

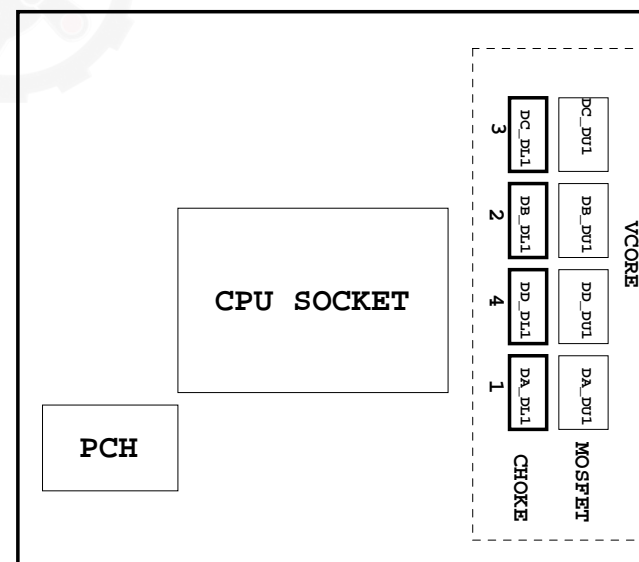
Model Name: GA-B85-HD3-A 1.0

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8620
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC887-VD2 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

SHEET TITLE

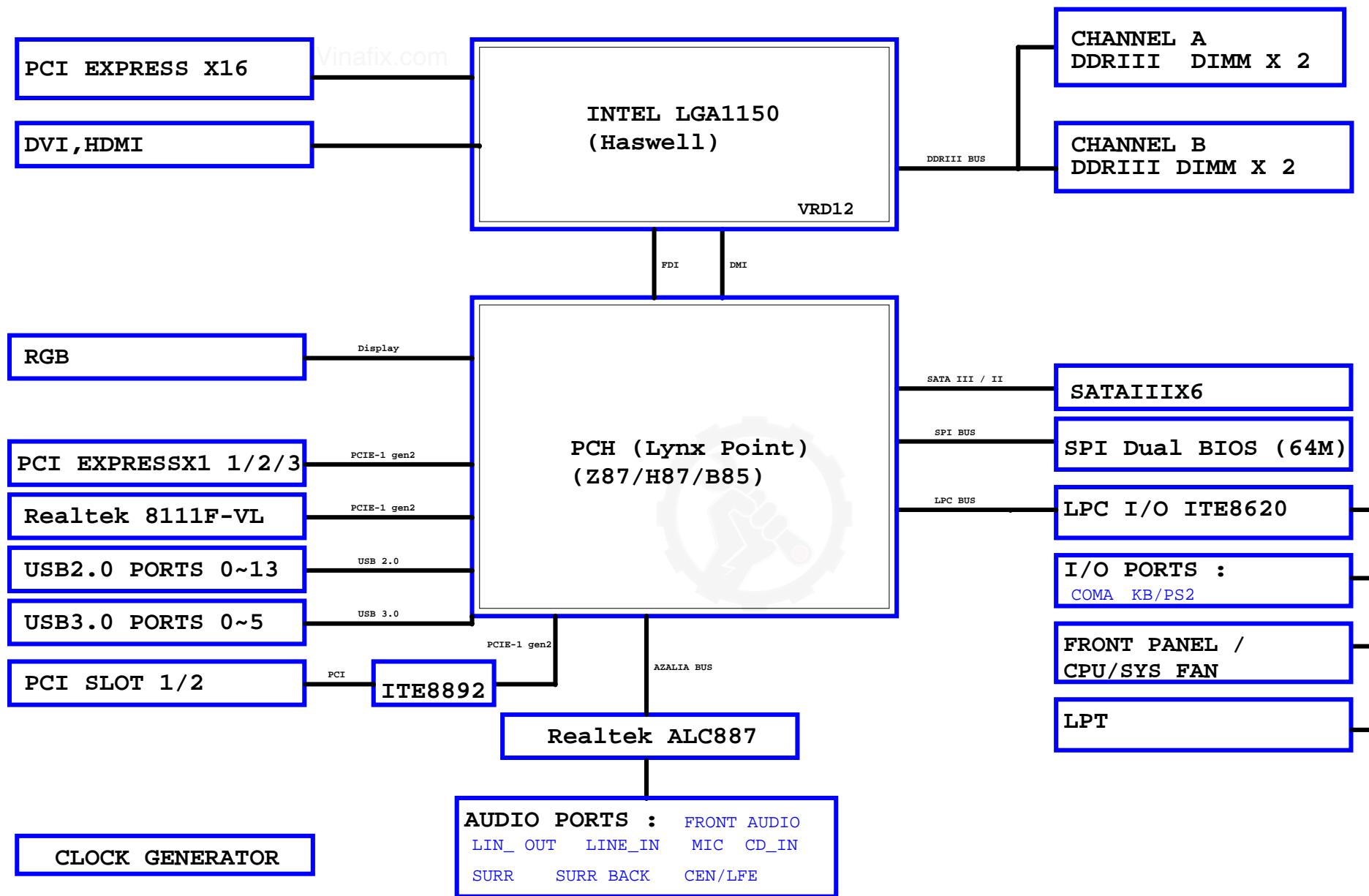
28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111F-VL
32	DVI
33	HDMI
34	TABLE LIST
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Gigabyte Technology			
Title Cover Sheet			
Size Custom	Document Number	GA-B85-HD3-A	Rev 1.0
Date: Tuesday, January 27, 2015	Sheet	1	of 34

[illegible][illegible]

BLOCK DIAGRAM



[illegible]

CFG6	CFG5	PCI-E CONFIG
1	1	1x16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

FDI_TXN0		FDI_TXN1		FDI_TXN2		FDI_TXN3		FDI_TXN4		FDI_TXN5		FDI_TXN6		FDI_TXN7		FDI_TXN8		FDI_TXN9		FDI_TXN10		FDI_TXN11		FDI_TXN12		FDI_TXN13		FDI_TXN14		FDI_TXN15		FDI_TXN16		FDI_TXN17		FDI_TXN18		FDI_TXN19		FDI_TXN20		FDI_TXN21		FDI_TXN22		FDI_TXN23		FDI_TXN24		FDI_TXN25		FDI_TXN26		FDI_TXN27		FDI_TXN28		FDI_TXN29		FDI_TXN30		FDI_TXN31		FDI_TXN32		FDI_TXN33		FDI_TXN34		FDI_TXN35		FDI_TXN36		FDI_TXN37		FDI_TXN38		FDI_TXN39		FDI_TXN40		FDI_TXN41		FDI_TXN42		FDI_TXN43		FDI_TXN44		FDI_TXN45		FDI_TXN46		FDI_TXN47		FDI_TXN48		FDI_TXN49		FDI_TXN50		FDI_TXN51		FDI_TXN52		FDI_TXN53		FDI_TXN54		FDI_TXN55		FDI_TXN56		FDI_TXN57		FDI_TXN58		FDI_TXN59		FDI_TXN60		FDI_TXN61		FDI_TXN62		FDI_TXN63		FDI_TXN64		FDI_TXN65		FDI_TXN66		FDI_TXN67		FDI_TXN68		FDI_TXN69		FDI_TXN70		FDI_TXN71		FDI_TXN72		FDI_TXN73		FDI_TXN74		FDI_TXN75		FDI_TXN76		FDI_TXN77		FDI_TXN78		FDI_TXN79		FDI_TXN80		FDI_TXN81		FDI_TXN82		FDI_TXN83		FDI_TXN84		FDI_TXN85		FDI_TXN86		FDI_TXN87		FDI_TXN88		FDI_TXN89		FDI_TXN90		FDI_TXN91		FDI_TXN92		FDI_TXN93		FDI_TXN94		FDI_TXN95		FDI_TXN96		FDI_TXN97		FDI_TXN98		FDI_TXN99		FDI_TXN100		FDI_TXN101		FDI_TXN102		FDI_TXN103		FDI_TXN104		FDI_TXN105		FDI_TXN106		FDI_TXN107		FDI_TXN108		FDI_TXN109		FDI_TXN110		FDI_TXN111		FDI_TXN112		FDI_TXN113		FDI_TXN114		FDI_TXN115		FDI_TXN116		FDI_TXN117		FDI_TXN118		FDI_TXN119		FDI_TXN120		FDI_TXN121		FDI_TXN122		FDI_TXN123		FDI_TXN124		FDI_TXN125		FDI_TXN126		FDI_TXN127		FDI_TXN128		FDI_TXN129		FDI_TXN130		FDI_TXN131		FDI_TXN132		FDI_TXN133		FDI_TXN134		FDI_TXN135		FDI_TXN136		FDI_TXN137		FDI_TXN138		FDI_TXN139		FDI_TXN140		FDI_TXN141		FDI_TXN142		FDI_TXN143		FDI_TXN144		FDI_TXN145		FDI_TXN146		FDI_TXN147		FDI_TXN148		FDI_TXN149		FDI_TXN150		FDI_TXN151		FDI_TXN152		FDI_TXN153		FDI_TXN154		FDI_TXN155		FDI_TXN156		FDI_TXN157		FDI_TXN158		FDI_TXN159		FDI_TXN160		FDI_TXN161		FDI_TXN162		FDI_TXN163		FDI_TXN164		FDI_TXN165		FDI_TXN166		FDI_TXN167		FDI_TXN168		FDI_TXN169		FDI_TXN170		FDI_TXN171		FDI_TXN172		FDI_TXN173		FDI_TXN174		FDI_TXN175		FDI_TXN176		FDI_TXN177		FDI_TXN178		FDI_TXN179		FDI_TXN180		FDI_TXN181		FDI_TXN182		FDI_TXN183		FDI_TXN184		FDI_TXN185		FDI_TXN186		FDI_TXN187		FDI_TXN188		FDI_TXN189		FDI_TXN190		FDI_TXN191		FDI_TXN192		FDI_TXN193		FDI_TXN194		FDI_TXN195		FDI_TXN196		FDI_TXN197		FDI_TXN198		FDI_TXN199		FDI_TXN200		FDI_TXN201		FDI_TXN202		FDI_TXN203		FDI_TXN204		FDI_TXN205		FDI_TXN206		FDI_TXN207		FDI_TXN208		FDI_TXN209		FDI_TXN210		FDI_TXN211		FDI_TXN212		FDI_TXN213		FDI_TXN214		FDI_TXN215		FDI_TXN216		FDI_TXN217		FDI_TXN218		FDI_TXN219		FDI_TXN220		FDI_TXN221		FDI_TXN222		FDI_TXN223		FDI_TXN224		FDI_TXN225		FDI_TXN226		FDI_TXN227		FDI_TXN228		FDI_TXN229		FDI_TXN230		FDI_TXN231		FDI_TXN232		FDI_TXN233		FDI_TXN234		FDI_TXN235		FDI_TXN236		FDI_TXN237		FDI_TXN238		FDI_TXN239		FDI_TXN240		FDI_TXN241		FDI_TXN242		FDI_TXN243		FDI_TXN244		FDI_TXN245		FDI_TXN246		FDI_TXN247		FDI_TXN248		FDI_TXN249		FDI_TXN250		FDI_TXN251		FDI_TXN252		FDI_TXN253		FDI_TXN254		FDI_TXN255		FDI_TXN256		FDI_TXN257		FDI_TXN258		FDI_TXN259		FDI_TXN260		FDI_TXN261	
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LGA1150C			
PA EXP RXP0	E15	PEG_RXP0	A12 PA EXP TXP0
PA EXP RXN0	F15	PEG_RXN0	B12 PA EXP TXN0
PA EXP RXP1	D14	PEG_RXP1	B11 PA EXP TXP1
PA EXP RXN1	E14	PEG_RXN1	C11 PA EXP TXN1
PA EXP RXP2	F13	PEG_RXP2	C10 PA EXP TXP2
PA EXP RXN2	F13	PEG_RXN2	D10 PA EXP TXN2
PA EXP RXP3	D12	PEG_RXP3	B9 PA EXP TXP3
PA EXP RXN3	E12	PEG_RXN3	C9 PA EXP TXN3
PA EXP RXP4	E11	PEG_RXP4	C8 PA EXP TXP4
PA EXP RXN4	F11	PEG_RXN4	D8 PA EXP TXN4
PA EXP RXP5	F10	PEG_RXP5	B7 PA EXP TXP5
PA EXP RXN5	G10	PEG_RXN5	C7 PA EXP TXN5
PA EXP RXP6	F9	PEG_RXP6	A6 PA EXP TXP6
PA EXP RXN6	F9	PEG_RXN6	B6 PA EXP TXN6
PA EXP RXP7	F8	PEG_RXP7	B5 PA EXP TXP7
PA EXP RXN7	G8	PEG_RXN7	C5 PA EXP TXN7
PA EXP RXP8	D3	PEG_RXP8	E1 PA EXP TXP8
PA EXP RXN8	D4	PEG_RXN8	E2 PA EXP TXN8
PA EXP RXP9	F4	PEG_RXP9	F2 PA EXP TXP9
PA EXP RXN9	E5	PEG_RXN9	F3 PA EXP TXN9
PA EXP RXP10	F5	PEG_RXP10	G1 PA EXP TXP10
PA EXP RXN10	F6	PEG_RXN10	G2 PA EXP TXN10
PA EXP RXP11	G4	PEG_RXP11	H2 PA EXP TXP11
PA EXP RXN11	G5	PEG_RXN11	H3 PA EXP TXN11
PA EXP RXP12	H5	PEG_RXP12	J1 PA EXP TXP12
PA EXP RXN12	H6	PEG_RXN12	J2 PA EXP TXN12
PA EXP RXP13	J4	PEG_RXP13	K2 PA EXP TXP13
PA EXP RXN13	J5	PEG_RXN13	K3 PA EXP TXN13
PA EXP RXP14	K5	PEG_RXP14	M2 PA EXP TXP14
PA EXP RXN14	K6	PEG_RXN14	M3 PA EXP TXN14
PA EXP RXP15	L4	PEG_RXP15	L1 PA EXP TXP15
PA EXP RXN15	L5	PEG_RXN15	L2 PA EXP TXN15
A_DMI_0RXP	U3	DMI_0RXP0	A44 A_DMI_0TXP → A_DMI_0TXP 9
A_DMI_0RXN	T3	DMI_0RXN0	A45 A_DMI_0TXN → A_DMI_0TXN 9
A_DMI_1RXP	U1	DMI_1RXP1	A43 A_DMI_1TXP → A_DMI_1TXP 9
A_DMI_1RXN	V1	DMI_1RXN1	A44 A_DMI_1TXN → A_DMI_1TXN 9
A_DMI_2RXP	W2	DMI_2RXP2	AC5 A_DMI_2TXP → A_DMI_2TXP 9
A_DMI_2RXN	V2	DMI_2RXN2	AC4 A_DMI_2TXN → A_DMI_2TXN 9
A_DMI_3RXP	W3	DMI_3RXP3	AC1 A_DMI_3TXP → A_DMI_3TXP 9
A_DMI_3RXN	W3	DMI_3RXN3	AC2 A_DMI_3TXN → A_DMI_3TXN 9
× D1	RSVD_TP		
× C2	RSVD_TP		
× B3	RSVD_TP		
× A4	RSVD_TP		

PU PEG 5/5/5/20	Impedance=80 +- 15%	PA_EXP_RXP[0..15]	PA_EXP_RXP[0..15]	14

DMI 4/4/4/15	Impedance=85 +- 15%	PA_EXP_RXN[0..15]	PA_EXP_RXN[0..15]	14

The diagram shows a circuit with a 50V DC voltage source (represented by a battery symbol) connected in series with a 1n4X75 diode. The diode is oriented with its cathode towards the positive terminal of the source. The circuit is labeled with 'A-CPURST' and '11'.

CPU_VTT_OR 

Diagram showing the pin connections for the NRN20 51/8P4R/4 component:

- Pin 1: CPU_VTT_OR
- Pin 2: A_HPRDY
- Pin 3: (unlabeled)
- Pin 4: A_TCK
- Pin 5: (unlabeled)
- Pin 6: A_TRST
- Pin 7: (unlabeled)
- Pin 8: (unlabeled)

CPU LGA1150-A				
Size	Document Number	GA-B85-HD3-A		Rev
Custom				1.0
Date:	Thursday, January 29, 2015	Sheet	4	of 34

LGA1150A

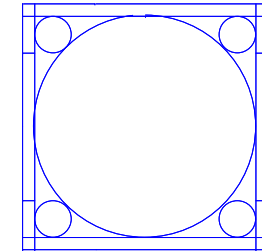
MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AW17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA13	AY10	DDR0_MA13	DDR0_D13	AH38	MDA14
MAAA14	AT20	DDR0_MA14	DDR0_D14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA15
MODT_A0	AW10	DDR0_ODT0	DDR0_D16	AM40	MDA17
MODT_A1	AY8	DDR0_ODT1	DDR0_D17	AM39	MDA21
MODT_A2	AW9	DDR0_ODT2	DDR0_D18	AP38	MDA18
MODT_A3	AU8	DDR0_ODT3	DDR0_D19	AP39	MDA19
			DDR0_D20	AM37	MDA20
			DDR0_D21	AM38	MDA16
			DDR0_D22	AP37	MDA22
			DDR0_D23	AP40	MDA23
			DDR0_D24	AV37	MDA25
			DDR0_D25	AW37	MDA29
			DDR0_D26	AU35	MDA28
			DDR0_D27	AV35	MDA27
			DDR0_D28	AT37	MDA28
			DDR0_D29	AU37	MDA24
			DDR0_D30	AT35	MDA30
			DDR0_D31	AW35	MDA31
			DDR0_D32	AY6	MDA33
			DDR0_D33	AU6	MDA37
			DDR0_D34	AV4	MDA34
			DDR0_D35	AW6	MDA36
			DDR0_D36	AV6	MDA32
			DDR0_D37	AW4	MDA38
			DDR0_D38	AY4	MDA39
			DDR0_D39	AR1	MDA41
			DDR0_D40	AR4	MDA45
			DDR0_D41	AN3	MDA42
			DDR0_D42	AN4	MDA43
			DDR0_D43	AR2	MDA44
			DDR0_D44	AR3	MDA40
			DDR0_D45	AN2	MDA46
			DDR0_D46	AN1	MDA47
			DDR0_D47	AL1	MDA49
			DDR0_D48	AL4	MDA53
			DDR0_D49	AL3	MDA50
			DDR0_D50	AJ4	MDA51
			DDR0_D51	AL2	MDA52
			DDR0_D52	AJ2	MDA48
			DDR0_D53	AJ1	MDA54
			DDR0_D54	AG1	MDA55
			DDR0_D55	AG4	MDA61
			DDR0_D56	AE3	MDA58
			DDR0_D57	AE4	MDA59
			DDR0_D58	AG2	MDA60
			DDR0_D59	AG3	MDA56
			DDR0_D60	AE2	MDA62
			DDR0_D61	AE1	MDA63
			DDR0_D62	AE39	DQSA0
			DDR0_D63	AJ39	DQSA1
			DDR0_D64	AN39	DQSA2
			DDR0_D65	AV36	DQSA3
			DDR0_D66	AV5	DQSA4
			DDR0_D67	AP3	DQSA5
			DDR0_D68	AK3	DQSA6
			DDR0_D69	AF3	DQSA7
			DDR0_D70	AV32	DQSA8
			DDR0_D71	AE38	DQSA9
			DDR0_D72	AJ38	DQSA1
			DDR0_D73	AN38	DQSA2
			DDR0_D74	AJ36	DQSA3
			DDR0_D75	AW5	DQSA4
			DDR0_D76	AP2	DQSA5
			DDR0_D77	AK2	DQSA6
			DDR0_D78	AF2	DQSA7
			DDR0_D79	AU32	DQSA8

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150B

MAAB0	AL19	DDR1_MA0	AE34	MDB0
MAAB1	AK23	DDR1_MA1	AE35	MDB1
MAAB2	AM23	DDR1_MA2	AG35	MDB2
MAAB3	AM23	DDR1_MA3	AH35	MDB3
MAAB4	AP23	DDR1_MA4	AD34	MDB4
MAAB5	AL23	DDR1_MA5	AD35	MDB5
MAAB6	AY24	DDR1_MA6	AG34	MDB6
MAAB7	AV25	DDR1_MA7	AH34	MDB7
MAAB8	AU26	DDR1_MA8	AL34	MDB8
MAAB9	AV25	DDR1_MA9	AL35	MDB9
MAAB10	AP18	DDR1_MA10	AK31	MDB10
MAAB11	AY25	DDR1_MA11	AL31	MDB11
MAAB12	AV26	DDR1_MA12	AK34	MDB12
MAAB13	AR15	DDR1_MA13	AK35	MDB13
MAAB14	AV27	DDR1_MA14	AK32	MDB14
MAAB15	AY28	DDR1_MA15	AL32	MDB15
MODT_B0	AM17	DDR1_ODT0	AP34	MDB17
MODT_B1	AL16	DDR1_ODT1	AN31	MDB19
MODT_B2	AM16	DDR1_ODT2	AP31	MDB23
MODT_B3	AK15	DDR1_ODT3	AP35	MDB20
			AP35	MDB16
			AP32	MDB18
			AP29	MDB22
			AP29	MDB25
			AP28	MDB28
			AP28	MDB27
			AP28	MDB30
			AL28	MDB24
			AL28	MDB29
			AP29	MDB26
			AP28	MDB31
			AP12	MDB32
			AL13	MDB33
			AL12	MDB35
			AP13	MDB36
			AM13	MDB38
			AM12	MDB39
			AR9	MDB45
			AP9	MDB41
			AR6	MDB47
			AP6	MDB43
			AR10	MDB44
			AP10	MDB40
			AR7	MDB46
			AP7	MDB42
			AM9	MDB52
			AL9	MDB53
			AL6	MDB50
			AM10	MDB48
			AL10	MDB49
			AM6	MDB54
			AM7	MDB51
			AH6	MDB61
			AH7	MDB60
			AE6	MDB59
			AE7	MDB63
			AJ6	MDB56
			AJ7	MDB57
			AF6	MDB58
			AF7	MDB62
			AF35	DQSB0
			AL33	DQSB1
			AN28	DQSB2
			AN12	DQSB3
			AP8	DQSB5
			AL8	DQSB6
			AG7	DQSB7
			AN25	DQSB8
			AK33	DQSB1
			AN29	DQSB2
			AL13	DQSB4
			AR8	DQSB5
			AM8	DQSB6
			AG6	DQSB7
			AN26	DQSB8

HASWELL[10SC1-F01150-11R_10SC1-F01150-12R]

LGA1150
ILM_BP/1156/CSP/[12KRC-0F0001-52R_12KRC-0F0001-51R]

DDR BUS

7	MODT_A[0..3]	MODT_A[0..3]
8	MODT_B[0..3]	MODT_B[0..3]
7	MDA[0..63]	MDA[0..63]
8	MDB[0..63]	MDB[0..63]
7	DQSA[0..7]	DQSA[0..7]
7	DQSA[0..7]	DQSA[0..7]
7	MAAA[0..15]	MAAA[0..15]
8	MAAB[0..15]	MAAB[0..15]
8	DQSB[0..7]	DQSB[0..7]
8	DQSB[0..7]	DQSB[0..7]

Gigabyte Technology

Title			
CPU LGA1150-B			
Size			
Customer			
Document Number			
GA-B85-HD3-A			
Date:			
Thursday, January 29, 2015			
Sheet			
5			
of			
34			
Rev			
1.0			

(F, J)



(G,H,I)

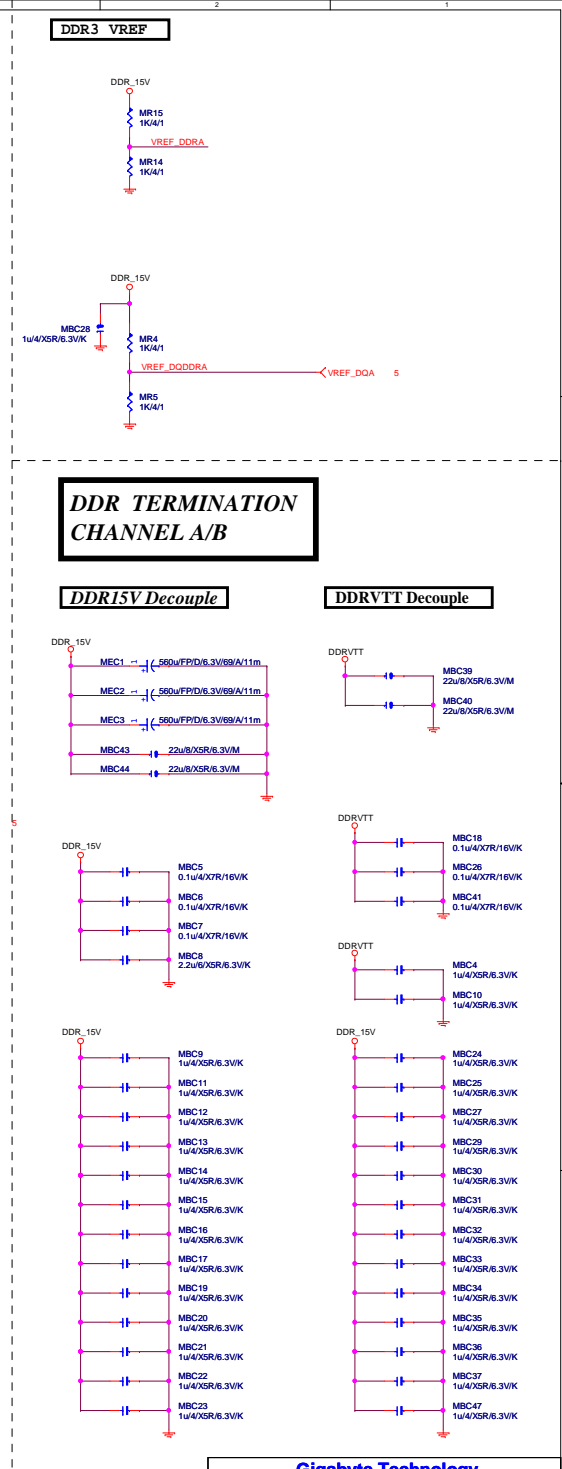


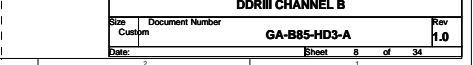
VCORE

C0805-MASK

(x9)

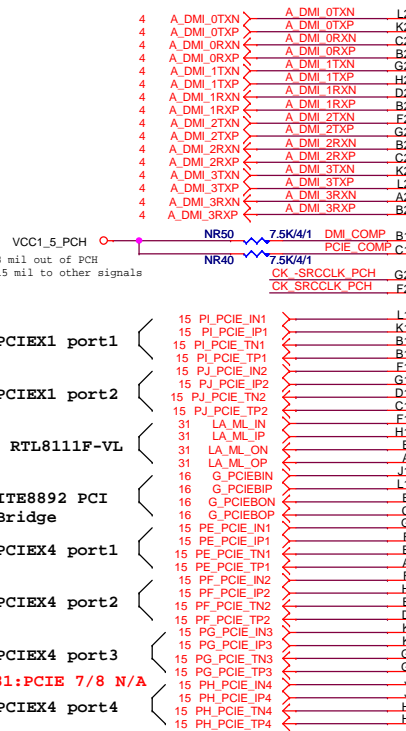






DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)
Impedance=85 +- 17.5%



放靠近 Device & PCI-E Slot

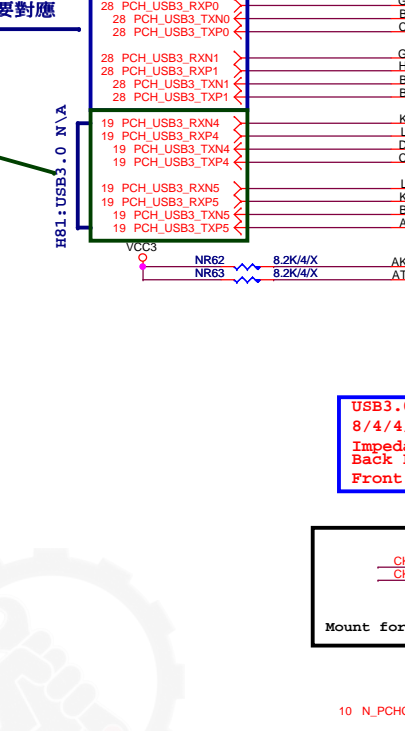
DH82B85/S/[10HB1-030B85-20R]

PCH PCIE ,DMI 4/4/4//15 Impedance=85 +- 15%

```
usb2.0 5/7/5//12
usb3.0 5/7/5//20
```

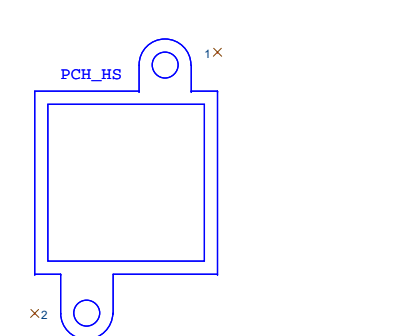
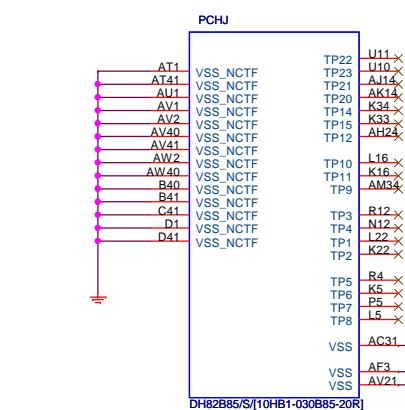
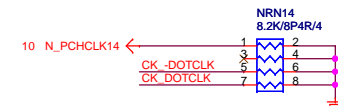
Impedance=85 +- 15%

28 PCH_USB3_RXN0



USB3.0:20/5/7/5/20 (breakout min
8/4/4/4/8) ; ONLY 3 VIAS
Impedance=85 +- 17.5%
Back Panel < 10000 MILS
Front Panel < 6000 MILS

Mount for integrated clock Generation Mode



HEAT SINK/N-BG/GBT MK/Z87/KWOG/[12SP2-S04208-61R_12SP2-S04208-62R_12SP2-S04208-63R]

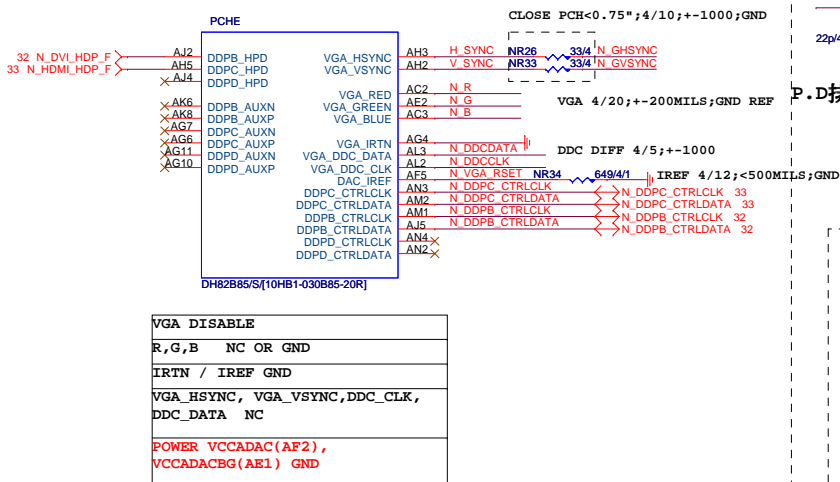
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

USB OC#	Configure
OC0#	USB0,1
OC1#	USB2,3
OC2#	USB4,5
OC3#	USB6,7
OC4#	USB8,9
OC5#	USB10,11
OC6#	USB12,13
OC7#	Not Use

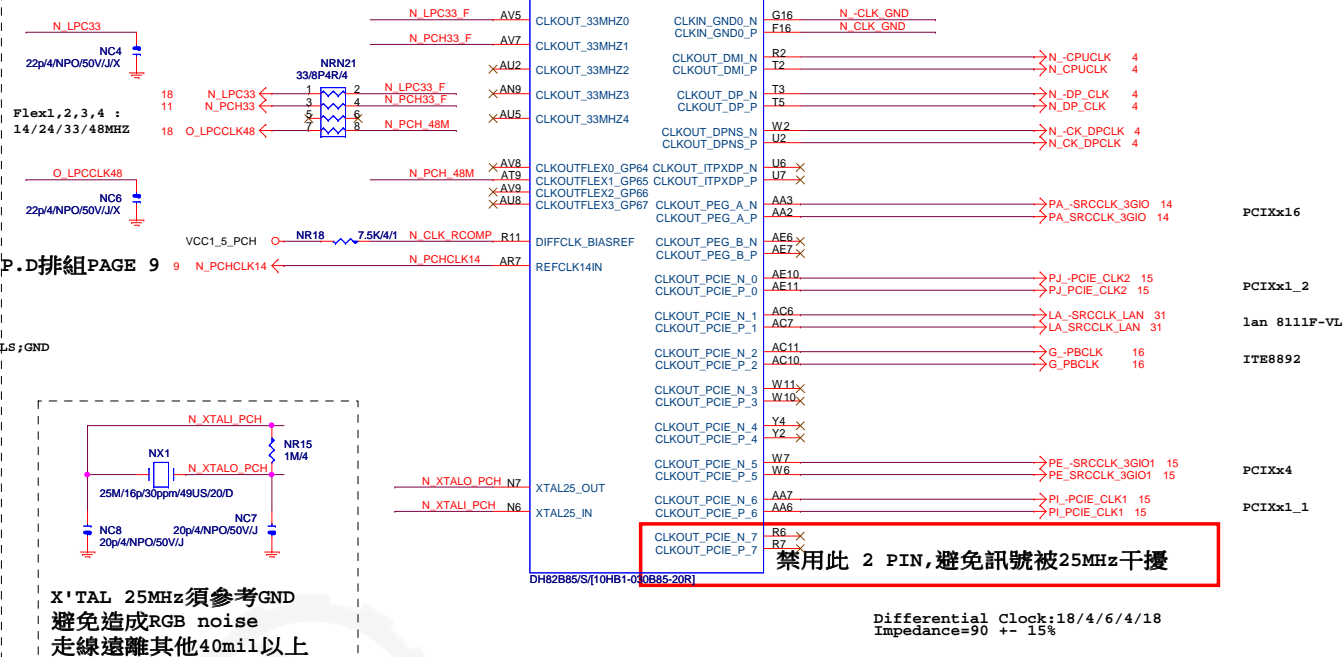
Gigabyte Technology

Title			
PCH FDI,DMI,USB ,PCIE			
Size	Document Number	Rev	
Custom	GA-B85-HD3-A	1.0	
Date:	Thursday, January 23, 2015	Sheet	9 of 34

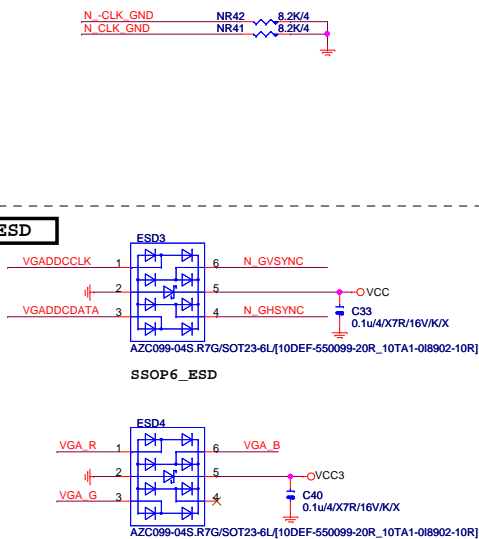
PCH (E)



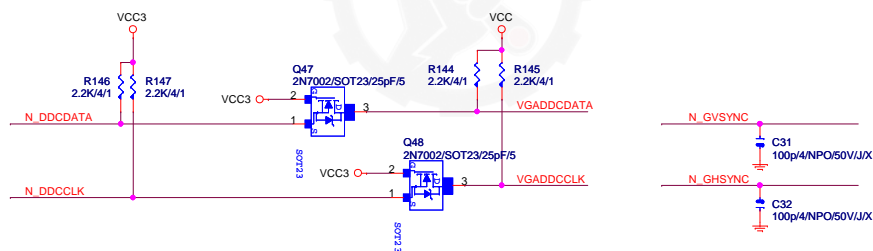
PCH (G)



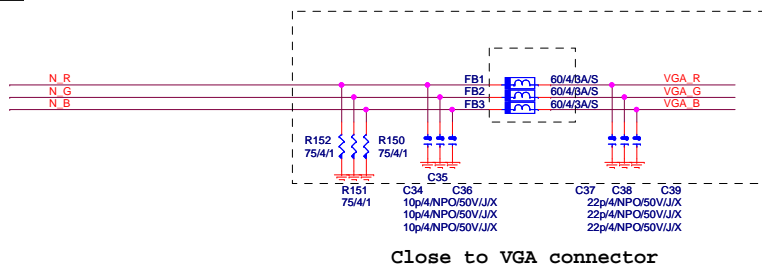
PCH CLK PD



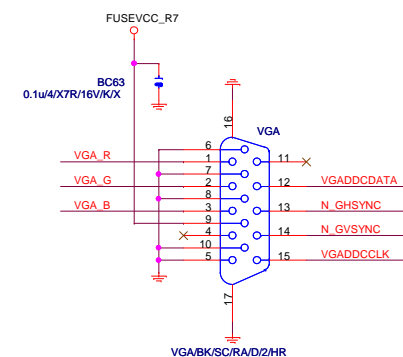
VGA DDC



VGA DDC



VGA CONNECTOR



Gigabyte Technology

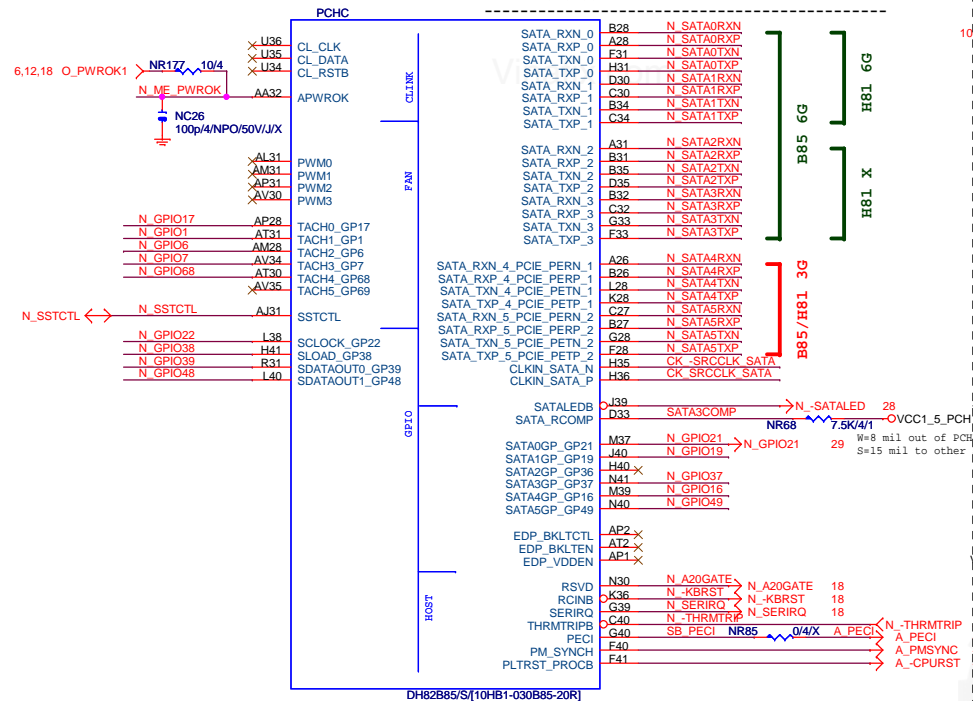
Title			
PCH DISPLAY ,CLK BUFFER			
Size	Document Number		Rev
Custom	GA-B85-HD3-A		1.0
Date:	Thursday, January 29, 2015	Sheet	10 of 34

PCH (C)

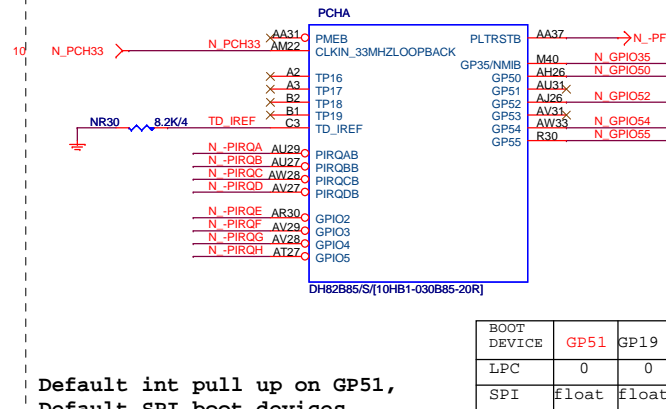
SATA3 : 20/4/4/4/20 (breakout min 8/4/4/4/8)

Impedance=85

SATA2 4/4/4//15

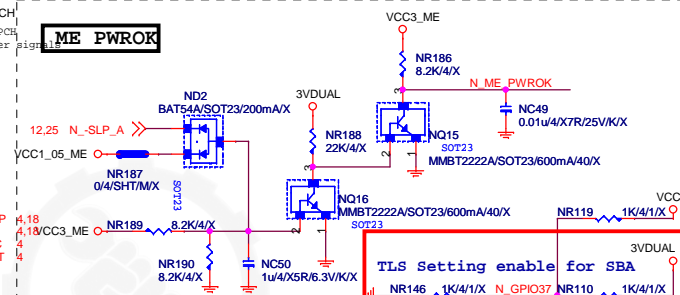


PCH (A)

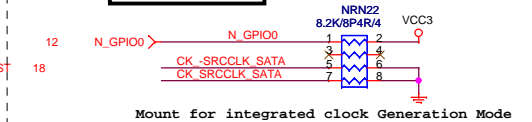


```
Default int pull up on GP51,
Default SPI boot devices
```

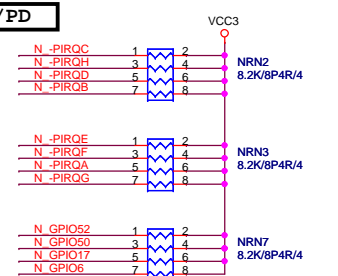
ME PWROK



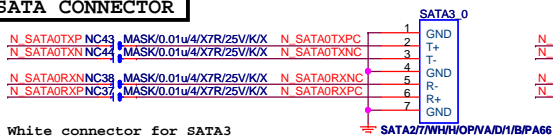
PCH CLK PD



PCH	PU/PD
-----	-------



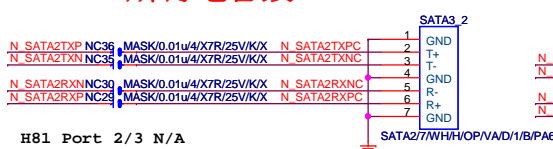
SATA CONNECTOR



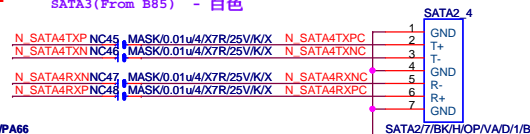
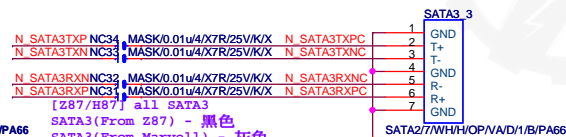
SATA所有電容改SHORT-PAD MASK



SATA所有電容改SHORT-PAD MASK

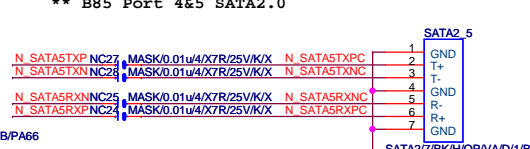


H81 Port 2/3 N/A



** Z87/H87 Port 4&5 SATA3.0

** B85 Port 4&5 SATA2.0

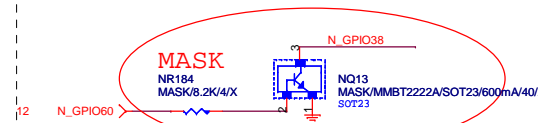


GPIO38 Ctrl

MFG Mode

```
N_GPIO38 : Lo --> Enable
```

Hi --> Disable



soft strap	GP16	GP49
0	pcie1	pcie2
1	sata4	sata5

Gigabyte Technology

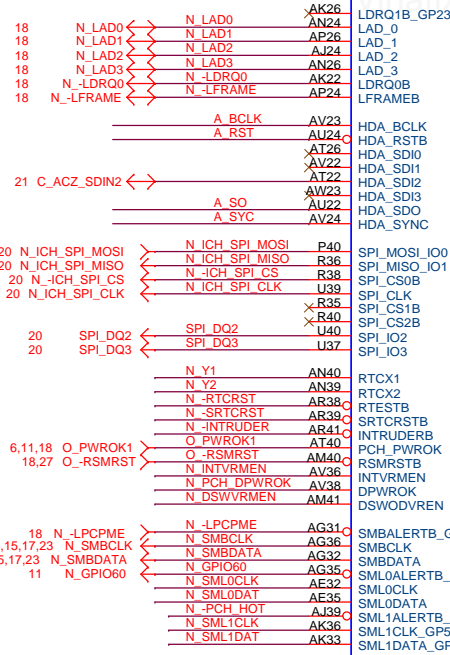
Title			
PCH HOST , SATA, PCI			
Size	Document Number	Rev	
Custom	GA-B85-HD3-A	1.0	
Date:	Thursday, January 29, 2015	Sheet	11 of 34

PCH

(D)

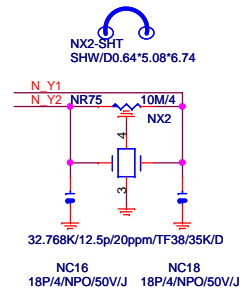


PCHD

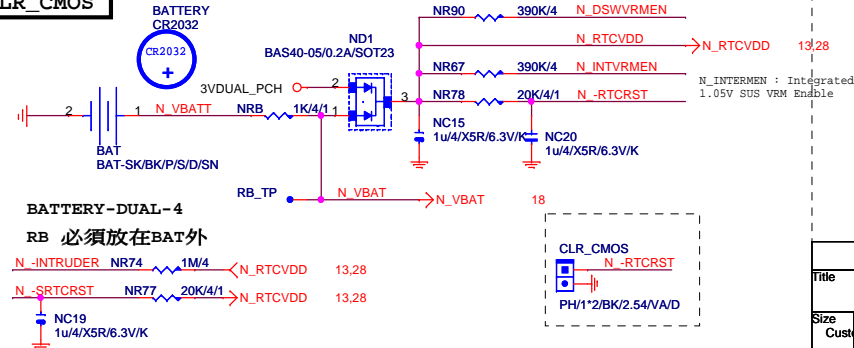


DH82B85/S[10HB1-030B85-20R]

32.768KHZ



CLR_CMOS

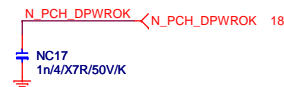


ACZ_SDOUT

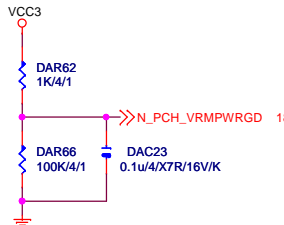
N/A

PCH_DPWROK

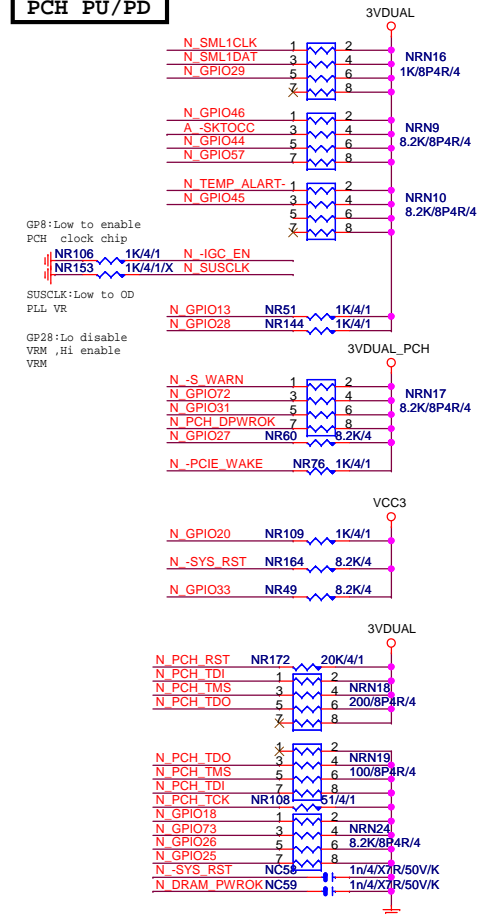
At least 10ms delay after
3VDUAL_PCH stable



For IT8620 Ctrl



PCH PU/PD



Gigabyte Technology

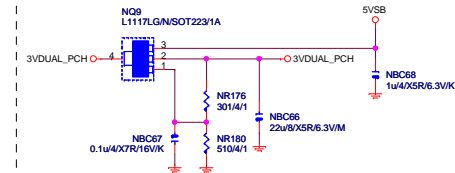
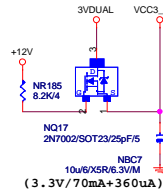
PCH GPIO , CTRL , AUDIO

Title	Document Number	Rev
Size Custom	GA-B85-HD3-A	1.0
Date: Thursday, January 23, 2015	Sheet 12 of 34	

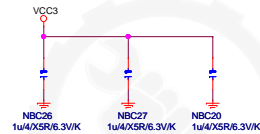
PCH (I)



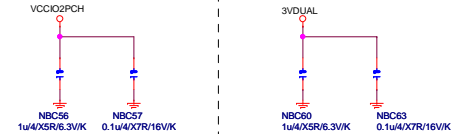
3VDUAL_PCH



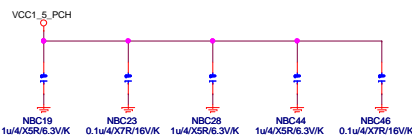
(3.3V) (X3)



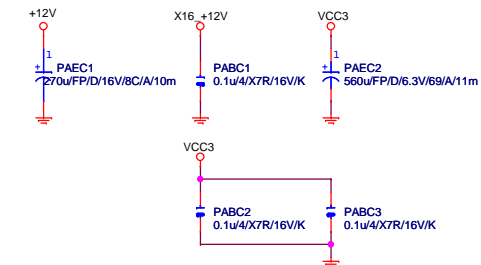
$$(1.05V)(x2) \quad (3.3V)(x2)$$



(1.5V) (x5)

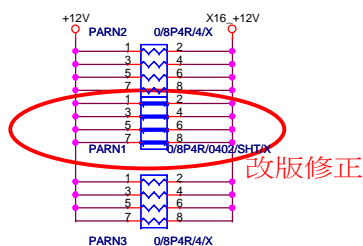


PCIEX16 CAP



PCIEX16 PROTECT SHT

+12 protect short-wire test



PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4/X5R6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u/4/X5R6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u/4/X5R6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u/4/X5R6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u/4/X5R6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u/4/X5R6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u/4/X5R6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u/4/X5R6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u/4/X5R6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u/4/X5R6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u/4/X5R6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u/4/X5R6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u/4/X5R6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u/4/X5R6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u/4/X5R6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u/4/X5R6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u/4/X5R6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u/4/X5R6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u/4/X5R6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u/4/X5R6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u/4/X5R6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u/4/X5R6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u/4/X5R6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u/4/X5R6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u/4/X5R6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u/4/X5R6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u/4/X5R6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u/4/X5R6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u/4/X5R6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u/4/X5R6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u/4/X5R6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u/4/X5R6.3V/K	PA EXP TXN15 C

PCI-E REV:1.1--> 2.5GHZ

PCE-E X1(單向) BANDWITH=2.5GHz*(8b/10b)=2Gb/s=250MB/s

PCE-E X1(雙向) BANDWITH=2.5GHz*(8b/10b)X2=4Gb/s=500MB/s

PCE-E X16(單向) BANDWITH=2.5GHz*(8b/10b)X16=32Gb/s=4GB/s

PCE-E X16(雙向) BANDWITH=2.5GHz*(8b/10b)X16X2=64Gb/s=8GB/s

PCI-E REV:2.0--> 5GHZ

PCIEX16 SLOT

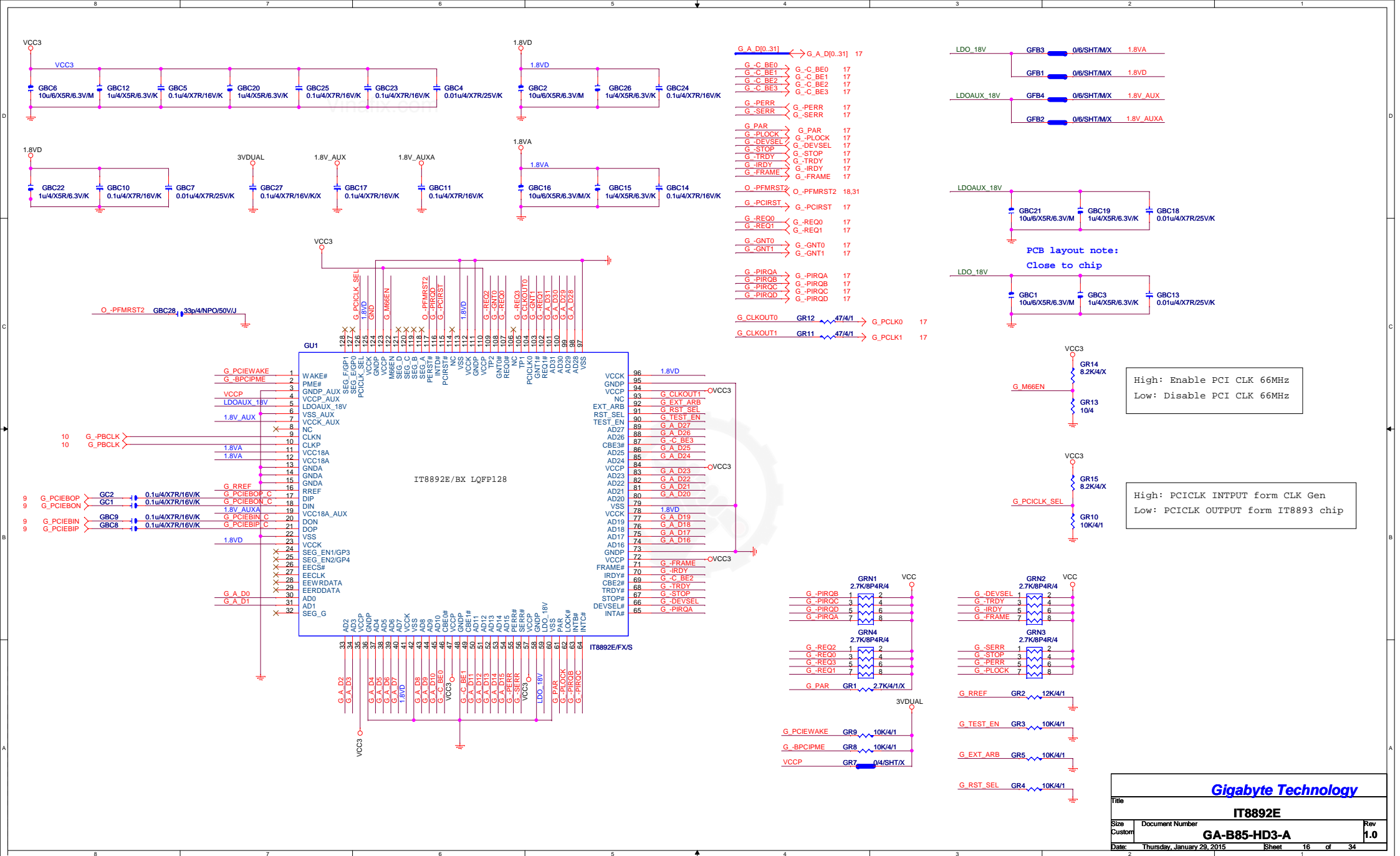


PCIEX16:16/5/5/5/16

PA EXP RXP0..15]	>>>PA_EXP_RXP[0..15]	4
PA EXP RXN0..15]	>>>PA_EXP_RXN[0..15]	4
PA EXP TXP0..15]	>>>PA_EXP_TXP[0..15]	4
PA EXP TXN0..15]	>>>PA_EXP_TXN[0..15]	4

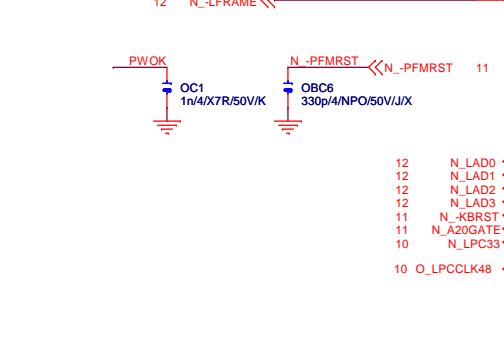
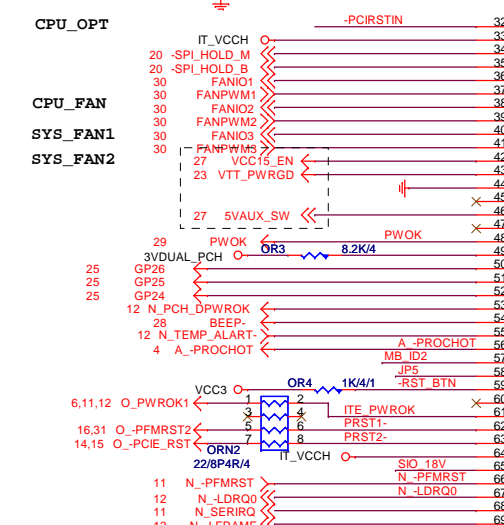
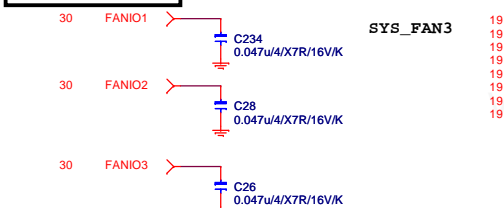
Gigabyte Technology

PCI EXPRESS * 16			
Size Custom	Document Number	GA-B85-HD3-A	
Date:	Thursday, January 29, 2015	Sheet	14 of 34
		Rev	1.0



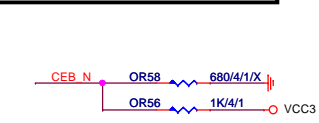
Gigabyte Technology		
Title		
IT8892E		
Size	Document Number	Rev
Custom	GA-B85-HD3-A	1.0
Date:	Thursday, January 29, 2015	Sheet 16 of 34

SIO IT8728F

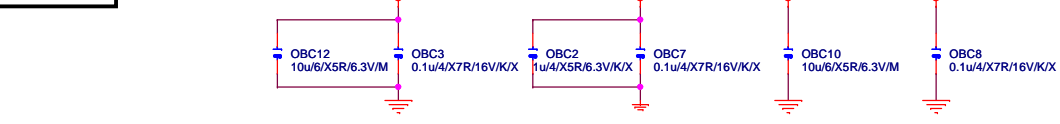


IT8620E GPIO問題匯整	
PIN 50	GP26---第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HDLED FUNCTION, GP93 BYPASS TO GP92
PIN 108	GP40--- POWER ON時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用,不然會互相干擾

DUAL BIOS OPT STRAP



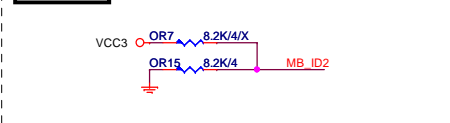
SIO CAP



SIO_18V



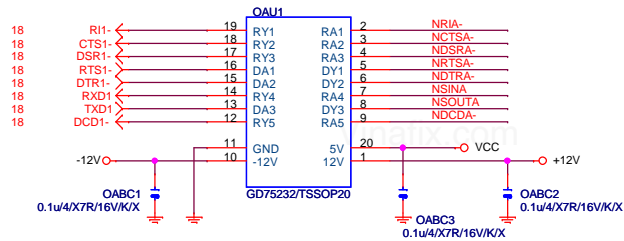
MB ID



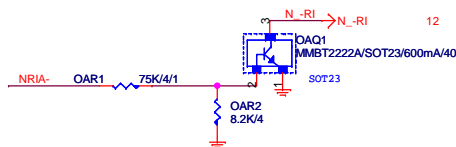
Gigabyte Technology

Title	
ITE 8620 LPC IO	
Size B	Document Number
	GA-B85-HD3-A
Date:	Rev
Tuesday, February 03, 2015	1.0

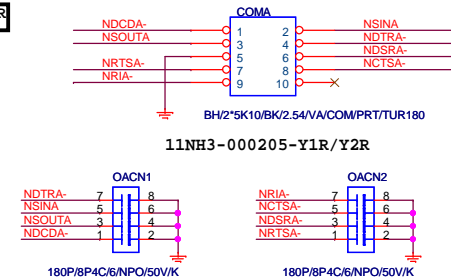
COMA



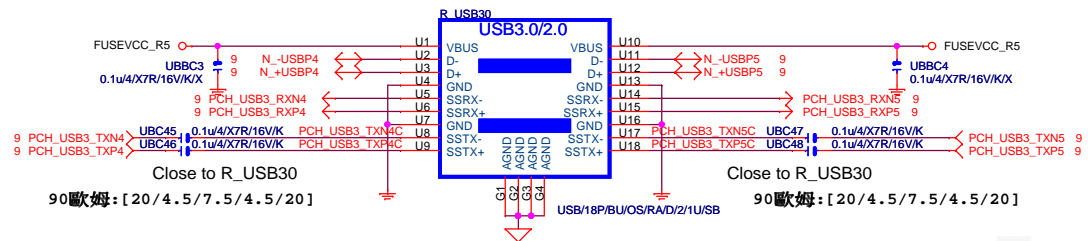
COM RI



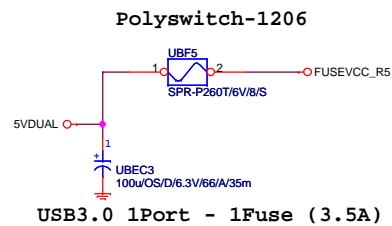
COM BUFFER



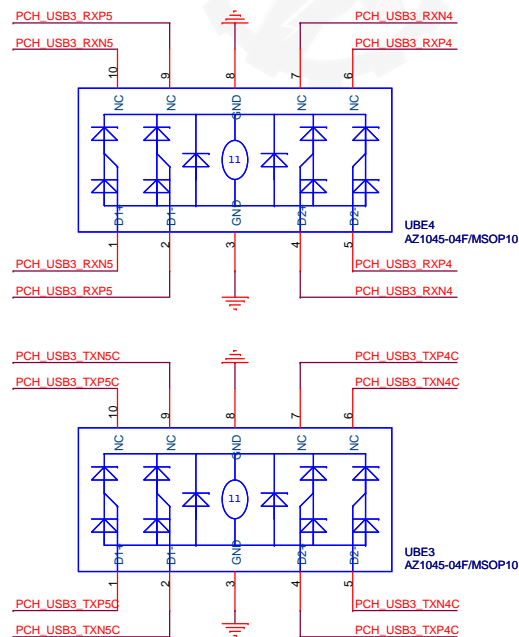
USB30_20 CONNECT



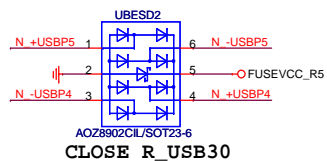
USB30 PWR



USB30 ESD PROTECT

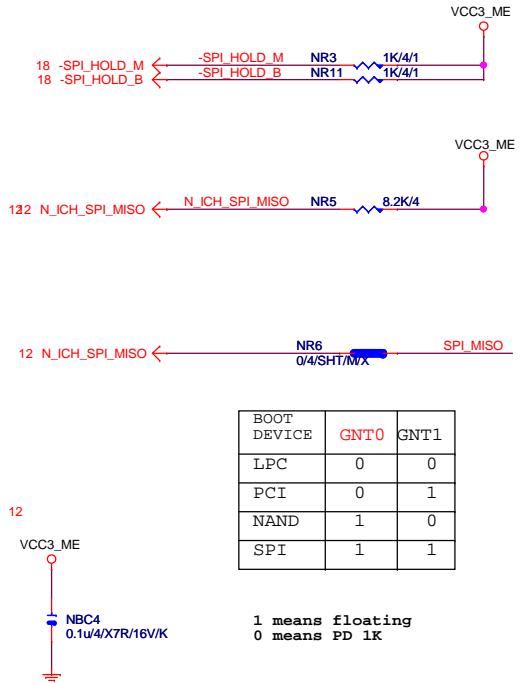
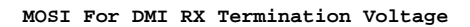


USB20 ESD PROTECT



Gigabyte Technology			
COM/ PROHOT/ R_USB			
File	Document Number	GA-B85-HD3-A	Rev 1.0
Size	Custom		
Date:	Thursday, January 29, 2015	Sheet	19 of 34

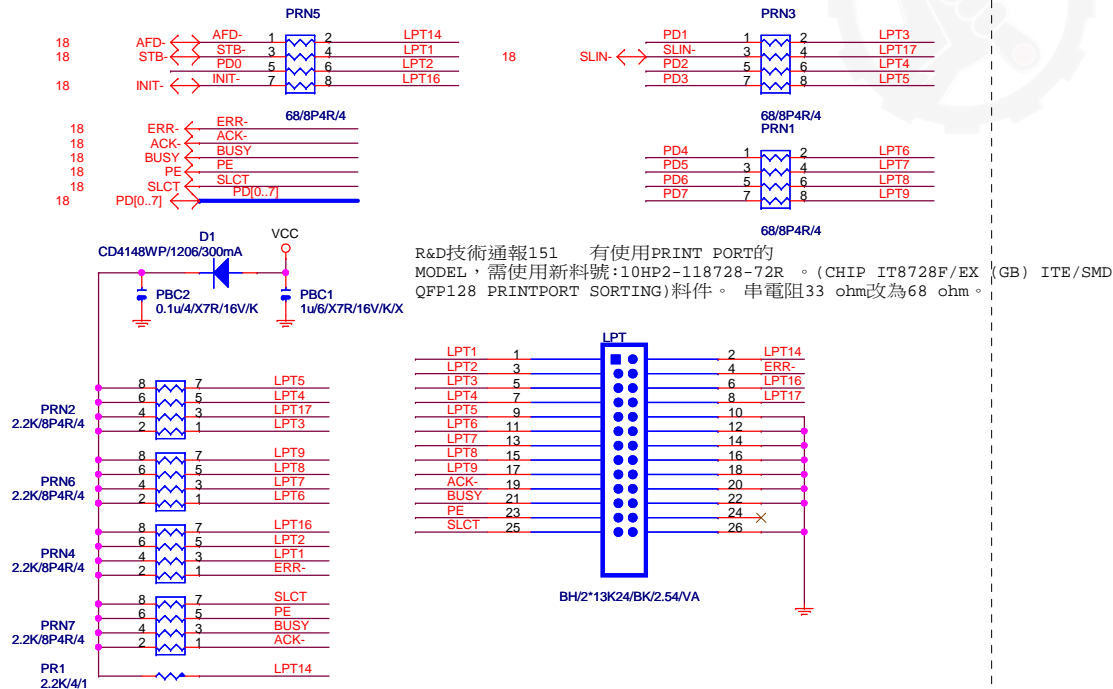
DUAL BIOS



BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

1 means floating
0 means PD 1K

LPT PORT



Gigabyte Technology

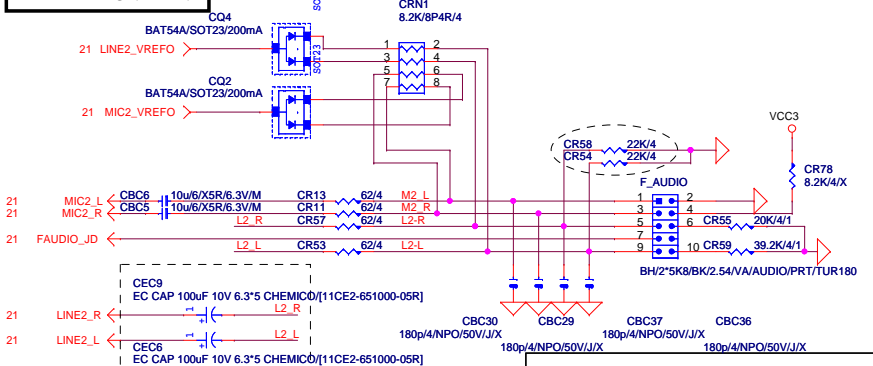
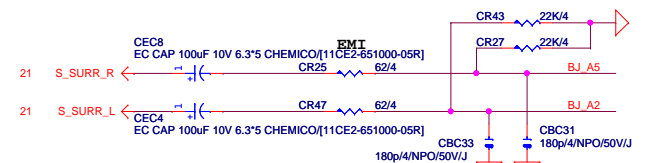
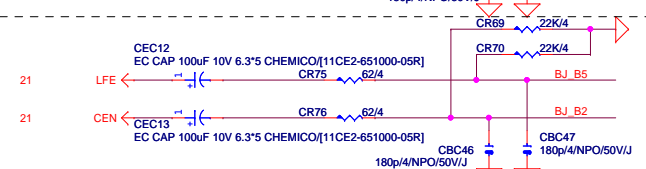
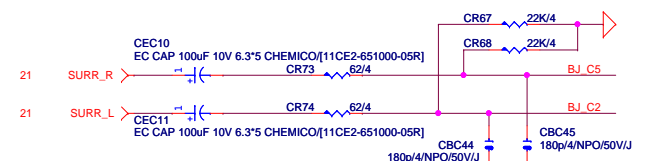
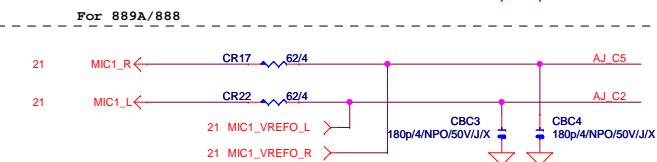
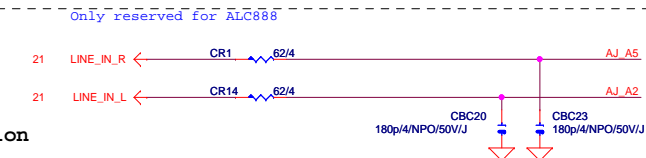
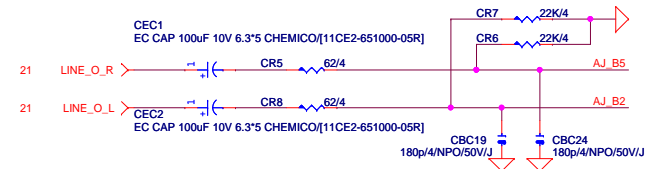
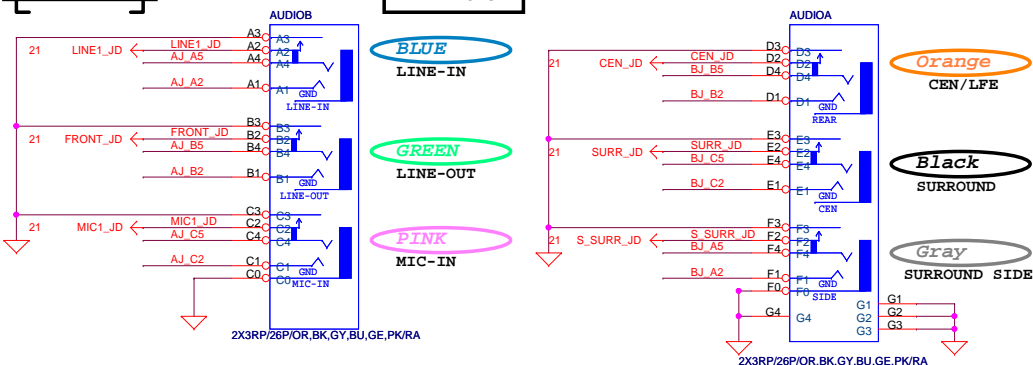
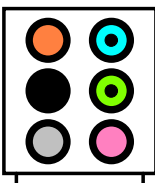
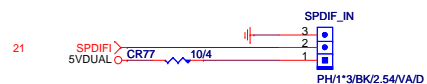
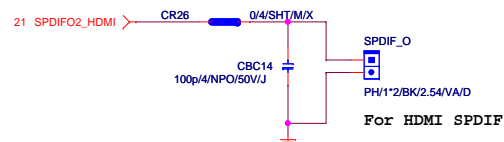
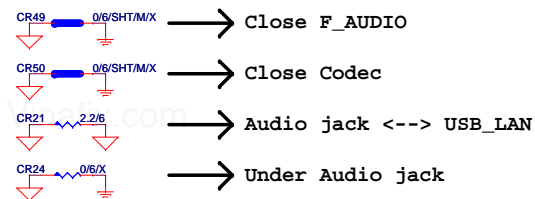
Title				BIOS			
Size	Document Number						Rev
Custom	GA-B85-HD3-A						1.0
Date:	Thursday, January 29, 2015			Sheet	20	of	34

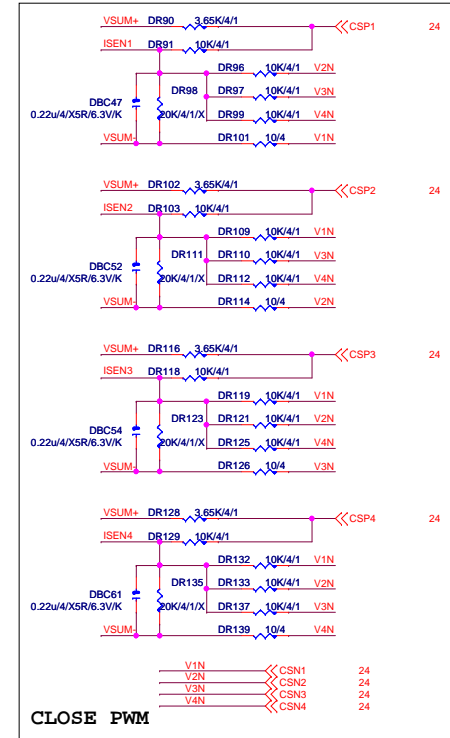
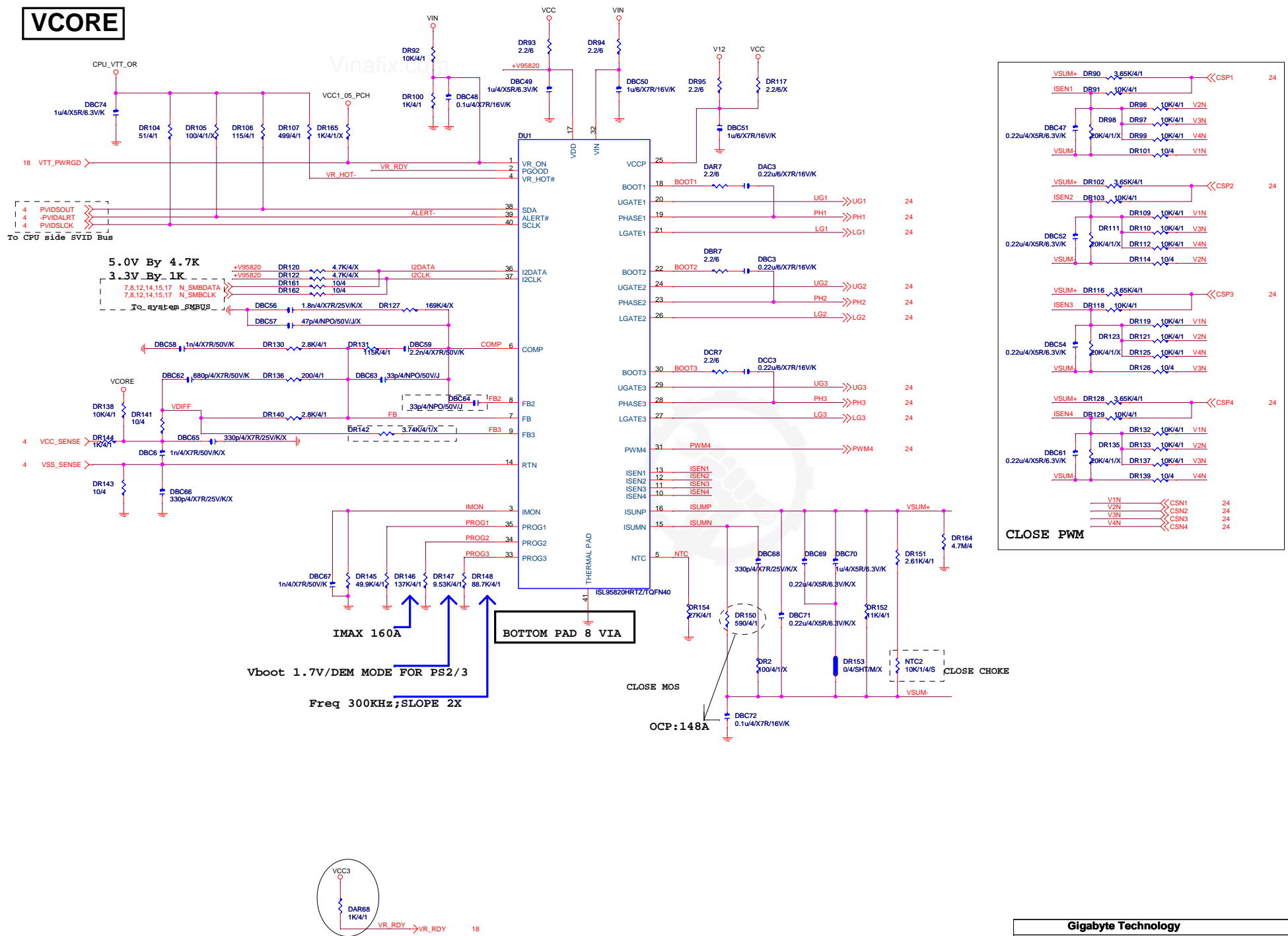
有LED機種,請上

18 G_PLED1)

(IT8620 GP26)

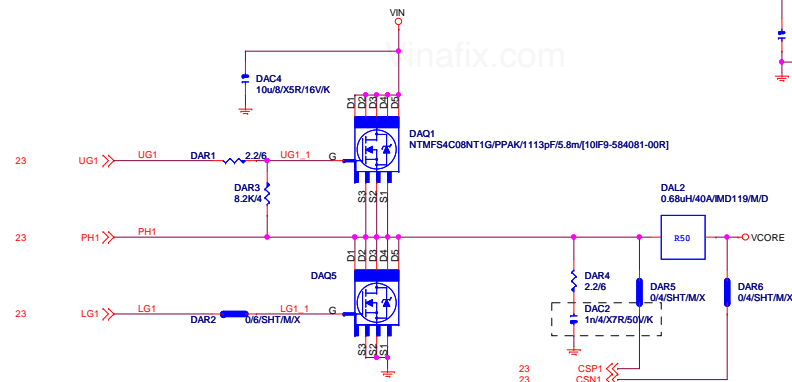
Gigabyte Technology			
Title HD AUDIO ALC887			
Size	Document Number	GA-B85-HD3-A	Rev 1.0
Custom			
Date:	Thursday, January 29, 2015	Sheet	21 of 34



VCORE

VCORE

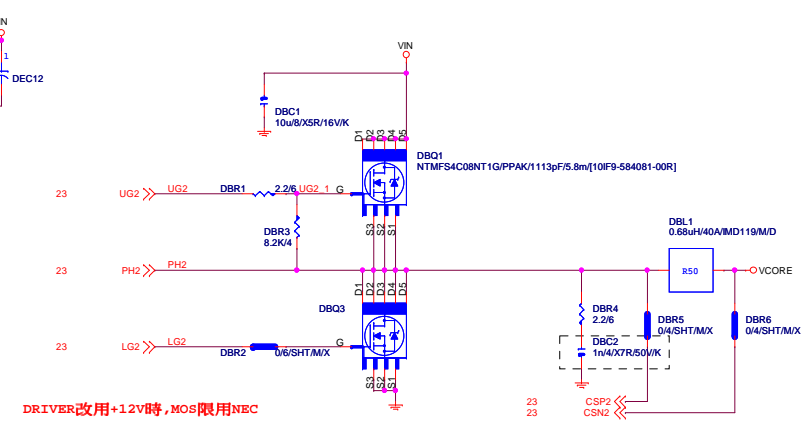
[1]



DRIVER改用+12V時,MOS限用NEC

NTMFS4C08NT1G/PPAK/1113pF/5.8m[10IF9-584081-00R]

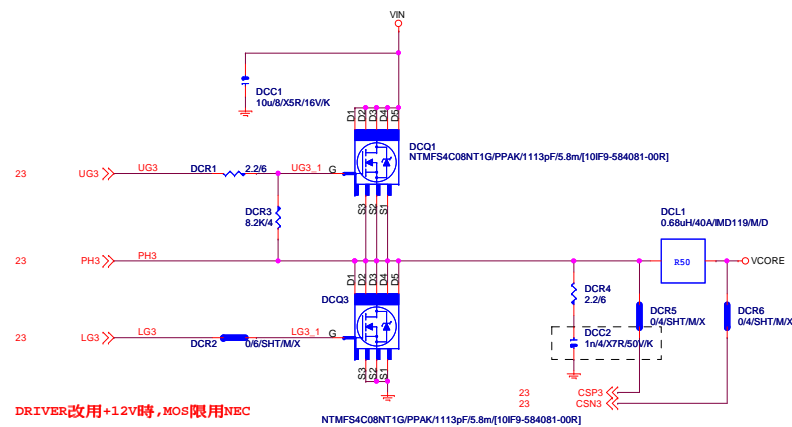
[2]



DRIVER改用+12V時,MOS限用NEC

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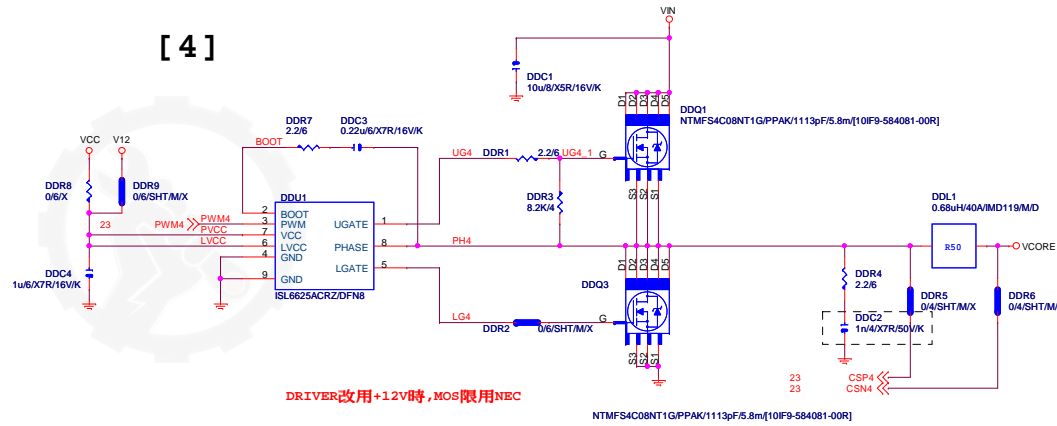
[3]



DRIVER改用+12V時,MOS限用NEC

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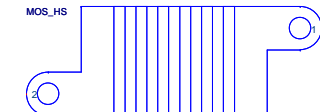
[4]



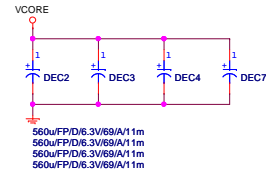
DRIVER改用+12V時,MOS限用NEC

NTMFS4C08NT1G/PPAK/1113pF/5.8m[10IF9-584081-00R]

MOSFET HEATSINK

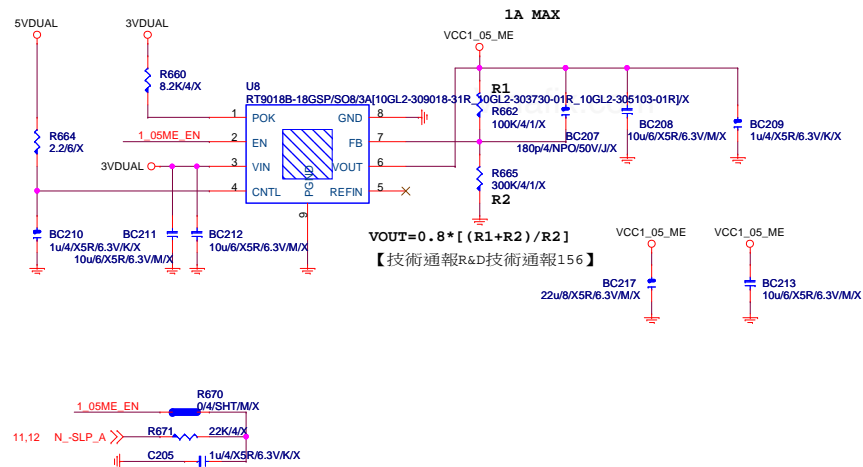


MOS_HeatSink[12SP2-S07517-01R_12SP2-S07517-02R_12SP2-S07517-03R]

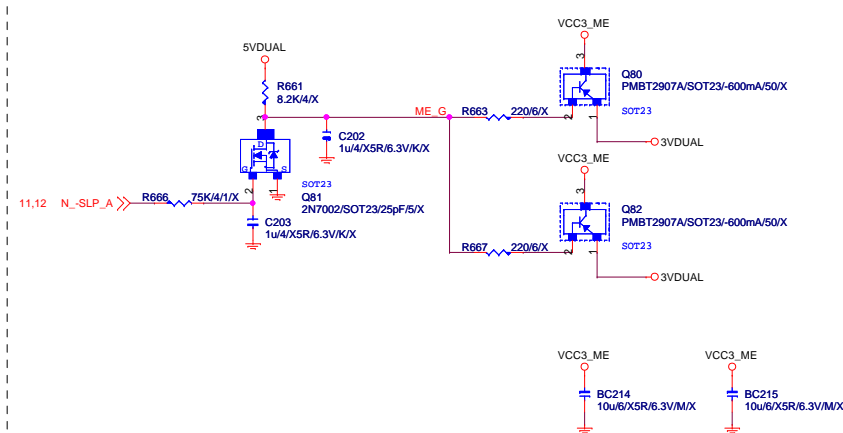


Gigabyte Technology			
Title		ISL95820_2	
Size	Document Number	GA-B85-HD3-A	Rev 1.0
Date	Thursday, January 29, 2015	Sheet 24	of 34

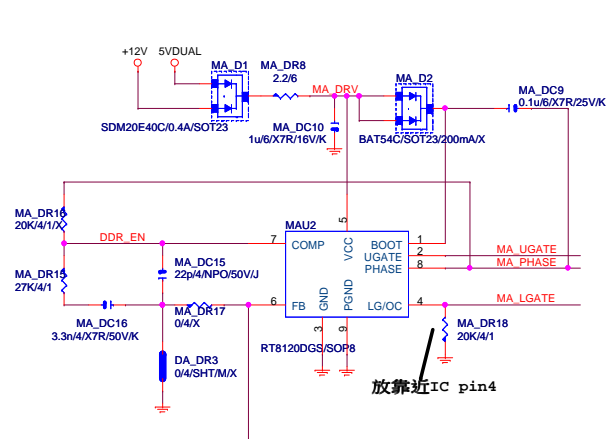
VCC1_05_ME



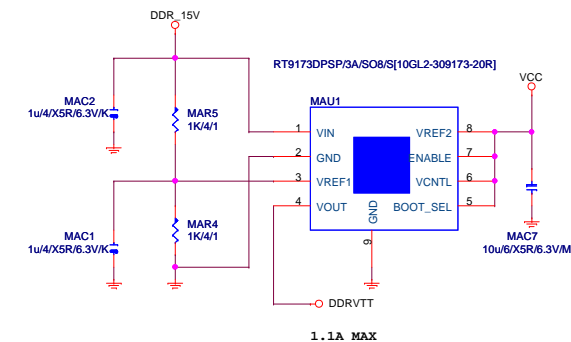
VCC3_ME



DDR_15V



DDRVTT



放靠近IC pin4

Remote sense請從最重的負載端點拉回

PWR_SEQ

DDR_EN < DDR_EN_CON 18

VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1
IRMS=11.45A

560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
Coefficient=1.7(85°C), 1(105°C)

VIN Ripple current=4.7X1.7=7.99A(85°C)
-->故固態電容須2X7.99=15.98>11.45A

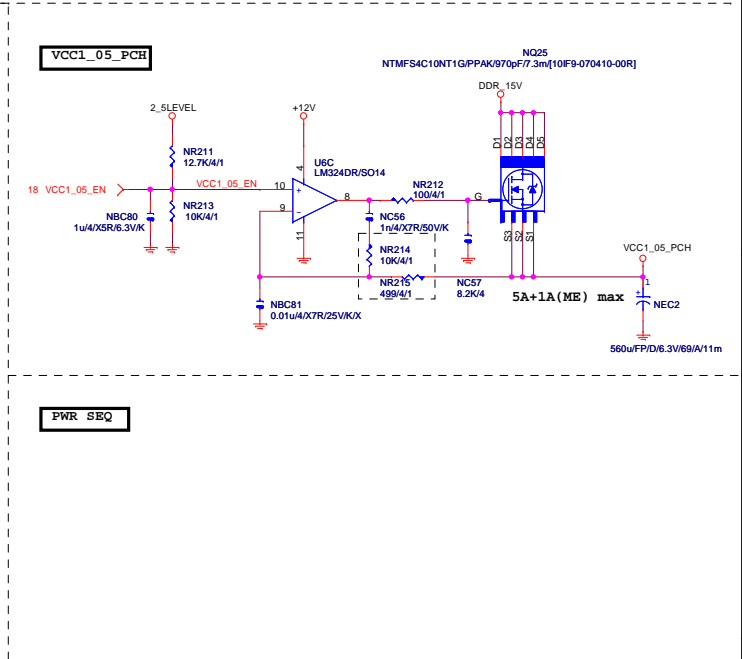
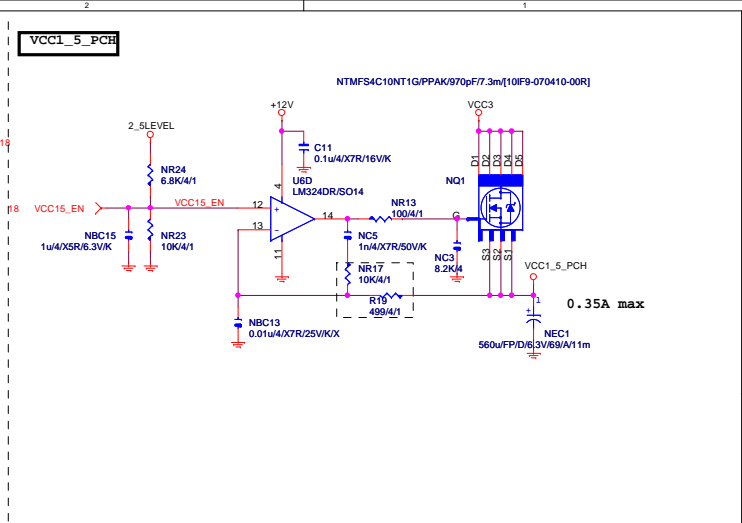
OCP:40A for Rds=8.9~10.8m for on@4.5V
OCP:40A for Rds=5.8~6.95m for on@10V
OCP:66.67~37.A=Roaset*Iocset / Rds(on)
=20K*10uA / 3~5.4m

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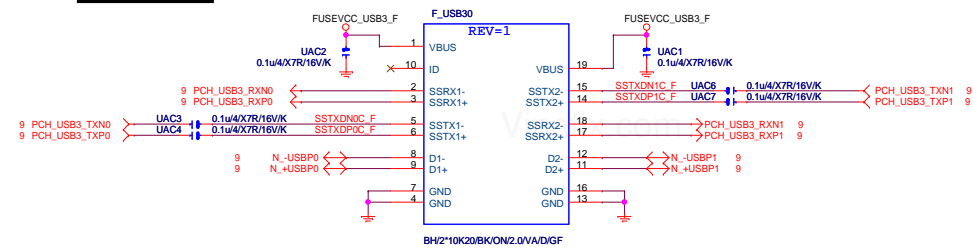
Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
Custom	GA-B85-HD3-A	1.0	
Date:	Thursday, January 29, 2015	Sheet	25 of 34

	5	4	3	2	1
D	<div>Vinafix.com</div>				
C					
B					
A	<div> <div></div> <div> <div></div> <div> <div></div> <div> <div></div> <div> <div></div> <div> <div></div> <div></div> </div> </div> </div> </div> </div> </div>				
	5	4	3	2	1

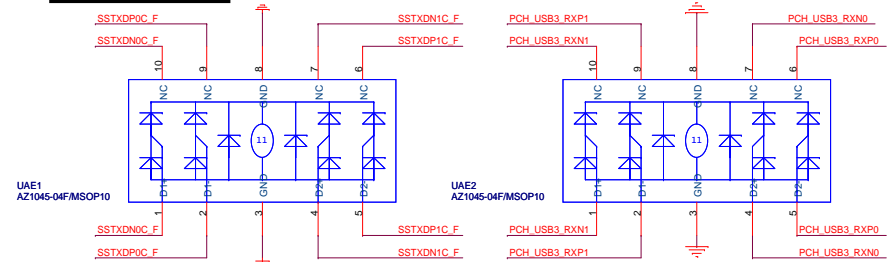
Gigabyte Technology		
TitleCPU CORE VR-2		
Size Custom	Document NumberGA-B85-HD3-A	Rev1.0
Date:	Tuesday, January 27, 2015	Sheet 26 of 34



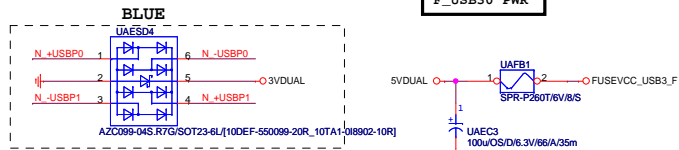
Front USB3.0



F_USB30 ESD PROTECT

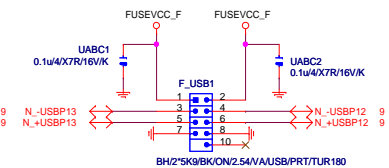


F_USB30 PWR	
-------------	--



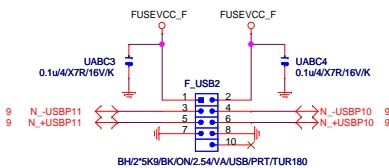
Close to connector

FRONT USB1



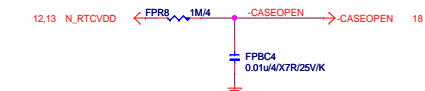
Close to connector

FRONT USB2

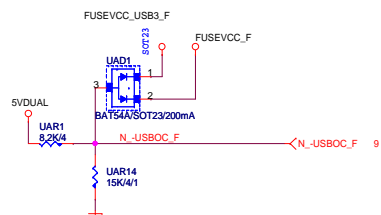


Close to connector

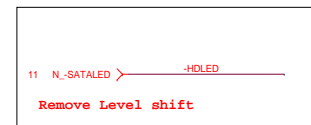
CASE OPEN



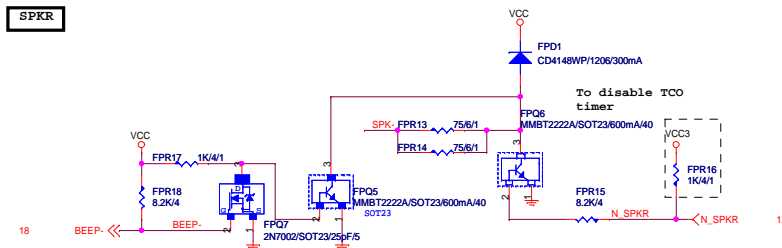
-USB_OC_F



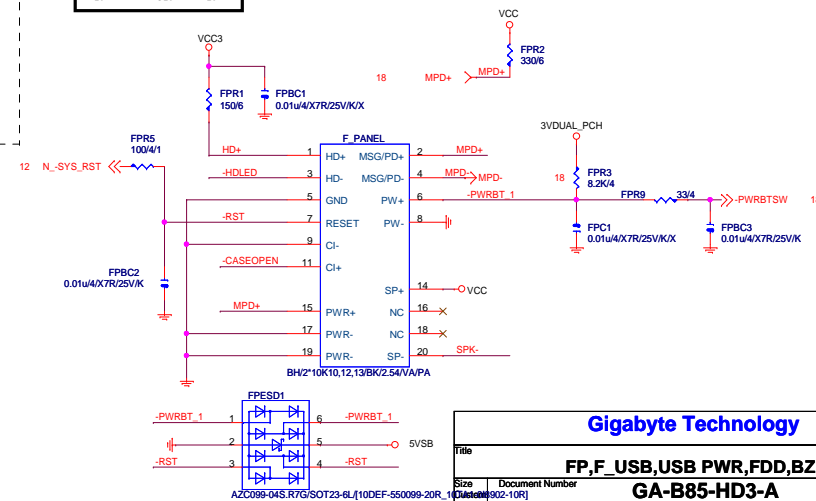
SATA LED



SPKR



INTEL FRONT PANEL

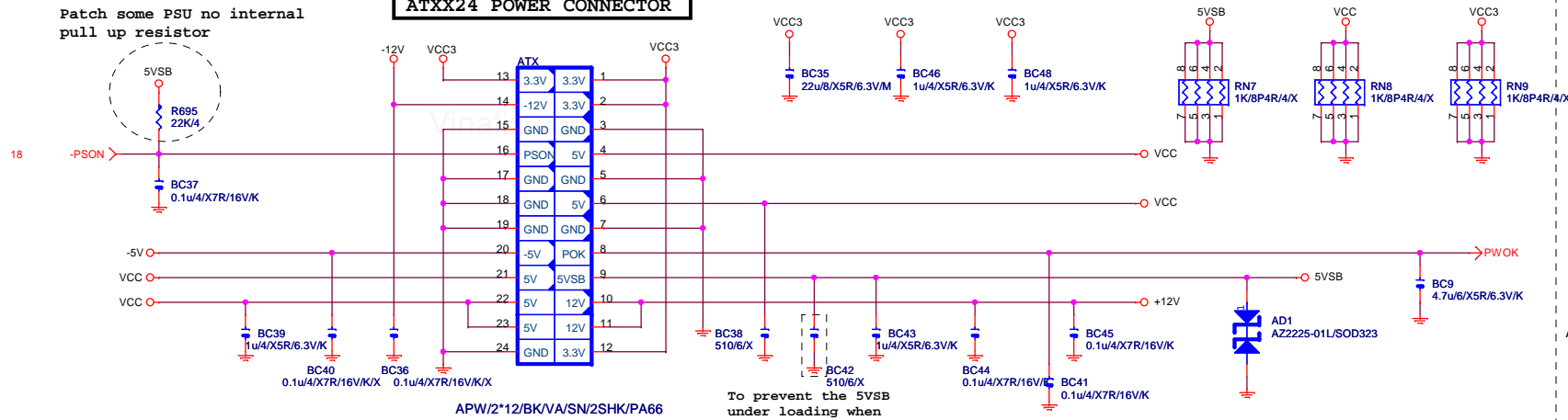


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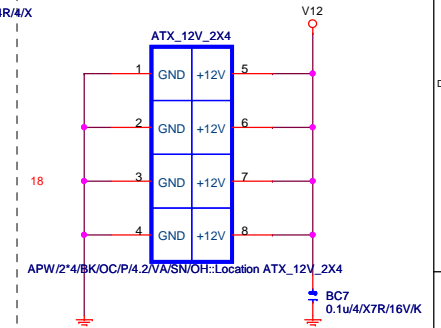
Title		FP,F_USB,USB PWR,FDD,BZ	
Size	Document Number	GA-B85-HD3-A	
Customer	902-10R		

Patch some PSU no internal pull up resistor

ATXX24 POWER CONNECTOR



ATXX4 POWER CONNECTOR

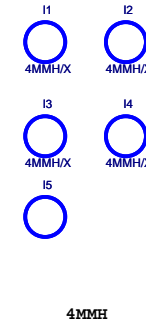
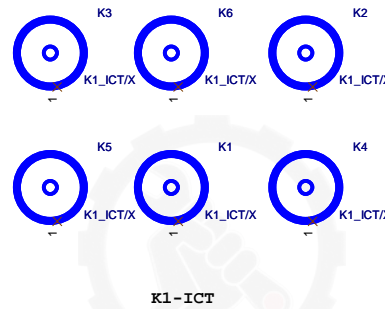
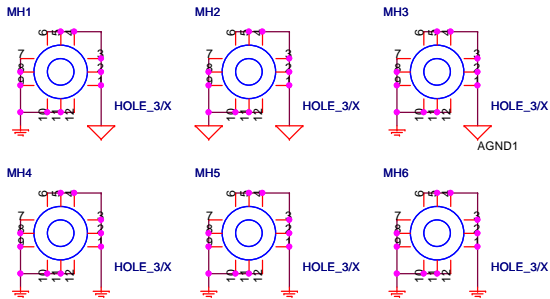
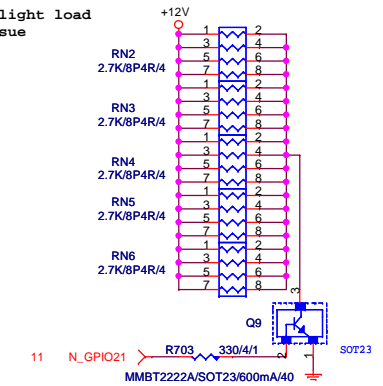


APW/2*12/BK/VA/SN/2SHK/PA66

To prevent the 5VSB under loading when boot

【技術通報R&D技術通報153】

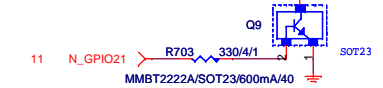
To fix 12V light load abnormal issue



CPU Frequency Selection

FSLB	FSLA	CPU
0	0	100M <Default>
0	1	133M
1	0	200M
1	1	166M

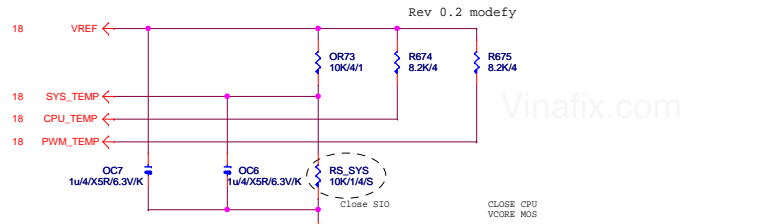
PWOK PATCH



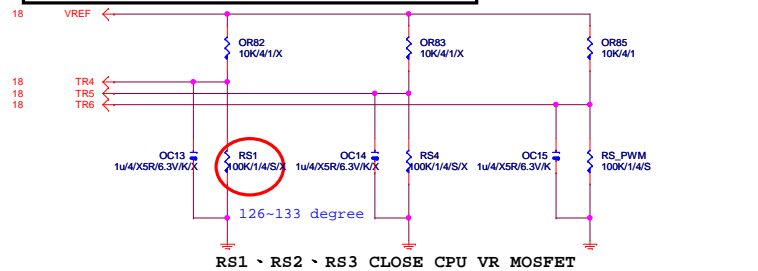
Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
Custom	GA-B85-HD3-A	1.0
Date:	Thursday, January 29, 2015	Sheet 29 of 34

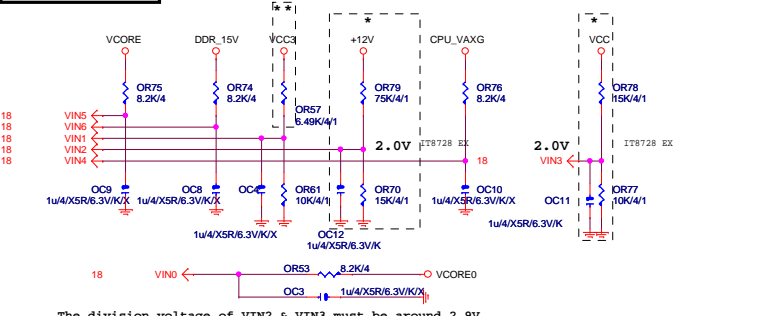
TEMP H/W MONITOR



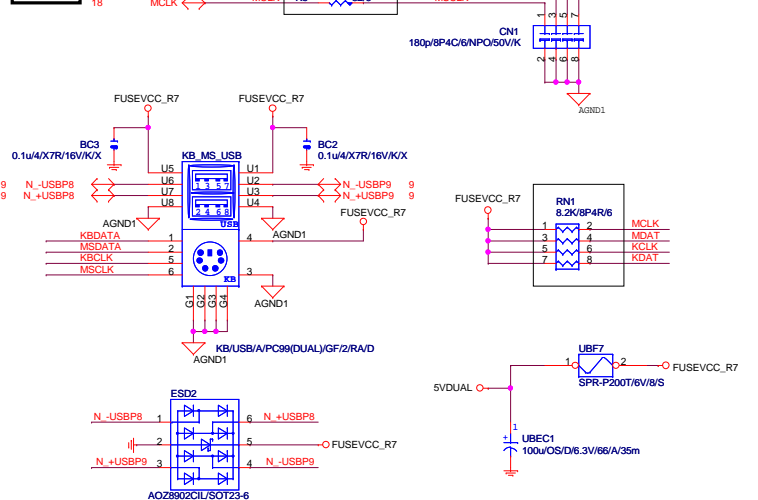
-PROCHOT:有mos heatsink不用prochot function



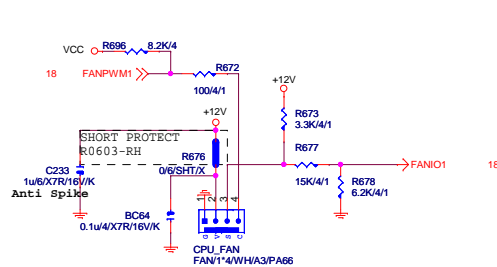
VOLTAGE-- H/W MONITOR



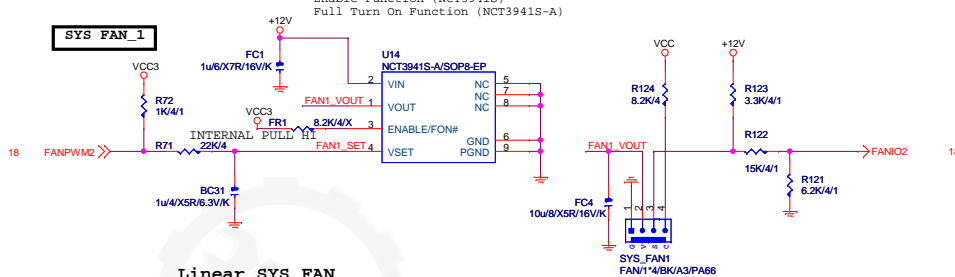
KB/USB



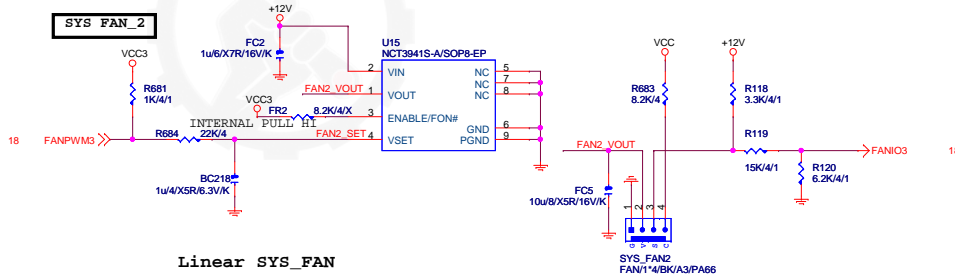
CPU SMART FAN



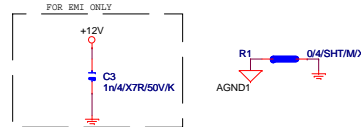
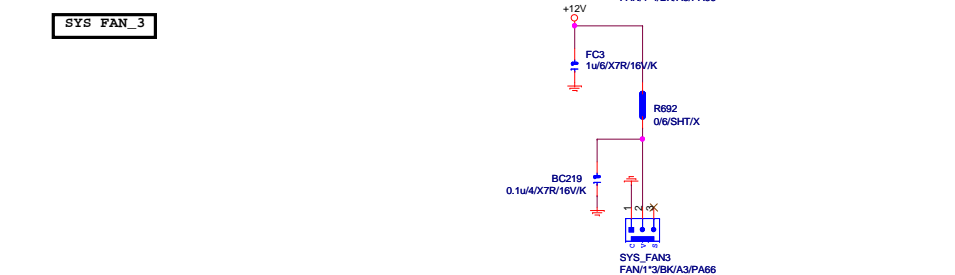
Linear SYS_FAN



Linear SYS_FAN



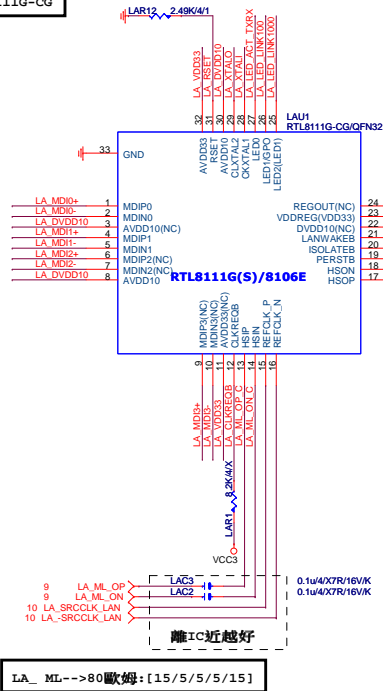
Linear SYS_FAN



Gigabyte Technology

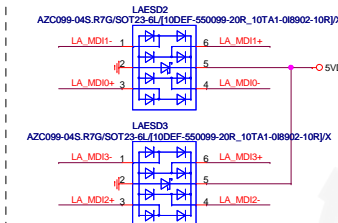
Title		HWM,KB/MS, FAN CTRL	
Size	Document Number	GA-B85-HD3-A	
Custom		Rev 1.0	
Date	Thursday, January 28, 2015	Sheet	30 of 34

LAN RTL8111G-CG

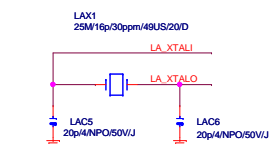


SRCCLK-->50歐姆:[18/4/10/4/18]

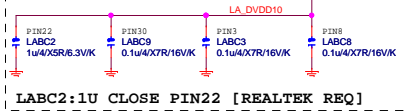
MDI ESD預留28KV



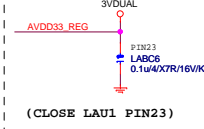
LAN POWER



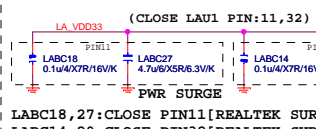
(CLOSE LAU1 PIN22,30,3,8)



(CLOSE LAU1 PIN23)



(CLOSE LAU1 PIN:11,32)



NOTE:

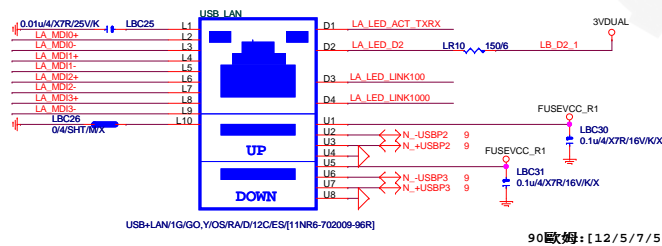
RT8106E:PIN3,11,22,24-->NC
LABC2LABC3,LABC5,LABC18,LABC27-->N/A

BOM NOTICE

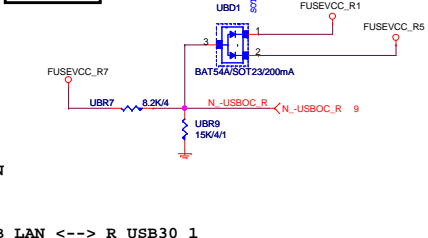
料號	規格	廠商
11NR6-702009-96R 1G LAN (12core)	UDE(RU9 ESD+)	
[LED獨立走線,可省略外加AZC099料件LAESD1]		
1. 9KV ESD BOM:		
USB_LAN (RU9):11NR6-702009-96R		
2. 28KV ESD BOM:		
USB_LAN (RU9):11NR6-702009-96R		
LAESD2,LAESD3:上件AZC398-04S		

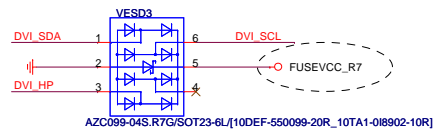
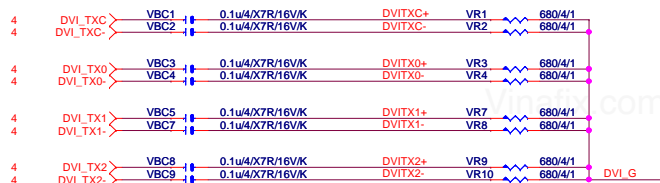
USB30_LAN CONNECTOR

100歐姆:[20/4/10/4/20]

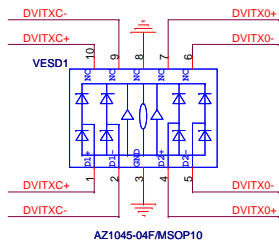
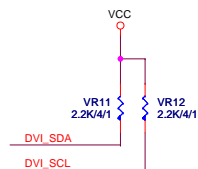


-USB0C_R

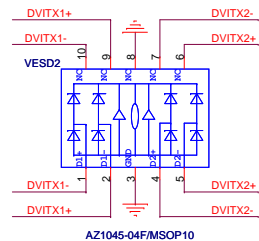
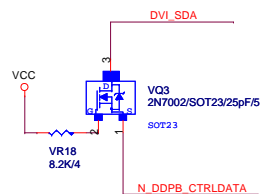
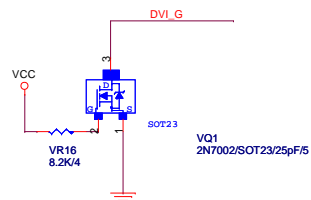




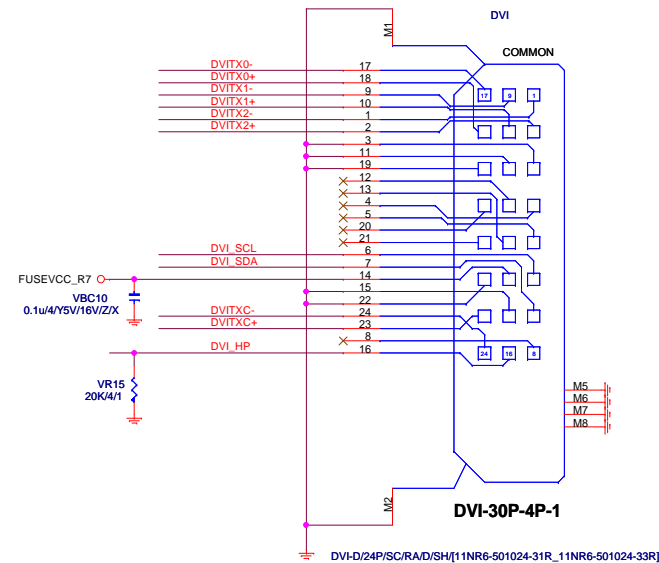
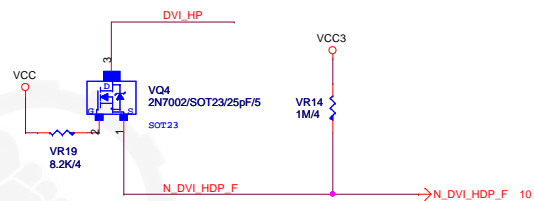
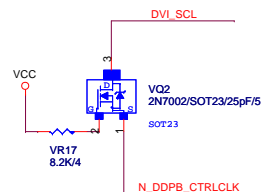
Close to connector



Close to connector



Close to connector

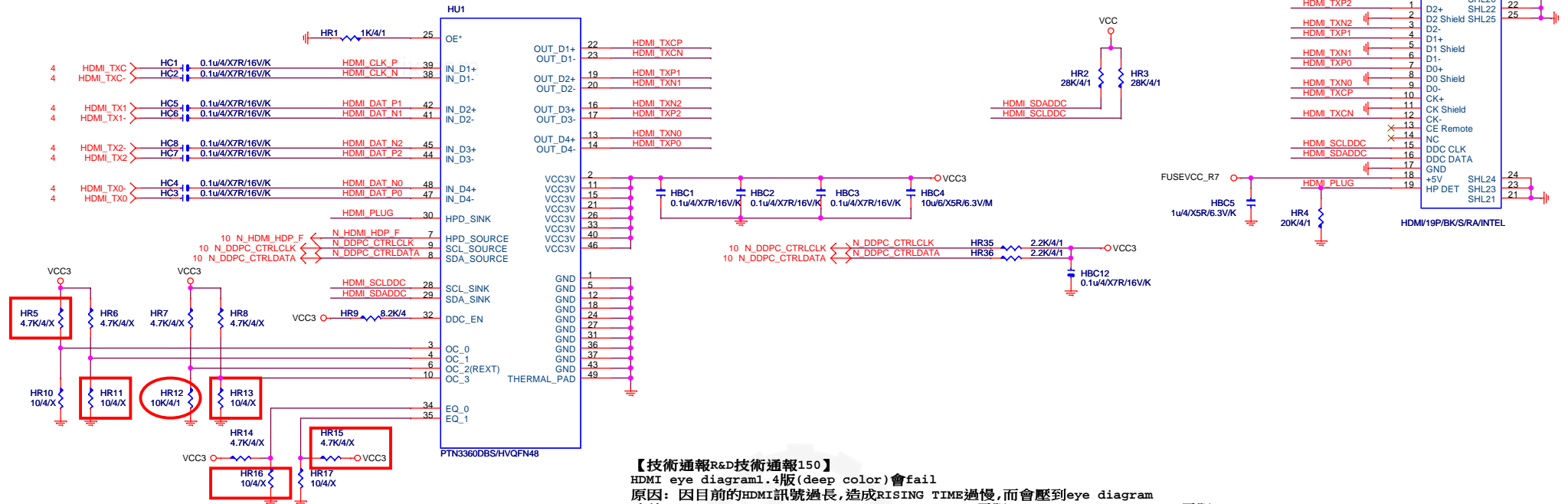


Gigabyte Technology

Title		
DVI		
Size	Document Number	Rev
Custom	GA-B85-HD3-A	1.0
Date:	Thursday, January 29, 2015	Sheet 32 of 34

HDMI LEVEL SHIFT

HDMI:20/4/6/4/20
Impedance=85 +- 17.5%



PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

【技術通報R&D技術通報150】
HDMI eye diagram1.4版(deep color)會fail
原因: 因目前的HDMI訊號過長,造成RISING TIME過慢,而會壓到eye diagram
改善: ASMDIA ASM1442 : 3.16K(PIN6 PULL DOWN電阻) 10ohm(PIN4 PULL DOWN電阻)

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Title			
HDMI			
Size	Document Number	Rev	
Custom	GA-B85-HD3-A	1.0	
Date:	Thursday, January 29, 2015	Sheet	33 of 34

