**ADVANTECH**

# PCA-6013 PICMG 1.0 Full-sized Intel® Atom N455/D525 Processor Card with VGA/Dual Gigabit LAN Startup Manual

## Packing List

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

- 1 PCA-6013 Intel® Atom N455/D525 processor-based single board computer
- 1 PCA-6013 Startup Manual
- 1 CD with driver utility and manual (in PDF format)
- 1 Ultra ATA 66/100 IDE cables    p/n: 1701400452
- 1 Serial ATA HDD data cable    p/n: 1700003194
- 1 Serial ATA HDD power cable    p/n: 1700022749-11
- 1 Printer & COM port cable kit    p/n: 1701260305
- 1 Y cable for PS/2 keyboard    p/n: 1700060202
  and PS/2 mouse
- 1 USB cable with 4 ports    p/n: 1700008461-11
- 1 Jumper pack    p/n: 9689000068
- 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-6013, please refer to information on the enclosed CD-ROM (in PDF format). Acrobat Reader is required to view any PDF file.

**Note2:** Acrobat Reader can be downloaded at: http://get.adobe.com/tw/reader/ (Acrobat is a trademark of Adobe.)

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

http://www.advantech.com

**http://www.advantech.com/epc**

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

**http://support.advantech.com.tw/support/**

This manual is for the PCA-6013 series Rev. A1

## 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® SPI 16 Mb Flash memory BIOS
- **Chipset:** Intel® ICH8M I/O control hub
- **System memory:** Single Channel; One 204-pin SODIMM socket accepts up to 3 GB DDR3 800 SDRAM for D525 and up to 2GB DDR3 800 for N455.
- **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 serial RS-232 ports
- **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:** 255 level timer intervals
- **USB (2.0):** 8 Universal Serial Bus ports on board for VG SKU; 8 ports on board and 1 port on I/O bracket for G2 SKU.

### VGA Interface

- **Controller:** Embedded Gen3.5+ GFX Core technology
- **Display memory:** Shared with 224 MB 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
  - Optional LVDS: Supports 18-bit single channel and up to WXGA 1366 x 768 or 1280 x 800

### Ethernet Interface

- **Chipset:** LAN1:Intel® 82567V; LAN2:Intel® 82583V
- **Connection:** Onboard RJ-45 connector

### Mechanical and Environmental

- **Dimensions (L x W):** 338 x 122 mm (13.3" x 4.8")
- **Power supply voltage:** +5 V, +12 V
- **Power requirements:**
  *Configuration 1:*
  - CPU: Intel® Atom™ D525 CPU 1.8 GHz
  - Memory: 1 DDR3 800MHz 2GB DIMM and 1GB on board
  - Test program: Intel Max power 100% + BurnIn Test 4.0 +5 V @ 3 A, +12 V @ 0.44 A, +3.3 V @ 0 A, +5 VSB @ 0.15 A, -12 V @ 0 A, -5 V @ 0 A
  *Configuration 2:*
  - CPU: Intel® Atom™ N455 CPU 1.66 GHz
  - Memory: 1 DDR3 800MHz 1GB DIMM and 1GB on board
  - Test program: Intel Max power 100% + BurnIn Test 4.0 +5 V @ 2.1 A, +12 V @ 0.16 A, +3.3 V @ 0 A, +5 VSB @ 0.13 A, -12 V @ 0 A, -5 V @ 0 A
- **Operating temperature:** 0 ~ 60° C
- **Weight:** 0.5 kg (net weight)

## 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 |
| IDE1 | IDE connector |
| FDD1 | Floppy drive connector |
| LPT1 | Parallel port |
| VGA1 | VGA connector |
| COM12 | RS232 serial ports connector |
| KBMS1 | PS/2 keyboard and mouse connector |
| KBMS2 | External keyboard/mouse connector |
| JIR1 | Infrared connector |
| JOBS1 | HW Monitor Alarm Close: Enable OBS Alarm Open: Disable OBS Alarm |
| CPUFAN1 | CPU FAN connector |
| JFP1 | Power and Reset Button connector |
| JFP2 | HDD LED/Speaker connector |
| JFP3 | Power LED and keyboard lock connector |
| LAN1 | LAN RJ45 connector |
| LAN2 | LAN RJ45 connector (only for G2 SKU) |
| LANLED1 | LAN LED connector |
| HDAUD1 | HD Audio connector |
| SATA1 | Serial ATA1 |
| SATA2 | Serial ATA2 |
| SATA3 | Serial ATA3 |
| USB12 | Two USB port pin headers |
| USB34 | Two USB port pin headers |
| USB56 | Two USB port pin headers |
| USB78 | Two USB port pin headers |
| USB9 | One USB port on I/O bracket (only for G2 SKU) |
| DIMM1 | Memory connector channel A |
| LPC1 | Low pin count connector |
| JCASE1 | Case open |
| ATXF1 | ATX power connector |
| GPIO1 | GPIO connector |
| SMBUS1 | SMBUS connector |
| CF1 | CF socket (only for G2 SKU) |

| Jumpers | |
|---|---|
| Label | Function |
| CMOS1 | CMOS clear |
| JWDT1 | Watchdog timer output selection |
| JLVDS1 | 3.3 V / 5 V, LVDS voltage selection |
| JVBR1 | LVDS backlight setting |

| CMOS1: CMOS clear function | |
|---|---|
| Closed Pins | Result |
| 1-2 | Keep CMOS data * |
| 2-3 | Clear CMOS |

* default setting



| JWDT1: Watchdog timer output option | |
|---|---|
| Closed Pins | Result |
| 1-2 | IRQ11 |
| 2-3 | System reset * |

* 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.
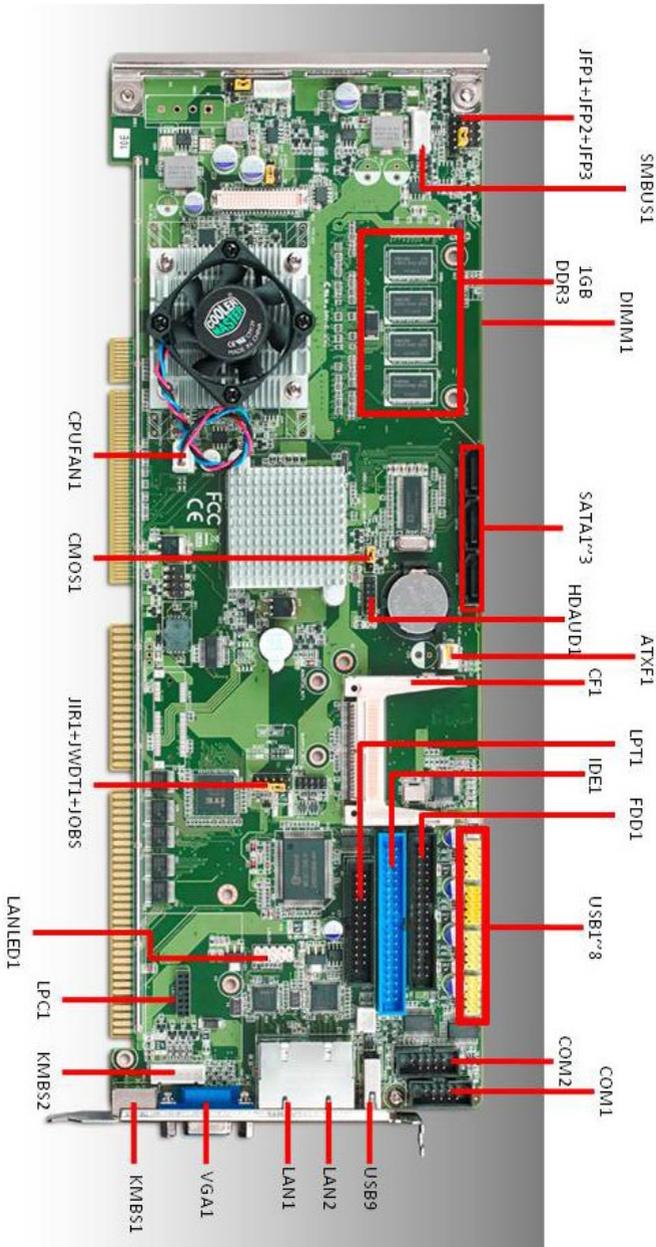
## Safety Information

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:



*Board Layout: Jumper and Connector Location*