JETBOX

JetBox 9300 / 9300-w

Industrial Networking Computer

JetBox 9300 is a Patented 5-in-1 Industrial Networking Computer

- **Industrial computer**
  RISC CPU, -40~80°C operating temp. (JetBox 9300-w)
  Linux programming & customized configuration auto-run
  Modbus gateway (optional)
- **Router**
  IP routed, static routing, NAT (firewall), DMZ
- **5-port Managed Ethernet switch**
  SNMP v1/v2c/v3
  QoS, VLAN (802.1Q, port-based)
- **4-port serial device server**
  VCOM, TCP server/ client, UDP, Paired TCP
- **Digital I/O controller**
  4 DI & 4 DO
  DIO scheduling

Overview

In a network environment, routers, switches and computers constitute a typical network architecture. While the technological development has advanced, so has the complexity of integrating these devices. Consequently the revolution of networking devices has begun. Functional integration and usability will be standard in next generation network devices.

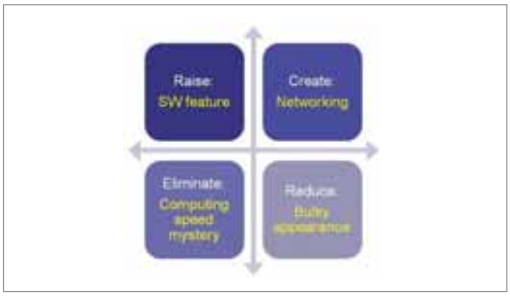
JetBox 9300 is the communication platform that takes router functionality, managed switching and computer functionality and rolls it all into one tiny box.

Simple operation is the core feature of the JetBox 9300. Korenix provides not only an API but also User Interface to make managing router, managed switch, and computer setting simple.

JetBox 9300 is a RISC-based embedded computer, system memory 64MB SDRAM and carries all major interfaces such as five Ethernet ports, two USB2.0 ports, two RS-232 ports, two RS-232/422/485 ports, four digital inputs, four digital outputs and one SD card slot. Moreover, built-in Linux OS and network essential applications make JetBox 9300 a powerful network engine.

Best Front-End-Control Project

The JetBox 9300 implements the stable RISC CPU ideal for industrial application. Bulky appearances are reduced to compact aluminum case design. Increased software features enrich the JetBox 9300s intrinsic values. Here is the opportunity to marry an industrial computer with networking related functions to create uncontested market space.

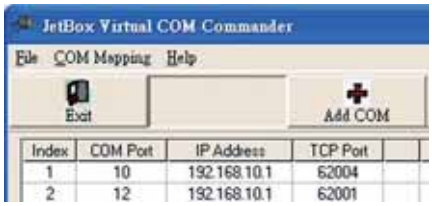


SNMP Control & MIB

SNMP (Simple Network Management Protocol) which is used in networking management systems to monitor network-attached devices. JetBox 9300 provides complete SNMP v1, v2c, v3 protocol and MIBs (Management Information Bases). Customers can use one or more systems to manage a number of devices through JetBox 9300 SNMP control. MIBs is a collection of information with organized hierarchy and be accessed by a using a network management protocol like SNMP. A MIB hierarchy can be illustrated as a MIB tree. Korenix provides the SNMP private MIB to let users compile it into the MIB browser.

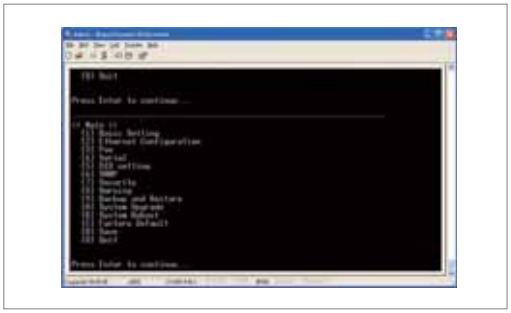
JetBox Virtual COM Commander

Virtual COM can be useful in case there is a lack of available physical serial ports or to communicate with any other serial devices via internet or LAN (Serial-over-Ethernet technology). The physical communication can travel by software through TCP server/ client and UDP modes, and also through the virtual COM mode. Customers can install the virtual COM driver by installing JetBox Commander. Customers can manage virtual COMs through JetBox Commander or let virtual COM work alone without JetBox Commander.



User Interface: Web & CLI

Since the JetBox 9300 is a Linux-based computer, ideal for easy and powerful usage in networking environment, Korenix also provides a user friendly interface for router functionality, managed switch, and system settings. Users can set up those specific functions in Web user interface or Command line interface.



DIO Scheduling

Digital input and output are essential control in industrial environment. JetBox 9300 not only focuses on network related functions, but also in industrial control. Hence, JetBox 9300 carries four digital inputs and four digital outputs for alarm, indicator, or sensor control. Further, the digital input and output of JetBox 9300 can be enabled or disabled based on schedule. Customers can set a scheduling table by Web UI or CLI.

Router

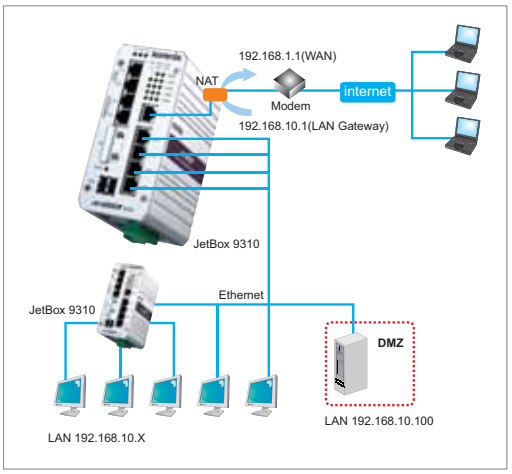
There are five Ethernet ports of JetBox 9300. The default setting of Ethernet ports in JetBox 9300 is one WAN port and four LAN ports. Advanced Linux users can change the setting through JetBox 9300 Linux environment to provide the flexibility of adapting JetBox 9300 to various networking environments, such as using two WAN ports for two enterprises' networks as networking redundancy.

When the Ethernet port of JetBox 9300 is set as WAN port, IP routing and static routing are supported.

NAT (Network Address Translation) & DMZ (Demilitarized Zone)

NAT server enables a LAN to use one set of IP addresses for internal traffic and a second set of addresses for external traffic. Therefore, NAT server can provide a type of firewall by hiding internal IP addresses, enable a company to use more internal IP addresses without conflicting with IP addresses used by other companies, and allow a company to combine multiple ISDN connections into a single Internet connection.

JetBox 9300 provides NAT endpoint filtering as a firewall to protect customer's network from the outside world. Any incoming traffic must match the IP address of the outgoing connection when NAT endpoint filtering is enable. Sometimes, a customer will need to expose certain types of applications to the outside world. Therefore, JetBox 9300 also provides DMZ host function. Customers can place a computer in the DMZ to expose traffic to the Internet and run the application on that computer when DMZ host is enabled.



Linux Environment

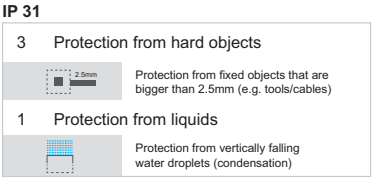
JetBox 9300 is designed as an industrial networking computer based on Linux operating system. Korenix provides the Web UI and CLI to make networking related setting simple. Since Linux is an open operating system, many users can concurrently access Linux environment. Therefore, Korenix also has ability to provide Linux environment for JetBox 9300. Advanced Linux users can manipulate with standard Linux command. Further, Korenix also provides JetBox 9300 Linux SDK for particular project users to develop their own applications. A suite of cross compilers, Linux tools, libraries, and header files are included in the JetBox 9300 Linux SDK.

JetView (LAN IP Management)

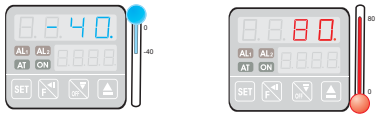
JetView is a device management utility which support various device management features. Currently, JetBox supports on JetView 1.1 (or above version) for device discovery and basic system LAN IP address modification. With different version, more features may be supported and you can always find the latest information in the Korenix web site or get help from Korenix Customer Support.

Industrial Strength: IP31, Wide Temp, Vibration & Shock Resistance

IP (Ingress Protection) class defines the protection against contact and infiltration of water and dirt. In industrial applications, JetBox 9300 is designed to be set in the control box at the front end site, therefore the IP31 class protection make JetBox 9300 capable of withstanding rough conditions,dirt, dust and humidity.

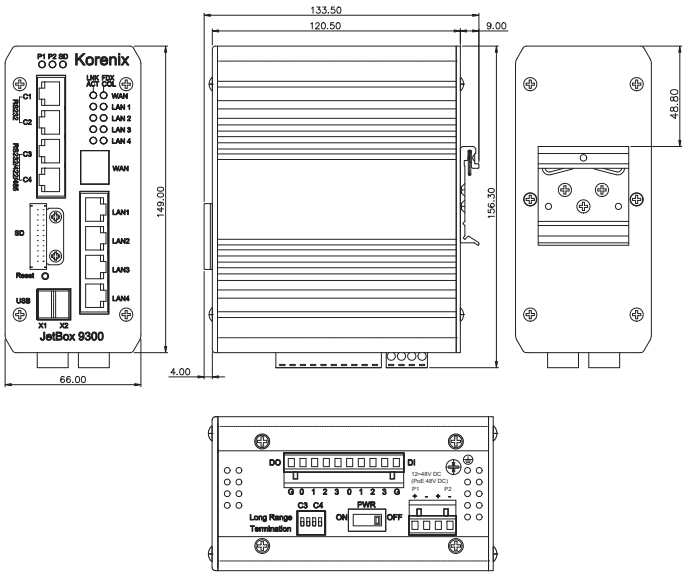


Besides water and dirt protection, JetBox 9300 also provides the wide temperature version (-40~80°C) to withstand high heat or cold environment.
*model: JetBox 9300-w



Further, some applications like monitoring in transportation and mining need high reliability to the resistance of shock and vibration. Solid hardware and mechanical design enables JetBox 9300 to sustain 5 gravities of vibration and 50 gravities of shock.

Dimensions (Unit = mm)



Hardware Specifications

System

Processor: RISC
System memory: SDRAM 64MB
Ethernet: 10/100 Based-Tx RJ-45 connector x5
Built-in 15KV ESD protection of all signals
SSD: SD card slot x1
Serial Port:
RS-232 x2, RS-232/422/485 x2 (RJ45 connector)
USB: USB 2.0 x2 (Host)
Supporting devices: USB flash, wireless dongle
Digital IO: 4 DI & 4 DO
LED per port:
Link/Activity x5 (Green on/Green blinking)
Full Duplex/Collision x5 (Orange on/ Orange blinking)
LED per unit:
Power on/off x2 (Green on/off)
SD card x1 (Green plug/unplug)
Power on/off switch x1
Reset button x1
HW Watchdog timer:
Generates a time-out system reset, 1sec
Power Supply: dual inputs
DC input 12~48V
Power Consumption:
Single input 5.4W at 12V, 6.72W at 48V
Dual inputs 5.28W at 12V, 7.2W at 48V
OS support: Embedded Linux 2.6.21

Mechanical

Construction:
Rugged Aluminum Alloy Chassis, IP31 protection
Color: Silver
Mounting: DIN rail
Dimension: 66(W) x149(H) x 120.5(D) mm
Net weight: 800g

Environment

Operating Temp:
-4 ~ 158°F (-20 ~ 70°C), 5 to 95% RH
-40 ~ 176°F (-40 ~ 80°C)*, 5 to 95% RH
(Wide temp version) JetBox 9300-w
Storage Temp: -40 ~ 176°F(-40 ~ 80°C), 5 to 95% RH
Regulation: FCC class A, CE / UL
EN55022 class A
EN55024
EN61000-3-2, 3
EN61000-4-2, 3, 4, 5, 6, 8, 11
EN 50155 Railway: compliance
Shock: IEC60068-2-27 (50g peak acceleration)
Vibration:
IEC60068-2-6 (5g/10~150Hz/operating)
IEC61373(Radom/5-150 Hz/operating)
MTBF: 319,175 hours MIL-HDBK-217 GB (MILITARY HANDBOOK) standard
Warranty: 5 years
*-40 ~ 60°C (UL regulations) up to 80°C has been verified by korenix

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Software Specifications

Embedded Linux

Bootloader: JetBox bootloader
Linux Kernel: 2.6.21
Shell: GNU ash
File system: jffs2
Device drivers: SD card, USB, Watchdog timer, UART
Software packages: busybox, bridge-utils, ethtool, iptables, net-snmp, ntp, openssh, openssl, pppd, rp-pppoe, syslogd,udhcp, setserial, goahead web server

Technology

Standard:
IEEE802.3 10Base-T Ethernet
IEEE802.3u 100Base-Tx Fast Ethernet
IEEE802.3x Flow Control and Back-pressure
IEEE802.1p Class of service
IEEE802.1Q VLAN
Processing: Store and Forward architecture
Packet filter: Broadcast packet filtering

Interface

Number of Ports: 5x 10/100 Base-Tx, auto MDI/MDI-X
Network cables:
10Base-T: 2-pair UTP/STP
Cat.3,4,5,EIA/TIA-568 100ohm (100m)
100Base-Tx: 2-pair UTP/STP
Cat.5 EIA/TIA-568 100ohm (100m)

Routing

IP routed, static routing
Per VLAN routing
NAT/DMZ
ICMP, ARP
Block/Allow IP or port address

Managed Switch

Configuration: Web-interface, TFTP update, configuration backup and restore, DHCP client/server, warm reboot, reset to default, Admin, password, Port speed/ Duplex control, Status and statistic display, SNMP v1/v2c/v3, Traps, RMON 1 (Statistics history, Alarm, Events), Command line interface
MIB: MIB-II, Bridge MIB, Ethernet-like MIB, VLAN MIB, Private MIB
NTP for time management
VLAN: Supports port-based VLAN and IEEE802.1Q VLAN
Quality of Service: Four priority queues per port, 802.1p COS and IP Layer TOS/DiffServ
IP address blocking: Support IP address security to prevent unauthorized access
E-mail warning, SMTP: Automatic e-mail warning by pre-defined events
System Event Log: Support both local mode and server mode

Ethernet Performance

Transfer Rate: 14,880 pps for Ethernet port and 148,800 pps for fast Ethernet port
Transfer Packet Size: 64 bytes to 1522 bytes (with VLAN tag)
MAC address: 1K MAC address table
Memory Buffer: 512 Kbits
Back-plane: 1.2 Gbps

Ordering Information

JetBox 9300 RISC, 12~48V DC, 64MB SDRAM

JetBox 9300-w RISC, 12~48V DC, 64MB SDRAM, -40~80°C

Includes:

- JetBox 9300 RISC industrial networking computer
- Serial cable (RJ45 to DB9 male, 150cm) x1
- 4-pin power terminal block
- 10-pin DIO terminal block
- Quick installation guide
- Documentation and software CD-ROM

Optional Accessories

- Additional applications on SD card: SD card capacity is 1G
  SD1G-M Modbus gateway
  Advanced Linux configuration
- 802.11g wireless dongle for advanced Linux users
- Serial cable (RJ45 to DB9 male, 150cm)