

**Half-size PCIe CPU Card with Intel® Atom™  
D425/N455/D525, 1GB Memory on board, VGA/LVDS, Dual  
PCIe GbE, 7 USB2.0, 4 COM and 3 SATA II and Audio, RoHS**

# **PIC0e-PV-D4251/N4551/D5251**

## **Quick Installation Guide**

### **Version 1.0**

Oct. 13, 2010

#### **Package List**

PIC0e-PV-D4251/N4551/D5251 package includes the following items:

- 1 x PIC0e-PV-D4251/N4551/D5251 Single Board Computer
- 1 x Dual RS-232 Cable
- 3 x SATA Cable
- 1 x KB/MS Y Cable
- 1 x USB cable
- 1 x Mini Jumper Pack
- 1 x Utility CD(within manual)
- 1 x QIG (Quick Installation Guide)
- 1 x One Key recovery CD



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## Specifications

- CPU:

Intel® Atom™ D525 dual-core processor (1.80GHz/1MB L2 cache)

Intel® Atom™ D425 single-core processor (1.80GHz/512KB L2 cache)

Intel® Atom™ N455 single-core processor (1.66GHz/512KB L2 cache)

- System Chipset: Intel ICH8M

- BIOS: UEFI Label

- System memory:

On-board 1GB DDR3 800MHz Memory;

One 204-pin 800MHz DDR3 SDRAM SO-DIMM supported  
(system max. 2GB)

- Ethernet:

Dual PCIe GbE by Realtek RTL8111E, LAN1 supports ASF2.0

- Super IO: Fintek F81865

- I/O Interface:

3 x RS-232

1 x RS-232/422/485 with Auto Flow control

1 x LPT

1 x PS/2 for KB/MS

1 x 6-pin wafer header for KB/MS

1 x IrDA

7 x USB2.0 (6 by pin-header, 1 on rear side)

3 x SATA II

1 x CF type II

- Digital I/O: 8-bit digital 4 bit input / 4bit output (from Super IO)

- Display Out:

Analog CRT up to 2048x1536 for D525/D425, 1400x1050 for N455, Support for CRT Hot plug;

Single Channel 18-bit LVDS support resolution up to XGA  
(1024x768) & WXGA (1366x768)

- Graphic: GMA3150

- Audio: Support 7.1 channel HD audio by IEI AC-KIT883HD kit

- Front Panel: Power button / Reset / Power LED / HDD LED

- TPM: On board INFINEON SLB9635TT1.2

- SMBus: 1 x 4-pin wafer, pitch = 1.25MM

- WDT: Software programmable supports 1~255sec System reset, Support by Fintek F81865
- Power supply: 5V/12V, AT/ATX supported
- Power Consumption:
  - 5V@3.38A, 12V@0.54A (CPU: D525, 1GB DDR3 800MHz Memory on board)
  - 5V@3.28A, 12V@0.43A (CPU: D425, 1GB DDR3 800MHz Memory on board)
  - 5V@3.13A, 12V@0.32A (CPU: N455, 1GB DDR3 800MHz Memory on board)
- Temperature: Operation:
  - 20°C~60°C with free air, -20°C~70°C with force air for D525 processor
  - 20°C~65°C with free air, -20°C~70°C with force air for D425 processor
  - 20°C~70°C with free air, -20°C~75°C with force air for N455 processor
- Humidity: Operation: 5%~95% non-condensing
- Dimension: 185mm x 122mm

## Ordering Information

- PICOe-PV-D5251-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Dual Core D525  
1.80GHz/1MB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, RoHS
- PICOe-PV-D5251T-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Dual Core D525  
1.80GHz/1MB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, TPM, RoHS
- PICOe-PV-D4251-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Single Core D425  
1.80GHz/512KB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, RoHS
- PICOe-PV-D4251T-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Single Core D425  
1.80GHz/512KB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, TPM, RoHS
- PICOe-PV-N4551-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Single Core N455  
1.66GHz/512KB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, RoHS
- PICOe-PV-N4551T-R10 :  
Half-size PCIe CPU Card with Intel® Atom™ Single Core N455  
1.66GHz/512KB L2, 1GB Memory on board, VGA/LVDS, Dual PCIe  
GbE, USB 2.0, SATA II, audio, TPM, RoHS
- AC-KIT883HD-R10 :  
7.1 Channel HD Audio Kit with Realtek ALC883 support Dual Audio  
streams
- 19800-000075-RS : KB/MS Cable with Bracket
- 32200-015100-RS : LPT Cable
- 32102-000100-200-RS : SATA Power Cable
- 19FTS00032100-000001-RS: CPU Fan

## Jumpers setting and Connectors

<b>LABEL</b>	<b>FUNCTION</b>
J_CMOS1	CMOS State Setting jumper
JCF1	CF Card Master/Slave Setting jumper
J_VLVDS1	LCD Voltage Selector jumper
JP1	PCIE Status Selector jumper
ATXCTL1	AT/ATX Power Mode Setting connector
J1	RS232/RS422 or RS485 Type Select Jumper
J2	RS422 or RS485 Type Select Jumper
J3	RS485 Termination select
J4	RS422 Termination select
LVDS1	LVDS Panel Connector
COM1 COM2 COM4	Internal Serial Port Connectors (RS-232)
COM3	RS232/RS422/RS485 Pin Header
SPI1	Flash SPI ROM Connector
LAN1 LAN2	RJ-45 LAN Connector
USB0_1 USB2_3 USB4_5	Internal USB Connectors
USB6	USB Port
J_AUDIO1	External Audio Module Connector
LPT1	Parallel Port Connector
VGA1	VGA Connectors
DIO1	Digital I/O Connector
KB_MS1	6-pin Header Keyboard/Mouse Connector
PT1	Keyboard/Mouse Connector
INV1	LVDS Panel Voltage Supply Connector
CPU_FAN1	Fan Connector
IR1	IrDA Infrared Interface Connector
BAT1	Battery connector
F_PANEL1	PWR & RST Buttons and Indicators
SATA1 SATA2 SATA3	Serial ATA Connectors
LAN1/LAN2	RJ-45 LAN Connectors
CN1	SMBUS Connector

<b>J_CMOS1: Clear CMOS Setup</b>	
J_CMOS1	DESCRIPTION
1-2 (Default)	Keep CMOS Setup (Normal Operation)
2-3	Clear CMOS Setup

<b>JCF1: CF Card Setup</b>	
JCF1	DESCRIPTION
Short	Master
Open (Default)	Slave

<b>J_VLVDS1: Set The Panel Voltage</b>	
J_VLVDS1	DESCRIPTION
1-2	Set The Voltage Level Of Panel To 3.3V
3-4	5V
5-6	12V

<b>JP1: PCIe interface Setup</b>	
J_PCIE1	DESCRIPTION
1-2 Short (Default)	Set up the interface of PCIe is x1
1-2 Open	Set up the interface of PCIe is x4

<b>ATXCTL1: AT/ATX1 mode setting</b>	
PIN	DESCRIPTION
SHORT2-3	AT MODE
USE &5VSB CABLE	ATX mode

<b>J1: RS232/RS422 or RS485 Type Selector</b>	
JCF1	DESCRIPTION
1-2	RS232
3-4	RS422
5-6	RS485

<b>J2: RS422 or RS485 Type Selector</b>	
J_PCIE1	DESCRIPTION
1-3 2-4	RS422
3-5 4-6	RS485

<b>J4: RS422 Termination Selector</b>	
J_PCIE1	DESCRIPTION
1-2 Short (Default)	120ohm Termination
1-2 Open	No 120ohm Termination

<b>J3: RS485 Termination select</b>	
J_PCIE1	DESCRIPTION
1-2 Short (Default)	120ohm Termination
1-2 Open	No 120ohm Termination

**LVDS1: LVDS LCD Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDSA_DATA0	4	LVDSA_DATA#0
5	LVDSA_DATA1	6	LVDSA_DATA#1
7	LVDSA_DATA2	8	LVDSA_DATA#2
9	LVDSA_CLK	10	LVDSA_CLK#
11	NC	12	NC
13	GND	14	GND
15	L_DDC_DATA	16	L_DDC_CLK
17	VCC_LCD	18	VCC_LCD
19	VCC_LCD	20	VCC_LCD

**COM1, COM2, COM4: Internal Serial Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD#	6	CTS#
2	DSR#	7	DTR#
3	RXD#	8	RI#
4	RTS#	9	GND
5	TXD#	10	N/A

**COM3: Internal Serial Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NDCD3	6	NCTS3
2	NDSR3	7	NDTR3
3	NRX3	8	NR13
4	NRTS3	9	GND
5	NTX3	10	N/A
11	TX3+	12	TX3-
13	RX3+	14	RX3-

**SPI1: SPI Connector (PINHEADER2\*3,6PIN,180,P:2.0MM)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SPI_VCC	2	GND
3	SPI_CS	4	SPI_CLK
5	SPI_SO	6	SPI_SI

<b>USB0_1/USB2_3/USB4_5: USB Connector (PINHEADER2*4,8PIN,180,P:2.54MM)</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	GND
3	DATA0_N	4	DATA1_P
5	DATA0_P	6	DATA1_N
7	GND	8	VCC

<b>USB6: 1USB Connector (USB PORT,4PIN,90,p:2.00MM)</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	DATA6_N
3	DATA6_P	4	GND
5	GND	6	GND
7	GND	8	GND

<b>J_AUDIO1: External Audio Module Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	HDA_SYNC	2	HDA_BITCLK
3	HDA_SDOUT	4	SB_SPKR
5	HDA_SDIN0	6	HDA_RST#
7	VCC	8	GND
9	VCC12	10	GND

<b>LPT1: Parallel Port Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	STB	2	AUTO FORM FEED #
3	PTD0	4	ERROR#
5	PTD 1	6	INITIALIZE#
7	PTD 2	8	SLIN
9	PTD 3	10	GND
11	PTD 4	12	GND
13	PTD 5	14	GND
15	PTD 6	16	GND
17	PTD 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PAPER EMPTY	24	GND
25	SLCT	26	N/C



<b>VGA1: D-SUB VGA,15PIN,90°,2.29MM</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUN	4	NA
5	GND	6	GND
7	GND	8	GND
9	CRT_VCC	10	DISPLAY_GND
11	NA	12	5VDDCDA
13	HSY	14	NSY
15	5VDDCLK	16	GND
17	GND		

<b>DIO1: 10-pin Digital I/O Connector</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	+5V
3	OUTPUT3	4	OUTPUT2
5	OUTPUT1	6	OUTPUT0
7	INPUT3	8	INPUT2
9	INPUT1	10	INPUT0

<b>KB_MS1:6-pin Header Keyboard/Mouse Connector</b>	
PIN	DESCRIPTION
1	VCC(+5V)
2	L_MDAT
3	L_MCLK
4	L_KDAT
5	L_KCLK
6	GND

<b>PT1:MINIDIN JACK,6PIN,90°, Keyboard/Mouse Connector</b>	
PIN	DESCRIPTION
1	L_KDAT
2	L_MDAT
3	GND
5	PS2V5
6	L_KCLK

<b>INV1: 5-pin Header Inverter Connector</b>	
PIN	DESCRIPTION
1	L_BKLTCTL
2	GND
3	+12V
4	GND
5	BACKLIGHT ENABLE

<b>IR1: IrDA connector</b>	
PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

<b>CPU_FAN1: CPU Fan Connector</b>	
PIN	DESCRIPTION
1	GND
2	+12V
3	FANIO1
4	FANPWM1

<b>BAT1 :Battery Connector</b>	
PIN	DESCRIPTION
1	BAT+
2	BAT-(GND)

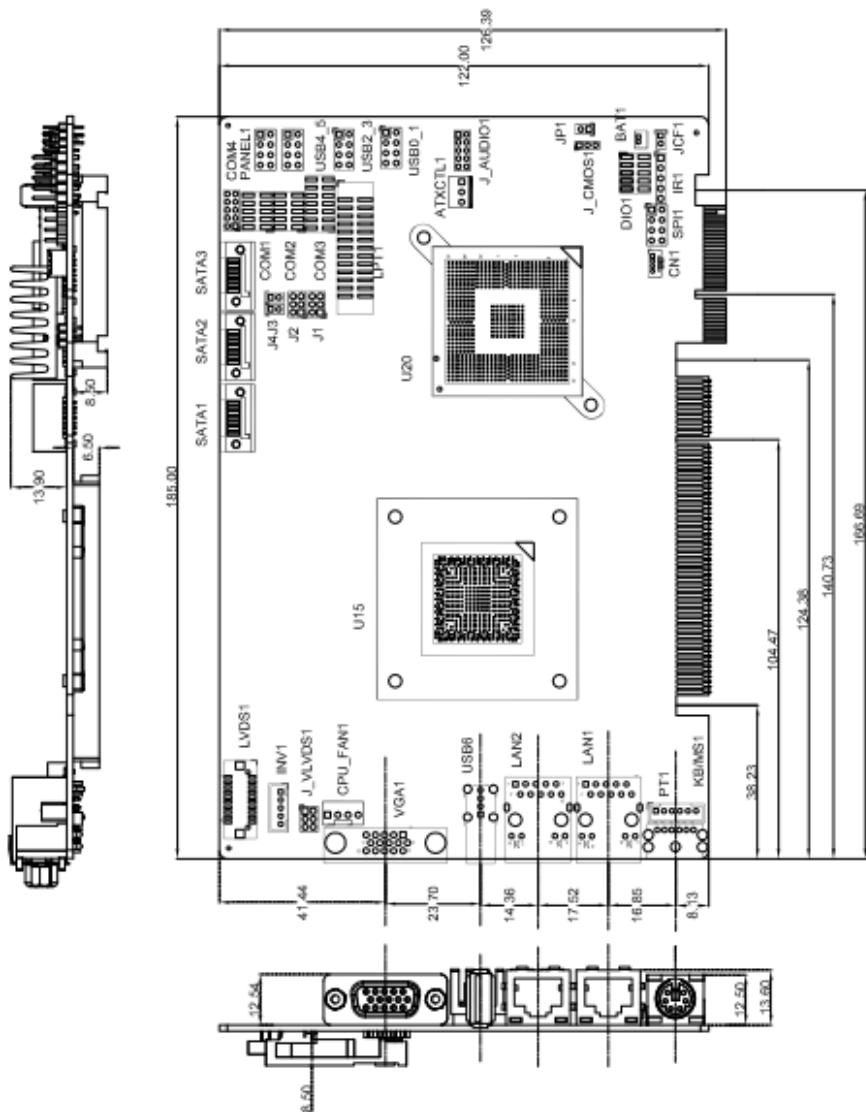
<b>F_PANEL1 : External Switches and Indicators panel</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	PWR_BTN+	2	PWR_LED+
3	PWR_BTN-	4	PWR_LED-
5	HDD_LED+	6	RESET+
7	HDD_LED-	8	RESET-

<b>SATA1/SATA2/SATA3 : SATA WITH FRAME,7PIN,180°</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	GND	2	SATATXP1
3	SATATXN1	4	GND
5	SATARXN1	6	SATARXP1
7	GND		

<b>LAN1/LAN2: 1PORT RJ-45 JACK W/GIGAW/LEDMAGNETICS,12PIN,90D,P:2</b>			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	LAN1_MDI0+	2	LAN1_MDI0-
3	LAN1_MDI1+	4	LAN1_MDI1-
5	GND	6	GND
7	LAN1_MDI2+	8	LAN1_MDI2-
9	LAN1_MDI3+	10	LAN1_MDI3-
11	LAN1_LINK100	12	AN1_LINK1000
13	LAN1_LED0	14	VCC3DUA
15	GND	16	GND
17	NA	18	NA

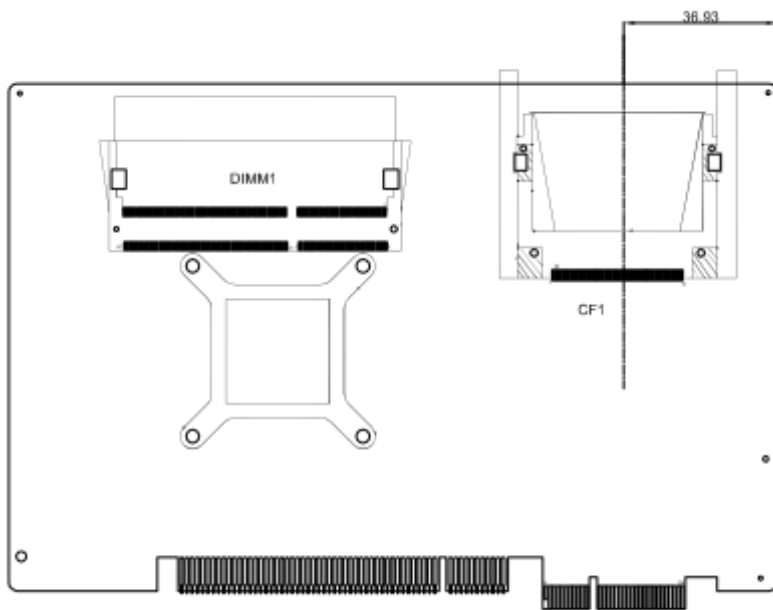
<b>CN1: SMBUS Connector</b>	
PIN	DESCRIPTION
1	GND
2	SMBDATA
3	SMBCLK
4	5V

# Board Layout: Jumper and Connector Locations



(Unit:mm)

## Board Layout: Jumper and Connector Locations



(Unit:mm)