IPC110 Motherboard User Manual

Introduction

IPC110 series CPU boards are small form factor system boards optimized for PBX and network security applications. With intel latest Z500P series processor,it is easy to develop a Fanless system which has more reliability .Integrated up to 3 ethenet ,IPC110 provide a flexible application for customer. A typical PBX application is , attaching PCIe voice card, to build total solution for little company communication. Or attaching MiniPCIe network card, to build up to 5 network port firewall device.

Specification

- CPU: Intel Atom Z510P 1.1GHz/ Z520P 1.3GHz /Z530P 1.6GHz
- DRAM: Slot Onboard, up to 2GB DDR2 400/533 SDRAM (double side 1GB)
- Chipset: Intel Poulsbo
- SouthBridge: Poulsbo integrated
- Storage: CompactFlash socket, 44pin PATA connector， 1 SATA slot
- Power: DC jack ,DC 12V
- Three front panel LEDs, for 3 programmable GPO status indicator
- Push button:for mode setting switch, accessing a programmable GPI, active low means switch is pressed
- PCIe Interface : PCIe x4 Golden Finger
- Expansion: 2 MiniPCIe slot
- Connectivity: Up to 3 Ethernet channels (10/100/1000Mbps speed)
  3 PCIe Ethernet controller
  Support PXE (for remote booting)
- I/O: 1*DB9 serial port, for debug console usage ,RS232, 3*USB 2.0 port
- Board size: 6 x 6" (152.4 x 152.4 mm)
- Firmware: AMI BIOS

Operating system compatibility

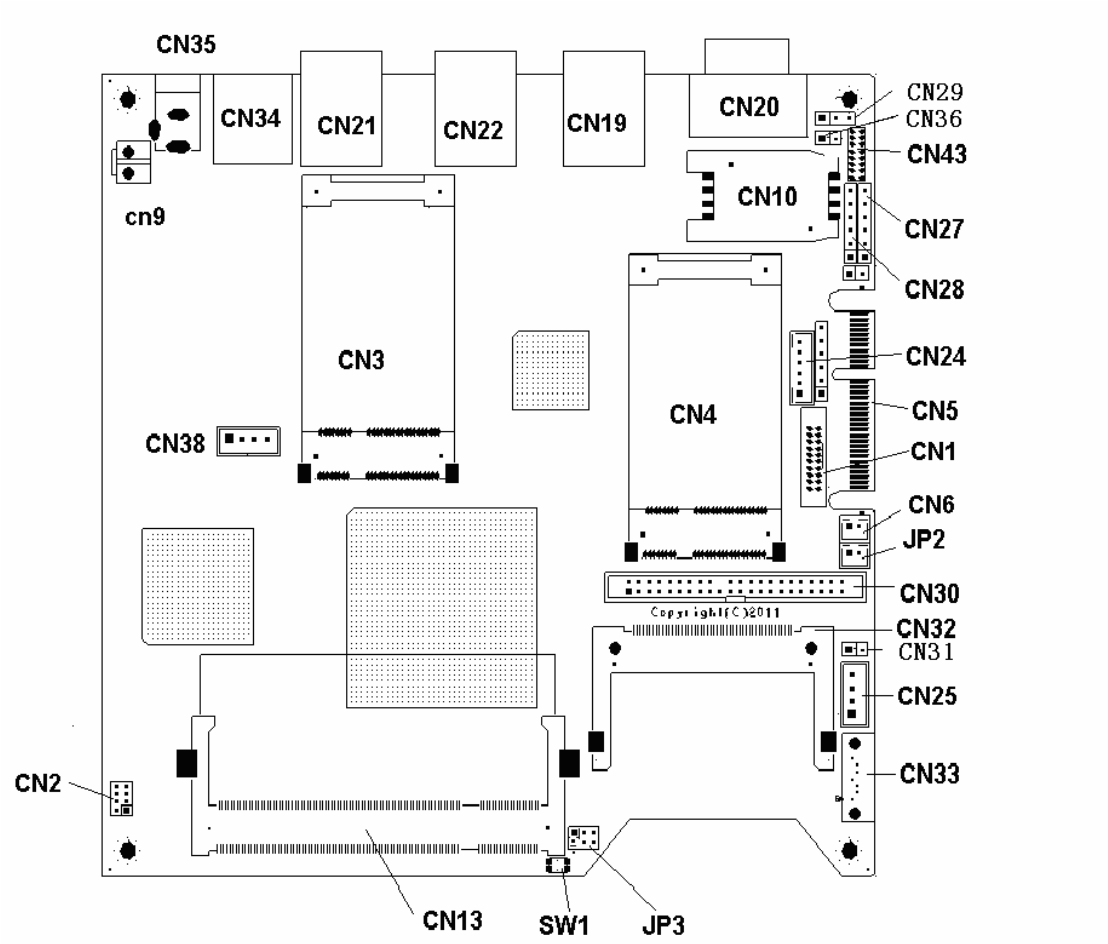
1、Windows 2000/XP

2、Linux

3、DOS

IPC110 Connector and Jumper

1. Layout



2. Connector and Jumper List

Name	Function
CN1	SDVO display output
CN5	PCIe x4 Golden Finger
CN6	Clear CMOS
CN35	Main Power in Jacket
CN9	Power Supply Jacket
CN13	DDR2 Memory Slot
CN3	Mini PCIe Slot 1
CN4	Mini PCIe Slot 2
CN21	Ethernet 1
CN22	Ethernet 2
CN19	Ethernet 3
CN20	Serial Port

CN24	PS/2 Keyboard and Mouse Port
CN30	44 Pin IDE Interface
CN32	Compact Flash Interface
CN33	SATA Interface
CN25	SATA power supply
CN34	USB Port
CN43	LPC interface
JP2	Manual Reset In
JP3	IDE/SATA Configuration
CN2	External LEDs and GPIO
CN38	USB connector
CN10	SIM Socket
CN27	POWER_LED Interface
CN28	HDD_LED Interface
CN29	Serial Port
CN36	12V Interface
CN31	12V Interface
SW1	GPI switch

System Status Indicator

Name	**Function**
LED6	GPO use
LED17	GPO use
LED16	GPO use
SW1	GPI use

3. Connector and Jumper Description

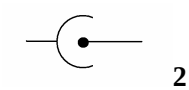
CN1 SDVO Display Output ,SDVO (Serial Digital Video Out) is a proprietary Intel technology introduced with their motherboard chipsets

Pin	**Name**	**Pin**	**Name**
1	RED positive	2	Red negative
3	Ctrl Clk	4	Green positive
5	Green negative	6	Blue positive
7	Blue negative	8	CLK positive
9	CLK negative	10	Ctrl Data
11	Reset#	12	Gnd
13	Gnd	14	Gnd
15	3.3v	16	3.3v
17	3.3v	18	5v
19	5v	20	5v

CN6 clear CMOS

Setting	Function
Close 1-2	Clear CMOS
Open 1-2 (default)	Normal

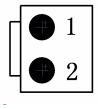
CN35 Main Power Jacket DC in @12V



1 **2**

Pin	Name
1	Gnd
2	Vin

CN9 Power Supply Jacket DC out @12V



Pin	Name
1	Vin
2	Gnd

CN13 DDR2 Memory Slot

- **1.8V**
- **DDR2**
- **Support for a maximum of 2GB of DRAM**

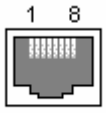
CN3 CN4 Mini PCIe Slot 1&2

Attach 3G SIM card to CN10, and attach MiniPCIe 3G module to CN3，implement 3G function for IPC110.

MiniCard Pinout

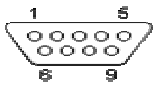
Pin #	Signal Name	Pin #	Signal Name
51	Reserved	52	+3.3V
49	Reserved	50	GND
47	Reserved	48	+1.5V
45	Reserved	46	LED_WPAN#
43	Reserved	44	LED_WLAN#
41	Reserved	42	LED_WWAN#
39	Reserved	40	GND
37	Reserved	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved (UIM_C4)	20	Reserved
17	Reserved (UIM_C8)	18	GND
Mechanical Key			
15	GND	16	UIM_VPP
13	REFCLK+	14	UIM_RESET
11	REFCLK-	12	UIM_CLK
9	GND	10	UIM_DATA
7	CLKREQ#	8	UIM_PWR
5	Reserved	6	1.5V
3	Reserved	4	GND
1	WAKE#	2	3.3V

CN21/CN22/CN19 Giga Ethernet Port



Pin	Name
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

CN20 Serial R232 Port COM0 (DB9 male)



Pin	Name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

CN29 Serial R232 Port COM0

Pin	Name
1	RX
2	TX
3	GND

CN24 PS2 Keyboard and Mouse Port

Pin	Name
1	+5V
2	MSCLK
3	MSDATA
4	KBCLK
5	KBDATA
6	GND

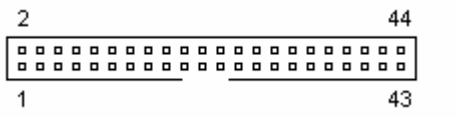
CN27 POWER_LED Interface

Pin	Name
1	PWR_LED_S3
2	GND
3	PWR_BTN
4	GND
5	PWR_LED
6	GND

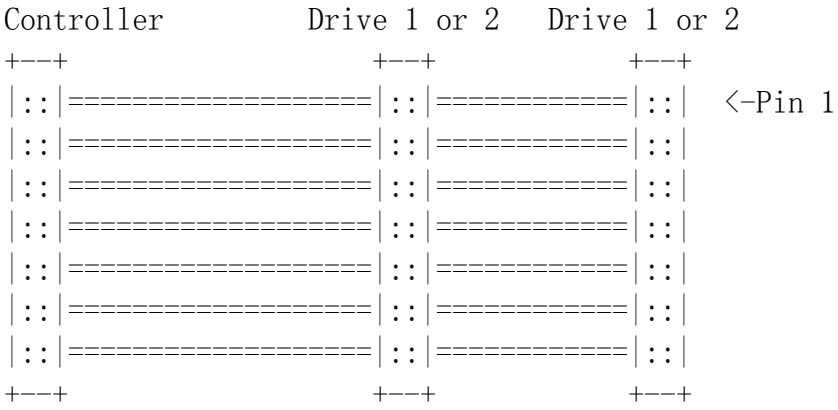
CN28 HDD_LED Interface

Pin	Name
1	IDE_LED_P
2	IDE_LED_N
3	CF_LED_P
4	CF_LED_N
5	SATA_LED_P
6	SATA_LED_N

CN30 44 Pin IDE Interface



- 44 pin (2.0mm pitch) for 2.5" harddisks.



Pin	Name	Pin	Name
1	/RESET	23	/DIOW
2	GND	24	GND
3	DD7	25	/DIOR
4	DD8	26	GND
5	DD6	27	IORDY
6	DD9	28	SPSYNC:CSEL
7	DD5	29	/DMACK
8	DD10	30	GND
9	DD4	31	INTRQ
10	DD11	32	/IOCS16
11	DD3	33	DA1
12	DD12	34	PDIAG
13	DD2	35	DA0
14	DD13	36	DA2
15	DD1	37	/IDE_CS0
16	DD14	38	/IDE_CS1
17	DD0	39	/ACTIVE
18	DD15	40	GND
19	GND	41	+5V
20	KEY	42	+5V
21	DMARQ	43	GND
22	GND	44	GND

CN32 CompactFlash Interface

Pin	Name	Pin	Name
1	GND	26	/CD1
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	/CE1	32	/CE2
8	A10	33	/VS1
9	/OE	34	/IORD
10	A9	35	/IOWR
11	A8	36	/WE
12	A7	37	/READY:/RDY:/IREQ
13	VCC	38	VCC
14	A6	39	CSEL

15	A5	40	/VS2
16	A4	41	RESET
17	A3	42	/WAIT
18	A2	43	/INPACK
19	A1	44	/REG
20	A0	45	/BVD2:SPKR
21	D0	46	/BVD1:STSCHG
22	D1	47	D8
23	D2	48	D9
24	/WP:/IOIS16	49	D10
25	/CD2	50	GND

CN33 SATA Interface

Pin	Name
1	Ground
2	Transmit +
3	Transmit -
4	Ground
5	Receive -
6	Receive +
7	Ground

CN31/CN36 12V output Interface

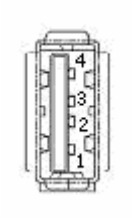
Pin	Name
1	12V
2	Ground

CN25 SATA Power Supply

Pin	Name
1	5v
2	Ground
3	Ground
4	12v

CN34 USB Port

2 USB2.0 ports . 500 mA Continuous Current per Channel. Short-Circuit and Thermal Protection With Overcurrent Logic.



Pin	Name
1	5v
2	Data-
3	Data+
4	Ground

CN38 USB connector

Pin	Name
1	5v
2	Data-
3	Data+
4	Ground

CN43 LPC Interface

Pin	Name	Pin	Name
1	LPC_CLK	9	AD3
2	SERIRQ	10	+3.3V
3	AD0	11	FRAME#
4	NC	12	GND
5	AD1	13	GND
6	GND	14	NC
7	AD2	15	48MHz_CLK
8	+5V	16	NC

JP2 Manual Reset In

Setting	Function
Close 1-2	Reset System
Open 1-2 (default)	Normal

JP3 IDE/SATA Configuration

2*4*2.0mm header

Default Setting	**Function**
Open 1-2	CF Slave (close it means CF master)
Close 3-4	IDE Master (open it means IDE slave)
Close 5-6	Disable SATA (default)

Note:1. There's a important principle that only one device can be allowed to exsit in one master (slave) simultaneously. IDE device Should be a SATA hard disk drive ,a type II CF card, or a IDE hard disk drive.

2. You should disable SATA (close 5-6) first before attach CF card or IDE hard disk ,.. If not ,system will spend more time to detect IDE devices. That means Pin 5-6 are only open at the case when user using SATA hard disk.

FCC STATEMENT

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.