

Compal Confidential

MB Schematic Document

FH51M
LA-J871P

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- VGA Port E
P. 39

HDMI - JHDMI1
- VGA Port C
P. 40

eDP - JEDP1
- CPU eDP
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N18P-G61/G62
- MAX-Q
- GDDR6 4G
P. 27-37


VBIOS ROM
- SOP8
- Size : 1M
P. 29

**CoffeeLake H Processor
BGA1440 (42X28)
(CFL-H & CML-H_ 8+2)**
P. 6-13

Memory BUS

Interleaved (DDR4 2400/2666)


- DDR4 So-DIMM 260 pin
- Channel A
- BANK 0,1,2,3
- Address : 0XA0/1 P. 23


- DDR4 So-DIMM 260 pin
- Channel B
- BANK 4,5,6,7
- Address : 0XA3/4 P. 24

**Cannonlake PCH - H
FCBGA874 (25X24)**
P. 14-21

**CFL-H : HM370
CML-H : HM470**

SPI ROM 16M
- SOP8
- Size : 16M
P. 16

LAN(GbE) JRJ45
- PCIE 2.0 5GT/s
- Port 14
- E2600

USB3.1 - JUSB 3
- GEN2
- USB3.1 Port 2
- USB2.0 Port 2

USB3.1 - JUSB 2
- GEN2
- USB3.1 Port 5
- USB2.0 Port 3

USB3.1 - JUSB 1
- GEN2
- On M/B
- Port 1
- W/USB Charger (SLGC55544)

Type C - JTYPES1
- USB3.1 GEN2
- USB3.1 Port3&4
- RTS5441E

IO_B
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USB3 Re-driver
- PS8713

USB3 Re-driver
- PS8713

HDD - JHDD1
- SATA 3.0
- Port 13 (SATA 0B)
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SSD - JSSD3 (PCIE/SATA)
- PCIE 2.0 5GT/s
- PCIE Port 17-20
- SATA @ Port 17
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SSD - JSSD2 (PCIE/SATA)
- PCIE 2.0 5GT/s
- PCIE Port 9-12
- SATA @ Port 12
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SSD - JSSD1 (PCIE)
- PCIE 2.0 5GT/s
- PCIE Port 21-24
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HD Audio

EMR - JEMR1
- PCH I2C0
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Touch Pad
- EC PS2
- PCH I2C1 P. 63

TPM
- NPCT750
P. 66

EC KB9022
P. 58

Fan Control*2
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WIFI - JNGFF1
- PCIE1.0 2.5GT/s
- PCIE Port 15


- USB2 Port 4
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DDC Camera
- Port 5
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Finger print
- USB2 Port 8
P. 66

Tuch Screen
- USB2 Port 6
- PCH I2C2
P. 38

HDA Codec
- ALC295
P. 56

Int. Speaker
- ON IO/B > L
- ON M/B > R

Int. DMIC
- On CCD Module

Audio Jack
- On IO/B

Extend IC
- I2C
- KC3810 P. 59

Int.KBD
- KSI/KSO
- W/BL or 4 Zone RGB
P. 63

Sub Board	
IO/B (JIO1/JIO2)	P. 73
HS/B (JHS1)	P. 66
TURBO/B (JTURBO1)	P. 77
RTC CKT. (JRTC1)	P. 20
Power On/Of f CKT	P. 63
HW Circuit DC/DC	P. 78
Power Circuit DC/DC	P. 82-111

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Vcc	3.3V +/- 5%	EC Board ID Table for AD channel				
Ra	100K +/- 1%	Rb	Vmin	Vtyp	Vmax	EC AD
0		0	0.000 V	0.300 V	0x00 - 0x13	
1	12K +/- 1%	0.347 V	0.345 V	0.360 V	0x14 - 0x1E	SD034120280
2	15K +/- 1%	0.423 V	0.430 V	0.438 V	0x1F - 0x25	SD034150280
3	20K +/- 1%	0.541 V	0.550 V	0.559 V	0x26 - 0x30	SD034200280
4	27K +/- 1%	0.691 V	0.702 V	0.713 V	0x31 - 0x3A	SD034270280
5	33K +/- 1%	0.807 V	0.819 V	0.831 V	0x3B - 0x45	SD034330280
6	43K +/- 1%	0.978 V	0.992 V	1.006 V	0x46 - 0x54	SD034430280
7	56K +/- 1%	1.169 V	1.185 V	1.200 V	0x55 - 0x64	SD034560280
8	75K +/- 1%	1.398 V	1.414 V	1.430 V	0x65 - 0x76	SD034750280
9	100K +/- 1%	1.634 V	1.650 V	1.667 V	0x77 - 0x87	SD034100380
10	130K +/- 1%	1.849 V	1.865 V	1.881 V	0x88 - 0x96	SD034130380
11	160K +/- 1%	2.015 V	2.031 V	2.046 V	0x97 - 0xA4	SD034160380
12	200K +/- 1%	2.185 V	2.200 V	2.215 V	0xA5 - 0xAF	SD034200380
13	240K +/- 1%	2.316 V	2.329 V	2.343 V	0xB0 - 0xB7	SD000001B80
14	270K +/- 1%	2.395 V	2.408 V	2.421 V	0xB8 - 0xBF	SD00000G280
15	330K +/- 1%	2.521 V	2.533 V	2.544 V	0xC0 - 0xC9	SD034330380
16	430K +/- 1%	2.667 V	2.677 V	2.687 V	0xCA - 0xD4	SD00000WM80
17	560K +/- 1%	2.791 V	2.800 V	2.808 V	0xD5 - 0xDD	SD034560380
18	750K +/- 1%	2.905 V	2.912 V	2.919 V	0xDE - 0xF0	SD00000AL80
19	NC	3.000 V	3.000 V		0xFF1 - 0xFF	

Board ID	PCB Revision
0	50 Rev0.1
1	50 Rev0.2
2	50 Rev0.3
3	50 Rev1.0
4	50 Rev0.2+RGB
5	50 Rev0.3+RGB
6	50 Rev1.0+RGB
7	60 Rev0.1
8	60 Rev0.2
9	60 Rev0.3
10	60 Rev1.0
11	60 Rev0.2+RGB
12	60 Rev0.3+RGB
13	60 Rev1.0+RGB
14	
15	
16	
17	
18	
19	

STATE	SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS
S0 (Full ON)		HIGH	HIGH	HIGH	ON	ON	ON
S3 (Suspend to RAM)		LOW	HIGH	HIGH	ON	ON	OFF
S4 (Suspend to Disk)		LOW	LOW	HIGH	ON	OFF	OFF
S5 (Soft OFF)		LOW	LOW	LOW	ON	OFF	OFF

Power Plane	Description	S0	S3	S4	S5
+RTCVCC	RTC Battery Power	ON	ON	ON	ON
+19V_VIN	Adapter power supply	N/A	N/A	N/A	N/A
+12.6V_BATT	Battery power supply	N/A	N/A	N/A	N/A
+19VB	AC or battery power rail for power circuit.	N/A	N/A	N/A	N/A
+3VLP	+19VB to +3VLP power rail for suspend power	ON	ON	ON	ON
+5VALW	+5V Always power rail	ON	ON	ON	ON
+3VALW	System +3VALW always on power rail	ON	ON	ON	ON*
+3VALW_DSW	+3VALW power for PCH DSW rails	ON	ON	ON	ON
+1.05VALW	+1.05V Always power rail	ON	ON	ON	ON
+1.2V_VDDQ	DDR4 +1.2V power rail	ON	ON	OFF	OFF
+1.05V_VCCST	Sustain voltage for processor in Standby modes	ON	ON	OFF	OFF
+5VS	System +5V power rail	ON	OFF	OFF	OFF
+3VS	System +3V power rail	ON	OFF	OFF	OFF
+1.05VS_VCCSTG	+1.05VALW_PRIM Gated version of VCCST	ON	OFF	OFF	OFF
+0.6VS_VTT	DDR +0.6VS power rail for DDR terminator .	ON	OFF	OFF	OFF
+VCC_CORE	Core voltage for CPU	ON	OFF	OFF	OFF
+VCC_GT	Sliced graphics power rail	ON	OFF	OFF	OFF
+VCCIO	CPU IO +0.95VS power rail	ON	OFF	OFF	OFF
+VCC_SA	System Agent power rail	ON	OFF	OFF	OFF
+1.8VSDGPU_AON	+1.8VS power rail for GPU(AON rails)	ON	OFF	OFF	OFF
+1.8VSDGPU_MAIN	+1.8VS power rail for GPU GC6	ON	OFF	OFF	OFF
+NVVDD1	Core voltage for VGA (merge core & core_s)	ON	OFF	OFF	OFF
+1.35VSDGPU	+1.35VS power rail for GPU	ON	OFF	OFF	OFF
+1.0VSDGPU	+1.0VS power rail for GPU	ON	OFF	OFF	OFF
+1.8VALW	System +1.8VALW always on power rail	ON	ON	ON	ON*

Note : ON* means that this power plane is ON only with AC power available, otherwise it is OFF.

BUS	Device	Address(7 bit)	Address(8bit)	
			Write	Read
I2C_0 (+3VS)	XXXXXX (EMR)			
I2C_1 (+3VS)	TM-P3393-003 (Touch Pad)			
PCH_SMBCLK (+3VS)	DIMM1			
	DIMM2			
PCH_SML1CLK (+3VALW)	N18P-G0/N17P-G0-K1 (VGA)	0x9E		
	Thermal Sensor (NCT7718W)	1001_100xb	1001_1001b	1001_1000b
	Thermal Sensor (G781)	1001_101xb	1001_1011b	1001_1010b
EC_SMB_CK2 (+3VS)	PCH	0x90		
	BQ24780 (Charger IC)	0x12		
EC_SMB_CK1 (+3VLP)	BATTERY PACK	0x16		
	LED driver	0xC0		

KC3810 0xC0

Item (X43 / X76)	BOM Structure	Item (X43 / X76)	BOM Structure
Unpop	@	eDP-TS USB	TS_USB@
Connector	CONN@	eDP-TS USB	NONTS_I2C@ V
PCB	PCB@ V	eDP-TS I2C	TS_I2C@
UMA Only(Reserved)	UMA@	mDP	DP@ V
H62 CPU(Reserved)	H62@	For Acer IOAC	IOAC@ V
H82 CPU(POP)	H82@ V	No Acer IOAC	NIOAC@
CFL i5QS CPU	CFLi5QS@	Intel CNVi	CNVi@ V
CFL i5 CPU	CFLi5@	FOR UART BT module	UART_BT@
CFL QS PCH	CFLPCHQS@	FOR UART debug	UART@
		Extend GPIO	KC3810@
CML i5QS CPU	CMLi5QS@		
CML i7QS CPU	CMLi7QS@	Finger Print	FP@ V
CML i9QS CPU	CMLi9QS@	FingerPrint(with PBA)	PBA@ V
CML QS PCH		Remove KBLED@	
CML i5 CPU	CMLi5@	KB LED driver	LED14P@
CML i7 CPU	CMLi7@	EMR 1.8V	WC18V@
CML i9 CPU		EMR 3.3V	WC33V@
CML PCH	CMLPCH@	Thermal sensor	TMS@ V
		TPM pop	TPM@ V
		TPM non-pop	NTPM@ V
dGPU circuit	VGA@ V	SSD3 pop	SSD3@
N17P GPU	N17P@		
N18P GPU	N18P@ V		
N18P-G61	VGAG61@	PVT	PVT@
N18P-G62 MP2	VGAG62@	PVT W/RGB	PVTRGB@

43 Level	Description	BOM Structure
431AMBOL02	FH51M PG61QS 4G	PCB@/H82@/SATANRD@/CMLi5@/CMLPCH@/VGA@/N18P@/VGAG61@/TS_USB@/NONTS_I2C@/DP@/IOAC@/CNVi@/FP@/PBA@/KBLED@/LED14P@/WC18V@/TMS@/TPM@

Item (X4E)	BOM Structure	Item (X76)	BOM Structure
EMI requirement	EMI@ V	OVRM-uPI	uPI_X76@
EMI require reserve	XEMI@	OVRM-ON	ON_X76@
ESD requirement	ESD@ V	VRAM-SAMSUNG	X76SAM@
ESD require reserve	XESD@	VRAM-MICRON	X76MIC@
FP ESD requirement	FPESD@ V		

X76869BOL01 - MICRON
X76869BOL02 - SAMSUNG
X76869BOL03 - ON OVRM
X76869BOL04 - UPI OVRM

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