SKD10 Motherboard

User Manual

Edition Statement:		
Version	Version Description	Release date
V1.0	Initial version	2018/03/01

Chapter 1 Product Introduction

1.1 Main Information

Based on Intel PCH B150 or H110, the SKD10 is a mini-ITX motherboard, supporting Intel Skylake-S and Kabylake-S processors.

1.2 Specification

Platform: PCH H110(or B150) + Skylake-S/KabyLake-S CPU.

Memory: 2 x SO-DIMM DDR4 slots up to memory of 32GB, supports dual channel.

Graphics: Integrated graphics processor, supports 2 x HDMI1.4, 1 x DP1.2, 1 x eDP1.3 (optional), 1 x eDP to LVDS module(optional).

Storage: 2 x SATA3.0, 1 x M.2 Key B for 2242 SSD.

USB： 4 x USB3.0 (at the rear panel), 2 x USB2.0 (2.0mm headers).

LAN: 2 x Gigabit LAN.

Audio: ALC662 audio Chip, 1 x Line-out and 1 x Mic-in at rear panel, 1 x Line-out and 1 x Mic-in header at front panel, Amplifier, SPDIF-OUT.

Expansion slots: 1 x Mini-PCIe slot, supports Wifi and supports 3/4G modules with SIM card slot.

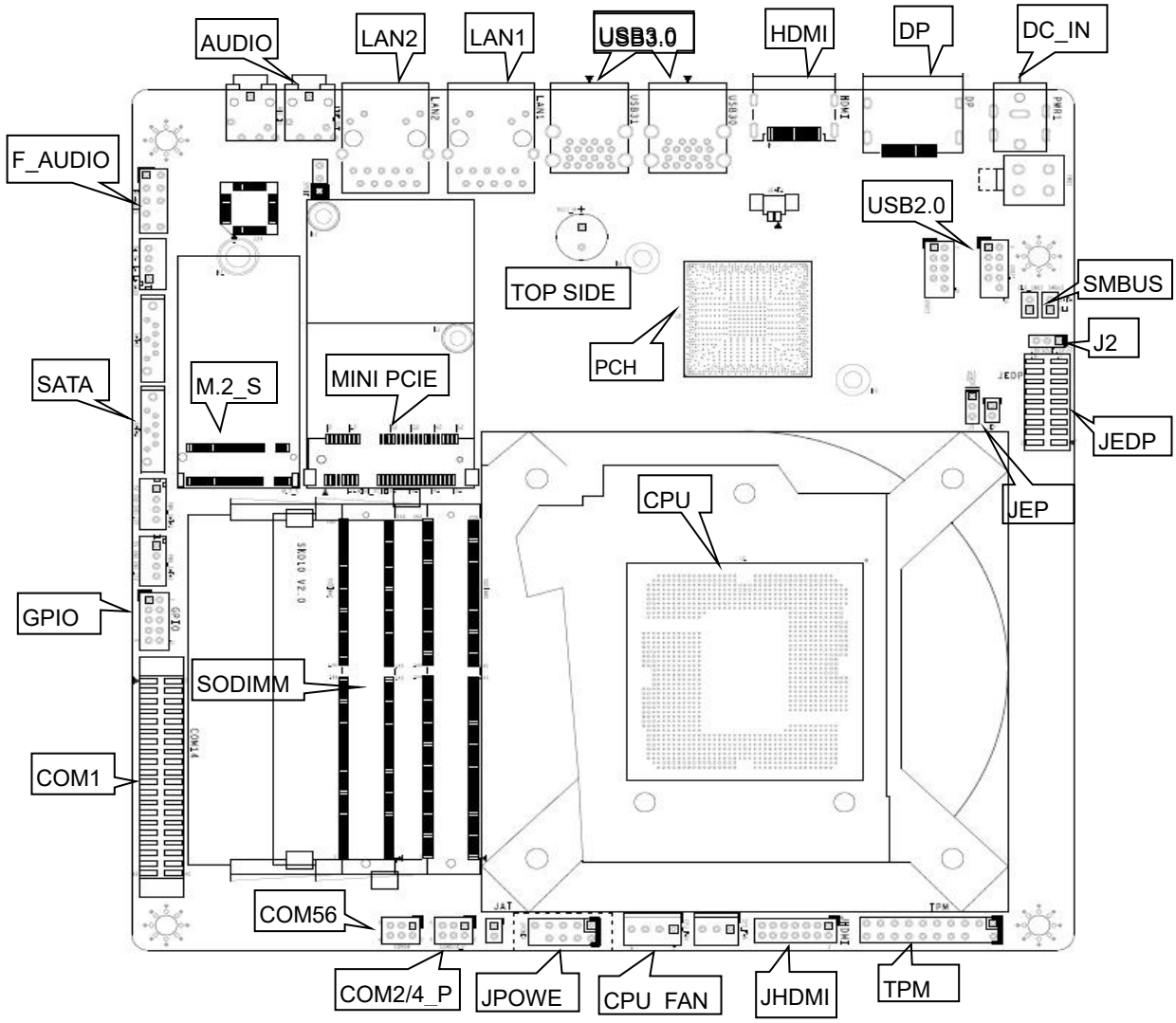
Other interfaces: 8 x GPIO internal header, 4 x RS232 (COM2/4 with power supply), 2 x RS485, 1 x CPU smart fan socket, 1 x system fan socket.

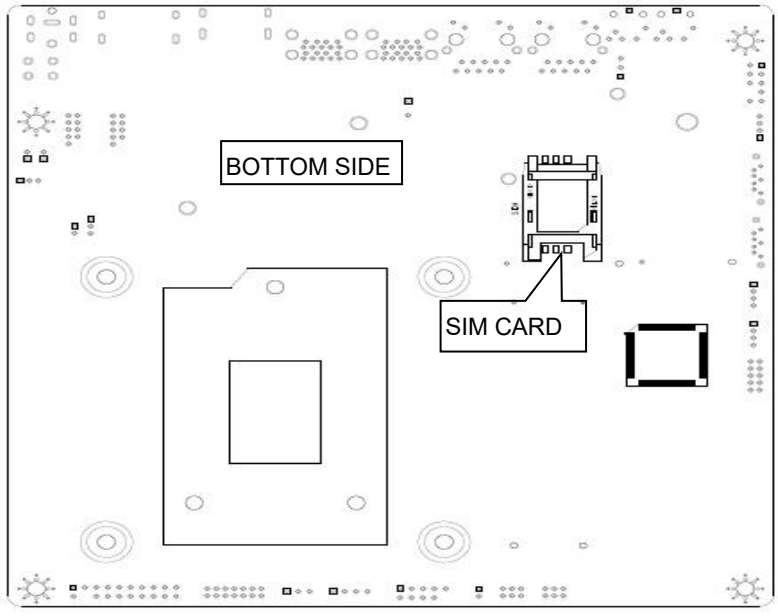
Dimension: 170mm x 170mm.

Power supply: DC-IN 9V or 12V power supply (Jumper J2 should be set up accordingly).

Operating temperature: -40℃- 60℃.

1.3 Motherboard Overview





Chapter 2 Hardware

2.1 Jumper Setup

Set jumpers according to your needs before installing hardware.

Tips about how to identify the first header of jumpers and interfaces: 1. Observe the mark beside plugs, the first header is usually marked by “1” or bold line or triangular symbol; 2. The first header is the square pad of pads on the back.

2.2 Power Supply

Supports DC_IN 9V and 12V power supply.

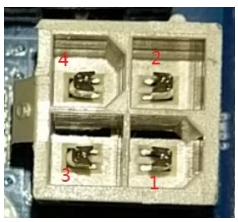
Before connecting DC power, make sure set up Jumper “J2” correctly.

Voltage decides jumper(silk-print：J2)：

Input Voltage	Jumper Setting
12V	1-2
19V	3-2

⚠Make sure set up Jumper correctly so as to avoid damage to the board.

2.3 ATX 12V Auxiliary Power Plug(silk-print: PWR2)



This plug can be board power supply socket(connecting ATX auxiliary power plug and PWR1 socket at the same time is not allowed) and also can be input plug for other equipments (output voltage is the same as input voltage to the PWR1).

PWR2:

Pin	Signal
1	GND
2	GND
3	VCC
4	VCC

⚠When PWR2 is used as input plug for other equipments, please make sure PWR1 input power has sufficient power to ensure the stability of the platform.

2.4 System Memory Slots

2 x SO-DIMM DDR4 slots up to memory of 32GB, supports DDR4-2133/2400 MHz dual channel.

2.5 Display Interfaces

2 x HDMI1.4, one is header(2.00mm spacing),

1 x DP1.2,

1 x eDP1.3(2 lanes, 2.00mm spacing),

1 x eDP to LVDS module(optional, supports dual-channel 24bit LVDS display).

HDMI(silk-print：JHDMI)：

Signal	Pin	Pin	Signal
HDMI_DATA2_P	1	2	HDMI_DATA2_N
HDMI_DATA1_P	3	4	HDMI_DATA1_N
HDMI_DATA0_P	5	6	HDMI_DATA0_N
HDMI_CLK_P	7	8	HDMI_CLK_N
HDMI_SCL	9	10	HDMI_SDA
HDMI_VCC	11	12	GND
HDMI_DETECT	13	14	GND

eDP(silk-print：JEDP)：

Signal	Pin	Pin	Signal
eDP_VCC	1	2	eDP_VCC
GND	3	4	HPD
LANE0_P	5	6	BL_EN
LANE0_N	7	8	BL_PWM
GND	9	10	GND
LANE1_P	11	12	AUX_P
LANE1_N	13	14	AUX_N
GND	15	16	GND
BL_VCC_12V	17	18	BL_VCC_12V

Attention: Keep the jumper “JEP” open when it functions as eDP.

2.6 TPM Interfaces

There are TPM interfaces(Trusted Platform Module) on the board and customers can add TPM module to protect computer.

TPM(silk-print：TPM)：

Signal	Pin	Pin	Signal
LPC_CLK	1	2	GND

LPC_FRAME#	3	(N/A)	（KEY）
LPC_RESET	5	6	VCC_5V
LAD3	7	8	LAD2
VCC_3.3V	9	10	LAD1
LAD0	11	12	GND
SMB_CLK	13	14	SMB_DATA
VCC_3.3SB	15	16	SERIRQ
GND	17	18	CLK_RUN(PCH)
LPCPD#	19	20	PIRQA#(PCH)

2.7 Storage

2 x SATA3.0, 1 x M.2 Key B for 2242 SSD.

2.8 USB

4 x USB3.0, 4 x USB2.0 header(2.0mm spacing),

The USB3.0 at rear panel are powered by 5V standby voltage and are able to supply power for peripheral equipment(5V/1A) by the USB K/S wake up system when the board is not in use or under sleep mode.

USB2.0 header(silk-print: USB21, USB22)

Signal	Pin		Signal
5V	1	2	5V
USB DATA-	3	4	USB DATA-
USB DATA+	5	6	USB DATA+
GND	7	8	GND
(空)	9	10	NUL

2.9 LAN

Intel Gigabit LAN control chip RTL8111F, supports 2 x RJ45 at most. And LAN1(silk-print: LAN1) supports Magic packet wake-up and PXE.

LED Indicator Light：

LILED (green)	Status	ACTLED (orange)	Status
On	Connected	Flicking	Data transmission

2.10 Audio

ALC662 audio control chip. The green one is Speaker-out and the pink one is Mic-in, FP_AUDIO is for Speaker-out and MIC-in at front panel, JAUD is for amplifier output to connect passive speaker, JSPIF is for SPDIF-out.

FP_AUDIO:

Signal	Pin		Signal
MIC2-L	1	2	AGND
MIC2-R	3	4	AVCC
FRO-R	5	6	MIC2-JD
F-IO-SEN(AGNG)	7	8	NC
FRO-L	9	10	LIN2-JD

JAUD:

Pin	Signal
1	L+
2	L-
3	R-
4	R+

2.11 COM (Silk-print: COM14, COM56, COM2/4_P)

4 x RS232(COM1-4), 2 x RS485(COM5-6).

COM2 and COM4 with power supply of 5V or 12V by using jumper “COM2/4_P” .

RS232(silk-print: COM14)

Signal	Pin		Signal
DCD_1	1	2	RXD_1
TXD_1	3	4	DTR_1
GND	5	6	DSR_1
RTS_1	7	8	CTS_1
RI_1	9	10	NC
DCD_2	11	12	RXD_2
TXD_2	13	14	DTR_2
GND	15	16	DSR_2
RTS_2	17	18	CTS_2
VCC(5V or12V)	19	20	NC
DCD_3	21	22	RXD_3
TXD_3	23	24	DTR_3
GND	25	26	DSR_3
RTS_3	27	28	CTS_3
RI_3	29	30	NC
DCD_4	31	32	RXD_4
TXD_4	33	34	DTR_4
GND	35	36	DSR_4
RTS_4	37	38	CTS_4

VCC(5V or 12V)	39	40	NC

COM2/4 Voltage Setting（silk-print：COM2/4_P）：

COM2	Pin		COM4
VCC_5V	1-3	2-4	VCC_5V
VCC_12V	5-3	6-4	VCC_12V

RS485（silk-print：COM56）：

COM5	Pin		COM6
COM5_DATA-	1	2	COM6_DATA-
COM5_DATA+	3	4	COM6_DATA+
GND	5	6	GND

2.12 Mini-PCIe (silk-print：MINI_PCIE)

1 x Mini-PCIe slot, supports Wifi. If SIM card is loaded(optional), it will support 3G/4G network.

2.13 GPIO (Silk-print: GPIO)

1 x 2*5Pin GPIO header (2.0mm spacing), 8 x programmable I/O.

Signal	Pin		Signal
SIO_GP70	1	2	VCC_3.3V
SIO_GP71	3	4	SIO_GP74
SIO_GP72	5	6	SIO_GP75
SIO_GP73	7	8	SIO_GP76
GND	9	10	SIO_GP77

2.14 CPU FAN (Silk-print: CPU_FAN)

1 x 4PIN smart CPU fan socket.

CPU_FAN：

Pin	Signal
1	GND
2	VCC_12V
3	CPUFAN_TAC
4	CPUFAN_CTL

2.15 System FAN (Silk-print: SYS_FAN)

1 x 3PIN system fan socket.

SYS_FAN：

Pin	Signal
1	GND

2	VCC_12V
3	CPUFAN_TAC

2.16 Power socket (Silk-print: JPOWER)

Front panel interface is to connect function buttons and indicator lights on the case.

JPOWER1:

Signal	Pin		Signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
RSTBTN+	5	6	PWR_ON+
RSTBTN-	7	8	PWR_ON-
NUL	9	10	blank

2.17 Auto Power On (Silk-print: JAT)

JAT:

Setup	JAT
Close	On

2.18 CMOS (Silk-print: JCMOS)

The CMOS is powered by the button battery on the board. Clearing CMOS will permanently clear previous system setting and restore it to factory setting..

Steps: 1. Turn off the computer and disconnect power,

2. Connect the jumper cap to the 1ST and 2nd pin of JCMOS pin for 10 seco and disconnect,
3. Turn on the computer, and press <Del> to enter BIOS setting, overload the best default value,
4. Save and exit.

JCMOS:

Setup	Status
Short Circuit	Clears CMOS memory, restores to default values.
Disconnect	Normal, default setting

⚠ Don't clear COMS when the computer is connected to power so as to avoid damage to the board.