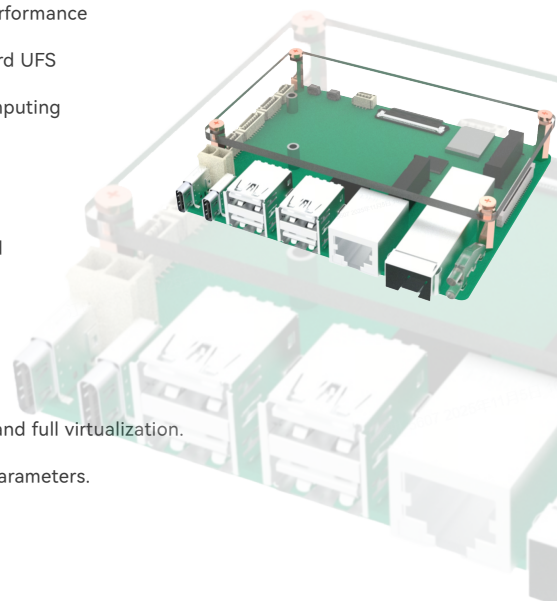


K3 Pico-ITX(2.5" AI SBC)

Description

The K3 Pico-ITX is a 2.5" Pico-ITX Plus single-board computer delivering 60 TOPS of performance with 8 CPU cores and 8 AI cores under a unified memory architecture. It features onboard UFS storage, 10 GbE optical networking, and dual M.2 expansion slots, providing strong computing and connectivity for AI and scientific applications.

With interfaces for real-time motion control and system management, and an industrial-grade compact design, K3 Pico-ITX enables rapid evaluation, integration, and commercialization across space-constrained industrial scenarios.



Key Features

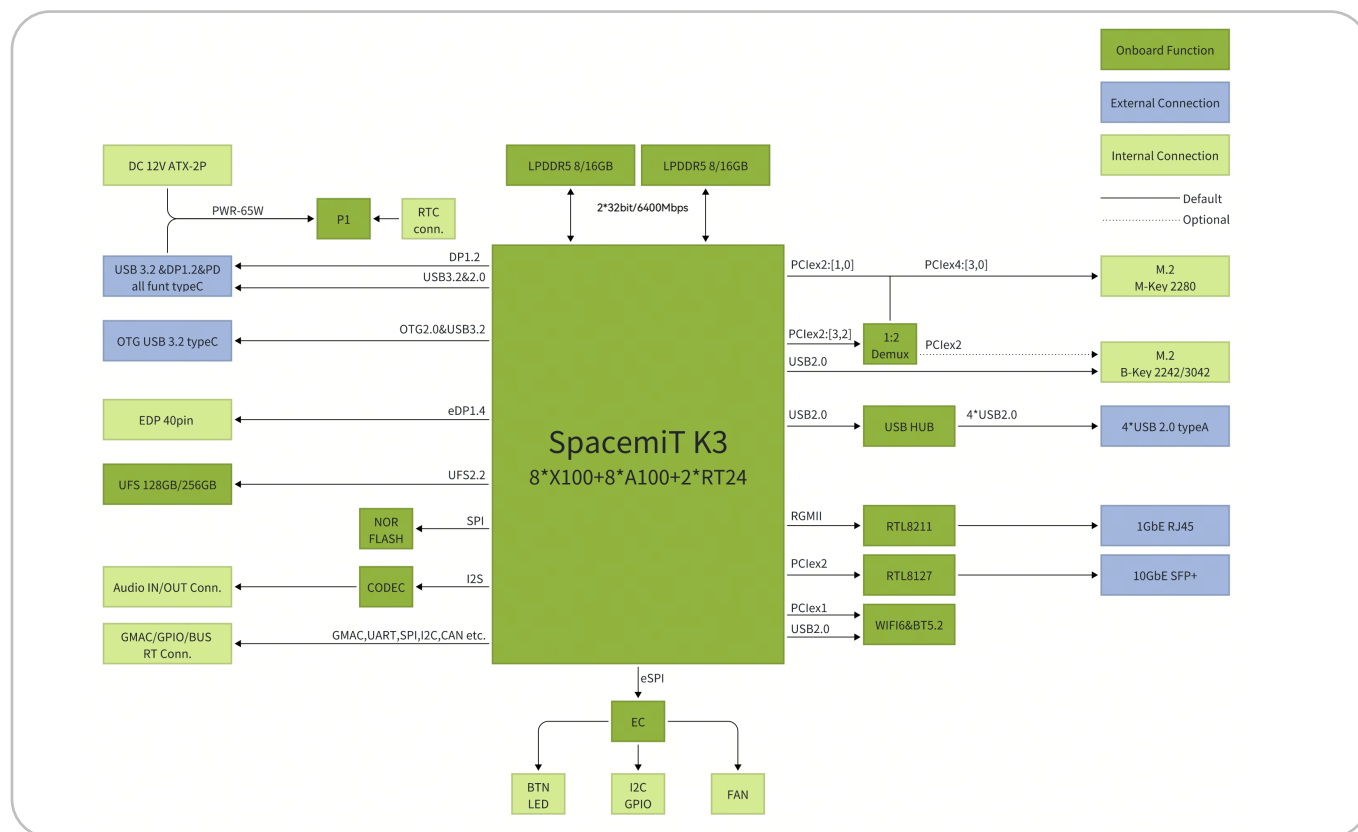
- K3 8-core processor (RVA23 standard) delivering 60 TOPS, with IME vector extensions and full virtualization.
- Unified memory architecture for CPU and AI cores, supporting models up to 30 billion parameters.
- Onboard UFS storage—3.4× faster than typical eMMC.
- Dual M.2 slots (B-KEY & M-KEY), with M-KEY PCIe Gen3 ×4 for NVMe SSD expansion.
- 10 GbE PCIe Ethernet with 10G-BASE-R optical interface, ensuring low-latency, high-throughput data transfer and cluster deployment.
- Full-function Type-C port supporting 65W PD power and 4K DP display—one cable for power and display.
- Onboard eDP interface for industrial-grade HD screen integration.
- RT24 real-time core I/O slot supporting EtherCAT, CAN-FD, and other interfaces for microsecond-level motion control and robotics.
- MUSE thermal architecture with separated hot/cold zones for optimal CPU performance and efficiency.

Specifications

Processor	SpacemiT K3, 8 cores @2.4 GHz, 60 TOPS AI performance, RVA23 compliant, supports IME vector extensions and full virtualization.
Display	DP Type-C: up to 4K (3840×2160) @ 60 Hz 40-pin eDP: up to 2.5K (2560×1600) @ 90 Hz
Memory	Dual-channel 2*32bit LPDDR5 6400 MT/s, 16 GB / 32 GB options.
Local Storage	UFS 2.2, 128 GB / 256 GB options.
Storage Expansion	M.2 M-Key (PCIe Gen3 ×4), supports 2280 NVMe SSD.
HS expansion	M.2 B-Key (PCIe Gen3 ×2 + USB), supports 2242/3042 cards.
Real-Time Expansion	FPC connector for EtherCAT, 5× CAN-FD, SPI, I ² C, UART, etc.
Wireless	Onboard Wi-Fi 6 + BT 5.2, dual-band, dual-antenna, 802.11 a/b/g/n/ac/ax compliant.
Wired Network	1× RJ45 Ethernet, 10/100/1000 Mbps adaptive.
Optical Network	10 GbE SFP+ port, supports 10G BASE-R / BASE-X, QinQ, MSI-X, WOL, and clustering.
Audio	Onboard Codec, internal audio input/output.
USB	2× USB 3.2 Gen1 Type-C (1 full-featured, one OTG) 4× USB 2.0 Type-A Host
Debug	UART, JTAG, and 3 side buttons for power, reset, and firmware update.
System Management	Onboard EC controller for power, thermal, and system status; includes I ² C/UART/GPIO expansion.
Form Factor	100 × 86 mm, Pico-ITX Plus single-board computer, approx. size of a 2.5" drive.
OS	Pre-installed Bianbu 3.0; supports Ubuntu 26.04, OpenHarmony 6.0, OpenKylin, Deepin, Fedora, etc.
Power Input	Dual Type-C USB-PD (65 W) or ATX 2-pin 12 V @ 7 A.
Reliability	ESD protection: Board: ±4 kV (contact), ±8 kV (air); System: ±6 kV (contact), ±12 kV (air) Compliant with CCC, CE, FCC; operating temp: -20 °C ~ 70 °C (consumer) / -40 °C ~ 85 °C (industrial).
Clock	Onboard RTC with battery interface, supports G3 state.
Structure	Optional single-board or fan-cooled heatsink assembly Optional single-board or fully-metal industrial chassis. Optional real-time board, touchscreen, terminal blocks.

K3 Pico-ITX(2.5" AI SBC)

Logical framework diagram



Optional Components

Category	Name	Description	Interface
Peripheral	SSD	980 NVMe™ M.2 SSD, PCIe Gen 3.0 x4, NVMe 1.4, sequential read up to 3,500 MB/s, sequential write up to 3,000 MB/s	M.2 M-KEY 2280
Peripheral	SSD	B+M NVMe SSD 128GB	M.2 B-KEY 2242
Peripheral	4G Module	EM05	M.2 B-KEY 3042
Peripheral	SATA Expansion Card	PCIe to 5×SATA interface	M.2 M-KEY 2280
Peripheral	Docking Station	Type-C dock for HD 4K display, PD charging, USB 3.0 for tablets/laptops (3-in-1)	Full-feature Type-C
Peripheral	Ultra HD Display	16" 2.5K LCD, 90Hz, 2560×1600	40-pin eDP
Peripheral	Real-time Control Expansion Board	19V Input, 5x CAN-FD, EtherCAT, RS232 & RS485 I/O, Industrial-Grade Isolation Protection	FAN
Structural Accessory	Embedded Fan Heatsink	Custom aluminum design	FAN
Structural Accessory	Metal Chassis	120*120*48mm Self-developed Metal Chassis	BTN