EQIO

COMe-E2000

PRODUCT MANUAL

Phytium E2000 COM Express Type 10 Module

Phytium E2000 series 4-core processor



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

Measurement and control, made easy.

Easy · Quick · Input · Output

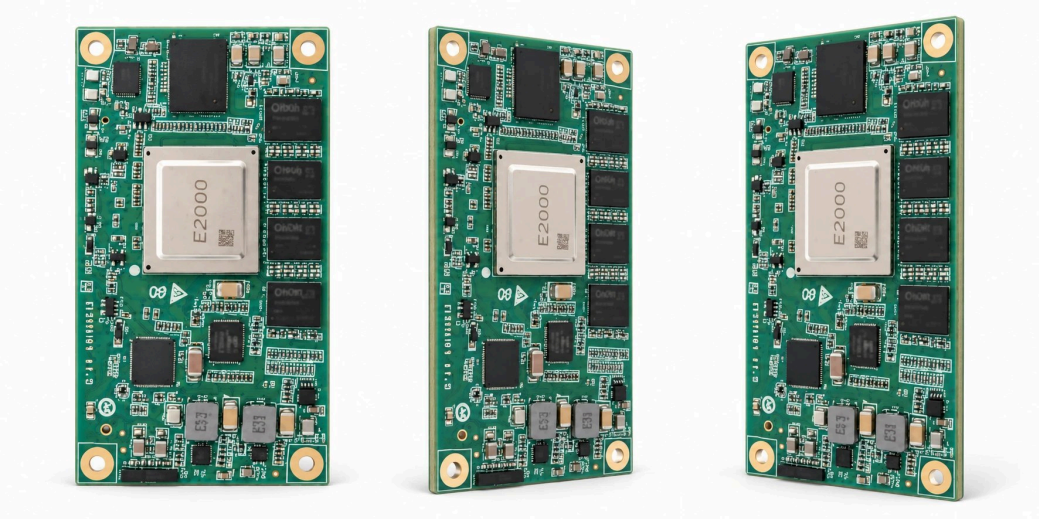
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01 OVERVIEW

Phytium E2000 COM Express Type 10 Module

COM Express compute module · Embedded edge computing · Portable terminal · Industrial control · COM Express · Phytium

COMe-E2000 uses Phytium E2000 4-core processor, supports up to 8GB soldered DDR4 memory, provides display, network, SATA, PCIe and industrial peripheral I/O, uses 84 × 55mm compact module dimensions.
HDMI, VGA, Gigabit Ethernet and GMAC facilitates organize display and communications, serial, GPIO and CAN suited to connect industrial peripherals. Module via carrier arrangement storage and expansion equipment, can used for compact controller, field acquisition node and HMI terminal. Facilitates installation.



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

Key features

- Phytium E2000 4-core platform
- 84 × 55mm Type10 module
- Up to 8GB soldered DDR4
- HDMI, VGA and Gigabit Ethernet
- PCIe3.0, SATA3.0 and CAN

Applications

Embedded edge computing

Portable terminal

Industrial control

02 FUNCTIONS

Functions and engineering value

Small dimensions 4-core controller

84 × 55mm Type10 module integrates Phytium E2000 4-core processing platform and up to 8GB soldered DDR4, suited to compute resources embedded compact terminal. UEFI firmware responsible for boot environment, operating system and peripherals driver should and carrier one and adapts, not cannot only based on processor series determine software compatible.

Display and industrial signal connect

HDMI and VGA respectively provides digital and analog display path, 8-ch GPIO, 2-ch CAN and TTL serial can connect equipment control unit. 3-ch TTL in includes 1-ch CPU debug port, design application serial channel when needed single independent retain debug resources, avoid all serial all counted application I/O.

Storage and expansion per mode configured with

1-ch SATA3.0 used for connect external storage, PCIe3.0 x4 supports configured with into 4-ch x1, can per expansion equipment quantity and bandwidth requirement trade-off. Network resources includes Gigabit I/O and GMAC solution, HDA audio also requires via carrier expansion, connector configured with should module pins table based on.

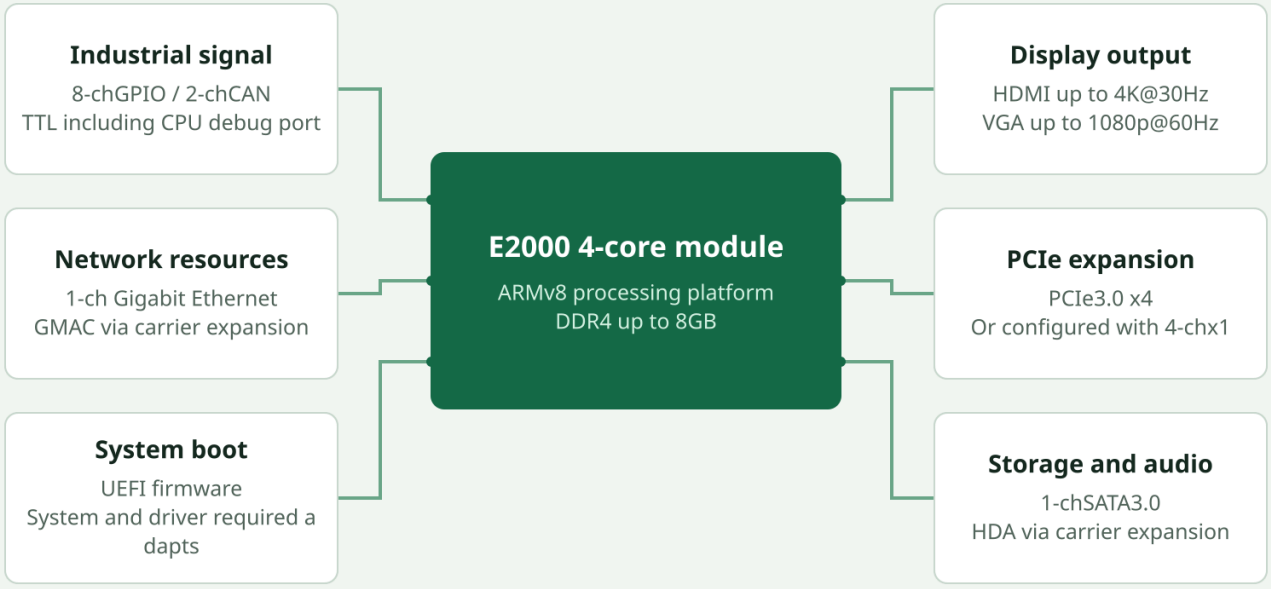
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Compute platform and functional relationships

FUNCTIONAL BLOCK DIAGRAM

COMe-E2000



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

Show product functional relationship rather than internal topology; GMAC, HDA and TTL required carrier matching, PCIe mode and optional GMAC quantity respectively confirm.

Platform and I/O

E2000 series uses ARMv8 actuation architecture, this product used 4-core solution and configured with up to 8GB soldered DDR4. Module via Type10 connect toward carrier provides display, storage and industrial signal resources, including debug serial, GMAC and HDA each has independent purpose, must and can directly connect external equipment I/O distinguish.

> **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	Phytium E2000 series 4-core processor
System memory	Soldered DDR4 memory, maximum 8GB
Display	Integrates graphics display
BIOS	UEFI firmware

Environmental conditions

Operating temperature	-40°C ~ 85°C (operating temperature), -40°C ~ 85°C (storage temperature)
Humidity	5%~95%humidity non-condensing

Mechanical specifications and system requirements

Specification	84mm×55mm

I/O and expansion

USB	5-chUSB 2.0 I/O, 2-chUSB 3.0 I/O
DIO/MIO	8-ch independent GPIO I/O, can configured with input or output, 2-chCAN 2.0 I/O
Serial	3-chTTL serial, maximum baud rate supports 115200, including 1-chCPU debug serial
Display interfaces	1-ch HDMI output, maximum resolution 3840*2160@30Hz, 1-ch VGA output, maximum resolution 1920*1080@60Hz
Network interfaces	1-ch Gigabit Ethernet I/O, 1-chGMAC (optional 2-chGMAC)
Storage interfaces	1-chSATA 3.0 I/O
Expansion slots	1-chPCIe 3.0 × 4, supports configured with 4-chPCIe 3.0 × 1
Audio	1-chHDA I/O, can via base plate expansion audio function

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 E2000 series (Platform data)

ISA and actuation mode	ARMv8; supports ARM64 and ARM32
Hardware virtualization	Supports
Series memory controller	Q/D/S all 1 DDR4 I/O

Sources: Phytium IT Co., Ltd., Phytium Tenglong E2000 high-end embedded CPU.

06 APPLICATIONS

From product capability to applications

Compact industrial controller

Type10 module embedded with CAN, GPIO and signal level conversion circuit dedicated carrier, can forms space limited equipment controller. 4-core compute responsible for protocol processing and application procedure, field switch amount and bus I/O isolated, protection and control response must be complete system design and verification.

Portable operation and display terminal

Module small dimensions and soldered memory suited to portable terminal internal layout, HDMI or VGA can connect operation display. Terminal battery management, input power and thermal design still requires single independent planning, must follow display specification, peripheral connection and software load verification product runtime and continuous run behaviour.

Edge acquisition and communications node

Via PCIe x4 or 4-ch x1 selected mode connect expansion equipment, and uses SATA save acquisition result, can build edge data processing node. Gigabit Ethernet and GMAC carrier resources facilitates arrangement communications path, actual acquisition throughput and parallel capability required combined with peripherals and driver test.

Integration checks

Module and carrier	Check 84 × 55mm Type10 connect definition, power and cooling structure; published the table does not gives complete power requirements, required separately confirm.
Serial purpose	3-ch TTL including 1-ch CPU debug port; remaining channel connect RS-232/422/485 equipment when needed matching transceiver and protection circuit.
Expansion mode	PCIe x4 and 4-ch x1 per configured with selection; GMAC default 1-ch, 2-ch optional solution, not etc. To ready-made RJ45-port.
Display and environment	HDMI upper limit 3840 × 2160@30Hz, VGA1920 × 1080@60Hz; product verification−40–85°Coperation conditions.

07 CONFIGURATION

Appearance, configuration and selection

Reference views



Product appearance reference; shipped units may differ.

Configuration

Provides 1-ch Gigabit Ethernet and GMAC connect solution, HDA can via carrier expansion audio.

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
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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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