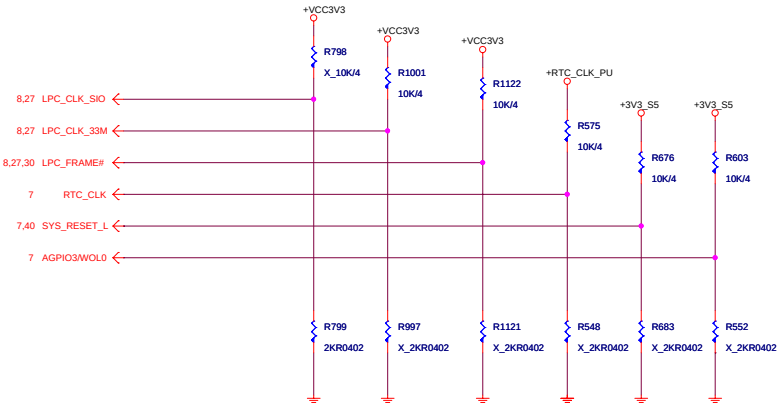
MSI
MICRO-START INT'L CO.,LTD.

Title: PCH-Power

Size	Document Number	Rev
	MS-7C26	1.0

Date: Wednesday, May 29, 2019 Sheet 15 of 47

REQUIRED STRAPS



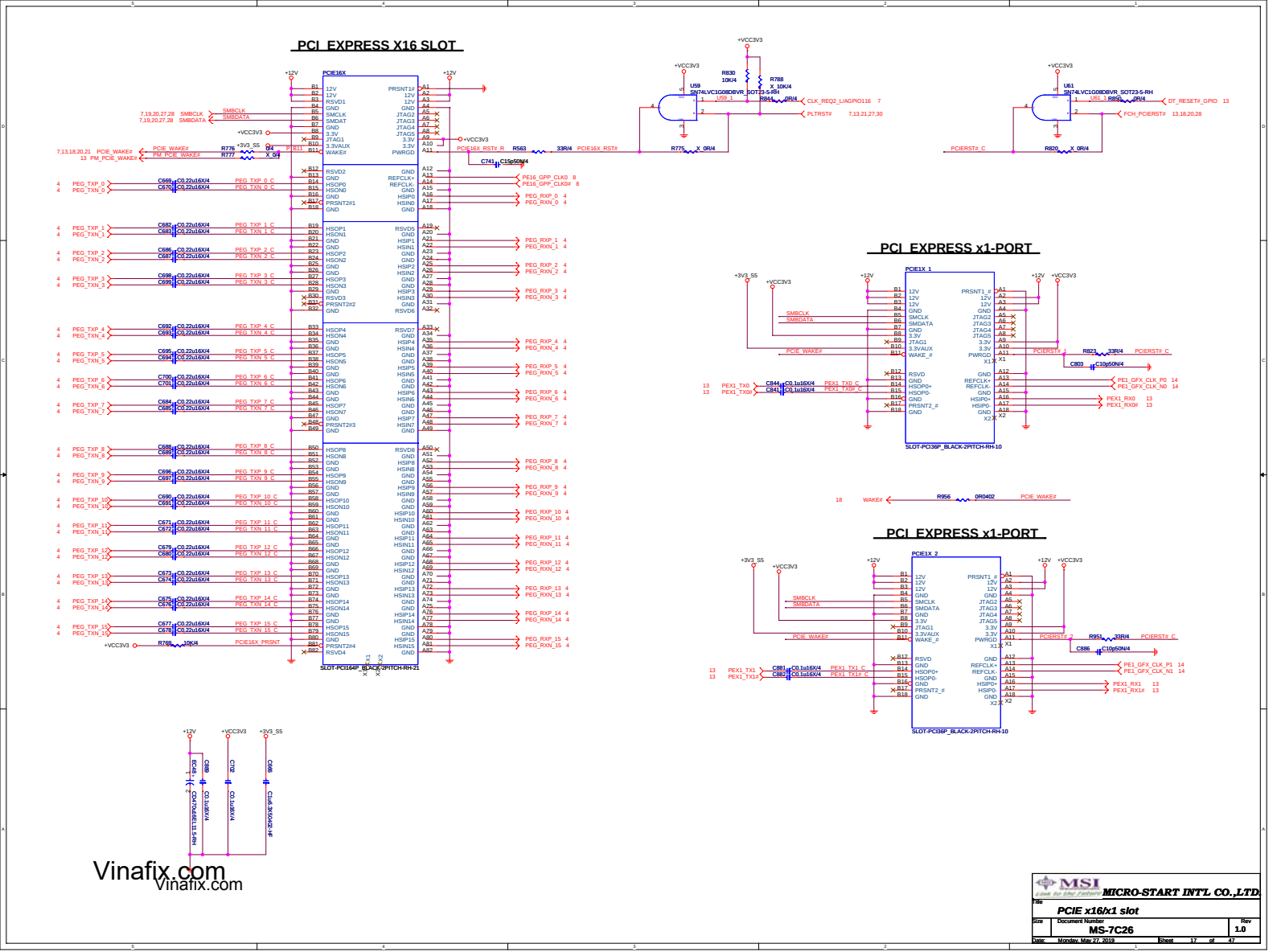
	LPC_CLK0	LPC_CLK1	AGPIO3	RTC_CLK	LFRAME_L	SYS_RST#	SPI CLK (ZP)
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)	Enhanced reset logic (for quicker S5 S5 resume) (DEFAULT)	Coin battery is on board. (DEFAULT)	SPI ROM (DEFAULT)	normal reset 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.

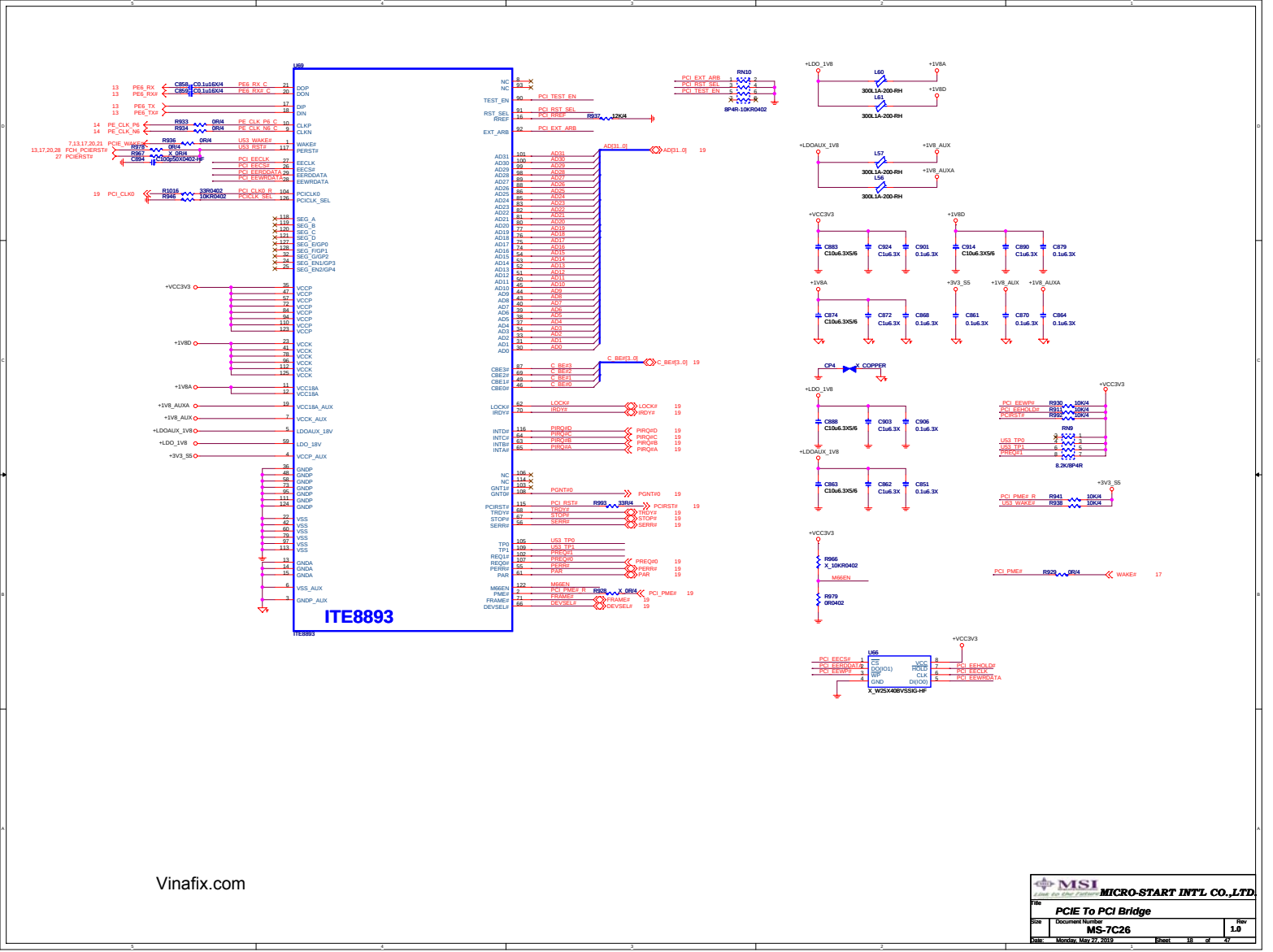
Title: PCH-GND

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

Date: Monday, May 27, 2019 | Sheet 16 of 47



MSI Link to the Future	MICRO-START INTL CO.,LTD		
Title	PCIE x16/x1 slot		
Size	Document Number	MS-7C26	Rev 1.0
Date:	Monday, May 27, 2019	Sheet 17 of 47	



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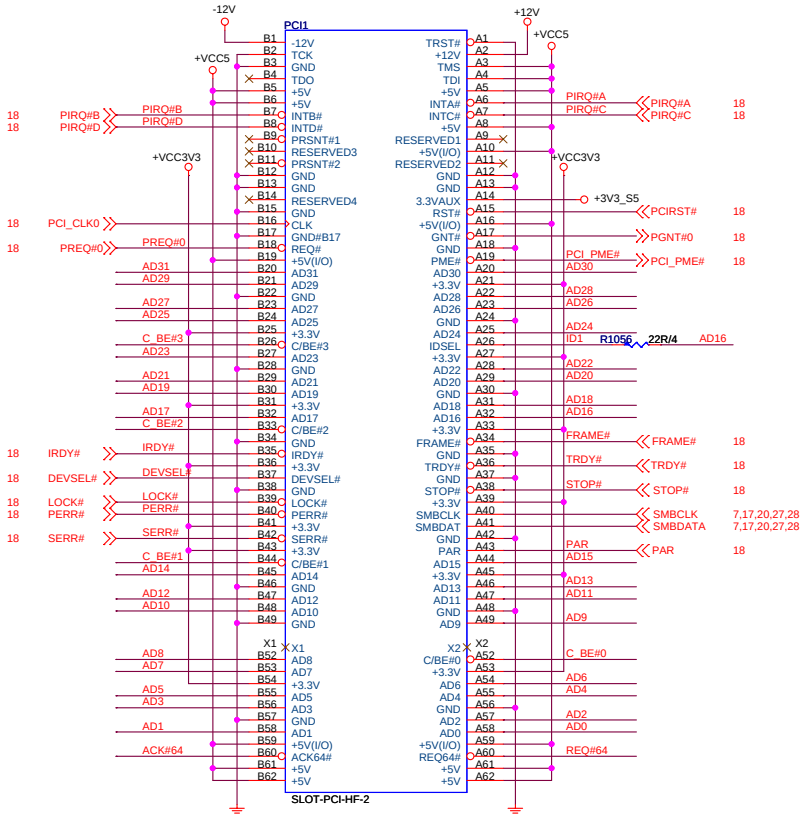
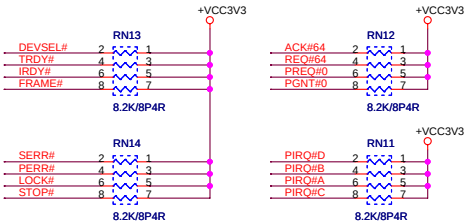
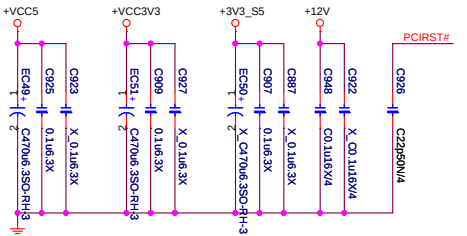
MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title	PCIE To PCI Bridge		
Size	Document Number	MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 38 of 47		



PCI PULL-UP / DOWN RESISTORS



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



IDSEL = AD16
MASTER = PREQ#0
PIRQ#A

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Title	PCI Slot	
Size	Document Number: MS-7C26	Rev: 1.0
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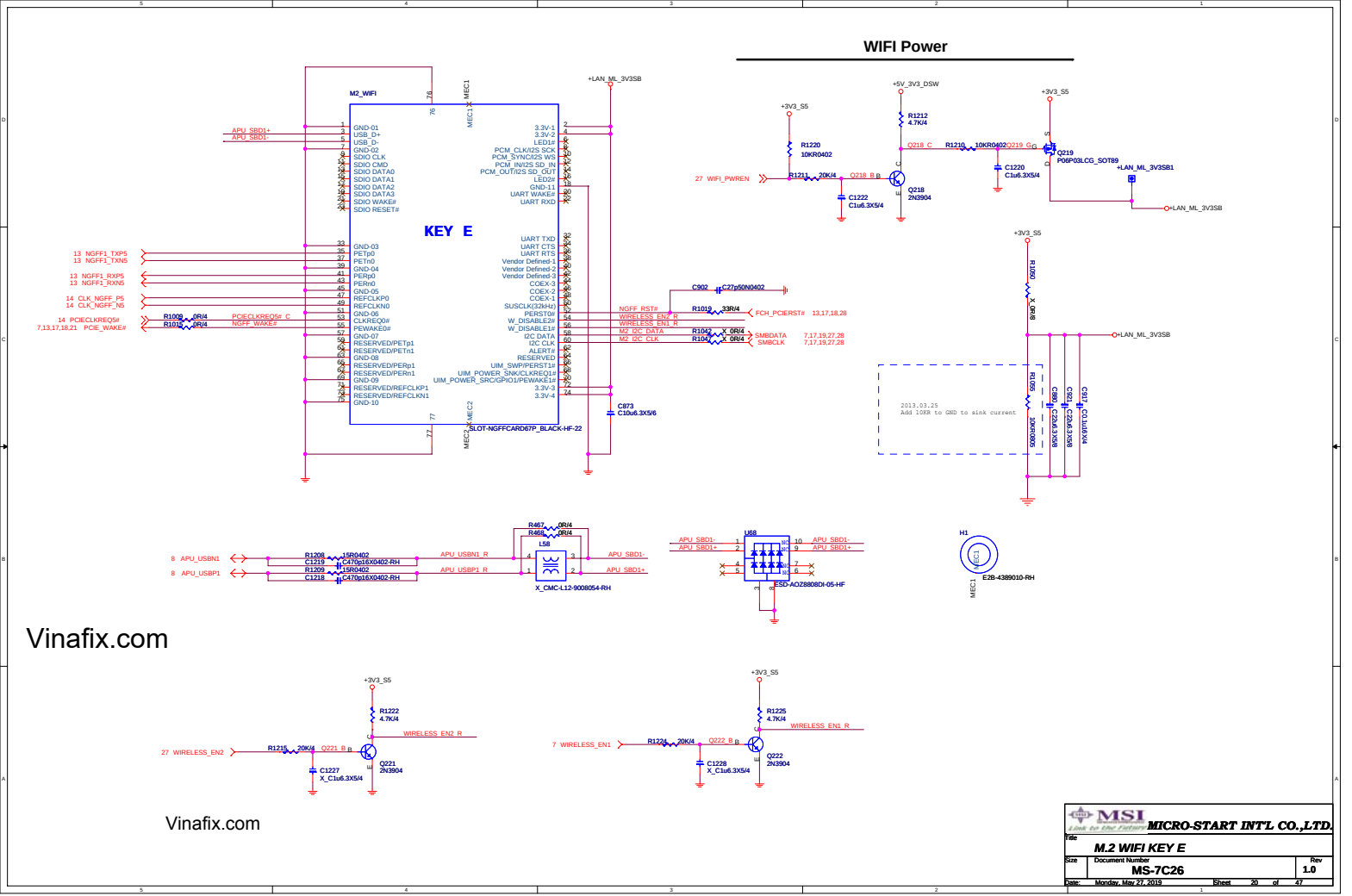

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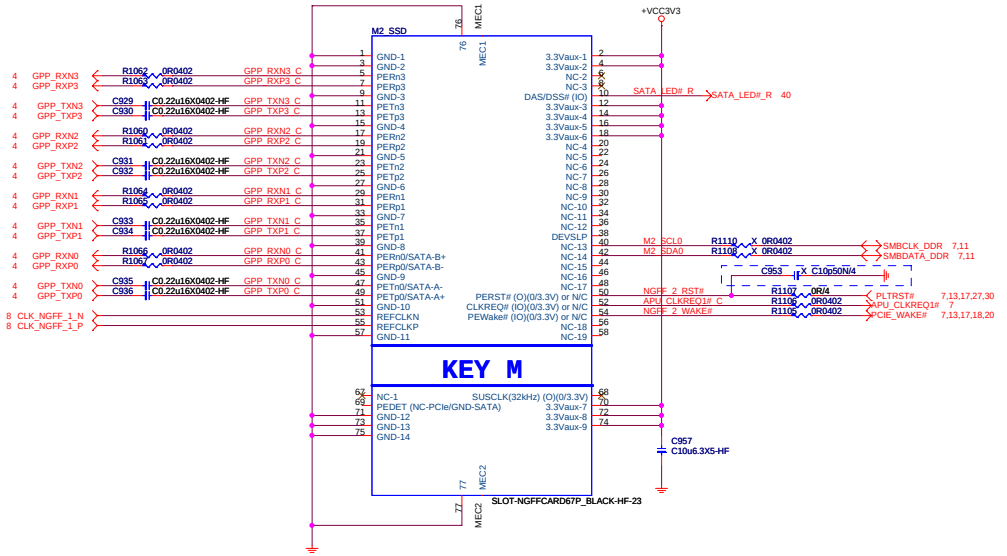
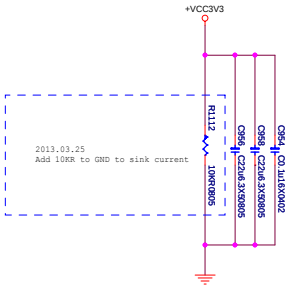
MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	M.2 WIFI KEY E	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 20 of 47	





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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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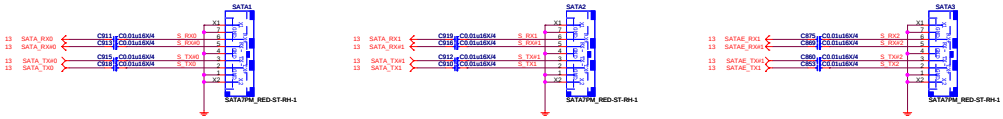
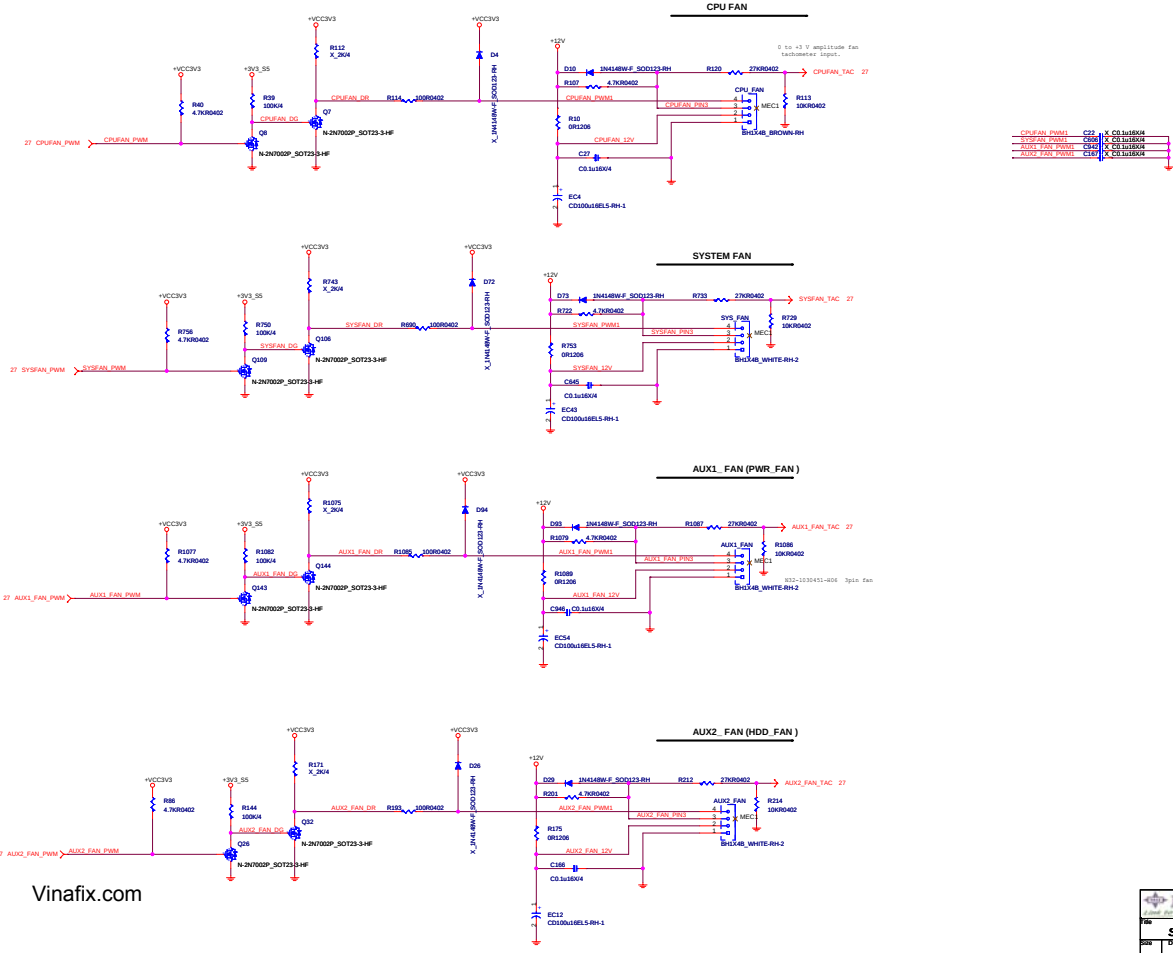


CPU FAN /SYSTEM FAN /POWER FAN



MSI	MICRO-START INT'L CO.,LTD.	
Title	SATA/FAN	
Size	Document Number: MS-7C26	Rev 1.0
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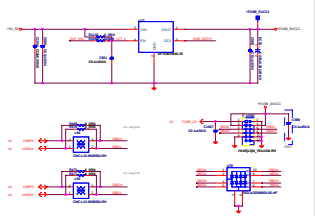
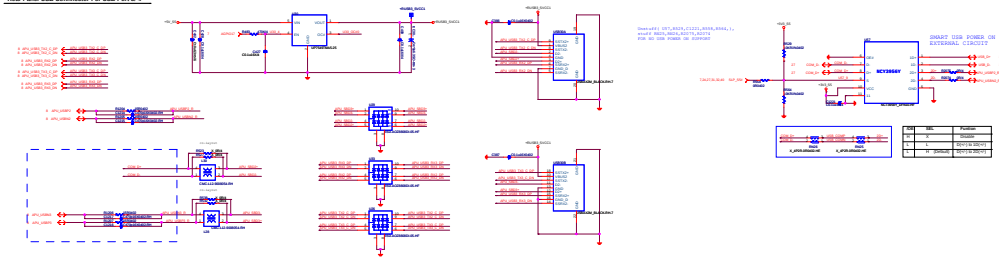
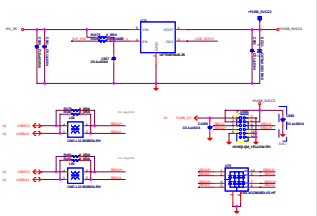
Front Panel USB Connnector For USB Port 2 / 3



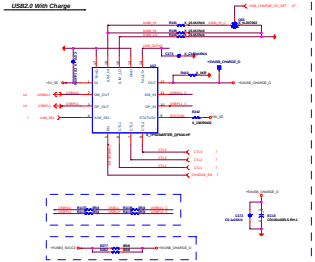
Rear Panel USB Connnector For USB Port 3/ 4

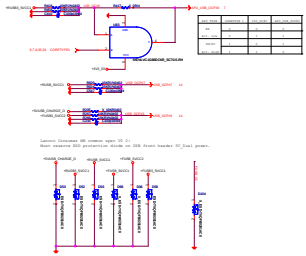


Front Panel USB Connnector For USB Port 1

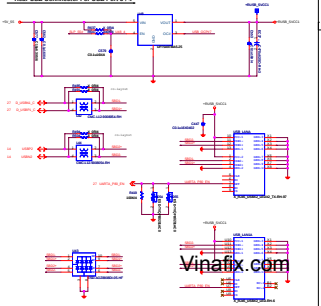


USB2.0 With Charge

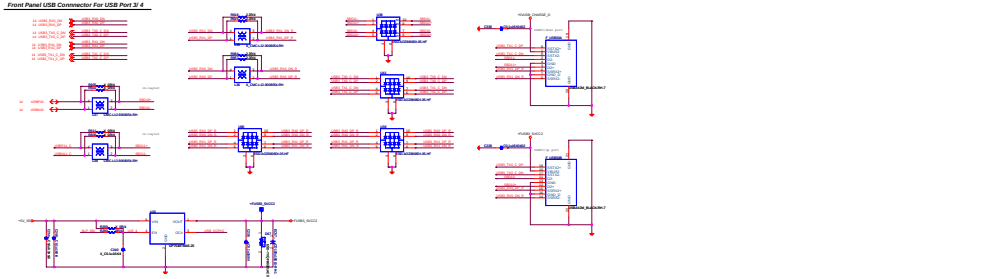




Rear USB Connnector For USB Port 3 / 4



Front Panel USB Connnector For USB Port 3/ 4



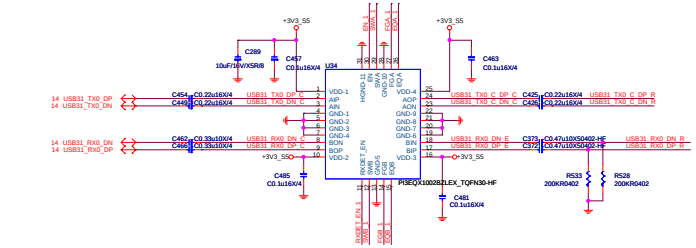
MICRO-STAR INTL CO.,LTD.

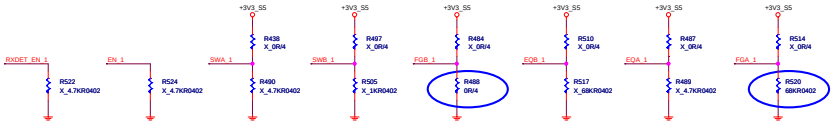
Front / Rear USB Connectors

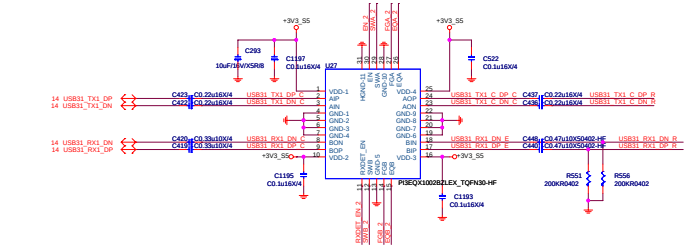
MS-7C96

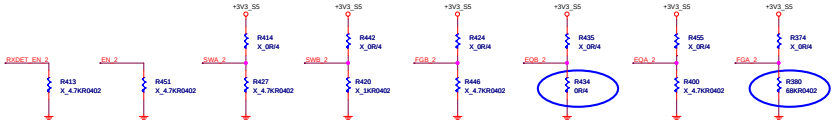
1.0

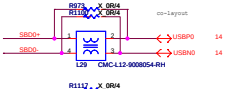
USB3.1 Re-driver

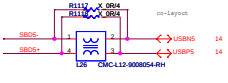


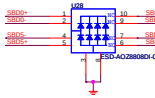


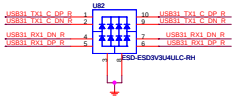


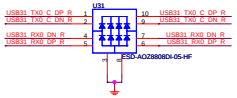


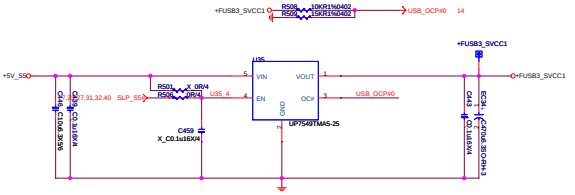




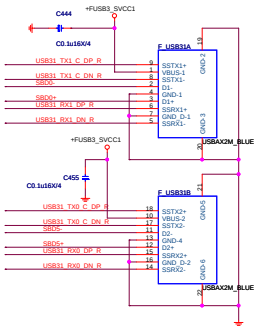








USB3.1 Connnector



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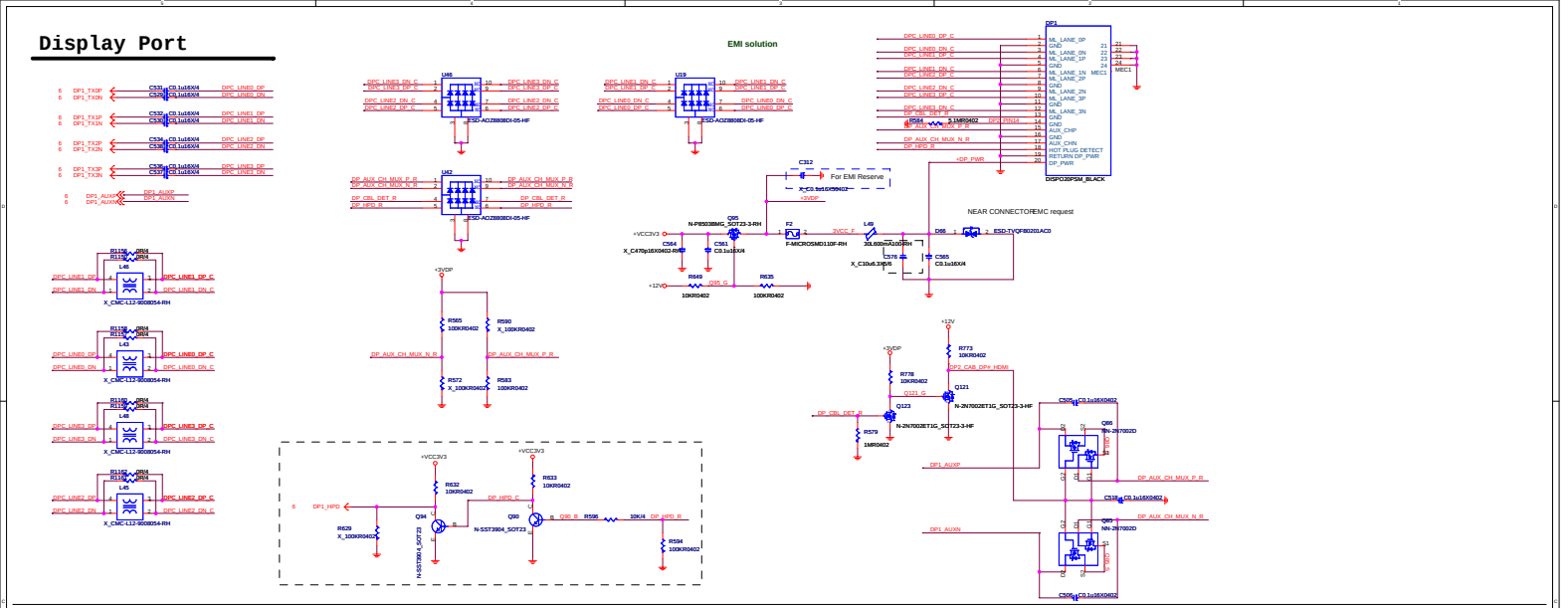
MICRO-START INT'L CO.,LTD.

Title	USB3.1 Connectors	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 24 of 47	

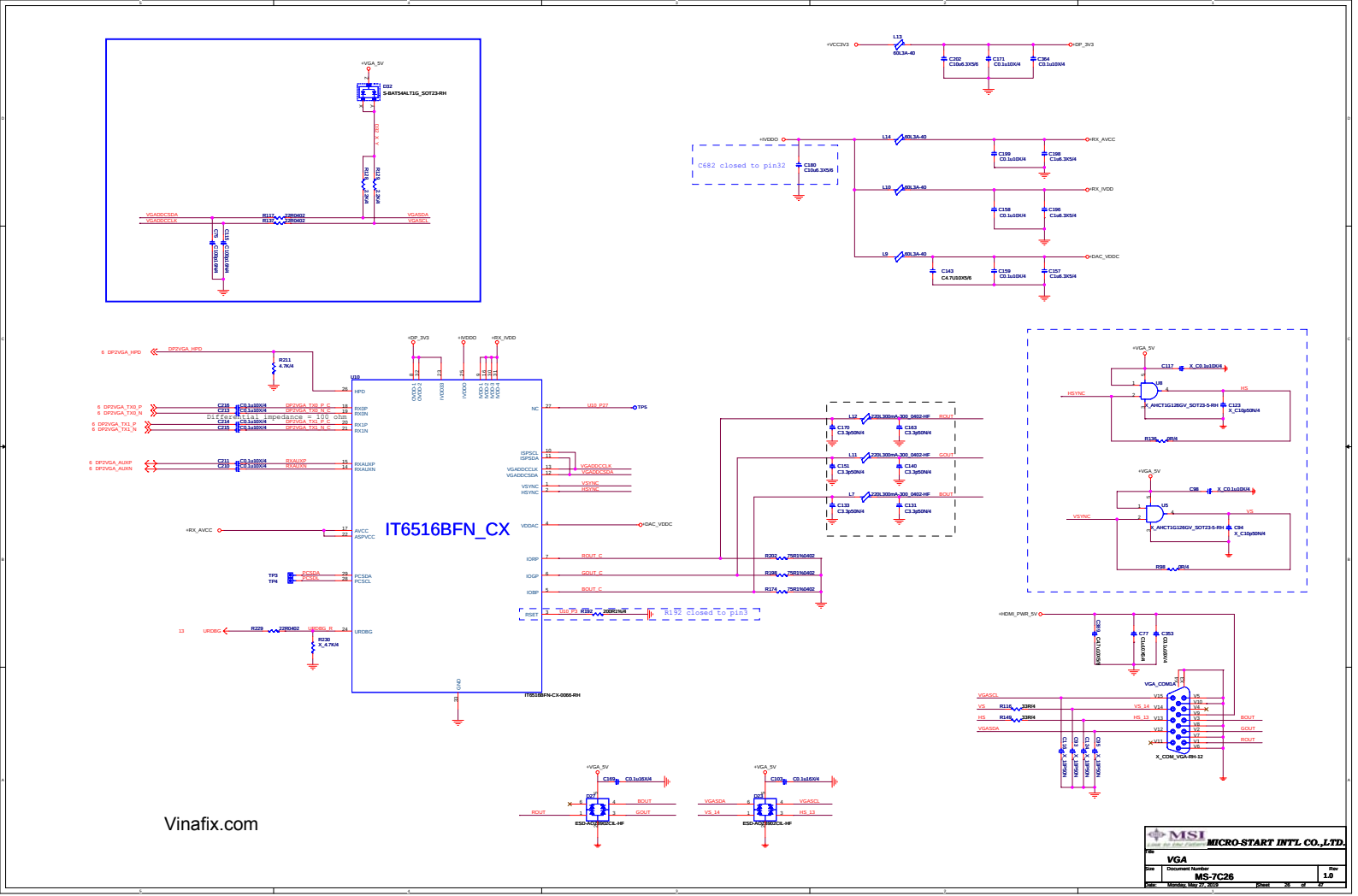
Display Port

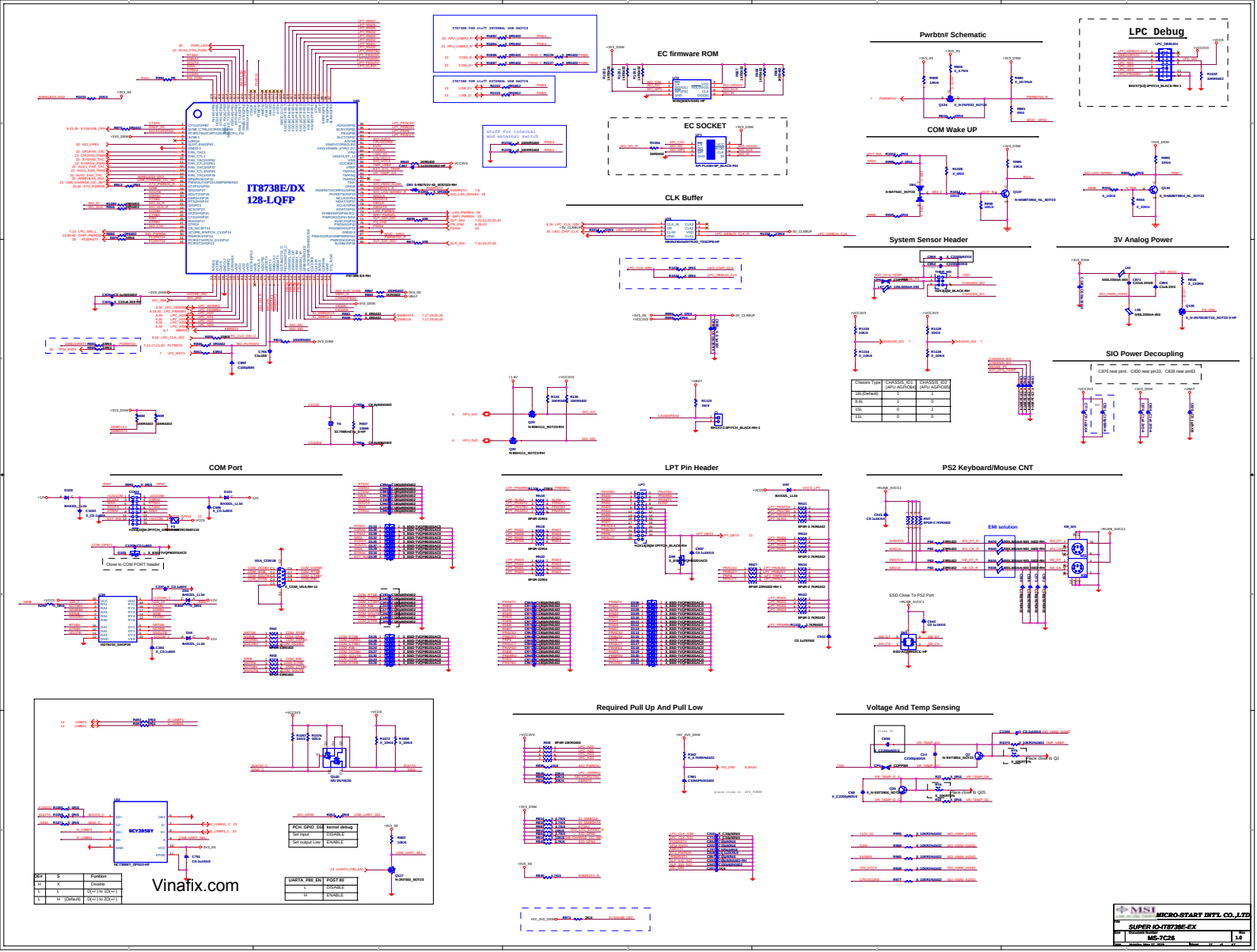


DP colay HDMI Port

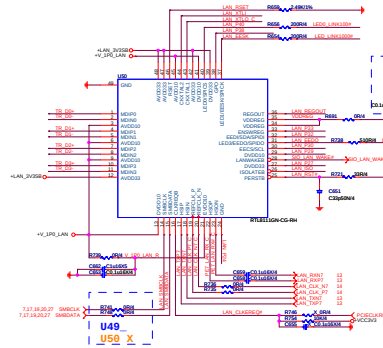
Title	Display Port/HDMI Port
Size	Document Number: MS-7C26
Rev	1.0
Date	Monday, May 27, 2019
Sheet	25 of 47

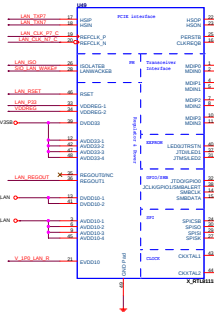
MSI MICRO-STAR INT'L CO.,LTD.

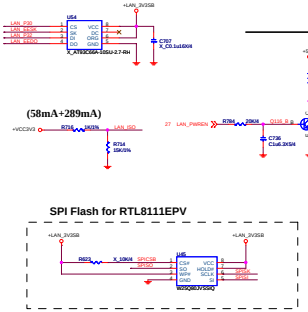

IT6516BFN_CX
Differential impedance = 100 ohm
R192 closed to pin3
C682 closed to pin32
Vinafix.com
MSI
MICRO-START INT'L CO.,LTD.
VGA
MS-7C26
1.0
Monday, May 07, 2018


IT8738E/DX
128-LQFP
EC firmware ROM
EC SOCKET
CLK Buffer
Pwrbtn# Schematic
LPC Debug
COM Wake UP
System Sensor Header
3V Analog Power
SIO Power Decoupling
COM Port
LPT Pin Header
PS2 Keyboard/Mouse CNT
EMI solution
ESD Close To PS2 Port
Required Pull Up And Pull Low
Voltage And Temp Sensing
Vinafix.com
MICRO-START INTL CO.,LTD.
SUPER IO-IT8738E-EX
MS-7C26
1.0

Gigabit LAN RTL8111GN Co-lay RTL8111EPV



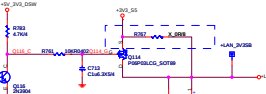




LAN Power

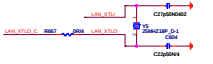
3.3V - 1.2A - 4W

(58mA+289mA)

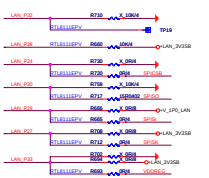


SPI Flash for RTL8111EPV

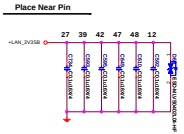
WOL	status	Yellow	Grn/Org
don't care	No Link	off	off
off	S3/S4/S5	off	off
on	S3/S4/S5	off	on
on	10M,inactive		off
on	10M,active		off
on	100M,inactive		
on	100M,active		
on	1G,inactive		
on	1G,active		



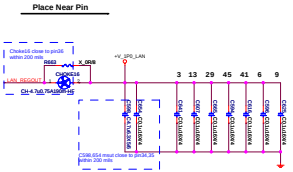
RTL8111GN co-lay RTL8111EPV



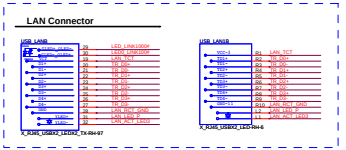
Place Near Pin



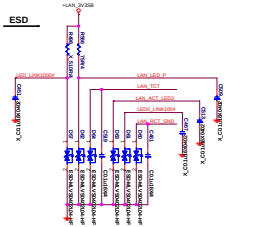
Place Near Pin



LAN Connector

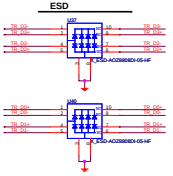


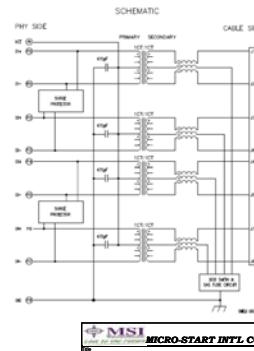
ESD



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

ESD





SCHEMATIC

PHY SIDE

CABLE SIDE

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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

Close To Codec

EMI

C646 C0.1u16X4

ALC662-VD0-GR-RH

Close To Codec

change to 180pf for signal overshoot issue

Close To Codec

For EMI Placement Close To Codec Chip

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 CODE REGULATORS

Trace Width 30mils.

Vout=1.25(R1+R2)/R1=5V

LINE IN(A) — LINE_OUT (front channel)

LINE OUT(B) — SURROUND or LINE_IN

MIC IN(C) — CENTER-LEF or MIC INPUT

AUDIO PANEL

Lenovo EMC request

X_JACK-AUDIOX3F_PKILIMELIGHT BU-RH

MONO Amplifier

X_APA3010KI-TRG_SOP8-HF

Front Audio Jack

EMC Request

change for audio Voltage out amplitude issue

Digital Area

JACK-AUDIOF_BLACK-RH-4

LINE_OUT

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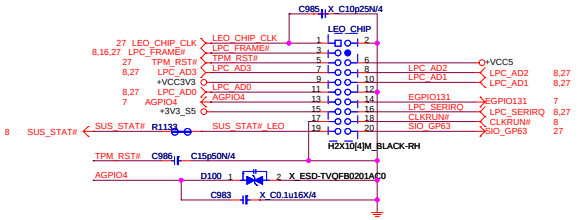
Audio DE-POP

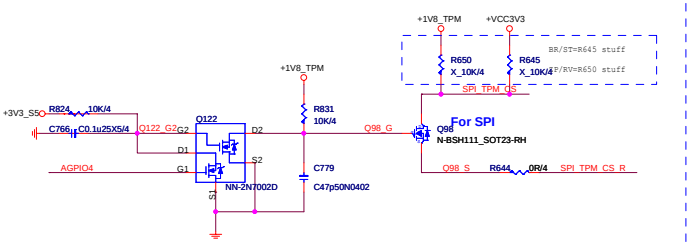
Title	Audio-ALC662VD
Size	Custom
Document Number	MS-7C26
Rev	1.0
Date:	Monday, May 27, 2019
Sheet	29 of 47

MICRO-START INT'L CO.,LTD

TCM Header

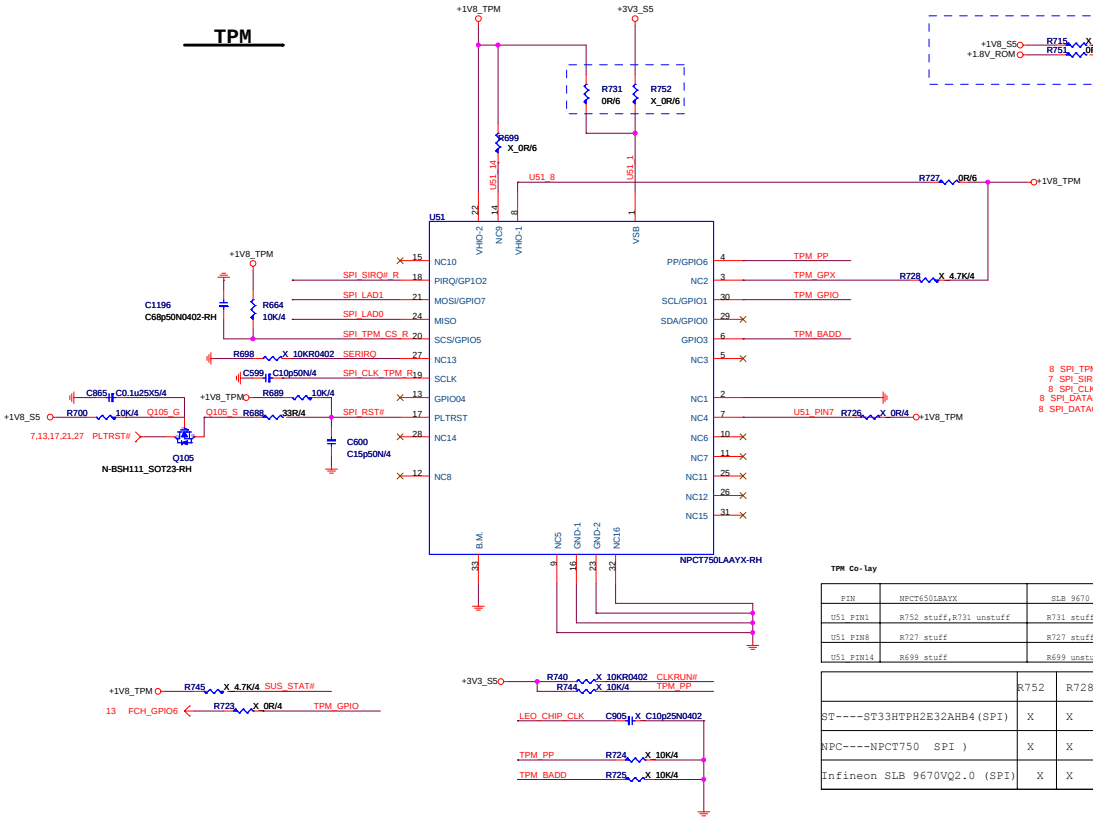


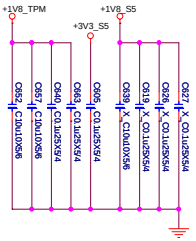
TPM disable circuit

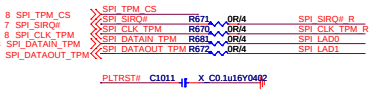


AGPIO4	HIGH	LOW
TPM	ENABLE	DISABLE

TPM







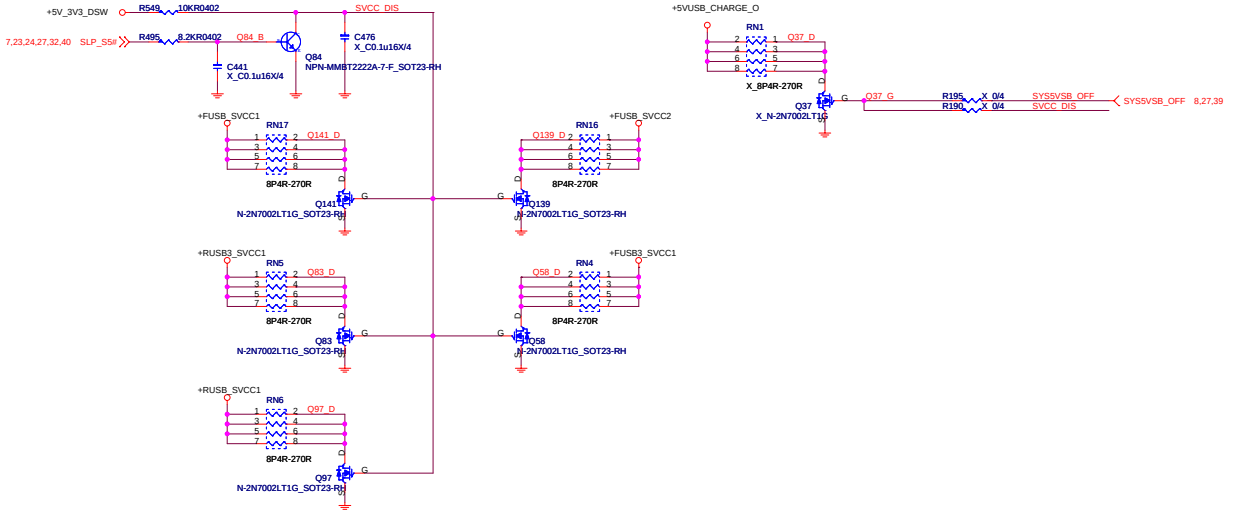
TPM Co-lay

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



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

Title	***USB Power Dischage***	
Size	Document Number **MS-7C26**	Rev **1.0**
Date: Monday, May 27, 2019	Sheet 31 of 47	

DDR4

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

DDR4: 1.2V
ICC max =25A
FS: 300khz

ripple Irms=2.89A

VPP_2.5V

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

U44 stuff I9C-1727P0C-U33

2.5V/3A

BOTTOM PAD
CONNECT TO
GND Through
4 VIAs

DDR4 Termination Power

0.6V - 1.1A - 0.825W

NOTE:
RC33 STUFF,C478 0.1uF U39(OLD)
RC33 UN-STUFF,C478 1000PF U39(NEW)

DDRIII I/O power decoupling caps.

MSI	MICRO-START INT'L CO.,LTD.	
Title	DDR4 Power	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2013	Sheet 32 of 40	

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

65W(SPECIAL)
R233_0R 0PT
C186_1500pf 0PT
C145_0.1u 0PT
C191_150pf 0PT

95W:R219=200K
65W:R219=137K
R219_200K 0PT

95W:R207=4.02K
65W:R207=2.55K
R207_2K55 0PT

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

95W:
R176=499R, OCP=187.5A
65W:
R176=442R,OCP=150A
R176_442R 0PT

BOTTOM PAD
CONNECT TO GND
Through 8 VIAs

ISL6377HRZ_QFN48-RH

65W
95W X

CLOSE Q31
CLOSE Q9

Make sure +12VIN connector plug in

MINIMUM LOW CIRCUIT

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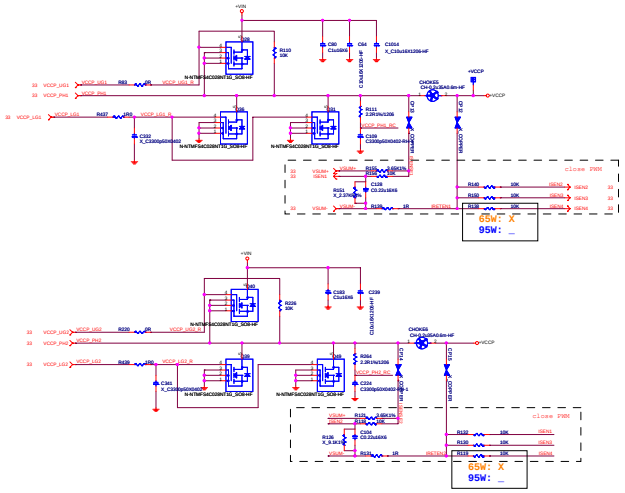
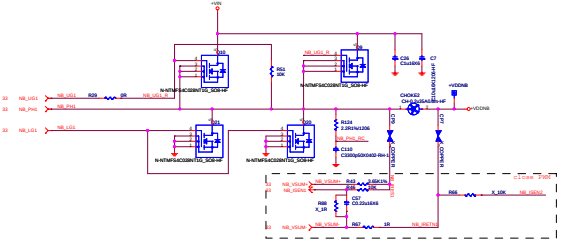
MSI Link to the Future MICRO-START INTL CO.,LTD

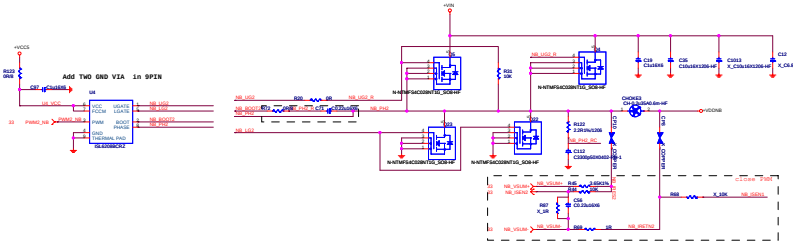
Title	ISL6377HRZ 95W colay 65W(A)	
Size	Document Number MS-7C26	Rev 1.0
Date: Wednesday, June 05, 2019	Sheet 33 of 47	

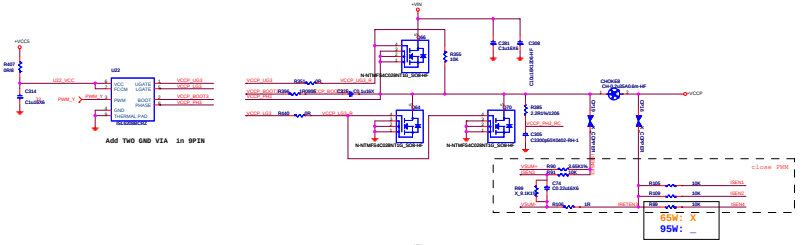
VCCP=0.75V~1.5V
95W(A-Group) TDC:80A, EDC:125A
65W(C-Group) TDC:65A, EDC:95A

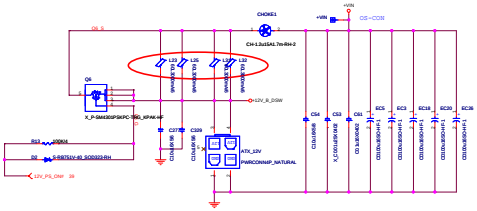
VCCP_NB=0.75V~1.2V
95W(A-Group) TDC:30A, EDC:35A
65W(C-Group) TDC:50A, EDC:75A

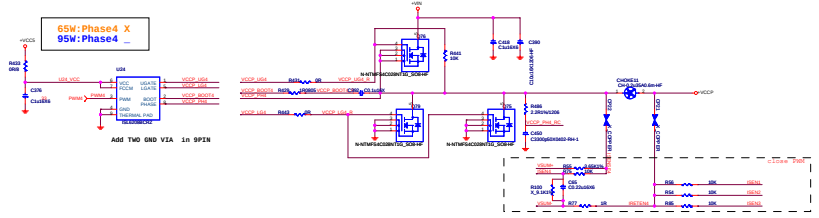


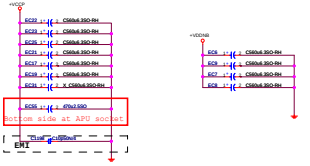












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MICRO-START INT'L CO.,LTD

ISL6377HRZ 95W coley 65W(B)

MS-7C26

Rev 1.0

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

AVL:L04-47B7690-M26

DVT to PVT POWER Solution

CORETYPE1	+VDDP_S5
ZP/RV 1	0.9V
BR/ST 0	1.05V

VDDP

PIN	CORETYPE 1	CORETYPE0	U79 P2	U79 P4	+VDDP
Type 0	0	0	1	0	High
Type 2	1	0	1	1	Low
Type 3	1	1	0	0	High

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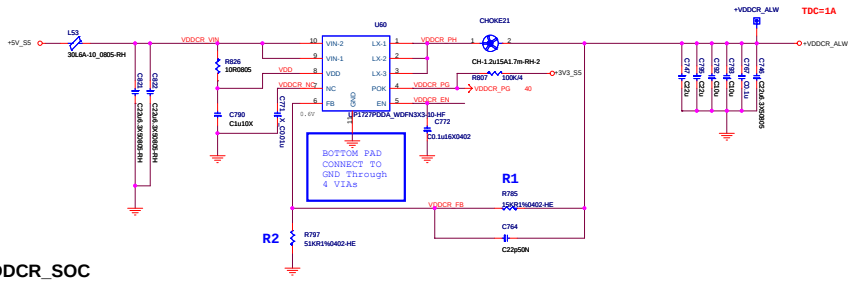
MSI Link to the Future MICRO-START INT'L CO.,LTD.

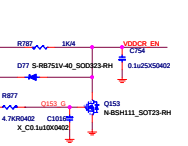
Title: VDDP/VDDP_S5

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

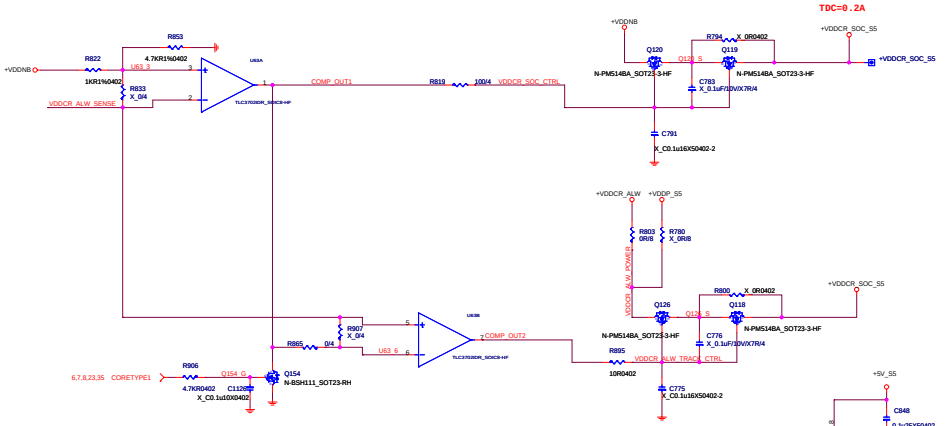
Date: Monday, May 27, 2019 | Sheet 35 of 47

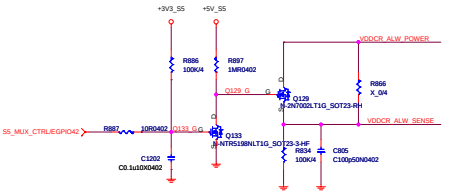
VDDCR_ALW





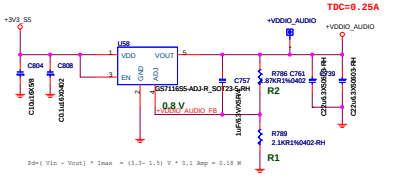
VDDCR_SOC





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



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Vo=0.8*(R1+R2)/R1

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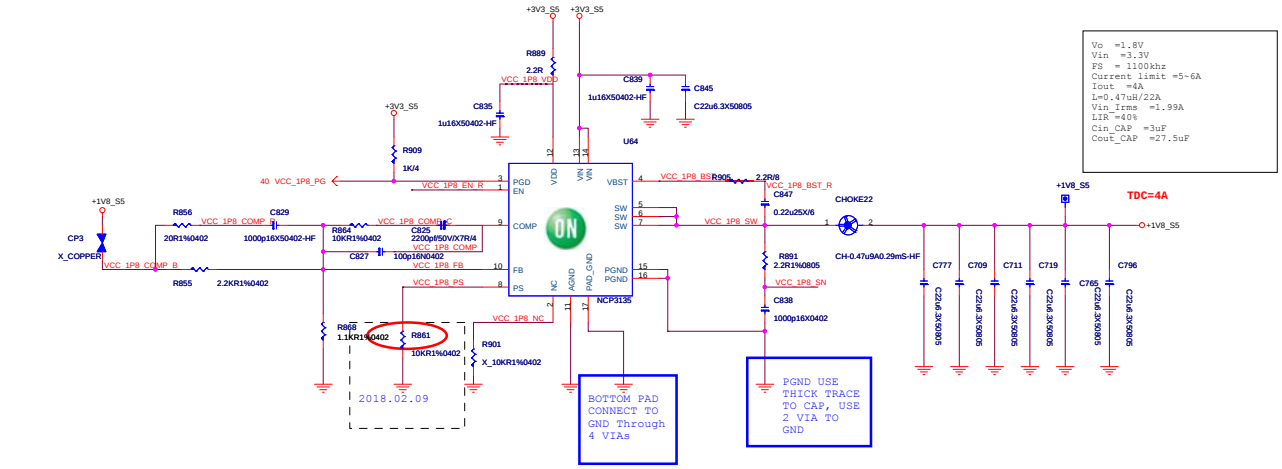
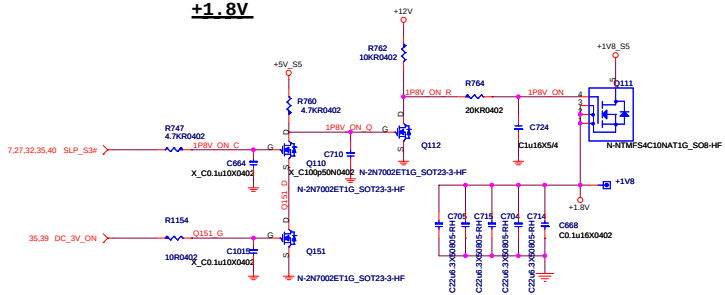
Title: VDDCR_ALW/VDDCR_SOC		
Size	Document Number: MS-7C26	Rev: 1.0
Date: Monday, May 27, 2013	Sheet 35 of 47	

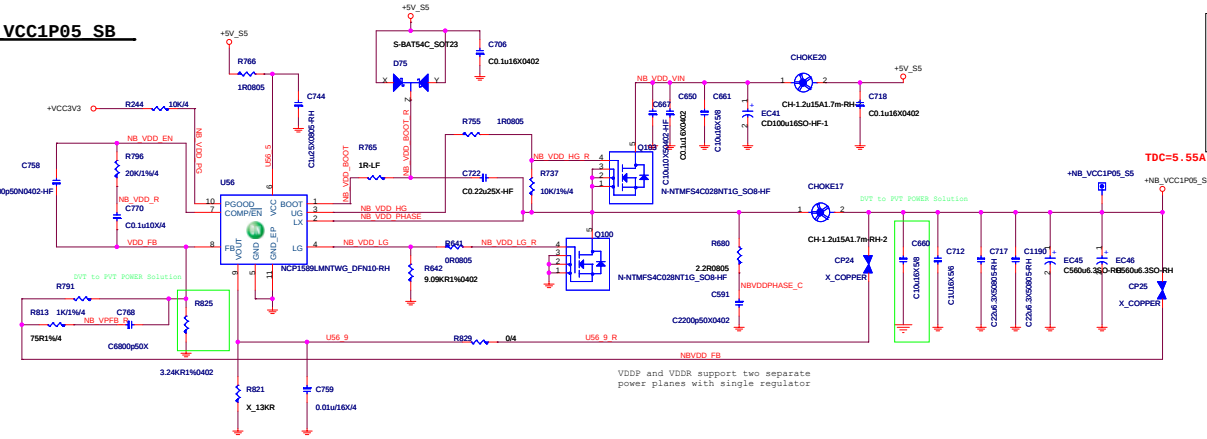


+1.8V

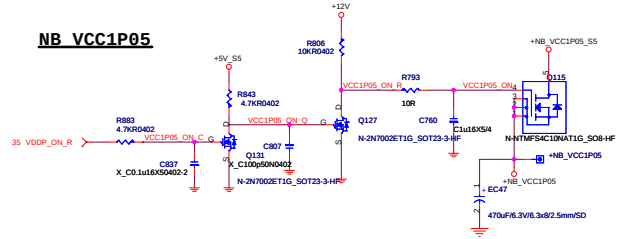


MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title	+1.8V/+1.8V_AUX	
Size	Document Number MS-7C26	Rev 1.0
Date: Monday, May 27, 2019	Sheet 37 of 47	

NB_VCC1P05_SB

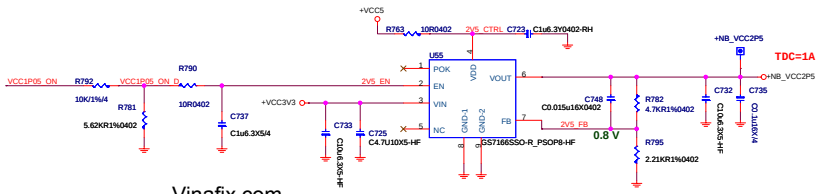


NB_VCC1P05



NB_VCCP2P5

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



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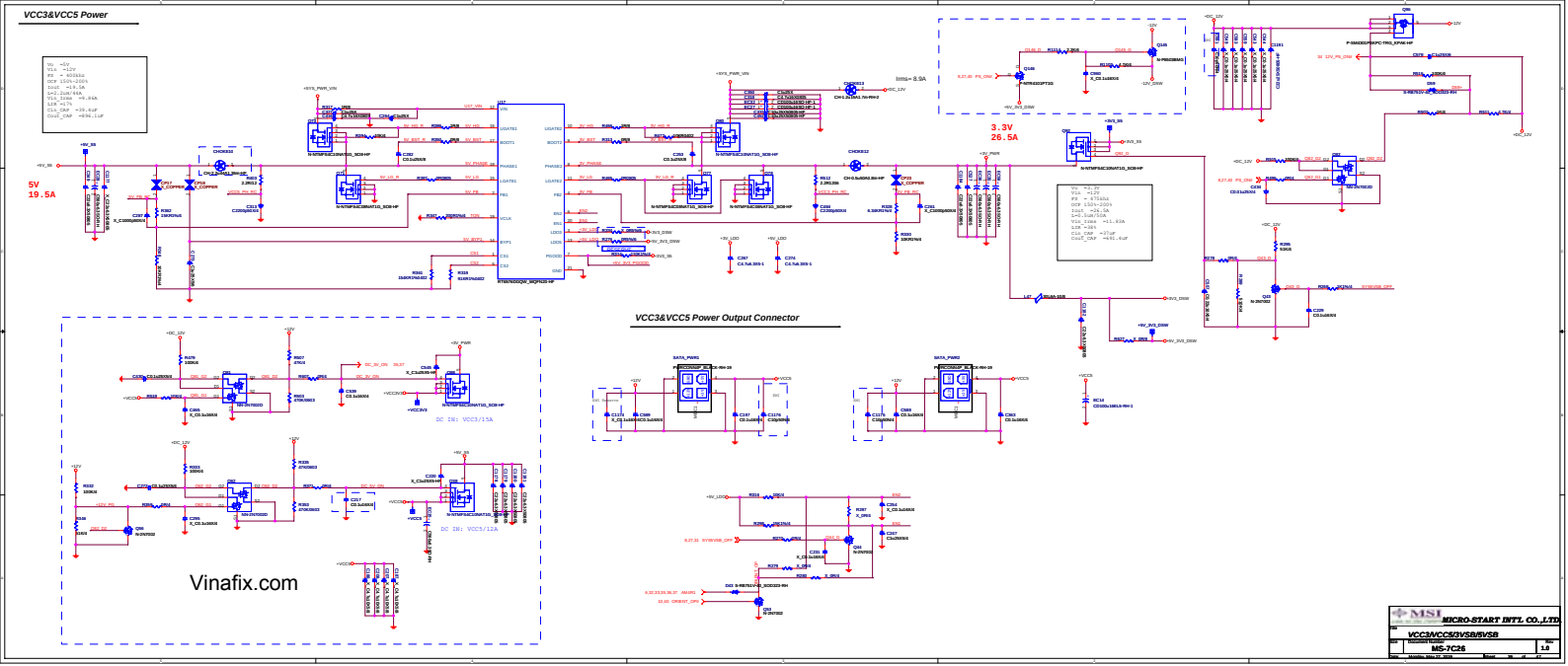
MSI Link to the Future MICRO-START INTL CO.,LTD.		
Title: PROMONTORY Core Power		
Size	Document Number: MS-7C26	Rev: 1.0
Date: Monday, May 27, 2019	Sheet 38 of 47	


VCC3&VCC5 Power
5V
19.5A
3.3V
26.5A
VCC3&VCC5 Power Output Connector
DC IN: VCC3/15A
DC IN: VCC5/12A
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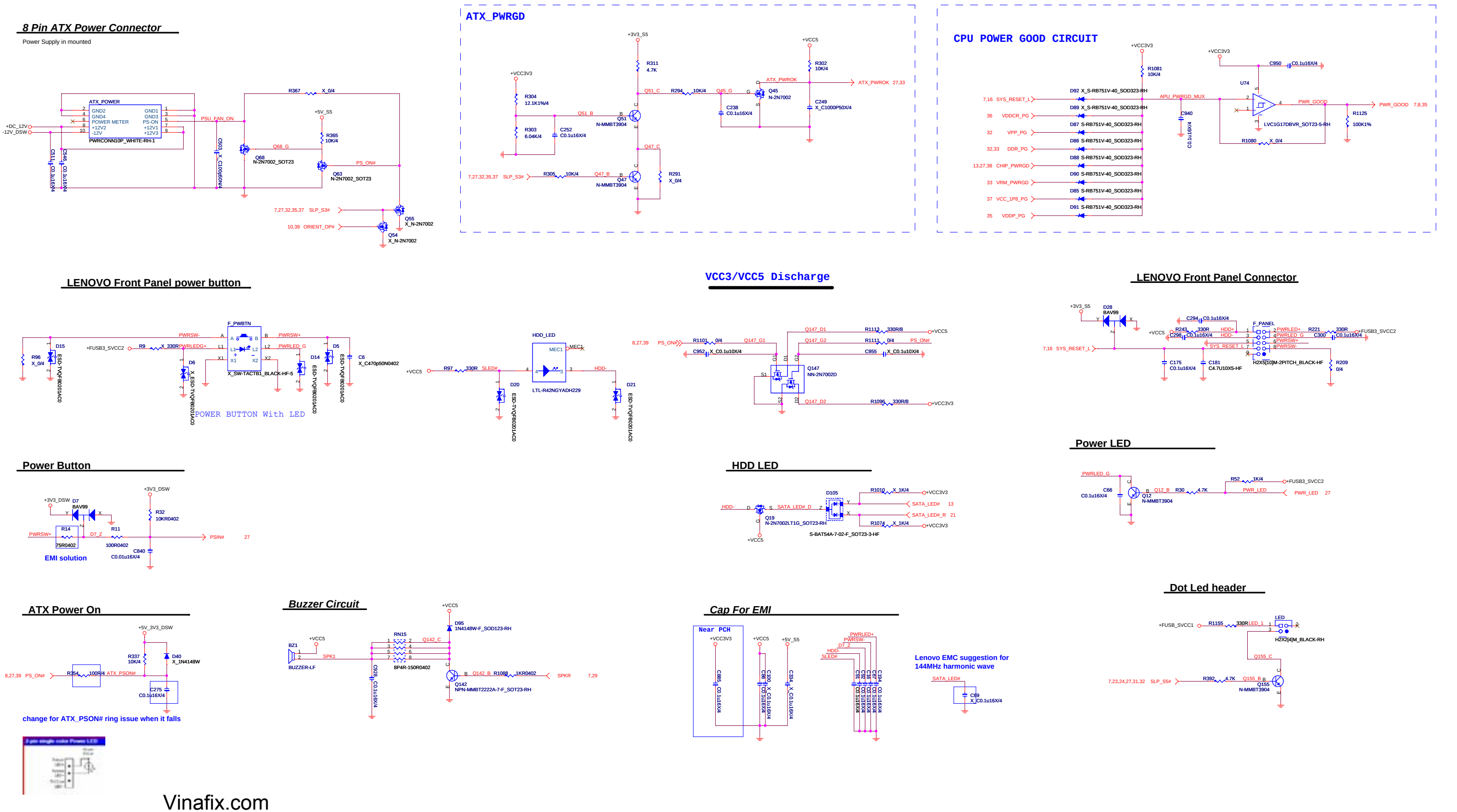
MICRO-START INT'L CO.,LTD
MS-7C26
VCC3/VCC5/3VSB/5VSB
1.0

ATX Power Connector / Front Panel / LED/DSW



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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

U4_X1_2

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

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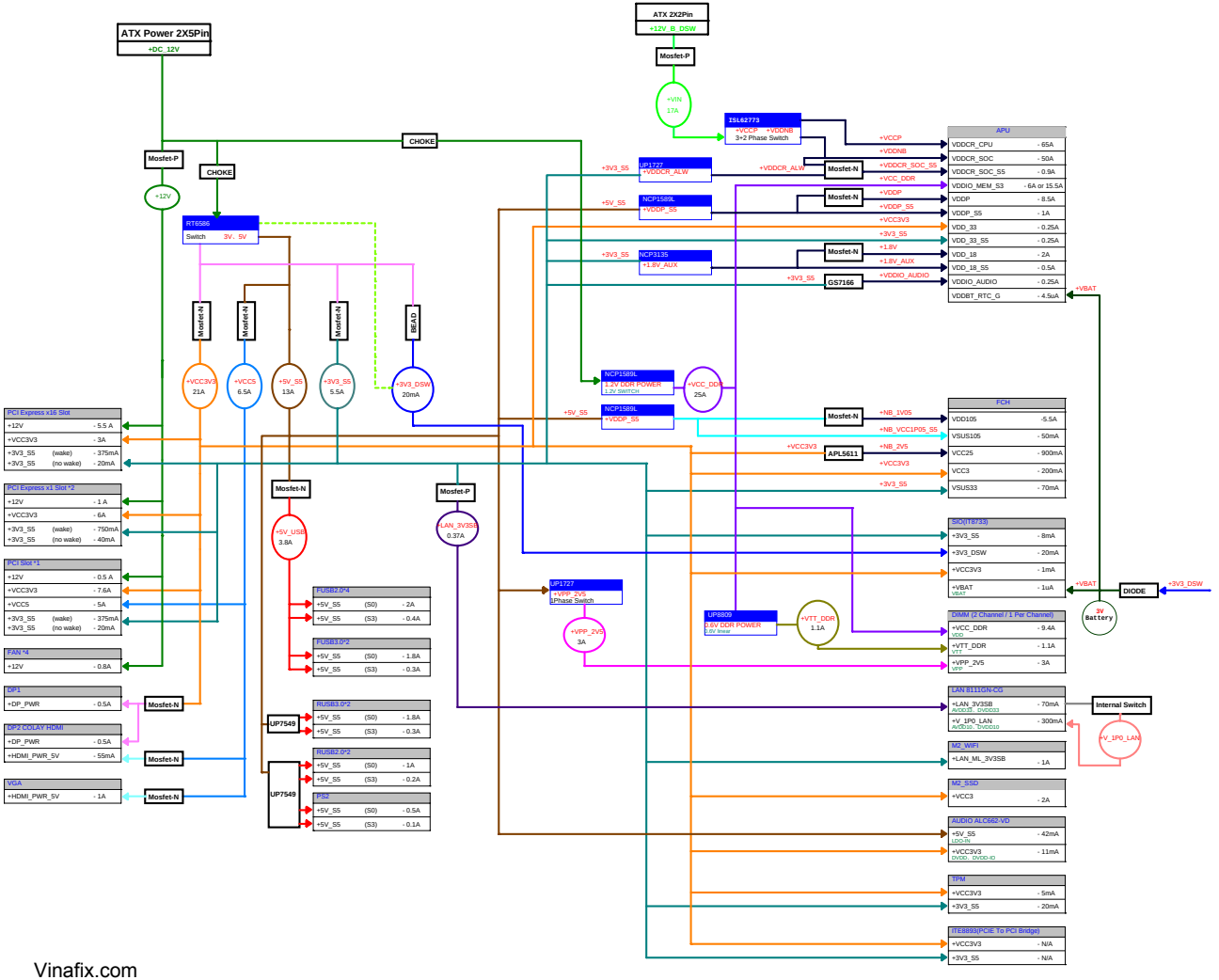
Date: Wednesday, May 29, 2019 | Sheet 41 of 47


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
Mosfet-N
Mosfet-N
Mosfet-N
BEAD
+VCC3V3
21A
+VCC5
6.5A
+5V_S5
13A
+3V3_S5
5.5A
+3V3_DSW
20mA
UP1727
+VDDCR_ALW
NCP1589L
+VDDP_S5
NCP3135
+1.8V_AUX
Mosfet-N
Mosfet-N
Mosfet-N
GS7166
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
+VBAT
NCP1589L
1.2V DDR POWER
1.2V SWITCH
NCP1589L
+VDDP_S5
+VCC_DDR
25A
Mosfet-N
APL5611
FCH
VDD105 -5.5A
VSUS105 - 50mA
VCC25 - 900mA
VCC3 - 200mA
VSUS33 - 70mA
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
Mosfet-N
Mosfet-N
Mosfet-N
Mosfet-N
+5V_USB
3.8A
Mosfet-P
+LAN_3V3SB
0.37A
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
UP7549
UP7549
UP1727
+VPP_2V5
1Phase Switch
+VPP_2V5
3A
UP8809
1.8V DDR POWER
1.8V Linear
+VTT_DDR
1.1A
Mosfet-N
APL5611
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
+VBAT
3V Battery
DIODE
+3V3_DSW
Internal Switch
+V_1P0_LAN

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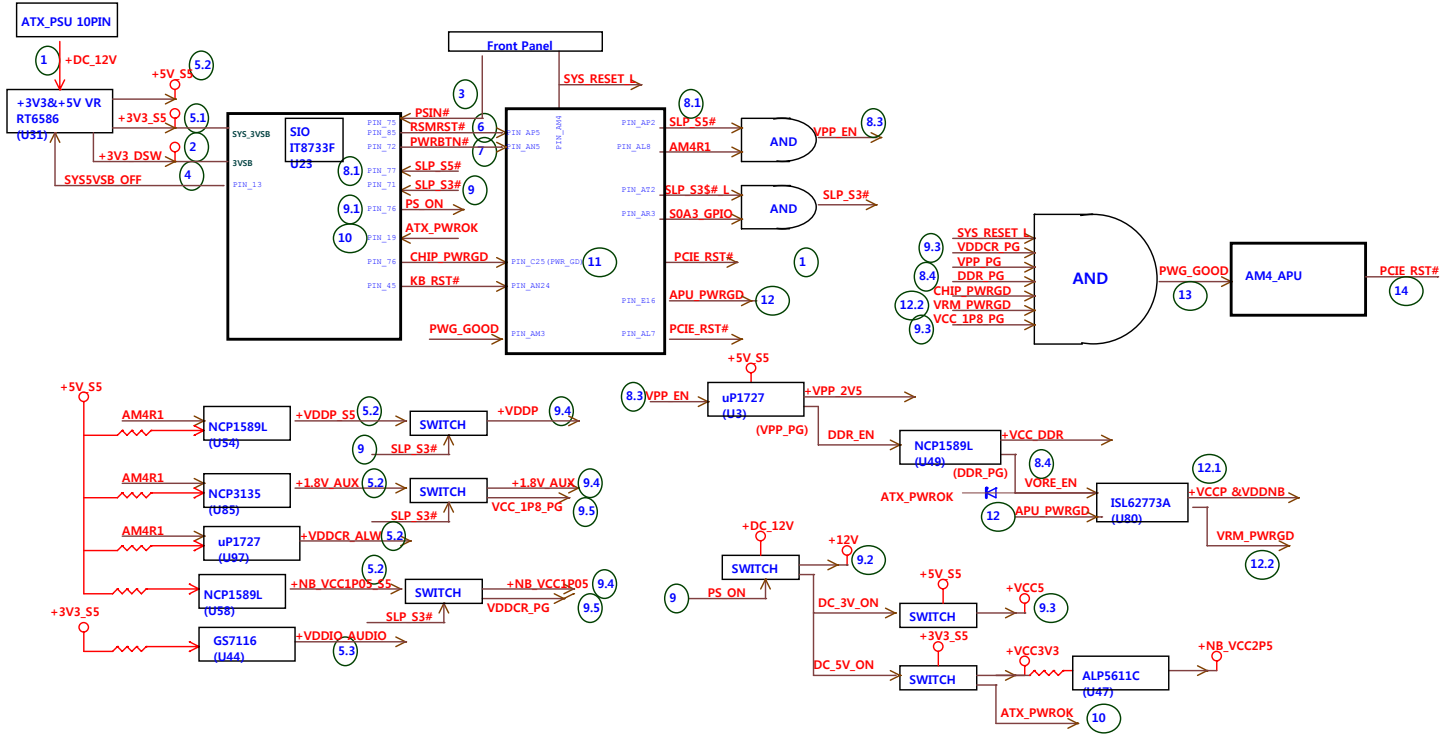
Power Sequence Diagram



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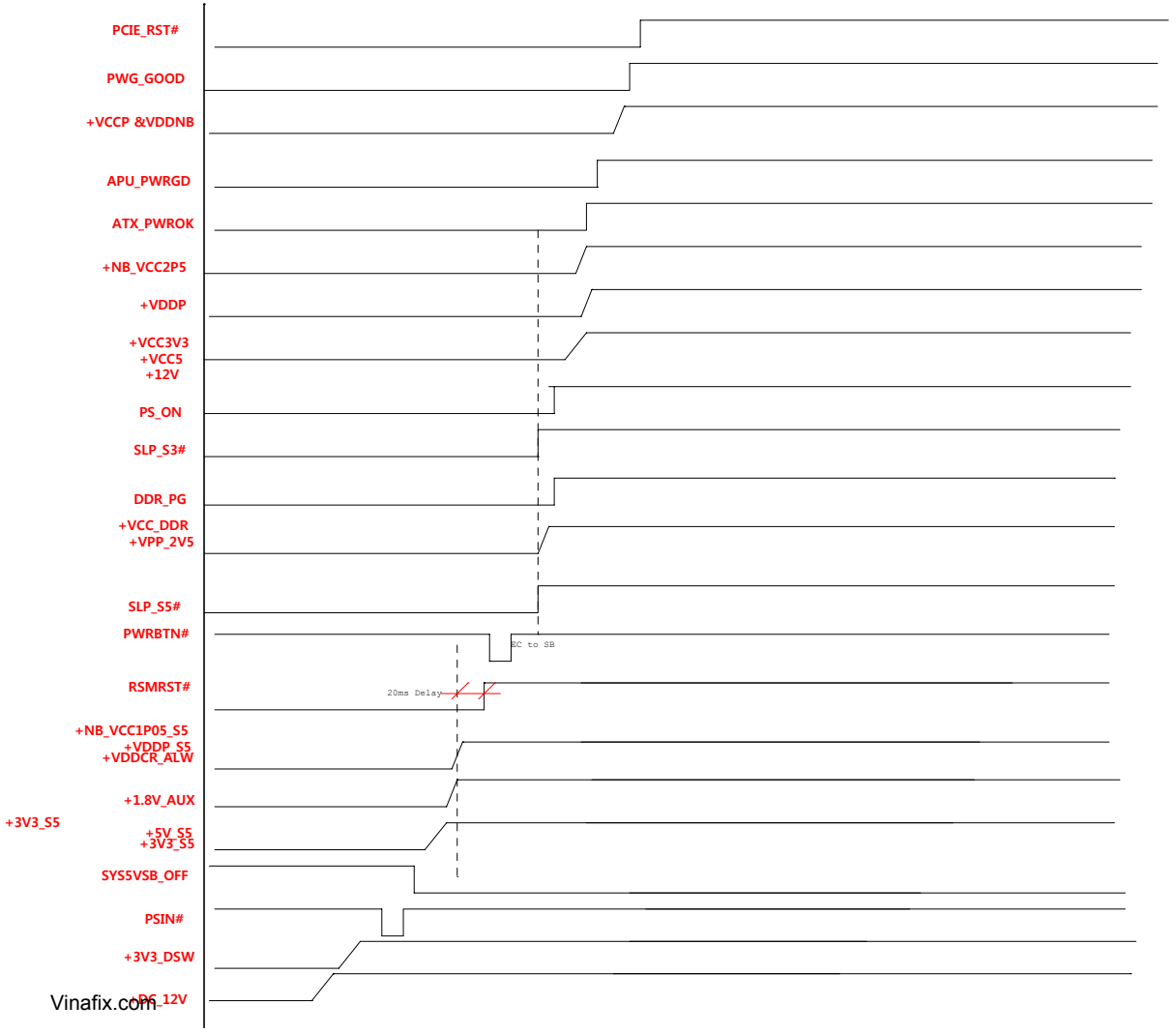
MSI MICRO-STAR INT'L CO.,LTD

Power Sequence

MS-7C26

Rev 1.0

Power Sequence Timings



MICRO-START INTL CO.,LTD.

Power Sequence Timings

MS-7C26

1.0

AM4

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AT23	GPIO92	CLK_REQ0_L/SATA_IS0_L/SATA_ZP0_L/AGPIO92	GPI	GPIO	COM_GPIO1_TEST	TP Point (design guide no require HIGH/LOW)
AV24	GPIO115	CLK_REQ1_L_AGPIO115	GPI	GPIO	LPT_DET#_TEST	TP Point (design guide no require HIGH/LOW)
AT24	GPIO116	CLK_REQ2_L/AGPIO116	GPI	GPI	CLK_REQ2_L/AGPIO116	GPI (M2_2 SSD Select)
AL23	GPIO131	CLK_REQ3_L/SATA_IS1_L/SATA_ZP1_L/BGPIO131	GPI	GPIO	BGPIO131	TP Point (design guide no require HIGH/LOW)
AR22	GPIO132	CLK_REQG_L/OSCIN/BGPIO132	GPI	GPIO	BGPIO132	TP Point (design guide no require HIGH/LOW)

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AM4	GPIO1	SYS_RESET_L/AGPIO1	GPI/GPO	GPI	SYS_RESET_L	SYS_RESET_L
AL7	GPIO26	PCIE_RST_L/EGPIO26	GPI	GPI	PCIE_RST_L	PCIE_RST_L
AN5	GPIO0	PWR_BTN_L/AGPIO0	GPI	GPI	PWRBTN#	PWR_BTN_L
AL5	GPIO2	WAKE_L/AGPIO2	GPI	GPI	WAKE_L	Pull High
AT5	GPIO11	BLINK/USB_OC7_L/AGPIO11	GPO	GPO	CHARGE_EN	Pull High
AN24	GPIO129	ESPI_RESET_L/KBRST_L/AGPIO129	GPI	KBRST_L	KBRST#	KBRST_L
AP4	GPIO42	S5_MUX_CTRL/EGPIO42	GPI/GPO	GPO	S5_MUX_CTRL/EGPIO42	GPO (S0:High / S3 & S5:Low)
AR3	GPIO10	S0A3_GPIO/AGPIO10	GPI/GPO	GPO	S0A3_GPIO	S0A3_GPIO

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AL1	GPIO16	USB_OC0_L/AGPIO16	GPI	GPI	WIRELESS_EN1	GPO (External Pull High)
AM1	GPIO17	USB_OC1_L/TDI/AGPIO17	GPI	GPI	WIRELESS_EN2	GPO (External Pull High)
AR1	GPIO18	USB_OC2_L/TCK/AGPIO18	GPI	GPI	COM_GPIO1	GPI (External Pull High)
AP1	GPIO24	USB_OC3_L/TDO/AGPIO24	GPI	GPI	LPT_DET#	GPI (External Pull High)

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW23	GPIO91	SPKR/AGPIO91	GPO	SPKR	SPKR	SPKR

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AU25	GPIO113	SCL0/I2C2_SCL/EGPIO113	GPI/GPO	SMB	SMBCLK_DDR	SCL0
AK3	GPIO19	SCL1/I2C3_SCL/AGPIO19	GPI/GPO	SMB	SMBCLK	SCL1
AV25	GPIO114	SDA0/I2C2_SDA/EGPIO114	GPI/GPO	SMB	SMBDATA_DDR	SDA0
AK2	GPIO20	SDA1/I2C3_SDA/AGPIO20	GPI/GPO	SMB	SMBDATA	SDA1

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW18	GPIO109	LFRAME_L/EGPIO109	GPO	LPC	LPC_FRAME#	LFRAME_L
AU20	GPIO74	LPCCLK0/EGPIO74	GPI/GPO	LPC	LPC_CLK0_R	LPCCLK0
AU19	GPIO75	LPCCLK1/EGPIO75	GPI/GPO	LPC	LPC_CLK1_R	LPCCLK1
AV19	GPIO88	LPC_CLKRUN_L/AGPIO88	GPO	LPC	CLKRUN#	LPC_CLKRUN_L
AV18	GPIO21	LPC_PD_L/AGPIO21	GPO	LPC	SUS_STAT#	LPC_PD_L
AL2	GPIO22	LPC_PME_L/AGPIO22	GPO	LPC	LPC_PME_L	GPO High

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AW20	GPIO104	LAD0/EGPIO104	GPI/GPO	LPC	LPC_AD0	LAD0
AV21	GPIO105	LAD1/EGPIO105	GPI/GPO	LPC	LPC_AD1	LAD1
AT21	GPIO106	LAD2/EGPIO106	GPI/GPO	LPC	LPC_AD2	LAD2
AT20	GPIO107	LAD3/EGPIO107	GPI/GPO	LPC	LPC_AD3	LAD3
AW21	GPIO87	SERIRQ/AGPIO87	GPO	SERIRQ	SPI_SIRQ#	SERIRQ

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AV15	GPIO133	SPI_HOLD_L/ESPI_DAT3/BGPIO133	GPI/GPO	SPI	SPI_HOLD#	SPI_HOLD_L
AV16	GPIO122	SPI_WP_L/ESPI_DAT2/BGPIO122	GPI/GPO	SPI	SPI_WP#	SPI_WP_L
AW14	GPIO117	SPI_CLK/ESPI_CLK/BGPIO117	GPI/GPO	SPI	SPI_CLK	SPI_CLK
AU16	GPIO121	SPI_DO/ESPI_DAT0/BGPIO121	GPI/GPO	SPI	SPI_DATAOUT	SPI_DO
AU14	GPIO120	SPI_DI/ESPI_DAT1/BGPIO120	GPI/GPO	SPI	SPI_DATAIN	SPI_DI
AT17	GPIO118	SPI_CS1_L/BGPIO118	GPI/GPO	SPI	SPI_CS1	SPI_CS1_L
AW15	GPIO119	SPI_CS2_L/ESPI_CS_L/BGPIO119	GPI/GPO	GPO	BGPIO119	GPO (External Pull High)

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AU17	GPIO76	SPI_TPM_CS_L/AGPIO76	GPI/GPO	SPI_TPM_CS_L	SPI_TPM_CS	SPI_TPM_CS_L

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
AN23	GPIO84	FANIN0/AGPIO84	GPI	GPIO	AGPIO84	TP Point (design guide no require HIGH/LOW)
AP23	GPIO85	FANOUT0/AGPIO85	GPO	GPIO	FANOUT0	TP Point (design guide no require HIGH/LOW)
H19	GPIO86	AGPIO86/SHUTDOWN_L	GPI/GPO	GPI	APU_PROCHOT#	SHUTDOWN_L

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FCH-PROMONTORY

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
B1	GPIO0	GPIO0	GPI/GPO	GPO	DT_RESET#_GPIO_0	PCIE X16 Reset CTL
B4	GPIO1	GPIO1	GPI/GPO	GPI	PRSN_C1	USB Cable DET
C6	GPIO2	GPIO2	GPI/GPO	GPI	PRSN_C2	USB Cable DET
B6	GPIO3	GPIO3	GPI/GPO	GPO	NC	GPO High
A6	GPIO4	GPIO4	GPI/GPO	GPO	PCH_GPIO4	GPO High
B2	GPIO5	GPIO5	GPI/GPO	GPI	[illegible]	GPO High
C7	GPIO6	GPIO6	GPI/GPO	GPI	PCH_GPIO6	GPO High
A2	GPIO7	GPIO7	GPI/GPO	GPO	NC	GPO High

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
A1	GPIO_80	GPIO_80	GPI/GPO	GPO	DP1_CAB_DP_HDMI#	DP/HDMI CTL
B3	GPIO_81	GPIO_81	GPI/GPO	GPO	DP2_CAB_DP_HDMI#	DP/HDMI CTL
C4	GPIO_82	GPIO_82	GPI/GPO	GPI	CHASSIS_ID1	GPI
A3	GPIO_83	GPIO_83	GPI/GPO	GPI	CHASSIS_ID2	GPI

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
A24	GPIO_84	GPIO_84/DEBUG22	GPI/GPO	GPO	PCH_GPIO_84	TCM EN1
A26	GPIO_85	GPIO_85/DEBUG23	GPI/GPO	GPI	PCH_GPIO_85	TCM EN2
E25	GPIO_86	GPIO_86/DEBUG24	GPI/GPO	GPO	USB_CHARGE_OC_SET	GPO High
B26	GPIO_87	GPIO_87/DEBUG25	GPI/GPO	GPI	CLR_CMOS	CLR_CMOS
F24	GPIO_88	GPIO_88/DEBUG26	GPI/GPO	GPO	NC	GPO High
E22	GPIO_89	GPIO_89/DEBUG27	GPI/GPO	GPI	HW_ID4	BOM OPTION
E26	GPIO_810	GPIO_810/DEBUG28	GPI/GPO	GPI	HW_ID5	BOM OPTION
F23	GPIO_811	GPIO_811/DEBUG29	GPI/GPO	GPI	HW_ID6	BOM OPTION
F26	GPIO_812	GPIO_812/DEBUG30	GPI/GPO	GPI	HW_ID1	BOM OPTION
E23	GPIO_813	GPIO_813/DEBUG31	GPI/GPO	GPI	HW_ID2	BOM OPTION

PIN	GPIO	Name	Default	Define	Signal Name V1.0	Setting V1.0
B21	GPIO_814	GPIO_814/DEBUG7	GPI/GPO	GPI	HW_ID3	BOM OPTION
A21	INT_GPIO	INT_GPIO/DEBUG6	GPO	GPI	PM_INT	PM_INT

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SUPER IO-[illegible]

PIN	GPIO	Function description	Type	Setting
38	GPIO17	RI2#/GP17	RIB#	RI2#
2	GPIO16	5VSB_CTRL#/CIRRX2/GP16	DEEP_S5	5VSB_CTRL#
3	GPIO15	PCIRST0#/CIRTX2/GP15/CPU_PG	NC	Pull High
31	GPIO14	VCORE_EN/PCH_C1/GP14	LPC_SMI_L	Pull Low
32	GPIO13	PWROK1/GP13	SIO_PWROK	PWROK1 (High)
33	GPIO12	PCIRST1#/GP12	PCIRST1#	PCIRST1#
34	GPIO11	PCIRST2#/GP11	PCIRST2#	PCIRST2#
84	GPIO10	PCIRST3#/GP10	SIO_LAN_WAKE#	Pull Low
20	GPIO27	SIN2/GP27	SINB	SIN2
21	GPIO26	SOUT2/GP26	SOUTB	SOUT2
22	GPIO25	DSR2#/GP25	DSRB#	DSR2#
23	GPIO24	RTS2#/GP24	RTSB#	RTS2#
24	GPIO23	SI/GP23	SIO_SI	SI
25	GPIO22	SCK/GP22	SIO_SCK_R	SCK
26	GPIO21	DCD2#/GP21	DCDB#	DCD2#
27	GPIO20	CTS2#/GP20	CTSB#	CTS2#
12	GPIO37	FAN_TAC3/GP37	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	PWROK2/GP41	NC	Pull High
79	GPIO40	3VSBSW#/GP40	LAN_PWREN	Pull High
83	GPIO56	MCLK/GP56	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_S5#_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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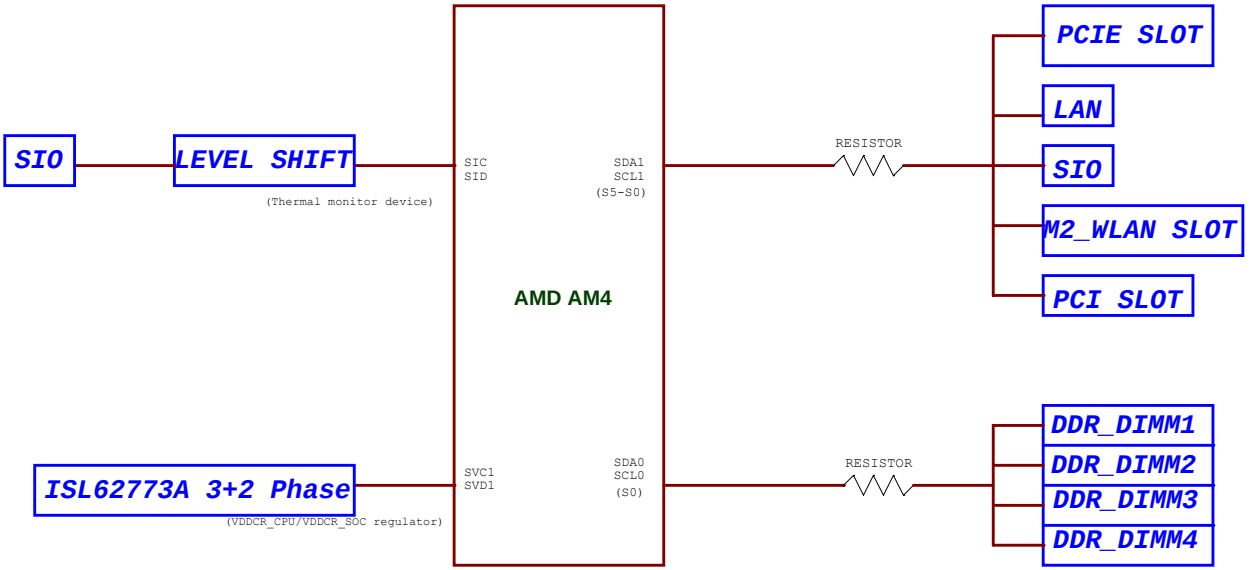
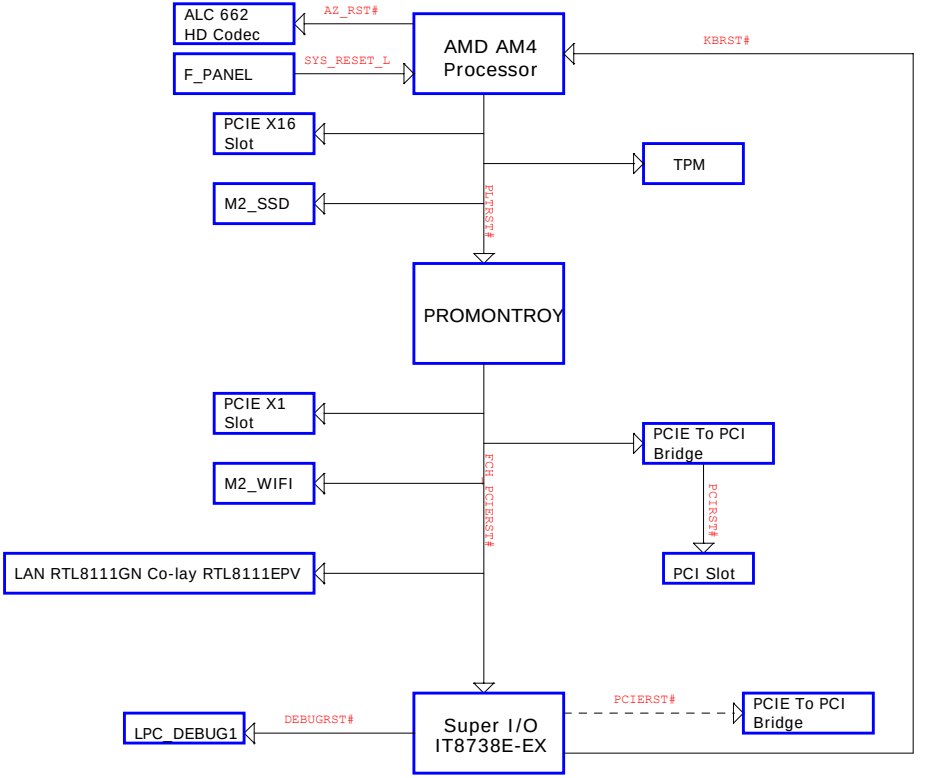
MICRO-START INT'L CO.,LTD
GPIO Table
MS-7C26
Rev 1.0



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

Title: SMBUS Block Diagram		
Size	Document Number: MS-7C26	Rev: 1.0
Date: Monday, May 27, 2019	Sheet 46 of 47	

RESET MAP



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