Axiomtek Small Module Application Note

Introduction

The rapid growth of the Industrial Internet of Things (IIoT) is leading to a growing demand for embedded solutions with rich I/O interfaces and wireless connectivity options for application development. Axiomtek has developed an array of expansion I/O modules with rich and customizable I/O options to fulfill its customer's application requirements. These I/O modules are compatible with Axiomtek's single board computers (SBCs), embedded board, and system integrators can choose different SBCs and modules based on different applications and performance requirements. Axiomtek also offers high quality, innovative and quick design-in services to help customers complete their projects quickly and easily by providing assistance from development to deployment.
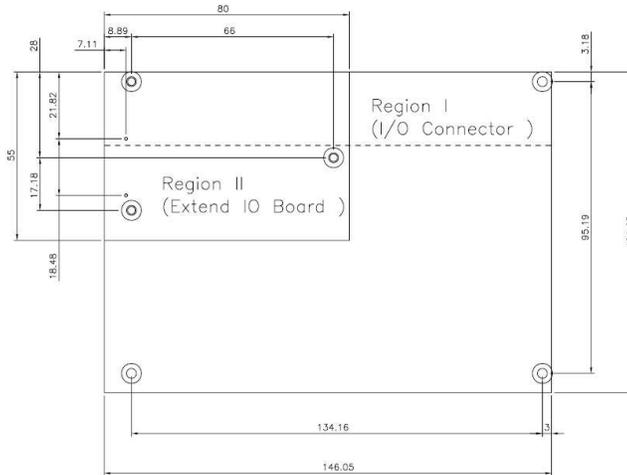
ZIO Modules for Axiomtek's 3.5" SBCs with "0" or "3" as the Model's Last Digit

- **ZIO Embedded Compact Extended Form Factor**

The ZIO form factor is an integrated interface standard defined by Axiomtek and has been adopted as one of the specifications for the 3.5" CAPA embedded motherboards to meet concerns regarding insufficient expansion interfaces in small form factor (SFF) single board computers. Included is a wide variety of interfaces such as PCIe, USB, LPC, audio line-out and power on – all of which meet requirements for system integrations.

- **Board Dimensions and Mounting Holes**

The dimensions of the ZIO form factor SBC are 80 mm x 55 mm, which is then placed on the Region II section of the bottom side of 3.5" CAPA embedded motherboard. While stacked under the Region I I/O connector, the 3.5" CAPA embedded motherboard will appear as if it has a second layer of I/O connectors.

- **ZIO Modules**

AX93262

Four serial ports and one PCI Express Mini Card

Compliant products: CAPA830, CAPA840, CAPA843,CAPA880

AX93285

Two serial ports and 32-bit programmed DIO

Compliant products: CAPA830, CAPA840, CAPA843, CAPA880

AX93291

Two serial ports and two gigabit Ethernet ports

Compliant products: CAPA830, CAPA840, CAPA843, CAPA880

AX93295

Two serial ports and three USB 3.0 ports

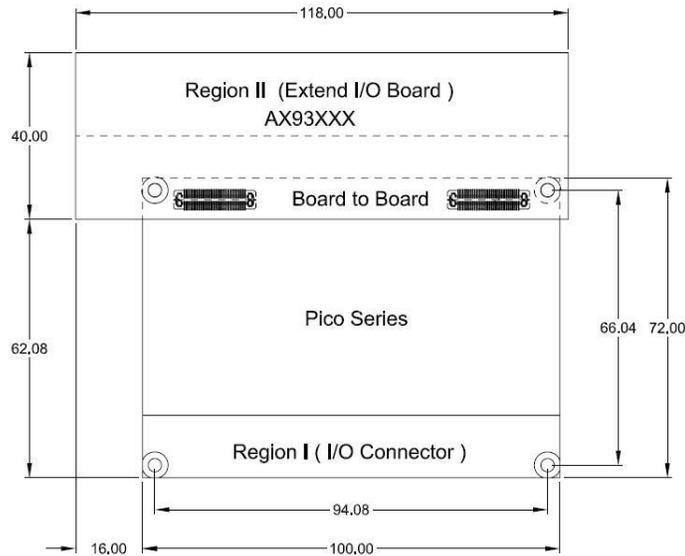Compliant products: CAPA830, CAPA840, CAPA843, CAPA880

I/O Board for Axiomtek's 2.5" Pico-ITX SBCs

- **Two Sets of Board-to-board Connectors**

To overcome the limited I/O space in small form factor SBCs like the pico-ITX motherboards, Axiomtek designs I/O modules with two sets of board-to-board connectors to contain a variety of interfaces such as PCIe, USB, LPC, audio line-out and power on. With the I/O board, high speed signals, such as USB 3.0, can become more stable and reliable. The I/O board is an ideal cableless solution to adopt into a system.

- **Board Dimensions and Mounting Holes**

The dimensions of the I/O board are 118 mm x 40 mm, which is then placed on the Region II section of the pico-ITX board similar to the rear I/O connector.

- **I/O Boards**

AX93275

Two serial ports, four USB 3.0, VGA, audio (mic-in/line-out), power on, reset, LED

Compliant products: PICO880, PICO500, PICO300

AX93276

Two serial ports, four USB 3.0, HDMI, gigabit Ethernet port, power on, Reset, LED

Compliant products: PICO880, PICO500, PICO300

AX93292

Two serial ports, four USB 2.0, audio (mic-in/line-out), power on, reset, two LED

Compliant products: PICO880, PICO500, PICO300

AX93299

Two serial ports, four USB 3.0, audio (mic-in/line-out), power on, reset, LED
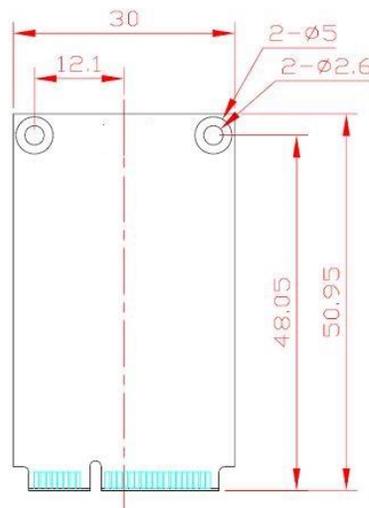
Compliant products: PICO880, PICO500, PICO300

PCI Express Mini Module for SBCs with PCIe Slot

- **PCI Express Mini Card**

The PCI Express Mini module, also known as Mini PCI Express, Mini PCIe and Mini PCI-E, is a replacement for the Mini PCI form factor based on PCI Express. It is developed by the PCI-SIG to support both PCI Express and USB 2.0 connectivity.

- **Board Dimensions and Mounting Holes**

The full-size PCI Express Mini card measures 50 mm x 30 mm.
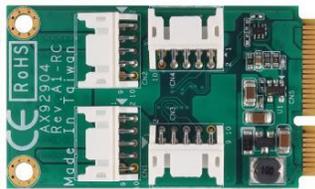
- **PCI Express Mini Modules**

AX92902

Specification: One gigabit Ethernet port

AX92903

Specification: CAN Bus 2.0A and CAN 2.0B

AX92904

Specification: 32-bit programmable DIO

AX92905

Specification: Audio (mic-in/line-in/line-out) and half-size PCI Express Mini Card (PCIe only)

AX92906

Specification: Two serial ports and one half-size PCI Express Mini Card (PCIe only)

About Axiomtek

We have over 25 year experience in design-in service and provide customized thermal solution, embedded software support, and modularized accessory to meet different levels of customized service. In order to quickly access up-to-date documents, Axiomtek Technical Portal (ATP), our web-based support service, allows users to download technical design guides, mechanical 2D/3D drawings, and software utilities simply through ATP web page.

Browse more information at our global website www.axiomtek.com.