

ThinkCore W321

New

Mini RISC-based Ready-to-Run Wireless Embedded Computer with WLAN, 2 Serial Ports, LAN, SD, and Linux OS



Features

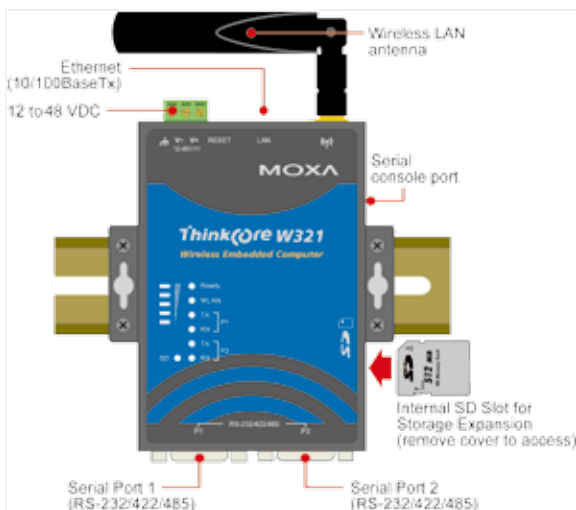
- MOXA ART ARM9 32-bit 192 MHz processor
- On-board 32 MB RAM, 16 MB flash disk
- 802.11a/b/g wireless LAN
- WEP, WPA, and WPA2 encryption
- Infrastructure Mode and Ad-Hoc Mode supported
- WLAN Repeater function supported
- 2 software-selectable RS-232/422/485 serial ports
- 10/100 Mbps Ethernet for network redundancy
- 5G continuous vibration and 50G shocking endureable
- Designed to withstand 5G continuous vibration and 50G shocking
- SD socket for storage expansion supported
- Ready-to-run Linux Kernel 2.6 platform
- DIN-rail or wall-mount installation
- Robust, fanless design



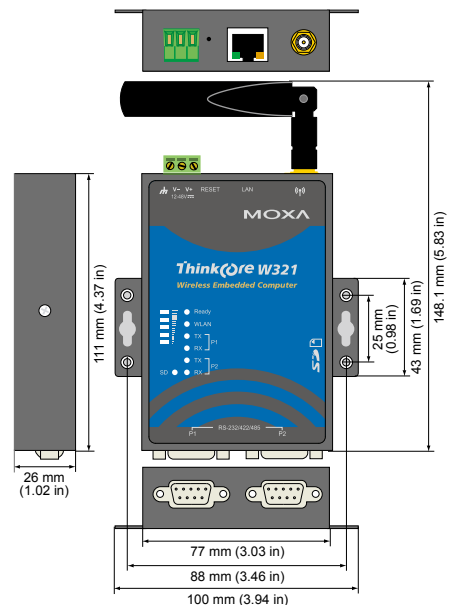
Overview

The ThinkCore W321 embedded computer features 2 software-selectable RS-232/422/485 serial ports, 802.11a/b/g for WLAN communication, 1 Ethernet port, and an SD socket for external storage expansion. The MOXA ART 32-bit ARM9 processor and the built-in Linux system provide a powerful and reliable platform for any harsh, industrial environment, promising an ideal solution for industrial M2M applications such as data acquisition, protocol conversion, and remote device control and monitoring.

Appearance



Dimensions



Hardware Specifications

System

CPU: MOXA ART ARM9 32-bit RISC CPU, 192 MHz

DRAM: 32 MB

Flash: 16 MB

Storage Expansion: SD socket x 1 for storage expansion

Console Port: RS-232 x 1 (Tx/D, Rx/D, GND), 4-pin header output

Button: Reset button x 1, support "Reset to Factory Default"

Others: RTC, buzzer, Watchdog Timer

OS: Built-in Embedded Linux with MMU support

WLAN Communication

Standard Compliance: 802.11a/b/g

Radio Frequency Type: DSSS, CCK, OFDM

Radio Frequency Band:

802.11a: 5.15~5.25GHz, 5.25~5.35GHz, 5.725~5.825GHz

802.11b/g: U.S., Europe and Japan product covering 2.4 to 2.484 GHz

Media Access Protocol:

Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)

Modulation:

802.11a/g: OFDM (64-QAM, 16-QAM, QPSK, BPSK)

802.11b: DSSS (DBPSK, DQPSK, CCK)

Transmission Power:(Typical)

5.15~5.35GHz: 14dBm@ 6Mbps; 14dBm@ 54Mbps

5.725~5.825GHz: 14dBm@ 6Mbps; 13dBm@ 54Mbps

2.412~2.483GHz (IEEE802.11g): 17dBm@ 6Mbps; 15dBm@54Mbps

2.412~2.472GHz (IEEE802.11b): 18dBm@ 1~11Mbps

Receiver Sensitivity:(Typical)

5.15~5.35GHz: 6Mbps@ -82dBm; 54Mbps@ -67dBm

5.47~5.725GHz: 6Mbps@ -82dBm; 54Mbps@-67dBm

5.725~5.825GHz: 6Mbps@ -80dBm; 54Mbps@ -69dBm

2.412~2.472GHz(IEEE802.11g): 6Mbps@ -84dBm; 54Mbps@-69dBm

2.412~2.472GHz(IEEE802.11b): 11Mbps@ -82dBm; 1Mbps@-90dBm

Transmission Rate:

54 Mbps with auto fallback (54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps)

802.11b support rate: 1M, 2M, 5.5M, 11Mbps

802.11a/g support rate: 6M, 9M, 12M, 18M, 24M, 36M, 48M, 54Mbps

Transmission distance:

Up to 100 meters (@ 11 Mbps, in open areas)

Security: WEP 64-bit/128-bit, WPA, WPA2 data encryption

Antenna Connector: Reverse SMA

Antenna: External 2 dbi Dipole Antenna

WLAN Mode: Ad-Hoc (802.11b/g only), Infrastructure

Network Communication

LAN: Auto-sensing 10/100Mbps x 1, RJ45

Protection: Built-in 1.5KV magnetic isolation protection

Serial Communication

Serial Port: 2 software selectable RS-232/422/485 port, DB9 male connector

Protection: Built-in 15KV ESD protection for all signals

Data bits: 5, 6, 7, 8

Stop bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, RS-485 ADDC™

Speed: 50 bps to 921.6 Kbps, supports Any Baud Rate

LEDs

System: Ready, SD

WLAN: Enable, Signal Strength

LAN: 10M/Link (on connector), 100M/Link (on connector)

Serial: Tx/D, Rx/D

Power Requirements

Power Input: 12 to 48 VDC

Power Consumption: 400mA@12VDC, 4.8W

Mechanical

Dimension (WxDxH):

77 x 111 x 26 mm (without wall mount ear and antenna)

Weight: 185 g

Antenna: 110mm

Construction Material: aluminum, 1 mm

Mounting: Wall-mounting, DIN-rail (optional, need DK35A DIN-rail kit)

Environmental

Operating Temperature:

-10 to 60°C (14 to 140°F), 5 to 95% RH

Storage Temperature:

-20 to 80°C (-4 to 176°F), 5 to 95% RH

Anti-Vibration: 5G @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis.

Anti-Shock: 50G @ IEC-68-2-27, half sine wave, 30 ms

Regulatory Approvals

EMC: FCC, CE (Class A)

Safety: TÜV, UL, cUL

Others: RoHS, CRoHS, WEEE

Warranty: 5 years

Software Specifications

Linux

Kernel Version: 2.6.9

Boot Loader: Redboot

Protocol Stacks: TCP, UDP, IPv4, SNMP V1/V3, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSH 1.0/ 2.0, SSL, DHCP, NTP, NFS,SMTP, Telnet, FTP, PPP, PPPoE

File System:JFFS2 (on-board flash)

System Utilities: : bash, busybox, tinylogin, telnet, ftp, scp

Supporting Services and Daemons:

telnetd: Telnet Server daemon

ftpd: FTP server daemon

sshd: Secure shell server

Apache: Web server daemon, support PHP and XML

OpenVPN: Virtual private network service manager

iptables: Firewall service manager

pppd: dial in/out over serial port daemon & PPPoE

snmpd: snmpd agent daemon

inetd: TCP server manager program

Application Development Environment:

MOXA Linux API Library

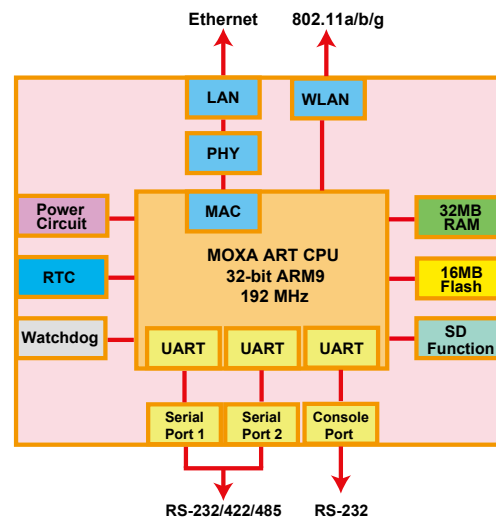
Linux Tool Chain: Gcc, Glibc, GDB

Windows Tool Chain: Gcc, Glibc,Insight (Windows-based source level debug utility)

BINEncryptor: Encryption tool for binary files; based on MOXA Intellectual Protection Technology (Patented)

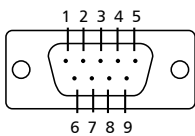
Device Drivers: SD Card, UART, RTC, Buzzer

H/W Block Diagram



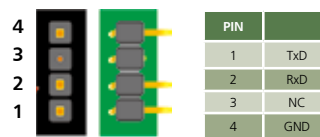
Pin Assignment

Male DB9



PIN	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TxDA(-)	TxDA(-)	---
2	RxD	TxDB(+)	TxDB(+)	---
3	TxD	RxDB(+)	RxDB(+)	DataB(+)
4	DTR	RxDA(-)	RxDA(-)	DataA(-)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---

Serial Console port



Ordering Information

ThinkCore W321-LX NEW

Mini RISC-based Ready-to-Run Wireless Embedded Computer with WLAN, 2 Serial Ports, LAN, SD, and Linux OS

All items include

- 1 W321 embedded computer
- Quick Installation Guide
- Document & Software CD
- WLAN Antenna
- Ethernet cross-over cable: RJ45 to RJ45, 100 cm
- Console port cable: CBL-4PINDB9F-100: 4-pin header to DB9 (Female) cable, 100 cm
- Universal Power Adaptor
- Product Warranty Statement