Quectel QuecPi Alpha Smart MOB Development Board

Introduction

Duty of confidentiality

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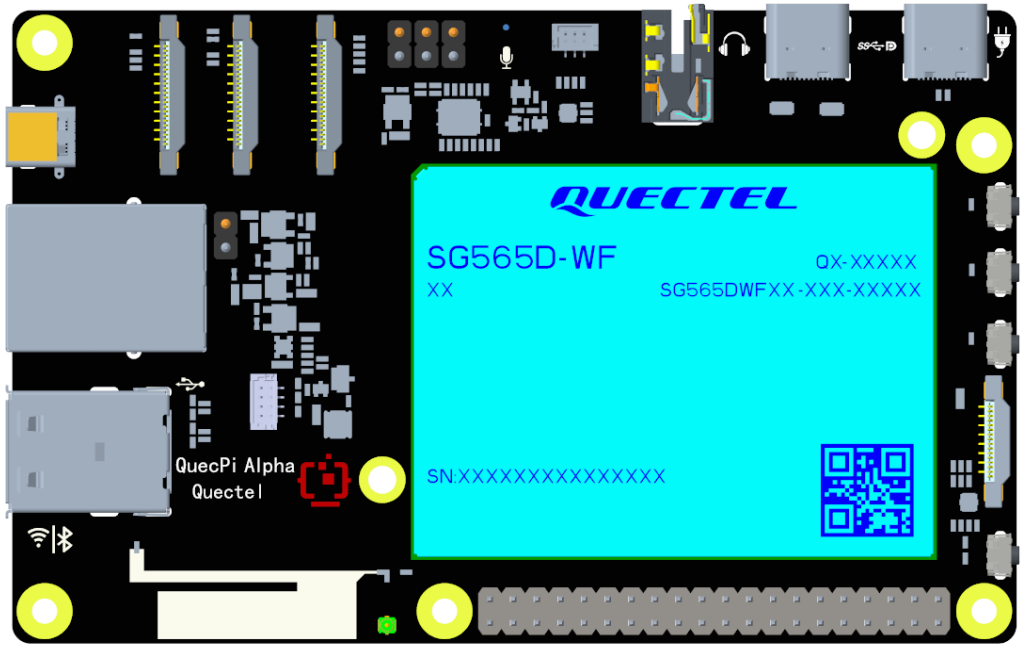
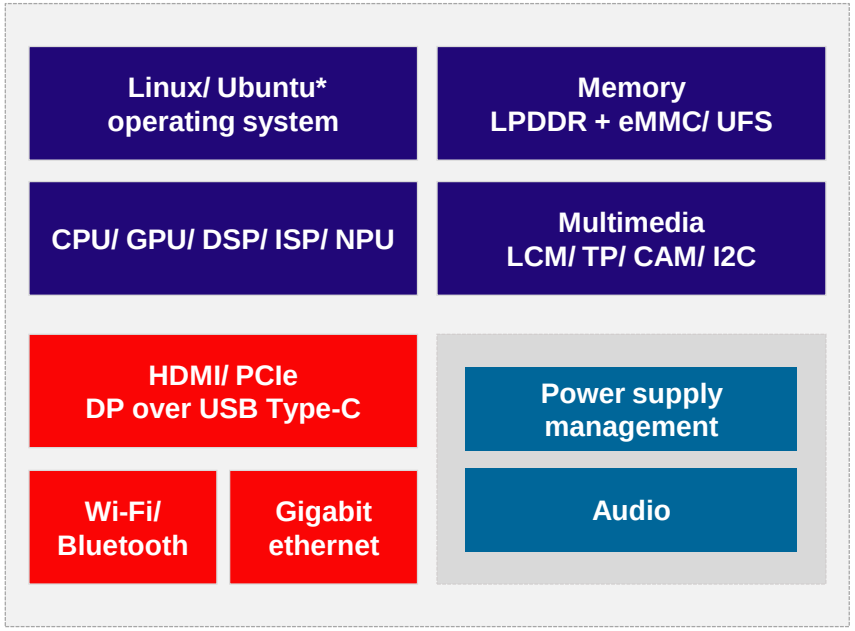
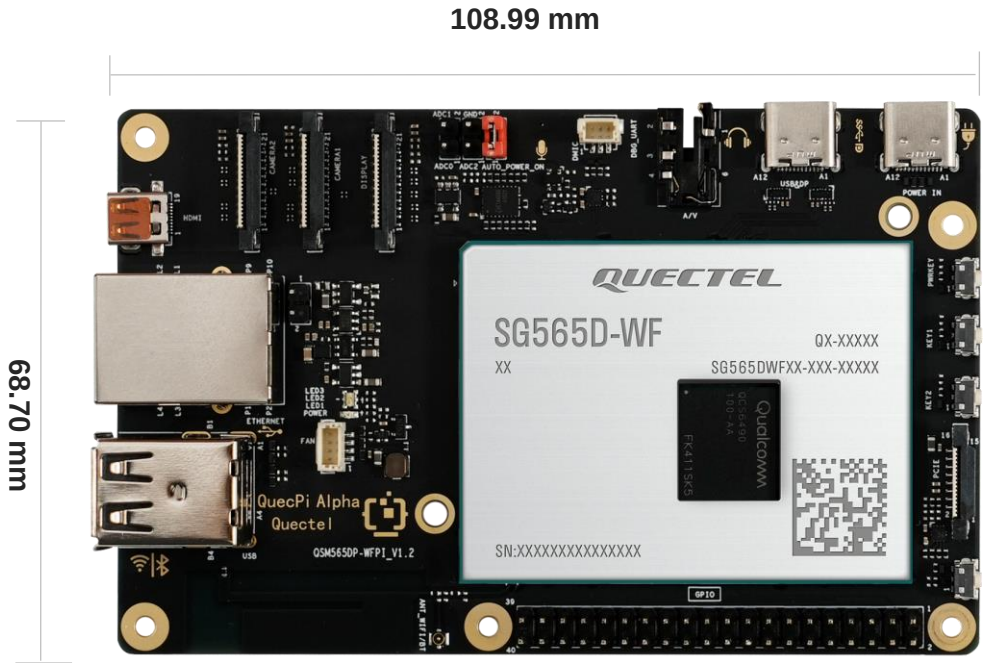
QuecPi Alpha Introduction





QuecPi Alpha is a new type of highly-integrated eco-smart development board with abundant interfaces.

QuecPi Alpha specifications



Packaging type: PCBA

Dimensions (mm): 68.70 × 108.99 × 20.77

Multiple configurations:

Multiple optional memory configurations

Operating system:

Linux / Ubuntu*

Chipset platform:

QCS6490, with 12 TOPs computing power, as well as powerful performance and abundant interfaces, supporting multimedia functions, Wi-Fi 5 and Bluetooth

Long life time:

Till the year of 2036

*: Under development

QuecPi Alpha features and interfaces

Features	
CPU	QCS6490, octa-core SoC 1 × A78 @ 2.7 GHz + 3 × A78 @ 2.4 GHz + 4 × A55 @ 1.9 GHz
GPU	Adreno™ 642L/ 643 @ 812 MHz
Video	Encoding: 4K (H.264/ H.265) @ 30 fps Decoding: 4K (H.264/ H.265/ VP9) @ 60 fps
Memory	8 GB LPDDR4x + 128 GB UFS
OS	Linux/ Ubuntu*
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac, Wi-Fi 5
Bluetooth	Bluetooth 5.0
Certification	CCC*/ CE*

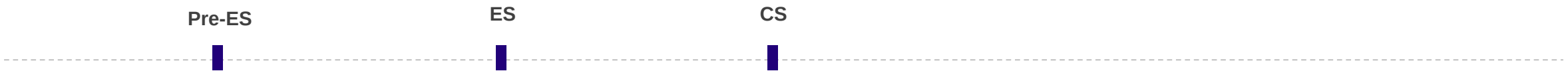
Interfaces	
LCM	× 1, HDMI 2.0 (the frame rate is to be determined) DP Over USB Type-C, DisplayPort 1.4, with up to 4K (3840 × 2160) @ 60 fps
Camera	× 2, 4-lane MIPI CSI, up to 2.5 Gbps/ lane data rate
Touch Panel	Supported
Audio	× 1, 3.5 mm audio output interface; HDMI audio output
PCIe	× 1, 1-lane PCIe 3.0, with up to 8 Gbps data rate
USB	× 4, • 1 × USB 3.1 Type-C interface, compatible with USB 2.0, with up to 5 Gbps data rate • 2 × standard USB 2.0 Type-A interfaces, host mode only, with up to 480 Mbps data rate • 1 × USB Type-C interface, main power supply interface
Ethernet	× 1, 10/100/1000 Mbps ethernet
UART	× 5, among which Debug UART is only for debugging (multiplexed with other interfaces)
SD Card	× 1, SD 3.0, 4-bit SDIO
I2C/ LED/ SPI/ PWM/ GPIO/ PWRKEY	Supported
Antenna	PCB antenna

*: Under development/ in progress

QuecPi Alpha timeline

2025												2026				
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May

Product stage



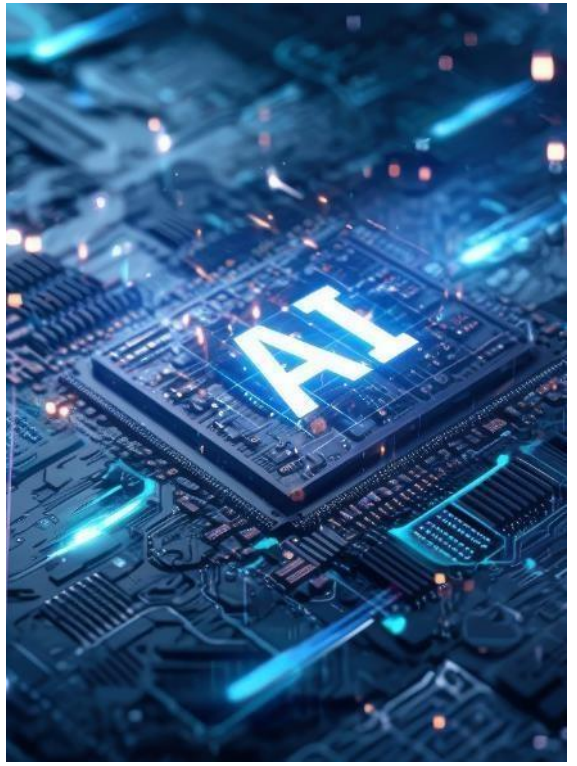
Certification

Regulatory

Please contact Quectel to confirm the specific firmware version corresponding to each carrier/ conformance certification

QuecPi Alpha target market





Edge computing

Product images

Supported functions

Computing power with Low power consumption

Plentiful peripherals

Multiple operating systems

Highly cost-effective

Mobility

Wi-Fi 5/ Ethernet

Applications

Smart factory

Smart Audio & Video Recorders

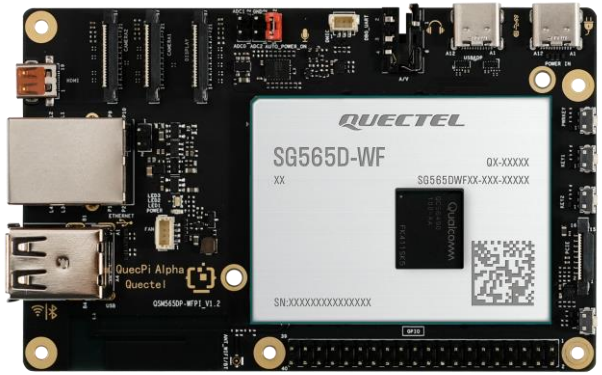
Smart city

Unmanned store

Robots

Recommended model

QuecPi Alpha



Supported functions

Controller

- Highly-integrated full-featured ARM controller for different application scenarios
- Integrating Wi-Fi 5
- High-performance computing power
- Plentiful peripheral resources

Operating system

- Linux/ Ubuntu* OS
- Enabling human-computer interaction, robustness and feature-rich computing
- Development environments are deeply integrated on the same platform

Applications

Lawn mower

AMR

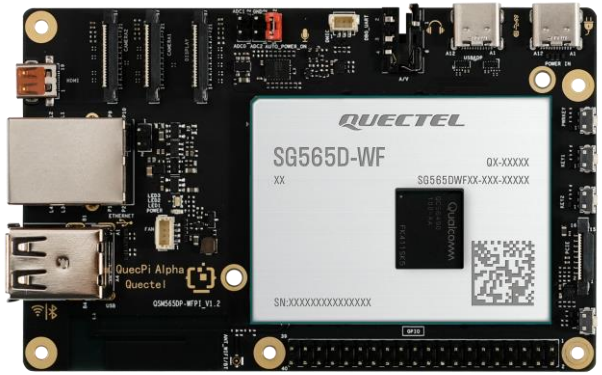
Commercial uses
(guiding, cleaning & delivery)

Personal uses
(companionship, education & entertainment)

Industrial manufacturing

Recommended model

QuecPi Alpha



Supported functions

Sensor data acquisition and processing technology

Connect various industrial sensors to collect real-time data and conduct preliminary analysis and processing

Multiple communication methods via wireless/ network

Multiple communication methods via Wi-Fi/ Ethernet/ Bluetooth

Edge computing

Calculate and analyze the collected data locally to reduce data transmission volume, lower network latency, and achieve rapid decision-making and control

Data storage and management

Capable of storing and managing big industrial data reliably, including equipment operation data, production records, etc. to facilitate data query, retrieval and analysis

Applications


Equipment monitoring


Automation


Energy management


Logistics & warehousing

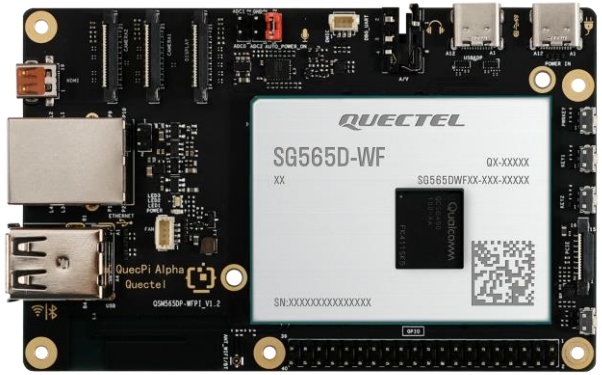

Quality traceability


Remote equipment maintenance

Media and entertainment

Recommended model

QuecPi Alpha



Supported functions

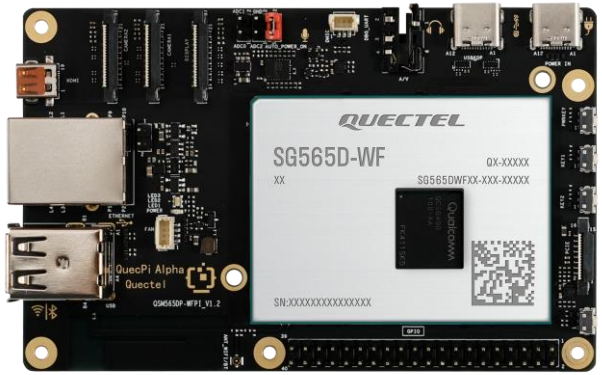
- Multimedia decoding & playback
- Network connection & remote control
- Human-computer interaction
- Image recognition & analysis
- Content management system integration
- Augmented reality & virtual reality

Applications

IoT gateway

Recommended model

QuecPi Alpha

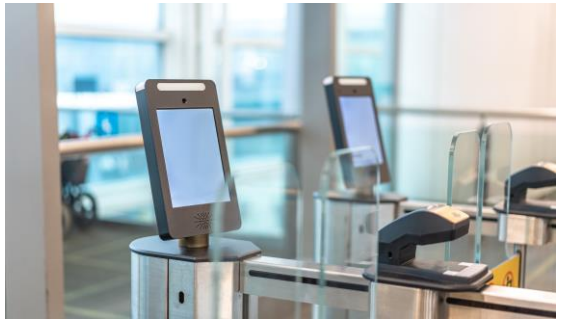


Supported functions

- Communication protocol conversion
- Edge computing
- System integration & expansion
- Device management
- Remote control
- Safety protection

Applications

Home control center



Smart office system

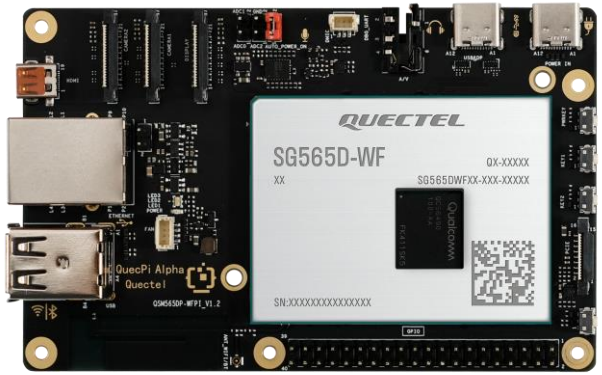
Agricultural monitoring

Smart community management

Server setup

Recommended model

QuecPi Alpha



Supported functions

Storage management

USB/ PCIe and other interfaces for storage, compatible with common file systems, and capable of achieving disk array functions

Network communication

Wi-Fi and gigabit ethernet, supporting network protocols such as SMB, NFS, FTP and UPnP, and also providing dynamic domain name resolution services

User management

Supports creating multiple user accounts and setting different read and write permissions, which can be authenticated via multiple authentication methods such as local account password and LDAP

Data security

Supports encrypting data using algorithms such as AES and RSA, setting up firewalls to control accesses via IP addresses and port numbers, regularly backing up data to local or cloud locations and restoring the data as needed

Applications

File server

Home NAS system

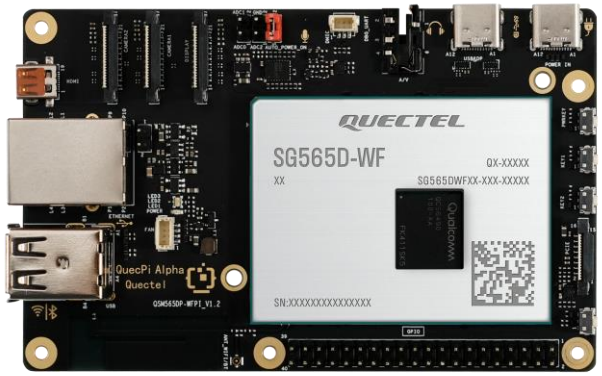
Web server

Game server

Large language model & machine learning

Recommended model

QuecPi Alpha



Supported functions

Hardware resource adaptation

Multiple interfaces, such as GPIO, USB, HDMI, etc., which can be easily connected to various external devices, thus providing rich data sources and interaction channels for machine learning models

Sustained by computing power

Powerful computing and graphics processing capabilities to accelerate model training and inference

Support for software environments

Programming language environments such as Python and R, as well as development tools such as Jupyter Notebook, can be easily built to facilitate data processing, model building and algorithm debugging

Network communication capabilities

Wi-Fi and ethernet, enabling data interaction and sharing with other devices or servers, making it easy to obtain remote data sets or upload experimental results

Applications

Image recognition

Natural language processing

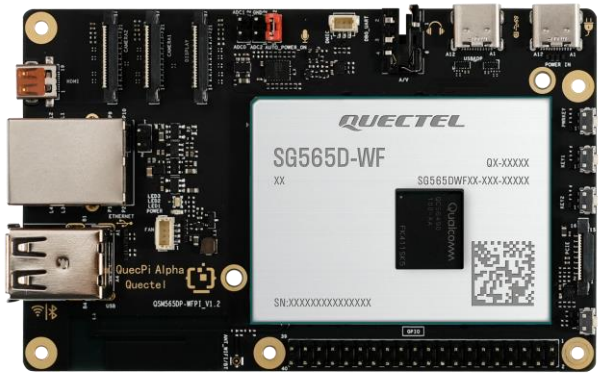
Academic research

Robot control & decision-making

Education: empowering learning

Recommended model

QuecPi Alpha



Supported functions

Variety of programming languages

Programming languages such as Python, C/C++, and Java. This enables teachers to conduct diverse programming teaching, meeting the needs of students at different stages, from learning basic syntax to complex program design.

Powerful hardware interface expansion ability

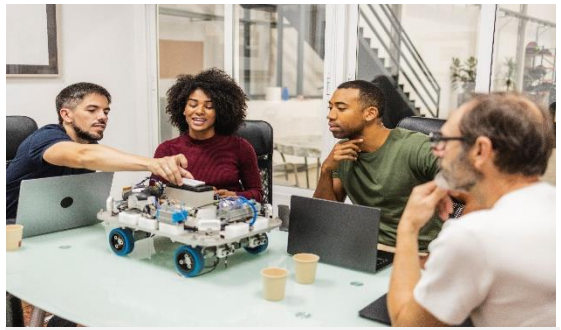
This makes it convenient for students to connect various sensors and actuators to carry out hardware interaction experiments and understand the working principle of the collaboration between hardware and software.

Stable system operation ability

During the long teaching process, the operating system of the QuecPi should be able to run stably, with good compatibility and robustness. It should reduce the occurrence of situations such as freezes, lags, and software crashes to ensure the smooth progress of teaching activities.

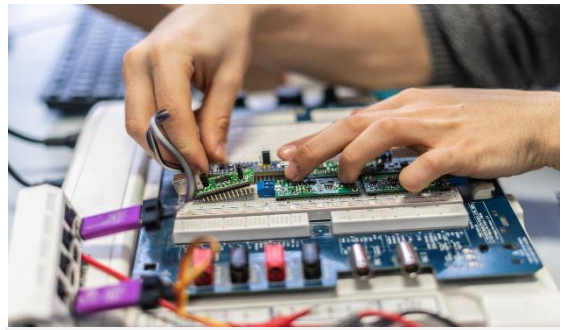
Applications

Programming education



Robotics competitions

IoT experiments



Electronics understanding

Thank you

For more information, please visit: quectel.com, LinkedIn, Facebook and X.
Media contact: media@quectel.com

Sales support: **sales@quectel.com**
Technical support: **support@quectel.com** General: **info@quectel.com**