Z490H6-LA V1.1

ECS CONFIDENTIAL

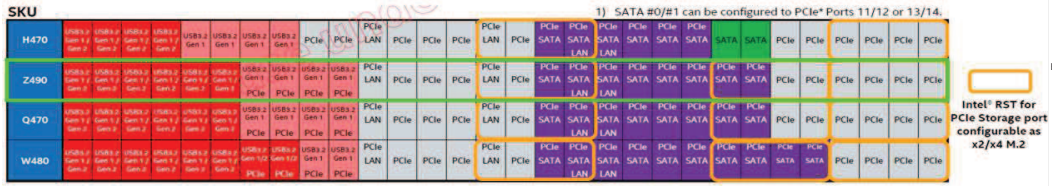
COMET LAKE-S
ROCKET LAKE-S

T750 IZ490AE & Z490

SCHEMATICS TABLE:

High Speed I/O (HSIO) Lane Multiplexing in PCH-H

Flex I/O Lane	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
High Speed I/O (HSIO) Type and Lane	USB3.1 Gen1/Gen2 #1	USB3.1 Gen1/Gen2 #2	USB3.1 Gen1/Gen2 #3	USB3.1 Gen1/Gen2 #4	USB3.1 Gen1/Gen2 #5	USB3.1 Gen1/Gen2 #6	USB3.1 Gen1 #7	USB3.1 Gen1 #8	USB3.1 Gen1 #9	USB3.1 Gen1 #10	PCIe* #5	PCIe* #6	PCIe* #7	PCIe* #8	PCIe* #9	PCIe* #10	PCIe* #11	PCIe* #12	PCIe* #13	PCIe* #14	PCIe* #15	PCIe* #16	PCIe* #17	PCIe* #18	PCIe* #19	PCIe* #20	PCIe* #21	PCIe* #22	PCIe* #23	PCIe* #24
							PCIe* #1	PCIe* #2	PCIe* #3	PCIe* #4	GbE				GbE		SATA 0a	SATA 1a	SATA 0b	SATA 1b	SATA 2	SATA 3	SATA 4	SATA 5	SATA 6	SATA 7				
Intel® RST Support							No Support				No Support				Yes				No Support				Yes				Yes			



Elitegroup Computer Systems	
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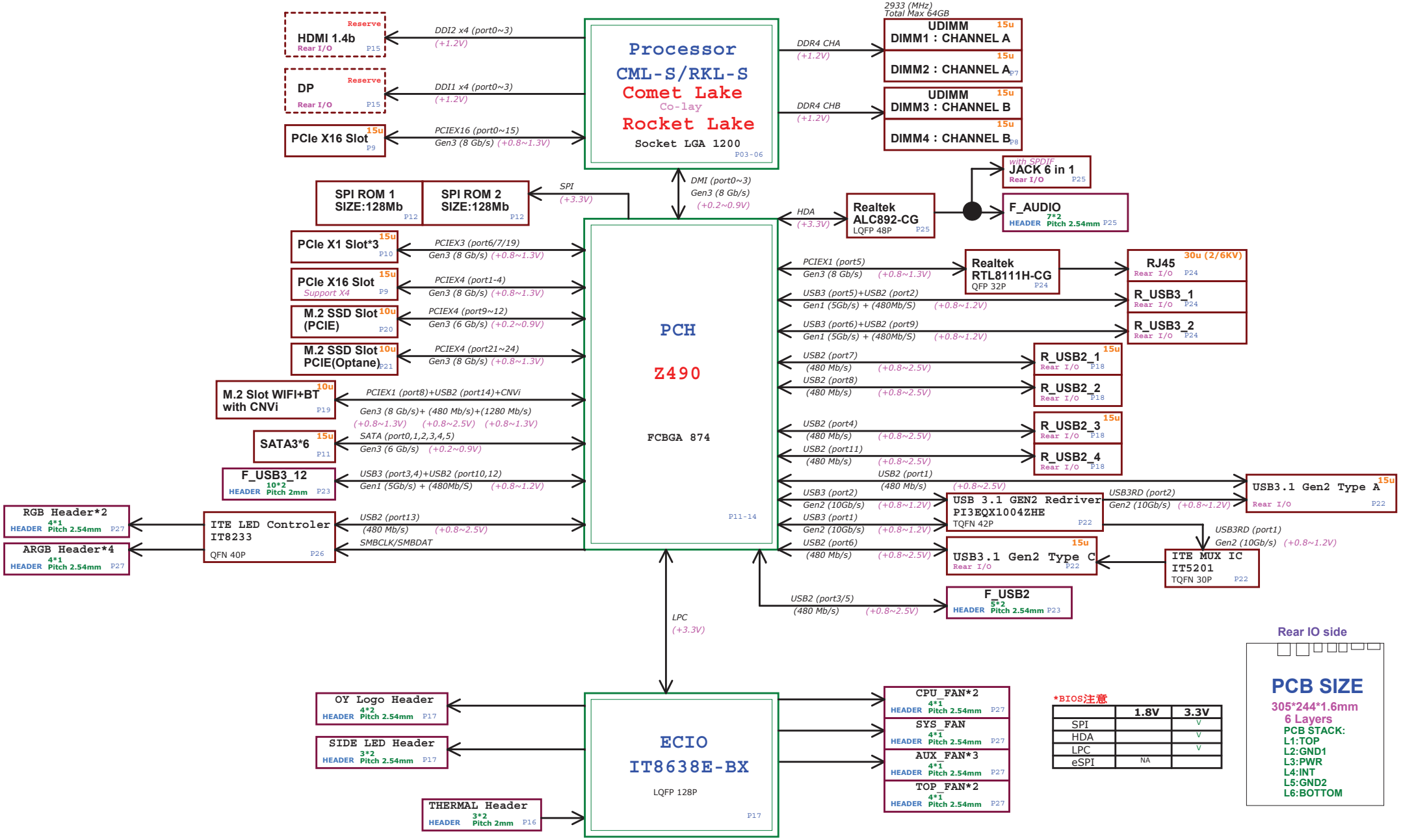
Comet Lake-S/Rocket Lake-S Desktop Platform



Elitegroup Computer Systems		
Title: Block Diagram		
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
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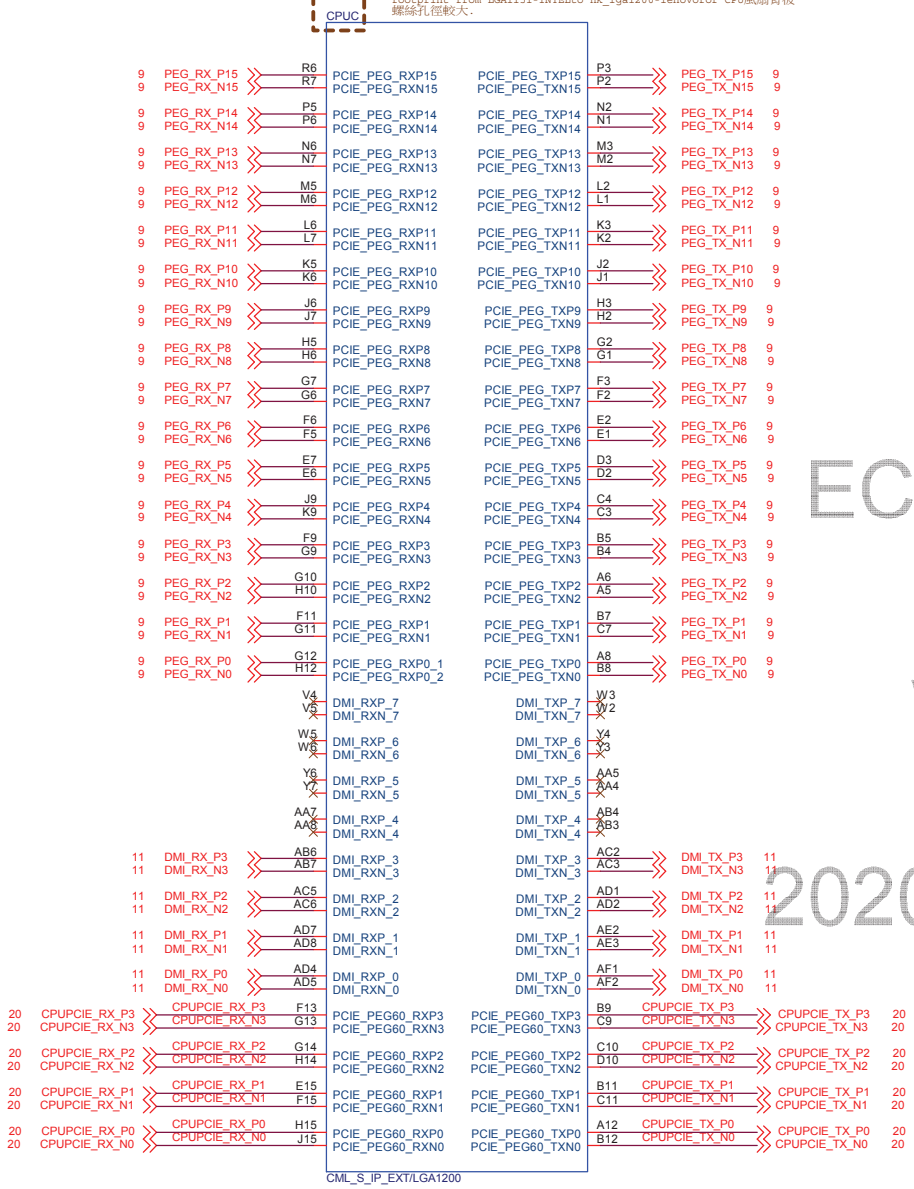
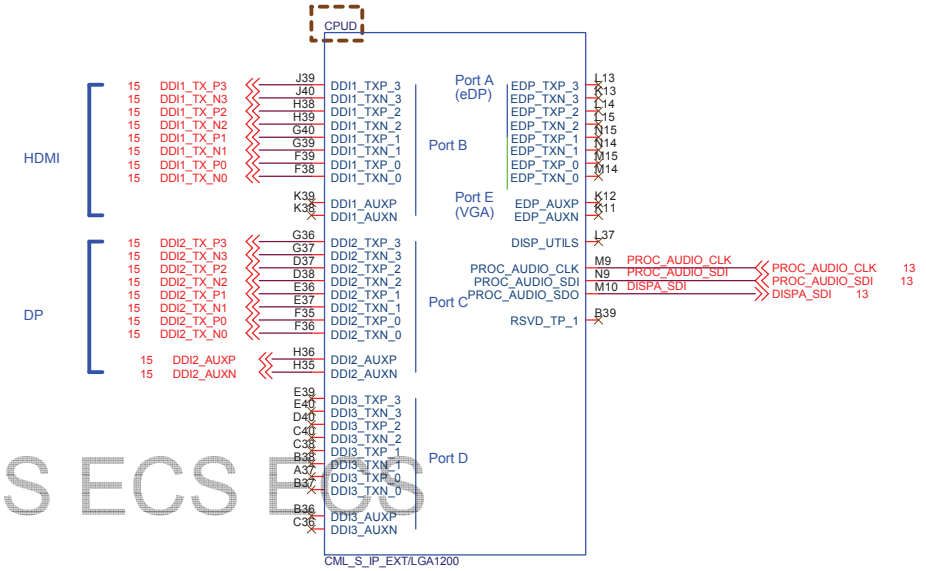
20200225 V0.1 after review
Will:Modify CPU footprint from hk_lga1200-INTEL400 to LGA1200-INTEL_1,CPU(104)
footprint from LGA1151-INTELto hk_lga1200-lenovofor CPU風扇背板
螺絲孔徑較大.





PCH DDI Strap

DDPB_CTRLDATA	Display Port B (DDI1) Detected	0 = Port B is not detected. (Default) 1 = Port B is detected.
DDPC_CTRLDATA	Display Port C (DDI2) Detected	0 = Port C is not detected. (Default) 1 = Port C is detected.
DDPD_CTRLDATA	Display Port D (DDI3) Detected	0 = Port D is not detected. (Default) 1 = Port D is detected.

Elitegroup Computer Systems

Title: CPU-PEG/DMI/DDI

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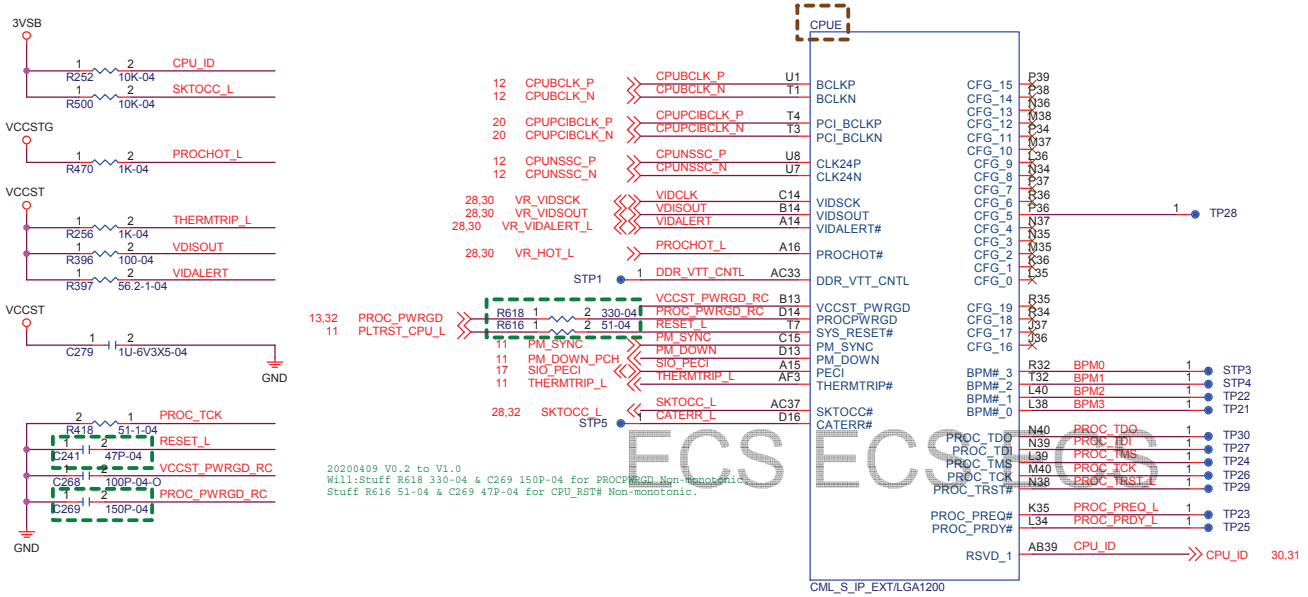
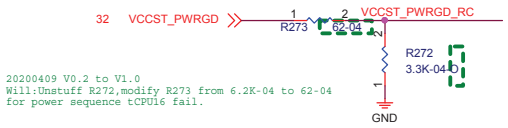


The CFG signals have a default value of '1' if not erminated on the board.

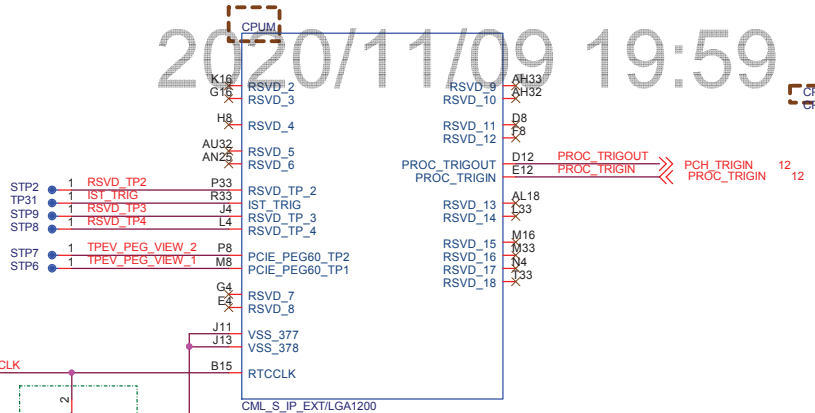
- **CFG[0]**: Stall reset sequence after PCU PLL lock until de-asserted:
  - 1 = (Default) Normal Operation; No stall.
  - 0 = Stall.
- **CFG[1]**: Reserved configuration lane.
- **CFG[2]**: PCI Express* Static x16 Lane Numbering Reversal.
  - 1 = Normal operation
  - 0 = Lane numbers reversed.
- **CFG[3]:** Reserved configuration lane.
- **CFG[4]:** eDP enable:
  - 1 = Disabled.
  - 0 = Enabled.
- **CFG[6:5]:** PCI Express* Bifurcation
  - 00 = 1 x8, 2 x4 PCI Express*
  - 01 = reserved
  - 10 = 2 x8 PCI Express*
  - 11 = 1 x16 PCI Express*
- **CFG[7]**: PEG Training:
  - 1 = (default) PEG Train immediately following RESET# de assertion.
  - 0 = PEG Wait for BIOS for training.
- **CFG[19:8]:** Reserved configuration lanes.

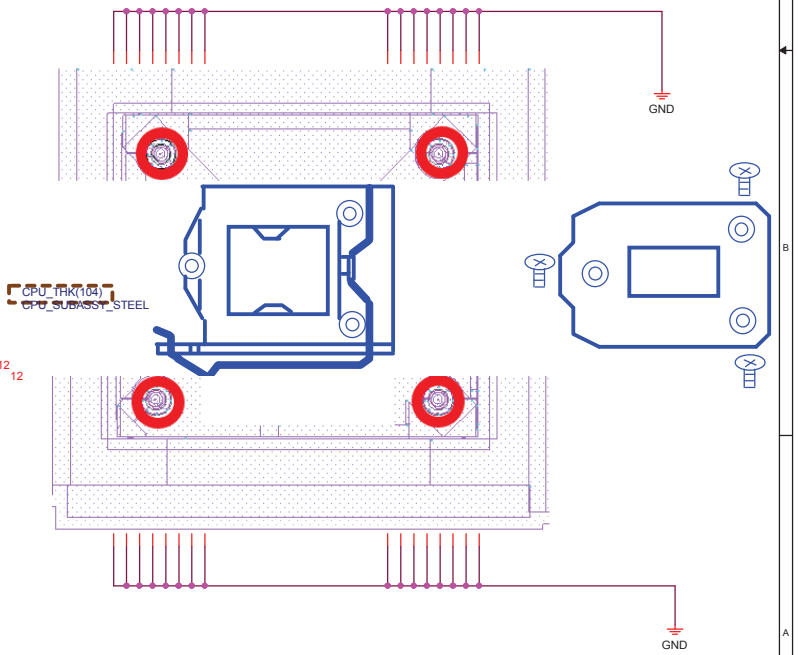
20200409 V0.2 to V1.0
Will:Stuff R618 330-04 & C269 150P-04 for PROCPWRGD Non-monotonic.
Stuff R616 51-04 & C269 47P-04 for CPU_RST# Non-monotonic.



20200409 V0.2 to V1.0
Will:Unstuff R272,modify R273 from 6.2K-04 to 62-04
for power sequence tCPU16 fail.

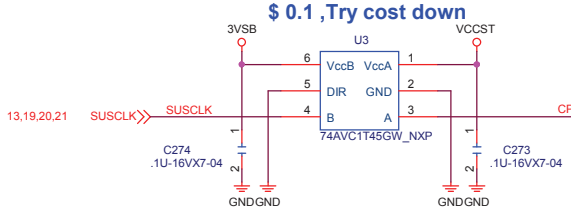
20200225 V0.1 after review
Will:Modify CPU footprint from hk_lga1200-INTEL400 to LGA1200-INTEL_1,CPU_THK(104)
footprint from LGA1151-INTEL to hk_lga1200-lenovo_1 for CPU風扇背板
螺絲孔徑較大.

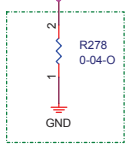




For RKL support

$ 0.1 ,Try cost down





Only CML-S STUFF
Support RKL no stuff

Elitegroup Computer Systems		
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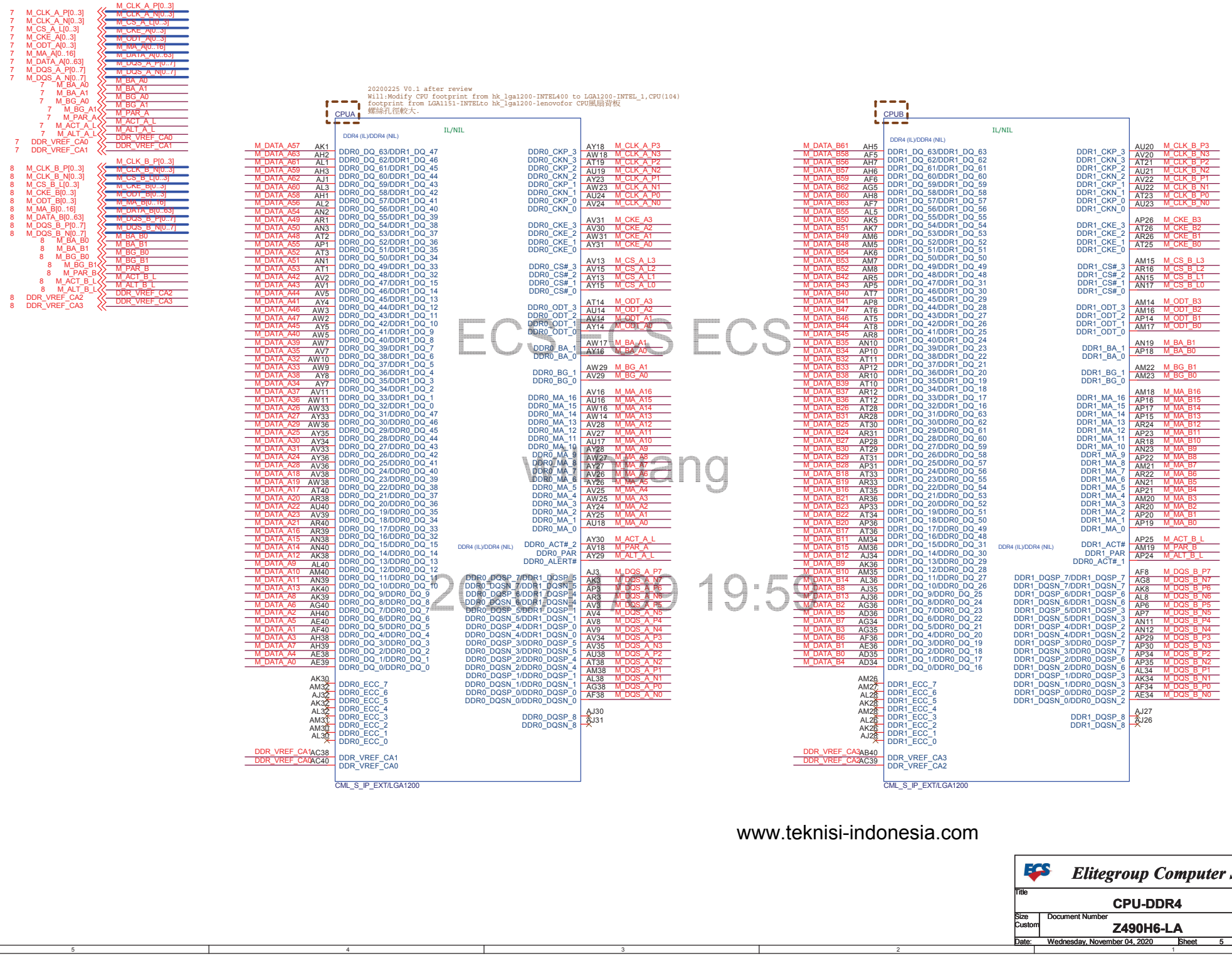
20200225 V0.1 after review
Will:Modify CPU footprint from hk_lga1200-INTEL400 to LGA1200-INTEL_1,CPU(104)
footprint from LGA1151-INTELto hk_lga1200-lenovofor CPU風扇背板
螺絲孔徑較大.
CPUA
CPUB
IL/NIL
DDR4 (IL)/DDR4 (NIL)
CML_S_IP_EXT/LGA1200
M_CLK_A_P[0..3]
M_CLK_A_N[0..3]
M_CS_A_L[0..3]
M_CKE_A[0..3]
M_ODT_A[0..3]
M_MA_A[0..16]
M_DATA_A[0..63]
M_DQS_A_P[0..7]
M_DQS_A_N[0..7]
M_BA_A0
M_BA_A1
M_BG_A0
M_BG_A1
M_PAR_A
M_ACT_A_L
M_ALT_A_L
DDR_VREF_CA0
DDR_VREF_CA1
M_CLK_B_P[0..3]
M_CLK_B_N[0..3]
M_CS_B_L[0..3]
M_CKE_B[0..3]
M_ODT_B[0..3]
M_MA_B[0..16]
M_DATA_B[0..63]
M_DQS_B_P[0..7]
M_DQS_B_N[0..7]
M_BA_B0
M_BA_B1
M_BG_B0
M_BG_B1
M_PAR_B
M_ACT_B_L
M_ALT_B_L
DDR_VREF_CA2
DDR_VREF_CA3
DDR0_DQ_63/DDR1_DQ_47
DDR0_DQ_62/DDR1_DQ_46
DDR0_DQ_61/DDR1_DQ_45
DDR0_DQ_60/DDR1_DQ_44
DDR0_DQ_59/DDR1_DQ_43
DDR0_DQ_58/DDR1_DQ_42
DDR0_DQ_57/DDR1_DQ_41
DDR0_DQ_56/DDR1_DQ_40
DDR0_DQ_55/DDR1_DQ_39
DDR0_DQ_54/DDR1_DQ_38
DDR0_DQ_53/DDR1_DQ_37
DDR0_DQ_52/DDR1_DQ_36
DDR0_DQ_51/DDR1_DQ_35
DDR0_DQ_50/DDR1_DQ_34
DDR0_DQ_49/DDR1_DQ_33
DDR0_DQ_48/DDR1_DQ_32
DDR0_DQ_47/DDR1_DQ_15
DDR0_DQ_46/DDR1_DQ_14
DDR0_DQ_45/DDR1_DQ_13
DDR0_DQ_44/DDR1_DQ_12
DDR0_DQ_43/DDR1_DQ_11
DDR0_DQ_42/DDR1_DQ_10
DDR0_DQ_41/DDR1_DQ_9
DDR0_DQ_40/DDR1_DQ_8
DDR0_DQ_39/DDR1_DQ_7
DDR0_DQ_38/DDR1_DQ_6
DDR0_DQ_37/DDR1_DQ_5
DDR0_DQ_36/DDR1_DQ_4
DDR0_DQ_35/DDR1_DQ_3
DDR0_DQ_34/DDR1_DQ_2
DDR0_DQ_33/DDR1_DQ_1
DDR0_DQ_32/DDR1_DQ_0
DDR0_DQ_31/DDR0_DQ_47
DDR0_DQ_30/DDR0_DQ_46
DDR0_DQ_29/DDR0_DQ_45
DDR0_DQ_28/DDR0_DQ_44
DDR0_DQ_27/DDR0_DQ_43
DDR0_DQ_26/DDR0_DQ_42
DDR0_DQ_25/DDR0_DQ_41
DDR0_DQ_24/DDR0_DQ_40
DDR0_DQ_23/DDR0_DQ_39
DDR0_DQ_22/DDR0_DQ_38
DDR0_DQ_21/DDR0_DQ_37
DDR0_DQ_20/DDR0_DQ_36
DDR0_DQ_19/DDR0_DQ_35
DDR0_DQ_18/DDR0_DQ_34
DDR0_DQ_17/DDR0_DQ_33
DDR0_DQ_16/DDR0_DQ_32
DDR0_DQ_15/DDR0_DQ_15
DDR0_DQ_14/DDR0_DQ_14
DDR0_DQ_13/DDR0_DQ_13
DDR0_DQ_12/DDR0_DQ_12
DDR0_DQ_11/DDR0_DQ_11
DDR0_DQ_10/DDR0_DQ_10
DDR0_DQ_9/DDR0_DQ_9
DDR0_DQ_8/DDR0_DQ_8
DDR0_DQ_7/DDR0_DQ_7
DDR0_DQ_6/DDR0_DQ_6
DDR0_DQ_5/DDR0_DQ_5
DDR0_DQ_4/DDR0_DQ_4
DDR0_DQ_3/DDR0_DQ_3
DDR0_DQ_2/DDR0_DQ_2
DDR0_DQ_1/DDR0_DQ_1
DDR0_DQ_0/DDR0_DQ_0
DDR0_ECC_7
DDR0_ECC_6
DDR0_ECC_5
DDR0_ECC_4
DDR0_ECC_3
DDR0_ECC_2
DDR0_ECC_1
DDR0_ECC_0
DDR_VREF_CA1
DDR_VREF_CA0
DDR0_CKP_3
DDR0_CKN_3
DDR0_CKP_2
DDR0_CKN_2
DDR0_CKP_1
DDR0_CKN_1
DDR0_CKP_0
DDR0_CKN_0
DDR0_CKE_3
DDR0_CKE_2
DDR0_CKE_1
DDR0_CKE_0
DDR0_CS#_3
DDR0_CS#_2
DDR0_CS#_1
DDR0_CS#_0
DDR0_ODT_3
DDR0_ODT_2
DDR0_ODT_1
DDR0_ODT_0
DDR0_BA_1
DDR0_BA_0
DDR0_BG_1
DDR0_BG_0
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DDR0_MA_4
DDR0_MA_3
DDR0_MA_2
DDR0_MA_1
DDR0_MA_0
DDR0_ACT#_2
DDR0_PAR
DDR0_ALERT#
DDR0_DQSP_7/DDR1_DQSP_5
DDR0_DQSN_7/DDR1_DQSN_5
DDR0_DQSP_6/DDR1_DQSP_4
DDR0_DQSN_6/DDR1_DQSN_4
DDR0_DQSP_5/DDR1_DQSP_3
DDR0_DQSN_5/DDR1_DQSN_3
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DDR0_DQSN_0/DDR0_DQSN_0
DDR0_DQSP_8
DDR0_DQSN_8
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M_CLK_A_N3
M_CLK_A_P2
M_CLK_A_N2
M_CLK_A_P1
M_CLK_A_N1
M_CLK_A_P0
M_CLK_A_N0
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M_CKE_A0
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M_CS_A_L0
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M_BG_A1
M_BG_A0
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M_DATA_B7
M_DATA_B3
M_DATA_B6
M_DATA_B1
M_DATA_B0
M_DATA_B4
DDR1_DQ_63/DDR1_DQ_63
DDR1_DQ_62/DDR1_DQ_62
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DDR1_DQ_59/DDR1_DQ_59
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DDR1_DQ_26/DDR0_DQ_58
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DDR1_DQ_11/DDR0_DQ_27
DDR1_DQ_10/DDR0_DQ_26
DDR1_DQ_9/DDR0_DQ_25
DDR1_DQ_8/DDR0_DQ_24
DDR1_DQ_7/DDR0_DQ_23
DDR1_DQ_6/DDR0_DQ_22
DDR1_DQ_5/DDR0_DQ_21
DDR1_DQ_4/DDR0_DQ_20
DDR1_DQ_3/DDR0_DQ_19
DDR1_DQ_2/DDR0_DQ_18
DDR1_DQ_1/DDR0_DQ_17
DDR1_DQ_0/DDR0_DQ_16
DDR1_ECC_7
DDR1_ECC_6
DDR1_ECC_5
DDR1_ECC_4
DDR1_ECC_3
DDR1_ECC_2
DDR1_ECC_1
DDR1_ECC_0
DDR_VREF_CA3
DDR_VREF_CA2
DDR1_CKP_3
DDR1_CKN_3
DDR1_CKP_2
DDR1_CKN_2
DDR1_CKP_1
DDR1_CKN_1
DDR1_CKP_0
DDR1_CKN_0
DDR1_CKE_3
DDR1_CKE_2
DDR1_CKE_1
DDR1_CKE_0
DDR1_CS#_3
DDR1_CS#_2
DDR1_CS#_1
DDR1_CS#_0
DDR1_ODT_3
DDR1_ODT_2
DDR1_ODT_1
DDR1_ODT_0
DDR1_BA_1
DDR1_BA_0
DDR1_BG_1
DDR1_BG_0
DDR1_MA_16
DDR1_MA_15
DDR1_MA_14
DDR1_MA_13
DDR1_MA_12
DDR1_MA_11
DDR1_MA_10
DDR1_MA_9
DDR1_MA_8
DDR1_MA_7
DDR1_MA_6
DDR1_MA_5
DDR1_MA_4
DDR1_MA_3
DDR1_MA_2
DDR1_MA_1
DDR1_MA_0
DDR1_ACT#
DDR1_PAR
DDR0_ACT#_1
DDR1_DQSP_7/DDR1_DQSP_7
DDR1_DQSN_7/DDR1_DQSN_7
DDR1_DQSP_6/DDR1_DQSP_6
DDR1_DQSN_6/DDR1_DQSN_6
DDR1_DQSP_5/DDR1_DQSP_3
DDR1_DQSN_5/DDR1_DQSN_3
DDR1_DQSP_4/DDR1_DQSP_2
DDR1_DQSN_4/DDR1_DQSN_2
DDR1_DQSP_3/DDR0_DQSP_7
DDR1_DQSN_3/DDR0_DQSN_7
DDR1_DQSP_2/DDR0_DQSP_6
DDR1_DQSN_2/DDR0_DQSN_6
DDR1_DQSP_1/DDR0_DQSP_3
DDR1_DQSN_1/DDR0_DQSN_3
DDR1_DQSP_0/DDR0_DQSP_2
DDR1_DQSN_0/DDR0_DQSN_2
DDR1_DQSP_8
DDR1_DQSN_8
M_CLK_B_P3
M_CLK_B_N3
M_CLK_B_P2
M_CLK_B_N2
M_CLK_B_P1
M_CLK_B_N1
M_CLK_B_P0
M_CLK_B_N0
M_CKE_B3
M_CKE_B2
M_CKE_B1
M_CKE_B0
M_CS_B_L3
M_CS_B_L2
M_CS_B_L1
M_CS_B_L0
M_ODT_B3
M_ODT_B2
M_ODT_B1
M_ODT_B0
M_BA_B1
M_BA_B0
M_BG_B1
M_BG_B0
M_MA_B16
M_MA_B15
M_MA_B14
M_MA_B13
M_MA_B12
M_MA_B11
M_MA_B10
M_MA_B9
M_MA_B8
M_MA_B7
M_MA_B6
M_MA_B5
M_MA_B4
M_MA_B3
M_MA_B2
M_MA_B1
M_MA_B0
M_ACT_B_L
M_PAR_B
M_ALT_B_L
M_DQS_B_P7
M_DQS_B_N7
M_DQS_B_P6
M_DQS_B_N6
M_DQS_B_P5
M_DQS_B_N5
M_DQS_B_P4
M_DQS_B_N4
M_DQS_B_P3
M_DQS_B_N3
M_DQS_B_P2
M_DQS_B_N2
M_DQS_B_P1
M_DQS_B_N1
M_DQS_B_P0
M_DQS_B_N0
ECS ECS ECS
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Elitegroup Computer Systems
Title
CPU-DDR4
Size
Custom
Document Number
Z490H6-LA
Rev
V1.1
Date:
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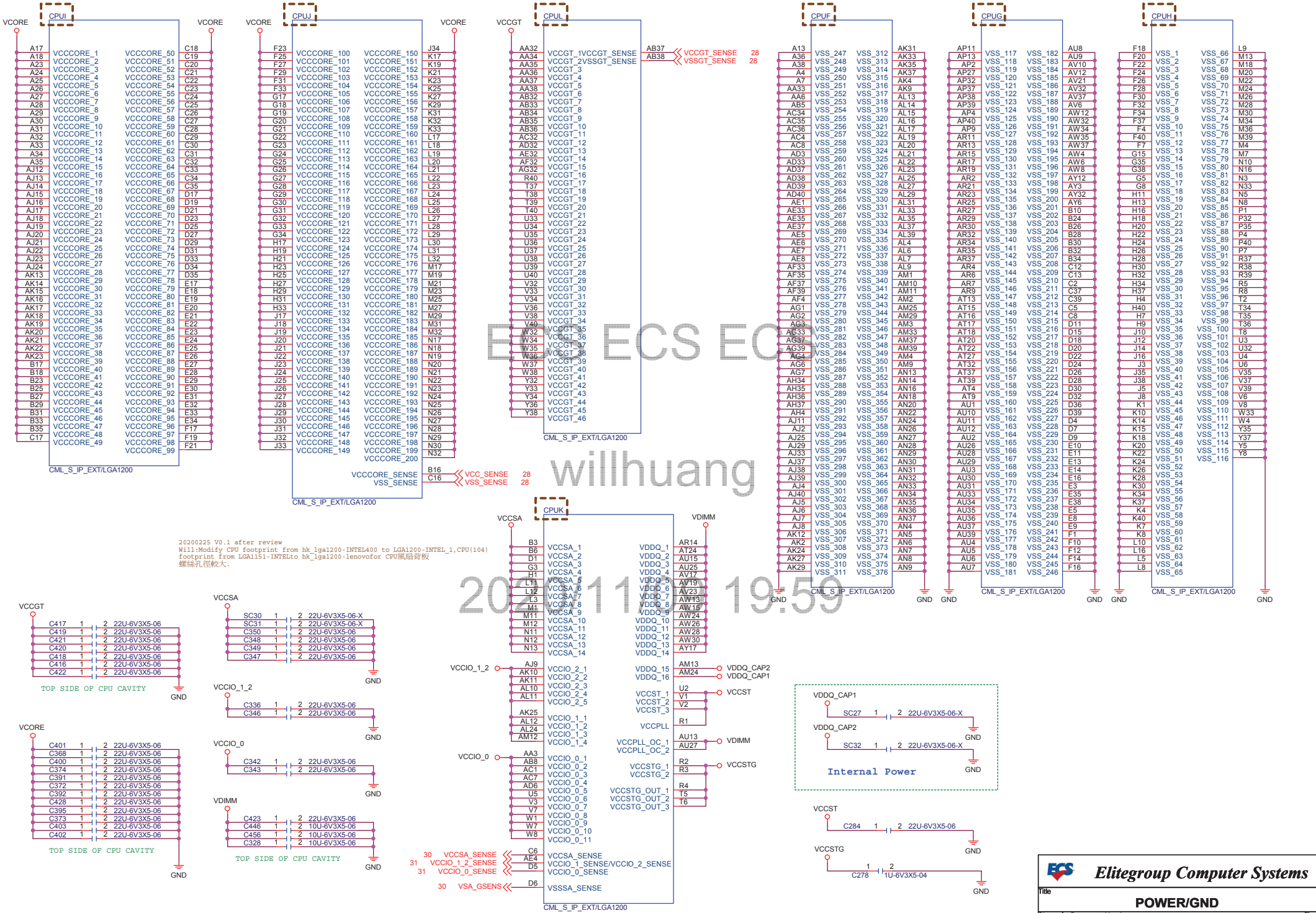
of
39



Elitegroup Computer Systems	
Title	POWER/GND
Size: Custom	Document Number: Z490H6-LA
Rev	V1.1
Date: Wednesday, November 04, 2020	Sheet 6 of 39

External Connection

SPD address
DIMM1 A0
DIMM2 A2

20201030 V1.0. to V1.1
Gene:Modify R271 from 0-04-short to 0 .

20200420 V0.2 to V1.0
Will:Modify C581/C599 from .1U-16VX7-04 to 2.2U-6V3X5-04 for DDR Power noise fail.

PLACE AT DIMM1

PLACE AT DIMM2

SLOT
11-004-288088
11-004-288130

DDR4-288P-BK

DIMM1

DIMM2

PLACE THE CAP CLOSE TO DIMM1

PLACE THE CAP CLOSE TO DIMM2

20200420 V0.2 to V1.0
Will:Stuff C656,C657 for SMbus test Ring up/Ring down fail.

20200120 V0.1
Will:Add R601/R602(0-04),reserve C656/C657(10P-04-O) for SI SMBUS test tune.

Title	DDR4 UDIMM x2
Size	Custom
Document Number	Z490H6-LA
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Date:	Wednesday, November 04, 2020
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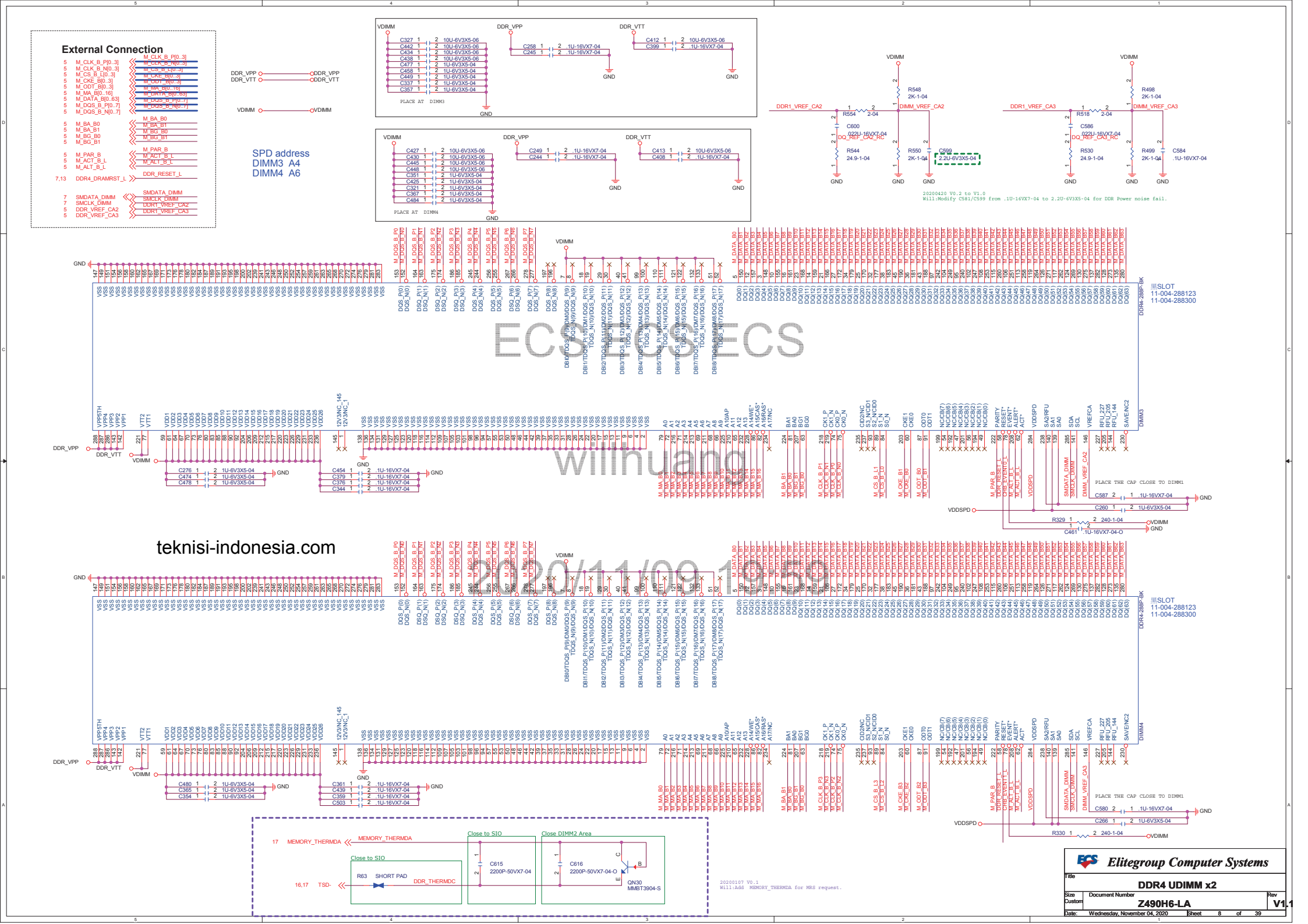
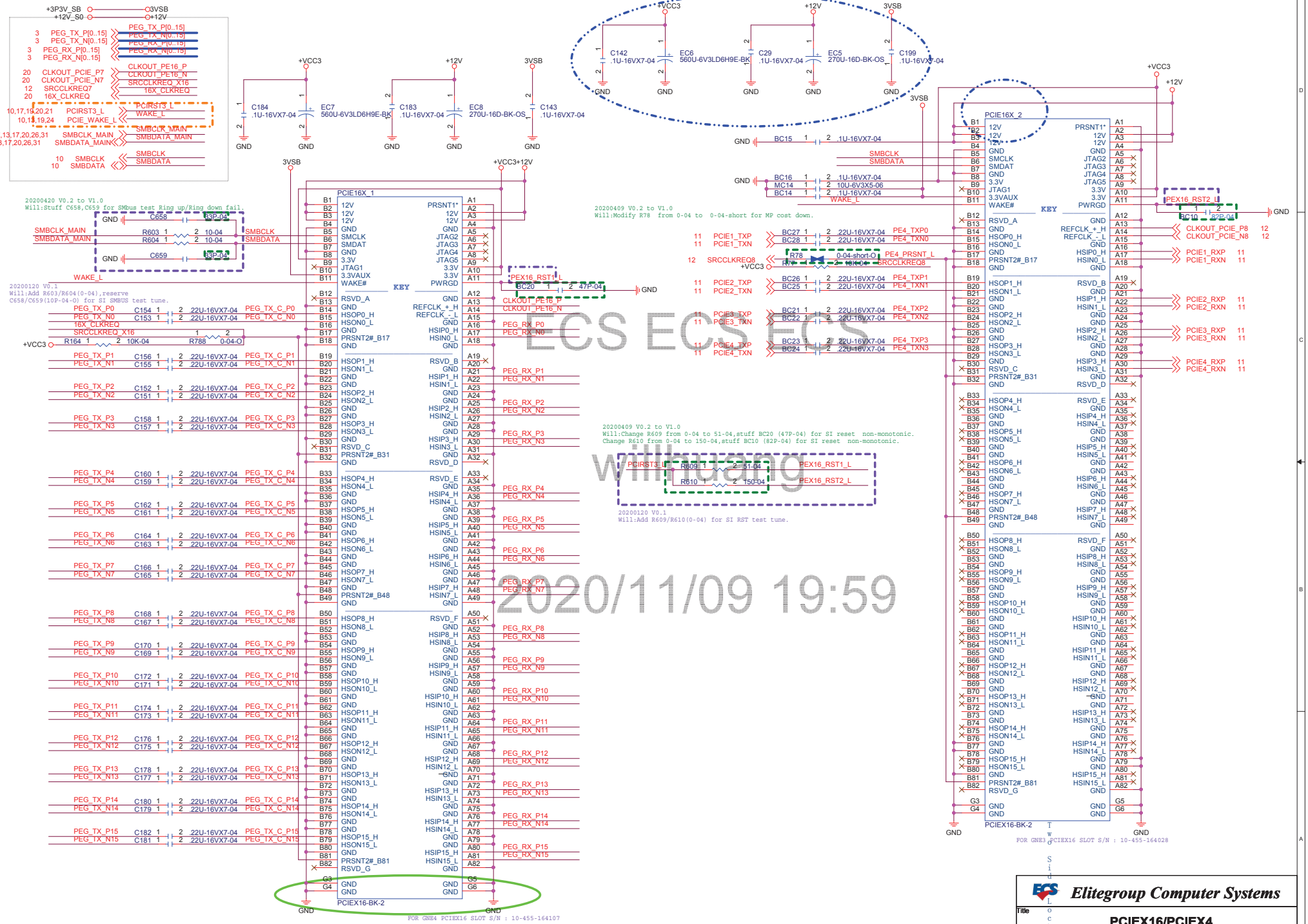
Elitegroup Computer Systems


External Connection
SPD address
DIMM3 A4
DIMM4 A6
PLACE AT DIMM3
PLACE AT DIMM4
20200420 V0.2 to V1.0
Will:Modify C581/C599 from .1U-16VX7-04 to 2.2U-6V3X5-04 for DDR Power noise fail.
SLOT
11-004-288123
11-004-288300
PLACE THE CAP CLOSE TO DIMM1
20200107 V0.1
Will:Add MEMORY_THERMDA for MRS request.
Elitegroup Computer Systems
DDR4 UDIMM x2
Z490H6-LA
V1.1
Wednesday, November 04, 2020
8
39
ECS
wilhuang
teknisi-indonesia.com
2020/11/09 15

External Connection



Elitegroup Computer Systems	
Title	PCIEX16/PCIEX4
Size / Custom	Document Number: Z490H6-LA
Rev	V1.1
Date:	Wednesday, November 04, 2020
Sheet	9 of 39

+3P3V_SB → 3VSB
+12V_S0 → +12V

11 PCIE6_TXP
11 PCIE6_TXN
11 PCIE6_RXP
11 PCIE6_RXN
12 CLKOUT_PCIE_P6
12 CLKOUT_PCIE_N6
12 SRCCLKREQ6

11 PCIE7_TXP
11 PCIE7_TXN
11 PCIE7_RXP
11 PCIE7_RXN
12 CLKOUT_PCIE_P4
12 CLKOUT_PCIE_N4
12 SRCCLKREQ4

9,17,19,20,21 PCIRST3_L
9,13,19,24 PCIE_WAKE_L

9,10 SMBCLK
9,10 SMBDATA

20200420 V0.2 to V1.0
Will:Stuff C754,C755 for SMbus test Ring up/Ring down fail.
20200409 V0.2 to V1.0
Will:Add R765/R766/C754/C755 for SMbus test.

9,10 SMBCLK
9,10 SMBDATA

GND C754 33P-04
R765 1 2 10-04
R766 1 2 10-04
GND C755 33P-04

SMBCLK_X1_2
SMBDATA_X1_2

WAKE_L

PCIE6_TXP C100 1 2 .22U-16VX7-04 PE1_1_TX_C_P
PCIE6_TXN C101 1 2 .22U-16VX7-04 PE1_1_TX_C_N

SRCCLKREQ_X1_1
+VCC3 R114 1 2 10K-04

3VSB C84 .1U-16VX7-04 GND
+VCC3 C86 .1U-16VX7-04 GND
+12V C85 .1U-16VX7-04 GND

PCIEX1_2
B1 12V_A
B2 12V_B
B3 12V_D
B4 GND1
B5 SMCLK
B6 SMDAT
B7 GND3
B8 3.3V_A
B9 JTAG1
B10 3.3VAUX
B11 WAKE#
2 NC2
B12 RSVD_A
B13 GND5
B14 HSOP0_H
B15 HSON0_L
B16 GND7
B17 PRSNT2#
B18 GND8
PCIEX1-BK
A1 PRSNT1*
A2 12V_C
A3 12V_E
A4 GND2
A5 JTAG2
A6 JTAG3
A7 JTAG4
A8 JTAG5
A9 3.3V_B
A10 3.3V_C
A11 PWRGD
1 NC1
A12 GND4
A13 REFCLK_+_H
A14 REFCLK_-_L
A15 GND6
A16 HSIP0_H
A17 HSIN0_L
A18 GND9
KEY

3VSB +VCC3+12V
PEX1_RST2_L
CLKOUT_PE1_1_P
CLKOUT_PE1_1_N
PCIE6_RXP
PCIE6_RXN
GND GND

20200420 V0.2 to V1.0
Will:Stuff C761,C762 for SMbus test Ring up/Ring down fail.

9,10 SMBCLK
9,10 SMBDATA

GND C761 33P-04
R774 1 2 10-04
R775 1 2 10-04
GND C762 33P-04

SMBCLK_X1_1
SMBDATA_X1_1

WAKE_L

PCIE7_TXP C196 1 2 .22U-16VX7-04 PE1_2_TX_C_P
PCIE7_TXN C197 1 2 .22U-16VX7-04 PE1_2_TX_C_N

SRCCLKREQ_X1_2
+VCC3 R204 1 2 10K-04

3VSB C27 .1U-16VX7-04 GND
+VCC3 C214 .1U-16VX7-04 GND
+12V C4 .1U-16VX7-04 GND

PCIEX1_1
PEX1_RST1_L
CLKOUT_PE1_2_P
CLKOUT_PE1_2_N
PCIE7_RXP
PCIE7_RXN
GND GND

20200420 V0.2 to V1.0
Will:Stuff C763,C764 for SMbus test Ring up/Ring down fail.

9,10 SMBCLK
9,10 SMBDATA

GND C763 33P-04
R776 1 2 10-04
R777 1 2 10-04
GND C764 33P-04

SMBCLK_X1_3
SMBDATA_X1_3

WAKE_L

PCIE19_TXP C30 1 2 .22U-16VX7-04 PE1_3_TX_C_P
PCIE19_TXN C31 1 2 .22U-16VX7-04 PE1_3_TX_C_N

SRCCLKREQ_X1_3
+VCC3 R40 1 2 10K-04

3VSB C192 .1U-16VX7-04 GND
+VCC3 C28 .1U-16VX7-04 GND
+12V C201 .1U-16VX7-04 GND

PCIEX1_3
PEX1_RST3_L
CLKOUT_PE1_3_P
CLKOUT_PE1_3_N
PCIE19_RXP
PCIE19_RXN
GND GND

11 PCIE19_TXP
11 PCIE19_TXN
11 PCIE19_RXP
11 PCIE19_RXN
12 CLKOUT_PCIE_P5
12 CLKOUT_PCIE_N5
12 SRCCLKREQ5

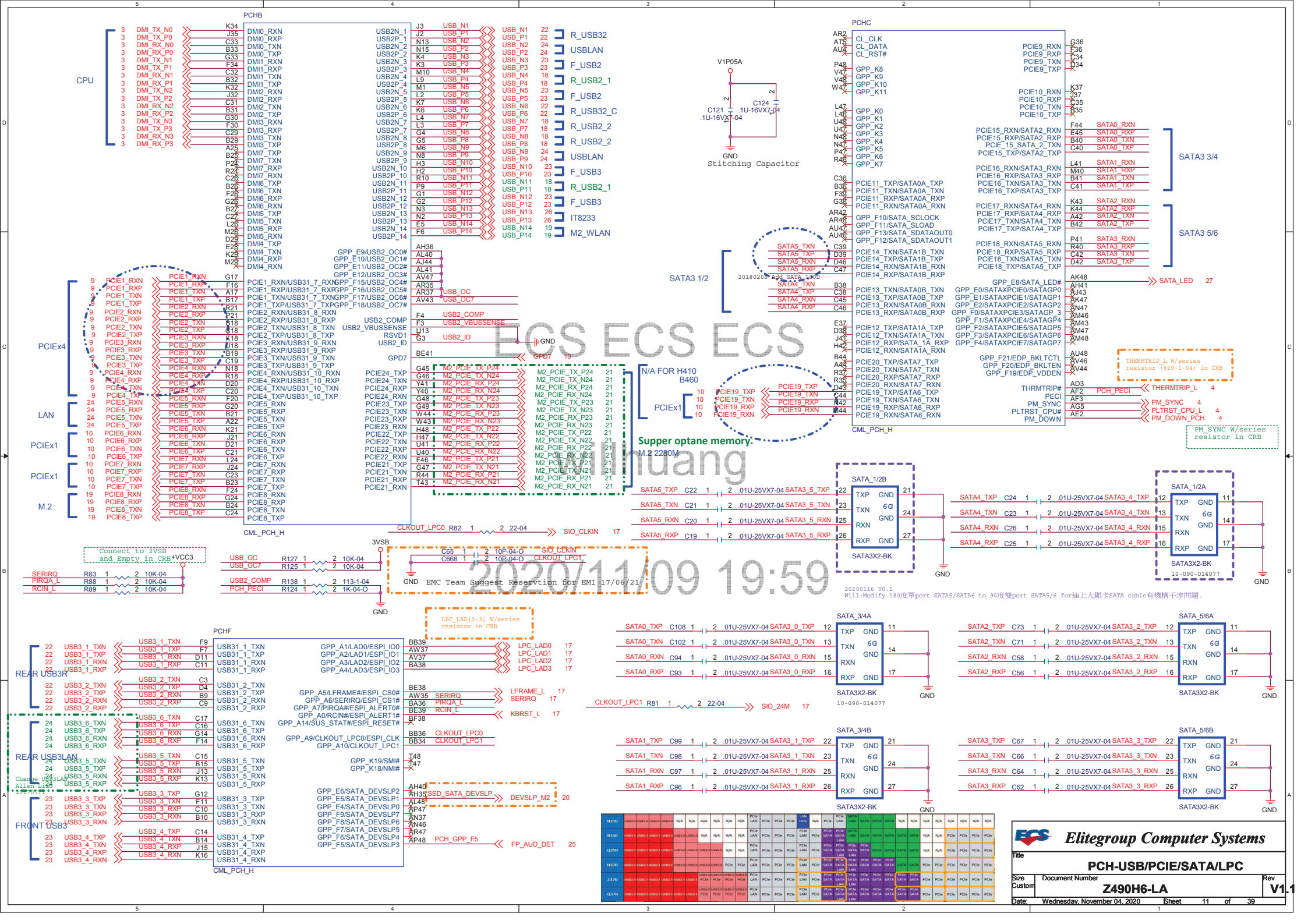
PCIRST3_L
R611 1 2 150-04 PEX1_RST1_L
R612 1 2 51-04 PEX1_RST2_L
R613 1 2 62-04 PEX1_RST3_L
C663 47P-04
C664 33P-04
C665 82P-04
GND

20200120 V0.1
Will:Add R611/R612/R613(0-04),reserve C663/C664/C665(10P-04-0) for SI RST test tune.
20200406 V0.1 to V0.2
Will:Change R612 from 0-04 to 51-04,stuff C664 (33P-04) for SI reset non-monotonic.

20200409 V0.2 to V1.0
Will:Change R611 from 0-04 to 150-04,stuff C665 (82P-04) for SI reset non-monotonic.
Change R613 from 0-04 to 62-04,stuff C663 (47P-04) for SI reset non-monotonic.

Elitegroup Computer Systems

Title	PCIEX1	
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
Date: Wednesday, November 04, 2020	Sheet 10 of 39	


PCHB
CPU
DMI_TX_N0
DMI_TX_P0
DMI_RX_N0
DMI_RX_P0
DMI_TX_N1
DMI_TX_P1
DMI_RX_N1
DMI_RX_P1
DMI_TX_N2
DMI_TX_P2
DMI_RX_N2
DMI_RX_P2
DMI_TX_N3
DMI_TX_P3
DMI_RX_N3
DMI_RX_P3
DMI0_RXN
DMI0_RXP
DMI0_TXN
DMI0_TXP
DMI1_RXN
DMI1_RXP
DMI1_TXN
DMI1_TXP
DMI2_RXN
DMI2_RXP
DMI2_TXN
DMI2_TXP
DMI3_RXN
DMI3_RXP
DMI3_TXN
DMI3_TXP
DMI4_TXN
DMI4_TXP
DMI4_RXN
DMI4_RXP
DMI5_TXN
DMI5_TXP
DMI5_RXN
DMI5_RXP
DMI6_TXN
DMI6_TXP
DMI6_RXN
DMI6_RXP
DMI7_TXN
DMI7_TXP
DMI7_RXN
DMI7_RXP
USB2N_1
USB2P_1
USB2N_2
USB2P_2
USB2N_3
USB2P_3
USB2N_4
USB2P_4
USB2N_5
USB2P_5
USB2N_6
USB2P_6
USB2N_7
USB2P_7
USB2N_8
USB2P_8
USB2N_9
USB2P_9
USB2N_10
USB2P_10
USB2N_11
USB2P_11
USB2N_12
USB2P_12
USB2N_13
USB2P_13
USB2N_14
USB2P_14
USB_N1
USB_P1
USB_N2
USB_P2
USB_N3
USB_P3
USB_N4
USB_P4
USB_N5
USB_P5
USB_N6
USB_P6
USB_N7
USB_P7
USB_N8
USB_P8
USB_N9
USB_P9
USB_N10
USB_P10
USB_N11
USB_P11
USB_N12
USB_P12
USB_N13
USB_P13
USB_N14
USB_P14
R_USB32
USBLAN
F_USB2
R_USB2_1
F_USB2
R_USB32_C
R_USB2_2
R_USB2_2
USBLAN
F_USB3
IT8233
M2_WLAN
R_USB2_1
F_USB3
V1P05A
C121 .1U-16VX7-04
C124 .1U-16VX7-04
GND
Stitching Capacitor
PCHC
CL_CLK
CL_DATA
CL_RST#
GPP_K8
GPP_K9
GPP_K10
GPP_K11
GPP_K0
GPP_K1
GPP_K2
GPP_K3
GPP_K4
GPP_K5
GPP_K6
GPP_K7
PCIE11_TXP/SATA0A_TXP
PCIE11_TXN/SATA0A_TXN
PCIE11_RXP/SATA0A_RXP
PCIE11_RXN/SATA0A_RXN
GPP_F10/SATA_SCLOCK
GPP_F11/SATA_SLOAD
GPP_F13/SATA_SDATAOUT0
GPP_F12/SATA_SDATAOUT1
PCIE14_TXN/SATA1B_TXN
PCIE14_TXP/SATA1B_TXP
PCIE14_RXN/SATA1B_RXN
PCIE14_RXP/SATA1B_RXP
PCIE13_TXN/SATA0B_TXN
PCIE13_TXP/SATA0B_TXP
PCIE13_RXN/SATA0B_RXN
PCIE13_RXP/SATA0B_RXP
PCIE12_TXP/SATA1A_TXP
PCIE12_TXN/SATA1A_TXN
PCIE12_RXP/SATA_1A_RXP
PCIE12_RXN/SATA1A_RXN
PCIE20_TXP/SATA7_TXP
PCIE20_TXN/SATA7_TXN
PCIE20_RXP/SATA7_RXP
PCIE20_RXN/SATA7_RXN
PCIE19_TXP/SATA6_TXP
PCIE19_TXN/SATA6_TXN
PCIE19_RXP/SATA6_RXP
PCIE19_RXN/SATA6_RXN
CML_PCH_H
PCIE9_RXN
PCIE9_RXP
PCIE9_TXN
PCIE9_TXP
PCIE10_RXN
PCIE10_RXP
PCIE10_TXN
PCIE10_TXP
PCIE15_RXN/SATA2_RXN
PCIE15_RXP/SATA2_RXP
PCIE_15_SATA_2_TXN
PCIE15_TXP/SATA2_TXP
PCIE16_RXN/SATA3_RXN
PCIE16_RXP/SATA3_RXP
PCIE16_TXN/SATA3_TXN
PCIE16_TXP/SATA3_TXP
PCIE17_RXN/SATA4_RXN
PCIE17_RXP/SATA4_RXP
PCIE17_TXN/SATA4_TXN
PCIE17_TXP/SATA4_TXP
PCIE18_RXN/SATA5_RXN
PCIE18_RXP/SATA5_RXP
PCIE18_TXN/SATA5_TXN
PCIE18_TXP/SATA5_TXP
SATA0_RXN
SATA0_RXP
SATA0_TXN
SATA0_TXP
SATA1_RXN
SATA1_RXP
SATA1_TXN
SATA1_TXP
SATA2_RXN
SATA2_RXP
SATA2_TXN
SATA2_TXP
SATA3_RXN
SATA3_RXP
SATA3_TXN
SATA3_TXP
SATA3 3/4
SATA3 5/6
SATA3 1/2
SATA5_TXN
SATA5_TXP
SATA5_RXN
SATA5_RXP
SATA4_TXN
SATA4_TXP
SATA4_RXN
SATA4_RXP
GPP_E8/SATA_LED#
SATA_LED
GPP_E0/SATAXPCIE0/SATAGP0
GPP_E1/SATAXPCIE1/SATAGP1
GPP_E2/SATAXPCIE2/SATAGP2
GPP_F0/SATAXPCIE3/SATAGP_3
GPP_F1/SATAXPCIE4/SATAGP4
GPP_F2/SATAXPCIE5/SATAGP5
GPP_F3/SATAXPCIE6/SATAGP6
GPP_F4/SATAXPCIE7/SATAGP7
GPP_F21/EDP_BKLTCTL
GPP_F20/EDP_BKLTEN
GPP_F19/EDP_VDDEN
THERMTRIP#
PECI
PM_SYNC
PLTRST_CPU#
PM_DOWN
THERMTRIP_L
PCH_PECI
PM_SYNC
PLTRST_CPU_L
PM_DOWN_PCH
THERMTRIP_L W/series resistor (619-1-04) in CRB
PM_SYNC W/series resistor in CRB
CML_PCH_H
PCIEx4
LAN
PCIEx1
PCIEx1
M.2
PCIE1_RXN
PCIE1_RXP
PCIE1_TXN
PCIE1_TXP
PCIE2_RXN
PCIE2_RXP
PCIE2_TXN
PCIE2_TXP
PCIE3_RXN
PCIE3_RXP
PCIE3_TXN
PCIE3_TXP
PCIE4_RXN
PCIE4_RXP
PCIE4_TXN
PCIE4_TXP
PCIE5_RXN
PCIE5_RXP
PCIE5_TXN
PCIE5_TXP
PCIE6_RXN
PCIE6_RXP
PCIE6_TXN
PCIE6_TXP
PCIE7_RXN
PCIE7_RXP
PCIE7_TXN
PCIE7_TXP
PCIE8_RXN
PCIE8_RXP
PCIE8_TXN
PCIE8_TXP
PCIE1_RXN/USB31_7_RXN
PCIE1_RXP/USB31_7_RXP
PCIE1_TXN/USB31_7_TXN
PCIE1_TXP/USB31_7_TXP
PCIE2_RXN/USB31_8_RXN
PCIE2_RXP/USB31_8_RXP
PCIE2_TXN/USB31_8_TXN
PCIE2_TXP/USB31_8_TXP
PCIE3_RXN/USB31_9_RXN
PCIE3_RXP/USB31_9_RXP
PCIE3_TXN/USB31_9_TXN
PCIE3_TXP/USB31_9_TXP
PCIE4_RXN/USB31_10_RXN
PCIE4_RXP/USB31_10_RXP
PCIE4_TXN/USB31_10_TXN
PCIE4_TXP/USB31_10_TXP
PCIE5_RXN
PCIE5_RXP
PCIE5_TXN
PCIE5_TXP
PCIE6_RXN
PCIE6_RXP
PCIE6_TXN
PCIE6_TXP
PCIE7_RXN
PCIE7_RXP
PCIE7_TXN
PCIE7_TXP
PCIE8_RXN
PCIE8_RXP
PCIE8_TXN
PCIE8_TXP
GPP_E9/USB2_OC0#
GPP_E10/USB2_OC1#
GPP_E11/USB2_OC2#
GPP_E12/USB2_OC3#
GPP_F15/USB2_OC4#
GPP_F16/USB2_OC5#
GPP_F17/USB2_OC6#
GPP_F18/USB2_OC7#
USB_OC
USB_OC7
USB2_COMP
USB2_VBUSSENSE
RSVD1
USB2_ID
GPD7
USB2_COMP
USB2_VBUSSENSE
USB2_ID
GPD7
GND
N/A FOR H410 B460
PCIEx1
PCIE19_TXP
PCIE19_TXN
PCIE19_RXP
PCIE19_RXN
Supper optane memory.
M.2 2280M
SATA_1/2B
SATA_1/2A
SATA3X2-BK
10-090-014077
SATA5_TXP C22 .01U-25VX7-04 SATA3_5_TXP
SATA5_TXN C21 .01U-25VX7-04 SATA3_5_TXN
SATA5_RXN C20 .01U-25VX7-04 SATA3_5_RXP
SATA5_RXP C19 .01U-25VX7-04 SATA3_5_RXP
SATA4_TXP C24 .01U-25VX7-04 SATA3_4_TXP
SATA4_TXN C23 .01U-25VX7-04 SATA3_4_TXN
SATA4_RXN C26 .01U-25VX7-04 SATA3_4_RXP
SATA4_RXP C25 .01U-25VX7-04 SATA3_4_RXP
CLKOUT_LPC0 R82 22-04 SIO_CLKIN 17
SIO_CLKIN
CLKOUT_LPC1
EMC Team Suggest Reservtion for EMI 17/06/21
20200116 V0.1
Will:Modify 180度單port SATA5/SATA6 to 90度雙port SATA5/6 for插上大腳卡SATA cable有機構干涉問題.
Connect to 3VSB and Empty in CRB+VCC3
3VSB
SERIRQ R83 10K-04
PIRQA_L R88 10K-04
RCIN_L R89 10K-04
USB_OC R127 10K-04
USB_OC7 R125 10K-04
USB2_COMP R138 113-1-04
PCH_PECI R124 1K-04-O
C65 10P-04-O SIO_CLKIN
C668 10P-04-O CLKOUT_LPC1
PCHF
REAR USB3R
REAR USB3L
FRONT USB3
USB3_1_TXN
USB3_1_TXP
USB3_1_RXN
USB3_1_RXP
USB3_2_TXN
USB3_2_TXP
USB3_2_RXN
USB3_2_RXP
USB3_6_TXN
USB3_6_TXP
USB3_6_RXN
USB3_6_RXP
USB3_5_TXN
USB3_5_TXP
USB3_5_RXN
USB3_5_RXP
USB3_3_TXP
USB3_3_TXN
USB3_3_RXP
USB3_3_RXN
USB3_4_TXP
USB3_4_TXN
USB3_4_RXP
USB3_4_RXN
USB31_1_TXN
USB31_1_TXP
USB31_1_RXN
USB31_1_RXP
USB31_2_TXN
USB31_2_TXP
USB31_2_RXN
USB31_2_RXP
USB31_6_TXN
USB31_6_TXP
USB31_6_RXN
USB31_6_RXP
USB31_5_TXN
USB31_5_TXP
USB31_5_RXN
USB31_5_RXP
USB31_3_TXP
USB31_3_TXN
USB31_3_RXP
USB31_3_RXN
USB31_4_TXP
USB31_4_TXN
USB31_4_RXP
USB31_4_RXN
GPP_A1/LAD0/ESPI_IO0
GPP_A2/LAD1/ESPI_IO1
GPP_A3/LAD2/ESPI_IO2
GPP_A4/LAD3/ESPI_IO3
GPP_A5/LFRAME#/ESPI_CS0#
GPP_A6/SERIRQ/ESPI_CS1#
GPP_A7/PIRQA#/ESPI_ALERT0#
GPP_A0/RCIN#/ESPI_ALERT1#
GPP_A14/SUS_STAT#/ESPI_RESET#
GPP_A9/CLKOUT_LPC0/ESPI_CLK
GPP_A10/CLKOUT_LPC1
GPP_K19/SMI#
GPP_K18/NMI#
GPP_E6/SATA_DEVSLP2
GPP_E5/SATA_DEVSLP1
GPP_E4/SATA_DEVSLP0
GPP_F9/SATA_DEVSLP7
GPP_F8/SATA_DEVSLP6
GPP_F7/SATA_DEVSLP5
GPP_F6/SATA_DEVSLP4
GPP_F5/SATA_DEVSLP3
LPC_LAD0
LPC_LAD1
LPC_LAD2
LPC_LAD3
LFRAME_L
SERIRQ
PIRQA_L
RCIN_L
KBRST_L
CLKOUT_LPC0
CLKOUT_LPC1
SSD_SATA_DEVSLP
DEVSLP_M2
PCH_GPP_F5
FP_AUD_DET
LPC_LAD[0:3] W/series resistor in CRB
Change USB3LAN Allen list 20200121
SATA_3/4A
SATA_5/6A
SATA_3/4B
SATA_5/6B
SATA0_TXP C108 .01U-25VX7-04 SATA3_0_TXP
SATA0_TXN C102 .01U-25VX7-04 SATA3_0_TXN
SATA0_RXN C94 .01U-25VX7-04 SATA3_0_RXN
SATA0_RXP C93 .01U-25VX7-04 SATA3_0_RXP
SATA2_TXP C73 .01U-25VX7-04 SATA3_2_TXP
SATA2_TXN C71 .01U-25VX7-04 SATA3_2_TXN
SATA2_RXN C58 .01U-25VX7-04 SATA3_2_RXN
SATA2_RXP C56 .01U-25VX7-04 SATA3_2_RXP
CLKOUT_LPC1 R81 22-04 SIO_24M 17
SATA1_TXP C99 .01U-25VX7-04 SATA3_1_TXP
SATA1_TXN C98 .01U-25VX7-04 SATA3_1_TXN
SATA1_RXN C97 .01U-25VX7-04 SATA3_1_RXN
SATA1_RXP C96 .01U-25VX7-04 SATA3_1_RXP
SATA3_TXP C67 .01U-25VX7-04 SATA3_3_TXP
SATA3_TXN C66 .01U-25VX7-04 SATA3_3_TXN
SATA3_RXN C64 .01U-25VX7-04 SATA3_3_RXN
SATA3_RXP C62 .01U-25VX7-04 SATA3_3_RXP
H310
B350
Q350
H370
Z370
Q370
Elitegroup Computer Systems
Title
PCH-USB/PCIE/SATA/LPC
Size Custom
Document Number
Z490H6-LA
Rev
V1.1
Date: Wednesday, November 04, 2020
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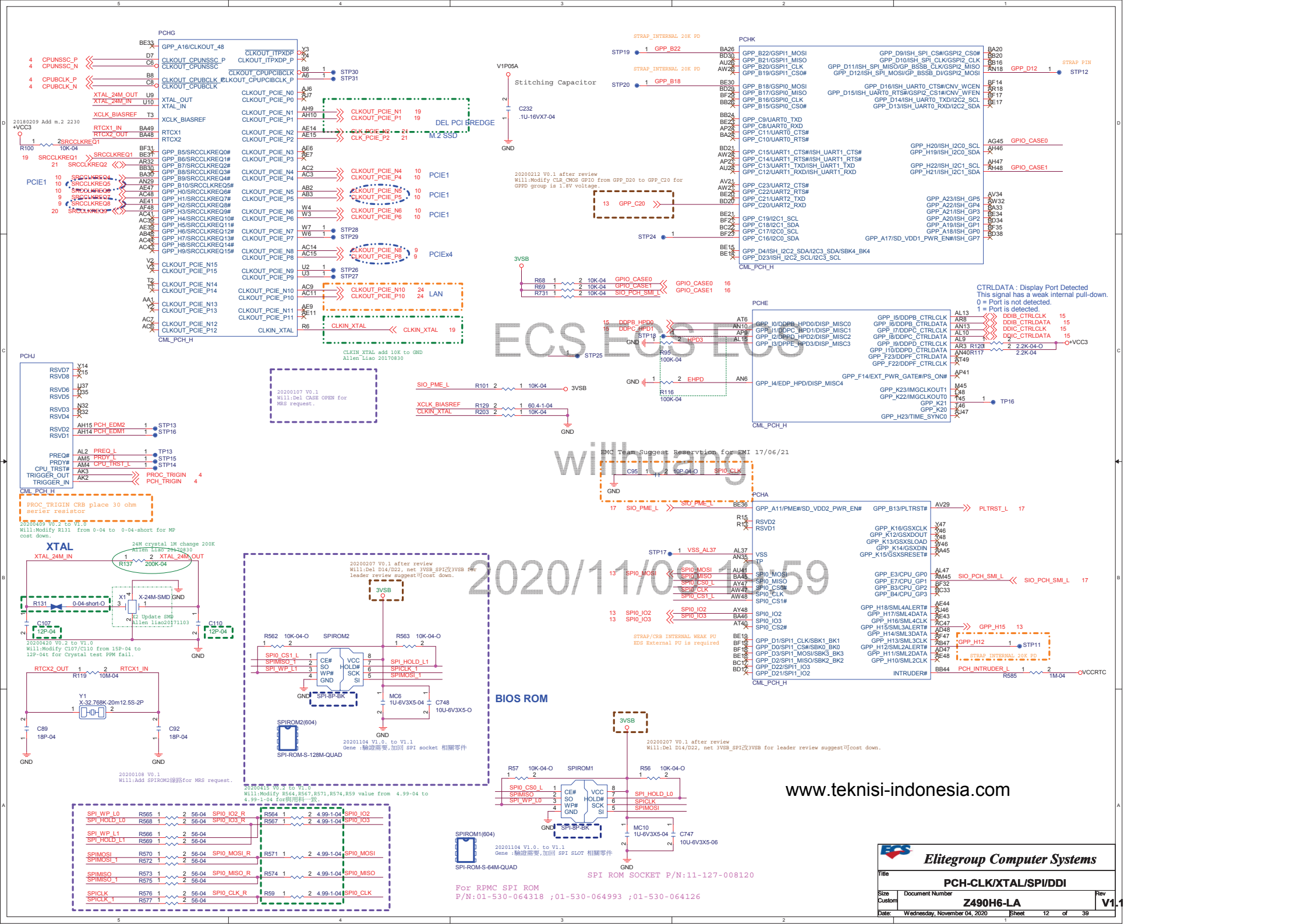
ECS ECS ECS
Shihuang
2020/11/09 19:59


PCHG
PCIE1
PCIE1
PCIE1
PCIE1
PCIEx4
LAN
DEL PCI BREDGE
M.2 SSD
CML_PCH_H
PCHK
PCHE
PCHJ
PCHA
CLKIN_XTAL add 10K to GND
Allen Liao 20170830
20200107 V0.1
Will:Del CASE OPEN for
MRS request.
PROC_TRIGIN CRB place 30 ohm
serier resistor
20200409 V0.2 to V1.0
Will:Modify R131 from 0-04 to 0-04-short for MP
cost down.
XTAL
24M crystal 1M change 200K
Allen Liao 20170830
20200420 V0.2 to V1.0
Will:Modify C107/C110 from 15P-04 to
12P-04t for Crystal test PPM fail.
20200108 V0.1
Will:Add SPIROM2線路for MRS request.
20200207 V0.1 after review
Will:Del D14/D22, net 3VSB_SPI改3VSB for
leader review suggest可cost down.
20200415 V0.2 to V0.9
Will:Modify R564,R567,R571,R574,R59 value from 4.99-04 to
4.99-1-04 for與用料一致.
20201104 V1.0. to V1.1
Gene :驗證需要,加回 SPI socket 相關零件
SPIROM2(604)
SPI-ROM-S-128M-QUAD
BIOS ROM
SPI-8P-BK
20200207 V0.1 after review
Will:Del D14/D22, net 3VSB_SPI改3VSB for leader review suggest可cost down.
20201104 V1.0. to V1.1
Gene :驗證需要,加回 SPI SLOT 相關零件
SPIROM1(604)
SPI-ROM-S-64M-QUAD
SPI ROM SOCKET P/N:11-127-008120
For RPMC SPI ROM
P/N:01-530-064318 ;01-530-064993 ;01-530-064126
20200212 V0.1 after review
Will:Modify CLR_CMOS GPIO from GPP_D20 to GPP_C20 for
GPPD group is 1.8V voltage.
CTRLDATA : Display Port Detected
This signal has a weak internal pull-down.
0 = Port is not detected.
1 = Port is detected
EMC Team Suggest Reservtion for EMI 17/06/21
STRAP_INTERNAL 20K PD
STRAP PIN
STRAP/CRB INTERNAL WEAK PU
EDS External PU is required
Stitching Capacitor
ECS ECS ECS
willhuang
2020/11/09 15:59
www.teknisi-indonesia.com
Elitegroup Computer Systems
PCH-CLK/XTAL/SPI/DDI
Z490H6-LA
V1.1
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CNV (WiFi PHY) co-exist with M.2 E key.

Disable ME(HW)

MODE	SPI override
NORMAL	2-3
Disable ME(HW)	1-2

IF SAMPLED HIGH,FLASH DESCRIPTOR SECURITY IS OVERIDEN
PCH HAS INTERNAL WEAK PD

CLR CMOS SW

CLR_CMOS_SW	
1-2	NORMAL
2-3	CLEAR

Strap

SPKR 0 = Disable "Top Swap" mode. (Default)
1 = Enable "Top Swap" mode.

GPP_B18 0 = "Reboot" mode. (Default)
1 = "No Reboot" mode

GPP_B22 0 = SPI ROM (Default)
1 = LPC ROM

GPP_C5 0 = LPC Bus (Default)
1 = eSPI Bus

SPI0_IO2 0 = Consent strap enable?
1 = Consent strap disable (Default)

SPI0_IO3 0 = Personality strap enable?
1 = Personality strap disable (Default)

GPP_H12 0 = Master Attached Flash Sharing. (Default)
1 = Slave Attached Flash Sharing.

GPP_J9 0 = VCCPSPI connect to 3.3V. (Default)
1 = VCCPSPI connect to 1.8V.

SPI0_MISO/USB_OC3 have duplicated strap in CRB

SPI0_MOSI 0 = Boot Halt
1 = Normal (Default)

GPP_J4 0 = 38.4/19.2MHz. (Default)
1 = 24MHz

GPP_J6 0 = Integrated CNVi enable.
1 = Integrated CNVi disable.

GPD7 0 = Single end. (Default)
1 = XTAL differential..

CML PCH-H Ball	Signal name (PCIe Gen4)
Y35	CLKIN_OBS_N
Y36	CLKIN_OBS_P

INTEL 613015 PAGE 10

Title	PCH-HDA/PMC/CMOS/CNVI/STRAP
Size	Custom
Document Number	Z490H6-LA
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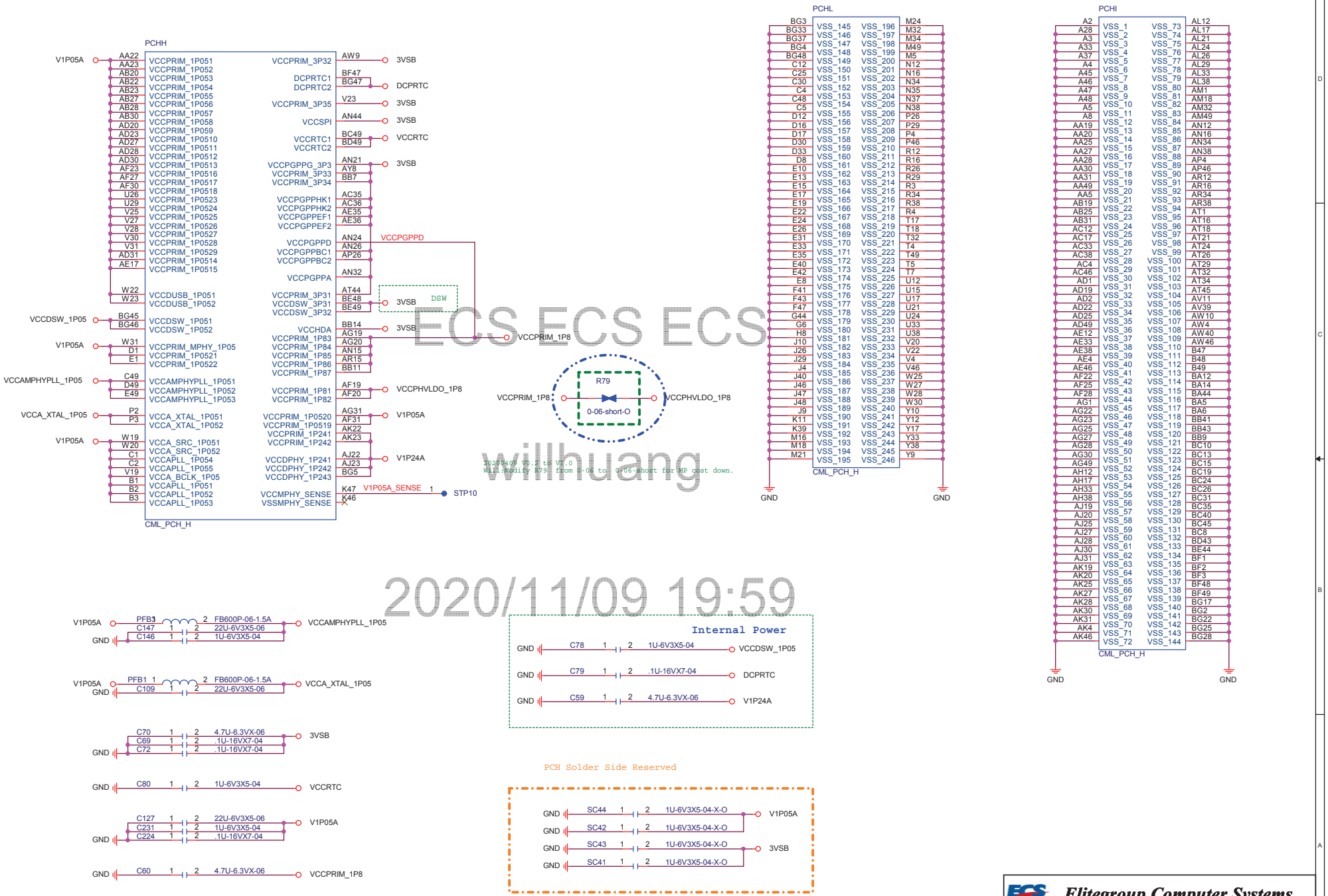
Elitegroup Computer Systems



Elitegroup Computer Systems	
Title	PCH-POWER/GND
Size: Custom	Document Number: Z490H6-LA
Rev	V1.1
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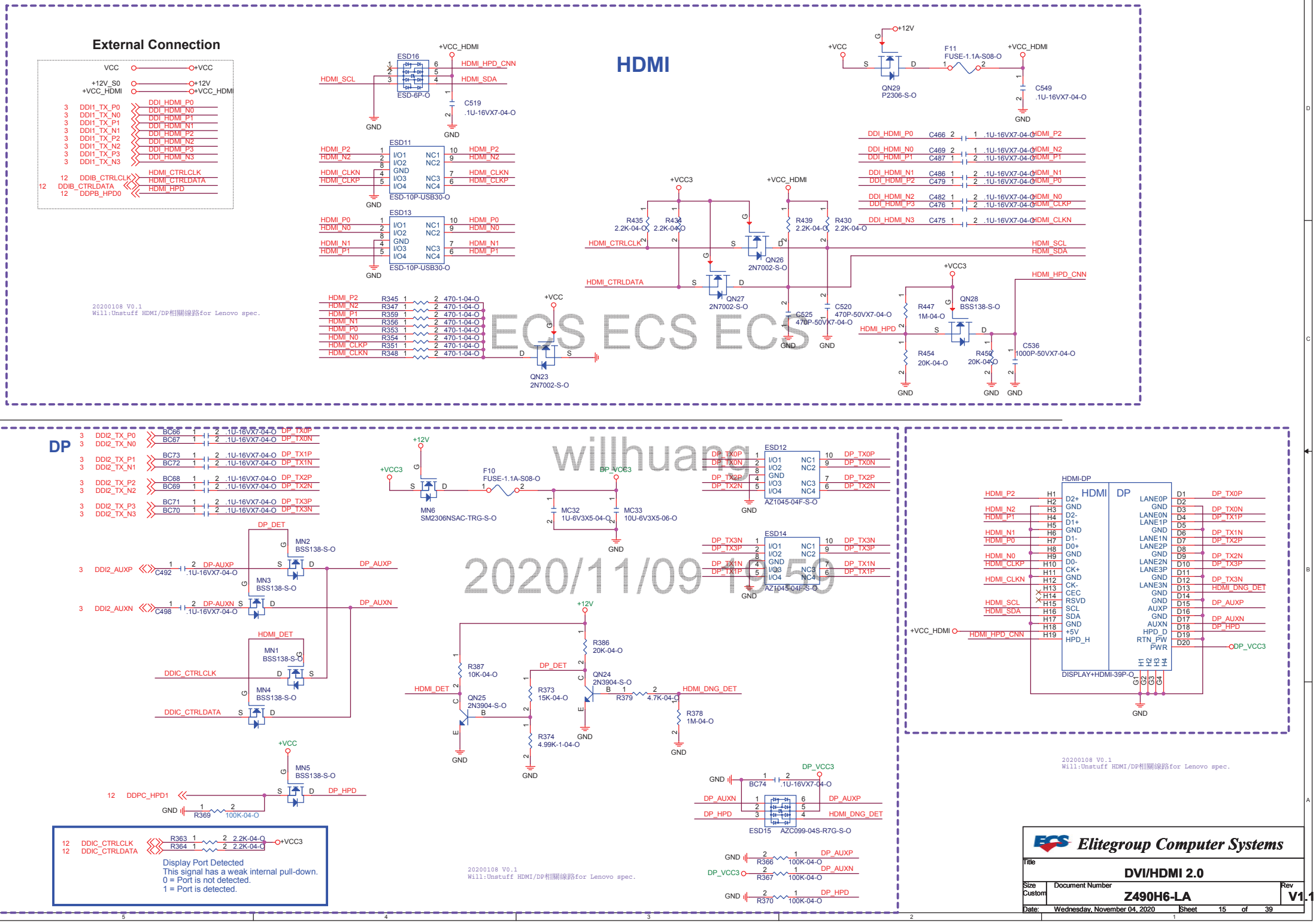
External Connection
VCC
+VCC
+12V_S0
+12V
+VCC_HDMI
+VCC_HDMI
DDI1_TX_P0
DDI1_TX_N0
DDI1_TX_P1
DDI1_TX_N1
DDI1_TX_P2
DDI1_TX_N2
DDI1_TX_P3
DDI1_TX_N3
DDIB_CTRLCLK
DDIB_CTRLDATA
DDPB_HPD0
DDI_HDMI_P0
DDI_HDMI_N0
DDI_HDMI_P1
DDI_HDMI_N1
DDI_HDMI_P2
DDI_HDMI_N2
DDI_HDMI_P3
DDI_HDMI_N3
HDMI_CTRLCLK
HDMI_CTRLDATA
HDMI_HPD
HDMI
ESD16
ESD-6P-O
HDMI_SCL
HDMI_HPD_CNN
HDMI_SDA
C519
.1U-16VX7-04-O
ESD11
ESD-10P-USB30-O
ESD13
ESD-10P-USB30-O
HDMI_P2
HDMI_N2
HDMI_CLKN
HDMI_CLKP
HDMI_P0
HDMI_N0
HDMI_N1
HDMI_P1
GND
+12V
+VCC
F11
FUSE-1.1A-S08-O
QN29
P2306-S-O
C549
.1U-16VX7-04-O
+VCC3
+VCC_HDMI
R435
2.2K-04-O
R434
2.2K-04-O
R439
2.2K-04-O
R430
2.2K-04-O
QN26
2N7002-S-O
QN27
2N7002-S-O
C525
470P-50VX7-04-O
C520
470P-50VX7-04-O
R345
R347
R359
R356
R353
R354
R351
R348
470-1-04-O
QN23
2N7002-S-O
C466
C469
C487
C486
C479
C482
C476
C475
R447
1M-04-O
QN28
BSS138-S-O
R454
20K-04-O
R450
20K-04-O
C536
1000P-50VX7-04-O
20200108 V0.1
Will:Unstuff HDMI/DP相關線路for Lenovo spec.
ECS ECS ECS
DP
BC66
BC67
BC73
BC72
BC68
BC69
BC71
BC70
.1U-16VX7-04-O
DP_TX0P
DP_TX0N
DP_TX1P
DP_TX1N
DP_TX2P
DP_TX2N
DP_TX3P
DP_TX3N
DDI2_TX_P0
DDI2_TX_N0
DDI2_TX_P1
DDI2_TX_N1
DDI2_TX_P2
DDI2_TX_N2
DDI2_TX_P3
DDI2_TX_N3
DP_DET
MN2
BSS138-S-O
MN3
BSS138-S-O
MN4
BSS138-S-O
MN1
BSS138-S-O
MN5
BSS138-S-O
DDI2_AUXP
DDI2_AUXN
C492
C498
DP-AUXP
DP-AUXN
DP_AUXP
DP_AUXN
HDMI_DET
DDIC_CTRLCLK
DDIC_CTRLDATA
DDPC_HPD1
DP_HPD
R369
100K-04-O
R363
R364
2.2K-04-O
+VCC3
Display Port Detected
This signal has a weak internal pull-down.
0 = Port is not detected.
1 = Port is detected.
+12V
+VCC3
F10
FUSE-1.1A-S08-O
MN6
SM2306NSAC-TRG-S-O
DP_VCC3
MC32
1U-6V3X5-04-O
MC33
10U-6V3X5-06-O
ESD12
ESD14
AZ1045-04F-S-O
R386
20K-04-O
R387
10K-04-O
R373
15K-04-O
R374
4.99K-1-04-O
R379
4.7K-04-O
R378
1M-04-O
QN24
2N3904-S-O
QN25
2N3904-S-O
ESD15
AZC099-04S-R7G-S-O
R366
R367
R370
100K-04-O
DP_VCC3
20200108 V0.1
Will:Unstuff HDMI/DP相關線路for Lenovo spec.
willhuang
2020/11/09 19:59
HDMI-DP
HDMI
DP
DISPLAY+HDMI-39P-O
+VCC_HDMI
HDMI_HPD_CNN
DP_VCC3
20200108 V0.1
Will:Unstuff HDMI/DP相關線路for Lenovo spec.
Elitegroup Computer Systems
Title
DVI/HDMI 2.0
Size
Custom
Document Number
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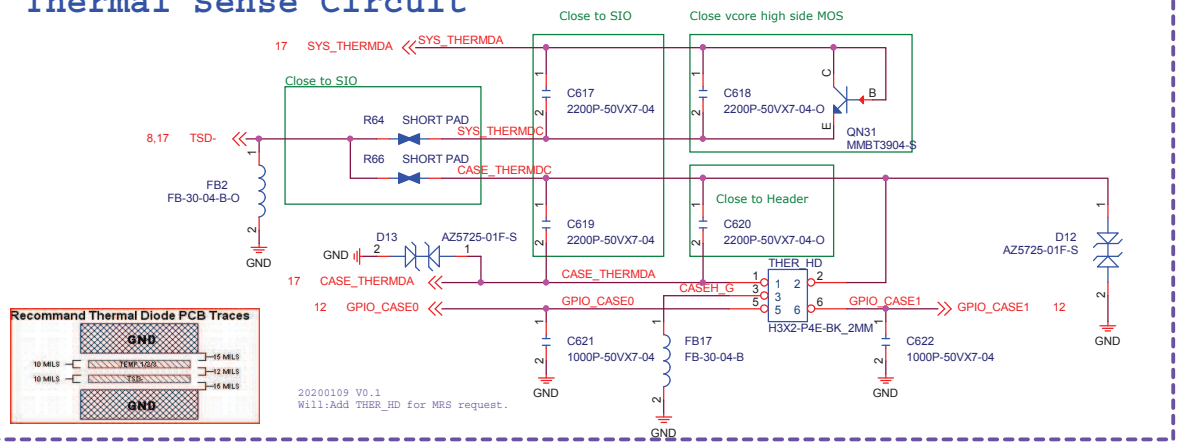
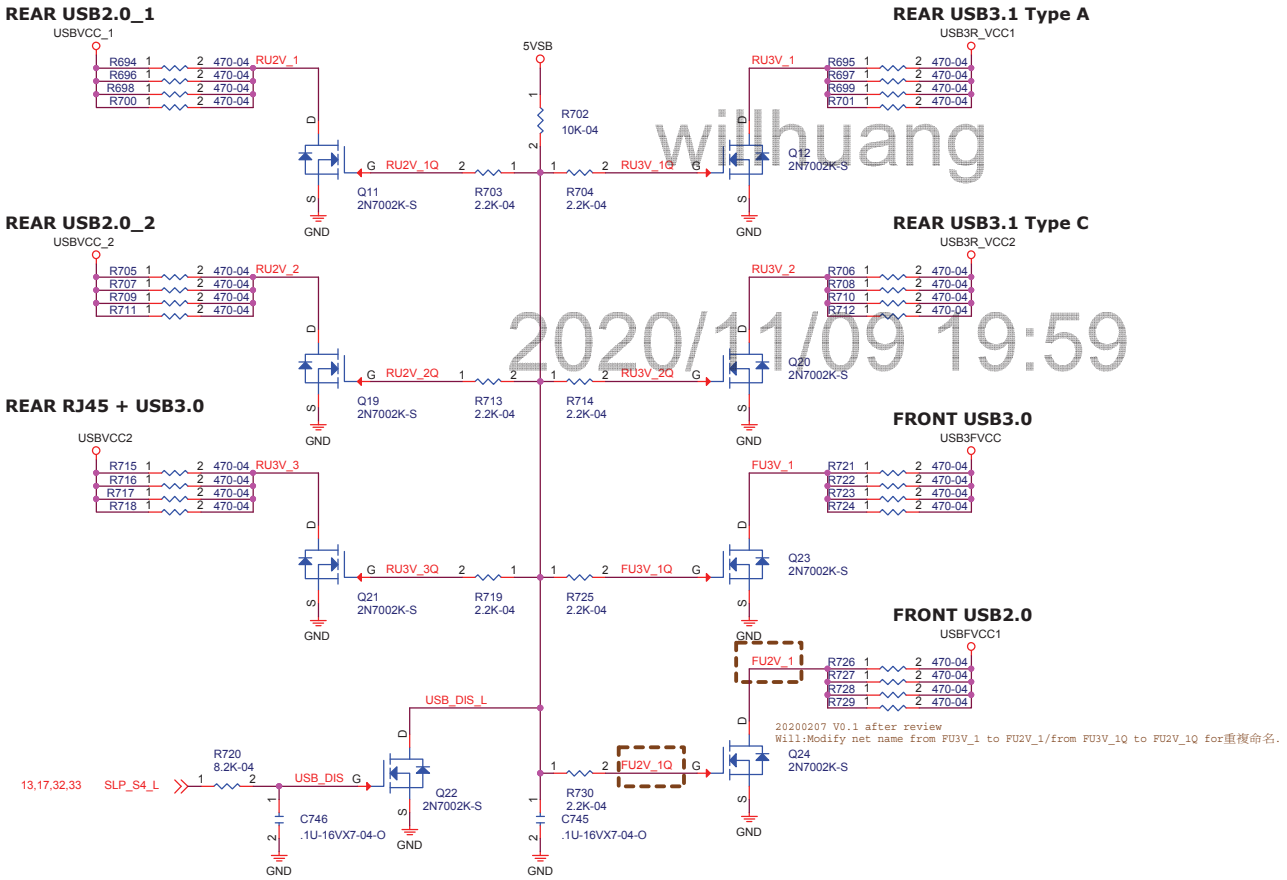
Thermal Sense Circuit



20200203 V0.1
Will:Add USB discharge circuit for Lenovo DCL request.

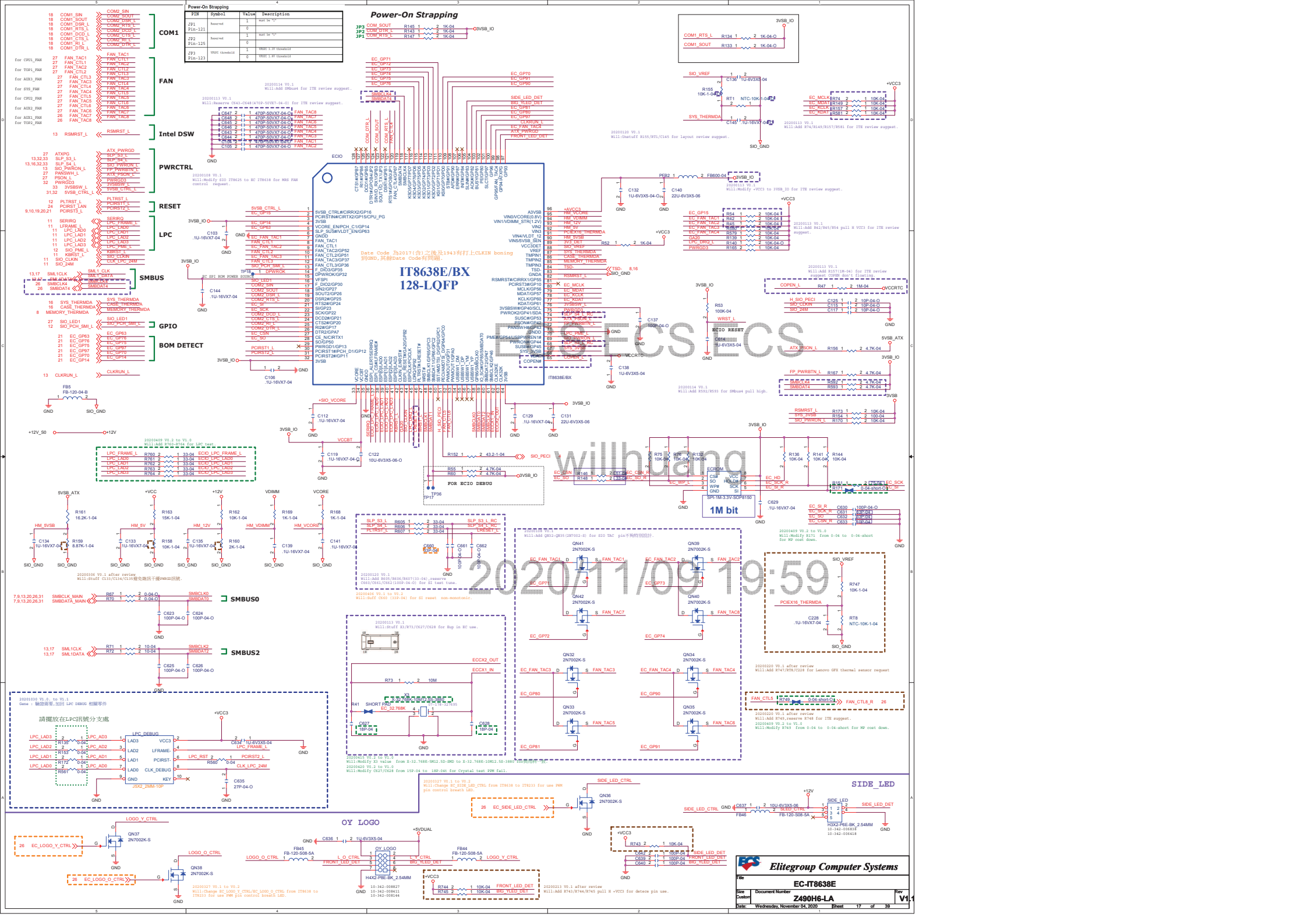
USB Power Discharge



20200207 V0.1 after review
Will:Modify net name from FU3V_1 to FU2V_1/from FU3V_1Q to FU2V_1Q for重複命名.

Elitegroup Computer Systems

Title	Thermal Sense	
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
Date: Wednesday, November 04, 2020	Sheet 16 of 39	


Power-On Strapping
COM1
FAN
Intel DSW
PWRCTRL
RESET
LPC
SMBUS
GPIO
BOM DETECT
IT8638E/BX
128-LQFP
SMBUS0
SMBUS2
OY LOGO
SIDE_LED
Elitegroup Computer Systems
EC-IT8638E
Z490H6-LA
V1.1
Wednesday, November 04, 2020
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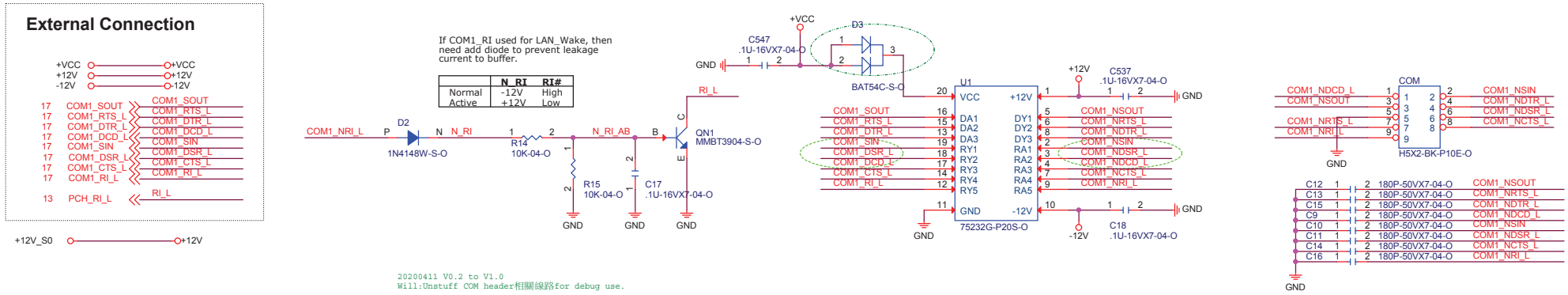
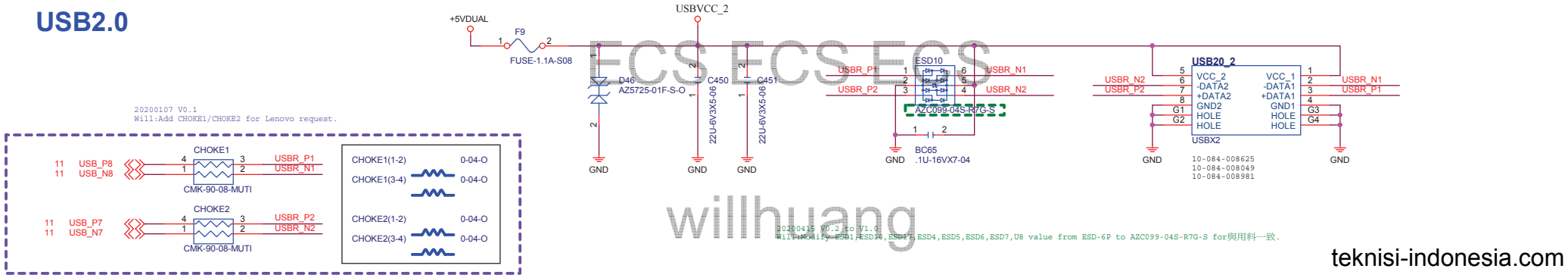
COM Header for RMT debuge use,MP remove.

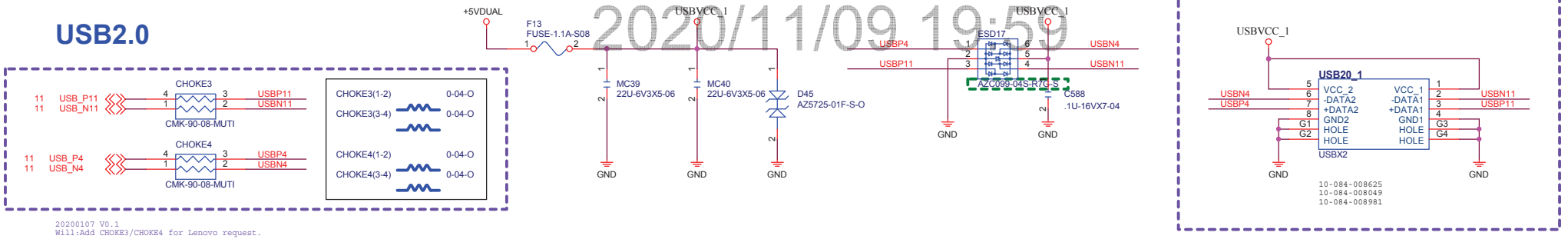


USB2.0



External Connection

USB2.0



20200107 V0.1
Will:Modify PSUSB not PS interface for MRS request.

20200107 V0.1
Will:Modify PSUSB not PS interface for MRS request.

Elitegroup Computer Systems

Title	COM/PSUSB	
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
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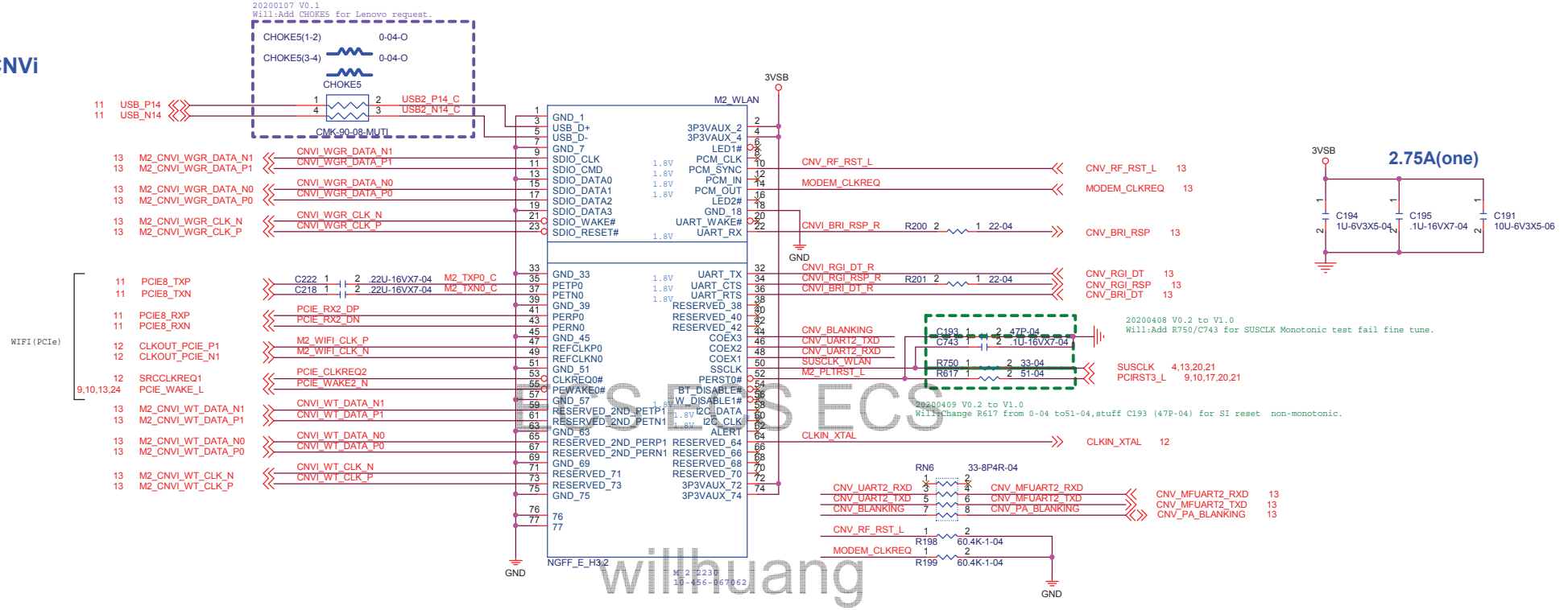
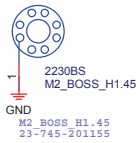
M.2 2230
WIFI / BT / CNVi





Elitegroup Computer Systems	
Title	M.2 2230 CNVi
Size: Custom	Document Number: Z490H6-LA
Rev	V1.1
Date:	Wednesday, November 04, 2020
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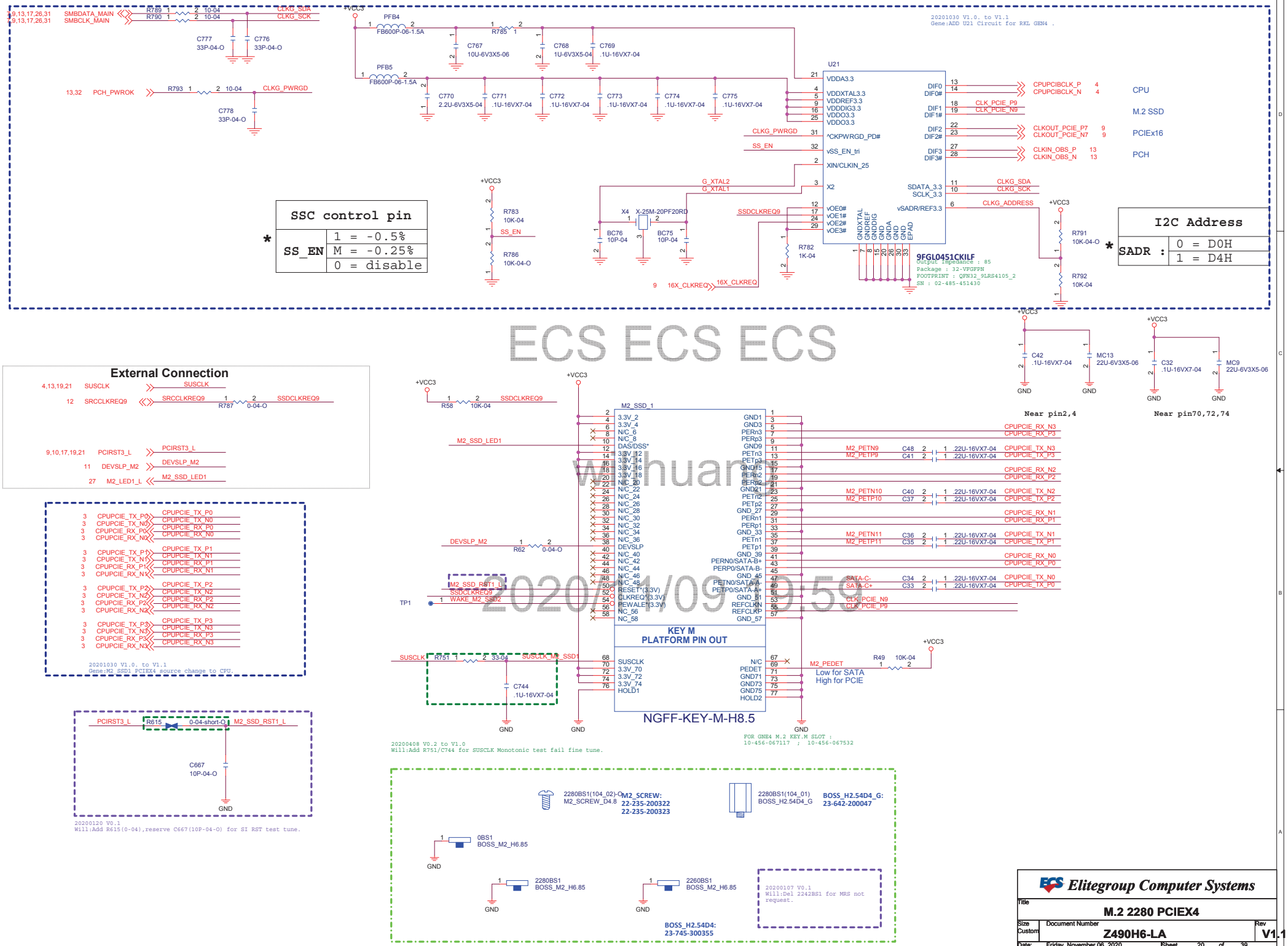

Title	M.2 2280 PCIEX4
Size / Custom	Document Number: Z490H6-LA
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Elitegroup Computer Systems

External Connection

4,13,19,20	SUSCLK	PCH_SUSCLK
12	SRCCLKREQ2	SRCCLKREQ2
12	CLK_PCIE_P2	CLK_PCIE_P2
12	CLK_PCIE_N2	CLK_PCIE_N2
9,10,17,19,20	PCIRST3_L	PCIRST3_L
27	M2_LED_L	M2_SSD_LED

20200409 V0.2 to V1.0
Will:Modify R614 from 0-04 to 0-04-short for MP cost down.

PCIRST3_L — R614 0-04-short-O — M2_SSD_RST2_L
C666 10P-04-O — GND

20200120 V0.1
Will:Add R614(0-04),reserve C666(10P-04-O) for SI RST test tune.

+VCC3 — R142 10K-04 — SRCCLKREQ2

M2_SSD_2

2	3.3V_2	GND1	1
4	3.3V_4	GND3	3
6	N/C_6	PERn3	5
8	N/C_8	PERp3	7
10	DAS/DSS*	GND9	9
12	3.3V_12	PETn3	11
14	3.3V_14	PETp3	13
16	3.3V_16	GND15	15
18	3.3V_18	PERn2	17
20	N/C_20	PERp2	19
22	N/C_22	GND21	21
24	N/C_24	PETn2	23
26	N/C_26	PETp2	25
28	N/C_28	GND_27	27
30	N/C_30	PERn1	29
32	N/C_32	PERp1	31
34	N/C_34	GND_33	33
36	N/C_36	PETn1	35
38	DEVSLP	PETp1	37
40	N/C_40	GND_39	39
42	N/C_42	PERN0/SATA-B+	41
44	N/C_44	PERP0/SATA-B-	43
46	N/C_46	GND_45	45
48	N/C_48	PETN0/SATA-A-	47
50	RESET*(3.3V)	PETP0/SATA-A+	49
52	CLKREQ*(3.3V)	GND_51	51
54	PEWALE*(3.3V)	REFCLKN	53
56	NC_56	REFCLKP	55
58	NC_58	GND_57	57
68	SUSCLK	N/C	67
70	3.3V_70	PEDET	69
72	3.3V_72	GND71	71
74	3.3V_74	GND73	73
76	HOLD1	GND75	75
		HOLD2	77

M2_SSD_LED
M2_SSD_RST2_L
SRCCLKREQ2
WAKE_M2_SSD — TP20
PCH_SUSCLK — R752 33-04 — SUSCLK_M2_SSD2
C750 .1U-16VX7-04

KEY M
PLATFORM PIN OUT

NGFF-KEY-M-H8.5

20200408 V0.2 to V1.0
Will:Add R752/C750 for SUSCLK Monotonic test fail fine tune.

+VCC3 — C130 .1U-16VX7-04 — GND
MC18 22U-6V3X5-06 — GND
Near pin2,4

+VCC3 — C111 .1U-16VX7-04 — GND
MC17 22U-6V3X5-06 — GND
Near pin70,72,74

M2_PETN24	C128	M2_PETXN24	M2_PERXN24	M2_PERXP24
M2_PETP24	C126	M2_PETXP24		
M2_PETN23	C123	M2_PETXN23	M2_PERXN23	M2_PERXP23
M2_PETP23	C120	M2_PETXP23		
M2_PETN22	C118	M2_PETXN22	M2_PERXN22	M2_PERXP22
M2_PETP22	C116	M2_PETXP22		
SATA-B+			M2_PERXP21	
SATA-B-			M2_PERXN21	
SATA-A-	C114	M2_PETXN21		
SATA-A+	C113	M2_PETXP21		
CLK_PCIE_N2				
CLK_PCIE_P2				

All capacitors: 22U-16VX7-04

TP19
Low for SATA
High for PCIE

11	M2_PCIE_TX_N23	M2_PETXN23	
11	M2_PCIE_TX_P23	M2_PETXP23	
11	M2_PCIE_TX_N24	M2_PETXN24	
11	M2_PCIE_TX_P24	M2_PETXP24	
11	M2_PCIE_RX_N22	M2_PERXN22	
11	M2_PCIE_RX_P22	M2_PERXP22	
11	M2_PCIE_RX_P24	M2_PERXP24	
11	M2_PCIE_RX_N24	M2_PERXN24	
11	M2_PCIE_TX_N21	M2_PETXN21	
11	M2_PCIE_TX_P21	M2_PETXP21	
11	M2_PCIE_TX_N22	M2_PETXN22	
11	M2_PCIE_TX_P22	M2_PETXP22	
11	M2_PCIE_RX_P23	M2_PERXP23	
11	M2_PCIE_RX_N23	M2_PERXN23	
11	M2_PCIE_RX_P21	M2_PERXP21	
11	M2_PCIE_RX_N21	M2_PERXN21	

b

BOM SELECTION

20200820 V1.0(.) RKL
Will:Stuff RJ1(2-3),RJ10(2-3),RJ11(2-3),RJ12(2-3),RJ13(2-3),SRJ1(2-3) (10K-04) for BOM DET default pull low.

17 EC_GP75 — EC_GP75 2 — RJ10 10K-04(2-3) — 3VSB / GND
17 EC_GP63 — EC_GP63 2 — RJ1 10K-04(2-3) — 3VSB / GND
17 EC_GP14 — EC_GP14 2 — SRJ1 10K-04(2-3) — 3VSB / GND
17 EC_GP97 — EC_GP97 2 — RJ12 10K-04(2-3) — 3VSB / GND

20200109 V0.1
Will:Add RJ10~RJ14 for Lenovo BOM DETECT.

17 EC_GP70 — EC_GP70 2 — RJ11 10K-04(2-3) — 3VSB / GND
17 EC_GP76 — EC_GP76 2 — RJ13 10K-04(2-3) — 3VSB / GND

2280BS(104_02)-O
M2_SCREW_D4.8
M2_SCREW:
22-235-200322
22-235-200323

2280BS(104_01)
BOSS_H2.54D4_G
BOSS_H2.54D4_G:
23-642-200047

1 — 2280BS BOSS_M2_H6.85 — GND
1 — 2260BS BOSS_M2_H6.85 — GND
BOSS_H2.54D4:
23-745-300355

20200107 V0.1
Will:Del 2242BS for MRS not request.

1 — 0BS BOSS_M2_H6.85 — GND
1 — 2300BS BOSS_M2_H6.85 — GND

Elitegroup Computer Systems

Title	M.2 2280 Key-M H8.5	
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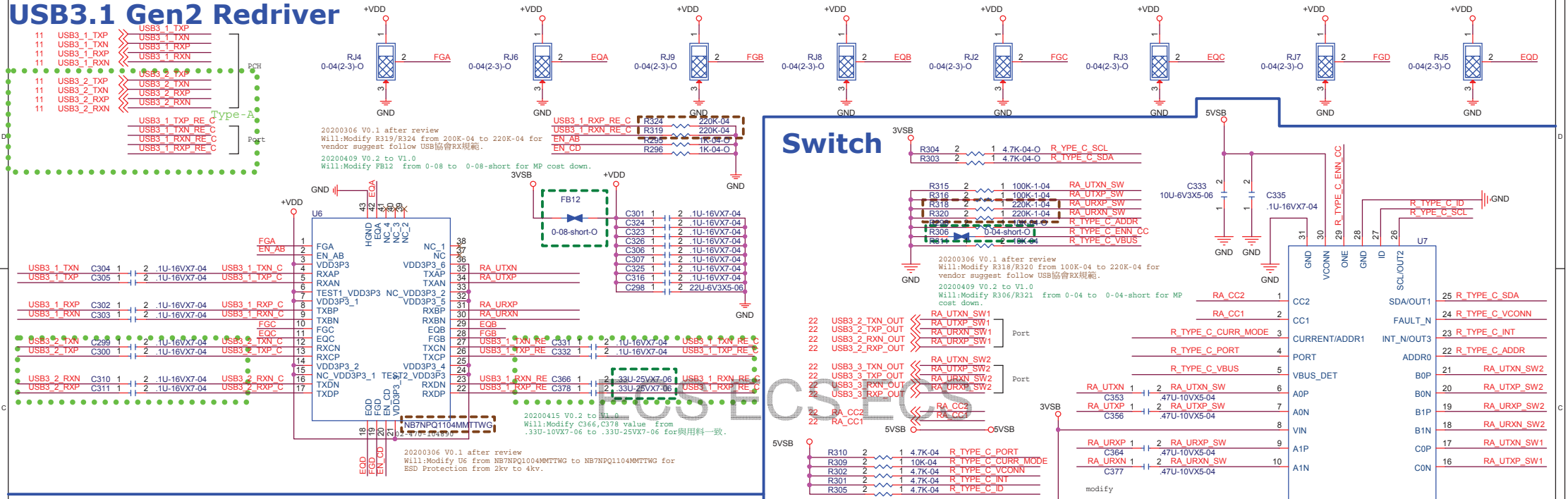
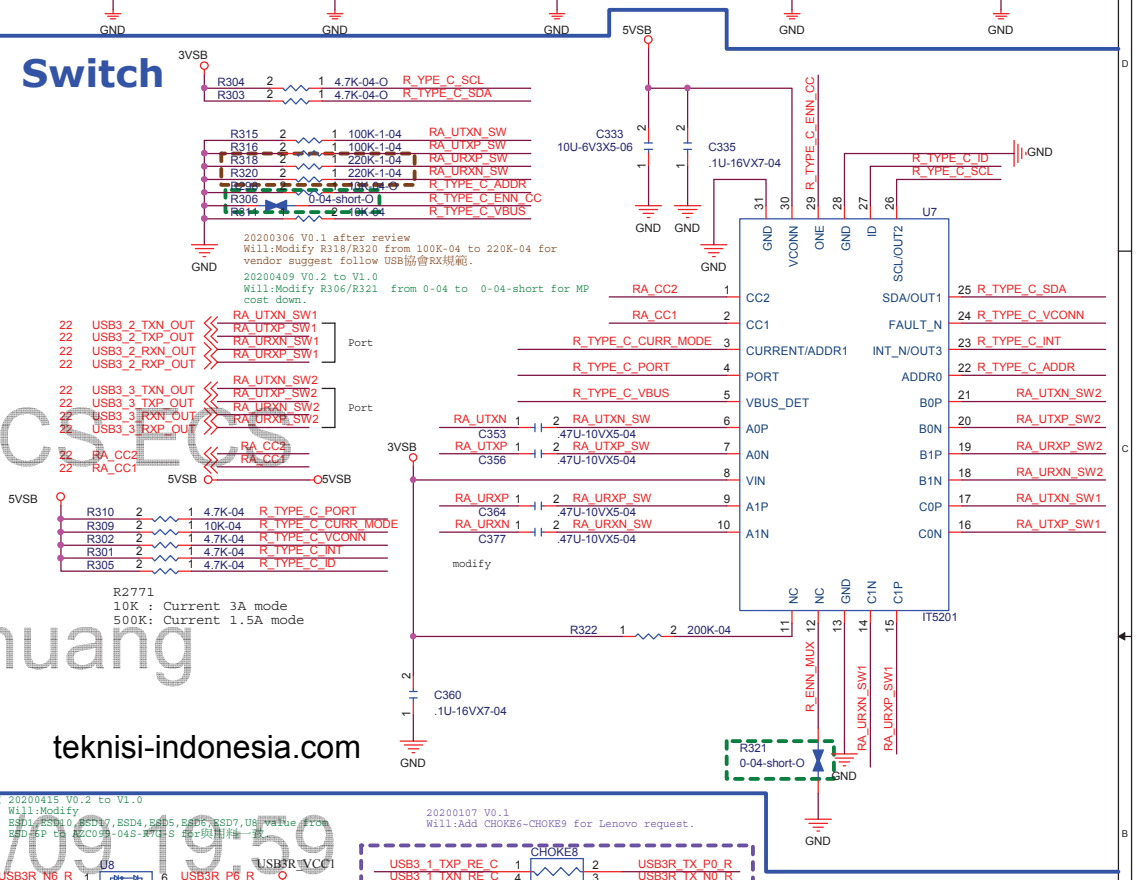
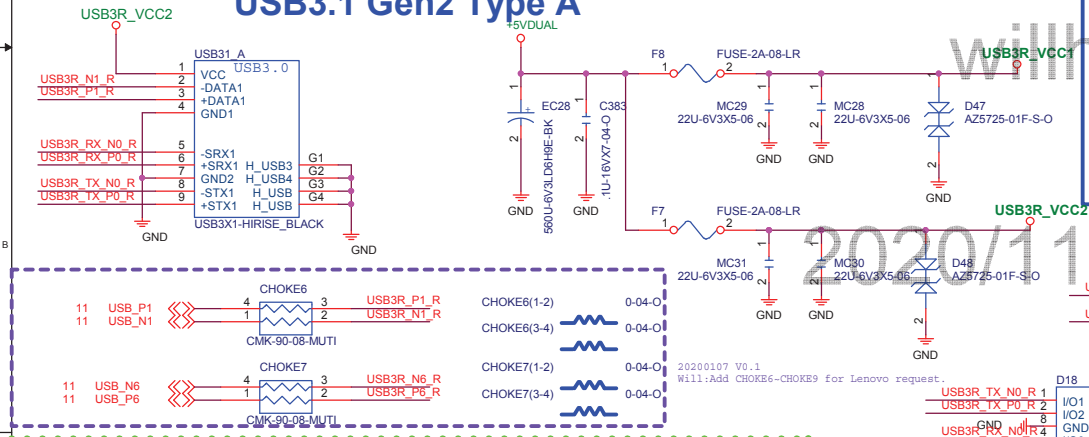
USB3.1 Gen2 Redriver



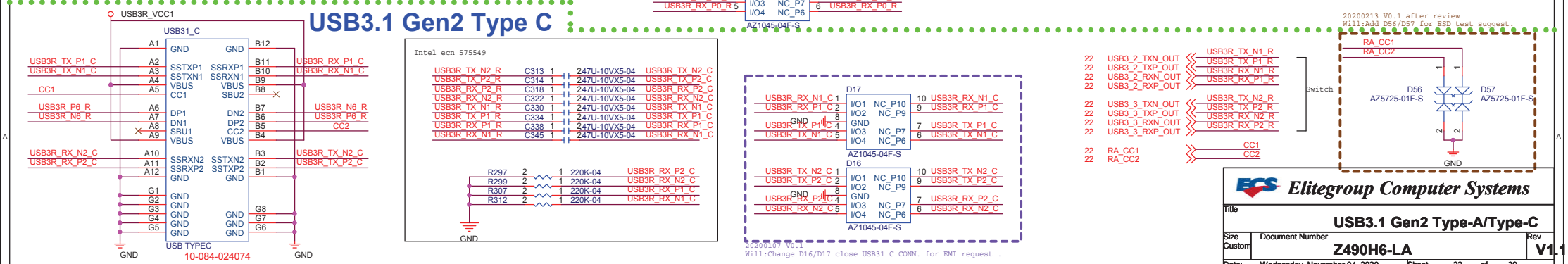
Switch



USB3.1 Gen2 Type A



USB3.1 Gen2 Type C



Elitegroup Computer Systems

Title	USB3.1 Gen2 Type-A/Type-C		
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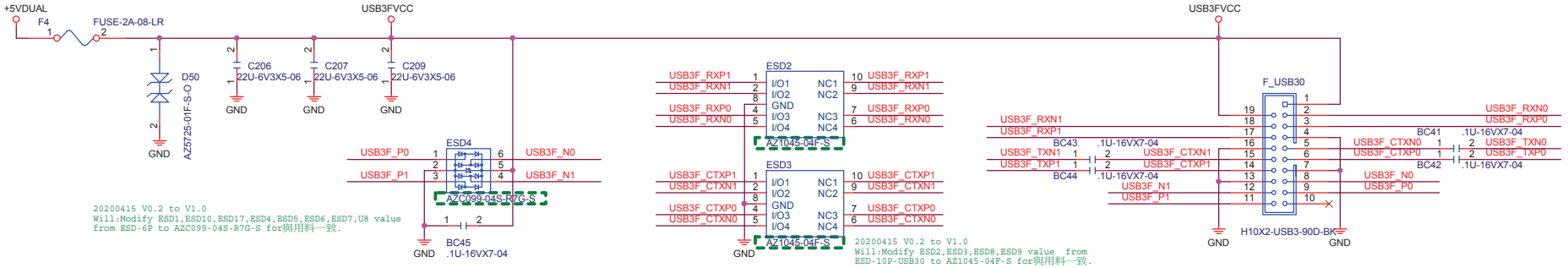
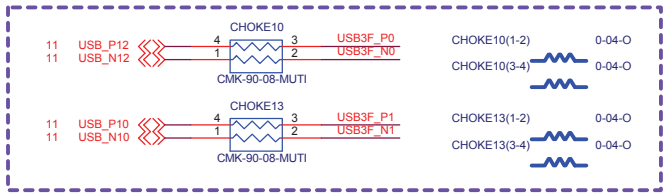
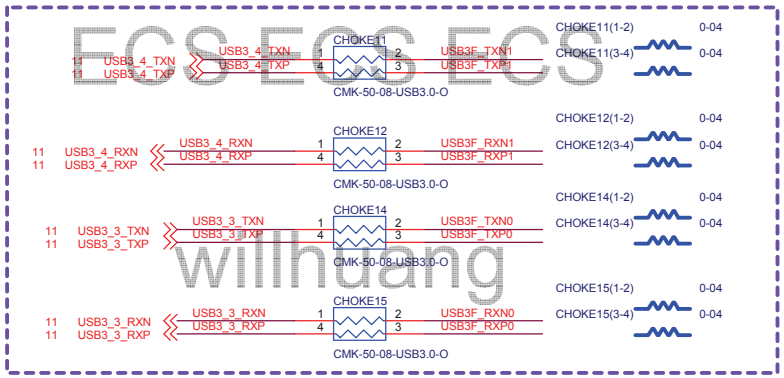
FRONT USB3.0

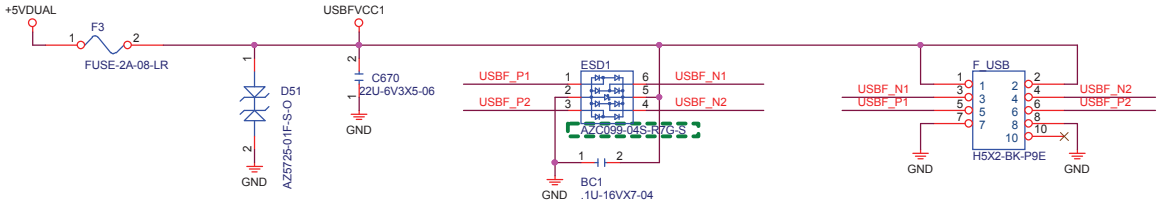


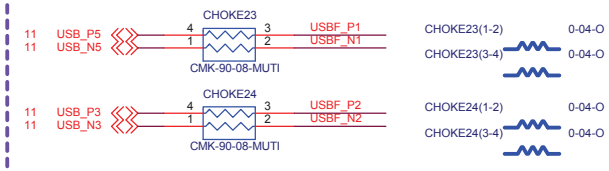




2020/11/09 19:59

FRONT USB2.0





Elitegroup Computer Systems

Title	USB3F/USB2F	
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
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External Connection

3VSB ↔ 3VSB
AUGND2 ↔ AUGND2
9,10,13,19 17 PCIE_WAKE_L PCIRST_LAN ↔ PCIEWAKE0# PCIRST_LAN
12 CLKOUT_PCIE_P10 ↔ PCIE_LAN_CLKP
12 CLKOUT_PCIE_N10 ↔ PCIE_LAN_CLKN
11 PCIE5_TXP ↔ PCIE5_TXP
11 PCIE5_TXN ↔ PCIE5_TXN
11 PCIE5_RXP ↔ PCIE5_RXP
11 PCIE5_RXN ↔ PCIE5_RXN

AUGND2 — BC48 1 — 2 .1U-16VX7-04 — USBVCC2
ESD5: USBL_P1 1, 2, 3 — USBL_N1 6, 5, 4 — USBL_P2 — USBL_N2 — AZC099-04S-R7G-S
BC52 1 — 2 .1U-16VX7-04 — 3VSB
ESD7: MDI1_N2 1, 2, 3 — MDI1_P2 6, 5, 4 — MDI1_N3 — MDI1_P3 — AZC099-04S-R7G-S

ESD9: USB3_TX1N_R 1 — USB3_TX1N_R 10; USB3_TX1P_R 2 — USB3_TX1P_R 9; USB3_TX0P_R 4 — USB3_TX0P_R 7; USB3_TX0N_R 5 — USB3_TX0N_R 6; GND 8; I/O1 I/O2 I/O3 I/O4; NC1 NC2 NC3 NC4 — AZ1045-04F-S
ESD8: USB3_RX0N 1 — USB3_RX0N 10; USB3_RX0P 2 — USB3_RX0P 9; USB3_RX1N 4 — USB3_RX1N 7; USB3_RX1P 5 — USB3_RX1P 6; GND 8; I/O1 I/O2 I/O3 I/O4; NC1 NC2 NC3 NC4 — AZ1045-04F-S — AUGND2

20200415 V0.2 to V1.0
Will:Modify ESD2,ESD3,ESD8,ESD9 value from ESD-10P-USB30 to AZ1045-04F-S for與用料一致.

+5VDUAL — F6 FUSE-2A-08-LR — 80 mil — USBVCC2
MC26 22U-6V3X5-06 — MC25 22U-6V3X5-06 — D49 AZ5725-01F-S-O — BC58 .1U-16VX7-04 — GND — AUGND2

20200415 V0.2 to V1.0
Will:Modify ESD1,ESD10,ESD17,ESD4,ESD5,ESD6,ESD7,U8 value from ESD-6P to AZC099-04S-R7G-S for與用料一致.

BC51 1 — 2 .1U-16VX7-04 — 3VSB
ESD6: MDI1_N0 1, 2, 3 — MDI1_P0 6, 5, 4 — MDI1_N1 — MDI1_P1 — AZC099-04S-R7G-S

CHOKE16: 11 USB_P9 — 11 USB_N9 — USBL_P1 — USBL_N1 — CMK-90-08-MUTI
CHOKE16(1-2) 0-04-O
CHOKE16(3-4) 0-04-O
CHOKE17: 11 USB_N2 — 11 USB_P2 — USBL_N2 — USBL_P2 — CMK-90-08-MUTI
CHOKE17(1-2) 0-04-O
CHOKE17(3-4) 0-04-O

20200107 V0.1
Will:Add CHOKE16-CHOKE21 for Lenovo request.

CHOKE18: 11 USB3_6_TXP — 11 USB3_6_TXN — USB3_TX0P — USB3_TX0N — CMK-50-08-USB3.0-O
CHOKE18(1-2) 0-04
CHOKE18(3-4) 0-04
CHOKE19: 11 USB3_6_RXP — 11 USB3_6_RXN — USB3_RX0P — USB3_RX0N — CMK-50-08-USB3.0-O
CHOKE19(1-2) 0-04
CHOKE19(3-4) 0-04
CHOKE20: 11 USB3_5_TXN — 11 USB3_5_TXP — USB3_TX1N — USB3_TX1P — CMK-50-08-USB3.0-O
CHOKE20(1-2) 0-04
CHOKE20(3-4) 0-04
CHOKE21: 11 USB3_5_RXP — 11 USB3_5_RXN — USB3_RX1P — USB3_RX1N — CMK-50-08-USB3.0-O
CHOKE21(1-2) 0-04
CHOKE21(3-4) 0-04

USBVCC2 — USB3_LAN — USB3.0
USBL_N1 — USBL_N2; USBL_P1 — USBL_P2
AUGND2 — GNDd1 GNDd2 — AUGND2
USB3_RX0N — USB3_RX1N; USB3_RX0P — USB3_RX1P
USB3_TX0N BC53 1 — 2 .1U-16VX7-04 — USB3_TX0N_R — USB3_TX1N_R BC57 1 — 2 .1U-16VX7-04 — USB3_TX1N
USB3_TX0P BC54 1 — 2 .1U-16VX7-04 — USB3_TX0P_R — USB3_TX1P_R BC55 1 — 2 .1U-16VX7-04 — USB3_TX1P
L_TCT — MDI1_P0 MDI1_N0 MDI1_P1 MDI1_N1 MDI1_P2 MDI1_N2 MDI1_P3 MDI1_N3 — L_RCT
TCT(P01) TX1+ TX1- TX2+ TX2- TX3+ TX3- TX4+ TX4- RCT(P10)
YLED(P11) VCC(P12) GLED(P13) OLED(P14)
H_LAN1 H_LAN2 H_LAN3 H_LAN4
ACTIVE1 LINK1 LINK0
USB3.0X2-LAN-1000
R280 0-04-O — BC50 .1U-16VX7-04 — R281 0-04-O — AUGND2
3VSB

Cc
Link: Green on
Active: Yellow blinking

10-084-032265

20200109 V0.1
Will:USB3LAN用料與原先Channel燈號相反,故修改pin define與net name以符合用料設計.

20200409 V0.2 to V1.0
Will:Modify R608 from 0-04 to 0-04-short for MP cost down.
20200120 V0.1
Will:Add R608(0-04) for ST RST test rume.

PCIRST_LAN — R608 0-04-short-O — LAN_RST_L

20200114 V0.1
Will:Unstuff R281(0-04-O) for vendor review suggest.

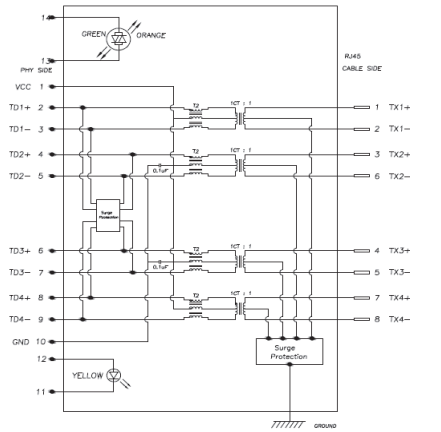
AUGND2 — FB11 0-06-SH
AUGND2 — FB13 0-06-SH

20200210 V0.1 after review
Will:Add D14/D22/DS2/D53 for Lenovo DCL要求.

3VSB — D53 AZ5725-01F-S
ACTIVE1 — D52 AZ5725-01F-S
LINK0 — D14 AZ5725-01F-S
LINK1 — D22 AZ5725-01F-S

WOL	status	Yellow	Grn/Org
don't care	No Link	off	off
off(ME WOL and Host WOL should be disable both)	S3/S4/S5	off	off
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



3VSB VDD1.0_A
L_XTAL2 L_XTAL1 — X2 X-25M-20PF20RD — BC35 27P-04 — BC36 27P-04
ER12 2.49K-1-04 — LAN1_RSET
LAN1_ACTIVE- R245 330-04 ACTIVE1
LAN_LED1 R589 150-04 LINK0
EESK/LINK1 R241 150-04 LINK1
LAN
RTL8111H-CGS
MDI1_P0 MDI1_N0 MDI1_P1 MDI1_N1 MDI1_P2 MDI1_N2
MDIP0 MDIN0 AVDD10_1 MDIP1 MDIN1 MDIP2 MDIN2 AVDD10_2
REGOUT VDDREG(VDD33) DVDD10 LANWAKEB ISOLATEB PERSTB HSON HSOP
PCIEWAKE0# LAN_RST_L
R230 1K-04 — R231 15K-04 — +VCC3
HSON C216 .1U-16VX7-04 PCIE5_RXN
HSOP C215 .1U-16VX7-04 PCIE5_RXP
AVDD33_2 RSET AVDD10 CKXTAL2 CKXTAL1 LED0 LED1/GPO LED2
MDIP3 MDIN3 AVDD33_1 CLKREQB HSIP HSIN REFCLK_P REFCLK_N
MDI1_P3 MDI1_N3 — PCIE_LAN_CLKN PCIE_LAN_CLKP
3VSB — R249 10K-04 — CLKREQ_B
HSIN C227 .1U-16VX7-04 PCIE5_TXN
HSIP C233 .1U-16VX7-04 PCIE5_TXP
TX AC cap included

20200203 V0.1
Will:Stuff R249 & change R249 pin2 from +VCC3 to 3VSB for Lenovo DCL request.

Closed To PIN 11, 23, 32
3VSB — C213 .1U-16VX7-04 — C236 .1U-16VX7-04 — C237 .1U-16VX7-04 — C243 10U-6V3X5-06
10U Close To Pin 23

Closed To Pin 3, 8, 22, 24, 30
VDD1.0_A — C239 .1U-16VX7-04 — C238 .1U-16VX7-04 — C235 .1U-16VX7-04 — C220 .1U-16VX7-04 — C210 .1U-16VX7-04 — C240 1U-6V3X5-04
1U Close To Pin 22

for EMI
ACTIVE1 C229 100P-04-O
LINK1 C211 100P-04-O

LAN_RST_L — C217 1000P-50VX7-04-O

Elitegroup Computer Systems

Title	LAN RTL8111H-CG/USB3x2	
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External Connection

+VCC3 +VCC3
5VSB 5VSB
3VSB 3VSB
AUGND AUGND
螺絲孔

+VCC3 FB50 A2 +3V3_A

13 HDA_RST_L HDA_RST_L
13 HDA_BCLK HDA_BCLK
13 HDA_SYNC HDA_SYNC
13 PCH_HDA_SDI0 R600 1 2 22-04 HDA_SDIN0
13 HDA_SDO HDA_SDOUT
11 FP_AUD_DET FP_AUD_DET

REAR-AUDIO

Line In
Front Out
Mic In
Center/Bass Out
Surround
SPDIF Out

LINE1_JD LINE1LL LINE1RR LINE1LL_FB LINE1RR_FB FB18 FB19 FB-120-04-B LINE1_L LINE1_R C185 100P-04 C186 100P-04 AUDIOA A3 A2 A1 A4

FRONT_JD FRONTLL FRONTRR FRONTLL_FB FRONTRR_FB FB20 FB21 FRONT_L FRONT_R R177 22K-04 R178 22K-04 C148 C150 B3 B2 B1 B4

20200114 V0.1
Will:Add R600(22-04) damping電阻for vendor suggest.

20200109 V0.1
Will:Add FB18-FB23 for EMI request.

MIC1_JD MIC1LL MIC1RR MIC1_VREFO-R MIC1_VREFO-L MIC1LL_FB MIC1RR_FB FB22 FB23 MIC1_L MIC1_R R174 2.2K-04 R206 2.2K-04 C203 100P-04 C149 100P-04 C3 C2 C1 C4 C0 AUDIO-26P

11-369-026120

20200409 V0.2 to V1.0
Will:Modify C148/C150 from 100P-04 to 680P-04 for CS 音壓測試.

PH1 PH2 PH3 PH4 R746 R738 R739 R740 0-04 AUGND

20200213 V0.1 after review
Will:Add R738/R739/R740/R746 for Lenovo request GND
shield需與AUGND隔離.

CEN_JD CENN LFEE CENN_FB LFEE_FB FB24 FB25 CEN_OUT LFE_OUT R189 22K-04 R182 22K-04 C187 100P-04 C190 100P-04 AUDIOB D3 D2 D1 D4

SURR_JD SURRLL SURRRR SURRLL_FB SURRRR_FB FB26 FB27 SURR_L SURR_R R185 22K-04 R229 22K-04 C212 100P-04 C188 100P-04 E3 E2 E1 E4

20200109 V0.1
Will:Add FB24-FB29 for EMI request.

SIDE_JD SIDELL SIDERR SIDELL_FB SIDERR_FB FB28 FB29 SIDE_L SIDE_R R186 22K-04 R224 22K-04 C219 100P-04 C189 100P-04 F3 F2 F1 F4 F0 AUDIO-26P

CODEC	ALC897	ALC892 *
A1	V	X
A2	V	X
A3	V	X
A4	V	X
A5	V	X
A6	200K-1-04	5.1K-1-04
A7	X	10K-1-04
A8	X	20K-1-04
A9	100K-1-04	39.2K-1-04
A10	4.7U-06	10U-06
A11	4.7U-06 X	10U-06 .1U-04
A12	2.2U-06 X	10U-06 .1U-04
A13	X	5.1K-1-04
A14	100K-1-04	10K-1-04
A15	X	20K-1-04
A16	1U-06	10U-06
A17	X	20K-1-04
A18	X	39.2K-1-04
A19	200K-1-04	X

20201104 V1.0. to V1.1
Gene:ADD ALC897 for CODEC CO-LAY

REAR PANEL PHONJACK

CEN/LFE OUT — LINE IN
SURROUND OUT — LINE OUT
SIDESURROUND OUT — MIC IN

CODEC_SC ?? Audio Nature AUGND GND

5VSB FB4 LDO-IN C54 10U-6V3X5-06 AUGND
DZ1 AZ2015-01H S-O SENSE_B SENSE_C
MIC1_VREFO-R LINE2-VREFO MIC2-VREFO MIC1_VREFO-L CODEC_VREF
C57 10U-6V3X5-06 C749 1U-16V7-04 A12 Closed to CODEC

MIC1_JD SIDE_JD CEN_JD MIC2_JD LINE2_JD ER19 ER7 ER6 ER5 ER4 200K-1-04-O A19 5.1K-1-04 A13 10K-1-04 A14 20K-1-04 A17 39.2K-1-04 A18
FRONTLL FRONTRR EC1 EC3 100U-16DEL FRONTL FRONTR

+5VA pin25 to pin38 need 40 mils and shorter
C43 10U-6V3X5-06 C49 .1U-16V7-04 A11 AUGND

CODEC1 ALC892-CGS
ALC892 or ALC897
Analog
Digital

VREFO LDO-OUT2 PORT-A_L/SURR_L JDREF PORT-A_R/SURR_R AVSS2 PORT-G_L/CEN_OUT PORT-G_R/LEF_OUT PORT-H_L/SIDESURR_L PORT-H_R/SIDESURR_R S/PDIF IN / EAPD S/PDIF-OUT
SURRLL SURRRR CENN LFEE SIDELL SIDERR C44 C45 C38 C46 C39 C47 22U-16VX5-08 ER3 20K-1-04 A15 JDREF CEN LFE SIDEL SIDER EAPD TP2

FOUT_R/PORT-D_R FOUT_L/PORT-D_L SENSE B DCVOL/VrefOut-G MIC1_VREFO_R/VrefOut-D LINE2_VREFO/VrefOut-E MIC2_VREFO/VrefOut-F LDO-IN MIC1_VREFO_L/VrefOut-B_L VREF FILT AVSS1 LDO-OUT1
LINE1_R/PORT-C_R LINE1_L/PORT-C_L MIC1_R/PORT-B_R MIC1_L/PORT-B_L CD-R CD-G CD-L MIC2_R/PORT-F_R MIC2_L/PORT-F_L LINE2_R/PORT-E_R LINE2_L/PORT-E_L SENSE A
LINE1R LINE1L MIC1R MIC1L MIC2R MIC2L LINE2R LINE2L C74 C81 C75 C82 C76 C77 C1988 4.7U-6.3VX-06-O R2266 0-04-O A4 EC2 EC4 100U-16DEL ER8 ER9 ER10 ER11 5.1K-1-04 A6 10K-1-04 A7 20K-1-04 A8 39.2K-1-04 A9 FRONT_JD LINE1_JD MIC1_JD SURR_JD

DVDD_CORE XI / DVSS XO / DVDD_IO DVSS SDO BCLK DVSS SDI DVDD_CORE SYNC RESET# PC_BEEP
3VSB C50 10U-6V3X5-06 C51 .1U-16V7-04 A16 C52 C55 .1U-16V7-04 C53 22P-04
HDA_RST_L HDA_SYNC HDA_SDIN0 HDA_BCLK HDA_SDOUT
+5VA R2265 1K-04-O A1

AUGND
FB1 FB6 FB3 0-06-SH
擺放在CODEC GND PAD切割線上

+3V3_A C1987 .1U-16VX7-04-O C1986 4.7U-6.3VX-06-O A3 Closed to CODEC

MIC2-VREFO LINE2VREFO D4 D1 BAT54A-S R9 R4 R7 R2 4.7K-4

MIC2_L MIC2_R LINE2_R LINE2_L MIC2_JD LINE2_JD F_AUDIO H7X2-P14E-BK R742 0-04 R741 0-04 R737 0-04 FP_AUD_DET C8 .1U-16VX7-04 R16 10K-04 +VCC3

FB30 FB31 FB32 FB33 FB-120-04-B
R10 R5 R8 R3 22K-04 C1 C5 680P-04 C2 C6 100P-04

20200409 V0.2 to V1.0
Will:Modify C1/C5 from 100P-04 to 680P-04 for CS 音壓測試.

20200109 V0.1
Will:Add D36-D39 for ESD request.

20200213 V0.1 after review
Will:Add R737/R741/R742 for Lenovo request GND
shield需與AUGND隔離.

Analog Digital

+3V3_A R2267 R2268 R2269 R2271 R2270 R2272 R2274 R2273 100K-04-O SENSE_A SENSE_B SENSE_C JDREF LINE2_JD MIC2_JD LINE1_JD SIDE_JD 200K-04-O A5

D36 D37 D38 D39 AZ5725-01F-S MIC2_L MIC2_R LINE2_R LINE2_L AUGND

D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 AZ5725-01F-S
LINE1_L LINE1_R FRONT_L FRONT_R MIC1_L MIC1_R CEN_OUT LFE_OUT SURR_L SURR_R SIDE_L SIDE_R AUGND

20200109 V0.1
Will:Add D24-D35 for ESD request.

Elitegroup Computer Systems	
Title	AUDIO ALC892-CGS (6 Jack)
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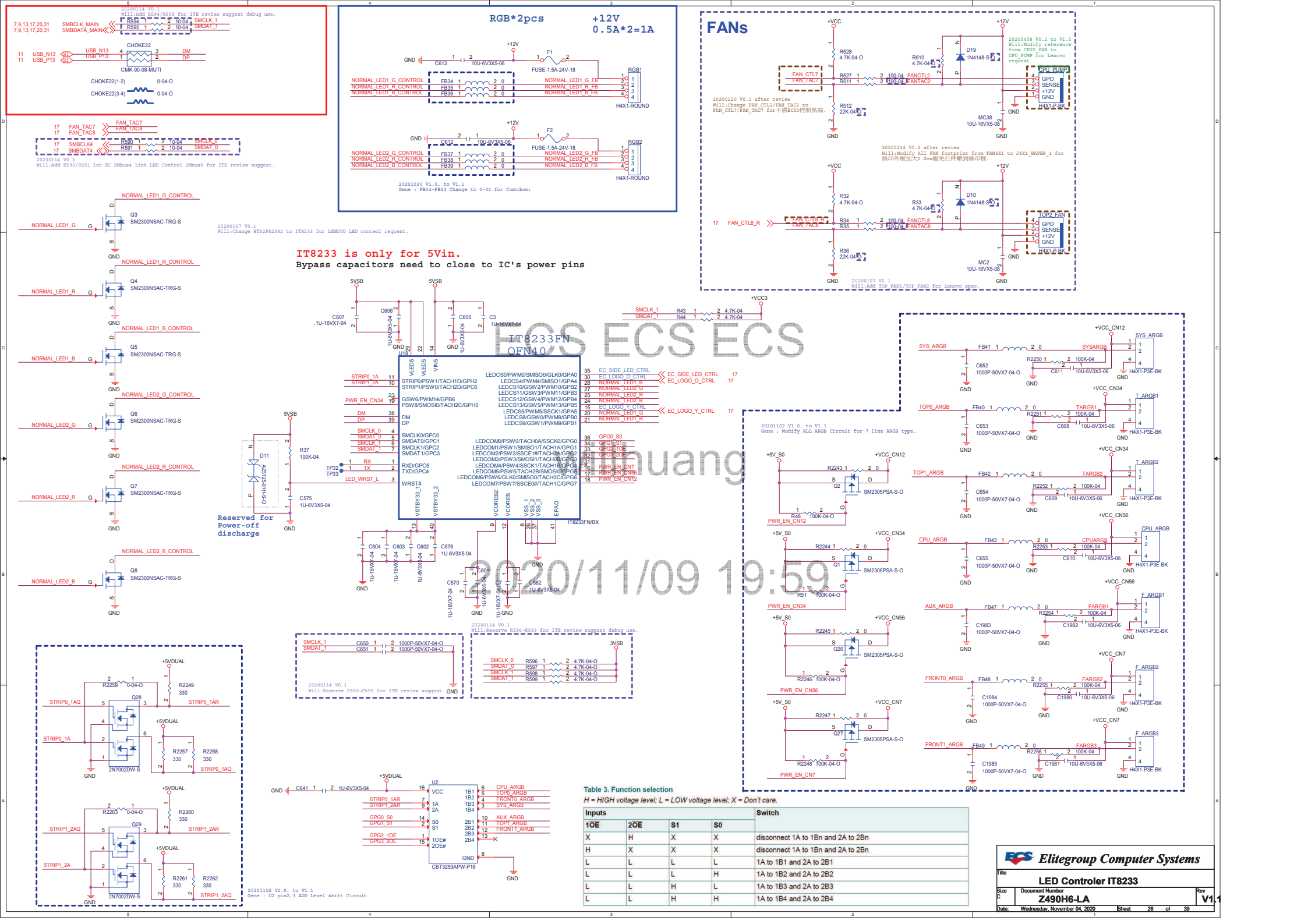
RGB*2pcs
+12V
0.5A*2=1A
FANs
IT8233 is only for 5Vin.
Bypass capacitors need to close to IC's power pins
IT8233FN
QFN40
Reserved for
Power-off
discharge
Table 3. Function selection
H = HIGH voltage level; L = LOW voltage level; X = Don't care.
Inputs
Switch
1OE
2OE
S1
S0
X H X X disconnect 1A to 1Bn and 2A to 2Bn
H X X X disconnect 1A to 1Bn and 2A to 2Bn
L L L L 1A to 1B1 and 2A to 2B1
L L L H 1A to 1B2 and 2A to 2B2
L L H L 1A to 1B3 and 2A to 2B3
L L H H 1A to 1B4 and 2A to 2B4
Elitegroup Computer Systems
LED Controler IT8233
Z490H6-LA
V1.1
Wednesday, November 04, 2020
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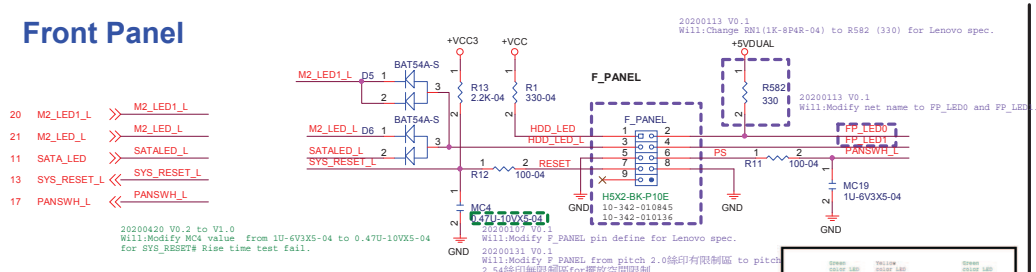
Front Panel



20200113 V0.1
Will:Change RN1(1K-8P4R-04) to R582 (330) for Lenovo spec.

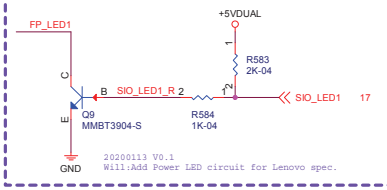
20200113 V0.1
Will:Modify net name to FP_LED0 and FP_LED1.

20200420 V0.2 to V1.0
Will:Modify MC4 value from 1U-6V3X5-04 to 0.47U-10VX5-04 for SYS_RESET# Rise time test fail.

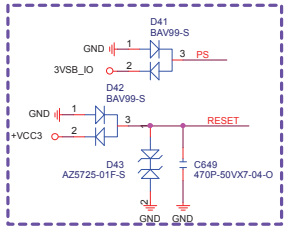
20200107 V0.1
Will:Modify F_PANEL pin define for Lenovo spec.

20200131 V0.1
Will:Modify F_PANEL from pitch 2.0線印有限制區 to pitch 2.54線印無限制區for擺放空間限制.

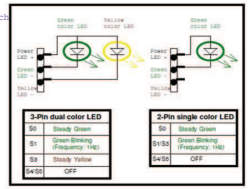
Power LED circuit(single color LED)



20200113 V0.1
Will:Add Power LED circuit for Lenovo spec.

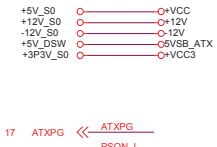


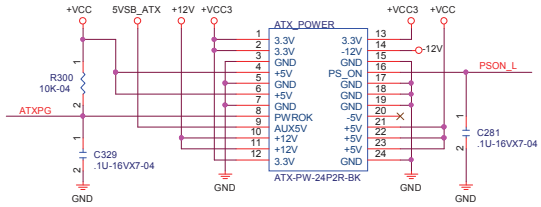
20200113 V0.1
Will:Add D41/D42/D43,reserve C649 for Lenovo design.

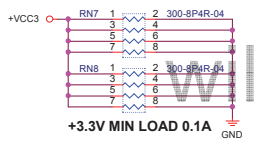


Lenovo LED規格書330-05	
Source Voltage (V)	5
LED Forward Voltage (V)	1.8
BIT Vce(s) (V)	0
Pull Up Resistor (ohm)	330
LED Forward Current (A)	0.009697
Pull Up Resistor Power (R×1/10 W)	0.03103
LED Power (W)	0.017455

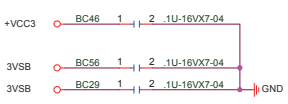
ATX CONNECTOR

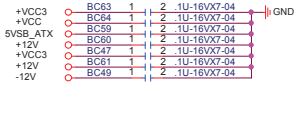


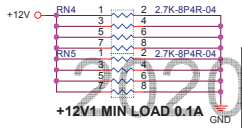




+3.3V MIN LOAD 0.1A



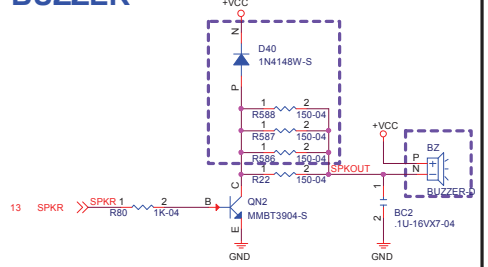




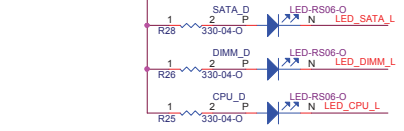
+12V1 MIN LOAD 0.1A

BUZZER

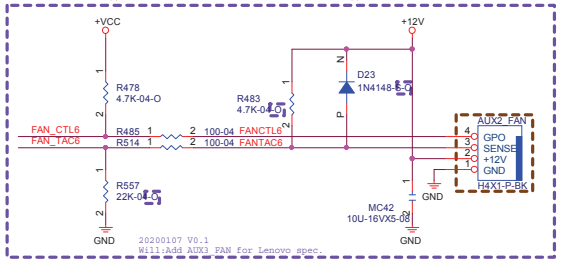
20200108 V0.1
Will:Modify BZ form header to onboad for MRS request



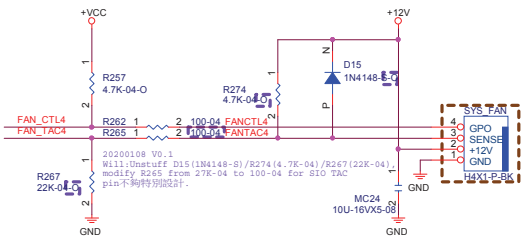
Debug LED



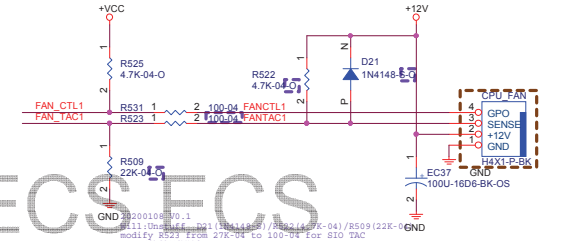
FANs



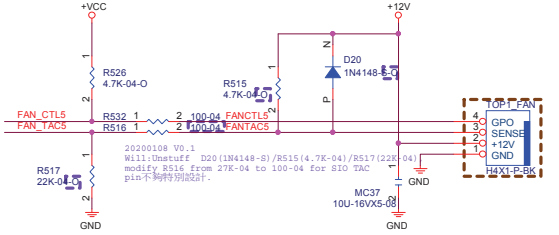
20200107 V0.1
Will:Add AUX1 FAN for Lenovo spec.



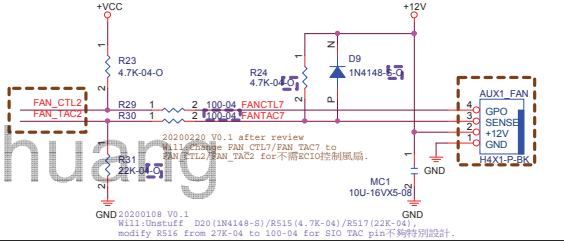
20200214 V0.1 after review
Will:Modify All FAN footprint from FAN4X1 to J4X1_WAFER_1 for 線印外框加大0.2mm避免打件壓到線印框.



20200108 V0.1
Will:Unstuff D21(1N4148-S)/R522(4.7K-04)/R509(22K-04), modify R522 from 27K-04 to 100-04 for SIO TAC pin不夠特別設計.

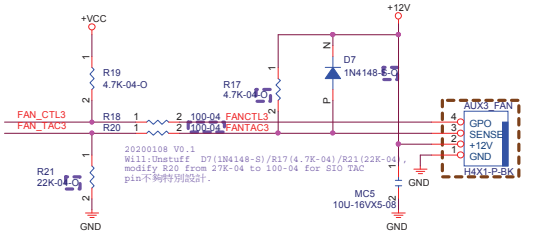


20200108 V0.1
Will:Unstuff D20(1N4148-S)/R515(4.7K-04)/R517(22K-04), modify R516 from 27K-04 to 100-04 for SIO TAC pin不夠特別設計.



20200220 V0.1 after review
Will:Change FAN_CTL7/FAN_TAC7 to FAN_CTL2/FAN_TAC2 for不需ECIO控制風扇.

20200108 V0.1
Will:Unstuff D20(1N4148-S)/R515(4.7K-04)/R517(22K-04), modify R516 from 27K-04 to 100-04 for SIO TAC pin不夠特別設計.



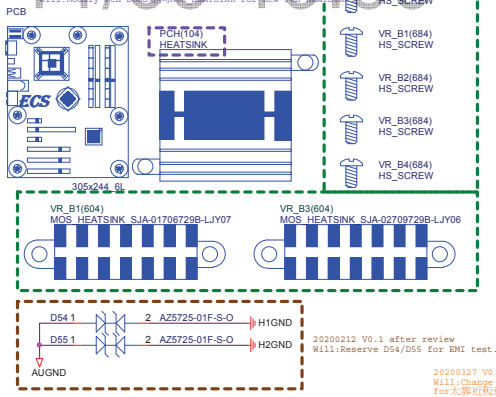
20200108 V0.1
Will:Unstuff D7(1N4148-S)/R17(4.7K-04)/R21(22K-04), modify R20 from 27K-04 to 100-04 for SIO TAC pin不夠特別設計.

Hole/ PCB/104

305	* 244	= 8 Hole (1+8)
244	* 244	= 8 Hole (1+7)
305	* 220-170	= 6 Hole (1+5)
244-220	* 220-170	= 6 Hole (1+5)
210-170	* 220-170	= 4 Hole (1+3)

20200409 V0.2 to V1.0
Will:Add MOS_HK_1/MOS_HK_2/PCH_B1/PCH_B2/VR_B1/VR_B2/VR_B3/VR_B4 for需建入BOM中

20200105 V0.1
Will:Modify PCH HOLE和MOS HEATSINK for new PCH HEATSINK.



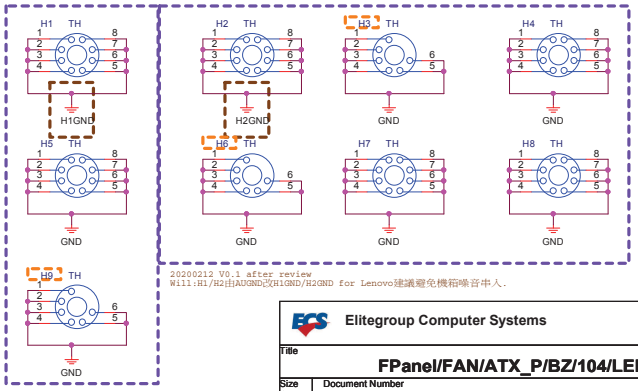
20200212 V0.1 after review
Will:Reserve D54/D55 for EMI test.

20200327 V0.1 to V0.2
Will:Change H3/H6/H9 footprint from HOLE8_LX_3 to HOLE8_LX_6P_1 for太靠近板邊銅箔須後段加錫增加工時.

20200225 V0.1 after review
Will:Modify CPU footprint from hk_lga1200-INTEL400 to LGA1200-INTEL_1,CPU(104) footprint from LGA1151-INTELto hk_lga1200-lenovofor CPU風扇背板螺絲孔徑較大.

20200120 V0.1
Will:Modify H1/H2/H4-H8 footprint from HOLE8_2_PATTERN1_2 to HOLE8_LX_3 for follow LENOVO request.

20200120 V0.1
Will:Modify H3/H9 footprint from HOLE8_2_PATTERN1_6P to HOLE8_LX_3 for follow LENOVO request.



20200212 V0.1 after review
Will:H1/H2由AUGND改H1GND/H2GND for Lenovo建議避免機箱噪音串入.

Elitegroup Computer Systems

Title	FPanel/FAN/ATX_P/BZ/104/LED	
Size: Custom	Document Number: Z490H6-LA	Rev: V1.1
Date: Friday, November 06, 2020	Sheet 27 of 39	

S-Line 125W CPU power spec
Vcore ICCMAX=245A
Loadline=1.1 mohm

VccGT ICCMAX=55A
Loadline=4 mohm

20200409 V0.2 to V1.0
Will:Add QSW1/R771/R754/R480/R750,reserve R755/C751/C752/C559 for power sequence tPCH17 fail.

VCORE SVID ADDRESS=00h
VCCGT SVID ADDRESS=01h
R407 10K-1-04

VCORE VBOOT=0V
R391 60.4K-1-04

VCCGT VBOOT=0V
R404 60.4K-1-04

VCORE IMAX SET AT 254A
R390 249K-1-04

VCCGT IMAX SET AT 55A
R401 54.9K-1-04

VCORE WORKING FREQ 315Khz
R406 26.7K-1-04

VccGT WORKING FREQ 315Khz
R405 26.7K-1-04

SR=10mV/us
R389 10K-1-04

PUT CLOSE TO IMVP8 controller

U14 NCP81228MNTXG 6X6 52PIN QFN

VCORE PORTION

VCCGT PORTION

PUT COLSE TO VCORE HOT SPOT

PUT COLSE TO VCCGT HOT SPOT

BOTTOM PAD CONNECT TO GND Through 6 VIAs

20200327 V0.1 to V1.0 Ray
Modify R467 From 34K-1-04 To 32.4K-1-04
Pro VRM VCCGT Iout reporting fine tune

20200327 V0.1 to V1.0 Ray
Modify R419/R431 From 60.4K-1-04 To 56K-1-04
For VRM VCCGT LL fine tune

20200327 V0.1 to V1.0 Ray
Modify CS27 From 1000p-50VX7-04 To 1500P-50VX7-04
For ADDR VCCIA DC Match fine tune

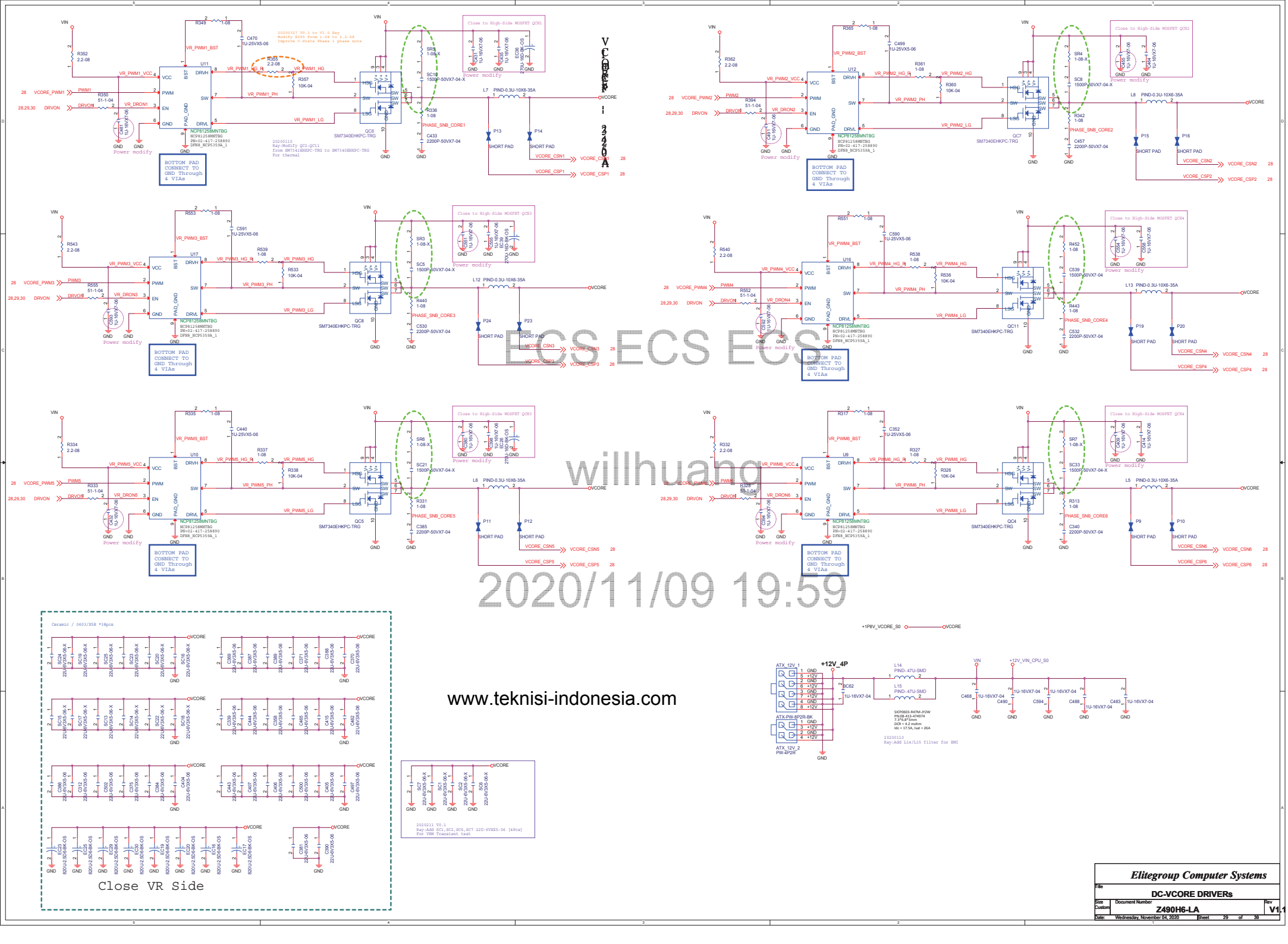
VCORE AND VGGT VBOOT=1.05V
(stuff when sample run for testing)

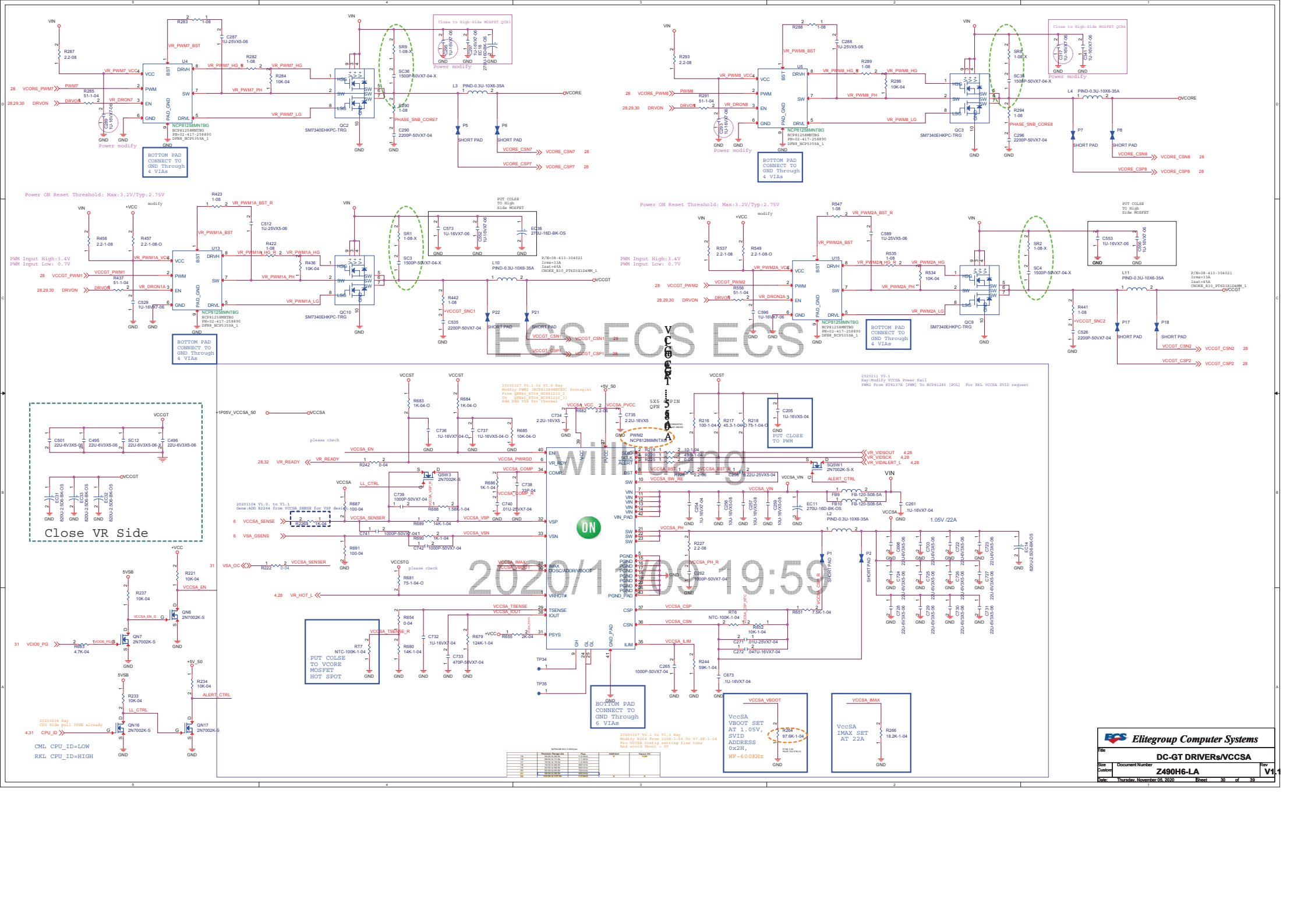
NEW PSU

VCORE
VBOOT=0V

VBOOT	Ra	Rb (R73,R74)	Vboot
A3~A4	Stuff	60.4K-1-04	1.05V
MP	Unstuff	10K-1-04	0V

Elitegroup Computer Systems	
Title	DC-VCORE/GT_NCP81228
Size C	Document Number Z490H6-LA
Rev	V1.1
Date: Wednesday, November 04, 2020	Sheet 28 of 39


VCORE : 220A
Close to High-Side MOSFET QCH1
Close to High-Side MOSFET QCH2
Close to High-Side MOSFET QCH3
Close to High-Side MOSFET QCH4
Power modify
BOTTOM PAD CONNECT TO GND Through 4 VIAs
NCP81258MNTBG
SM7340EHKPC-TRG
ECS ECS ECS
willhuang
2020/11/09 19:59
www.teknisi-indonesia.com
Close VR Side
+12V_4P
Elitegroup Computer Systems
DC-VCORE DRIVERs
Z490H6-LA
V1.1
Wednesday, November 04, 2020


Power ON Reset Threshold: Max:3.2V/Typ:2.75V
PWM Input High:3.4V
PWM Input Low: 0.7V
NCP81258MNTBG
SM7340EHKPC-TRG
BOTTOM PAD CONNECT TO GND Through 4 VIAs
Close to High-Side MOSFET QCH
Power modify
PUT COLSE TO High Side MOSFET
Close VR Side
Close VR Side
PUT COLSE TO VCORE MOSFET HOT SPOT
BOTTOM PAD CONNECT TO GND Through 6 VIAs
VccSA VBOOT SET AT 1.05V, SVID ADDRESS 0x2H, WF-600KHz
VccSA IMAX SET AT 22A
CML CPU_ID=LOW
RKL CPU_ID=HIGH
1.05V /22A
Elitegroup Computer Systems
DC-GT DRIVERs/VCCSA
Z490H6-LA
V1.1
Thursday, November 05, 2020
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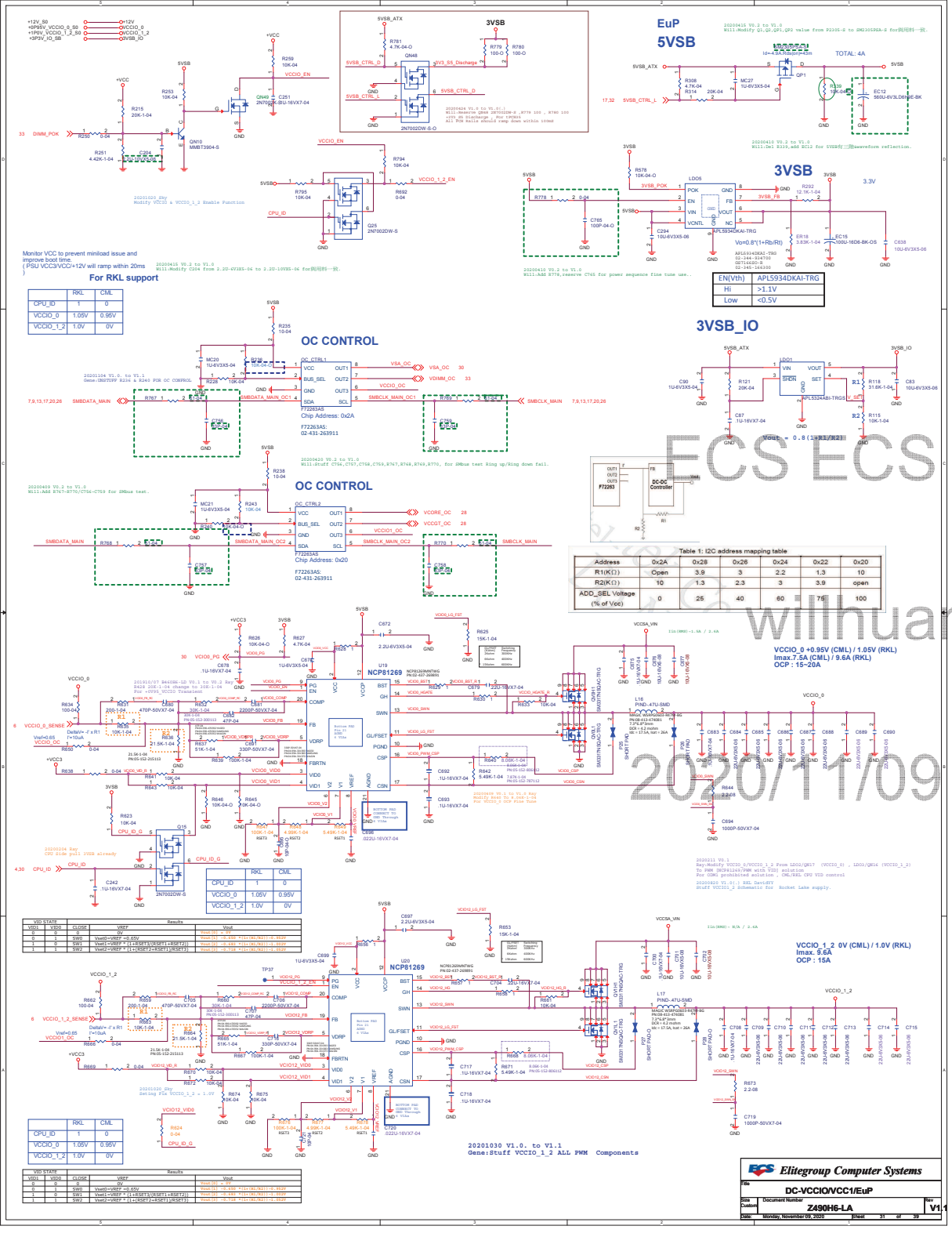

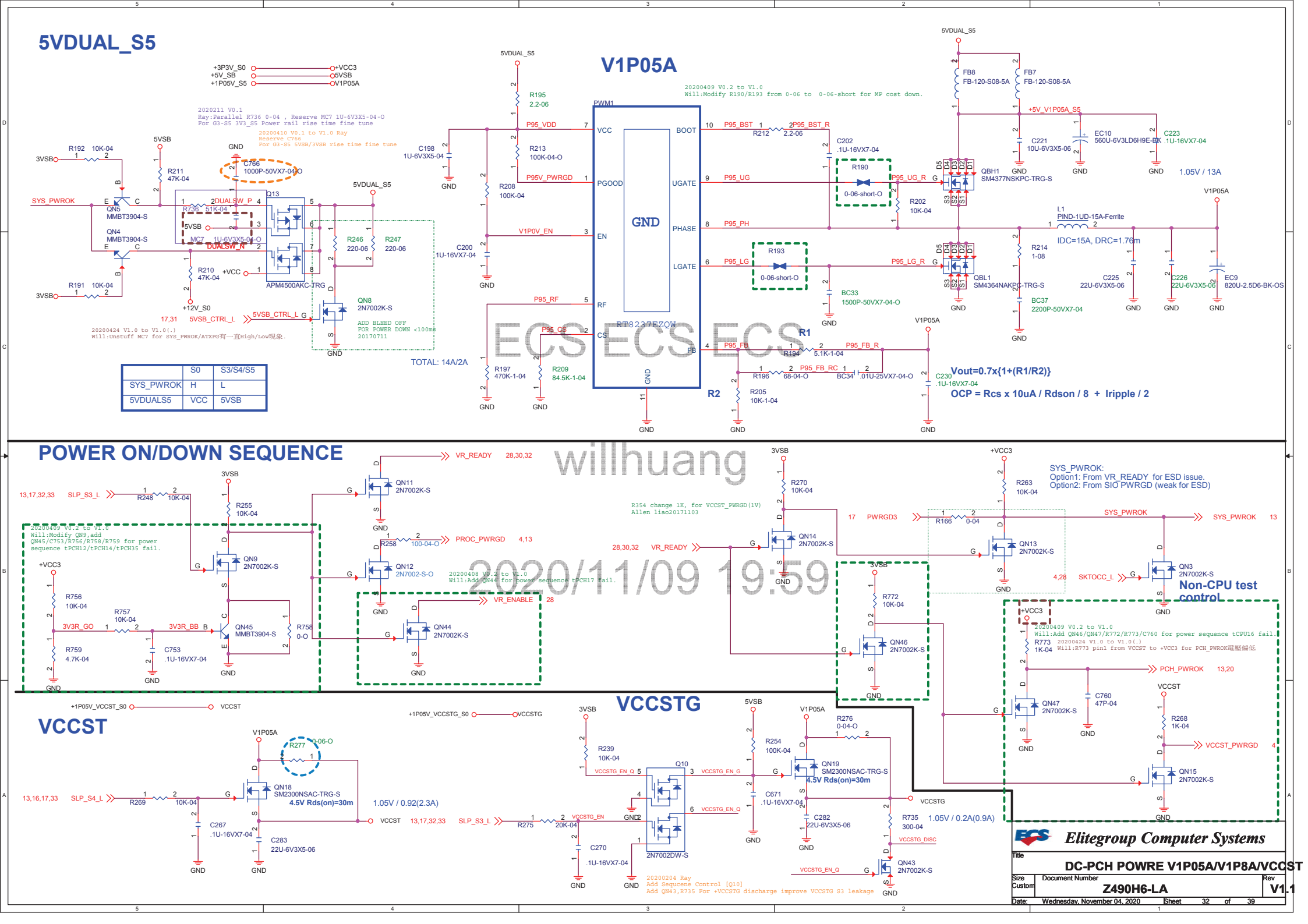
5VDUAL_S5
V1P05A
POWER ON/DOWN SEQUENCE
VCCST
VCCSTG
willhuang
2020/11/09 19:59
ECS ECS ECS
+3P3V_S0
+5V_SB
+1P05V_S5
+VCC3
5VSB
V1P05A
2020211 V0.1
Ray:Parallel R736 0-04 , Reserve MC7 1U-6V3X5-04-O
For G3-S5 3V3_S5 Power rail rise time fine tune
20200410 V0.1 to V1.0 Ray
Reserve C766
For G3-S5 5VSB/3VSB rise time fine tune
SYS_PWROK
QN5 MMBT3904-S
QN4 MMBT3904-S
R192 10K-04
R191 10K-04
R211 47K-04
R210 47K-04
R736 51K-04
MC7 1U-6V3X5-04-O
C766 1000P-50VX7-04-O
Q13
APM4500AKC-TRG
2DUALSW_P
DUALSW_N
R246 220-06
R247 220-06
QN8 2N7002K-S
5VSB_CTRL_L
ADD BLEED OFF FOR POWER DOWN <100ms 20170711
20200424 V1.0 to V1.0(.)
Will:Unstuff MC7 for SYS_PWROK/ATXPG有一直High/Low現象.
TOTAL: 14A/2A
S0 S3/S4/S5
SYS_PWROK H L
5VDUALS5 VCC 5VSB
20200409 V0.2 to V1.0
Will:Modify R190/R193 from 0-06 to 0-06-short for MP cost down.
PWM1
RTD8237EZQW
VCC BOOT PGOOD UGATE EN PHASE GND LGATE RF CS FB
R195 2.2-06
R213 100K-04-O
R208 100K-04
R212 2.2-06
R190 0-06-short-O
R193 0-06-short-O
R202 10K-04
R214 1-08
R197 470K-1-04
R209 84.5K-1-04
R205 10K-1-04
R196 68-04-O
R194 5.1K-1-04
C198 1U-6V3X5-04
C200 1U-16VX7-04
C202 .1U-16VX7-04
BC33 1500P-50VX7-04-O
BC37 2200P-50VX7-04
BC34 .01U-25VX7-04-O
C230 .1U-16VX7-04
R1
R2
Vout=0.7x{1+(R1/R2)}
OCP = Rcs x 10uA / Rdson / 8 + Iripple / 2
FB8 FB-120-S08-5A
FB7 FB-120-S08-5A
QBH1 SM4377NSKPC-TRG-S
QBL1 SM4364NAKPC-TRG-S
C221 10U-6V3X5-06
EC10 560U-6V3LD6H9E-BK
C223 .1U-16VX7-04
C225 22U-6V3X5-06
C226 22U-6V3X5-06
EC9 820U-2.5D6-BK-OS
L1 PIND-1UD-15A-Ferrite
IDC=15A, DRC=1.76m
1.05V / 13A
R270 10K-04
R263 10K-04
R166 0-04
R772 10K-04
QN14 2N7002K-S
QN13 2N7002K-S
QN3 2N7002K-S
QN46 2N7002K-S
Non-CPU test control
SYS_PWROK:
Option1: From VR_READY for ESD issue.
Option2: From SIO PWRGD (weak for ESD)
R354 change 1K, for VCCST_PWRGD(1V)
Allen liao20171103
20200408 V0.2 to V1.0
Will:Add QN44 for power sequence tPCH17 fail.
20200409 V0.2 to V1.0
Will:Modify QN9,add
QN45/C753/R756/R758/R759 for power
sequence tPCH12/tPCH14/tPCH35 fail.
R248 10K-04
R255 10K-04
R258 100-04-O
QN11 2N7002K-S
QN12 2N7002-S-O
QN9 2N7002K-S
QN44 2N7002K-S
QN45 MMBT3904-S
R756 10K-04
R757 10K-04
R758 0-O
R759 4.7K-04
C753 .1U-16VX7-04
3V3R_GO
3V3R_BB
13,17,32,33 SLP_S3_L
VR_READY 28,30,32
PROC_PWRGD 4,13
VR_ENABLE 28
17 PWRGD3
SYS_PWROK 13
4,28 SKTOCC_L
20200409 V0.2 to V1.0
Will:Add QN46/QN47/R772/R773/C760 for power sequence tCPU16 fail.
R773 1K-04
20200424 V1.0 to V1.0(.)
Will:R773 pin1 from VCCST to +VCC3 for PCH_PWROK電壓偏低
PCH_PWROK 13,20
QN47 2N7002K-S
C760 47P-04
R268 1K-04
VCCST_PWRGD 4
QN15 2N7002K-S
+1P05V_VCCST_S0
VCCST
R277 0-06-O
QN18 SM2300NSAC-TRG-S
4.5V Rds(on)=30m
1.05V / 0.92(2.3A)
13,16,17,33 SLP_S4_L
R269 10K-04
C267 .1U-16VX7-04
C283 22U-6V3X5-06
+1P05V_VCCSTG_S0
VCCSTG
R239 10K-04
R254 100K-04
R276 0-04-O
Q10
2N7002DW-S
VCCSTG_EN
VCCSTG_EN_Q
VCCSTG_EN_G
QN19 SM2300NSAC-TRG-S
4.5V Rds(on)=30m
C671 .1U-16VX7-04
C282 22U-6V3X5-06
R735 300-04
1.05V / 0.2A(0.9A)
VCCSTG_DISC
QN43 2N7002K-S
R275 20K-04
C270 .1U-16VX7-04
SLP_S3_L
20200204 Ray
Add Sequcene Control [Q10]
Add QN43,R735 For +VCCSTG discharge improve VCCSTG S3 leakage
Elitegroup Computer Systems
Title
DC-PCH POWRE V1P05A/V1P8A/VCCST
Size Custom
Document Number
Z490H6-LA
Rev
V1.1
Date: Wednesday, November 04, 2020
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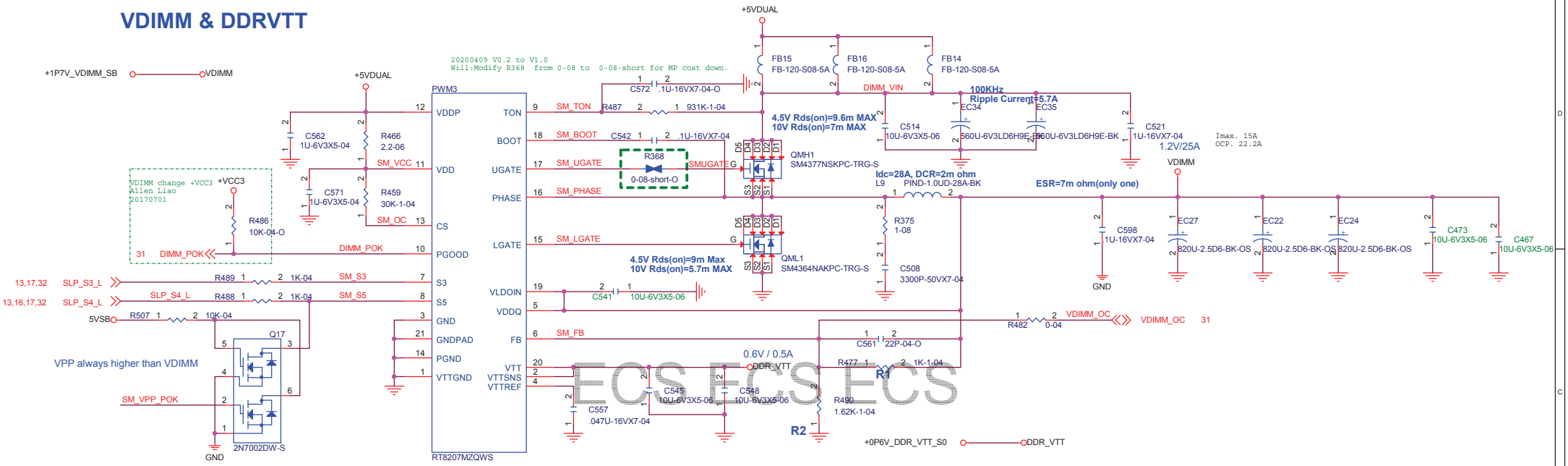
VDIMM & DDRVTT



S3 S5 Truth Table

STATE	S3	S5	VDDQ	VTTREF	VTT
S0	H	H	OUTPUT	OUTPUT	OUTPUT
S3	L	H	OUTPUT	OUTPUT	HIGH-Z
S4 / S5	L	L	DISCHARGE	DISCHARGE	DISCHARGE

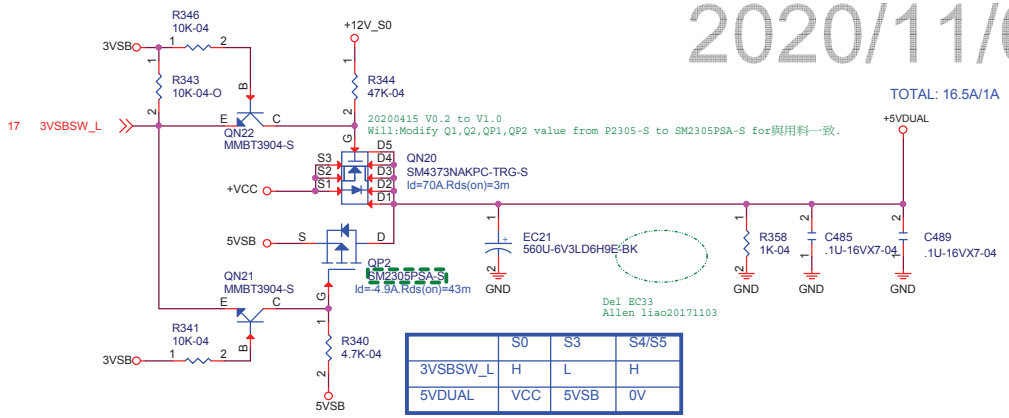
Vout=0.75x{1+(R1/R2)}

OCP = Rcs x 10uA / Rdson

OCP 太高

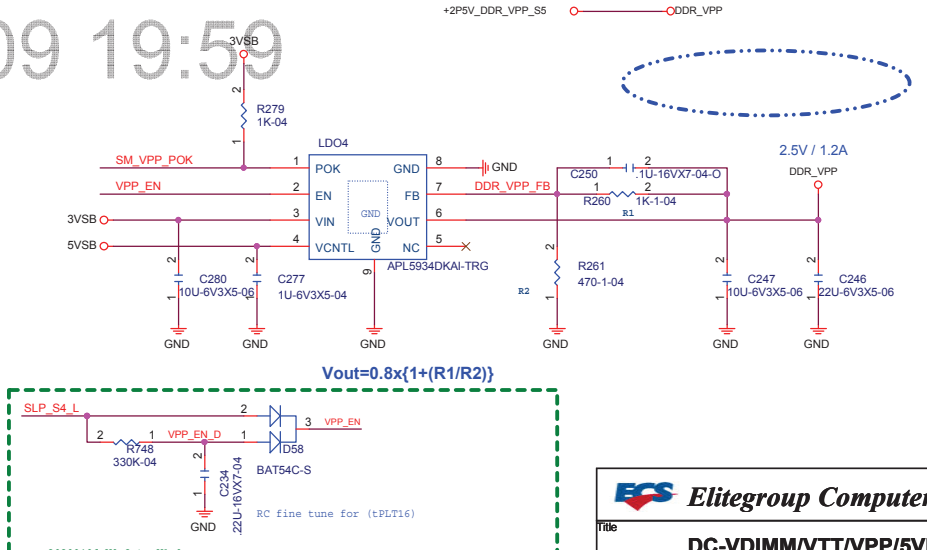
f = (Vin - 0.5) / (3.85p * Vin * Rton)

5VDUAL



	S0	S3	S4/S5
3VSBSW_L	H	L	H
5VDUAL	VCC	5VSB	0V

DDR_VPP



Elitegroup Computer Systems

Title: DC-VDIMM/VTT/VPP/5VDUAL

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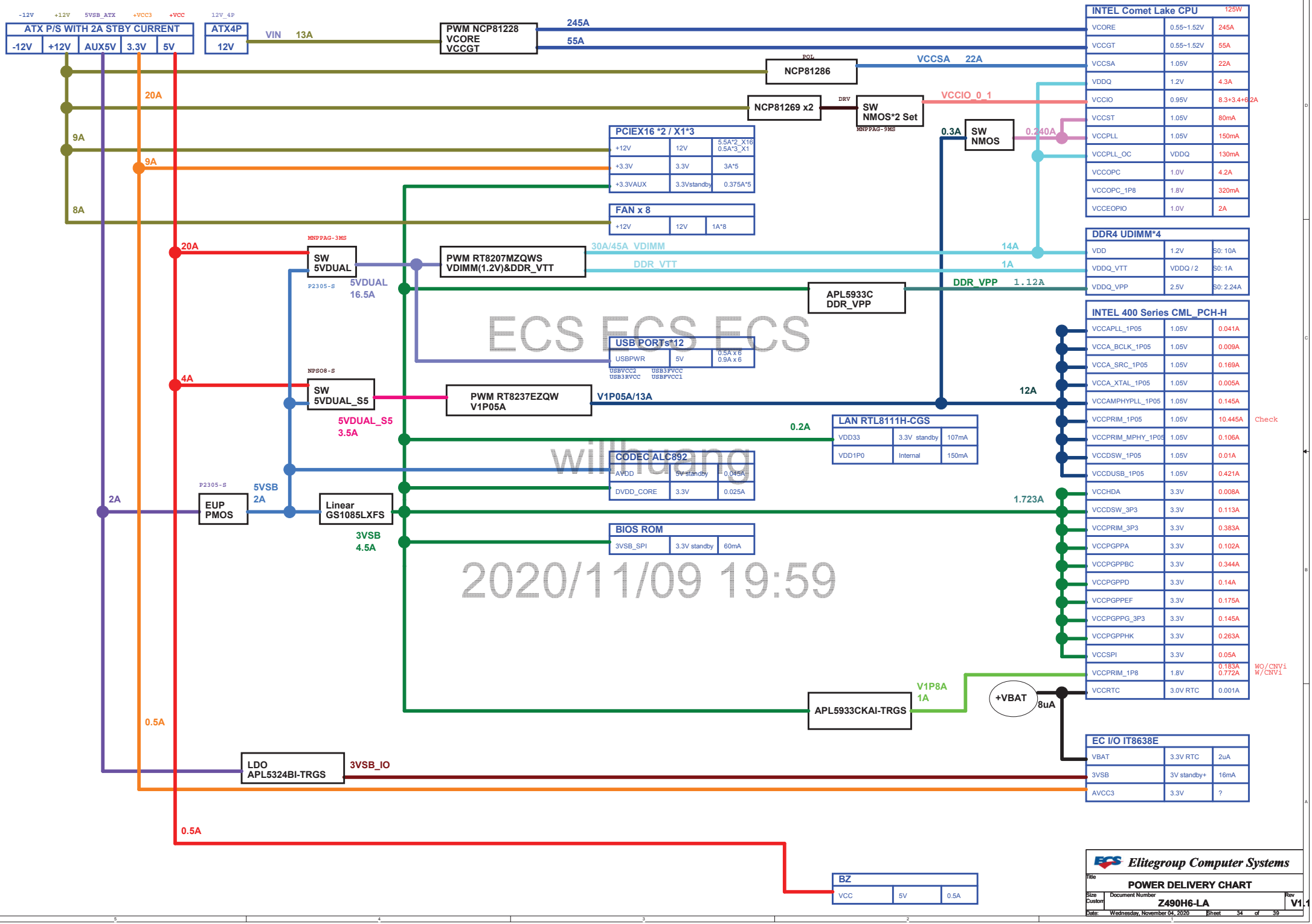
-12V +12V 5VSB_ATX +VCC3 +VCC 12V_4P
ATX P/S WITH 2A STBY CURRENT
-12V +12V AUX5V 3.3V 5V
ATX4P
12V
VIN 13A
PWM NCP81228
VCORE
VCCGT
245A
55A
INTEL Comet Lake CPU 125W
VCORE 0.55~1.52V 245A
VCCGT 0.55~1.52V 55A
VCCSA 1.05V 22A
VDDQ 1.2V 4.3A
VCCIO 0.95V 8.3+3.4+6.2A
VCCST 1.05V 80mA
VCCPLL 1.05V 150mA
VCCPLL_OC VDDQ 130mA
VCCOPC 1.0V 4.2A
VCCOPC_1P8 1.8V 320mA
VCCEOPIO 1.0V 2A
POL
NCP81286
VCCSA 22A
20A
NCP81269 x2
DRV
SW
NMOS*2 Set
MNPPAG-9MS
VCCIO_0_1
9A
PCIEX16 *2 / X1*3
+12V 12V 5.5A*2_X16 0.5A*3_X1
+3.3V 3.3V 3A*5
+3.3VAUX 3.3Vstandby 0.375A*5
0.3A
SW
NMOS
0.240A
9A
8A
FAN x 8
+12V 12V 1A*8
DDR4 UDIMM*4
VDD 1.2V S0: 10A
VDDQ_VTT VDDQ / 2 S0: 1A
VDDQ_VPP 2.5V S0: 2.24A
20A
MNPPAG-3MS
SW
5VDUAL
P2305-S
5VDUAL
16.5A
PWM RT8207MZQWS
VDIMM(1.2V)&DDR_VTT
30A/45A VDIMM
14A
DDR_VTT
1A
DDR_VPP 1.12A
APL5933C
DDR_VPP
INTEL 400 Series CML_PCH-H
VCCAPLL_1P05 1.05V 0.041A
VCCA_BCLK_1P05 1.05V 0.009A
VCCA_SRC_1P05 1.05V 0.169A
VCCA_XTAL_1P05 1.05V 0.005A
VCCAMPHYPLL_1P05 1.05V 0.145A
VCCPRIM_1P05 1.05V 10.445A Check
VCCPRIM_MPHY_1P05 1.05V 0.106A
VCCDSW_1P05 1.05V 0.01A
VCCDUSB_1P05 1.05V 0.421A
VCCHDA 3.3V 0.008A
VCCDSW_3P3 3.3V 0.113A
VCCPRIM_3P3 3.3V 0.383A
VCCPGPPA 3.3V 0.102A
VCCPGPPBC 3.3V 0.344A
VCCPGPPD 3.3V 0.14A
VCCPGPPEF 3.3V 0.175A
VCCPGPPG_3P3 3.3V 0.145A
VCCPGPPHK 3.3V 0.263A
VCCSPI 3.3V 0.05A
VCCPRIM_1P8 1.8V 0.183A 0.772A WO/CNVi W/CNVi
VCCRTC 3.0V RTC 0.001A
USB PORTs*12
USBPWR 5V 0.5A x 6 0.9A x 6
USBVCC2 USB3VCC USB3PVCC USBPVCC1
4A
NPSO8-S
SW
5VDUAL_S5
5VDUAL_S5
3.5A
PWM RT8237EZQW
V1P05A
V1P05A/13A
12A
0.2A
LAN RTL8111H-CGS
VDD33 3.3V standby 107mA
VDD1P0 Internal 150mA
CODEC ALC892
AVDD 5V standby 0.045A
DVDD_CORE 3.3V 0.025A
2A
P2305-S
EUP
PMOS
5VSB
2A
Linear
GS1085LXFS
1.723A
3VSB
4.5A
BIOS ROM
3VSB_SPI 3.3V standby 60mA
V1P8A
1A
APL5933CKAI-TRGS
+VBAT
8uA
EC I/O IT8638E
VBAT 3.3V RTC 2uA
3VSB 3V standby+ 16mA
AVCC3 3.3V ?
0.5A
LDO
APL5324BI-TRGS
3VSB_IO
0.5A
BZ
VCC 5V 0.5A
ECS ECS ECS
willydang
2020/11/09 19:59
ECS Elitegroup Computer Systems
Title
POWER DELIVERY CHART
Size Custom
Document Number
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DIMM

Name	CH	SPD address
DIMM1	Channel A	0xA0
DIMM2	Channel B	0xA4

DDI

Name	Type	Port	DDC	AUX
DDI1	HDMI	PortB	PortB	N/A
DDI2	DVI	PortC	PortC	N/A
DDI3(VGA)	DP	PortD	N/A	PortD

Clock	Usage	Mapping	CLKREQ
CLOCKOUT_ITPXDP	Disable	N/A	N/A
CLOCKOUT_PCIE_0	Disable	CLKREQ0	Disable
CLOCKOUT_PCIE_1	PCI BREDGE	CLKREQ1	Disable
CLOCKOUT_PCIE_2	M.2 SSD	CLKREQ2	Disable
CLOCKOUT_PCIE_3	Disable	CLKREQ3	Disable
CLOCKOUT_PCIE_4	PCIEX1	CLKREQ4	Enable
CLOCKOUT_PCIE_5	Disable	CLKREQ5	Disable
CLOCKOUT_PCIE_6	PCIEX1	CLKREQ6	Enable
CLOCKOUT_PCIE_7	PCIEX16	CLKREQ7	Enable
CLOCKOUT_PCIE_8	Disable	CLKREQ8	Disable
CLOCKOUT_PCIE_9	Disable	CLKREQ9	Disable
CLOCKOUT_PCIE_10	LAN	CLKREQ10	Disable
CLOCKOUT_PCIE_11	Disable	CLKREQ11	Disable
CLOCKOUT_PCIE_12	Disable	CLKREQ12	Disable
CLOCKOUT_PCIE_13	Disable	CLKREQ13	Disable
CLOCKOUT_PCIE_14	Disable	CLKREQ14	Disable
CLOCKOUT_PCIE_15	Disable	CLKREQ15	Disable
CLK_LPC0 (24MHz)	SIO	CLKRUN	Disable
CLK_LPC1 (24MHz)	TPM		Disable

PCH

Periphiral	IC
LAN	RTL8111H
VGA	IT6516BFN
SIO	IT8625E

Function	Usage
ISH	Disable
CNVi	Disable
Deep Sx	Disable
GSPI0/1/2	Disable
UART0/1/2	Disable
I2C0/1/2	Disable
SPI1	Disable
SD	Disable
INTRUDER	Enable

SIO

SIO	Index/Data	Clock
IT8625E	2E/2F	24MHz

Function	Usage	Action
COM1	enable	
COM2	enable	
LPT	enable	
KB	enable	
MS	enable	
3VSBSW	enable	enter S3 = enable, enter S5 = disable
5VSB_CTRL	enable	enter S5 = enable, exit S5= disable

Fan	Control by	Monitor by
CPU_FAN	FAN_CTRL1	CPU_TEMP
SYS_FAN	FAN_CTRL2	CPU_TEMP

Temp	Input port	Sense by
CPU_TEMP	PECI	
SYS_TEMP	TMPIN1	NTC

Voltage	Input port	Divider	Usage
VCORE	VIN0	Direct connect	H/W monitor
VDIMM	VIN1	Direct connect	H/W monitor
+12V	VIN2	10K/2K	PWRGD
+VCC	VIN3	15K/10K	H/W monitor
5VSB	VIN4	16.2K/8.87K	Use for 5VSB_SEN
+VCC3	VIN6	6.49K/10K	H/W monitor

GPIO	GPI/GPO	Usage	Action
GP23	GPO	FP_LED1	S0: H S3: L S4/S5: H
GP10	GPO	FP_LED2	S0: L S3: B S4/S5: H
GP47	GPI	GFX select	H:default BIOS L: onboard VGA
GP92	GPI	BOM select	reserved
GP93	GPI	BOM select	reserved
GP94	GPI	BOM select	reserved

PCH GPIO

GPIO	GPI/GPO	Usage	Action
GPP_B11	GPO	ME disable	H: ME disable L: ME enable (default)
GPD2	GPI	COM_RI	L: Wakeup
GPP_A11	PME	SIO_PME	L: Wakeup
GPP_C16	GPO	patch KVM	DOS: H enter Win: L
GPP_F5	GP1	F_AUDIO Detect	H: AC97 L:HDA (reserved only)
GPP_K21	GPI	TPM IRQ	

Flex I/O

Name	Usage	Combo Conf	Length
USB1	USB3.0	N/A	
USB2	USB3.0	N/A	
USB3	USB3.0	N/A	
USB4	USB3.0	N/A	
USB5	X	N/A	
USB6	X	N/A	
PCIE1/USB7	X		
PCIE2/USB8	X		
PCIE3/USB9	X		
PCIE4/USB10	X		
PCIE5	LAN	N/A	
PCIE6	PCIEX1	N/A	
PCIE7	PCIEX1	N/A	
PCIE8	PCI BRIDGE	N/A	
PCIE9	X	N/A	
PCIE10	X	N/A	
PCIE11/SATA0	M.2 SSD	PCIE	
PCIE12/SATA1	M.2 SSD	PCIE	
PCIE13/SATA0	SATA1	SATA	
PCIE14/SATA1	SATA2	SATA	
PCIE15/SATA2	SATA3	SATA	
PCIE16/SATA3	SATA4	SATA	
PCIE17/SATA4	X		
PCIE18/SATA5	X		
PCIE19	X	N/A	
PCIE20	X	N/A	
PCIE21	X	N/A	
PCIE22	X	N/A	
PCIE23	X	N/A	
PCIE24	X	N/A	

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Title: BIOS configuration

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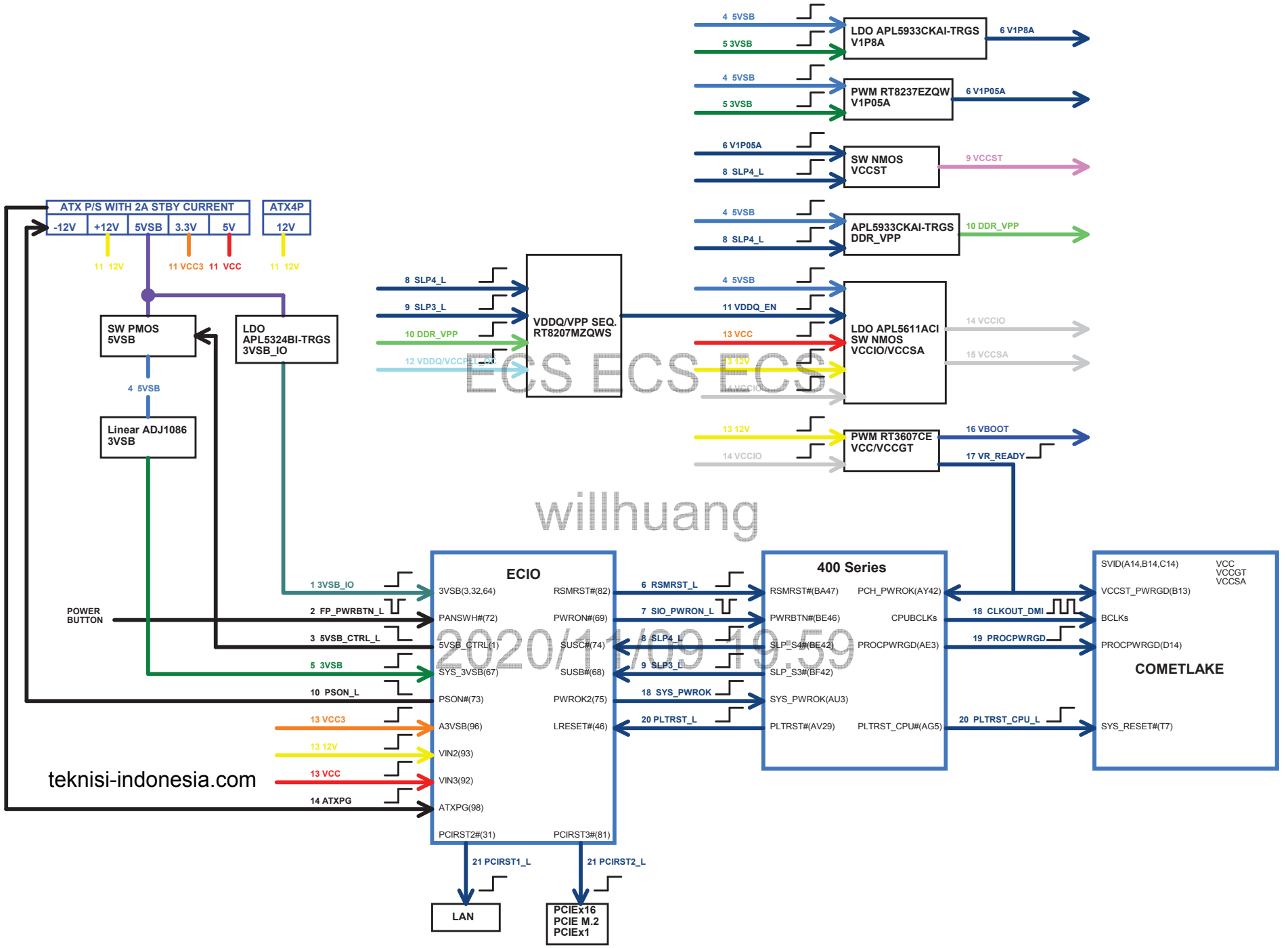

Elitegroup Computer Systems

Title: POWER SEQUENCE

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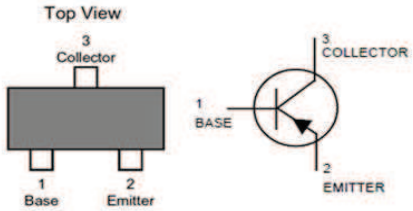
專案RD	
HW	Will Huang
Power	Ray Wong
BIOS	Ken CT Wu
參考資料(附上版本日期)	
PDG	610244_CML S_PCH H_PDG_Rev2.0 (February 2020)
EDS	606599-cml-eds-vol1-rev2p0 (February 2020) 610144-cml-pch-h-eds-vol1-rev1p5 (February 2020)
CRB	609979_CML_S_DDR4_UDIMM_RVP_SCH_Rev2p0 (February 2020)
Code & ID	
Model Code	MX6
Project Code	
LAN	SVID：17AA SSID：3715
Audio	SVID：17AA SSID：3715

Model Version	GP63	GP70	GP75	GP76	GP97
V0.1	X	X	X	X	X
	X	X	X	X	X
V1.0(For MP)	X	X	X	X	X
	X	X	X	X	X

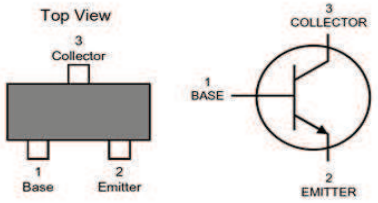
	Clientele	PCB Size
V0.1	Lenovo	305*244
V1.0	Lenovo	305*244

	Item	Platform	制訂ICT植針率標準	V: 0.1	V: 1.0
V	1	聯想 ATX/uATX platform (ATX:305x244mm) (uATX:244X244mm or 244x220)	90%	90.1%	
	2	非聯想 ATX/uATX platform (ATX:305x244mm) (uATX:244x244mm or 244x220)	70%		
	3	AIO及mini ITX 的non-HDI platform	50%		
	4	HDI多層板 platform (比如:NUC)	30%		

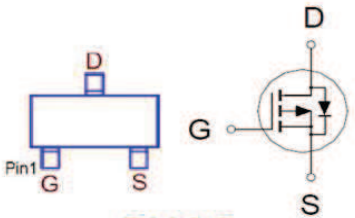
	Radiated Emission	Electrostatic Discharge(ESD)	Lan Surge
Lenovo	<-3dB	Contact discharge ±4KV：B Contact discharge ±6KV：B Contact discharge ±8KV：C Air discharge ±8KV：B Air discharge ±10KV：B Air discharge ±15KV：C	Line-Line 1KV,2kv Line-Gnd 4Kv,6kv



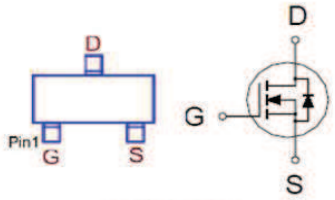
PNP



NPN

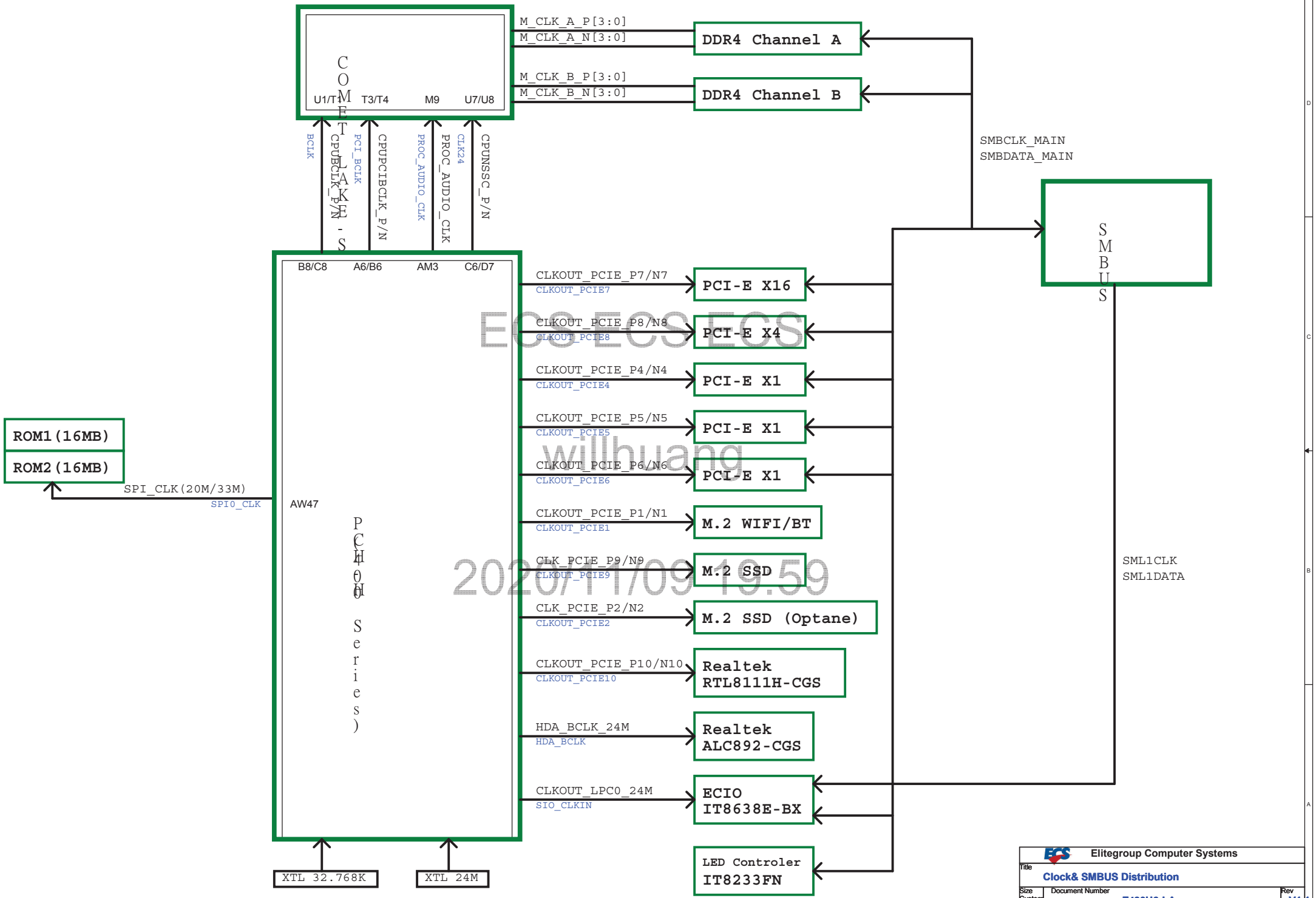


PMOS



NMOS

Elitegroup Computer Systems			
Title: Information			
Size: Custom	Document Number: Z490H6-LA		Rev: V1.1
Date: Wednesday, November 04, 2020	Sheet 37 of 39		



Elitegroup Computer Systems			
Title: Clock& SMBUS Distribution			
Size: Custom	Document Number: Z490H6-LA		Rev: V1.1
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