EQIO

COMe-6000

PRODUCT MANUAL

Zhaoxin KX6000G COM Express Type 6 Module

Zhaoxin KX-6000G series 4-core processor



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

Measurement and control, made easy.

Easy · Quick · Input · Output

EQIO.COM

01 OVERVIEW

Zhaoxin KX6000G COM Express Type 6 Module

COM Express compute module · Industrial automation · Self-service terminal · Embedded edge computing · COM Express · Zhaoxin

COMe-6000 uses Zhaoxin KX-6000G 4-core processor and single DDR4 SO-DIMM slot, memory up to 32GB, provides multi type display, PCIe and SATA I/O, supports Windows, Kylin OS and UOS etc.system.
DP, HDMI, VGA and LVDS or eDP connect can adapts different equipment display solution, USB, serial and GPIO used for external HMI. Compact module compute, storage and expansion resources centralized layout, suited to industrial panel, embedded terminal and automation equipment controller. Facilitates carrier integrates.



Product appearance reference; shipped units may differ.

Key features

- Zhaoxin KX-6000G 4-core platform
- 95 × 95mm compact Type6 module
- DDR4 SO-DIMM, up to 32GB
- DP, HDMI and VGA display connection
- Gigabit Ethernet, SATA and PCIe expansion

02 FUNCTIONS

Functions and engineering value

Compact x86 compute unit

KX-6000G 4-core processing platform and single DDR4 SO-DIMM slot integrates to 95 × 95mm module, memory up to 32GB. Byosoft BIOS and EC controller provides boot and board-level management basic, suited to industrial application software and equipment I/O isolation design, and retain replaceable memory configured with.

Multi type display solution adapts

DP, HDMI and VGA can adapts different display equipment, LVDS via eDP conversion solution provides, and eDP per configured with selection. Display I/O quantity not etc. To all channel can at the same time full specification operation, carrier should around selected output, resolution and cables conditions confirm actual combination and display driver.

Carrier expansion and network trade-off

PCIe resources divided into B1 and B2 different combination, including B1 part configured with mark not with LAN, must treat network and expansion resources together planning. USB, dual SATA and serial management signal carrier provides connect basic, watchdog and hardware monitoring then requires combined with matching software stated used method.

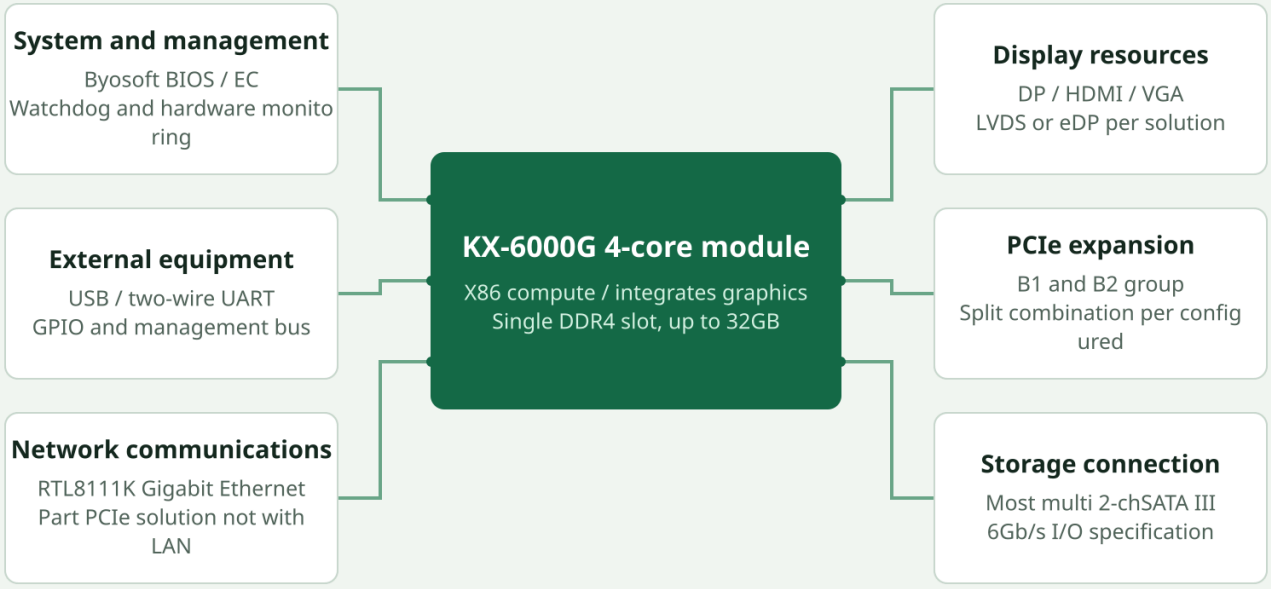
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Compute platform and functional relationships

FUNCTIONAL BLOCK DIAGRAM

COMe-6000



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

Illustration product functional relationship; display conversion and PCIe/LAN mutually exclusive must follow delivery configured with check, not indicates has port at the same time can used.

Platform and I/O

KX-6000G series this module in provides 4-core x86 compute and integrates graphics, together with DDR4 slot, EC and Byosoft BIOS forms equipment controller platform. Different display conversion and PCIe group storage configured with relationship, product gives temperature conditions includes air stream requirements, system integration required at the same time check function resources and thermal design.

> **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-6000G series 4-core processor; EC controller ITE IT5782VG
System memory	1 260 pin DDR4 SODIMM slot, supports up to 32 GB DDR4 3200MTs SDRAM
Display	Zhaoxin®integrates graphics processor
BIOS	Byosoft BIOS, 64Mbit SPI flash ROM
Operating system	Windows 10, Windows 11, Kylin OS V10, UOS

Environmental conditions

Operating temperature	Operating temperature: 0 ~ 60 °C, airflow 0.5m/s, fanless; storage temperature: -40°C ~ 75°C
Humidity	40°C @ 95% relative humidity, not condensation

Mechanical specifications and system requirements

Specification	95mm×95mm

I/O and expansion

USB	Most multi 6 × USB2.0 I/O, 4 × USB3.2 Gen 1 × 1 I/O
COM port	2 × UART（2-wire）
DIO/MIO	8bit GPIO, 1 × SMBus, 1 × LPC, 1 × I2C, watchdog timed unit, hardware status monitoring
Display interfaces	DP1.4a 4096 × 2160@60Hz; HDMI2.0b 4096 × 2160@60Hz; VGA2048 × 1536@60Hz LVDS (via eDP to LVDS) 1920 × 1080@60Hz, dual channel 18/24-bitLVDS or eDP 4096 × 2160@60Hz
Network interfaces	Ethernet I/O: Realtek RTL8111K Gigabit Ethernet, LAN port: 10/100/1000 Base-Tx
Storage interfaces	Maximum supports 2 × SATA III I/O, transmission rate 6.0 Gb/s
Expansion slots	Bucket B1: 6 PCIe Gen3 × 1 I/O or 1 PCIe Gen3 × 4 I/O and 2 PCIe Gen3 × 1 I/O (not with LAN) Bucket B2: 2 PCIe Gen3 × 4 I/O or 1 PCIe Gen3 × 8 I/O
Audio	Zhaoxin HD audio I/F

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-6000G series (Platform data)

Series CPU core count	4-core
Series published high-speed cache	4 MB
Series memory controller	Dual channel DDR4-3200
ISA	X86 32/64-bit, SSE4.2/AVX
Display interfaces capability	DP/HDMI/VGA, 4K display
Native PCIe resources	16 lanes PCIe3.0
Native USB resources	4×USB3.2 Gen1、2×USB2.0
Native storage interfaces	2×SATA3.2
Low-speed expansion i/O	SPI, LPC etc.
Acceleration command	SM2、SM3、SM4

Zhaoxin KX-6000G series (Platform data) (continued)

Hardware virtualization	Processor and IO virtualization

Sources: Shanghai Zhaoxin integrates Co., Ltd., KX KX-6000G series processor.

06 APPLICATIONS

From product capability to applications

Industrial automation operation end

Module can and display, USB and control I/O carrier combination, used for unit unit parameters setting, procedure monitoring and data show. 4-core compute and up to 32GB memory suited to per actual application load selection, product run when check specified air stream conditions, cooling structure and peripherals driver supports.

Self-service service and HMI terminal

HDMI, DP or panel display solution facilitates build HMI UI, USB and UART can connect actual option terminal peripherals. Hardware resources should per specific application equipment confirm, operating system optional select listed Windows, Kylin or UOS solution, peripherals certification and application software adapts requires single independent completes.

Edge equipment data processing

Via Gigabit Ethernet or PCIe expansion connect field equipment, together with SATA storage can forms edge data processing node. If task at the same time requires multiple expansion link and LAN, should first check B1 resources combination limit, again evaluate acquisition throughput, cache capacity and long-term run cooling conditions.

Integration checks

Memory and board outline	95 × 95mm module; single 260 pin DDR4-3200MT/s SO-DIMM slot, up to capacity 32GB.
Display select	LVDS via eDP conversion and eDP per solution selection; check DP/HDMI/VGA combination and display connect timing.
Resources mutually exclusive	B1 and B2 PCIe split per configured with determine; B1 part mode not with LAN, required carrier design front confirm.
Environmental conditions	Operation 0–60°Cincluded 0.5m/s air stream conditions; not fanless describe de into completely without air stream cooling.

07 CONFIGURATION

Appearance, configuration and selection



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

Configuration

Provides LVDS or eDP display solution, run environment supports Windows, Kylin OS and UOS.

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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