EQIO

CPCI-21003

PRODUCT MANUAL

6U Zhaoxin CompactPCI System Controller

Zhaoxin KX-6640MA 4-core processor



Appearance reference (generated from product photos); shipped units may differ.

Measurement and control, made easy.

Easy · Quick · Input · Output

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01 OVERVIEW

6U Zhaoxin CompactPCI System Controller

CPCI system controller · Industrial measurement and control · Communications gateway · Equipment monitoring · CompactPCI · Zhaoxin

CPCI-21003 uses Zhaoxin KX-6640MA 4-core processor and onboard memory, supports 64-bitCompactPCI bus, provides front rear I/O display, USB, serial and SATA connect, suited to CPCI embedded measurement and control platform.
Onboard memory together with front panel VGA, RS-232 and USB facilitates field operation, rear I/O display, serial and USB signal centralized connect. SATA location used for installation 2.5-inch HDD, can and acquisition and communications card combination, forms industrial test and automation control host.



Multi-angle reference (generated from product photos); shipped units may differ.

Key features

- Zhaoxin KX-6640MA 4-core platform
- Onboard 16GB memory
- 64-bit66MHz CompactPCI bus
- VGA, LVDS and front rear I/O serial
- Supports onboard 2.5-inchSATA storage

Applications

Industrial measurement and control

Communications gateway

Equipment monitoring

02 FUNCTIONS

Functions and engineering value

Onboard memory compute node

KX-6640MA 4-core 2.2GHz and onboard 16GB memory forms x86 compute basic, product lists up to 32GB configured with capability. Onboard memory solution has to reduce slot assembly step, but rise grade method must follow supply version confirm, not can up to capacity de field directly plug-in can expand.

CompactPCI system control

Board provides 64-bit66MHz CompactPCI bus and should PICMG specification, used for match chassis in compute controller. Expansion module bus voltage, slot position and driver must be coordinated with backplane together check, CPCI board outline same not can replace electrical and software compatible confirm.

Front rear operation and log I/O

Front I/O VGA, USB3.1 and RS-232 facilitates local operation, rear I/O LVDS, USB2.0 and serial facilitates chassis routing. SATA I/O used for installation 2.5-inch onboard storage, current has specification not stated onboard network port, network attach solution should separately confirm or combined with actual communications expansion module design.

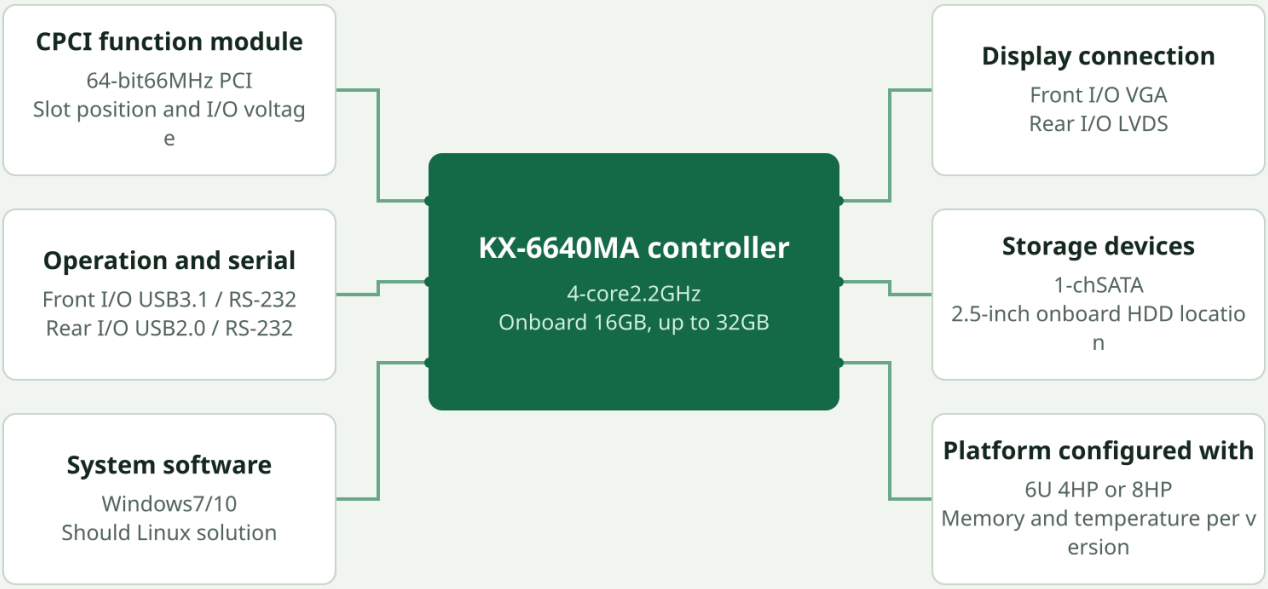
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Platform and functional relationships

FUNCTIONAL BLOCK DIAGRAM

CPCI-21003



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

Only lists out this product published resources; data not stated onboard Ethernet port, not inferred network port or and other CPCI board directly compatible relationship.

Platform and I/O

KX-6640MA 4-core x86 processing platform, this board uses onboard memory and provides CompactPCI bus, display, serial and SATA connect. Product data not listed out onboard network interfaces, therefore block diagram not add Ethernet port; peripheral communications function must be confirm rear I/O configured with or system expansion module handles.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Core system

CPU	Zhaoxin KX-6640MA, 4-core2.2GHz
Bus	PCI64Bit/66MHZ bus, 3.3V or 5V general-purpose voltage (I/O)
BIOS	Storage SPI I/O FLASH in, SPI FLASH select SM25QH128M, capacity 16MB
System memory	Onboard 16GB memory, up to 32GB
PICMG standard	PICMG®R2.0 CompactPCI®specification R3.0, PICMG®R2.16 CompactPCI®specification R1.0
Operating system	Micro Microsoft Windows®7/10, Linux

Mechanical specifications and system requirements

Specification	6U 4HP/8HP CompactPCI®, dimensions 233.3mm × 160mm

I/O and expansion

USB	Front panel 1 USB3.1, 4 USB2.0 connect to rear wiring board
Display	Front panel supports 1 VGA I/O,1 LVDS connect to rear routing
Storage	1 SATA I/O, used for installation 2.5-inch onboard HDD
Serial	1 RS-232 I/O position to front panel, 1 RS-232 connect to rear wiring board

Environmental conditions

Operating temperature	Operating temperature: 0°C ~ 60°C (commercial temperature); -40°C ~ 60°C (wide temperature), storage temperature: -40°C ~ 75°C
Humidity	40°C@95%, non-condensing

05 COMPONENTS

Processor and device specifications

Device figures come from vendor publications and describe the chip or module. The implemented product follows the specification tables. Optional devices are supplied with the selected configuration.

Zhaoxin KX-6640MA

Processor core count	4-core
Hardware threads number	4 threads
Website partnership data listed clock	2.2 GHz
CPU series ISA	X86 32/64-bit; SSE4.2, AVX
Series memory controller	Dual channel DDR4-2666, chip series up to 64GB
Series integrates graphics and display	Integrates 3D graphics and video de code; supports DP/HDMI/VGA category and 4K display
Series PCIe resources	Up to 16 lanes PCIe3.0
Series native USB/SATA resources	2×USB3.1、4×USB2.0、2×SATA 3.2
Hardware virtualization	Processor and IO virtualization

Zhaoxin KX-6640MA (continued)

Acceleration command	SM3、SM4

Sources: Shanghai Zhaoxin integrates Co., Ltd., Lenovo Zhaoyang CF4620 custom model parameters (website case study); Shanghai Zhaoxin integrates Co., Ltd., High-performance Micro ATX industrial main board (website technical news); Shanghai Zhaoxin integrates Co., Ltd., KX KX-6000 series processor.

06 APPLICATIONS

From product capability to applications

Industrial measurement and control system controller

Can and match CompactPCI acquisition and control module consists of industrial measurement and control host, processor responsible for application procedure, data compiled and operator UI. Selection when needed check backplane bus, voltage and expansion module driver, again actual Windows or Linux system in verification task load and stability.

Equipment status display and log

VGA or rear I/O LVDS can used for equipment status UI, 2.5-inchSATA storage location facilitates arrangement operating system and log data. Should based on task write amount selection media capacity and life, front rear RS-232 can connect should equipment, specific data protocol and fault recovery from application software implements.

Can expansion device communications platform

Requires network gateway or multi device communications when, can confirm rear CPCI system in configured with corresponding communications module, and from controller run protocol processing software. Current has product the table does not has lists onboard Ethernet port, not should directly other same series controller network configured with port to this product note in.

Integration checks

Memory assembly	16GB onboard basic configured with, up to 32GB per specific supply solution confirm, check firmware and application memory requirement.
Bus compatible	Confirm 64-bit66MHz, 3.3V/5V I/O and PICMG specification and backplane, slot position and peripheral board match.
I/O and network	Check front I/O USB3.1/VGA/RS-232 and rear I/O LVDS etc.connect; onboard network configured with required supply should data supplement confirm.
Chassis version	4HP/8HP and commercial temperature 0–60°C, wide temperature–40–60°Crespectively selection, check 2.5-inch HDD installation and cooling.

07 CONFIGURATION

Appearance, configuration and selection

Reference views



Product appearance reference; shipped units may differ.

Configuration

Provides 4HP, 8HP and different temperature version, uses 6U CompactPCI board outline.

Temperature version	Commercial temperature 0~60°C / wide temperature-40~60°C; different version
Panel width	4HP / 8HP

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

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EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

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