

PCA-6782 Intel® Atom™ Dual-Core D525/ Fanless N455 CPU, ISA Half-size SBC with VGA/LVDS/Single GbE/SATA/COM Startup Manual

Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

- PCA-6782D(N) single board computer
- 1 CPU Cooler for Atom D525 CPU P/N: 1960046526N001 (Only Available for D SKU)
- 1 PCA-6782 Startup Manual
- 1 CD with driver utility and manual (in PDF format)
- 1 Ultra ATA 66/100 HDD cables P/N: 1701400452
- 2 Serial ATA HDD data cable P/N: 1700003194
- 2 Serial ATA HDD power cable P/N: 1703150102
- 1 Print port & COM part cable kit P/N: 1700008954
- 1 ATX Feature Cable P/N: 1700002343
- 1 4-port USB cable kit P/N: 1700014398
- 1 Y cable for PS/2 keyboard and PS/2 mouse P/N: 1700060202
- ATX power cable 20P/7P 10 cm P/N: 1703070101
- AT Power Cable P/N: 1703080101
- 1 Jumper Pack P/N: 9689000002
- 1 Warranty card

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Note1: For detailed contents of PCA-6782, please refer to information on the enclosed CD-ROM (in PDF format). Acrobat Reader is required to view any PDF file.

For more information on this and other Advantech products, please visit our website at:

<http://www.advantech.com/ePlatform/>

For technical support and service, please visit our support website at:

<http://support.advantech.com/support/default.aspx>

This manual is for the PCA-6782 series Rev. A1

Part No. 2002678210

1st Edition
December 2010

Specifications

Standard SBC functions

- **CPU:** Soldered-down (BGA type) Intel® Atom™ 1.8 GHz D525 dual-core CPU or 1.66 GHz N455 fanless CPU
- **BIOS:** AMI BIOS
- **Chipset:** ICH8M I/O control hub
- **System memory:** Maximum 2 GB DDR2 667 memory in SO-DIMM socket
Note: PCA-6782 is ONLY compatible with DDR2 memory modules that are assembled with x16 (16-bit) memory chips and NOT compatible with those that are assembled with x8 (8-bit) memory chips. Using wrong memory modules may cause unexpected system instability.
- **IDE interface:** One channel, supports two IDE devices. The IDE port may be altered to a Type II CF socket.
- **SATA interface:** Supports three SATA2 HDDs (300 MB/s)
- **Serial ports:** Two dedicated serial RS-232 ports on board, plus four ports RS-422/485 w/ autoflow control by module (Optional, Advantech P/N: PCA-COM485-00A1E)
- **Parallel port:** One EPP/ECP parallel port
- **Keyboard/mouse connector:** One standard PS/2 keyboard/mouse connector and one external 6-pin header
- **Watchdog timer:** Timer can be set from 1 to 255 seconds or 1 to 255 minutes.
- **USB (2.0):** 8 Universal Serial Bus ports

VGA Interface

- **Chipset:** Embedded Gen3.5+ GFX Core technology
- **Display memory:** 224 Mb shared system memory
- **Video output:**
 - VGA: Supports up to SXGA 1400 x 1050 @ 60 Hz for Atom™ N455, up to 2048 x 1536 @ 60 Hz for Atom™ D525
 - LVDS: Supports 18-bit single channel and up to WXGA 1366 x 768 or 1280 x 800
 - Dual Display: VGA + LVDS, supports extended mode and clone mode

Ethernet Interface

- **Chipset:** Intel® 82567V
- **Connection:** Onboard RJ-45 connectors

Mechanical and Environmental

- **Dimensions (L x W):** 185 x 122 mm (7.3" x 4.8")
- **Power supply voltage:** +5 V, +12 V, 5 Vsb
- **Power requirements:**
 - D SKU: CPU: Dual-core Atom™ D525 CPU 1.8 GHz; Memory: 1 piece 2 GB DDR2 677 MHz SODIMM; Storage: One SATA HDD; Test program: Hot CPU pro 4.22; +12 V: 0.46 A; +5 V: 2.41 A; +3.3 V: 0 A; +5 VSB: 0.01 A; -12 V: 0 A; -5 V: 0 A; Total Power Consumption: 17.62 W
 - N SKU: CPU: Single Core Atom™ N455 CPU 1.66 GHz; Memory: 1 piece 2 GB DDR2 667 MHz SODIMM; Storage: One SATA HDD; Test Program: Hot CPU pro 4.22; +12 V: 0.13 A; +5 V: 2.19 A; +3.3 V: 0 A; +5 VSB: 0.01 A; -12 V: 0 A; -5 V: 0 A; Total Power Consumption: 12.56 W

Specification

- **Operating temperature:** 0 ~ 60° C (32 ~ 140° F) (operation humidity: 40° C @85% RH, Non-Condensing)
- **Weight:** 0.225 kg (weight of board)

Jumpers and Connectors

The board has a number of connectors and jumpers that allow you to configure your system to suit your application. The table below lists the function of each of the connectors and jumpers.

Connectors	
Label	Function
JFP1(1-2)	HDD LED connector
JFP1(3-4)	Power LED connector
JFP1(5-6)	Suspend LED connector
JFP1(7-8)	Reset connector
JFP1(9-10)	ATX soft power switch
JIR1	IR connector
IDE1	IDE connector
CF1	CF Socket
FDD1	FDD connector
LPT1	Parallel port connector
USB12	USB port 1,2, pin-header
USB34	USB port 3,4, pin-header
USB56	USB port 5, 6, pin-header
USB78	USB port 7, 8, pin-header
SATA1	Serial ATA1
SATA2	Serial ATA2
SATA3	Serial ATA3
COM1	Serial port: COM1; RS232 (9-pin D-sub)
COM2	Serial port: COM2; RS-232 (14-pin Box Header)
KBMS1	PS/2 keyboard and mouse connector
KBMS2	External keyboard and mouse connector
VGA1	VGA connector
LAN1	LAN RJ45 connector
ATXF1	ATX feature connector
ATX1	ATX power connector
CPUFAN1	CPU FAN connector (3-pin)
SYSFAN1	System FAN connector (3-pin)
HDAUD1	High Definition audio connector
GPIO1	GPIO pin header
JOBS1	HW Monitor Alarm Close: Enable OBS Alarm Open: Disable OBS Alarm

Jumpers and Connectors

PC1	PC104 connector
JCASE1	Case open
DIMMB1	Memory connector channel B
INV1	LCD inverter connector
LPC1	Low pin count connector
LVDS1	LVDS connector
12V1	Negative power input connector

Jumpers

Label	Function
CMOS1	CMOS clear
JLVDS1	LVDS panel power selection
JWDT1	Watchdog timer output selection
JVBR1	LVDS VBR selection

CMOS1: CMOS clear function

Closed Pins	Result
1-2	Keep CMOS data *
2-3	Clear CMOS

* default setting



JLVDS1: LVDS panel power selection

Closed Pins	Result
1-2*	3.3 V*
2-3	5 V

* default setting



JWDT1: Watchdog timer output selection

Closed Pins	Result
1-2	IRQ11
2-3	System reset *

* default setting



JVBR1: LVDS VBR selection

Closed Pins	Result
1-2*	Linear way to control brightness*
2-3	PWM to control brightness

* default setting



Software Installation

The CD disc contains a driver installer program that will lead you through the installation of various device drivers needed to take full advantage of your CPU card.

Caution! The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by Advantech. Discard used batteries according to manufacturer's instructions.



This device complies with the requirements in 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.

Board Layout

The locations of all connectors and jumpers:

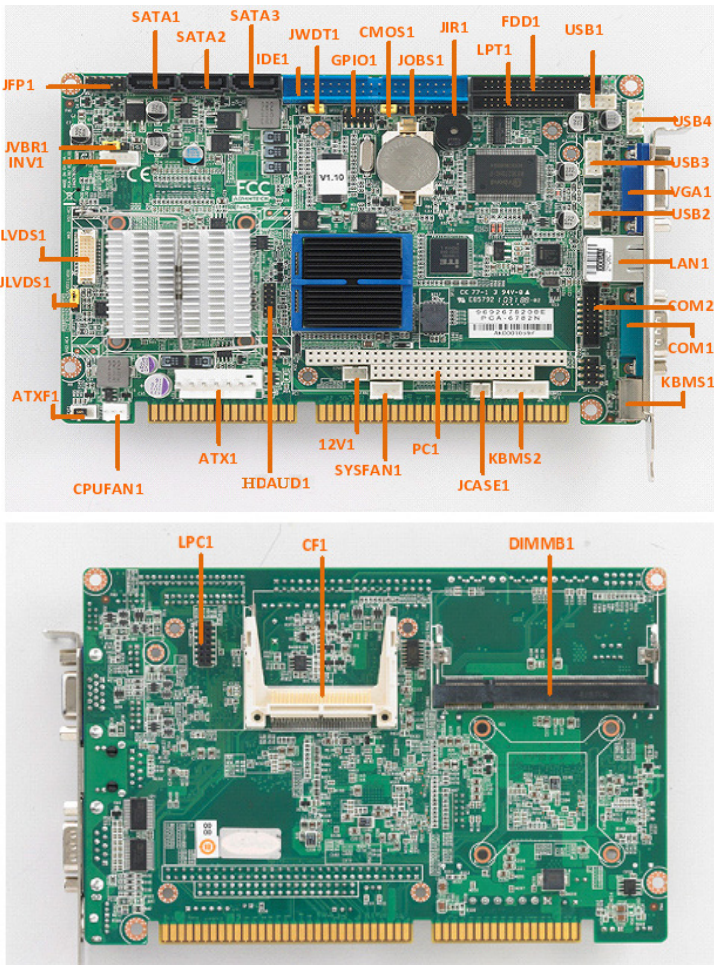


Figure 1: Board Layout: Jumper and Connector Locations