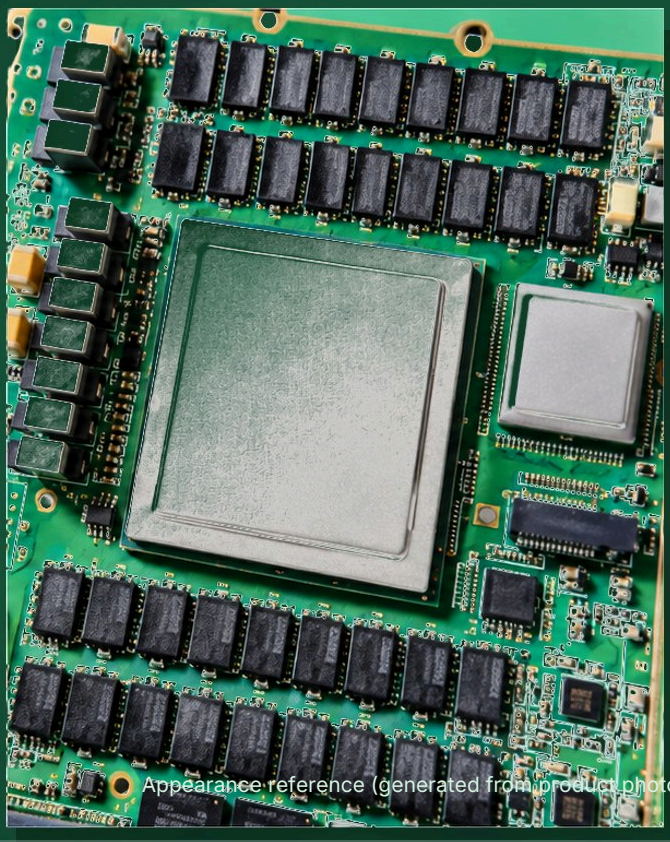
EQIO

VPX-FT6420

PRODUCT MANUAL

6U Phytium 64-Core VPX System Controller

VPX system controller · High-performance...



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

Measurement and control, made easy.

EQIO.COM

Easy · Quick · Input · Output

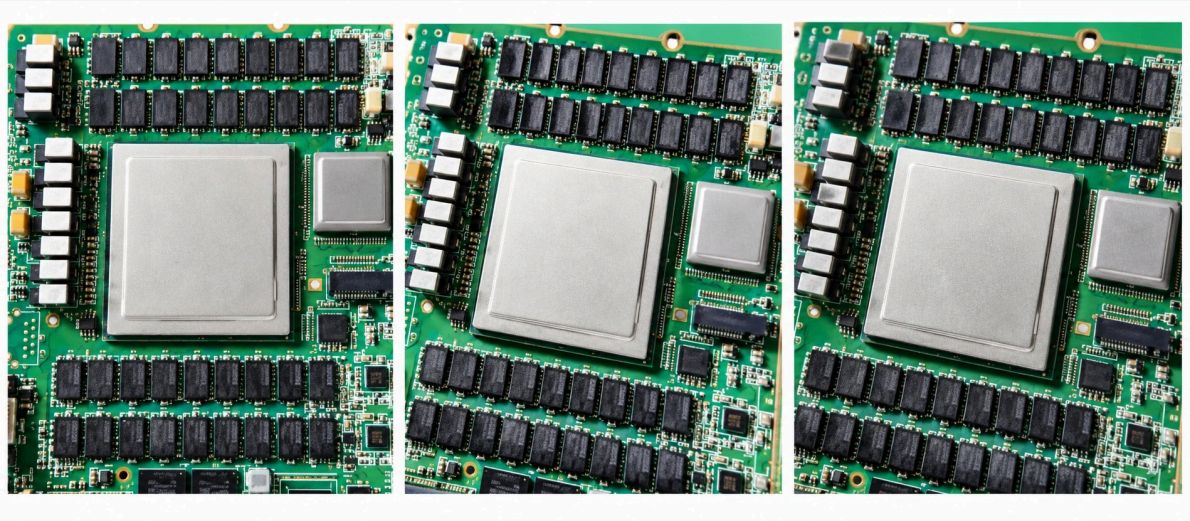
01 OVERVIEW

6U Phytium 64-Core VPX System Controller

VPX system controller · High-performance compute node · Data processing · Multi Ethernet port system integration · VPX · Phytium

VPX-FT6420 uses 6U VPX compute board structure, matching Phytium X100 chip group, supports up to 64GB soldered DDR4 memory, provides Gigabit, 10GbE and multi type storage interfaces, used for high-performance compute node and multi Ethernet port data processing system.

7-ch Gigabit and 8-ch 10GbE resources facilitates aggregation multi-channel equipment data, front rear I/O USB, VGA and DVI used for operation and display. Multi type storage location and PCIe link can combined with system topology arrangement, suited to multi Ethernet port industrial data processing and modular compute platform.



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

Key features

- 6U VPX Phytium compute platform
- Up to 64GB soldered DDR4
- 7-ch Gigabit and 8-ch 10GbE resources
- USB3.0 and VGA/DVI display
- SATA, mSATA and M.2 connect

Applications

High-performance compute node	Data processing	Multi Ethernet port system integration

02 FUNCTIONS

Functions and engineering value

Multi core platform and memory resources

Product Phytium 64-core 6U VPX compute platform positioning, published parameters provides up to 64GB soldered DDR4 and X100 graphics resources, but not stated specific CPU model and between cores structure. Content from current has board-level specification note compute and I/O purpose, not other Phytium processor micro architecture or frequency substitute this product.

Multi rate network organize

7-ch Gigabit resources divided into BASE-T and BASE-X, additional has 8-ch 10GbE supports BASE-KR/SFI mode selection, can multi network data system provides connect basic. Specific media, backplane channel and external module must be system solution determine, not can has network signal all treated as front panel finished product port.

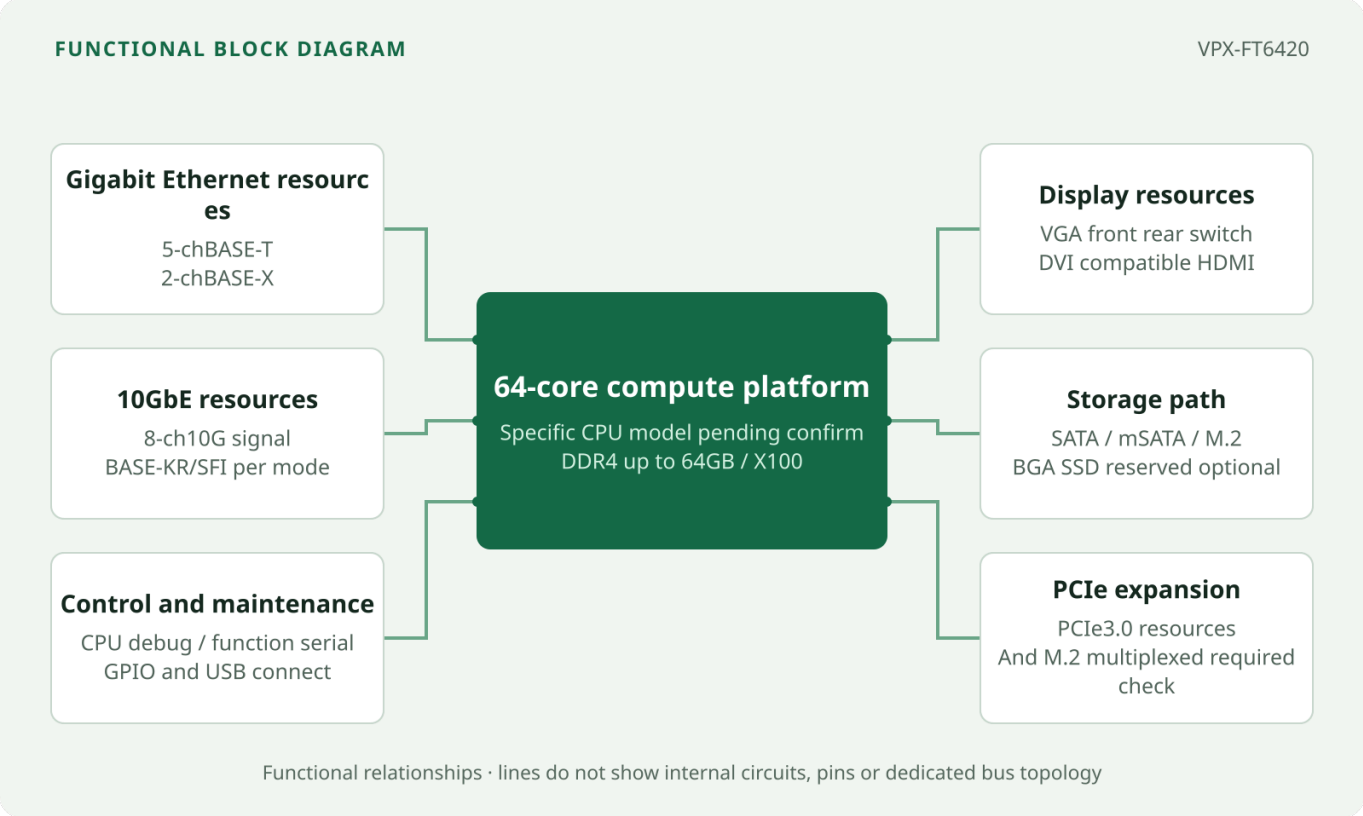
Storage and expansion path trade-off

Product at the same time lists rear I/O SATA, mSATA, M.2 and optional BGA SSD resources, including M.2 and rear I/O PCIe link storage hardware strap relationship. Selection data log media when needed synchronous check expansion the card requires require, channel multiplexed and cooling space, avoid mutual selection path parallel can used.

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



Published functional relationship diagram; CPU model not stated, not indicates internal micro architecture. Network media, M.2/PCIe multiplexed and BGA SSD assembly per configured with confirm.

Platform and I/O

This product published positioning 64-core Phytium 6U VPX platform, board-level specification lists X100, up to 64GB DDR4 and multi rate network. CPU specific model and internal structure still not stated, therefore block diagram compute function centre, show already listed out network, display and storage relationship, not add without confirm processor detail.

> **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

System memory	Soldered DDR4 memory, maximum 64GB, reserved 1 BGA SSD, supports 120GB-512GB capacity
BIOS	UEFI firmware
Display	Integrates GPU X100, maximum resolution 1920*1080@60Hz
Operating system	Kylin OS, UOS etc.

Environmental conditions

Operating temperature	-40°C– 65°C (operating temperature), -40°C ~ 85°C (storage temperature)
Relative humidity	5% to 95%humidity non-condensing

Mechanical specifications and system requirements

Specification	233.35mm×158.5mm

I/O and expansion

USB	6-chUSB3.0 I/O, including 2-ch front I/O, 4-ch rear I/O
GPIO	6-ch from single MCU brought out, 6-ch from CPU brought out
Storage	2-ch SATA3.0 I/O, rear I/O; 1-ch MSATA, 1-chM.2 I/O, and rear I/O 1-chPCIEX8 hardware strap
Serial	1-chCPU debug serial, 2-ch function serial
Display interfaces	2-ch VGA output, supports front I/O rear I/O switch, 1-ch DVI output, compatible HDMI
Network interfaces	7-ch Gigabit Ethernet, including 2-chBASE-X, 5-chBASE-T; 8-ch 10GbE, supports 10G BASE-KR/SFI switch
Expansion slots	2-chPCIe3.0 × 16, supports hardware strap 2-chPCIe × 8 or 4-chPCIe × 4

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.

Phytium X100 chipset

Device role	Micro processor matching graphics and I/O expansion chip
GPU compute rated	300 GFLOPS
Video de code	4K@30fps; H.264/H.265, MPEG4, MPEG2 etc.
GPU memory supports upper limit	Up to 8GB
Display control I/O	3 × DisplayPort1.4: including 2-ch up to 3840 × 2160@60Hz, additional 1-ch up to 1280 × 1024@60Hz
PCIe on	1×PCIe3.0 x16
PCIe downlink	Vendor list 8-ch downlink connect: 2-chx2 and 6-chx1; including 2-chx1 and SATA3.0 multiplexed
Expansion I/O category	PCIe3.0, SATA3.0, USB3.1, SD/eMMC, NAND Flash, I2S audio
Other on-chip I/O	2×SD/SDIO/eMMC、NAND、4×UART、96×GPIO、8×MIO、4×PWM、QSPI、2×SPI master、3×SMBus、2×CAN

Phytium X100 chipset (continued)

Chip safety architecture	PSPA1.0

Sources: Phytium IT Co., Ltd., Phytium chipset X100.

06 APPLICATIONS

From product capability to applications

Modular multi task compute node

Up to 64GB memory and multi core platform can used for planning parallel data processing and task service, but specific CPU model, clock and software supports requires first confirm. Should used actual operation load evaluate compute and memory requirement, not cannot only from 64-core name infer application throughput or and other platform performance relationship.

Multi Ethernet port data aggregation system

Gigabit and 10GbE resources suited to 6U chassis in organize different equipment link data aggregation, can per port media and backplane mode assign network. BASE-KR and SFI selection affect matching connect solution, network switch, routing and application processing logic should be actual software and system design implements.

Network log and analysis node

Uses multi network input and SATA, M.2 etc.storage solution, can planning data log and rear continued analysis platform. Should first confirm storage and PCIe multiplexed limit, again actual data stream test write speed, capacity and long-term cooling, Ethernet port rated total bandwidth not can directly as can continuous log capability.

Integration checks

CPU information	Current has data not stated 64-core CPU specific model, frequency and between cores structure, required delivery specifications complete, do not cite other model instead of.
Network mode	Check 7-ch Gigabit in BASE-T/BASE-X assign and 8-ch 10GbE BASE-KR/SFI selection, confirm external module and backplane supports.
Storage multiplexed	M.2 and rear I/O PCIe x8 storage hardware strap; BGA SSD reserved 120–512GB solution, actual assembly required confirm.
Chassis and cooling	Check 233.35 × 158.5mm board outline, power and PCIe link configured with; product internal verification−40–65°Coperation conditions.

07 CONFIGURATION

Appearance, configuration and selection

Reference views



Product appearance reference; shipped units may differ.

Configuration

M.2 and rear I/O PCIe link uses hardware selection solution, 10GbE supports BASE-KR/SFI mode selection.

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

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

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

Email lyping@eqio.com Phone +86 182 8191 2988 Web EQIO.COM