MSI CONFIDENTIAL

STONEY (200mm*200mm)

MS-7A30

APU:

FT4

OnBoard Chipset:

AZALIA Codec: Realtek ALC662
LAN: RTL8111GN
SIO: IT8651E/BX
Flash ROM: 8MB

Main Memory:

DDR4 (1866~2133MHz) * 2 (Single Channel)

Expansion Slots:

PCI Express (X16) Slot * 1

PWM:

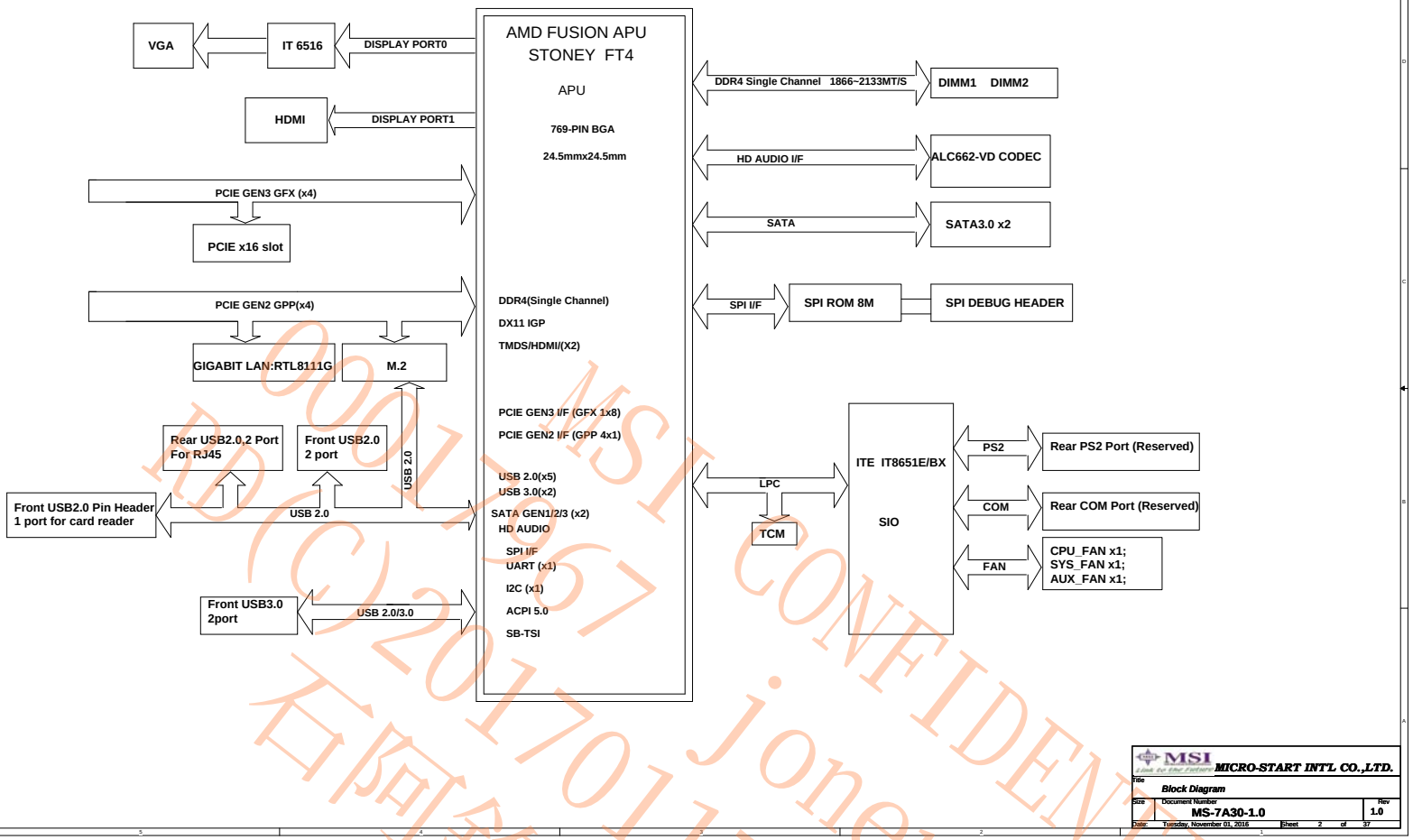
Controller: ISL62771
Controller: RT6576

Other:

SATAIII *2
USB2.0 *5
USB3.0*2
VGA CONN
HDMI CONN

MSI MICRO-START INT'L CO.,LTD.
Title: Cover Sheet
Size | Document Number: MS-7A30-1.0 | Rev: 1.0
Date: Tuesday, November 01, 2016 | Sheet 1 of 37

AMD FT4 DDR4 BLOCK DIAGRAM

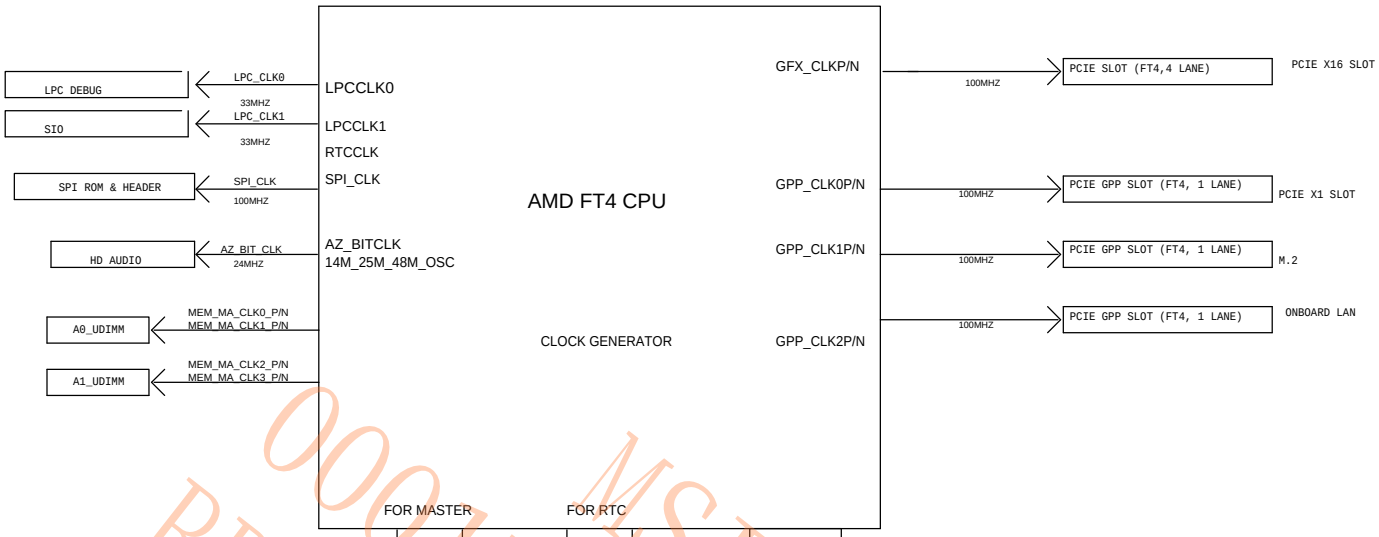


MICRO-START INTL CO.,LTD.

Title: Block Diagram

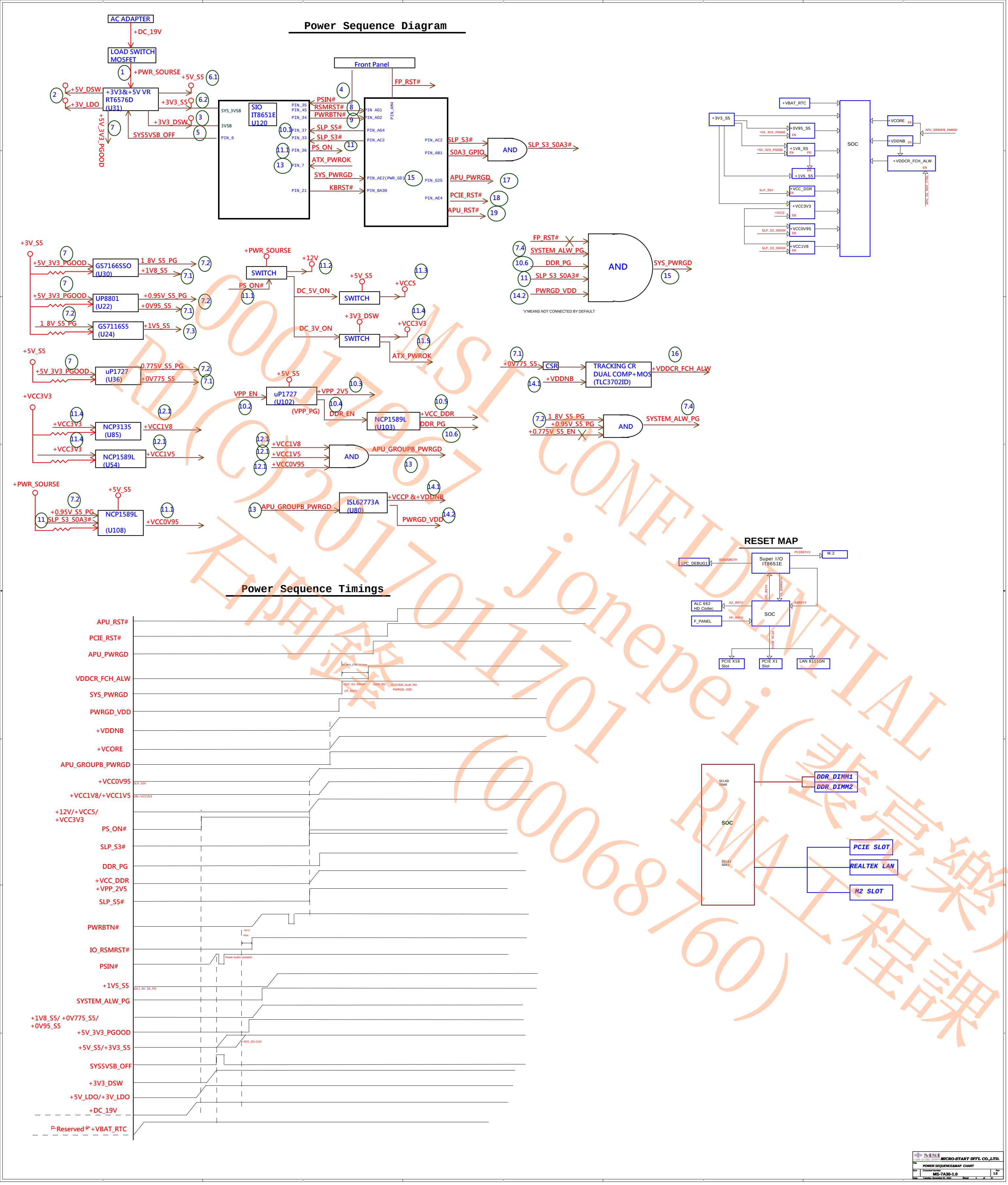
Size: | Document Number: MS-7A30-1.0 | Rev: 1.0

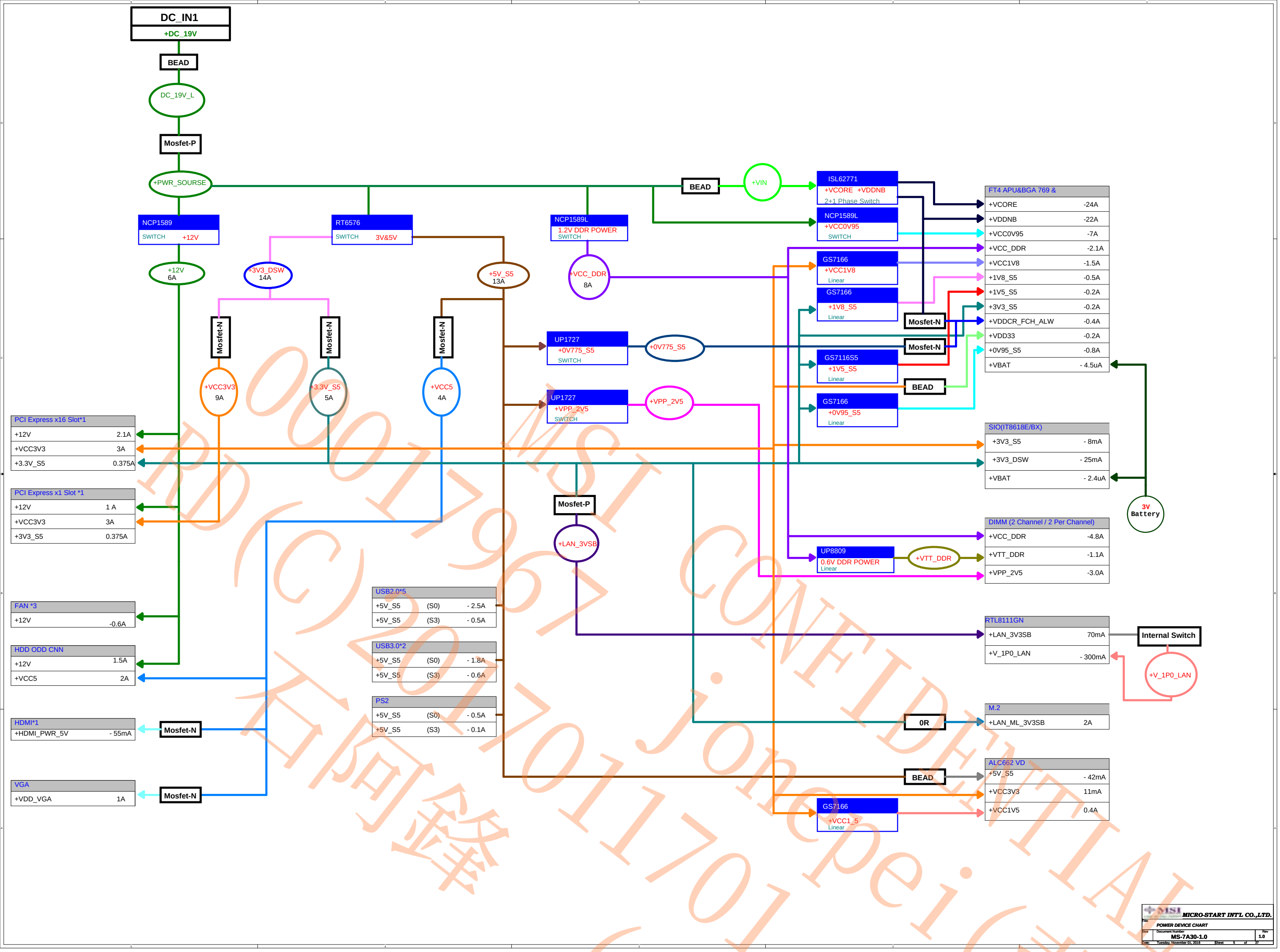
Date: Tuesday, November 01, 2016 | Sheet 2 of 37

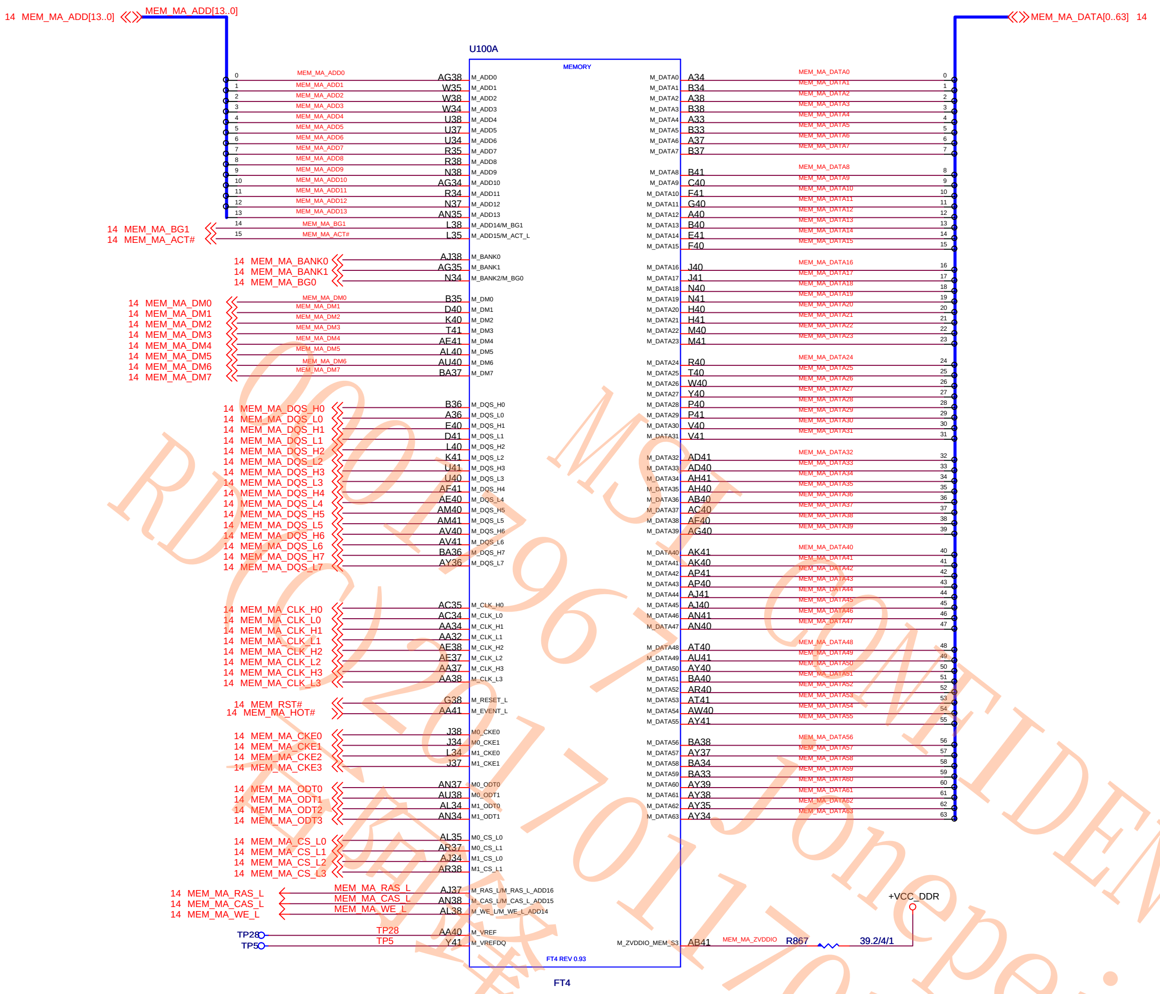


MICRO-START INT'L CO.,LTD.

Title: Clock Distribution		
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 3 of 37	



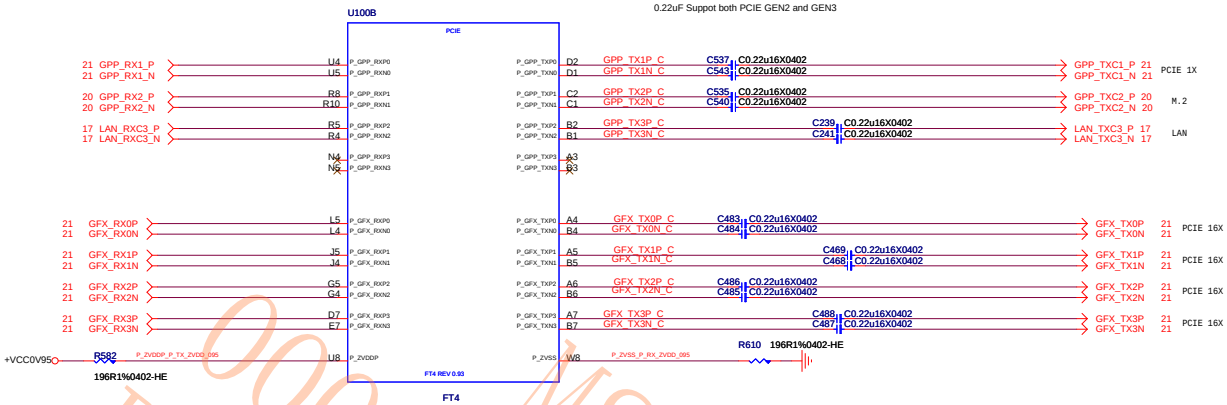




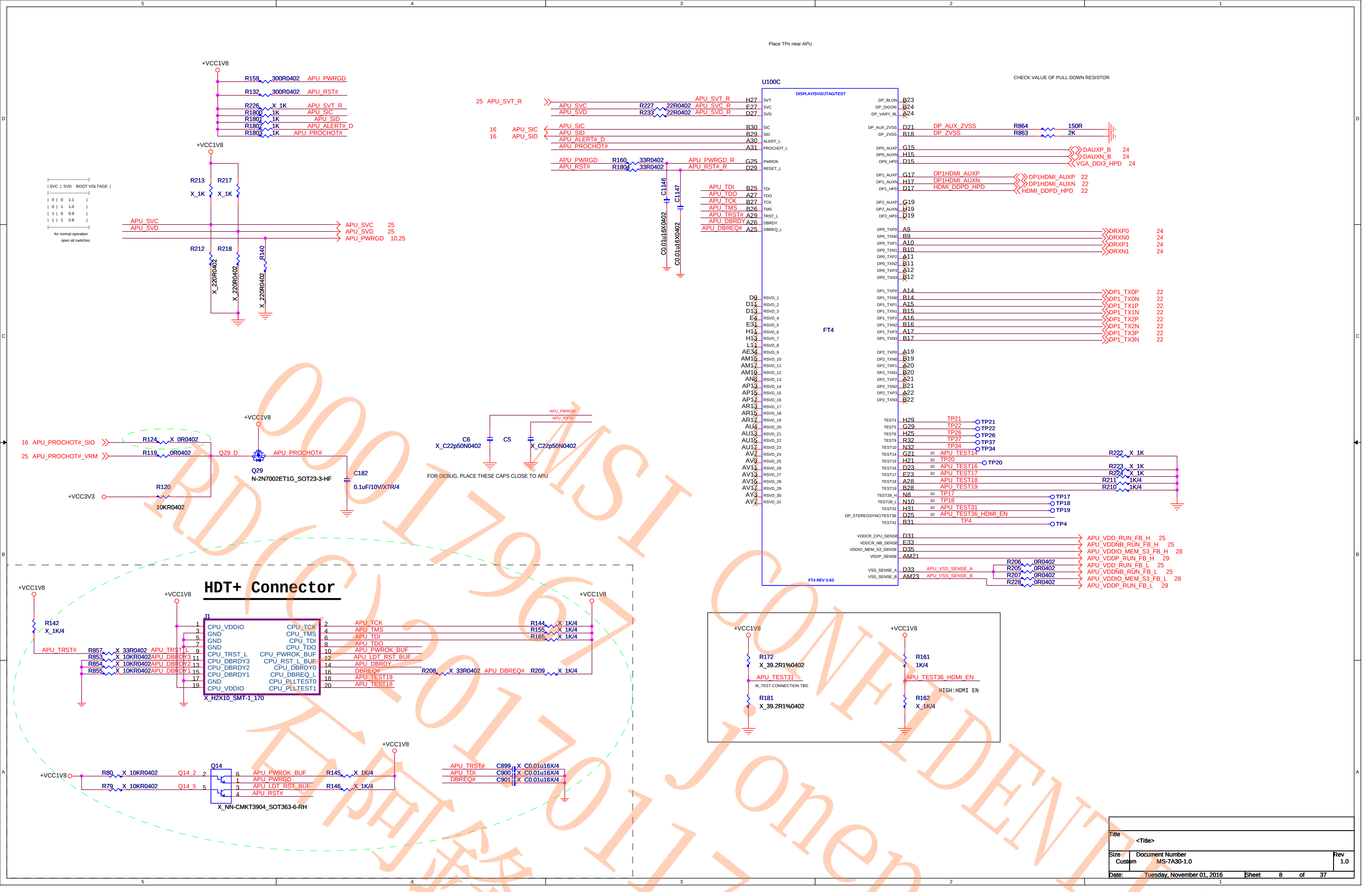
Title	<Title>		
Size	Document Number		Rev
Custom	MS-7A30-1.0		1.0
Date:	Tuesday, November 01, 2016	Sheet 6 of 37	

Note: Remove the Soldermask on Vias

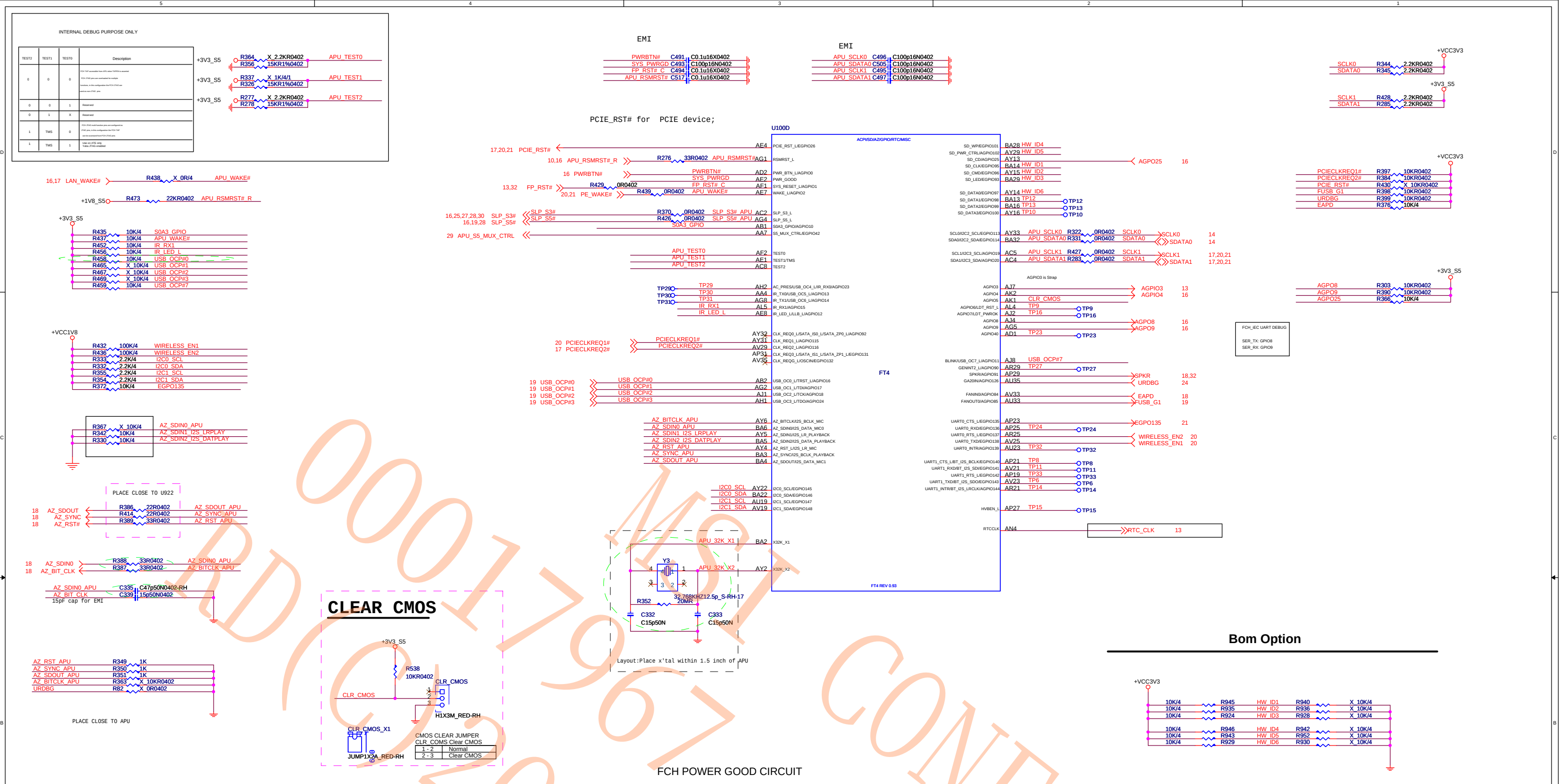
for all PCIE RX DIFF-PAIR

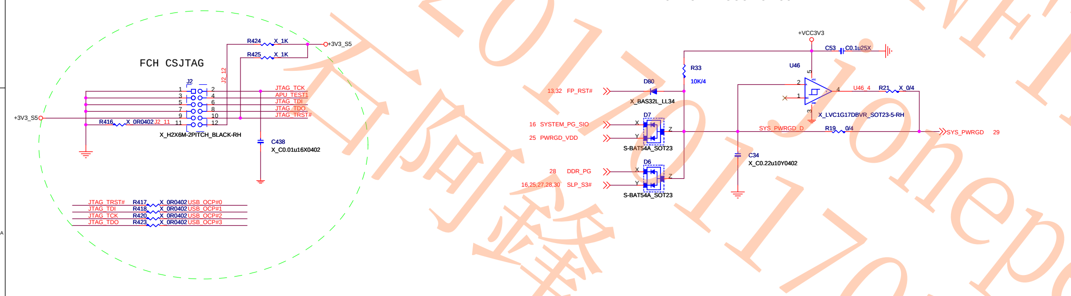


MSI Link to the Future	MICRO-START INT'L CO.,LTD.		
Title: FT4 PCIE			
Size	Document Number: MS-7A30-1.0		Rev: 1.0
Date: Tuesday, November 01, 2016		Sheet 7 of 37	



Title	<Title>		
Size: Custom	Document Number: MS-7A30-1.0		Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 8	of 37	

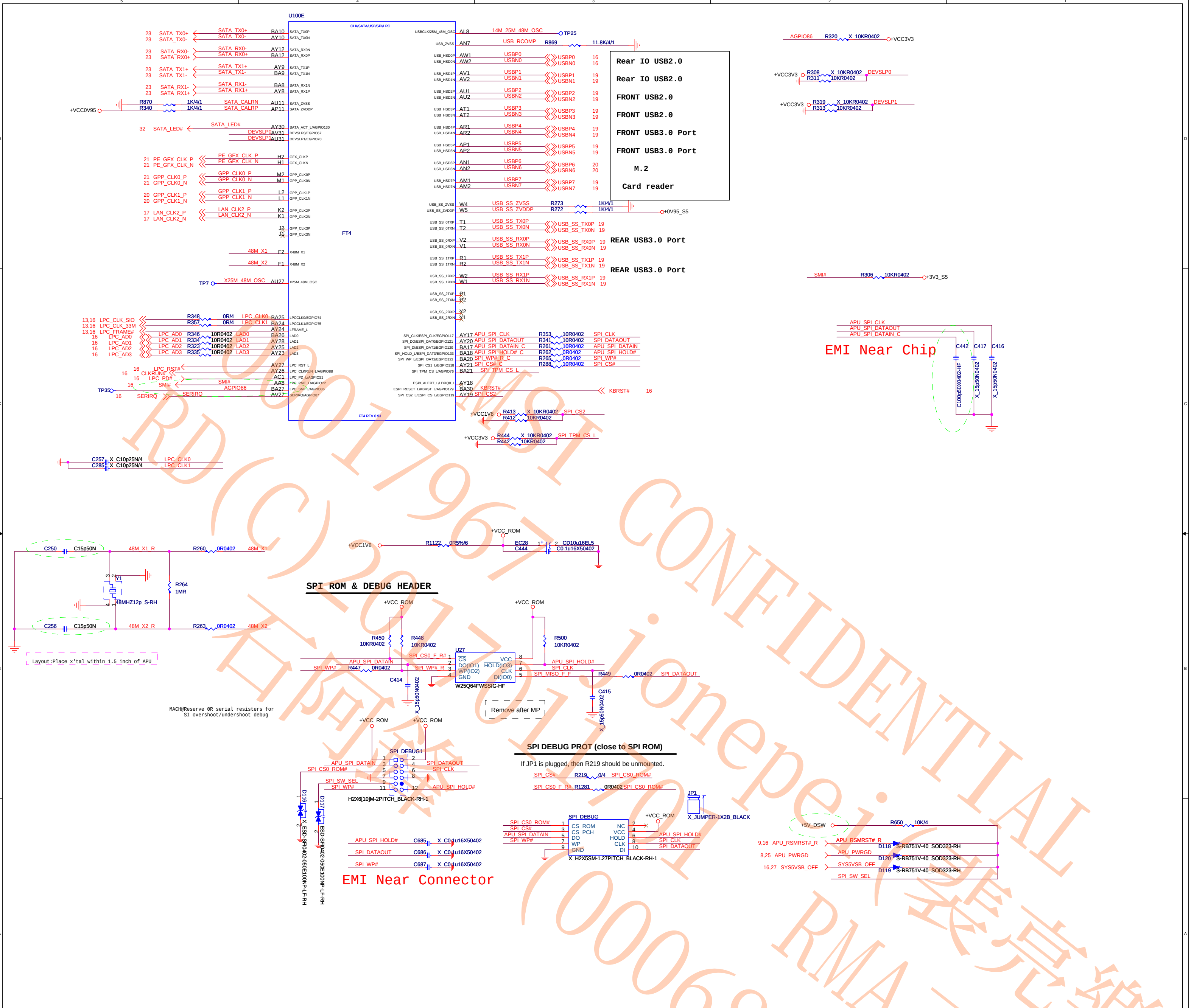




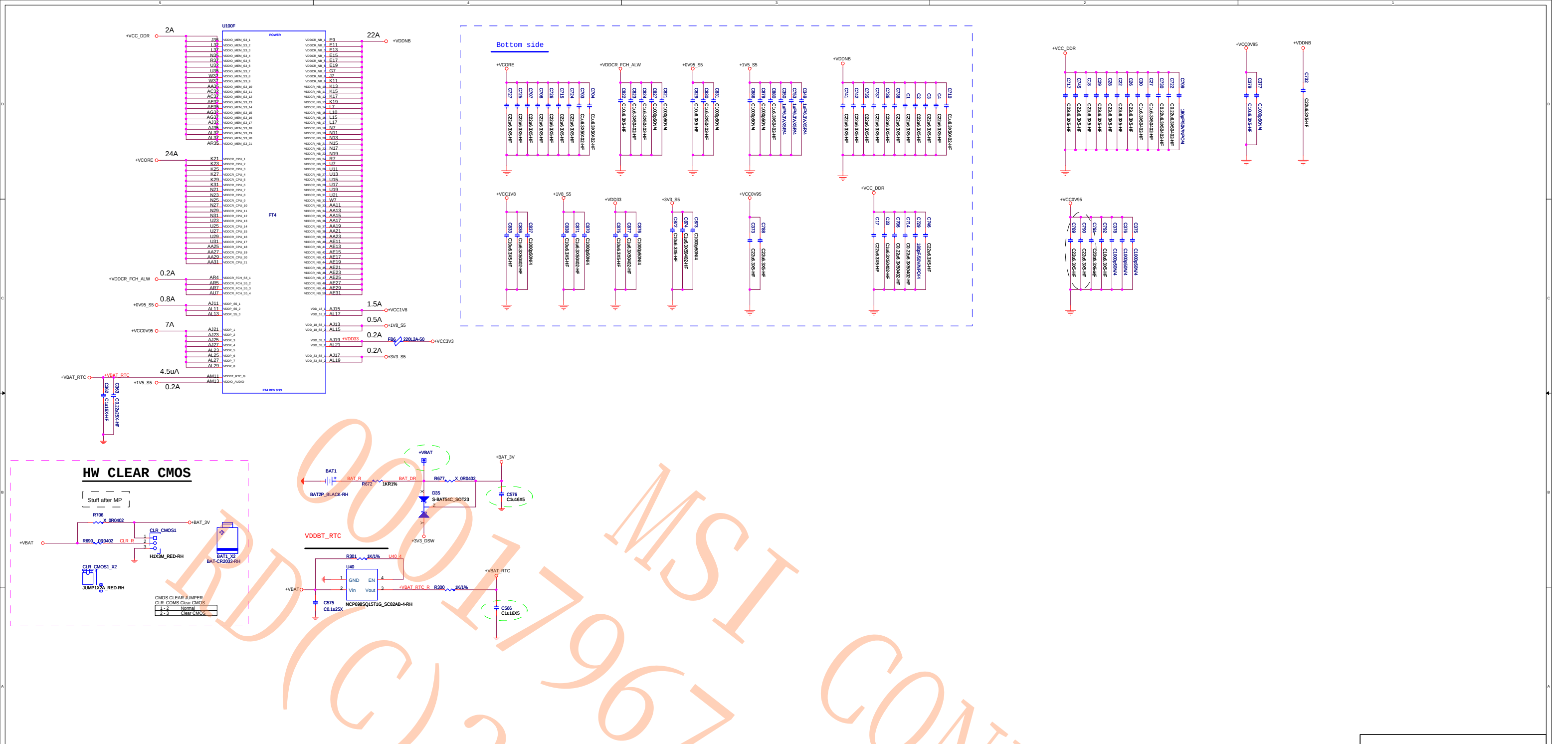
Bom Option Configuration

HW_ID1	HW_ID2	HW_ID3	HW_ID4	HW_ID5	HW_ID6	Project	BOM Opt
1	1	1	1	1	1		A10
0	0	0	0	0	0		A20
1	1	1	1	1	0		A30

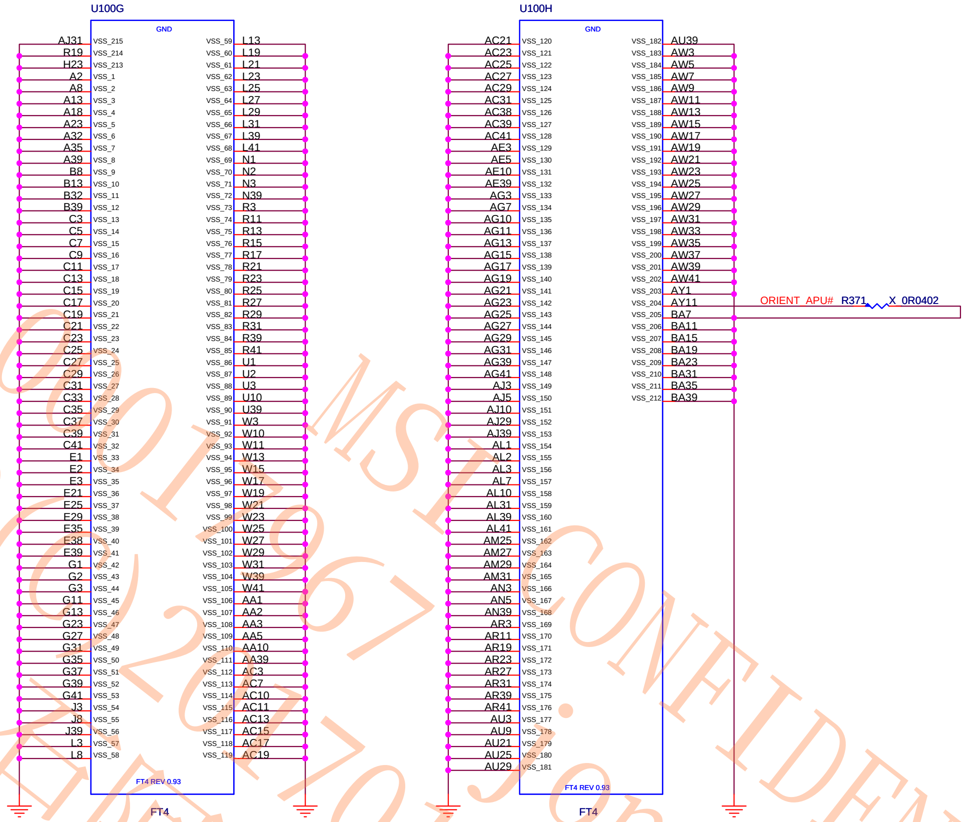
Title <Title>		
Size Custom	Document Number MS-7A30-1.0	Rev 1.0
Date: Tuesday, November 01, 2016	Sheet 9 of 37	


U100E
CLK/SATA/USB/SPI/LPC
FT4
FT4 REV 0.93
Rear IO USB2.0
Rear IO USB2.0
FRONT USB2.0
FRONT USB2.0
FRONT USB3.0 Port
FRONT USB3.0 Port
M.2
Card reader
REAR USB3.0 Port
REAR USB3.0 Port
EMI Near Chip
SPI ROM & DEBUG HEADER
U27
W25Q64FWSSIG-HF
Remove after MP
SPI DEBUG PROT (close to SPI ROM)
If JP1 is plugged, then R219 should be unmounted.
SPI_DEBUG1
H2X6[10]M-2PITCH_BLACK-RH-1
SPI_DEBUG
X_H2X5SM-1.27PITCH_BLACK-RH-1
JP1
X_JUMPER-1X2B_BLACK
EMI Near Connector
Layout:Place x'tal within 1.5 inch of APU
MACH@Reserve 0R serial resisters for SI overshoot/undershoot debug
48MHZ12p_S-RH

Title	<Title>
Size	Custom
Document Number	MS-7A30-1.0
Rev	1.0
Date:	Tuesday, November 01, 2016
Sheet	10 of 37



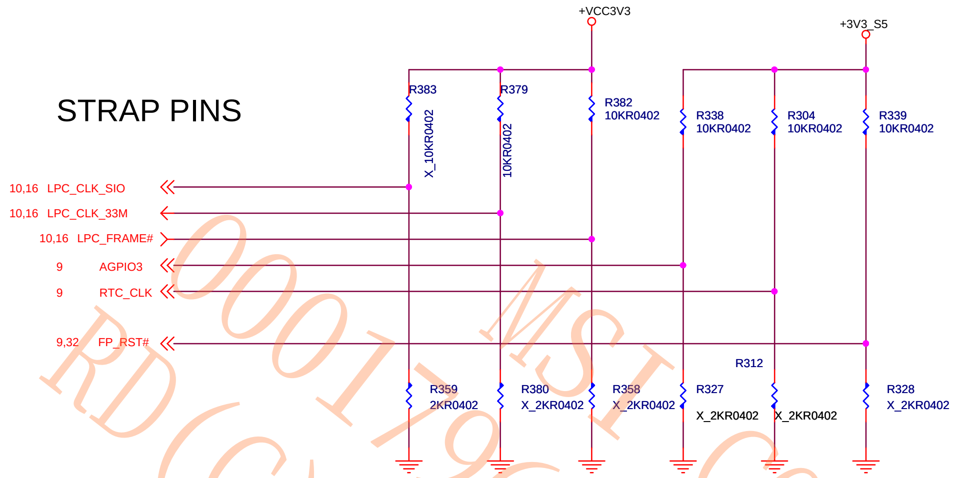
Title	<Title>		
Size	Document Number		Rev
Custom	MS-7A30-1.0		1.0
Date:	Tuesday, November 01, 2016	Sheet 11 of 37	



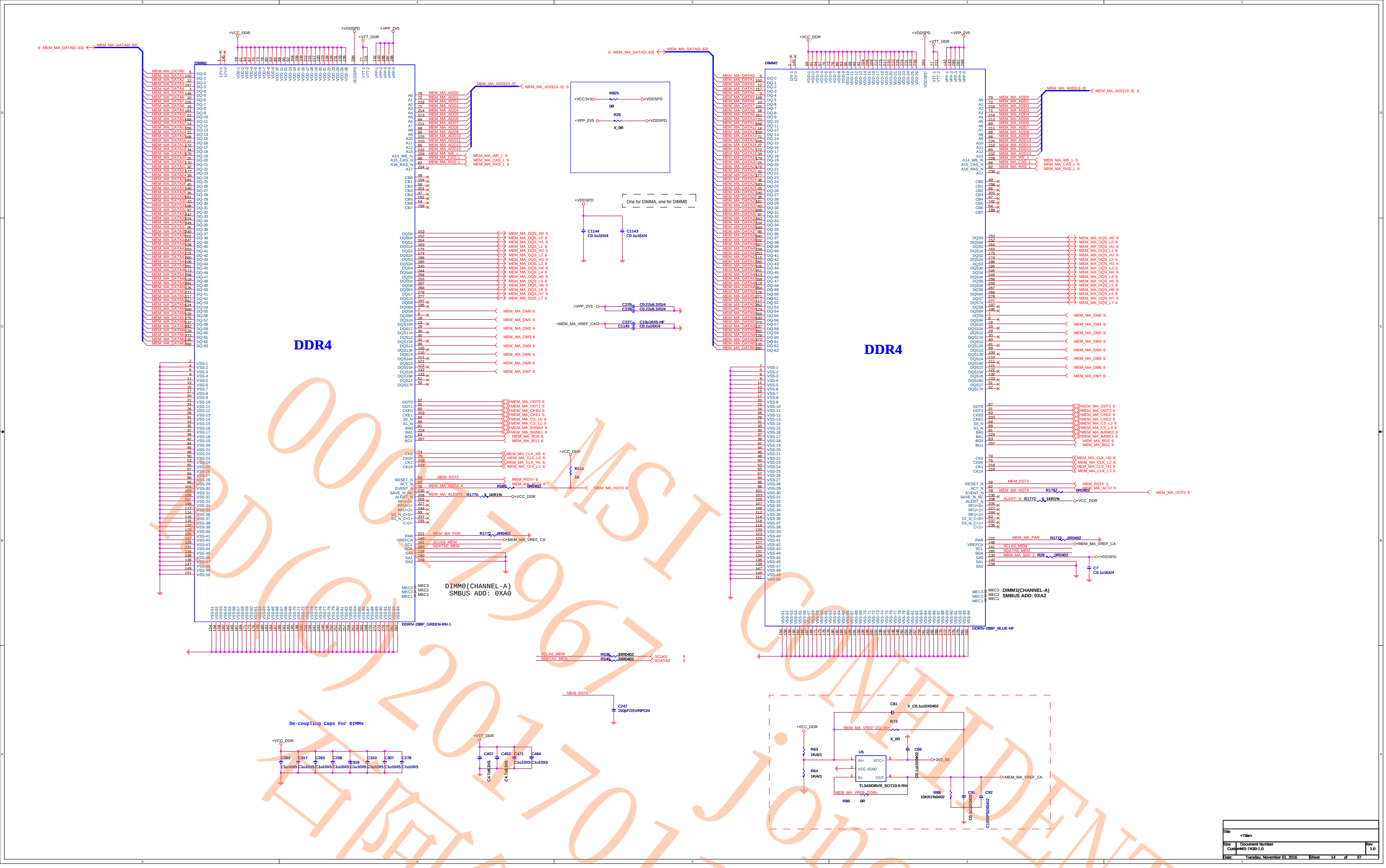
MICRO-START INT'L CO.,LTD.

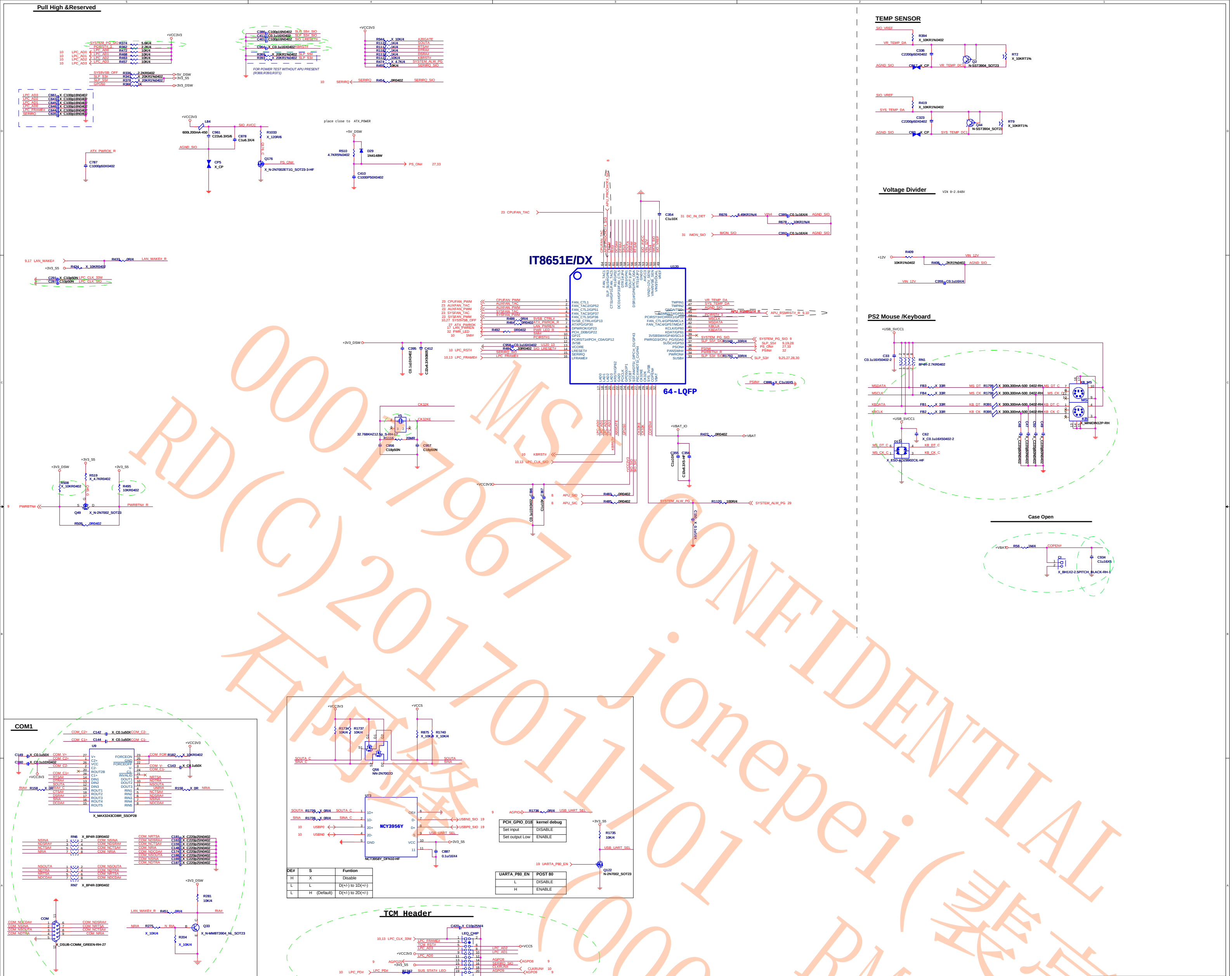
Title		
FT3-GND		
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 12 of 37	

APU STRAP PINS



	LPC_CLK_SIO	LPC_CLK_33M	LPC_FRAME#	AGPIO3 Int pull-up	RTC_CLK Int pull-up	SYS_RST# Int pull-up
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)	SPI ROM (DEFAULT)	Enhanced reset logic (for quicker S5 S5 resume) (DEFAULT)	Coin battery is on board. (DEFAULT)	normal reset mode (DEFAULT)
PULL LOW	BOOT FAIL TIMER DISABLED (DEFAULT)	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	LPC ROM	Default to traditional reset logic	Coin battery is not on board.	short reset mode





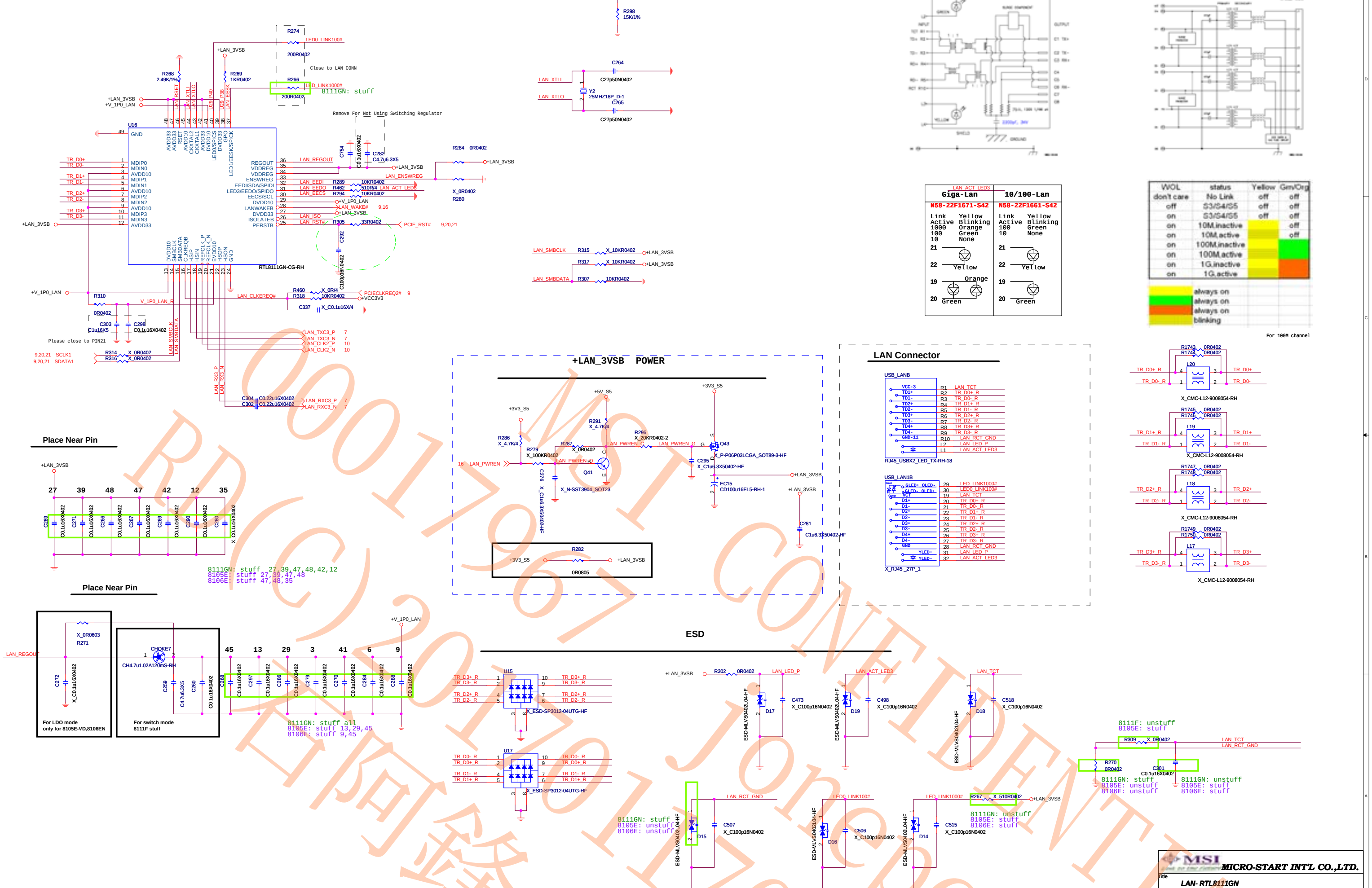
OE#	S	Funtion
H	X	Disable
L	L	D(+/-) to 1D(+/-)
L	H (Default)	D(+/-) to 2D(+/-)

PCH_GPIO_D18	kernel debug
Set input	DISABLE
Set output Low	ENABLE

UARTA_P80_EN	POST 80
L	DISABLE
H	ENABLE

Title	<Title>	
Size: Custom	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 16 of 37	

RTL8111GN

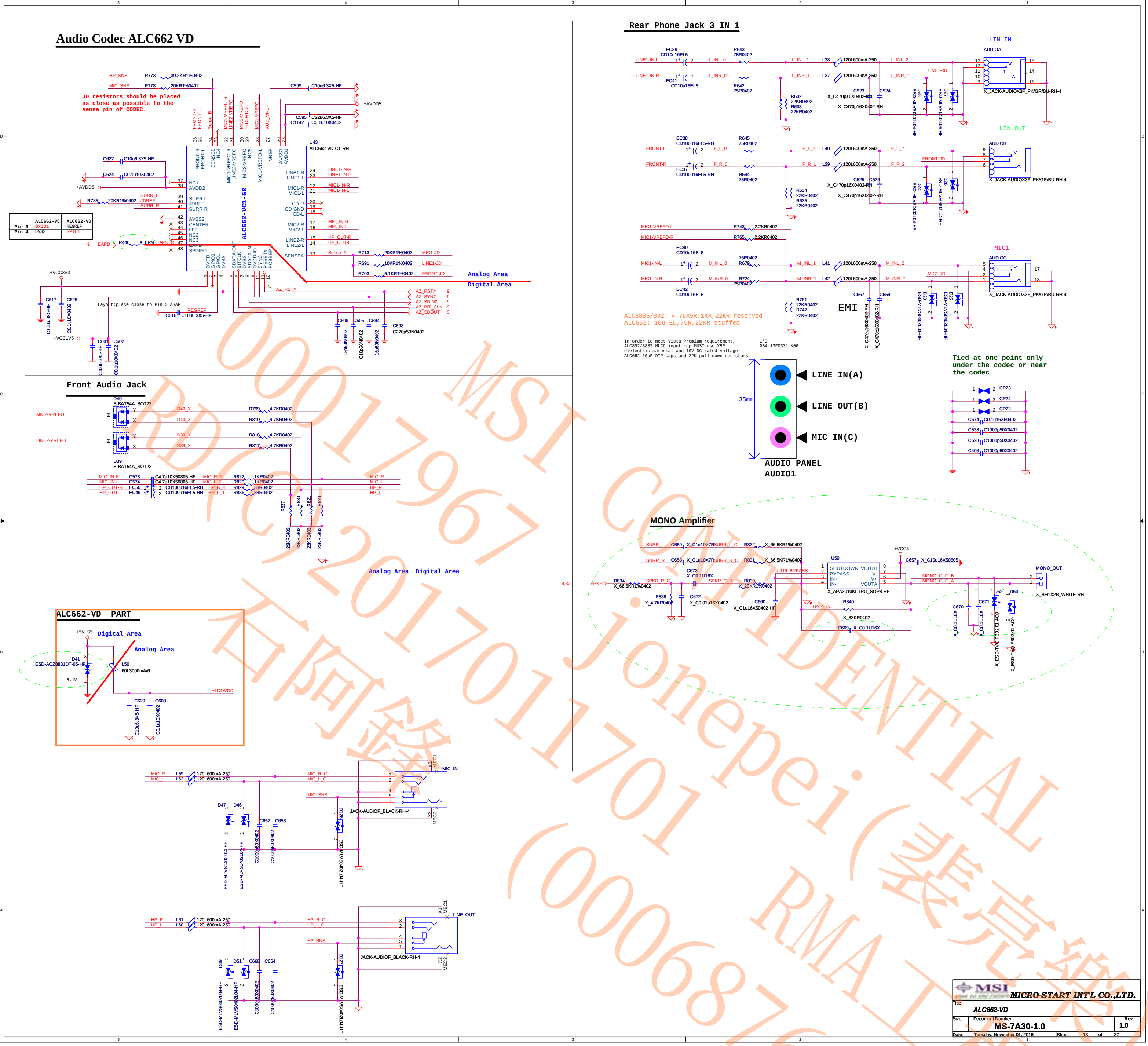


MICRO-START INT'L CO.,LTD.

Title: LAN- RTL8111GN

Size | Document Number: MS-7A30-1.0 | Rev 1.0

Date: Tuesday, November 01, 2016 | Sheet 17 of 37



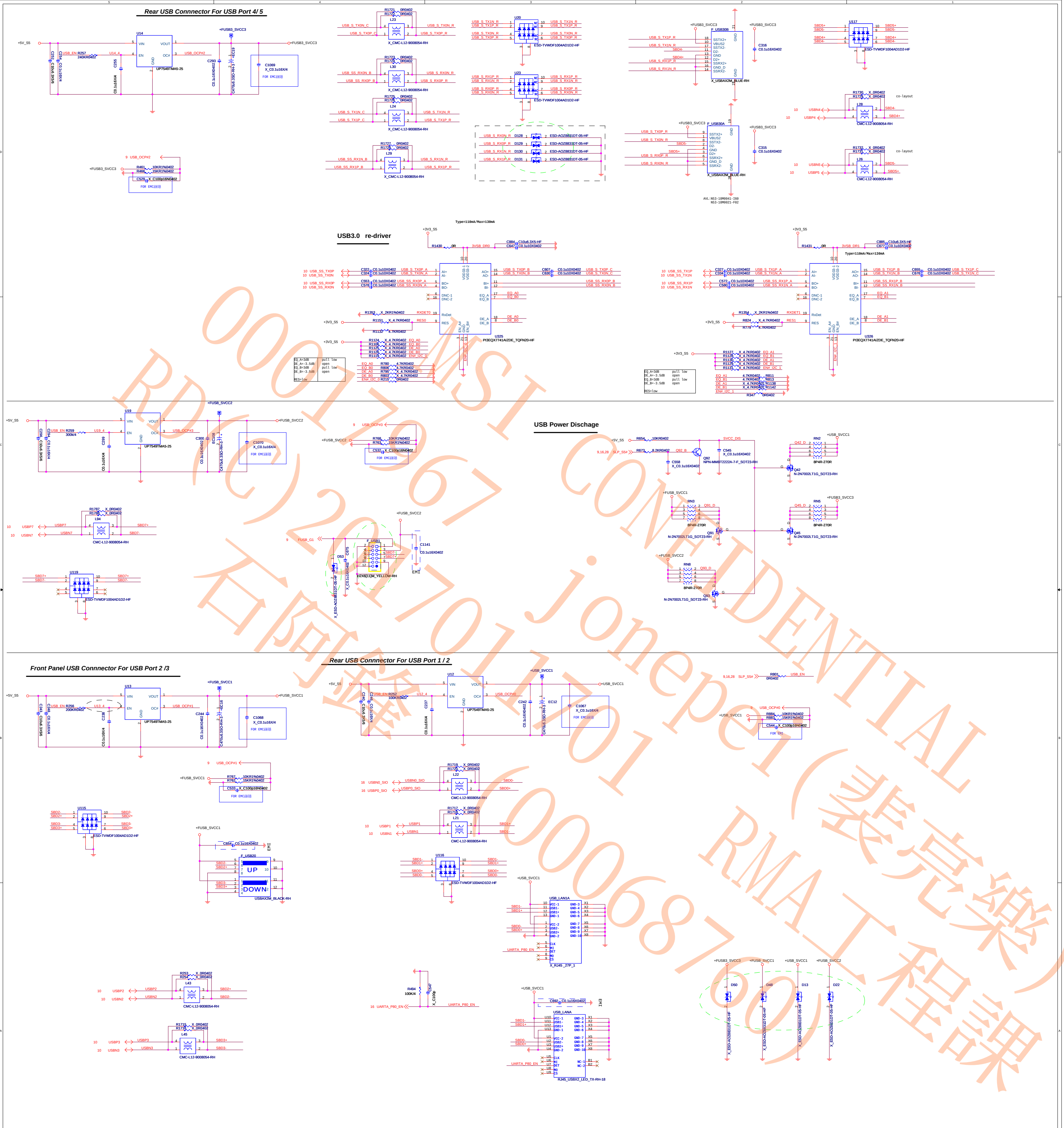
	ALC662-VC	ALC662-VD
Pin 3	GPIO1	REGREF
Pin 4	DVSS	GPIO1

MICRO-START INT'L CO.,LTD.

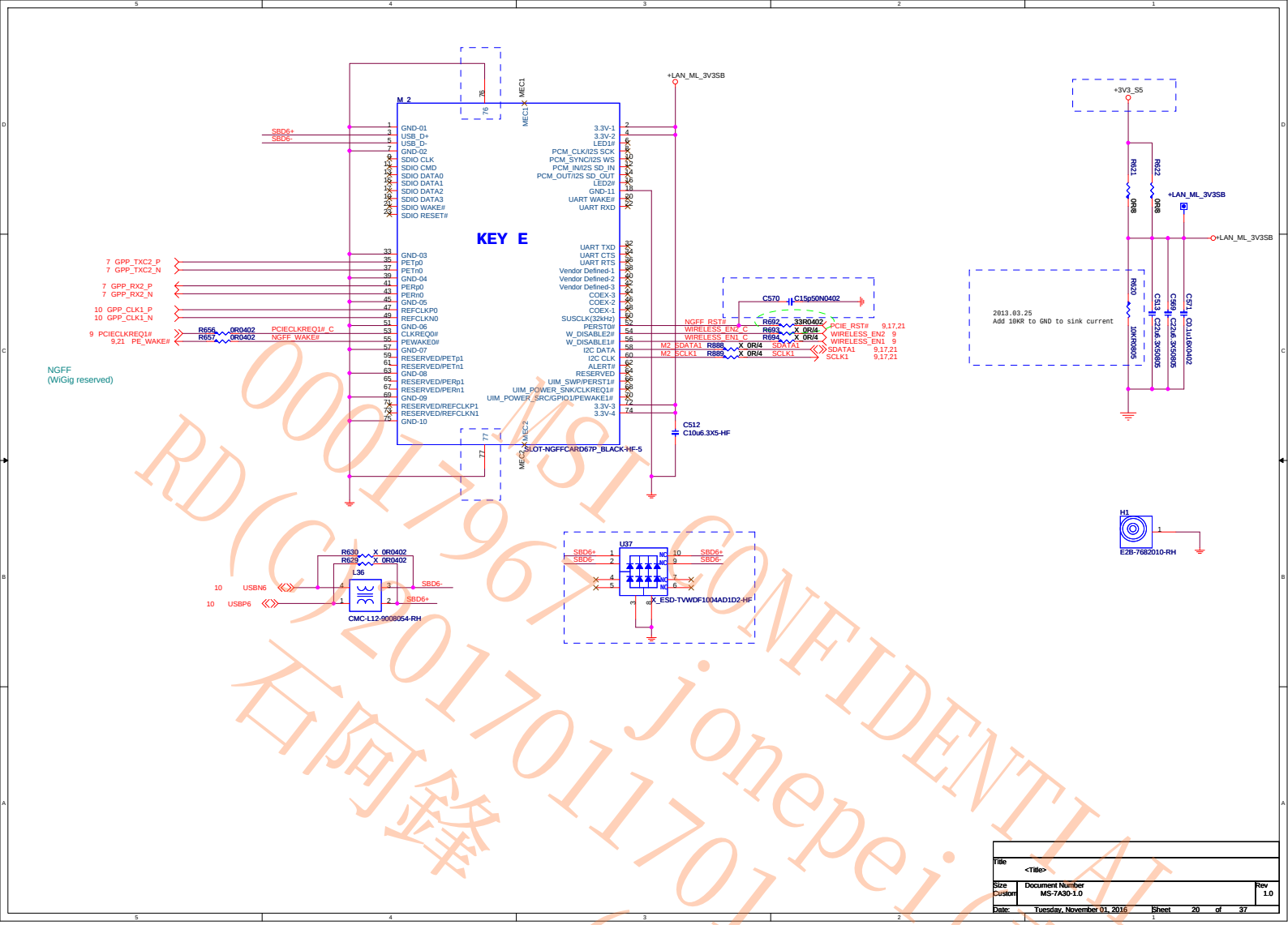
Title: ALC662-VD

Size | Document Number: MS-7A30-1.0 | Rev: 1.0

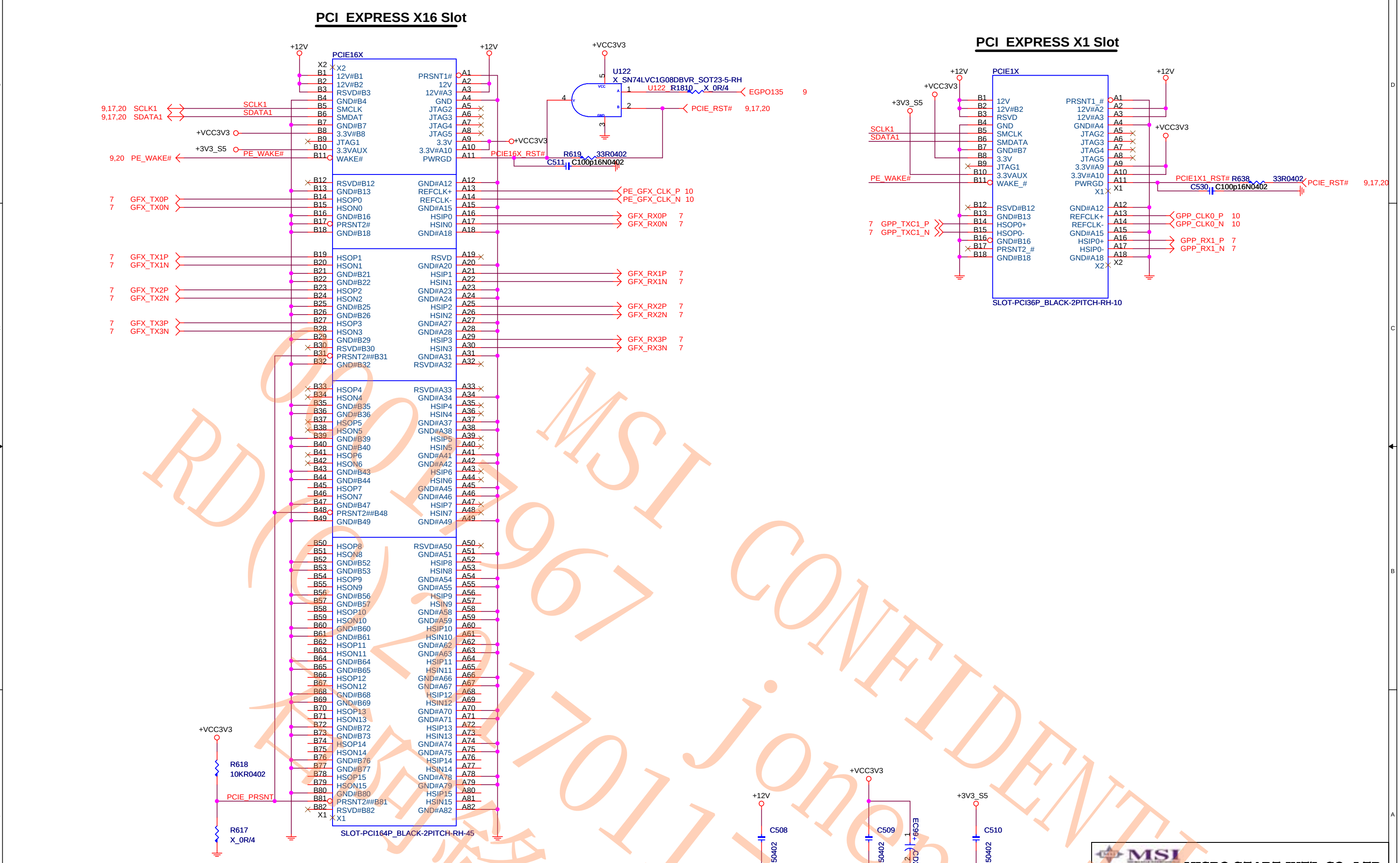
Date: Tuesday, November 01, 2016 | Sheet 18 of 37



MSI MICRO-START INT'L CO.,LTD.		
Title: USB		
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 19 of 37	



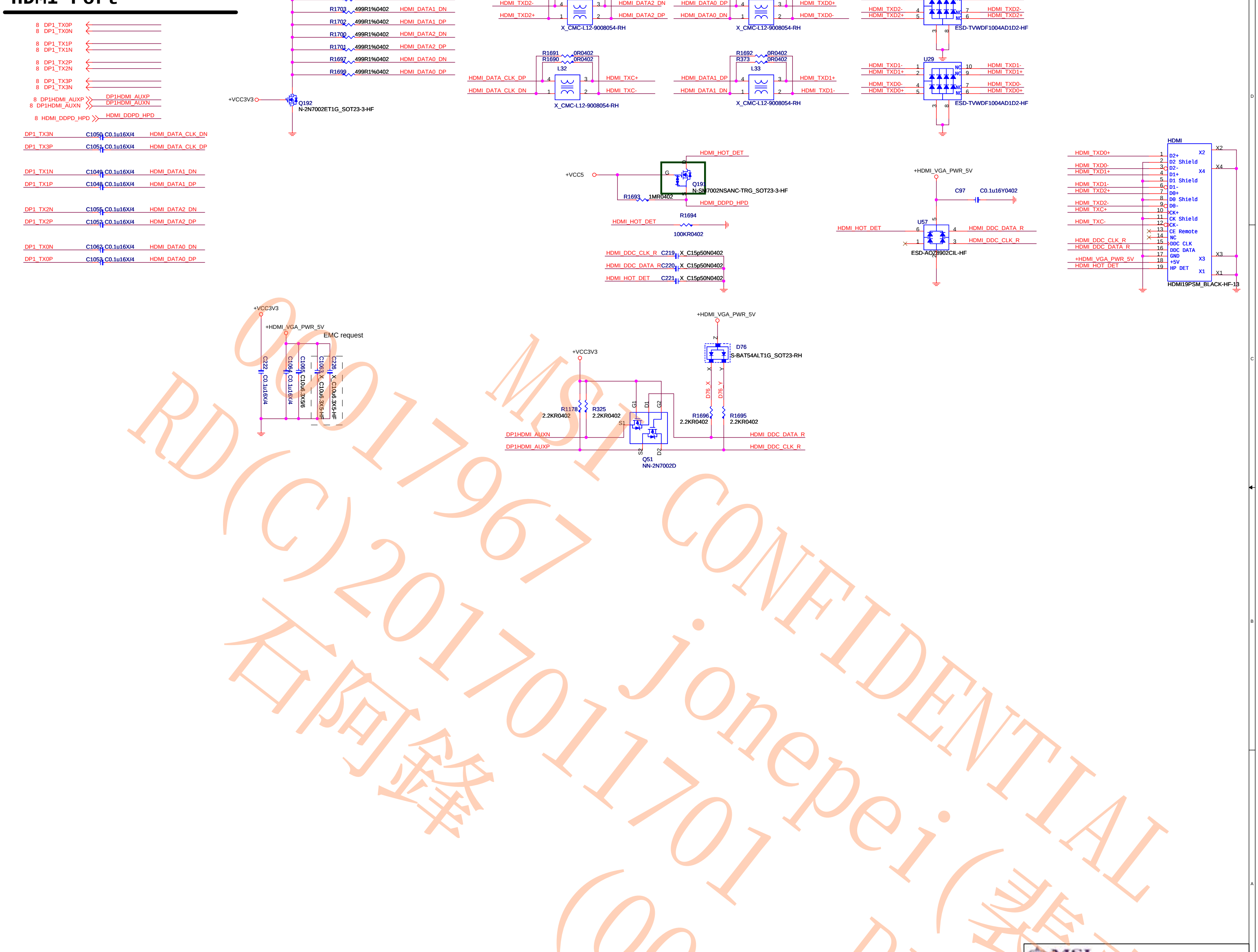
Title	<Title>	
Size: Custom	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 20 of 37	



MICRO-START INT'L CO.,LTD.

Title	PCIE16X&PCIE1X	
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date:	Tuesday, November 01, 2016	Sheet 21 of 37

HDMI Port

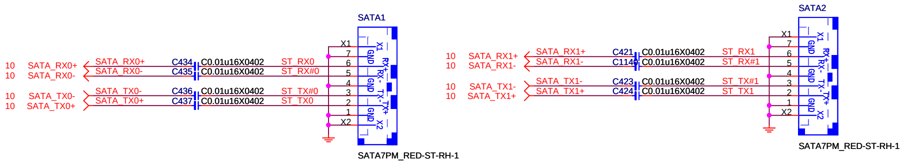


MICRO-START INT'L CO.,LTD.

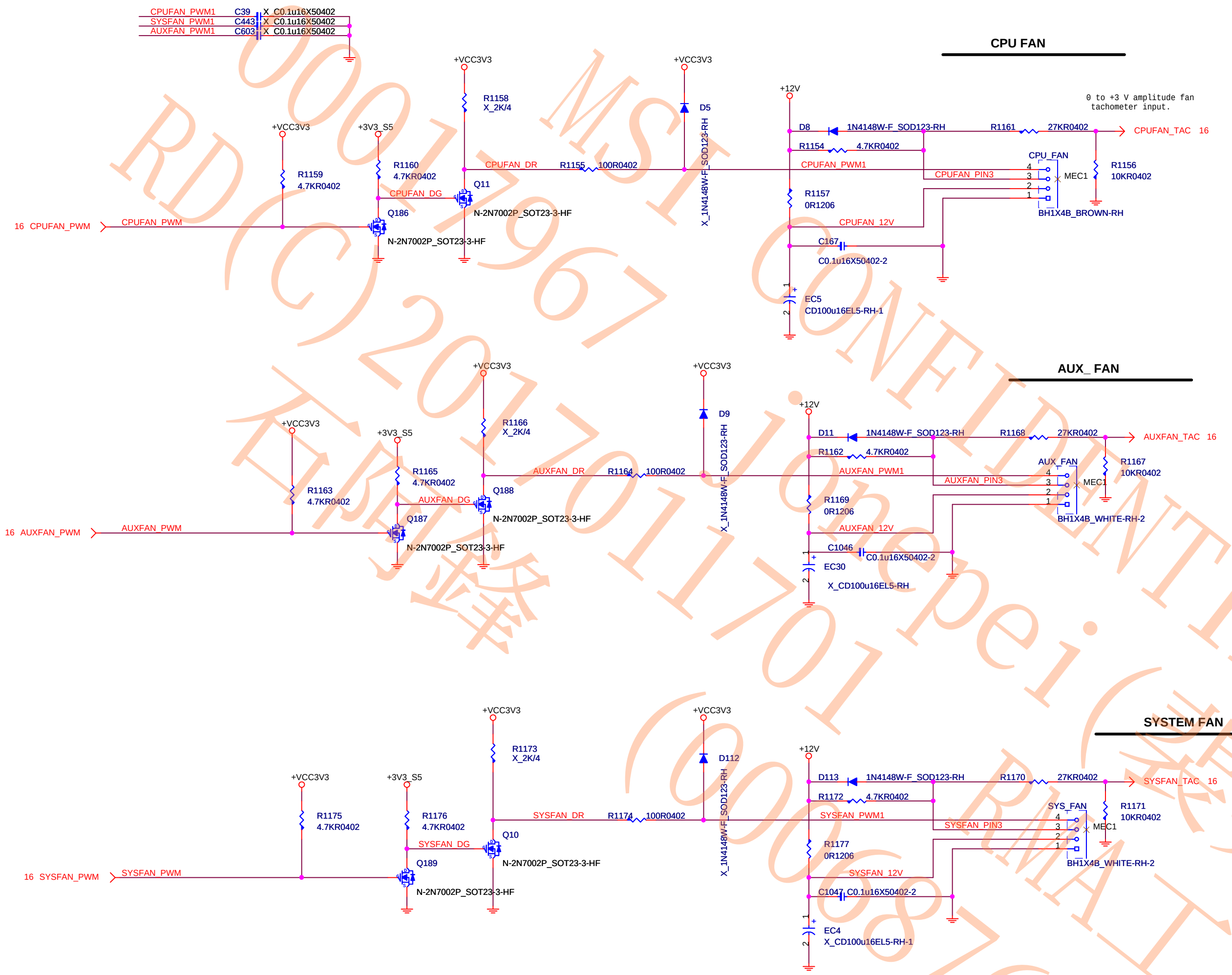
Title		
HDMI CONN		
Size	Document Number	Rev
	MS-7A30-1.0	1.0
Date: Tuesday, November 01, 2016	Sheet 22 of 37	

iSATA CONNECTOR

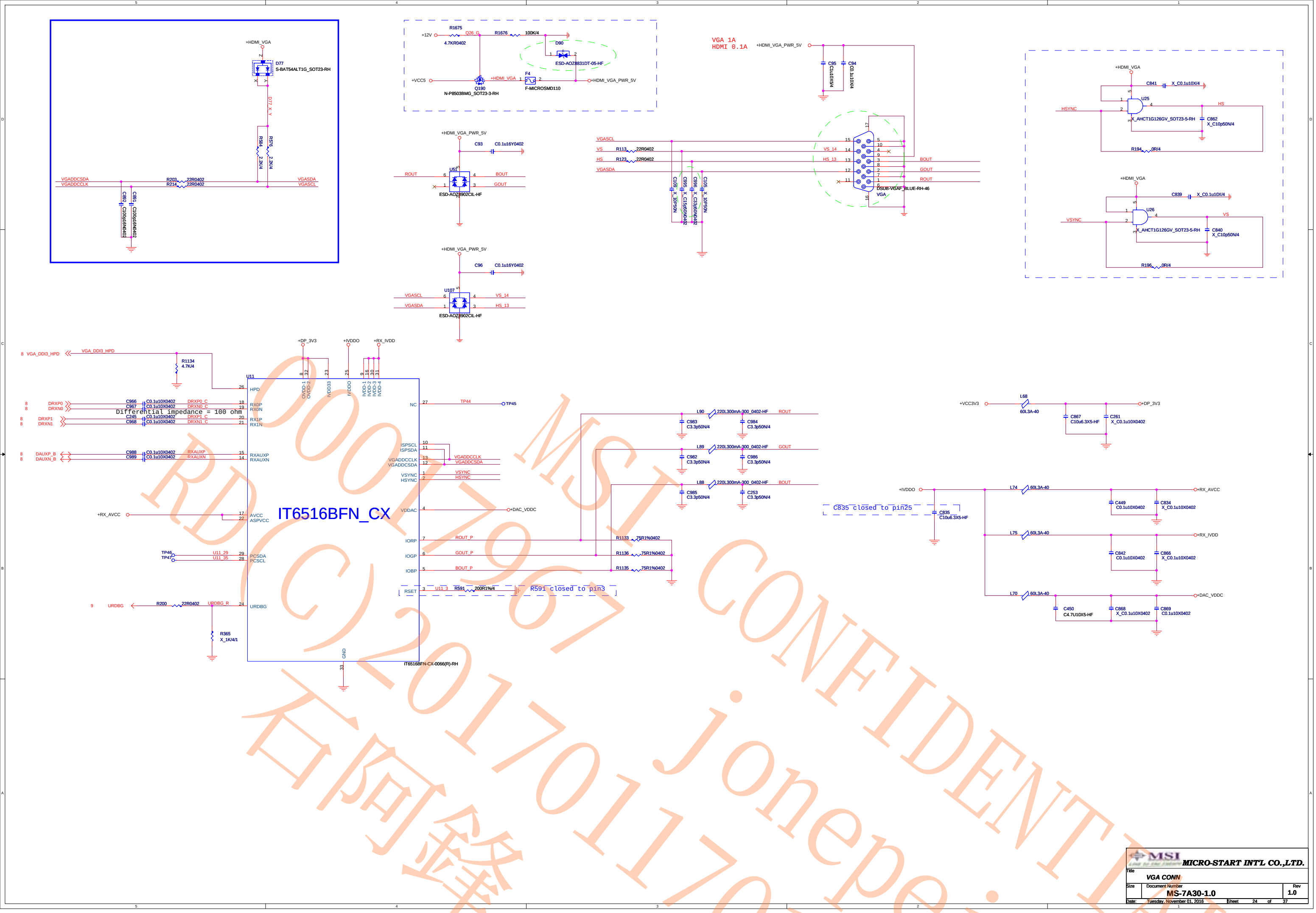
Layout:For Gen 3.0,trace length within 3''



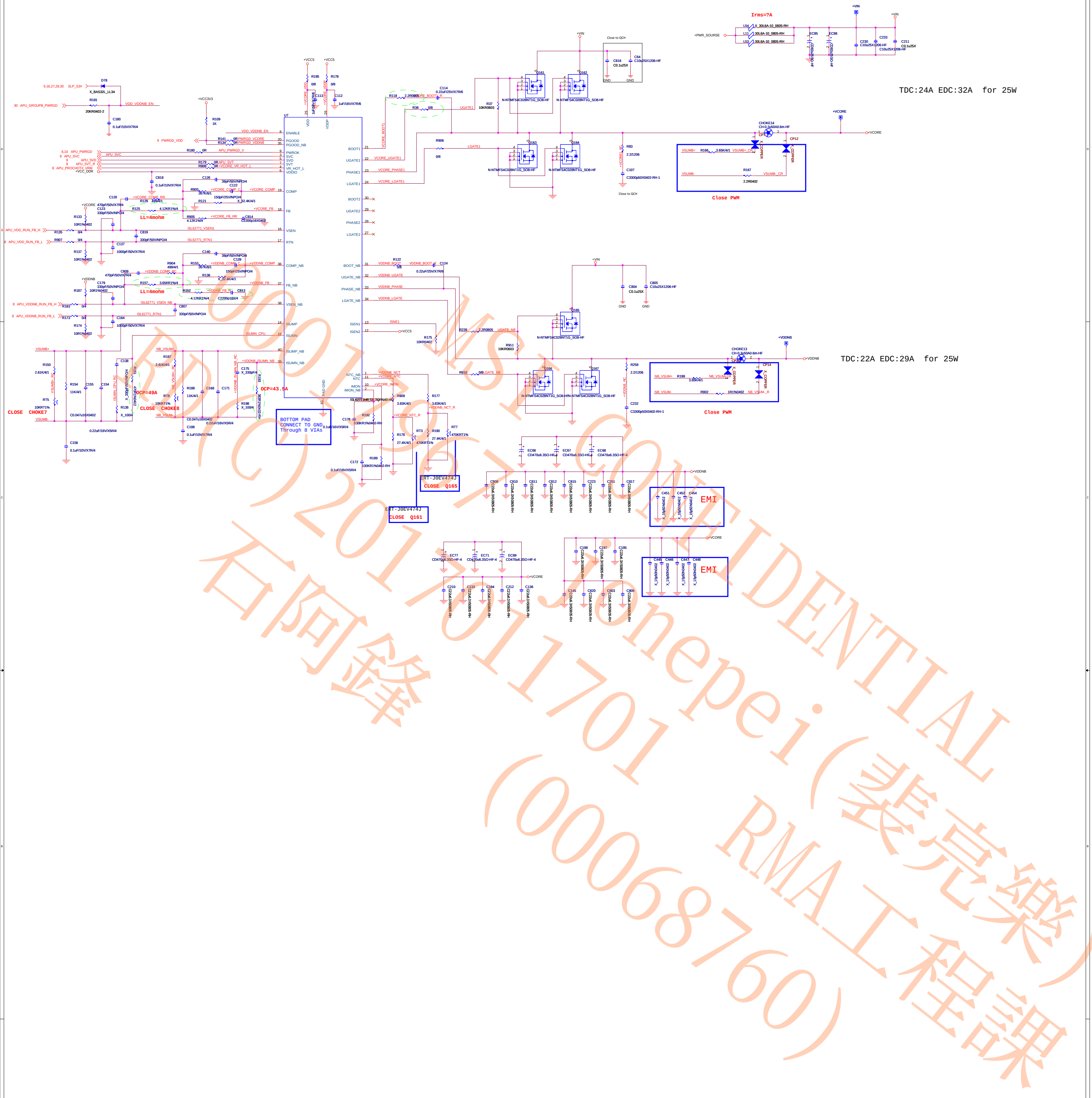
CPU FAN /SYSTEM FAN



MSI	MICRO-START INT'L CO.,LTD.		
Title	SATA&FAN		
Size	Document Number: MS-7A30-1.0		Rev 1.0
Date: Tuesday, November 01, 2016	Sheet 23 of 37		



AMD FT4 25W ISL62771 for VCORE and VNB



MICRO-STAR INT'L CO.,LTD.

Title: ISL62771

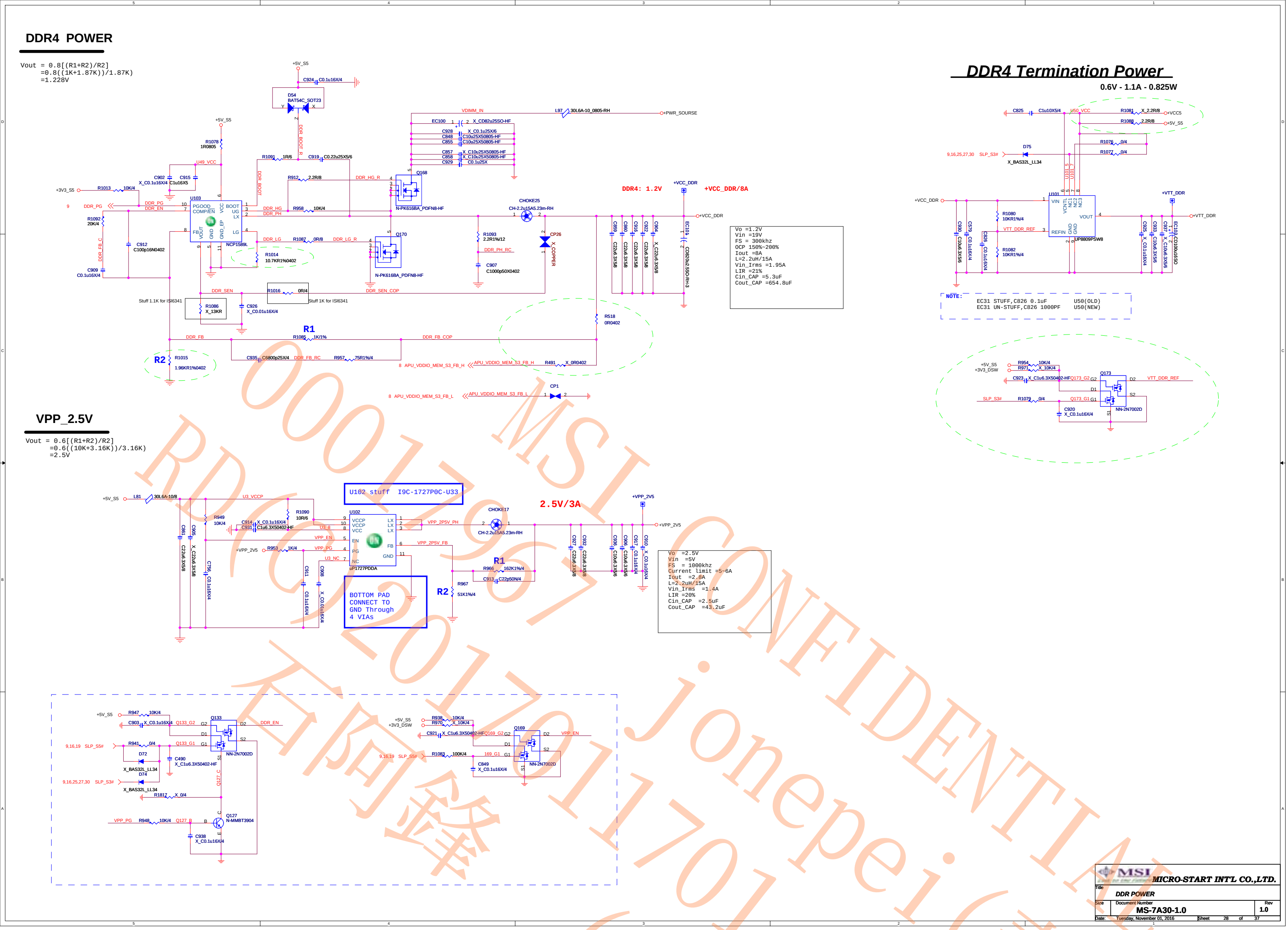
Document Number: MS-7A30-1.0 — Rev 1.0

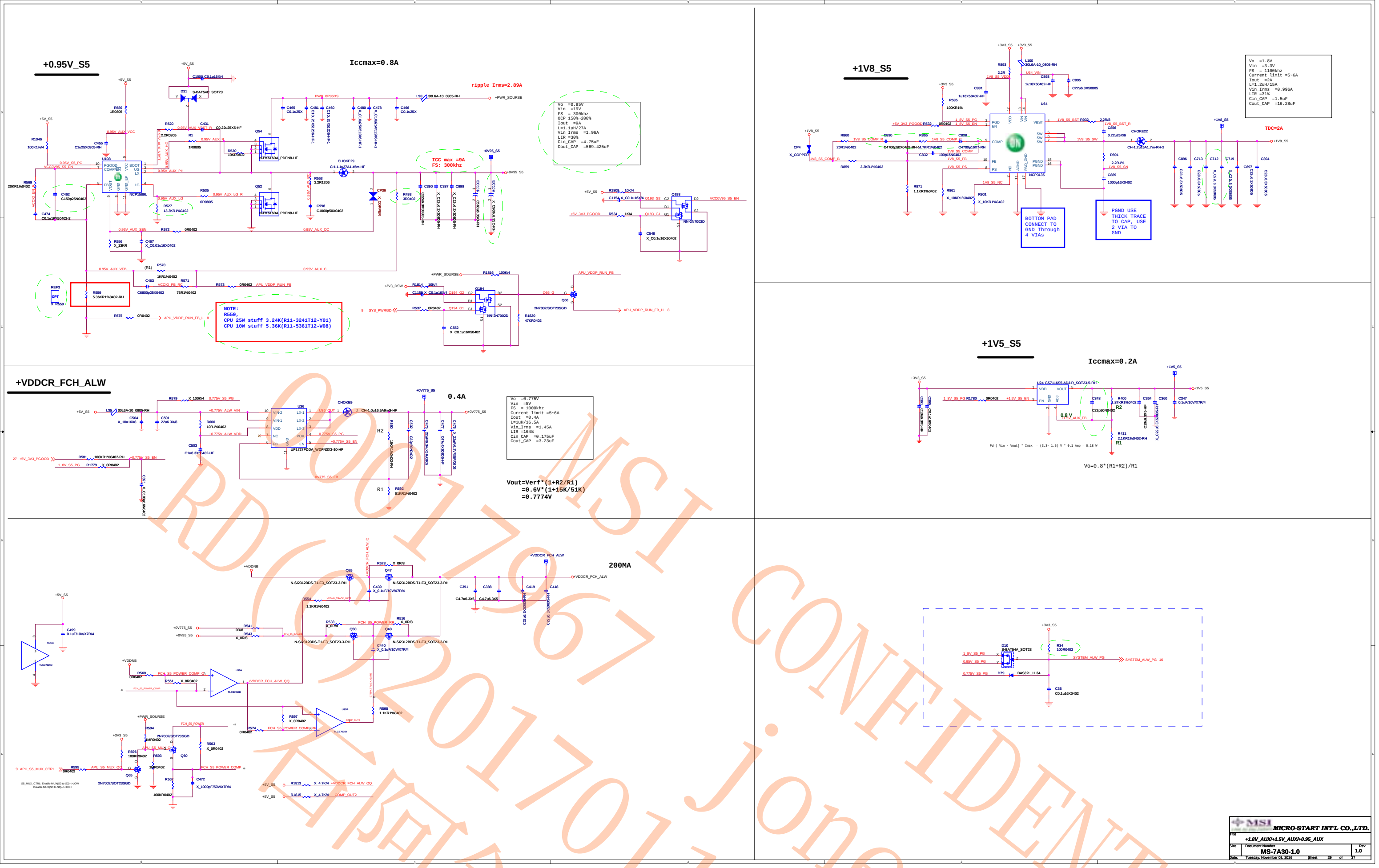
Date: Tuesday, November 01, 2016 — Sheet 25 of 37

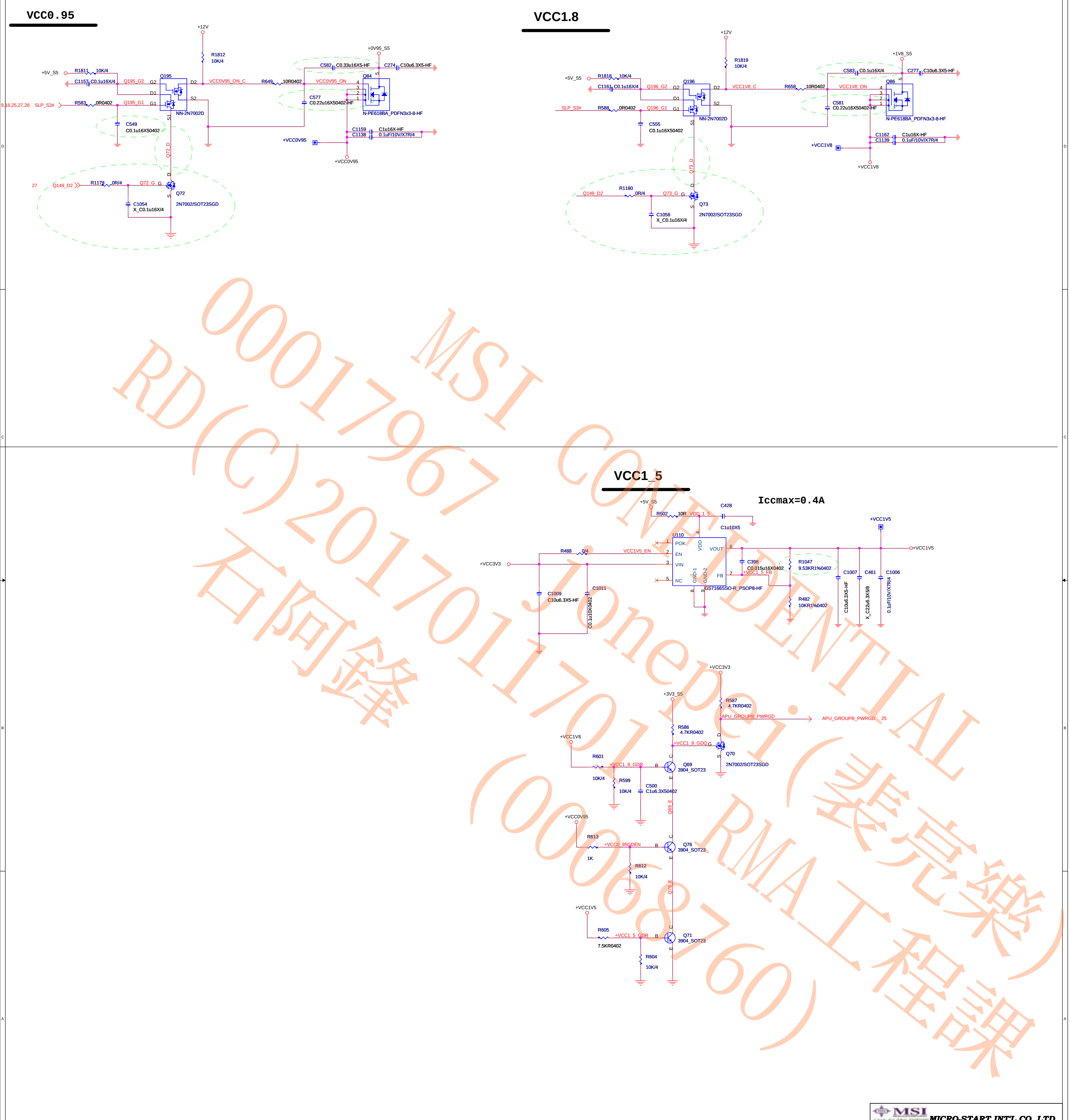
Title	<Title>		
Size	Document Number		Rev
Custom	MS-7A30-1.0		1.0
Date:	Tuesday, November 01, 2016	Sheet 26 of 37	

VCC3&VCC5 Power

MICRO-START INT'L CO.,LTD.		
Title: System Power		
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 27 of 37	


DDR4 POWER
Vout = 0.8[(R1+R2)/R2]
=0.8((1K+1.87K))/1.87K)
=1.228V
DDR4: 1.2V
+VCC_DDR/8A
Vo =1.2V
Vin =19V
FS = 300khz
OCP 150%~200%
Iout =8A
L=2.2uH/15A
Vin_Irms =1.95A
LIR =21%
Cin_CAP =5.3uF
Cout_CAP =654.8uF
DDR4 Termination Power
0.6V - 1.1A - 0.825W
NOTE:
EC31 STUFF,C826 0.1uF U50(OLD)
EC31 UN-STUFF,C826 1000PF U50(NEW)
VPP_2.5V
Vout = 0.6[(R1+R2)/R2]
=0.6((10K+3.16K))/3.16K)
=2.5V
U102 stuff I9C-1727P8C-U33
2.5V/3A
BOTTOM PAD CONNECT TO GND Through 4 VIAs
Vo =2.5V
Vin =5V
FS = 1000khz
Current limit =5~6A
Iout =2.8A
L=2.2uH/15A
Vin_Irms =1.4A
LIR =20%
Cin_CAP =2.5uF
Cout_CAP =43.2uF
MICRO-START INT'L CO.,LTD.
DDR POWER
MS-7A30-1.0
Rev 1.0
Tuesday, November 01, 2016
Sheet 28 of 37


+0.95V_S5
Iccmax=0.8A
ripple Irms=2.89A
ICC max =9A
FS: 300khz
Vo =0.95V
Vin =19V
FS = 300khz
OCP 150%~200%
Iout =9A
L=1.1uH/27A
Vin_Irms =1.96A
LIR =30%
Cin_CAP =4.75uF
Cout_CAP =569.42uF
NOTE:
R559,
CPU 25W stuff 3.24K(R11-3241T12-Y01)
CPU 10W stuff 5.36K(R11-5361T12-W08)
+1V8_S5
Vo =1.8V
Vin =3.3V
FS = 1100khz
Current limit =5~6A
Iout =3A
L=1.2uH/15A
Vin_Irms =0.996A
LIR =31%
Cin_CAP =1.5uF
Cout_CAP =16.28uF
TDC=2A
BOTTOM PAD CONNECT TO GND Through 4 VIAs
PGND USE THICK TRACE TO CAP, USE 2 VIA TO GND
+1V5_S5
Iccmax=0.2A
Vo=0.8*(R1+R2)/R1
+VDDCR_FCH_ALW
0.4A
Vo =0.775V
Vin =5V
FS = 1000khz
Current limit =5~6A
Iout =0.4A
L=1uH/16.5A
Vin_Irms =1.45A
LIR =164%
Cin_CAP =0.175uF
Cout_CAP =3.23uF
Vout=Verf*(1+R2/R1)
=0.6V*(1+15K/51K)
=0.7774V
200MA
MICRO-START INT'L CO.,LTD.
+1.8V_AUX/+1.5V_AUX/+0.95_AUX
MS-7A30-1.0
Rev 1.0

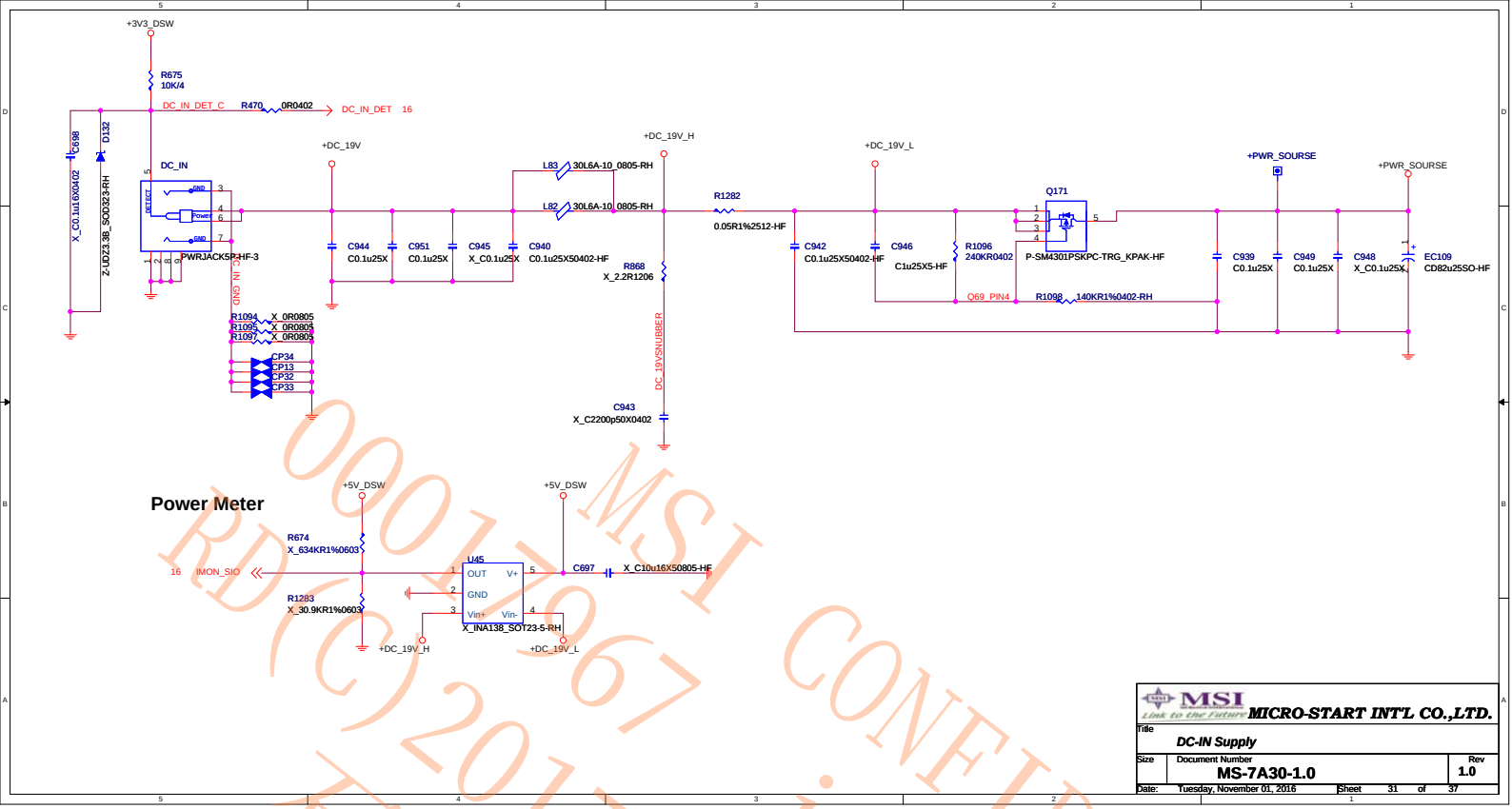


MSI MICRO-START INT'L CO.,LTD.

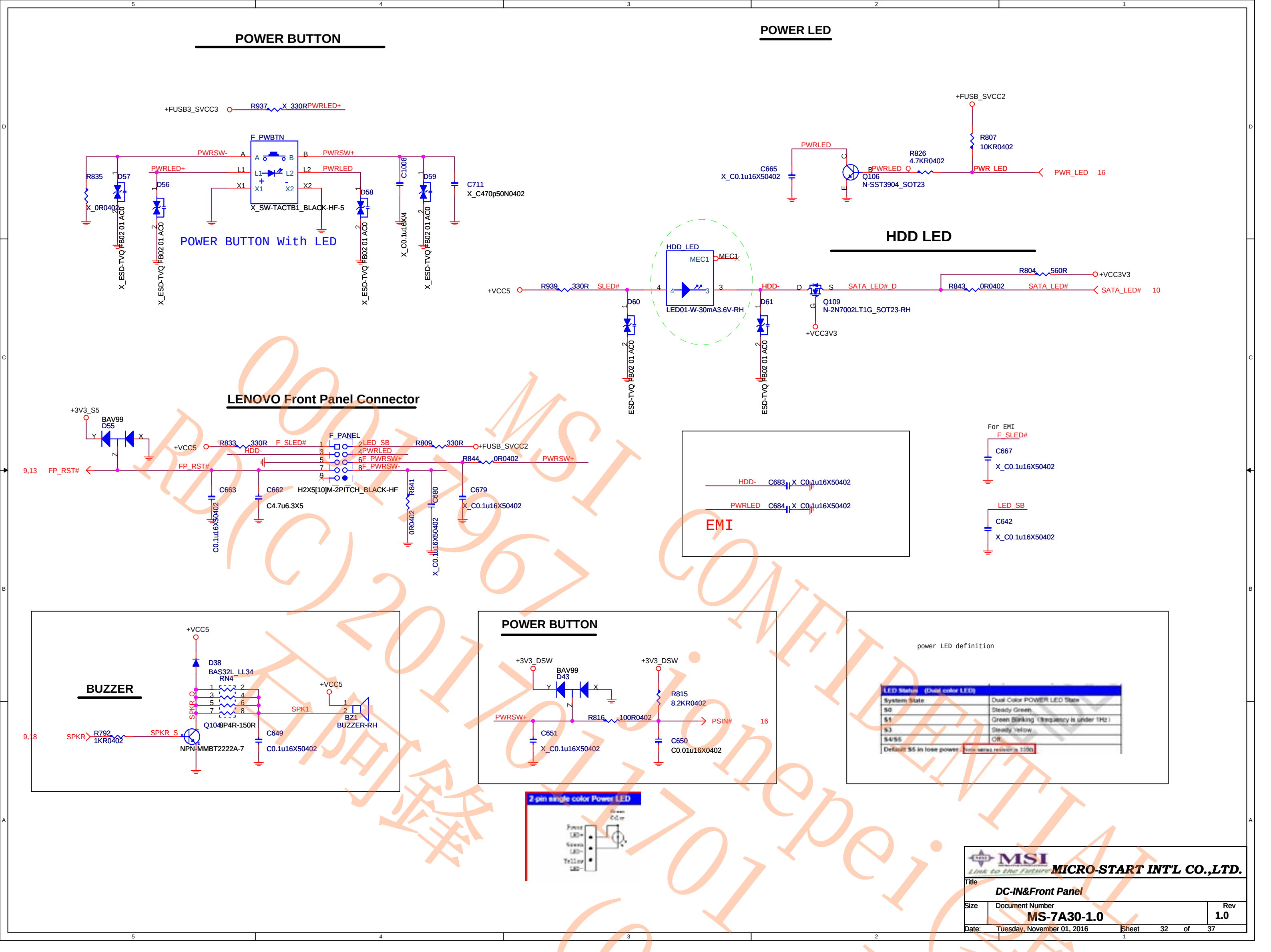
Title: VCC1_8&VCC1_5&VCC0_95

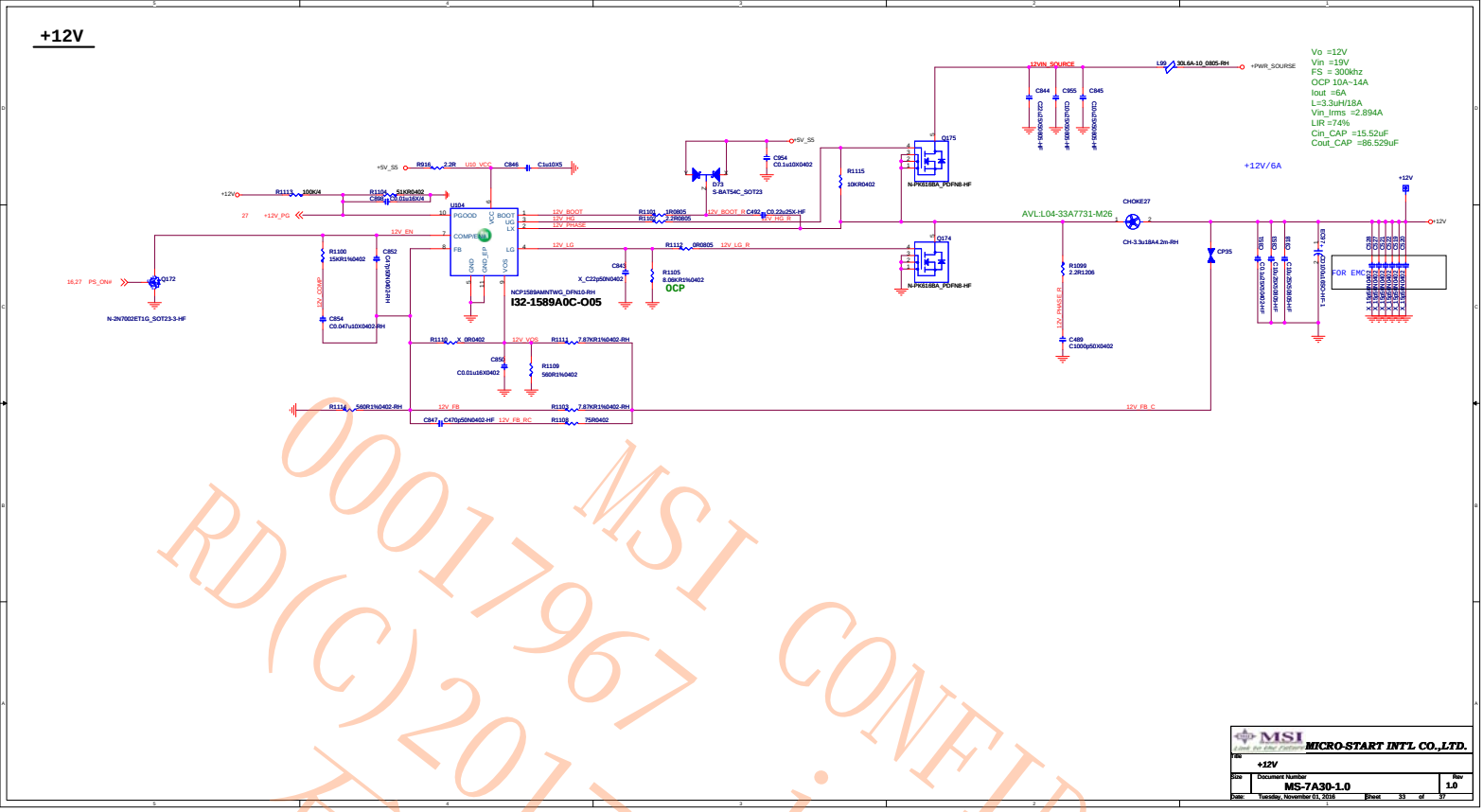
Size	Document Number	Rev
	MS-7A30-1.0	1.0

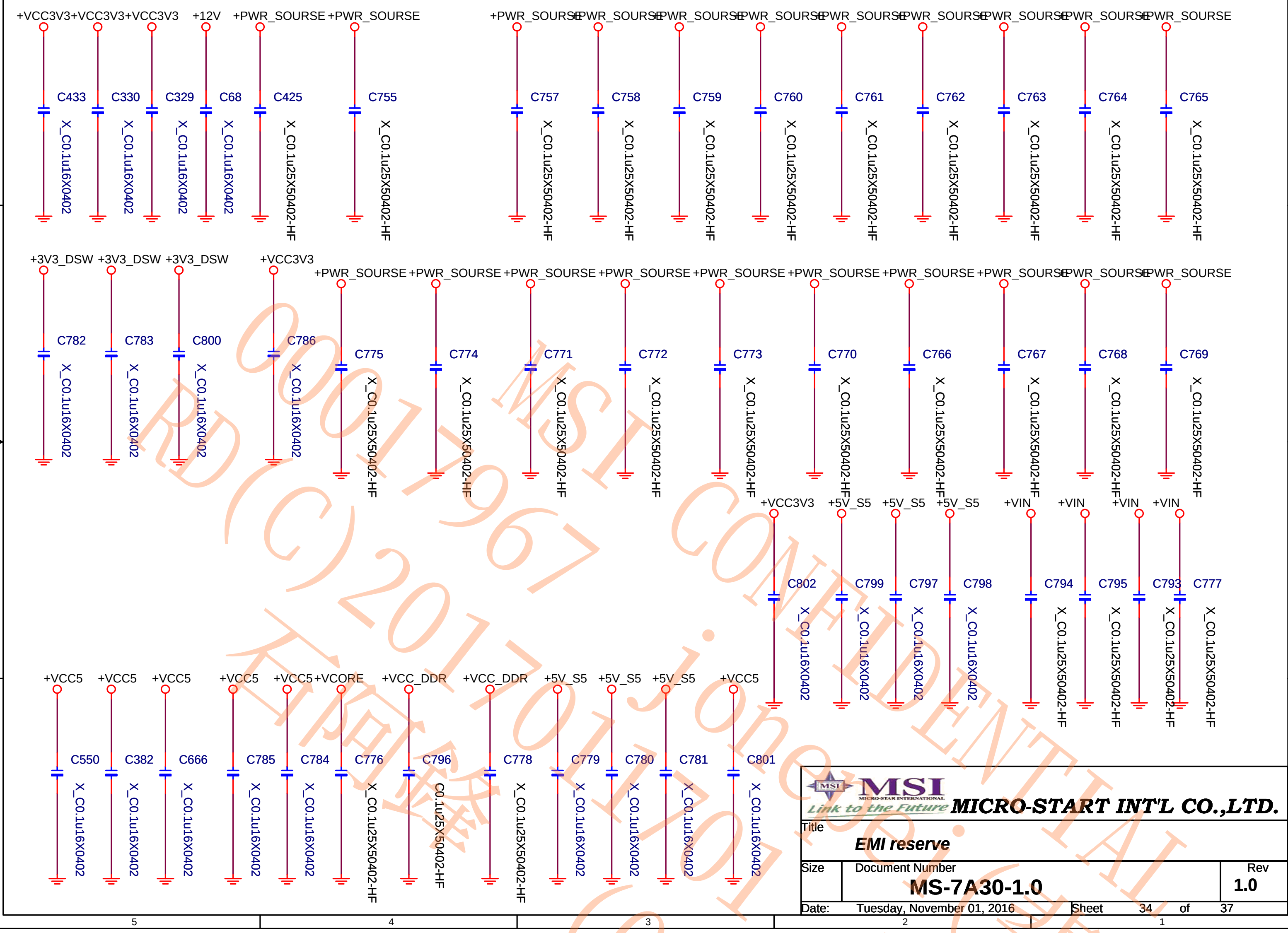
Date: Tuesday, November 01, 2016 Sheet 30 of 37



MSI Link to the Future	MICRO-START INT'L CO.,LTD.	
Title: DC-IN Supply		
Size	Document Number: MS-7A30-1.0	Rev: 1.0
Date: Tuesday, November 01, 2016	Sheet 31 of 37	


POWER BUTTON
POWER LED
+FUSB3_SVCC3
R937 X_330R PWRLED+
F_PWBTN
PWRSW-
PWRSW+
PWRLED+
PWRLED
X_SW-TACTB1_BLACK-HF-5
R835
X_0R0402
D57
D56
D58
D59
C1008
X_C0.1u16X4
C711
X_C470p50N0402
X_ESD-TVQ FB02 01 AC0
POWER BUTTON With LED
+FUSB_SVCC2
R807
10KR0402
R826
4.7KR0402
PWRLED_Q
PWR_LED
PWR_LED 16
C665
X_C0.1u16X50402
Q106
N-SST3904_SOT23
HDD LED
HDD_LED
MEC1
LED01-W-30mA3.6V-RH
+VCC5
R939 330R SLED#
D60
D61
HDD-
Q109
N-2N7002LT1G_SOT23-RH
+VCC3V3
SATA_LED#_D
R804 560R
R843 0R0402
SATA_LED#
SATA_LED# 10
ESD-TVQ FB02 01 AC0
LENOVO Front Panel Connector
+3V3_S5
BAV99
D55
R833 330R F_SLED#
F_PANEL
LED_SB
R809 330R
R844 0R0402
F_PWRSW+
F_PWRSW-
FP_RST#
9,13 FP_RST#
C663
C0.1u16X50402
C662
C4.7u6.3X5
H2X5[10]M-2PITCH_BLACK-HF
R841
0R0402
C680
X_C0.1u16X50402
C679
X_C0.1u16X50402
EMI
C683 X_C0.1u16X50402
C684 X_C0.1u16X50402
For EMI
F_SLED#
C667
X_C0.1u16X50402
LED_SB
C642
X_C0.1u16X50402
BUZZER
D38
BAS32L_LL34
RN4
8P4R-150R
SPKR
SPK1
BZ1
BUZZER-RH
Q104
NPN-MMBT2222A-7
C649
C0.1u16X50402
9,18 SPKR
R792
1KR0402
SPKR_S
POWER BUTTON
+3V3_DSW
BAV99
D43
R815
8.2KR0402
PWRSW+
R816 100R0402
PSIN# 16
C651
X_C0.1u16X50402
C650
C0.01u16X0402
power LED definition
LED Status (Dual color LED)
System State
Dual Color POWER LED State
S0
Steady Green
S1
Green Blinking (frequency is under 1Hz)
S3
Steady Yellow
S4/S5
Off
Default S5 in lose power
2-pin single color Power LED
MSI
MICRO-START INT'L CO.,LTD.
Title
DC-IN&Front Panel
Size
Document Number
MS-7A30-1.0
Rev
1.0
Date: Tuesday, November 01, 2016
Sheet 32 of 37





MICRO-START INT'L CO.,LTD.

Title	EMI reserve		
Size	Document Number: MS-7A30-1.0		Rev: 1.0
Date:	Tuesday, November 01, 2016	Sheet 34	of 37

Mounting Holes

Optics Orientation Holes

FM1 X_FM
FM8 X_FM
FM5 X_FM
FM3 X_FM
FM6 X_FM
FM4 X_FM
FM2 X_FM
FM7 X_FM

MTG1 X_MH001
MTG2 X_MH001
MTG6 X_MH001
MTG4 X_MH001
MTG8 X_MH001
MTG5 X_MH001
MTG11 X_MH001

X_0R0603
R292

H2
X_E2B-7682010-RH

Simulation

SIP1
+VCC5
SIM2
X_PIN1*2

SIP2
SIM1
X_PIN1*2

FT3-H1 Spacer Support E2B-7853010-RH
FT3-H2 Spacer Support E2B-7853010-RH
FT3-H3 Spacer Support E2B-7853010-RH
FT3-H4 Spacer Support E2B-7853010-RH

CPU

REF1 OPT X_A10-FT41805-AY8
REF2 OPT X_A10-FT42005-AY8

PCB

PCB
Hp PCB

F_USB30 USB30*2 USBAX2M_BLUE-RH
AUDIO AUDIO JACK JACK-AUDIOX3F_PK/GR/BU-RH-4

HDMI_LABEL OPT
HDMI_LABEL1 OPT

MSI MICRO-START INT'L CO.,LTD.
Title: BOM Option Parts
Size | Document Number: MS-7A30-1.0 | Rev: 1.0
Date: Tuesday, November 01, 2016 Sheet 35 of 37

FT4 SOC General Purpose I/O					
PIN	GPIO	Name	Default Function	Default Power	Signal Name
AD2	AGPIO0	PWR_BTN_L/AGPIO0	PWR_BTN_L	S5 (I-IO33S5-S, Pull-Up 10 k (± 5%))	PWRBTN#
AF1	AGPIO1	SYS_RESET_L/AGPIO1	SYS_RESET_L	S5 (I-IO33S5-S, Pull-Up 10 k (± 5%))	FP_RST#_C
AE7	AGPIO2	WAKE_L/AGPIO2	WAKE_L	S5 (I-IO33S5-S, Pull-Up 10 k (± 5 %))	APU_WAKE#
AJ7	AGPIO3	AGPIO3	AGPIO3	S5 (Input, Pull-Up 10 k (± 5 %))	AGPIO3
AK2	AGPIO4	AGPIO4	AGPIO4	S5 (Input, Pull-Down)	AGPIO4
AK1	AGPIO5	AGPIO5	AGPIO5	S5 (Input, NO Pull)	CLR_CMOS
AL4	AGPIO6	AGPIO6/LDT_RST_L	AGPIO6	S5 (I-IO33S5-OD , Pull-Down)	AGPIO6
AJ2	AGPIO7	AGPIO7/LDT_PWROK	AGPIO7	S5 (I-IO33S5-OD , Pull-Down)	AGPIO7
AJ4	AGPIO8	AGPIO8	AGPIO8	S5 (Input , NO Pull)	AGPO8
AG5	AGPIO9	AGPIO9	AGPIO9	S5 (Input , Pull-Down)	AGPO9
AB1	AGPIO10	S0A3_GPIO/AGPIO10	S0A3_GPIO	S5 (O-IO33S5-S, NO Pull)	S0A3_GPIO
AJ8	AGPIO11	BLINK/USB_OC7_L/AGPIO11	AGPIO11	S5 (I-IO33S5-S, Pull-Up)	USB_OCP#7
AE8	AGPIO12	IR_LED_L/LLB_L/AGPIO12	IR_LED_L	S5 (I-IO33S5-S, Pull-Up)	ILIM_SEL
AA4	AGPIO13	IR_TX0/USB_OC5_L/AGPIO13	USB_OC5_L	S5 (I-IO33S5-S, Pull-Up)	CTL2
AG8	AGPIO14	IR_TX1/USB_OC6_L/AGPIO14	USB_OC6_L	S5 (I-IO33S5-S, Pull-Up)	CTL3
AL5	AGPIO15	IR_RX1/AGPIO15	IR_RX1	S5 (I-IO33S5-S, Pull-Up)	CHARGE_EN
AB2	AGPIO16	USB_OC0_L/TRST_L/AGPIO16	USB_OC0_L	S5 (I-IO33S5-S, Pull-Up)	USB_OCP#0
AG2	AGPIO17	USB_OC1_L/TDI/AGPIO17	USB_OC1_L	S5 (I-IO33S5-S, Pull-Up)	USB_OCP#1
AJ1	AGPIO18	USB_OC2_L/TCK/AGPIO18	USB_OC2_L	S5 (I-IO33S5-S, Pull-Up 2.2 k)	USB_OCP#2
AC5	AGPIO19	SCL1/I2C3_SCL/AGPIO19	SCL1	S5 (I-IO33S5-OD, Pull-Up 2.2 k)	APU_SCLK1
AC4	AGPIO20	SDA1/I2C3_SDA/AGPIO20	SDA1	S5 (I-IO33S5-OD, Pull-Up)	APU_SDATA1
AC1	AGPIO21	LPC_PD_L/AGPIO21	LPC_PD_L	S5 (O-IO33S5, NO Pull)	LPC_PD#
AA8	AGPIO22	LPC_PME_L/AGPIO22	LPC_PME_L	S5(I-IO33S5-S, Pull-Up)	LPC_PME#_L
AH2	AGPIO23	AC_PRES/USB_OC4_L/IR_RX0/AGPIO23	IR_RX0	S5 (I-IO33S5-S, Pull-Up)	CTL1
AH1	AGPIO24	USB_OC3_L/TDO/AGPIO24	USB_OC3_L	S5 (I-IO33S5-S, Pull-Up)	USB_OCP#3
AY13	AGPIO25	SD_CD/AGPIO25	SD_CD	S5 (I-IO33S5-S, Pull-Up)	HW_ID6
AD1	AGPIO40	AGPIO40	AGPIO40	S5 (Input , NO Pull)	AGPIO40
BA21	AGPIO76	SPI_TPM_CS_L/AGPIO76	AGPIO76	S0 (I-IO33-S, NO Pull)	SPI_TPM_CS_L
AV33	AGPIO84	FANIN0/AGPIO84	FANIN0	S0(I-IO33-S, Pull-Up)	AGPIO84
AU33	AGPIO85	FANOUT0/AGPIO85	AGPIO85	S0 (I-IO33-S, Pull-Up)	FUSB_G1
BA27	AGPIO 86	AGPIO86	AGPIO86	S0 (Input, Pull-Up)	SMI#
AV27	AGPIO87	SERIRQ/AGPIO87	SERIRQ	S0 (I-IO33-S, Pull-Up)	SERIRQ
AY26	AGPIO88	LPC_CLKRUN_L/AGPIO88	LPC_CLKRUN_L	S0 (O-IO33-OD, Pull-Up)	CLKRUN#
AR29	AGPIO90	GENINT2_L/AGPIO90	GENINT2_L	S0(Input, Pull-Up)	AGPIO90
AP29	AGPIO91	SPKR/AGPIO91	AGPIO91	S0 (I-IO33-S, Pull-Down)	SPKR
AY32	AGPIO92	CLK_REQ0_L/SATA_IS0_L/SATA_ZP0_L/AGPIO92	CLK_REQ0_L	S0 (I-IO33-S, NO Pull)	PCIECLKREQ0#
AY29	AGPIO102	SD0_PWR_CTRL/AGPIO102	SD0_PWR_CTRL	S0 (I-IO33-S, Pull-Down)	HW_ID5
AY31	AGPIO115	CLK_REQ1_L/AGPIO115	CLK_REQ1_L	S0 (I-IO33-S, Pull-Up)	PCIECLKREQ1#
AV29	AGPIO116	CLK_REQ2_L/AGPIO116	CLK_REQ2_L	S0 (I-IO33-S, Pull-Up)	PCIECLKREQ2#
AU35	AGPIO126	GA20IN/AGPIO126	GA20IN	S0 (I-IO33-S, Pull-Up)	URDBG
BA30	AGPIO129	ESPI_RESET_L/KBRST_L/AGPIO129	KBRST_L	S0 (I-IO33-S, Pull-Up)	KBRST#
AY30	AGPIO130	SATA_ACT_L/AGPIO130	SATA_ACT_L	S0 (I-IO33-OD, NO Pull)	SATA_LED#
AU23	AGPIO139	UART0_INTR/AGPIO139	UART0_INTR	S0 (I-IO18-S, Pull-Down)	HW_ID1
AR21	AGPIO144	UART1_INTR/BT_I2S_LRCLK/AGPIO144	UART1_INTR	S0 (I-IO18-S, Pull-Down)	HW_ID3
AE4	EGPIO26	PCIE_RST_L/EGPIO26	PCIE_RST_L	S5 (O-IO33S5-S, NO Pull)	PCIE_RST#
AA7	EGPIO42	S5_MUX_CTRL/EGPIO42	S5_MUX_CTRL	S5 (O-IO33S5-S, NO Pull)	APU_S5_MUX_CTRL
AV31	EGPIO67	DEVSLP[0]/EGPIO67	EGPIO67	S0(I-IO33-OD, NO Pull)	DEVSLP0
AU31	EGPIO70	DEVSLP[1]/EGPIO70	EGPIO70	S0 (I-IO33-OD, NO Pull)	DEVSLP1
BA25	EGPIO74	LPCCLK0/EGPIO74	LPCCLK0	S0 (O-IO33-S, NO Pull)	LPC_CLK_33M_APU
BA24	EGPIO75	LPCCLK1/EGPIO75	LPCCLK1	S0 (O-IO33-S, NO Pull)	LPC_CLK1_APU
BA29	EGPIO93	SD_LED/EGPIO93	EGPIO93	S0 (I-IO33-S, Pull-Down)	TP14
BA14	EGPIO95	SD_CLK/EGPIO95	EGPIO95	S0 (I-IO33-S, Pull-Down)	TP8
AY15	EGPIO96	SD_CMD/EGPIO96	EGPIO96	S0 (I-IO33-S, Pull-Down)	TP6
AY14	EGPIO97	SD_DATA0/EGPIO97	EGPIO97	S0 (I-IO33-S, Pull-Down)	TP11
BA13	EGPIO98	SD_DATA1/EGPIO98	EGPIO98	S0 (I-IO33-S, Pull-Down)	TP12
BA16	EGPIO99	SD_DATA2/EGPIO99	EGPIO99	S0 (I-IO33-S, Pull-Down)	TP13
AY16	EGPIO100	SD_DATA3/EGPIO100	EGPIO100	S0 (I-IO33-S, Pull-Down)	TP10
BA28	EGPIO101	SD_WP/EGPIO101	SD_WP	S0 (I-IO33-S, Pull-Down)	HW_ID4
AY33	EGPIO113	SCL0/I2C2_SCL/EGPIO113	SCL0	S0 (I-IO33-OD, Pull-Up 2.2 k)	APU_SCLK0
BA32	EGPIO114	SDA0/I2C2_SDA/EGPIO114	SDA0	S0 (I-IO33-OD, Pull-Up 2.2 k)	APU_SDATA0
AY17	EGPIO117	SPI_CLK/ESPI_CLK/EGPIO117	ESPI_CLK	S0 (I-IO18-S, Pull-Down)	APU_SPI_CLK
AY21	EGPIO118	SPI_CS1_L/EGPIO118	SPI_CS1_L	S0(I-IO18-OD, NO Pull)	SPI_CS#_C
AY19	EGPIO119	SPI_CS2_L/ESPI_CS_L/EGPIO119	SPI_CS2_L	S0 (I-IO18-OD, NO Pull)	1.8VGPIO
BA17	EGPIO120	SPI_DI/ESPI_DAT1/EGPIO120	SPI_DI	S0 (I-IO18-S, Pull-Down)	APU_SPI_DATAIN_C
AY20	EGPIO121	SPI_DO/ESPI_DAT0/EGPIO121	SPI_DO	S0 (I-IO18-S, Pull-Down)	APU_SPI_DATAOUT
BA20	EGPIO122	SPI_WP_L/ESPI_DAT2/EGPIO122	EGPIO122	S0 (B-IO18-S, Pull-Up)	SPI_WP#_R_C
AP31	EGPIO131	CLK_REQ3_L/SATA_IS1_L/SATA_ZP1_L/EGPIO131	CLK_REQ3_L	S0 (I-IO33-S, NO Pull)	PCIECLKREQ3#
AV35	EGPIO132	CLK_REQG_L/OSCIN/EGPIO132	CLK_REQG_L	S0 (I-IO33-S, NO Pull)	PCIECLKREQG#
BA18	EGPIO133	SPI_HOLD_L/ESPI_DAT3/EGPIO133	EGPIO133	S0 (B-IO18-S, Pull-Up)	APU_SPI_HOLD#_C
AP23	EGPIO135	UART0_CTS_L/EGPIO135	UART0_CTS_L	S0 (I-IO18-S, Pull-Down)	EGPO135
AP25	EGPIO136	UART0_RXD/EGPIO136	UART0_RXD	S0 (I-IO18-S, Pull-Down)	EGPO136
AR25	EGPIO137	UART0_RTS_L/EGPIO137	EGPIO137	S0(O-IO18-S, Pull-Up)	WIRELESS_EN2
AV25	EGPIO138	UART0_TXD/EGPIO138	EGPIO138	S0 (O-IO18-S, Pull-Up)	WIRELESS_EN1
AP21	EGPIO140	UART1_CTS_L/BT_I2S_BCLK/EGPIO140	UART1_CTS_L	S0 (I-IO18-S, Pull-Down)	EGPO140
AV21	EGPIO141	UART1_RXD/BT_I2S_SDI/EGPIO141	UART1_RXD	S0 (I-IO18-S, Pull-Down)	HW_ID2
AP19	EGPIO142	UART1_RTS_L/EGPIO142	EGPIO142	S0 (O-IO18-S, Pull-Up)	EGPO142
AV23	EGPIO143	UART1_TXD/BT_I2S_SDO/EGPIO143	EGPIO143	S0 (O-IO18-S, Pull-Up)	USB_CHARGE_OC_SET
AY22	EGPIO145	I2C0_SCL/EGPIO145	I2C0_SCL	S0 (I-IO18-OD, NO Pull)	I2C0_SCL
BA22	EGPIO146	I2C0_SDA/EGPIO146	I2C0_SDA	S0 (I-IO18-OD, NO Pull)	I2C0_SDA
AU19	EGPIO147	I2C1_SCL/EGPIO147	I2C1_SCL	S0 (I-IO18-OD, NO Pull)	I2C1_SCL
AV19	EGPIO148	I2C1_SDA/EGPIO148	I2C1_SDA	S0 (I-IO18-OD, NO Pull)	I2C1_SDA

SIO GPIO Table

PIN	GPIO	Function description	USAGE	Input/Output
2	GP52	FAN_TAC2/GP52	AUXFAN_TAC	Open Drain Input /Output
3	GP51	FAN_CTL2/GP51	AUXFAN_PWM	Open Drain Input /Output
4	GP37	FAN_TAC3/GP37	SYSFAN_TAC	Open Drain Input /Output
5	GP36	FAN_CTL3/GP36	SYSFAN_PWM	Open Drain Input /Output
6	GP13	5VSB_CTRL#/GP13	5VSB_CTRL#	Output
7	GP30	ATXPG/GP30	ATX_PWROK_R	Open Drain Input /Output
8	GP23	GP23	LAN_PWREN	Open Drain Input /Output
9	GP22	PCH_D0B/GP22	PWR_LED_R	Open Drain Input /Output
10	GP21	GP21	SMI#	Open Drain Input /Output
11	GP12	PCIRST1#/PCH_C0A/GP12	PCIRST#1	Open Drain Input /Output
21	GP62	KRST#/GP62	KBRST#	Open Drain Input /Output
26	GP43	SST/AMDTSI_D/PCH_D1/GP43	SIO_SID	Open Drain Input /Output
27	GP44	PECI/AMDTSI_C/GP44	SIO_SIC	Open Drain Input /Output
37	GP53	SUSC#/GP53	SLP_S5#	Open Drain
39	GP40	3VSBSW#/GP40/SCL0	APU_PROCHOT#_D	Open Drain Input /Output
40	GP61	KDAT/GP61	KBDATA	Open Drain Input /Output
41	GP60	KCLK/GP60	KBCLK	Open Drain Input /Output
42	GP57	FAN_TAC4/GP57/MDAT	MSDATA	Open Drain Input /Output
43	GP56	FAN_CTL4/GP56/MCLK	MSCLK	Open Drain Input /Output
44	GP10	PCIRST3#/CIRRX1/GP10	PCIRST#_3	Open Drain Input /Output
45	GP55	RSMRST#/GP55	IO_RSMRST#	Open Drain Input /Output
56	GP45	DSR1#/GP45/PCH_D0A	DSRA#	Open Drain Input /Output
58	GP41	SIN1/GP41	SINA	Open Drain Input /Output
60	GP33	DCD1#/GP33/FAN_CTL5	DCDA#	Open Drain Input /Output
61	GP32	RI1#/GP32	RIA#	Open Drain Input /Output
62	GP31	CTS1#/GP31/FAN_TAC5	CTSA#	Open Drain Input /Output
63	GP63	SLP_SUS#/GP63	NC	Open Drain Input /Output

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

Title: GPIO Table

Size | Document Number: MS-7A30-1.0 | Rev: 1.0

Date: Tuesday, November 01, 2016 | Sheet 36 of 37

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

Title: History

Size	Document Number	Rev
	MS-7A30-1.0	1.0

Date: Tuesday, November 01, 2016 Sheet 37 of 37