



Build a smarter world

Quectel Pi H1 Single-Board Computer

Introduction



Duty of confidentiality

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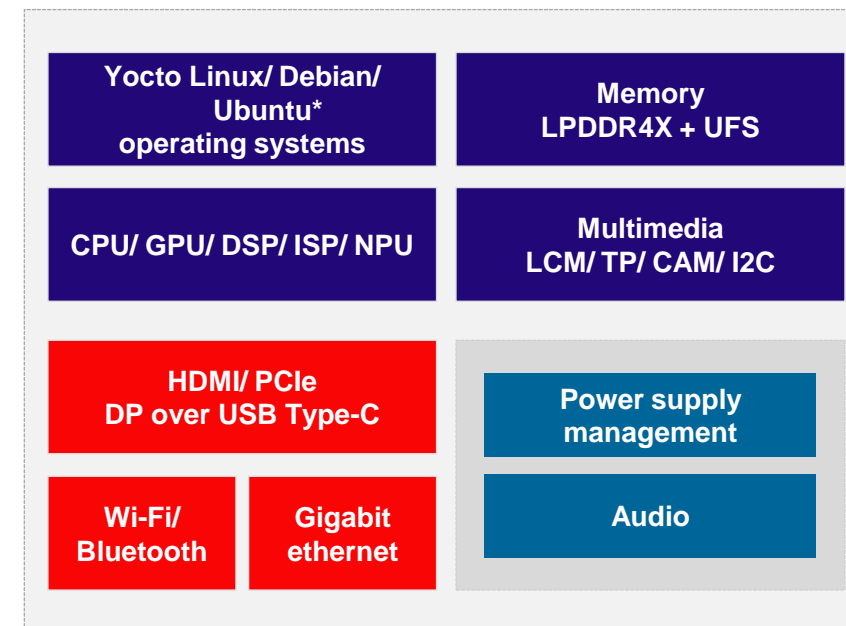
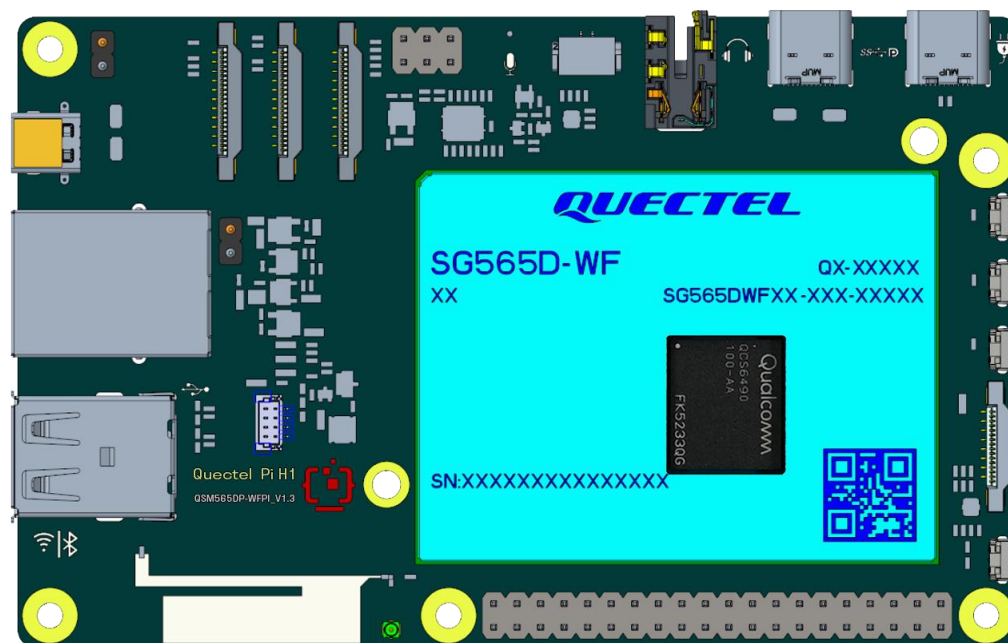
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Quectel Pi H1 introduction



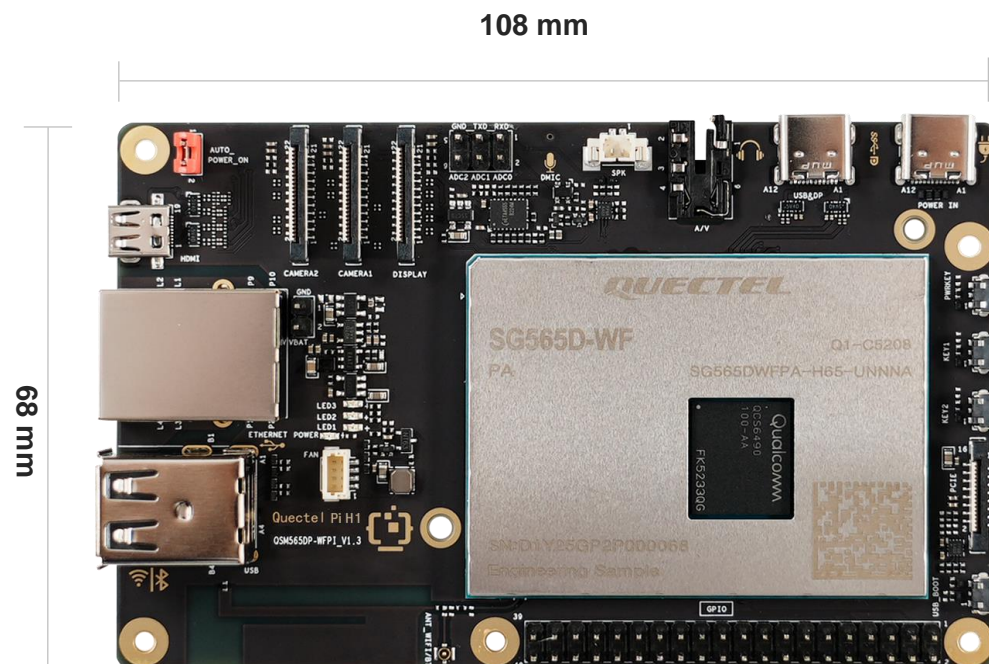
The Quectel Pi H1 is a new generation high-integrated Single-Board Computer (SBC) featuring a rich set of interfaces

*: Under development

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Quectel Pi H1 specifications



Packaging: PCBA

Dimensions (mm): 108 × 68 × 20.77



Flexible configurations:

Flexible memory configurations



Operating systems:

Yocto Linux/ Debian/ Ubuntu*



Chipset platform:

QCS6490, 12 TOPS computing power, powerful performance, feature-rich interfaces, multimedia capabilities, Wi-Fi 5 and Bluetooth



Long life time:

Till the year of 2036

*: Under development

Images above are for illustration purpose only and may differ from the actual product. For authentic appearance and label, please refer to the product received from Quectel

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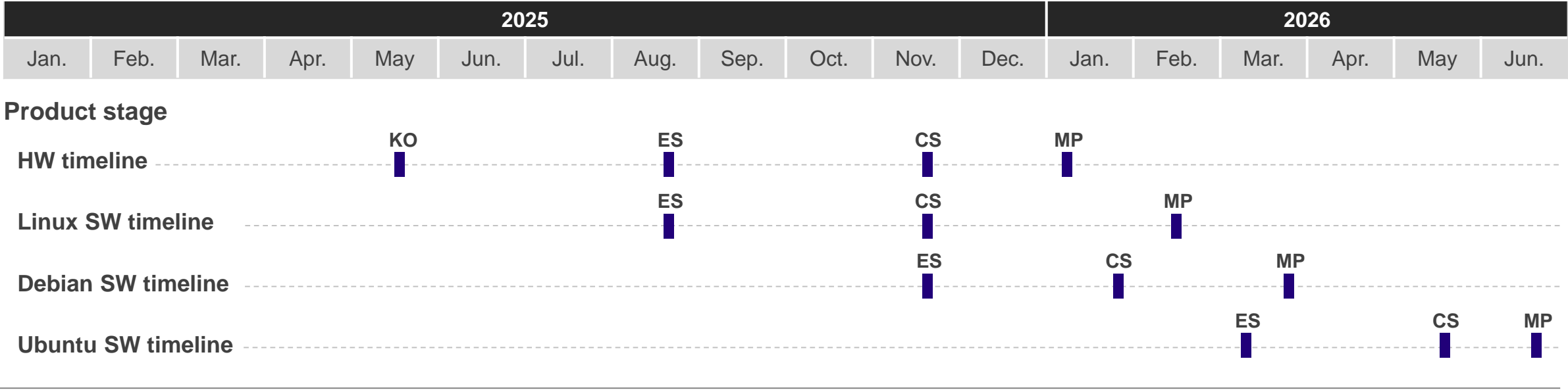
Quectel Pi H1 features & interfaces

Features		Interfaces	
CPU	QCS6490, octa-core SoC 1 × A78 @ 2.7 GHz + 3 × A78 @ 2.4 GHz + 4 × A55 @ 1.9 GHz	LCM	<ul style="list-style-type: none"> • 1 × USB Type-C interface (DP Over USB Type-C), DisplayPort 1.4, with up to 4K (3840 × 2160) @ 60 fps • 1 × Micro HDMI interface ②, HDMI 2.0 (the frame rate is to be determined*); decoder: 4K (H.264/ H.265/ VP9) @ 60 fps • 1 × FPC connector ②, 4-lane MIPI DSI D-PHY 1.2; 1280 × 800 @ 60 fps
GPU	Adreno™ 643L @ 812 MHz	Camera	2 × 4-lane MIPI CSIs, with up to 2.5 Gbps/ lane data rate
Video	Encoder: 4K (H.264/ H.265) @ 30 fps Decoder: 4K (H.264/ H.265/ VP9) @ 60 fps	Touch Panel	Supported
Memory	8 GB LPDDR4x + 128 GB UFS	Audio	<ul style="list-style-type: none"> • 1 × 3.5 mm earphone jack • 1 × DMIC • 1 × Micro HDMI audio out • 1 × loudspeaker
OS	Yocto Linux/ Debian/ Ubuntu*	PCIe	1 × 1-lane PCIe 3.0, with up to 8 Gbps data rate
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac, Wi-Fi 5	USB	<ul style="list-style-type: none"> • 1 × USB 3.1 Type-C interface, back compatible with USB 2.0, with up to 5 Gbps data rate • 2 × standard USB 2.0 Type-A interfaces, with host mode only, and up to 480 Mbps data rate • 1 × USB Type-C interface for the main power supply
Bluetooth ①	5.0	Ethernet	1 × standard RJ45 interface for Gigabit Ethernet (10/ 100/ 1000 Mbps) connectivity
Certification	FCC*/ IC*/ CE*/ RCM*	UART	5 × UARTs (multiplexing interfaces included), among which Debug UART is only for debugging
		SD Card	1 × SD 3.0, 4-bit SDIO
		I2C/ LED/ SPI/ PWM/ GPIO/ PWRKEY	Supported
		Antenna	PCB antenna

*: Under development/ in progress
 ①: The product supports only mandatory Bluetooth 5.0 features but not optional features such as the 2 Mbps BLE and Advanced Advertising Extensions
 ②: The Micro HDMI and MIPI display interfaces are mutually exclusive and cannot be used simultaneously

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Quectel Pi H1 timelines



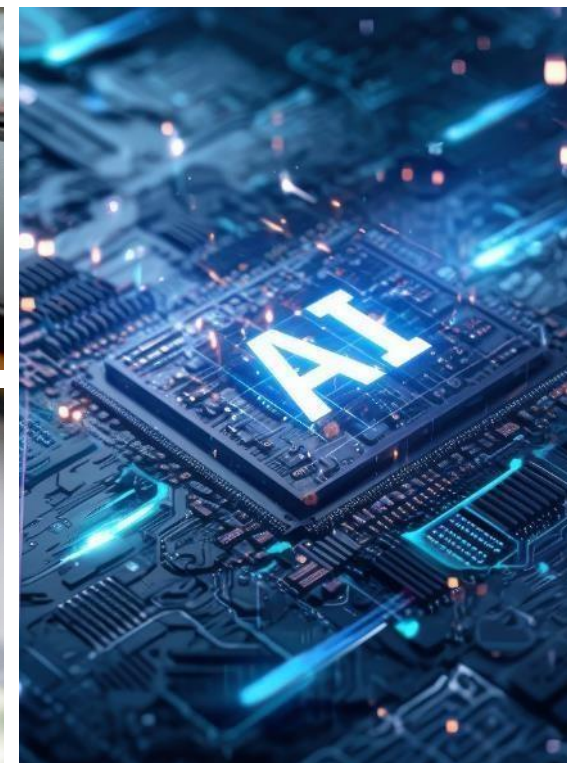
Certifications

Regulatory/ conformance



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

Quectel Pi H1 typical applications



Edge computing

Product images



Supported features



High computing performance
with low power consumption



Feature-rich
peripherals



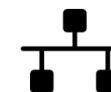
Multiple
operating systems



High
cost-effectiveness



Mobility-oriented
design



Wi-Fi 5 & Ethernet
connectivity

Applications



Smart factory



Smart audio & video recorders



Smart city

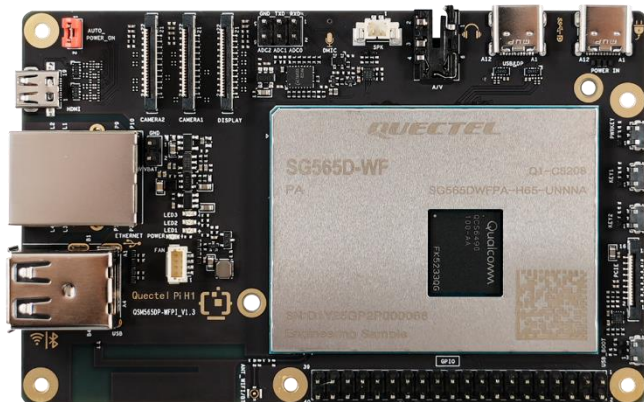


Unmanned store

Robots

Recommended model

Quectel Pi H1



Supported features



Controller

- High-integrated fully-featured ARM-based controller for multiple applications
- Wi-Fi 5
- High-performance computing power
- Extensive peripheral resources



Operating systems

- Yocto Linux/ Debian/ Ubuntu*
- Robust and feature-rich platform for human-computer interaction and computing
- Deeply integrated development environment on a unified platform

Applications



Lawn mower



AMR



Commercial uses
(guiding, cleaning & delivery)



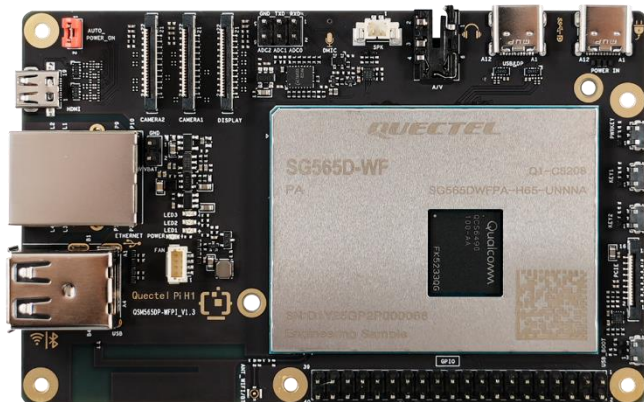
Personal uses
(companionship, education & entertainment)

*: Under development

Industrial manufacturing

Recommended model

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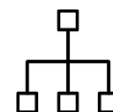


Supported features



Sensor data acquisition & processing technology

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



Multiple communication interfaces

Supports Wi-Fi, Ethernet, and Bluetooth for flexible connectivity



Edge Computing Capabilities

Process and analyze data locally to reduce bandwidth usage, decrease latency, and enable rapid control decisions



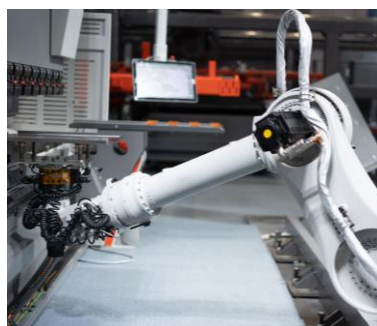
Data storage & management

Reliably store and manage large-scale industrial data, including equipment operational records and production logs, to support efficient query, retrieval, and analysis.

Applications



Equipment monitoring



Automation



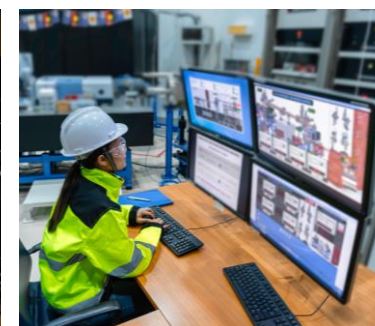
Energy management



Logistics & warehousing



Quality traceability

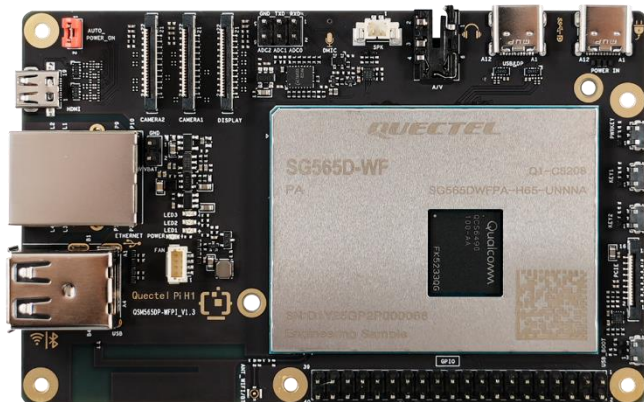


Remote maintenance

Media & entertainment

Recommended model

Quectel Pi H1



Supported features



Multimedia decoding
& playback



Network connectivity
& remote control



Human-computer
interaction



Image recognition
& analysis



Content management
system integration



Augmented reality
& virtual reality

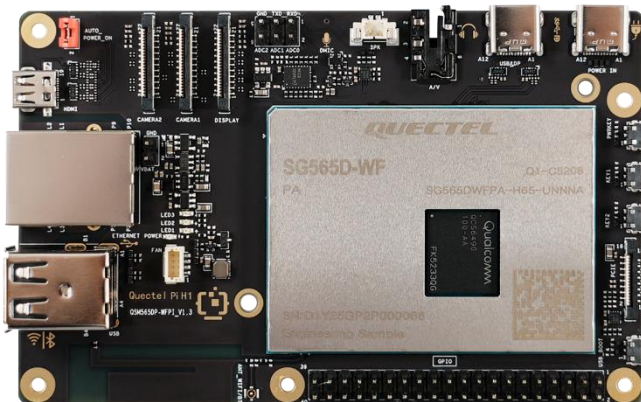
Applications



IoT gateway

Recommended model

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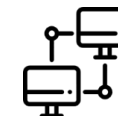
Supported features



Protocol translation
& conversion



Edge computing



System integration
& expansion



Device management



Remote control



Safety protection

Applications



Smart home hub



Smart office solutions



Agricultural monitoring

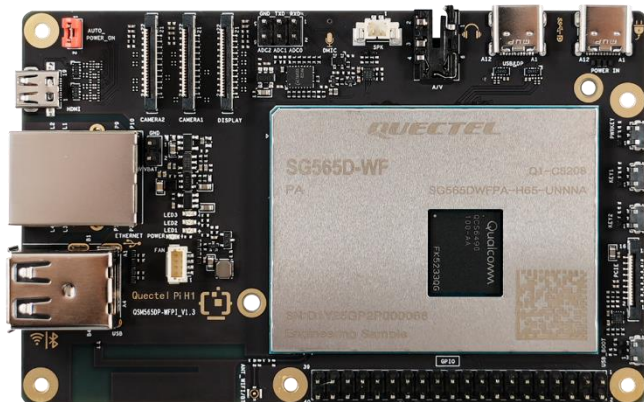


Smart community management

Server setup

Recommended model

Quectel Pi H1

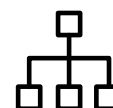


Supported features



Storage management

Supports data storage via interfaces of USB, PCIe, etc. Compatible with common file systems and RAID configurations



Network communication

Features Gigabit Ethernet and Wi-Fi. Supports standard network protocols including SMB, NFS, FTP, and UPnP, and provides dynamic DNS (DDNS) services



User management

Allows creation of multiple user accounts with customizable read/write permissions. Supports authentication via local passwords and LDAP



Data security

Protects data with AES/ RSA encryptions and configurable IP/ port-based firewalls. Enables automated local or cloud backups and simplified data restoration

Applications



File server



Home NAS system



Web server

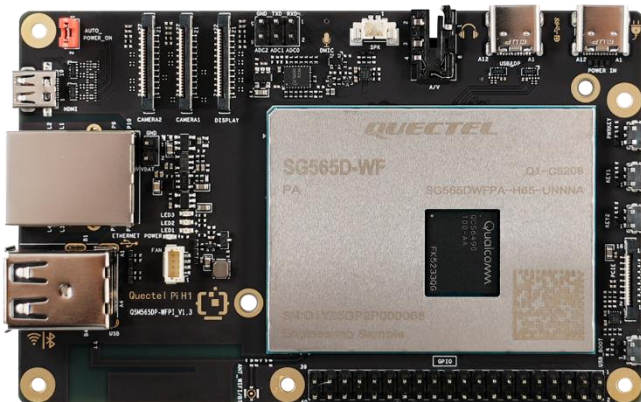


Game server

Large language model & machine learning

Recommended model

Quectel Pi H1



Supported features



Hardware resource adaptation

Features multiple I/O interfaces, including GPIO, USB, and HDMI, enabling easy connection to a wide range of peripherals. This provides rich data sources and interaction channels for machine learning applications



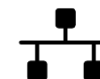
High-performance computing

Delivers powerful CPU and GPU processing capabilities to significantly accelerate both model training and inference tasks



Development software & environments

Supports popular programming languages like Python and R, along with tools such as Jupyter Notebook. This streamlined environment facilitates efficient data processing, model development, and algorithm debugging



Network connectivity

Equipped with Wi-Fi and Ethernet to enable seamless data exchange with other devices and servers. This allows for easy access to remote datasets and the uploading of results

Applications



Image recognition



Natural language processing



Academic research

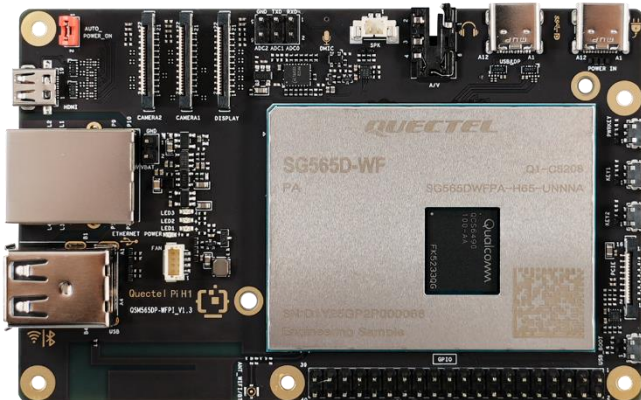


Robot control & decision-making

Education: empowering learning

Recommended model

Quectel Pi H1



Supported features



Multiple programming language support

Native support for languages like Python, C/C++, and Java enables educators to teach a wide range of programming concepts, from basic syntax to advanced project design, suitable for all learning levels.



Extensive hardware interfacing

A rich set of I/O options allows students to easily connect various sensors and actuators. This facilitates hands-on experimentation and helps demonstrate the principles of hardware-software integration.



System stability & reliability

The platform runs a robust OS designed for long-term use in classroom environments. It delivers consistent performance with high compatibility, minimizing disruptions from crashes, freezes, or lag to ensure a seamless teaching experience.

Applications



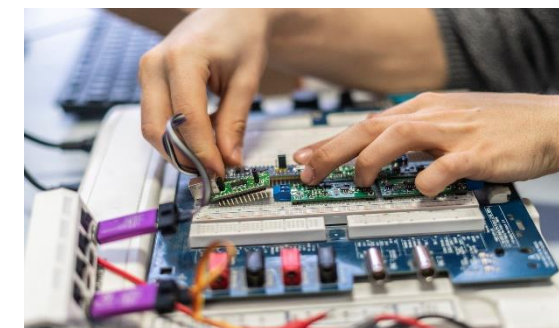
Coding & programming learning



Competitive robotics



IoT experiments



Electronics fundamentals

Thank you

For more information, please visit: [quectel.com](https://www.quectel.com), [LinkedIn](#), [Facebook](#) and [X](#).
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